N.Y.S. DEPARTMENT OF ENVIRONMENTAL CONSERVATION
NYSDEC Region 2 Headquarters
47-40 21st St
Long Island City NY 11101
(718) 482-4997

SAVE THE TOP HALF OF THIS FORM FOR YOUR RECORDS AND RETURN THE BOTTOM HALF WHEN PROVIDING THE INFORMATION REQUESTED ON THE ACCOMPANYING **NOTICE OF INCOMPLETE APPLICATION.**

YOUR DOING SO WILL HELP US EXPEDITE YOUR PERMIT PROCESSING. THANK YOU.

DEC Contact:	OLABISI KENKU
Batch ID:	829383
Application ID:	2-6007-00259/00033
Owner ID:	19241
Date Received:	05/22/2018
Date Incomplete:	06/21/2018
Application Type:	RTN
Applicant Name:	NYC DEPT OF CORRECTION
Facility Name:	NYC-DOC - RIKERS ISLAND
Project Desc:	ATV REN 3: NYC DOC RIKERS ISLAND

PLEASE PROVIDE REQUESTED INFORMATION ON OR BEFORE:

SAVE THIS PART !

DETACH

N.Y.S. DEPARTMENT OF ENVIRONMENTAL CONSERVATION

NYSDEC Region 2 Headquarters

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Project Desc:	ATV REN 3: NYC DOC RIKERS ISLAND
Information Due On Or Before:	

PLEASE ATTACH THIS HALF SO IT IS DISPLAYED PROMINENTLY ON YOUR RESUBMISSION

RETURN THIS PART !

RETURN THIS HALF OF THIS FORM WHEN PROVIDING THE INFORMATION REQUESTED ON THE ACCOMPANYING

NOTICE OF INCOMPLETE APPLICATION.

New York State Department of Environmental Conservation

Notice of Incomplete Application - This is NOT a Permit

Application ID: 2-6007-00259/00033 *Batch Number*: 829383

Facility: NYC-DOC - RIKERS ISLAND
17-25 HAZEN ST
EAST ELMHURST, NY 11370

Applicant: NYC DEPT OF CORRECTION *Owner ID*: 19241
75-20 ASTORIA BLVD
EAST ELMHURST, NY 11370-3001

Permit(s) Applied for: 1 - Article 19 Air Title V Facility

Project Location: in BRONX in BRONX COUNTY

Your application for Permit is incomplete. The following items are required:

Resubmission

Please provide two hard copies with a searchable electronic (optical character recognition (OCR) compatible) .pdf copy via email or on a CD or flash drive.

NOx-RACT Information

Submit a revised NOx RACT analysis for all boilers and engines which had a NOx RACT variance.

Emission Information

Report the Facility Emission Summary (Section III of the application) in numerical values for PTE and actual emissions instead of range codes.

---

cc: DAR: C. Nirappel, T. John, R. Bolt, S. Lieblich
DEP: S. Watts
AKRF: S. Sharma

Please submit requested information by _____________
No further action can be taken until all of these materials are received.

Contact Person: *Signature:* Olabisi Kenku

OLABISI KENKU
NYSDEC
47-40 21st St
Long Island City, NY 11101

Date: June 21, 2018

Telephone Number: (718) 482-4997

AKRF

Environmental, Planning, and Engineering Consultants
440 Park Avenue South
7th Floor
New York, NY 10016
tel: 212 696-0670
fax: 212 213-3191
www.akrf.com

June 24, 2020

Stephen Watts
Regional Permit Administrator
Division of Air Permits, Region 2
New York State Department of Environmental Conservation
47-40 21st Street
Long Island City, NY 11101

Re: **Department of Corrections, Rikers Island – DECID: 2-6007-00259/00033**
Title V Permit Renewal 3 Application

Dear Mr. Watts:

AKRF, Inc. is enclosing a draft Title V Air Permit renewal 3 application for the Department of Corrections (DOC), Rikers Island facility located at 17-25 Hazen Street in East Elmhurst, NY. This permit is for renewal of the Title V permit, which expired in January 2018.

A renewal application was submitted to the Department on May 1, 2018; AKRF, Inc. received a Notice of Incomplete Application on the renewal application from the Department on July 9, 2018 and August 6, 2018. This revised renewal application addresses all comments received in the two NOIAs and includes a NO_x Reasonable Available Control Technology (RACT) Analysis for the Rikers Island PLM Engines and Boilers, a Lowest Achievable Emissions Rate (LAER) Analysis, a 1-hr NO_2 air dispersion modeling analysis, Use of Emission Reduction Credits (ERC) form, and general updates to the draft permit renewal application forms.

In addition, for the operation of Emission Unit U-00011, 67.6 tons per year of NO_x Emission Reduction Credits (ERCs) are being secured to comply with 6 NYCRR Part 231-6 and 231-10 and Permit Number 2-6007-00259/00033. Information on the source(s) of ERCs, source quantities and other information is provided on the Department Use of ERC form included with the application. The Title V Permit shall be revised to remove the emissions caps applicable to Emission Units 00001, U-00002 and U-00003. Included with this permit renewal application are:

- The permit application forms,
- The Use of ERC form,
- The list of exempt activities,
- The methods used to determine compliance,
- Emissions Calculations,
- NO_x RACT analyses for the PLM Engines and Boilers,
- LAER analysis for the Cogeneration Turbines, and
- 1-hour NO_2 air dispersion modeling analysis report and backup files

We appreciate the Department's review of this permit renewal. Please feel free to contact Jennifer Franco at (914) 922-2366 or me, at (646) 388-9796 or hkearney@akrf.com if you need further information.

Sincerely,

Henry Kearney

Henry Kearney, PE
Senior Vice President

cc: B. Boyer, A. Mahoney, D. MacCormack, S. Yang, H. Saini, A. Aujla, M. Singh, K., C. Clarke/DOC
W. Dickerson, K. He/New York Power Authority
J. Buchok (AECOM)
J. Franco, S. Sharma (AKRF, Inc.)

Department of Environmental Conservation

DEC ID: 2600700259 Application ID: 260070025900033 **Renewal Number: 3**

Facility: NYC-DOC - RIKERS ISLAND Aug 24, 2016 2:04 pm

Section I - Certification

Permit Application Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted.

submitted. Based on my inquiry of the person or persons directly responsible for gathering the information I believe the information is true, accurate and complete. I am aware that there are significant penalties forsubmitting false information,

including the possibility of fines and imprisonment for knowing violations.

Responsible Official Alex Mahoney	Title Executive Director of Facilities
Signature	Date 4/30/2020

Professional Engineer Certification

I certify under penalty of law that I have personally examined, and am familiar with, the statements and information submitted in this document and all its attachments as they pertain to the practice of engineering.

I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Professional Engineer Jennifer M. Franco	NYS License No. 091229
Signature Jennifer M. Franco	Date 6/23/2020

STATE OF NEW YORK
JENNIFER M. FRANCO
LICENSED PROFESSIONAL ENGINEER
091229

NEW YORK STATE | Department of Environmental Conservation

DEC ID: 2600700259 **Application ID:** 260070025900033 **Renewal Number: 3**

Facility: NYC-DOC - RIKERS ISLAND

Aug 24, 2016 2:04 pm

Section II - Identification Information

Permit Type:	Air Title V Facility (ATV)
	RENEWAL
General Permit Title:	

☐ **Application involves construction of new facility** ☐ **Application involves construction of new emission unit(s)**

Owner / Firm

Name	NYC DEPT OF CORRECTION
Street	75-20 ASTORIA BLVD
City	EAST ELMHURST
State	NY
Country	USA
Zip	11370 3001
Owner Classification	Municipal
Taxpayer Id	

Facility

Name	NYC-DOC - RIKERS ISLAND
Address	17-25 HAZEN ST
City	EAST ELMHURST
Zip	11370

Owner / Firm Contact Information

Name	~~GREGORY MCLAUGHLIN~~ Alex Mahoney
Phone No.	7185461429
Affiliation	
Fax No.	
Title	Executive Director of Facilities
Street	NYC DEPARTMENT OF CORRECTION
	13-11 HAZEN ST
City	EAST ELMHURST
State	NY
Country	USA
Zip	11370
E-mail	Alex.Mahoney@doc.nyc.gov

Facility Contact Information

718-546-1941

Name	~~CURTIS PIERRE~~ Donald Keith MacCormack
Phone No.	~~7185461488~~ ^
Affiliation	
Fax No.	
Title	Senior Stationary Engineer
Street	NYC-DOC ~~SUPPORT SERVICES DIVISION~~
	17-25 HAZEN ST
City	EAST ELMHURST
State	NY
Country	USA
Zip	11370
E-mail	~~curtis.pierre@doc.nyc.gov~~ Donald.Maccormack@doc.nyc.gov

Project Description

Application for renewal of Air Title V Facility.

NEW YORK STATE | Department of Environmental Conservation

DEC ID: 2600700259 **Application ID:** 260070025900033 **Renewal Number: 3**

Facility: NYC-DOC - RIKERS ISLAND Aug 24, 2016 2:04 pm

Section III - Facility Information

Classification

[X] **EDUCATIONAL/INSTITUTION**

Affected States

CONNECTICUT	NEW JERSEY

SIC Codes

9223	5541	7532

NAICS Codes

9221

Facility Description

THE NEW YORK CITY DEPARTMENT OF CORRECTION (NYC DOC) MAINTAINS A PRISON FACILITY ON RIKERS ISLAND IN THE EAST RIVER, NEAR BOTH THE BOROUGHS OF QUEENS AND THE BRONX. A POWERHOUSE OPERATES IN A SEPARATE STRUCTURE ON THE ISLAND, PRODUCING STEAM TO PROVIDE HEAT FOR THE ENTIRE ISLAND, AS WELL AS PROCESS STEAM FOR THE LAUNDRY.

THE POWERHOUSE ~~HAs~~ HAS:

1. EIGHT BOILERS WITH A CAPACITY OF 96 MMBTU/HR EACH, FIRING NATURAL GAS OR DISTILLATE OIL AS BACK UP. THE EIGHT BOILERS WERE RETROFITTED WITH LOW NOX BURNERS, UTILIZING NATURAL GAS AS THE PRIMARY FUEL AND #2 FUEL OIL AS BACK UP. THE EIGHT BOILERS EXHAUST THROUGH EMISSION POINTS U00001, U00002, AND U00003.

2. SPRAY PAINT BOOTH (U00009), WHICH IS LOCATED IN THE GARAGE WHERE THE VEHICLES ARE SERVED. THE SPRAY BOOTH IS USED FOR PAINTING REPAIRED PARTS OF BUSES AND VEHICLES FOR THE DOC. THE MAXIMUM ANNUAL EMISSIONS OF VOC FROM THE PAINTING PROCESS ARE LIMITED TO 2.5 TONS PER YEAR.

3. ~~NINETEEN (19) INTERNAL COMBUSTION ENGINES IN A PEAK LOAD MANAGEMENT (PLM) PROGRAM WITH CON EDISON, THE LOCAL UTILITY (U00010). THESE ENGINES, PERMITTED ON 7/17/2007, ARE SUBJECT TO A NOX EMISSION CAP OF 22.5 TONS PER YEAR. FIFTEEN OF THE NINETEEN ENGINES ARE PERMITTED TO OPERATE UNDER NOX RACT VARIANCE EMISSION LIMITS.~~

4. ~~TWO 7.5 MW NATURAL GAS FIRED SIMPLE CYCLE GAS TURBINES EQUIPPED WITH DUCT FIRING HEAT RECOVERY STEAM GENERATORS (HRSGS) AND ONE 2 MW EMERGENCY BLACKSTART ENGINE GENERATOR. THE COGENERATION PLANT IS BEING PERMITTED UNDER NEW EMISSION UNIT U00011. NOX AND PM10 EMISSIONS ARE PROPOSED TO BE CAPPED AT 42.00 TPY AND 15.77 TPY, RESPECTIVELY IN ORDER TO AVOID NANSR AND PSD APPLICABILITY. RELATIVE TO VOC AND PM2.5 TOTAL EMISSIONS ARE LESS THAN 25 TPY AND 100 TPY, RESPECTIVELY, THEREFORE, NANSR IS NOT APPLICABLE TO THESE POLLUTANTS. UNDER 231-6.2, THE FACILITY IS ACCEPTING A PERMIT CONDITION PROHIBITING THE PROPOSED COGENERATION PLANT FROM COMMENCING CONSTRUCTION OF UNTIL AFTER THE CLOSE OF THE CONTEMPORANEOUS PERIOD FOR THE PLM UNITS, WHICH IS 7/17/2012.~~

See below for new #3 and #4 proposed text

Compliance Statements (Title V Only)

I certify that as of the date of this application the facility is in compliance with all applicable requirements [X] **YES** [ ] **NO**

If one or more emission units at the facility are not in compliance with all applicable requirements at the time of signing this application (the 'NO' box must be checked), the noncomplying units must be identified in the "Compliance Plan" block of section IV of this form along with the compliance plan information required. For all emission units at this facility that are operating in compliance with all applicable requirements complete the following:

[X] **This facility will continue to be operated and maintained in such manner as to assure compliance for the duration of the permit, except those units referenced in the compliance plan portion of Section IV of this application.**

[X] **For all emission units, subject to any applicable requirements that will become effective during the term of the permit, this facility will meet all such requirements on a timely basis.**

[X] **Compliance certification reports will be submitted at least once a year. Each report will certify compliance status with respect to each requirement, and the method used to determine status.**

3. NINETEEN (19) INTERNAL COMBUSTION ENGINES (U00010) HAVE THE OPTION TO ENROLL IN A PEAK LOAD MANAGEMENT (PLM) PROGRAM WITH CON EDISON, THE LOCAL UTILITY. THESE NINETEEN (19) ENGINES WERE PERMITTED ON 7/17/2007, AND ARE SUBJECT TO A NOx EMISSION CAP OF 22.5 TONS PER YEAR. FOURTEEN (14) OF THE NINETEEN (19) ENGINES HAVE UNDERGONE NOx STACK TESTING TO DETERMINE COMPLIANCE WITH NOx RACT. FIVE (5) OF THE NINETEEN (19) WERE NOT STACK TESTED AND CANNOT PARTICIPATE IN THE PLM PROGRAM UNTIL THEY ARE STACK TESTED. THE REMAINING FOURTEEN (14) STACK TESTED ENGINES ARE PERMITTED TO OPERATE UNDER NOx RACT VARIANCE EMISSION LIMITS. FOUR (4) OF THE FOURTEEN (14) ENGINES THAT HAVE A NOX RACT VARIANCE WILL NOT OPERATE UNDER PLM PROGRAMS DUE TO THE POTENTIAL FOR EXCEEDANCES OF THE 1-HOUR AVERAGE NO2 NAAQS, AS DETERMINED THROUGH THE AIR DISPERSION MODELING ANALYSIS PERFORMED IN MARCH 2020.

4. TWO 7.5 MW NATURAL GAS-FIRED SIMPLE CYCLE GAS TURBINES EQUIPPED WITH DUCT FIREING HEAT RECOVERY STEAM GENERATORS (HRSGS) AND ONE 1.5 MW EMERGENCY BLACKSTART ENGINE GENERATOR. THE COGENERATION PLANT IS PERMITTED UNDER EMISSION UNIT U00011. NOx EMISSIONS ARE CAPPED AT 52.00 TPY TO COMPLY WITH NANSR AND PSD. ALL OTHER POLLUTANTS ARE IN COMPLIANCE WITH NANSR AND PSD.

Section III - Facility Information
Facility Applicable Federal Requirements

Title	Type	Part	Sub Part	Section	Sub Division	Parag	Sub Parag	Clause	Sub Clause	Item
40	CFR	60	IIII	4211	a					
40	CFR	60	A	7	a					
40	CFR	60	A	7	c					
40	CFR	60	A	8	a					
40	CFR	60	A	8	d					
40	CFR	68								
40	CFR	82	F							
6	NYCRR	200		6						
6	NYCRR	200		7						
6	NYCRR	201	1	7						
6	NYCRR	201	1	8						
6	NYCRR	201	3	2	a					
6	NYCRR	201	3	3	a					
6	NYCRR	202	1	1						
6	NYCRR	202	1	2						
6	NYCRR	202	2	1						
6	NYCRR	202	2	5						
6	NYCRR	211		1						
6	NYCRR	215		2						
6	NYCRR	225		1	a	3				
6	NYCRR	225		7	a					
6	NYCRR	201	6							
40	CFR	63	ZZZZ							

Facility State Only Requirements

Title	Type	Part	Sub Part	Section	Sub Division	Parag	Sub Parag	Clause	Sub Clause	Item
6	NYCRR	211		2						
	ECL	19	0301							

Section III - Facility Information
Facility Compliance Certification

Rule Citation

Title	Type	Part	Sub Part	Section	Sub Division	Parag	Sub Parag	Clause	Sub Clause	Item
6	NYCRR	227	2	4	f	3				

[X] **Applicable Federal Requirement**

Description

Peak Load Management (PLM)

Each stationary internal combustion engine listed may participate in ~~CDRP/PLM~~ program only after demonstrating compliance with NOx emission limit of 2.3 grams per brake horsepower- hour and receiving the Department's approval of the emission test results.

If an engine cannot meet the NOx limit of 2.3 grams/bhp-hr, and still wants to participate in ~~CDRP~~/PLM program, the facility must submit an application for permit modification along with a variance request as per 6 NYCRR Part 227-2.5(c) and Air Guide 20.

Monitoring Performed For

Emission Unit	U00010	Emission Point		Process	GEN	Emission Source	00021

Monitoring Performed For

Emission Unit	U00010	Emission Point		Process	GEN	Emission Source	00023

Monitoring Performed For

Emission Unit	U00010	Emission Point		Process	GEN	Emission Source	00026

Monitoring Performed For

Emission Unit	U00010	Emission Point		Process	GEN	Emission Source	00028

DEC please add here: Emission Unit U00010, Process GEN, Emission Source 00027

Capping	CAS No.	Contaminant Name
[ ]	0NY210-00-0	OXIDES OF NITROGEN

Monitoring Information

[X] **INTERMITTENT EMISSION TESTING**

Work Practice Type	Process Material Code	Process Material Description	Ref Test Method
			40 CFR 60 Appendix A

Parameter Code	Parameter Description	Manufacturer Name/Model No.
0NY210000	OXIDES OF NITROGEN	

Limit Upper	Limit Lower	Limit Units Code	Limit Units Description
2.3		319	grams per brake horsepower-hour

Averaging Method	**Code**	51	**Desc**	1 HOUR MAXIMUM - NOT TO BE EXCEEDED AT ANY TIME
Monitoring Freq	**Code**	17	**Desc**	ONCE DURING THE TERM OF THE PERMIT
Reporting Reqs	**Code**	14	**Desc**	SEMI-ANNUALLY (CALENDAR)

DEC ID: 2600700259 **Application ID:** 260070025900033 **Renewal Number: 3**

Facility: NYC-DOC - RIKERS ISLAND

Aug 24, 2016 2:04 pm

Section III - Facility Information
Facility Compliance Certification

Rule Citation

Title	Type	Part	Sub Part	Section	Sub Division	Parag	Sub Parag	Clause	Sub Clause	Item
6	NYCRR	227	2	5	b					

X **Applicable Federal Requirement**

Description

This condition is effective till July 1, 2014
System-wide averaging of NOx emissions from Rikers Island facility shall be in accordance with the October 5, 2001, Department approved averaging plan submitted by Keyspan. Compliance must be determined on an daily average basis, during ozone season(May 1 through September 30) and on monthly average basis during non ozone season (January 1 through April 30 and October 1 through December 31).

Averaging plan is attached to this permit and constitutes an enforceable part of the permit.

Monitoring Information

X **RECORD KEEPING/MAINTENANCE PROCEDURES**

Work Practice Type	Process Material Code	Process Material Description	Ref Test Method

Parameter Code	Parameter Description	Manufacturer Name/Model No.

Limit Upper	Limit Lower	Limit Units Code	Limit Units Description

Averaging Method	**Code**		**Desc**	
Monitoring Freq	**Code**	05	**Desc**	MONTHLY
Reporting Reqs	**Code**	14	**Desc**	SEMI-ANNUALLY (CALENDAR)

This condition was effective until July 1, 2014 and should be removed from the revised permit as it is no longer applicable.

Section III - Facility Information
Facility Compliance Certification

Rule Citation

Title	Type	Part	Sub Part	Section	Sub Division	Parag	Sub Parag	Clause	Sub Clause	Item
6	NYCRR	227	2	5	c					

X **Applicable Federal Requirement**

Description

This condition becomes effective on or after July 1, 2014
Alternative NOx emissions limit 0.12 lbs/mmbtu applies to eight mid size boilers (Emission Sources: 0001-0008) listed in Emission Unit U-00001, U-00002 and U-00003 as demonstrated in December 2011 and March 2020 NOx RACT ~~analysis.~~ analyses.

Once during the term of the Title V permit, the facility must perform NOx emission stack test, as per Department approved test protocol. Results of the stack test must be submitted to the Department within 60 days after completion of the test.

Monitoring Performed For

Emission Unit	U00001	Emission Point		Process		Emission Source	
~~Emission Unit~~	~~U00001~~	~~Emission Point~~		~~Process~~		~~Emission Source~~	

Monitoring Performed For

~~Emission Unit~~	~~U00002~~	~~Emission Point~~		~~Process~~		~~Emission Source~~	

Monitoring Performed For

~~Emission Unit~~	~~U00003~~	~~Emission Point~~		~~Process~~		~~Emission Source~~	

Monitoring Performed For

Emission Unit	U00001	Emission Point		Process	001	Emission Source	00001

Monitoring Performed For

Emission Unit	U00001	Emission Point		Process	001	Emission Source	00002

Monitoring Performed For

Emission Unit	U00001	Emission Point		Process	001	Emission Source	00003

Monitoring Performed For

Emission Unit	U00001	Emission Point		Process	001	Emission Source	00004

Monitoring Performed For

Emission Unit	U00001	Emission Point		Process	002	Emission Source	00001

Monitoring Performed For

Emission Unit	U00001	Emission Point		Process	002	Emission Source	00002

Monitoring Performed For

Emission Unit	U00001	Emission Point		Process	002	Emission Source	00003

Monitoring Performed For

Emission Unit	U00001	Emission Point		Process	002	Emission Source	00004

Monitoring Performed For

Emission Unit	U00002	Emission Point		Process	003	Emission Source	00005

Section III - Facility Information
Facility Compliance Certification

Monitoring Performed For

Emission Unit	U00002	Emission Point		Process	003	Emission Source	00006

Monitoring Performed For

Emission Unit	U00002	Emission Point		Process	004	Emission Source	00005

Monitoring Performed For

Emission Unit	U00002	Emission Point		Process	004	Emission Source	00006

Monitoring Performed For

Emission Unit	U00003	Emission Point		Process	005	Emission Source	00007

Monitoring Performed For

Emission Unit	U00003	Emission Point		Process	005	Emission Source	00008

Monitoring Performed For

Emission Unit	U00003	Emission Point		Process	006	Emission Source	00007

Monitoring Performed For

Emission Unit	U00003	Emission Point		Process	006	Emission Source	00008

Contaminants

Capping	CAS No.	Contaminant Name
☐	0NY210-00-0	OXIDES OF NITROGEN

Monitoring Information

X INTERMITTENT EMISSION TESTING

Work Practice	Process Material		Ref Test Method
Type	Code	Description	
			40 CFR 60 Appendix A

Parameter		Manufacturer Name/Model No.
Code	Description	

Limit		Limit Units	
Upper	Lower	Code	Description
0.12		7	pounds per million Btus

Averaging Method	Code	51	Desc	1 HOUR MAXIMUM - NOT TO BE EXCEEDED AT ANY TIME
Monitoring Freq	Code	17	Desc	ONCE DURING THE TERM OF THE PERMIT
Reporting Reqs	Code	14	Desc	SEMI-ANNUALLY (CALENDAR)

DEC ID: 2600700259 **Application ID:** 260070025900033 **Renewal Number: 3**

Facility: NYC-DOC - RIKERS ISLAND

Aug 24, 2016 2:04 pm

Section III - Facility Information
Facility Compliance Certification

Rule Citation

Title	Type	Part	Sub Part	Section	Sub Division	Parag	Sub Parag	Clause	Sub Clause	Item
6	NYCRR	227	2	5	c					

X **Applicable Federal Requirement**

Description Emission Sources

The owner or operator must perform an annual tune-up of eight mid-size boilers: ~~0001, 0002, 0003, 0004, 0005, 0006, 0007, and 0008~~. Records of each tune-up must be kept on-site for a minimum of five years.

00001, 00002, 00003, 00004, 00005, 00006, 00007 and 00008.

Monitoring Performed For

Emission Unit	U00001	Emission Point		Process		Emission Source	

Monitoring Performed For

Emission Unit	U00002	Emission Point		Process		Emission Source	

Monitoring Performed For

Emission Unit	U00003	Emission Point		Process		Emission Source	

Monitoring Information

X **RECORD KEEPING/MAINTENANCE PROCEDURES**

Work Practice Type	Process Material Code	Process Material Description	Ref Test Method

Parameter Code	Parameter Description	Manufacturer Name/Model No.

Limit Upper	Limit Lower	Limit Units Code	Limit Units Description

	Code		Desc	
Averaging Method	Code		Desc	
Monitoring Freq	Code	09	Desc	ANNUALLY
Reporting Reqs	Code	14	Desc	SEMI-ANNUALLY (CALENDAR)

Facility Emissions Summary

Cas No.	Contaminant Name	PTE (lbs/yr)	PTE Range	Actual (lbs/yr)
000630-08-0	CARBON MONOXIDE	689,348	F	
007439-92-1	LEAD		Y	
0NY210-00-0	OXIDES OF NITROGEN	956,282	F	
0NY075-00-0	PARTICULATES	120,876	C	
0NY075-00-5	PM-10	120,876	C	
007446-09-5	SULFUR DIOXIDE	21,820	C	
0NY100-00-0	TOTAL HAP		C	
0NY998-00-0	VOC	50,047	B	

Section IV - Emission Unit Information

Emission Unit Description

Emission Unit	U00001

THIS EMISSION UNIT IS COMPRISED OF 4 KEELER 96 MMBTU/HR BOILERS, EACH CAPABLE OF PRODUCING 70,000 LB/HR OF 150 PSI STEAM. EACH BOILER IS RETROFITTED WITH TWO LOW NOX ~~X~~ BURNERS. THE FOUR BOILERS DISCHARGE THROUGH A COMMON STACK. EMISSION SOURCES LISTED UNDER THIS EMISSION UNIT 00001, 00002, 00003 AND 00004 ARE THE BOILERS NUMBERED AS 6,7,8 & 9 IN THE NOX RACT AVERAGING COMPLIANCE PLAN SUBMITTED ON 10/5/01. ~~OPERATION OF THESE FOUR BOILERS IS BEING CURTAILED AND ERCS ARE BEING APPLIED FOR AND USED AS INTERNAL OFFSETS~~.

Building

Building	Building Name	Length	Width	Orient.
14	BOILER PLANT			

Emission Point

Emission Unit	U00001	Emission Pt.	U0001			
Ground Elev (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp (`F)	Cross Section Length (in)	Cross Section Width (in)
15	182	122	123			
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (KM)	NYTM (N) (KM)	Building	Distance to Property Line (ft)	Date of Removal
		593.6	4516.6	14		

Emission Source / Control

Emission Unit	U00001	Emission Source	00001		
Source Type	Date of Construction	Date of Operation	Date of Removal	Manufacturer's Name/Model No.	
C	07/01/1999	04/01/2000		OILER #14599-1 W/TODD VARIFLAME BURNERS (with LOW NOx E	
Design Capacity	96	Units Code	25	Desc	million Btu per hour
Control Type	Code		Desc		
Waste Feed	Code		Desc		
Waste Type	Code		Desc		

Emission Unit	U00001	Emission Source	00002		
Source Type	Date of Construction	Date of Operation	Date of Removal	Manufacturer's Name/Model No.	
C	07/01/1999	04/01/2000		OILER #14599-1 W/TODD VARIFLAME BURNERS (with LOW NOx E	
Design Capacity	96	Units Code	25	Desc	million Btu per hour
Control Type	Code		Desc		
Waste Feed	Code		Desc		
Waste Type	Code		Desc		

DEC ID: 2600700259 **Application ID:** 260070025900033 **Renewal Number: 3**

Facility: NYC-DOC - RIKERS ISLAND Aug 24, 2016 2:04 pm

Section IV - Emission Unit Information

Emission Source / Control

Emission Unit	U00001	Emission Source	00003		
Source Type	**Date of Construction**	**Date of Operation**	**Date of Removal**	**Manufacturer's Name/Model No.**	
C	07/01/1999	04/01/2000		OILER #14599-1 W/TODD VARIFLAME BURNERS (with LOW NOx E	
Design Capacity	96	**Units Code**	25	**Desc**	million Btu per hour
Control Type	**Code**		**Desc**		
Waste Feed	**Code**		**Desc**		
Waste Type	**Code**		**Desc**		

Emission Unit	U00001	Emission Source	00004		
Source Type	**Date of Construction**	**Date of Operation**	**Date of Removal**	**Manufacturer's Name/Model No.**	
C	07/01/1999	04/01/2000		OILER #14599-1 W/TODD VARIFLAME BURNERS (with LOW NOx E	
Design Capacity	96	**Units Code**	25	**Desc**	million Btu per hour
Control Type	**Code**		**Desc**		
Waste Feed	**Code**		**Desc**		
Waste Type	**Code**		**Desc**		

Process Information

Emission Unit	U00001	Process	001			
Source Classification Code (SCC)	**Total Thruput**		**Thruput Quantity Units**			
	Quantity / Hr	**Quantity / Yr**	**Code**	**Description**		
10300602						
☐ Confidential	**Operating Schedule**		**Building**	**Floor / Location**		
☐ Operating At Maximum Capacity	**Hrs / Day**	**Days / Yr**				
	24	345	14			

Description

natural

Firing natural gas in each of the four boilers (001-004), each rated at 96 mmbtu/hr. Backup fuel (only during gas interruption) is #2 fuel oil.

Emission Point Identifier(s)

Emission Source / Control Identifier(s)

00001	00002	00003	00004

00001-00004

Section IV - Emission Unit Information

Process Information

Emission Unit	U00001	Process	002			
Source Classification Code (SCC)	Total Thruput		Thruput Quantity Units			
	Quantity / Hr	Quantity / Yr	Code	Description		
10300502						
☐ Confidential ☐ Operating At Maximum Capacity	Operating Schedule		Building	Floor / Location		
	Hrs / Day	Days / Yr				
	24	365	14			

Description

Firing #2 fuel oil as a backup fuel in the boilers during natural gas interruption.

Emission Point Identifier(s)

Emission Source / Control Identifier(s)

00001	00002	00003	00004

Emission Unit Applicable Federal Requirements

Emission Unit	U-00001	Emission Point		Process		Emission Source				
Title	**Type**	**Part**	**Sub Part**	**Section**	**Sub Division**	**Parag**	**Sub Parag**	**Clause**	**Sub Clause**	**Item**
40	CFR	60	Dc	40c						
40	CFR	60	Dc	46c	d	2				
40	CFR	60	Dc	48c						

Emission Unit	U-00001	Emission Point	U0001	Process		Emission Source				
Title	**Type**	**Part**	**Sub Part**	**Section**	**Sub Division**	**Parag**	**Sub Parag**	**Clause**	**Sub Clause**	**Item**
40	CFR	60	A	13						
40	CFR	60	Dc	45c						
6	NYCRR	227	1	3	a					

Emission Unit	U-00001	Emission Point	U0001	Process	002	Emission Source				
Title	**Type**	**Part**	**Sub Part**	**Section**	**Sub Division**	**Parag**	**Sub Parag**	**Clause**	**Sub Clause**	**Item**
6	NYCRR	227		2	b	1				

Department of Environmental Conservation

DEC ID: 2600700259 **Application ID:** 260070025900033 **Renewal Number: 3**

Facility: NYC-DOC - RIKERS ISLAND

Aug 24, 2016 2:04 pm

Section IV - Emission Unit Information

Emission Unit Compliance Certification

Emission Unit	U-00001	Emission Point		Process		Emission Source	

Rule Citation

Title	Type	Part	Sub Part	Section	Sub Division	Parag	Sub Parag	Clause	Sub Clause	Item
6	NYCRR	231	10	5						

X Applicable Federal Requirement

Description

This condition will become effective upon the commercial operation of cogeneration plant in Emission Unit U-00011.

NOx emission from four boilers in this emission unit U-00001 are limited to 8.00 tons per year. 6.81 tpy NOx ERCs are created for the new cogeneration project in emission unit U-00011 by boiler operation curtailment. The following formula shall be used to calculate the monthly NOx emissions and to demonstrate the compliance with this cap on a rolling 12-month basis:.

X= ((A x B) + (C x D))/2000
where:
X = monthly NOx emissions(tons);
A = the monthly fuel consumption of number 2 oil in the four existing boilers(00001, 00002, 00003, 00004) (1000 gallons)
B = NOx emission factor from the most recent stack (lbs/1000 gallons). This factor is 17.28 lbs/1000 gallon based on a 2007 stack test;
C = the monthly fuel consumption of natural gas in the four existing boilers(mmscf);
D = NOx emission factor from the most recent stack test (lbs/mmscf). This factor is 72.56 lbs/mmscf based on a 2007 stack test;

A rolling 12-month tally shall be maintained to ensure compliance with the 8.00 tpy limit.

Contaminants

Capping	CAS No.	Contaminant Name
☐	0NY210-00-0	OXIDES OF NITROGEN

Monitoring Information

X MONITORING OF PROCESS OR CONTROL DEVICE PARAMETERS AS SURROGATE

Work Practice	Process Material		Ref Test Method
Type	Code	Description	

Parameter		Manufacturer Name/Model No.
Code	Description	
0NY210000	OXIDES OF NITROGEN	

Limit		Limit Units	
Upper	Lower	Code	Description
8.00		38	tons per year

Averaging Method	Code	17	Desc	ANNUAL MAXIMUM ROLLED MONTHLY
Monitoring Freq	Code	05	Desc	MONTHLY
Reporting Reqs	Code	14	Desc	SEMI-ANNUALLY (CALENDAR)

DEC: Please remove this condition since the Boilers no longer have a NOx emission cap.

Section IV - Emission Unit Information

Emission Unit Compliance Certification

Emission Unit	U-00001	Emission Point		Process		Emission Source	

Rule Citation

Title	Type	Part	Sub Part	Section	Sub Division	Parag	Sub Parag	Clause	Sub Clause	Item
6	NYCRR	231	10	5						

X Applicable Federal Requirement

Description

This condition will become effective upon the commercial operation of cogeneration plant in Emission Unit U-00011.

PM-10 emission from four boilers in this emission unit U-00001 are limited to 1.1 tons per year. 1.14 tpy of PM-10 ERCs are created for the new cogeneration project in emission unit U-00011 by boiler operation curtailment. The following formula shall be used to calculate the monthly PM-10 emissions and to demonstrate compliance with this cap on a rolling 12-month basis:

X= ((A x B) + (C x D))/2000
where:
X = monthly PM-10 emissions(tons);
A = the monthly fuel consumption of number 2 oil in the four existing boilers(00001, 00002, 00003, 00004) (1000 gallons)
B = PM 10 AP 42 Emission Factor (lbs/1000 gallons);
C = the monthly fuel consumption of natural gas in the four existing boilers(mmscf);
D = PM-10 AP 42 Emission Factor (lbs/1000 gallons);

A rolling 12-month tally will be maintained to ensure compliance with the 1.1 tpy limit.

Contaminants

Capping	CAS No.	Contaminant Name
☐	0NY075-00-5	PM-10

Monitoring Information

X MONITORING OF PROCESS OR CONTROL DEVICE PARAMETERS AS SURROGATE

Work Practice		Process Material		Ref Test Method
Type	Code	Description		

Parameter		Manufacturer Name/Model No.
Code	Description	
0NY075005	PM-10	

Limit		Limit Units	
Upper	Lower	Code	Description
1.1		38	tons per year

Averaging Method	Code	17	Desc	ANNUAL MAXIMUM ROLLED MONTHLY
Monitoring Freq	Code	05	Desc	MONTHLY
Reporting Reqs	Code	14	Desc	SEMI-ANNUALLY (CALENDAR)

DEC: Please remove this condition since the Boilers no longer have a PM10 emission cap.

Section IV - Emission Unit Information

Emission Unit Compliance Certification

Emission Unit	U-00001	Emission Point	U0001	Process		Emission Source	

Rule Citation

Title	Type	Part	Sub Part	Section	Sub Division	Parag	Sub Parag	Clause	Sub Clause	Item
6	NYCRR	227	1	4	b					

X **Applicable Federal Requirement**

Description

Each owner or operator required to operate a Continuous Opacity Monitoring System (COMS) in accordance with subdivision (a) of this section shall submit an accurate excess emissions and monitoring system performance report to the department for each calendar year quarter. All reports shall be certified by a responsible corporate official as true, accurate and complete and postmarked by the 60th day following the end of each calendar quarter. The quarterly excess emissions report shall be submitted in a form acceptable to the department and shall include the following minimum information:

(1) the magnitude, date and time of each six minute block average during which the average opacity of emissions exceeds 20 percent, except for one six minute block average per hour not to exceed 27 percent;

(2) for each period of excess emission, specific identification of the cause and corrective action taken;

(3) identification of all periods of COMS downtime, including the date, time and duration of each inoperable period, and the cause and corrective action for each COMS downtime period;

(4) the total time in which the COMS are required to record data during the reporting period;

(5) the total number of exceedences and the duration of exceedences expressed as a percentage of the total time in which the COMS are required to record data; and

(6) such other things as the department may deem necessary, proper or desirable in order to enforce article 19 of the Environmental Conservation Law or the rules promulgated thereunder.

Monitoring Information

X **MONITORING OF PROCESS OR CONTROL DEVICE PARAMETERS AS SURROGATE**

Work Practice Type	Process Material Code	Process Material Description	Ref Test Method

Parameter Code	Parameter Description	Manufacturer Name/Model No.
01	OPACITY	

Limit Upper	Limit Lower	Limit Units Code	Limit Units Description
20		136	percent

Averaging Method	**Code**	44	**Desc**	6 MINUTE AVERAGE
Monitoring Freq	**Code**	01	**Desc**	CONTINUOUS
Reporting Reqs	**Code**	13	**Desc**	QUARTERLY (CALENDAR)

Section IV - Emission Unit Information

Emission Unit Emissions Summary

Emission Unit	U-00001			
CAS No.	Contaminant Name			
0NY210-00-0	OXIDES OF NITROGEN			
ERP (lb/yr)	PTE (lb/hr)	PTE (lb/yr)	Actual (lb/hr)	Actual (lb/yr)
16000	31.3	16000		

Emission Unit	U-00001			
CAS No.	Contaminant Name			
0NY075-00-5	PM-10			
ERP (lb/yr)	PTE (lb/hr)	PTE (lb/yr)	Actual (lb/hr)	Actual (lb/yr)
2204	4.31	2204		

DEC: Please remove these emission limits for the boilers since they are not required to have an emission cap.

Section IV - Emission Unit Information

Emission Unit Description

Emission Unit	U00002

THIS EMISSION UNIT IS COMPRISED OF 2 KEELER 96 MMBTU/HR BOILERS, EACH CAPABLE OF PRODUCING 70,000 LB/HR OF 150 PSI STEAM. EACH BOILER IS RETROFITTED WITH TWO LOW NOX BURNERS. THE TWO BOILERS DISCHARGE THROUGH A COMMON STACK. EMISSION SOURCES LISTED UNDER THIS EMISSION UNIT 00005 AND 00006 ARE THE BOILERS NUMBERED AS 2 & 3 IN THE NOX RACT AVERAGING COMPLIANCE PLAN SUBMITTED ON 10/5/01. ~~OPERATION OF THESE TWO BOILERS IS BEING CURTAILED AND ERCS ARE BEING APPLIED FOR AND USED AS INTERNAL OFFSETS.~~

Building

Building	Building Name	Length	Width	Orient.
14	BOILER PLANT			

Emission Point

Emission Unit	U00002	Emission Pt.	U0002			
Ground Elev (ft)	**Height (ft)**	**Height Above Structure (ft)**	**Inside Diameter (in)**	**Exit Temp (`F)**	**Cross Section Length (in)**	**Cross Section Width (in)**
15	185	125	123			
Exit Velocity (FPS)	**Exit Flow (ACFM)**	**NYTM (E) (KM)**	**NYTM (N) (KM)**	**Building**	**Distance to Property Line (ft)**	**Date of Removal**
		593.6	4516.6	14		

Emission Source / Control

Emission Unit	U00002	Emission Source	00005		
Source Type	**Date of Construction**	**Date of Operation**	**Date of Removal**	**Manufacturer's Name/Model No.**	
C	07/01/1999	04/01/2000		OILER #14599-1 W/TODD VARIFLAME BURNERS (with LOW NOx E	
Design Capacity	96	**Units Code**	25	**Desc**	million Btu per hour
Control Type	**Code**		**Desc**		
Waste Feed	**Code**		**Desc**		
Waste Type	**Code**		**Desc**		

Emission Unit	U00002	Emission Source	00006		
Source Type	**Date of Construction**	**Date of Operation**	**Date of Removal**	**Manufacturer's Name/Model No.**	
C	07/01/1999	04/01/2000		OILER #14599-1 W/TODD VARIFLAME BURNERS (with LOW NOx E	
Design Capacity	96	**Units Code**	25	**Desc**	million Btu per hour
Control Type	**Code**		**Desc**		
Waste Feed	**Code**		**Desc**		
Waste Type	**Code**		**Desc**		

Section IV - Emission Unit Information

Process Information

Emission Unit	U00002	Process	003		
Source Classification Code (SCC)	Total Thruput Quantity / Hr	Total Thruput Quantity / Yr	Thruput Quantity Units Code	Thruput Quantity Units Description	
10300602					
☐ Confidential ☐ Operating At Maximum Capacity	Operating Schedule Hrs / Day	Operating Schedule Days / Yr	Building	Floor / Location	
	24	345	14		

Description

Firing natural gas in each of the two boilers (005-006, each rated at 96 mmbtu/hr. Backup fuel (only during gas interruption) is #2 fuel oil.

00005-00006

Emission Point Identifier(s)

Emission Source / Control Identifier(s)

00005	00006

Emission Unit	U00002	Process	004		
Source Classification Code (SCC)	Total Thruput Quantity / Hr	Total Thruput Quantity / Yr	Thruput Quantity Units Code	Thruput Quantity Units Description	
10300502					
☐ Confidential ☒ Operating At Maximum Capacity	Operating Schedule Hrs / Day	Operating Schedule Days / Yr	Building	Floor / Location	
	24	365	14		

Description

Firing #2 fuel oil as backup fuel in the two boilers during gas interruption.

Emission Point Identifier(s)

Emission Source / Control Identifier(s)

00005	00006

Emission Unit Applicable Federal Requirements

Emission Unit	U-00002	Emission Point		Process		Emission Source				
Title	**Type**	**Part**	**Sub Part**	**Section**	**Sub Division**	**Parag**	**Sub Parag**	**Clause**	**Sub Clause**	**Item**
40	CFR	60	Dc	40c						
40	CFR	60	Dc	46c	d	2				
40	CFR	60	Dc	48c						

Section IV - Emission Unit Information

Emission Unit Applicable Federal Requirements

Emission Unit	U-00002	Emission Point	U0002	Process		Emission Source				
Title	**Type**	**Part**	**Sub Part**	**Section**	**Sub Division**	**Parag**	**Sub Parag**	**Clause**	**Sub Clause**	**Item**
40	CFR	60	Dc	45c						
6	NYCRR	227	1	3	a					

Emission Unit	U-00002	Emission Point	U0002	Process	004	Emission Source				
Title	**Type**	**Part**	**Sub Part**	**Section**	**Sub Division**	**Parag**	**Sub Parag**	**Clause**	**Sub Clause**	**Item**
6	NYCRR	227		2	b	1				

DEC ID: 2600700259 **Application ID:** 260070025900033 **Renewal Number: 3**

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Section IV - Emission Unit Information

Emission Unit Compliance Certification

Emission Unit	U-00002	Emission Point		Process		Emission Source	

Rule Citation

Title	Type	Part	Sub Part	Section	Sub Division	Parag	Sub Parag	Clause	Sub Clause	Item
6	NYCRR	231	10	5						

X Applicable Federal Requirement

Description

This condition will become effective upon the commercial operation of cogeneration plant in Emission Unit U-00011.

PM-10 emission from four boilers in this emission unit U-00002 are limited to 0.28 tons per year. 1.05 tpy PM-10 ERCs are created for the new cogeneration project in emission unit U-00011 by boiler operation curtailment. The following formula shall be used to calculate the monthly PM-10 emissions and to demonstrate compliance with this cap on a rolling 12-month basis:

X= ((A x B) + (C x D))/2000
where:
X = monthly PM-10 emissions(tons);
A = the monthly fuel consumption of number 2 oil in the two existing boilers (00005, 00006) (1000 gallons);
B = PM-10 AP 42 Emission Factor (lbs/1000 gallons);
C = the monthly fuel consumption of natural gas in the two existing boilers(mmscf);
D = PM-10 AP 42 Emission Factor (lbs/1000 gallons);
A rolling 12-month tally will be maintained to ensure compliance with the 0.28 tpy limit.

Contaminants

Capping	CAS No.	Contaminant Name
☐	0NY075-00-5	PM-10

Monitoring Information

X MONITORING OF PROCESS OR CONTROL DEVICE PARAMETERS AS SURROGATE

Work Practice Type	Process Material Code	Process Material Description	Ref Test Method

Parameter Code	Parameter Description	Manufacturer Name/Model No.
0NY075005	PM-10	

Limit Upper	Limit Lower	Limit Units Code	Limit Units Description
0.28		38	tons per year

Averaging Method	Code	17	Desc	ANNUAL MAXIMUM ROLLED MONTHLY
Monitoring Freq	Code	05	Desc	MONTHLY
Reporting Reqs	Code	14	Desc	SEMI-ANNUALLY (CALENDAR)

DEC: Please remove this section since the Boilers no longer have a PM10 emission cap.

Section IV - Emission Unit Information

Emission Unit Compliance Certification

Emission Unit	U-00002	Emission Point		Process		Emission Source	

Rule Citation

Title	Type	Part	Sub Part	Section	Sub Division	Parag	Sub Parag	Clause	Sub Clause	Item
6	NYCRR	231	10	5						

X **Applicable Federal Requirement**

Description

This condition will become effective upon the commercial operation of cogeneration plant in Emission Unit U-00011.

NOx emission from two boilers in this emission unit U-00002 are limited to 2.00 tons per year. 6.83 tpy NOx ERCs are created for the new cogeneration project in emission unit U-00011 by boiler operation curtailment. The following formula shall be used to calculate the monthly NOx emissions and to demonstrate the compliance with this cap on a rolling 12-month basis:

X= ((A x B) + (C x D))/2000
where:
X = monthly NOx emissions(tons);
A = the monthly fuel consumption of number 2 oil in the two existing boilers (00005, 00006) (1000 gallons)
B = NOx emission factor from the most recent stack (lbs/1000 gallons). This factor is 17.28 lbs/1000 gallon based on a 2007 stack test;
C = the monthly fuel consumption of natural gas in the two existing boilers(mmscf);
D = NOx emission factor from the most recent stack test (lbs/mmscf). This factor is 72.56 lbs/mmscf based on a 2007 stack test;

A rolling 12-month tally will be maintained to ensure compliance with the 2.00 tpy limit.

Contaminants

Capping	CAS No.	Contaminant Name
☐	0NY210-00-0	OXIDES OF NITROGEN

Monitoring Information

X **MONITORING OF PROCESS OR CONTROL DEVICE PARAMETERS AS SURROGATE**

Work Practice	Process Material		Ref Test Method
Type	Code	Description	

Parameter		Manufacturer Name/Model No.
Code	Description	
0NY210000	OXIDES OF NITROGEN	

Limit		Limit Units	
Upper	Lower	Code	Description
2.00		38	tons per year

Averaging Method	Code	17	Desc	ANNUAL MAXIMUM ROLLED MONTHLY
Monitoring Freq	Code	05	Desc	MONTHLY
Reporting Reqs	Code	14	Desc	SEMI-ANNUALLY (CALENDAR)

DEC: Please remove this section since the Boilers no longer have a NOx emission cap.

DEC ID: 2600700259 **Application ID:** 260070025900033 **Renewal Number: 3**

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Section IV - Emission Unit Information

Emission Unit Emissions Summary

Emission Unit	U-00002			
CAS No.	**Contaminant Name**			
0NY210-00-0	OXIDES OF NITROGEN			
ERP (lb/yr)	**PTE (lb/hr)**	**PTE (lb/yr)**	**Actual (lb/hr)**	**Actual (lb/yr)**
4000	24.04	4000		

Emission Unit	U-00002			
CAS No.	**Contaminant Name**			
0NY075-00-5	PM-10			
ERP (lb/yr)	**PTE (lb/hr)**	**PTE (lb/yr)**	**Actual (lb/hr)**	**Actual (lb/yr)**
551	3.31	551		

DEC: Please remove these emission limits for the boilers since they are no longer required to have an emission cap.

Section IV - Emission Unit Information

Emission Unit Description

Emission Unit	U00003

THIS EMISSION UNIT IS COMPRISED OF ONE KEELER 96 MMBTU/HR BOILER, AND ONE UNION IRON WORKS BOILER, EACH CAPABLE OF PRODUCING 70,000 LB/HR OF 150 PSI STEAM. EACH BOILER IS RETROFITTED WITH TWO LOW NOX BURNERS. THE TWO BOILERS DISCHARGE THROUGH A COMMON STACK. EMISSION SOURCES LISTED UNDER THIS EMISSION UNIT, 00007, 00008 ARE THE BOILERS NUMBERED AS 4 & 5 IN THE NOX RACT AVERAGING COMPLIANCE PLAN SUBMITTED ON 10/5/01. ~~OPERATION OF THESE TWO BOILERS IS BEING CURTAILED AND ERCS ARE BEING APPLIED FOR AND USED AS INTERNAL OFFSETS.~~

Building

Building	Building Name	Length	Width	Orient.
14	BOILER PLANT			

Emission Point

Emission Unit	U00003	Emission Pt.	U0003			
Ground Elev (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp (`F)	Cross Section Length (in)	Cross Section Width (in)
15	170	110	84			
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (KM)	NYTM (N) (KM)	Building	Distance to Property Line (ft)	Date of Removal
		593.6	4516.6	14		

Emission Source / Control

Emission Unit	U00003	Emission Source	00007		
Source Type	Date of Construction	Date of Operation	Date of Removal	Manufacturer's Name/Model No.	
C	07/01/1999	04/01/2000		OILER #14599-1 W/TODD VARIFLAME BURNERS (with LOW NOx E	
Design Capacity	96	Units Code	143	Desc	million BTUs per hour
Control Type	Code		Desc		
Waste Feed	Code		Desc		
Waste Type	Code		Desc		

Emission Unit	U00003	Emission Source	00008		
Source Type	Date of Construction	Date of Operation	Date of Removal	Manufacturer's Name/Model No.	
C	07/01/1999	04/01/2000		N WORKS BOILER NB3618-90520 W/TODD BURNERS (2 LOW NO:	
Design Capacity	96	Units Code	25	Desc	million Btu per hour
Control Type	Code		Desc		
Waste Feed	Code		Desc		
Waste Type	Code		Desc		

Section IV - Emission Unit Information

Process Information

Emission Unit	U00003	Process	005		
Source Classification Code (SCC)	Total Thruput		Thruput Quantity Units		
	Quantity / Hr	Quantity / Yr	Code	Description	
10300602					
☐ Confidential ☐ Operating At Maximum Capacity	Operating Schedule		Building	Floor / Location	
	Hrs / Day	Days / Yr			
	24	345	14		

Description

Firing natural gas.

Emission Point Identifier(s)

Emission Source / Control Identifier(s)	
00007	00008

Emission Unit	U00003	Process	006		
Source Classification Code (SCC)	Total Thruput		Thruput Quantity Units		
	Quantity / Hr	Quantity / Yr	Code	Description	
10300502					
☐ Confidential ☐ Operating At Maximum Capacity	Operating Schedule		Building	Floor / Location	
	Hrs / Day	Days / Yr			
	24	365	14		

Description

Firing #2 fuel oil as backup fuel during gas interruption.

Emission Point Identifier(s)

Emission Source / Control Identifier(s)	
00007	00008

Emission Unit Applicable Federal Requirements

Emission Unit	U-00003		Emission Point			Process		Emission Source		
Title	Type	Part	Sub Part	Section	Sub Division	Parag	Sub Parag	Clause	Sub Clause	Item
40	CFR	60	Dc	40c						
40	CFR	60	Dc	46c	d	2				
40	CFR	60	Dc	48c						

Section IV - Emission Unit Information

Emission Unit Applicable Federal Requirements

Emission Unit	U-00003	Emission Point	U0003	Process		Emission Source				
Title	**Type**	**Part**	**Sub Part**	**Section**	**Sub Division**	**Parag**	**Sub Parag**	**Clause**	**Sub Clause**	**Item**
40	CFR	60	Dc	45c						
6	NYCRR	227	1	3	a					

Emission Unit	U-00003	Emission Point	U0003	Process	006	Emission Source				
Title	**Type**	**Part**	**Sub Part**	**Section**	**Sub Division**	**Parag**	**Sub Parag**	**Clause**	**Sub Clause**	**Item**
6	NYCRR	227		2	b	1				

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Section IV - Emission Unit Information

Emission Unit Compliance Certification

Emission Unit	U-00003	Emission Point		Process		Emission Source	

Rule Citation

Title	Type	Part	Sub Part	Section	Sub Division	Parag	Sub Parag	Clause	Sub Clause	Item
6	NYCRR	231	10	5						

X **Applicable Federal Requirement**

Description

This condition will become effective upon the commercial operation of cogeneration plant in Emission Unit U-00011.

NOx emissions from two boilers in this emission unit U-00003 are limited to 1.00 tons per year. 3.93 tpy NOx ERCs are created for the new cogeneration project in emission unit U-00011 by boiler operation curtailment. The following formula shall be used to calculate the monthly NOx emissions and to demonstrate the compliance with this cap on a rolling 12-month basis:.

X= ((A x B) + (C x D))/2000
where:
X = monthly NOx emissions(tons);
A = the monthly fuel consumption of number 2 oil in the two existing boilers(00007, 00008) (1000 gallons)
B = NOx emission factor from the most recent stack (lbs/1000 gallons). This factor is 17.28 lbs/1000 gallon based on a 2007 stack test;
C = the monthly fuel consumption of natural gas in the two existing boilers (mmscf);
D = NOx emission factor from the most recent stack test (lbs/mmscf). This factor is 72.56 lbs/mmscf based on a 2007 stack test;

A rolling 12-month tally shall be maintained to ensure compliance with the 1.00 tpy limit.

Contaminants

Capping	CAS No.	Contaminant Name
☐	0NY210-00-0	OXIDES OF NITROGEN

Monitoring Information

X **MONITORING OF PROCESS OR CONTROL DEVICE PARAMETERS AS SURROGATE**

Work Practice Type	Process Material Code	Process Material Description	Ref Test Method

Parameter Code	Parameter Description	Manufacturer Name/Model No.
0NY210000	OXIDES OF NITROGEN	

Limit Upper	Limit Lower	Limit Units Code	Limit Units Description
1.00		38	tons per year

Averaging Method	**Code**	17	**Desc**	ANNUAL MAXIMUM ROLLED MONTHLY
Monitoring Freq	**Code**	05	**Desc**	MONTHLY
Reporting Reqs	**Code**	14	**Desc**	SEMI-ANNUALLY (CALENDAR)

DEC: Please remove this section since the Boilers no longer have a NOx emission cap.

Section IV - Emission Unit Information

Emission Unit Compliance Certification

Emission Unit	U-00003	Emission Point		Process		Emission Source	

Rule Citation

Title	Type	Part	Sub Part	Section	Sub Division	Parag	Sub Parag	Clause	Sub Clause	Item
6	NYCRR	231	10	5						

X **Applicable Federal Requirement**

Description

This condition will become effective upon the commercial operation of cogeneration plant in Emission Unit U-00001.

PM-10 emissions from two boilers in this emission unit U-00003 are limited to 0.14 tons per year. 0.60 tpy PM-10 ERCs are created for the new cogeneration project in emission unit U-00011 by boiler operation curtailment. The following formula shall be used to calculate the monthly PM-10 emissions and to demonstrate compliance with this cap on a rolling 12-month basis:

X= ((A x B) + (C x D))/2000
where:
X = monthly PM-10 emissions(tons);
A = the monthly fuel consumption of number 2 oil in the two existing boilers (00007, 00008) (1000 gallons)
B = PM-10 AP 42 Emission Factor (lbs/1000 gallons);
C = the monthly fuel consumption of natural gas in the two existing boilers(mmscf);
D = PM-10 AP 42 Emission Factor (lbs/1000 gallons);

A rolling 12-month tally will be maintained to ensure compliance with the 0.14 tpy

Contaminants

Capping	CAS No.	Contaminant Name
☐	0NY075-00-5	PM-10

Monitoring Information

X **MONITORING OF PROCESS OR CONTROL DEVICE PARAMETERS AS SURROGATE**

Work Practice Type	Process Material Code	Process Material Description	Ref Test Method

Parameter Code	Parameter Description	Manufacturer Name/Model No.
0NY075005	PM-10	

Limit Upper	Limit Lower	Limit Units Code	Limit Units Description
0.14		38	tons per year

Averaging Method	Code	17	Desc	ANNUAL MAXIMUM ROLLED MONTHLY
Monitoring Freq	Code	05	Desc	MONTHLY
Reporting Reqs	Code	14	Desc	SEMI-ANNUALLY (CALENDAR)

DEC: Please remove this section since the Boilers no longer have a PM10 emission cap.

Section IV - Emission Unit Information

Emission Unit Emissions Summary

Emission Unit	U-00003			
CAS No.	**Contaminant Name**			
0NY210-00-0	OXIDES OF NITROGEN			
ERP (lb/yr)	**PTE (lb/hr)**	**PTE (lb/yr)**	**Actual (lb/hr)**	**Actual (lb/yr)**
2000	12.02	2000		

Emission Unit	U-00003			
CAS No.	**Contaminant Name**			
0NY075-00-5	PM-10			
ERP (lb/yr)	**PTE (lb/hr)**	**PTE (lb/yr)**	**Actual (lb/hr)**	**Actual (lb/yr)**
275	1.66	275		

DEC: Please remove these emission limits for the boilers since they are no longer required to have an emission cap.

DEC ID: 2600700259 **Application ID:** 260070025900033 **Renewal Number: 3**

Facility: NYC-DOC - RIKERS ISLAND Aug 24, 2016 2:04 pm

Section IV - Emission Unit Information

Emission Unit Description

Emission Unit	U00009

A spray paint booth has been installed in the garage for motor vehicle refinishing. The spray paint booth is used 4 hrs/day, 235 days/yr. Emission exhaust stack will be located above the roof of the garage.

Building

Building	Building Name	Length	Width	Orient.
GARAGE	GARAGE	300	200	

Emission Point

Emission Unit	U00009	Emission Pt.	00009			
Ground Elev (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp (`F)	Cross Section Length (in)	Cross Section Width (in)
12	30	6	48	68		
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (KM)	NYTM (N) (KM)	Building	Distance to Property Line (ft)	Date of Removal
34	25600	594	4516.2			

Emission Source / Control

Emission Unit	U00009	Emission Source	0000P		
Source Type	Date of Construction	Date of Operation	Date of Removal	Manufacturer's Name/Model No.	
I	02/01/2003			Megatron, Semi down Draft, Drive thru Type	
Design Capacity		Units Code		Desc	
Control Type	Code		Desc		
Waste Feed	Code		Desc		
Waste Type	Code		Desc		

Process Information

Emission Unit	U00009	Process	00P	
Source Classification Code (SCC)	Total Thruput Quantity / Hr	Total Thruput Quantity / Yr	Thruput Quantity Units Code	Thruput Quantity Units Description
40200110				

☐ Confidential ☐ Operating At Maximum Capacity	Operating Schedule Hrs / Day	Operating Schedule Days / Yr	Building	Floor / Location
			GARAGE	first

Description

Paint spay booth operation.

Emission Point Identifier(s)

Emission Source / Control Identifier(s)
0000P

Section IV - Emission Unit Information

Emission Unit Compliance Certification

Emission Unit	U-00009	Emission Point		Process		Emission Source	

Rule Citation

Title	Type	Part	Sub Part	Section	Sub Division	Parag	Sub Parag	Clause	Sub Clause	Item
6	NYCRR	231	2							

X Applicable Federal Requirement

Description

The volatile organic compounds from the spray booth operation should be limited to 2.5 tons per year. Records, including but not limited to purchase and usage records of paints and solvents should be kept at the facility to verify the compliance.

Contaminants

Capping	CAS No.	Contaminant Name
☐	0NY998-00-0	VOC

Monitoring Information

X WORK PRACTICE INVOLVING SPECIFIC OPERATIONS

Work Practice Type	Process Material Code	Process Material Description	Ref Test Method
03	115	COATING	

Parameter Code	Parameter Description	Manufacturer Name/Model No.

Limit Upper	Limit Lower	Limit Units Code	Limit Units Description
2.5		38	tons per year

Averaging Method	**Code**	17	**Desc**	ANNUAL MAXIMUM ROLLED MONTHLY
Monitoring Freq	**Code**	05	**Desc**	MONTHLY
Reporting Reqs	**Code**	14	**Desc**	SEMI-ANNUALLY (CALENDAR)

Attached condition # 69 on the next page (marked in red box) should be included in the renewal application under Compliance Certification.

Process Emissions Summary

Emission Unit	U-00009	Process	00P

CAS No.	Contaminant Name	% of Thruput	% of Capture	% of Control	ERP (lb/hr)	ERP How Determined
0NY998-00-0	VOC				2.6	02

PTE (lb/hr)	PTE (lb/yr)	PTE (standard units)	Standard Units	PTE How Determined	Actual (lb/hr)	Actual (lb/yr)
2.6	5000			02		

CAS No: 0NY998-00-0 VOC

Item 68.2:
Compliance Certification shall include the following monitoring:

Monitoring Type: RECORD KEEPING/MAINTENANCE PROCEDURES
Monitoring Description:
Volatile organic compounds(VOC) content (as applied, minus water and exempt VOC) in automobile, truck or bus coating, including but not limited to: repair coats, repainting and touch-ups, shall not exceed the following;

Repair/touch ups 6.2 pounds per gallon
Overall (coating entire vehicle) 5 pounds/gallon

Monitoring Frequency: AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION
Averaging Method: MAXIMUM - NOT TO BE EXCEEDED AT ANY TIME (INSTANTANEOUS/DISCRETE OR GRAB)
Reporting Requirements: SEMI-ANNUALLY (CALENDAR)
Reports due 30 days after the reporting period.
The initial report is due 4/30/2013.
Subsequent reports are due every 6 calendar month(s).

Condition # 69 should be included under compliance Certification for Emission Unit U-00009 (Spray Booth)

Condition 69: Compliance Certification
Effective between the dates of 01/03/2013 and 01/02/2018

Applicable Federal Requirement:~~6 NYCRR 228-1.8~~
6 NYCRR 228-1.4(a)(2)

Item 69.1:
The Compliance Certification activity will be performed for:

Emission Unit: U-00009 Emission Point: 00009
Process: 00P Emission Source: 0000P

Regulated Contaminant(s):
CAS No: 0NY998-00-0 VOC

Item 69.2:
Compliance Certification shall include the following monitoring:

Monitoring Type: RECORD KEEPING/MAINTENANCE PROCEDURES
Monitoring Description:
Pounds per gallon of Volatile organic compounds(VOC) content (as applied, minus water and exempt VOC) in mobile equipment repair and refinishing or color-matched coating line including repainting and repair coats, excluding automotive touch-up repair shall not exceed the following:

Automotive pretreatment primer 6.5
Automotive primer-surfacer 4.8
Automotive primer-sealer 4.6
Automotive topcoat: Single stage-topcoat 5.0
2 stage basecoat/clear coat 5.0
3 or 4-stage basecoat/clearcoat 5.2
Multi-colored 5.7
Automotive specialty 7.0

Monitoring Frequency: AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION
Averaging Method: MAXIMUM - NOT TO BE EXCEEDED AT ANY TIME (INSTANTANEOUS/DISCRETE OR GRAB)
Reporting Requirements: SEMI-ANNUALLY (CALENDAR)
Reports due 30 days after the reporting period.
The initial report is due 4/30/2013.
Subsequent reports are due every 6 calendar month(s).

Condition 70: Compliance Certification
Effective between the dates of 01/03/2013 and 01/02/2018

Applicable Federal Requirement:6 NYCRR 227-1.3 (a)

Item 70.1:
The Compliance Certification activity will be performed for the facility:
The Compliance Certification applies to:

Emission Unit: U-00010	Emission Point: 00010
Emission Unit: U-00010	Emission Point: 00011
Emission Unit: U-00010	Emission Point: 00012
Emission Unit: U-00010	Emission Point: 00013
Emission Unit: U-00010	Emission Point: 00014
Emission Unit: U-00010	Emission Point: 00015
Emission Unit: U-00010	Emission Point: 00016
Emission Unit: U-00010	Emission Point: 00017
Emission Unit: U-00010	Emission Point: 00018
Emission Unit: U-00010	Emission Point: 00019
Emission Unit: U-00010	Emission Point: 00020
Emission Unit: U-00010	Emission Point: 00021

Section IV - Emission Unit Information

Emission Unit Emissions Summary

Emission Unit	U-00009			
CAS No.		**Contaminant Name**		
0NY998-00-0		VOC		
ERP (lb/yr)	**PTE (lb/hr)**	**PTE (lb/yr)**	**Actual (lb/hr)**	**Actual (lb/yr)**
22776	2.6	5000		5000

Section IV - Emission Unit Information

Emission Unit Description

Emission Unit	U00010

This unit consists of nineteen (19) generators (four 1100 KW, two 800 KW, three 900KW, one 625 KW, and nine 1150 KW), which ~~are~~ have the option of enrolling in ~~permitted to participate in NYPA sponsored CDRP~~/PLM programs during the power peak seasons at NOx emission rate of 2.3 gm/bhp-hr. Fourteen (14) ~~Fifteen(15)~~ of these generators were tested in ~~May 2008 which~~ August and September 2018., and performed at above 2.3 gm/bhp-hr and below ~~9.0~~ 9.2 gm/bhp-hr. ~~PM emissions were below 0.1 lbs/mmbtu~~. The emission factors used in calculating below emissions are tested values (NOx only). For the ~~four(4)~~ five (5) generators are not tested, the factor used is ~~9.0~~ 9.2 gm/bhp-hr. Testing of these ~~four~~ five generators will be performed at a later date based on DEC's approval and will not participate in PLM/~~CDRP~~ until a variance/approval is sought. Also note that each generator has individual exhaust.

Building

Building	Building Name	Length	Width	Orient.
GRVC	GEORGE R. VEIRNO CENTER			
OBCC	OTIS BANTUM CORRECTIONAL CENTER			
RMSC	ROSE M. SINGER CENTER			
WF	WEST FACILITY, BY LOCKER-ROOM			

Emission Point

Emission Unit	U00010	Emission Pt.	00010			
Ground Elev (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp (˚F)	Cross Section Length (in)	Cross Section Width (in)
15	110	0	10	800		
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (KM)	NYTM (N) (KM)	Building	Distance to Property Line (ft)	Date of Removal
172	5621	593.6	4516.6	GRVC		

Emission Unit	U00010	Emission Pt.	00011			
Ground Elev (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp (˚F)	Cross Section Length (in)	Cross Section Width (in)
15	110	0	10	800		
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (KM)	NYTM (N) (KM)	Building	Distance to Property Line (ft)	Date of Removal
172	5621	593.6	4516.6	GRVC		

Emission Unit	U00010	Emission Pt.	00012			
Ground Elev (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp (˚F)	Cross Section Length (in)	Cross Section Width (in)
15	110	0	10	800		
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (KM)	NYTM (N) (KM)	Building	Distance to Property Line (ft)	Date of Removal
98	3194	593.6	4516.6	GRVC		

Emission Unit	U00010	Emission Pt.	00013			
Ground Elev (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp (˚F)	Cross Section Length (in)	Cross Section Width (in)
15	18	0	10	800		
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (KM)	NYTM (N) (KM)	Building	Distance to Property Line (ft)	Date of Removal
141	4599	593.6	4516.6	GRVC		

Section IV - Emission Unit Information

Emission Point

Emission Unit	U00010	Emission Pt.	00014			
Ground Elev (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp (`F)	Cross Section Length (in)	Cross Section Width (in)
15	35	0	12	800		
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (KM)	NYTM (N) (KM)	Building	Distance to Property Line (ft)	Date of Removal
87	4088	593.6	4516.6	RMSC		

Emission Unit	U00010	Emission Pt.	00015			
Ground Elev (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp (`F)	Cross Section Length (in)	Cross Section Width (in)
15	35	0	12	800		
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (KM)	NYTM (N) (KM)	Building	Distance to Property Line (ft)	Date of Removal
87	4088	593.6	4516.6	RMSC		

Emission Unit	U00010	Emission Pt.	00016			
Ground Elev (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp (`F)	Cross Section Length (in)	Cross Section Width (in)
15	18	0	12	800		
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (KM)	NYTM (N) (KM)	Building	Distance to Property Line (ft)	Date of Removal
141	4600	593.6	4516.6	OBCC		

Emission Unit	U00010	Emission Pt.	00017			
Ground Elev (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp (`F)	Cross Section Length (in)	Cross Section Width (in)
15	18	0	10	800		
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (KM)	NYTM (N) (KM)	Building	Distance to Property Line (ft)	Date of Removal
141	4600	593.6	4516.6	OBCC		

Emission Unit	U00010	Emission Pt.	00018			
Ground Elev (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp (`F)	Cross Section Length (in)	Cross Section Width (in)
15	18	0	10	800		
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (KM)	NYTM (N) (KM)	Building	Distance to Property Line (ft)	Date of Removal
172	5621	593.6	4516.6	OBCC		

Emission Unit	U00010	Emission Pt.	00019			
Ground Elev (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp (`F)	Cross Section Length (in)	Cross Section Width (in)
15	18	0	10	800		
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (KM)	NYTM (N) (KM)	Building	Distance to Property Line (ft)	Date of Removal
172	5621	593.6	4516.6	OBCC		

Section IV - Emission Unit Information

Emission Point

Emission Unit	U00010	Emission Pt.	00020			
Ground Elev (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp (`F)	Cross Section Length (in)	Cross Section Width (in)
15	18	0	12	800		
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (KM)	NYTM (N) (KM)	Building	Distance to Property Line (ft)	Date of Removal
125	5877	593.6	4516.6	WF		

Emission Unit	U00010	Emission Pt.	00021			
Ground Elev (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp (`F)	Cross Section Length (in)	Cross Section Width (in)
15	18	0	12	800		
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (KM)	NYTM (N) (KM)	Building	Distance to Property Line (ft)	Date of Removal
125	5877	593.6	4516.6	WF		

Emission Unit	U00010	Emission Pt.	00022			
Ground Elev (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp (`F)	Cross Section Length (in)	Cross Section Width (in)
15	18	0	12	800		
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (KM)	NYTM (N) (KM)	Building	Distance to Property Line (ft)	Date of Removal
125	5877	593.6	4516.6	WF		

Emission Unit	U00010	Emission Pt.	00023			
Ground Elev (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp (`F)	Cross Section Length (in)	Cross Section Width (in)
15	18	0	12	800		
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (KM)	NYTM (N) (KM)	Building	Distance to Property Line (ft)	Date of Removal
125	5877	593.6	4516.6	WF		

Emission Unit	U00010	Emission Pt.	00024			
Ground Elev (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp (`F)	Cross Section Length (in)	Cross Section Width (in)
15	18	0	12	800		
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (KM)	NYTM (N) (KM)	Building	Distance to Property Line (ft)	Date of Removal
125	5877	593.6	4516.6	WF		

Emission Unit	U00010	Emission Pt.	00025			
Ground Elev (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp (`F)	Cross Section Length (in)	Cross Section Width (in)
15	18	0	12	800		
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (KM)	NYTM (N) (KM)	Building	Distance to Property Line (ft)	Date of Removal
125	5877	593.6	4516.6	WF		

Section IV - Emission Unit Information

Emission Point

Emission Unit	U00010	Emission Pt.	00026			
Ground Elev (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp (`F)	Cross Section Length (in)	Cross Section Width (in)
15	18	0	12	800		
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (KM)	NYTM (N) (KM)	Building	Distance to Property Line (ft)	Date of Removal
125	5877	593.6	4516.6	WF		

Emission Unit	U00010	Emission Pt.	00027			
Ground Elev (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp (`F)	Cross Section Length (in)	Cross Section Width (in)
15	18	0	12	800		
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (KM)	NYTM (N) (KM)	Building	Distance to Property Line (ft)	Date of Removal
125	5877	593.6	4516.6	WF		

Emission Unit	U00010	Emission Pt.	00028			
Ground Elev (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp (`F)	Cross Section Length (in)	Cross Section Width (in)
15	18	0	12	800		
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (KM)	NYTM (N) (KM)	Building	Distance to Property Line (ft)	Date of Removal
125	5877	593.6	4516.6	WF		

Emission Source / Control

Emission Unit	U00010	Emission Source	00010		
Source Type	Date of Construction	Date of Operation	Date of Removal	Manufacturer's Name/Model No.	
C	11/01/1988	01/01/2007		CATERPILLAR 3512, SR4	
Design Capacity	1100	Units Code	213	Desc	kilowatts
Control Type	Code		Desc		
Waste Feed	Code		Desc		
Waste Type	Code		Desc		

Emission Unit	U00010	Emission Source	00011		
Source Type	Date of Construction	Date of Operation	Date of Removal	Manufacturer's Name/Model No.	
C	01/01/1998	01/01/2007		CATERPILLAR 3512, SR4	
Design Capacity	1100	Units Code	213	Desc	kilowatts
Control Type	Code		Desc		
Waste Feed	Code		Desc		
Waste Type	Code		Desc		

Section IV - Emission Unit Information

Emission Source / Control

Emission Unit	U00010	Emission Source	00012		
Source Type	Date of Construction	Date of Operation	Date of Removal	Manufacturer's Name/Model No.	
C	01/01/1992	01/01/2007		CATERPILLAR 3512, SR4	
Design Capacity	625	Units Code	213	Desc	kilowatts
Control Type	Code		Desc		
Waste Feed	Code		Desc		
Waste Type	Code		Desc		

Emission Unit	U00010	Emission Source	00013		
Source Type	Date of Construction	Date of Operation	Date of Removal	Manufacturer's Name/Model No.	
C	01/01/1992	01/01/2007		CATERPILLAR 3516, SR4	
Design Capacity	900	Units Code	213	Desc	kilowatts
Control Type	Code		Desc		
Waste Feed	Code		Desc		
Waste Type	Code		Desc		

Emission Unit	U00010	Emission Source	00014		
Source Type	Date of Construction	Date of Operation	Date of Removal	Manufacturer's Name/Model No.	
C	01/01/1998	01/01/2007		CUMMINS 682FDR7039JJW	
Design Capacity	800	Units Code	213	Desc	kilowatts
Control Type	Code		Desc		
Waste Feed	Code		Desc		
Waste Type	Code		Desc		

Emission Unit	U00010	Emission Source	00015		
Source Type	Date of Construction	Date of Operation	Date of Removal	Manufacturer's Name/Model No.	
C	01/01/1998	01/01/2007		CUMMINS 682FDR7039JJW	
Design Capacity	800	Units Code	213	Desc	kilowatts
Control Type	Code		Desc		
Waste Feed	Code		Desc		
Waste Type	Code		Desc		

Emission Unit	U00010	Emission Source	00016		
Source Type	Date of Construction	Date of Operation	Date of Removal	Manufacturer's Name/Model No.	
C	01/01/1992	01/01/2007		CATERPILLAR 3508	
Design Capacity	900	Units Code	213	Desc	kilowatts
Control Type	Code		Desc		
Waste Feed	Code		Desc		
Waste Type	Code		Desc		

Section IV - Emission Unit Information

Emission Source / Control

Emission Unit	U00010	Emission Source	00017		
Source Type	Date of Construction	Date of Operation	Date of Removal	Manufacturer's Name/Model No.	
C	01/01/1998	01/01/2007		CUMMINS KTA38GS	
Design Capacity	900	Units Code	213	Desc	kilowatts
Control Type	Code		Desc		
Waste Feed	Code		Desc		
Waste Type	Code		Desc		

Emission Unit	U00010	Emission Source	00018		
Source Type	Date of Construction	Date of Operation	Date of Removal	Manufacturer's Name/Model No.	
C	01/01/1989	01/01/2007		CATERPILLAR 3516	
Design Capacity	1100	Units Code	213	Desc	kilowatts
Control Type	Code		Desc		
Waste Feed	Code		Desc		
Waste Type	Code		Desc		

Emission Unit	U00010	Emission Source	00019		
Source Type	Date of Construction	Date of Operation	Date of Removal	Manufacturer's Name/Model No.	
C	01/01/1989	01/01/2007		CATERPILLAR 3516	
Design Capacity	1100	Units Code	213	Desc	kilowatts
Control Type	Code		Desc		
Waste Feed	Code		Desc		
Waste Type	Code		Desc		

Emission Unit	U00010	Emission Source	00020		
Source Type	Date of Construction	Date of Operation	Date of Removal	Manufacturer's Name/Model No.	
C	01/01/1990	01/01/2007		CATERPILLAR 3512	
Design Capacity	1150	Units Code	213	Desc	kilowatts
Control Type	Code		Desc		
Waste Feed	Code		Desc		
Waste Type	Code		Desc		

Emission Unit	U00010	Emission Source	00021		
Source Type	Date of Construction	Date of Operation	Date of Removal	Manufacturer's Name/Model No.	
C	01/01/1990	01/01/2007		CATERPILLAR 3512	
Design Capacity	1150	Units Code	213	Desc	kilowatts
Control Type	Code		Desc		
Waste Feed	Code		Desc		
Waste Type	Code		Desc		

Section IV - Emission Unit Information

Emission Source / Control

Emission Unit	U00010	Emission Source	00022		
Source Type	**Date of Construction**	**Date of Operation**	**Date of Removal**	**Manufacturer's Name/Model No.**	
C	01/01/1990	01/01/2007		CATERPILLAR 3512	
Design Capacity	1150	**Units Code**	213	**Desc**	kilowatts
Control Type	**Code**		**Desc**		
Waste Feed	**Code**		**Desc**		
Waste Type	**Code**		**Desc**		

Emission Unit	U00010	Emission Source	00023		
Source Type	**Date of Construction**	**Date of Operation**	**Date of Removal**	**Manufacturer's Name/Model No.**	
C	01/01/1990	01/01/2007		CATERPILLAR 3512	
Design Capacity	1150	**Units Code**	213	**Desc**	kilowatts
Control Type	**Code**		**Desc**		
Waste Feed	**Code**		**Desc**		
Waste Type	**Code**		**Desc**		

Emission Unit	U00010	Emission Source	00024		
Source Type	**Date of Construction**	**Date of Operation**	**Date of Removal**	**Manufacturer's Name/Model No.**	
C	01/01/1990	01/01/2007		CATERPILLAR 3512	
Design Capacity	1150	**Units Code**	213	**Desc**	kilowatts
Control Type	**Code**		**Desc**		
Waste Feed	**Code**		**Desc**		
Waste Type	**Code**		**Desc**		

Emission Unit	U00010	Emission Source	00025		
Source Type	**Date of Construction**	**Date of Operation**	**Date of Removal**	**Manufacturer's Name/Model No.**	
C	01/01/1990	01/01/2007		CATERPILLAR 3512	
Design Capacity	1150	**Units Code**	213	**Desc**	kilowatts
Control Type	**Code**		**Desc**		
Waste Feed	**Code**		**Desc**		
Waste Type	**Code**		**Desc**		

Emission Unit	U00010	Emission Source	00026		
Source Type	**Date of Construction**	**Date of Operation**	**Date of Removal**	**Manufacturer's Name/Model No.**	
C	01/01/1990	01/01/2007		CATERPILLAR 3512	
Design Capacity	1150	**Units Code**	213	**Desc**	kilowatts
Control Type	**Code**		**Desc**		
Waste Feed	**Code**		**Desc**		
Waste Type	**Code**		**Desc**		

Section IV - Emission Unit Information

Emission Source / Control

Emission Unit	U00010	Emission Source	00027		
Source Type	**Date of Construction**	**Date of Operation**	**Date of Removal**	**Manufacturer's Name/Model No.**	
C	11/01/1990	01/01/2007		CATERPILLAR 3512	
Design Capacity	1150	**Units Code**	213	**Desc**	kilowatts
Control Type	**Code**		**Desc**		
Waste Feed	**Code**		**Desc**		
Waste Type	**Code**		**Desc**		

Emission Unit	U00010	Emission Source	00028		
Source Type	**Date of Construction**	**Date of Operation**	**Date of Removal**	**Manufacturer's Name/Model No.**	
C	01/01/1990	01/01/2007		CATERPILLAR 3512	
Design Capacity	1150	**Units Code**	213	**Desc**	kilowatts
Control Type	**Code**		**Desc**		
Waste Feed	**Code**		**Desc**		
Waste Type	**Code**		**Desc**		

Process Information

Emission Unit	U00010	Process	GEN		
Source Classification Code (SCC)	**Total Thruput**		**Thruput Quantity Units**		
	Quantity / Hr	**Quantity / Yr**	**Code**	**Description**	
10200502	1.534		0607	1000 GALLONS BURNED	
☐ Confidential	**Operating Schedule**		**Building**	**Floor / Location**	
☐ Operating At Maximum Capacity	**Hrs / Day**	**Days / Yr**			
				Ground	

Description

Firing oil number 2 diesel oil. This unit consists of nineteen (19) generators that have the option of enrolling ~~permitted to participate~~ in NYPA sponsored ~~CDRP~~/PLM program. ~~However, only fifteen generators will participate in CDRP/PLM programs up on grant variance.~~ In addition to regular testing and emergency, these generators ~~will~~ may be operated during peak loading conditions, for an average of 65 hours a year per generator.

Emission Point Identifier(s)

00019	00014	00021	00018	00013	00011	00023	00026	00016	00025
00022	00020	00028	00012	00010	00015	00027	00017	00024	

Emission Source / Control Identifier(s)

00010	00011	00012	00013	00014	00015	00016	00017	00018	00019
00020	00021	00022	00023	00024	00025	00026	00027	00028	

Emission Unit Applicable Federal Requirements

Emission Unit	U-00010	Emission Point		Process		Emission Source				
Title	**Type**	**Part**	**Sub Part**	**Section**	**Sub Division**	**Parag**	**Sub Parag**	**Clause**	**Sub Clause**	**Item**
6	NYCRR	227	1	3	a					

Emission Unit	U-00010	Emission Point		Process	GEN	Emission Source				
Title	**Type**	**Part**	**Sub Part**	**Section**	**Sub Division**	**Parag**	**Sub Parag**	**Clause**	**Sub Clause**	**Item**
6	NYCRR	201	7							

Fourteen (14) of the nineteen (19) engines have undergone NOx stack testing and are permitted to operate under a NOx RACT Variance. Five (5) of the fourteen (14) engines are currently NOT operating under PLM programs.

Section IV - Emission Unit Information

Emission Unit Applicable Federal Requirements

Emission Unit	U-00010	Emission Point	00010	Process	GEN	Emission Source				
Title	**Type**	**Part**	**Sub Part**	**Section**	**Sub Division**	**Parag**	**Sub Parag**	**Clause**	**Sub Clause**	**Item**
6	NYCRR	227		2	b	1				

Emission Unit Compliance Certification

Emission Unit	U-00010	Emission Point	00010	Process	GEN	Emission Source	00010

Rule Citation

Title	Type	Part	Sub Part	Section	Sub Division	Parag	Sub Parag	Clause	Sub Clause	Item
6	NYCRR	227	2	5	c					

X Applicable Federal Requirement

Description

Alternate NOx RACT emission limit for engine 00010 is limited to 7.7 gm/bhp-hr as demonstated in June 11, 2008 NOx RACT ~~analysis.~~ analyses. and March 2020

Monitoring Information

X INTERMITTENT EMISSION TESTING

Work Practice	Process Material		Ref Test Method
Type	**Code**	**Description**	
			40 CFR 60 Appendix A

Parameter		Manufacturer Name/Model No.
Code	**Description**	
0NY210000	OXIDES OF NITROGEN	

Limit		Limit Units	
Upper	**Lower**	**Code**	**Description**
7.7		319	grams per brake horsepower-hour

Averaging Method	**Code**	20	**Desc**	AVERAGING METHOD AS PER REFERENCE TEST METHOD INDICATE
Monitoring Freq	**Code**	17	**Desc**	ONCE DURING THE TERM OF THE PERMIT
Reporting Reqs	**Code**	14	**Desc**	SEMI-ANNUALLY (CALENDAR)

Attached condition # 71 on the next page (marked in red box) should be included in the renewal application under Compliance Certification.

the inadequacies, and permittee shall have 90 days to revise its prospective record keeping format in a manner acceptable to the Department.

Parameter Monitored: OPACITY
Upper Permit Limit: 20 percent
Reference Test Method: EPA Method 9
Monitoring Frequency: DAILY
Averaging Method: 6-MINUTE AVERAGE (METHOD 9)
Reporting Requirements: SEMI-ANNUALLY (CALENDAR)
Reports due 30 days after the reporting period.
The initial report is due 4/30/2013.
Subsequent reports are due every 6 calendar month(s).

Condition # 71 should be included under compliance Certification for Emission Unit U-00010 (the 19 generators)

Condition 71: Capping Monitoring Condition
Effective between the dates of 01/03/2013 and 01/02/2018

Applicable Federal Requirement:6 NYCRR Subpart 201-7

Item 71.1:
Under the authority of 6 NYCRR Part 201-7, this condition contains an emission cap for the purpose of limiting emissions from the facility, emission unit or process to avoid being subject to the following applicable requirement(s) that the facility, emission unit or process would otherwise be subject to:

6 NYCRR Subpart 231-2

Item 71.2:
Operation of this facility shall take place in accordance with the approved criteria, emission limits, terms, conditions and standards in this permit.

Item 71.3:
The owner or operator of the permitted facility must maintain all required records on-site for a period of five years and make them available to representatives of the Department upon request. Department representatives must be granted access to any facility regulated by this Subpart, during normal operating hours, for the purpose of determining compliance with this and any other state and federal air pollution control requirements, regulations or law.

Item 71.4:
On an annual basis, unless otherwise specified below, beginning one year after the granting of an emissions cap, the responsible official shall provide a certification to the Department that the facility has operated all emission units within the limits imposed by the emission cap. This certification shall include a brief summary of the emissions subject to the cap for that time period and a comparison to the threshold levels that would require compliance with an applicable requirement.

Item 71.5:
The emission of pollutants that exceed the applicability thresholds for an applicable requirement, for which the facility has obtained an emissions cap, constitutes a violation of Part 201 and of the Act.

Item 71.6:

The Compliance Certification activity will be performed for:

Emission Unit: U-00010
Process: GEN

Regulated Contaminant(s):
CAS No: 0NY210-00-0 OXIDES OF NITROGEN

Item 71.7:
Compliance Certification shall include the following monitoring:

Capping: Yes
Monitoring Type: MONITORING OF PROCESS OR CONTROL DEVICE PARAMETERS AS SURROGATE
Monitoring Description:
Total annual NOx emissions from this emission unit PLM/~~CDRP~~ operation is limited to 22.5 tons per year. The NOx emissions for each engine must be monitored and based on the emission factors obtained from the most recent stack testing and the hours of operation.

Daily log must be maintained at the site which shows the starting time and the ending time of operation for each engine.

Parameter Monitored: OXIDES OF NITROGEN
Upper Permit Limit: 22.5 tons per year
Monitoring Frequency: MONTHLY
Averaging Method: 12 MONTH AVERAGE - ROLLED MONTHLY
Reporting Requirements: ANNUALLY (CALENDAR)
Reports due 30 days after the reporting period.
The initial report is due 10/30/2013.
Subsequent reports are due every 12 calendar month(s).

Condition 72: Compliance Certification
Effective between the dates of 01/03/2013 and 01/02/2018

Applicable Federal Requirement:6 NYCRR 227.2 (b) (1)

Item 72.1:
The Compliance Certification activity will be performed for:

Emission Unit: U-00010 Emission Point: 00010
Process: GEN

Regulated Contaminant(s):
CAS No: 0NY075-00-0 PARTICULATES

Item 72.2:
Compliance Certification shall include the following monitoring:

Monitoring Type: INTERMITTENT EMISSION TESTING

DEC ID: 2600700259 **Application ID:** 260070025900033 **Renewal Number: 3**

Facility: NYC-DOC - RIKERS ISLAND Aug 24, 2016 2:04 pm

Section IV - Emission Unit Information

Emission Unit Compliance Certification

Emission Unit	U-00010	Emission Point	00011	Process	GEN	Emission Source	00011

Rule Citation

Title	Type	Part	Sub Part	Section	Sub Division	Parag	Sub Parag	Clause	Sub Clause	Item
6	NYCRR	227	2	5	c					

X **Applicable Federal Requirement**

Description

Alternate NOx RACT emission limit for engine 00011 is limited to ~~7.0~~ 9.2 gm/bhp-hr as demonstated in the March 2020 ~~June 11, 2008~~ NOx RACT analysis.

Monitoring Information

X **INTERMITTENT EMISSION TESTING**

Work Practice Type	Process Material Code	Process Material Description	Ref Test Method
			40 cfr

Parameter Code	Parameter Description	Manufacturer Name/Model No.
0NY210000	OXIDES OF NITROGEN	

Limit Upper	Limit Lower	Limit Units Code	Limit Units Description
~~7.0~~ 9.2		319	grams per brake horsepower-hour

Averaging Method	**Code**	20	**Desc**	AVERAGING METHOD AS PER REFERENCE TEST METHOD INDICATE
Monitoring Freq	**Code**	17	**Desc**	ONCE DURING THE TERM OF THE PERMIT
Reporting Reqs	**Code**	14	**Desc**	SEMI-ANNUALLY (CALENDAR)

DEC ID: 2600700259 **Application ID:** 260070025900033 **Renewal Number: 3**

Facility: NYC-DOC - RIKERS ISLAND Aug 24, 2016 2:04 pm

Section IV - Emission Unit Information

Emission Unit Compliance Certification

Emission Unit	U-00010	Emission Point	00012	Process	GEN	Emission Source	00012

Rule Citation

Title	Type	Part	Sub Part	Section	Sub Division	Parag	Sub Parag	Clause	Sub Clause	Item
6	NYCRR	227	2	5	c					

X **Applicable Federal Requirement**

Description

Alternate NOx RACT emission limit for engine 00012 is limited to 7.5 gm/bhp-hr as demonstated in June 11, 2008 NOx RACT ~~analysis.~~ analyses. and March 2020

Monitoring Information						
X INTERMITTENT EMISSION TESTING						
Work Practice	**Process Material**			**Ref Test Method**		
Type	**Code**	**Description**				
				40 CFR 60 Appendix A		
Parameter				**Manufacturer Name/Model No.**		
Code	**Description**					
0NY210000	OXIDES OF NITROGEN					
Limit			**Limit Units**			
Upper	**Lower**		**Code**	**Description**		
7.5			319	grams per brake horsepower-hour		
Averaging Method	**Code**	20	**Desc**	AVERAGING METHOD AS PER REFERENCE TEST METHOD INDICATE		
Monitoring Freq	**Code**	17	**Desc**	ONCE DURING THE TERM OF THE PERMIT		
Reporting Reqs	**Code**	14	**Desc**	SEMI-ANNUALLY (CALENDAR)		

Department of Environmental Conservation

DEC ID: 2600700259 **Application ID:** 260070025900033 **Renewal Number: 3**

Facility: NYC-DOC - RIKERS ISLAND Aug 24, 2016 2:04 pm

Section IV - Emission Unit Information

Emission Unit Compliance Certification

Emission Unit	U-00010	Emission Point	00013	Process	GEN	Emission Source	00013

Rule Citation

Title	Type	Part	Sub Part	Section	Sub Division	Parag	Sub Parag	Clause	Sub Clause	Item
6	NYCRR	227	2	5	c					

X Applicable Federal Requirement

Description

Alternate NOx RACT emission limit for engine 00013 is limited to 7.4 gm/bhp-hr as demonstated in June 11, 2008 NOx RACT ~~analysis.~~ analyses.
and March 2020

Monitoring Information						
X INTERMITTENT EMISSION TESTING						
Work Practice		Process Material			Ref Test Method	
Type	Code	Description				
					40 CFR 60 Appendix A	
Parameter					Manufacturer Name/Model No.	
Code	Description					
0NY210000	OXIDES OF NITROGEN					
Limit		Limit Units				
Upper	Lower	Code	Description			
7.4		319	grams per brake horsepower-hour			
Averaging Method	Code	20	Desc	AVERAGING METHOD AS PER REFERENCE TEST METHOD INDICATE		
Monitoring Freq	Code	17	Desc	ONCE DURING THE TERM OF THE PERMIT		
Reporting Reqs	Code	14	Desc	SEMI-ANNUALLY (CALENDAR)		

DEC ID: 2600700259 **Application ID:** 260070025900033 **Renewal Number: 3**

Facility: NYC-DOC - RIKERS ISLAND Aug 24, 2016 2:04 pm

Section IV - Emission Unit Information

Emission Unit Compliance Certification

Emission Unit	U-00010	Emission Point	00014	Process	GEN	Emission Source	00014

Rule Citation

Title	Type	Part	Sub Part	Section	Sub Division	Parag	Sub Parag	Clause	Sub Clause	Item
6	NYCRR	227	2	5	c					

X **Applicable Federal Requirement**

Description

Alternate NOx RACT emission limit for engine 00014 is limited to 7.8 gm/bhp-hr as demonstated in June 11, 2008 NOx RACT ~~analysis.~~ analyses.
and March 2020

Monitoring Information						
X INTERMITTENT EMISSION TESTING						
Work Practice		**Process Material**			**Ref Test Method**	
Type	**Code**	**Description**				
					40 CFR 60 Appendix A	
Parameter					**Manufacturer Name/Model No.**	
Code	**Description**					
0NY210000	OXIDES OF NITROGEN					
Limit			**Limit Units**			
Upper	**Lower**		**Code**	**Description**		
7.8			319	grams per brake horsepower-hour		
Averaging Method	**Code**	20	**Desc**	AVERAGING METHOD AS PER REFERENCE TEST METHOD INDICATE		
Monitoring Freq	**Code**	17	**Desc**	ONCE DURING THE TERM OF THE PERMIT		
Reporting Reqs	**Code**	14	**Desc**	SEMI-ANNUALLY (CALENDAR)		

Section IV - Emission Unit Information

Emission Unit Compliance Certification

Emission Unit	U-00010	Emission Point	00015	Process	GEN	Emission Source	00015

Rule Citation

Title	Type	Part	Sub Part	Section	Sub Division	Parag	Sub Parag	Clause	Sub Clause	Item
6	NYCRR	227	2	5	c					

X **Applicable Federal Requirement**

Description

Alternate NOx RACT emission limit for engine 00015 is limited to 8.1 gm/bhp-hr as demonstated in June 11, 2008 NOx RACT ~~analysis.~~ analyses. and March 2020

Monitoring Information						
X INTERMITTENT EMISSION TESTING						
Work Practice	**Process Material**			**Ref Test Method**		
Type	**Code**	**Description**				
				40 CFR 60 Appendix A		
Parameter				**Manufacturer Name/Model No.**		
Code	**Description**					
0NY210000	OXIDES OF NITROGEN					
Limit			**Limit Units**			
Upper	**Lower**		**Code**	**Description**		
8.1			319	grams per brake horsepower-hour		
Averaging Method	**Code**	20	**Desc**	AVERAGING METHOD AS PER REFERENCE TEST METHOD INDICATE		
Monitoring Freq	**Code**	17	**Desc**	ONCE DURING THE TERM OF THE PERMIT		
Reporting Reqs	**Code**	14	**Desc**	SEMI-ANNUALLY (CALENDAR)		

DEC ID: 2600700259 **Application ID:** 260070025900033 **Renewal Number: 3**

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Section IV - Emission Unit Information

Emission Unit Compliance Certification

Emission Unit	U-00010	Emission Point	00016	Process	GEN	Emission Source	00016

Rule Citation

Title	Type	Part	Sub Part	Section	Sub Division	Parag	Sub Parag	Clause	Sub Clause	Item
6	NYCRR	227	2	5	c					

X **Applicable Federal Requirement**

Description

Alternate NOx RACT emission limit for engine 00016 is limited to ~~5.9~~ 6.7 gm/bhp-hr as demonstated in ~~June 11, 2008~~ the March 2020 NOx RACT analysis.

Monitoring Information						
X INTERMITTENT EMISSION TESTING						
Work Practice		**Process Material**			**Ref Test Method**	
Type	**Code**	**Description**				
					40 CFR 60 Appendix A	
Parameter					**Manufacturer Name/Model No.**	
Code		**Description**				
0NY210000		OXIDES OF NITROGEN				
Limit			**Limit Units**			
Upper		**Lower**	**Code**		**Description**	
~~5.9~~ 6.7			319		grams per brake horsepower-hour	
Averaging Method	**Code**	20	**Desc**		AVERAGING METHOD AS PER REFERENCE TEST METHOD INDICATE	
Monitoring Freq	**Code**	17	**Desc**		ONCE DURING THE TERM OF THE PERMIT	
Reporting Reqs	**Code**	14	**Desc**		SEMI-ANNUALLY (CALENDAR)	

Section IV - Emission Unit Information

Emission Unit Compliance Certification

Emission Unit	U-00010	Emission Point	00017	Process	GEN	Emission Source	00017

Rule Citation

Title	Type	Part	Sub Part	Section	Sub Division	Parag	Sub Parag	Clause	Sub Clause	Item
6	NYCRR	227	2	5	c					

X **Applicable Federal Requirement**

Description

the March 2020
Alternate NOx RACT emission limit for engine 00017 is limited to ~~3.5~~ gm/bhp-hr as demonstated in ~~June 11, 2008~~ NOx RACT analysis.
4.74

Monitoring Information

X **INTERMITTENT EMISSION TESTING**

Work Practice		Process Material	Ref Test Method
Type	Code	Description	
			40 CFR 60 Appendix A

Parameter		Manufacturer Name/Model No.
Code	Description	
0NY210000	OXIDES OF NITROGEN	

Limit		Limit Units	
Upper	Lower	Code	Description
3.5		319	grams per brake horsepower-hour

Averaging Method	**Code**	20	**Desc**	AVERAGING METHOD AS PER REFERENCE TEST METHOD INDICATE
Monitoring Freq	**Code**	17	**Desc**	ONCE DURING THE TERM OF THE PERMIT
Reporting Reqs	**Code**	14	**Desc**	SEMI-ANNUALLY (CALENDAR)

DEC ID: 2600700259 **Application ID:** 260070025900033 **Renewal Number: 3**

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Section IV - Emission Unit Information

Emission Unit Compliance Certification

Emission Unit	U-00010	Emission Point	00018	Process	GEN	Emission Source	00018

Rule Citation

Title	Type	Part	Sub Part	Section	Sub Division	Parag	Sub Parag	Clause	Sub Clause	Item
6	NYCRR	227	2	5	c					

X **Applicable Federal Requirement**

Description

Alternate NOx RACT emission limit for engine 00018 is limited to ~~6.9~~ 8.88 gm/bhp-hr as demonstated in ~~June 11, 2008~~ the March 2020 NOx RACT analysis.

Monitoring Information

X **INTERMITTENT EMISSION TESTING**

Work Practice Type	Process Material Code	Process Material Description	Ref Test Method
			40 CFR 60 Appendix A

Parameter Code	Parameter Description	Manufacturer Name/Model No.
0NY210000	OXIDES OF NITROGEN	

Limit Upper	Limit Lower	Limit Units Code	Limit Units Description
~~6.9~~ 8.88		319	grams per brake horsepower-hour

Averaging Method	**Code**	20	**Desc**	AVERAGING METHOD AS PER REFERENCE TEST METHOD INDICATE
Monitoring Freq	**Code**	17	**Desc**	ONCE DURING THE TERM OF THE PERMIT
Reporting Reqs	**Code**	14	**Desc**	SEMI-ANNUALLY (CALENDAR)

Department of Environmental Conservation

DEC ID: 2600700259 **Application ID:** 260070025900033

Renewal Number: 3

Facility: NYC-DOC - RIKERS ISLAND

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Section IV - Emission Unit Information

Emission Unit Compliance Certification

Emission Unit	U-00010	Emission Point	00019	Process	GEN	Emission Source	00019

Rule Citation

Title	Type	Part	Sub Part	Section	Sub Division	Parag	Sub Parag	Clause	Sub Clause	Item
6	NYCRR	227	2	5	c					

X **Applicable Federal Requirement**

Description

Alternate NOx RACT emission limit for engine 00019 is limited to ~~7.0~~ 8.56 gm/bhp-hr as demonstated in the March 2020 ~~June 11, 2008~~ NOx RACT analysis.

Monitoring Information						
X INTERMITTENT EMISSION TESTING						
Work Practice		Process Material				Ref Test Method
Type	Code	Description				
						40 CFR 60 Appendix A
Parameter						Manufacturer Name/Model No.
Code	Description					
0NY210000	OXIDES OF NITROGEN					
Limit			Limit Units			
Upper	Lower		Code	Description		
~~7.0~~ 8.56			319	grams per brake horsepower-hour		
Averaging Method	Code	20	Desc	AVERAGING METHOD AS PER REFERENCE TEST METHOD INDICATE		
Monitoring Freq	Code	17	Desc	ONCE DURING THE TERM OF THE PERMIT		
Reporting Reqs	Code	14	Desc	SEMI-ANNUALLY (CALENDAR)		

DEC ID: 2600700259 **Application ID:** 260070025900033 **Renewal Number: 3**

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Section IV - Emission Unit Information

Emission Unit Compliance Certification

Emission Unit	U-00010	Emission Point	00020	Process	GEN	Emission Source	00020

Rule Citation

Title	Type	Part	Sub Part	Section	Sub Division	Parag	Sub Parag	Clause	Sub Clause	Item
6	NYCRR	227	2	5	c					

X **Applicable Federal Requirement**

Description

Alternate NOx RACT emission limit for engine 00020 is limited to 6.9 gm/bhp-hr as demonstated in June 11, 2008 NOx RACT ~~analysis.~~ analyses. and March 2020

Monitoring Information

X **INTERMITTENT EMISSION TESTING**

Work Practice Type	Work Practice Code	Process Material Description	Ref Test Method
			40 CFR 60 Appendix A

Parameter Code	Parameter Description	Manufacturer Name/Model No.
0NY210000	OXIDES OF NITROGEN	

Limit Upper	Limit Lower	Limit Units Code	Limit Units Description
6.9		319	grams per brake horsepower-hour

Averaging Method	**Code**	20	**Desc**	AVERAGING METHOD AS PER REFERENCE TEST METHOD INDICATE
Monitoring Freq	**Code**	17	**Desc**	ONCE DURING THE TERM OF THE PERMIT
Reporting Reqs	**Code**	14	**Desc**	SEMI-ANNUALLY (CALENDAR)

Section IV - Emission Unit Information

Emission Unit Compliance Certification

Emission Unit	U-00010	Emission Point	00022	Process	GEN	Emission Source	00022

Rule Citation

Title	Type	Part	Sub Part	Section	Sub Division	Parag	Sub Parag	Clause	Sub Clause	Item
6	NYCRR	227	2	5	c					

[X] **Applicable Federal Requirement**

Description

Alternate emission limit for engine 00022 is limited to 7.0 gm/bhp-hr as demonstated in June 11, 2008 NOx RACT ~~analysis.~~ analyses. and March 2020

Monitoring Information					
[X] INTERMITTENT EMISSION TESTING					
Work Practice	Process Material			Ref Test Method	
Type	Code	Description			
				40 CFR 60 Appendix A	
Parameter				Manufacturer Name/Model No.	
Code	Description				
0NY210000	OXIDES OF NITROGEN				
Limit		Limit Units			
Upper	Lower	Code	Description		
7.0		319	grams per brake horsepower-hour		
Averaging Method	Code	20	Desc	AVERAGING METHOD AS PER REFERENCE TEST METHOD INDICATE	
Monitoring Freq	Code	17	Desc	ONCE DURING THE TERM OF THE PERMIT	
Reporting Reqs	Code	14	Desc	SEMI-ANNUALLY (CALENDAR)	

DEC ID: 2600700259 **Application ID:** 260070025900033 **Renewal Number: 3**

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Section IV - Emission Unit Information

Emission Unit Compliance Certification

Emission Unit	U-00010	Emission Point	00024	Process	GEN	Emission Source	00024

Rule Citation

Title	Type	Part	Sub Part	Section	Sub Division	Parag	Sub Parag	Clause	Sub Clause	Item
6	NYCRR	227	2	5	c					

X **Applicable Federal Requirement**

Description

Alternate NOx RACT emission limit for engine 00024 is limited to 7.7 gm/bhp-hr as demonstated in June 11, 2008 NOx RACT ~~analysis~~. analyses. and March 2020

Monitoring Information					
X INTERMITTENT EMISSION TESTING					
Work Practice	**Process Material**				**Ref Test Method**
Type	**Code**	**Description**			
					40 CFR 60 Appendix A
Parameter					**Manufacturer Name/Model No.**
Code	**Description**				
0NY210000	OXIDES OF NITROGEN				
Limit			**Limit Units**		
Upper	**Lower**		**Code**	**Description**	
7.7			319	grams per brake horsepower-hour	
Averaging Method	**Code**	20	**Desc**	AVERAGING METHOD AS PER REFERENCE TEST METHOD INDICATE	
Monitoring Freq	**Code**	17	**Desc**	ONCE DURING THE TERM OF THE PERMIT	
Reporting Reqs	**Code**	14	**Desc**	SEMI-ANNUALLY (CALENDAR)	

DEC ID: 2600700259 **Application ID:** 260070025900033 **Renewal Number: 3**

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Section IV - Emission Unit Information

Emission Unit Compliance Certification

Emission Unit	U-00010	Emission Point	00025	Process	GEN	Emission Source	00025

Rule Citation

Title	Type	Part	Sub Part	Section	Sub Division	Parag	Sub Parag	Clause	Sub Clause	Item
6	NYCRR	227	2	5	c					

X Applicable Federal Requirement

Description

Alternate NOx RACT emission limit for engine 00025 is limited to 6.6 gm/bhp-hr as demonstated in June 11, 2008 NOx RACT ~~analysis~~. analyses.
and March 2020

Monitoring Information					
X INTERMITTENT EMISSION TESTING					
Work Practice	Process Material			Ref Test Method	
Type	Code	Description			
				40 CFR 60 Appendix A	
Parameter				Manufacturer Name/Model No.	
Code	Description				
0NY210000	OXIDES OF NITROGEN				
Limit			Limit Units		
Upper	Lower		Code	Description	
6.6			319	grams per brake horsepower-hour	
Averaging Method	Code	20	Desc	AVERAGING METHOD AS PER REFERENCE TEST METHOD INDICATE	
Monitoring Freq	Code	17	Desc	ONCE DURING THE TERM OF THE PERMIT	
Reporting Reqs	Code	14	Desc	SEMI-ANNUALLY (CALENDAR)	

Department of Environmental Conservation

DEC ID: 2600700259 **Application ID:** 260070025900033 **Renewal Number: 3**

Facility: NYC-DOC - RIKERS ISLAND Aug 24, 2016 2:04 pm

Section IV - Emission Unit Information

DEC: Please remove this engine since it is no longer operational.

Emission Unit Compliance Certification

Emission Unit	U-00010	Emission Point	00027	Process	GEN	Emission Source	00027

Rule Citation

Title	Type	Part	Sub Part	Section	Sub Division	Parag	Sub Parag	Clause	Sub Clause	Item
6	NYCRR	227	2	5	c					

X Applicable Federal Requirement

Description

Alternate NOx RACT emission limit for engine 00027 is limited to 8.3 gm/bhp-hr as demonstated in June 11, 2008 NOx RACT analysis.

Monitoring Information

X INTERMITTENT EMISSION TESTING

Work Practice		Process Material	Ref Test Method
Type	Code	Description	
			40 CFR 60 Appendix A

Parameter		Manufacturer Name/Model No.
Code	Description	
0NY210000	OXIDES OF NITROGEN	

Limit		Limit Units	
Upper	Lower	Code	Description
8.3		319	grams per brake horsepower-hour

Averaging Method	Code	20	Desc	AVERAGING METHOD AS PER REFERENCE TEST METHOD INDICATE
Monitoring Freq	Code	17	Desc	ONCE DURING THE TERM OF THE PERMIT
Reporting Reqs	Code	14	Desc	SEMI-ANNUALLY (CALENDAR)

Process Emissions Summary

Emission Unit	U-00010	Process	GEN				
CAS No.	Contaminant Name		% of Thruput	% of Capture	% of Control	ERP (lb/hr)	ERP How Determined
000630-08-0	CARBON MONOXIDE					184	03

PTE			Standard Units	PTE How Determined	Actual	
(lb/hr)	(lb/yr)	(standard units)			(lb/hr)	(lb/yr)
184	12000			03	184	12000

Emission Unit	U-00010	Process	GEN				
CAS No.	Contaminant Name		% of Thruput	% of Capture	% of Control	ERP (lb/hr)	ERP How Determined
0NY210-00-0	OXIDES OF NITROGEN					5.13	03

PTE			Standard Units	PTE How Determined	Actual	
(lb/hr)	(lb/yr)	(standard units)			(lb/hr)	(lb/yr)
309.15 ~~5.13~~	42500			03	309.15 ~~5.13~~	45000

DEC: Please remove emission limits for CO, PM and SO2 because there is no emission cap for these pollutants for this emission unit.

Section IV - Emission Unit Information

Process Emissions Summary

Emission Unit	U-00010	Process	GEN			
CAS No.	**Contaminant Name**	**% of Thruput**	**% of Capture**	**% of Control**	**ERP (lb/hr)**	**ERP How Determined**
0NY075-00-0	PARTICULATES				21.6	03
PTE (lb/hr)	**PTE (lb/yr)**	**PTE (standard units)**	**Standard Units**	**PTE How Determined**	**Actual (lb/hr)**	**Actual (lb/yr)**
7.25	1410			03	7.25	1410

Emission Unit	U-00010	Process	GEN			
CAS No.	**Contaminant Name**	**% of Thruput**	**% of Capture**	**% of Control**	**ERP (lb/hr)**	**ERP How Determined**
007446-09-5	SULFUR DIOXIDE				43.7	03
PTE (lb/hr)	**PTE (lb/yr)**	**PTE (standard units)**	**Standard Units**	**PTE How Determined**	**Actual (lb/hr)**	**Actual (lb/yr)**
43.7	2850			03	43.7	2850

Emission Unit Emissions Summary

Emission Unit	U-00010			
CAS No.	**Contaminant Name**			
000630-08-0	CARBON MONOXIDE			
ERP (lb/yr)	**PTE (lb/hr)**	**PTE (lb/yr)**	**Actual (lb/hr)**	**Actual (lb/yr)**
11980	184	11980		

Emission Unit	U-00010			
CAS No.	**Contaminant Name**			
0NY210-00-0	OXIDES OF NITROGEN			
ERP (lb/yr)	**PTE (lb/hr)**	**PTE (lb/yr)**	**Actual (lb/hr)**	**Actual (lb/yr)**
45000	309.15 ~~5.13~~	45000		

Emission Unit	U-00010			
CAS No.	**Contaminant Name**			
0NY075-00-0	PARTICULATES			
ERP (lb/yr)	**PTE (lb/hr)**	**PTE (lb/yr)**	**Actual (lb/hr)**	**Actual (lb/yr)**
1410	7.25	1410		

Emission Unit	U-00010			
CAS No.	**Contaminant Name**			
007446-09-5	SULFUR DIOXIDE			
ERP (lb/yr)	**PTE (lb/hr)**	**PTE (lb/yr)**	**Actual (lb/hr)**	**Actual (lb/yr)**
2840	43.7	2840		

Emission Unit	U-00010			
CAS No.	**Contaminant Name**			
0NY998-00-0	VOC			
ERP (lb/yr)	**PTE (lb/hr)**	**PTE (lb/yr)**	**Actual (lb/hr)**	**Actual (lb/yr)**
1410	7.25	1410		

DEC: Please remove emission limits for CO, VOC, PM and Sulfur dioxide since there is no emission cap for these pollutants for this emission unit.

NEW YORK STATE Department of Environmental Conservation

DEC ID: 2600700259 **Application ID:** 260070025900033 **Renewal Number: 3**

Facility: NYC-DOC - RIKERS ISLAND

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Section IV - Emission Unit Information

Emission Unit Description

Emission Unit	U00011

THIS EMISSION UNIT IS COMPRISED OF THE COGENERATION PLANT EQUIPMENT, WHICH INCLUDES TWO ~~NEW~~ 7.5 MW SIMPLE CYCLE NATURAL GAS-FIRED TURBINES EQUIPPED WITH DUCT FIRING HEAT RECOVERY STEAM GENERATORS, AND ONE ~~2000~~ 1,500 KW EMERGENCY BLACKSTART GENERATOR. EACH TURBINE and the duct firing HRSG combination has an ~~WILL HAVE~~ INDIVIDUAL EXHAUST STACK, ~~A MAIN STACK FOR THE EXHAUST FROM THE DUCT FIRING HRSGS~~. THE ~~MAIN~~ STACK is ~~WOULD BE~~ APPROXIMATELY 150 FEET HIGH. THE EMERGENCY BLACKSTART GENERATOR IS A ~~2000~~ 1,500 KW GENERATOR THAT ~~WOULD BE~~ is USED TO KICK-START THE TURBINES IN AN EMERGENCY SITUATION ONLY.

Building

Building	Building Name	Length	Width	Orient.
15	COGENERATION PLANT			

Emission Point

Emission Unit	U00011	Emission Pt.	U0029			
Ground Elev (ft)	**Height (ft)**	**Height Above Structure (ft)**	**Inside Diameter (in)**	**Exit Temp (˚F)**	**Cross Section Length (in)**	**Cross Section Width (in)**
15	150	107	60			
Exit Velocity (FPS)	**Exit Flow (ACFM)**	**NYTM (E) (KM)**	**NYTM (N) (KM)**	**Building**	**Distance to Property Line (ft)**	**Date of Removal**
		593.6	4516.6	15		

Emission Unit	U00011	Emission Pt.	U0031			
Ground Elev (ft)	**Height (ft)**	**Height Above Structure (ft)**	**Inside Diameter (in)**	**Exit Temp (˚F)**	**Cross Section Length (in)**	**Cross Section Width (in)**
15	150	107	60			
Exit Velocity (FPS)	**Exit Flow (ACFM)**	**NYTM (E) (KM)**	**NYTM (N) (KM)**	**Building**	**Distance to Property Line (ft)**	**Date of Removal**
		593.6	4516.6	15		

Emission Unit	U00011	Emission Pt.	U0033			
Ground Elev (ft)	**Height (ft)**	**Height Above Structure (ft)**	**Inside Diameter (in)**	**Exit Temp (˚F)**	**Cross Section Length (in)**	**Cross Section Width (in)**
15	13	0	18			
Exit Velocity (FPS)	**Exit Flow (ACFM)**	**NYTM (E) (KM)**	**NYTM (N) (KM)**	**Building**	**Distance to Property Line (ft)**	**Date of Removal**
		593.6	4516.6	15		

Emission Source / Control

Emission Unit	U00011	Emission Source	00029		
Source Type	**Date of Construction**	**Date of Operation**	**Date of Removal**	**Manufacturer's Name/Model No.**	
C	06/01/2011	07/18/2012		SOLAR Taurus 70-10301S	
Design Capacity	7.5	**Units Code**	216	**Desc**	megawatt
Control Type	**Code**		**Desc**		
Waste Feed	**Code**		**Desc**		
Waste Type	**Code**		**Desc**		

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Section IV - Emission Unit Information

Emission Source / Control

Emission Unit	U00011	Emission Source	00030		
Source Type	Date of Construction	Date of Operation	Date of Removal	Manufacturer's Name/Model No.	
C	06/01/2011	07/18/2012		SOLAR Taurus 70-10301S	
Design Capacity	7.5	Units Code	216	Desc	megawatt
Control Type	Code		Desc		
Waste Feed	Code		Desc		
Waste Type	Code		Desc		

Emission Unit	U00011	Emission Source	00031		
Source Type	Date of Construction	Date of Operation	Date of Removal	Manufacturer's Name/Model No.	
C	06/01/2011	07/18/2012		Retench	
Design Capacity	38.2	Units Code	25	Desc	million Btu per hour
Control Type	Code		Desc		
Waste Feed	Code		Desc		
Waste Type	Code		Desc		

Emission Unit	U00011	Emission Source	00032		
Source Type	Date of Construction	Date of Operation	Date of Removal	Manufacturer's Name/Model No.	
C	06/01/2011	07/18/2012		Retench	
Design Capacity	38.2	Units Code	25	Desc	million Btu per hour
Control Type	Code		Desc		
Waste Feed	Code		Desc		
Waste Type	Code		Desc		

Emission Unit	U00011	Emission Source	00033		
Source Type	Date of Construction	Date of Operation	Date of Removal	Manufacturer's Name/Model No.	
C				ODEL YEAR, MTU MODEL 16 V 4000 G43 (T1638A36) OR EQUIV	
Design Capacity	2	Units Code	216	Desc	megawatt
Control Type	Code		Desc		
Waste Feed	Code		Desc		
Waste Type	Code		Desc		

1.5

Section IV - Emission Unit Information

Process Information

Emission Unit	U00011	Process	007		
Source Classification Code (SCC)	Total Thruput		Thruput Quantity Units		
	Quantity / Hr	Quantity / Yr	Code	Description	
20300203					

Confidential / Operating At Maximum Capacity	Operating Schedule Hrs / Day	Operating Schedule Days / Yr	Building	Floor / Location
☐ Confidential ☐ Operating At Maximum Capacity	24	365	15	

Description

Firing natural gas in the cogeneration plant

Emission Point Identifier(s)

Emission Source / Control Identifier(s)

00029	00030	00031	00032

Emission Unit	U00011	Process	008		
Source Classification Code (SCC)	Total Thruput		Thruput Quantity Units		
	Quantity / Hr	Quantity / Yr	Code	Description	
20200401					

Confidential / Operating At Maximum Capacity	Operating Schedule Hrs / Day	Operating Schedule Days / Yr	Building	Floor / Location
☐ Confidential ☐ Operating At Maximum Capacity			15	

Description

Firing diesel in the emergency blackstart engine.

Emission Point Identifier(s)

Emission Source / Control Identifier(s)

00033

Emission Unit Applicable Federal Requirements

Emission Unit	U-00011	Emission Point		Process		Emission Source				
Title	**Type**	**Part**	**Sub Part**	**Section**	**Sub Division**	**Parag**	**Sub Parag**	**Clause**	**Sub Clause**	**Item**
40	CFR	60	KKKK	4340	a					
40	CFR	60	KKKK	4365	a					
40	CFR	60	KKKK	4400	b					
6	NYCRR	201	7							
6	NYCRR	201	7							
6	NYCRR	227	1	3	a					

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Section IV - Emission Unit Information

Emission Unit Applicable Federal Requirements

Emission Unit	U-00011	Emission Point		Process	007	Emission Source	

Title	Type	Part	Sub Part	Section	Sub Division	Parag	Sub Parag	Clause	Sub Clause	Item
40	CFR	60	KKKK	4375	b					
40	CFR	60	KKKK	4400	a					

Emission Unit	U-00011	Emission Point		Process	007	Emission Source	00029

Title	Type	Part	Sub Part	Section	Sub Division	Parag	Sub Parag	Clause	Sub Clause	Item
40	CFR	60	KKKK	4320	a					

Emission Unit	U-00011	Emission Point		Process	007	Emission Source	00030

Title	Type	Part	Sub Part	Section	Sub Division	Parag	Sub Parag	Clause	Sub Clause	Item
40	CFR	60	KKKK	4320	a					

Emission Unit	U-00011	Emission Point		Process	008	Emission Source	00033

Title	Type	Part	Sub Part	Section	Sub Division	Parag	Sub Parag	Clause	Sub Clause	Item
40	CFR	60	IIII	4209	a					

Emission Unit Compliance Certification

Emission Unit	U-00011	Emission Point		Process		Emission Source	

Rule Citation

Title	Type	Part	Sub Part	Section	Sub Division	Parag	Sub Parag	Clause	Sub Clause	Item
6	NYCRR	201	6							

X Applicable Federal Requirement

Description

Within 180 days after the commencement of cogeneration plant, facility shall conduct PM 2.5 stack emission testing for turbines(with and without duct firing) to determine PM 2.5 emission factors as per EPA approved stack testing method to demonstrate that cogeneration plant PM 2.5 net emission increases are less than the 6 NYCRR part 231 significant net emission increase threshold of 10 tpy .

A report demonstrating the compliance shall be submitted to the Department within 60 days of the test.

Stack test protocol shall be submitted to the Department for approval at least 30 days prior to the test.

Monitoring Information

X RECORD KEEPING/MAINTENANCE PROCEDURES

Work Practice	Process Material		Ref Test Method
Type	Code	Description	
			EPA approved 201 A or 202

Parameter		Manufacturer Name/Model No.
Code	Description	

Limit		Limit Units	
Upper	Lower	Code	Description

Averaging Method	Code	20	Desc	AVERAGING METHOD AS PER REFERENCE TEST METHOD INDICATE
Monitoring Freq	Code	14	Desc	AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION
Reporting Reqs	Code	16	Desc	AS REQUIRED - SEE MONITORING DESCRIPTION

DEC: Please remove this section, as the required PM2.5 testing was performed and the report was submitted on June 15, 2015. This condition is no longer applicable and should be removed.

Section IV - Emission Unit Information

Emission Unit Compliance Certification

Emission Unit	U-00011	Emission Point		Process		Emission Source	

Rule Citation

Title	Type	Part	Sub Part	Section	Sub Division	Parag	Sub Parag	Clause	Sub Clause	Item
6	NYCRR	201	6							

[X] Applicable Federal Requirement

Description

Facility must perform a NOx emission stack test, as per Department approved stack test protocol to determine NOx emission factors (used in 6 NYCRR Part 201-7 capping condition) for the turbines(00029 and 00030) with and without duct firing HRSGs(00031 and 00032).

Permit conditions for 40 CFR 60 4320(a) and 40 CFR 60 4340(a) require facility to perform NOx emission stack test for turbines at least every two years. This stack test shall also determine turbine NOX emission factors with and without duct firing.

Contaminants

Capping	CAS No.	Contaminant Name
[ ]	0NY210-00-0	OXIDES OF NITROGEN

Monitoring Information

[X] RECORD KEEPING/MAINTENANCE PROCEDURES

Work Practice	Process Material		Ref Test Method
Type	Code	Description	

Parameter		Manufacturer Name/Model No.
Code	Description	

Limit		Limit Units	
Upper	Lower	Code	Description

Averaging Method	Code		Desc	
Monitoring Freq	Code	14	Desc	AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION
Reporting Reqs	Code	14	Desc	SEMI-ANNUALLY (CALENDAR)

Department of Environmental Conservation

DEC ID: 2600700259 **Application ID:** 260070025900033 **Renewal Number: 3**

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Section IV - Emission Unit Information

DEC: Please remove this section, as the combustion turbines are no longer required to have an emission cap.

Emission Unit Compliance Certification

Emission Unit	U-00011	Emission Point		Process		Emission Source	

Rule Citation

Title	Type	Part	Sub Part	Section	Sub Division	Parag	Sub Parag	Clause	Sub Clause	Item
6	NYCRR	201	6							

X Applicable Federal Requirement

Description

Facility must perform a PM-10 emission stack test, as per Departmnt approved stack test protocol to determine PM-10 emission factors((used in 6 NYCRR Part 201-7 capping condition) for the turbines(00029 and 00030) with and without duct firing HRSGs(00031 and 00032).

Contaminants

Capping	CAS No.	Contaminant Name
☐	0NY075-00-5	PM-10

Monitoring Information

X RECORD KEEPING/MAINTENANCE PROCEDURES

Work Practice		Process Material	Ref Test Method
Type	Code	Description	

Parameter		Manufacturer Name/Model No.
Code	Description	

Limit		Limit Units	
Upper	Lower	Code	Description

Averaging Method	Code		Desc	
Monitoring Freq	Code	17	Desc	ONCE DURING THE TERM OF THE PERMIT
Reporting Reqs	Code	14	Desc	SEMI-ANNUALLY (CALENDAR)

Attached conditions 76 on the next page (marked in red box) should be included under Compliance Certification.

~~**Item 75.2:**~~
~~Compliance Certification shall include the following monitoring:~~

~~Monitoring Type: RECORD KEEPING/MAINTENANCE PROCEDURES~~
~~Monitoring Description:~~
~~Within 180 days after the commencement of cogeneration plant, facility shall conduct PM 2.5 stack emission testing for turbines(with and without duct firing) to determine PM 2.5 emission factors as per EPA approved stack testing method to demonstrate that cogeneration plant PM 2.5 net emission increases are less than the 6 NYCRR part 231 significant net emission increase threshold of 10 tpy .~~

~~A report demonstrating the compliance shall be submitted to the Department within 60 days of the test.~~

~~Stack test protocol shall be submitted to the Department for approval at least 30 days prior to the test.~~

Condition # 76 should be included under compliance Certification for Emission Unit U-00011 (Cogen Plant)

Reference Test Method: EPA approved 201 A or 202
Monitoring Frequency: AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION
Averaging Method: AVERAGING METHOD AS PER REFERENCE TEST METHOD INDICATED
Reporting Requirements: AS REQUIRED - SEE MONITORING DESCRIPTION

Condition 76: Capping Monitoring Condition
Effective between the dates of 01/03/2013 and 01/02/2018

Applicable Federal Requirement:6 NYCRR Subpart 201-7

Item 76.1:
Under the authority of 6 NYCRR Part 201-7, this condition contains an emission cap for the purpose of limiting emissions from the facility, emission unit or process to avoid being subject to the following applicable requirement(s) that the facility, emission unit or process would otherwise be subject to:

6 NYCRR 231-6.4

Item 76.2:
Operation of this facility shall take place in accordance with the approved criteria, emission limits, terms, conditions and standards in this permit.

Item 76.3:
The owner or operator of the permitted facility must maintain all required records on-site for a period of five years and make them available to representatives of the Department upon request. Department representatives must be granted access to any facility regulated by this Subpart, during normal operating hours, for the purpose of determining compliance with this and any other state and federal air pollution control requirements, regulations or law.

Item 76.4:
On an annual basis, unless otherwise specified below, beginning one year after the granting of an emissions cap, the responsible official shall provide a certification to the Department that the facility has operated all emission units within the limits imposed by the emission cap. This certification shall include a brief summary of the emissions subject to the cap for that time period and a comparison to the threshold levels that would require compliance with an applicable requirement.

Item 76.5:
The emission of pollutants that exceed the applicability thresholds for an applicable requirement, for which the facility has obtained an emissions cap, constitutes a violation of Part 201 and of the Act.

Item 76.6:
The Compliance Certification activity will be performed for:

Emission Unit: U-00011

Regulated Contaminant(s):
CAS No: 0NY210-00-0 OXIDES OF NITROGEN

Item 76.7:
Compliance Certification shall include the following monitoring:

Capping: Yes
Monitoring Type: MONITORING OF PROCESS OR CONTROL DEVICE PARAMETERS AS SURROGATE
Monitoring Description:
This condition will become effective upon the commercial operation of the new cogeneration plant in Emission Unit U-00011.

NOx emissions from this emission unit shall not exceed ~~42~~ 52.0 tpy.

On a monthly basis, facility must calculate total annual NOX emissions of two turbines and duct firing HRSGs and emergency blackstart generator using the following formula to demonstrate compliance with the cap on a rolling 12-month basis:

X= ((A X B) + (C X D) + (E x F))/2000

Where,
X = monthly NOx emission(tons);
A = the monthly fuel consumption of natural gas in the two turbines (00029 and 00030) mmscf with duct firing HRSGs (00031 and 00032) mmscf;
B = NOx emission factor from the operation of the turbines with duct firing from the most recent stack test(lbs/mmscf).
C = the monthly fuel consumption of natural gas in the

turbines without duct firing HRSGs
D = NOx emission factor from the operation of the turbines without duct burners from the most recent stack test(lbs/mmscf);
E = the monthly fuel consumption of #2 fuel oil oin the emergency blackstart generator(10000)gallons;
F = NOx emission factor lb/1000 gallon: NSPS 40 CFR 60 Subpart IIII For Tier 2 engine category, (NMHC+ NOx) standatrd is 6.4 g/KW-hr.

A rolling 12-month tally shall be maintained at the facility ensure compliance with the limit, and summary of the calculations shall be submitted to the Department.

Parameter Monitored: OXIDES OF NITROGEN
Upper Permit Limit: ~~42~~ tons per year 52.0
Reference Test Method: 40 CFR Appendix A
Monitoring Frequency: MONTHLY
Averaging Method: 12-month total, rolled monthly
Reporting Requirements: SEMI-ANNUALLY (CALENDAR)
Reports due 30 days after the reporting period.
The initial report is due 4/30/2013.
Subsequent reports are due every 6 calendar month(s).

Condition 77: Capping Monitoring Condition
Effective between the dates of 01/03/2013 and 01/02/2018

Applicable Federal Requirement:6 NYCRR Subpart 201-7

Item 77.1:
Under the authority of 6 NYCRR Part 201-7, this condition contains an emission cap for the purpose of limiting emissions from the facility, emission unit or process to avoid being subject to the following applicable requirement(s) that the facility, emission unit or process would otherwise be subject to:

6 NYCRR 231-6.4

Item 77.2:
Operation of this facility shall take place in accordance with the approved criteria, emission limits, terms, conditions and standards in this permit.

Item 77.3:
The owner or operator of the permitted facility must maintain all required records on-site for a period of five years and make them available to representatives of the Department upon request. Department representatives must be granted access to any facility regulated by this Subpart, during normal operating hours, for the purpose of determining compliance with this and any other state and federal air pollution control requirements, regulations or law.

Item 77.4:
On an annual basis, unless otherwise specified below, beginning one year after the granting of an

Section IV - Emission Unit Information

Emission Unit Compliance Certification

Emission Unit	U-00011	Emission Point		Process		Emission Source	

Rule Citation

Title	Type	Part	Sub Part	Section	Sub Division	Parag	Sub Parag	Clause	Sub Clause	Item
6	NYCRR	231	6	2						

X Applicable Federal Requirement

Description

Rikers Island shall commence construction of Cogen Plant the turbines (and duct burners) and black start enigne generator only on or after 7/18/2012. The contemporaneous period for the previously permited PLM units ends on 7/17/2012.

Monitoring Information

X RECORD KEEPING/MAINTENANCE PROCEDURES

Work Practice		Process Material	Ref Test Method
Type	Code	Description	

Parameter		Manufacturer Name/Model No.
Code	Description	

Limit		Limit Units	
Upper	Lower	Code	Description

Averaging Method	Code		Desc	
Monitoring Freq	Code	14	Desc	AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION
Reporting Reqs	Code	14	Desc	SEMI-ANNUALLY (CALENDAR)

DEC: Please remove this condition as it no longer applies.

DEC ID: 2600700259 **Application ID:** 260070025900033 **Renewal Number: 3**

Facility: NYC-DOC - RIKERS ISLAND Aug 24, 2016 2:04 pm

Section IV - Emission Unit Information

Emission Unit Compliance Certification

Emission Unit	U-00011	Emission Point		Process	007	Emission Source	

Rule Citation

Title	Type	Part	Sub Part	Section	Sub Division	Parag	Sub Parag	Clause	Sub Clause	Item
40	CFR	60	KKKK	4415						

X **Applicable Federal Requirement**

Description

The facility must conduct an initial performance test for SO2 as required in §60.8. Subsequent SO2 performance tests shall be conducted on an annual basis (no more than 14 calendar months following the previous performance test).

Performance tests shall be conducted according to the test methodologies listed in §60.4415(a)(1)-(3) as applicable.

Monitoring Information

X **RECORD KEEPING/MAINTENANCE PROCEDURES**

Work Practice		Process Material	Ref Test Method
Type	**Code**	**Description**	

Parameter		Manufacturer Name/Model No.
Code	**Description**	

Limit		Limit Units	
Upper	**Lower**	**Code**	**Description**

Averaging Method	**Code**		**Desc**	
Monitoring Freq	**Code**	14	**Desc**	AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION
Reporting Reqs	**Code**	14	**Desc**	SEMI-ANNUALLY (CALENDAR)

The above condition 40 CFR 60.4415, NSPS Subpart KKKK should be removed since the facility has elected not to monitor the sulfur content of the gas combusted in the turbine; instead the facility maintains sulfur content records provided by the fuel supplier to demonstrate that the sulfur content in the fuel is below the maximum limits.

Attached condition 81 on the next page (marked in red box) should be included under Compliance Certification. The facility maintains sulfur content records provided by the fuel supplier on-site.

Attached conditions 86 and 87 on the next page (marked in red box) should also be included under Compliance Certification.

Condition # 81 should be included under compliance Certification for Emission Unit U-00011 (Cogen Plant)

DESCRIPTION
Averaging Method: 3-HOUR BLOCK AVERAGE
Reporting Requirements: AS REQUIRED - SEE MONITORING DESCRIPTION

Condition 81: Compliance Certification
Effective between the dates of 01/03/2013 and 01/02/2018

Applicable Federal Requirement:40CFR 60.4365(a), NSPS Subpart KKKK

Item 81.1:
The Compliance Certification activity will be performed for:

Emission Unit: U-00011

Regulated Contaminant(s):
CAS No: 007446-09-5 SULFUR DIOXIDE

Item 81.2:
Compliance Certification shall include the following monitoring:

Monitoring Type: RECORD KEEPING/MAINTENANCE PROCEDURES
Monitoring Description:
The facility may elect not to monitor the total sulfur content of the fuel combusted in the turbine, if the fuel is demonstrated not to exceed potential sulfur emissions of 26 ng SO2/J (0.060 lb SO2/mmBtu) heat input.

The facility must use the fuel quality characteristics in a current, valid purchase contract, tariff sheet, or transportation contract for the fuel, specifying that:

1) The maximum total sulfur content for oil use is 0.05% by weight (500 ppmw) or less, or
2) The total sulfur content for natural gas use is 20 grains of sulfur or less per 100 standard cubic feet, or
3) Has potential sulfur emissions of less than 26 ng SO2/J (0.060 lb SO2/mmBtu) heat input.

Monitoring Frequency: AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION
Reporting Requirements: SEMI-ANNUALLY (CALENDAR)
Reports due 30 days after the reporting period.
The initial report is due 4/30/2013.
Subsequent reports are due every 6 calendar month(s).

~~**Condition 82: NOx performance testing methodology**~~
~~**Effective between the dates of 01/03/2013 and 01/02/2018**~~

~~**Applicable Federal Requirement:40CFR 60.4400(b), NSPS Subpart**~~

14 calendar months following the previous performance test).

Performance tests shall be conducted according to the test methodologies listed in §60.4415(a)(1)-(3) as applicable.

Conditions # 86 & 87 should be included under compliance Certification for Emission Unit U-00011 (Cogen Plant)

Monitoring Frequency: AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION
Reporting Requirements: SEMI-ANNUALLY (CALENDAR)
Reports due 30 days after the reporting period.
The initial report is due 4/30/2013.
Subsequent reports are due every 6 calendar month(s).

Condition 86: Compliance Certification
Effective between the dates of 01/03/2013 and 01/02/2018

Applicable Federal Requirement:40CFR 60.4320(a), NSPS Subpart KKKK

Item 86.1:
The Compliance Certification activity will be performed for:

Emission Unit: U-00011
Process: 007 Emission Source: 00029

Regulated Contaminant(s):
CAS No: 0NY210-00-0 OXIDES OF NITROGEN

Item 86.2:
Compliance Certification shall include the following monitoring:

Monitoring Type: INTERMITTENT EMISSION TESTING
Monitoring Description:
For a facility with a new turbine firing natural gas and if the combustion turbine heat input at peak load (HHV) is greater than 50 mmBtu/hr and less than or equal to 850 mmBtu/hr, the facility must not exceed the NOx emission standard of 25 ppm at 15% O2.

Compliance with this emission standard shall be determined according to the annual performance tests as specified in §60.4340(a).

Parameter Monitored: OXIDES OF NITROGEN
Upper Permit Limit: 25 parts per million by volume (dry, corrected to 15% O2)
Reference Test Method: EPA Method 7E or Met
Monitoring Frequency: ANNUALLY
Averaging Method: 3-HOUR BLOCK AVERAGE

Reporting Requirements: ANNUALLY (CALENDAR)
Reports due 30 days after the reporting period.
The initial report is due 10/30/2013.
Subsequent reports are due every 12 calendar month(s).

Condition 87: Compliance Certification
Effective between the dates of 01/03/2013 and 01/02/2018

Applicable Federal Requirement:40CFR 60.4320(a), NSPS Subpart KKKK

Item 87.1:
The Compliance Certification activity will be performed for:

Emission Unit: U-00011
Process: 007 Emission Source: 00030

Regulated Contaminant(s):
CAS No: 0NY210-00-0 OXIDES OF NITROGEN

Item 87.2:
Compliance Certification shall include the following monitoring:

Monitoring Type: INTERMITTENT EMISSION TESTING
Monitoring Description:
For a facility with a new turbine firing natural gas and if the combustion turbine heat input at peak load (HHV) is greater than 50 mmBtu/hr and less than or equal to 850 mmBtu/hr, the facility must not exceed the NOx emission standard of 25 ppm at 15% O2.

Compliance with this emission standard shall be determined according to the annual performance tests as specified in §60.4340(a).

Parameter Monitored: OXIDES OF NITROGEN
Upper Permit Limit: 25 parts per million by volume (dry, corrected to 15% O2)
Reference Test Method: EPA Method 7E or Met
Monitoring Frequency: ANNUALLY
Averaging Method: 3-HOUR BLOCK AVERAGE
Reporting Requirements: ANNUALLY (CALENDAR)
Reports due 30 days after the reporting period.
The initial report is due 10/30/2013.
Subsequent reports are due every 12 calendar month(s).

Condition 88: Compliance Certification
Effective between the dates of 01/03/2013 and 01/02/2018

Applicable Federal Requirement:40CFR 60.4205(b), NSPS Subpart IIII

Item 88.1:

Section IV - Emission Unit Information

Emission Unit Compliance Certification

Emission Unit	U-00011	Emission Point		Process	008	Emission Source	00033

Rule Citation

Title	Type	Part	Sub Part	Section	Sub Division	Parag	Sub Parag	Clause	Sub Clause	Item
40	CFR	60	IIII	4205	b					

X Applicable Federal Requirement

Description

The owner or operator of a 2007 model year or later emergency stationary compression ignition (CI) internal combustion engine with a maximum engine power greater than or equal to 37 kW (50 HP but less than or equal to 2,237 kW (3,000 HP), that is not a fire pump engine, and has a displacement of less than 10 liters per cylinder must comply with the emission standards specified in 40 CFR 89.112 and 40CFR 89.113, as applicable, for all pollutants, for the same model year and maximum engine power.

Compliance with this requirement will be established by purchasing an engine certified to the applicable emission standard referenced above and installed and configured according to the manufacturer's specifications. Records documenting these actions must be kept on-site.

Monitoring Information

X RECORD KEEPING/MAINTENANCE PROCEDURES

Work Practice	Process Material		Ref Test Method
Type	Code	Description	

Parameter		Manufacturer Name/Model No.
Code	Description	

Limit		Limit Units	
Upper	Lower	Code	Description

Averaging Method	Code		Desc	
Monitoring Freq	Code	14	Desc	AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION
Reporting Reqs	Code	14	Desc	SEMI-ANNUALLY (CALENDAR)

Section IV - Emission Unit Information

Emission Unit Compliance Certification

Emission Unit	U-00011	Emission Point		Process	008	Emission Source	00033

Rule Citation

Title	Type	Part	Sub Part	Section	Sub Division	Parag	Sub Parag	Clause	Sub Clause	Item
40	CFR	60	IIII	4211	~~c~~ (f)					

X **Applicable Federal Requirement**

Description

Emergency stationary internal combustion engine may be operated for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by Federal, State, or local government, the manufacturer, the vendor, or the insurance company associated with the engine. Maintenance checks and readiness testing of such units is limited to 100 hours per year

Monitoring Information

X **RECORD KEEPING/MAINTENANCE PROCEDURES**

Work Practice Type	Process Material Code	Process Material Description	Ref Test Method

Parameter Code	Parameter Description	Manufacturer Name/Model No.

Limit Upper	Limit Lower	Limit Units Code	Limit Units Description

Averaging Method	**Code**		**Desc**	
Monitoring Freq	**Code**	14	**Desc**	AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION
Reporting Reqs	**Code**	14	**Desc**	SEMI-ANNUALLY (CALENDAR)

DEC ID: 2600700259 **Application ID:** 260070025900033 **Renewal Number: 3**

Facility: NYC-DOC - RIKERS ISLAND Aug 24, 2016 2:04 pm

Section IV - Emission Unit Information

Emission Unit Compliance Certification

Emission Unit	U-00011	Emission Point		Process	008	Emission Source	00033

Rule Citation

Title	Type	Part	Sub Part	Section	Sub Division	Parag	Sub Parag	Clause	Sub Clause	Item
6	NYCRR	227	2	4	f	6				

X Applicable Federal Requirement

Description

The operational hours of the emergency generator engine must be limited to 500 hours per year. Facility must maintain on site records which demonstrate that the engine is operated less than 500 hours per year on a 12-month rolling basis for emergency purposes only. The 500 hours of annual operation for the engine include operation during emergency situations, routine maintenance, and equipment reliability testing.

Monitoring Information

X RECORD KEEPING/MAINTENANCE PROCEDURES

Work Practice		Process Material	Ref Test Method
Type	Code	Description	

Parameter		Manufacturer Name/Model No.
Code	Description	

Limit		Limit Units	
Upper	Lower	Code	Description

Averaging Method	Code		Desc	
Monitoring Freq	Code	05	Desc	MONTHLY
Reporting Reqs	Code	14	Desc	SEMI-ANNUALLY (CALENDAR)

Emission Unit Emissions Summary

Emission Unit	U-00011			
CAS No.	Contaminant Name			
0NY210-00-0	OXIDES OF NITROGEN			
ERP (lb/yr)	PTE (lb/hr)	PTE (lb/yr)	Actual (lb/hr)	Actual (lb/yr)
~~83999.2~~ 104,000	~~14.1~~ 13.8	~~83999.2~~ 104,000		

Emission Unit	U-00011			
CAS No.	Contaminant Name			
0NY075-00-5	PM-10			
ERP (lb/yr)	PTE (lb/hr)	PTE (lb/yr)	Actual (lb/hr)	Actual (lb/yr)
~~31545.8~~ 19,800	~~4.56~~ 2.4	~~31545.8~~ 19,800		

DEC: Please remove this section, as the combustion turbines are no longer required to have an emission cap.

NEW YORK STATE | Department of Environmental Conservation

DEC ID: 2600700259 **Application ID:** 260070025900033 **Renewal Number: 3**

Facility: NYC-DOC - RIKERS ISLAND

Aug 24, 2016 2:04 pm

Supporting Documentation

- [ ] Aerial Photo (___ / ___ / _______)
- [x] Air Quality Model (March 2020)
- [ ] Air State Facility Permit (___ / ___ / _______)
- [ ] Air Title V Facility Permit (___ / ___ / _______)
- [ ] Alternative Fuel Monitoring Schedule (___ / ___ / _______)
- [ ] Ambient Air Monitoring Plan (___ / ___ / _______)
- [ ] Analysis of Contemporaneous Emission Increase/Decrease (___ / ___ / _______)
- [ ] Article 11, Title 5 Permit for Interference with Fish & Wildlife (___ / ___ / _______)
- [ ] Authorized Agent Letter (___ / ___ / _______)
- [ ] BACT Demonstration (___ / ___ / _______)
- [ ] Baseline Period Demonstration (___ / ___ / _______)
- [ ] Beneficial Use Determination (BUD) (___ / ___ / _______)
- [ ] Blasting Chart - Ground Vibration Limits (___ / ___ / _______)
- [ ] Building Identification Table (___ / ___ / _______)
- [ ] Calculations (___ / ___ / _______)
- [ ] Capping Letter/Package (___ / ___ / _______)
- [ ] Certificate of Capacity (Resource Recovery Facility) (___ / ___ / _______)
- [ ] Compliance Assurance Monitoring Plan (CAM) (___ / ___ / _______)
- [ ] Confidentiality Justification (___ / ___ / _______)
- [ ] Construction and Demolition Debris Tracking Document (___ / ___ / _______)
- [ ] Construction Detail Drawings (___ / ___ / _______)
- [ ] Continuous Emissions Monitoring Plans/QA/QC (___ / ___ / _______)
- [ ] Control Equipment Layout (___ / ___ / _______)
- [ ] Custom Schedule for Fuel Nitrogen and Sulfur Monitoring (___ / ___ / _______)
- [ ] Drawings/Blueprints (___ / ___ / _______)
- [ ] Elevations/Sections (___ / ___ / _______)
- [ ] Emission Inventory Report (___ / ___ / _______)
- [ ] Emission Survey (___ / ___ / _______)
- [ ] Emission Unit Summary (___ / ___ / _______)
- [ ] EPA Memo Re: Technical Infeasibility of Monitoring Nitrogen in Fuel (___ / ___ / _______)
- [ ] Episode Action Plan (___ / ___ / _______)
- [ ] Equipment Manufacturers Information (___ / ___ / _______)
- [x] ERC Quantification (June 2020)
- [ ] Exemption Related Document (___ / ___ / _______)
- [ ] Existing Certificates to Operate and/or Permits to Construct (___ / ___ / _______)
- [ ] Existing Consent Order (___ / ___ / _______)
- [ ] Existing Methane Migration & Recovery Well Plan (___ / ___ / _______)
- [ ] Existing Permit Figures (___ / ___ / _______)
- [ ] Facility Location Map (___ / ___ / _______)
- [ ] Facility-Wide Operating Permit Submittal Schedule (___ / ___ / _______)
- [ ] Fugitive Dust Control Plan (___ / ___ / _______)
- [ ] General Flow Diagram (___ / ___ / _______)
- [ ] Generating Plant Site & Section Sheet (___ / ___ / _______)
- [x] LAER Demonstration (March 2020)
- [ ] Letter of Intent to Commence Work (___ / ___ / _______)

Department of Environmental Conservation

DEC ID: 2600700259 **Application ID:** 260070025900033 **Renewal Number: 3**

Facility: NYC-DOC - RIKERS ISLAND

Aug 24, 2016 2:04 pm

Supporting Documentation

- [X] List of Exempt Activities (form attached) (___ / ___ / _______)
- [ ] MACT Demonstration (___ / ___ / _______)
- [X] Methods Used To Determine Compliance (form attached) (___ / ___ / _______)
- [ ] Miscellaneous Attachments - Not Otherwise Specified (___ / ___ / _______)
- [ ] Miscellaneous Correspondence (___ / ___ / _______)
- [ ] Mitigation Planting Plan (___ / ___ / _______)
- [ ] MSDS Information Sheets (___ / ___ / _______)
- [ ] Non-CEM: Custom Monitoring, Recordkeeping and/or Reporting Plan (___ / ___ / _______)
- [ ] Notice Covenant (___ / ___ / _______)
- [ ] Notice of Intent to Commence Work (___ / ___ / _______)
- [X] NOx RACT Compliance Plan (___ / ___ / _______) March 2020
- [ ] NOx RACT Operating Plan (___ / ___ / _______)
- [ ] Opacity Compliance Plan (___ / ___ / _______)
- [ ] Operational Flexibility:Desc of Alternative Operating Scenarios and Protocols (___ / ___ / _______)
- [ ] P.E. Certification (form attached) (___ / ___ / _______)
- [ ] Permit Sign (___ / ___ / _______)
- [ ] Pesticide Treatment Area Map (___ / ___ / _______)
- [ ] Photograph(s) (___ / ___ / _______)
- [ ] Plot Plan (___ / ___ / _______)
- [ ] Process Flow Diagram(s) (___ / ___ / _______)
- [ ] Process Material Specification Data (___ / ___ / _______)
- [ ] Process Operation Log Sheet(s) (___ / ___ / _______)
- [ ] Project Location Map (___ / ___ / _______)
- [ ] PSD Permit Correlation Tables (___ / ___ / _______)
- [ ] RACT Demonstration (___ / ___ / _______)
- [ ] Regulatory Analysis Summary (___ / ___ / _______)
- [ ] Results of SEQR Review (___ / ___ / _______)
- [ ] Seed Mixture Recommendations (___ / ___ / _______)
- [ ] Short Environmental Assessment Form (___ / ___ / _______)
- [ ] Site Plan (___ / ___ / _______)
- [ ] Solid Waste Annual Report Form (___ / ___ / _______)
- [ ] SPDES Permit (___ / ___ / _______)
- [ ] Stack Test Protocols/Reports (___ / ___ / _______)
- [ ] Title IV Acid Rain Permit Application (___ / ___ / _______)
- [ ] Transfer Form (___ / ___ / _______)
- [ ] VOC RACT Compliance Plan (___ / ___ / _______)
- [ ] Wood Waste Specifications (___ / ___ / _______)

CONTINUATION SHEETS—
NEW CONDITIONS

New York State Department of Environmental Conservation
Air Permit Application Form

New York State of Opportunity | Department of Environmental Conservation

DEC ID
2 - 6 0 0 7 - 0 0 2 5 9

Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)

Rule Citation

Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause
6	NYCRR	257	1	4	a				

☐ Applicable Federal Requirement ☒ State Only Requirement ☒ Capping

Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name
U-00010	00010,00011,00012,00013	GEN	00010,00011,00012,00013	NY210-00-0	Nitrogen Oxides

Monitoring Information

☐ Continuous Emission Monitoring ☐ Monitoring of Process or Control Device Parameters as a Surrogate
☐ Intermittent Emission Testing ☐ Work Practice Involving Specific Operations
☐ Ambient Air Monitoring ☒ Record Keeping/Maintenance Procedures

Description

At DEC's request dated August 6, 2018, an air dispersion modeling analysis to determine compliance with 1-hour NO2 National Ambient Air Quality Standards (NAAQS) was performed in support of the Title V Renewal application.

The four PLM engines (ES:00010, 00011, 00012, 00013) located at George R. Vierno Center (GRVC) Building are permitted to participate in PLM programs.

However, with this permit renewal the maximum enrolled capacity for this group of engines is being capped at 2,400 kilowatt (KW) while operating under PLM programs to avoid any potential air quality exceedances of the 1-hour NO2 standard. This limit was determined as a result of the of the 1-hour NO2 mod1eling analysis performed for the facility.

Work Practice Type	Process Material Code	Process Material Description	Reference Test Method

Parameter Code	Parameter Description	Manufacturer Name/Model No.

Limit Upper	Limit Lower	Limit Units Code	Limit Units Description
2500		213	Kilowatts

Averaging Method Code	Averaging Method Description	Monitoring Frequency Code	Monitoring Frequency Description	Reporting Requirements Code	Reporting Requirements Description
63	Averaging Method - see monitoring description	14	As required - see monitoring description	14	Semi Annually (Calendar)

Continuation Sheet 1 of 6

New York State Department of Environmental Conservation
Air Permit Application Form

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

DEC ID
2 - 6 0 0 7 - 0 0 2 5 9

Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)

Rule Citation

Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause
6	NYCRR	257	1	4	a				

☐ Applicable Federal Requirement ☒ State Only Requirement ☒ Capping

Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name
U-00010	00014, 00015	GEN	00014, 00015	NY210-00-0	Nitrogen Oxides

Monitoring Information

☐ Continuous Emission Monitoring
☐ Intermittent Emission Testing
☐ Ambient Air Monitoring
☐ Monitoring of Process or Control Device Parameters as a Surrogate
☐ Work Practice Involving Specific Operations
☒ Record Keeping/Maintenance Procedures

Description

At DEC's request dated August 6, 2018, an air dispersion modeling analysis to determine compliance with 1-hour NO2 National Ambient Air Quality Standards (NAAQS) was performed in support of the Title V Renewal application.

The two PLM engines (ES:00014, 00015) located at Rose M. Singer Center (RMSC) Building are permitted to participate in PLM programs.

However, with this permit renewal the maximum enrolled capacity for this group of engines is being capped at 400 kilowatt (KW) while operating under PLM programs to avoid any potential air quality violation of the 1-hour NO2 standard.

Work Practice Type	Process Material Code	Process Material Description	Reference Test Method

Parameter Code	Parameter Description	Manufacturer Name/Model No.

Limit Upper	Limit Lower	Limit Units Code	Limit Units Description
400		213	Kilowatts

Averaging Method Code	Averaging Method Description	Monitoring Frequency Code	Monitoring Frequency Description	Reporting Requirements Code	Reporting Requirements Description
63	Averaging Method - see monitoring description	14	As required - see monitoring description	14	Semi Annually (Calendar)

New York State Department of Environmental Conservation
Air Permit Application Form

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

DEC ID
2 - 6 0 0 7 - 0 0 2 5 9

Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)

Rule Citation

Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause
6	NYCRR	257	1	4	a				

☐ Applicable Federal Requirement ☒ State Only Requirement ☒ Capping

Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name
U-00010	00016,00017,00018,00019	GEN	00016,00017,00018,00019	NY210-00-0	Nitrogen Oxides

Monitoring Information

- ☐ Continuous Emission Monitoring
- ☐ Intermittent Emission Testing
- ☐ Ambient Air Monitoring
- ☐ Monitoring of Process or Control Device Parameters as a Surrogate
- ☐ Work Practice Involving Specific Operations
- ☒ Record Keeping/Maintenance Procedures

Description

At DEC's request dated August 6, 2018, an air dispersion modeling analysis to determine compliance with 1-hour NO2 National Ambient Air Quality Standards (NAAQS) was performed in support of the Title V Renewal application.

The four PLM engines (ES:00016, 00017, 00018, 00019) located at Otis Bantum Correctional Center (OBCC) Building were previously permitted to participate in PLM programs.

However, with this permit renewal these engines are prohibited from enrolling and participating in PLM programs, to avoid any potential air quality violation of the 1-hour NO2 standard.

In future if the facility plans to operate these engines under PLM programs, the facility would need to perform additional 1-hour NO2 modeling analysis and show compliance with the 1-hour NO2 standards.

Work Practice Type	Process Material Code	Process Material Description	Reference Test Method

Parameter Code	Parameter Description	Manufacturer Name/Model No.

Limit Upper	Limit Lower	Limit Units Code	Limit Units Description
0		213	Kilowatts

Averaging Method Code	Averaging Method Description	Monitoring Frequency Code	Monitoring Frequency Description	Reporting Requirements Code	Reporting Requirements Description
63	Averaging Method - see monitoring description	14	As required - see monitoring description	14	Semi Annually (Calendar)

Continuation Sheet 3 of 6

New York State Department of Environmental Conservation
Air Permit Application Form

DEC ID
2 - 6 0 0 7 - 0 0 2 5 9

Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)

Rule Citation

Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause
6	NYCRR	257	1	4	a				

☐ Applicable Federal Requirement ☒ State Only Requirement ☒ Capping

Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name
U-00010	00020,00022,00024,00025	GEN	00020,00022,00024,00025	NY210-00-0	Nitrogen Oxides

Monitoring Information

☐ Continuous Emission Monitoring ☐ Monitoring of Process or Control Device Parameters as a Surrogate
☐ Intermittent Emission Testing ☐ Work Practice Involving Specific Operations
☐ Ambient Air Monitoring ☒ Record Keeping/Maintenance Procedures

Description

At DEC's request dated August 6, 2018, an air dispersion modeling analysis to determine compliance with 1-hour NO2 National Ambient Air Quality Standards (NAAQS) was performed in support of the Title V Renewal application.

The four PLM engines (ES:00020, 00022, 00024, 00025) located at West Facility (WF) are permitted to participate in PLM programs.

However, with this permit renewal the maximum enrolled capacity for this group of engines is being capped at 1,700 kilowatt (KW) while operating under PLM programs to avoid any potential air quality violation of the 1-hour NO2 standard.

Work Practice Type	Process Material Code	Process Material Description	Reference Test Method

Parameter Code	Parameter Description	Manufacturer Name/Model No.

Limit Upper	Limit Lower	Limit Units Code	Limit Units Description
1700		213	Kilowatts

Averaging Method Code	Averaging Method Description	Monitoring Frequency Code	Monitoring Frequency Description	Reporting Requirements Code	Reporting Requirements Description
63	Averaging Method - see monitoring description	14	As required - see monitoring description	14	Semi Annually (Calendar)

Continuation Sheet 4 of 6

New York State Department of Environmental Conservation
Air Permit Application Form

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

DEC ID
2 - 6 0 0 7 - 0 0 2 5 9

Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)

Rule Citation

Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause
6	NYCRR	231	6	5					

☒ Applicable Federal Requirement ☐ State Only Requirement ☒ Capping

Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name
U-00011		007	00029,00030	0NY210-00-0	Oxides of Nitrogen

Monitoring Information

☐ Continuous Emission Monitoring
☒ Intermittent Emission Testing
☐ Ambient Air Monitoring
☐ Monitoring of Process or Control Device Parameters as a Surrogate
☐ Work Practice Involving Specific Operations
☐ Record Keeping/Maintenance Procedures

Description

The facility is proposing a NOx emission limit of 12 ppm at 15% O2 from the turbines (without duct firing), as demonstrated in the LAER analysis dated March 2020.

Compliance with this emission limit shall be determined per compliance stack testing performed, as per Department approved protocol, once during the term of the permit.

Work Practice Type	Process Material Code	Process Material Description	Reference Test Method
			EPA Method 7E or Method 19

Parameter Code	Parameter Description	Manufacturer Name/Model No.

Limit Upper	Limit Lower	Limit Units Code	Limit Units Description
12		275	parts per million by volume (dry, corrected to 15% O2)

Averaging Method Code	Averaging Method Description	Monitoring Frequency Code	Monitoring Frequency Description	Reporting Requirements Code	Reporting Requirements Description
47	3 hr block average	17	once during the term of the permit	14	Semi Annually (Calendar)

DEC ID
2 - 6 0 0 7 - 0 0 2 5 9

Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)

Rule Citation

Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause
6	NYCRR	231	6	5					

☒ Applicable Federal Requirement ☐ State Only Requirement ☒ Capping

Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name
U-00011		007	00029, 00030, 00031, 00032	0NY210-00-0	Oxides of Nitrogen

Monitoring Information

☐ Continuous Emission Monitoring
☒ Intermittent Emission Testing
☐ Ambient Air Monitoring
☐ Monitoring of Process or Control Device Parameters as a Surrogate
☐ Work Practice Involving Specific Operations
☐ Record Keeping/Maintenance Procedures

Description

The facility is proposing a NOx emission limit of 15 ppm at 15% O2 from the turbines and duct burners, as demonstrated in the LAER analysis dated March 2020.

Compliance with this emission limit shall be determined per compliance stack testing performed, as per Department approved protocol, once during the term of the permit.

Work Practice Type	Process Material Code	Process Material Description	Reference Test Method
			EPA Method 7E or Method 19

Parameter Code	Parameter Description	Manufacturer Name/Model No.

Limit Upper	Limit Lower	Limit Units Code	Limit Units Description
15		275	parts per million by volume (dry, corrected to 15% O2)

Averaging Method Code	Averaging Method Description	Monitoring Frequency Code	Monitoring Frequency Description	Reporting Requirements Code	Reporting Requirements Description
47	3 hr block average	17	once during the term of the permit	14	Semi Annually (Calendar)

Continuation Sheet 6 of 6

USE OF EMISSION REDUCTION CREDITS (ERC) FORM

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Air Resources, Bureau of Stationary Sources
625 Broadway, Albany, New York 12233-3254
P: (518) 402-8403 | F: (518) 402-9035
www.dec.ny.gov

USE OF EMISSION REDUCTION CREDITS (ERC) FORM *

☒ FACILITY ☐ BROKER / ☐ USING ☒ PURCHASING ERC (check appropriate boxes)

(Facility) / (Broker) Name: NYC-DOC - Rikers Island DEC ID#: 2-6007-00259

Address: 17-25 Hazen St, East Elmhurst, NY 11370

Proposed Project Description: Title V Permit Renewal 3 Application

Contact Name: Alex Mahoney Phone #: 718-546-1429

Name of Authorized Representative: Alex Mahoney Title: Executive Director of Facilities

Signature of Authorized Representative: ________ Date: 6/12/2020

☐ FACILITY ☒ BROKER / ☐ CREATING ☒ TRANSFERRING ERC (check appropriate boxes)

(Facility) / (Broker) Name: Emission Advisors Inc. DEC ID#: N/A

Address: 1235 North Loop West, Suite 920, Houston, TX 77008

ERC Emission Source ID#(s) / ERC tpy: PA NOx, Exelon, Delaware County / 67.6 ; ____/____ ;
____/____ ; ____/____ ; or

ERC Emission Unit ID#(s) / ERC tpy: ____/____ ; ____/____ ;
____/____ ; ____/____ ;

Reduction Mechanism: Shutdown

Name of Authorized Representative: Michael Taylor Title: President

Signature of Authorized Representative: ________ Date: 6/20/2020

AMOUNT OF EMISSION REDUCTION CREDIT BEING ☐ **USED** / ☒ **TRANSFERRED**

(complete all that apply)

NOx	offsets 67.6 tpy	netting ____ tpy
VOC	offsets ____ tpy	netting ____ tpy
SO_2	offsets ____ tpy	netting ____ tpy
PM-10	offsets ____ tpy	netting ____ tpy
PM-2.5	offsets ____ tpy	netting ____ tpy

***NOTE:** Any previous Use of ERC Forms associated with the ERCs being used or transferred with this transaction must be attached.

New York State Department of Environmental Conservation
Air Permit Application

DEC ID
2 - 6 0 0 7 - 0 0 2 5 9

List of Exempt Activities

Instructions
Applicants for Title V facility permits must provide a listing of each exempt activity, as described in 6 NYCRR Part 201-3.2(c), that is currently operated at the facility. This form provides a means to fulfill this requirement.   In order to complete this form, enter the number and building location of each exempt activity. Building IDs used on this form should match those used in the Title V permit application. If a listed activity is not operated at the facility, leave the corresponding information blank.

Combustion

Rule Citation 201-3.2(c)	Description	Number of Activities	Building Location
(1)	Stationary or portable combustion installations where the furnace has a maximum heat input capacity less than 10 mmBtu/hr burning fuels other than coal or wood; or a maximum heat input capacity of less than 1 mmBtu/hr burning coal or wood. This activity does not include combustion installations burning any material classified as solid waste, as defined in 6 NYCRR Part 360, or waste oil, as defined in 6 NYCRR Subpart 225-2.		
(2)	Space heaters burning waste oil at automotive service facilities, as defined in 6 NYCRR Subpart 225-2, generated on-site or at a facility under common control, alone or in conjunction with used oil generated by a do-it-yourself oil changer as defined in 6 NYCRR Subpart 374-2.		
(3)(i)	Stationary or portable internal combustion engines that are liquid or gaseous fuel powered and located within the New York City metropolitan area or the Orange County towns of Blooming Grove, Chester, Highlands, Monroe, Tuxedo, Warwick, or Woodbury, and have a maximum mechanical power rating of less than 200 brake horsepower.		
(3)(ii)	Stationary or portable internal combustion engines that are liquid or gaseous fuel powered and located outside of the New York City metropolitan area or the Orange County towns of Blooming Grove, Chester, Highlands, Monroe, Tuxedo, Warwick, or Woodbury, and have a maximum mechanical power rating of less than 400 brake horsepower.		
(3)(iii)	Stationary or portable internal combustion engines that are gasoline powered and have a maximum mechanical power rating of less than 50 brake horsepower.		
(4)	Reserved.		
(5)	Gas turbines with a heat input at peak load less then 10 mmBtu/hour		

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Rule Citation 201-3.2(c)	Description	Number of Activities	Building Location
(6)	Emergency power generating stationary internal combustion engines, as defined in 6 NYCRR Part 200.1(cq), and engine test cells at engine manufacturing facilities that are utilized for research and development, reliability performance testing, or quality assurance performance testing. Stationary internal combustion engines used for peak shaving and/or demand response programs are not exempt.	55	
Combustion Related			
(7)	Non-contact water cooling towers and water treatment systems for process cooling water and other water containers designed to cool, store or otherwise handle water that has not been in direct contact with gaseous or liquid process streams.		
Agricultural			
(8)	Feed and grain milling, cleaning, conveying, drying and storage operations including grain storage silos, where such silos exhaust to an appropriate emissions control device, excluding grain terminal elevators with permanent storage capacities over 2.5 million U.S. bushels, and grain storage elevators with capacities above one million bushels.		
(9)	Equipment used exclusively to slaughter animals, but not including other equipment at slaughterhouses, such as rendering cookers, boilers, heating plants, incinerators, and electrical power generating equipment.		
Commercial - Food Service Industries			
(10)	Flour silos at bakeries, provided all such silos are exhausted through an appropriate emission control device.		
(11)	Emissions from flavorings added to a food product where such flavors are manually added to the product.		
Commercial - Graphic Arts			
(12)	Screen printing inks/coatings or adhesives which are applied by a hand-held squeegee. A hand-held squeegee is one that is not propelled though the use of mechanical conveyance and is not an integral part of the screen printing process.		
(13)	Graphic arts processes at facilities located outside the New York City metropolitan area or the Orange County towns of Blooming Grove, Chester, Highlands, Monroe, Tuxedo, Warwick, or Woodbury whose facility-wide total emissions of volatile organic compounds from inks, coatings, adhesives, fountain solutions and cleaning solutions are less than three tons during any 12-month period.		

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Rule Citation 201-3.2(c)	Description	Number of Activities	Building Location
(14)	Graphic label and/or box labeling operations where the inks are applied by stamping or rolling.		
(15)	Graphic arts processes which are specifically exempted from regulation under 6 NYCRR Part 234, with respect to emissions of volatile organic compounds which are not given an A rating as described in 6 NYCRR Part 212.		
Commercial - Other			
(16)	Gasoline dispensing sites registered with the department pursuant to 6 NYCRR Part 612.		
(17)	Surface coating and related activities at facilities which use less than 25 gallons per month of total coating materials, or with actual volatile organic compound emissions of 1,000 pounds or less from coating materials in any 12-month period. Coating materials include all paints and paint components, other materials mixed with paints prior to application, and cleaning solvents, combined. This exemption is subject to the following: (i) The facility is located outside of the New York City metropolitan area or the Orange County towns of Blooming Grove, Chester, Highlands, Monroe, Tuxedo, Warwick, or Woodbury; and (ii) All abrasive cleaning and surface coating operations are performed in an enclosed building where such operations are exhausted into appropriate emission control devices.		
(18)	Abrasive cleaning operations which exhaust to an appropriate emission control device.		
(19)	Ultraviolet curing operations.		
Municipal/Public Health Related			
(20)	Landfill gas ventilating systems at landfills with design capacities less than 2.5 million megagrams (3.3 million tons) and 2.5 million cubic meters (2.75 million cubic yards), where the systems are vented directly to the atmosphere, and the ventilating system has been required by, and is operating under, the conditions of a valid 6 NYCRR Part 360 permit, or order on consent.		
Storage Vessels			
(21)	Distillate fuel oil, residual fuel oil, and liquid asphalt storage tanks with storage capacities below 300,000 barrels.	14	

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Rule Citation 201-3.2(c)	Description	Number of Activities	Building Location
(22)	Pressurized fixed roof tanks which are capable of maintaining a working pressure at all times to prevent emissions of volatile organic compounds to the outdoor atmosphere.		
(23)	External floating roof tanks which are of welded construction and are equipped with a metallic-type shoe primary seal and a secondary seal from the top of the shoe seal to the tank wall.		
(24)	External floating roof tanks which are used for the storage of a petroleum or volatile organic liquid with a true vapor pressure less than 4.0 psi (27.6 kPa), are of welded construction and are equipped with one of the following: (i) a metallic-type shoe seal; (ii) a liquid-mounted foam seal; (iii) a liquid-mounted liquid-filled type seal; or (iv) equivalent control equipment or device.		
(25)	Storage tanks, including petroleum liquid storage tanks as defined in 6 NYCRR Part 229, with capacities less than 10,000 gallons, except those subject to 6 NYCRR Part 229 or Part 233.		
(26)	Horizontal petroleum or volatile organic liquid storage tanks.		
(27)	Storage silos storing solid materials, provided all such silos are exhausted through an appropriate emission control device. This exemption does not include raw material, clinker, or finished product storage silos at Portland cement plants.		
Industrial			
(28)	Processing equipment at existing sand and gravel and stone crushing plants which were installed or constructed before August 31, 1983, where water is used for operations such as wet conveying, separating, and washing. This exemption does not include processing equipment at existing sand and gravel and stone crushing plants where water is used for dust suppression.		
(29)(i)	Sand and gravel processing or crushed stone processing lines at a non-metallic mineral processing facility that are a permanent or fixed installation with a maximum rated processing capacity of 25 tons of minerals per hour or less.		

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Rule Citation 201-3.2(c)	Description	Number of Activities	Building Location
(29)(ii)	Sand and gravel processing or crushed stone processing lines at a non-metallic mineral processing facility that are a portable emission source with a maximum rated processing capacity of 150 tons of minerals per hour or less.		
(29)(iii)	Sand and gravel processing or crushed stone processing lines at a non-metallic mineral processing facility that are used exclusively to screen minerals at a facility where no crushing or grinding takes place.		
(30)	Reserved.		
(31)	Surface coating operations which are specifically exempted from regulation under 6 NYCRR Part 228, with respect to emissions of volatile organic compounds which are not given an A rating pursuant to 6 NYCRR Part 212.		
(32)	Pharmaceutical tablet branding operations.		
(33)	Thermal packaging operations, including, but not limited to, therimage labeling, blister packing, shrink wrapping, shrink banding, and carton gluing.		
(34)	Powder coating operations.		
(35)	All tumblers used for the cleaning and/or deburring of metal products without abrasive blasting.		
(36)	Presses used exclusively for molding or extruding plastics except where halogenated carbon compounds or hydrocarbon solvents are used as foaming agents.		
(37)	Concrete batch plants where the cement weigh hopper and all bulk storage silos are exhausted through fabric filters, and the batch drop point is controlled by a shroud or other emission control device.		
(38)	Cement storage operations not located at Portland cement plants where materials are transported by screw or bucket conveyors.		
(39)(i)	Cold cleaning degreasers with an open surface area of 11 square feet or less and an internal volume of 93 gallons or less or, having an organic solvent loss of 3 gallons per day or less.		
39(ii)	Cold cleaning degreasers that use a solvent with a VOC content or five percent or less by weight, unless subject to the requirements of 40 CFR 63 Subpart T.		

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Rule Citation 201-3.2(c)	Description	Number of Activities	Building Location
(39)(iii)	Conveyorized degreasers with an air/vapor interface smaller than 22 square feet (2 square meters), unless subject to the requirements of 40 CFR 63 Subpart T.		
(39)(iv)	Open-top vapor degreasers with an open-top area smaller than 11 square feet (1 square meter), unless subject to the requirements of 40 CFR 63 Subpart T.		
Miscellaneous			
(40)	Ventilating and exhaust systems for laboratory operations. Laboratory operations do not include processes having a primary purpose to produce commercial quantities of materials.		
(41)	Exhaust or ventilating systems for the melting of gold, silver, platinum and other precious metals.		
(42)	Exhaust systems for paint mixing, transfer, filling or sampling and/or paint storage rooms or cabinets, provided the paints stored within these locations are stored in closed containers when not in use.		
(43)	Exhaust systems for solvent transfer, filling or sampling, and/or solvent storage rooms provided the solvent stored within these locations are stored in containers when not in use.		
(44)	Research and development activities, including both stand-alone and activities within a major facility, until such time as the administrator completes a rule making to determine how the permitting program should be structured for these activities.		
(45)	The application of odor counteractants and/or neutralizers.		
(46)	Hydrogen fuel cells.		
(47)	Dry cleaning equipment that uses only water-based cleaning processes or those using liquid carbon dioxide.		
(48)	Manure spreading, handling and storage at farms and agricultural facilities.		

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Methods Used to Determine Compliance

Emission Unit ID	Applicable Requirement	Method Used to Determine Compliance	Compliance Date
U-00010	6 NYCRR 227-2.5	Engine Emission Source 00011 located at George R. Veirno Center (GRVC) is permitted to participate in the NYPA sponsored PLM programs. The engine failed the current permitted NOx RACT emission limit of 7.0 g/bhp-hr during the August 2018 stack testing and has been presently removed from participating in the PLM programs. A revised NOx RACT emission limit of 9.2 g/bhp-hr is being proposed for this engine as demonstrated in the March 2020 NOx RACT analysis performed in support of the renewal application. The revised RACT analysis would need approval by the Department before this engine can participate in PLM programs in future.	
U-00001 U-00002 U-00003	6 NYCRR 227-2.5(c)	The owner or operator must perform an annual tune-up of eight mid-size boilers, emission sources: 0001, 0002, 0003, 0004, 0005, 0006, 0007 and 0008. This did not occur in 2019 due to contract administration issues. The tuning will be performed in 2020.	2020

EMISSIONS

NYC-DOC-Rikers Island
Total Facility Potential to Emit (PTE)

	Potential to Emit (PTE) Emissions (tons/year)						
Pollutant	U-00001 (Boilers)	U-00002 (Boilers)	U-00003 (Boilers)	U-00009 (Spray Booth)	U-00010 (PLM Engines)	U-00011 (Cogeneration Plant)	Total
NOx	201.83	100.92	100.92	-	22.50	52.0	**478.14**
CO	137.17	68.58	68.58	-	10.56	59.8	**344.67**
VOC	8.98	4.49	4.49	2.50	1.23	3.33	**25.02**
SO2	2.60	1.30	1.30	-	3.11	2.61	**10.91**
PM10	29.01	14.50	14.50	-	1.34	1.08	**60.44**
PM2.5	25.96	12.98	12.98	-	1.34	1.08	**54.34**
CO2	274,243.27	137,121.64	137,121.64	-	2,570.31	115,816.08	**666,872.93**
CH4	11.12	5.56	5.56	-	0.10	2.18	**24.54**
N2O	2.22	1.11	1.11	-	0.02	0.22	**4.69**
CO2e	275,184.36	137,592.18	137,592.18	-	2,579.13	115,935.75	**668,883.60**

	Potential to Emit (PTE) Emissions (lbs/year)						
Pollutant	U-00001 (Boilers)	U-00002 (Boilers)	U-00003 (Boilers)	U-00009 (Spray Booth)	U-00010 (PLM Engines)	U-00011 (Cogeneration Plant)	Total
NOx	403,661	201,830	201,830	-	45,000	103,961	**956,282**
CO	274,333	137,166	137,166	-	21,120	119,563	**689,348**
VOC	17,962	8,981	8,981	5,000	2,464	6,659	**50,047**
SO2	5,192	2,596	2,596	-	6,213	5,223	**21,820**
PM10	58,014	29,007	29,007	-	2,688	2,160	**120,876**
PM2.5	51,920	25,960	25,960	-	2,688	2,160	**108,688**
CO2	548,486,542	274,243,271	274,243,271	-	5,140,615	231,632,164	**1,333,745,863**
CH4	22,248	11,124	11,124	-	209	4,366	**49,071**
N2O	4,450	2,225	2,225	-	42	437	**9,378**
CO2e	550,368,720	275,184,360	275,184,360	-	5,158,255	231,871,495	**1,337,767,191**

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Emission Unit U00001 Emission Calculations

U00001:Emission Sources: 00001, 00002, 00003, 00004

4 boilers	96	mmBtu/hr each	NG HHV:	1030	Btu/scf
	384	mmBtu/hr total firing rate	#2 Oil HHV:	138	mmBtu/1000 gal
PTE Operating hrs	8,760	hrs/yr per boiler			

Fuel Usage (2016-2018)

NG:	465.70	mmcf burned
#2 Oil:	131.67	1000 gals burned

	Natural Gas					#2 Oil					TOTAL				
		Actual Emissions		PTE Emissions			Actual Emissions		PTE Emissions		Actual Emissions[2]		PTE Emissions[3]		
Pollutant	**Emission Factor (lbs/mmscf)**	**Emissions (lbs/yr)**	**Emissions (tpy)**	**Emissions (lbs/yr)**	**Emissions (tpy)**	**Emission Factor ($lbs/10^3$ gals)**	**Emissions (lbs/yr)**	**Emissions (tpy)**	**Emissions (lbs/yr)**	**Emissions (tpy)**	**Emissions (lbs/yr)**	**Emissions (tpy)**	**Emissions (lbs/yr)**	**Emissions (tpy)**	
NOx[1]	123.6	57,561	28.78	403,661	201.8	16.56	2,180.4	1.09	403,660.8	201.8	59,741.5	**29.9**	403,660.8	**201.8**	**Based on NOx RACT of 0.12 lb/MMBtu**
CO	84	39,119	19.56	274,333	137.2	5	658.3	0.33	121,878.3	60.9	39,777.5	**19.9**	274,332.6	**137.2**	
VOC	5.5	2,561	1.28	17,962	9.0	0.34	44.8	0.02	8,287.7	4.1	2,606.1	**1.3**	17,962.3	**9.0**	
SO2	0.6	279	0.14	1,960	1.0	0.213	28.0	0.01	5,192.0	2.6	307.5	**0.2**	5,192.0	**2.6**	
PM10	7.6	3,539	1.77	24,821	12.4	2.38	313.4	0.16	58,014.1	29.0	3,852.7	**1.9**	58,014.1	**29.0**	
PM2.5	7.6	3,539	1.77	24,821	12.4	2.13	280.5	0.14	51,920.1	26.0	3,819.8	**1.9**	51,920.1	**26.0**	
CO2	120,396	56,068,812	28034	393,195,734	196,597.9	22,501	2,962,693.3	1,481	548,486,542	274,243	59,031,505.3	**29,515.8**	548,486,542	**274,243.3**	
CH4	2.27	1,058	0.53	7,416	3.7	0.91	120.2	0.06	22,248.0	11.1	1,177.7	**0.6**	22,248.0	**11.1**	
N2O	0.23	106	0.05	742	0.4	0.18	24.0	0.01	4,449.6	2.2	129.8	**0.1**	4,449.6	**2.2**	
CO2e, short tons												**29,549.8**		**275,184.4**	

Notes:
1. NOx PTEs are based on the NOx RACT limits of 0.12 lbs/mmBtu on natural gas and #2 Oil.
CO, VOC, SO2, PM10, and PM2.5 PTEs are obtained from Federal AP-42 emission factors.
2. Annual Actual emissions are based on fuel usage estimates obtained from emission statements for 2016-2018.
3. Annual PTE emissions assume 8,760 hours of operation on either natural gas or fuel oil.

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Emission Unit U00002 Emission Calculations

U00002:Emission Sources: 00005, 00006

2 boilers	96 mmBtu/hr each		NG HHV:	1030 Btu/scf
	192 mmBtu/hr total firing rate		#2 Oil HHV:	138 mmBtu/1000 gal
PTE Operating hrs	8,760 hrs/yr per boiler			

Fuel Usage (2016-2018)

NG: 86.67 mmcf burned
#2 Oil: 73.79 1000 gals burned

	Natural Gas					#2 Oil					TOTAL				
		Actual Emissions		PTE Emissions			Actual Emissions		PTE Emissions		Actual Emissions[2]		PTE Emissions[3]		
Pollutant	Emission Factor (lbs/mmscf)	Emissions (lbs/yr)	Emissions (tpy)	Emissions (lbs/yr)	Emissions (tpy)	Emission Factor (lbs/10^3 gals)	Emissions (lbs/yr)	Emissions (tpy)	Emissions (lbs/yr)	Emissions (tpy)	Emissions (lbs/yr)	Emissions (tpy)	Emissions (lbs/yr)	Emissions (tpy)	
NOx[1]	123.6	10,712	5.36	201,830	100.9	16.56	1,222.0	0.61	201,830.4	100.9	11,934.2	**6.0**	201,830.4	**100.9**	**Based on NOx RACT**
CO	84	7,280	3.64	137,166	68.6	5	369.0	0.18	60,939.1	30.5	7,649.1	**3.8**	137,166.3	**68.6**	
VOC	5.5	477	0.24	8,981	4.5	0.34	25.1	0.01	4,143.9	2.1	501.8	**0.3**	8,981.1	**4.5**	
SO2	0.6	52	0.03	980	0.5	0.213	15.7	0.01	2,596.0	1.3	67.7	**0.0**	2,596.0	**1.3**	
PM10	7.6	659	0.33	12,410	6.2	2.38	175.6	0.09	29,007.0	14.5	834.3	**0.4**	29,007.0	**14.5**	
PM2.5	7.6	659	0.33	12,410	6.2	2.13	157.2	0.08	25,960.1	13.0	815.9	**0.4**	25,960.1	**13.0**	
CO2	120,396	10,434,465	5217	196,597,867	98,298.9	22,501	1,660,397.0	830	274,243,271	137,122	12,094,861.9	**6,047.4**	274,243,271	**137,121.6**	
CH4	2.27	197	0.10	3,708	1.9	0.91	67.3	0.03	11,124.0	5.6	264.2	**0.13**	11,124.0	**5.6**	
N2O	0.23	20	0.01	371	0.2	0.18	13.5	0.01	2,224.8	1.1	33.2	**0.02**	2,224.8	**1.1**	
CO2e, short tons												**6,055.7**		**137,592.2**	

Notes:
1. NOx PTEs are based on the NOx RACT limits of 0.12 lbs/mmBtu on natural gas and #2 Oil.
CO, VOC, SO2, PM10, and PM2.5 PTEs are obtained from Federal AP-42 emission factors.
2. Annual Actual emissions are based on fuel usage estimates obtained from emission statements for 2016-2018.
3. Annual PTE emissions assume 8,760 hours of operation on either natural gas or fuel oil.

NYC-DOC-Rikers Island
Emission Unit U00003 Emission Calculations

U00003:Emission Sources: 00007, 00008

2 boilers	96 mmBtu/hr each		NG HHV:	1030 Btu/scf
	192 mmBtu/hr total firing rate		#2 Oil HHV:	138 mmBtu/1000 gal
PTE Operating hrs	8,760 hrs/yr per boiler			

Fuel Usage (2016-2018)

NG: 66.93 mmcf burned
#2 Oil: 42.51 1000 gals burned

	Natural Gas					**#2 Oil**					**TOTAL**				
		Actual Emissions		**PTE Emissions**			**Actual Emissions**		**PTE Emissions**		**Actual Emissions[2]**		**PTE Emissions[3]**		
Pollutant	**Emission Factor (lbs/mmscf)**	**Emissions (lbs/yr)**	**Emissions (tpy)**	**Emissions (lbs/yr)**	**Emissions (tpy)**	**Emission Factor (lbs/10^3 gals)**	**Emissions (lbs/yr)**	**Emissions (tpy)**	**Emissions (lbs/yr)**	**Emissions (tpy)**	**Emissions (lbs/yr)**	**Emissions (tpy)**	**Emissions (lbs/yr)**	**Emissions (tpy)**	
NOx[1]	**123.6**	8,273	4.14	201,830	100.9	**16.56**	703.9	0.35	201,830.4	100.9	8,976.6	**4.5**	201,830.4	**100.9**	**Based on NOx RACT**
CO	84	5,622	2.81	137,166	68.6	5	212.5	0.11	60,939.1	30.5	5,834.8	**2.9**	137,166.3	**68.6**	
VOC	5.5	368	0.18	8,981	4.5	0.34	14.5	0.01	4,143.9	2.1	382.6	**0.2**	8,981.1	**4.5**	
SO2	0.6	40	0.02	980	0.5	0.213	9.1	0.00	2,596.0	1.3	49.2	**0.0**	2,596.0	**1.3**	
PM10	7.6	509	0.25	12,410	6.2	2.38	101.2	0.05	29,007.0	14.5	609.8	**0.3**	29,007.0	**14.5**	
PM2.5	7.6	509	0.25	12,410	6.2	2.13	90.5	0.05	25,960.1	13.0	599.2	**0.3**	25,960.1	**13.0**	
CO2	120,396	8,058,225	4029	196,597,867	98,298.9	22,501	956,452.1	478	274,243,271	137,122	9,014,676.8	**4,507.3**	274,243,271	**137,121.6**	
CH4	2.27	152	0.08	3,708	1.9	0.91	38.8	0.02	11,124.0	5.6	190.8	**0.1**	11,124.0	**5.6**	
N2O	0.23	15	0.01	371	0.2	0.18	7.8	0.00	2,224.8	1.1	23.0	**0.0**	2,224.8	**1.1**	
CO2e, short tons												**4,513.1**		**137,592.2**	

Notes:

1. NOx PTEs are based on the NOx RACT limits of 0.12 lbs/mmBtu on natural gas and on #2 Oil.
CO, VOC, SO2, PM10, and PM2.5 PTEs are obtained from Federal AP-42 emission factors.
2. Annual Actual emissions are based on fuel usage estimates obtained from emission statements for 2016-2018.
3. Annual PTE emissions assume 8,760 hours of operation on either natural gas or fuel oil.

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Cogeneration Plant Emissions

Emission Unit U00011. Emission Sources 00029,00030, 00031, 00032, and 00033.

NG HHV: 1030 Btu/scf

Solar Taurus 70

Turbine Heat Input	86.4	MMBtu/hr, HHV
Number of Turbines	2	
Total Turbine Heat Input	172.8	MMBtu/hr
Duct Burner Heat Input	38.2	MMBtu/hr, HHV
Number of Duct Burners	2	
Total Duxt Burner Heat Input	76.4	MMBtu/hr
Turbine + DB Operating Hours	6,100	hours/year
Turbine only Operating Hours	2,660	hours/year

	Combustion Turbine Emissions					Combustion Turbine with Duct Burner Emissions					Blackstart Generator		Total U-00011 Emissions		
			per Turbine	PTE Emissions				per unit	PTE Emissions				PTE Emissions		
Pollutant	**Emission Factor (lbs/mmbtu)**	**Emission Factor (lbs/mmcf)**	**Emissions (lbs/hr)**	**Emissions (lbs/yr)**	**Emissions (tpy)**	**Emission Factor (lbs/mmbtu)**	**Emission Factor (lbs/mmcf)**	**Emissions (lbs/hr)**	**Emissions (lbs/yr)**	**Emissions (tpy)**	**Emissions (lbs/yr)**	**Emissions (tpy)**	**Emissions (lbs/yr)**	**Emissions (tpy)**	
Nox	0.043	44.03	3.7	19,647	9.8	0.055	56.92	6.9	84,001	42.0	312.2	0.16	103,961	51.98	
CO	0.054	55.83	4.7	24,915	12.5	0.062	64.06	7.7	94,547	47.3	100.5	0.05	119,563	59.8	
VOC	0.003	3.09	0.3	1,379	0.7	0.008	7.73	0.43	5,259	2.6	20.6	0.01	6,659	3.3	
SO2	0.0001	0.10	0.01	46	0.0	0.003	3.51	0.42	5,177	2.6	0.4	0.0002	5,223	2.6	
PM10	0.0017	1.75	0.15	781	0.4	0.0009	0.93	0.11	1,368	0.7	10.6	0.01	2,160	1.1	Stack Test Data
PM2.5	0.0017	1.75	0.15	781	0.4	0.0009	0.93	0.11	1,368	0.7	10.6	0.01	2,160	1.1	
CO2	116.98		10,107	53,768,652	26,884.3	116.98		14,575.44	177,820,426	88,910.2	43,085.3	21.54	231,632,164	115,816.1	
CH4	0.002		0.190	1,013	0.5	0.002		0.275	3,351	1.7	1.7	0.0009	4,366	2.2	
N2O	0.0002		0.019	101	0.1	0.0002		0.027	335	0.2	0.3	0.0002	437	0.2	
CO2e, short tons														115,935.7	

PPM to Lbs/Mmbtu conversion

EPA Reference Method 19, Table 19-1

Fd	8,710	dscf/MMBtu
1 ppm NOx	1.194E-07	lb/dscf
1 ppm CO	7.25E-08	lb/dscf
1 ppm VOC	4.14E-08	lb/dscf

Emission factor of NOx (lb/MMBtu) =Cd*Fd*[20.9/(20.9-%O2d)]

where:

Cd = Pollutant Concentration, dry basis, 0% O2 (lb/dscf) = ppm X (ppm to lb/dscf conversion factor)

Fd = volume of combustion components per unit of heat content, 8710 dscf/MMBtu 0% O2

%O2d = Concentration of O2 in Exhaust Gas, %

NOx ppm to lb/dscf conversion factor: 1ppm NOx = 1.194E-7 lb/dscf, at 0% O2)

NYC-DOC-Rikers Island
Emergency Blackstart Engine Emission Rates

Capacity	2000	kW	22.02	mmBtu/hr
Operating Hours	12	hours/yr		
Max. Fuel Flow	147	gals/hr		
Max. Fuel Flow	1768	gals/yr		

Pollutant	**Emission Factor**	**Units**	**Emissions (lbs/hr)**	**Emissions (lbs/yr)**	**Emissions (tons/yr)**
NOx + NMHC[1]	5.9	g/kW-hr	26.01	312	0.16
CO	1.9	g/kW-hr	8.38	101	0.050
VOC[2]	0.00064	lb/hp-hr	1.72	21	0.010
PM10/PM2.5	0.2	g/kW-hr	0.88	11	0.0053
SO2[3]	0.000012	lb/hp-hr	0.03	0.39	0.00020
CO2	163	lbs/mmBtu	3590	43,085	21.54
CH4	0.01	lbs/mmBtu	0.15	1.75	0.00087
N2O	0.00	lbs/mmBtu	0.029	0.35	0.00017

Notes:

1. Emission factors for NOx + NMHC, CO, and PM are from manufacturer data.
PM10/PM2.5 are assumed equal to PM emissions.
2. From AP-42. TOC is by weight 9% methane and 91% nonmethane.
3. Assumes a sulfur in fuel contect of 15 ppm.

NYC-DOC-Rikers Island
Existing Facility Potential - to - Emit (PTE) Emission Calculations

U0009: Spray Paint Booth: Emission Source: 0000P

Pollutant	Emissions (tpy)(1)
VOC	**2.5**

[NO CHANGE WITH THIS MODIFICATION]

Notes:
1. PTE emission rate obtained from the latest Title V permit. There are no emissions from the other pollutants.

U00010: 19 generators: Emission Sources: 00010, 00011, 00012, 00013, 00014, 00015, 00016, 00017, 00018, 00019, 00020, 00021, 00022, 00023, 00024, 00025, 00026, 00027, 00028.

No. of Gens.	Output (KW)	TOTAL Output (KW)	
4	1100	4400	
2	800	1600	
3	900	2700	
1	625	625	
9	1150	10350	
		19675	**TOTAL KW**
		26384.61	**Total hP**

Pollutant	Emission Factor (lbs/hp-hr)[1]	Emissions (lbs/hr)	Annual hrs	Emissions (lbs/yr)	Emissions (tpy)
NOx	See (a) below	309	145.54	45000	**22.5**
CO	5.50E-03	145		21,120	**10.56**
VOC	6.42E-04	17		2,464	**1.23**
SO2	0.001618	43		6,213	**3.11**
PM10	0.0007	18		2,688	**1.34**
PM2.5	0.0007	18		2,688	**1.34**
CO2	1.34	35,321		5,140,615	**2,570**
CH4	0.000054	1.43		209	**0.10**
N2O	0.000011	0.29		42	**0.02**
CO2e, short tons					**2,579.13**

Notes:
1. Criteria pollutant emission factors are from AP-42. GHG emission factors are from 40 CFR 98.

(a): PLM unit NOx lb/hr emission limits in the latest Title V permit

Source	kW	NOx Emission Factor (g/hp-hr)	Emissions (lbs/hr)	PLM Annual hrs	Emissions (lbs/yr)	Emissions (tpy)
00010	1100	7.70	25	145.54	3644.50	**1.82**
00011	1100	9.20	30	145.54	4354.47	**2.18**
00012	625	7.50	14	145.54	2016.95	**1.01**
00013	900	7.40	20	145.54	2865.69	**1.43**
00014	800	7.80	18	145.54	2684.97	**1.34**
00015	800	8.10	19	145.54	2788.24	**1.39**
00016	900	6.70	18	145.54	2594.61	**1.30**
00017	900	4.74	13	145.54	1835.59	**0.92**
00018	1100	8.88	29	145.54	4203.01	**2.10**
00019	1100	8.56	28	145.54	4051.55	**2.03**
00020	1150	6.90	23	145.54	3414.30	**1.71**
00021	1150					
00022	1150	7.00	24	145.54	3463.78	**1.73**
00023	1150					
00024	1150	7.70	26	145.54	3810.16	**1.91**
00025	1150	6.60	22	145.54	3265.85	**1.63**
00026	1150					
00027	1150					
00028	1150					
TOTAL	**19675**		**309.15**			**22.50**

ATTACHMENT #1

NYC – DOC Rikers Island Engine NOx RACT Analysis

NO_x RACT Analysis

Operation of Diesel Fuel-Fired Engine Generators in Peak Load Management (PLM) Program

NYC DOC – Rikers Island
Permit ID: 2-6007-00259/00033

Prepared for

New York State Department of Environmental Conservation
NYSDEC Region 2 Headquarters
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March, 2020

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1 Executive Summary

On May 22, 2018, the New York State Department of Environmental Conservation (NYSDEC) Region 2 office received an application for the renewal of the Rikers Island (Rikers) Air Title V Facility (Title V) permit (Permit ID: 2-6007-00259/00033). NYSDEC has requested that the New York City Department of Corrections (DOC) submit a revised Reasonably Available Control Technology (RACT) analysis for oxides of nitrogen (NO_x) for the fifteen (15) Rikers internal combustion engines that have source-specific NO_x RACT emission limits under a NO_x RACT variance based on a NO_x RACT analysis dated June 11, 2008.

NYSDEC Region 2 also requested a revised analysis for all Rikers boilers that have a NO_x RACT variance. A separate NO_x RACT analysis has been prepared for the boilers and will be submitted under separate cover.

As specified in the current Title V permit, there are 19 internal combustion engines at Rikers that have the option of enrolling in a Peak Load Management (PLM) program. In addition, these 19 engines are subject to a NO_x emissions cap of 22.5 tons/year.

For 15 of the 19 engines, in addition to regular testing and emergency operations, the current Title V permit specified that they may be operated at the NO_x RACT variance limits when operating under the PLM program, for an average of 65 hours a year per generator.

Each of the remaining four engines may participate in the PLM program only after demonstrating compliance with the presumptive NO_x RACT emission limit of 2.3 grams per brake horsepower-hour (g/bhp-hr) prescribed at 6 NYCRR Part 227-2.4(f)(3). If these four engines cannot meet the presumptive NO_x RACT limit and NYC DOC still wants them to participate in the PLM program, the NYC DOC must submit an application for permit modification along with a variance request per 6 NYCRR Part 227-2.5(c) and NYSDEC Program Policy established in the Division of Air Resources (DAR)-*Economic and Technical Analysis for Reasonably Available Control Technology (RACT) Networks*,(DAR-20), August 8, 2013.

This NO_x RACT analysis was prepared to respond to NYSDEC Region 2's request to update the NO_x RACT analysis for the 15 engines with NO_x RACT variance emission limits, as required by DAR-20.

The analysis was conducted pursuant to the NYSDEC RACT requirements of 6 NYCRR Part 227-2 for stationary internal combustion engines, and DAR-20 guidelines.

The RACT analysis consists of identifying NO_x control technologies which meet feasibility standards for technical, economic, environmental, and energy performance. The following air pollution control technologies were considered in the RACT analysis for both technical and economic feasibility:

- Selective Catalytic Reduction (SCR);
- Selective Non-Catalytic Reduction (SNCR);
- Exhaust Gas Recirculation (EGR);
- Steam Injection Systems and Emulsified Fuels; and
- Injection Timing Retardation and Adjusted Cam Timing

In addition to the above air pollution control technologies, the analysis included an evaluation of the use of fuel switching and the use of a system averaging plan pursuant to 6 NYCRR 227-2.5(c).

The analysis presented in this report demonstrates that the available air pollution control technologies do not meet RACT requirements for the reduction of NO_x emissions from the engines. Consequently, adding air pollution control technology or modifying the engines cannot be justified because these options are either technically or economically infeasible.

As a result, RACT for 14 of the 15 engines is determined to be no control, as defined in NYSDEC DAR-20. These 14 engines, therefore, are considered to be in compliance with Part 227-2 either at the existing NO_x variance limit in the current Title V permit or at a new limit based upon the most recent stack testing conducted in 2018, as presented in Table 4. Stack testing will be performed once during the permit term to demonstrate compliance with these limits.

One engine (Emission Source 00027, 1,150 KW Caterpillar 3512) was mechanically unavailable during the 2018 stack testing effort and may not return to service. The Rikers Title V permit will be revised to remove the current Title V Condition 116 relating to Emission Source 00027, and add Emission Source 00027 to the current Title V Condition 98, which requires that each engine listed may participate in the PLM program only after demonstrating compliance with the presumptive NO_x RACT emission limit of 2.3 g/bhp-hr and receiving the Department's approval of the emission test results. If an engine cannot meet the 2.3 g/bhp-hr limit, and DOC wishes to include the engine in the PLM program, then DOC must submit an application for a permit modification along with a variance request as per 6 NYCRR Part 227-2.5(c) and DAR-20.

2 Introduction

On May 22, 2018, the New York State Department of Environmental Conservation (NYSDEC) Region 2 office received an application for the renewal of the Rikers Island (Rikers) Air Title V Facility permit (Title V) permit (Permit ID: 2-6007-00259/00033). NYSDEC has requested that the DOC submit a revised RACT analysis for NO_x for the fifteen (15) diesel fuel-fired internal combustion engines that have source-specific NO_x RACT emission limits under a NO_x RACT variance based on a NO_x RACT analysis dated June 11, 2008.

NYSDEC Region 2 also requested a revised analysis for all Rikers boilers that have a NO_x RACT variance. A separate NO_x RACT analysis has been prepared for the boilers and will be submitted under separate cover.

This NO_x RACT analysis presents the evaluation of several emission control alternatives and the selection of RACT for the 15 diesel fuel-fired PLM engines at Rikers.

2.1 Source Background

DOC operates nineteen (19) diesel fuel-fired internal combustion engines at Rikers that have the option of enrolling in a Peak Load Management (PLM) program. In addition, these 19 engines are subject to a NO_x emissions cap of 22.5 tons/year.

For 15 of the 19 engines, in addition to regular testing and emergency operations, the current Title V permit specified that they may be operated at the NO_x RACT variance limits when operating under the PLM program, for an average of 65 hours a year per generator.

The 19 engines are grouped under Emission Unit U-00010 (EU 00010). The emission unit consists of the 19 engines with generators with the rated outputs as follows:

- four @ 1,100 KW;
- two @ 800 KW;
- three @ 900 KW;
- one @ 625 KW; and
- nine @ 1,150 K.

Fifteen of the engines were tested in May 2008 with emissions above the presumptive NO_x RACT limit of 2.3 g/bhp-hr and below 9.0 g/bhp-hr. The emission rates measured during the testing for these engines became the alternative NO_x RACT limits found in Conditions 102 – 116 of the current Title V permit. These emissions rates are also used to demonstrate compliance with the 22.5 tons/year NO_x emissions cap prescribed in Condition 71.

Four of the engines were not available for testing in May 2008. As currently written in the Title V permit, testing of these four engines will be performed at a later date based on NYSDEC's approval and will not participate in a PLM program until a variance/approval is sought. The emission factor that must be used for these four generators (should they ever be operated in the future) when demonstrating compliance with the 22.5 tons/year cap is the maximum level tested in 2008, i.e., 9.0 g/bhp-hr.

Each of these four engines may participate in the PLM program only after demonstrating compliance with the presumptive NO_x RACT emission limit of 2.3 grams per brake horsepower-hour (g/bhp-hr) prescribed at 6 NYCRR Part 227-2.4(f)(3). If these four engines cannot meet the presumptive NO_x RACT limit and DOC still wants them to participate in the PLM program, the DOC must submit an application for permit modification along with a variance request per 6 NYCRR Part 227-2.5(c) and DAR-20 RACT analysis guidelines.

NYSDEC Region 2 also requested a revised analysis for all Rikers boilers that have a NO_x RACT variance. A separate NO_x RACT analysis has been prepared for the boilers and will be submitted under separate cover.

2.1.1 Previous NO_x RACT Analysis

In 2008, the DOC submitted a NO_x RACT analysis (dated June 11, 2008) for 15 of the 19 engines making up EU 00010.[1] This analysis established the NO_x RACT variance limits listed in Conditions 102-106 of the current Rikers Title V permit and the NO_x RACT analysis date of June 11, 2008 is quoted in several places in the Rikers Title V permit.

The previous analysis analyzed the economic costs of two vendor options for the technically feasible addition of a Selective Catalytic Reduction (SCR) system on each engine, assuming that each engine operated during the PLM program for 65 hours/year. Based on the cost of the technology, use of SCR to reach 2.3 gm/bhp-hr could not be considered RACT for the 15 engines.

The NO_x RACT variance limits established by the June 11, 2008 NO_x RACT analysis, which were based on testing conducted in May 2008, became the NO_x emission limits currently listed under Conditions 102 – 116.

2.1.2 NO_x Emissions

Pursuant to the Title V permit requirement to test each engine during the permit term, Environmental Laboratories, Inc. (ELI) tested 14 of the 15engines during the period August 21 through September 7, 2018.[2]

The four engines not tested in 2008 (Emission Sources 00021, 00023, 00026, and 00028) again were mechanically unavailable for testing, as well as Emission Source 00027, one of the 1,150 KW Cat 3512 engines that is part of the PLM group of 15 engines that is the subject of this NO_x RACT analysis.

The results of the performance testing are provided in Table 1, along with the current Title V NO_x limit for each engine. Table 1 shows that the measured NO_x emission levels exceeded the current permit alternative NO_x RACT limits for five of the 14 emission sources that were operational during the testing: 00011 and 00016 – 00019. The emission rates ranged from 4.50 g/bhp-hr (Emission Source 00015) to 9.20 g/bhp-hr (Emission Source 00011).

For the purposes of this RACT determination, similar to the 2008 NO_x RACT analysis, the economic analysis NO_x potential to emit was established using the measured emission rates shown in Table 1 and assuming each engine operates during the PLM program for 65 hours per year.

This RACT analysis was conducted by evaluating air pollution control technologies that can reduce the baseline emissions to a level at or below the Part 227-2 presumptive NO_x RACT limit of 2.3 g/bhp-hr.

2.2 RACT Requirements and Process

New York State's 6 NYCRR Part 200 defines RACT as the: "Lowest emission limit that a particular source is capable of meeting by application of control technology that is reasonably available, considering technological and economic feasibility." New York State has a guideline document, DAR-20, for conducting RACT analyses.

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[1] NO_x *RACT Analysis for Operation of Fifteen Generators in Demand Reduction Program*, Environmental Engineering Solutions, P.C., June 11, 2008.

[2] *Compliance Test Report* – NO_x *and PM Emissions Evaluation, NYC-DOC Rikers Island*, Environmental Laboratories, Inc., October 29, 2018.

The provisions of Part 227-2 apply to major stationary sources of NO_x for different types of combustion equipment burning different fuels.

RACT requirements applicable to a particular emission source may fall into one of two categories - presumptive RACT limits or case-by-case RACT determinations. Presumptive RACT limits are category-wide requirements. Presumptive RACT limits are based on capabilities that are general to an emission source category. However, for some categories of emission sources, presumptive RACT limits may not be attainable at every individual emission source. Case-by-case RACT determinations consider the technological and economic circumstances of the individual emission source.

Specific requirements for stationary internal combustion engines are prescribed at 6 NYCRR 227-2.4(f). Rikers is located in an area that is currently designated as a moderate nonattainment area for the 2015 ozone National Ambient Air Quality Standard, and all of the EU 00010 engines are greater than 400 brake horsepower and fire distillate oil. Therefore, pursuant to 6 NYCRR 227-2.4(f)(3), the engines must comply with a NO_x emission limit of 2.3 g/bhp-hr or a case-by-case RACT determination.

According to 6 NYCRR 227-2.5(c), for those sources that demonstrate that the applicable presumptive RACT emission limit in section 227-2.4 is not economically or technically feasible, the owner or operator can request the NYSDEC to set a higher emission source specific emission limit.

DOC has elected to perform a RACT analysis to demonstrate compliance with Part 227-2 for the 14 engines per Part 227-2.4(f). The RACT analysis consists of identifying NO_x control technologies which meet feasibility standards for technical, economic, environmental, and energy performance.

The selection of RACT for the NO_x sources described herein was made using the “top-down” approach for evaluating control technologies. The “top-down” analysis method stipulates that available control technologies first be assessed for technical feasibility, including both demonstrated and transferable technologies with practical potential application to the source. Options which are considered technically feasible are then ranked for control effectiveness in descending order. The environmental, economic, and energy impacts of the “top” (most stringent) control alternatives are examined first.

Each feasible technology must undergo an economic analysis, consisting of an evaluation of the lowest of actual budgetary bids from vendors. A total annualized equipment cost based on the installed capital cost (and capital recovery factor) and operations and maintenance costs must be determined, then divided by the tons of NO_x controlled each year to determine the technology’s cost effectiveness in dollars per ton NO_x reduced ($/ton). Per DAR-20, a source will not be required to implement any emission control or strategy if the resultant cost exceeds the $5,300/ton[3] cost threshold that defines economic feasibility. This RACT analysis follows these procedures.

After technical, economic, environmental, and energy analyses have been completed, the overall impact of each alternative is either determined to be “reasonably available” and selected as RACT or is rejected due to “unreasonable” economic, energy, or environmental impacts. The most stringent technology not rejected is designated as RACT for the source.

As a result of this analysis, DOC is requesting that the NYSDEC set a higher emission source specific emission limit for each engine than the 2.3 g/bhp-hr prescribed at 6 NYCRR 227-2.4(f).

[3] RACT cost threshold was established as $3,000/ton in 1994 dollars. The NYSDEC uses the Bureau of Labor Statistics CPI Inflation Calculator to adjust this $3,000 economic feasibility threshold over time for inflation (http://www.bls.gov/data/inflation_calculator.htm).

Table 1
2018 Stack Testing Results

NYC DOC Rikers Island Engines

Emission Source	Equipment	Max Generator Output (KW)	Engine Horsepower [a] (BHP)	Measured NO_x Emission Rate (g/bhp-hr)	NO_x Emission Limit (g/bhp-hr)	Over/Under Limit?	Maximum Heat Input (MMBtu/hr)	Status During Testing
00010	Cat 3512	1,100	1,474	7.21	7.7	Under	12.1	Operating
00011	Cat 3512	1,100	1,474	9.20	7.0	**Over**	12.1	Operating
00012	Cat 3512	625	838	6.97	7.5	Under	6.9	Operating
00013	Cat 3516	900	1,206	6.15	7.4	Under	9.9	Operating
00014	Cummins 682FDR7039JJ	800	1,072	6.25	7.8	Under	8.8	Operating
00015	Cummins 682FDR7039JJ	800	1,072	4.50	8.1	Under	8.8	Operating
00016	Cat 3508	900	1,206	6.70	5.9	**Over**	9.9	Operating
00017 [b]	Cummins KTA38GS	900	1,206	4.74	3.5	**Over**	9.9	Operating
00018	Cat 3516	1,100	1,474	8.88	6.9	**Over**	12.1	Operating
00019	Cat 3516	1,100	1,474	8.56	7.0	**Over**	12.1	Operating

Table 1 (Cont.)
2018 Stack Testing Results

NYC DOC Rikers Island Engines

Emission Source	Equipment	Max Generator Output (KW)	Engine Horsepower [a] (BHP)	Measured NO_x Emission Rate (g/bhp-hr)	NO_x Emission Limit (g/bhp-hr)	Over/Under Limit?	Maximum Heat Input (MMBtu/hr)	Status During Testing
00020	Cat 3512	1,150	1,541	5.23	6.9	Under	12.7	Operating
00021	Cat 3512	1,150	1,541	e	2.3 (d)	N/A	12.7	Not in Operation
00022	Cat 3512	1,150	1,541	5.27	7.0	Under	12.7	Operating
00023	Cat 3512	1,150	1,541	e	2.3 (d)	N/A	12.7	Not in Operation
00024	Cat 3512	1,150	1,541	6.36	7.7	Under	12.7	Operating
00025	Cat 3512	1,150	1,541	5.17	6.6	Under	12.7	Operating
00026	Cat 3512	1,150	1,541	e	2.3 (d)	N/A	12.7	Not in Operation
00027 [c]	Cat 3512	1,150	1,541	e	8.3	N/A	12.7	Not in Operation
00028	Cat 3512	1,150	1,541	e	2.3 (d)	N/A	12.7	Not in Operation

a—Conversion from KW to BHP assumes 92% generator efficiency and 0.7457 KW/bhp.
b—Emission Source 00017 while operational was observed to be experiencing severe mechanical issues.
c—Emission Source 00027 was determined to be non-operational and out of commission and as result was not available for emission testing.
d—Per Condition 98, the engine may participate in the PLM program only after demonstrating compliance with a NO_x emission limit of 2.3 g/bhp-hr and receiving the Department's approval of the emission test results.
e—Out of operation during testing.

3 Available Control Technologies and Strategies

There are two primary mechanisms by which NO_x is formed in an internal combustion (IC) engine: (1) the oxidation of atmospheric nitrogen found in the combustion air (thermal NO_x) and (2) the conversion of nitrogen chemically bound in the fuel (fuel-bound NO_x or organic NO_x). These mechanisms are discussed below.

Thermal NO_x is created by the high temperature reaction in the combustion chamber between atmospheric nitrogen and oxygen. The amount that is formed is a function of time, turbulence, temperature, and the fuel to air ratio within the combustion flame zone. The majority of NO_x emissions result from thermal NO_x generation.

Fuel-bound NO_x is created by the gas-phase oxidation of the elemental nitrogen contained within the fuel. Its formation is a function of the fuel nitrogen content and the amount of oxygen in the combustion chamber. Most IC engines are presently fueled by natural gas or light distillate oil that typically contains little or no fuel-bound NO_x. As a result, when compared to thermal NO_x, fuel NO_x is not currently a major contributor to overall NO_x emissions from most IC engines.[4]

A third form of NO_x, prompt NO_x, is formed during the oxidation of molecular nitrogen present in the combustion air stream in areas of the flame envelope that are fuel rich. In most cases, prompt NO_x emissions are negligible.

Nitrogen oxides emission controls are divided into two categories: post-combustion emission reduction and in-engine combustion control. Post-combustion NO_x controls reduce a portion of the NO_x exiting the combustion zone to nitrogen. In-engine formation controls reduce the quantity of NO_x formed during the combustion process.

In addition to potentially feasible control technologies, this section evaluates fuel switching and the use of a system averaging plan as per 6 NYCRR 227-2.5(c) because DOC is requesting that NYSDEC set emission limits for the 14 engines that are higher than the presumptive NO_x RACT levels for stationary internal combustion engines prescribed in 227-2.4.

3.1 Potentially Feasible Control Technologies

Descriptions of potentially feasible control technologies in both categories, post-combustion and in-engine control, are provided below.

3.1.1 Post-Combustion NO_x Control Technologies

Post-combustion NO_x control processes reduce NO_x emissions by converting NO_x in the exhaust stream to nitrogen gas and water. SCR is the primary post-combustion NO_x removal technology used for internal combustion engines. Selective non-catalytic reduction (SNCR) is also a potentially feasible control technology.

3.1.1.1 Selective Catalytic Reduction (SCR)

SCR is a post-combustion control technology that can significantly reduce NO_x emissions from internal combustion engines. In an SCR system, ammonia (NH_3) or urea is injected into the exhaust where it reacts with NO_x in the presence of a catalyst (typically a metal oxide) to form nitrogen (N_2) and water.

[4] Alternative Control Techniques Document -- NO_x Emissions from Stationary Reciprocating Internal Combustion Engines, EPA-453/R-93032, U.S. EPA, July 1993.

The following equations describe the SCR reaction process:

$$4NO + 4NH_3 + O_2 \rightarrow 4N_2 + 6H_2O$$

$$6NO_2 + 8NH_3 \rightarrow 7N_2 + 12H_2O$$

$$NH_3 + O_2 \rightarrow NO_x + H_2O$$

The first and second equations represent the NO_x reduction reaction. The third equation represents the formation of NO_x by a side reaction in an SCR system if the actual temperature exceeds the optimum reaction temperature. At very high temperatures, NO_x emissions actually increase and SCR is counter-productive.

The above discussion illustrates how temperature is a key SCR performance parameter. The NO_x reduction reaction is effective only within a given temperature range. In an SCR system, the optimum temperature depends on two reaction components: the type of catalyst and the flue gas composition. According to EPA's *Control Cost Manual*,[5] for the majority of commercial catalysts (metal oxides), the operating temperatures for the SCR process range from 480°F to 800°F. The rate of NO_x removal increases with temperature up to a maximum between 700°F and 750°F. As the temperature increases above 750°F, the reaction rate and resulting NO_x removal efficiency begin to decrease.

The exhaust gas temperatures measured during the 2018 testing (500-820°F) are within the range at which SCR is effective at reducing NO_x.

According to EPA's *Control Cost Manual* SCR systems can typically achieve NO_x removal efficiencies at or above 90%.

3.1.1.2 Selective Non-Catalytic Reduction (SNCR)

SNCR is a post-combustion NO_x control technology in which a reagent (anhydrous ammonia or urea) is injected into the flue gas stream to react chemically with NO_x, forming nitrogen gas and water. The relevant reaction is:

$$2NO + CO{\cdot}(NH_2)_2 + \tfrac{1}{2}O_2 \rightarrow 2N_2 + CO_2 + 2H_2O$$

The success of this process in reducing NO_x emissions is highly dependent on the ability to achieve uniform mixing of the reagent into the flue gas. Without the use of a catalyst, the reaction requires a high temperature range to obtain activation energy. This must occur within a zone of the exhaust stream where the flue gas temperature is within a narrow range, typically from 1,600°F to 2,100°F. In order to achieve the necessary mixing and reaction, the residence time of the flue gas within this temperature window should be at least 0.5 to 1.0 second. The consequences of operating outside the optimum temperature range are severe. Above the upper end of the temperature range, the reagent will be converted to NO_x and the NO_x control efficiency decreases rapidly. Below the lower end of the temperature range, the reagent will not react with the NO_x and the NH_3 discharge from the stack (known as "ammonia slip") will be very high. The normal NO_x control efficiency range for SNCR is 50 percent to 70 percent.

[5] EPA Air Pollution Control Cost Manual, Seventh Edition, available at https://www.epa.gov/economic-and-cost-analysis-air-pollution-regulations/cost-reports-and-guidance-air-pollution

SNCR is most appropriate for applications with high exhaust gas temperatures (1,600 to 1,800°F), while the exhaust gas temperature of the engines at Rikers are much lower (500 to 820°F). At the observed exhaust temperature range, SNCR would not provide NO_x control and thus will not be considered further for this application.

3.1.2 In-Engine NO_x Control Technologies

In-engine technologies that have been demonstrated to reduce NO_x emissions include exhaust gas recirculation, steam injection systems and emulsified fuels, adjusted engine timing, and operational controls such as modified operating schedules and good combustion practices.

3.1.2.1 Exhaust Gas Recirculation (EGR)

EGR reintroduces exhaust gas from the system outlet into the combustion air system. Recirculation of exhaust gas lowers the flame temperature, which reduces the formation of thermal NO_x. EGR is most effectively applied as a control technology as part of a new engine installation. Retrofitted EGR systems for existing engine installations are possible but require significant development and design costs. EGR retrofits can also be harmful to the engine. In particular, the recirculation of exhaust gas back into the engine cylinder can increase engine wear as carbon particulates wash past the rings and into the oil and requires use of a diesel particulate filter to ensure that particulate matter is not introduced into the intake air. EGR systems can also add abrasive contaminants and increase engine oil acidity, which in turn can reduce engine longevity. As EGR systems are more appropriate when applied to new engine installations, this control technology will not be evaluated further for this application.

3.1.2.2 Steam Injection Systems and Emulsified Fuels

Both steam injection systems and emulsified fuels seek to reduce the combustion temperature by introducing water into the combustion process. Steam injection systems add water by injecting steam directly into the combustion zone. Emulsified fuel systems add water to the combustion process by incorporating water into the fuel spray droplets. The addition of water into the combustion process, through application of either of these control technologies, reduces the combustion temperature and thus reduces the formation of thermal NO_x. In general, these technologies have been demonstrated to reduce NO_x formation by 20 to 25 percent. However, introduction of water to the combustion zone may have long-term negative effects on engine function due to corrosion and reduced lubrication. As these technologies may be detrimental to engine function and would not be able to meet the presumptive 2.3 g/bhp-hr NO_x emissions standard, they will not be evaluated further in this analysis.

3.1.2.3 Injection Timing Retardation and Adjusted Cam Timing

Both injection timing retard (ITR) and adjusted cam timing technologies rely on adjustments to existing engine components to reduce NO_x emissions. ITR delays the ignition event until later in the power stroke, when the piston has begun to move downward. This adjustment increases the volume of the combustor chamber, resulting in a lower fuel to air ratio, which reduces the peak flame temperature and in turn reduces thermal NO_x formation. Adjusting cam timing increases the volume of combustion air trapped in the engine cylinder by opening the intake valve earlier in the engine cycle. Similarly to ITR, this reduces NO_x emissions by reducing the fuel to air ratio during combustion.

Modification of engine timing to reduce NO_x emissions typically results in increases in particulate matter, carbon monoxide, and hydrocarbon emissions. Given the potential negative side-effects, these control technologies will not be considered further in this analysis.

3.2 Fuel Switching

Given that the Rikers engines are old and would likely not have significant further operating life, and given the critical functions the engines serve for the Rikers correctional buildings, switching fuel from diesel fuel to natural gas would be inadvisable and furthermore technically infeasible, and therefore was eliminated as an option in this analysis.

3.3 System Averaging

The PLM engines are used for a very limited amount of time (65 hours per year). In addition, the Rikers boilers are also only used intermittently to supplement the cogeneration turbines during peak periods and when the cogeneration turbines are down for maintenance. Therefore system averaging was eliminated as an option in this analysis.

3.4 Summary of Feasible RACT Technologies and Strategies

Based on the discussion above concerning available control technologies and control strategies, the only NO_x reduction strategy that has been determined to be feasible and worthy of further evaluation to meet RACT for the Rikers engines is SCR. The economic feasibility of SCR is evaluated next to determine whether it is RACT in accordance with DAR-20.

4 NO_x RACT Economic Analysis

As required by DAR-20, this section presents an economic analysis of the only technically feasible control equipment or control strategy determined based on the findings presented in Section 3 of this report, that is, installation of SCR technology.

The following evaluation has been conducted in accordance with New York State's DAR-20. DAR-20 includes a "Table 1" worksheet outlining the procedure for the economic analysis. Worksheets for SCR examined in this analysis are included in Appendix A. Vendor budgetary quotes for supplying SCR systems on the engines are included in Appendix B.

The Capital Recovery Factor (CRF) used in this analysis is 0.13 based on a 10 year equipment life and a 5% interest rate. The cost effectiveness of the control option ("Cost of Controls per Ton Reduced") was determined in cost per ton of NO_x controlled on an annualized basis. The cost was then compared to the RACT upper limit of $5,300 of annualized cost per ton of NO_x removed per DAR-20.

Budgetary cost quotes for the capital cost of SCR systems were obtained from three (3) vendors:

- AeriNO$_x$, Inc.
- Johnson Matthey
- PowerSecure, Inc.

The estimated cost information received from PowerSecure were significantly higher than those received from the other two vendors so it was disregarded.

The only difference in the cost estimates from the remaining two vendors was that AeriNO$_x$ provided estimates of commissioning costs and included engineering in its cost estimates. Both AeriNO$_x$ and Johnson Matthey excluded many items from the scope of supply (e.g., installation of new computer hardware, thermal insulation for the mixing pipe and catalyst housing, silencer, mounting hardware including mating flanges, gaskets, etc. (see Appendix B)), therefore it was assumed that the capital costs used in the economic analysis were conservative (low).

Both vendors provided per-engine capital cost estimates for the engines in groups of similar engines. Table 2 provides the groups of similar engines.

Table 2

Engine Groups and Emission Sources

Engine(s)	Emission Source No.(s)
Cat 3512 / 3516 **1,110 / 1,150 KW**	00010, 00011, 00018, 00019, 00020, 00022, 00024, 00025
Cat 3516 / 3508 Cummins **900 KW**	00013, 00016, 00017
Cummins **800 KW**	00014, 00015
Cat 3512 **625 KW**	00012

Annualized cost per ton of NO_x removed ($/ton) were estimated for each engine in each of these four groups of engines for each of the two vendors, resulting in eight (8) separate per-engine $/ton estimates to compare to the DAR-20 economic feasibility cost threshold of $5,300/ton. If the cost exceeded this threshold then the control is not economically feasible and thus is not RACT.

The tables in Appendix A provide all of the details for the $/ton estimates for each engine in each engine group. The major assumptions are summarized below.

Because neither vendor provided installation costs, direct and indirect installation costs were estimated using factors provided in the 6th and 7th Editions of EPA's Control Cost Manual. These factors are applied to the Purchased Equipment Cost (PEC) for each engine group. The PEC is estimated from the vendor-supplied Equipment Cost (EC) by applying percentages of the EC for instrumentation, sales tax and freight cost, all of which total to 14% of the EC.

Note that AeriNO$_x$ provided an estimate for commissioning costs, and engineering costs were included in the quoted base price per unit. The commissioning costs provided by AeriNO$_x$ were assumed to be costs associated with startup and the performance test. Johnson Matthey did not provide engineering and commissioning costs so these were estimated using the Cost Control Manual factors.

Estimates of annual operating costs were not available from the vendors so Control Cost Manual guidance was employed to estimate these costs. Because each engine is only expected to operate 65 hours/year under the PLM program these costs were insignificant.

Catalyst replacement cost and catalyst lifetime estimates were provided by CAT literature.

Electricity and reagent replacement costs were estimated using Control Cost Manual guidance in conjunction with estimates of urea flow rate, urea costs and cost of electricity.

Operating labor and maintenance costs were assumed to be insignificant given that each engine will operate infrequently during the year.

The NO_x tonnage reduction was calculated by multiplying the percent of NO_x reduced through the SCR system by the baseline annual emissions from the facility.

Table 3 provides a summary of the cost effectiveness estimates for each individual engine in each of the eight groups analyzed. The results show that the cost effectiveness of installing SCR on the engines ranges from about $29,800 to $68,000. These values far exceed the DAR-20 economic feasibility cost threshold of $5,300/ton. Therefore, SCR is not considered RACT for any of the Rikers engines.

Table 3
Summary of Economic Feasibility Calculations
NYC DOC Rikers Island Engines

Group	Vendor	Engine(s)	Emission Source No.(s)	Total Costs of Controls Per Ton of NO_x Reduced for <u>Each Engine</u> in Group ($/ton)
1	AeriNO_x	Cat 3512 / 3516 1,110 / 1,150 KW	00010, 00011, 00018, 00019, 00020, 00022, 00024, 00025	$29,845
2	AeriNO_x	Cat 3516 / 3508 Cummins 900 KW	00013, 00016, 00017	$55,710
3	AeriNO_x	Cummins 800 KW	00014, 00015	$68,031
4	AeriNO_x	Cat 3512 625 KW	00012	$67,566
5	Johnson Matthey	Cat 3512 / 3516 1,110 / 1,150 KW	00010, 00011, 00018, 00019, 00020, 00022, 00024, 00025	$30,379
6	Johnson Matthey	Cat 3516 / 3508 Cummins 900 KW	00013, 00016, 00017	$51,972
7	Johnson Matthey	Cummins 800 KW	00014, 00015	$65,168
8	Johnson Matthey	Cat 3512 625 KW	00012	$57,744

5 Summary and Conclusions

This RACT analysis was conducted pursuant to the requirements in 6 NYCRR Part 227-2. The 14 operational engines at Rikers are subject to the regulations in Part 227-2, specifically the requirements for stationary internal combustion engines. A RACT analysis was performed on the engines to meet Part 227-2 requirements. Potential control options were evaluated in accordance with New York State DAR-20 RACT analysis procedures.

Control technologies and control strategies evaluated pursuant to the NYSDEC RACT guidelines for the diesel engines included SCR, SNCR, exhaust gas recirculation, steam injection, emulsified fuels, timing retardation, adjusted cam timing, fuel switching, and system averaging. Of these technologies and strategies, only selective catalytic reduction was determined to be technically feasible for the Rikers engines.

SCR was evaluated for cost effectiveness using DAR-20 guidelines. The RACT analysis showed that SCR did not meet the DAR-20 economic feasibility cost threshold of $5,300/ton NO_x controlled. Therefore, RACT for the fourteen Rikers engines is considered no control.

The revised emission limits for the 14 engines that are proposed for the Rikers Title V permit renewal are listed in Table 4. The current Title V limits remain valid unless the 2018 stack tests show that compliance with the current Title V limit for an engine cannot be demonstrated. In these cases the 2018 stack test result is proposed as the revised NO_x emission limit for that engine.

Stack testing will be performed once during the permit term to demonstrate compliance with the Table 4 limits.

5.1 Proposed Revisions to Title V Permit

The DOC proposes the following changes to the Rikers Title V permit based upon the NO_x RACT analysis presented in this document:

Conditions 102 – 115
Revise the NO_x emission limits to be consistent with the limits summarized in Table 4.

Condition 116
Remove this condition since Emission Source 00027 was mechanically unavailable for testing during the 2018 testing program.

Condition 98
Add Emission Source 00027.

Item 22.5
Revise the text as follows to reflect that Emission Source 00027 was not tested and the maximum emission rate measured in 2018 was 9.2 gm/bhp-hr:

"For the five (5) generators are not tested, the factor used is 9.2 gm/bhp-hr. Testing of these five generators will be performed at a later date based on DEC's approval and will not participate in PLM/CDRP until a variance/approval is sought."

Table 4
Revised NOx Emission Limits
NYC DOC Rikers Island Engines

Emission Source	NO_x Emission Limit (g/bhp-hr)
00010	7.7 *
00011	9.2
00012	7.5 *
00013	7.4 *
00014	7.8 *
00015	8.1 *
00016	6.7
00017	4.7
00018	8.9
00019	8.6
00020	6.9 *
00022	7.0 *
00024	7.7 *
00025	6.6 *

* - Existing Title V limit.

APPENDIX A

ECONOMIC ANALYSIS TABLES

Economic Analysis - Air Emissions Control Equipment

ENGINES

NYC Department of Corrections - Rikers Island

Summary For All Eight Groups

Group	Vendor	Engine(s)	Emission Source No.(s)	Total Costs of Controls Per Ton of NOx Reduced for Each Engine in Group ($/ton)
1	AeriNOx	Cat 3512 / 3516 1,110 / 1,150 kW	00010, 00011, 00018, 00019, 00020, 00022, 00024, 00025	$29,845
2	AeriNOx	Cat 3516 / 3508 Cummins 900 kW	00013, 00016, 00017	$55,710
3	AeriNOx	Cummins 800 kW	00014, 00015	$68,031
4	AeriNOx	Cat 3512 625 kW	00012	$67,566
5	Johnson Matthey	Cat 3512 / 3516 1,110 / 1,150 kW	00010, 00011, 00018, 00019, 00020, 00022, 00024, 00025	$30,379
6	Johnson Matthey	Cat 3516 / 3508 Cummins 900 kW	00013, 00016, 00017	$51,972
7	Johnson Matthey	Cummins 800 kW	00014, 00015	$65,168
8	Johnson Matthey	Cat 3512 625 kW	00012	$57,744

Table A-1
Economic Analysis - Air Emissions Control Equipment

Group 1
AeriNOx CAT 3516 and 3512 1100/1150 kW

FACILITY NAME AND ADDRESS: NYC Department of Corrections - Rikers Island

FACILITY ID AND CONTROL TYPE: 2-6007-00259/00033
SCR -- AeriNOx (Cat 3516 and 3512: 1100/1150 kWe)
Emission Sources 00010, 00011, 00018, 00019, 00020, 00022, 00024, 00025

			Notes:
COST OF EMISSIONS CONTROL EQUIPMENT (PEC)	$ 99,750	(1)	Includes 14% of Equipment Cost (EC): 1% for instrumentation, 8% for sales tax for SCR/Urea system, and 5% freight cost for SCR system
A. DIRECT INSTALLATION COST	$ 28,928	(1A)	See below
B. INDIRECT INSTALLATION COST	$ 29,455	(1B)	See below
1) COST OF EMISSIONS CONTROL EQUIPMENT INCLUDING INSTALLATION	$ 158,133	(1C)	
2) CAPITAL RECOVERY FACTOR	0.13	(2)	See below; 5% interest, 10 yr life
3) ANNUAL EQUIPMENT COST (MULTIPLY ITEM 1C BY ITEM 2)	$ 20,479	(3)	
4) ANNUAL OPERATING COSTS			
A. ELECTRICITY	$ 90	(4A)	
B. NATURAL GAS	$ -	(4B)	
C. CATALYST REPLACEMENT	$ 33	(4C)	
D. REAGENT REPLACEMENT	$ 722	(4D)	
E. MAINTENANCE	$ 426	(4E)	0.25 maintenance hrs/operating hour x 65 operating hrs/year + 2% Annual Equip. Costs for materials
5) TOTAL ANNUAL COSTS [ADD ITEMS 3 AND 4 (A TO E)]	$ 21,749	(5)	
6) VOC OR NOx TONNAGE REDUCTION			
A. NOx POTENTIAL TO EMIT	0.97	(6A)	
B. PERCENT REDUCTION ACHIEVED	75%	(6B)	
C. TONS REDUCED (MULTIPLY ITEM 6A BY ITEM 6B)	0.73	(6C)	Maximum from group

TOTAL COST OF CONTROLS PER TON REDUCED PER ENGINE $29,845 /ton

Supporting Calculations

PEC - Purchased Equipment Cost

Direct Installation Costs

$	7,980	Foundations & supports	0.08	PEC
$	13,965	Handling & erection	0.14	PEC
$	3,990	Electrical	0.04	PEC
$	1,995	Piping	0.02	PEC
$	998	Insulation	0.01	PEC
$	**28,928**	**TOTAL**		

Indirect Installation Costs

$	4,988	Construction and field expenses	0.05	PEC
$	9,975	Contractor fees	0.10	PEC
$	2,993	Contingency	0.03	PEC
$	11,500	Commissioning (per unit) (AeriNOx quote) - Assumes includes startup and performance test		
$	**29,455**	**TOTAL**		

Table A-1
Economic Analysis - Air Emissions Control Equipment

Group 1
AeriNOx CAT 3516 and 3512 1100/1150 kW

Capital Recovery Factor			0.13		
	Annual interest rate (I)		5%		
	Equipment life in years (n)		10		
Annual Reagent Costs		$	722	$/yr	
	Urea flow rate		3	gal/hr	
	Urea cost	$	3.70	$/gal	
	Annual operating hours		65	hrs/year	
Annual Electricity Costs			90	$/yr	
	Power usage		6.6	kW	
	Cost of electricity	$	0.21	$/kWh	
	Annual operating hours		65	hrs/yr	
Power Usage			6.6	kW	
	Engine net energy rate		12.1	MMBtu/hr	(Lowest of engine group)
	NOx Removal Efficiency		75%		
Catalyst Replacement Costs		$	33		
	Annual operating hours		65		
	Catalyst lifetime hours		20000	Caterpillar SCR FAQ	
	Catalyst replacement cost	$	10,000	Caterpillar SCR FAQ	

Based on Eqn. 2.61 in 7th Edition Control Cost Manual (2016)

Heat Rate =	9.39	MMBtu/MWh (AP-42 BSFC of 7000 Btu/bhp-hr)
Heat Rate Factor =	0.94	

Emission Source	Tested NOx g/bhp-hr	HP	PTE tons/yr (Tested) @ 65 hrs/yr	PTE tons/yr (2.3 g/bhp-hr) @ 65 hrs/yr	% Reduction Required	tons/yr NOx reduced	
00010	7.21	1,474	0.76	0.24	68%	0.52	
00011	9.20	1,474	0.97	0.24	75%	0.73	<--- Max
00018	8.88	1,474	0.94	0.24	74%	0.69	
00019	8.56	1,474	0.90	0.24	73%	0.66	
00020	5.23	1,541	0.58	0.25	56%	0.32	
00022	5.27	1,541	0.58	0.25	56%	0.33	
00024	6.36	1,541	0.70	0.25	64%	0.45	
00025	5.17	1,541	0.57	0.25	56%	0.32	

Emission test results from testing conducted August 21 - September 7, 2018

Table A-2
Economic Analysis - Air Emissions Control Equipment

Group 2
AeriNOx CAT 3516, Cat 3508, and Cummins 900 kW

FACILITY NAME AND ADDRESS:	NYC Department of Corrections - Rikers Island	
FACILITY ID AND CONTROL TYPE:	2-6007-00259/00033 SCR -- AeriNOx (Cat 3516 / 3508 Cummins 900 kW) Emission Sources 00013, 00016, 00017	

Item	Value	Notes:
COST OF EMISSIONS CONTROL EQUIPMENT (PEC)	$ 96,900 (1)	Includes 14% of Equipment Cost (EC): 1% for instrumentation, 8% for sales tax for SCR/Urea system, and 5% freight cost for SCR system
A. DIRECT INSTALLATION COST	$ 28,101 (1A)	See below
B. INDIRECT INSTALLATION COST	$ 28,942 (1B)	See below
1) COST OF EMISSIONS CONTROL EQUIPMENT INCLUDING INSTALLATION	$ 153,943 (1C)	
2) CAPITAL RECOVERY FACTOR	0.13 (2)	See below; 5% interest, 10 yr life
3) ANNUAL EQUIPMENT COST (MULTIPLY ITEM 1C BY ITEM 2)	$ 19,936 (3)	
4) ANNUAL OPERATING COSTS		
A. ELECTRICITY	$ 74 (4A)	
B. NATURAL GAS	$ - (4B)	
C. CATALYST REPLACEMENT	$ 33 (4C)	
D. REAGENT REPLACEMENT	$ 722 (4D)	
E. MAINTENANCE	$ 415 (4E)	0.25 maintenance hrs/operating hour x 65 operating hrs/year + 2% Annual Equip. Costs for materials
5) TOTAL ANNUAL COSTS [ADD ITEMS 3 AND 4 (A TO E)]	$ 21,179 (5)	
6) VOC OR NOx TONNAGE REDUCTION		
A. NOx POTENTIAL TO EMIT	0.58 (6A)	
B. PERCENT REDUCTION ACHIEVED	66% (6B)	
C. TONS REDUCED (MULTIPLY ITEM 6A BY ITEM 6B)	0.38 (6C)	Maximum from group
TOTAL COST OF CONTROLS PER TON REDUCED PER ENGINE	**$55,710 /ton**	

Supporting Calculations

PEC - Purchased Equipment Cost

Direct Installation Costs

$	7,752	Foundations & supports	0.08 PEC
$	13,566	Handling & erection	0.14 PEC
$	3,876	Electrical	0.04 PEC
$	1,938	Piping	0.02 PEC
$	969	Insulation	0.01 PEC
$	**28,101**	**TOTAL**	

Indirect Installation Costs

$	4,845	Construction and field expenses	0.05 PEC
$	9,690	Contractor fees	0.10 PEC
$	2,907	Contingency	0.03 PEC
$	11,500	Commissioning (per unit) (AeriNOx quote) - Assumes includes startup and performance test	
$	**28,942**	**TOTAL**	

Table A-2
Economic Analysis - Air Emissions Control Equipment

Group 2
AeriNOx CAT 3516, Cat 3508, and Cummins 900 kW

Capital Recovery Factor			0.13			
	Annual interest rate (I)		5%			
	Equipment life in years (n)		10			
Annual Reagent Costs		$	722	$/yr		
	Urea flow rate		3	gal/hr		
	Urea cost	$	3.70	$/gal		
	Annual operating hours		65	hrs/year		
Annual Electricity Costs			74	$/yr		
	Power usage		5.4	kW		
	Cost of electricity	$	0.21	$/kWh		
	Annual operating hours		65	hrs/yr		
Power Usage			5.4	kW		Based on Eqn. 2.61 in 7th Edition Control Cost Manual (2016)
	Engine net energy rate		9.9	MMBtu/hr	(Each engine has this max heat input value)	Heat Rate = 9.39 MMBtu/MWh (AP-42 BSFC of 7000 Btu/bhp-hr)
	NOx Removal Efficiency		66%			Heat Rate Factor = 0.94
Catalyst Replacement Costs		$	33			
	Annual operating hours		65			
	Catalyst lifetime hours		20000	Caterpillar SCR FAQ		
	Catalyst replacement cost	$	10,000	Caterpillar SCR FAQ		

Emission Source	Tested NOx g/bhp-hr	HP	PTE tons/yr (Tested) @ 65 hrs/yr	PTE tons/yr (2.3 g/bhp-hr) @ 65 hrs/yr	% Reduction Required	tons/yr NOx reduced	
00013	6.15	1,206	0.53	0.20	63%	0.33	
00016	6.70	1,206	0.58	0.20	66%	0.38	<--- Max
00017	4.74	1,206	0.41	0.20	51%	0.21	

Emission test results from testing conducted August 21 - September 7, 2018

Table A-3
Economic Analysis - Air Emissions Control Equipment

Group 3
AeriNOx Cummins 800 kW

FACILITY NAME AND ADDRESS:	NYC Department of Corrections - Rikers Island		
FACILITY ID AND CONTROL TYPE:	2-6007-00259/00033 SCR -- AeriNOx (Cummins 800 kW) Emission Sources 00014, 00015		
			Notes:
COST OF EMISSIONS CONTROL EQUIPMENT (PEC)		$ 94,050 (1)	Includes 14% of Equipment Cost (EC): 1% for instrumentation, 8% for sales tax for SCR/Urea system, and 5% freight cost for SCR system See below
A. DIRECT INSTALLATION COST		$ 27,275 (1A)	
B. INDIRECT INSTALLATION COST		$ 28,429 (1B)	See below
1) COST OF EMISSIONS CONTROL EQUIPMENT INCLUDING INSTALLATION		$ 149,754 (1C)	
2) CAPITAL RECOVERY FACTOR		0.13 (2)	See below; 5% interest, 10 yr life
3) ANNUAL EQUIPMENT COST (MULTIPLY ITEM 1C BY ITEM 2)		$ 19,394 (3)	
4) ANNUAL OPERATING COSTS			
A. ELECTRICITY		$ 65 (4A)	
B. NATURAL GAS		$ - (4B)	
C. CATALYST REPLACEMENT		$ 33 (4C)	
D. REAGENT REPLACEMENT		$ 722 (4D)	
E. MAINTENANCE		$ 404 (4E)	0.25 maintenance hrs/operating hour x 65 operating hrs/year + 2% Annual Equip. Costs for materials
5) TOTAL ANNUAL COSTS [ADD ITEMS 3 AND 4 (A TO E)]		$ 20,617 (5)	
6) VOC OR NOx TONNAGE REDUCTION			
A. NOx POTENTIAL TO EMIT		0.48 (6A)	
B. PERCENT REDUCTION ACHIEVED		63% (6B)	
C. TONS REDUCED (MULTIPLY ITEM 6A BY ITEM 6B)		0.30 (6C)	Maximum from group

TOTAL COST OF CONTROLS PER TON REDUCED PER ENGINE $68,031 /ton

Supporting Calculations

PEC - Purchased Equipment Cost

Direct Installation Costs

$	7,524	Foundations & supports	0.08 PEC
$	13,167	Handling & erection	0.14 PEC
$	3,762	Electrical	0.04 PEC
$	1,881	Piping	0.02 PEC
$	941	Insulation	0.01 PEC
$	**27,275**	**TOTAL**	

Indirect Installation Costs

$	4,703	Construction and field expenses	0.05 PEC
$	9,405	Contractor fees	0.10 PEC
$	2,822	Contingency	0.03 PEC
$	11,500	Commissioning (per unit) (AeriNOx quote) - Assumes includes startup and performance test	
$	**28,429**	**TOTAL**	

Table A-3
Economic Analysis - Air Emissions Control Equipment

Group 3
AeriNOx Cummins 800 kW

Capital Recovery Factor			0.13		
	Annual interest rate (I)		5%		
	Equipment life in years (n)		10		
Annual Reagent Costs		$	722	$/yr	
	Urea flow rate		3	gal/hr	
	Urea cost	$	3.70	$/gal	
	Annual operating hours		65	hrs/year	
Annual Electricity Costs			65	$/yr	
	Power usage		4.8	kW	
	Cost of electricity	$	0.21	$/kWh	
	Annual operating hours		65	hrs/yr	
Power Usage			4.8	kW	
	Engine net energy rate		8.8	MMBtu/hr	(Each engine has this max heat input value)
	NOx Removal Efficiency		63%		
Catalyst Replacement Costs		$	33		
	Annual operating hours		65		
	Catalyst lifetime hours		20000	Caterpillar SCR FAQ	
	Catalyst replacement cost	$	10,000	Caterpillar SCR FAQ	

Based on Eqn. 2.61 in 7th Edition Control Cost Manual (2016)

Heat Rate =	9.39	MMBtu/MWh (AP-42 BSFC of 7000 Btu/bhp-hr)
Heat Rate Factor =	0.94	

Emission Source	Tested NOx g/bhp-hr	HP	PTE tons/yr (Tested) @ 65 hrs/yr	PTE tons/yr (2.3 g/bhp-hr) @ 65 hrs/yr	% Reduction Required	tons/yr NOx reduced	
00014	6.25	1,072	0.48	0.18	63%	0.30	<--- Max
00015	4.50	1,072	0.35	0.18	49%	0.17	

Emission test results from testing conducted August 21 - September 7, 2018

Table A-4
Economic Analysis - Air Emissions Control Equipment

Group 4
AeriNOx CAT 3512 625 kW

FACILITY NAME AND ADDRESS:	NYC Department of Corrections - Rikers Island		
FACILITY ID AND CONTROL TYPE:	2-6007-00259/00033 SCR -- AeriNOx (Cat 3512 625 kW) Emission Source 00012		Notes:
COST OF EMISSIONS CONTROL EQUIPMENT (PEC)		$ 85,500 (1)	Includes 14% of Equipment Cost (EC): 1% for instrumentation, 8% for sales tax for SCR/Urea system, and 5% freight cost for SCR system
A. DIRECT INSTALLATION COST		$ 24,795 (1A)	See below
B. INDIRECT INSTALLATION COST		$ 26,890 (1B)	See below
1) COST OF EMISSIONS CONTROL EQUIPMENT INCLUDING INSTALLATION		$ 137,185 (1C)	
2) CAPITAL RECOVERY FACTOR		0.13 (2)	See below; 5% interest, 10 yr life
3) ANNUAL EQUIPMENT COST (MULTIPLY ITEM 1C BY ITEM 2)		$ 17,766 (3)	
4) ANNUAL OPERATING COSTS			
A. ELECTRICITY		$ 51 (4A)	
B. NATURAL GAS		$ - (4B)	
C. CATALYST REPLACEMENT		$ 33 (4C)	
D. REAGENT REPLACEMENT		$ 722 (4D)	
E. MAINTENANCE		$ 372 (4E)	0.25 maintenance hrs/operating hour x 65 operating hrs/year + 2% Annual Equip. Costs for materials
5) TOTAL ANNUAL COSTS [ADD ITEMS 3 AND 4 (A TO E)]		$ 18,943 (5)	
6) VOC OR NOx TONNAGE REDUCTION			
A. NOx POTENTIAL TO EMIT		0.42 (6A)	
B. PERCENT REDUCTION ACHIEVED		67% (6B)	
C. TONS REDUCED (MULTIPLY ITEM 6A BY ITEM 6B)		0.28 (6C)	Maximum from group

TOTAL COST OF CONTROLS PER TON REDUCED PER ENGINE $67,566 /ton

Supporting Calculations

PEC - Purchased Equipment Cost

Direct Installation Costs

$	6,840	Foundations & supports	0.08 PEC
$	11,970	Handling & erection	0.14 PEC
$	3,420	Electrical	0.04 PEC
$	1,710	Piping	0.02 PEC
$	855	Insulation	0.01 PEC
$	**24,795**	**TOTAL**	

Indirect Installation Costs

$	4,275	Construction and field expenses	0.05 PEC
$	8,550	Contractor fees	0.10 PEC
$	2,565	Contingency	0.03 PEC
$	11,500	Commissioning (per unit) (AeriNOx quote) - Assumes includes startup and performance test	
$	**26,890**	**TOTAL**	

Table A-4
Economic Analysis - Air Emissions Control Equipment

Group 4
AeriNOx CAT 3512 625 kW

Capital Recovery Factor		0.13	
Annual interest rate (I)		5%	
Equipment life in years (n)		10	
Annual Reagent Costs	$	722	$/yr
Urea flow rate		3	gal/hr
Urea cost	$	3.70	$/gal
Annual operating hours		65	hrs/year
Annual Electricity Costs		51	$/yr
Power usage		3.7	kW
Cost of electricity	$	0.21	$/kWh
Annual operating hours		65	hrs/yr
Power Usage		3.7	kW
Engine net energy rate		6.875	MMBtu/hr
NOx Removal Efficiency		67%	
Catalyst Replacement Costs	$	33	
Annual operating hours		65	
Catalyst lifetime hours		20000	Caterpillar SCR FAQ
Catalyst replacement cost	$	10,000	Caterpillar SCR FAQ

Based on Eqn. 2.61 in 7th Edition Control Cost Manual (2016)

Heat Rate =	9.39	MMBtu/MWh (AP-42 BSFC of 7000 Btu/bhp-hr)
Heat Rate Factor =	0.94	

Emission Source	Tested NOx g/bhp-hr	HP	PTE tons/yr (Tested) @ 65 hrs/yr	PTE tons/yr (2.3 g/bhp-hr) @ 65 hrs/yr	% Reduction Required	tons/yr NOx reduced
00012	6.97	838	0.42	0.14	67%	0.28

Emission test results from testing conducted August 21 - September 7, 2018

Table A-5
Economic Analysis - Air Emissions Control Equipment

Group 5
Johnson Matthey CAT 3516 and 3512 1100/1150 kW

FACILITY NAME AND ADDRESS:	NYC Department of Corrections - Rikers Island	
FACILITY ID AND CONTROL TYPE:	2-6007-00259/00033 SCR --Johnson Matthey (Cat 3516 and 3512: 1100/1150 kWe) Emission Sources 00010, 00011, 00018, 00019, 00020, 00022, 00024, 00025	

		Notes:
COST OF EMISSIONS CONTROL EQUIPMENT (PEC)	$ 102,600 (1)	Includes 14% of Equipment Cost (EC): 1% for instrumentation, 8% for sales tax for SCR/Urea system, and 5% freight cost for SCR system
A. DIRECT INSTALLATION COST	$ 29,754 (1A)	See below
B. INDIRECT INSTALLATION COST	$ 28,728 (1B)	See below
1) COST OF EMISSIONS CONTROL EQUIPMENT INCLUDING INSTALLATION	$ 161,082 (1C)	
2) CAPITAL RECOVERY FACTOR	0.13 (2)	See below; 5% interest, 10 yr life
3) ANNUAL EQUIPMENT COST (MULTIPLY ITEM 1C BY ITEM 2)	$ 20,861 (3)	
4) ANNUAL OPERATING COSTS		
A. ELECTRICITY	$ 90 (4A)	
B. NATURAL GAS	$ - (4B)	
C. CATALYST REPLACEMENT	$ 33 (4C)	
D. REAGENT REPLACEMENT	$ 722 (4D)	
E. MAINTENANCE	$ 433 (4E)	0.25 maintenance hrs/operating hour x 65 operating hrs/year + 2% Annual Equip. Costs for materials
5) TOTAL ANNUAL COSTS [ADD ITEMS 3 AND 4 (A TO E)]	$ 22,138 (5)	
6) VOC OR NOx TONNAGE REDUCTION		
A. NOx POTENTIAL TO EMIT	0.97 (6A)	
B. PERCENT REDUCTION ACHIEVED	75% (6B)	
C. TONS REDUCED (MULTIPLY ITEM 6A BY ITEM 6B)	0.73 (6C)	Maximum from group

TOTAL COST OF CONTROLS PER TON REDUCED PER ENGINE $30,379 /ton

Supporting Calculations

PEC - Purchased Equipment Cost

Direct Installation Costs

$	8,208	Foundations & supports	0.08 PEC
$	14,364	Handling & erection	0.14 PEC
$	4,104	Electrical	0.04 PEC
$	2,052	Piping	0.02 PEC
$	1,026	Insulation	0.01 PEC
$	**29,754**	**TOTAL**	

Indirect Installation Costs

$	5,130	Construction and field expenses	0.05 PEC
$	10,260	Contractor fees	0.10 PEC
$	3,078	Contingency	0.03 PEC
$	10,260	Engineering	0.10 PEC
$	2,052	Start-up	0.02 PEC
$	1,026	Performance test	0.01 PEC
$	**28,728**	**TOTAL**	

Table A-5
Economic Analysis - Air Emissions Control Equipment

Group 5
Johnson Matthey CAT 3516 and 3512 1100/1150 kW

Capital Recovery Factor			0.13	
	Annual interest rate (I)		5%	
	Equipment life in years (n)		10	
Annual Reagent Costs		$	722	$/yr
	Urea flow rate		3	gal/hr
	Urea cost	$	3.70	$/gal
	Annual operating hours		65	hrs/year
Annual Electricity Costs			90	$/yr
	Power usage		6.6	kW
	Cost of electricity	$	0.21	$/kWh
	Annual operating hours		65	hrs/yr
Power Usage			6.6	kW
	Engine net energy rate		12.1	MMBtu/hr (Lowest of engine group)
	NOx Removal Efficiency		75%	
Catalyst Replacement Costs		$	33	
	Annual operating hours		65	
	Catalyst lifetime hours		20000	Caterpillar SCR FAQ
	Catalyst replacement cost	$	10,000	Caterpillar SCR FAQ

Based on Eqn. 2.61 in 7th Edition Control Cost Manual (2016)

Heat Rate =	9.39	MMBtu/MWh (AP-42 BSFC of 7000 Btu/bhp-hr)
Heat Rate Factor =	0.94	

Emission Source	Tested NOx g/bhp-hr	Max Heat Input (MMBtu/hr)	PTE tons/yr (Tested) @ 65 hrs/yr	PTE tons/yr (2.3 g/bhp-hr) @ 65 hrs/yr	% Reduction Required	tons/yr NOx reduced	
00010	7.21	1,474	0.76	0.24	68%	0.52	
00011	9.20	1,474	0.97	0.24	75%	0.73	<--- Max
00018	8.88	1,474	0.94	0.24	74%	0.69	
00019	8.56	1,474	0.90	0.24	73%	0.66	
00020	5.23	1,541	0.58	0.25	56%	0.32	
00022	5.27	1,541	0.58	0.25	56%	0.33	
00024	6.36	1,541	0.70	0.25	64%	0.45	
00025	5.17	1,541	0.57	0.25	56%	0.32	

Emission test results from testing conducted August 21 - September 7, 2018

Table A-6
Economic Analysis - Air Emissions Control Equipment

Group 6
Johnson Matthey CAT 3516, CAT 3508, and Cummins 900 kW

FACILITY NAME AND ADDRESS:	NYC Department of Corrections - Rikers Island			
FACILITY ID AND CONTROL TYPE:	2-6007-00259/00033 SCR --Johnson Matthey (Cat 3516 / 3508 Cummins 900 kW) Emission Sources 00013, 00016, 00017			Notes:
COST OF EMISSIONS CONTROL EQUIPMENT (PEC)		$ 91,200	(1)	Includes 14% of Equipment Cost (EC): 1% for instrumentation, 8% for sales tax for SCR/Urea system, and 5% freight cost for SCR system
A. DIRECT INSTALLATION COST		$ 26,448	(1A)	See below
B. INDIRECT INSTALLATION COST		$ 25,536	(1B)	See below
1) COST OF EMISSIONS CONTROL EQUIPMENT INCLUDING INSTALLATION		$ 143,184	(1C)	
2) CAPITAL RECOVERY FACTOR		0.13	(2)	See below; 5% interest, 10 yr life
3) ANNUAL EQUIPMENT COST (MULTIPLY ITEM 1C BY ITEM 2)		$ 18,543	(3)	
4) ANNUAL OPERATING COSTS				
A. ELECTRICITY		$ 74	(4A)	
B. NATURAL GAS		$ -	(4B)	
C. CATALYST REPLACEMENT		$ 33	(4C)	
D. REAGENT REPLACEMENT		$ 722	(4D)	
E. MAINTENANCE		$ 387	(4E)	0.25 maintenance hrs/operating hour x 65 operating hrs/year + 2% Annual Equip. Costs for materials
5) TOTAL ANNUAL COSTS [ADD ITEMS 3 AND 4 (A TO E)]		$ 19,758	(5)	
6) VOC OR NOx TONNAGE REDUCTION				
A. NOx POTENTIAL TO EMIT		0.58	(6A)	
B. PERCENT REDUCTION ACHIEVED		66%	(6B)	
C. TONS REDUCED (MULTIPLY ITEM 6A BY ITEM 6B)		0.38	(6C)	Maximum from group

TOTAL COST OF CONTROLS PER TON REDUCED PER ENGINE **$51,972 /ton**

Supporting Calculations

PEC - Purchased Equipment Cost

Direct Installation Costs

$	7,296	Foundations & supports	0.08 PEC
$	12,768	Handling & erection	0.14 PEC
$	3,648	Electrical	0.04 PEC
$	1,824	Piping	0.02 PEC
$	912	Insulation	0.01 PEC
$	**26,448**	**TOTAL**	

Indirect Installation Costs

$	4,560	Construction and field expenses	0.05 PEC
$	9,120	Contractor fees	0.10 PEC
$	2,736	Contingency	0.03 PEC
$	9,120	Engineering	0.10 PEC
$	1,824	Start-up	0.02 PEC
$	912	Performance test	0.01 PEC
$	**25,536**	**TOTAL**	

Table A-6
Economic Analysis - Air Emissions Control Equipment

Group 6
Johnson Matthey CAT 3516, CAT 3508, and Cummins 900 kW

Capital Recovery Factor			0.13			
	Annual interest rate (I)		5%			
	Equipment life in years (n)		10			
Annual Reagent Costs		$	722	$/yr		
	Urea flow rate		3	gal/hr		
	Urea cost	$	3.70	$/gal		
	Annual operating hours		65	hrs/year		
Annual Electricity Costs			74	$/yr		
	Power usage		5.4	kW		
	Cost of electricity	$	0.21	$/kWh		
	Annual operating hours		65	hrs/yr		
Power Usage			5.4	kW		Based on Eqn. 2.61 in 7th Edition Control Cost Manual (2016)
	Engine net energy rate		9.9	MMBtu/hr	(Each engine has this max heat input value)	Heat Rate = 9.39 MMBtu/MWh (AP-42 BSFC of 7000 Btu/bhp-hr)
	NOx Removal Efficiency		66%			Heat Rate Factor = 0.94
Catalyst Replacement Costs		$	33			
	Annual operating hours		65			
	Catalyst lifetime hours		20000	Caterpillar SCR FAQ		
	Catalyst replacement cost	$	10,000	Caterpillar SCR FAQ		

Emission Source	Tested NOx g/bhp-hr	Max Heat Input (MMBtu/hr)	PTE tons/yr (Tested) @ 65 hrs/yr	PTE tons/yr (2.3 g/bhp-hr) @ 65 hrs/yr	% Reduction Required	tons/yr NOx reduced	
00013	6.15	1,206	0.53	0.20	63%	0.33	
00016	6.70	1,206	0.58	0.20	66%	0.38	<--- Max
00017	4.74	1,206	0.41	0.20	51%	0.21	

Emission test results from testing conducted August 21 - September 7, 2018

Table A-7
Economic Analysis - Air Emissions Control Equipment

Group 7
Johnson Matthey Cummins 800 kW

FACILITY NAME AND ADDRESS:	NYC Department of Corrections - Rikers Island			
FACILITY ID AND CONTROL TYPE:	2-6007-00259/00033 SCR --Johnson Matthey (Cummins 800 kW) Emission Sources 00014, 00015			
				Notes:
COST OF EMISSIONS CONTROL EQUIPMENT (PEC)		$ 91,200	(1)	Includes 14% of Equipment Cost (EC): 1% for instrumentation, 8% for sales tax for SCR/Urea system, and 5% freight cost for SCR system See below
A. DIRECT INSTALLATION COST		$ 26,448	(1A)	See below
B. INDIRECT INSTALLATION COST		$ 25,536	(1B)	
1) COST OF EMISSIONS CONTROL EQUIPMENT INCLUDING INSTALLATION		$ 143,184	(1C)	
2) CAPITAL RECOVERY FACTOR		0.13	(2)	See below; 5% interest, 10 yr life
3) ANNUAL EQUIPMENT COST (MULTIPLY ITEM 1C BY ITEM 2)		$ 18,543	(3)	
4) ANNUAL OPERATING COSTS				
A. ELECTRICITY		$ 65	(4A)	
B. NATURAL GAS		$ -	(4B)	
C. CATALYST REPLACEMENT		$ 33	(4C)	
D. REAGENT REPLACEMENT		$ 722	(4D)	
E. MAINTENANCE		$ 387	(4E)	0.25 maintenance hrs/operating hour x 65 operating hrs/year + 2% Annual Equip. Costs for materials
5) TOTAL ANNUAL COSTS [ADD ITEMS 3 AND 4 (A TO E)]		$ 19,750	(5)	
6) VOC OR NOx TONNAGE REDUCTION				
A. NOx POTENTIAL TO EMIT		0.48	(6A)	
B. PERCENT REDUCTION ACHIEVED		63%	(6B)	
C. TONS REDUCED (MULTIPLY ITEM 6A BY ITEM 6B)		0.30	(6C)	Maximum from group

TOTAL COST OF CONTROLS PER TON REDUCED PER ENGINE **$65,168 /ton**

Supporting Calculations

PEC - Purchased Equipment Cost

Direct Installation Costs

$	7,296	Foundations & supports	0.08 PEC
$	12,768	Handling & erection	0.14 PEC
$	3,648	Electrical	0.04 PEC
$	1,824	Piping	0.02 PEC
$	912	Insulation	0.01 PEC
$	**26,448**	**TOTAL**	

Indirect Installation Costs

$	4,560	Construction and field expenses	0.05 PEC
$	9,120	Contractor fees	0.10 PEC
$	2,736	Contingency	0.03 PEC
$	9,120	Engineering	0.10 PEC
$	1,824	Start-up	0.02 PEC
$	912	Performance test	0.01 PEC
$	**25,536**	**TOTAL**	

Table A-7
Economic Analysis - Air Emissions Control Equipment

Group 7
Johnson Matthey Cummins 800 kW

Capital Recovery Factor			0.13				
	Annual interest rate (I)		5%				
	Equipment life in years (n)		10				
Annual Reagent Costs		$	722	$/yr			
	Urea flow rate		3	gal/hr			
	Urea cost	$	3.70	$/gal			
	Annual operating hours		65	hrs/year			
Annual Electricity Costs			65	$/yr			
	Power usage		4.8	kW			
	Cost of electricity	$	0.21	$/kWh			
	Annual operating hours		65	hrs/yr			
Power Usage			4.8	kW		Based on Eqn. 2.61 in 7th Edition Control Cost Manual (2016)	
	Engine net energy rate		8.8	MMBtu/hr	(Each engine has this max heat input value)	Heat Rate =	9.39 MMBtu/MWh (AP-42 BSFC of 7000 Btu/bhp-hr)
	NOx Removal Efficiency		63%			Heat Rate Factor =	0.94
Catalyst Replacement Costs		$	33				
	Annual operating hours		65				
	Catalyst lifetime hours		20000	Caterpillar SCR FAQ			
	Catalyst replacement cost	$	10,000	Caterpillar SCR FAQ			

Emission Source	Tested NOx g/bhp-hr	Max Heat Input (MMBtu/hr)	PTE tons/yr (Tested) @ 65 hrs/yr	PTE tons/yr (2.3 g/bhp-hr) @ 65 hrs/yr	% Reduction Required	tons/yr NOx reduced	
00014	6.25	1,072	0.48	0.18	63%	0.30	<--- Max
00015	4.50	1,072	0.35	0.18	49%	0.17	

Emission test results from testing conducted August 21 - September 7, 2018

Table A-8
Economic Analysis - Air Emissions Control Equipment

Group 8
Johnson Matthey CAT 3512 625 kW

FACILITY NAME AND ADDRESS:	NYC Department of Corrections - Rikers Island		
FACILITY ID AND CONTROL TYPE:	2-6007-00259/00033 SCR --Johnson Matthey (Cat 3512 625 kW) Emission Sources 00012		
			Notes:
COST OF EMISSIONS CONTROL EQUIPMENT (PEC)		$ 74,100 (1)	Includes 14% of Equipment Cost (EC): 1% for instrumentation, 8% for sales tax for SCR/Urea system, and 5% freight cost for SCR system
A. DIRECT INSTALLATION COST		$ 21,489 (1A)	See below
B. INDIRECT INSTALLATION COST		$ 20,748 (1B)	See below
1) COST OF EMISSIONS CONTROL EQUIPMENT INCLUDING INSTALLATION		$ 116,337 (1C)	
2) CAPITAL RECOVERY FACTOR		0.13 (2)	See below; 5% interest, 10 yr life
3) ANNUAL EQUIPMENT COST (MULTIPLY ITEM 1C BY ITEM 2)		$ 15,066 (3)	
4) ANNUAL OPERATING COSTS			
A. ELECTRICITY		$ 51 (4A)	
B. NATURAL GAS		$ - (4B)	
C. CATALYST REPLACEMENT		$ 33 (4C)	
D. REAGENT REPLACEMENT		$ 722 (4D)	
E. MAINTENANCE		$ 318 (4E)	0.25 maintenance hrs/operating hour x 65 operating hrs/year + 2% Annual Equip. Costs for materials
5) TOTAL ANNUAL COSTS [ADD ITEMS 3 AND 4 (A TO E)]		$ 16,189 (5)	
6) VOC OR NOx TONNAGE REDUCTION			
A. NOx POTENTIAL TO EMIT		0.42 (6A)	
B. PERCENT REDUCTION ACHIEVED		67% (6B)	
C. TONS REDUCED (MULTIPLY ITEM 6A BY ITEM 6B)		0.28 (6C)	Maximum from group

TOTAL COST OF CONTROLS PER TON REDUCED PER ENGINE $57,744 /ton

Supporting Calculations

PEC - Purchased Equipment Cost

Direct Installation Costs

$	5,928	Foundations & supports	0.08 PEC
$	10,374	Handling & erection	0.14 PEC
$	2,964	Electrical	0.04 PEC
$	1,482	Piping	0.02 PEC
$	741	Insulation	0.01 PEC
$	**21,489**	**TOTAL**	

Indirect Installation Costs

$	3,705	Construction and field expenses	0.05 PEC
$	7,410	Contractor fees	0.10 PEC
$	2,223	Contingency	0.03 PEC
$	7,410	Engineering	0.10 PEC
$	1,482	Start-up	0.02 PEC
$	741	Performance test	0.01 PEC
$	**20,748**	**TOTAL**	

Table A-8
Economic Analysis - Air Emissions Control Equipment

Group 8
Johnson Matthey CAT 3512 625 kW

Capital Recovery Factor			0.13	
	Annual interest rate (I)		5%	
	Equipment life in years (n)		10	
Annual Reagent Costs		$	722	$/yr
	Urea flow rate		3	gal/hr
	Urea cost	$	3.70	$/gal
	Annual operating hours		65	hrs/year
Annual Electricity Costs			51	$/yr
	Power usage		3.7	kW
	Cost of electricity	$	0.21	$/kWh
	Annual operating hours		65	hrs/yr
Power Usage			3.7	kW
	Engine net energy rate		6.875	MMBtu/hr
	NOx Removal Efficiency		67%	
Catalyst Replacement Costs		$	33	
	Annual operating hours		65	
	Catalyst lifetime hours		20000	Caterpillar SCR FAQ
	Catalyst replacement cost	$	10,000	Caterpillar SCR FAQ

Based on Eqn. 2.61 in 7th Edition Control Cost Manual (2016)

Heat Rate =	9.39	MMBtu/MWh (AP-42 BSFC of 7000 Btu/bhp-hr)
Heat Rate Factor =	0.94	

Emission Source	Tested NOx g/bhp-hr	Max Heat Input (MMBtu/hr)	PTE tons/yr (Tested) @ 65 hrs/yr	PTE tons/yr (2.3 g/bhp-hr) @ 65 hrs/yr	% Reduction Required	tons/yr NOx reduced
00012	6.97	838	0.42	0.14	67%	0.28

Emission test results from testing conducted August 21 - September 7, 2018

APPENDIX B

VENDOR BUDGETARY QUOTES

Gretchen Master <gmaster@akrf.com>

RE: SCR Cost Inquiry

1 message

Loran Novacek <lnovacek@aerinox-inc.com> Mon, Aug 6, 2018 at 12:13 PM
To: Gretchen Master <gmaster@akrf.com>

Hi Gretchen,

Attached is a budgetary quote for the engines listed below. I have grouped some of these together as the price at this point doesn't change drastically. For now I have assumed pricing per unit. However, if there are multiple units at the site there will likely be some costs savings due to some commonality of parts. Included is the hardware and commissioning labor. We can't do the installation since we are not licensed to act as the prime contractor but I have some contacts that can probably help with the installation if it gets to that point. For now, I would assume installation costs would be ½ - 1x the cost of the hardware listed in our quote. Obviously, what makes this variable is site location, # of units, requirements/specs by the customer, is the units in a basement/ground level/top of the building, etc. Lots of factors will go into the overall cost of the installation but I think the ½-1x factor will give you an rough order of magnitude to base the budgetary to the customer on.

If you want to talk through our quote I would be happy to discuss details. If this seems to be financially attractive for the customer we will need to know some details on the engines (specs, qty, location) and then we can revise the quotes accordingly.

Regards,

Loran Novacek

Chief Executive Officer

AeriNOx® Inc.
100 S. Cherry Ave, Ste 6B

Eaton, CO 80615

Phone: 970-454-5639

Cell: 970-443-3868
Email: lnovacek@aerinox-inc.com
Web: www.aerinox-inc.com

August 6, 2018

TO: Gretchen Master
AKRF, Inc.
440 Park Ave South, 7th Floor
New York, NY 10016
Phone: 518-453-2203 x107
Email: gmaster@akrf.com

Subject: SCR Cost Inquiry – Multiple Cat, Cummins Diesel Engines

Dear Ms. Master,

We are pleased to submit this budgetary proposal for an **AeriNOx™ Emissions Control Systems** designed to reduce NOx emissions from the subject unit listed below.

The **AeriNOx™ Emissions Systems** offered for this project are based on engine and emissions data provided by AKRF, Inc. The enclosed proposal details the price, scope of supply, warranty, commissioning and terms and conditions necessary to achieve the required emissions limits.

1. EXHAUST GAS DATA & EMISSION REQUIREMENTS

Engine Data:

OPERATING PARAMETER (at 100% Load)	CAT 3516*	CAT 3512*	CAT 3516, CAT 3508 Cummins*	Cummins*
Mfr Nominal Power @ 100% Load (kWe)	1100-1150	625	900	800
Expected Annual Hours of Operation (Hrs)	<200	<200	<200	<200
Fuel Type:	ULSD	ULSD	ULSD	ULSD
Exhaust Mass Flow Rate: (lb/hr)**	TBD	TBD	TBD	TBD
Exhaust Water Content (% by volume)**:	TBD	TBD	TBD	TBD
Exhaust O_2 Content (% by volume)**:	TBD	TBD	TBD	TBD
Engine Outlet Temp**: (°F)	TBD (<850F)	TBD (<850F)	TBD (<850F)	TBD (<850F)

* Engine Data Sheet (To Be Provided by AKRF)
**Engine data required for accurate sizing

Emissions Guarantee and Warranty:

Emission*	Engine Outlet	Stack Limit
NOx (as NO_2)	8.3 g/bhp-hr	2.3 g/bhp-hr

** based on 100% load for 1 hour*
** based on a 500 hour guarantee from date of commissioning. Mechanical warranty is 12 months from commissioning or 18 months after delivery.*

2. SCOPE OF SUPPLY

A. Engineering (Per Site)

- Drawings
- System flow diagram
- Control of the SCR system
- Documentation

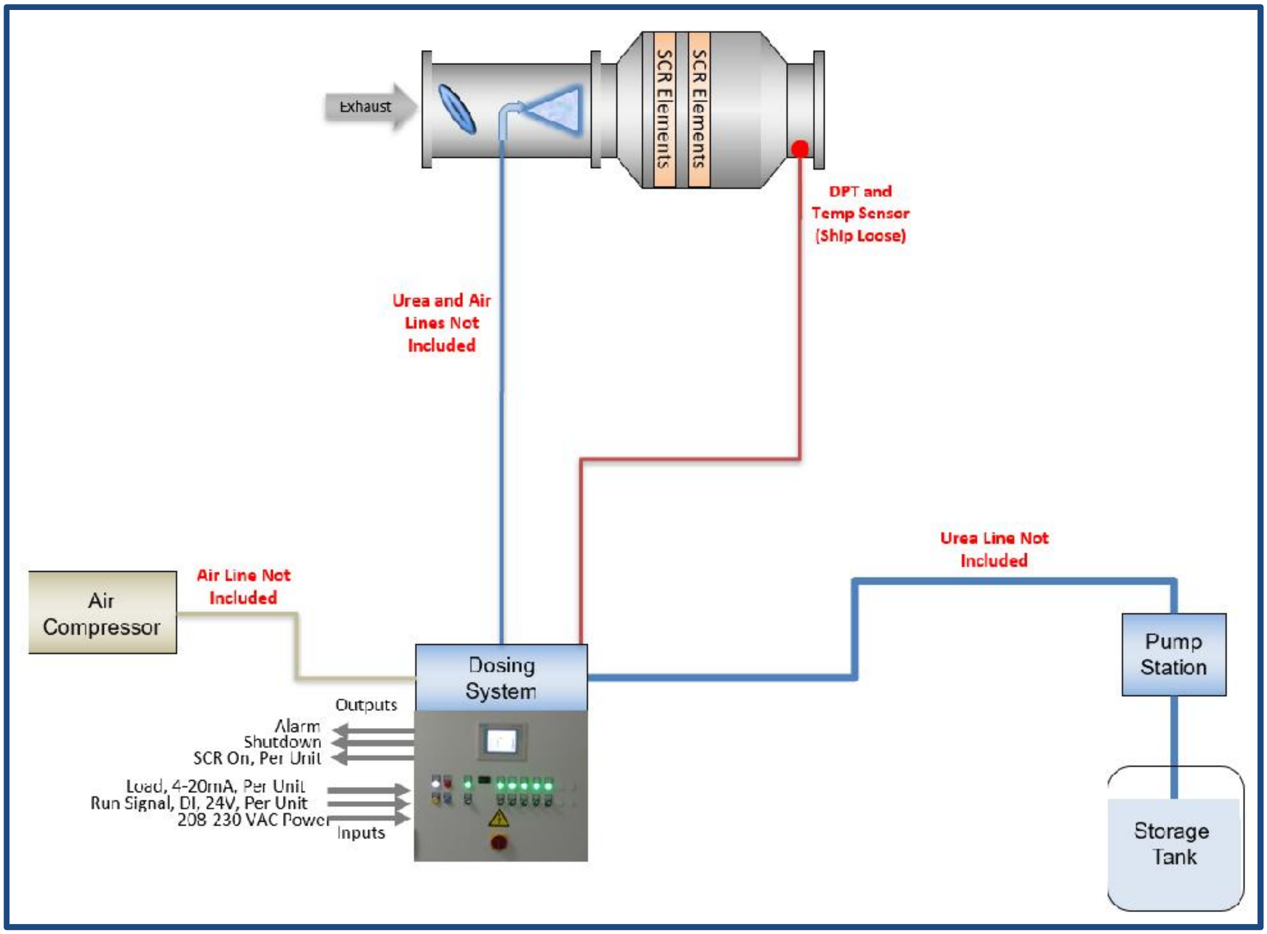
B. SCR Control System Components:

Includes the following major SCR components:

- (1) Urea/Air Injector and Mixing Duct
- (1) SCR Housing with SCR Elements
- (1) SCR PLC control cabinet
    - NOx sensor for closed-loop control
    - Urea/Air dosing control
- (1) Air Compressor
- (1) x Urea storage tank (designed for ~40+ hours between fill with level switch. No insulation or heat tracing included (other sizes and options available upon request)

C. Commissioning of the SCR System

Estimated at 2 man-days for the commissioning of the emission control system (per unit) to meet the required emissions levels; includes estimated costs of travel and accommodations. We can provide qualified personnel to supervise installation at the rate of $1,350 per man-day, plus travel expenses. Time and expenses will be billed per the time and material rates.



Schematic of a representative AeriNOx™ Emission Control System.

3. PRICE

The given prices (shown below) for the SCR Emissions Control System are net prices, DDP to customer location in New York according to Incoterms 2010. All prices are in US dollars. Not included are duties or taxes. Payment terms are net 30. Based on the following payment terms:

- 50% of the order value upon initial order
- 40% of the order value for material ready to ship
- 10% of the order value after successful commissioning, not to exceed six (6) months after delivery.

	Cat 3516 1100/1150 kWe	Cat 3512 625 kWe	Cat 3516/3508 Cummins 900 kWe	Cummins 800 kWe
Base Price (per unit)	**$87,500**	**$75,000**	**$85,000**	**$82,500**
Commissioning (per unit)	**$11,500**	**$11,500**	**$11,500**	**$11,500**

4. SCHEDULING & DELIVERY

Delivery of the drawings and technical documents is approximately 6 weeks for release of preliminary engineering design after receipt of a purchase order. Ready for shipment of the hardware is approximately 12 weeks after approval of all technical details.

5. QUALITY STANDARD

The delivered components are according to ANSI and DIN standards. The electrical components are UL listed components. All drawings will be in both metric and English units. We reserve the right to adapt the technical design of the emission control system based on the results of the final engineering work, provided this does not impact the affect the guaranteed performance characteristics and is approved by the customer before production begins.

6. ASSUMPTIONS AND EXCEPTIONS:
Not included in the scope of supply:

- Load signal from the unit (4-20 mA)
- Unit running signal (digital dry contact, closed when unit is running)
- Installation of new hardware
- Structural and civil work necessary to complete the installation
- Aqueous Urea Solution
- Thermal insulation for the mixing pipe and catalyst housing (available as an option)
- Heat tracing of urea tank or urea lines (available as an option)
- Silencer for sound attenuation (available as an option)
- Provision for electricity and connection of the power supply to the enclosure
- Systems integration (design and engineering) with the building structure
- Platforms and other support structures
- Any 3rd party emission certification of stack test

Should you have any questions or comments, please do not hesitate to contact me.

Sincerely,

Loran Novacek
Chief Executive Officer

AeriNOx Inc.
100 S. Cherry Avenue, Suite 68
Eaton, CO 80615
Office: 970-454-5639
Cell: 970-443-3868
Email: lnovacek@aerinox-inc.com
Web: www.aerinox-inc.com

Gretchen Master <gmaster@akrf.com>

RE: SCR Cost Inquiry

1 message

Marc Rost <Marc.Rost@jmusa.com> Fri, Jul 27, 2018 at 8:34 AM
To: Gretchen Master <gmaster@akrf.com>

Hi Gretchen,

Based on the approximate 73% NOx reduction requirement, I provided an order of magnitude capital cost the SCR systems in your email below. However, we don't provide installation services and therefore I can't provide a budget price for that work. Due to the age of these engines, it is entirely possible that the diesel particulate could frequently foul the catalyst. This means the catalyst might need to be vacuumed and/or replaced more often than normal.

These prices are FCA points of manufacturer. They do not include utilities such as electricity, compressed air and urea, as well as the following items:

- All interconnecting piping, tubing and electrical cable
- Mounting hardware including mating flanges, gaskets, nuts, bolts and washers
- Silencer
- Ethernet connection through the internet for remote monitoring
- Expansion Joints
- Support steel
- Foundations
- Drainage
- Mechanical Installation
- Electrical Installation
- Commissioning
- Duct from engine outlet to mixing duct inlet including expansion joints
- Duct from SCR housing outlet to end of exhaust system
- Load bank for commissioning
- Third Party Testing
- Shipping and taxes (if applicable)
- Any product or service not specifically described in this proposal

Please let me know if you need anything else.

Thank you,

Marc Rost

Sales Manager-Stationary Emission Control

Johnson Matthey
Inspiring science, enhancing life

Johnson Matthey

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Audubon, PA 19403

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Marc.Rost@matthey.com

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From: Gretchen Master [mailto:gmaster@akrf.com]
Sent: Monday, July 23, 2018 3:30 PM
To: Marc Rost <Marc.Rost@jmusa.com>
Subject: SCR Cost Inquiry

Hello Marc,

I work for AKRF, an environmental consulting firm, whom is providing environmental services to a client in New York. We are in need of a budgetary cost estimate for installation of SCR units for their 15 Diesel generators. The details of the engines are provided below:

(4) x 1100 KW CAT 3516 Engines (year 1988)

$90K each x (4) = $360K

(1) x 625 KW CAT 3512 Engine (year 1992)

$65K

(3) x 900 KW CAT 3516, CAT 3508 and Cummins Engines (Years 1992, 1998)

$80K each x (3) = $240K

(2) x 800 KW Cummins Engines (Year 1998)

$80K each x (2) = $160K

(5) x 1150 KW CAT 3512 Engines (Year 1990)

$90K each x (5) = $450K

We are evaluating technologies for these engines to control NOx emissions from a level of approximately 8.3 g/bhph to 2.3 g/bhph.

I would greatly appreciate if you could provide me an estimate for the installation of SCR units on these engines.

Please let me know if you have any questions.

Gretchen Master
Senior Professional
....

AKRF, INC.
Environmental, Planning, and Engineering Consultants

440 Park Ave South , 7th Floor | New York , NY 10016
P) 646.388.9875

www.akrf.com

Power Secure
Interactive Distributed Generation®

Pricing Summary for
Riker's Island - Bronx New York
Turnkey RICE NESHAP Compliance Services

SCOPE OF WORK	ENGINE	Location	KW	QUOTATION	Price Per:	SCR Price:	SCR Price per:
TURNKEY RICE NESHAP SERVICES							
Units by Emissions Source #							
GEN 10-11- 1988, Single Exhaust Stack, Braised EI/EO Catalyst Only, Crank Case Ventilation, Monitoring System, Initial Testing Compliance & Filing	Caterpillar 3512	Indoor	1100	$326,520	$163,260	$735,210	$367,605
Location: GVRC, J Mechnical Ground							
GEN 12- 1988, Single Exhaust Stack, Braised EI/EO Catalyst Only, Crank Case Ventilation, Monitoring System, Initial Testing Compliance & Filing	Caterpillar 3512	Indoor	625	$118,204	$118,204	$398,450	$398,450
Location: GVRC, Basement							
GEN 13 - 1988, Single Exhaust Stack, Braised EI/EO Catalyst Only, Crank Case Ventilation, Monitoring System, Initial Testing Compliance & Filing	Caterpillar 3516	Indoor	900	$140,680	$140,680	$455,850	$455,850
Location: GVRC ,Basement							
GEN 14,15 - 1988, Single Exhaust Stack, Braised EI/EO Catalyst Only, Crank Case Ventilation, Monitoring System, Initial Testing Compliance & Filing	Cummins 682FDR	Outdoor	800	$268,560	$134,280	$694,630	$347,315
Location: RMSC, J.Mech, Ground							
GEN 16 - 1985, Single Exhaust Stack, Braised EI/EO Catalyst Only, Crank Case Ventilation, Monitoring System, Initial Testing Compliance & Filing	Caterpillar 3508	Indoor	900	$140,680	$140,680	$455,850	$455,850
Location: OBCC, Main Bldg, GRND							
GEN 17 - 1985, Single Exhaust Stack, Braised EI/EO Catalyst Only, Crank Case Ventilation, Monitoring System, Initial Testing Compliance & Filing	Cummins KTA38	Indoor	900	$142,560	$142,560	$461,900	$461,900
Location: OBCC, Annex GRND							
Gen 18, 19- 1988, Single Exhaust Stack, Braised EI/EO Catalyst Only, Crank Case Ventilation, Monitoring System, Initial Testing Compliance & Filing	Caterpillar 3516	Indoor	1150	$310,420	$155,205	$766,830	$383,415
Location: OBCC, Basement							
Gen, 20,22,24,25,27- 1988, Single Exhaust Stack, Braised EI/EO Catalyst Only, Crank Case Ventilation, Monitoring System, Initial Testing Compliance & Filing	Caterpillar 3512	Outdoor	1150	$703,026	$140,605	$1,519,430	$303,886
Location: WF, By Lockeroom, Ground							
TOTAL FOR BASIC TURNKEY INSTALLATION SERVICES				**$2,150,650**		**$5,488,150**	
TOTAL FOR ANNUAL MANAGEMENT SERVICES - Optional - Exhibit C				**$57,000**			

ATTACHMENT #2

NYC – DOC Rikers Island Boiler NOx RACT Analysis

NO_x RACT Analysis

Eight Dual Fuel-Fired Boilers

NYC DOC – Rikers Island
Permit ID: 2-6007-00259/00033

Prepared for

New York State Department of Environmental Conservation
NYSDEC Region 2 Headquarters
47-40 21st Street
Long Island City, NY 11101

Prepared by

AKRF, Inc.
440 Park Avenue South, 7th Floor
New York, NY 10016

March, 2020

Table of Contents

1 Executive Summary

On May 22, 2018, the New York State Department of Environmental Conservation (NYSDEC) Region 2 office received an application for the renewal of the Rikers Island (Rikers) Air Title V Facility (Title V) permit (Permit ID: 2-6007-00259/00033). NYSDEC has requested that the New York City Department of Corrections (DOC) submit a revised Reasonably Available Control Technology (RACT) analysis for oxides of nitrogen (NO_x) for the eight (8) Rikers mid-size boilers that have source-specific NO_x RACT emission limits under a NO_x RACT variance). These limits were based on a NO_x RACT analysis dated December 2011 (See Condition 101 of the current Rikers Title V permit).

NYSDEC Region 2 also requested a revised analysis for all Rikers engines that have a NO_x RACT variance. A separate NO_x RACT analysis has been prepared for the engines and is being submitted under separate cover.

In the current Title V permit, the eight boilers are subject to a NO_x emissions cap of 11 tons/year - combined. With this Title V permit renewal, the boilers will no longer have a NO_x emissions cap.

This NO_x RACT analysis was prepared to respond to NYSDEC Region 2's request to update the NO_x RACT analysis for the eight boilers that are permitted with NO_x RACT variance emission limits, per 6 NYCRR Part 227-2.5(c) and NYSDEC Program Policy established in the Division of Air Resources (DAR) *Economic and Technical Analysis for Reasonably Available Control Technology (RACT) Networks,* (DAR-20), August 8, 2013.

The analysis was conducted pursuant to the NYSDEC RACT requirements of 6 NYCRR Part 227-2 for mid-size boilers and DAR-20 guidelines.

The RACT analysis consists of identifying NO_x control technologies which meet feasibility standards for technical, economic, environmental, and energy performance. The following air pollution control technologies were considered in the RACT analysis for both technical and economic feasibility:

- Selective Catalytic Reduction (SCR);
- Selective Non-Catalytic Reduction (SNCR);
- Flue Gas Recirculation (FGR);
- Ultra-Low- NO_x Burners (ULNB);
- Steam Injection; and;
- Retrofits to the Existing Low- NO_x Burners

In addition to the above air pollution control technologies, the analysis included an evaluation of the use of fuel switching and the use of a system averaging plan pursuant to 6 NYCRR 227-2.5(c).

The analysis presented in this report demonstrates that the available air pollution control technologies do not meet RACT requirements for the reduction of NO_x emissions from the boilers. Consequently, adding air pollution control technology or retrofitting the existing boilers cannot be justified because these options are technically and/or economically infeasible.

As a result, RACT for the eight boilers is determined to be no control, as defined in NYSDEC DAR-20. The eight boilers, therefore, are considered to be in compliance with Part 227-2 at the existing NO_x variance limit of 0.12 lb/MMBtu in the current Title V permit based on the use of low NO_x burners that are installed in the boilers. Stack testing will be performed once during the permit term to demonstrate compliance with this limit.

2 Introduction

On May 22, 2018, the New York State Department of Environmental Conservation (NYSDEC) Region 2 office received an application for the renewal of the Rikers Island (Rikers) Air Title V Facility permit (Title V) permit (Permit ID: 2-6007-00259/00033). NYSDEC has requested that DOC submit a revised RACT analysis for NO_x for the Rikers eight (8) dual-fuel boilers that have source-specific NO_x RACT emission limits under a NO_x RACT variance based on a NO_x RACT analysis dated December 2011.

NYSDEC Region 2 also requested a revised analysis for all Rikers engines that have a NO_x RACT variance. A separate NO_x RACT analysis has been prepared for the engines and is being submitted under separate cover.

This NO_x RACT analysis is the evaluation of several emission control alternatives and the selection of RACT for the eight boilers at Rikers.

2.1 Source Background

Rikers operates eight wall-fired, water tube, field erected, 96 MMBtu/hr dual fuel fired boilers, which provide steam for the facility. The boilers currently operate on both No. 2 fuel oil and natural gas. Each of the boilers, which were originally built in the 1969 to 1971 time period, is rated to produce 70,000 lbs/hour of steam at a nominal pressure of 150 psig saturated. The boilers were originally designed to fire No. 6 fuel oil and in 1999, the burners on each of the boilers were upgraded to eliminate No. 6 fuel oil, and to include the combustion of natural gas as the primary fuel with No. 2 fuel oil as backup fuel. The new burners were also designed with low NO_x burner technology.

The eight boilers are grouped in the current Rikers Title V permit as shown in Table 1.

Table 1

Sources of NOx Emissions

Emission Unit	Emission Sources *	Site ID Nos.	Process Nos.
U-00001	00001	6	001 (Gas)
	00002	7	002 (No. 2 oil)
	00003	**8**	
	00004	9	
U-00002	00005	2	003 (Gas)
	00006	**3**	004 (No. 2 oil)
U-00003	**00007**	**4**	005 (Gas)
	00008	5	006 (No. 2 oil)

* - Each of the eight boilers are Keeler boilers, with the exception of Boiler No. 5 (Emission Source 00008) which is a Union Iron Works boiler.

The boilers tested in 2018 are shown in **bold** (see below).

2.1.1 Previous NO_x RACT Analysis

In December 2011, DOC submitted a NO_x RACT analysis for the eight boilers grouped under EU 00001, EU 00002, and EU 00003.[1] This analysis established the NO_x RACT variance limit of 0.12 lb/MMBtu for each of the eight boilers listed in Condition 101 of the current Rikers Title V permit.

The December 2011 analysis referenced an August 1999 NO_x RACT analysis and compliance plan to select RACT for the eight boilers after the burner upgrade to low NO_x burners. That determination of RACT was based on technical feasibility, as well as environmental, economic, and energy impacts of the control technology. The technical feasibility of selective catalytic reduction (SCR), selective non-catalytic reduction (SNCR), using low NO_x burners with flue gas recirculation (FGR), and steam injection were considered. All but steam injection were evaluated further for environmental, economic, and energy impacts. Steam injection was considered technically infeasible.

An economic analysis was performed in 1999 for the SCR, SNCR, and FGR options and showed that total annualized equipment costs based on installed capital cost (and capital recovery factor) and operating and maintenance costs, divided by the tons of NO_x controlled each year, exceeded the DAR-20 benchmark value used to establish RACT, rendered the implementation of any additional control technology to be economically unjustifiable, and precluded any of them from being considered RACT. The total annualized control costs per boiler, NO_x emission reduction per boiler, and the resultant cost effectiveness in the 1999 analysis are presented in Table 2.

Table 2

August 1999 Economic Analysis

Control	Total Annualized Costs	NO_x Emission Reduction Per Boiler (tons)	Cost Effectiveness ($/ton)
SCR	$1,143,299	33	$34,859
SNCR	$348,520	18	$19,735
FGR	$130,059	9	$15,435

The 2011 NOx RACT analysis evaluated the economic feasibility of the add-on control technologies based on the curtailed operation of the boilers pursuant to the applicable caps reducing the NO_x emissions from 403.77 tons/year to 11 tons/year. In the 2011 RACT analysis, only FGR (which was previously determined to be the lowest cost control technology option) was re-evaluated based on technologies current at the time and current vendor information. Table 3 presents the total annualized cost, NOx emission reduction and the resultant cost effectiveness in the December 2011 analysis.

Table 3

December 2011 Economic Analysis

Control	Total Annualized Costs	NO_x Emission Reduction (tons)	Cost Effectiveness ($/ton)
FGR	$254,200	3.2	$78,700

[1] *Rikers Island – NO_x RACT Analysis, December, 2011*, attached to a letter from Ramon Li, P.E. (AKRF) to Thomas John (NYSDEC Region 2) dated December 28, 2011.

2.1.2 2020 Updated NO_x RACT Analysis

Pursuant to the Title V permit requirement to test the boilers during the permit term, Environmental Laboratories, Inc. (ELI) tested three of the eight Rikers boilers during the period September 24 through October 1, 2018.[2] Due to the identical designs of the eight boilers, representative testing was performed for natural gas and oil-fired operation. Boiler No. 5 was not in service at the time and was therefore not considered for testing.

The results of the performance testing are provided in Table 4. The maximum achievable firing rate for all boilers is currently capped at 60% by the facility (high load). Testing was performed at this high load, as well as at mid load (40%) and low load (20%) conditions. Table 1 shows that the measured NO_x emission levels for all tests were in compliance with the alternative NO_x RACT level of 0.12 lbs/MMBtu found in Condition 101 of the current Rikers Title V permit.

For the purposes of this RACT determination, a baseline condition for compliance was established using the maximum NO_x emission rate measured during the 2018 emissions test, which was 0.100 lb/MMBtu. This RACT analysis is conducted on technologies that can bring the baseline emissions down to, or below the Part 227-2 presumptive NO_x RACT level of 0.08 lb/MMBtu for distillate oil/gas operations for mid-size boilers such as those in operation at Rikers. Use of the maximum emission rate results in a required 20% reduction over the baseline condition to reach the presumptive NO_x RACT level of 0.08 lb/MMBtu. Using the maximum measured NO_x value results in the largest percentage reduction, which results in the largest NO_x tonnage reduction in the cost effectiveness calculation, thereby producing the lowest (most conservative) $/ton cost effectiveness value to compare to the RACT cost threshold established by the NYSDEC.

[2] *Title V Compliance Test Report for Particulate Matter and Nitrogen Oxides – Emissions Evaluation at NYC-DOC Rikers Island – Boiler No. 3, Boiler No. 4, Boiler No. 8*, Environmental Laboratories, Inc., October 30, 2018.

Table 4
2018 Stack Testing Results

NYC DOC Rikers Island Boilers

Boiler #	Emission Source	Fuel	High Load Measured NO_x Emission Rate (lb/MMBtu)	Mid Load Measured NO_x Emission Rate (lb/MMBtu)	Low Load Measured NO_x Emission Rate (lb/MMBtu)
3	00006	No. 2 Oil	0.100	0.072	0.072
4	00007	No. 2 Oil	0.053	0.092	0.094
8	00003	No. 2 Oil	0.095	0.063	0.071
3	00006	Nat. Gas	0.062	0.064	0.058
4	00007	Nat. Gas	0.053	0.056	0.065
8	00003	Nat. Gas	0.066	0.063	0.073

High Load – 60% firing rate
Mid Load – 40% firing rate
Low Load – 20% firing rate

2.2 RACT Requirements and Process

New York State's 6 NYCRR Part 200 defines RACT as the: "Lowest emission limit that a particular source is capable of meeting by application of control technology that is reasonably available, considering technological and economic feasibility." New York State has issued a guideline document, DAR-20, for conducting RACT analyses.

The provisions of Part 227-2 apply to major stationary sources of NO_x for different types of combustion equipment burning different fuels.

RACT requirements applicable to a particular emission source may fall into one of two categories - presumptive RACT limits or case-by-case RACT determinations. Presumptive RACT limits are category-wide requirements and are based on capabilities that are general to an emission source category. However, for some categories of emission sources, presumptive RACT limits may not be attainable at every individual emission source. Case-by-case RACT determinations consider the technological and economic circumstances of the individual emission source.

Pursuant to 6 NYCRR Part 227-2.2(b)(4), each of the eight Rikers boilers is classified as a "mid-size boiler" because the maximum heat input capacity of each boiler is greater than 25 MMBtu/hr and equal to or less than 100 MMBtu/hr.

Specific requirements for mid-size boilers are prescribed at 6 NYCRR 227-2.4(c)(1)(ii). The Rikers boilers must comply with a NO_x emission limit of 0.08 lb/MMBtu (because they are dual fuel-fired (distillate oil/gas) boilers), or a limit based on a case-by-case RACT determination.

According to 6 NYCRR 227-2.5(c), for those sources that demonstrate that the applicable presumptive RACT emission limit in section 227-2.4 is not economically or technically feasible, the owner or operator can request the NYSDEC to set a higher emission source specific emission limit.

DOC has elected to perform a RACT analysis to demonstrate compliance with Part 227-2 for the eight boilers per Part 227-2.5(c). The RACT analysis consists of identifying NO_x control technologies which meet requirements for technical and economic feasibility.

The selection of RACT for the NO_x sources described herein was made using the "top-down" approach for evaluating control technologies. The "top-down" analysis method stipulates that available control technologies first be assessed for technical feasibility, including both demonstrated and transferable technologies with practical potential application to the source. Options which are considered technically feasible are then ranked for control effectiveness in descending order.

Each feasible technology must undergo an economic analysis, consisting of an evaluation of the lowest of actual budgetary bids from vendors. A total annualized equipment cost based on the installed capital cost (and capital recovery factor) and operations and maintenance costs must be determined, then divided by the tons of NO_x controlled each year to determine the technology's cost effectiveness in dollars per ton NO_x reduced ($/ton). Per DAR-20, a source will not be required to implement any emission control or strategy if the resultant cost exceeds the $5,300/ton[3] cost threshold that defines economic feasibility. This RACT analysis follows these procedures.

After the technical feasibility analyses have been completed, the overall impact of each alternative is either determined to be "reasonably available" and selected as RACT or is rejected due to "unreasonable" economic impacts. The most stringent technology not rejected is designated as RACT for the source.

As a result of this analysis, DOC is requesting that the NYSDEC set a higher emission source specific emission limit than the 0.08 lb/MMBtu level prescribed at 6 NYCRR 227-2.4(c)(1)(ii).

[3] RACT cost threshold was established as $3,000/ton in 1994 dollars. The NYSDEC uses the Bureau of Labor Statistics CPI Inflation Calculator to adjust this $3,000 economic feasibility threshold over time for inflation (http://www.bls.gov/data/inflation_calculator.htm).

3 Available Control Technologies and Strategies

During combustion, NO_x is primarily formed in two ways: fuel NO_x and thermal NO_x.

Thermal NO_x refers to the high temperature reaction of atmospheric nitrogen and oxygen from the combustion air. The reaction rate is highly dependent on temperature and thus the thermal environment in the flame zone primarily controls thermal NO_x formation. Thermal NO_x is dependent to a lesser extent on the availability of oxygen in the flame zone.

Fuel NO_x is formed by the oxidation of organic bound nitrogen in the fuel during combustion. Fuel NO_x formation is less sensitive to temperature compared to thermal NO_x, but it is strongly influenced by oxygen availability. Fuel NO_x formation is also directly related to fuel nitrogen content. Both fuel NO_x and thermal NO_x mechanisms are important with the combustion of fuel oil. Natural gas, however, contains no fuel bound nitrogen and thus NO_x is formed only by the thermal NO_x mechanism.

A third form of NO_x, prompt NO_x, is formed during the oxidation of molecular nitrogen present in the combustion air stream in areas of the flame envelope that are "fuel rich". Under these fuel rich conditions, particularly when stoichiometry is under 0.60, both hydrogen cyanide (HCN) and ammonia (NH3) can be formed through the rapid reaction of CH radicals with N2 to form HCN and N. Below a stoichiometry of 0.50, almost all NO_x formed is prompt NO_x. Although prompt NO_x is temperature sensitive, the temperature is not as great as with thermal NO_x. The rate of formation of prompt NO_x is extremely rapid, being complete in approximately 1 millisecond. Under fuel rich conditions and a temperature of just 2400°F, 20 ppm of prompt NO_x still remains. In most cases, prompt NO_x emissions are negligible.

NO_x formation can be limited by lowering combustion temperature and staging combustion (a reducing atmosphere followed by an oxidizing atmosphere).

NO_x emission controls are divided into two categories: post combustion emission reduction and in-furnace combustion control. Post combustion NO_x controls reduce a portion of the NO_x exiting the combustion zone to nitrogen. In-furnace formation control processes reduce the quantity of NO_x formed during the combustion process.

The focus of this section will be on the identification of available control technologies that are technologically feasible as RACT for the boilers at Rikers Island. Available control options are those which have a practical application for the pollutants and the process under consideration and must be sufficient to meet the Part 227-2 limits. Control technologies to be investigated for the reduction of NO_x from the boilers include: FGR, ULNBs, steam injection, SNCR, and SCR.

One of the important factors which impacts the installation of additional controls at the facility is the age of the facility, extremely limited available space and difficult location. Due to these constraints, any construction work at the facility is extremely difficult. The uncertainty associated with the capacities of the existing roof systems to carry any off gas NO_x reduction systems installed on the roof may also preclude the installation of off gas NO_x control systems.

In addition to control technologies listed above, this section evaluates the strategies of fuel switching and the use of a system averaging plan per 6 NYCRR 227-2.5(c) because DOC is requesting that NYSDEC set emission limits for the eight boilers that are higher than the presumptive NO_x RACT levels for mid-size boilers prescribed in 227-2.4.

3.1 Potentially Feasible Control Technologies

Descriptions of potentially feasible control technologies, are provided below.

3.1.1 Selective Catalytic Reduction (SCR)

SCR is a post-combustion NO_x control technology involving the injection of ammonia (NH3) or urea into the exhaust gas stream upstream of a specialized catalyst module, promoting conversion of NO_x to molecular nitrogen. The catalyst bed is used to lower the activation energy required for NO_x decomposition. The major components of an SCR system include an ammonia storage tank, an injection grid (system of nozzles that spray NH3 into the exhaust gas ductwork), a structured, fixed-bed catalyst module, and electronic controls. In the SCR process, NH3, usually diluted with air or steam, is injected through a grid system into the exhaust gas upstream of the catalyst bed. On the catalyst surface, the NH3 reacts with NO_x to form molecular nitrogen and water. The basic reactions are:

$$4NH3 + 4NO + O2 \rightarrow 4N2 + 6H2O$$

$$8NH3 + 6NO2 \rightarrow 7N2 + 12H2O$$

$$NH_3 + O_2 \rightarrow NO_X + H_2O$$

The first and second equations reflect the NO_X reduction reaction. The third equation reflects the formation of NO_x by a side reaction in an SCR if the actual temperature exceeds the optimum reaction temperature. At these high temperatures, NO_x emissions actually increase and SCR is counter-productive. The reaction mechanism involved in the process is very temperature-sensitive and can be used to reduce NO_X only within a narrow temperature window.

The above discussion illustrates how temperature is a key SCR performance parameter. The NO_x reduction reaction is effective only within a given temperature range. In an SCR system, the optimum temperature depends two reaction components: the type of catalyst and the flue gas composition. According to EPA's *Control Cost Manual*,[4] for the majority of commercial catalysts (metal oxides), the operating temperatures for the SCR process range from 480°F to 800°F. The rate of NO_x removal increases with temperature up to a maximum between 700°F and 750°F. As the temperature increases above 750°F, the reaction rate and resulting NO_x removal efficiency begin to decrease. The normal NO_x control efficiency range for SCR is 70% to 90%. However, with low NO_x burners, such a reduction is problematic.

3.1.2 Selective Non-Catalytic Reduction (SNCR)

SNCR is a post-combustion NO_x control technology in which a reagent (anhydrous NH3 or urea) is injected into the flue gas stream to react chemically with NO_x, forming elemental nitrogen and water. The relevant reaction is:

$$2NO + CO(NH2)2 + 1/2\ O2 \rightarrow 2N2 + CO2 + 2\ H2O$$

The success of this process in reducing NO_x emissions is highly dependent on the ability to achieve uniform mixing of the reagent into the flue gas. Without the use of a catalyst, the reaction requires a high temperature range to obtain activation energy. This must occur within a zone of the exhaust stream where the flue gas temperature is within a narrow range, typically from 1,600°F to 2,100°F. In order to achieve the necessary mixing and reaction, the residence time of the flue gas within this temperature window should be at least 0.5 to 1.0 second. The consequences of operating outside the optimum temperature range are severe. Above the upper end of the temperature range, the reagent will be converted to NO_x and the NO_x control efficiency decreases rapidly. Below the lower end of the temperature range, the

[4] EPA Air Pollution Control Cost Manual, Seventh Edition, available at https://www.epa.gov/economic-and-cost-analysis-air-pollution-regulations/cost-reports-and-guidance-air-pollution

reagent will not react with the NO_x and the NH3 discharge from the stack (known as "ammonia slip") will be very high. The normal NO_x control efficiency range for SNCR is 50% to 70%.

3.1.3 Flue Gas Recirculation (FGR)

FGR uses flue gas as an inert material to reduce flame temperatures. In a typical flue gas recirculation system, flue gas is collected from the heater or stack and returned to the burner via a duct and blower. A fan (blower) is needed to withdraw the required amount of flue gas. This system is usually called Flue Gas Recirculation (FGR). In some cases, this type of system is referred to as "External Flue Gas Recirculation (EFGR)" or "Forced Flue Gas Recirculation". This differentiation is made because sometimes the flue gas for FGR is taken from the flue gas flow upstream of the stack using the forced draft (FD) fan instead of a separate FGR fan. This system is called "Induced Flue Gas Recirculation (IFGR)". A separate FGR fan avoids the mixing of the combustion air and the flue gas upstream of the FD fan, thus protecting the life of the fan. The FGR fan generally will operate at a temperature above the acid dew point, and thus exposure to sulfurous acid is minimized. In either system, the flue gas is mixed with the combustion air and this mixture is introduced into the burner. The addition of flue gas reduces the oxygen content of the "combustion air" (air + flue gas) in the burner. The lower oxygen level in the combustion zone reduces flame temperatures; which in turn reduces NO_x emissions. When operated without additional controls, the normal NO_x control efficiency range for FGR is 30% to 50%. When coupled with low- NO_x burners (LNB) the control efficiency increases to 50%-72%.

3.1.4 Steam Injection System

By injecting water or steam into the flame, flame temperatures are reduced, thereby lowering thermal NO_x formation and overall NO_x levels. Water or steam injection can reduce NO_x up to 75% (when firing natural gas) and can result in lower reductions when firing oil. There is a practical limit to the amount of water or steam that can be injected into the flame before condensation problems are experienced. Additionally, under normal operating conditions, water/steam injection can result in a 3-10% boiler efficiency loss. Water or steam injection can be used in conjunction with other NO_x control methods such as burner modifications or flue gas recirculation.

There are several adverse factors that arise when evaluating the use of steam injection.

- The effect of the steam injection on the flame scanner performance must be reviewed with the flame scanner supplier. There is a possibility that the steam injection could affect the flame scanner's ability to detect the flame.
- The additional moisture from the steam injection will cause a reduction in boiler efficiency.
- Under certain circumstances moisture from the steam can condense in the rear of the boiler causing corrosion problems.
- The long-term and /or corrosive effects and possible tube life wastage that could be contributed to excessive moisture.

Considering the loss in efficiency and the lack of manufacturer guarantees for low NO_x emissions from the burners while firing fuel oil, steam injection is determined to be a technically infeasible control technology for RACT for the facility's boilers.

3.1.5 Ultra-Low-NO_x Burners

ULNBs may incorporate a variety of techniques including induced flue gas recirculation, steam injection, or a combination of techniques. These burners combine the benefits of flue gas recirculation and low-NO_x burner control technologies. Rather than a system of fans and blowers (like FGR), the burner is designed to recirculate hot, oxygen depleted flue gas from the flame or firebox back into the combustion zone. This leads to a reduction in the average oxygen concentration in the flame without reducing the flame temperature below temperatures necessary for optimal combustion efficiency. Reduced oxygen concentrations in the flame have a strong impact on fuel NO_x so ULNBs are an effective NO_x control for boilers firing fuel oil. The estimated NO_x control efficiency for ULNBs in high temperature applications is 50%. Newer designs have yielded efficiencies of between 75%-85%. When coupled with selective catalytic reduction, efficiencies in the range of 85%-97% can be obtained.

The existing boilers already have low NO_x burners installed. Replacing the low NO_x burners with ultra-low NO_x burners would require replacing both the burners in each of the eight boilers and installing flue gas recirculation in order to stage the flue to create a longer flame length needed to achieve the low emission levels required while burning fuel oil. While utilizing ULNBs with FGR is considered a technically feasible control technology, vendors did not want to provide even preliminary cost estimates for this option since it was determined to be a very cost prohibitive alternative for the boiler configuration at this facility. As presented below, adding FGR alone is already a costly alternative; therefore, while technically feasible, this technology was not considered further.

3.1.6 Retrofits to the Existing Low NO_x Burners

Options to reduce the NO_x emissions by modifying the existing low NO_x burners were also analyzed. The retrofits in addition to derating the boilers would allow NO_x emissions to meet the RACT limits while the boilers operated on natural gas, however, the manufacturer would not guarantee a fuel oil limit that could meet the NO_x RACT limits; therefore, this technology was not considered further.

3.2 Fuel Switching

The Rikers boilers can operate on natural gas alone, but as shown in Table 1 the boilers cannot meet the "gas-only" presumptive NO_x RACT limit of 0.05 lb/MMBtu level prescribed at 6 NYCRR 227-2.4(c)(1)(ii). Therefore, this strategy was eliminated from consideration.

3.3 System Averaging

The Rikers boilers are only used intermittently to supplement the cogeneration turbines during peak periods and when the cogeneration turbines are down for maintenance. In addition, the PLM engines are only used for a very limited amount of time (65 hours per year). Therefore, system averaging was eliminated as an option in this analysis.

3.4 Summary of Feasible RACT Technologies and Strategies

The next step in the analysis is to perform a "top-down" economic evaluation of the NO_x reduction strategies determined as technically feasible. Under this approach, technically feasible alternatives with the highest control level are evaluated first. If the "top-level" alternatives are eliminated from consideration as RACT based on adverse economic, energy, or environmental impacts, then other technically feasible alternatives are evaluated in the order of decreasing control level. The NO_x reduction strategies that have been determined technically feasible and worthy of further evaluation to meet RACT for the Rikers Island boilers are listed below:

- SCR;
- SNCR; and
- FGR

The steam injection system and retrofits to the existing burners were not considered technically feasible NO_x reduction strategies.

SCR, SNCR, and FGR were evaluated in the August 1999 NO_x RACT analysis and determined not to be RACT due to the excessive cost per ton of NO_x reduced for each control technology. The costs for SCR and SNCR today would be much higher than in 1999, and the NO_x reductions would be smaller, thus the cost effectiveness estimates using current information would be higher than those used in 1999. FGR was re-evaluated in the December 2011 NO_x RACT analysis and determined not to be RACT due to the excessive cost per ton of NO_x reduced.

For the purposes of this NO_x RACT analysis for compliance with the 6 NYCRR 227-2.4(c)(1)(ii) presumptive NO_x RACT limits, FGR was re-evaluated based on current technologies and vendor information in accordance with DAR-20 procedures and NYSDEC guidance to determine if this control technology could now be considered RACT.

4 NO_x RACT Economic Analysis

As required by DAR-20, this section presents an economic analysis of the only technically feasible control equipment or control strategy determined based on the findings presented in Section 3 of this report, that is, retrofit each boiler with FGR.

The following evaluation has been conducted in accordance with New York State's DAR-20. DAR-20 includes a "Table 1" worksheet outlining the procedure for the economic analysis. A worksheet for retrofitting the boilers with FGR is provided in Appendix A.

For the December 2011 NO_x RACT analysis, a quote for the capital cost of FGR was obtained from the burner manufacturer, Coen Company, Inc. Back then, an attempt was made to obtain additional vendor information; however, other vendors, referred AKRF back to the original burner manufacturer indicating that COEN would be able to provide the most accurate price.

For this analysis, an updated FGR capital cost estimate was obtained from Coen. The Coen budgetary cost quote is provided in Appendix B and includes costs to retrofit all eight boilers.

The Capital Recovery Factor (CRF) used in this analysis is 0.13 based on a 10 year equipment life and a 5% interest rate.

The cost effectiveness of the control option ("Cost of Controls per Ton Reduced") was determined in cost per ton of NO_x controlled on an annualized basis. The cost was then compared to the RACT upper limit of \$5,300 of annualized cost per ton of NO_x removed per DAR-20. If the cost exceeds this threshold then the control is not economically feasible and thus is not RACT.

The table in Appendix A provide all of the details of the \$/ton estimate. The major assumptions are summarized below.

Because COEN did not provide installation costs in its quote, direct and indirect installation costs were estimated using factors provided in the 6th and 7th Editions of the EPA *Control Cost Manual*. These factors are applied to the Purchased Equipment Cost (PEC) of the FGR equipment. The PEC is estimated from the vendor-supplied Equipment Cost (EC) by applying percentages of the EC for instrumentation, sales tax and freight cost, all of which total to 14% of the EC.

Note that Coen included engineering and other related costs in its quote so these were not included in the calculation of indirect installation costs.

Estimates of annual operating costs were not available from COEN; therefore, Control Cost Manual guidance was employed to estimate these costs. The electricity cost was estimated using EPA published factors[5].

The NO_x tonnage reduction was calculated by multiplying the percent of NO_x reduced by the baseline annual emissions from the facility. The percent reduction was calculated to be 20% based upon what reduction, from the 2018 measured NO_x levels, would be required to meet the presumptive NO_x RACT limit of 0.08 lb/MMBtu, as discussed above.

The cost effectiveness calculation provided in Appendix A shows that the cost effectiveness of retrofitting the boilers with FGR is approximately \$7,344/ton. This value exceeds the DAR-20 economic feasibility cost threshold of \$5,300/ton. Therefore, FGR is not considered RACT for the Rikers boilers.

[5] *Alternative Control Techniques Document – NOx Emissions from Industrial/Commercial/Institutional (ICI) Boilers,* U.S. EPA Emission Standards Division, 1994, Publication No EPA-453/R-94-022.

5 Summary and Conclusions

This RACT analysis was conducted pursuant to the requirements in 6 NYCRR Part 227-2. The eight boilers at Rikers are subject to the regulations in Part 227-2, specifically the requirements for mid-size boilers. A RACT analysis was performed on the boilers to meet Part 227-2 requirements. Potential control options were evaluated in accordance with New York State DAR-20 RACT analysis procedures.

Control technologies and control strategies evaluated pursuant to the NYSDEC RACT guidelines for the boilers included SCR, SNCR, FGR, ULNBs, steam injection, retrofits to the existing low NO_x burners, fuel switching, and system averaging.

First, a feasibility analysis was performed to determine which technologies were capable of controlling NO_x emissions from the boilers. This analysis eliminated steam injection, burner retrofits, and the additional of ultra-low NO_x burners from further evaluation because they were determined to be technologically infeasible. Fuel switching and system averaging were determined to be irrelevant.

The remaining control strategies and technologies were as follows:

- SCR;
- SNCR;
- FGR

These strategies and technologies were evaluated for their cost effectiveness, using New York State's DAR-20 guidelines. The RACT analysis showed that based on economic considerations, all of the strategies and technologies exceed the RACT guideline of $5,300/ton NO_x controlled for the boilers. Therefore, RACT for the boilers is determined to be no control, and as a result the current Title V permit limit of 0.12 lb/MMBtu should remain as the RACT limit based on the use of the low- NO_x burners that are currently installed on the boilers.

Stack testing will be performed once during the permit term to demonstrate compliance with the recommended 0.12 lb/MMBtu limit.

APPENDIX A

ECONOMIC ANALYSIS TABLE

Table A-1
Economic Analysis - Air Emissions Control Equipment

FACILITY NAME AND ADDRESS:	NYC Department of Corrections - Rikers Island		
FACILITY ID AND CONTROL TYPE:	2-6007-00259/00033 Flue Gas Recirculation (FGR) Retrofit Emission Sources 00001, 00002, 00003, 00004, 00005, 00006, 00007, 00008		Notes:
COST OF EMISSIONS CONTROL EQUIPMENT (PEC)		$ 1,014,600 (1)	14% of Equipment Cost (EC): 1% for instrumentation, 8% for sales tax, and 5% freight cost for FGR system
A. DIRECT INSTALLATION COST		$ 294,234 (1A)	See below
B. INDIRECT INSTALLATION COST		$ 60,876 (1B)	See below
1) COST OF EMISSIONS CONTROL EQUIPMENT INCLUDING INSTALLATION		$ 1,369,710 (1C)	
2) CAPITAL RECOVERY FACTOR		0.13 (2)	See below; 5% interest, 10 yr life
3) ANNUAL EQUIPMENT COST (MULTIPLY ITEM 1C BY ITEM 2)		$ 177,384 (3)	
4) ANNUAL OPERATING COSTS			
A. ELECTRICITY		$ 137,970 (4A)	(100 hP)(0.75 kw/hp)(8760hrs)($0.21/kwh)(capacity factor)
B. NATURAL GAS		$ - (4B)	
C. CATALYST REPLACEMENT		$ - (4C)	
D. REAGENT REPLACEMENT		$ - (4D)	
E. MAINTENANCE		$ 178,748 (4E)	$30/hr * 2/3 maintenance hrs/shift * 1095 shifts/year + 2% of Annual Equip. Costs for Maintenance Materials
5) TOTAL ANNUAL COSTS [ADD ITEMS 3 AND 4 (A TO E)]		$ 494,101 (5)	
6) VOC OR NOx TONNAGE REDUCTION			
A. NOx POTENTIAL TO EMIT		336.4 (6A)	
B. PERCENT REDUCTION ACHIEVED		20% (6B)	
C. TONS REDUCED (MULTIPLY ITEM 6A BY ITEM 6B)		67.3 (6C)	

TOTAL COST OF CONTROLS PER TON REDUCED **$7,344 /ton**

Supporting Calculations

PEC - Purchased Equipment Cost

Direct Installation Costs

$	81,168	Foundations & supports	0.08 PEC
$	142,044	Handling & erection	0.14 PEC
$	40,584	Electrical	0.04 PEC
$	20,292	Piping	0.02 PEC
$	10,146	Insulation	0.01 PEC
$	**294,234**	**TOTAL**	

Indirect Installation Costs

$	-	Engineering	0 Included in vendor quote.
$	-	Construction and field expenses	0 Included in vendor quote.
$	-	Contractor fees	0 Included in vendor quote.
$	20,292	Startup	0.02 PEC
$	10,146	Performance test	0.01 PEC
$	30,438	Contingency	0.03 PEC
$	**60,876**	**TOTAL**	

Capital Recovery Factor	0.13
Annual interest rate (I)	5%
Equipment life in years (n)	10

Per boiler

$30	per hour
40	minutes maintence per shift
1095	shifts/year
$21,900	one boiler
$175,200	8 boilers
$3,547.67	Maintenance materials
$178,748	Total annual maintenance costs

APPENDIX B

VENDOR BUDGETARY QUOTE

(8) FGR Retrofit packages for the existing Dual Variflame™ Low NOx Burner Packages

Submitted To:

Gretchen Master

Senior Professional

AKRF, INC.

Environmental, Planning, and Engineering Consultants

440 Park Ave South, 7th Floor | New York, NY 10016

P) 646.388.9875

www.akrf.com

User:

NY Correctional

Rikers Island

East Elmhurst, NY

Meet NOx RACT for Boilers #2,3,4,5,6,7,8&9

Proposal Number:	201807-95792-A
Application Engineer:	Wayne A. Wieszczyk
Tel:	650-522-2128
Email:	wayne.wieszczyk@johnzink.com
Date Prepared:	August 7, 2018

Proposal Contents

John Zink Company LLC ▪ 11920 East Apache Street ▪ Tulsa, Oklahoma 74116 ▪ United States
T: +1.918.234.1800 ▪ F: +1.918.234.1989

August 7, 2018

AKRF, Inc.
440 Park Ave South, 7th Floor
New York, NY 10016

Attention: Ms. Gretchen Master

Reference: Rikers Island
East Elmhurst, NY
Meet RACT rule for Boilers #2, 3, 4, 5, 6, 7, 8 & 9
JZ SO #65202.1 & 65202.3
John Zink Proposal No: 201807-95792-A

Dear Gretchen:

Based upon the burner design specification presented in Section 2, the John Zink Company, LLC is pleased to offer the enclosed budget proposal in response to your inquiry for reducing current NOx levels to meet the 2014 RACT rules.

1.0 Overview

John Zink has been requested by AKRF, Inc. for Rikers Island to supply equipment to upgrade (8) existing Keeler Boilers (#2, 3, 4, 5, 6, 7, 8 & 9) to meet the NY RACT rule for 2014. Based on current stack NOx test results of 0.07 lbs/mmBtu on NG and 0.113 lbs/mmBtu on #2 oil, John Zink has reviewed the data and will meet the new RACT NOx levels with a boiler derate and FGR. This will allow the boilers to maintain the existing FD fans and motors. John Zink will be supplying new FGR Inlet Box packages to be retrofitted to the existing FD fan. John Zink will achieve NOx on NG firing of 0.05 lbs/mmBtu and 0.08 lbs/mmBtu on #2 Oil firing with 0.02% fuel bound nitrogen (FBN). The equipment will be shipped loose for installation by the Installing Contractor.

2.0 John Zink's Detailed Scope

2.1 Burner Equipment

The following is included in the Burner Equipment Scope. See below for a detailed description of each item on a per boiler basis

- (1) FD Fan Inlet Silencer with combustion air flow meter - loose
- (1) FGR Inlet Box package – loose
- (1) FGR damper, manual - loose
- (2) Sets of Variflame NG Pokers

The following is NOT included in the Burner Equipment Scope.

- FGR ducting with supports, expansion joints, connectors, insulation, etc from the stack to the FGR Inlet Box connection.
- Existing FD fan inlet modifications to accept the new FGR inlet box. John Zink will supply drawings as required.
- FGR inlet box supports to ground level.
- Upgrades to BMS system including hardware/software and documentation for FGR inputs
- Upgrades to Combustion Controls including hardware/software and documentation for FGR control
- Removal, disposal, reinstallation of existing equipment and installation of new equipment
- Miscellaneous wire, conduit, tubing, etc best supplied by the Installing Contractor.
- Insulation or personnel protection
- Startup Service

<u>FGR Inlet Box Package</u> (Qty; 1)
John Zink will be supplying (1) FGR Inlet Box package to be mounted to the FD fan inlet. The FGR Inlet Box package includes:
-FGR Inlet box with 18" D x ~12' L FGR connection piece
-FGR Fresh Air damper mounted to the Inlet Box inlet.
-FGR Fresh Air damper Type K pneumatic actuator or equal and I/P positioner
-Standard prep, primed and painted
-Inlet Silencer with piezometer tube to be mounted to the FGR Fresh Air Damper. Sized for 85 dBA @ 3-5 ft in front of the inlet. The sound calculations assume a free field environment. Shipped loose.

<u>Combustion Air Flow Transmitter</u> (Qty: 1)

John Zink will supply (1) loose DP transmitter with manifold valve to connect to the piezometer in the field.

<u>FGR Damper</u> (Qty: 1)

John Zink to supply manual 18" FGR damper loose for field installation by the Installing Contractor.

<u>Variflame NG Pokers</u> (Qty: 12)

Each existing Variflame burner has (6) NG pokers that will need to be changed. This will allow the proper drilling pattern with the introduction of the FGR for the lowest NOx and best combustion performance for the derated capacity.

2.2 Paint and Finish

John Zink surface preparation and painting will be as follows:
Product

- Acrylic Emulsion primer/finish, no topcoat
- Sherwin-Williams DTM Acrylic or equivalent
- SW data sheet 1.21

Surface Preparation
- SSPC-SP6

Dry Film Thickness (S-W, other mfg see product sheet)
- 5.0 - 6.0 mils

Performance
- Consult the manufacturer's product information sheet

Technique
- Consult the manufacturer's application bulletin and JZ 9001-OPS-MFG-58

Inspection

- Consult JZ 9001-OPS-QC-61

3.0 Design Conditions

3.1 Boiler Information

Number of boilers	8 / Boiler #2-9
Number of burners per boiler	2 /1
Boiler manufacturer	Keeler / UIW
Boiler designation	Field Erected
Furnace dimensions: Width inside water tubes feet	17.875'
Average Height feet	18.0'
Length feet	12.23'
Length for flame feet	12.0'
Steam capacity pph – Derate based on 680/550 deg F FGR	56,000 / 58,100
Design boiler HHV BTU input NG /#2 mmbtu/hr w/680/550 F FGR	76.84 / 72.00
	79.72 / 74.70
Boiler furnace pressure "w.c. w/14% FGR	0.0
Steam pressure psig	150
Steam temperature °F	SAT
Boiler Feedwater temperature °F	227 (assumed)
Boiler Efficiency, %	72.9 / 77.8
	(assumed)
Minimum boiler stack height feet	50
Location	Indoor
Economizer used	No

3.2 Electrical & Utilities

Fan electrical characteristics (v/hz/ph)	460/60/3
Panel electrical characteristics (v/hz/ph)	120/60/1
Instrument air supply (clean, dry, and oil-free) psig	90

3.3 Codes

Area classification	Non-hazardous
NEMA class rating	NEMA 4
Code requirements	NFPA 85
Piping requirements	Coen Standard
Individual electrical components will carry	UL or FM

3.4 Combustion Air

Combustion air temperature °F	80
FGR temperature °F	680
Air humidity (%)	50
Air density at standard conditions (lbm/ft^3)	0.075
Design combustion air density (lbm/ft^3)	0.728
Mix Density of combustion air/FGR 680 / 550 deg F	0.0634 / 0.0656
Mix temperature of combustion air / FGR °F 680 / 550 deg	157.5 / 136.7
Plant elevation (FASL)	70
Combustion air pre-heat	No

3.5 Fuels

Main fuel	Natural Gas
	#2 Oil
Ignition fuel	Natural Gas

NG Analysis:

Higher Heating Value btu/scf	1,000
Specific Gravity	0.0599
Density (#/ft3)	0.0457
Molecular weight	17.35

#2 Fuel Oil

High Heat Value	19,500 btu/lb
Nitrogen percent by weight	0.02
Sulfur percent by weight	0.05
Ash percent by weight	0.01 assumed
BS&W percent by weight	0.01 assumed
Conradson Carbon Residue, percent	0.35 assumed
Pressure required at Coen train inlet, oil	175 psig
Pressure required at Coen train inlet, atomizing steam	150 psig

4.0 Burner Performance and Guarantees

4.1 Burner Performance

Burner pressure drop "w.c. NG / #2 w/680 /550 F FGR................................ 6.25 / 5.94
.... 6.51 / 6.18
Burner excess air @ 100% MCR 15
FGR percent (%) 680 / 550 F FGR .... 14 / 13
Boiler turndown based on steam output .... 8:1 / 6:1
NG supply pressure at train inlet psig 14.5
NG supply pressure at burner header inlet, psig 7.0
Pilot gas pressure required at the train inlet psig.. 14.5
Pilot gas pressure at ignitor, psig 0.75
#2 Oil supply pressure at the gun connection, psig 143
Atomizing steam pressure at the gun connection, psig .... 90 psig

4.2 Burner Guarantees

A. The following performance guarantees will be extended from twenty-five (25) to one hundred (100) percent of boiler load, provided that the system is operated at steady state conditions, in accordance with the Burner Design Basis and Specifications in Section 2:

Fuel: Natural Gas / #2 Oíl

NOx #/mmbtu ....0.05 / 0.08
SOx #/mmbtu ....0.0006 / 0.052
Total Particulates #/mmbtu..0.007 / 0.05
CO #/mmbtu ....0.037 / 0.039
VOC #/mmbtu...0.0042 / 0.0048

- *'ppm' emissions are referenced to 3% dry stack O2.*
- *All emissions are relevant to the fuel(s) specified in this proposal only, based on HHV.*
- *All information provided in the Burner Design Basis and Specifications is preliminary only and is subject to change after the detailed Engineering stage on the contract is completed.*
- *Particulate matter includes unburnt compounds derived from the fuel and excludes any ash present in the fuel and any inorganic or non-combustible material present in the ambient air used for combustion.*
- *SOx on NG are based on a maximum of 1 micron/scf of fuel.*

B. The burner(s) flame will have no deleterious impingement over the entire burner turndown range as per the American Boiler Manufacturers Association Definition: "Flame impingement is defined as the condition which exists when the flame resulting from the combustion of the fuel comes into contact with any interior surface of the furnace in such a way as to result in localized incomplete combustion of the fuel and such condition manifests itself in the formation of hard carbonaceous deposits at the contact location. Flame impingement is a condition of firing a fuel which may cause failure and/or excessive maintenance of combustion chamber wall surfaces".

C. All performance specifications stated throughout this proposal are intended to show probable operating results only which cannot be guaranteed except as expressly stated in the guarantee clause A).

D. Testing for performance guarantees shall be run within thirty (30) days after the equipment has been installed and operated. Others shall furnish all operating personnel and equipment for such tests. A John Zink trained service engineer shall fine tune the burner as required and observe the operation of auxiliary equipment to assure that performance guarantees will be met, prior to testing, unless John Zink, in its sole discretion, waives this requirement because it deems on-site tuning to be a safety risk or commercially or legally unreasonable. John Zink's representative will have access to the records at all times and the tests will be conducted in a manner to ensure that the specified performance conditions are being maintained. For oil fired systems, others shall take samples of the fuel oil during the performance test and have its nitrogen content measured by an independent test laboratory. John Zink will be supplied a complete copy of all test results and data.
E. The equipment shall be considered accepted if tests show that the guarantees have been fulfilled, or if others fail to have the equipment tested within the specified period. In case of the failure to meet the guarantees, John Zink reserves the right to change or replace, on a straight time basis, the equipment furnished so that the guaranteed performance will be obtained.

5.0 Budget Pricing

John Zink has provided a budget price relative to the scope of supply and the stated prices are valid for estimating purposes only. Any firm offer, or binding quotation will be the subject of a formal proposal at a future date.

Base Price: (8) FGR Retrofit packages adding 680 F FGR or 550 F FGR
to the existing Dual Variflame Low NOx Burners for
Boilers #2, 3, 4, 5, 6, 7, 8 & 9 as detailed in the foregoing proposal will be
EIGHT HUNDRED & NINETY THOUSAND DOLLARS ....**$890,000 US**.

Note: The only difference will be a smaller FGR connection and FGR damper from 18 to 16” D.

Price Validity: This is a budgetary proposal and is intended only as an estimate to facilitate your planning processes and does not constitute a commitment or offer to sell goods or services at the prices and terms referenced herein.

Quoted prices are ex-works (EXW) (Incoterms 2010), exclusive of freight and any applicable sales, use or excise taxes.

6.0 Terms and Conditions

Subject to credit approval, progress payments will be required according to the following schedule:

15% of total order upon issuance of the purchase order or contract
30% on drawing transmittal
45% six (6) weeks after drawing transmittal
10% upon notice of availability of shipment

Escalation charges shall be applied to orders whose delivery dates are delayed beyond thirty (30) days from the contractual delivery date due to no fault of John Zink and when such delay has caused an increase in the cost of the goods or services to John Zink. Escalation charges shall be based upon either: (1) the Producer Price Index as published by the U.S. Department of Labor, Bureau of Labor Statistics for Finished Goods, Capital Equipment only, or (2) the U.S.

Department of Labor, Employment Cost Index (ECI), Private Industry, Table 3. Employment Cost Index for total compensation for private industry workers, by industry and occupational group; Manufacturing Industry, as applicable. The base line for calculating the adjustment shall be the date of the contract.

7.0 Exceptions & Clarifications

None received. - John Zink standard scope, materials, design and fabrication methods include.

Important Note: John Zink will require a thorough review of the installations before a final proposal can be submitted to assure the FGR Inlet Box Package and Silencer equipment proposed will fit in the area. If there is not enough room, John Zink will need to look at other options.

8.0 Delivery

Drawings will be submitted eight to ten (8-10) weeks after receipt of purchase order and all engineering information. Shipment will be twelve to fourteen (12-14) weeks from receipt of approved drawings. Note that dates are preliminary and will be firmed up at time of order placement.

The following drawings/documents will be submitted for approval:

FGR Inlet Box / FD Fan Arrangement
P&ID - Updated
Bill of Materials
IOM Manual

9.0 Terms and Conditions

Equipment and/or services quoted are subject to the attached John Zink Company, LLC. General Terms and Conditions of Sale (the "T&Cs"), and is an offer to sell the goods or services specifically contingent upon acceptance of the T&Cs. This proposal (including, without limitation, the T&Cs), if resulting in an order, shall be incorporated by reference into any resulting contract documents. In the case of a conflict among the contract documents, then the terms of the proposal (including, without limitation, the T&Cs) shall take precedence.

This proposal document is confidential and intended solely for the use of the individual or entity to which it is addressed. If you have received this proposal in error, please contact the sender and destroy all copies of the original message.

We thank you for the opportunity to present this proposal and look forward to working with you on this project.

Very truly yours,

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Encl: Terms & Conditions

GENERAL TERMS AND CONDITIONS OF SALE
(GOODS AND SERVICES)

1. **APPLICATION.** These General Terms and Conditions of Sale ("**Terms and Conditions**") will apply to all quotations and sales for goods, material, equipment and services by John Zink Company, LLC ("**Seller**") and are hereby incorporated into the purchase order, quotation, invoice or other document to which they are attached ("**Order**" and, together with the Terms and Conditions, the "**Contract**"). All purchases by customer, owner or its agent ("**Buyer**") are expressly limited and conditioned upon acceptance of the Terms and Conditions. Seller objects to and rejects any provision additional to or different from the Terms and Conditions that may appear in Buyer's purchase order, acknowledgement, confirmation, writing, or in any other prior or later communication from Buyer to Seller, unless such provision is expressly agreed to by Seller in a writing signed by Seller. For the purposes of these Terms and Conditions, the term "**Goods**" shall refer to the goods, material and equipment listed on the Order as well as all equipment or other materials provided in connection with any Services, and the term "**Services**" shall refer to the services listed on the Order. Terms not defined herein shall have the meanings set forth in the Order.

2. **PRICE AND OTHER CHARGES.** Unless otherwise stated in the Order, the Contract price does not include any packaging, transportation, duties, taxes or other charges (collectively, "**Additional Charges**"). Buyer shall be responsible for all applicable Additional Charges.

3. **PAYMENT TERMS.** (a) Unless otherwise stated in the Order, payment is due thirty (30) days after the invoice date. (b) All payments shall be made in USD unless otherwise specified in the Order. (c) Interest may be charged on all past due amounts owed by Buyer hereunder at an interest rate equal to the prevailing LIBOR rate of interest, expressed as an annual percent, plus three percent (3%) from the payment due date until paid in full, or the highest interest rate allowed by applicable law, whichever is less. Payments must be made via a financial institution that is not subject to the sanctions laws of the United States, the European Union, or other applicable jurisdictions.

4. **CREDIT TERMS.** If, in Seller's judgment, the creditworthiness or future performance of Buyer is or may become impaired or unsatisfactory, Seller may suspend performance hereunder and seek adequate assurances from Buyer. Buyer shall pay (or otherwise reimburse) Seller for any costs associated with such suspension (including charges for reactivation). Without limiting the foregoing, Seller may, for any reason, (a) require prepayment by wire transfer at least two (2) business days prior to a scheduled shipment of Goods or provision of Services, and/or (b) require Buyer to issue letter(s) of credit in a form, and from an issuing bank, acceptable to Seller at least three (3) business days prior to a scheduled shipment of Goods or provision of Services.

5. **DELIVERY.** (a) Unless otherwise stated in the Order, delivery of the Goods shall be EXW (Incoterms®2010 International Chamber of Commerce (ICC) publication) Seller's designated manufacturing facility. (b) If Buyer has not issued inspection and shipping instructions by the time the Goods are available to Buyer, Seller may, at its sole discretion, (i) store the Goods at Buyer's risk of loss and cost, or (ii) select any reasonable method of shipment, without liability by reason of its selection, costs of shipment and risk of loss to be the responsibility of Buyer. (c) Shipments or Goods in storage may be insured at Buyer's expense.

6. **TITLE/RISK OF LOSS.** Unless otherwise stated in the Order, title in the Goods shall pass to Buyer upon payment in full. The risk of loss or damage to the Goods shall pass to Buyer upon delivery in accordance with the Contract or as otherwise provided in the Delivery section.

7. **INSPECTION/REJECTION OF GOODS.** All Goods shall be received subject to Buyer's reasonable inspection and rejection. Buyer may only reject Goods that do not conform in all material respects to the specifications contained in the Contract. Rejected Goods will be held at Seller's risk for a reasonable time, to be returned or disposed of by Buyer at Seller's written instruction and at Seller's sole cost and expense. A failure by Buyer to reject nonconforming Goods in writing within thirty (30) days after receipt shall constitute an unqualified acceptance of such Goods by Buyer and a waiver by Buyer of all claims with respect thereto. Thereafter, nonconforming Goods shall be subject to the Warranty section.

8. **WARRANTY.** (a) Seller warrants that (i) the Goods shall be new and good quality and shall conform to the specifications specifically set forth in the Order and title to the Goods shall be free from any security interest, lien or encumbrance upon Seller's receipt of full payment for the Goods, and (ii) Seller shall perform the Services in a workmanlike manner in accordance with the specifications specifically set forth in the Order. (b) The foregoing warranties will last for the following period (the "Warranty Period"): (i) for Goods, eighteen (18) months after the date that the Goods are available for shipment or one (1) year after first start-up, whichever occurs first; and (ii) for Services, three (3) months after completion of the Services. If during the Warranty Period any Goods or Services prove not to meet the warranties set forth above, Seller will repair the Goods or supply identical or substantially similar replacement Goods EXW Seller's manufacturing facility, at Seller's sole discretion, or re-perform the Services (as applicable). Any replacement Goods or re-performed Services will be warranted for the unexpired portion of the Warranty Period applicable to the Goods or Services. (c) Seller will not be responsible for transportation costs or for the costs of removal, installation, re-installation or making of access of any Goods or other items, where such transportation, removal, installation, re-installation or making of access is required to repair or replace any defective Goods or to re-perform Services. Furthermore, Seller will not be responsible for and assumes no liability for materials or workmanship, labor costs or other related expenses for any work performed by Buyer or third parties (not authorized by Seller) in the repair or replacement of defective Goods or the re-performance of Services. (d) Seller's warranties will be voided if (i) the Goods or the subject of the Services have not been stored, installed, maintained or operated in accordance with accepted industrial practice or any specific instructions provided by Seller; (ii) the Goods or the subject of the Services have been subjected to any accident, misapplication, environmental contaminant, corrosion, damage, debris, improper passivation, abuse or misuse; (iii) Buyer has modified the Goods or the subject of the Services without Seller's prior written consent; (iv) Buyer has used or repaired the Goods or the subject of the Services after discovery of the defect without Seller's prior written consent; (v) Buyer or any third party refuses to permit Seller to examine the Goods or the subject of the Services and operating data to determine the nature of the defect claimed; or (vi) Buyer fails to meet its financial obligations under the Contract. (e) Goods not manufactured by Seller are subject only to warranties of Seller's vendors and Seller hereby assigns to Buyer all rights in such vendors' warranties, however, Seller shall furnish to Buyer reasonable assistance in enforcing such rights. (f) Inexpensive items requiring repair or replacement and routine maintenance-related or consumable items shall be outside the scope of these limited warranties. (g) Seller's performance guarantees, if any, shall be deemed to be met by a satisfactory demonstration of the guaranteed performance parameters during a performance test, which shall be the responsibility of Buyer and is to be based on test procedures as specified in the Order or, if not specified in the Order, to be based on test procedures mutually agreed upon by Seller and Buyer. In the absence of a performance test within sixty (60) days of delivery, unless otherwise specified in the Order, Seller's performance guarantees are deemed to have been met. (h) ALL WARRANTIES OR REPRESENTATIONS NOT SPECIFICALLY INCLUDED IN THESE TERMS AND CONDITIONS, INCLUDING THOSE WITH RESPECT TO MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE WHETHER EXPRESSED, IMPLIED, STATUTORY OR ARISING FROM A COURSE OF DEALING, USAGE OF THE TRADE OR OTHERWISE WITH RESPECT TO ANY GOODS OR SERVICES, ARE EXPRESSLY EXCLUDED. NO EXPRESS OR IMPLIED WARRANTY IS GIVEN AS TO THE CAPACITY, EFFICIENCY OR PERFORMANCE OF ANY GOODS, EXCEPT AS MAY BE PROVIDED IN A SEPARATE WRITTEN AGREEMENT SIGNED BY SELLER. (i) BUYER'S REMEDIES ARE SPECIFICALLY LIMITED TO THE REPAIR OR REPLACEMENT OF THE GOODS OR THE RE-PERFORMANCE OF THE SERVICES, AS APPLICABLE, DURING THE WARRANTY PERIOD, AND ARE EXCLUSIVE OF ALL OTHER REMEDIES. SHOULD THESE REMEDIES BE FOUND INADEQUATE OR TO HAVE FAILED OF THEIR ESSENTIAL PURPOSE FOR ANY REASON WHATSOEVER, BUYER AGREES THAT RETURN OF THE AMOUNT PAID BY BUYER TO SELLER FOR THE GOODS INVOLVED SHALL PREVENT THE REMEDIES FROM FAILING OF THEIR ESSENTIAL PURPOSE AND SHALL BE CONSIDERED BY BUYER AS A FAIR AND ADEQUATE REMEDY.

9. **BACKCHARGES**. No backcharges will be paid or allowed by Seller unless (i) Seller is notified in writing of Buyer's intent to incur costs and (ii) Seller provides prior written approval of such backcharges.

10. **OBLIGATIONS OF BUYER.** Buyer is solely responsible for identifying and defining all processes, mechanical considerations, and site requirements, which may affect the performance, reliability or operation of the Goods or Seller's performance of Services. Buyer represents that all information and data provided to Seller by or for Buyer is current, complete, and accurate. Buyer represents and warrants to Seller that Buyer has all necessary rights and permissions to provide all information provided by or on behalf of Buyer to Seller and shall indemnify Seller from any third party with respect to Seller's use of such information in connection with the Contract.

11. **INDEMNITY.** In the event that Seller performs onsite services at Buyer's facility, (i) Seller shall defend, indemnify and hold harmless Buyer against all damages, losses, costs, claims, liabilities, and expenses (including reasonable attorneys' fees), resulting from bodily injury, including death, or damage to tangible property to a Third Party, to the extent caused by the negligent acts or omissions of Seller, its officers, directors, employees or agents ("**Seller Group**"); and (ii) Buyer shall defend, indemnify and hold harmless Seller against all damages, losses, costs, claims, liabilities and expenses (including reasonable attorneys' fees), resulting from bodily injury, including death, or damage to tangible property to a Third Party, to the extent caused by the negligent acts or omissions of Buyer, its officers, directors, employees or agents ("**Buyer Group**"). All liability, losses, damages, costs or expenses resulting from bodily injury, including death, or damage to tangible property to a Third Party, caused by the joint or concurring acts of Buyer Group and Seller Group, shall be borne by Buyer and Seller to the extent each is determined negligent either by agreement of the parties or by a court of competent jurisdiction. The term "**Third Party"** shall mean any person or entity that is not a member of Seller Group, Buyer Group, the end user of the Goods or subject of the Services, or any of its respective affiliates, parent(s), subsidiaries or any of their respective officers, directors, employees, agents, or subcontractors.

12. **DEFAULT.** Upon the occurrence of any of the following events: (i) Seller has not received a payment due from Buyer hereunder by the date such payment is due under the Contract, and such failure remains uncured for a period of ten (10) business days after Buyer's receipt of written notice from Seller of such non-payment; (ii) Seller is unable to meet its warranty obligations and fails to commence to cure within ten (10) business days after Seller's receipt of written notice from Buyer of such uncured obligation; or (iii) Seller or Buyer fail to perform other material obligations in the Contract and such failure remains uncured for a period of thirty (30) business days after receipt of written notice from the other party of such uncured obligation, or if cure is not possible within that period, the defaulting party fails to make continuous and diligent efforts to cure, then the non-defaulting party, in its sole discretion and without prior notice (other than as provided above) to the defaulting party, may do any one or more of the following: (a) suspend performance under the Contract; or (b) terminate the Contract, whereby any and all obligations of the defaulting party will, at the option of the non-defaulting party, become immediately due and payable or deliverable, as applicable. In the event of default by Buyer, Seller shall have the right to withhold delivery and/or sell the Goods to a third party and deduct from proceeds of such sale the purchase price and all reasonable costs resulting from the default. The prevailing party shall be entitled to recover all court costs, reasonable attorneys' fees and expenses incurred by the prevailing party in connection with the default, and interest on past due amounts as set forth in the payment terms of the Contract.

13. **INTELLECTUAL PROPERTY.** (a) Seller retains all intellectual property rights, whether registered or un-registered, including trademarks, patents, and copyright of all documents, drawing rights, design rights, developed programs, software, models and other data provided or developed in the course of the Contract ("Seller IP"), and hereby grants Buyer a non-exclusive, non-assignable royalty free license to use Seller IP delivered to Buyer or embodied in the Goods or related deliverables only for the purposes of Buyer's installation, operation and maintenance the Goods. (b) Seller will defend and indemnify Buyer from any claim, suit or proceeding brought against Buyer based on a claim that the Goods as manufactured and furnished by Seller and used

in the manner for which it was intended and sold to Buyer constitutes an infringement of any United States, Canadian or European Union-member patent, if Seller is notified promptly in writing and given authority, information and assistance for the defense of such claim, suit or proceeding. All aspects of the defense and settlement of any such claim, suit or proceeding shall be within Seller's sole discretion. Buyer remains solely responsible for its own costs, including all fees and expenses of its own counsel, if any, or its personnel, which are incurred in conjunction with the defense of such claim, suit or proceeding. Should it be held that the Goods constitute an infringement and the use of the Goods is enjoined, Seller will, at its sole discretion and at its own expense, either procure for Buyer the right to continue using the Goods, replace the Goods with non-infringing goods, modify the Goods to become non-infringing or refund the purchase price for the infringing Goods. Seller's obligations to defend, and indemnify Buyer shall not apply to any liability for infringement (i) of any method patent where the Goods are used with other apparatus for carrying out a process resulting in a combination of steps which is deemed to infringe a method patent or patent directed to a combination of steps, (ii) where the Goods are modified by Buyer, (iii) where the Goods are used by Buyer in a manner different than the use communicated to and understood by Seller at the time the Goods were sold to Buyer and such use constitutes infringement, or (iv) with respect to claims of infringement where the Goods were designed and manufactured in accordance with the design or specifications furnished or required by Buyer. (c) Buyer will indemnify and hold harmless Seller from any suit or proceeding brought against Seller by any third party based on claims resulting from exceptions (i), (ii), (iii) or (iv) as stated above.

14. **DELIVERY DATE.** If the Order specifies a delivery date, Seller shall use commercially reasonable efforts to meet the requested date.

15. **CANCELLATION FEE.** Buyer may not cancel any part of the Contract except upon written notice and payment to Seller for (a) all Goods or Services completed prior to cancellation, (b) all costs incurred by Seller prior to cancellation, (c) all reasonable costs arising due to the cancellation, (ii) unavoidable third party charges, and (iii) a cancellation fee in the amount of twenty percent (20%) of the total price of the Contract. The parties agree that Seller's damages following a termination of any part of the Contract by Buyer are difficult to determine and that the cancellation fee provided by this provision is a genuine pre-estimate of loss and not a penalty and is reasonable in light of the circumstances. Seller shall be entitled to the payments set forth above if Seller cancels or terminates the Contract pursuant to the Default and Suspension sections. Title to all works in progress and all materials not delivered to Buyer prior to the date of cancellation will remain with Seller.

16. **SUSPENSION.** (a) Buyer may only suspend the Order upon written notice to Seller, subject to payment of Seller's costs. (b) If Buyer or any of its agents delays Seller's performance due to failure to promptly approve drawings or procedures or due to any other action or non-action on part of Buyer or its agents: (i) Buyer shall reimburse Seller for all costs incurred up to the date of suspension and as a result of such delay (including costs of reactivation), (ii) the delivery time shall be adjusted, and (iii) milestone payments (if applicable) will be adjusted to keep Seller whole for costs incurred up to the date of delay or suspension. (c) If, due to any action or non-action on the part of Buyer or its agents, Seller is delayed for more than forty-five (45) days, or such longer period of time as deemed reasonable by Seller in its sole discretion, Seller may elect to cancel the Order.

17. **FORCE MAJEURE.** Force Majeure means any circumstances beyond the reasonable control of either party, including acts of God, fire, explosion, breakdown of machinery or equipment, third party supplier plant shutdown, strikes or other labor disputes of Seller's suppliers or subcontractors, acts of terrorism or war, riots or other civil disturbances or voluntary or involuntary compliance with any law, order, regulation, recommendation or request of any governmental authority, inability to obtain materials necessary for manufacture of the Goods, total or partial failure of any of Seller's usual means of transportation of the Goods, or for failure to obtain necessary governmental approvals, permits or licenses. Neither party will have any liability, other than for the payment of monies owing, for their failure to perform any of their contractual obligations arising out of or in connection with events of Force Majeure.

18. **ASSIGNABILITY.** The rights and duties under the Contract are not assignable or transferable by Buyer or Seller, in whole or in part, by operation of law or otherwise, without the prior written consent of the non-assigning party, which consent may not be unreasonably withheld, delayed, or conditioned. Notwithstanding, upon written notice, Buyer or Seller may assign this Contract in whole or in part to any of its affiliates which are as equally creditworthy and provided such affiliate is compliant with all applicable laws. Any assignment or attempted assignment in contravention of the foregoing shall be null and void. Any assignee is subject to all of the obligations, liabilities, waivers and limitations of this Contract.

19. **GOVERNING LAW.** The Contract, and its execution, performance, interpretation, construction and enforcement, shall be governed by the law, both procedural and substantive, of the State of Texas, without regard to its conflicts of law rules; and all claims relating to or arising out of the Contract, including breach, and formation, whether sounding in contract, tort or otherwise, shall likewise be governed by the laws of the State of Texas, excluding choice-of-law principles. Any action or proceeding between Buyer and Seller relating to the Contract shall be commenced and maintained exclusively in the State or federal courts in Harris County, Houston, Texas; and, Buyer waives all venue and inconvenience of forum challenges and irrevocably submits itself unconditionally and irrevocably to the personal jurisdiction of such courts. BUYER AND SELLER EACH WAIVE, TO THE FULLEST EXTENT PERMITTED BY LAW, ANY RIGHT IT MAY HAVE TO A TRIAL BY JURY IN RESPECT TO ANY SUIT, ACTION, CLAIM OR PROCEEDING RELATING TO THE CONTRACT.

20. **NOTICE.** All official notices, made under this Agreement must be made via certified or registered mail with return receipt, postage prepaid addressed to the party to whom such notice is given at the address of such party stated in the Contract. All other communications or transmittals under the Contract shall be in writing and shall be deemed received on the day of delivery if personally hand delivered or sent by facsimile or electronic transmission (with written confirmation of the completed transmittal).

21. **ENTIRE AGREEMENT; AMENDMENT; WAIVERS.** This Contract supersedes all prior negotiations, discussions, and dealings concerning the subject matter hereof, and shall constitute the entire agreement between Seller and Buyer concerning the subject matter hereof. There are no understandings, inducements, commitments, conditions, representations or warranties of any kind, whether direct, indirect, collateral, express or implied, oral or written, from either party to the other, other than as contained in this Contract. No party shall claim any amendment, modification or release of any provisions hereof unless the same is in writing and signed by Buyer and Seller. No waiver by Buyer or Seller of any breach of any terms, conditions or obligations under the Contract shall be deemed a waiver of any continuing or subsequent breach of the same or any other terms, conditions or obligations hereunder.

22. **ELECTRONIC TRANSACTIONS.** The Contract may be digitally copied and stored on electronic storage media or devices (the "**Imaged Agreement**"). The Imaged Agreement (once digitally regenerated to paper form), and any facsimile, and all computer records of the foregoing, if introduced as evidence in any judicial, arbitration, mediation or administrative proceedings, will be admissible as between the parties to the same extent and under the same conditions as other business records originated and maintained in documentary form and neither party shall object on the basis that such business records were not originated or maintained in documentary form under any rule of evidence.

23. **COMPLIANCE.** Buyer and Seller shall: (i) comply fully with all applicable laws and regulations in their respective performances of the Contract; and, (ii) shall neither take nor refrain from taking any action that could result in liability for either party under applicable law, including the U.S. Foreign Corrupt Practices Act, the OECD Anti-Bribery Convention or any other applicable anti-bribery law or treaty, or those regulations maintained by the U.S. Treasury Department's Office of Foreign Assets Control (31 C. F. R. Chapter V) or the U.S. Commerce Department's Bureau of Industry and Security (15 C.F.R. Parts 730 et. Seq.). Buyer shall comply as follows: (i) Buyer acknowledges that any distribution, sale, transfer or re-export of the Goods is governed by and subject to the trade control laws of the United States; (ii) Buyer shall not distribute, sell, transfer or re-export the Goods, except in conformance with United States law; and, (iii) If Buyer knows or has reason to know that any of its customers intend to distribute, sell, transfer or re-export the Goods, either directly or through incorporation into other products, then Buyer shall inform its customer that the customer is responsible for obtaining any licenses or other approvals from the U.S. Government before such distribution, sale, transfer or re-export, by including the following language in Buyer's purchase order acknowledgement or other appropriate documentation to its customer: *NOTICE: The products, technical data, and/or software included in this Order were provided in compliance with the laws and regulations of the United States. Customer is responsible for obtaining all licenses, permits or other approvals that may be necessary under the laws of the United States before any distribution, sale, transfer or re-export of such items and for ensuring that the end-user and end use of these products are permitted under U.S. law. Re-export, diversion, transshipment, or use contrary to U.S. law is prohibited and is cause for cancellation of this [purchase order]."* Nothing in this Contract shall require Buyer or Seller to take or refrain from taking any action impermissible or penalized under United States or other applicable laws. A Party's breach of this Section shall constitute cause for immediate termination of the Contract.

24. **INDEPENDENT CONTRACTORS.** Seller and Buyer are independent contractors only and are not partners, master/servant, principal/agent or involved herein as parties to any other similar legal relationship with respect to the transactions contemplated under the Contract or otherwise, and no fiduciary, trust, or advisor relationship, nor any other relationship imposing vicarious liability shall exist between the parties under the Contract or otherwise at law.

25. **NO THIRD PARTY BENEFICIARIES.** The Contract is solely for the benefit of, and shall inure to the benefit of, Buyer and Seller, and shall not otherwise be deemed to confer upon or give to any third party any right, claim, cause of action or other interest herein.

26. **SEVERABILITY.** The invalidity or unenforceability of any provision of the Contract shall not affect the validity or enforceability of its other provisions and the remaining provisions shall remain in full force and effect.

27. **CONFIDENTIALITY.** Except as provided in a separate written confidentiality agreement, all information that Buyer acquires from Seller hereunder, directly or indirectly, and all information that arises out of the sale of the Goods and/or Services hereunder, concerning such Goods, Services, and/or proprietary processes involved, including, but not limited to, information concerning Seller's current and future business plans, information relating to Seller's operations, know-how, and other Seller-furnished information shall be deemed Seller's "**Proprietary Information**". Buyer shall (a) hold Seller's Proprietary Information in strictest confidence, (b) not disclose it to others and (c) use it solely for purposes of the Contract.

28. **INSURANCE**. In the event the Seller performs onsite services at Buyer's facility, Seller shall maintain the following insurance coverage during the term of the Contract and, at Buyer's request, shall provide Buyer with a certificate evidencing such coverage: (a) Statutory Workers' Compensation and Employer's Liability Insurance, with limits of Five Hundred Thousand USD ($500,000.00) each accident, Five Hundred Thousand USD ($500,000.00) disease each employee, and Five Hundred Thousand USD ($500,000.00) disease policy limit; (b) Commercial General Liability Insurance, with a combined single limit for bodily injury and property damage of One Million USD ($1,000,000.00) per occurrence and in the aggregate; and (c) Automobile Liability Insurance, with a combined single limit for bodily injury and property damage of One Million USD ($1,000,000.00) per accident.

29. **SURVIVAL**. The provisions addressing indemnity, confidentiality, limitation of liability, and all other provisions which by their nature are intended to survive, shall survive expiration or termination of the Contract.

30. **MISCELLANEOUS.** The captions and section headings set forth in the Contract are used for convenience only and shall not be used in defining or construing any of the terms and conditions set forth in the Contract. The term "**days**", as used herein, shall mean actual days occurring, including, Saturdays, Sundays and holidays where banks are authorized to be closed in the city where Seller's chief executive office is located. The term "**business days**" shall mean days other than Saturdays, Sundays and holidays where banks are authorized to be closed in the city where

Seller's chief executive office is located. The term "**including**" or any variation thereof means "**including, without limitation**" and shall not be construed to limit any general statement that it follows to the specific items immediately following it. Unless the context indicates otherwise, words importing the singular number shall include the plural and vice versa, and words importing person shall include firms, association, partnerships and corporations, including public bodies and governmental entities, as well as natural persons, and words of masculine gender shall be deemed to include correlative words of the feminine gender and vice versa as the circumstances may require. The United Nations Convention on Contracts for the International Sale of Goods shall not apply.

31. **LIMITATION OF LIABILITY**. (A) NO PARTY SHALL BE LIABLE FOR INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING LOSS OF PROFITS, REVENUES, OR OTHER ECONOMIC LOSSES WHETHER DEEMED DIRECT OR CONSEQUENTIAL, ARISING UNDER ANY CAUSE OR COMBINATION OF CAUSES, INCLUDING ANY THEORIES OF CONCURRENT OR JOINT LIABILITY. (B) THE LIABILITY OF SELLER AND ITS AFFILIATES IS LIMITED TO THE PRICE ALLOCABLE TO THE GOODS OR SERVICES DETERMINED TO BE DEFECTIVE, AND IN NO EVENT WILL THE CUMULATIVE LIABILITY OF SELLER AND ITS AFFILIATES BE IN EXCESS OF THE TOTAL PAYMENTS RECEIVED FROM BUYER UNDER THE ORDER REGARDLESS OF CAUSE OR ANY COMBINATION OF CAUSES WHATSOEVER. ALL INSURANCE, BOND AND BANK GUARANTEE OR LETTER OF CREDIT PROCEEDS WHICH MAY BE PAID BY THE INSURERS, SURETIES OR BANKS OF SELLER OR ITS AFFILIATES WILL BE CREDITED AGAINST THE LIMITATION STATED ABOVE AND SHALL REDUCE THE AMOUNT OF THE CUMULATIVE LIABILITY OF SELLER AND ITS AFFILIATES. (C) BUYER'S REMEDIES ARE LIMITED TO THOSE REMEDIES EXPRESSLY STATED IN THIS CONTRACT. (D) THESE LIMITATIONS SHALL APPLY NOTWITHSTANDING ANY FUNDAMENTAL BREACH OR FAILURE OF ESSENTIAL PURPOSE OF ANY LIMITED REMEDY.

[End of General Terms and Conditions of Sale]

(JZ-Power) Terms and Condition s- (Sale) Rev. [08 04 15]

ATTACHMENT #3

NYC – DOC Rikers Island Cogeneration Plant LAER Analysis

1 Introduction and Background

The Rikers Island Correctional Facility is considered an existing major facility for the determination of New Source Review (NSR) and Prevention of Significant Deterioration (PSD). Existing facility Potential-to-Emit (PTE) emissions of nitrogen oxides (NO_x) exceed the Major Facility Threshold (MFT) at 426.16 tons per year (TPY) and is therefore the facility is subject to the NSR and PSD requirements under Title 6 of the New York Codes, Rules, and Regulations (NYCRR), Chapter III, Part 231. This Lowest Achievable Emission Rate (LAER) technology analysis for the cogeneration plant at the Rikers Island Correctional Facility is being submitted as part of the facility's requirements under Part 231 and is included as an attachment to the Title V permit renewal application.

1.1 NON-ATTAINMENT NEW SOURCE REVIEW (NANSR) – 6 NYCRR PART 231-6

New Source Review is a federal program, which has been delegated to the states, including New York. Part 231-6 applies to nonattainment pollutants proposed to be emitted from modifications to existing major facilities in nonattainment areas and attainment areas of the State within the Ozone Transport Region. The intent of the program is to require such facilities to control emissions of pollutants whose ambient concentrations have been determined to cause or contribute to violations of National Ambient Air Quality Standards (NAAQS). Emissions of NO_x, volatile organic compounds (VOC), and particulate matter less than 2.5 microns in diameter ($PM_{2.5}$) are subject to nonattainment NSR (NANSR) since these already exceed their respective NAAQS in the area. Sulfur dioxide (SO_2) is also treated as a non-attainment pollutant since it is a precursor to $PM_{2.5}$ in a $PM_{2.5}$ non-attainment area.

The Rikers Island Cogeneration Plant is located in a moderate ozone non-attainment area. The Project consists of two (2) natural gas fired simple-cycle Solar Taurus 70-10801S gas turbines, rated at 7.5 MW each, and are individually equipped with duct firing heat recovery steam generators (HRSGs). NO_x emissions from the cogeneration plant are 52.0 tons/year, greater than the 25 tons/year significant net emissions increase threshold under NSR. Therefore, Part 231 requires the application of LAER technology to minimize emissions.

LAER is defined in 6 NYCRR Part 200 as:

> "the most stringent emission limitation achieved in practice, of which can reasonably be expected to occur in practice for a category of emission sources taking into consideration each air contaminant which must be controlled. In no event shall the application of this term permit a proposed new source or modification to emit any air contaminant in excess of the amount permitted under any applicable emission standard established under 6 NYCRR or 40 CFR."

The three rationales provided by the LAER evaluation process that allow a technology to be determined to be technically or economically infeasible are:

- The technology has never been implemented successfully on a similarly configured full-scale operation within the industry category;
- The technology causes or increases emissions of one or more pollutants which could result in significant environmental impacts; or
- The technology is so expensive that, if required, would prevent the entire project from being built.

1.2 Nitrogen Oxides

During combustion, NO_x is primarily formed in two ways: fuel NO_x and thermal NO_x.

Thermal NO_x refers to the high temperature reaction of atmospheric nitrogen and oxygen from the combustion air. The reaction rate is highly dependent on temperature and thus the thermal environment in the flame zone primarily controls thermal NO_x formation. Thermal NO_x is dependent to a lesser extent on the availability of oxygen in the flame zone.

Fuel NO_x is formed by the oxidation of organic bound nitrogen in the fuel during combustion. Fuel NO_x formation is less sensitive to temperature compared to thermal NO_x, but it is strongly influenced by oxygen availability. Fuel NO_x formation is also directly related to fuel nitrogen content. Both fuel NO_x and thermal NO_x mechanisms are important with the combustion of fuel oil. Natural gas, however, contains no fuel bound nitrogen and thus NO_x is formed only by the thermal NO_x mechanism.

A third form of NO_x, "prompt NO_x", is formed during the oxidation of molecular nitrogen present in the combustion air stream in areas of the flame envelope that are "fuel rich". Under these fuel rich conditions, particularly when stoichiometry is under 0.60, both hydrogen cyanide (HCN) and ammonia (NH_3) can be formed through the rapid reaction of CH radicals with N2 to form HCN and N. Below a stoichiometry of 0.50, almost all NO_x formed is prompt NO_x. Although prompt NO_x is temperature sensitive, the temperature is not as great as with thermal NO_x. The rate of formation of prompt NO_x is extremely rapid, being complete in approximately 1 millisecond. Under fuel rich conditions and a temperature of just 2,400 °F, 20 ppm of prompt NO_x still remains. In most cases, prompt NO_x emissions are negligible.

NO_x formation can be limited by lowering combustion temperature and staging combustion (a reducing atmosphere followed by an oxidizing atmosphere). NO_x emission controls are divided into two categories: post combustion emission reduction and in-furnace combustion control. Post-combustion NO_x controls reduce a portion of the NO_x exiting the combustion zone to nitrogen. In-furnace formation control processes reduce the quantity of NOx formed during the combustion process.

2 Rikers Island Cogeneration Plant Equipment

2.1 EXISTING COGENERATION TURBINES

The Solar Taurus 70-10801S combustion turbines went into operation January of 2015 and are equipped with SoLoNOx technology, which allows the equipment to achieve 15 ppm_{vd} NO_x at 15% O_2. This technology is Dry Low Emissions (DLE) combustion, which relies on lean-premix combustion. This reduces the conversion of atmospheric nitrogen to NO_x by reducing the combustor's flame temperature. Since NO_x formation rates are strongly dependent on flame temperature, lowering this temperature is an effective strategy for reducing NO_x emissions.

The combustion turbines underwent performance stack testing in October of 2018. The NO_x emission for Turbine 1 without duct burner firing was 9.92 ppm_{vd} at 15% O_2, and with the duct burner in operation it was 11.89 ppm_{vd} at 15% O_2. The NO_x emission for Turbine 2 without duct burner firing was 6.87 ppm_{vd} at 15% O_2, and with the duct burner in operation it was 9.70 ppm_{vd} at 15% O_2. The test results for both turbines are below the proposed NOx emission limit of 15 ppm_{vd} at 15% O_2.

2.1.1 Consideration of Post Combustion NO_x Control Technology

Selective Catalytic Reduction (SCR) is a post-combustion NO_x control technology involving the injection of ammonia (NH_3) or urea into the exhaust gas stream upstream of a specialized catalyst module, promoting conversion of NO_x to molecular nitrogen. The catalyst bed is used to lower the activation energy required for NO_x decomposition. The major components of an SCR system include an ammonia storage tank, an injection grid (system of nozzles that spray NH_3 into the exhaust gas ductwork), a structured, fixed-bed catalyst module, and electronic controls. In the SCR process, NH_3, usually diluted with air or steam, is injected through a grid system into the exhaust gas upstream of the catalyst bed. On the catalyst surface, the NH_3 reacts with NO_x to form molecular nitrogen and water. The basic reactions are:

$$4NH_3 + 4NO + O_2 \rightarrow 4N_2 + 6H_2O$$

$$8NH_3 + 6NO_2 \rightarrow 7N_2 + 12H_2O$$

$$NH_3 + O_2 \rightarrow NO_X + H_2O$$

The first and second equations reflect the NO_X reduction reaction. The third equation reflects the formation of NO_x by a side reaction in an SCR if the actual temperature exceeds the optimum reaction temperature. At these high temperatures, NO_x emissions actually increase and SCR is counter-productive. The reaction mechanism involved in the process is very temperature-sensitive and can be used to reduce NO_X only within a narrow temperature window.

Optimum NO_x reduction occurs at catalyst bed temperatures of 600-750°F for conventional (vanadium or titanium based catalysts) and 470-510°F for platinum catalysts. A high temperature zeolite catalyst is also available; it can operate in the 600°F–1000°F temperature range. However, these catalysts are very expensive. A given catalyst provides optimal performance within + 50°F of its design temperature for applications in which flue gas oxygen concentrations are greater than 1 percent. Below this optimum range, the catalyst activity is greatly reduced allowing unreacted NH_3 to slip through (ammonia slip). At temperatures above 850°F ammonia begins to oxidize to form additional NO_x. The NH_3 oxidation to NOx increases with increasing temperature. The normal NO_x control efficiency range for SCR is 70 percent to 90 percent. However, with low NO_x burners, such a reduction is problematic.

The design and installation of an SCR system on the turbines was considered as an alternative to the SoLoNOx technology; however, adding this technology was disregarded during the design phase due to issues of site safety and security within the Rikers Island prison complex. Installation of an SCR system was again considered as an add-on control but was considered infeasible due to similar concerns. Furthermore, the City is currently planning to establish a system of four new borough-based detention facilities to house prison populations in order to no longer detain people in the jails on Rikers Island. With the completion of this project, which is anticipated by 2026, the City would close and decommission the jails on Rikers Island. Given the proposed closure of the prison complex in the future, the future ownership and operation of the cogeneration plant is uncertain.

3 Determining LAER

To determine LAER for the Rikers Island Cogeneration Plant, the impacts of the decision/evaluation criteria were considered with respect to the technology review for the LAER determination. A thorough review of applicable control technologies in USEPA's RACT/BACT/LAER Clearinghouse (RBLC) was conducted. The review is summarized in Table 1, and included as Attachment 1. The RBLC was searched using the two criteria: 16.110 - Small Combustion Turbines (< 25 MW), Simple Cycle burning Natural Gas; and - 16.210 Small Combustion Turbines (< 25 MW), Combined Cycle & Cogeneration burning Natural Gas. The permit data searched in RBLC resulted in 25 facilities that matched these criteria. Those results were further reduced by eliminating 16 facilities with post combustion controls (Selective Catalytic Reduction (SCR)), combined cycle plants, and combustion turbines operating at a peaker plant. The remaining 10 facilities are summarized in Table 1.

Table 1:
LAER emission limits for Small Natural Gas Fired Turbines without Post Combustion Control

Facility	Permit Date	Turbine	Rating	Emission Limit [1]
Geisinger Medical Center Danville	01/30/2018	Cogeneration	4.0 MW	15 ppm [2]
Grossmont Hospital	05/13/2016	Cogeneration	4.6 MW	9 ppm [2]
Midwest Fertilizer Corporation	05/04/2016	Simple Cycle	20 MW	22.65 ppm
Calcasieu Pass LNG Project	06-19-2019	Simple Cycle	18.6 MW	25 ppm
DTE Gas Company Compressor Station	03/08/2018	Simple Cycle	7.83 MW	15 ppm
Sinton Compressor Station	03/06/2019	Simple Cycle	14.9 MW	25 ppm [2]
Rose Valley Plant	07/29/2016	Simple Cycle	7.0 MW	15 ppm
Buffalo Creek Processing Plant	05/11/2018	Simple Cycle	7.6 MW	15 ppm
Qualcomm	05/30/2013	Simple Cycle	4.37 MW	5 ppm [2]
Echo Springs Gas Plant	04/16/2009	Simple Cycle	A) 9.36 B) 2.88	A) 15 ppm [2] B) 25 ppm [2]

[1] All turbine emissions reported in ppm are in units of ppmvd at 15% O_2.
[2] Equipped with SoLoNOx, which is dry low NO_x combustion technology.

The results from the RBLC show that for small turbines firing natural gas without post combustion control, permit limits range from 5 ppmvd to 25 ppmvd at 15% O_2. The lower end of the permit limits (5 ppmvd and 9 ppmvd at 15% O_2) were considered LAER for smaller turbines than the turbines installed at the Rikers Cogeneration Plant, while the upper end of the permit limits (from 15 ppmvd to 25 ppmvd at 15% O_2) were considered LAER for similarly sized turbines. In addition, the federal New Source Performance Standard (NSPS), 40 CFR part 60, Subpart KKKK has an emission limit for turbines firing natural gas of 25 ppmvd at 15 percent O_2.

Therefore, a LAER limit of 15 ppmvd at 15% O_2 is being proposed for the Rikers Island Cogeneration Plant.

ATTACHMENT 1

COMPREHENSIVE REPORT
Report Date:07/09/2019

Facility Information

RBLC ID:	LA-0331 (final)	**Date Determination Last Updated:**	06/19/2019
Corporate/Company Name:	VENTURE GLOBAL CALCASIEU PASS, LLC	**Permit Number:**	PDS-LA-805
Facility Name:	CALCASIEU PASS LNG PROJECT	**Permit Date:**	09/21/2018 (actual)
Facility Contact:	GRAHAM MCARTHUR 202-759-6741 GMCARTHUR@VGLNG.COM	**FRS Number:**	Not Found
Facility Description:	New Liquefied Natural Gas (LNG) production, storage, and export terminal.	**SIC Code:**	4925
Permit Type:	A: New/Greenfield Facility	**NAICS Code:**	221210
Permit URL:			
EPA Region:	6	**COUNTRY:**	USA
Facility County:	CAMERON		
Facility State:	LA		
Facility ZIP Code:	70631		
Permit Issued By:	LOUISIANA DEPARTMENT OF ENV QUALITY (Agency Name) MR. BRYAN D. JOHNSTON(Agency Contact) (225)219-3450 BRYAN.JOHNSTON@LA.GOV		
Other Agency Contact Info:	Ms. Mei Wu, (225)219-3180		
Permit Notes:	Application Received September 2, 2015.		

Facility-wide Emissions:

Pollutant Name:	Facility-wide Emissions Increase:
Carbon Monoxide	763.1500 (Tons/Year)
Nitrogen Oxides (NOx)	476.5400 (Tons/Year)
Particulate Matter (PM)	241.8500 (Tons/Year)
Sulfur Oxides (SOx)	94.7700 (Tons/Year)
Volatile Organic Compounds (VOC)	74.1000 (Tons/Year)

Process/Pollutant Information

PROCESS NAME: Combined Cycle Combustion Turbines (CCCT1 to CCCT5)

Process Type: 15.210 (Natural Gas (includes propane & liquified petroleum gas))

Primary Fuel: Natural Gas

Throughput: 921.00 MM BTU/h

Process Notes:

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 2.5000 PPMV 30 DAY ROLLING AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS , OPERATING PERMIT
Control Method: (B) Low NOx Burners, SCR, and Good Combustion Practices
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: Units are in ppmv @ 15% O2; Averaging time is 30 Day Rolling Average during Normal Operations.

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 5.0000 PPMV 30 DAY ROLLING AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: OPERATING PERMIT , NSPS
Control Method: (B) Oxidation Catalyst, Proper Design, Good Combustion Practices.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: Units are ppmv @15% O2; Averaging time is 30 Day Rolling Average During Normal Operations.

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 9.5300 LB/H 3 HOUR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: OPERATING PERMIT , NSPS
Control Method: (P) Exclusive Combustion of Fuel Gas and Good Combustion Practices.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: Averaging time 3-hour Average during duct burner and turbine operations.

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 9.5300 LB/H 3 HOUR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS , OPERATING PERMIT
Control Method: (P) Exclusive Combustion of Fuel Gas and Good Combustion Practices.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: Averaging time 3-hour Average during duct burner and turbine operations.

POLLUTANT NAME: Sulfur Dioxide (SO_2)

CAS Number: 7446-09-5

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Sulfur (SOx))

Emission Limit 1: 4.0000 PPMV ANNUAL AVERAGE

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: OPERATING PERMIT

Control Method: (P) Exclusive Combustion of Low Sulfur Fuel and Proper Engineering Practices

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: BACT limit is 4 PPMV H_2S; Annual Average Content in Fuel.

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC

Test Method: Unspecified

Pollutant Group(s): (Volatile Organic Compounds (VOC))

Emission Limit 1: 1.1000 PPMV 3 HOUR AVERAGE

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: OPERATING PERMIT , NSPS

Control Method: (B) Catalytic Oxidation, Proper Equipment Design and Good Combustion Practices.

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: Units are in ppmv @ 15% O_2; Averaging Time 3-Hour Average During Normal Operations.

POLLUTANT NAME: Carbon Dioxide Equivalent (CO2e)

CAS Number: CO2e
Test Method: Unspecified
Pollutant Group(s): (Greenhouse Gasses (GHG))
Emission Limit 1: 2602275.0000 T/YR ANNUAL TOTAL
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS , OPERATING PERMIT
Control Method: (P) Combust low carbon fuel gas and good combustion practices
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: Annual Total for 5 Combined Cycle Turbines

Process/Pollutant Information

PROCESS NAME: Hot Oil Heaters (HOH1 to HOH6)

Process Type: 12.310 (Natural Gas (includes propane and liquefied petroleum gas))

Primary Fuel: Natural Gas

Throughput: 115.00 MM BTU/h

Process Notes:

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 0.0380 LB/MM BTU 3-HOUR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS , OPERATING PERMIT
Control Method: (A) Ultra Low NOx Burners and Good Combustion Practices
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: Subject to 40 CFR 60 Subpart Db

POLLUTANT NAME: Carbon Monoxide
CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 0.0820 LB/ MM BTU 3 HOUR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS , OPERATING PERMIT
Control Method: (P) Exclusive Combustion of Fuel Gas and Good Combustion Practices.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: Subject to 40 CFR 60 Subpart Db

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0075 LB/MM BTU 3 HOUR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS , OPERATING PERMIT
Control Method: (P) Exclusive Combustion of Fuel Gas and Good Combustion Practices
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: Subject to 40 CFR 60 Subpart Db

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0075 LB/MM BTU 3 HOUR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS , OPERATING PERMIT
Control Method: (P) Exclusive Combustion of Fuel Gas and Good Combustion Practices
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: Subject to 40 CFR 60 Subpart Db

POLLUTANT NAME: Sulfur Dioxide (SO2)
CAS Number: 7446-09-5
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Sulfur (SOx))
Emission Limit 1: 0.0006 LB/MM BTU 3 HOUR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS , OPERATING PERMIT
Control Method: (P) Exclusive Use Low Sulfur Fuel Gas and Proper Engineering Practices
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: Subject to 40 CFR 60 Subpart Db

POLLUTANT NAME: Volatile Organic Compounds (VOC)
CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 0.0054 LB/MM BTU 3 HOUR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS , OPERATING PERMIT
Control Method: (P) Proper Equipment Design and Operation, Good Combustion Practices, and Exclusive Combustion of Fuel Gas
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: Subject to 40 CFR 60 Subpart Db

POLLUTANT NAME: Carbon Dioxide Equivalent (CO2e)
CAS Number: CO2e
Test Method: Unspecified
Pollutant Group(s): (Greenhouse Gasses (GHG))
Emission Limit 1: 354456.0000 T/YR
Emission Limit 2:
Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: NSPS , OPERATING PERMIT

Control Method: (P) Exclusive combustion of Low-Carbon Fuel Gas, Good Combustion Practices, Good Operation & Maintenance Practices and Insulation

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: BACT Limit based on Annual Total for 6 Heaters. Subject to 40 CFR 60 Subpart Db

Process/Pollutant Information

PROCESS NAME: Acid Gas Thermal Oxidizer (AGTO)

Process Type: 19.200 (Emission Control Afterburners & Incinerators (combustion gasses only))

Primary Fuel: Natural Gas

Throughput: 186.00 MM BTU/h

Process Notes: Thermal Oxidizer to combust sour gas from the acid removal unit.

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))

Emission Limit 1: 0.1500 LB/MM BTU 3 HOUR AVERAGE

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: NSPS , OPERATING PERMIT

Control Method: (B) Low NOx Burners and Good Combustion Practices

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 0.0900 LB/MM BTU 3 HOUR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: OPERATING PERMIT
Control Method: (P) Proper Equipment Design and Operation, Good Combustion Practices
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0082 LB/MM BTU 3 HOUR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: OPERATING PERMIT
Control Method: (P) Exclusive Combustion of Fuel Gas and Good Combustion Practices
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.0082 LB/MM BTU 3 HOUR AVERAGE

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: OPERATING PERMIT

Control Method: (P) Exclusive Combustion of Fuel Gas and Good Combustion Practices

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Sulfur Dioxide (SO2)

CAS Number: 7446-09-5

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Sulfur (SOx))

Emission Limit 1: 2.3700 LB/MM BTU 3 HOUR AVERAGE

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: OPERATING PERMIT

Control Method: (P) Proper Equipment Design and Operation, Good Combustion Practices, Pre-Treatment Sulfur Content in the Inlet Gas Stream

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown
Pollutant/Compliance Notes: H_2S concentration in fuel will be limited to 4 ppmv. Sulfur content sampled quarterly.

POLLUTANT NAME: Volatile Organic Compounds (VOC)
CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 0.0100 LB/MM BTU 3 HOUR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: OPERATING PERMIT
Control Method: (P) Proper Equipment Design and Operation, Good Combustion Practices
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Dioxide Equivalent (CO_2e)
CAS Number: CO_2e
Test Method: Unspecified
Pollutant Group(s): (Greenhouse Gasses (GHG))
Emission Limit 1: 768337.0000 T/YR ANNUAL TOTAL
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: OPERATING PERMIT
Control Method: (P) Exclusive Combustion of Gaseous Fuel, Good Combustion Practices, Good Operation & Maintenance Practices and Insulation
Est. % Efficiency:
Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: Large Emergency Engines (>50kW)
Process Type: 17.110 (Fuel Oil (ASTM # 1,2, includes kerosene, aviation, diesel fuel))
Primary Fuel: Diesel Fuel
Throughput: 5364.00 HP
Process Notes: Three emergency black-start engines and two emergency generators

POLLUTANT NAME: Nitrogen Oxides (NOx)
CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 5.6000 G/KW-H
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS , OPERATING PERMIT
Control Method: (P) Good Combustion and Operating Practices
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: Comply with 40 CFR 60 Subpart IIII and limiting normal operations to 100 hr/yr.

POLLUTANT NAME: Carbon Monoxide
CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 3.5000 G/KW-H

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: NSPS , OPERATING PERMIT

Control Method: (P) Good Combustion and Operating Practices.

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: Comply with 40 CFR 60 Subpart IIII and limiting normal operations to 100 hr/yr.

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.2000 G/KW-H

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: NSPS , OPERATING PERMIT

Control Method: (P) Good combustion and operating practices.

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: Comply with 40 CFR 60 Subpart IIII and limiting normal operations to 100 hr/yr.

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.2000 G/KW-H

Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis:	BACT-PSD
Other Applicable Requirements:	NSPS , OPERATING PERMIT
Control Method:	(P) Good combustion and operating practices.
Est. % Efficiency:	
Cost Effectiveness:	0 $/ton
Incremental Cost Effectiveness:	0 $/ton
Compliance Verified:	Unknown
Pollutant/Compliance Notes:	Comply with 40 CFR 60 Subpart IIII and limiting normal operations to 100 hr/yr.

POLLUTANT NAME:	Volatile Organic Compounds (VOC)
CAS Number:	VOC
Test Method:	Unspecified
Pollutant Group(s):	(Volatile Organic Compounds (VOC))
Emission Limit 1:	0.7900 G/KW-H
Emission Limit 2:	
Standard Emission:	

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis:	BACT-PSD
Other Applicable Requirements:	NSPS , OPERATING PERMIT
Control Method:	(P) Good combustion and operating practices.
Est. % Efficiency:	
Cost Effectiveness:	0 $/ton
Incremental Cost Effectiveness:	0 $/ton
Compliance Verified:	Unknown
Pollutant/Compliance Notes:	Comply with 40 CFR 60 Subpart IIII and limiting normal operations to 100 hr/yr.

POLLUTANT NAME:	Sulfur Dioxide (SO2)
CAS Number:	7446-09-5
Test Method:	Unspecified
Pollutant Group(s):	(InOrganic Compounds , Oxides of Sulfur (SOx))
Emission Limit 1:	LB/HP-H

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: NSPS , OPERATING PERMIT

Control Method: (P) Ultra-low sulfur diesel fuel with sulfur content of 15 ppmv.

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: Comply with 40 CFR 60 Subpart IIII and limiting normal operations to 100 hr/yr.

POLLUTANT NAME: Carbon Dioxide Equivalent (CO2e)

CAS Number: CO2e

Test Method: Unspecified

Pollutant Group(s): (Greenhouse Gasses (GHG))

Emission Limit 1: 1481.0000 T/YR ANNUAL TOTAL

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: OPERATING PERMIT

Control Method: (P) Good Combustion of Practices and Good Operation and Maintenance Practices

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: Annual Total for 5 emergency engines.

Process/Pollutant Information

PROCESS NAME: Fugitive Equipment Leaks

Process Type: 50.002 (Natural Gas/Gasoline Processing Plants)

Primary Fuel:

Throughput: 0

Process Notes: Fugitive Emissions

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC

Test Method: Unspecified

Pollutant Group(s): (Volatile Organic Compounds (VOC))

Emission Limit 1: 5.0000 T/YR ANNUAL TOTAL

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: OPERATING PERMIT

Control Method: (P) Proper piping design and compliance with LAC 33:III.2111.

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Dioxide Equivalent (CO2e)

CAS Number: CO2e

Test Method: Unspecified

Pollutant Group(s): (Greenhouse Gasses (GHG))

Emission Limit 1: 3141.0000 T/YR ANNUAL TOTAL

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: OPERATING PERMIT

Control Method: (P) Proper piping design.

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: Flares (WRMFLR, CLDFLR, LPFLR)
Process Type: 19.390 (Other Flares)
Primary Fuel: Natural Gas
Throughput: 21.74 MM BTU/h
Process Notes: Flare system to provide safe and reliable disposal of streams released during start-up, shutdown, plant upsets, and emergency conditions.

POLLUTANT NAME: Nitrogen Oxides (NOx)
CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 0.0680 LB/MM BTU
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: OPERATING PERMIT
Control Method: (P) Proper equipment design, proper operation, and good combustion practices.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: When Flare is Operating.

POLLUTANT NAME: Carbon Monoxide
CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 0.3100 LB/MM BTU
Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: OPERATING PERMIT

Control Method: (P) Proper equipment design, proper operation, and good combustion practices.

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: When Flare is Operating.

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.0074 LB/MM BTU

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: OPERATING PERMIT

Control Method: (P) Proper equipment design, proper operation, and good combustion practices.

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: When Flare is Operating.

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.0074 LB/MM BTU

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: OPERATING PERMIT

Control Method: (P) Proper equipment design, proper operation, and good combustion practices.

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: When Flare is Operating.

POLLUTANT NAME: Sulfur Dioxide (SO2)

CAS Number: 7446-09-5

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Sulfur (SOx))

Emission Limit 1: 4.0000 PPMV

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: OPERATING PERMIT

Control Method: (P) Proper equipment design, proper operation, and good combustion practices. Combustion of Low Sulfur Gas in Pilot fuel.

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: Limit Unit is ppmv H2S. When Flare is Operating. Limit to Sulfur Content of Fuel.

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC

Test Method: Unspecified

Pollutant Group(s): (Volatile Organic Compounds (VOC))

Emission Limit 1: 0.0060 LB/H

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: OPERATING PERMIT

Control Method: (P) Proper equipment design, proper operation, and good combustion practices.

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: When Flare is Operating.

POLLUTANT NAME: Carbon Dioxide Equivalent (CO2e)

CAS Number: CO2e

Test Method: Unspecified

Pollutant Group(s): (Greenhouse Gasses (GHG))

Emission Limit 1:

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: OPERATING PERMIT

Control Method: (P) Proper equipment design, proper operation, and good combustion practices.

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: Marine Loading Flare

Process Type: 19.390 (Other Flares)

Primary Fuel: Natural Gas

Throughput: 0.31 MM BTU/h

Process Notes: Control Device for LNG loading process.

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))

Emission Limit 1: 0.0680 LB/MM BTU

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: OPERATING PERMIT

Control Method: (P) Proper equipment design, proper operation, and good combustion practices.

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: When Flare is Operating.

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds)

Emission Limit 1: 0.3100 LB/MM BTU

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: OPERATING PERMIT

Control Method: (P) Proper equipment design, proper operation, and good combustion practices.

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown
Pollutant/Compliance Notes: When Flare is Operating.

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0074 LB/MM BTU
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: OPERATING PERMIT
Control Method: (P) Proper equipment design, proper operation, and good combustion practices.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: When Flare is Operating.

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0074 LB/MM BTU
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: OPERATING PERMIT
Control Method: (P) Proper equipment design, proper operation, and good combustion practices.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown
Pollutant/Compliance Notes: When Flare is Operating.

POLLUTANT NAME: Sulfur Dioxide (SO_2)
CAS Number: 7446-09-5
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Sulfur (SO_x))
Emission Limit 1: 4.0000 PPMV
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: OPERATING PERMIT
Control Method: (P) Proper equipment design, proper operation, and good combustion practices. Combustion of Low Sulfur Gas in Pilot Fuel.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: Limit of Sulfur Content in fuel 4 ppmv H_2S.

POLLUTANT NAME: Volatile Organic Compounds (VOC)
CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 0.0060 LB/H
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: OPERATING PERMIT
Control Method: (P) Proper equipment design, proper operation, and good combustion practices.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: When Flare is in Normal Operation.

POLLUTANT NAME: Carbon Dioxide Equivalent (CO2e)
CAS Number: CO2e
Test Method: Unspecified
Pollutant Group(s): (Greenhouse Gasses (GHG))
Emission Limit 1: 1107.0000 T/YR ANNUAL TOTAL
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: OPERATING PERMIT
Control Method: (P) Proper equipment design, proper operation, and good combustion practices.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: Annual Total including Gassing Up Operation.

Process/Pollutant Information

PROCESS NAME: Aeroderivative Simple Cycle Combustion Turbine
Process Type: 16.110 (Natural Gas (includes propane & liquified petroleum gas))
Primary Fuel: Natural Gas
Throughput: 263.00 MM BTU/h
Process Notes:

POLLUTANT NAME: Nitrogen Oxides (NOx)
CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 25.0000 PPMV 30 DAY ROLLING AVERAGE

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: NSPS , OPERATING PERMIT

Control Method: (B) Selective Catalytic Reduction (SCR), exclusive combustion of fuel gas, and good combustion practices.

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: Units are in ppmv @ 15% O2; Averaging time is 30 Day Rolling Average during normal operations. Subject to 40 CFR 60 Subpart KKKK

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds)

Emission Limit 1: 36.0000 PPMV 30 DAY ROLLING AVERAGE

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: NSPS , OPERATING PERMIT

Control Method: (P) Proper Equipment Design, Proper Operation, and Good Combustion Practices.

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: Units are in ppmv @ 15% O2; Averaging time is 30 Day Rolling Average during normal operations. Subject to 40 CFR 60 Subpart KKKK

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 4.5000 LB/H 3 HOUR AVERAGE

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: NSPS , OPERATING PERMIT

Control Method: (P) Exclusive Combustion of Fuel Gas, Good Combustion Practices Including Proper Burner Design.

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: Averaging time is 3-hour average during normal operations. Subject to 40 CFR 60 Subpart KKKK.

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 4.5000 LB/H 3 HOUR AVERAGE

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: NSPS , OPERATING PERMIT

Control Method: (P) Exclusive Combustion of Fuel Gas, Good Combustion Practices Including Proper Burner Design.

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: Averaging time is 3-hour average during normal operations. Subject to 40 CFR 60 Subpart KKKK.

POLLUTANT NAME: Sulfur Dioxide (SO2)

CAS Number: 7446-09-5

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Sulfur (SOx))

Emission Limit 1: 4.0000 PPMV ANNUAL AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: OPERATING PERMIT
Control Method: (P) Exclusive Combustion of Low Sulfur Fuel
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: The H2S concentration in fuel limited to 4 ppmv H2S. Averaging time is Annual Average Content in Fuel.

POLLUTANT NAME: Volatile Organic Compounds (VOC)
CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 1.5000 PPMV 3 HOUR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS , OPERATING PERMIT
Control Method: (P) Proper Equipment Design, Proper Operation, and Good Combustion Practices.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: Units are in ppmv @ 15% O2. Averaging time is 3-hour Average during normal operations.

POLLUTANT NAME: Carbon Dioxide Equivalent (CO2e)
CAS Number: CO2e
Test Method: Unspecified
Pollutant Group(s): (Greenhouse Gasses (GHG))

Emission Limit 1: 134907.0000 T/YR ANNUAL TOTAL
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS , OPERATING PERMIT
Control Method: (P) Combust low carbon fuel gas, good combustion practices, good operation and maintenance practices and insulation.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: Subject to 40 CFR 60 Subpart KKKK.

Process/Pollutant Information

PROCESS NAME: Storage Tanks
Process Type: 50.002 (Natural Gas/Gasoline Processing Plants)
Primary Fuel:
Throughput: 7183.15 CF
Process Notes: Pentane and Amine Flash Drums

POLLUTANT NAME: Volatile Organic Compounds (VOC)
CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1:
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: OPERATING PERMIT
Control Method: (P) Follow the best practical house keeping and maintenance practices as specified in LAC 33:III.2113.
Est. % Efficiency:

Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: Amine Flash Drums controlled by the Acid Gas Thermal Oxidizer. Pentane Tank controlled by the Warm Flare.

Process/Pollutant Information

PROCESS NAME: Simple Cycle Combustion Turbines (SCCT1 to SCCT3)
Process Type: 15.110 (Natural Gas (includes propane & liquified petroleum gas))
Primary Fuel: Natural Gas
Throughput: 927.00 MM BTU/h
Process Notes:

POLLUTANT NAME: Nitrogen Oxides (NOx)
CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 9.0000 PPMV 30 DAY ROLLING AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS , OPERATING PERMIT
Control Method: (B) Dry Low NOx Combustor Design, Good Combustion Practices, and Natural Gas Combustion.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: Units are in ppmv @ 15% O2; 30 day rolling average during normal operations. Subject to 40 CFR 60 Subpart KKKK

POLLUTANT NAME: Carbon Monoxide
CAS Number: 630-08-0
Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 25.0000 PPMV 30 DAY ROLLING AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS , OPERATING PERMIT
Control Method: (P) Proper Equipment Design, Proper Operation, and Good Combustion Practices.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: Units are in ppmv @ 15% O2; 30 day rolling average during normal operations. Subject to 40 CFR 60 Subpart KKKK

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 8.0000 LB/H 3 HOUR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS , OPERATING PERMIT
Control Method: (P) Exclusive Combustion of Fuel Gas and Good Combustion Practices, Including Proper Burner Design.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: Averaging time 3-hour Average during normal operations. Subject to 40 CFR 60 Subpart KKKK

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)

CAS Number: PM

Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 8.0000 LB/H 3 HOUR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS , OPERATING PERMIT
Control Method: (P) Exclusive Combustion of Fuel Gas and Good Combustion Practices, Including Proper Burner Design.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: Averaging time is 3-hour average during normal operations. Subject to 40 CFR 60 Subpart KKKK

POLLUTANT NAME: Sulfur Dioxide (SO_2)
CAS Number: 7446-09-5
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Sulfur (SO_x))
Emission Limit 1: 4.0000 PPMV ANNUAL AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: OPERATING PERMIT
Control Method: (P) Exclusive Combustion of low sulfur fuel - Fuel sulfur content
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: Units are in ppmv H_2S; Annual Average Sulfur Content in Fuel

POLLUTANT NAME: Volatile Organic Compounds (VOC)
CAS Number: VOC

Test Method:	Unspecified
Pollutant Group(s):	(Volatile Organic Compounds (VOC))
Emission Limit 1:	1.4000 PPMV 3 HOUR AVERAGE
Emission Limit 2:	
Standard Emission:	

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis:	BACT-PSD
Other Applicable Requirements:	OPERATING PERMIT , NSPS
Control Method:	(P) Proper Equipment Design, Proper Operation, and Good Combustion Practices.
Est. % Efficiency:	
Cost Effectiveness:	0 $/ton
Incremental Cost Effectiveness:	0 $/ton
Compliance Verified:	Unknown
Pollutant/Compliance Notes:	Units are in PPMV @ 15% O2; Averaging period is 3 hour average during normal operations. Subject to 40 CFR 60 Subpart KKKK.

POLLUTANT NAME:	Carbon Dioxide Equivalent (CO2e)
CAS Number:	CO2e
Test Method:	Unspecified
Pollutant Group(s):	(Greenhouse Gasses (GHG))
Emission Limit 1:	1426146.0000 T/YR ANNUAL TOTAL
Emission Limit 2:	
Standard Emission:	

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis:	BACT-PSD
Other Applicable Requirements:	NSPS , OPERATING PERMIT
Control Method:	(P) Exclusively combust low carbon fuel gas, good combustion practices, good operation and maintenance practices, and insulation
Est. % Efficiency:	
Cost Effectiveness:	0 $/ton
Incremental Cost Effectiveness:	0 $/ton
Compliance Verified:	Unknown
Pollutant/Compliance Notes:	Annual Total for 3 simple cycle turbines. Subject to 40 CFR 60 Subpart KKKK.

Process/Pollutant Information

PROCESS NAME: Firewater Pumps

Process Type: 17.110 (Fuel Oil (ASTM # 1,2, includes kerosene, aviation, diesel fuel))

Primary Fuel: Diesel Fuel

Throughput: 634.00 kW

Process Notes:

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))

Emission Limit 1: 3.1000 G/HP-H

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: NSPS , OPERATING PERMIT

Control Method: (P) Good Combustion and Operating Practices.

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: Comply with 40 CFR 60 Subpart IIII and limiting normal operations to 50 h/yr.

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds)

Emission Limit 1: 3.7000 G/HP-H

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: NSPS , OPERATING PERMIT
Control Method: (P) Good Combustion and Operating Practices.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: Comply with 40 CFR 60 Subpart IIII and limiting normal operations to 50 hr/yr.

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.3000 G/HP-H
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS , OPERATING PERMIT
Control Method: (P) Good combustion and operating practices.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: Comply with 40 CFR 60 Subpart IIII and limiting normal operations to 50 hr/yr.

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.3000 G/HP-H
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: NSPS , OPERATING PERMIT
Control Method: (P) Good combustion and operating practices.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: Comply with 40 CFR 60 Subpart IIII and limiting normal operations to 50 hr/yr.

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 0.4400 G/HP-H
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS , OPERATING PERMIT
Control Method: (P) Good combustion and operating practices.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: Comply with 40 CFR 60 Subpart IIII and limiting normal operations to 50 hr/yr.

POLLUTANT NAME: Sulfur Dioxide (SO2)

CAS Number: 7446-09-5
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Sulfur (SOx))
Emission Limit 1: 0.0400 LB/GAL
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: OPERATING PERMIT
Control Method: (P) Ultra-Low Sulfur Diesel Fuel with Sulfur Content of 15 ppmv.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: Comply with 40 CFR 60 Subpart IIII and limiting normal operations to 50 hr/yr.

POLLUTANT NAME: Carbon Dioxide Equivalent (CO2e)

CAS Number: CO2e
Test Method: Unspecified
Pollutant Group(s): (Greenhouse Gasses (GHG))
Emission Limit 1: 44.0000 T/YR ANNUAL TOTAL
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: OPERATING PERMIT
Control Method: (P) Good Combustion Practices and Good Operation and Maintenance Practices.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: Annual total for 2 firewater pumps.

Facility Information

RBLC ID:	PA-0314 (draft)	**Date Determination**	
		Last Updated:	03/26/2019
Corporate/Company Name:	ROBINSON POWER COMPANY, LCC	**Permit Number:**	63-00922D
Facility Name:	BEECH HOLLOW	**Permit Date:**	12/27/2017 (actual)
Facility Contact:		**FRS Number:**	110038807823
Facility Description:	The construction of a natural gas-fired combined cycle power plant	**SIC Code:**	4911
Permit Type:	U: Unspecified	**NAICS Code:**	221112

Permit URL:

EPA Region: 3 **COUNTRY:** USA

Facility County: WASHINGTON

Facility State: PA

Facility ZIP Code: 17745

Permit Issued By: PENNSYLVANIA DEPT OF ENVIRONMENTAL PROTECTION, BUREAU OF AIR QUALITY (Agency Name)
MR. ROBERT COOK(Agency Contact) (717)772-3974 rwcook@pa.gov

Permit Notes: Construction and temporary operation of a natural gas-fired combined cycle power plant LDAR shall be implemented on piping components in natural gas service within 30 days of startup of each air contamination source the piping services. Leaks shall be detected using audible, visual, and olfactory (AVO) inspections Inspections shall be performed monthly. Repair or replacement of a leaking component shall be performed as expeditiously as practicable, but no later than fifteen (15) calendar days after the leak is detected. If the repair or replacement is technically infeasible, would require a combustion turbine shutdown, or would be unsafe to repair during operation of the unit; the repair or replacement must be completed during the next combustion turbine shutdown or within 2 years, whichever is earlier. Records of each inspection shall be maintained in a log and, at a minimum, identify the date, time, name, and title of the observer, along with any corrective action taken.

Process/Pollutant Information

PROCESS NAME: NATURAL GAS-FIRED AUXILIARY BOILER

Process Type: 11.310 (Natural Gas (includes propane and liquefied petroleum gas))

Primary Fuel: Natural Gas

Throughput: 30.00 MMBtu/hr

Process Notes: Operation of the auxiliary boiler shall not exceed 80 hours in any consecutive 12-month period

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102

Test Method: Other

Other Test Method: ATSM D6522-00

Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))

Emission Limit 1: 0.0200 LBS MMBTU

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis:

Other Applicable Requirements:

Control Method: (N)

Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Monoxide
CAS Number: 630-08-0
Test Method: Other
Other Test Method: ZTSM-D6522-00
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 0.0550 LBS MMBTU
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis:
Other Applicable Requirements:
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: COMBUSTION TURBINE without DUCT BURNERS UNIT
Process Type: 16.110 (Natural Gas (includes propane & liquified petroleum gas))
Primary Fuel: Natural Gas
Throughput: 2433.00 MMBtu/hr
Process Notes: CEMS for NOx, CO

POLLUTANT NAME: Nitrogen Oxides (NOx)
CAS Number: 10102

Test Method: EPA/OAR Mthd 7E
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 2.0000 PPMDV CORRECTED TO 15% O2
Emission Limit 2: 91.0000 TPY
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: LAER
Other Applicable Requirements:
Control Method: (A) SCR
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Monoxide
CAS Number: 630-08-0
Test Method: EPA/OAR Mthd 10
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 2.0000 PPDV CORRECTED TO 15% O2
Emission Limit 2: 56.1000 TPY
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) Oxidation Catalyst
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)
CAS Number: VOC

Test Method: Other
Other Test Method: EPA/OPA Method 18 & 25
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 1.3000 PPMDV CORRECTED TO 15 % O2
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: LAER
Other Applicable Requirements:
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, filterable (FPM)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 18.2000 LB PER HOUR
Emission Limit 2: 56.4100 TPY
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, filterable < 10 µ (FPM10)

CAS Number: PM

Test Method: Other

Other Test Method: EPA/OAR Method 201/201A and 202

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 18.2000 LB HR

Emission Limit 2: 56.4100 TPY

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (N)

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, filterable < 2.5 µ (FPM2.5)

CAS Number: PM

Test Method: Other

Other Test Method: EPA/OAR Method 201/201A and 202

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 18.2000 LB HR

Emission Limit 2: 56.4100 TPY

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (N)

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Hydrochloric Acid

CAS Number: 7647-01-0
Test Method: Unspecified
Pollutant Group(s): (Acid Gasses/Mist , Hazardous Air Pollutants (HAP) , InOrganic Compounds , Particulate Matter (PM))
Emission Limit 1: 1.0500 LB HOUR
Emission Limit 2: 3.8300 TPY
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Dioxide Equivalent (CO2e)

CAS Number: CO2e
Test Method: Unspecified
Pollutant Group(s): (Greenhouse Gasses (GHG))
Emission Limit 1: 404917.0000 LB HOUR
Emission Limit 2: 1465370.0000 TPY
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis:
Other Applicable Requirements:
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: COMBUSTION TURBINE with DUCT BURNERS UNIT

Process Type: 11.310 (Natural Gas (includes propane and liquefied petroleum gas))

Primary Fuel: Natural Gas

Throughput: 3051.00 MMBtu/hr

Process Notes: CEMS NOx, CO

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))

Emission Limit 1: 190.2600 TPY

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: LAER

Other Applicable Requirements:

Control Method: (N)

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds)

Emission Limit 1: 142.0200 TPY

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Hydrochloric Acid
CAS Number: 7647-01-0
Test Method: Unspecified
Pollutant Group(s): (Acid Gasses/Mist , Hazardous Air Pollutants (HAP) , InOrganic Compounds , Particulate Matter (PM))
Emission Limit 1: 7.6700 TPY
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Dioxide Equivalent (CO2e)
CAS Number: CO2e
Test Method: Unspecified
Pollutant Group(s): (Greenhouse Gasses (GHG))
Emission Limit 1: 2930740.0000 TPY
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis:

Other Applicable Requirements:
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, filterable (FPM)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 112.8200 TPY
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, filterable < 10 µ (FPM10)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 112.8200 TPY
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, filterable < 2.5 µ (FPM2.5)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 112.8200 TPY
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)
CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 45.4000 TPY
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: LAER

Other Applicable Requirements:
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: DIESEL-FIRED FIRE PUMP ENGINE
Process Type: 19.900 (Other Misc. Combustion)
Primary Fuel: Diesel
Throughput: 21.40 gal/hr
Process Notes: 3.0 g/hp-hr limit, NOx + NMHC

POLLUTANT NAME: Carbon Monoxide
CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 2.6000 G HP-HR
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis:
Other Applicable Requirements:
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number:	VOC
Test Method:	Unspecified
Pollutant Group(s):	(Volatile Organic Compounds (VOC))
Emission Limit 1:	0.1500 G HP-HR
Emission Limit 2:	
Standard Emission:	

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis:	
Other Applicable Requirements:	
Control Method:	(N)
Est. % Efficiency:	
Cost Effectiveness:	0 $/ton
Incremental Cost Effectiveness:	0 $/ton
Compliance Verified:	Unknown
Pollutant/Compliance Notes:	

Facility Information

RBLC ID:	MI-0426 (final)	**Date Determination Last Updated:**	03/08/2018
Corporate/Company Name:	DTE GAS COMPANY	**Permit Number:**	185-15A
Facility Name:	DTE GAS COMPANY - MILFORD COMPRESSOR STATION	**Permit Date:**	03/24/2017 (actual)
Facility Contact:	BARRY MARIETTA 313-235-5611 MARIETTAB@DTEENERGY.COM	**FRS Number:**	Not Found
Facility Description:	Natural gas compressor station.	**SIC Code:**	4922
Permit Type:	B: Add new process to existing facility	**NAICS Code:**	486210
Permit URL:			
EPA Region:	5	**COUNTRY:**	USA
Facility County:	OAKLAND		
Facility State:	MI		
Facility ZIP Code:	48042		
Permit Issued By:	MICHIGAN DEPT OF ENVIRONMENTAL QUALITY (Agency Name) MS. CINDY SMITH(Agency Contact) (517)284-6802 SMITHC17@MICHIGAN.GOV		
Other Agency Contact Info:	Please contact the permit engineer, Ms. Catherine Asselin, at 517-284-6786 or at asselinc@michigan.gov, for technical questions regarding this permit. Thank you.		

Permit Notes: This permit, 185-15A, was for minor changes to the project permitted in PTI 185-15. The emergency engine and heating equipment were modified. The permit includes equipment not entered into the RBLC due to a lack of emission limits or material limits; these include four heaters and a furnace for comfort heating and one water heater.

Facility-wide Emissions:

Pollutant Name:	**Facility-wide Emissions Increase:**
Carbon Monoxide	162.6000 (Tons/Year)
Nitrogen Oxides (NOx)	103.5000 (Tons/Year)
Particulate Matter (PM)	20.3000 (Tons/Year)
Sulfur Oxides (SOx)	5.8000 (Tons/Year)
Volatile Organic Compounds (VOC)	15.6000 (Tons/Year)

Process/Pollutant Information

PROCESS NAME: FGTURNBINES (5 Simple Cycle CTs: EUTURBINE1, EUTURBINE2, EUTURBINE3, EUTURBINE4, EUTURBINE5)

Process Type: 16.110 (Natural Gas (includes propane & liquified petroleum gas))

Primary Fuel: Natural gas

Throughput: 10504.00 HP

Process Notes: Five simple cycle natural gas-fired combustion turbines (CTs) to drive compressors that will be used to transport natural gas through pipelines (EUTURBINE1, EUTURBINE2, EUTURBINE3, EUTURBINE4, EUTURBINE5 in FGTURBINES). There shall be no more than a combined total of 5 events (startup or shutdown) per clock hour. The total number of startup events for all units combined shall not exceed 500 events per 12-month rolling time period. The total number of shutdown events for all units combined shall not exceed 500 events per 12-month rolling time period. The maximum nominal rating of each turbine shall not exceed 10,504 HP (ISO).

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))

Emission Limit 1: 15.0000 PPM

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: SIP , NSPS

Control Method: (A) Dry ultra-low NOx burners.

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: No

Pollutant/Compliance Notes: The emission limit is 15 ppmvd for each turbine. The BACT emission limit subsumes the NSPS emission limit of 25 ppm at 15 percent O2. Normal baseload operation is considered to be loads greater than 50 percent of peak load and at or above 0 deg F. Startup and shutdown is considered to be the ramping up or ramping down of the turbines through loads 50 percent or less. There is also an emission limit for the NSPS that allows 150 ppmvd for each unit when operating at less than 75 percent of peak load and at temperatures less than 0 deg F. Selective catalyst reduction (SCR) was $58,300/ton of controlled NOx for each turbine separately and Selective Non-Catalytic Reduction (SNCR) was $46,200/ton of controlled NOx for each turbine separately. SCR was $33,400-$58,300 per ton of controlled NOx for all turbines combined, depending on control efficiency.

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds)

Emission Limit 1: 25.0000 PPM

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: SIP

Control Method: (P) Good combustion practices and clean burn fuel (pipeline quality natural gas).

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: No

Pollutant/Compliance Notes: The emission limit is 25 ppmvd for each turbine. The BACT emission limit is for normal operation. Normal baseload operation is considered to be loads greater than 50 percent of peak load and at or above 0 deg F. The emission limit does not include startup and shutdown or temperatures below 0 deg F. Startup and shutdown is considered to be the ramping up or ramping down of the turbines through loads 50 percent or less. An oxidation catalyst was $10,162/ton of controlled CO.

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.0150 LB/MMBTU

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: SIP

Control Method: (P) Combustion air inlet filter, pipeline quality natural gas and good combustion practices.

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: No

Pollutant/Compliance Notes: The emission limit of 0.015 lb/MMBTU is for each turbine. The cost analysis was for the best scenario: 100 percent capture of PM2.5/PM10, which are higher emitting than PM. PM10 emissions were assumed the same as PM2.5, so the cost analysis was equivalent. Pulse Jet Fabric Filter Baghouse: minimum of $66,121 per ton Dry ESP (Wire-Plate Type): minimum of $47,084 per ton Wet ESP (Wire-Plate Type): minimum of $82,395 per ton Venturi Scrubber: minimum of $56,032 per ton.

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.0150 LB/MMBTU

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: SIP

Control Method: (P) Combustion air inlet filter, pipeline quality natural gas, and good combustion practices.

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: No

Pollutant/Compliance Notes: The emission limit is 0.015 LB/MMBTU for each turbine. The cost analysis was for the best scenario: 100 percent capture of PM2.5/PM10, which are higher emitting than PM. PM10 emissions were assumed the same as PM2.5, so the cost analysis was equivalent. Pulse Jet Fabric Filter Baghouse: minimum of $66,121 per ton Dry ESP (Wire-Plate Type): minimum of $47,084 per ton Wet ESP (Wire-Plate Type): minimum of $82,395 per ton Venturi Scrubber: minimum of $56,032 per ton.

POLLUTANT NAME: Carbon Dioxide Equivalent (CO_2e)

CAS Number: CO2e

Test Method: Unspecified

Pollutant Group(s): (Greenhouse Gasses (GHG))

Emission Limit 1: 196998.0000 T/YR 12-MO. ROLLING TIME PERIOD

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (P) Use of pipeline quality natural gas and energy efficiency measures.

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: No

Pollutant/Compliance Notes: The emission limit of 196,998 T/YR based on a 12-month rolling time period as determined at the end of each calendar month is combined for all turbines. The carbon capture and sequestration cost analysis was based upon the review performed for a different project. Key parameters were altered to make the analysis site-specific. Depending on how conservative the review was, the cost was between $191 per ton of controlled combined CO2e and $640 per ton of controlled combined CO2e. Terrestrial sequestration was $162 per ton of controlled combined CO2e and does not include annual maintenance costs. Neither were considered to be economically feasible.

Process/Pollutant Information

PROCESS NAME: FGAUXBOILERS (6 auxiliary boilers EUAUXBOIL2A, EUAUXBOIL3A, EUAUXBOIL2B, EUAUXBOIL3B, EUAUXBOIL2C, EUAUXBOIL3C)

Process Type: 13.310 (Natural Gas (includes propane and liquefied petroleum gas))

Primary Fuel: Natural gas

Throughput: 3.00 MMBTU/H

Process Notes: Four natural gas-fired auxiliary boilers, each rated at 3 MMBTU/H fuel heat input (EUAUXBOIL2A, EUAUXBOIL3A, EUAUXBOIL2B and EUAUXBOIL3B in FGAUXBOILERS) and two natural gas-fired auxiliary boilers, each rated at 1 MMBTU/H fuel heat input (EUAUXBOIL2C and EUAUXBOIL3C in FGAUXBOILERS). The boilers are subject to 40 CFR Part 63 Subpart DDDDD which requires tune ups.

POLLUTANT NAME: Nitrogen Oxides (NO_x)

CAS Number: 10102

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))

Emission Limit 1: 20.0000 PPM AT 3% O2 EACH 3 MMBTU/H BOILER

Emission Limit 2: 9.0000 PPM AT 3% O2 EACH 1 MMBTU/H BOILER

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: SIP

Control Method: (B) Ultra-low NOx burners and good combustion practices.

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: No

Pollutant/Compliance Notes: Emission limit 1 above is 20 ppmvd at 3% O2 for each 3 MMBTU/H boiler and Emission limit 2 above is 9 ppmvd at 3% O2 for each 1 MMBTU/H boiler. Selective catalyst reduction (SCR) was $117,718/ton of controlled NOx.

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds)

Emission Limit 1: 84.0000 LB/MMSCF EACH BOILER

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: SIP

Control Method: (P) Good combustion practices and clean burn fuel (pipeline quality natural gas).

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: No

Pollutant/Compliance Notes: An oxidation catalyst was $19,200/ton of controlled CO and VOC.

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.5200 LB/MMSCF EACH BOILER
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: SIP
Control Method: (P) Good combustion practices and low sulfur fuel (pipeline quality natural gas).
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: The cost analysis was for multiple control types with a minimum cost of $500,000.

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.5200 LB/MMSCF EACH BOILER
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: SIP
Control Method: (P) Good combustion practices and low sulfur fuel (pipeline quality natural gas).
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: The cost analysis was for multiple control types with a minimum of $500,000.

POLLUTANT NAME: Carbon Dioxide Equivalent (CO2e)

CAS Number: CO2e
Test Method: Unspecified
Pollutant Group(s): (Greenhouse Gasses (GHG))
Emission Limit 1: 7324.0000 T/YR COMBINED FOR ALL BOILERS
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) Use of pipeline quality natural gas and energy efficiency measures.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: The emission limit above is 7324 T/YR combined for all boilers in FGAUXBOILERS. Carbon capture and sequestration was technically infeasible for small, intermittent sources. Terrestrial sequestration was $162 per ton of controlled combined CO2e and does not include annual maintenance costs.

Process/Pollutant Information

PROCESS NAME: EUN_EM_GEN (Natural gas emergency engine).
Process Type: 17.130 (Natural Gas (includes propane & liquified petroleum gas))
Primary Fuel: Natural gas
Throughput: 205.00 H/YR
Process Notes: A nominally rated 1,300 electrical kilowatts (ekW) output emergency genset containing a 1,818 HP natural gas fueled engine manufactured in 2011 or later. The engine is used to provide electrical power to the station and support equipment in the event power from the public utility grid system is lost (EUN_EM_GEN). Restricted to 205 hours/year on a 12-month rolling time period basis.

POLLUTANT NAME: Nitrogen Oxides (NOx)
CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 4.0000 LB/H
Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: SIP

Control Method: (B) Low NOx design (turbo charger and after cooler) and good combustion practices.

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: No

Pollutant/Compliance Notes: There is also an NSPS limit of 2.0 g/HP-hr or 160 ppmvd; the g/HP-hr limit is demonstrated through manufacturer certification, and the ppmvd limit is demonstrated through compliance testing.

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds)

Emission Limit 1: 11.0000 LB/H

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: SIP

Control Method: (P) Good combustion practices and clean burn fuel (pipeline quality natural gas).

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: No

Pollutant/Compliance Notes: There is also an NSPS limit of 4.0 g/HP-hr or 540 ppmvd; the g/HP-hr limit is demonstrated through manufacturer certification, and the ppmvd limit is demonstrated through compliance testing. An oxidation catalyst was $9,134/ton of controlled CO.

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.0100 LB/MMBTU

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: SIP

Control Method: (P) Good combustion practices and low sulfur fuel (pipeline quality natural gas).

Est. % Efficiency:

Cost Effectiveness: 0 \$/ton

Incremental Cost Effectiveness: 0 \$/ton

Compliance Verified: No

Pollutant/Compliance Notes: Add-on control was determined to be technically infeasible for the emergency engine.

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.0100 LB/MMBTU

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: SIP

Control Method: (P) Good combustion practices and low sulfur fuel (pipeline quality natural gas).

Est. % Efficiency:

Cost Effectiveness: 0 \$/ton

Incremental Cost Effectiveness: 0 \$/ton

Compliance Verified: No

Pollutant/Compliance Notes: Add-on control was determined to be technically infeasible for the emergency engine.

POLLUTANT NAME: Carbon Dioxide Equivalent (CO2e)

CAS Number: CO2e

Test Method: Unspecified

Pollutant Group(s): (Greenhouse Gasses (GHG))

Emission Limit 1:	247.0000 T/YR 12-MO ROLLING TIME PERIOD
Emission Limit 2:	
Standard Emission:	

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis:	BACT-PSD
Other Applicable Requirements:	
Control Method:	(P) Use of pipeline quality natural gas and energy efficiency measures.
Est. % Efficiency:	
Cost Effectiveness:	0 $/ton
Incremental Cost Effectiveness:	0 $/ton
Compliance Verified:	No
Pollutant/Compliance Notes:	Carbon capture and sequestration was technically infeasible for small, intermittent sources. Terrestrial sequestration was $162 per ton of controlled combined CO2e and does not include annual maintenance costs.

Facility Information

RBLC ID:	MI-0420 (final)	**Date Determination Last Updated:**	04/28/2017
Corporate/Company Name:	DTE GAS COMPANY	**Permit Number:**	185-15
Facility Name:	DTE GAS COMPANY--MILFORD COMPRESSOR STATION	**Permit Date:**	06/03/2016 (actual)
Facility Contact:	BARRY MARIETTA 313-235-5611 MARIETTAB@DTEENERGY.COM	**FRS Number:**	Not Found
Facility Description:	Natural gas compressor station.	**SIC Code:**	4922
Permit Type:	B: Add new process to existing facility	**NAICS Code:**	486210
Permit URL:			
EPA Region:	5	**COUNTRY:**	USA
Facility County:	OAKLAND		
Facility State:	MI		
Facility ZIP Code:	48042		
Permit Issued By:	MICHIGAN DEPT OF ENVIRONMENTAL QUALITY (Agency Name) MS. CINDY SMITH(Agency Contact) (517)284-6802 SMITHC17@MICHIGAN.GOV		
Other Agency Contact Info:	For permit related questions, please contact the permit engineer Ms. Catherine Asselin at 517-284-6786.		
Permit Notes:			

Process/Pollutant Information

PROCESS NAME: FG-TURBINES

Process Type: 16.110 (Natural Gas (includes propane & liquified petroleum gas))

Primary Fuel: Natural gas

Throughput: 10504.00 HP

Process Notes: Five (5) simple cycle natural gas-fired combustion turbines (CTs) to drive compressors that will be used to transport natural gas through pipelines. The turbines are identified as EUTURBINE1, EUTURBINE2, EUTURBINE3, EUTURBINE4, and EUTURBINE5 within the flexible group FGTURBINES. There shall be no more than a combined total of 5 events (startup or shutdown) per clock hour. The total number of startup events for all units combined shall not exceed 500 events per 12-month rolling time period. The total number of shutdown events for all units combined shall not exceed 500 events per 12-month rolling time period. The maximum nominal rating of each turbine shall not exceed 10,504 HP (ISO).

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))

Emission Limit 1: 15.0000 PPM TEST PROTOCOL

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: NSPS , SIP

Control Method: (A) Dry ultra-low NOx burners

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: No

Pollutant/Compliance Notes: The NOx emission limit is 15 ppmvd and is for each turbine within the flexible group. The BACT emission limit subsumes the NSPS emission limit of 25 ppm at 15 percent O2. Normal baseload operation is considered to be loads greater than 50 percent of peak load and at or above 0 deg. F. The emission limit does not include startup and shutdown or temperatures below 0 deg F. Startup and shutdown is considered to be the ramping up or ramping down of the turbines through loads 50 percent or less. There is also an emission limit for the NSPS that allows 150 ppmvd for each unit when operating at less than 75 percent of peak load and at temperatures less than 0 deg F. Selective catalyst reduction (SCR) was $58,300/ton of controlled NOx for each turbine separately and Selective Non-catalytic reduction (SNCR) was $46,200/ton of controlled NOx for each turbine separately. SCR was $34,120 - $45,833 per ton of controlled NOx for all turbines combined, depending on control efficiency.

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 25.0000 PPM TEST PROTOCOL
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: SIP
Control Method: (P) Good combustion practices and clean burn fuel (pipeline quality natural gas).
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: The emission limit is 25 ppmvd and is for each turbine. The BACT emission limit is for normal operation. Normal baseload operation is considered to be loads greater than 50 percent of peak load and at or above 0 deg F. The emission limit does not include startup and shutdown or temperatures below 0deg F. Startup and shutdown is considered to be the ramping up or ramping down of the turbines through loads 50 percent or less. An oxidation catalyst was $10,162/ton of controlled CO.

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0150 LB/MMBTU TEST PROTOCOL
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: SIP
Control Method: (B) Combustion air inlet filter, pipeline quality natural gas and good combustion practices.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: No

Pollutant/Compliance Notes: The PM10 emission limit is 0.015 lb/MMBtu for each turbine. The cost analysis was for the best scenario: 100 percent capture of PM2.5/PM10, which are higher emitting than PM. PM10 emissions were assumed the same as PM2.5, so the cost analysis was equivalent. *Pulse jet fabric filter baghouse: minimum of $64,707 per ton *Dry ESP (Wire-plate type): minimum of $46,077 per ton *Wet ESP (Wire-plate type): minimum of $80,633 per ton *Venturi Scrubber: minimum of $54,833 per ton.

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.0150 LB/MMBTU TEST PROTOCOL SHALL SPECIFY AVG TIME

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: SIP

Control Method: (B) Combustion air inlet filter, pipeline quality natural gas and good combustion practices.

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: No

Pollutant/Compliance Notes: The emission limit of 0.015 lb/MMBTU is for each turbine in the flexible group FGTURBINES. The cost analysis was for the best scenario: 100 percent capture of PM2.5/PM10, which are higher emitting than PM. PM10 emissions were assumed the same as PM2.5, so the cost analysis was equivalent. *Pulse jet fabric filter baghouse: minimum of $64,707 per ton *Dry ESP (Wire-Plate type): minimum of $46,077 per ton *Wet ESP (Wire-plate type): minimum of $80,633 per ton *Venturi Scrubber: minimum of $54,833 per ton

POLLUTANT NAME: Carbon Dioxide Equivalent (CO2e)

CAS Number: CO2e

Test Method: Unspecified

Pollutant Group(s): (Greenhouse Gasses (GHG))

Emission Limit 1: 196998.0000 T/YR 12 MO ROLLING TIME PERIOD

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: N/A
Control Method: (P) Use of pipeline quality natural gas and energy efficiency measures.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: The carbon capture and sequestration cost analysis was based upon the review performed for a different project. Key parameters were altered to make the analysis site-specific. Depending on how conservative the review was, the cost was between $191 per ton of controlled combined CO2e and $640 per ton of controlled combined CO2e. Terrestrial sequestration was $162 per ton of controlled combined CO2e and does not include annual maintenance costs. Neither were considered economically feasible.

Process/Pollutant Information

PROCESS NAME: FGAUXBOILERS

Process Type: 13.310 (Natural Gas (includes propane and liquefied petroleum gas))

Primary Fuel: Natural gas

Throughput: 6.00 MMBTU/H

Process Notes: Two natural gas-fired auxiliary boilers, each rated at 6 MMBTU/H fuel heat input. The boilers are identified as EUAUXBOIL2 and EUAUXBOIL3 within the flexible group FGAUXBOILERS. The boilers are subject to 40 CFR Part 63 Subpart DDDDD, which requires tune ups.

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 14.0000 PPMVOL AT 15%O2; TEST PROTOCOL
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: SIP
Control Method: (B) Ultra low NOx burners and good combustion practices.

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: No

Pollutant/Compliance Notes: The emission limit is 14 ppmvd at 15% O2 for each boiler. Selective catalyst reduction (SCR) was $53,300/ton of controlled NOx.

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds)

Emission Limit 1: 0.0800 LB/MMBTU TEST PROTOCOL

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: SIP

Control Method: (P) Good combustion practices and clean burn fuel (pipeline quality natural gas)

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: No

Pollutant/Compliance Notes: The emission limit is 0.08 lb/MMBTU for each boiler. An oxidation catalyst was $32,400/ton of controlled CO.

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.0075 LB/MMBTU TEST PROTOCOL

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: SIP

Control Method: (P) Good combustion practices and low sulfur fuel (pipeline quality natural gas).
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: The emission limit is 0.0075 lb/MMBTU for each boiler. The cost analysis was for the best scenario: 100 percent capture of PM2.5/PM10, which are higher emitting than PM. PM10 emissions were assumed the same as PM2.5, so the cost analysis was equivalent. *Pulse jet fabric filter baghouse: minimum of $43,942 per ton *Dry ESP (Wire-plate type): minimum of $31,291 per ton *Wet ESP (Wire-plate type): minimum of $54,758 per ton *Venturi Scrubber: minimum of $37,237 per ton.

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0075 LB/MMBTU TEST PROTOCOL
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: SIP
Control Method: (P) Good combustion practices and low sulfur fuel (pipeline quality natural gas).
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: The emission limit is 0.0075 lb/MMBTU for each boiler. The cost analysis was for the best scenario: 100 percent capture of PM2.5/PM10, which are higher emitting than PM. PM10 emissions were assumed the same as PM2.5, so the cost analysis was equivalent. *Pulse jet fabric filter baghouse: minimum of $43,942 per ton *Dry ESP (Wire-plate type): minimum of $31,291 per ton *Wet ESP (Wire-plate type): minimum of $54,758 per ton *Venturi Scrubber: minimum of $37,237 per ton.

POLLUTANT NAME: Carbon Dioxide Equivalent (CO2e)
CAS Number: CO2e
Test Method: Unspecified
Pollutant Group(s): (Greenhouse Gasses (GHG))

Emission Limit 1: 6155.0000 T/YR 12-MO ROLLING TIME PERIOD

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: N/A

Control Method: (P) Use of pipeline quality natural gas and energy efficiency measures.

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: No

Pollutant/Compliance Notes: The emission limit is 6,155 tons per year based on a 12-month rolling time period as determined at the end of each calendar month, for both boilers combined. Carbon capture and sequestration was technically infeasible for small, intermittent sources. Terrestrial sequestration was $162 per ton of controlled combined CO2e and does not include annual maintenance costs.

Process/Pollutant Information

PROCESS NAME: EUN_EM_GEN

Process Type: 17.130 (Natural Gas (includes propane & liquified petroleum gas))

Primary Fuel: Natural gas

Throughput: 225.00 H/YR

Process Notes: A 1,506 kilowatts (kW) natural gas fueled emergency engine manufactured in 2011 or later. The engine is used to provide electrical power to the station and support equipment in the event power from the public utility grid system is lost (EUN_EM_GEN). Restricted to 225 hours/year on a 12-month rolling time period basis.

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))

Emission Limit 1: 4.8000 LB/H TEST PROTOCOL

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: SIP
Control Method: (B) Low NOx design (turbo charger and after cooler) and good combustion practices.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: There is also an NSPS limit of 2.0 g/HP-hr or 160 ppmvd; the g/HP-hr limit is demonstrated through manufacturer certification, and the ppmvd limit is demonstrated through compliance testing.

POLLUTANT NAME: Carbon Monoxide
CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 9.6000 LB/H TEST PROTOCOL
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: SIP
Control Method: (P) Good combustion practices and clean burn fuel (pipeline quality natural gas).
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: There is also an NSPS limit of 4.0 g/HP-hr or 540 ppmvd; the g/HP-hr limit is demonstrated through manufacturer certification, and the ppmvd limit is demonstrated through compliance testing. An oxidation catalyst was $10,380/ton of controlled CO.

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0100 LB/MMBTU TEST PROTOCOL
Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: SIP
Control Method: (P) Good combustion practices and low sulfur fuel (pipeline quality natural gas).
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: Add-on control was determined to be technically infeasible for the emergency engine.

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0100 LB/MMBTU TEST PROTOCOL
Emission Limit 2:
Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: SIP
Control Method: (P) Good combustion practices and low sulfur fuel (pipeline quality natural gas).
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: Add-on control was determined to be technically infeasible for the emergency engine.

POLLUTANT NAME: Carbon Dioxide Equivalent (CO2e)

CAS Number: CO2e
Test Method: Unspecified
Pollutant Group(s): (Greenhouse Gasses (GHG))
Emission Limit 1: 198.0000 T/YR 12 MO ROLLING TIME PERIOD
Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis:	BACT-PSD
Other Applicable Requirements:	N/A
Control Method:	(P) Use of pipeline quality natural gas and energy efficiency measures.
Est. % Efficiency:	
Cost Effectiveness:	0 $/ton
Incremental Cost Effectiveness:	0 $/ton
Compliance Verified:	No
Pollutant/Compliance Notes:	Carbon capture and sequestration was technically infeasible for small, intermittent sources. Terrestrial sequestration was $162 per ton of controlled combined CO2e and does not include annual maintenance costs.

Facility Information

RBLC ID:	AK-0083 (final)	**Date Determination Last Updated:**	02/19/2016
Corporate/Company Name:	AGRIUM U.S. INC.	**Permit Number:**	AQ0083CPT06
Facility Name:	KENAI NITROGEN OPERATIONS	**Permit Date:**	01/06/2015 (actual)
Facility Contact:	TED HARTMAN 913 302 7469 TED.HARTMAN@AGRIUM.COM	**FRS Number:**	110030488620
Facility Description:	The Kenai Nitrogen Operations Facility is located at Mile 21 of the Kenai Spur Highway, near Kenai Alaska. It is classified as a nitrogenous fertilizer manufacturing facility under Standard Industrial Classification code 2873 and under North American Industrial Classification code 325311. The facility will produce ammonia and urea for bulk sale. There are two ammonia and two urea plants at Agrium's KNO facility. This permit authorizes the restart of one ammonia and one urea plant (plants 4 and 5). The ammonia plant converts natural gas with added steam and air to produce ammonia (NH3) and carbon dioxide (CO2). Feedstocks for the urea plant include CO2 and NH3. The utility plant generates the power and steam needed to operate the ammonia and urea plants. Final products are loaded at the Product Loading Wharf for shipment.	**SIC Code:**	2873
Permit Type:	A: New/Greenfield Facility	**NAICS Code:**	325311
Permit URL:	http://dec.alaska.gov/Applications/Air/airtoolsweb/Home/ViewAttachment/16672291/KQZafTqmYd8SVnZ3RUWQfQ2		
EPA Region:	10	**COUNTRY:**	USA
Facility County:	USA		
Facility State:	AK		
Facility ZIP Code:	99611		

Permit Issued By: ALASKA DEPT OF ENVIRONMENTAL CONS (Agency Name)
MR. JIM PLOSAY(Agency Contact) (907) 465-5103 JOHN.KUTERBACH@ALASKA.GOV

Permit Notes:

Affected Boundaries:

Boundary Type:	Class 1 Area State:	Boundary:	Distance:
CLASS1	AK	Denali NP	100km - 50km
CLASS1	AK	Tuxedni	< 100 km
INTL BORDER		US/Canada Border	> 250 km

Facility-wide Emissions:

Pollutant Name:	Facility-wide Emissions Increase:
Carbon Monoxide	730.5000 (Tons/Year)
Nitrogen Oxides (NOx)	214.1000 (Tons/Year)
Particulate Matter (PM)	174.8000 (Tons/Year)
Sulfur Oxides (SOx)	8.9000 (Tons/Year)
Volatile Organic Compounds (VOC)	114.2000 (Tons/Year)

Process/Pollutant Information

PROCESS NAME: Five (5) Natural Gas Fired Combustion Turbines

Process Type: 16.110 (Natural Gas (includes propane & liquified petroleum gas))

Primary Fuel: Natural Gas

Throughput: 37.60 MMBTU/H

Process Notes: Five (5) Natural Gas-Fired Solar Combustion Turbines rated at 37.6 MMBtu/hr each. Installed in 1976.

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))

Emission Limit 1: 7.0000 PPMV 3-HR AVG @ 15 % O2

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (A) Selective Catalytic Reduction

Est. % Efficiency: 80.000

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: No
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Monoxide
CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 50.0000 PPMV 3-HR AVG @ 15 % O2
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 10836 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: The economic analysis indicates the level of CO reduction does not justify the use of catalytic oxidation. Based on the excessive cost per ton of CO removed per year, installing catalytic oxidation on the turbines/waste heat boilers is not considered a feasible option for reducing CO emissions.

POLLUTANT NAME: Volatile Organic Compounds (VOC)
CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 0.0021 LB/MMBTU 3-HR AVG
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 291788 $/ton

Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: The economic analysis indicates the level of VOC reduction does not justify the use of catalytic oxidation. Based on the excessive cost per ton of VOC removed per year, installing catalytic oxidation on the turbines is not considered a feasible option for reducing VOC emissions.

POLLUTANT NAME: Particulate matter, total (TPM)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0074 LB/MMBTU 3-HR AVG
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0074 LB/MMBTU 3-HR AVG
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (N)

Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0074 LB/MMBTU 3-HR AVG
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Dioxide Equivalent (CO2e)

CAS Number: CO2e
Test Method: Unspecified
Pollutant Group(s): (Greenhouse Gasses (GHG))
Emission Limit 1: 59.6100 TONS/MMCF 3-HR AVG
Emission Limit 2: 91500.0000 TONS/YEAR COMBINED
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (N)

Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: Primary Reformer Furnace
Process Type: 11.310 (Natural Gas (includes propane and liquefied petroleum gas))
Primary Fuel: Natural Gas, Process Gas
Throughput: 1350.00 MMBTU/H
Process Notes: Natural Gas-, Process Gas-Fired 1,350 MMBtu/hr Primary Reformer Furnace. Installed in 1976.

POLLUTANT NAME: Nitrogen Oxides (NOx)
CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 17.0000 PPMV 30-DAY AVERAGE @ 3% O2
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) Selective Catalytic Reduction
Est. % Efficiency: 90.000
Cost Effectiveness: 15041 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: The economic analysis indicates the level of NOx reduction does not justify installing low NOx burners to be used in conjunction with selective catalytic reduction. Based on the excessive cost per ton of NOx removed per year, installation of low NOx burners on the primary reformer is not considered a feasible option for reducing NOx emissions.

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 0.0430 LB/MMBTU 3-HR AVG
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)
CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 0.0054 LB/MMBTU 3-HR AVG
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0074 LB/MMBTU 3-HR AVG
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total (TPM)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0074 LB/MMBTU 3-HR AVG
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0074 LB/MMBTU 3-HR AVG
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Dioxide Equivalent (CO2e)
CAS Number: CO2e
Test Method: Unspecified
Pollutant Group(s): (Greenhouse Gasses (GHG))
Emission Limit 1: 59.6100 TONS/MMCF 3-HR AVG
Emission Limit 2: 700000.0000 TONS/YEAR
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: Three (3) Package Boilers

Process Type: 12.310 (Natural Gas (includes propane and liquefied petroleum gas))

Primary Fuel: Natural Gas

Throughput: 243.00 MMBTU/H

Process Notes: Three (3) New Natural Gas-Fired 243 MMBtu/hr Package Boilers

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))

Emission Limit 1: 0.0100 LB/MMBTU 30-DAY AVERAGE

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (A) Ultra Low NOx Burners

Est. % Efficiency: 70.000

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds)

Emission Limit 1: 50.0000 PPMV 3-HR AVG @ 3% O2

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 0.0054 LB/MMBTU 3-HR AVG
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 143952 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: The economic analysis indicates the level of VOC reduction does not justify the use of catalytic oxidation. Based on the excessive cost per ton of VOC removed per year, installing catalytic oxidation on the package boilers is not considered a feasible option for reducing VOC emissions.

POLLUTANT NAME: Particulate matter, total (TPM)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0074 LB/MMBTU 3-HR AVG
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0074 LB/MMBTU 3-HR AVG
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0074 LB/MMBTU 3-HR AVG
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Dioxide Equivalent (CO2e)

CAS Number: CO2e
Test Method: Unspecified
Pollutant Group(s): (Greenhouse Gasses (GHG))
Emission Limit 1: 59.6100 TONS/MMCF 3-HR AVG
Emission Limit 2: 376500.0000 TONS/YEAR COMBINED
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: Five (5) Waste Heat Boilers
Process Type: 13.310 (Natural Gas (includes propane and liquefied petroleum gas))
Primary Fuel: Natural Gas
Throughput: 50.00 MMBTU/H
Process Notes: Five (5) Natural Gas-Fired 50 MMBtu/hr Waste Heat Boilers. Installed in 1986.

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 7.0000 PPMV 3-HR AVG @ 15 % O2
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) Selective Catalytic Reduction
Est. % Efficiency: 81.000
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 50.0000 PPMV 3-HR AVG @ 15 % O2
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 0.0054 LB/MMBTU 3-HR AVG
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total (TPM)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0074 LB/MMBTU 3-HR AVG
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0074 LB/MMBTU 3-HR AVG
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) Limited Use (200 hr/yr)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0074 LB/MMBTU 3-HR AVG
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Dioxide Equivalent (CO2e)

CAS Number: CO2e
Test Method: Unspecified
Pollutant Group(s): (Greenhouse Gasses (GHG))
Emission Limit 1: 59.6100 TONS/MMCF 3-HR AVG
Emission Limit 2: 131405.0000 TONS/YEAR COMBINED
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: Startup Heater
Process Type: 12.310 (Natural Gas (includes propane and liquefied petroleum gas))
Primary Fuel: Natural Gas
Throughput: 101.00 MMBTU/H
Process Notes: Natural Gas-Fired 101 MMBtu/hr Startup Heater. Installed in 1976.

POLLUTANT NAME: Nitrogen Oxides (NOx)
CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 0.0980 LB/MMBTU
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:

Control Method: (P) Limited Use (200 hr/yr)
Est. % Efficiency:
Cost Effectiveness: 55705 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: The economic analysis indicates the level of NOx reduction does not justify installing selective catalytic reduction. Based on the excessive cost per ton of NOx removed per year, installation of selective catalytic reduction on the startup heater is not considered a feasible option for reducing NOx emissions.

POLLUTANT NAME: Carbon Monoxide
CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 0.0820 LB/MMBTU
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) Limited Use (200 hr/yr)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)
CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 0.0054 LB/MMBTU
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:
Control Method: (P) Limited Use (200 hr/yr)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total (TPM)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0074 LB/MMBTU
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) Limited Use (200 hr/yr)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0074 LB/MMBTU
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0074 LB/MMBTU
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) Limited Use (200 hr/yr)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Dioxide Equivalent (CO2e)
CAS Number: CO2e
Test Method: Unspecified
Pollutant Group(s): (Greenhouse Gasses (GHG))
Emission Limit 1: 59.6100 TONS/MMCF
Emission Limit 2: 1200.0000 TONS/YEAR
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (P) Limited Use (200 hr/yr)

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: Three (3) Flares

Process Type: 19.310 (Chemical Plant Flares)

Primary Fuel: Natural Gas

Throughput: 1.25 MMBTU/H

Process Notes: 1.25 MMBtu/hr Ammonia Tank Flare, 0.4 MMBtu/hr Emergency Flare, and 1.25 MMBtu/hr Small Flare

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))

Emission Limit 1: 0.0680 LB/MMBTU

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (P) Work Practice Requirements and Limited Use (limit venting to 168 hr/yr each during startup, shutdown, and maintenance events)

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds)

Emission Limit 1: 0.3700 LB/MMBTU

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (P) Work Practice Requirements and Limited Use (limit venting to 168 hr/yr each during startup, shutdown, and maintenance events)

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC

Test Method: Unspecified

Pollutant Group(s): (Volatile Organic Compounds (VOC))

Emission Limit 1: 0.0054 LB/MMBTU

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (P) Work Practice Requirements and Limited Use (limit venting to 168 hr/yr each during startup, shutdown, and maintenance events)

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total (TPM)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.0074 LB/MMBTU

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (P) Work Practice Requirements and Limited Use (limit venting to 168 hr/yr each during startup, shutdown, and maintenance events)

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.0074 LB/MMBTU

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (P) Work Practice Requirements and Limited Use (limit venting to 168 hr/yr each during startup, shutdown, and maintenance events)

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME:	Particulate matter, total < 2.5 µ (TPM2.5)
CAS Number:	PM
Test Method:	Unspecified
Pollutant Group(s):	(Particulate Matter (PM))
Emission Limit 1:	0.0074 LB/MMBTU
Emission Limit 2:	
Standard Emission:	

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis:	BACT-PSD
Other Applicable Requirements:	
Control Method:	(P) Work Practice Requirements and Limited Use (limit venting to 168 hr/yr each during startup, shutdown, and maintenance events)
Est. % Efficiency:	
Cost Effectiveness:	0 $/ton
Incremental Cost Effectiveness:	0 $/ton
Compliance Verified:	Unknown
Pollutant/Compliance Notes:	

POLLUTANT NAME:	Carbon Dioxide Equivalent (CO2e)
CAS Number:	CO2e
Test Method:	Unspecified
Pollutant Group(s):	(Greenhouse Gasses (GHG))
Emission Limit 1:	59.6100 TONS/MMCF
Emission Limit 2:	1500.0000 TONS/YEAR COMBINED
Standard Emission:	

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis:	BACT-PSD
Other Applicable Requirements:	
Control Method:	(P) Work Practice Requirements and Limited Use (limit venting to 168 hr/yr each during startup, shutdown, and maintenance events)
Est. % Efficiency:	
Cost Effectiveness:	0 $/ton

Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: Diesel Fired Well Pump
Process Type: 17.210 (Fuel Oil (ASTM # 1,2, includes kerosene, aviation, diesel fuel))
Primary Fuel: Diesel
Throughput: 2.70 MMBTU/H
Process Notes: 2.7 MMBtu/hr Diesel Fired Well Pump. Installed in 1966.

POLLUTANT NAME: Nitrogen Oxides (NOx)
CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 4.4100 LB/MMBTU
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) Limited Operation of 168 hr/yr.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Monoxide
CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 0.9500 LB/MMBTU

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (P) Limited Operation of 168 hr/yr.

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC

Test Method: Unspecified

Pollutant Group(s): (Volatile Organic Compounds (VOC))

Emission Limit 1: 0.3600 LB/MMBTU

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (P) Limited Operation of 168 hr/yr.

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.3100 LB/MMBTU

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (P) Limited Operation of 168 hr/yr.

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total (TPM)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.3100 LB/MMBTU

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (P) Limited Operation of 168 hr/yr.

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.3100 LB/MMBTU

Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) Limited Operation of 168 hr/yr.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Dioxide Equivalent (CO2e)

CAS Number: CO2e
Test Method: Unspecified
Pollutant Group(s): (Greenhouse Gasses (GHG))
Emission Limit 1: 37.2000 TONS/YEAR
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) Limited Operation of 168 hr/yr.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: Gasoline Fired Fire Pump Engine

Process Type: 17.220 (Other Liquid Fuel & Liquid Fuel Mixtures)

Primary Fuel: Gasoline

Throughput: 2.10 MMBTU/H

Process Notes: 2.1 MMBtu/hr Gasoline-Fired Fire Pump Engine. Installed in 1978.

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 1.6300 LB/MMBTU
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) Limited Operation of 168 hr/yr.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 0.9900 LB/MMBTU
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) Limited Operation of 168 hr/yr.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)
CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 3.0300 LB/MMBTU
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) Limited Operation of 168 hr/yr.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total (TPM)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.1000 LB/MMBTU
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) Limited Operation of 168 hr/yr.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.1000 LB/MMBTU
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) Limited Operation of 168 hr/yr.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.1000 LB/MMBTU
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) Limited Operation of 168 hr/yr.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Dioxide Equivalent (CO2e)

CAS Number: CO2e
Test Method: Unspecified
Pollutant Group(s): (Greenhouse Gasses (GHG))
Emission Limit 1: 27.2000 TONS/YEAR
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) Limited Operation of 168 hr/yr.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: Ammonia Plant, CO2 Vent
Process Type: 62.999 (Other Inorganic Chemical Manufacturing Sources)
Primary Fuel: Natural Gas
Throughput: 1800.00 T/D
Process Notes: The CO2 vent, vents excess CO2 from ammonia process. During times when ammonia plant is operating and Urea plant is not operating, all CO2 generated by ammonia plant operations is vented through this vent.

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))

Emission Limit 1: 11.4000 LB/H
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Dioxide Equivalent (CO2e)

CAS Number: CO2e
Test Method: Unspecified
Pollutant Group(s): (Greenhouse Gasses (GHG))
Emission Limit 1: 845486.0000 TONS/YEAR
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: H2 Vent

Process Type: 62.999 (Other Inorganic Chemical Manufacturing Sources)

Primary Fuel:

Throughput: 0

Process Notes: H2 vent stack (dry gas vent) – vents during startup only

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 15222.0000 LB/STARTUP
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) Limited use (200 hr/yr)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: Two (2) Urea Granulation Units

Process Type: 61.012 (Fertilizer Production (except 61.009))

Primary Fuel:

Throughput: 1200.00 T/D

Process Notes: Two (2) Urea Granulation Units rated at 1200 tons per day (each).

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 90.0000 % CONTROL METHANOL WHICHEVER IS LESS RESTRICTIVE

Emission Limit 2: 2.0000 PPMV WHICHEVER IS LESS RESTRICTIVE
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) Wet Scrubber
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total (TPM)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.2000 LB/TON OF UREA
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) Wet Scrubber
Est. % Efficiency: 90.000
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.2000 LB/TON OF UREA

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (A) Wet Scrubber

Est. % Efficiency: 90.000

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: No

Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.2000 LB/TON OF UREA

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (A) Wet Scrubber

Est. % Efficiency: 90.000

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: No

Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: Urea UF-85 Storage Tank

Process Type: 42.009 (Volatile Organic Liquid Storage)

Primary Fuel:

Throughput: 30440.00 gallons

Process Notes: Urea UF-85 Storage Tank. 30,440 gallon capacity

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: LB/H
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) Wet Scrubber
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: Two (2) Methyl-diethanol Amine (MDEA) Storage Tanks

Process Type: 42.009 (Volatile Organic Liquid Storage)

Primary Fuel:

Throughput: 158420.00 gallons

Process Notes: Two (2) MDEA Storage Tanks with rated capacities of 158,420 gallons and 16,000 gallons.

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 0.0020 TONS/YEAR COMBINED
Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (A) Submerged Fill Design

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: Urea Ship Loading

Process Type: 99.110 (Agricultural Activities)

Primary Fuel:

Throughput: 1000.00 tons urea/hour

Process Notes: The Urea Ship Loading Operations are conveyor systems used to load products from the Urea Plant into ships.

POLLUTANT NAME: Particulate matter, fugitive

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s):

Emission Limit 1: 0.0013 LB/TON OF UREA

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (B) Use of UF-85 (Hardening Agent), Product Coolers on Granulation Urea Process Lines, Loading into Partial Enclosure, and use of a Telescoping Chute

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.0011 LB/TON OF UREA

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (B) Use of UF-85 (Hardening Agent), Product Coolers on Granulation Urea Process Lines, Loading into Partial Enclosure, and use of a Telescoping Chute.

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.0004 LB/TON OF UREA

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (B) Use of UF-85 (Hardening Agent), Product Coolers on Granulation Urea Process Lines, Loading into Partial Enclosure, and use of a Telescoping Chute.

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: Urea Handling Units
Process Type: 99.110 (Agricultural Activities)
Primary Fuel:
Throughput: 1000.00 tons urea/hour
Process Notes:

POLLUTANT NAME: Particulate matter, fugitive
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s):
Emission Limit 1: 0.0050 GRAINS/DSCF 3 STACK TEST AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) Fully Enclosed Conveyors and Fabric Filters
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0050 GRAINS/DSCF 3 STACK TEST AVERAGE

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (A) Fully Enclosed Conveyors and Fabric Filters

Est. % Efficiency: 99.000

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: No

Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.0050 GRAINS/DSCF 3 STACK TEST AVERAGE

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (A) Fully Enclosed Conveyors and Fabric Filters

Est. % Efficiency: 99.000

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: No

Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: 2 Cell Cross-Flow Cooling Tower

Process Type: 99.110 (Agricultural Activities)

Primary Fuel:

Throughput: 15000.00 gallons per minute

Process Notes: 2 Cell Cross-Flow Cooling Tower

POLLUTANT NAME: Particulate matter, fugitive

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s):
Emission Limit 1: 0.0020 % DRIFT
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) High Efficiency Drift Eliminators
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0020 % DRIFT
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) High Efficiency Drift Eliminators
Est. % Efficiency:
Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0020 % DRIFT
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) High Efficiency Drift Eliminators
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Facility Information

RBLC ID:	TX-0642 (final)	**Date Determination Last Updated:**	03/06/2019
Corporate/Company Name:	CHENIERE CORPUS CHRISTI PIPELINE	**Permit Number:**	PSDTX1304
Facility Name:	SINTON COMPRESSOR STATION	**Permit Date:**	12/20/2013 (actual)
Facility Contact:	ANDREW CHARTRAND 713-375-5429	**FRS Number:**	Not Found
Facility Description:	Emission sources for the project consist of two 20,000 horsepower Solar Titan 130S turbines with SoLoNOx technology, a condensate storage tank with truck loading, blowdown stacks, a standby emergency generator, and associated equipment leak fugitives.	**SIC Code:**	4924
Permit Type:	A: New/Greenfield Facility	**NAICS Code:**	221210

Permit URL:					
EPA Region:	6			**COUNTRY:**	USA
Facility County:	SAN PATRICIO				
Facility State:	TX				
Facility ZIP Code:	78387				
Permit Issued By:	TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) (Agency Name) MICHAEL PARTEE(Agency Contact) (512) 239-3312 michael.partee@tceq.texas.gov				
Other Agency Contact Info:	Mr. Sean O'Brien 512-239-1137 sean.obrien@tceq.texas.gov				
Permit Notes:	105696				

Affected Boundaries:	**Boundary Type:**	**Class 1 Area State:**	**Boundary:**	**Distance:**
	CLASS1	TX	Big Bend NP	> 250 km

Process/Pollutant Information

PROCESS NAME:	Compression Turbine
Process Type:	16.110 (Natural Gas (includes propane & liquified petroleum gas))
Primary Fuel:	natural gas
Throughput:	20000.00 hp
Process Notes:	Two (2) 20,000 horsepower Solar Titan 130S turbines in natural gas pipeline compression service

POLLUTANT NAME:	Carbon Monoxide
CAS Number:	630-08-0
Test Method:	Unspecified
Pollutant Group(s):	(InOrganic Compounds)
Emission Limit 1:	50.0000 PPMVD @ 15% OXYGEN
Emission Limit 2:	
Standard Emission:	

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis:	BACT-PSD
Other Applicable Requirements:	
Control Method:	(P) Solar's SoLoNOx dry emission control technology
Est. % Efficiency:	
Cost Effectiveness:	0 $/ton

Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: Compliance determined during initial stack test and biennial portable analyzer testing.

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 25.0000 PPMVD @ 15% OXYGEN
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) Solar's SoLoNOx dry emission control technology
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: Compliance determined during initial stack test and biennial portable analyzer testing

Process/Pollutant Information

PROCESS NAME: Emergency Engine
Process Type: 17.130 (Natural Gas (includes propane & liquified petroleum gas))
Primary Fuel: natural gas
Throughput: 1328.00 hp
Process Notes: 1328 horsepower standby generator operating no more than 100 hours per year

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 1.3000 G/HP-H

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (N)

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: manufacturer's data

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))

Emission Limit 1: 2.0000 G/HP-H

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (N)

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: manufacturer's data

Facility Information

RBLC ID: TX-0685 (final)

Date Determination Last Updated: 05/09/2016

Corporate/Company Name:	GUADALUPE POWER PARTNERS LP	**Permit Number:**	106011 PSDTX1310
Facility Name:	GUADALUPE GENERATING STATION	**Permit Date:**	10/04/2013 (actual)
Facility Contact:	JOHN WALSH (707) 327-8883	**FRS Number:**	110021360329
Facility Description:	Installing two natural gas-fired simple-cycle peaking combustion turbine generators. The two CTGs will produce between 383 and 454 MW combined. Four models are approved: GE7FA.03, GE7FA.04, GE7FA.05, or Siemens SW 5000F5.	**SIC Code:**	4911
Permit Type:	B: Add new process to existing facility	**NAICS Code:**	221112
Permit URL:			
EPA Region:	6	**COUNTRY:**	USA
Facility County:	GUADALUPE		
Facility State:	TX		
Facility ZIP Code:			
Permit Issued By:	TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) (Agency Name) MICHAEL PARTEE(Agency Contact) (512) 239-3312 michael.partee@tceq.texas.gov		
Other Agency Contact Info:	Randy Hamilton 512-239-1512 randy.hamilton@tceq.texas.gov		
Permit Notes:			

Affected Boundaries:

Boundary Type:	Class 1 Area State:	Boundary:	Distance:
CLASS1	TX	Big Bend NP	> 250 km

Process/Pollutant Information

PROCESS NAME: (2) simple cycle turbines

Process Type: 16.110 (Natural Gas (includes propane & liquified petroleum gas))

Primary Fuel: natural gas

Throughput: 190.00 MW

Process Notes: Four models are approved: GE7FA.03, GE7FA.04, GE7FA.05, or Siemens SW 5000F5. 383 MW to 454 MW total plant capacity.

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))

Emission Limit 1: 9.0000 PPMVD @15% O2, 3 HOUR ROLLING AVG
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (B) DLN burners, limited operation
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Monoxide
CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 9.0000 PPMVD @15% O2, ALL LOADS
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (B) DLN burners, limited operation
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1:
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis:	BACT-PSD
Other Applicable Requirements:	
Control Method:	(P) natural gas fuel
Est. % Efficiency:	
Cost Effectiveness:	0 $/ton
Incremental Cost Effectiveness:	0 $/ton
Compliance Verified:	Unknown
Pollutant/Compliance Notes:	includes PM10

Facility Information

RBLC ID:	MI-0410 (final)	**Date Determination Last Updated:**	05/04/2016
Corporate/Company Name:	CONSUMERS ENERGY COMPANY	**Permit Number:**	191-12
Facility Name:	THETFORD GENERATING STATION	**Permit Date:**	07/25/2013 (actual)
Facility Contact:	JAMES WALKER 517-788-0428 JAMES.WALKER@CMSENERGY.COM	**FRS Number:**	2604900033
Facility Description:	Four (4) natural gas fired combined cycle combustion turbine generators (CTG) and heat recovery steam generators (HRSG) with duct burner firing capability; ancillary facility equipment.	**SIC Code:**	4911
Permit Type:	B: Add new process to existing facility	**NAICS Code:**	221112
Permit URL:			
EPA Region:	5	**COUNTRY:**	USA
Facility County:	GENESEE		
Facility State:	MI		
Facility ZIP Code:	48548-9722		
Permit Issued By:	MICHIGAN DEPT OF ENVIRONMENTAL QUALITY (Agency Name) MS. CINDY SMITH(Agency Contact) (517)284-6802 SMITHC17@MICHIGAN.GOV		
Other Agency Contact Info:	For technical questions regarding this permit action, please contact the permit engineer, David Riddle, at 517-284-6798 or at RIDDLED@michigan.gov. Thank you.		

Permit Notes: Existing substation property to be used for new construction of this generating station--4 CTG/HRSG. Additional equipment included in the permit: 315 hp diesel RICE fire pump engine; two natural gas auxiliary boilers < 100 MMBtu/hr; two natural gas fired fuel heaters; two peaker units (natural gas fired simple cycle combustion turbine driving an electrical generator--CTG).

Affected Boundaries:

Boundary Type:	Class 1 Area State:	Boundary:	Distance:
INTL BORDER		US/Canada Border	< 100 km

Facility-wide Emissions:

Pollutant Name:	Facility-wide Emissions Increase:
Carbon Monoxide	3214.9000 (Tons/Year)
Nitrogen Oxides (NOx)	599.8000 (Tons/Year)
Particulate Matter (PM)	153.9000 (Tons/Year)
Sulfur Oxides (SOx)	28.8000 (Tons/Year)
Volatile Organic Compounds (VOC)	499.2000 (Tons/Year)

Process/Pollutant Information

PROCESS NAME: FGCCA or FGCCB--4 nat. gas fired CTG w/ DB for HRSG

Process Type: 15.210 (Natural Gas (includes propane & liquified petroleum gas))

Primary Fuel: natural gas

Throughput: 2587.00 MMBTU/H heat input, each CTG

Process Notes: Natural gas fired CTG with DB for HRSG; 4 total. Technology A (4 total) is 2587 MMBTU/H design heat input each CTG. Technology B (4 total) is 2688 MMBTU/H design heat input each CTG. Permit was issued for either of two F Class turbine technologies with slight variations in emission rates. Applicant will select one technology. Installation is two separate CTG/HRSG trains driving one steam turbine electrical generator; Two 2X1 Blocks. Each CTG will be rated at 211 to 230 MW (gross) output and the station nominal generating capacity will be up to 1,400 MW.

POLLUTANT NAME: Particulate matter, filterable (FPM)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.0033 LB/MMBTU TEST PROTOCOL; (3 1-H TESTS IF POSSIBLE)

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: OTHER

Control Method: (P) Combustion air filters; efficient combustion control; low sulfur natural gas fuel.

Est. % Efficiency: 90.000

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: Limit applies to each CTG/HRSG. Limit applies at all times and includes duct burner operation. Other applicable requirement: state rule

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0066 LB/MMBTU TEST PROTOCOL (3 1-H TESTS IF POSSIBLE)
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) Combustion air filters; efficient combustion control; low sulfur natural gas fuel.
Est. % Efficiency: 90.000
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: Limit applies to each CTG/HRSG. Limit applies at all times and includes duct burner operation.

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0066 LB/MMBTU TEST PROTOCOL (3 1-H TESTS IF POSSIBLE)
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) Combustion air filters, efficient combustion control, low sulfur natural gas fuel.
Est. % Efficiency: 90.000

Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: Limit applies to each CTG/HRSG. Limit applies at all times and includes duct burner operation.

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 3.0000 PPMV 24-H ROLLING AVERAGE
Emission Limit 2: 760.0000 LB/H 1-H AVERAGE
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS
Control Method: (B) Low NOx burners and selective catalytic reduction.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: *The limits apply to each CTG/HRSG unless otherwise noted. *There are 3 emission limits; 2 are listed here, the 3rd limit (TPY) will be listed in another entry. *The averaging time for the first emission limit listed (3 ppmv) is based on a 24-hour rolling average as determined each hour the turbine operates;/dry at 15% O2; except during startup and shutdown. *The 3 ppmv limit meets NSPS KKKK for each turbine 40 CFR 60.4320(a). *The averaging time for the second emission limit listed (760 LB/H) is based on a 1-hour average. It is applied on a per block basis (each CTG/HRSG pair combined). *LNB + SCR selected based on outlet concentration, not % control efficiency. SCR not functional at low temperatures during startup/shutdown. CEMS monitoring.

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 4.0000 PPMV 24-H ROLL AVG DET. EACH H TURBINE OPERAT
Emission Limit 2: 3159.0000 LB/H 4-H ROLL AVG
Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: N/A

Control Method: (B) Efficient combustion control plus catalytic oxidation system.

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: The first limit is 4 ppmv based on a 24-H rolling average as determined each hour the turbine operates;/dry at 15% O2; except during startup and shutdown; each CTG/HRSG. The second limit is 3159 LB/H based on a 4-H rolling average as determined each hour the turbine operates. Applied on a per block basis (each CTG/HRSG pair combined). Combustion control and catalytic oxidation system (COS) selected based on outlet concentration, not% control efficiency. COS not fully functional at lower than optimum catalyst temperatures during startup/shutdown. CEMS monitoring.

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC

Test Method: Unspecified

Pollutant Group(s): (Volatile Organic Compounds (VOC))

Emission Limit 1:

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (B) Efficient combustion control plus catalytic oxidation system.

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: No

Pollutant/Compliance Notes: Both CO and VOC are products of incomplete combustion and are controlled using efficient combustion methods and catalytic oxidation system. The limitation on CO is an appropriate surrogate for VOC emissions.

POLLUTANT NAME: Carbon Dioxide Equivalent (CO2e)

CAS Number: CO2e

Test Method: Unspecified
Pollutant Group(s): (Greenhouse Gasses (GHG))
Emission Limit 1: 1386286.0000 T/YR 12-MO ROLL TIME PERIOD DETER EACH MONTH
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) No info was entered on type of add-on control. Contact permitting agency.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: The limit is 1,386,286 T/Y based on a 12-month rolling time period as determined at the end of each calendar month. The limit is for each of the four CTG/HRSGs.

Process/Pollutant Information

PROCESS NAME: FGCCA or FGCCB: 4 nat gas fired CTG with DB for HRSG: Startup/shutdown events
Process Type: 15.210 (Natural Gas (includes propane & liquified petroleum gas))
Primary Fuel: natural gas
Throughput: 2587.00 MMBTU/H design heat input, each
Process Notes: *There are 4 total natural gas fired CTG with DB for HRSG. *They are identified in the permit as either flexible group FGCCA or FGCCB. *Technology A (4 total) is 2587 MMBTU/H design heat input each CTG. *Technology B (4 total) is 2688 MMBTU/H design heat input each CTG.

POLLUTANT NAME: Nitrogen Oxides (NOx)
CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 78.4000 T/YR 12-MO ROLL TIME PERIOD FOR STARTUP/SHUTD
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:
Control Method: (B) Low NOx burners and selective catalytic reduction.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: The limit is 78.4 T/Y based on a 12-month rolling time period FOR startup and shutdown events. It is applied on a per block basis (each CTG/HRSG pair combined). LNB + SCR selected based on outlet concentration, not % control efficiency. SCR not functional at low temperatures during startup/shutdown.

POLLUTANT NAME: Carbon Monoxide
CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 694.0000 T/YR 12-MO ROLL TIME PERIOD STARTUP/SHUTDOWN
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: N/A
Control Method: (B) Efficient combustion control plus catalytic oxidation system.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: The limit is 694 T/Y based on a 12-month rolling time period for startup and shutdown events. It is applied on a per block basis (each CTG/HRSG pair combined). Combustion control and catalytic oxidation system (COS) selected based on outlet concentration, not % control efficiency. COS not fully functional at lower than optimum catalyst temperatures during startup/shutdown.

Process/Pollutant Information

PROCESS NAME: FGAUXBOILERS: Two auxiliary boilers < 100 MMBTU/H heat input each
Process Type: 13.310 (Natural Gas (includes propane and liquefied petroleum gas))

Primary Fuel: natural gas

Throughput: 100.00 MMBTU/H heat input each

Process Notes: There are two auxiliary boilers each rated at less than 100 MMBTU/H heat input. Fuel usage limited to not more than 416.3 MMscf of natural gas in each boiler per 12-month rolling timeperiod as determined at the end of each month.

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))

Emission Limit 1: 0.0500 LB/MMBTU TEST PROTOCOL

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: N/A

Control Method: (B) Low NOx burners and flue gas recirculation.

Est. % Efficiency: 70.000

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: No

Pollutant/Compliance Notes: The limit is 0.05 LB/MMBTU heat input, for each boiler. Test protocol will specify the averaging time. Fuel usage limited to not more tahn 416.3 MMSCF of natural gas in each boiler per 12-month rolling time period as determined at the end of each month.

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds)

Emission Limit 1: 0.0750 LB/MMBTU HEAT INPUT. TEST PROTOCOL WILL SPECIFY

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: N/A

Control Method: (P) Efficient combustion.

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: No

Pollutant/Compliance Notes: The limit is 0.075 LB/MMBTU heat input for each boiler. Test protocol will specify the averaging time. The fuel usage is limited to 416.3 MMSCF of natural gas in each boiler per 12-month rolling time period as determined at the end of each calendar month.

POLLUTANT NAME: Particulate matter, filterable (FPM)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.0018 LB/MMBTU HEAT INPUT; TEST PROTOCOL WILL SPECIFY

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: N/A

Control Method: (P) Efficient combustion; natural gas fuel.

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: No

Pollutant/Compliance Notes: The limit is 0.0018 LB/MMBTU heat input for each boiler. Test protocol will specify the averaging time. The fuel usage is limited to not more than 416.3 MMSCF of natural gas in each boiler per 12-month rolling time period as determined at the end of each month.

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.0070 LB/MMBTU HEAT INPUT; TEST PROTOCOL SPECIFY AVG

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: N/A
Control Method: (P) Efficient combustion; natural gas fuel.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: The limit is 0.007 LB/MMBTU heat input for each boiler. Test protocol will specify averaging time. Fuel usage is limited to not more than 416.3 MMscf of natural gas in each boiler per 12 month rolling time period as determined at the end of each month

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0070 LB/MMBTU HEAT INPUT; TEST PROTOCOL WILL SPECIFY
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: N/A
Control Method: (P) Efficient combustion; natural gas fuel.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: The limit is 0.007 LB/MMBTU heat input for each boiler. Test protocol will specify the averaging time. Fuel usage is limited to not more than 416.3 MMscf of natural gas in each boiler per 12 month rolling time period as determined at the end of each month.

POLLUTANT NAME: Volatile Organic Compounds (VOC)
CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 0.0080 LB/MMBTU HEAT INPUT; TEST PROTOCOL WILL SPECIFY

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: N/A

Control Method: (P) Efficient combustion; natural gas fuel.

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: No

Pollutant/Compliance Notes: The limit is 0.008 LB/MMBTU heat input for each boiler. Test protocol will specify the averaging time. Fuel usage is limited to not more than 416.3 MMscf of natural gas in each boiler per 12 month rolling time period as determined at the end of each month.

POLLUTANT NAME: Carbon Dioxide Equivalent (CO2e)

CAS Number: CO2e

Test Method: Unspecified

Pollutant Group(s): (Greenhouse Gasses (GHG))

Emission Limit 1: 24304.0000 T/YR 12-MO ROLL TIME PERIOD EACH MONTH

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: N/A

Control Method: (P) Efficient combustion; energy efficiency.

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: No

Pollutant/Compliance Notes: The limit is 24,304 T/Y for each boiler based upon a 12-month rolling time period as determined at the end of each calendar month. Fuel usage is limited to not more than 416.3 MMscf of natural gas in each boiler per 12 month rolling time period as determined at the end of each month.

Process/Pollutant Information

PROCESS NAME: FG-PEAKERS: 2 natural gas fired simple cycle combustion turbines

Process Type: 16.110 (Natural Gas (includes propane & liquified petroleum gas))

Primary Fuel: natural gas

Throughput: 171.00 MMBTU/H

Process Notes: Two natural gas fired simple cycle combustion turbines each with an electrical generator (nominal 13MW each; 171 MMBtu/hr heat input rating each). Each turbine is limited to 343 MMscf of natural gas per 12-month rolling time period as determined at the end of each calendar month. Both turbines combined are limited to 5.15 MMscf of natural gas each calendar day.

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))

Emission Limit 1: 0.0900 LB/MMBTU TEST PROTOCOL WILL SPECIFY AVG. TIME.

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: N/A

Control Method: (P) Dry low-NOx combustors

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: No

Pollutant/Compliance Notes: The limit is 0.09 LB/MMBTU for EACH peaker, and excludes startup and shutdown. Each turbine is limited to 343 MMscf of natural gas per 12-month rolling time period as determined at the end of each calendar month. Both turbines combined are limited to 5.15 MMscf of natural gas each calendar day.

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds)

Emission Limit 1: 0.1100 LB/MMBTU TEST PROTOCOL WILL SPECIFY AVG. TIME

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: N/A
Control Method: (P) Efficient combustion
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: The CO limit is 0.11 MM/BTU heat input for EACH peaker. Each turbine is limited to 343 MMscf of natural gas per 12-month rolling time period as determined at the end of each calendar month. Both turbines combined are limited to 5.15 MMscf of natural gas each calendar day.

POLLUTANT NAME: Particulate matter, filterable (FPM)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0100 LB/MMBTU TEST PROTOCOL WILL SPECIFY AVG. TIME.
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: N/A
Control Method: (P) Efficient combustion; natural gas fuel.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: The PM limit is 0.01 LB/MMBTU heat input for EACH peaker. Each turbine is limited to 343 MMscf of natural gas per 12 month rolling time period as determined at the end of each calendar month. Both turbines combined are limited to 5.15 MMscf of natural gas each calendar day.

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.0200 LB/MMBTU TEST PROTOCOL WILL SPECIFY AVG. TIME

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: N/A

Control Method: (P) Efficient combustion; natural gas fuel.

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: No

Pollutant/Compliance Notes: The PM10 limit is 0.02 lb/mmbtu heat input for EACH peaker. Each turbine is limited to 343 MMscf of natural gas per 12 month rolling time period as determined at the end of each calendar month. Both turbines combined are limited to 5.15 MMscf of natural gas each calendar day.

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.0200 LB/MMBTU TEST PROTOCOL WILL SPECIFY AVG. TIME

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: N/A

Control Method: (P) Efficient combustion; natural gas fuel.

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: No

Pollutant/Compliance Notes: The PM2.5 limit is 0.02 LB/MMBTU heat input for EACH peaker. Each turbine is limited to 343 MMscf of natural gas per 12 month rolling time period as determined at the end of each calendar month. Both turbines combined are limited to 5.15 MMscf of natural gas each calendar day.

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 0.0170 LB/MMBTU TEST PROTOCOL WILL SPECIFY AVG. TIME.
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: N/A
Control Method: (P) Efficient combustion; natural gas fuel.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: The VOC limit is 0.017 LB/MMBTU heat input for EACH peaker. Each turbine is limited to 343 MMscf of natural gas per 12 month rolling time period as determined at the end of each calendar month. Both turbines combined are limited to 5.15 MMscf of natural gas each calendar day.

POLLUTANT NAME: Carbon Dioxide Equivalent (CO2e)
CAS Number: CO2e
Test Method: Unspecified
Pollutant Group(s): (Greenhouse Gasses (GHG))
Emission Limit 1: 20141.0000 T/YR 12-MO ROLLING TIME PERIOD
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: N/A
Control Method: (P) Efficient combustion; energy efficiency
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No

Pollutant/Compliance Notes: The limit is 20,141 T/YR based on a 12-month rolling time period as determined at the end of each calendar month for EACH peaker. Each turbine is limited to 343 MMscf of natural gas per 12 month rolling time period as determined at the end of each calendar month. Both turbines combined are limited to 5.15 MMscf of natural gas each calendar day.

Process/Pollutant Information

PROCESS NAME: FG-FUELHTRS: 2 natural gas fuel heaters, 12 MMBTU/H each

Process Type: 19.600 (Misc. Boilers, Furnaces, Heaters)

Primary Fuel: Natural gas

Throughput: 12.00 MMBTU/H heat input each fuel heater

Process Notes: This flexible group consists of two natural gas fuel heaters each rated at 12 MMBTU/H heat input each.

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))

Emission Limit 1: 0.0600 LB/MMBTU 30-D ROLL AVG EACH DAY IN OPERATION

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: N/A

Control Method: (P) Low NOx burners

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: No

Pollutant/Compliance Notes: The NOx limit is 0.06 LB/MMBTU heat input based on a 30-day rolling average as determined each day in operation for EACH heater.

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds)

Emission Limit 1: 0.1100 LB/MMBTU TEST PROTOCOL WILL SPECIFY AVG. TIME.
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: N/A
Control Method: (P) Efficient combustion
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: The CO limit is 0.11 LB/MMBTU heat input for EACH heater.

POLLUTANT NAME: Particulate matter, filterable (FPM)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0018 LB/MMBTU TEST PROTOCOL WILL SPECIFY AVG. TIME.
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: N/A
Control Method: (P) Efficient combustion; natural gas fuel.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: The PM limit is 0.0018 LB/MMBTU heat input for EACH heater.

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.0070 LB/MMBTU TEST PROTOCOL WILL SPECIFY AVG. TIME
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: N/A
Control Method: (P) Efficient combustion; natural gas fuel.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: The PM10 limit is 0.007 LB/MMBTU heat input for EACH heater.

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0070 LB/MMBTU TEST PROTOCOL WILL SPECIFY AVG. TIME
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: N/A
Control Method: (P) Efficient combustion; natural gas fuel.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: The PM2.5 limit is 0.007 LB/MMBTU heat input for EACH heater.

POLLUTANT NAME: Volatile Organic Compounds (VOC)
CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))

Emission Limit 1: 0.0080 LB/MMBTU TEST PROTOCOL WILL SPECIFY AVG. TIME
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: N/A
Control Method: (P) Efficient combustion; natural gas fuel.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: The VOC limit is 0.008 LB/MMBTU heat input for EACH heater.

POLLUTANT NAME: Carbon Dioxide Equivalent (CO2e)
CAS Number: CO2e
Test Method: Unspecified
Pollutant Group(s): (Greenhouse Gasses (GHG))
Emission Limit 1: 6156.0000 T/YR 12-MO ROLL TIME PERIOD
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: N/A
Control Method: (P) Efficient combustion; energy efficiency.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: The CO2e limit is 6,156 T/YR based on a 12-month rolling time period as determined at the end of each calendar month for EACH heater.

Process/Pollutant Information

PROCESS NAME: EU-FPENGINE: Diesel fuel fired emergency backup fire pump

Process Type: 17.210 (Fuel Oil (ASTM # 1,2, includes kerosene, aviation, diesel fuel))

Primary Fuel: diesel fuel

Throughput: 315.00 hp nameplate

Process Notes: This is a diesel fuel fired emergency backup fire mump. It has a capacity of 315 hp, nameplate, and uses diesel fuel ASTM D975 Grade 2-D S15. Ultra low sulfur diesel fuel (15ppmw); 100 hours per year operation for maintenance and readiness testing. NSPS IIII and NESHAP ZZZZ.

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds)

Emission Limit 1: 2.6000 G/HP-H TEST PROTOCOL WILL SPECIFY AVG. TIME.

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: NSPS , NESHAP

Control Method: (P) Proper combustion design and ultra low sulfur diesel fuel.

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: No

Pollutant/Compliance Notes: ultra low sulfur diesel fuel (15 pppmw); 100 hours per year operation for maintenance and readiness testing; NSPS IIII and NESHAP ZZZZ.

POLLUTANT NAME: Particulate matter, filterable (FPM)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.1500 G/HP-H TEST PROTOCOL WILL SPECIFY AVG. TIME

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: NSPS , NESHAP
Control Method: (P) Proper combustion design and ultra low sulfur diesel fuel.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: ultra low sulfur diesel fuel (15 pppmw); 100 hours per year operation for maintenance and readiness testing; NSPS IIII and NESHAP ZZZZ

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.6000 LB/H TEST PROTOCOL WILL SPECIFY AVG. TIME
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS , NESHAP
Control Method: (P) Proper combustion design and ultra low sulfur diesel fuel
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: ultra low sulfur diesel fuel (15 pppmw); 100 hours per year operation for maintenance and readiness testing; NSPS IIII and NESHAP ZZZZ.

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.6000 LB/H TEST PROTOCOL WILL SPECIFY AVG. TIME
Emission Limit 2:
Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS , NESHAP
Control Method: (P) Proper combustion design and ultra low sulfur diesel fuel.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: ultra low sulfur diesel fuel (15 pppmw); 100 hours per year operation for maintenance and readiness testing; NSPS IIII and NESHAP ZZZZ.

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1:
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) Proper combustion design and ultra low sulfur diesel fuel.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: Ultra low sulfur diesel fuel (15 pppmw); 100 hours per year operation for maintenance and readiness testing. Both CO and VOC are products of incomplete combustion and are controlled using efficient combustion methods. The limitation on CO is an appropriate surrogate for VOC emissions. VOC also included in NMHC which is limited in combination with NOx.

POLLUTANT NAME: Carbon Dioxide Equivalent (CO2e)

CAS Number: CO2e
Test Method: Unspecified
Pollutant Group(s): (Greenhouse Gasses (GHG))

Emission Limit 1: 15.6000 T/YR 12-MO. ROLL TIME PERIOD
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: N/A
Control Method: (P) Proper combustion design and ultra low sulfur diesel fuel.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: Ultra low sulfur diesel fuel (15 ppmw); 100 hour per year operation for maintenance and readiness testing.

POLLUTANT NAME: Nitrogen Oxides (NOx)
CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 3.0000 G/HP-H TEST PROTOCOL WILL SPECIFY AVG. TIME.
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS , NESHAP
Control Method: (P) Proper combustion design and ultra low sulfur diesel fuel.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: The limit is NMHC + NOx, but that pollutant is not an option in the 'Pollutant' field above. Ultra low sulfur diesel fuel (15 ppmw); 100 hours per year operation for maintenance and readiness testing; NSPS IIII and NESHAP ZZZZ.

Facility Information

RBLC ID:	OK-0153 (final)	**Date Determination Last Updated:**	07/29/2016
Corporate/Company Name:	SEMGAS LP	**Permit Number:**	2012-1393-C PSD
Facility Name:	ROSE VALLEY PLANT	**Permit Date:**	03/01/2013 (actual)
Facility Contact:	KRISTIN IKARD 405-727-1443 KRISTIN.IKARD@ACCESSMIDSTREAM.COM	**FRS Number:**	151-00432
Facility Description:	Mid-America Midstream Gas Services, L.L.C. (MAMGS) has applied for a permit to construct a new gas plant. A summary of the new emission sources authorized under this construction permit is presented below: • Ten 1,775-hp Caterpillar G3606 engines equipped with oxidation catalysts. • Two 9,443-hp Siemens SGT-200-2S turbines. • Two 2,889-hp Caterpillar G3520C IM emergency generators with oxidation catalysts. • Two 5.605-MMBTUH regeneration heaters. • Two 17.4-MMBTUH hot oil heaters. • Four 1,000-bbl condensate storage tanks controlled by flares. • Four 400-bbl produced water tanks. • Two 20,000-bbl/day amine units. • Two 2.66-MMBTUH emergency flares. • One 0.99-MMBTUH enclosed flare. Facility-wide gas processing capacity will be 460 MMSCFD.	**SIC Code:**	1321
Permit Type:	A: New/Greenfield Facility	**NAICS Code:**	211112
Permit URL:			
EPA Region:	6	**COUNTRY:**	USA
Facility County:	WOODS		
Facility State:	OK		
Facility ZIP Code:	73717		
Permit Issued By:	OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY (Agency Name) MR. LEE WARDEN(Agency Contact) (405)702-4182 LEE.WARDEN@DEQ.OK.GOV		
Permit Notes:	This permit authorizes the construction of the Rose Valley Plant and addresses the regulatory requirements associated with the equipment which will be installed at that facility.		

Affected Boundaries:

Boundary Type:	Class 1 Area State:	Boundary:	Distance:
CLASS1	OK	Wichita Mountains	100km - 50km

Facility-wide Emissions:

Pollutant Name:	Facility-wide Emissions Increase:
Carbon Monoxide	115.6900 (Tons/Year)
Nitrogen Oxides (NOx)	139.2800 (Tons/Year)
Particulate Matter (PM)	11.1400 (Tons/Year)
Sulfur Oxides (SOx)	2.6500 (Tons/Year)
Volatile Organic Compounds (VOC)	115.7600 (Tons/Year)

Process/Pollutant Information

PROCESS NAME: COMPRESSOR ENGINE 1,775-HP CAT G3606LE

Process Type: 17.130 (Natural Gas (includes propane & liquified petroleum gas))

Primary Fuel: NATURAL GAS

Throughput: 1775.00 HP

Process Notes: THERE ARE TO BE TEN (10) LIKE-KIND ENGINES.

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))

Emission Limit 1: 0.5000 GM/HP-HR 3-HR AVG

Emission Limit 2: 1.9600 LB/HR

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: NSPS

Control Method: (N)

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds)

Emission Limit 1: 0.3600 GM/HP-HR 3-HR AVG

Emission Limit 2: 1.3900 LB/HR

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: NSPS

Control Method: (A) EACH ENGINE EQUIPPED W/OXIDATION CATALYST.

Est. % Efficiency:

Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 0.1300 GM/HP-HR 3-HR AVG
Emission Limit 2: 0.6500 LB/HR
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS
Control Method: (A) EACH ENGINE EQUIPPED W/OXIDATION CATALYST.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0100 LB/MMBTU 3-HR AVG
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: N/A
Control Method: (P) NATURAL GAS COMBUSTION PRACTICES.
Est. % Efficiency:

Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: BASED ON AP-42 (4/2000), SECTION 3.2

POLLUTANT NAME: Carbon Dioxide Equivalent (CO2e)

CAS Number: CO2e
Test Method: Unspecified
Pollutant Group(s): (Greenhouse Gasses (GHG))
Emission Limit 1: 8452.0000 BTU/BHP-HR 3-HR AVG
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: N/A
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: FOR LOADS >50%, BASED ON HHV.

Process/Pollutant Information

PROCESS NAME: TURBINES 9,443-HP SIEMENS SGT-200-2S
Process Type: 16.110 (Natural Gas (includes propane & liquified petroleum gas))
Primary Fuel: NATURAL GAS
Throughput: 9443.00 HP
Process Notes: THERE ARE TO BE LIKE-KIND TURBINES.

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))

Emission Limit 1: 15.0000 PPMVD @15% O2 1-HR
Emission Limit 2: 4.4700 LB/HR 1-HR
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS
Control Method: (P) DRY LOW-NOx COMBUSTION.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Monoxide
CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 15.0000 PPMVD @15% O2 3-HR
Emission Limit 2: 2.7200 LB/HR 3-HR
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: N/A
Control Method: (P) EFFICIENT DESIGN AND COMBUSTION.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)
CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))

Emission Limit 1: 10.0000 PPMVD@15% O2 3-HR
Emission Limit 2: 2.8500 LB/HR 3-HR
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: N/A
Control Method: (P) EFFICIENT DESIGN AND COMBUSTION.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0066 LB/MMBTU 3-HR
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: N/A
Control Method: (P) NATURAL GAS COMBUSTION.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: BASED ON AP-42 (4/2000), SECTION 3.1

POLLUTANT NAME: Carbon Dioxide Equivalent (CO2e)
CAS Number: CO2e
Test Method: Unspecified
Pollutant Group(s): (Greenhouse Gasses (GHG))

Emission Limit 1: 8023.0000 BTU/HP-HR 3-HR
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: N/A
Control Method: (P) EFFICIENT DESIGN AND COMBUSTION.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: EMERGENCY GENERATORS 2,889-HP CAT G3520C IM
Process Type: 17.130 (Natural Gas (includes propane & liquified petroleum gas))
Primary Fuel: NATURAL GAS
Throughput: 2889.00 HP
Process Notes: THERE ARE TO BE TWO (2) ENGINES, EACH EQUIPPED W/AN OXIDATION CATALYST. THESE WILL BE LIMITED USE (< 750 HOURS PER YEAR).

POLLUTANT NAME: Nitrogen Oxides (NOx)
CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 0.5000 GM/HP-HR 3-HR
Emission Limit 2: 3.1800 LB/HR 3-HR
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS
Control Method: (P) LEAN-BURN COMBUSTION.
Est. % Efficiency:

Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Monoxide
CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 0.4300 GM/HP-HR 3-HR
Emission Limit 2: 2.7300 LB/HR 3-HR
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS
Control Method: (A) OXIDATION CATALYST
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)
CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 0.4400 GM/HP-HR 3-HR
Emission Limit 2: 3.5100 LB/HR 3-HR
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS
Control Method: (A) OXIDATION CATALYST
Est. % Efficiency:

Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0100 LB/MMBTU 3-HR
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: N/A
Control Method: (P) NATURAL GAS COMBUSTION
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: BASED ON AP-42 (4/2000), SECTION 3.2.

POLLUTANT NAME: Carbon Dioxide Equivalent (CO2e)

CAS Number: CO2e
Test Method: Unspecified
Pollutant Group(s): (Greenhouse Gasses (GHG))
Emission Limit 1: 8212.0000 BTU/BHP-HR
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: N/A
Control Method: (P) EFFICIENT DESIGN AND COMBUSTION.
Est. % Efficiency:

Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: REGENERATION HEATERS
Process Type: 13.310 (Natural Gas (includes propane and liquefied petroleum gas))
Primary Fuel: NATURAL GAS
Throughput: 5.61 MMBTUH
Process Notes: THERE ARE TO BE TWO IDENTICAL HEATERS.

POLLUTANT NAME: Nitrogen Oxides (NOx)
CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 0.0450 LB/MMBTU 3-HR
Emission Limit 2: 0.2700 LB/HR 3-HR
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: N/A
Control Method: (P) LOW-NOx BURNERS
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Monoxide
CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)

Emission Limit 1: 0.0824 LB/MMBTU 3-HR
Emission Limit 2: 0.5100 LB/HR 3-HR
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: N/A
Control Method: (P) GOOD COMBUSTION PRACTICES.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: HOT OIL HEATER
Process Type: 13.310 (Natural Gas (includes propane and liquefied petroleum gas))
Primary Fuel: NATURAL GAS
Throughput: 17.40 MMBTUH
Process Notes: PROCESS PERTAINS TO TWO(2) IDENTICAL HEATERS.

POLLUTANT NAME: Nitrogen Oxides (NOx)
CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 0.0450 LB/MMBTU 3-HR
Emission Limit 2: 0.8300 LB/HR 3-HR
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: N/A
Control Method: (P) LOW-NOx BURNERS.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Monoxide
CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 0.0824 LB/MMBTU 3-HR
Emission Limit 2: 1.5600 LB/HR 3-HR
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: N/A
Control Method: (P) Efficient design and combustion.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: CONDENSATE TANKS
Process Type: 42.005 (Petroleum Liquid Storage in Fixed Roof Tanks)
Primary Fuel: NA
Throughput: 9198000.00 GAL/YR
Process Notes: 4 X 1,000 BBL

POLLUTANT NAME: Volatile Organic Compounds (VOC)
CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 0.8200 TPY

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: NSPS

Control Method: (A) FLARE

Est. % Efficiency: 96.000

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: CONDENSATE TRUCK LOADING

Process Type: 50.999 (Other Petroleum/Natural Gas Production & Refining Sources (except 42 - Liquid Marketing))

Primary Fuel: NA

Throughput: 9198000.00 GAL/YR

Process Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC

Test Method: Unspecified

Pollutant Group(s): (Volatile Organic Compounds (VOC))

Emission Limit 1: 7.0600 TPY

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: N/A

Control Method: (A) ENCLOSED FLARE

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: AMINE UNITS - STILL VENT

Process Type: 50.002 (Natural Gas/Gasoline Processing Plants)

Primary Fuel: NA

Throughput: 20000.00 BBL/D

Process Notes: 2 X 20,000 BBL/D UNITS. THE AMINE UNITS TREAT NATURAL GAS LIQUIDS.

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC

Test Method: Unspecified

Pollutant Group(s): (Volatile Organic Compounds (VOC))

Emission Limit 1: 5.5900 TPY

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: NSPS

Control Method: (P) GOOD OPERATING PRACTICES.

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Dioxide Equivalent (CO2e)

CAS Number: CO2e

Test Method: Unspecified

Pollutant Group(s): (Greenhouse Gasses (GHG))

Emission Limit 1: 8116.0000 TPY

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: N/A

Control Method: (P) GOOD OPERATING PRACTICES.

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: AMINE UNITS - FLASH TANK

Process Type: 50.002 (Natural Gas/Gasoline Processing Plants)

Primary Fuel: NA

Throughput: 20000.00 BBL/D

Process Notes: 2 X 20,000 BBL/D UNITS. THE AMINE UNITS TREAT NATURAL GAS LIQUIDS.

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC

Test Method: Unspecified

Pollutant Group(s): (Volatile Organic Compounds (VOC))

Emission Limit 1: 1.8000 TPY

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: N/A

Control Method: (P) ROUTE FLASH TANK EMISSIONS TO A HOT OIL HEATER, A REGENERATION HEATER, OR A FLARE.

Est. % Efficiency: 95.000

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: FUGITIVE EQUIPMENT
Process Type: 50.999 (Other Petroleum/Natural Gas Production & Refining Sources (except 42 - Liquid Marketing))
Primary Fuel: NA
Throughput: 0
Process Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)
CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1:
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS
Control Method: (P) LDAR IN COMPLIANCE WITH NSPS 000.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: ALL FUGITIVE SOURCES WILL BE SUBJECT TO THE LDAR PROGRAM.

POLLUTANT NAME: Carbon Dioxide Equivalent (CO2e)
CAS Number: CO2e
Test Method: Unspecified
Pollutant Group(s): (Greenhouse Gasses (GHG))
Emission Limit 1:
Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis:	BACT-PSD
Other Applicable Requirements:	NSPS
Control Method:	(P) LDAR IN COMPLIANCE WITH NSPS OOO.
Est. % Efficiency:	
Cost Effectiveness:	0 $/ton
Incremental Cost Effectiveness:	0 $/ton
Compliance Verified:	Unknown
Pollutant/Compliance Notes:	ALL FUGITIVE SOURCES WILL BE SUBJECT TO THE LDAR PROGRAM.

Facility Information

RBLC ID:	OK-0148 (final)	**Date Determination Last Updated:**	05/11/2018
Corporate/Company Name:	MARKWEST BUFFALO CREEK GAS CO LLC	**Permit Number:**	2012-1026-C PSD
Facility Name:	BUFFALO CREEK PROCESSING PLANT	**Permit Date:**	09/12/2012 (actual)
Facility Contact:	KRISTIN IKARD KRISTIN.IKARD@ACCESSMIDSTREAM.COM	**FRS Number:**	Not Found
Facility Description:	Mid-America Midstream Gas Services (MAMGS)proposes to construct a natural gas plant with ten natural gas-fired reciprocating internal combustion engines, two natural gas-fired turbines, a 230-MMSCFD amine unit with a 11.04 MMBTUH reboiler, an acid gas flare, eight condensate tanks, and six produced water tanks. Associated support operations include condensate truck loading, blowdowns and fugitive emissions.	**SIC Code:**	1321
Permit Type:	A: New/Greenfield Facility	**NAICS Code:**	211112
Permit URL:			
EPA Region:	6	**COUNTRY:**	USA
Facility County:	BECKHAM		
Facility State:	OK		
Facility ZIP Code:	73662		
Permit Issued By:	OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY (Agency Name) MR. LEE WARDEN(Agency Contact) (405)702-4182 LEE.WARDEN@DEQ.OK.GOV		

Permit Notes:	FRS Entered as "009-00118". Too short for a FRS. MAMGS proposes to construct a natural gas plant with ten natural gas-fired reciprocating internal combustion engines, two natural gas-fired turbines, a 230-MMSCFD amine unit with a 11.04 MMBTUH reboiler, an acid gas flare, eight condensate tanks, and six produced water tanks. Associated support operations include condensate truck loading, blowdowns and fugitive emissions.

Affected Boundaries:

Boundary Type:	Class 1 Area State:	Boundary:	Distance:
CLASS1	OK	Wichita Mountains	100km - 50km

Facility-wide Emissions:

Pollutant Name:	Facility-wide Emissions Increase:
Carbon Monoxide	187.0000 (Tons/Year)
Nitrogen Oxides (NOx)	163.0000 (Tons/Year)
Particulate Matter (PM)	14.0000 (Tons/Year)
Sulfur Oxides (SOx)	945.0000 (Tons/Year)
Volatile Organic Compounds (VOC)	145.0000 (Tons/Year)

Process/Pollutant Information

PROCESS NAME: Large Internal Combustion Engines (>500 hp)

Process Type: 17.130 (Natural Gas (includes propane & liquified petroleum gas))

Primary Fuel: Natural Gas

Throughput: 1775.00 Horsepower

Process Notes: Caterpillar G3606LE 4SLB times 6.

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102

Test Method: Other

Other Test Method: Part 60 Reference Method

Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))

Emission Limit 1: 0.5000 GM/HP-HR 1-HR

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: NSPS , NESHAP

Control Method: (P) Ultra Lean Burn

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Monoxide
CAS Number: 630-08-0
Test Method: Other
Other Test Method: Part 60 Reference Methods
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 0.5500 GM/HP-HR 1-HR
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS , NESHAP
Control Method: (A) Oxidation Catalyst
Est. % Efficiency: 80.000
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)
CAS Number: VOC
Test Method: Other
Other Test Method: Part 60 Reference Methods
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 0.2200 GM/HP-HR 1-HR
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS , NESHAP
Control Method: (A) Oxidation Catalyst
Est. % Efficiency: 80.000

Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0100 LB/MMBTU
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: N/A
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: AP-42 factors ; Natural Gas Combustion.

POLLUTANT NAME: Carbon Dioxide Equivalent (CO2e)

CAS Number: CO2e
Test Method: Unspecified
Pollutant Group(s): (Greenhouse Gasses (GHG))
Emission Limit 1: 7900.0000 BTU/BHP-HR
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: N/A
Other Applicable Requirements: N/A
Control Method: (N)
Est. % Efficiency:

Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: Loads > 75% ; HHV (Basis) ; 37.4 % efficiency ; Natural Gas Combustion.

Process/Pollutant Information

PROCESS NAME: Large Internal Combustion Engines (>500 hp)
Process Type: 17.130 (Natural Gas (includes propane & liquified petroleum gas))
Primary Fuel: Natural Gas
Throughput: 2370.00 Horsepower
Process Notes: Caterpillar G3608LE 4SLB times 4.

POLLUTANT NAME: Nitrogen Oxides (NOx)
CAS Number: 10102
Test Method: Other
Other Test Method: Part 60 Reference Method
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 0.5000 GM/HP-HR 1-HR
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS , NESHAP
Control Method: (P) Ultra Lean Burn
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Monoxide
CAS Number: 630-08-0
Test Method: Other

Other Test Method: Part 60 Reference Method
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 0.5500 GM/HP-HR 1-HR
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS , NESHAP
Control Method: (A) Oxidation Catalyst
Est. % Efficiency: 80.000
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)
CAS Number: VOC
Test Method: Other
Other Test Method: Part 60 Reference Method
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 0.2200 GM/HP-HR 1-HR
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NESHAP , NSPS
Control Method: (A) Oxidation Catalyst
Est. % Efficiency: 80.000
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0100 LB/MMBTU
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: N/A
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: AP-42 Factors ; Natural Gas Combustion

POLLUTANT NAME: Carbon Dioxide Equivalent (CO2e)
CAS Number: CO2e
Test Method: Unspecified
Pollutant Group(s): (Greenhouse Gasses (GHG))
Emission Limit 1: 7900.0000 BTU/BHP-HR
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: N/A
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: Loads > 75% ; HHV(Basis) ; 37.4% efficiency - Natural Gas Combustion

Process/Pollutant Information

PROCESS NAME: Small Combustion Turbines (

Process Type: 16.110 (Natural Gas (includes propane & liquified petroleum gas))

Primary Fuel: Natural Gas

Throughput: 10179.00 Horsepower

Process Notes: Solar Taurus 70-10802S times 2.

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102

Test Method: Other

Other Test Method: Part 60 Reference Method

Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))

Emission Limit 1: 15.0000 PPMVD@15%O2 1-HR

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: NSPS

Control Method: (P) Dry-Low NOx Combustion

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds)

Emission Limit 1: 25.0000 PPMVD@15%O2 3-HR

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: N/A
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 25.0000 PPMVD@15%O2 3-HR
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: N/A
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0066 LB/MMBTU
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: N/A
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: AP-42 - Natural Gas Combustion

POLLUTANT NAME: Carbon Dioxide Equivalent (CO2e)

CAS Number: CO2e
Test Method: Unspecified
Pollutant Group(s): (Greenhouse Gasses (GHG))
Emission Limit 1: 8220.0000 BTU/BHP-HR
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: N/A
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: @75% load and greater based on LHV.

Process/Pollutant Information

PROCESS NAME: Commercial/Institutional Boilers (
Process Type: 13.310 (Natural Gas (includes propane and liquefied petroleum gas))
Primary Fuel: Natural Gas
Throughput: 11.04 MMBTUH
Process Notes:

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 0.0450 LB/MMBTU
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: N/A
Control Method: (P) Low-NOx burners
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Monoxide
CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 0.0740 LB/MMBTU
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: N/A
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: Good Combustion

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 0.0054 LB/MMBTU
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: N/A
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: AP-42 and Good Combustion

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0075 LB/MMBTU
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: N/A
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: AP-42 and Good Combustion

POLLUTANT NAME: Carbon Dioxide Equivalent (CO2e)

CAS Number: CO2e
Test Method: Unspecified
Pollutant Group(s): (Greenhouse Gasses (GHG))
Emission Limit 1: 117.0000 LB/MMBTU
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: N/A
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: Part 98 factors

Process/Pollutant Information

PROCESS NAME: Amine Unit / Sweetening Unit

Process Type: 50.999 (Other Petroleum/Natural Gas Production & Refining Sources (except 42 - Liquid Marketing))

Primary Fuel: NA

Throughput: 230.00 MMSCFD

Process Notes: The amine unit (MDEA) is equipped with a reboiler for regeneration of the amine. The off-gases from the reboiler are routed to the Acid Gas Flare. The waste gas combusted in the Acid Gas Flare is estimated at 10 MMBTUH. The Acid Gas Flare is a control device for control of emission of H2S. The flare will also control emissions of CH4 and VOC.

POLLUTANT NAME: Hydrogen Sulfide
CAS Number: 7783-06-4
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1:
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: N/A
Control Method: (A) Flare.
Est. % Efficiency: 98.000
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: Reduced sulfur content of gas processed.

POLLUTANT NAME: Volatile Organic Compounds (VOC)
CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1:
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: N/A
Control Method: (A) Flare.
Est. % Efficiency: 98.000
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: Route gases from still vent to flare.

POLLUTANT NAME: Carbon Dioxide Equivalent (CO2e)
CAS Number: CO2e
Test Method: Unspecified
Pollutant Group(s): (Greenhouse Gasses (GHG))
Emission Limit 1:
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: N/A
Other Applicable Requirements: N/A
Control Method: (A) Flare.
Est. % Efficiency: 98.000
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: Reduce CH4 to CO2 (20 times reduction).

Process/Pollutant Information

PROCESS NAME: Fugitive Equipment Leaks (Natural Gas Plant)
Process Type: 50.002 (Natural Gas/Gasoline Processing Plants)
Primary Fuel: N/A
Throughput: 0
Process Notes: Comply with baseline NSPS, Subpart OOOO.

POLLUTANT NAME: Volatile Organic Compounds (VOC)
CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1:
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS
Control Method: (P) LDAR.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: Comply with baseline NSPS, Subpart OOOO.

POLLUTANT NAME: Carbon Dioxide Equivalent (CO2e)

CAS Number:	CO2e
Test Method:	Unspecified
Pollutant Group(s):	(Greenhouse Gasses (GHG))
Emission Limit 1:	
Emission Limit 2:	
Standard Emission:	

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis:	BACT-PSD
Other Applicable Requirements:	N/A
Control Method:	(P) LDAR.
Est. % Efficiency:	
Cost Effectiveness:	0 $/ton
Incremental Cost Effectiveness:	0 $/ton
Compliance Verified:	Unknown
Pollutant/Compliance Notes:	Comply with Baseline NSPS, Subpart OOOO.

Process/Pollutant Information

PROCESS NAME:	Blowdowns and Venting (Natural Gas Plant)
Process Type:	50.002 (Natural Gas/Gasoline Processing Plants)
Primary Fuel:	N/A
Throughput:	1.44 MMSCF
Process Notes:	Startup/Shutdown.

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number:	VOC
Test Method:	Unspecified
Pollutant Group(s):	(Volatile Organic Compounds (VOC))
Emission Limit 1:	
Emission Limit 2:	
Standard Emission:	

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis:	BACT-PSD

Other Applicable Requirements: N/A
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: Limit Throughput.

POLLUTANT NAME: Carbon Dioxide Equivalent (CO2e)

CAS Number: CO2e
Test Method: Unspecified
Pollutant Group(s): (Greenhouse Gasses (GHG))
Emission Limit 1:
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: N/A
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: Limit Throughput.

Process/Pollutant Information

PROCESS NAME: Condensate Tanks (Petroleum Storage-Fixed Roof Tanks)

Process Type: 42.005 (Petroleum Liquid Storage in Fixed Roof Tanks)

Primary Fuel: N/A

Throughput: 1.46 MMBPY

Process Notes: Closed Vent and Control.

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1:
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS
Control Method: (A) Flare.
Est. % Efficiency: 98.000
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: 95% control using closed vent system.

POLLUTANT NAME: Carbon Dioxide Equivalent (CO2e)
CAS Number: CO2e
Test Method: Unspecified
Pollutant Group(s): (Greenhouse Gasses (GHG))
Emission Limit 1:
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: N/A
Control Method: (A) Flare.
Est. % Efficiency: 98.000
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: Route tanks to flare.

Process/Pollutant Information

PROCESS NAME:	Truck Loading (Petroleum Marketing)
Process Type:	42.004 (Petroleum Liquid Marketing (except 42.001-003 & 42.005-006))
Primary Fuel:	N/A
Throughput:	1.46 MMBPY
Process Notes:	Vapor Balancing.

POLLUTANT NAME:	Volatile Organic Compounds (VOC)
CAS Number:	VOC
Test Method:	Unspecified
Pollutant Group(s):	(Volatile Organic Compounds (VOC))
Emission Limit 1:	1.6000 LB/1000 GAL
Emission Limit 2:	
Standard Emission:	

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis:	BACT-PSD
Other Applicable Requirements:	N/A
Control Method:	(A) Vapor Balance.
Est. % Efficiency:	70.000
Cost Effectiveness:	0 $/ton
Incremental Cost Effectiveness:	0 $/ton
Compliance Verified:	Unknown
Pollutant/Compliance Notes:	Vapor Balance Loading Operations.

Facility Information

RBLC ID:	CA-1215 (final)	**Date Determination Last Updated:**	05/30/2013
Corporate/Company Name:	QUALCOMM INC.	**Permit Number:**	2012--APP-002100
Facility Name:	QUALCOMM INC.	**Permit Date:**	07/09/2012 (actual)
Facility Contact:		**FRS Number:**	11005982053
Facility Description:		**SIC Code:**	3674
Permit Type:	A: New/Greenfield Facility	**NAICS Code:**	334413
Permit URL:			

EPA Region:	9	**COUNTRY:**	USA
Facility County:	SAN DIEGO		
Facility State:	CA		
Facility ZIP Code:	92121		
Permit Issued By:	SAN DIEGO COUNTY APCD, CA (Agency Name) MR. GARY SMITH(Agency Contact) (858)586-2722 gary.smith@sdcounty.ca.gov		
Other Agency Contact Info:	Nick Horres: 858-586-2728 or nick.horres@sdcounty.ca.gov		
Permit Notes:			

Process/Pollutant Information

PROCESS NAME: Cogeneration gas turbine

Process Type: 16.110 (Natural Gas (includes propane & liquified petroleum gas))

Primary Fuel: natural gas

Throughput: 4.37 MW

Process Notes: Manufacturer: Solar Turbines- Model: Mercury 50-6400R Produce electricity and hot water for chillers.

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))

Emission Limit 1: 5.0000 PPMVD@15% O2 1HR

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: OTHER CASE-BY-CASE

Other Applicable Requirements: OTHER

Control Method: (A) SoLoNOx burner (Ultra lean Premix)

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: SCR determined not cost effective.

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 7.0000 PPMVD@15% O2 1 HOUR
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: OTHER CASE-BY-CASE
Other Applicable Requirements: OTHER
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Facility Information

RBLC ID:	NV-0050 (final)	**Date Determination Last Updated:**	03/15/2010
Corporate/Company Name:	MGM MIRAGE	**Permit Number:**	825
Facility Name:	MGM MIRAGE	**Permit Date:**	11/30/2009 (actual)
Facility Contact:	CINDY ORTEGA 7026506765	**FRS Number:**	UNKNOWN
Facility Description:	THE FACILITY IS A MAJOR SOURCE FOR CO, NOX, PM-10, AND A NON-MAJOR SOURCE FOR SO2, VOC, AND HAP. THE FACILITY IS A CONGLOMERATE OF HOTELS AND CASINOS LOCATED IN A CONTIGUOUS AREA, WHICH AIR QUALITY IS NON-ATTAINMENT FOR CO, OZONE, AND PM-10, AND ATTAINMENT FOR THE OTHER CRITERIA AIR POLLUTANTS.	**SIC Code:**	701
Permit Type:	A: New/Greenfield Facility	**NAICS Code:**	721120
Permit URL:			
EPA Region:	9	**COUNTRY:**	USA

Facility County: CLARK

Facility State: NV

Facility ZIP Code: 89109

Permit Issued By: CLARK CO. DEPT. OF AIR QUALITY (Agency Name)
MR. SANTOSH MATHEW(Agency Contact) (702)455-5942 Mathew@ClarkCountyNV.gov

Other Agency Contact Info: DAVID C. LEE, RBLC COORDINATOR, 702-455-1673

Permit Notes: THE FACILITY IS A CONGLOMERATE OF TEN BUSINESS ENTITIES, WHICH ARE: (1) MGM GRAND, (2) NEW YORK-NEW YORK, (3) MANDALAY BAY, (4) LUXOR, (5) EXCALIBUR, (6) BELLAGIO, AND (7) CITY CENTER, (8) SIGNATURE (THE RESIDENCES), (9) MONTE CARLO, AND (10) FOUR SEASONS. ALL OF THESE ENTITIES ARE IN A CONTIGUOUS PROPERTY AND HAD BEEN PERMITTED INDIVIDUALLY PRIOR TO THE ACQUISITION PROCESS BEGINNING FROM 2005. THE FACILITY BECAME A MAJOR STATIONARY SOURCE FOR CO WHEN THE ATC FOR MODIFICATION #8 WAS ISSUED ON MARCH 30, 2006. MODIFICATION #8 CONSISTED OF CONSTRUCTING THE NEW CITY CENTER, WHICH COMMENCED OPERATION IN DECEMBER 2009. ALL EMISSION UNITS PERMITTED ON OR AFTER MARCH 30, 2006 ARE CONSIDERED NEW FOR THIS REPORT.

Affected Boundaries:

Boundary Type:	Class 1 Area State:	Boundary:	Distance:
CLASS1	AZ	Grand Canyon NP	100km - 50km

Facility-wide Emissions:

Pollutant Name:	Facility-wide Emissions Increase:
Carbon Monoxide	197.4400 (Tons/Year)
Nitrogen Oxides (NOx)	153.3800 (Tons/Year)
Particulate Matter (PM)	79.5900 (Tons/Year)
Sulfur Oxides (SOx)	4.4200 (Tons/Year)
Volatile Organic Compounds (VOC)	48.9000 (Tons/Year)

Process/Pollutant Information

PROCESS NAME: BOILERS - UNITS CC001, CC002, AND CC003 AT CITY CENTER

Process Type: 11.310 (Natural Gas (includes propane and liquefied petroleum gas))

Primary Fuel: NATURAL GAS

Throughput: 41.64 MMBTU/H

Process Notes: THE THREE UNITS ARE IDENTICAL NEBRASKA BOILERS, EACH OF WHICH IS RATED AT 41.64 MMBTU/HR. EACH UNIT IS ALLOWED TO OPERATE 24 HOURS/DAY AND UP TO 5,800 HOURS/ YEAR. THE EMISSION LIMITS REPORTED HEREIN ARE BASED ON THE ATC PERMIT FOR MODIFICATION #8 DATED MARCH 30, 2006.

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds)

Emission Limit 1: 0.0184 LB/MMBTU
Emission Limit 2: 25.0000 PPMVD CORRECTED TO 3.0% OXYGEN
Standard Emission: 0.0184 LB/MMBTU
Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown
Case-by-Case Basis: LAER
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (P) GOOD COMBUSTION PROACTICES AND LIMITING THE FUEL TO NATURAL GAS ONLY
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes:

POLLUTANT NAME: Nitrogen Oxides (NOx)
CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 0.0110 LB/MMBTU
Emission Limit 2: 9.0000 PPM CORRECTED TO 3.0% OXYGEN
Standard Emission: 0.0110 LB/MMBTU
Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown
Case-by-Case Basis: Other Case-by-Case
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (P) LOW NOX BURNER AND FLUE GAS RECIRCULATION
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, filterable < 10 µ (FPM10)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.0077 LB/MMBTU
Emission Limit 2: 7.6400 LB/D
Standard Emission: 0.0077 LB/MMBTU
Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown
Case-by-Case Basis: Other Case-by-Case
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (P) LIMITING THE FUEL TO NATURAL GAS ONLY AND GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: EMISSION LIMIT 2 APPLIES TO EACH UNIT.

POLLUTANT NAME: Sulfur Dioxide (SO2)
CAS Number: 7446-09-5
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Sulfur (SOx))
Emission Limit 1: 0.0007 LB/MMBTU
Emission Limit 2: 0.7200 LB/D
Standard Emission: 0.0007 LB/MMBTU
Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (P) LIMITING THE FUEL TO NATURAL GAS ONLY.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: EMISSION LIMIT 2 APPLIES TO EACH OF THE THREE UNITS.

POLLUTANT NAME: Volatile Organic Compounds (VOC)
CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))

Emission Limit 1: 0.0024 LB/MMBTU
Emission Limit 2: 2.6300 LB/D
Standard Emission: 0.0024 LB/MMBTU
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: Other Case-by-Case
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (P) LIMITING THE FUEL TO NATURAL GAS ONLY AND GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: EMISSION LIMIT 2 APPLIES TO EACH UNIT.

POLLUTANT NAME: Hazardous Air Pollutants (HAP)
CAS Number: HAP
Test Method: Unspecified
Pollutant Group(s): (Hazardous Air Pollutants (HAP))
Emission Limit 1: 0.0019 LB/MMBTU
Emission Limit 2: 1.9000 LB/D
Standard Emission: 0.0019 LB/MMBTU
Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown
Case-by-Case Basis: Other Case-by-Case
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (P) FUEL IS LIMITED TO NATURAL GAS AND GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: EMISSION LIMIT 2 APPLIES TO EACH OF THE THREE UNITS.

Process/Pollutant Information

PROCESS NAME: BOILERS - UNITS CC004, CC005, AND CC006 AT CITY CENTER

Process Type: 11.310 (Natural Gas (includes propane and liquefied petroleum gas))

Primary Fuel: NATURAL GAS

Throughput: 4.20 MMBTU/H

Process Notes: THE THREE UNITS ARE IDENTICAL HURST BOILERS, EACH OF WHICH IS RATED AT 4.2 MMBTU/HR. EACH OF THESE EMISSION UNITS IS ALLOWED TO OPERATE 24 HOURS/DAY AND UP TO 5,800 HOURS/YEAR. THE EMISSION LIMITS ARE BASED ON THE ATC PERMIT FOR MODIFICATION #8 DATED MARCH 30, 2006.

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds)

Emission Limit 1: 0.0214 LB/MMBTU

Emission Limit 2: 30.0000 PPM CORRECTED TO 3.0% OXYGEN

Standard Emission: 0.0214 LB/MMBTU

Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown

Case-by-Case Basis: LAER

Other Applicable Requirements: SIP , OPERATING PERMIT

Control Method: (P) LIMITING THE FUEL TO NATURAL GAS ONLY AND GOOD COMBUSTION PRACTICES

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: No

Pollutant/Compliance Notes:

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))

Emission Limit 1: 0.0143 LB/MMBTU

Emission Limit 2: 12.0000 PPM CORRECTED TO 3.0% OXYGEN

Standard Emission: 0.0143 LB/MMBTU

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: Other Case-by-Case

Other Applicable Requirements: OPERATING PERMIT , SIP

Control Method: (P) LOW-NOX BURNER AND FLUE GAS RECIRCULATION

Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, filterable < 10 µ (FPM10)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0071 LB/MMBTU
Emission Limit 2: 0.7600 LB/D
Standard Emission: 0.0071 LB/MMBTU
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: Other Case-by-Case
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (P) LIMITING THE FUEL TO NATURAL GAS ONLY AND GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: EMISSION LIMIT 2 APPLIES TO EACH UNIIT.

POLLUTANT NAME: Sulfur Oxides (SOx)

CAS Number: 7446
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Sulfur (SOx))
Emission Limit 1: 0.0024 LB/MMBTU
Emission Limit 2: 0.0700 LB/D
Standard Emission: 0.0024 LB/MMBTU
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (P) FUEL IS LIMITED TO NATURAL GAS ONLY.

Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: EMISSION LIMIT 2 APPLIES TO EACH UNIT.

POLLUTANT NAME: Volatile Organic Compounds (VOC)
CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 0.0048 LB/MMBTU
Emission Limit 2: 0.4200 LB/D
Standard Emission: 0.0048 LB/MMBTU
Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown
Case-by-Case Basis: Other Case-by-Case
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (P) LIMITING THE FUEL TO NATURAL GAS ONLY AND GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Yes
Pollutant/Compliance Notes: EMISSION LIMIT 2 APPLIES TO EACH UNIT.

POLLUTANT NAME: Hazardous Air Pollutants (HAP)
CAS Number: HAP
Test Method: Unspecified
Pollutant Group(s): (Hazardous Air Pollutants (HAP))
Emission Limit 1: 0.0019 LB/MMBTU
Emission Limit 2: 0.1900 LB/D
Standard Emission: 0.0019 LB/MMBTU
Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown
Case-by-Case Basis: Other Case-by-Case
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (P) LIMITING THE FUEL TO NATURAL GAS ONLY AND GOOD COMBUSTION PRACTICES

Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Yes
Pollutant/Compliance Notes: EMISSION LIMIT 2 APPLIES TO EACH UNIT.

Process/Pollutant Information

PROCESS NAME: TURBINE GENERATORS - UNITS CC007 AND CC008 AT CITY CENTER

Process Type: 16.110 (Natural Gas (includes propane & liquified petroleum gas))

Primary Fuel: NATURAL GAS

Throughput: 4.60 MMBTU/H

Process Notes: THE TWO UNITS ARE IDENTICAL SOLAR MERCURY COMBUSTION GAS TURBINES FOR ELECTRIC POWER GENERATION. EACH UNIT IS RATED AT 4.6 MMBTU/HR, AND IS ALLOWED TO OPERATE 24 HOURS/DAY AND 8,760 HOURS/YEAR.

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 0.0056 LB/MMBTU
Emission Limit 2: 2.5000 PPMVD CORRECTED TO 15% OXYGEN
Standard Emission: 0.0056 LB/MMBTU
Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown

Case-by-Case Basis: LAER
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (B) LEAN PRE-MIX TECHNOLOGY AND OXIDATION CATALYST
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes:

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 0.1780 LB/MMBTU
Emission Limit 2: 5.0000 PPMVD CORRECTED TO 15% OXYGEN
Standard Emission: 0.1780 LB/MMBTU
Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS , SIP , OPERATING PERMIT
Control Method: (P) LEAN PRE-MIX TECHNOLOGY AND LIMITING THE FUEL TO NATURAL GAS ONLY
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, filterable < 10 µ (FPM10)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.2020 LB/MMBTU
Emission Limit 2: 0.9300 LB/H
Standard Emission: 0.2020 LB/MMBTU
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: OTHER CASE-BY-CASE
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (A) GOOD COMBUSTION PRACTICES AND LIMITING THE FUEL TO NATURAL GAS ONLY
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes:

POLLUTANT NAME: Sulfur Oxides (SOx)

CAS Number: 7446
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Sulfur (SOx))
Emission Limit 1: 0.0065 LB/MMBTU
Emission Limit 2: 0.0300 LB/H
Standard Emission: 0.0065 LB/MMBTU
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (P) LIMITING THE FUEL TO NATURAL GAS ONLY.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Yes
Pollutant/Compliance Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 0.0240 LB/MMBTU
Emission Limit 2: 0.1100 LB/H
Standard Emission: 0.0240 LB/MMBTU
Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown
Case-by-Case Basis: Other Case-by-Case
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (P) LIMITING THE FUEL TO NATURAL GAS ONLY AND OPERATING IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Yes
Pollutant/Compliance Notes:

POLLUTANT NAME: Hazardous Air Pollutants (HAP)

CAS Number: HAP

Test Method: Unspecified

Pollutant Group(s): (Hazardous Air Pollutants (HAP))

Emission Limit 1: 0.0110 LB/MMBTU

Emission Limit 2: 0.0500 LB/H

Standard Emission: 0.0110 LB/MMBTU

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: Other Case-by-Case

Other Applicable Requirements: SIP , OPERATING PERMIT

Control Method: (P) LIMTTING THE FEUL TO NATURAL GAS ONLY AND OPERATING IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION.

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Yes

Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: DIESEL EMERGENCY GENERATORS - UNITS CC009 THRU CC015 AT CITY CENTER

Process Type: 13.220 (Distillate Fuel Oil (ASTM # 1,2, includes kerosene, aviation, diesel fuel))

Primary Fuel: DIESEL OIL

Throughput: 3622.00 HP

Process Notes: THE SEVEN UNITS ARE IDENTICAL CATERPILLAR DIESEL EMERGENCY GENERATORS, EACH OF WHICH IS RATED AT 3,622 HORSEPOWER (HP). OPERATION OF EACH OF THE UNITS IS LIMITED TO ONE HOUR/DAY AND TWELVE HOURS/YEAR FOR TESTING AND MAINTENANCE PRUPOSES ONLY. THE EMISSION LIMITS ARE BASED ON THE ATC PERMIT FOR MODIFICATION #8 DATED MARCH 30, 2006.

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds)

Emission Limit 1: 0.0017 LB/HP-H

Emission Limit 2: 6.0500 LB/H

Standard Emission: 0.0017 LB/HP-H

Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown

Case-by-Case Basis: LAER
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (P) TURBOCHARGER AND GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Yes
Pollutant/Compliance Notes: EMISSION LIMIT 2 APPLIES TO EACH UNIT.

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 0.0100 LB/HP-H
Emission Limit 2: 37.4000 LB/H
Standard Emission: 0.0100 LB/HP-H

Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown

Case-by-Case Basis: Other Case-by-Case
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (P) TURBOCHARGER AAND AFTER-COOLER
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Yes
Pollutant/Compliance Notes: EMISSION LIMIT 2 APPLIES TO EACH UNIT.

POLLUTANT NAME: Particulate matter, filterable < 10 µ (FPM10)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0001 LB/HP-H
Emission Limit 2: 0.4000 LB/H

Standard Emission: 0.0001 LB/HP-H

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: Other Case-by-Case

Other Applicable Requirements: SIP , OPERATING PERMIT

Control Method: (P) TURBOCHARGER AND GOOD COMBUSTION PRACTICES

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Yes

Pollutant/Compliance Notes: EMISSION LIMIT 2 APPLIES TO EACH UNIT.

POLLUTANT NAME: Sulfur Oxides (SOx)

CAS Number: 7446

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Sulfur (SOx))

Emission Limit 1: 0.0002 LB/HP-H

Emission Limit 2: 0.7400 LB/H

Standard Emission: 0.0002 LB/HP-H

Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: SIP , OPERATING PERMIT

Control Method: (P) LIMITING SULFUR CONTENT IN THE DIESEL OIL TO 0.03% BY WEIGHT.

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: No

Pollutant/Compliance Notes: EMISSION LIMIT 2 APPLIES TO EACH UNIT.

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC

Test Method: Unspecified

Pollutant Group(s): (Volatile Organic Compounds (VOC))

Emission Limit 1: 0.0003 LB/HP-H

Emission Limit 2: 0.9300 LB/H

Standard Emission: 0.0003 LB/HP-H

Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown

Case-by-Case Basis: Other Case-by-Case

Other Applicable Requirements: SIP , OPERATING PERMIT

Control Method: (P) TURBOCHARGER AND GOOD COMBUSTION PRACTICES

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Yes

Pollutant/Compliance Notes: EMISSION LIMIT 2 APPLIES TO EACH UNIT.

Process/Pollutant Information

PROCESS NAME: COOLING TOWERS - UNITS CC026, CC027, AND CC028 AT CITY CENTER

Process Type: 99.009 (Industrial Process Cooling Towers)

Primary Fuel: N/A

Throughput: 10890.00 GAL/MIN

Process Notes: THE THREE UNITS ARE IDENTICAL COMPOSITE COOLING SYSTEM COOLING TOWERS. EACH UNIT HAS A CIRCULATION RATE OF 10,890 GPM, AND IS ALLOWED TO OPERATE 8,760 HOURS/YEAR. THE EMISSION LIMITS REPORTED HEREIN ARE BASED ON THE ATC PERMIT FOR MODIFICATION #13 DATED NOVEMBER 30, 2009.

POLLUTANT NAME: Particulate matter, filterable < 10 µ (FPM10)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.0910 LB/H

Emission Limit 2: 0.0400 T/YR

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown

Case-by-Case Basis: LAER

Other Applicable Requirements: SIP , OPERATING PERMIT

Control Method: (P) EACH UNIT IS EQUIPPED WITH A DRIFT ELIMINATOR LIMITING THE DRIFT RATE TO 0.001% AND THE TOTAL DISSOLVED SOLIDS IN THE CURCULATION WATER IS LIMITED TO 3,600 PPM.

Est. % Efficiency:

Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: THE EMISSION LIMITS APPLY TO EACH UNIT.

Process/Pollutant Information

PROCESS NAME: WATER HEATERS - UNITS NY037 AND NY038 AT NEW YORK - NEW YORK

Process Type: 13.310 (Natural Gas (includes propane and liquefied petroleum gas))

Primary Fuel: NATURAL GAS

Throughput: 2.00 MMBTU/H

Process Notes: THE TWO UNITS ARE IDENTICAL RBI FUTURA III WATER HEATERS.THE EMISSION LIMITS REPORTED HEREIN ARE BASED ON THE ATC PERMIT FOR MODIFICATION #9 DATED SEPTEMBER 6, 2006. EACH UNIT IS ALLOWED TO OPERATE 24 HOURS/DAY AND 8,760 HOURS/YEAR.

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 0.0350 LB/MMBTU
Emission Limit 2: 50.0000 PPMVD CORRECTED TO 3% OXYGEN
Standard Emission: 0.0350 LB/MMBTU
Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown
Case-by-Case Basis: LAER
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (P) LIMITING THE FUEL TO NATURAL GAS ONLY AND GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes:

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 0.0250 LB/MMBTU
Emission Limit 2: 20.0000 PPMVD CORRECTED TO 3% OXYGEN
Standard Emission: 0.0250 LB/MMBTU
Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown
Case-by-Case Basis: Other Case-by-Case
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (P) LOW-NOX BURNERS AND GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Yes
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, filterable < 10 µ (FPM10)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0075 LB/MMBTU
Emission Limit 2: 0.0150 LB/H
Standard Emission: 0.0075 LB/MMBTU
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: Other Case-by-Case
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (P) LIMITING THE FUEL TO NATURAL GAS ONLY AND GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Yes
Pollutant/Compliance Notes: EMISSION LIMIT 2 APPLIES TO EACH UNIT.

POLLUTANT NAME: Sulfur Oxides (SOx)

CAS Number: 7446
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Sulfur (SOx))
Emission Limit 1: 0.0006 LB/MMBTU
Emission Limit 2: 0.0012 LB/H
Standard Emission: 0.0006 LB/MMBTU
Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown
Case-by-Case Basis: Other Case-by-Case
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (P) LIMITING FUEL TO NATURAL GAS ONLY.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Yes
Pollutant/Compliance Notes: EMISSION LIMIT 2 APPLIES TO EACH UNIT.

POLLUTANT NAME: Volatile Organic Compounds (VOC)
CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 0.0054 LB/MMBTU
Emission Limit 2: 0.0108 LB/H
Standard Emission: 0.0054 LB/MMBTU
Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown
Case-by-Case Basis: Other Case-by-Case
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (P) LIMITING THE FUEL TO NATURAL GAS ONLY AND GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Yes
Pollutant/Compliance Notes: EMISSION LIMIT 2 APPLIES TO EACH UNIT.

POLLUTANT NAME: Hazardous Air Pollutants (HAP)

CAS Number: HAP
Test Method: Unspecified
Pollutant Group(s): (Hazardous Air Pollutants (HAP))
Emission Limit 1: 0.0019 LB/MMBTU
Emission Limit 2: 0.0037 LB/H
Standard Emission: 0.0019 LB/MMBTU
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: Other Case-by-Case
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (P) GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Yes
Pollutant/Compliance Notes: EMISSION LIMIT 2 APPLIES TO EACH UNIT.

Process/Pollutant Information

PROCESS NAME: EMERGENCY GENERATORS - UNITS LX024 AND LX025 AT LUXOR

Process Type: 17.110 (Fuel Oil (ASTM # 1,2, includes kerosene, aviation, diesel fuel))

Primary Fuel: DIESEL OIL

Throughput: 2206.00 HP

Process Notes: THE TWO UNITS ARE IDENTICAL CATERPILLAR GENERATORS MODEL 3512C. EACH UNIT HAS A FOUR-STROKE COMPRESSION-IGNITION ENGINE RATED AT 2,206 HORSE POWER (HP). THE EMISSION LIMITS REPORTED HEREIN ARE BASED ON THE ATC PERMIT FOR MODIFICATION #10 DATED SEPTEMBER 20, 2006. EACH UNIT IS ALLOWED TO OPERATE UP TO ONE HOUR PER DAY AND FIFTY TWO HOURS PER YEAR.

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 0.0018 LB/HP-H
Emission Limit 2: 3.9500 LB/H
Standard Emission: 0.0018 LB/HP-H

Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown

Case-by-Case Basis: LAER
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (P) TURBOCHARGER AND GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: EMISSION LIMIT 2 APPLIES TO EACH UNIT.

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 0.0131 LB/HP-H
Emission Limit 2: 28.9800 LB/H
Standard Emission: 0.0131 LB/HP-H
Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown

Case-by-Case Basis: Other Case-by-Case
Other Applicable Requirements: NSPS , SIP , OPERATING PERMIT
Control Method: (P) TURBOCHARGING, AFTER-COOLING, AND LEAN-BURN TECHNOLOGY
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: EMISSION LIMIT 2 APPLIES TO EACH UNIT.

POLLUTANT NAME: Particulate matter, filterable < 10 µ (FPM10)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0001 LB/HP-H
Emission Limit 2: 0.2000 LB/H
Standard Emission: 0.0001 LB/HP-H

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: Other Case-by-Case
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (P) TURBOCHARGER AND GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: EMISSION LIMIT 2 APPLIES TO EACH UNIT.

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 0.0003 LB/HP-H
Emission Limit 2: 0.7100 LB/H
Standard Emission: 0.0003 LB/HP-H
Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown

Case-by-Case Basis: Other Case-by-Case
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (P) TURBOCHARGER AND GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: EMISSION LIMIT 2 APPLIES TO EACH UNIT.

POLLUTANT NAME: Hazardous Air Pollutants (HAP)

CAS Number: HAP
Test Method: Unspecified
Pollutant Group(s): (Hazardous Air Pollutants (HAP))
Emission Limit 1: 0.0002 LB/HP-H
Emission Limit 2: 0.4100 LB/H
Standard Emission: 0.0002 LB/HP-H

Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown

Case-by-Case Basis: Other Case-by-Case
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (P) TURBOCHARGER AND GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: EMISSION LIMIT 2 APPLIES TO EACH UNIT.

POLLUTANT NAME: Sulfur Oxides (SOx)

CAS Number: 7446
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Sulfur (SOx))
Emission Limit 1: 0.0002 LB/HP-H
Emission Limit 2: 0.5400 LB/H
Standard Emission: 0.0002 LB/HP-H
Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (P) LIMITING SULFUR CONTENT IN THE DIESEL OIL TO 0.03%
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Yes
Pollutant/Compliance Notes: EMISSION LIMIT 2 APPLIES TO EACH UNIT.

Process/Pollutant Information

PROCESS NAME: BOILER - UNIT MB090 AT MANDALAY BAY

Process Type: 11.310 (Natural Gas (includes propane and liquefied petroleum gas))

Primary Fuel: NATURAL GAS

Throughput: 4.30 MMBTU/H

Process Notes: THE UNIT IS A HURST SCOTCH MARINE "WETBACK 400 SERIES" BOILER. THE EMISSION LIMITS REPORTED HEREIN ARE BASED ON THE ATC FOR MODIFICATION #11 DATED NOVEMBER 16, 2006. THE UNIT IS ALLOWED TO OPERATE 24 HOURS/DAY AND 8,760 HOURS/YEAR.

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds)

Emission Limit 1: 0.0362 LB/MMBTU

Emission Limit 2: 50.0000 PPMVD CORRECTED TO 3% OXYGEN

Standard Emission: 0.0362 LB/MMBTU

Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown

Case-by-Case Basis: LAER

Other Applicable Requirements: SIP , OPERATING PERMIT

Control Method: (P) FLUE GAS RECIRCULATION AND GOOD COMBUSTION PRACTICES

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Yes

Pollutant/Compliance Notes:

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))

Emission Limit 1: 0.0140 LB/MMBTU

Emission Limit 2: 12.0000 PPMVD CORRECTED TO 3% OXYGEN

Standard Emission: 0.0140 LB/MMBTU

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: Other Case-by-Case

Other Applicable Requirements: SIP , OPERATING PERMIT

Control Method: (P) ULTRA-LOW NOX BURNER AND FLUE GAS RECIRCULATION

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, filterable < 10 µ (FPM10)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0070 LB/MMBTU
Emission Limit 2: 0.0300 LB/H
Standard Emission: 0.0070 LB/MMBTU
Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown
Case-by-Case Basis: Other Case-by-Case
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (P) LIMITING THE FUEL TO NATURAL GAS ONLY AND FLUE GAS RECIRCULATION
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Yes
Pollutant/Compliance Notes:

POLLUTANT NAME: Sulfur Oxides (SOx)
CAS Number: 7446
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Sulfur (SOx))
Emission Limit 1: 0.0006 LB/MMBTU
Emission Limit 2: 0.0025 LB/H
Standard Emission: 0.0006 LB/MMBTU
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (P) LIMITING THE FUEL TO NATURAL GAS ONLY
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Yes
Pollutant/Compliance Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 0.0054 LB/MMBTU
Emission Limit 2: 0.0230 LB/H
Standard Emission: 0.0054 LB/MMBTU
Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown
Case-by-Case Basis: Other Case-by-Case
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (P) FLUE GAS RECIRCULATION AND GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Yes
Pollutant/Compliance Notes:

POLLUTANT NAME: Hazardous Air Pollutants (HAP)

CAS Number: HAP
Test Method: Unspecified
Pollutant Group(s): (Hazardous Air Pollutants (HAP))
Emission Limit 1: 0.0018 LB/MMBTU
Emission Limit 2: 0.0079 LB/H
Standard Emission: 0.0018 LB/MMBTU
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: Other Case-by-Case
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (P) FLUE GAS RECIRCULATION AND GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Yes

Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: BOILERS - UNITS BE102 THRU BE105 AT BELLAGIO

Process Type: 11.310 (Natural Gas (includes propane and liquefied petroleum gas))

Primary Fuel: NATURAL GAS

Throughput: 2.00 MMBTU/H

Process Notes: THE FOUR UNITS ARE IDENTICAL RBI FUTERA FUSION BOILERS, EACH OF WHICH IS RATED AT 1.999 MMBTU/HR. THE EMISSION LIMITS REPORTED HEREIN ARE BASED ON THE ATC PERMIT FOR MODIFICATION #12 DATED SEPTEMBER 10, 2007. EACH UNIT IS ALLOWED TO OPERATE 24 HOURS/DAY AND 8,760 HOURS/YEAR.

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))

Emission Limit 1: 0.0123 LB/MMBTU

Emission Limit 2: 10.0000 PPMVD CORRECTED TO 3.0% OXYGEN

Standard Emission: 0.0123 LB/MMBTU

Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown

Case-by-Case Basis: Other Case-by-Case

Other Applicable Requirements: SIP , OPERATING PERMIT

Control Method: (P) LOW-NOX BURNER AND GOOD COMBUSTION PRACTICES

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: No

Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, filterable < 10 µ (FPM10)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0075 LB/MMBTU
Emission Limit 2: 0.0150 LB/H
Standard Emission: 0.0075 LB/MMBTU
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: Other Case-by-Case
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (P) LIMITING THE FUEL TO NATURAL GAS ONLY AND GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Yes
Pollutant/Compliance Notes: EMISSION LIMIT 2 APPLIES TO EACH UNIT.

POLLUTANT NAME: Volatile Organic Compounds (VOC)
CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 0.0054 LB/MMBTU
Emission Limit 2: 0.0110 LB/H
Standard Emission: 0.0054 LB/MMBTU
Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown
Case-by-Case Basis: Other Case-by-Case
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (P) LIMITING THE FUEL TO NATURAL GAS ONLY AND GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Yes
Pollutant/Compliance Notes: EMISSION LIMIT 2 APPLIES TO EACH UNIT.

POLLUTANT NAME: Sulfur Oxides (SOx)
CAS Number: 7446
Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Sulfur (SOx))
Emission Limit 1: 0.0006 LB/MMBTU
Emission Limit 2: 0.0012 LB/H
Standard Emission: 0.0006 LB/MMBTU
Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (P) LIMITING THE FUEL TO NATURAL GAS ONLY
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Yes
Pollutant/Compliance Notes: EMISSION LIMIT 2 APPLIES TO EACH UNIT.

POLLUTANT NAME: Hazardous Air Pollutants (HAP)
CAS Number: HAP
Test Method: Unspecified
Pollutant Group(s): (Hazardous Air Pollutants (HAP))
Emission Limit 1: 0.0018 LB/MMBTU
Emission Limit 2: 0.0037 LB/H
Standard Emission: 0.0018 LB/MMBTU
Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown
Case-by-Case Basis: Other Case-by-Case
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (P) LIMITING THE FUEL TO NATURAL GAS ONLY AND GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Yes
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Monoxide
CAS Number: 630-08-0
Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 0.0370 LB/MMBTU
Emission Limit 2: 50.0000 PPMVD CORRECTED TO 3.0% OXYGEN
Standard Emission: 0.0370 LB/MMBTU
Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown
Case-by-Case Basis: LAER
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (P) GOOD COMBUSTION PRACTICES AND PROPER MAINTENANCE
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: BOILER - UNIT BE111 AT BELLAGIO

Process Type: 11.310 (Natural Gas (includes propane and liquefied petroleum gas))

Primary Fuel: NATURAL GAS

Throughput: 2.10 MMBTU/H

Process Notes: THE UNIT IS A HURST SERIES 400 BOILER. THE UNIT IS ALLOWED TO OPERATE 24 HOURS/DAY AND 8,760 HOURS/YEAR. THE EMISSION LIMITS ARE BASED ON THE ATC PERMIT FOR MODIFICATION #13 DATED NOVEMBER 30, 2009.

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 0.0380 LB/MMBTU
Emission Limit 2: 0.0800 LB/H
Standard Emission: 0.0380 LB/MMBTU
Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown
Case-by-Case Basis: LAER
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (P) LIMITING THE FUEL TO NATURAL GAS ONLY AND GOOD COMBUSTION PRACTICES

Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Yes
Pollutant/Compliance Notes:

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 0.0240 MMBTU
Emission Limit 2: 20.0000 PPMVD CORRECTED TO 3% OXYGEN
Standard Emission: 0.0240 MMBTU
Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown
Case-by-Case Basis: Other Case-by-Case
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (P) LOW NOX BURNER
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Yes
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, filterable < 10 µ (FPM10)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0095 LB/MMBTU
Emission Limit 2: 0.0200 LB/H
Standard Emission: 0.0095 LB/MMBTU
Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown
Case-by-Case Basis: LAER
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (P) LIMITING THE FUEL TO NATURAL GAS ONLY AND GOOD COMBUSTION PRACTICES

Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Yes
Pollutant/Compliance Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)
CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 0.0048 LB/MMBTU
Emission Limit 2: 0.0100 LB/H
Standard Emission: 0.0048 LB/MMBTU
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: Other Case-by-Case
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (P) LIMITING THE FUEL TO NATURAL GAS ONLY AND GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Yes
Pollutant/Compliance Notes:

POLLUTANT NAME: Sulfur Oxides (SOx)
CAS Number: 7446
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Sulfur (SOx))
Emission Limit 1: 0.0048 LB/MMBTU
Emission Limit 2: 0.0100 LB/H
Standard Emission: 0.0048 LB/MMBTU
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: OPERATING PERMIT , SIP
Control Method: (P) LIMITING THE FUEL TO NATURAL GAS ONLY AND GOOD COMBUSTION PRACTICES

Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Yes
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: GASOLINE STORAGE AND DISPENSING STATION - UNIT BE108 AT BELLAGIO

Process Type: 42.003 (Gasoline Marketing (except 42.001 & 42.002))

Primary Fuel: N/A

Throughput: 26400.00 GAL/MO

Process Notes: THE EMISSION UNIT IS A 3,700 GALLON STORAGE TANK EQUIPPED WITH A STAGE 1 VAPOR RECOVERY SYSTEM BASED ON CARB EO G-70-132 SERIES FOR TANK TRUCK DELIVERY OF GASOLINE AND A STAGE 2 VAPOR CONTROL SYSTEM BASED ON CARB EO G-70-17 FOR GASOLINE DISPENSING. THROUGHPUT OF GASOLINE IS LIMITED TO 26,400 GALLONS/MONTH AND 264,000 GALLONS/YEAR FOR THIS EMISSION UNIT.

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 3.3000 LB/1000 GAL
Emission Limit 2: 87.1200 LB/MO
Standard Emission: 3.3000 LB/1,000 GAL
Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown
Case-by-Case Basis: Other Case-by-Case
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (A) STAGE 1 VAPOR RECOVERY SYSTEM FOR GASOLINE DELIVERY TO THE TANK AND STAGE 2 VAPOR CONTROL SYSTEM FOR GASOLINE DISPENSING
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Yes
Pollutant/Compliance Notes:

POLLUTANT NAME: Hazardous Air Pollutants (HAP)

CAS Number: HAP
Test Method: Unspecified
Pollutant Group(s): (Hazardous Air Pollutants (HAP))
Emission Limit 1: 0.0400 LB/1000 GAL
Emission Limit 2: 1.0600 LB/MO
Standard Emission: 0.0400 LB/1,000 GAL
Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: Other Case-by-Case
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (P) STAGE I VAPOR RECOVERY SYSTEM AND STATE II VAPOR CONTROL SYSTEM
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Yes
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: SMALL INTERNAL COMBUSTION ENGINE - UNIT EX012 AT EXCALIBUR

Process Type: 11.220 (Distillate Fuel Oil (ASTM # 1,2, includes kerosene, aviation, diesel fuel))

Primary Fuel: DIESEL OIL

Throughput: 350.00 HP

Process Notes: THE UNIT IS A CATERPILLAR FIRE PUMP. ITS OPERATION FOR ROUTINE MAINTENANCE IS LIMITED TO 15 HOURS PER YEAR. THE FUEL IS LIMITED TO DIESEL OIL WITH EITHER A MINIMUM CETANE INDEX OF 40 OR A MAXIMUM AROMATIC CONTENT OF 35% BY VOLUME. THE EMISSION LIMITS ARE BASED ON THE ATC PERMIT FOR MODIFICATION #13 DATED NOVEMBER 30, 2009.

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 0.0067 LB/HP-H

Emission Limit 2: 2.3400 LB/H
Standard Emission: 0.0067 LB/HP-H
Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown
Case-by-Case Basis: LAER
Other Applicable Requirements: NSPS , SIP , OPERATING PERMIT
Control Method: (A) TURBOCHARGER AND GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Yes
Pollutant/Compliance Notes:

POLLUTANT NAME: Nitrogen Oxides (NOx)
CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 0.0310 LB/HP-H
Emission Limit 2: 10.8500 LB/H
Standard Emission: 0.0310 LB/HP-H
Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown
Case-by-Case Basis: Other Case-by-Case
Other Applicable Requirements: NSPS , SIP , OPERATING PERMIT
Control Method: (P) TURBOCHARGER AND AFTERCOOLER
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Yes
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, filterable < 10 µ (FPM10)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0022 LB/HP-H

Emission Limit 2: 0.7700 LB/H
Standard Emission: 0.0022 LB/HP-H
Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown
Case-by-Case Basis: LAER
Other Applicable Requirements: NSPS , SIP , OPERATING PERMIT
Control Method: (P) TURBOCHARGER AND GOOD COMBUSTION PRACTICE
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Yes
Pollutant/Compliance Notes:

POLLUTANT NAME: Sulfur Oxides (SOx)
CAS Number: 7446
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Sulfur (SOx))
Emission Limit 1: 0.0004 LB/HP-H
Emission Limit 2: 0.1300 LB/H
Standard Emission: 0.0004 LB/HP-H
Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (P) SULFUR CONTENT IN THE FUEL IS LIMITED TO 500 PPM.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Yes
Pollutant/Compliance Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)
CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 0.0025 LB/HP-H

Emission Limit 2: 0.8600 LB/H
Standard Emission: 0.0025 LB/HP-H
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: Other Case-by-Case
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (P) TURBOCHARGER AND GOOD COMBUSTION PRACTICE
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Yes
Pollutant/Compliance Notes:

POLLUTANT NAME: Hazardous Air Pollutants (HAP)
CAS Number: HAP
Test Method: Unspecified
Pollutant Group(s): (Hazardous Air Pollutants (HAP))
Emission Limit 1: 0.0005 LB/HP-H
Emission Limit 2: 0.1600 LB/H
Standard Emission: 0.0005 LB/HP-H
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: Other Case-by-Case
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (P) TURBOCHARGER AND GOOD COMBUSTION PRACTICE
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Yes
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: BOILERS - UNITS CC026, CC027 AND CC028 AT CITY CENTER
Process Type: 12.310 (Natural Gas (includes propane and liquefied petroleum gas))

Primary Fuel: NATURAL GAS

Throughput: 44.00 MMBTU/H

Process Notes: THE THREE UNITS ARE IDENTICAL CATERPILLAR BOILERS, EACH RATED AT 44 MMBTU/HR. EACH UNIT IS SUBJECT TO THE ANNUAL LIMIT OF OPERATING TIME TO 5,800 HOURS. THE EMISSION LIMITS ARE BASED ON THE ATC PERMIT FOR MODIFICATION #13 DATED NOVEMBER 30, 2009.

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds)

Emission Limit 1: 0.0148 LB/MMBTU

Emission Limit 2: 20.0000 PPMVD CORRECTED TO 3% OXYGEN

Standard Emission: 0.0148 LB/MMBTU

Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown

Case-by-Case Basis: LAER

Other Applicable Requirements: SIP , OPERATING PERMIT

Control Method: (P) GOOD COMBUSTION PRACTICES INCLUDING THE USE OF PROPER AIR TO FUEL RATIO

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: No

Pollutant/Compliance Notes:

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))

Emission Limit 1: 0.0109 LB/MMBTU

Emission Limit 2: 9.0000 PPMVD CORRECTED TO 3% OXYGEN

Standard Emission: 0.0109 LB/MMBTU

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: Other Case-by-Case

Other Applicable Requirements: SIP , OPERATING PERMIT

Control Method: (P) LOW NOX BURNER AND GOOD COMBUSTION PRACTICES

Est. % Efficiency:

Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, filterable < 10 µ (FPM10)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0075 LB/MMBTU
Emission Limit 2: 0.3300 LB/H
Standard Emission: 0.0075 LB/MMBTU
Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown
Case-by-Case Basis: LAER
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (P) LIMITING THE FUEL TO NATURAL GAS ONLY AND GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: EMISSION LIMIT 2 APPLIES TO EACH UNIT.

POLLUTANT NAME: Sulfur Oxides (SOx)

CAS Number: 7446
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Sulfur (SOx))
Emission Limit 1: 0.0007 LB/MMBTU
Emission Limit 2: 0.0300 LB/H
Standard Emission: 0.0007 LB/MMBTU
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (P) LIMITING THE FUEL TO NATURAL GAS ONLY
Est. % Efficiency:

Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Yes
Pollutant/Compliance Notes: EMISSION LIMIT 2 APPLIES TO EACH UNIT.

POLLUTANT NAME: Volatile Organic Compounds (VOC)
CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 0.0055 LB/MMBTU
Emission Limit 2: 0.2400 LB/H
Standard Emission: 0.0055 LB/MMBTU
Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown
Case-by-Case Basis: Other Case-by-Case
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (P) LIMITING THE FUEL TO NATURAL GAS ONLY AND GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Yes
Pollutant/Compliance Notes:

POLLUTANT NAME: Hazardous Air Pollutants (HAP)
CAS Number: HAP
Test Method: Unspecified
Pollutant Group(s): (Hazardous Air Pollutants (HAP))
Emission Limit 1: 0.0018 LB/MMBTU
Emission Limit 2: 0.0800 LB/H
Standard Emission: 0.0018 LB/MMBTU
Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown
Case-by-Case Basis: Other Case-by-Case
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (P) LIMITING THE FUEL TO NATURAL GAS ONLY AND GOOD COMBUSTION PRACTICES
Est. % Efficiency:

Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Yes
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: PAINT SPRAY BOOTH - UNIT MG39 AT MGM GRAND

Process Type: 41.013 (Miscellaneous Metal Parts and Products Surface Coating)

Primary Fuel: N/A

Throughput: 200.00 GAL/MO

Process Notes: THE UNIT IS A MCMASTER-CARR SPRAY BOOTH. THE EMISSION LIMITS ARE BASED ON THE ATC PERMIT FOR MODIFICATION #13 DATED NOVEMBER 30, 2009. THE THROUGHPUT LIMIT MEANS THAT THE TOTAL MONTHLY CONSUMPTION OF ALL VOC CONTAINING MATERIALS, SUCH AS PAINTS, PAINT STRIPPERS, BASECOATS, PRIMERS, REDUCERS, THINNERS, SOLVENTS, ETC., IS LIMITED TO 200 GALLONS PER MONTH AND 2,000 GALLONS PER YEAR. THE AVERAGE VOC CONTENT IS LIMITED TO 6.84 POUNDS PER GALLON. THE AVERAGE HAP CONTENT IS LIMITED TO 3.21 POUNDS PER GALLON. THE UNIT IS SUBJECT TO NESHAP SUBPART 6H.

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 1368.0000 LB/MONTH
Emission Limit 2: 6.8400 T/YR
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: Other Case-by-Case
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (A) LIMITING THE AVERAGE VOC CONTENT TO 6.84 LBS/GALLON
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes:

POLLUTANT NAME: Hazardous Air Pollutants (HAP)

CAS Number: HAP
Test Method: Unspecified
Pollutant Group(s): (Hazardous Air Pollutants (HAP))
Emission Limit 1: 643.0000 LB/MONTH
Emission Limit 2: 3.2100 T/YR
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: Other Case-by-Case
Other Applicable Requirements: NESHAP , SIP , OPERATING PERMIT
Control Method: (P) LIMITING THE AVERAGE HAP CONTENT TO 3.21 POUNDS PER GALLON
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: BOILERS - UNITS NY42, NY43, AND NY44 AT NEW YORK - NEW YORK

Process Type: 11.310 (Natural Gas (includes propane and liquefied petroleum gas))

Primary Fuel: NATURAL GAS

Throughput: 2.00 MMBTU/H

Process Notes: THE THREE UNITS ARE IDENTICAL RBI FUTURA III BOILERS, EACH OF WHICH IS RATED AT 1.999 MMBTU/HR. EACH UNIT IS ALLOWED TO OPERATE 24 HOURS PER DAY AND 8,760 HOURS PER YEAR. THE EMISSION LIMITS ARE BASED ON THE ATC PERMIT FOR MODIFICATION #13 DATED NOVEMBER 30, 2009.

POLLUTANT NAME: Particulate matter, filterable < 10 µ (FPM10)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0050 LB/MMBTU

Emission Limit 2: 0.0100 LB/H
Standard Emission: 0.0050 LB/MMBTU
Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown
Case-by-Case Basis: LAER
Other Applicable Requirements: SIP , OPERATING PERMIT , SIP , OPERATING PERMIT
Control Method: (P) GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: EMISSION LIMIT 2 APPLIES TO EACH UNIT.

POLLUTANT NAME: Sulfur Oxides (SOx)
CAS Number: 7446
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Sulfur (SOx))
Emission Limit 1: 0.0050 LB/MMBTU
Emission Limit 2: 0.0100 LB/H
Standard Emission: 0.0050 LB/MMBTU
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (P) LIMITING THE FUEL TO NATURAL GAS ONLY
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Yes
Pollutant/Compliance Notes: EMISSION LIMIT 2 APPLIES TO EACH UNIT.

POLLUTANT NAME: Volatile Organic Compounds (VOC)
CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 0.0050 LB/MMBTU

Emission Limit 2: 0.0100 LB/H
Standard Emission: 0.0050 LB/MMBTU
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: Other Case-by-Case
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (P) GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Yes
Pollutant/Compliance Notes: EMISSION LIMIT 2 APPLIES TO EACH UNIT.

POLLUTANT NAME: Carbon Monoxide
CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 0.0350 LB/MMBTU
Emission Limit 2: 50.0000 PPMVD CORRECTED TO 3% OXYGEN
Standard Emission: 0.0350 LB/MMBTU
Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown
Case-by-Case Basis: LAER
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (P) LIMITING THE FUEL TO NATURAL GAS ONLY AND GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Yes
Pollutant/Compliance Notes:

POLLUTANT NAME: Nitrogen Oxides (NOx)
CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 0.0250 LB/MMBTU

Emission Limit 2: 20.0000 PPMVD CORRECTED TO 3% OXYGEN
Standard Emission: 0.0250 LB/MMBTU
Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown
Case-by-Case Basis: Other Case-by-Case
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (P) LOW NOX BURNER AND GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Yes
Pollutant/Compliance Notes:

Facility Information

RBLC ID:	WY-0067 (final)	**Date Determination Last Updated:**	04/16/2009
Corporate/Company Name:	WILLIAMS FIELD SERVICES COMPANY	**Permit Number:**	MD-7837
Facility Name:	ECHO SPRINGS GAS PLANT	**Permit Date:**	04/01/2009 (actual)
Facility Contact:	CORTNIE MORRELL 3078722880 CORTNIE.MORRELL@WILLIAMS.COM	**FRS Number:**	110010144628
Facility Description:		**SIC Code:**	1321
Permit Type:	A: New/Greenfield Facility	**NAICS Code:**	211112
Permit URL:			
EPA Region:	8	**COUNTRY:**	USA
Facility County:	CARBON		
Facility State:	WY		
Facility ZIP Code:	82336		

Permit Issued By: WYOMING AIR QUAL DIVISION, AIR QUALITY (Agency Name)
MR. ANDREW KEYFAUVER(Agency Contact) (307)777-7340 andrew.keyfauver@wyo.gov

Other Agency Contact Info: MS. JAMIE SHARP
WY DEQ AIR QUALITY DIVISION
122 WEST 25TH STREET
CHEYENNE, WY 82002
307-777-7817

Permit Notes:

Affected Boundaries: **Boundary Type:** **Class 1 Area State:** **Boundary:** **Distance:**

	CLASS1	WY	Bridger	100km - 50km
	CLASS1	CO	Mount Zirkel	100km - 50km

Facility-wide Emissions:	**Pollutant Name:**	**Facility-wide Emissions Increase:**
	Carbon Monoxide	723.3000 (Tons/Year)
	Nitrogen Oxides (NOx)	537.4000 (Tons/Year)
	Volatile Organic Compounds (VOC)	182.6000 (Tons/Year)

Process/Pollutant Information

PROCESS NAME: TURBINES S35-S36

Process Type: 16.110 (Natural Gas (includes propane & liquified petroleum gas))

Primary Fuel: NATURAL GAS

Throughput: 12555.00 HP

Process Notes: TWO (2) 12,555 HP SOLAR MARS 100-15000S TURBINES

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))

Emission Limit 1: 15.0000 PPMV

Emission Limit 2: 25.6000 T/YR

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: NSPS , NESHAP

Control Method: (N) SOLONOX

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: BASELINE

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 25.0000 PPMV
Emission Limit 2: 26.0000 T/YR
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS , NESHAP
Control Method: (N) GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: BASELINE

POLLUTANT NAME: Volatile Organic Compounds (VOC)
CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 25.0000 PPMV
Emission Limit 2: 3.0000 T/YR
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS , NESHAP
Control Method: (N) GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: BASELINE

Process/Pollutant Information

PROCESS NAME: TURBINE S37

Process Type: 16.210 (Natural Gas (includes propane & liquified petroleum gas))

Primary Fuel: NATURAL GAS

Throughput: 16162.00 HP

Process Notes: 12,555 HP SOLAR MARS100-15000S OR 16,162 HP SOLAR TITAN 130-20502S TURBINE

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))

Emission Limit 1: 15.0000 PPMV

Emission Limit 2: 32.1000 T/YR

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: NSPS , NESHAP

Control Method: (N) GOOD COMBUSTION PRACTICES

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: BASELINE

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds)

Emission Limit 1: 25.0000 PPMV

Emission Limit 2: 32.5000 T/YR

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: NSPS , NESHAP

Control Method: (N) GOOD COMBUSTION PRACTICES

Est. % Efficiency:

Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: BASELINE

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 25.0000 PPV
Emission Limit 2: 3.7000 T/YR
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS , NESHAP
Control Method: (N) GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: BASELINE

Process/Pollutant Information

PROCESS NAME: TURBINE S34
Process Type: 16.110 (Natural Gas (includes propane & liquified petroleum gas))
Primary Fuel: NATURAL GAS
Throughput: 3856.00 HP
Process Notes: SOLAR CENTAUR 40-T4700S

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))

Emission Limit 1: 50.0000 PPMV
Emission Limit 2: 1.1000 T/YR
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS , NESHAP
Control Method: (N) GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: BASELINE

POLLUTANT NAME: Nitrogen Oxides (NOx)
CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 25.0000 PPMV
Emission Limit 2: 15.8000 T/YR
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NESHAP , NSPS
Control Method: (N) SOLONOX
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: BASELINE

POLLUTANT NAME: Carbon Monoxide
CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)

Emission Limit 1: 50.0000 PPMV
Emission Limit 2: 19.3000 T/YR
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS , NESHAP
Control Method: (N) GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: HOT OIL HEATER S38
Process Type: 13.310 (Natural Gas (includes propane and liquefied petroleum gas))
Primary Fuel: NATURAL GAS
Throughput: 84.00 MMBTU/H
Process Notes:

POLLUTANT NAME: Nitrogen Oxides (NOx)
CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 0.0300 LB/MMBTU
Emission Limit 2: 11.0000 T/YR
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS , NESHAP
Control Method: (A) LOW NOX BURNERS WITH FLUE GAS RECIRCULATION
Est. % Efficiency:
Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: 60-90% ESTIMATED EFFICIENCY

POLLUTANT NAME: Carbon Monoxide
CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 0.0200 LB/MMBTU
Emission Limit 2: 7.4000 T/YR
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS , NESHAP
Control Method: (N) GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: BASELINE

POLLUTANT NAME: Volatile Organic Compounds (VOC)
CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 0.0200 LB/MMBTU
Emission Limit 2: 7.0000 T/YR
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS , NESHAP
Control Method: (N) GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: BASELINE

Process/Pollutant Information

PROCESS NAME: AMINE UNIT VOC CONTROL
Process Type: 13.310 (Natural Gas (includes propane and liquefied petroleum gas))
Primary Fuel: NATURAL GAS
Throughput: 72.00 MMBTU/H
Process Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)
CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 0.0400 LB/MMBTU
Emission Limit 2: 13.1000 T/YR
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS , NESHAP
Control Method: (A) THERMAL OXIDIZER
Est. % Efficiency: 99.000
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes:

COMPREHENSIVE REPORT
Report Date:06/20/2019

Facility Information

RBLC ID:	MA-0043 (draft)	**Date Determination Last Updated:**	11/27/2017
Corporate/Company Name:	MASSACHUSETTS INSTITUTE OF TECHNOLOGY	**Permit Number:**	NE-15-018
Facility Name:	MIT CENTRAL UTILITY PLANT	**Permit Date:**	06/21/2017 (actual)
Facility Contact:	ZHANNA DAVIDOVITZ 6174522510 ZHANNA@MIT.EDU	**FRS Number:**	110028279271
Facility Description:	MIT proposes to construct and operate two new 22 megawatt (MW) combined heat and power (CHP) combustion turbines/heat recovery steam generators and a new cold start engine at its existing Central Utility Plant.	**SIC Code:**	8221
Permit Type:	D: Both B (Add new process to existing facility) &C (Modify process at existing facility)	**NAICS Code:**	611310
Permit URL:			
EPA Region:	1	**COUNTRY:**	USA
Facility County:	MIDDLESEX		
Facility State:	MA		
Facility ZIP Code:	02139		
Permit Issued By:	MASSACHUSETTS DEPT OF ENVIRONMENTAL PROTECTION (Agency Name) MR. MARC WOLMAN(Agency Contact) (617)292-5515 marc.wolman@state.ma.us.		
Other Agency Contact Info:	Edward Braczyk MassDEP Northeast Regional Office 205B Lowell Street Wilmington, MA 01887 (978) 694-3289 Edward.Braczyk@state.ma.us		
Permit Notes:	http://www.mass.gov/eea/agencies/massdep/air/approvals/air-permits-and-approvals-issued-to-facilities.html		

Affected Boundaries:

Boundary Type:	Class 1 Area State:	Boundary:	Distance:
CLASS1	VT	Lye Brook	100km - 50km
CLASS1	NH	Presidential Range-Dry River	100km - 50km

Facility-wide Emissions:

Pollutant Name:	Facility-wide Emissions Increase:
Carbon Monoxide	15.7000 (Tons/Year)
Nitrogen Oxides (NOx)	26.4000 (Tons/Year)
Particulate Matter (PM)	50.8000 (Tons/Year)
Sulfur Oxides (SOx)	7.3000 (Tons/Year)

Volatile Organic Compounds (VOC) 10.3000 (Tons/Year)

Process/Pollutant Information

PROCESS NAME: Combustion Turbine with Duct Burner

Process Type: 16.210 (Natural Gas (includes propane & liquified petroleum gas))

Primary Fuel: Natural Gas

Throughput: 353.00 MMBtu/hr

Process Notes: two nominal 22 Megawatt (MW) Solar Titan 250 Combustion Turbine Generators (219MMBtu/hr for NG firing, 212MMBtu/hr for ULSD firing) with Heat Recovery Steam Generator including a Duct Burner (134MMBtu/hr NG firing only). Max. ULSD usage: 279,216 gallons per 12-month rolling period per CTG

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))

Emission Limit 1: 2.0000 PPMVD@15% O2 1 HR BLOCK AVG/EXCLUDING SS, NG FIRING

Emission Limit 2: 6.8000 PPMVD@15% O2 1 HR BLOCK AVG/EXCLUDING SS, ULSD FIRING

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: OTHER CASE-BY-CASE

Other Applicable Requirements: NSPS , SIP , OPERATING PERMIT

Control Method: (B) Dry Low NOx combustor for CTG & Selective Catalytic Reduction

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: NOx limits are determined as BACT under 310 CMR 7.02(8). NOx(firing NG): ≤0.0074 lb/MMBtu, ≤1.65 lb/hr(no duct firing), ≤2.65 lb/hr(with duct firing); during start-ups (≤3 hrs): ≤32.0 lb per event, during shutdowns (≤1 hr): ≤12.4 lb per event. NOx(turbine firing ULSD): ≤9.0ppmvd@15% O2, ≤0.035 lb/MMBtu&≤8.02 lb/hr(no duct firing); ≤6.8ppmvd@a5% O2,≤0.026 lb/MMBtu&≤9.50 lb/hr(with duct firing); during start-ups(≤3 hrs): ≤65 lb per event, during shutdowns(≤1 hr): ≤25 lb per event.

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 2.0000 PPMVD@15% O2 1 HR BLOCK AVG/EXCLUDING SS, NG FIRING
Emission Limit 2: 6.3000 PPMVD@15% O2 1 HR BLOCK AVG/EXCLUDING SS, ULSD FIRING
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: OTHER CASE-BY-CASE
Other Applicable Requirements: OPERATING PERMIT , SIP
Control Method: (B) Oxidation Catalyst
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: CO limits are determined as BACT under 310 CMR 7.02(8). CO(firing NG): ≤0.0045 lb/MMBtu, ≤1.00 lb/hr(no duct firing), ≤1.61 lb/hr(with duct firing); during start-ups (≤3 hrs): ≤201 lb per event, during shutdowns (≤1 hr): ≤26.3 lb per event. CO(turbine firing ULSD): ≤7.0ppmvd@15% O2,≤0.017 lb/MMBtu&≤3.80 lb/hr (no duct firing); ≤6.3ppmvd@15% O2,≤0.0145 lb/MMBtu&≤5.29 lb/hr(with duct firing); during start-ups (≤3 hrs): ≤453 lb per event, during shutdowns (≤1 hr): ≤129 lb per event.

POLLUTANT NAME: Sulfur Dioxide (SO2)
CAS Number: 7446-09-5
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Sulfur (SOx))
Emission Limit 1: 0.0029 LB/MMBTU 1 HR BLOCK AVG/EXCLUDING SS, NG FIRING
Emission Limit 2: 0.0021 LB/MMBTU 1 HR BLOCK AVG/EXCLUDING SS, ULSD FIRING
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: OTHER CASE-BY-CASE
Other Applicable Requirements: NSPS , SIP , OPERATING PERMIT
Control Method: (P) clean fuels - using natural gas as primary fuel and ultra low sulfur diesel as backup fuel.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown

Pollutant/Compliance Notes: SO2 limits are determined as BACT under 310 CMR 7.02(8). SO2(firing NG): ≤0.0029 lb/MMBtu, ≤0.64 lb/hr(no duct firing), ≤1.04 lb/hr(with duct firing); SO2(turbine firing ULSD):≤0.3ppmvd@15% O2, ≤0.0016 lb/MMBtu&≤0.37 lb/hr(no duct firing); ≤0.4ppmvd@15% O2, ≤0.0021lb/MMBtu&≤0.76 lb/hr(with duct firing). SO2 emissions during startup and shutdown events are not expected to be elevated.

POLLUTANT NAME: Sulfuric Acid (mist, vapors, etc)

CAS Number: 7664-93-9

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Particulate Matter (PM))

Emission Limit 1: 0.0022 LB/MMBTU 1 HR BLOCK AVG/EXCLUDING SS, NG FIRING

Emission Limit 2: 0.0016 LB/MMBTU 1 HR BLOCK AVG/EXCLUDING SS, ULSD FIRING

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: OTHER CASE-BY-CASE

Other Applicable Requirements: SIP , OPERATING PERMIT

Control Method: (P) clean fuels - using natural gas as primary fuel and ultra low sulfur diesel as backup fuel.

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: H2SO4 limits are determined as BACT under 310 CMR 7.02(8). H2SO4(firing NG): ≤0.0022lb/MMBtu, ≤0.49 lb/hr(no duct firing), ≤0.79 lb/hr(with duct firing); H2SO4(turbine firing ULSD):≤0.0012 lb/MMBtu & ≤0.28 lb/hr(no duct firing), ≤0.0016 lb/MMBtu & ≤0.58 lb/hr(with duct firing). H2SO4 emissions during startup and shutdown events are not expected to be elevated.

POLLUTANT NAME: Ammonia (NH3)

CAS Number: 7664-41-7

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds)

Emission Limit 1: 2.0000 PPMVD@15% O2 1 HR BLOCK AVG/EXCLUDING SS, NG/ULSD

Emission Limit 2: 0.0027 LB/MMBTU 1 HR BLOCK AVG/EXCLUDING SS, NG FIRING

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: OTHER CASE-BY-CASE

Other Applicable Requirements: SIP , OPERATING PERMIT

Control Method: (N)

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: NH3 limits are determined as BACT under 310 CMR 7.02(8). NH3(firing NG): ≤0.61 lb/hr(no duct firing), ≤0.97 lb/hr(with duct firing); NH3(turbine firing ULSD): ≤0.0029 lb/MMBtu, ≤0.66 lb/hr(no duct firing), ≤0.98 lb/hr(with duct firing).

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.0200 LB/MMBTU 1 HR BLOCK AVG/EXCLUDING SS, NG FIRING

Emission Limit 2: 0.0290 LB/MMBTU 1 HR BLOCK AVG/EXCLUDING SS, ULSD FIRING

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: SIP , OPERATING PERMIT

Control Method: (N)

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: PM10(firing NG): ≤4.47 lb/hr(no duct firing), ≤7.14 lb/hr(with duct firing); PM10(turbine firing ULSD): ≤0.034 lb/MMBtu(no duct firing), ≤0.029 lb/MMBtu(with duct firing), ≤7.8 lb/hr(no duct firing), ≤10.6 lb/hr(with duct firing); PM10 emissions during start-up & shutdown events are not expected to be elevated.

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.0200 LB/MMBTU 1 HR BLOCK AVG/EXCLUDING SS, NG FIRING

Emission Limit 2: 0.0290 LB/MMBTU 1 HR BLOCK AVG/EXCLUDING SS, ULSD

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: PM2.5(firing NG): ≤4.47 lb/hr(no duct firing), ≤7.14 lb/hr(with duct firing); PM2.5(turbine firing ULSD): ≤0.034 lb/MMBtu(no duct firing), ≤0.029 lb/MMBtu(with duct firing), ≤7.8 lb/hr(no duct firing), ≤10.6 lb/hr(with duct firing); PM2.5 emissions during start-up & shutdown events are not expected to be elevated.

POLLUTANT NAME: Carbon Dioxide Equivalent (CO2e)

CAS Number: CO2e
Test Method: Unspecified
Pollutant Group(s): (Greenhouse Gasses (GHG))
Emission Limit 1: 117.0980 LB/MMBTU 1 HR BLOCK AVG/EXCLUDING SS, NG FIRING
Emission Limit 2: 163.6100 LB/MMBTU 1 HR BLOCK AVG/EXCLUDING SS, ULSD FIRING
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: CO2e(firing NG): ≤26,194 lb/hr(no duct firing), ≤41,885 lb/hr(with duct firing); CO2e(turbine firing ULSD): ≤163.61 lb/MMBtu & ≤37,516 lb/hr(no duct firing), ≤146.36 lb/MBtu & ≤53,347 lb/hr(with duct firing). CO2e emissions during start-up and shutdown events are not expected to be elevated.

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))

Emission Limit 1: 1.7000 PPMVD@15% O2 1 HR BLOCK AVG/EXCLUDING SS, NG FIRING

Emission Limit 2: 6.5000 PPMVD@15% O2 1 HR BLOCK AVG/EXCLUDING SS, ULSD FIRING

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: OTHER CASE-BY-CASE

Other Applicable Requirements: SIP , OPERATING PERMIT

Control Method: (A) Oxidation Catalyst

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: VOC limits are determined as BACT under 310 CMR 7.02(8). VOC as CH4(firing NG):≤1.70 ppmvd@15% O2, ≤0.0022 lb/MMBtu & ≤0.49 lb/hr(no duct firing); ≤4.0 ppmvd@15% O2, ≤0.0052lb/MMBtu & ≤1.86 lb/hr(with duct firing); VOC as CH4(turbine firing ULSD):≤6.5 ppmvd@15% O2, ≤0.0088 lb/MMBtu & ≤2.02 lb/hr(no duct firing), ≤7.0 ppmvd@15% O2, ≤0.0093 lb/MMBtu & ≤3.40 lb/hr (with duct firing); VOC emissions during start-up and shutdown events are not expected to be elevated.

Process/Pollutant Information

PROCESS NAME: Cold Start Engine

Process Type: 17.110 (Fuel Oil (ASTM # 1,2, includes kerosene, aviation, diesel fuel))

Primary Fuel: ULSD

Throughput: 19.04 MMBTU/HR

Process Notes: CAT DM8263 or equivalent. ≤ 8 hours of operation per day, ≤ 300 hours of operation per consecutive 12-month period, S in ULSD: ≤0.0015% by weight.

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))

Emission Limit 1: 35.0900 LB/HR 1 HR BLOCK AVG

Emission Limit 2: 5.3000 TONS/C12MP CONSECUTIVE TWELVE MONTH PERIOD

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: OTHER CASE-BY-CASE
Other Applicable Requirements: NESHAP , SIP , OPERATING PERMIT , NSPS
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Monoxide
CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 2.2000 LB/HR 1 HR BLOCK AVG
Emission Limit 2: 0.3300 TONS/C12MP CONSECUTIVE TWELVE MONTH PERIOD
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: OTHER CASE-BY-CASE
Other Applicable Requirements: NSPS , NESHAP , SIP , OPERATING PERMIT
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Dioxide Equivalent (CO_2e)
CAS Number: CO_2e
Test Method: Unspecified
Pollutant Group(s): (Greenhouse Gasses (GHG))
Emission Limit 1: 163.6100 LB/MMBTU
Emission Limit 2: 3115.0000 LB/HR
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: SIP , OPERATING PERMIT
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: CO2e: ≤467.3 tons per consecutive twelve month period.

POLLUTANT NAME: Sulfur Dioxide (SO2)
CAS Number: 7446-09-5
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Sulfur (SOx))
Emission Limit 1: 0.0290 LB/HR
Emission Limit 2: 0.0040 TONS/C12MP
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: OTHER CASE-BY-CASE
Other Applicable Requirements: NSPS , NESHAP , SIP , OPERATING PERMIT
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Sulfuric Acid (mist, vapors, etc)
CAS Number: 7664-93-9
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Particulate Matter (PM))
Emission Limit 1: 0.0220 LB/HR
Emission Limit 2: 0.0030 TONS/C12MP
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: OTHER CASE-BY-CASE
Other Applicable Requirements: OPERATING PERMIT , SIP
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.4000 LB/HR
Emission Limit 2: 0.0600 TONS/C12MP
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS , NESHAP , SIP , OPERATING PERMIT
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.4000 LB/HR
Emission Limit 2: 0.0600 TONS/C12MP
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS , NESHAP , SIP , OPERATING PERMIT
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 0.8500 LB/HR
Emission Limit 2: 0.1300 TONS/C12MP
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: OTHER CASE-BY-CASE
Other Applicable Requirements: NSPS , NESHAP , SIP , OPERATING PERMIT
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Facility Information

RBLC ID:	LA-0295 (final)	**Date Determination**	
		Last Updated:	09/19/2016
Corporate/Company Name:	EQUISTAR CHEMICALS, LP	**Permit Number:**	PSD-LA-806
Facility Name:	WESTLAKE FACILITY	**Permit Date:**	07/12/2016 (actual)
Facility Contact:	JOSEPH BUSH (337) 882-1615 JOE.BUSH@LYONDELLBASELL.COM	**FRS Number:**	110000597266
Facility Description:	Polypropylene manufacturing facility	**SIC Code:**	2821

Permit Type:	D: Both B (Add new process to existing facility) &C (Modify process at existing facility)	**NAICS Code:**	325211
Permit URL:			
EPA Region:	6	**COUNTRY:**	USA
Facility County:	CALCASIEU		
Facility State:	LA		
Facility ZIP Code:	70669		
Permit Issued By:	LOUISIANA DEPARTMENT OF ENV QUALITY (Agency Name) MR. BRYAN D. JOHNSTON(Agency Contact) (225)219-3450 BRYAN.JOHNSTON@LA.GOV		
Other Agency Contact Info:	Permit writer: Anthony Randall, (225) 219-3417 or anthony.randall@la.gov		
Permit Notes:	Complete application date = date of administrative completeness Permit is for a retroactive PSD review.		

Process/Pollutant Information

PROCESS NAME: CGP Unit Cooling Tower (3-03, EQT 15)

Process Type: 99.009 (Industrial Process Cooling Towers)

Primary Fuel:

Throughput: 3000.00 GPM

Process Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC

Test Method: Unspecified

Pollutant Group(s): (Volatile Organic Compounds (VOC))

Emission Limit 1: 0.1300 LB/H HOURLY MAXIMUM

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: OPERATING PERMIT

Control Method: (P) Monthly hydrocarbon monitoring; maintain equipment to minimize fugitive emissions; repair faulty equipment at the earliest opportunity, but no later than the next scheduled unit shutdown

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: Annual VOC emissions from the CGP Unit Cooling Tower, along with VOC emissions from a number of other cooling towers not addressed in the PSD permit, are capped at 12.29 TPY (GRP 13).

Process/Pollutant Information

PROCESS NAME: M-Line Production Area Flare (FL061) (Z2, EQT 19)
Process Type: 19.310 (Chemical Plant Flares)
Primary Fuel:
Throughput: 0
Process Notes: Flare is subject to 40 CFR 60.18 and Subpart DDD.

POLLUTANT NAME: Volatile Organic Compounds (VOC)
CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 8882.9200 LB/H HOURLY MAXIMUM
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS , OPERATING PERMIT
Control Method: (P) Good combustion practices
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: Annual VOC emissions from the Cogeneration Plant Flare (449, EQT 326); the M-Line Production Area Flare (Z2, EQT 19); and the Plant 5 Flare (Z1, EQT 138) (not addressed in the PSD permit) are limited to 465.93 TPY (GRP 12).

Process/Pollutant Information

PROCESS NAME: Reciprocating Internal Combustion Engines 1 and 2 (1-08, EQT 321 & 2-08, EQT 322)

Process Type: 17.150 (Other Gaseous)

Primary Fuel: NATURAL GAS AND VENT GAS

Throughput: 11265.00 HP

Process Notes: Engines are subject to 40 CFR 60 Subparts DDD and JJJJ.

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))

Emission Limit 1: 14.6700 LB/H HOURLY MAXIMUM

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: NSPS , OPERATING PERMIT

Control Method: (P) Good combustion practices, including good equipment design, use of gaseous fuels for good mixing, and proper combustion techniques (see notes below)

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: Aggregate NOx emissions from the engines are capped at 103.90 TPY (GRP 10). Good combustion practices shall include monitoring of the flue gas oxygen content, combustion air flow, fuel consumption, and flue gas temperature. These parameters shall be maintained within the manufacturer's recommended operating guidelines or within a range that is otherwise indicative of proper operation of the emissions unit.

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC

Test Method: Unspecified

Pollutant Group(s): (Volatile Organic Compounds (VOC))

Emission Limit 1: 3.3500 LB/H HOURLY MAXIMUM

Emission Limit 2: 29.0000 PPMVD @ 5% O2 ANNUAL AVERAGE

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: NSPS , OPERATING PERMIT

Control Method: (B) Oxidation catalyst and good combustion practices, including good equipment design, use of gaseous fuels for good mixing, and proper combustion techniques (see notes below)

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: Aggregate VOC emissions from the engines are capped at 23.69 TPY (GRP 10). Good combustion practices shall include monitoring of the flue gas oxygen content, combustion air flow, fuel consumption, and flue gas temperature. These parameters shall be maintained within the manufacturer’s recommended operating guidelines or within a range that is otherwise indicative of proper operation of the emissions unit.

Process/Pollutant Information

PROCESS NAME: Solar Titan 130 Gas Turbine with Unfired HRSG (3-08, EQT 323)

Process Type: 16.210 (Natural Gas (includes propane & liquified petroleum gas))

Primary Fuel: Natural Gas

Throughput: 159.46 MM BTU/HR

Process Notes: Turbine is subject to 40 CFR 60 Subpart KKKK. Output power at generator: 14.117 MW

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))

Emission Limit 1: 14.2500 LB/HR HOURLY MAXIMUM

Emission Limit 2:

Standard Emission: 15.0000 PPMVD @ 15% O2 ANNUAL AVERAGE

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: NSPS , OPERATING PERMIT

Control Method: (P) Dry low NOx combustor (SoLoNOx) and good combustion practices, including good equipment design, use of gaseous fuels for good mixing, and proper combustion techniques (see notes below)

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: Good combustion practices shall include monitoring of the flue gas oxygen content, combustion air flow, fuel consumption, and flue gas temperature. These parameters shall be maintained within the manufacturer's recommended operating guidelines or within a range that is otherwise indicative of proper operation of the emissions unit.

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC

Test Method: EPA/OAR Mthd 25A

Pollutant Group(s): (Volatile Organic Compounds (VOC))

Emission Limit 1: 1.6400 LB/H HOURLY MAXIMUM

Emission Limit 2:

Standard Emission: 2.5000 PPMVD @ 15% O2 ANNUAL AVERAGE

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: OPERATING PERMIT

Control Method: (P) Good combustion practices, including good equipment design, use of gaseous fuels for good mixing, and proper combustion techniques consistent with the manufacturer's recommendations to maximize fuel efficiency and minimize emissions (see notes below)

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: Good combustion practices shall include monitoring of the flue gas oxygen content, combustion air flow, fuel consumption, and flue gas temperature. These parameters shall be maintained within the manufacturer's recommended operating guidelines or within a range that is otherwise indicative of proper operation of the emissions unit. PSD permit requires an annual stack test for VOC. If VOC < 75% of the permit limit, the frequency of the testing may be reduced to once every 2 years. If result of any subsequent test exceeds 75% of the permit limit, resume annual testing.

Process/Pollutant Information

PROCESS NAME: Firetube Boiler Nos. 1 and 2 (4-08, EQT 324 & 5-08, EQT 325)

Process Type: 13.390 (Other Gaseous Fuel & Gaseous Fuel Mixtures)

Primary Fuel: NATURAL GAS AND VENT GAS

Throughput: 63.00 MM BTU/H

Process Notes: Boilers are subject to 40 CFR 60 Subpart Dc. Boiler No. 1 is also subject to 40 CFR 60 Subpart DDD.

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102

Test Method: EPA/OAR Mthd 7E

Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))

Emission Limit 1: 2.7500 LB/H HOURLY MAXIMUM

Emission Limit 2: 30.0000 PPMVD @ 3% O2 ANNUAL AVERAGE

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: OPERATING PERMIT

Control Method: (B) Flue gas recirculation and good combustion practices, including good equipment design, use of gaseous fuels for good mixing, and proper combustion techniques (see notes below)

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: Aggregate NOx emissions from the boilers are capped at 10.05 TPY (GRP 11). Good combustion practices shall include monitoring of the flue gas oxygen content, combustion air flow, fuel consumption, and flue gas temperature. These parameters shall be maintained within the manufacturer's recommended operating guidelines or within a range that is otherwise indicative of proper operation of the emissions unit. The PSD permit also references the 30 ppmvd @ 3% O2 limit as a "three 1-hour testing average."

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC

Test Method: EPA/OAR Mthd 25A

Pollutant Group(s): (Volatile Organic Compounds (VOC))

Emission Limit 1: 0.2100 LB/H HOURLY MAXIMUM

Emission Limit 2: 2.8000 PPMVD @ 3% O2 ANNUAL AVERAGE

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: OPERATING PERMIT

Control Method: (B) Oxidation catalyst and good combustion practices, including good equipment design, use of gaseous fuels for good mixing, and proper combustion techniques (see notes below)

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: Aggregate VOC emissions from the boilers are capped at 0.90 TPY (GRP 11). Good combustion practices shall include monitoring of the flue gas oxygen content, combustion air flow, fuel consumption, and flue gas temperature. These parameters shall be maintained within the manufacturer's recommended operating guidelines or within a range that is otherwise indicative of proper operation of the emissions unit. The PSD permit also references the 2.8 ppmvd @ 3% O2 limit as a "three 1-hour testing average."

Process/Pollutant Information

PROCESS NAME: Cogeneration Plant Flare (449, EQT 326)

Process Type: 19.310 (Chemical Plant Flares)

Primary Fuel:

Throughput: 0

Process Notes: Flare is subject to 40 CFR 60.18 and Subpart DDD.

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC

Test Method: Unspecified

Pollutant Group(s): (Volatile Organic Compounds (VOC))

Emission Limit 1: 165.7500 LB/H HOURLY MAXIMUM

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: NSPS , OPERATING PERMIT

Control Method: (P) Good combustion practices

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: Annual VOC emissions from the Cogeneration Plant Flare (449, EQT 326); the M-Line Production Area Flare (Z2, EQT 19); and the Plant 5 Flare (Z1, EQT 138) (not addressed in the PSD permit) are limited to 465.93 TPY (GRP 12).

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))

Emission Limit 1: 12.6000 LB/H HOURLY MAXIMUM

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: OPERATING PERMIT

Control Method: (N)

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: Annual NOx emissions from the Cogeneration Plant Flare (449, EQT 326); the M-Line Production Area Flare (Z2, EQT 19); and the Plant 5 Flare (Z1, EQT 138) (not addressed in the PSD permit) are limited to 36.65 TPY (GRP 12).

Process/Pollutant Information

PROCESS NAME: Bulk Storage Vents (RLP 5, 9, 10, & 11)

Process Type: 69.999 (Other Chemical Manufacturing Sources)

Primary Fuel:

Throughput: 1200.00 ACFM

Process Notes: Vents are subject to 40 CFR 60 Subpart DDD.

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC

Test Method: Unspecified

Pollutant Group(s): (Volatile Organic Compounds (VOC))

Emission Limit 1: 0.0100 LB/H HOURLY MAXIMUM
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS , OPERATING PERMIT
Control Method: (P) Good design and operating practices
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: Annual VOC emissions from these vents, along with VOC emissions from a number of other vents not addressed in the PSD permit, are capped at 6.91 TPY (GRP 15).

Process/Pollutant Information

PROCESS NAME: Facility Fugitive Emissions (FUG 4)
Process Type: 63.999 (Other Polymer and Resin Manufacturing Sources)
Primary Fuel:
Throughput: 0
Process Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)
CAS Number: VOC
Test Method: EPA/OAR Mthd 21
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1:
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: OPERATING PERMIT , NSPS
Control Method: (P) Leak detection and repair (LDAR): LAC 33:III.2122
Est. % Efficiency:

Cost Effectiveness:	0 $/ton
Incremental Cost Effectiveness:	0 $/ton
Compliance Verified:	Unknown
Pollutant/Compliance Notes:	40 CFR 60 Subpart DDD (referencing Subpart VV) is also applicable, but LAC 33:III.2122 is the overall most stringent program.

Facility Information

RBLC ID:	MA-0041 (final)	**Date Determination Last Updated:**	04/28/2017
Corporate/Company Name:	MATEP LIMITED PARTNERSHIP	**Permit Number:**	NE-14-013
Facility Name:	MEDICAL AREA TOTAL ENERGY PLANT	**Permit Date:**	07/01/2016 (actual)
Facility Contact:	PETER GLUCKLER (617) 598-2711 PETER.GLUCKLER@VEOLIA.COM	**FRS Number:**	110000881733
Facility Description:	MATEP proposes to construct and operate a new 14.4 megawatt (MW) combined heat and power (CHP) combustion turbine/heat recovery steam generator at the existing combined heat and power plant.	**SIC Code:**	4911
Permit Type:	B: Add new process to existing facility	**NAICS Code:**	221112
Permit URL:	http://www.mass.gov/eea/agencies/massdep/air/approvals/air-permits-and-approvals-issued-to-facilities.html		
EPA Region:	1	**COUNTRY:**	USA
Facility County:	SUFFOLK		
Facility State:	MA		
Facility ZIP Code:	02215		
Permit Issued By:	MASSACHUSETTS DEPT OF ENVIRONMENTAL PROTECTION (Agency Name) MR. MARC WOLMAN(Agency Contact) (617)292-5515 marc.wolman@state.ma.us.		
Other Agency Contact Info:	Edward Braczyk MassDEP Northeast Regional Office 205B Lowell Street Wilmington, MA 01887 (978) 694-3289 Edward.Braczyk@state.ma.us		
Permit Notes:	separate PSD permit under delegated program, and CPA approval (including state minor NSR for other pollutants) other facility-wide emission increase (not listed in next section): GHG(CO2e): 108,500TPY, Sulfuric Acid Mist: 2.55TPY, Lead: 0.1 TPY		

Affected Boundaries:

Boundary Type:	Class 1 Area State:	Boundary:	Distance:
CLASS1	VT	Lye Brook	100km - 50km
CLASS1	NH	Presidential Range-Dry River	100km - 50km

Facility-wide Emissions:	**Pollutant Name:**	**Facility-wide Emissions Increase:**
	Carbon Monoxide	5.8400 (Tons/Year)
	Nitrogen Oxides (NOx)	7.7900 (Tons/Year)
	Particulate Matter (PM)	18.8000 (Tons/Year)
	Sulfur Oxides (SOx)	2.5600 (Tons/Year)
	Volatile Organic Compounds (VOC)	2.5000 (Tons/Year)

Process/Pollutant Information

PROCESS NAME: Combustion Turbine with Duct Burner

Process Type: 16.210 (Natural Gas (includes propane & liquified petroleum gas))

Primary Fuel: Natural Gas

Throughput: 203.40 MMBTU/H

Process Notes: a nominal 14.4 Megawatt (MW) Solar Titan 130 Combustion Turbine Generator (164.6MMBtu/hr for NG firing, 158.8MMBtu/hr for ULSD firing) with Heat Recovery Steam Generator including a Duct Burner (38.8MMBtu/hr NG firing only). Max. ULSD usage: 878,400 gallons per 12-month rolling period

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))

Emission Limit 1: 2.0000 PPMVD@15% O2 1 HR BLOCK AVG/EXCLUDING SS, NG FIRING

Emission Limit 2: 6.0000 PPMVD@15% O2 1 HR BLOCK AVG/EXCLUDING SS, ULSD FIRING

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: OTHER CASE-BY-CASE

Other Applicable Requirements: NSPS , SIP , OPERATING PERMIT

Control Method: (B) Dry Low NOx Combustor & Selective Catalytic Reduction

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: NOx limits are determined as BACT under 310 CMR 7.02(8). NOx(firing NG): ≤0.0074 lb/MMBtu, ≤1.21 lb/hr(no duct firing), ≤1.51 lb/hr(with duct firing); during start-ups (≤3 hrs): ≤36.2 lb per event, during shutdowns (≤1 hr): ≤11.2 lb per event. NOx(turbine firing ULSD): ≤0.0233 lb/MMBtu(no duct firing), ≤0.0231 lb/MMBtu(with duct firing), ≤3.70 lb/hr(no duct firing), ≤4.56 lb/hr(with duct firing); during start-ups(≤3 hrs): ≤112.6 lb per event, during shutdowns(≤1 hr): ≤34.2 lb per event.

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds)

Emission Limit 1: 2.0000 PPMVD@15% O2 1 HR BLOCK AVG/EXCLUDING SS, NG FIRING

Emission Limit 2: 7.0000 PPMVD@15% O2 1 HR BLOCK AVG/EXCLUDING SS, ULSD FIRING

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: OTHER CASE-BY-CASE

Other Applicable Requirements: SIP , OPERATING PERMIT

Control Method: (A) Oxidation Catalyst

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: CO limits are determined as BACT under 310 CMR 7.02(8). CO(firing NG): ≤0.0045 lb/MMBtu, ≤0.74 lb/hr(no duct firing), ≤0.92 lb/hr(with duct firing); during start-ups (≤3 hrs): ≤153.7 lb per event, during shutdowns (≤1 hr): ≤41.6 lb per event CO(turbine firing ULSD): ≤0.0166 lb/MMBtu (no duct firing), ≤0.0164 lb/MMBtu (with duct firing), ≤2.63 lb/hr(no duct firing), ≤3.24 lb/hr(with duct firing); during start-ups (≤3 hrs): ≤144.8 lb per event, during shutdowns (≤1 hr): ≤40.9 lb per event.

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC

Test Method: Unspecified

Pollutant Group(s): (Volatile Organic Compounds (VOC))

Emission Limit 1: 1.7000 PPMVD@15% O2 1 HR BLOCK AVG/EXCLUDING SS, NG FIRING

Emission Limit 2: 7.0000 PPMVD@15% O2 1 HR BLOCK AVG/EXCLUDING SS, ULSD FIRING

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: OTHER CASE-BY-CASE

Other Applicable Requirements: OPERATING PERMIT , SIP
Control Method: (A) Oxidation Catalyst
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: VOC limits are determined as BACT under 310 CMR 7.02(8). VOC as CH4(firing NG): ≤0.0022 lb/MMBtu, ≤0.36 lb/hr(no duct firing), ≤0.45 lb/hr(with duct firing); during start-ups (≤3 hrs): ≤11.4 lb per event, during shutdowns (≤1 hr): ≤3.3 lb per event VOC as CH4(turbine firing ULSD): ≤0.0095 lb/MMBtu(no duct firing), ≤0.0094 lb/MMBtu(with duct firing), ≤1.51 lb/hr(no duct firing), ≤1.86 lb/hr(with duct firing); during start-ups (≤3 hrs): ≤85.4 lb per event, during shutdowns (≤1 hr): ≤33.4 lb per event.

POLLUTANT NAME: Sulfur Dioxide (SO2)
CAS Number: 7446-09-5
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Sulfur (SOx))
Emission Limit 1: 0.6000 PPMVD@15% O2 1 HR BLOCK AVG/EXCLUDING SS, NG FIRING
Emission Limit 2: 0.3000 PPMVD@15% O2 1 HR BLOCK AVG/EXCLUDING SS, ULSD FIRING
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: OTHER CASE-BY-CASE
Other Applicable Requirements: NSPS , SIP , OPERATING PERMIT
Control Method: (P) clean fuels - using natural gas as primary fuel and ultra low sulfur diesel as backup fuel.
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: SO2 limits are determined as BACT under 310 CMR 7.02(8). SO2(firing NG): ≤0.0029 lb/MMBtu, ≤0.48 lb/hr(no duct firing), ≤0.58 lb/hr(with duct firing); during start-ups (≤3 hrs): ≤1.8 lb per event, during shutdowns (≤1 hr): ≤0.6 lb per event; SO2(turbine firing ULSD): ≤0.0016 lb/MMBtu, ≤0.25 lb/hr(no duct firing), ≤0.36 lb/hr(with duct firing); during start-ups (≤3 hrs): ≤1.2 lb per event, during shutdowns (≤1 hr): ≤0.4 lb per event.

POLLUTANT NAME: Sulfuric Acid (mist, vapors, etc)
CAS Number: 7664-93-9
Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Particulate Matter (PM))

Emission Limit 1: 0.4000 PPMVD@15% O2 1 HR BLOCK AVG/EXCLUDING SS, NG FIRING

Emission Limit 2: 0.2000 PPMVD@15% O2 1 HR BLOCK AVG/EXCLUDING SS, ULSD FIRING

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: OTHER CASE-BY-CASE

Other Applicable Requirements: SIP , OPERATING PERMIT

Control Method: (P) clean fuels - using natural gas as primary fuel and ultra low sulfur diesel as backup fuel.

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: H2SO4 limits are determined as BACT under 310 CMR 7.02(8). H2SO4(firing NG): ≤0.0029lb/MMBtu, ≤0.47 lb/hr(no duct firing), ≤0.58 lb/hr(with duct firing); during start-ups (≤3 hrs): ≤1.8 lb per event, during shutdowns (≤1 hr): ≤0.6 lb per event; H2SO4(turbine firing ULSD):≤0.2ppmvd@15% O2(no duct firing), ≤0.22ppmvd@15% O2(with duct firing), ≤0.0016 lb/MMBtu(no duct firing), ≤0.0018 lb/MMBtu(with duct firing), ≤0.25 lb/hr(no duct firing), ≤0.36 lb/hr(with duct firing); during start-ups (≤3 hrs): ≤1.2 lb per event, during shutdowns (≤1 hr): ≤0.4 lb per event.

POLLUTANT NAME: Ammonia (NH3)

CAS Number: 7664-41-7

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds)

Emission Limit 1: 2.0000 PPMVD@15% O2 1 HR BLOCK AVG/EXCLUDING SS, NG/ULSD

Emission Limit 2: 0.0027 LB/MMBTU 1 HR BLOCK AVG/EXCLUDING SS, NG FIRING

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: OTHER CASE-BY-CASE

Other Applicable Requirements: SIP , OPERATING PERMIT

Control Method: (N)

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: NH3 limits are determined as BACT under 310 CMR 7.02(8). NH3(firing NG): ≤0.44 lb/hr(no duct firing), ≤0.55 lb/hr(with duct firing); NH3(turbine firing ULSD): ≤0.0029 lb/MMBtu, ≤0.46 lb/hr(no duct firing), ≤0.57 lb/hr(with duct firing).

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.0200 LB/MMBTU 1 HR BLOCK AVG/EXCLUDING SS, NG FIRING

Emission Limit 2: 0.0340 LB/MMBTU 1 HR BLOCK AVG/EXCLUDING SS, ULSD FIRING

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: SIP , OPERATING PERMIT

Control Method: (N)

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: PM10(firing NG): ≤3.29 lb/hr(no duct firing), ≤4.07 lb/hr(with duct firing); during start-ups (≤3 hrs): ≤12.2 lb per event, during shutdowns (≤1 hr): ≤4.1 lb per event; PM10(turbine firing ULSD): ≤0.034 lb/MMBtu(no duct firing), ≤0.031 lb/MMBtu(with duct firing), ≤5.40 lb/hr(no duct firing), ≤6.15 lb/hr(with duct firing); during start-ups (≤3 hrs): ≤18.5 lb per event, during shutdowns (≤1 hr): ≤6.2 lb per event.

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.0200 LB/MMBTU 1 HR BLOCK AVG/EXCLUDING SS, NG FIRING

Emission Limit 2: 0.0340 LB/MMBTU 1 HR BLOCK AVG/EXCLUDING SS, ULSD FIRING

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: SIP , OPERATING PERMIT

Control Method: (N)

Est. % Efficiency:	
Cost Effectiveness:	0 $/ton
Incremental Cost Effectiveness:	0 $/ton
Compliance Verified:	Unknown
Pollutant/Compliance Notes:	PM2.5(firing NG): ≤3.29 lb/hr(no duct firing), ≤4.07 lb/hr(with duct firing); during start-ups (≤3 hrs): ≤12.2 lb per event, during shutdowns (≤1 hr): ≤4.1 lb per event; PM2.5(turbine firing ULSD): ≤0.034 lb/MMBtu(no duct firing), ≤0.031 lb/MMBtu(with duct firing), ≤5.40 lb/hr(no duct firing), ≤6.15 lb/hr(with duct firing); during start-ups (≤3 hrs): ≤18.5 lb per event, during shutdowns (≤1 hr): ≤6.2 lb per event.

POLLUTANT NAME:	Carbon Dioxide Equivalent (CO2e)
CAS Number:	CO2e
Test Method:	Unspecified
Pollutant Group(s):	(Greenhouse Gasses (GHG))
Emission Limit 1:	119.0000 LB/MMBTU 1 HR BLOCK AVG/EXCLUDING SS, NG FIRING
Emission Limit 2:	166.0000 LB/MMBTU 1 HR BLOCK AVG/EXCLUDING SS, ULSD FIRING
Standard Emission:	

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis:	BACT-PSD
Other Applicable Requirements:	OPERATING PERMIT , SIP
Control Method:	(N)
Est. % Efficiency:	
Cost Effectiveness:	0 $/ton
Incremental Cost Effectiveness:	0 $/ton
Compliance Verified:	Unknown
Pollutant/Compliance Notes:	CO2e(firing NG): ≤19,584 lb/hr(no duct firing), ≤24,200 lb/hr(with duct firing); CO2e(turbine firing ULSD): ≤26,363 lb/hr(no duct firing), ≤31,000 lb/hr(with duct firing).

Facility Information

RBLC ID:	TX-0704 (final)	**Date Determination Last Updated:**	05/09/2016
Corporate/Company Name:	M & G RESINS USA LLC	**Permit Number:**	108819 PSDTX1354
Facility Name:	UTILITY PLANT	**Permit Date:**	12/02/2014 (actual)

Facility Contact:	MAURO FENOGLIO (281) 874-8074	**FRS Number:**	unknown
Facility Description:	In support of the new PET (polyethylene terephthalate) unit and new PTA (terephthalic acid) plant proposed by M&G Resins USA LLC, the company also proposes a Utility Plant that will consist of either one of two options. All steam generated from the Utility Plant will be used as process steam. There is no steam driven electrical generator.	**SIC Code:**	4911
Permit Type:	A: New/Greenfield Facility	**NAICS Code:**	221112
Permit URL:			
EPA Region:	6	**COUNTRY:**	USA
Facility County:	NUECES		
Facility State:	TX		
Facility ZIP Code:			
Permit Issued By:	TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) (Agency Name) MICHAEL PARTEE(Agency Contact) (512) 239-3312 michael.partee@tceq.texas.gov		
Other Agency Contact Info:	Mr. Sean O'Brien 512-239-1137 sean.obrien@tceq.texas.gov		
Permit Notes:			

Affected Boundaries:

Boundary Type:	Class 1 Area State:	Boundary:	Distance:
CLASS1	TX	Big Bend NP	> 250 km

Process/Pollutant Information

PROCESS NAME: cogeneration turbine

Process Type: 16.210 (Natural Gas (includes propane & liquified petroleum gas))

Primary Fuel: natural gas

Throughput: 49.00 MW

Process Notes: General Electric LM6000 natural gas-fired combustion turbine equipped with lean pre-mix low-NOx combustors. One heat recovery steam generator (HRSG) with 263 million British thermal units per hour (MMBtu/hr) natural gas-fired duct burner system containing a selective catalytic reduction system (SCR)

POLLUTANT NAME:	Nitrogen Oxides (NOx)
CAS Number:	10102
Test Method:	Unspecified
Pollutant Group(s):	(InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1:	2.0000 PPMVD @15% O2, 24-HR ROLLING AVERAGE

Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) Selective Catalytic Reduction
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Monoxide
CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 4.0000 PPMVD @15% O2, 24-HR ROLLING AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) oxidation catalyst
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)
CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 4.0000 PPMVD @15% O2, 24-HR ROLLING AVERAGE

Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis:	BACT-PSD
Other Applicable Requirements:	
Control Method:	(A) oxidation catalyst
Est. % Efficiency:	
Cost Effectiveness:	0 $/ton
Incremental Cost Effectiveness:	0 $/ton
Compliance Verified:	Unknown
Pollutant/Compliance Notes:	

POLLUTANT NAME:	Particulate matter, total < 2.5 µ (TPM2.5)
CAS Number:	PM
Test Method:	Unspecified
Pollutant Group(s):	(Particulate Matter (PM))
Emission Limit 1:	
Emission Limit 2:	
Standard Emission:	

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis:	BACT-PSD
Other Applicable Requirements:	
Control Method:	(N)
Est. % Efficiency:	
Cost Effectiveness:	0 $/ton
Incremental Cost Effectiveness:	0 $/ton
Compliance Verified:	Unknown
Pollutant/Compliance Notes:	natural gas fuel, includes PM and PM10

Process/Pollutant Information

PROCESS NAME:	(2) boilers
Process Type:	11.310 (Natural Gas (includes propane and liquefied petroleum gas))

Primary Fuel: natural gas

Throughput: 450.00 MMBTU/H

Process Notes: Auxiliary Boilers A1 and A2 are rated at 450 MMBtu/hr each. Auxiliary Boiler A1 and A2 were represented by the applicant to potentially operate 8,760 hours per year each.

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 0.0100 LB/MMBTU 3-HR ROLLING AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) Selective Catalytic Reduction
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 50.0000 PPMVD @3% O2, 3-HR ROLLING AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) good combustion practices
Est. % Efficiency:
Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 0.0040 LB/MMBTU
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) good combustion practices
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1:
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: natural gas fuel, includes PM and PM10

Process/Pollutant Information

PROCESS NAME: boiler

Process Type: 11.310 (Natural Gas (includes propane and liquefied petroleum gas))

Primary Fuel: natural gas

Throughput: 250.00 MMBTU/H

Process Notes: Auxiliary Boiler B is rated at 250 MMBtu/hr. Auxiliary Boiler B was represented by the applicant to potentially operate 8,760 hours per year.

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 0.0100 LB/MMBTU 3-HR ROLLING AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) Selective Catalytic Reduction
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 50.0000 PPMVD @3% O2, 3-HR ROLLING AVERAGE

Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) good combustion practices
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)
CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 0.0040 LB/MMBTU
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) good combustion practices
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1:

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis:	BACT-PSD
Other Applicable Requirements:	
Control Method:	(N)
Est. % Efficiency:	
Cost Effectiveness:	0 $/ton
Incremental Cost Effectiveness:	0 $/ton
Compliance Verified:	Unknown
Pollutant/Compliance Notes:	natural gas fuel, includes PM and PM10

Facility Information

RBLC ID:	IN-0173 (final)	**Date Determination Last Updated:**	05/04/2016
Corporate/Company Name:	MIDWEST FERTILIZER CORPORATION	**Permit Number:**	129-33576-00059
Facility Name:	MIDWEST FERTILIZER CORPORATION	**Permit Date:**	06/04/2014 (actual)
Facility Contact:	MICHAEL CHORLTON 3176258315	**FRS Number:**	110059696841
Facility Description:	A STATIONARY NITROGEN FERTILIZER MANUFACTURING FACILITY	**SIC Code:**	2873
Permit Type:	A: New/Greenfield Facility	**NAICS Code:**	325311
Permit URL:	HTTP://PERMITS.AIR.IDEM.IN.GOV/33576F.PDF		
EPA Region:	5	**COUNTRY:**	USA
Facility County:	POSEY		
Facility State:	IN		
Facility ZIP Code:	47620		
Permit Issued By:	INDIANA DEPT OF ENV MGMT, OFC OF AIR (Agency Name) MR. MATT STUCKEY(Agency Contact) (317) 233-0203 mstuckey@idem.in.gov		
Other Agency Contact Info:	PERMIT WRITER: DAVID MATOUSEK (317) 232-8253 DMATOUSE@IDEM.IN.GOV SECTION CHIEF: NATHAN BELL (317) 233-5670 NBELL@IDEM.IN.GOV		
Permit Notes:			

Process/Pollutant Information

PROCESS NAME: REFORMER FURNACE

Process Type: 11.310 (Natural Gas (includes propane and liquefied petroleum gas))

Primary Fuel: NATURAL GAS, PROCESS GAS

Throughput: 950.64 MMBTU/H

Process Notes:

POLLUTANT NAME: Particulate matter, filterable (FPM)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 1.9000 LB/MMCF 3-HR AVERAGE

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (P) GOOD COMBUSTION PRACTICES AND PROPER DESIGN

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 5.3850 LB/MMCF 3-HR AVERAGEE

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES AND PROPER DESIGN
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 5.3850 LB/MMCF 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES AND PROPER DESIGN
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Nitrogen Oxides (NOx)
CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 9.0000 PPMVD @3% OXYGEN THIRTY DAY ROLLING AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:
Control Method: (A) SELECTIVE CATALYTIC REDUCTION (SCR), LOW NOX BURNERS
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Monoxide
CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 43.4500 LB/MMCF 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES AND PROPER DESIGN
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)
CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 5.5000 LB/MMCF 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (P) GOOD COMBUSTION PRACTICES AND PROPER DESIGN

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Dioxide

CAS Number: 124-38-9

Test Method: Unspecified

Pollutant Group(s): (Acid Gasses/Mist , Greenhouse Gasses (GHG) , InOrganic Compounds)

Emission Limit 1: 59.6100 T/MMCF 3-HR AVERAGE

Emission Limit 2: 486675.0000 TON CO2/YR MONTHLY

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (P) GOOD COMBUSTION PRACTICES AND PROPER DESIGN

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: 80% THERMAL EFFICIENCY BASED ON HIGHER HEATING VALUE.

Process/Pollutant Information

PROCESS NAME: STARTUP HEATER

Process Type: 15.110 (Natural Gas (includes propane & liquified petroleum gas))

Primary Fuel: NATURAL GAS

Throughput: 92.50 MMBTU/H

Process Notes: NATURAL GAS USAGE SHALL NOT EXCEED 18.14 MMCF/YEAR.

POLLUTANT NAME: Particulate matter, filterable (FPM)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 1.9000 LB/MMCF 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES AND PROPER DESIGN, USE NATURAL GAS
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 7.6000 LB/MMCF 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES AND PROPER DESIGN, USE NATURAL GAS
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 7.6000 LB/MMCF 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES AND PROPER DESIGN, USE NATURAL GAS
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Nitrogen Oxides (NOx)
CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 183.7000 LB/MMCF 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) GOOD COMBUSTION PRACTICES AND PROPER DESIGN, USE NATURAL GAS
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 37.2300 LB/MMCF 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES AND PROPER DESIGN, USE NATURAL GAS
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Dioxide
CAS Number: 124-38-9
Test Method: Unspecified
Pollutant Group(s): (Acid Gasses/Mist , Greenhouse Gasses (GHG) , InOrganic Compounds)
Emission Limit 1: 59.6100 T/MMCF 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES AND PROPER DESIGN, USE NATURAL GAS
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 5.5000 LB/MMCF 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) PROPER DESIGN AND GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: TWO (2) NATURAL GAS FIRED COMBUSTION TURBINES
Process Type: 16.210 (Natural Gas (includes propane & liquified petroleum gas))
Primary Fuel: NATURAL GAS
Throughput: 283.00 MMBTU/H, EACH
Process Notes: NATURAL GAS FIRED, OPEN-SIMPLE CYCLE COMBUSTION TURBINES WITH HEAT RECOVERY

POLLUTANT NAME: Particulate matter, filterable (FPM)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0019 LB/MMBTU 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:

Control Method: (P) GOOD COMBUSTION PRACTICES AND PROPER DESIGN
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0076 LB/MMBTU 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES AND PROPER DESIGN
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0076 LB/MMBTU 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:

Control Method: (P) GOOD COMBUSTION PRACTICES AND PROPER DESIGN
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Nitrogen Oxides (NOx)
CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 22.6500 PPMVD AT 15% OXYGEN 3-HR AVERAGE AT > 50% PEAK LOAD
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) DRY LOW NOX COMBUSTORS
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Monoxide
CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 0.0300 LB/MMBTU 3-HR AVERAGE AT > 50% PEAK LOAD
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:

Control Method: (P) GOOD COMBUSTION PRACTICES AND PROPER DESIGN
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 2.5000 PPMVD AT 15% OXYGEN 1-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES AND PROPER DESIGN
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Dioxide

CAS Number: 124-38-9
Test Method: Unspecified
Pollutant Group(s): (Acid Gasses/Mist , Greenhouse Gasses (GHG) , InOrganic Compounds)
Emission Limit 1: 12666.0000 BTU/KW-H, MINIMUM CONTINUOUS
Emission Limit 2: 116.8900 LB/MMBTU 3-HR AVERAGE
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:

Control Method: (P) GOOD COMBUSTION PRACTICES AND PROPER DESIGN
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: CO2 EMISSIONS SHALL NOT EXCEED 144,890 TON/YEAR

Process/Pollutant Information

PROCESS NAME: THREE (3) AUXILARY BOILERS
Process Type: 16.210 (Natural Gas (includes propane & liquified petroleum gas))
Primary Fuel: NATURAL GAS
Throughput: 218.60 MMBTU/H, EACH
Process Notes: NATURAL GAS USAGE IN EACH BOILER NOT TO EXCEED 1501.91 MMCF/YR

POLLUTANT NAME: Particulate matter, filterable (FPM)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 1.9000 LB/MMCF 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES AND PROPER DESIGN
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)
CAS Number: PM

Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 7.6000 LB/MMCF 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES AND PROPER DESIGN
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Nitrogen Oxides (NOx)
CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 20.4000 LB/MMCF 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) LOW NOX BURNERS, FLUE GAS RECIRCULATION
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Monoxide
CAS Number: 630-08-0

Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 37.2200 LB/MMCF 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES AND PROPER DESIGN
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)
CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 5.5000 LB/MMCF 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES AND PROPER DESIGN
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Dioxide
CAS Number: 124-38-9

Test Method: Unspecified
Pollutant Group(s): (Acid Gasses/Mist , Greenhouse Gasses (GHG) , InOrganic Compounds)
Emission Limit 1: 59.6100 T/MMCF 3-HR AVERAGE
Emission Limit 2: 80.0000 % THERMAL EFFICIENCY (HHV)
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES AND PROPER DESIGN: AIR INLET CONTROLS, HEAT RECOVERY CONDENSATE AND BLOWDOWN HEAT RECOVERY
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: CO2 PURIFICATION PROCESS
Process Type: 61.012 (Fertilizer Production (except 61.009))
Primary Fuel:
Throughput: 2400.00 T/D AMMONIA
Process Notes:

POLLUTANT NAME: Carbon Monoxide
CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 0.0117 LB/TON AMMONIA 3-HR AVERAGE, 100% CO2 VENTING
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:

Control Method: (P) PROPER CATALYST SELECTION
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 0.0558 LB/TON OF AMMONIA 3-HR AVERAGE, 100% CO2 VENTING
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) PROPER CATALYST SELECTION
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Dioxide

CAS Number: 124-38-9
Test Method: Unspecified
Pollutant Group(s): (Acid Gasses/Mist , Greenhouse Gasses (GHG) , InOrganic Compounds)
Emission Limit 1: 1.2750 TON/TON AMMONIA 3-HR AVERAGE, 100% VENTING
Emission Limit 2: 1232475.0000 TON CO2/YEAR MONTHLY
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:

Control Method: (P) PROPER CATALYST SELECTION
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: UREA GRANULATION UNIT
Process Type: 61.012 (Fertilizer Production (except 61.009))
Primary Fuel:
Throughput: 1440.00 METRIC TONS PER DAY
Process Notes:

POLLUTANT NAME: Particulate matter, filterable (FPM)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.1630 LB/TON GRANULES 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) HIGH EFFICIENCY WET SCRUBBER
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)
CAS Number: PM

Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.1630 LB/TON GRANULES 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) HIGH EFFICIENCY WET SCRUBBER
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.1630 LB/TON GRANULES 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) HIGH EFFICIENCY WET SCRUBBER
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: UREA GRANULE STORAGE WAREHOUSE

Process Type: 61.999 (Other Agricultural Chemical Manufacturing Sources)

Primary Fuel:

Throughput: 0

Process Notes:

POLLUTANT NAME: Particulate matter, filterable (FPM)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.1700 LB/H 3-HR AVERAGE

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (A) BAGHOUSE

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.1700 LB/H 3-HR AVERAGE

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (A) BAGHOUSE

Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.1700 LB/H 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) BAGHOUSE
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: FUGITIVE EMISSIONS FROM EQUIPMENT LEAKS
Process Type: 64.002 (Equipment Leaks (valves, compressors, pumps, etc.))
Primary Fuel:
Throughput: 0
Process Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)
CAS Number: VOC
Test Method: Unspecified

Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1:
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) LEAK DETECTION AND REPAIR (LDAR) PROGRAM USING 40 CFR 60, SUBPART VVA PROCEDURES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: GRANULAR UAN TRUCK LOADOUT OPERATION

Process Type: 61.999 (Other Agricultural Chemical Manufacturing Sources)

Primary Fuel:

Throughput: 0

Process Notes:

POLLUTANT NAME: Particulate matter, filterable (FPM)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.1200 LB/H 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) FABRIC FILTER DUST COLLECTOR

Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.1200 LB/H 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) FABRIC FILTER DUST COLLECTOR
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.1200 LB/H 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) FABRIC FILTER DUST COLLECTOR

Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: GRANULAR UAN RAIL LOADING OPERATION
Process Type: 61.999 (Other Agricultural Chemical Manufacturing Sources)
Primary Fuel:
Throughput: 0
Process Notes:

POLLUTANT NAME: Particulate matter, filterable (FPM)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.2100 LB/H 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) FABRIC FILTER DUST COLLECTOR
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)
CAS Number: PM
Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.2100 LB/H 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) FABRIC FILTER DUST COLLECTOR
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.2100 LB/H 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) FABRIC FILTER DUST COLLECTOR
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: UREA JUNCTION OPERATION

Process Type: 61.999 (Other Agricultural Chemical Manufacturing Sources)

Primary Fuel:

Throughput: 0

Process Notes:

POLLUTANT NAME: Particulate matter, filterable (FPM)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.2100 LB/H 3-HR AVERAGE

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (A) FABRIC FILTER DUST COLLECTOR

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.2100 LB/H 3-HR AVERAGE

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (A) FABRIC FILTER DUST COLLECTOR

Est. % Efficiency:

Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.2100 LB/H 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) FABRIC FILTER DUST COLLECTOR
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: NITRIC ACID PLANT
Process Type: 62.014 (Nitric Acid Plants)
Primary Fuel:
Throughput: 1840.00 METRIC TONS PER DAY
Process Notes:

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))

Emission Limit 1: 0.0640 LB/TON NITRIC ACID 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) SELECTIVE CATALYTIC REDUCTION (SCR)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Nitrous Oxide (N2O)
CAS Number: 10024-97-2
Test Method: Unspecified
Pollutant Group(s): (Greenhouse Gasses (GHG) , InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 0.6130 LB/TON NITRIC ACID 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) CATALYTIC REACTOR
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: NITRIC ACID LIMIT IS BASED ON 100% NITRIC ACID.

Process/Pollutant Information

PROCESS NAME: FRONT END FLARE
Process Type: 19.310 (Chemical Plant Flares)

Primary Fuel: NATURAL GAS

Throughput: 4.00 MMBTU/H

Process Notes: SSM VENTING IS LIMITED TO 336 HOURS PER YEAR. HEAT INPUT OF 4 MMBTU/HR IS FOR PILOT ONLY.

POLLUTANT NAME: Particulate matter, filterable (FPM)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 1.9000 LB/MMCF 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) NATURAL GAS PILOT, FLARE MINIMIZATION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 7.6000 LB/MMCF 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) NATURAL GAS PILOT, FLARE MINIMIZATION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 7.6000 LB/MMCF 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) NATURAL GAS PILOT, FLARE MINIMIZATION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Nitrogen Oxides (NOx)
CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 0.0680 LB/MMBTU 3-HR AVERAGE
Emission Limit 2: 595.4900 LB/H, SSM VENTING 3-HR AVERAGE
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) NATURAL GAS PILOT, FLARE MINIMIZATION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 0.3700 LB/MMBTU 3-HR AVERAGE
Emission Limit 2: 3240.1600 LB/H, SSM VENTING 3-HR AVERAGE
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) NATURAL GAS PILOT, FLARE MINIMIZATION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 0.0054 LB/MMBTU 3-HR AVERAGE
Emission Limit 2: 47.2600 LB/H, SSM VENTING 3-HR AVERAGE
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) NATURAL GAS PILOT, FLARE MINIMIZATION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Dioxide
CAS Number: 124-38-9
Test Method: Unspecified
Pollutant Group(s): (Acid Gasses/Mist , Greenhouse Gasses (GHG) , InOrganic Compounds)
Emission Limit 1: 116.8900 LB/MMBTU 3-HR AVERAGE
Emission Limit 2: 511.8100 TON/H, SSM VENTING 3-HR AVERAGE
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) NATURAL GAS PILOT, FLARE MINIMIZATION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: BACK END FLARE
Process Type: 19.310 (Chemical Plant Flares)
Primary Fuel: NATURAL GAS
Throughput: 4.00 MMBTU/H
Process Notes: SSM VENTING SHALL NOT EXCEEDD 336 HOURS PER YEAR. HEAT INPUT IS PILOT ONLY.

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0075 LB/MMBTU 3-HR AVERAGE

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (P) NATURAL GAS PILOT, FLARE MINIMIZATION PRACTICES

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))

Emission Limit 1: 0.0680 LB/MMBTU 3-HR AVERAGE

Emission Limit 2: 624.9400 LB/H, SSM VENTING 3-HR AVERAGE

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (P) NATURAL GAS PILOT, FLARE MINIMIZATION PRACTICES

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds)

Emission Limit 1: 0.3700 LB/MMBTU 3-HR AVERAGE

Emission Limit 2: 804.7600 LB/H, SSM VENTING 3-HR AVERAGE

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (P) NATURAL GAS PILOT, FLARE MINIMIZATION PRACTICES

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC

Test Method: Unspecified

Pollutant Group(s): (Volatile Organic Compounds (VOC))

Emission Limit 1: 0.0054 LB/MMBTU 3-HR AVERAGE

Emission Limit 2: 11.7300 LB/H, SSM VENTING 3-HR AVERAGE

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (P) NATURAL GAS PILOT, FLARE MINIMIZATION PRACTICES

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Dioxide

CAS Number: 124-38-9

Test Method: Unspecified

Pollutant Group(s): (Acid Gasses/Mist , Greenhouse Gasses (GHG) , InOrganic Compounds)

Emission Limit 1: 116.8900 LB/MMBTU 3-HR AVERAGE

Emission Limit 2: 127.1200 LB/H, SSM VENTING 3-HR AVERAGE
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) NATURAL GAS PILOT, FLARE MINIMIZATION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, filterable (FPM)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0019 LB/MMBTU 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) NATURAL GAS PILOT, FLARE MINIMIZATION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0075 LB/MMBTU 3-HR AVERAGE

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis:	BACT-PSD
Other Applicable Requirements:	
Control Method:	(P) NATURAL GAS PILOT, FLARE MINIMIZATION PRACTICES
Est. % Efficiency:	
Cost Effectiveness:	0 $/ton
Incremental Cost Effectiveness:	0 $/ton
Compliance Verified:	Unknown
Pollutant/Compliance Notes:	

Process/Pollutant Information

PROCESS NAME:	AMMONIA STORAGE FLARE
Process Type:	19.310 (Chemical Plant Flares)
Primary Fuel:	NATURAL GAS
Throughput:	1.50 MMBTU/H
Process Notes:	HEAT INPUT IS FOR PILOT ONLY. SSM EMISSIONS HAVE SEPARATE LIMITS. SSM VENTING LIMITED 168 HOURS.

POLLUTANT NAME:	Particulate matter, filterable (FPM)
CAS Number:	PM
Test Method:	Unspecified
Pollutant Group(s):	(Particulate Matter (PM))
Emission Limit 1:	0.0019 LB/MMBTU 3-HR AVERAGE
Emission Limit 2:	
Standard Emission:	

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis:	BACT-PSD
Other Applicable Requirements:	
Control Method:	(P) NATURAL GAS PILOT, FLARE MINIMIZATION PRACTICES
Est. % Efficiency:	
Cost Effectiveness:	0 $/ton
Incremental Cost Effectiveness:	0 $/ton

Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0075 LB/MMBTU 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) NATURAL GAS PILOT, FLARE MINIMIZATION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0075 LB/MMBTU 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) NATURAL GAS PILOT, FLARE MINIMIZATION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Nitrogen Oxides (NOx)
CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 0.0680 LB/MMBTU 3-HR AVERAGE
Emission Limit 2: 125.0000 LB/H, SSM VENTING 3-HR AVERAGE
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) NATURAL GAS PILOT, FLARE MINIMIZATION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Monoxide
CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 0.3700 LB/MMBTU 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) NATURAL GAS PILOT, FLARE MINIMIZATION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)
CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 0.0054 LB/MMBTU 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) NATURAL GAS PILOT, FLARE MINIMIZATION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Dioxide
CAS Number: 124-38-9
Test Method: Unspecified
Pollutant Group(s): (Acid Gasses/Mist , Greenhouse Gasses (GHG) , InOrganic Compounds)
Emission Limit 1: 116.8900 LB/MMBTU 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) NATURAL GAS PILOT, FLARE MINIMIZATION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: TEN CELL EVAPORATIVE COOLING TOWER
Process Type: 99.009 (Industrial Process Cooling Towers)
Primary Fuel:
Throughput: 147937.00 GPM
Process Notes:

POLLUTANT NAME: Particulate matter, filterable (FPM)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0005 % DRIFT LOSS CONTINUOUS
Emission Limit 2: 2000.0000 ML/L TDS CONTINUOUS
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) HIGH EFFICIENCY DRIFT ELIMINATORS
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0005 % DRIFT LOSS CONTINUOUS
Emission Limit 2: 2000.0000 MG/L TDS CONTINUOUS

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (A) HIGH EFFICIENCY DRIFT ELIMINATORS

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.0005 % DRIFT LOSS CONTINUOUS

Emission Limit 2: 2000.0000 MG/L TDS CONTINUOUS

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (A) HIGH EFFICIENCY DRIFT ELIMINATORS

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: SIX CELL EVAPORATIVE COOLING TOWER

Process Type: 99.009 (Industrial Process Cooling Towers)

Primary Fuel:

Throughput: 88762.00 GPM

Process Notes:

POLLUTANT NAME: Particulate matter, filterable (FPM)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0005 % DRIFT LOSS CONTINUOUS
Emission Limit 2: 2000.0000 MG/L TDS CONTINUOUS
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) HIGH EFFICIENCY DRIFT ELIMINATORS
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0005 % DRIFT LOSS CONTINUOUS
Emission Limit 2: 2000.0000 MG/L TDS CONTINUOUS
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) HIGH EFFICIENCY DRIFT ELIMINATORS
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0005 % DRIFT LOSS CONTINUOUS
Emission Limit 2: 2000.0000 MG/L TDS CONTINUOUS
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) HIGH EFFICIENCY DRIFT ELIMINATORS
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: DIESEL FIRED EMERGENCY GENERATOR
Process Type: 17.110 (Fuel Oil (ASTM # 1,2, includes kerosene, aviation, diesel fuel))
Primary Fuel: NO. 2, DIESEL
Throughput: 3600.00 BHP
Process Notes: ANNUAL OPERATING HOURS SHALL NOT EXCEED 500 HOURS. INSIGNIFICANT ACTIVITY WILL NOT BE TESTED.

POLLUTANT NAME: Particulate matter, filterable (FPM)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.1500 G/BHP-H 3-HR AVERAGE
Emission Limit 2:
Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.1500 G/BHP-H 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.1500 G/BHP-H 3-HR AVERAGE
Emission Limit 2:
Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 4.4600 G/BHP-H 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 2.6100 G/BHP-H 3-HR AVERAGE
Emission Limit 2:
Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 0.3100 G/BHP-H 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Dioxide

CAS Number: 124-38-9
Test Method: Unspecified
Pollutant Group(s): (Acid Gasses/Mist , Greenhouse Gasses (GHG) , InOrganic Compounds)
Emission Limit 1: 526.3900 G/BHP-H 3-HR AVERAGE
Emission Limit 2:
Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: FIRE PUMP

Process Type: 17.210 (Fuel Oil (ASTM # 1,2, includes kerosene, aviation, diesel fuel))

Primary Fuel:

Throughput: 500.00 HP

Process Notes: OPERATION LIMITED TO 500 HOURS PER YEAR. INSIGNIFICANT ACTIVITY, WILL NOT BE TESTED.

POLLUTANT NAME: Particulate matter, filterable (FPM)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.1500 G/BHP-H 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.1500 G/BHP-H 3-HR AVERAGE

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (P) GOOD COMBUSTION PRACTICES

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.1500 G/BHP-H 3-HR AVERAGE

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (P) GOOD COMBUSTION PRACTICES

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))

Emission Limit 1: 2.8300 G/BHP-H 3-HR AVERAGE

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (P) GOOD COMBUSTION PRACTICES

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds)

Emission Limit 1: 2.6000 G/BHP-H 3-HR AVERAGE

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (P) GOOD COMBUSTION PRACTICES

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 0.1410 G/BHP-H 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Dioxide

CAS Number: 124-38-9
Test Method: Unspecified
Pollutant Group(s): (Acid Gasses/Mist , Greenhouse Gasses (GHG) , InOrganic Compounds)
Emission Limit 1: 527.4000 G/BHP-H 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: FUGITIVE DUST FROM PAVED ROADS AND PARKING LOTS

Process Type: 99.140 (Paved Roads)

Primary Fuel:

Throughput: 10402.00 VEHICLE MILES TRAVELED

Process Notes:

POLLUTANT NAME: Particulate matter, filterable (FPM)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 90.0000 % CONTROL CONTINUOUS

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (P) PAVE ALL HAUL ROADS, DAILY SWEEPING WITH WET SUPPRESSION, PROMPT CLEANUP OF ANY SPILLED MATERIAL.

Est. % Efficiency: 90.000

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 90.0000 % CONTROL CONTINUOUS

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (P) PAVE ALL HAUL ROADS, DAILY SWEEPING WITH WET SUPPRESSION, PROMPT CLEANUP OF ANY SPILLED MATERIAL.

Est. % Efficiency: 90.000

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 90.0000 % CONTROL CONTINUOUS

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (P) PAVE ALL HAUL ROADS, DAILY SWEEPING WITH WET SUPPRESSION, PROMPT CLEANUP OF ANY SPILLED MATERIAL.

Est. % Efficiency: 90.000

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: RAW WATER PUMP

Process Type: 17.210 (Fuel Oil (ASTM # 1,2, includes kerosene, aviation, diesel fuel))

Primary Fuel: DIESEL, NO. 2

Throughput: 500.00 HP

Process Notes: OPERATION NOT TO EXCEED 500 HOURS PER YEAR. INSIGNIFICANT ACTIVITY, WILL NOT BE TESTED.

POLLUTANT NAME: Particulate matter, filterable (FPM)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.1500 G/BHP-H 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.1500 G/BHP-H 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.1500 G/BHP-H 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 2.8300 G/BHP-H 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 2.6000 G/BHP-H 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 0.1410 G/BHP-H 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME:	Carbon Dioxide
CAS Number:	124-38-9
Test Method:	Unspecified
Pollutant Group(s):	(Acid Gasses/Mist , Greenhouse Gasses (GHG) , InOrganic Compounds)
Emission Limit 1:	527.4000 G/BHP-H 3-HR AVERAGE
Emission Limit 2:	
Standard Emission:	

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis:	BACT-PSD
Other Applicable Requirements:	
Control Method:	(P) GOOD COMBUSTION PRACTICES
Est. % Efficiency:	
Cost Effectiveness:	0 $/ton
Incremental Cost Effectiveness:	0 $/ton
Compliance Verified:	Unknown
Pollutant/Compliance Notes:	

Facility Information

RBLC ID:	IN-0180 (final)	**Date Determination Last Updated:**	05/05/2016
Corporate/Company Name:	MIDWEST FERTILIZER CORPORATION	**Permit Number:**	129-33576-00059
Facility Name:	MIDWEST FERTILIZER CORPORATION	**Permit Date:**	06/04/2014 (actual)
Facility Contact:	MICHAEL CHORLTON 3176258315	**FRS Number:**	110059696841
Facility Description:	A STATIONARY NITROGEN FERTILIZER MANUFACTURING FACILITY	**SIC Code:**	2873
Permit Type:	A: New/Greenfield Facility	**NAICS Code:**	325311
Permit URL:	HTTP://PERMITS.AIR.IDEM.IN.GOV/33576F.PDF		
EPA Region:	5	**COUNTRY:**	USA
Facility County:	POSEY		
Facility State:	IN		
Facility ZIP Code:	47620		

Permit Issued By: INDIANA DEPT OF ENV MGMT, OFC OF AIR (Agency Name)
MR. MATT STUCKEY(Agency Contact) (317) 233-0203 mstuckey@idem.in.gov

Other Agency Contact Info: PERMIT WRITER:
DAVID MATOUSEK (317) 232-8253 DMATOUSE@IDEM.IN.GOV

SECTION CHIEF:
NATHAN BELL (317) 233-5670 NBELL@IDEM.IN.GOV

Permit Notes:

Process/Pollutant Information

PROCESS NAME: REFORMER FURNACE

Process Type: 11.310 (Natural Gas (includes propane and liquefied petroleum gas))

Primary Fuel: NATURAL GAS, PROCESS GAS

Throughput: 950.64 MMBTU/H

Process Notes:

POLLUTANT NAME: Particulate matter, filterable (FPM)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 1.9000 LB/MMCF 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES AND PROPER DESIGN
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 5.3850 LB/MMCF 3-HR AVERAGEE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES AND PROPER DESIGN
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 5.3850 LB/MMCF 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES AND PROPER DESIGN
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 9.0000 PPMVD @3% OXYGEN THIRTY DAY ROLLING AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) SELECTIVE CATALYTIC REDUCTION (SCR), LOW NOX BURNERS
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Monoxide
CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 43.4500 LB/MMCF 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES AND PROPER DESIGN
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 5.5000 LB/MMCF 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES AND PROPER DESIGN
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Dioxide
CAS Number: 124-38-9
Test Method: Unspecified
Pollutant Group(s): (Acid Gasses/Mist , Greenhouse Gasses (GHG) , InOrganic Compounds)
Emission Limit 1: 59.6100 TON/MMCF 3-HR AVERAGE
Emission Limit 2: 486675.0000 T/YR CO2 MONTHLY
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES AND PROPER DESIGN
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: 80% THERMAL EFFICIENCY BASED ON HIGHER HEATING VALUE.

Process/Pollutant Information

PROCESS NAME: STARTUP HEATER

Process Type: 15.110 (Natural Gas (includes propane & liquified petroleum gas))

Primary Fuel: NATURAL GAS

Throughput: 92.50 MMBTU/H

Process Notes: NATURAL GAS USAGE SHALL NOT EXCEED 18.14 MMCF/YEAR.

POLLUTANT NAME: Particulate matter, filterable (FPM)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 1.9000 LB/MMCF 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES AND PROPER DESIGN, USE NATURAL GAS
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 7.6000 LB/MMCF 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:

Control Method: (P) GOOD COMBUSTION PRACTICES AND PROPER DESIGN, USE NATURAL GAS
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 7.6000 LB/MMCF 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES AND PROPER DESIGN, USE NATURAL GAS
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 183.7000 LB/MMCF 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:

Control Method: (A) GOOD COMBUSTION PRACTICES AND PROPER DESIGN, USE NATURAL GAS
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Monoxide
CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 37.2300 LB/MMCF 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES AND PROPER DESIGN, USE NATURAL GAS
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Dioxide
CAS Number: 124-38-9
Test Method: Unspecified
Pollutant Group(s): (Acid Gasses/Mist , Greenhouse Gasses (GHG) , InOrganic Compounds)
Emission Limit 1: 59.6100 TON/MMCF 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:

Control Method:	(P) GOOD COMBUSTION PRACTICES AND PROPER DESIGN, USE NATURAL GAS
Est. % Efficiency:	
Cost Effectiveness:	0 $/ton
Incremental Cost Effectiveness:	0 $/ton
Compliance Verified:	Unknown
Pollutant/Compliance Notes:	

POLLUTANT NAME:	Volatile Organic Compounds (VOC)
CAS Number:	VOC
Test Method:	Unspecified
Pollutant Group(s):	(Volatile Organic Compounds (VOC))
Emission Limit 1:	5.5000 LB/MMCF 3-HR AVERAGE
Emission Limit 2:	
Standard Emission:	

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis:	BACT-PSD
Other Applicable Requirements:	
Control Method:	(P) PROPER DESIGN AND GOOD COMBUSTION PRACTICES
Est. % Efficiency:	
Cost Effectiveness:	0 $/ton
Incremental Cost Effectiveness:	0 $/ton
Compliance Verified:	Unknown
Pollutant/Compliance Notes:	

Process/Pollutant Information

PROCESS NAME:	TWO (2) NATURAL GAS FIRED COMBUSTION TURBINES
Process Type:	16.210 (Natural Gas (includes propane & liquified petroleum gas))
Primary Fuel:	NATURAL GAS
Throughput:	283.00 MMBTU/H, EACH
Process Notes:	NATURAL GAS FIRED, OPEN-SIMPLE CYCLE COMBUSTION TURBINES WITH HEAT RECOVERY

POLLUTANT NAME:	Particulate matter, filterable (FPM)
CAS Number:	PM

Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0019 LB/MMBTU 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES AND PROPER DESIGN
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0076 LB/MMBTU 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES AND PROPER DESIGN
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)
CAS Number: PM

Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0076 LB/MMBTU 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES AND PROPER DESIGN
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Nitrogen Oxides (NOx)
CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 22.6500 PPMVD AT 15% OXYGEN 3-HR AVERAGE AT > 50% PEAK LOAD
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) DRY LOW NOX COMBUSTORS
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Monoxide
CAS Number: 630-08-0

Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 0.0300 LB/MMBTU 3-HR AVERAGE AT > 50% PEAK LOAD
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES AND PROPER DESIGN
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)
CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 2.5000 PPMVD AT 15% OXYGEN 1-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES AND PROPER DESIGN
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Dioxide
CAS Number: 124-38-9

Test Method: Unspecified
Pollutant Group(s): (Acid Gasses/Mist , Greenhouse Gasses (GHG) , InOrganic Compounds)
Emission Limit 1: 12666.0000 BTU/KW-H, MINIMUM CONTINUOUS
Emission Limit 2: 116.8900 LB/MMBTU 3-HR AVERAGE
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES AND PROPER DESIGN
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: CO2 EMISSIONS SHALL NOT EXCEED 144,890 TON/YEAR

Process/Pollutant Information

PROCESS NAME: THREE (3) AUXILARY BOILERS
Process Type: 16.210 (Natural Gas (includes propane & liquified petroleum gas))
Primary Fuel: NATURAL GAS
Throughput: 218.60 MMBTU/H, EACH
Process Notes: NATURAL GAS USAGE IN EACH BOILER NOT TO EXCEED 1501.91 MMCF/YR

POLLUTANT NAME: Particulate matter, filterable (FPM)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 1.9000 LB/MMCF 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES AND PROPER DESIGN

Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 7.6000 LB/MMCF 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES AND PROPER DESIGN
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Nitrogen Oxides (NOx)
CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 20.4000 LB/MMCF 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) LOW NOX BURNERS, FLUE GAS RECIRCULATION

Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 37.2200 LB/MMCF 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES AND PROPER DESIGN
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 5.5000 LB/MMCF 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES AND PROPER DESIGN

Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Dioxide
CAS Number: 124-38-9
Test Method: Unspecified
Pollutant Group(s): (Acid Gasses/Mist , Greenhouse Gasses (GHG) , InOrganic Compounds)
Emission Limit 1: 59.6100 TON/MMCF 3-HR AVERAGE
Emission Limit 2: 80.0000 % THERMAL EFFICIENCY (HHV)
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES AND PROPER DESIGN: AIR INLET CONTROLS, HEAT RECOVERY CONDENSATE AND BLOWDOWN HEAT RECOVERY
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: CO2 PURIFICATION PROCESS
Process Type: 61.012 (Fertilizer Production (except 61.009))
Primary Fuel:
Throughput: 2400.00 T/D AMMONIA
Process Notes:

POLLUTANT NAME: Carbon Monoxide
CAS Number: 630-08-0

Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 0.0117 LB/TON AMMONIA 3-HR AVERAGE, 100% CO2 VENTING
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) PROPER CATALYST SELECTION
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)
CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 0.0558 LB/TON OF AMMONIA 3-HR AVERAGE, 100% CO2 VENTING
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) PROPER CATALYST SELECTION
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Dioxide
CAS Number: 124-38-9

Test Method: Unspecified
Pollutant Group(s): (Acid Gasses/Mist , Greenhouse Gasses (GHG) , InOrganic Compounds)
Emission Limit 1: 1.2750 TON/TON AMMONIA 3-HR AVERAGE, 100% VENTING
Emission Limit 2: 1232475.0000 T/YR CO_2 MONTHLY
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) PROPER CATALYST SELECTION
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: UREA GRANULATION UNIT

Process Type: 61.012 (Fertilizer Production (except 61.009))

Primary Fuel:

Throughput: 1440.00 METRIC T/D

Process Notes:

POLLUTANT NAME: Particulate matter, filterable (FPM)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.1630 LB/TON GRANULES 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) HIGH EFFICIENCY WET SCRUBBER

Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.1630 LB/TON GRANULES 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) HIGH EFFICIENCY WET SCRUBBER
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.1630 LB/TON GRANULES 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) HIGH EFFICIENCY WET SCRUBBER

Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: UREA GRANULE STORAGE WAREHOUSE

Process Type: 61.999 (Other Agricultural Chemical Manufacturing Sources)

Primary Fuel:

Throughput: 0

Process Notes:

POLLUTANT NAME: Particulate matter, filterable (FPM)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.1700 LB/H 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) BAGHOUSE
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)

CAS Number: PM
Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.1700 LB/H 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) BAGHOUSE
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.1700 LB/H 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) BAGHOUSE
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: FUGITIVE EMISSIONS FROM EQUIPMENT LEAKS

Process Type: 64.002 (Equipment Leaks (valves, compressors, pumps, etc.))

Primary Fuel:

Throughput: 0

Process Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC

Test Method: Unspecified

Pollutant Group(s): (Volatile Organic Compounds (VOC))

Emission Limit 1:

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (P) LEAK DETECTION AND REPAIR (LDAR) PROGRAM USING 40 CFR 60, SUBPART VVA PROCEDURES

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: GRANULAR UAN TRUCK LOADOUT OPERATION

Process Type: 61.999 (Other Agricultural Chemical Manufacturing Sources)

Primary Fuel:

Throughput: 0

Process Notes:

POLLUTANT NAME: Particulate matter, filterable (FPM)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.1200 LB/H 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) FABRIC FILTER DUST COLLECTOR
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.1200 LB/H 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) FABRIC FILTER DUST COLLECTOR
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)
CAS Number: PM
Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.1200 LB/H 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) FABRIC FILTER DUST COLLECTOR
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: GRANULAR UAN RAIL LOADING OPERATION
Process Type: 61.999 (Other Agricultural Chemical Manufacturing Sources)
Primary Fuel:
Throughput: 0
Process Notes:

POLLUTANT NAME: Particulate matter, filterable (FPM)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.2100 LB/H 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) FABRIC FILTER DUST COLLECTOR
Est. % Efficiency:

Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.2100 LB/H 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) FABRIC FILTER DUST COLLECTOR
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.2100 LB/H 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) FABRIC FILTER DUST COLLECTOR
Est. % Efficiency:

Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: UREA JUNCTION OPERATION

Process Type: 61.999 (Other Agricultural Chemical Manufacturing Sources)

Primary Fuel:

Throughput: 0

Process Notes:

POLLUTANT NAME: Particulate matter, filterable (FPM)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.2100 LB/H 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) FABRIC FILTER DUST COLLECTOR
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.2100 LB/H 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) FABRIC FILTER DUST COLLECTOR
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.2100 LB/H 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) FABRIC FILTER DUST COLLECTOR
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: NITRIC ACID PLANT
Process Type: 62.014 (Nitric Acid Plants)

Primary Fuel:

Throughput: 1840.00 METRIC T/D

Process Notes:

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 0.0640 LB/TON NITRIC ACID 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) SELECTIVE CATALYTIC REDUCTION (SCR)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Nitrous Oxide (N_2O)

CAS Number: 10024-97-2
Test Method: Unspecified
Pollutant Group(s): (Greenhouse Gasses (GHG) , InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 0.6130 LB/TON NITRIC ACID 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) CATALYTIC REACTOR
Est. % Efficiency:
Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: NITRIC ACID LIMIT IS BASED ON 100% NITRIC ACID.

Process/Pollutant Information

PROCESS NAME: FRONT END FLARE
Process Type: 19.310 (Chemical Plant Flares)
Primary Fuel: NATURAL GAS
Throughput: 4.00 MMBTU/H
Process Notes: SSM VENTING IS LIMITED TO 336 HOURS PER YEAR. HEAT INPUT OF 4 MMBTU/HR IS FOR PILOT ONLY.

POLLUTANT NAME: Particulate matter, filterable (FPM)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 1.9000 LB/MMCF 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) NATURAL GAS PILOT, FLARE MINIMIZATION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 7.6000 LB/MMCF 3-HR AVERAGE

Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) NATURAL GAS PILOT, FLARE MINIMIZATION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 7.6000 LB/MMCF 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) NATURAL GAS PILOT, FLARE MINIMIZATION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Nitrogen Oxides (NOx)
CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 0.0680 LB/MMBTU 3-HR AVERAGE

Emission Limit 2: 595.4900 LB/H, SSM VENTING 3-HR AVERAGE

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (P) NATURAL GAS PILOT, FLARE MINIMIZATION PRACTICES

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds)

Emission Limit 1: 0.3700 LB/MMBTU 3-HR AVERAGE

Emission Limit 2: 3240.1600 LB/H, SSM VENTING 3-HR AVERAGE

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (P) NATURAL GAS PILOT, FLARE MINIMIZATION PRACTICES

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC

Test Method: Unspecified

Pollutant Group(s): (Volatile Organic Compounds (VOC))

Emission Limit 1: 0.0054 LB/MMBTU 3-HR AVERAGE

Emission Limit 2: 47.2600 LB/H, SSM VENTING 3-HR AVERAGE

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (P) NATURAL GAS PILOT, FLARE MINIMIZATION PRACTICES

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Dioxide

CAS Number: 124-38-9

Test Method: Unspecified

Pollutant Group(s): (Acid Gasses/Mist , Greenhouse Gasses (GHG) , InOrganic Compounds)

Emission Limit 1: 116.8900 LB/MMBTU 3-HR AVERAGE

Emission Limit 2: 511.8100 TON/H, SSM VENTING 3-HR AVERAGE

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (A) NATURAL GAS PILOT, FLARE MINIMIZATION PRACTICES

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: BACK END FLARE

Process Type: 19.310 (Chemical Plant Flares)

Primary Fuel: NATURAL GAS

Throughput: 4.00 MMBTU/H

Process Notes: SSM VENTING SHALL NOT EXCEEDD 336 HOURS PER YEAR. HEAT INPUT IS PILOT ONLY.

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.0075 LB/MMBTU 3-HR AVERAGE

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (P) NATURAL GAS PILOT, FLARE MINIMIZATION PRACTICES

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))

Emission Limit 1: 0.0680 LB/MMBTU 3-HR AVERAGE

Emission Limit 2: 624.9400 LB/H, SSM VENTING 3-HR AVERAGE

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (P) NATURAL GAS PILOT, FLARE MINIMIZATION PRACTICES

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Monoxide
CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 0.3700 LB/MMBTU 3-HR AVERAGE
Emission Limit 2: 804.7600 LB/H, SSM VENTING 3-HR AVERAGE
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) NATURAL GAS PILOT, FLARE MINIMIZATION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)
CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 0.0054 LB/MMBTU 3-HR AVERAGE
Emission Limit 2: 11.7300 LB/H, SSM VENTING 3-HR AVERAGE
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) NATURAL GAS PILOT, FLARE MINIMIZATION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Dioxide
CAS Number: 124-38-9
Test Method: Unspecified
Pollutant Group(s): (Acid Gasses/Mist , Greenhouse Gasses (GHG) , InOrganic Compounds)
Emission Limit 1: 116.8900 LB/MMBTU 3-HR AVERAGE
Emission Limit 2: 127.1200 LB/H, SSM VENTING 3-HR AVERAGE
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) NATURAL GAS PILOT, FLARE MINIMIZATION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, filterable (FPM)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0019 LB/MMBTU 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) NATURAL GAS PILOT, FLARE MINIMIZATION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0075 LB/MMBTU 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) NATURAL GAS PILOT, FLARE MINIMIZATION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: AMMONIA STORAGE FLARE
Process Type: 19.310 (Chemical Plant Flares)
Primary Fuel: NATURAL GAS
Throughput: 1.50 MMBTU/H
Process Notes: HEAT INPUT IS FOR PILOT ONLY. SSM EMISSIONS HAVE SEPARATE LIMITS. SSM VENTING LIMITED 168 HOURS.

POLLUTANT NAME: Particulate matter, filterable (FPM)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0019 LB/MMBTU 3-HR AVERAGE
Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (P) NATURAL GAS PILOT, FLARE MINIMIZATION PRACTICES

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.0075 LB/MMBTU 3-HR AVERAGE

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (P) NATURAL GAS PILOT, FLARE MINIMIZATION PRACTICES

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.0075 LB/MMBTU 3-HR AVERAGE

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (P) NATURAL GAS PILOT, FLARE MINIMIZATION PRACTICES

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))

Emission Limit 1: 0.0680 LB/MMBTU 3-HR AVERAGE

Emission Limit 2: 125.0000 LB/H, SSM VENTING 3-HR AVERAGE

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (P) NATURAL GAS PILOT, FLARE MINIMIZATION PRACTICES

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds)

Emission Limit 1: 0.3700 LB/MMBTU 3-HR AVERAGE

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (P) NATURAL GAS PILOT, FLARE MINIMIZATION PRACTICES

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC

Test Method: Unspecified

Pollutant Group(s): (Volatile Organic Compounds (VOC))

Emission Limit 1: 0.0054 LB/MMBTU 3-HR AVERAGE

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (P) NATURAL GAS PILOT, FLARE MINIMIZATION PRACTICES

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Dioxide

CAS Number: 124-38-9

Test Method: Unspecified

Pollutant Group(s): (Acid Gasses/Mist , Greenhouse Gasses (GHG) , InOrganic Compounds)

Emission Limit 1: 116.8900 LB/MMBTU 3-HR AVERAGE

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis:	BACT-PSD
Other Applicable Requirements:	
Control Method:	(P) NATURAL GAS PILOT, FLARE MINIMIZATION PRACTICES
Est. % Efficiency:	
Cost Effectiveness:	0 $/ton
Incremental Cost Effectiveness:	0 $/ton
Compliance Verified:	Unknown
Pollutant/Compliance Notes:	

Process/Pollutant Information

PROCESS NAME:	TEN CELL EVAPORATIVE COOLING TOWER
Process Type:	99.009 (Industrial Process Cooling Towers)
Primary Fuel:	
Throughput:	147937.00 GPM
Process Notes:	

POLLUTANT NAME:	Particulate matter, filterable (FPM)
CAS Number:	PM
Test Method:	Unspecified
Pollutant Group(s):	(Particulate Matter (PM))
Emission Limit 1:	0.0005 % DRIFT LOSS CONTINUOUS
Emission Limit 2:	2000.0000 ML/L TDS CONTINUOUS
Standard Emission:	

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis:	BACT-PSD
Other Applicable Requirements:	
Control Method:	(A) HIGH EFFICIENCY DRIFT ELIMINATORS
Est. % Efficiency:	
Cost Effectiveness:	0 $/ton
Incremental Cost Effectiveness:	0 $/ton
Compliance Verified:	Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0005 % DRIFT LOSS CONTINUOUS
Emission Limit 2: 2000.0000 MG/L TDS CONTINUOUS
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) HIGH EFFICIENCY DRIFT ELIMINATORS
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0005 % DRIFT LOSS CONTINUOUS
Emission Limit 2: 2000.0000 MG/L TDS CONTINUOUS
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) HIGH EFFICIENCY DRIFT ELIMINATORS
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown

Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: SIX CELL EVAPORATIVE COOLING TOWER

Process Type: 99.009 (Industrial Process Cooling Towers)

Primary Fuel:

Throughput: 88762.00 GPM

Process Notes:

POLLUTANT NAME: Particulate matter, filterable (FPM)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0005 % DRIFT LOSS CONTINUOUS
Emission Limit 2: 2000.0000 MG/L TDS CONTINUOUS
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) HIGH EFFICIENCY DRIFT ELIMINATORS
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0005 % DRIFT LOSS CONTINUOUS
Emission Limit 2: 2000.0000 MG/L TDS CONTINUOUS
Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (A) HIGH EFFICIENCY DRIFT ELIMINATORS

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.0005 % DRIFT LOSS CONTINUOUS

Emission Limit 2: 2000.0000 MG/L TDS CONTINUOUS

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (A) HIGH EFFICIENCY DRIFT ELIMINATORS

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: DIESEL FIRED EMERGENCY GENERATOR

Process Type: 17.110 (Fuel Oil (ASTM # 1,2, includes kerosene, aviation, diesel fuel))

Primary Fuel: NO. 2, DIESEL

Throughput: 3600.00 BHP

Process Notes: ANNUAL OPERATING HOURS SHALL NOT EXCEED 500 HOURS. INSIGNIFICANT ACTIVITY WILL NOT BE TESTED.

POLLUTANT NAME: Particulate matter, filterable (FPM)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.1500 G/B-HP-H 3-HR AVERAGE

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (P) GOOD COMBUSTION PRACTICES

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.1500 G/B-HP-H 3-HR AVERAGE

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (A) GOOD COMBUSTION PRACTICES

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.1500 G/B-HP-H 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 4.4600 G/B-HP-H 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 2.6100 G/B-HP-H 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 0.3100 G/B-HP-H 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Dioxide

CAS Number: 124-38-9
Test Method: Unspecified
Pollutant Group(s): (Acid Gasses/Mist , Greenhouse Gasses (GHG) , InOrganic Compounds)
Emission Limit 1: 526.3900 G/B-HP-H 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: FIRE PUMP

Process Type: 17.210 (Fuel Oil (ASTM # 1,2, includes kerosene, aviation, diesel fuel))

Primary Fuel:

Throughput: 500.00 HP

Process Notes: OPERATION LIMITED TO 500 HOURS PER YEAR. INSIGNIFICANT ACTIVITY, WILL NOT BE TESTED.

POLLUTANT NAME: Particulate matter, filterable (FPM)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.1500 G/B-HP-H 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.1500 G/B-HP-H 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.1500 G/B-HP-H 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Nitrogen Oxides (NOx)
CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 2.8300 G/B-HP-H 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Monoxide
CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 2.6000 G/B-HP-H 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)
CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 0.1410 G/B-HP-H 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Dioxide
CAS Number: 124-38-9
Test Method: Unspecified
Pollutant Group(s): (Acid Gasses/Mist , Greenhouse Gasses (GHG) , InOrganic Compounds)
Emission Limit 1: 527.4000 G/B-HP-H 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (P) GOOD COMBUSTION PRACTICES

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: FUGITIVE DUST FROM PAVED ROADS AND PARKING LOTS

Process Type: 99.140 (Paved Roads)

Primary Fuel:

Throughput: 10402.00 VEHICLE MILES TRAVELED

Process Notes:

POLLUTANT NAME: Particulate matter, filterable (FPM)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 90.0000 % CONTROL CONTINUOUS

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (P) PAVE ALL HAUL ROADS, DAILY SWEEPING WITH WET SUPPRESSION, PROMPT CLEANUP OF ANY SPILLED MATERIAL.

Est. % Efficiency: 90.000

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 90.0000 % CONTROL CONTINUOUS
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) PAVE ALL HAUL ROADS, DAILY SWEEPING WITH WET SUPPRESSION, PROMPT CLEANUP OF ANY SPILLED MATERIAL.
Est. % Efficiency: 90.000
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 90.0000 % CONTROL CONTINUOUS
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) PAVE ALL HAUL ROADS, DAILY SWEEPING WITH WET SUPPRESSION, PROMPT CLEANUP OF ANY SPILLED MATERIAL.
Est. % Efficiency: 90.000
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown

Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: RAW WATER PUMP

Process Type: 17.210 (Fuel Oil (ASTM # 1,2, includes kerosene, aviation, diesel fuel))

Primary Fuel: DIESEL, NO. 2

Throughput: 500.00 HP

Process Notes: OPERATION NOT TO EXCEED 500 HOURS PER YEAR. INSIGNIFICANT ACTIVITY, WILL NOT BE TESTED.

POLLUTANT NAME: Particulate matter, filterable (FPM)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.1500 G/B-HP-H 3-HR AVERAGE

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (P) GOOD COMBUSTION PRACTICES

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.1500 G/B-HP-H 3-HR AVERAGE

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (P) GOOD COMBUSTION PRACTICES

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.1500 G/B-HP-H 3-HR AVERAGE

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (P) GOOD COMBUSTION PRACTICES

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))

Emission Limit 1: 2.8300 G/B-HP-H 3-HR AVERAGE

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (P) GOOD COMBUSTION PRACTICES

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds)

Emission Limit 1: 2.6000 G/B-HP-H 3-HR AVERAGE

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (P) GOOD COMBUSTION PRACTICES

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC

Test Method: Unspecified

Pollutant Group(s): (Volatile Organic Compounds (VOC))

Emission Limit 1: 0.1410 G/B-HP-H 3-HR AVERAGE

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Dioxide

CAS Number: 124-38-9
Test Method: Unspecified
Pollutant Group(s): (Acid Gasses/Mist , Greenhouse Gasses (GHG) , InOrganic Compounds)
Emission Limit 1: 527.4000 G/B-HP-H 3-HR AVERAGE
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Facility Information

RBLC ID: TX-0737 (final)

Date Determination Last Updated: 07/06/2016

Corporate/Company Name: NRG TEXAS POWER LLC

Permit Number: 98664, N138, AND PSDTX1268

Facility Name:	W. A. PARISH ELECTRIC GENERATING STATION	**Permit Date:**	12/21/2012 (actual)
Facility Contact:	CRAIG ECKBERG (713) 537-2146	**FRS Number:**	110000608254
Facility Description:	The proposed combustion turbine is a GE Frame 7EA (or a similar sized unit), which is rated at a maximum base-load electric output of approximately 80 megawatts. The proposed heat recovery steam generator duct burner has a maximum heat input capacity of 225 million British thermal units per hour based on the high heating value of the fuel fired.	**SIC Code:**	4911
Permit Type:	B: Add new process to existing facility	**NAICS Code:**	221112
Permit URL:			
EPA Region:	6	**COUNTRY:**	USA
Facility County:	FORT BEND		
Facility State:	TX		
Facility ZIP Code:			
Permit Issued By:	TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) (Agency Name) MICHAEL PARTEE(Agency Contact) (512) 239-3312 michael.partee@tceq.texas.gov		
Other Agency Contact Info:	Mr. Tan Nguyen, 512-239-3445, tan.nguyen@tceq.texas.gov		
Permit Notes:			

Affected Boundaries:

Boundary Type:	Class 1 Area State:	Boundary:	Distance:
CLASS1	AR	Caney Creek	> 250 km

Process/Pollutant Information

PROCESS NAME:	Combined cycle combustion turbine
Process Type:	16.210 (Natural Gas (includes propane & liquified petroleum gas))
Primary Fuel:	natural gas
Throughput:	80.00 MW
Process Notes:	GE 7EA turbine, 225 million British thermal units per hour duct burner. Steam created in the heat recovery steam generator will be used as process steam.

POLLUTANT NAME:	Nitrogen Oxides (NOx)
CAS Number:	10102
Test Method:	Unspecified
Pollutant Group(s):	(InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1:	2.0000 PPMVD @ 15% O2 3-HR AVERAGE

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: LAER

Other Applicable Requirements:

Control Method: (A) Selective catalytic reduction

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC

Test Method: Unspecified

Pollutant Group(s): (Volatile Organic Compounds (VOC))

Emission Limit 1: 2.0000 PPMVD @ 15% O2

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: LAER

Other Applicable Requirements:

Control Method: (A) Oxidation catalyst

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds)

Emission Limit 1: 4.0000 PPMVD @ 15% O2 24-HR AVERAGE

Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) Oxidation catalyst
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1:
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: Natural gas as fuel and good combustion practices. This includes PM and PM10.

Facility Information

RBLC ID: TX-0625 (final)
Date Determination
Last Updated: 02/11/2014
Corporate/Company Name: NRG TEXAS POWER LLC
Permit Number: PSDTX1268

Facility Name:	WA PARISH ELECTRIC GENERATING STATION -DEMONSTRATION PROJECT	**Permit Date:**	12/19/2012 (actual)
Facility Contact:	CRAIG ECKBERG 713-537-2146	**FRS Number:**	110000608254
Facility Description:		**SIC Code:**	4911
Permit Type:	B: Add new process to existing facility	**NAICS Code:**	221112
Permit URL:			
EPA Region:	6	**COUNTRY:**	USA
Facility County:	FORT BEND		
Facility State:	TX		
Facility ZIP Code:	77481		
Permit Issued By:	TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) (Agency Name) MICHAEL PARTEE(Agency Contact) (512) 239-3312 michael.partee@tceq.texas.gov		
Other Agency Contact Info:	Mr. Tan Nguyen 512-239-3445 tan.nguyen@tceq.texas.gov		
Permit Notes:	98664, N138		

Affected Boundaries:

Boundary Type:	Class 1 Area State:	Boundary:	Distance:
CLASS1	AR	Caney Creek	> 250 km

Process/Pollutant Information

PROCESS NAME: Cogeneration turbine

Process Type: 16.210 (Natural Gas (includes propane & liquified petroleum gas))

Primary Fuel: natural gas

Throughput: 80.00 MW

Process Notes: General Electric (GE) Frame 7EA (or a similar sized unit), which is rated at a maximum base-load electric output of approximately 80 megawatts (MW). HRSG duct burner has a maximum heat input capacity of 225 million British thermal units per hour (MMBtu/hr) based on the high heating value (HHV) of the fuel fired. The steam will be used for the regeneration of the Demonstration Unit solvent.

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))

Emission Limit 1: 2.0000 PPMVD 3-HR ROLLING AVG, AT 15% OXYGEN

Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: LAER
Other Applicable Requirements:
Control Method: (A) DLN combusters on the turbine and selective catalytic reduction (SCR)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 4.0000 PPMVD 24 HR ROLLING, AT 15% OXYGEN
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) oxidation catalyst
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 2.0000 PPMVD INITIAL STACK TEST

Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis:	LAER
Other Applicable Requirements:	
Control Method:	(A) oxidation catalyst
Est. % Efficiency:	
Cost Effectiveness:	0 $/ton
Incremental Cost Effectiveness:	0 $/ton
Compliance Verified:	Unknown
Pollutant/Compliance Notes:	

POLLUTANT NAME:	Particulate matter, total < 10 µ (TPM10)
CAS Number:	PM
Test Method:	Unspecified
Pollutant Group(s):	(Particulate Matter (PM))
Emission Limit 1:	16.5800 LB/H 1 HR
Emission Limit 2:	
Standard Emission:	

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis:	BACT-PSD
Other Applicable Requirements:	
Control Method:	(P) good combustion and use of natural gas
Est. % Efficiency:	
Cost Effectiveness:	0 $/ton
Incremental Cost Effectiveness:	0 $/ton
Compliance Verified:	Unknown
Pollutant/Compliance Notes:	

POLLUTANT NAME:	Particulate matter, total < 2.5 µ (TPM2.5)
CAS Number:	PM
Test Method:	Unspecified
Pollutant Group(s):	(Particulate Matter (PM))
Emission Limit 1:	16.5800 LB/H 1 HR

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis:	BACT-PSD
Other Applicable Requirements:	
Control Method:	(P) good combustion and use of natural gas
Est. % Efficiency:	
Cost Effectiveness:	0 $/ton
Incremental Cost Effectiveness:	0 $/ton
Compliance Verified:	Unknown
Pollutant/Compliance Notes:	

Process/Pollutant Information

PROCESS NAME:	CO2 Capture Demonstration Unit
Process Type:	16.210 (Natural Gas (includes propane & liquified petroleum gas))
Primary Fuel:	none
Throughput:	590000.00 acfm
Process Notes:	Up to 590,000 acfm of coal-fired boiler exhaust is treated by an amine treatment system

POLLUTANT NAME:	Volatile Organic Compounds (VOC)
CAS Number:	VOC
Test Method:	Unspecified
Pollutant Group(s):	(Volatile Organic Compounds (VOC))
Emission Limit 1:	3.1000 PPMV
Emission Limit 2:	
Standard Emission:	

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis:	LAER
Other Applicable Requirements:	
Control Method:	(P) proper design and operation, good solvent maintenance, LDAR program
Est. % Efficiency:	
Cost Effectiveness:	0 $/ton
Incremental Cost Effectiveness:	0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: These are emissions from a CO2-stripped gas stream after it has passed through an amine absorber unit.

Facility Information

RBLC ID:	CA-1216 (final)	**Date Determination Last Updated:**	05/13/2016
Corporate/Company Name:	GROSSMONT HOSPITAL	**Permit Number:**	2012--APP-002049
Facility Name:	GROSSMONT HOSPITAL	**Permit Date:**	11/06/2012 (actual)
Facility Contact:		**FRS Number:**	110001158639
Facility Description:		**SIC Code:**	8062
Permit Type:	A: New/Greenfield Facility	**NAICS Code:**	622110
Permit URL:			
EPA Region:	9	**COUNTRY:**	USA
Facility County:	SAN DIEGO		
Facility State:	CA		
Facility ZIP Code:	91942		
Permit Issued By:	SAN DIEGO COUNTY APCD, CA (Agency Name) MR. GARY SMITH(Agency Contact) (858)586-2722 gary.smith@sdcounty.ca.gov		
Other Agency Contact Info:	Nick Horres: 858-586-2728 nick.horres@sdcounty.ca.gov		
Permit Notes:			

Process/Pollutant Information

PROCESS NAME: Cogeneration gas turbine

Process Type: 16.210 (Natural Gas (includes propane & liquified petroleum gas))

Primary Fuel: natural gas

Throughput: 0

Process Notes: Manufacturer: Solar Turbines. Model 50-6400 R. 4.6 MW - Natural gas fired with Duct

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102

Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 9.0000 PPMVD@15% O2 1 HOUR
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: OTHER CASE-BY-CASE
Other Applicable Requirements: OTHER
Control Method: (A) SoLoNOX BURNERS
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: 9 ppmv with duct burner in operation. 5 ppmv when duct burner is not in operation. SCR is not cost effective (2.5 ppmv). Other pollutants are below BACT thresholds.

Facility Information

RBLC ID:	SD-0005 (draft)	**Date Determination Last Updated:**	03/23/2018
Corporate/Company Name:	BASIN ELECTRIC POWER COOPERATIVE	**Permit Number:**	28.0505-PSD
Facility Name:	DEER CREEK STATION	**Permit Date:**	06/29/2010 (actual)
Facility Contact:	JERRY MENGE 7012230441	**FRS Number:**	110055510433
Facility Description:	Natural gas-fired combustion turbine and heat recovery steam generator for electricity production. The facility has a maximum net output of 300 megawatts.	**SIC Code:**	4911
Permit Type:	A: New/Greenfield Facility	**NAICS Code:**	221112
Permit URL:			
EPA Region:	8	**COUNTRY:**	USA
Facility County:	BROOKINGS		
Facility State:	SD		
Facility ZIP Code:	57026		
Permit Issued By:	SOUTH DAKOTA DEPT OF WATER & NAT'L RES (Agency Name) KYRIK ROMBOUGH(Agency Contact) (605)730-3151 kyrik.rombough@state.sd.us		

Permit Notes:

Facility-wide Emissions:

Pollutant Name:	**Facility-wide Emissions Increase:**
Carbon Monoxide	256.0000 (Tons/Year)
Nitrogen Oxides (NOx)	119.0000 (Tons/Year)
Particulate Matter (PM)	80.0000 (Tons/Year)
Sulfur Oxides (SOx)	12.0000 (Tons/Year)
Volatile Organic Compounds (VOC)	30.0000 (Tons/Year)

Process/Pollutant Information

PROCESS NAME: Combustion turbine/heat recovery steam generator

Process Type: 16.210 (Natural Gas (includes propane & liquified petroleum gas))

Primary Fuel: Natural Gas

Throughput: 300.00 Megawatts

Process Notes: Combustion Turbine - 1,713 million Btus per hour (Lower Heating Value) heat input Duct Burner- 615.2 million Btus per hour (Lower Heating Value) heat input

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 23.2000 LB/H 3-HOUR / WITH DUCT FIRING

Emission Limit 2: 18.6000 LB/H 3-HOUR / WITHOUT DUCT FIRING

Standard Emission: 0.0100 LB/H 3-HOUR

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (P) Good Combustion

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))

Emission Limit 1: 25.8000 LB/H 3-HOUR, EXCLUDES SSM

Emission Limit 2: 220.0000 POUNDS PER SS PERIOD STARTUP OR SHUTDOWN (SS)

Standard Emission: 3.0000 PPMVD AT 15% O2 3-HOUR, EXCLUDES SSM

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (A) Selective catalytic reduction

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds)

Emission Limit 1: 10.5000 LB/H 3-HOUR, EXCLUDES SSM PERIODS

Emission Limit 2: 840.0000 POUNDS PER SS PERIOD STARTUP AND SHUTDOWN (SS)

Standard Emission: 2.0000 PPMVD @ 15% O2 3-HOUR, EXCLUDES SSM PERIODS

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (A) Catalytic oxidation

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: Emergency Generator

Process Type: 17.110 (Fuel Oil (ASTM # 1,2, includes kerosene, aviation, diesel fuel))

Primary Fuel: Distillate Oil

Throughput: 2000.00 Kilowatts

Process Notes:

POLLUTANT NAME: Particulate matter, filterable (FPM)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1:

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: NSPS

Control Method: (N)

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: BACT was determined to be the requirements in 40 CFR Part 60, Subpart IIII

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))

Emission Limit 1:

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: NSPS
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: BACT was determined to be the requirements in 40 CFR Part 60, Subpart IIII

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1:
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: BACT was determined to be the requirements in 40 CFR Part 60, Subpart IIII

Process/Pollutant Information

PROCESS NAME: Fire Water Pump
Process Type: 17.110 (Fuel Oil (ASTM # 1,2, includes kerosene, aviation, diesel fuel))
Primary Fuel: Distillate Oil
Throughput: 577.00 horsepower
Process Notes:

POLLUTANT NAME: Particulate matter, filterable (FPM)

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1:
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: BACT was determined to be the requirements in 40 CFR Part 60, Subpart IIII

POLLUTANT NAME: Nitrogen Oxides (NOx)
CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1:
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: BACT was determined to be the requirements in 40 CFR Part 60, Subpart IIII

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1:
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: BACT was determined to be the requirements in 40 CFR Part 60, Subpart IIII

Process/Pollutant Information

PROCESS NAME: Inlet Air Heater
Process Type: 19.600 (Misc. Boilers, Furnaces, Heaters)
Primary Fuel: Natural Gas
Throughput: 25.00 MMBtu per hour
Process Notes: Limited Unit to 150 hours per 12-month period and burning pipeline natural gas.

POLLUTANT NAME:
CAS Number:
Test Method:
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1:
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown
Case-by-Case Basis:
Other Applicable Requirements: NSPS

Control Method: ()
Est. % Efficiency:
Cost Effectiveness: $/ton
Incremental Cost Effectiveness: $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Facility Information

RBLC ID:	PA-0289 (draft)	**Date Determination Last Updated:**	01/30/2018
Corporate/Company Name:	GEISINGER MEDICAL CENTER	**Permit Number:**	47-00005A
Facility Name:	GEISINGER MED CTR/DANVILLE	**Permit Date:**	06/18/2010 (actual)
Facility Contact:	ALAN R NEUNER 570-271-5515	**FRS Number:**	24-0795959-1
Facility Description:	combined heat and power, natural gas-fired combustion turbine	**SIC Code:**	8099
Permit Type:	A: New/Greenfield Facility	**NAICS Code:**	622110
Permit URL:			
EPA Region:	3	**COUNTRY:**	USA
Facility County:	MONTOUR		
Facility State:	PA		
Facility ZIP Code:	17822		

Permit Issued By: PENNSYLVANIA DEPT OF ENVIRONMENTAL PROTECTION, BUREAU OF AIR QUALITY (Agency Name)
MR. ROBERT COOK(Agency Contact) (717)772-3974 rwcook@pa.gov

Other Agency Contact Info: MUHAMMAD Q. ZAMAN
ENVIRONMENTAL PROGRAM MANAGER
NORTHCENTRAL REGION
208 West Third St.,
Williamsport, PA 17701
570-327-3648

Permit Notes: This plan approval is for the construction of a combined heat and power, natural gas-fired combustion turbine.

Facility-wide Emissions:

Pollutant Name:	Facility-wide Emissions Increase:
Carbon Monoxide	17.1000 (Tons/Year)
Nitrogen Oxides (NOx)	16.2000 (Tons/Year)
Particulate Matter (PM)	4.8000 (Tons/Year)
Sulfur Oxides (SOx)	0.5000 (Tons/Year)
Volatile Organic Compounds (VOC)	2.6000 (Tons/Year)

Process/Pollutant Information

PROCESS NAME: COMBINED HEAT AND POWER COMBUSTION TURBINE

Process Type: 16.210 (Natural Gas (includes propane & liquified petroleum gas))

Primary Fuel: Natural Gas

Throughput: 55.62 MMBTU/H

Process Notes: 0.8 ton of total hazardous air pollutant in any 12 consecutive month period; and 0.7 ton of formaldehyde in any 12 consecutive month period.

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))

Emission Limit 1: 15.0000 PPM @15% O2 IN SOLONOX MODE

Emission Limit 2: 42.0000 PPM @15% O2 DURING SUB-ZERO AMBIENT,, NON-SOLONOX

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: OTHER CASE-BY-CASE

Other Applicable Requirements: OTHER

Control Method: (P) SoLoNOx combustor

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds)

Emission Limit 1: 25.0000 PPM @ 15% O2 IN SOLONOX MODE

Emission Limit 2: 100.0000 PPM @ 15% O2 SUB-ZERO AMBIENT NON-SOLONOX

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: OTHER CASE-BY-CASE
Other Applicable Requirements: OTHER
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 0.6000 LB/H IN SOLONOX MODE
Emission Limit 2: 11.9000 LB/H SUB-ZERO NON-SOLONOX MODE
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: OTHER CASE-BY-CASE
Other Applicable Requirements: OTHER
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Formaldehyde

CAS Number: 50-00-0
Test Method: Unspecified
Pollutant Group(s): (Hazardous Air Pollutants (HAP) , Organic Compounds (all) , Volatile Organic Compounds (VOC))
Emission Limit 1: 0.0029 LB/MMBTU
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis:	OTHER CASE-BY-CASE
Other Applicable Requirements:	OPERATING PERMIT
Control Method:	(N)
Est. % Efficiency:	
Cost Effectiveness:	0 $/ton
Incremental Cost Effectiveness:	0 $/ton
Compliance Verified:	Unknown
Pollutant/Compliance Notes:	

Facility Information

RBLC ID:	TX-0552 (final)	**Date Determination Last Updated:**	05/18/2010
Corporate/Company Name:	STARK POWER GENERATION II HOLDINGS, LLC	**Permit Number:**	PSDTX1110
Facility Name:	WOLF HOLLOW POWER PLANT NO. 2	**Permit Date:**	03/03/2010 (actual)
Facility Contact:		**FRS Number:**	UNKNOWN
Facility Description:	A combined-cycle power plant generating a nominal 800 MW with either 2 MHI501G turbines or 2 GE 7FA turbines.	**SIC Code:**	4911
Permit Type:	B: Add new process to existing facility	**NAICS Code:**	221112
Permit URL:			
EPA Region:	6	**COUNTRY:**	USA
Facility County:	HOOD		
Facility State:	TX		
Facility ZIP Code:			
Permit Issued By:	TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) (Agency Name) MICHAEL PARTEE(Agency Contact) (512) 239-3312 michael.partee@tceq.texas.gov		
Other Agency Contact Info:	Ms. Ruth Alvirez 512-239-5220 ralvirez@tceq.state.tx.us		
Permit Notes:	State permit 83638		

Process/Pollutant Information

PROCESS NAME: Natural gas-fired turbines

Process Type: 16.210 (Natural Gas (includes propane & liquified petroleum gas))

Primary Fuel: natural gas

Throughput: 600.00 MW

Process Notes: Project will be either 2 MHI501G gas turbines plus 230 MMBtu/hr duct burner firing for each turbine or 2 GE 7FA gas turbines plus 570 MMBtu/hr duct burner firing for each turbine.

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))

Emission Limit 1: 2.0000 PPMVD @ 15% O2, ROLLING 24-HR AVG, FULL LOAD

Emission Limit 2: 9.0000 PPMVD @ 15% O2, ROLLING 3-HR AVG, REDUCED LOAD

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (B) Dry low NOx combustors plus selective catalytic reduction

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: Reduced load for GE 7FA is 50% of full load or less Reduced load for MHI501G is 60% of full load or less

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds)

Emission Limit 1: 10.0000 PPMVD @ 15% O2, ROLLING 3-HR AVG, MHI501G

Emission Limit 2: 11.0000 PPMVD @ 15% O2, ROLLING 3-HR AVG, GE 7FA

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (P) Good combustion practices

Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 4.0000 PPMVD @ 15% O2, 3-HR AVG, MHI501G
Emission Limit 2: 3.0000 PPMVD @ 15% O2, 3-HR AVG, GE 7FA
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) Good combustion practices
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: Cooling tower
Process Type: 99.009 (Industrial Process Cooling Towers)
Primary Fuel:
Throughput: 0
Process Notes:

POLLUTANT NAME: Particulate matter, total (TPM)

CAS Number: PM
Test Method: Unspecified

Pollutant Group(s):	(Particulate Matter (PM))
Emission Limit 1:	0.0005 % DRIFT
Emission Limit 2:	
Standard Emission:	

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis:	BACT-PSD
Other Applicable Requirements:	
Control Method:	(P) Drift eliminators
Est. % Efficiency:	
Cost Effectiveness:	0 $/ton
Incremental Cost Effectiveness:	0 $/ton
Compliance Verified:	Unknown
Pollutant/Compliance Notes:	

Facility Information

RBLC ID:	TX-0551 (final)	**Date Determination**	
		Last Updated:	05/17/2010
Corporate/Company Name:	PANDA SHERMAN POWER LLC	**Permit Number:**	PSDTX1198
Facility Name:	PANDA SHERMAN POWER STATION	**Permit Date:**	02/03/2010 (actual)
Facility Contact:		**FRS Number:**	UNKNOWN
Facility Description:	A combined-cycle power plant producing a nominal 600 MW with two Siemens SGT6-5000F (501F) or two GE 7FA gas turbines.	**SIC Code:**	4911
Permit Type:	A: New/Greenfield Facility	**NAICS Code:**	221112
Permit URL:			
EPA Region:	6	**COUNTRY:**	USA
Facility County:	GRAYSON		
Facility State:	TX		
Facility ZIP Code:			
Permit Issued By:	TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) (Agency Name) MICHAEL PARTEE(Agency Contact) (512) 239-3312 michael.partee@tceq.texas.gov		
Other Agency Contact Info:	Ms. Tara Capobianco, P.E. 512-239-1117 tcapobia@tceq.state.tx.us		
Permit Notes:	State permit 87225		

Process/Pollutant Information

PROCESS NAME: Natural Gas-fired Turbines

Process Type: 16.210 (Natural Gas (includes propane & liquified petroleum gas))

Primary Fuel: Natural Gas

Throughput: 600.00 MW

Process Notes: 2 Siemens SGT6-5000F or 2 GE Frame 7FA. Both capable of combined or simple cycle operation. 468 MMBtu/hr duct burners.

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))

Emission Limit 1: 9.0000 PPMVD @ 15% O2, ROLLNG 24-HR AVG, SIMPLE CYCLE

Emission Limit 2: 2.0000 PPMVD @ 15% O2, RLNG 24-HR AVG, COMBINED CYCLE

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (B) Dry low NOx combustors and Selective Catalytic Reduction

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: Simple Cycle mode bypasses SCR

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds)

Emission Limit 1: 4.0000 PPMVD @ 15% O2, ROLLNG 24-HR AVG, SIMPLE CYCLE

Emission Limit 2: 15.0000 PPMVD @ 15% O2, RLNG 24-HR AVG, COMBINED CYCLE

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) Good combustion practices
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)
CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 1.0000 PPMVD @ 15% O2, 3-HR AVG, SIMPLE CYCLE MODE
Emission Limit 2: 4.0000 PPMVD @ 15% O2, 3-HR AVG, COMBINED CYCLE MODE
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) Good combustion practices
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: Cooling tower
Process Type: 99.009 (Industrial Process Cooling Towers)
Primary Fuel:
Throughput: 0
Process Notes:

POLLUTANT NAME:	Particulate matter, total (TPM)
CAS Number:	PM
Test Method:	Unspecified
Pollutant Group(s):	(Particulate Matter (PM))
Emission Limit 1:	0.0005 % DRIFT
Emission Limit 2:	
Standard Emission:	

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis:	BACT-PSD
Other Applicable Requirements:	
Control Method:	(P) Drift eliminators
Est. % Efficiency:	
Cost Effectiveness:	0 $/ton
Incremental Cost Effectiveness:	0 $/ton
Compliance Verified:	Unknown
Pollutant/Compliance Notes:	

Facility Information

RBLC ID:	AK-0066 (final)	**Date Determination Last Updated:**	08/06/2009
Corporate/Company Name:	BRITISH PETROLEUM EXPLORATION ALASKA (BPXA)	**Permit Number:**	AQ0181CPT06, REVISION 2
Facility Name:	ENDICOTT PRODUCTION FACILITY, LIBERTY DEVELOPMENT PROJECT	**Permit Date:**	06/15/2009 (actual)
Facility Contact:	ALISON COOKE 9075644838	**FRS Number:**	UNKNOWN
Facility Description:	AT ENDICOTT, BPXA PROCESSES CRUDE OIL PRODUCTION FLUIDS RECEIVED FROM VARIOUS CRUDE OIL ACCUMULATIONS LOCATED ON THE NORTH SLOPE OF ALASKA. THE STATIONARY SOURCE IS CURRENTLY SITUATED ON TWO OFF-SHORE PRODUCTION ISLANDS, WHICH ARE LOCATED IN THE BEAUFORT SEA, AND CONNECTED BY A 3.5 MILE CAUSEWAY. ENDICOTT IS CURRENTLY CAPABLE OF PROCESSING 120,000 BARRELS OF CRUDE OIL PER DAY AND 480 MILLION STANDARD CUBIC FEET OF GAS. PRODUCTION FLUIDS CONSIST MAINLY OF CRUDE OIL, HYDROCARBON GAS, AND WATER. THE CRUDE OIL IS PROCESSED TO REMOVE HYDROCARBON GAS AND WATER IN ORDER TO MEET SPECIFIC CRUDE-OIL SALES SPECIFICATIONS. THE HYDROCARBON GAS IS DEHYDRATED, STRIPPED OF HEAVIER HYDROCARBONS THAT MAY BE PRESENT AND COMPRESSED FOR RE-INJECTION INTO THE	**SIC Code:**	1311

OIL-BEARING RESERVOIR OR USED AS FUEL. WATER IS PROCESSED TO REMOVE ENTRAINED CRUDE OIL BEFORE RE-INJECTION. THE ENERGY NEEDED TO SUPPORT OPERATIONS COMES PRIMARILY FROM THE COMBUSTION OF PRODUCED HYDROCARBON GAS.

Permit Type: B: Add new process to existing facility **NAICS Code:** 211111

Permit URL:

EPA Region: 10 **COUNTRY:** USA

Facility County: PRUDHOE BAY

Facility State: AK

Facility ZIP Code:

Permit Issued By: ALASKA DEPT OF ENVIRONMENTAL CONS (Agency Name)
MR. JIM PLOSAY(Agency Contact) (907) 465-5103 JOHN.KUTERBACH@ALASKA.GOV

Other Agency Contact Info: SALLY RYAN, (907) 269-6271
MATT WILKINSON, (907) 465-5124

Permit Notes:

Facility-wide Emissions:

Pollutant Name:	Facility-wide Emissions Increase:
Carbon Monoxide	118.7000 (Tons/Year)
Nitrogen Oxides (NOx)	274.9000 (Tons/Year)
Particulate Matter (PM)	10.2000 (Tons/Year)
Sulfur Oxides (SOx)	88.8000 (Tons/Year)
Volatile Organic Compounds (VOC)	30.0000 (Tons/Year)

Process/Pollutant Information

PROCESS NAME: EU ID 10A, TURBINE

Process Type: 16.210 (Natural Gas (includes propane & liquified petroleum gas))

Primary Fuel: FUEL GAS

Throughput: 7.50 KW

Process Notes:

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds)

Emission Limit 1: 5.0000 PPMV @ 15% O2 WHEN AMBIENT TEMPERATURE => 10 DEG-F

Emission Limit 2: 15.0000 PPMV @ 15% O2 WHEN AMBIENT TEMPERATURE < 10 DEG-F

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (A) CATALYTIC OXIDATION

Est. % Efficiency: 90.000

Cost Effectiveness: 2246 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: BPXA ESTIMATED THE COST EFFECTIVENESS AT $2,900/TON, WHICH THE ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION DETERMINED WAS ALSO REASONABLE FOR BACT.

POLLUTANT NAME: Sulfur Dioxide (SO2)

CAS Number: 7446-09-5

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Sulfur (SOx))

Emission Limit 1: 0.0600 LB/MMBTU BASED ON HEAT INPUT

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: NSPS , OTHER

Control Method: (P) LIMIT SULFUR IN FUEL

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: BASELINE BACT SELECTED THIS WAS ALSO THE LIMIT USED IN MODELLING DEMONSTRATIONS

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))

Emission Limit 1: 25.0000 PPMV AT 15% O2 WHEN AMBIENT TEMPERATURE => 10 DEG-F

Emission Limit 2: 120.0000 PPMV AT 15% O2 WHEN AMBIENT TEMPERATURE < 10 DEG-F

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: NSPS

Control Method: (A) DRY LOW NOX COMBUSTORS (DLN)

Est. % Efficiency: 70.000

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: BASELINE SELECTED AS BACT

Process/Pollutant Information

PROCESS NAME: EU IDS 49 - 56, DRILLING MAIN ENGINES

Process Type: 17.130 (Natural Gas (includes propane & liquified petroleum gas))

Primary Fuel: FUEL GAS

Throughput: 2889.00 BHP

Process Notes: BPXA INSTALLED EIGHT OF THESE DRILLING MAIN ENGINES

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds)

Emission Limit 1: 0.4700 G/HP-H

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: NSPS

Control Method: (A) CATALYTIC OXIDATION

Est. % Efficiency: 80.000

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown
Pollutant/Compliance Notes: BPXA PROPOSED TO INSTALL THE TOP IDENTIFIED CONTROL TECHNOLOGY AS BACT.

POLLUTANT NAME: Sulfur Dioxide (SO2)
CAS Number: 7446-09-5
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Sulfur (SOx))
Emission Limit 1: 0.1900 LB/MMBTU BASED ON HEAT INPUT
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (P) LIMIT SULFUR IN FUEL
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: BASELINE SELECTED AS BACT

POLLUTANT NAME: Nitrogen Oxides (NOx)
CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 1.0000 G/HP-H
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS
Control Method: (A) TURBOCHARGERS AND AFTERCOOLERS (GOOD COMBUSTION PRACTICES)
Est. % Efficiency: 15.000
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown
Pollutant/Compliance Notes: BASELINE SELECTED AS BACT

Process/Pollutant Information

PROCESS NAME: EU ID 58, CAMP ENGINE 3
Process Type: 17.110 (Fuel Oil (ASTM # 1,2, includes kerosene, aviation, diesel fuel))
Primary Fuel: DISTILLATE
Throughput: 1041.00 HP
Process Notes:

POLLUTANT NAME: Nitrogen Oxides (NOx)
CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 4.7000 G/HP-H
Emission Limit 2:
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS
Control Method: (N) GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: BASELINE SELECTED AS BACT

POLLUTANT NAME: Carbon Monoxide
CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 2.6000 G/HP-H
Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: NSPS

Control Method: (N) GOOD COMBUSTION PRACTICES

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: BASELINE SELECTED AS BACT

POLLUTANT NAME: Sulfur Dioxide (SO2)

CAS Number: 7446-09-5

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Sulfur (SOx))

Emission Limit 1: 15.0000 PPMW

Emission Limit 2:

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: OTHER

Control Method: (P) LIMIT SULFUR IN FUEL

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: BASELINE SELECTED AS BACT THIS FUEL SULFUR LIMIT APPLIES OR WILL APPLY TO ALL NEW EMISSION UNITS IN PRUDHOE BAY

Process/Pollutant Information

PROCESS NAME: EU IDS 61 - 63, DUAL-FIRED BOILERS

Process Type: 13.900 (Other Fuels and Combinations (¿100 million BTU/H)(e.g., solid/liquid, liquid/gas))

Primary Fuel: FUEL GAS/DISTILLATE

Throughput: 300.00 BOILER HP (12.6 MMBT

Process Notes: BPXA INSTALLED THREE OF THESE DUAL-FIRED BOILERS

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))

Emission Limit 1: 0.0350 LB/MMBTU FUEL GAS BACT EMISSION LIMIT

Emission Limit 2: 25.0000 PPMV AT 3% O2 DISTILLATE BACT EMISSION LIMIT

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (A) LOW NOX BURNERS (LNB) / FLUE GAS RECIRCULATION (FGR)

Est. % Efficiency: 60.000

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: BPXA PROPOSED TO INSTALL THE TOP IDENTIFIED CONTROL TECHNOLOGY AS BACT.

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds)

Emission Limit 1: 0.0930 LB/MMBTU FUEL GAS BACT EMISSION LIMIT

Emission Limit 2: 90.0000 PPMV @ 3% O2 DISTILLATE BACT EMISSION LIMIT

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (N) GOOD COMBUSTION PRACTICES

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: GOOD COMBUSTION PRACTICE IS THE ONLY TECHNICALLY FEASIBLE CONTROL OPTION.

POLLUTANT NAME: Sulfur Dioxide (SO2)

CAS Number: 7446-09-5

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Sulfur (SOx))

Emission Limit 1: 0.1900 LB/MMBTU FUEL GAS BACT LIMIT, BASED ON HEAT INPUT

Emission Limit 2: 15.0000 PPMW DISTILLATE BACT EMISSION LIMIT

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: OTHER

Control Method: (P) LIMIT SULFUR IN FUEL

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: BASELINE SELECTED AS BACT THIS DISTILLATE FUEL SULFUR LIMIT APPLIES OR WILL APPLY TO ALL NEW EMISSION UNITS IN PRUDHOE BAY

Process/Pollutant Information

PROCESS NAME: EU IDS 64 - 66, HEATERS

Process Type: 13.900 (Other Fuels and Combinations (¿100 million BTU/H)(e.g., solid/liquid, liquid/gas))

Primary Fuel: FUEL GAS/DISTILLATE

Throughput: 4.20 MMBTU/H

Process Notes: BPXA INSTALLED THREE OF THESE HEATERS

POLLUTANT NAME: Sulfur Dioxide (SO2)

CAS Number: 7446-09-5

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Sulfur (SOx))

Emission Limit 1: 0.1900 LB/MMBTU FUEL GAS BACT LIMIT, BASED ON HEAT INPUT

Emission Limit 2: 15.0000 PPMW DISTILLATE BACT EMISSION LIMIT

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: OTHER

Control Method: (P) LIMIT SULFUR IN FUEL

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: BASELINE SELECTED AS BACT THIS DISTILLATE FUEL SULFUR LIMIT APPLIES OR WILL APPLY TO ALL NEW EMISSION UNITS IN PRUDHOE BAY

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds)

Emission Limit 1: 0.0930 LB/MMBTU FUEL GAS BACT EMISSION LIMIT

Emission Limit 2: 110.0000 PPMV AT 3% O2 DISTILLATE BACT EMISSION LIMIT

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: U

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements:

Control Method: (N)

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: GOOD COMBUSTION PRACTICE IS THE ONLY TECHNICALLY FEASIBLE CONTROL OPTION.

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))

Emission Limit 1: 0.0550 LB/MMBTU FUEL GAS BACT EMISSION LIMIT

Emission Limit 2: 25.0000 PPMV AT 3% O2 DISTILLATE BACT EMISSION LIMIT
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: U
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Control Method: (A) LOW NOX BURNERS (LNB)
Est. % Efficiency: 60.000
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: BPXA PROPOSED TO INSTALL THE TOP IDENTIFIED CONTROL TECHNOLOGY AS BACT.

Facility Information

RBLC ID: WY-0067 (final)
Date Determination Last Updated: 04/16/2009
Corporate/Company Name: WILLIAMS FIELD SERVICES COMPANY
Permit Number: MD-7837
Facility Name: ECHO SPRINGS GAS PLANT
Permit Date: 04/01/2009 (actual)
Facility Contact: CORTNIE MORRELL 3078722880 CORTNIE.MORRELL@WILLIAMS.COM
FRS Number: 110010144628
Facility Description:
SIC Code: 1321
Permit Type: A: New/Greenfield Facility
NAICS Code: 211112
Permit URL:
EPA Region: 8
COUNTRY: USA
Facility County: CARBON
Facility State: WY
Facility ZIP Code: 82336
Permit Issued By: WYOMING AIR QUAL DIVISION, AIR QUALITY (Agency Name)
MR. ANDREW KEYFAUVER(Agency Contact) (307)777-7340 andrew.keyfauver@wyo.gov
Other Agency Contact Info: MS. JAMIE SHARP
WY DEQ AIR QUALITY DIVISION
122 WEST 25TH STREET
CHEYENNE, WY 82002
307-777-7817
Permit Notes:
Affected Boundaries: **Boundary Type:** **Class 1 Area State:** **Boundary:** **Distance:**

	CLASS1	WY	Bridger	100km - 50km
	CLASS1	CO	Mount Zirkel	100km - 50km

Facility-wide Emissions:	Pollutant Name:	Facility-wide Emissions Increase:
	Carbon Monoxide	723.3000 (Tons/Year)
	Nitrogen Oxides (NOx)	537.4000 (Tons/Year)
	Volatile Organic Compounds (VOC)	182.6000 (Tons/Year)

Process/Pollutant Information

PROCESS NAME: TURBINES S35-S36

Process Type: 16.110 (Natural Gas (includes propane & liquified petroleum gas))

Primary Fuel: NATURAL GAS

Throughput: 12555.00 HP

Process Notes: TWO (2) 12,555 HP SOLAR MARS 100-15000S TURBINES

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 15.0000 PPMV
Emission Limit 2: 25.6000 T/YR
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS , NESHAP
Control Method: (N) SOLONOX
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: BASELINE

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0
Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 25.0000 PPMV
Emission Limit 2: 26.0000 T/YR
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS , NESHAP
Control Method: (N) GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: BASELINE

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 25.0000 PPMV
Emission Limit 2: 3.0000 T/YR
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS , NESHAP
Control Method: (N) GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: BASELINE

Process/Pollutant Information

PROCESS NAME: TURBINE S37

Process Type: 16.210 (Natural Gas (includes propane & liquified petroleum gas))

Primary Fuel: NATURAL GAS

Throughput: 16162.00 HP

Process Notes: 12,555 HP SOLAR MARS100-15000S OR 16,162 HP SOLAR TITAN 130-20502S TURBINE

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))

Emission Limit 1: 15.0000 PPMV

Emission Limit 2: 32.1000 T/YR

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: NSPS , NESHAP

Control Method: (N) GOOD COMBUSTION PRACTICES

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: BASELINE

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0

Test Method: Unspecified

Pollutant Group(s): (InOrganic Compounds)

Emission Limit 1: 25.0000 PPMV

Emission Limit 2: 32.5000 T/YR

Standard Emission:

Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD

Other Applicable Requirements: NSPS , NESHAP

Control Method: (N) GOOD COMBUSTION PRACTICES

Est. % Efficiency:

Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: BASELINE

POLLUTANT NAME: Volatile Organic Compounds (VOC)
CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 25.0000 PPV
Emission Limit 2: 3.7000 T/YR
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: Unknown
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS , NESHAP
Control Method: (N) GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: BASELINE

Process/Pollutant Information

PROCESS NAME: TURBINE S34
Process Type: 16.110 (Natural Gas (includes propane & liquified petroleum gas))
Primary Fuel: NATURAL GAS
Throughput: 3856.00 HP
Process Notes: SOLAR CENTAUR 40-T4700S

POLLUTANT NAME: Volatile Organic Compounds (VOC)
CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))

Emission Limit 1: 50.0000 PPMV
Emission Limit 2: 1.1000 T/YR
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS , NESHAP
Control Method: (N) GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: BASELINE

POLLUTANT NAME: Nitrogen Oxides (NOx)
CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 25.0000 PPMV
Emission Limit 2: 15.8000 T/YR
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NESHAP , NSPS
Control Method: (N) SOLONOX
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: BASELINE

POLLUTANT NAME: Carbon Monoxide
CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)

Emission Limit 1: 50.0000 PPMV
Emission Limit 2: 19.3000 T/YR
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS , NESHAP
Control Method: (N) GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: HOT OIL HEATER S38
Process Type: 13.310 (Natural Gas (includes propane and liquefied petroleum gas))
Primary Fuel: NATURAL GAS
Throughput: 84.00 MMBTU/H
Process Notes:

POLLUTANT NAME: Nitrogen Oxides (NOx)
CAS Number: 10102
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 0.0300 LB/MMBTU
Emission Limit 2: 11.0000 T/YR
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS , NESHAP
Control Method: (A) LOW NOX BURNERS WITH FLUE GAS RECIRCULATION
Est. % Efficiency:
Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: 60-90% ESTIMATED EFFICIENCY

POLLUTANT NAME: Carbon Monoxide
CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 0.0200 LB/MMBTU
Emission Limit 2: 7.4000 T/YR
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS , NESHAP
Control Method: (N) GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: BASELINE

POLLUTANT NAME: Volatile Organic Compounds (VOC)
CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 0.0200 LB/MMBTU
Emission Limit 2: 7.0000 T/YR
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS , NESHAP
Control Method: (N) GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: BASELINE

Process/Pollutant Information

PROCESS NAME: AMINE UNIT VOC CONTROL

Process Type: 13.310 (Natural Gas (includes propane and liquefied petroleum gas))

Primary Fuel: NATURAL GAS

Throughput: 72.00 MMBTU/H

Process Notes:

POLLUTANT NAME: Volatile Organic Compounds (VOC)

CAS Number: VOC
Test Method: Unspecified
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 0.0400 LB/MMBTU
Emission Limit 2: 13.1000 T/YR
Standard Emission:
Did factors, other then air pollution technology considerations influence the BACT decisions: N

Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NSPS , NESHAP
Control Method: (A) THERMAL OXIDIZER
Est. % Efficiency: 99.000
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes:

ATTACHMENT #4

NYC – DOC Rikers Island
NO_2 1-Hour Modeling Analysis Report

1 Introduction

This report satisfies the New York State Department of Conservation's (NYSDEC) August 6, 2018 request for an air dispersion modeling analysis to demonstrate that facility-wide NO_2 emissions comply with the 1-hour NO_2 National Ambient Air Quality Standard (NAAQS). This modeling analysis is being submitted as part of the Title V renewal permit application for Rikers Island in Bronx, NY (Rikers). The analysis was performed using the USEPA-approved AERMOD dispersion model.

The facility maintains a power plant, boiler house, engine generators that have the capability to participate in peak load management (PLM) programs, and multiple emergency generators that are distributed throughout the property. The power plant consists of two, 7.5 megawatt (MW) natural-gas-fired, simple-cycle gas combustion turbines equipped with duct-firing heat recovery steam generators and one, 1.5 MW emergency black start engine generator. The boiler house consists of eight, 96 MMBTU/hr dual fuel-fired boilers. There are 19 diesel fuel fired engine generators that have the capability to participate in PLM rated between 800 kilowatts (KW) and 1,100 KW each. In addition, there are several exempt emergency backup-generators located throughout the facility.

1.1 Equipment Description

1.1.1 Power Plant

The power plant consists of two, 7.5 MW Solar Taurus 70-10301S natural gas fired, simple cycle gas turbines equipped with duct firing heat recovery steam generators, and one 1.5 MW emergency black start engine generator. The power plant provides electrical power and thermal energy to the facility. The exhaust from each turbine is vented to a separate stack located outside the powerhouse. The black start engine generator is used for emergency purposes only, and is tested periodically. Since it is considered to be an intermittent source it was not included in the modeling analysis, based on applicable USEPA guidance[1].

1.1.2 Boiler House

Eight 96 MMBTU/hr boilers, each firing natural gas as the primary fuel and distillate oil as backup, exhaust through three separate stacks located adjacent to the Boiler House. The boilers provide thermal energy to the facility and primarily operate as a backup or supplemental to the power plant.

1.1.3 PLM Engines

There are 19 internal combustion engines at Rikers that have the option of enrolling in PLM programs with Con Edison. In the current Title V permit these 19 engines are subject to a NO_x emissions cap of 22.5 tons/year. These 19 engines (four 1,100 kW, two 800 kW, three 900 kW, one 625 kW, and nine 1,150 kW) fire diesel fuel oil and are located at various locations throughout Rikers. Each engine exhausts locally. Fourteen of these engines have undergone a NO_x RACT analysis per 6 NYCRR 227-2 in March, 2020. The RACT analysis demonstrated that RACT for these 14 engines, as defined in New York State's DAR-20, is no control and are therefore in compliance with Part 227-2, either at their existing NOx variance limit in the current Title V permit or at a new NO_x limit based upon the most recent stack testing conducted in 2018. The remaining five engines were not tested in 2018 and therefore currently do not participate in a PLM program. These engines may be used for emergency purposes only and therefore were not included in

[1] EPA Memorandum, "Additional Clarification Regarding Application of Appendix W, Modeling Guidance for the 1-Hour NO_2 National Ambient Air Quality Standard," March 1, 2011.

the modeling analysis, based on applicable USEPA guidance that they are classified as intermittent sources.[2]

1.1.4 Emergency Engines

The facility has approximately 51 emergency diesel engines scattered throughout Rikers Island for emergency support. These engines are only used for emergency back-up and are operated periodically for maintenance and testing purposes. As per EPA's guidance, these engines are considered to be intermittent sources and therefore, not included in the modeling analysis.

1.2 Source Parameters and Emission Rates

An air quality impact analysis was conducted to evaluate potential impacts from Rikers with respect to the NO_2 1-hour NAAQS. Stack exhaust parameters for the turbines with and without duct firing (cogeneration plant), boilers, and PLM engines were obtained from the Title V permit application.

For the cogeneration plant, NO_x emission rates were calculated based on the proposed NO_x emission limit of 15 parts per million (ppm) at 15% O_2 from the turbines and duct burners and 12 ppm at 15% O_2 from the turbines operating without duct firing, as demonstrated in the LAER analysis dated March 2020. The modeling analysis assumes that both turbines operate continuously at maximum capacity without duct firing during summer months (3 months) and with duct firing for the remainder of the year.

For the boilers, NO_x emission rates were calculated based on the NO_x RACT emission limit of 0.12 pounds per MMBtu as demonstrated in the March 2020 NO_x RACT analysis. The modeling analysis assumes that all eight boilers are operating continuously at maximum capacity. This is a conservative assumption since two of the eight boilers are currently not operational.

The Rikers PLM engines have historically participated in the New York Independent System Operator (NYISO) Special Case Resource (SCR) and Con Edison Coordinated Demand Response Programs (CDRP) and are dispatched between 1:00 PM and 7:00 PM Monday through Friday when the grid is peaking in the summer. In the last decade, the facility has never been called during the winter season. However, for modeling purposes, the engines are assumed to be running continuously assuming operation between 1:00 PM and 7:00 PM throughout the year. Currently, the engines are enrolled by a kilowatt (kW) commitment by location rather than by their actual engine nameplate capacity and the facility plans to continue to enroll the engines under a similar contract mechanism in the future. Therefore, the modeling analysis uses the maximum enrolled kW capacity for each group of engines by location to demonstrate compliance with the 1-hour NO_2 standard. New conditions reflecting these kW limits by engine group and location are included in the Title V permit renewal application. The NO_x emission rate for each engine group was based on the engine with the maximum NO_x RACT emission limit from the March 2020 NO_x RACT Analysis

Table 1 presents the stack parameters and NO_2 emission rates used in the analysis for the boilers and the cogeneration plant. **Table 2** presents the stack parameters and NO_2 emission rates used in the analysis for the PLM engines.

[2] EPA Memorandum, "Additional Clarification Regarding Application of Appendix W, Modeling Guidance for the 1-Hour NO_2 National Ambient Air Quality Standard," March 1, 2011.

Table 1
Boiler and Cogeneration Plant
Stack Parameters and NO_2 Emission Rates

Parameter	Boilers			Cogeneration Plant
	U-00001	U-00002	U-00003	U-00011
Stack Exhaust Height (feet)(1)	182	185	170	150
Stack Exhaust Diameter (feet)(1)	11.7	10.3	7.0	5.0
Stack Exhaust Temperature (°F)(1)	450	450	450	292
Stack Exhaust velocity (feet/sec)(1)	14.86	12.83	13.76	57.6
Fuel Type	Natural Gas / #2 Fuel oil	Natural Gas / #2 Fuel oil	Natural Gas / #2 Fuel oil	Natural Gas
Emissions (g/s)				
NO_2 (1-hour)	5.81(2)	2.90(2)	2.90(2)	0.87 / 0.48(3)(4)

Notes:

(1) **Stack exhaust parameters obtained from Title V Permit.**

(2) **NO_2 emission rates are based on the NOx RACT limits.**

(3) **Emission rates presented are per unit.**

(4) **The first value presents emissions from the turbine with duct firing and the second value presents emissions from the turbine only. These NO_2 emission rates are based on the LAER Analysis and proposed permit limits.**

Table 2
PLM Engines
Stack Parameters and NO_2 Emission Rates

Parameter	Location													
	GRVC				RMSC		OBCC(6)				WF			
Maximum modeled capacity (KW)	2,400				400		0				1,700			
Emission Source	00010	00011	00012	00013	00014	00015	00016	00017	00018	00019	00020	00022	00024	00025
Emission Point	00010	00011	00012	00013	00014	00015	00016	00017	00018	00019	00020	00022	00024	00025
Stack Exhaust Height (feet)(1)	110	110	110	110	35	35	18	18	18	18	18	18	18	18
Stack Exhaust Diameter (feet)(1)	0.83	0.83	0.83	0.83	1.00	1.00	1.00	0.83	0.83	0.83	1.00	1.00	1.00	1.00
Stack Exhaust Temperature (°F)(1)	800	800	800	800	800	800	800	800	800	800	800	800	800	800
Stack Exhaust velocity (feet/sec)(1)	172	172	98	141	87	87	141	141	172	172	125	125	125	125
Fuel Type	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Emissions														
NO_x RACT Limit (g/bhp-hr)	7.7	9.2(3)	7.5	7.4	7.8	8.1	6.7	4.7	8.9	8.6	6.9	7.0	7.7	6.6
NO_2 RACT used for the group (g/bhp-hr)(2)	9.2				8.1		8.9				7.7			
Maximum NO_2 Emissions from the group (1-hour) (g/s)	8.225				1.207		0.0(4)				4.876			
NO_2 (1-hour) per engine (g/s)	2.056	2.056	2.056	2.056	0.604	0.604	0.0(4)	0.0(4)	0.0(4)	0.0(4)	1.219	1.219	1.219	1.219

Notes:
GRVC: George R. Veirno Center
RMSC: Rose M. Singer Center
OBCC: Otis Bantum Correctional Center
WF: West Facility
(1) Stack exhaust parameters obtained from Title V permit application.
(2) Maximum NO_x RACT emission limit for each group is used to calculate the total NO_2 emissions from each group.
(3) Revised proposed NOx RACT emission limit as demonstrated in the March 2020 NOx RACT analysis.
(4) Operation of the four PLM engines located at OBCC have the potential to exceed the 1-hour NO_2 standard at the current NO_2 emission limits; therefore, these engines have been excluded from this 1-hour NO_2 modeling analysis and will not operate under PLM programs until they can demonstrate compliance with the standard.

1.3 Methodology for Predicting NO_2 Concentrations

This section presents the methodologies, data, and assumptions used to conduct the 1-hour NO_2 modeling analysis for Rikers.

1.3.1 Dispersion Model

The dispersion modeling analysis was performed using the EPA AERMOD dispersion model[3]. The AERMOD model calculates pollutant concentrations from one or more points (e.g., exhaust stacks) based on hourly meteorological data, and has the capability of calculating pollutant concentrations at locations when the plume from the exhaust stack is affected by the aerodynamic wakes and eddies (downwash) produced by nearby structures. Computations with the AERMOD model to determine impacts from the facility were made assuming urban dispersion coefficients, regulatory default options (stack tip downwash, elevated terrain, calm winds processing, etc.), inclusion of building wake, the use of flagpole receptors, and the urban boundary layer option.

1.3.2 Meteorological Data

The modeling analysis was performed using latest recent five-year meteorological data set from the nearest representative National Weather Service (NWS) station, consisting of surface data from LaGuardia Airport, NY and concurrent upper air data from Brookhaven National Laboratory in Upton, NY (2014 to 2018). The NYSDEC supplied the meteorological dataset, which was processed with AERMET Version 18081 processor.

1.3.3 Receptor Network

Receptor data, including ground level elevations and coordinates, were used in the AERMOD model. Three uniform ground-level Cartesian receptor grids were utilized. The first is a coarse Cartesian receptor grid with receptor spacing of 500 meters extending out from 3 km to 10 km in all directions from center of the power plant. The second receptor grid is a medium Cartesian receptor grid with 100 meter receptor spacing, extending out from 1 km to 3 km in all directions from the center of the power plant. The third receptor grid is a fine Cartesian receptor grid with 50 meter spacing, extending from the center of the power plant out to 1 km. Discrete ground level receptors on Rikers Island the public has access, including recreation spaces, were also modeled. A terrain pre-processor program was used to determine the representative ground elevations for each receptor.

1.3.4 Modeling Analysis

EPA has developed guidance for assessing 1-hour average NO_2 concentrations for compliance with the NAAQS.[4] This guidance along with other guidance from the California Air Pollution Control Officers Association (CAPCOA)[5] was used to develop representative 1-hour background concentrations that were added to the concentrations predicted from the modeled project sources. Based on EPA's March 1, 2011

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[3] EPA. *AERMOD Implementation Guide*. 454/B-19-035. August 2019.

EPA. AERMOD Model Formulation and Evaluation. 454/R-19-0014. August 2019. and

EPA. User's Guide for the AMS/EPA Regulatory Model (AERMOD). 454/B-19-027. August 2019.

[4] EPA Memorandum, "Additional Clarification Regarding Application of Appendix W, Modeling Guidance for the 1-Hour NO_2 National Ambient Air Quality Standard," March 1, 2011.

[5] Modeling Compliance of the Federal 1-Hour NO_2 NAAQS", CAPCOA Guidance Document, October 27, 2011, http://www.valleyair.org/busind/pto/Tox_Resources/CAPCOANO2GuidanceDocument10-27-11.pdf

Clarification memo, multi-year averages of the 98th percentiles of the available background concentrations by season and hour-of-day were used in the modeling analysis. The background data was provided by the NYSDEC.

For the seasonal hour-of-day approach, the 3rd highest value from each season and hour-of-day combination was used to represent the 98th percentile seasonal background concentration from the Queens College II background monitoring station based on a maximum of a 90-92 value seasonal data-set. Seasonal hour-of-day is determined by organizing all of the NO_2 concentrations by the hour of the day (1 AM, 2 AM, 3 AM, etc.) for each season of the year in descending order and selecting the 3rd highest NO_2 concentrations for each hour of the day and season. The process is repeated for the recent three years (2017-2019) of data.

1-hour average NO_2 concentration increments from the modeled sources were estimated using the AERMOD model's PVMRM module to analyze chemical transformation within the model. The PVMRM module incorporates hourly background ozone concentrations to estimate NO_x transformation within the source plume. Ozone concentrations were obtained from NYSDEC for the NYSDEC Queens College II monitoring station since that is the most representative ozone monitoring station for the years 2014-2018. An initial default NO_2 to NOx ratio of 50 percent at the source exhaust stack was used for the turbines and boilers, and 20 percent[6] for the PLM engines, which is considered representative for this source type.

1.4 Analysis Results

The air quality modeling analysis determined the maximum predicted 1-hour NO_2 concentrations from Rikers. The results of the analysis are presented in **Table 3**.

Table 3
Maximum Predicted 1-hour NO_2 Concentrations

Modeled Pollutant	Averaging Period	Maximum Impact (µg/m³)	Background Concentration (µg/m³)	Total Concentration (µg/m³)	NAAQS (µg/m³)
NO_2	1-Hour	--	--	187.4[(1)]	188

Note
(1) The 1-Hour NO_2 concentration presented is the maximum of the total 98th percentile 1-Hour NO_2 concentration predicted at any receptor using seasonal-hourly background concentrations and using the PVMRM module.

The results of the modeling analysis determined that the modeled 1-hour NO_2 concentrations from Rikers, when added to ambient background levels were not predicted to exceed the 1-hour NAAQS. Therefore, no significant adverse air quality impacts are predicted with the project. In order to avoid potential exceedances of the 1-hour NO_2 standard, the facility is accepting new permit conditions defining limits on the maximum enrolled capacity for the PLM engines by group and location, as described above. With these conditions in place, no significant adverse air quality impacts are predicted with the projects' sources.

[6] San Joaquin Valley, Assessment of Non-Regulatory Options in AERMOD Specifically OLM and PVMRM, Appendix C—Recommended In-stack NO2/NOx Ratios, http://www.valleyair.org/busind/pto/Tox_Resources/AirQualityMonitoring.htm#modeling_guidance