MARCH 27, 2013

VIA EMAIL TRANSMITTAL

Mr. Jeff Robinson
Chief, Air Permit Section
U.S. EPA Region 6, 6PD
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733

RE: **Application for PSD Air Quality Permit**
Greenhouse Gas Emissions
New Gas-Fired Combined Heat and Power Plant
Nueces County, Texas
NRG Development Company, Inc

Dear Mr. Robinson:

NRG Development Company, Inc. (NRG) is submitting the enclosed application for a Prevention of Significant Deterioration (PSD) air quality permit for greenhouse gas emissions for our proposed installation of a new gas-fired combustion turbine combined heat and power plant, and associated plant facilities, located in Nueces County, Texas.

The state NSR and PSD permit application for this project submitted to TCEQ is also enclosed. NRG is committed to working with EPA to ensure timely review of our permit application. Additional analyses required to support this application are underway, and NRG expects to submit these under a separate cover.

Should you have questions concerning this application, or require further information, please do not hesitate to contact me at (713) 537-2146 or craig.eckberg@nrgenergy.com.

Sincerely,

C. R. Eckberg

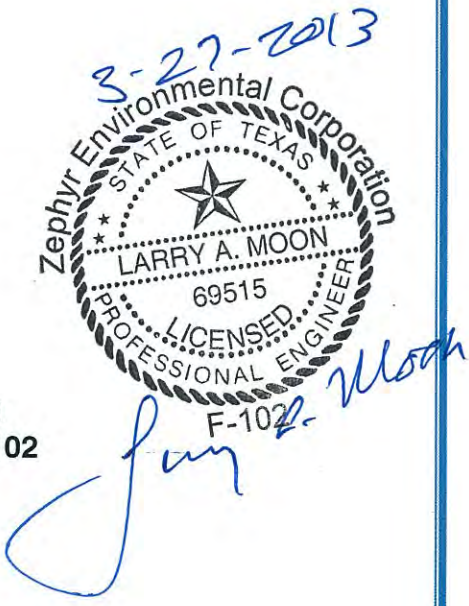
Craig R. Eckberg
Senior Manager
Environmental Business

Enclosure(s)

PREVENTION OF SIGNIFICANT DETERIORATION GREENHOUSE GAS PERMIT APPLICATION FOR CORPUS CHRISTI COMBINED HEAT AND POWER PLANT CORPUS CHRISTI, TEXAS

SUBMITTED TO:
ENVIRONMENTAL PROTECTION AGENCY
REGION 6
MULTIMEDIA PLANNING AND PERMITTING DIVISION
FOUNTAIN PLACE 12TH FLOOR, SUITE 1200
1445 ROSS AVENUE
DALLAS, TEXAS 75202-2733

SUBMITTED BY:
NRG DEVELOPMENT COMPANY, INC.
1201 FANNIN ST.
HOUSTON, TX 77002



PREPARED BY:
ZEPHYR ENVIRONMENTAL CORPORATION
TEXAS REGISTERED ENGINEERING FIRM F-102
2600 VIA FORTUNA, SUITE 450
AUSTIN, TEXAS 78746

MARCH 2013

zephyr

TABLE OF CONTENTS

APPENDICES

1.0 INTRODUCTION

NRG Development Company, Inc. (NRG) is hereby submitting this application for a greenhouse gas (GHG) Prevention of Significant Deterioration (PSG) air quality permit to authorize the construction of a new Combined Heat and Power (CHP) Plant to be a support facility for a new plastic resins manufacturing facility located in Corpus Christi, Nueces County, Texas. The NRG CHP plant will provide steam and electricity to an adjoining PET Plant (a new polyethylene terephthalate (PET) unit and a new terephthalic acid (PTA) unit) which will be owned and operated by M&G Resins USA, LLC. A PSD GHG application for the PET Plant is being submitted separately by M&G Resins USA, LLC.

The CHP Plant will consist of one General Electric LM6000 natural gas-fired combustion turbine exhausting to a natural gas fired heat recovery steam generator (HRSG) and two natural gas-fired auxiliary boilers. The combustion turbine has a maximum electric power output of approximately 49 MW.

On June 3, 2010, the EPA published final rules for permitting sources of GHGs under the PSD and Title V air permitting programs, known as the GHG Tailoring Rule[1]. After July 1, 2011, new sources with GHG emission increases of more than 100,000 tons/yr on a carbon dioxide equivalent (CO_2e) basis are considered new major sources subject to GHG PSD review. On December 23, 2010, EPA issued a Federal Implementation Plan (FIP) authorizing EPA to issue PSD permits in Texas for GHG sources until Texas submits the required SIP revision for GHG permitting and it is approved by EPA[2].

Since the NRG CHP Plant will be a support facility for the adjoining PET Plant, the CHP Plant and PET Plant will be considered to be one stationary source for PSD applicability purposes. The combined project will trigger PSD review for GHG pollutants because the GHG emissions from the project will be more than 100,000 tons/yr making the site a new major source. The applications for GHG PSD air permits for this project are being submitted to the EPA. The applications for criteria pollutant PSD permits are being submitted to the Texas Commission on Environmental Quality (TCEQ) with copies for the EPA.

[1] 75 FR 31514 (June 3, 2010).

[2] 75 FR 81874 (Dec. 29, 2010).

Texas Commission on Environmental Quality
Form PI-1 General Application for
Air Preconstruction Permit and Amendment

Important Note: The agency requires that a Core Data Form be submitted on all incoming applications unless a Regulated Entity and Customer Reference Number have been issued and no core data information has changed. For more information regarding the Core Data Form, call (512) 239-5175 or go to www.tceq.texas.gov/permitting/central_registry/guidance.html.

I. Applicant Information		
A. Company or Other Legal Name: NRG Development Company, Inc.		
Texas Secretary of State Charter/Registration Number (if applicable):		
B. Company Official Contact Name: Craig R. Eckberg		
Title: Sr. Manager		
Mailing Address: 1201 Fannin St.		
City: Houston	State: TX	ZIP Code: 77002
Telephone No.: 713-537-2146	Fax No.:	E-mail Address: craig.eckberg@nrgenergy.com
C. Technical Contact Name: Lindsay W. Little		
Title: Sr. Environmental Specialist		
Company Name: NRG Texas Power LLC		
Mailing Address: 1201 Fannin St.		
City: Houston	State: TX	ZIP Code: 77002
Telephone No.: 713-537-2148	Fax No.:	E-mail Address: lindsay.little@nrgenergy.com
D. Site Name: Corpus Christi Combined Heat and Power Plant		
E. Area Name/Type of Facility: Combined Heat and Power Plant		☒ Permanent ☐ Portable
F. Principal Company Product or Business: Electric Services		
Principal Standard Industrial Classification Code (SIC): 4911		
Principal North American Industry Classification System (NAICS): 221112		
G. Projected Start of Construction Date: January 05, 2014		
Projected Start of Operation Date: May 1, 2015		
H. Facility and Site Location Information (If no street address, provide clear driving directions to the site in writing.):		
Street Address: In Corpus Christi heading East on I-37 South toward Exit 10, Take Exit 10 for Carbon Plant Road, go 0.2 mi, turn left onto Carbon Road/E. Navigation Blvd/Joe Fulton Int'l Trade Corridor, go 5 miles, turn right into plant entrance.		
City/Town: Corpus Christi	County: Nueces	ZIP Code: 78409
Latitude (nearest second): 27°50'7.8899"		Longitude (nearest second): -97°29'38.0256"

I.	**Applicant Information (continued)**	
I.	Account Identification Number (leave blank if new site or facility):	
J.	Core Data Form.	
Is the Core Data Form (Form 10400) attached? If No, provide customer reference number and regulated entity number (complete K and L).		☒ YES ☐ NO
K.	Customer Reference Number (CN):	
L.	Regulated Entity Number (RN):	
II.	**General Information**	
A.	Is confidential information submitted with this application? If Yes, mark each confidential page confidential in large red letters at the bottom of each page.	☐ YES ☒ NO
B.	Is this application in response to an investigation, notice of violation, or enforcement action? If Yes, attach a copy of any correspondence from the agency and provide the RN in section I.L. above.	☐ YES ☒ NO
C.	Number of New Jobs:	
D.	Provide the name of the State Senator and State Representative and district numbers for this facility site:	
State Senator: Juan Hinojosa		District No.: 20
State Representative: Blake Farenthold		District No.: 27
III.	**Type of Permit Action Requested**	
A.	Mark the appropriate box indicating what type of action is requested.	
☒ Initial ☐ Amendment ☐ Revision (30 TAC 116.116(e) ☐ Change of Location ☐ Relocation		
B.	Permit Number (if existing):	
C.	Permit Type: Mark the appropriate box indicating what type of permit is requested. *(check all that apply, skip for change of location)*	
☒ Construction ☐ Flexible ☐ Multiple Plant ☐ Nonattainment ☐ Plant-Wide Applicability Limit		
☒ Prevention of Significant Deterioration ☐ Hazardous Air Pollutant Major Source		
☐ Other:		
D.	Is a permit renewal application being submitted in conjunction with this amendment in accordance with 30 TAC 116.315(c).	☐ YES ☒ NO

III. Type of Permit Action Requested *(continued)*			
E.	Is this application for a change of location of previously permitted facilities? If Yes, complete III.E.1 - III.E.4.0		☐ YES ☒ NO
1.	Current Location of Facility (If no street address, provide clear driving directions to the site in writing.):		
Street Address:			
City:	County:	ZIP Code:	
2.	Proposed Location of Facility (If no street address, provide clear driving directions to the site in writing.):		
Street Address:			
City:	County:	ZIP Code:	
3.	Will the proposed facility, site, and plot plan meet all current technical requirements of the permit special conditions? If "NO", attach detailed information.		☐ YES ☐ NO
4.	Is the site where the facility is moving considered a major source of criteria pollutants or HAPs?		☐ YES ☐ NO
F.	Consolidation into this Permit: List any standard permits, exemptions or permits by rule to be consolidated into this permit including those for planned maintenance, startup, and shutdown.		
List:			
G.	Are you permitting planned maintenance, startup, and shutdown emissions? If Yes, attach information on any changes to emissions under this application as specified in VII and VIII.		☒ YES ☐ NO
H.	Federal Operating Permit Requirements (30 TAC Chapter 122 Applicability) Is this facility located at a site required to obtain a federal operating permit? If Yes, list all associated permit number(s), attach pages as needed).		☒ YES ☐ NO ☐ To be determined
Associated Permit No (s.):			

1. Identify the requirements of 30 TAC Chapter 122 that will be triggered if this application is approved.

☐ FOP Significant Revision ☐ FOP Minor ☐ Application for an FOP Revision
☐ Operational Flexibility/Off-Permit Notification ☐ Streamlined Revision for GOP
☒ To be Determined ☐ None

III.	**Type of Permit Action Requested *(continued)***	
H.	Federal Operating Permit Requirements (30 TAC Chapter 122 Applicability) *(continued)*	
2.	Identify the type(s) of FOP(s) issued and/or FOP application(s) submitted/pending for the site. ***(check all that apply)***	
☐ GOP Issued	☐ GOP application/revision application submitted or under APD review	
☐ SOP Issued	☐ SOP application/revision application submitted or under APD review	
IV.	**Public Notice Applicability**	
A.	Is this a new permit application or a change of location application?	☒ YES ☐ NO
B.	Is this application for a concrete batch plant? If Yes, complete V.C.1 – V.C.2.	☐ YES ☒ NO
C.	Is this an application for a major modification of a PSD, nonattainment, FCAA 112(g) permit, or exceedance of a PAL permit?	☐ YES ☒ NO
D.	Is this application for a PSD or major modification of a PSD located within 100 kilometers or less of an affected state or Class I Area?	☐ YES ☒ NO
If Yes, list the affected state(s) and/or Class I Area(s).		
List:		
E.	Is this a state permit amendment application? If Yes, complete IV.E.1. – IV.E.3. ☐ YES ☒ NO	
1.	Is there any change in character of emissions in this application?	☐ YES ☐ NO
2.	Is there a new air contaminant in this application?	☐ YES ☐ NO
3.	Do the facilities handle, load, unload, dry, manufacture, or process grain, seed, legumes, or vegetables fibers (agricultural facilities)?	☐ YES ☐ NO
List the total annual emission increases associated with the application ***(List all that apply and attach additional sheets as needed):***		
Volatile Organic Compounds (VOC): 27.20 tpy		
Sulfur Dioxide (SO2): 13.92 tpy		
Carbon Monoxide (CO): 152.85 tpy		
Nitrogen Oxides (NOx): 54.06 tpy		
Particulate Matter (PM): 59.50 tpy		
PM 10 microns or less (PM10): 59.50 tpy		
PM 2.5 microns or less (PM2.5): 59.50 tpy		
Lead (Pb): 0 tpy		
Hazardous Air Pollutants (HAPs): Combined emissions from M&G PET and NRG CHP plants are greater than 10 tpy for individual HAPs and greater than 25 tpy total HAPs.		
Other speciated air contaminants not listed above: 47.15 tpy NH_3, 7.13 tpy H_2SO_4, 9.61 tpy $(NH_4)_2SO_4$		

Texas Commission on Environmental Quality
Form PI-1 General Application for
Air Preconstruction Permit and Amendment

V. Public Notice Information *(complete if applicable)*		
A. Public Notice Contact Name: Lindsay W. Little		
Title: Sr. Environmental Specialist		
Mailing Address: 1201 Fannin St.		
City: Houston	State: Texas	ZIP Code: 77002
B. Name of the Public Place: La Retama Central Library		
Physical Address *(No P.O. Boxes)*: 805 Comanche Street		
City: Corpus Christi	County: Nueces	ZIP Code: 78401
The public place has granted authorization to place the application for public viewing and copying.		☒ YES ☐ NO
The public place has internet access available for the public.		☒ YES ☐ NO
C. Concrete Batch Plants, PSD, and Nonattainment Permits		
1. County Judge Information (For Concrete Batch Plants and PSD and/or Nonattainment Permits) for this facility site.		
The Honorable: Samuel L. Neal, Jr.		
Mailing Address: 901 Leopard Street, Room 303		
City: Corpus Christi	State: TX	ZIP Code: 78401
2. Is the facility located in a municipality or an extraterritorial jurisdiction of a municipality? ***(For Concrete Batch Plants)***		☐ YES ☐ NO
Presiding Officers Name(s):		
Title:		
Mailing Address:		
City:	State:	ZIP Code:
3. Provide the name, mailing address of the chief executive and Indian Governing Body; and identify the Federal Land Manager(s) for the location where the facility is or will be located. Not Applicable		
Chief Executive:		
Mailing Address:		
City:	State:	ZIP Code:
Name of the Indian Governing Body:		
Mailing Address:		
City:	State:	ZIP Code:

V.	**Public Notice Information *(complete if applicable) (continued)***	
C.	Concrete Batch Plants, PSD, and Nonattainment Permits	
3.	Provide the name, mailing address of the chief executive and Indian Governing Body; and identify the Federal Land Manager(s) for the location where the facility is or will be located. *(continued)*	
Name of the Federal Land Manager(s):		
D.	Bilingual Notice	
Is a bilingual program required by the Texas Education Code in the School District?		☒ YES ☐ NO
Are the children who attend either the elementary school or the middle school closest to your facility eligible to be enrolled in a bilingual program provided by the district?		☒ YES ☐ NO
If Yes, list which languages are required by the bilingual program?	Spanish	
VI.	**Small Business Classification *(Required)***	
A.	Does this company (including parent companies and subsidiary companies) have fewer than 100 employees or less than $6 million in annual gross receipts?	☐ YES ☒ NO
B.	Is the site a major stationary source for federal air quality permitting?	☒ YES ☐ NO
C.	Are the site emissions of any regulated air pollutant greater than or equal to 50 tpy?	☒ YES ☐ NO
D.	Are the site emissions of all regulated air pollutants combined less than 75 tpy?	☐ YES ☒ NO
VII.	**Technical Information**	
A.	The following information must be submitted with your Form PI-1 ***(this is just a checklist to make sure you have included everything)***	
1.	☒ Current Area Map	
2.	☒ Plot Plan	
3.	☒ Existing Authorizations - None	
4.	☒ Process Flow Diagram	
5.	☒ Process Description	
6.	☒ Maximum Emissions Data and Calculations	
7.	☒ Air Permit Application Tables	
a.	☒ Table 1(a) (Form 10153) entitled, Emission Point Summary	
b.	☒ Table 2 (Form 10155) entitled, Material Balance	
c.	☒ Other equipment, process or control device tables	
B.	Are any schools located within 3,000 feet of this facility?	☐ YES ☒ NO

VII.	**Technical Information**			
C.	Maximum Operating Schedule:			
Hour(s):24	Day(s):7	Week(s):52	Year(s):8760 hrs/yr	
Seasonal Operation? If Yes, please describe in the space provide below.				☐ YES ☒ NO
D.	Have the planned MSS emissions been previously submitted as part of an emissions inventory?			☐ YES ☒ NO
Provide a list of each planned MSS facility or related activity and indicate which years the MSS activities have been included in the emissions inventories. Attach pages as needed.				
Not applicable. This is a new site.				
E.	Does this application involve any air contaminants for which a disaster review is required?			☐ YES ☒ NO
F.	Does this application include a pollutant of concern on the Air Pollutant Watch List (APWL)?			☐ YES ☒ NO
VIII.	**State Regulatory Requirements** **Applicants must demonstrate compliance with all applicable state regulations to obtain a permit or amendment.** *The application must contain detailed attachments addressing applicability or non applicability; identify state regulations; show how requirements are met; and include compliance demonstrations.*			
A.	Will the emissions from the proposed facility protect public health and welfare, and comply with all rules and regulations of the TCEQ?			☒ YES ☐ NO
B.	Will emissions of significant air contaminants from the facility be measured?			☒ YES ☐ NO
C.	Is the Best Available Control Technology (BACT) demonstration attached?			☒ YES ☐ NO
D.	Will the proposed facilities achieve the performance represented in the permit application as demonstrated through recordkeeping, monitoring, stack testing, or other applicable methods?			☒ YES ☐ NO
IX.	**Federal Regulatory Requirements** **Applicants must demonstrate compliance with all applicable federal regulations to obtain a permit or amendment.** *The application must contain detailed attachments addressing applicability or non applicability; identify federal regulation subparts; show how requirements are met; and include compliance demonstrations.*			
A.	Does Title 40 Code of Federal Regulations Part 60, (40 CFR Part 60) New Source Performance Standard (NSPS) apply to a facility in this application?			☒ YES ☐ NO
B.	Does 40 CFR Part 61, National Emissions Standard for Hazardous Air Pollutants (NESHAP) apply to a facility in this application?			☐ YES ☒ NO

IX.	**Federal Regulatory Requirements** **Applicants must demonstrate compliance with all applicable federal regulations to obtain a permit or amendment.** *The application must contain detailed attachments addressing applicability or non applicability; identify federal regulation subparts; show how requirements are met; and include compliance demonstrations.*	
C.	Does 40 CFR Part 63, Maximum Achievable Control Technology (MACT) standard apply to a facility in this application?	☒ YES ☐ NO
D.	Do nonattainment permitting requirements apply to this application?	☐ YES ☒ NO
E.	Do prevention of significant deterioration permitting requirements apply to this application?	☒ YES ☐ NO
F.	Do Hazardous Air Pollutant Major Source [FCAA 112(g)] requirements apply to this application?	☐ YES ☒ NO
G.	Is a Plant-wide Applicability Limit permit being requested?	☐ YES ☒ NO
X.	**Professional Engineer (P.E.) Seal**	
Is the estimated capital cost of the project greater than $2 million dollars?		☒ YES ☐ NO
If Yes, submit the application under the seal of a Texas licensed P.E.		
XI.	**Permit Fee Information**	
Check, Money Order, Transaction Number, ePay Voucher Number:	Fee Amount: $75,000	
Paid online?		☐ YES ☒ NO
Company name on check: NRG Texas Power LLC		
Is a copy of the check or money order attached to the original submittal of this application?		☒ YES ☐ NO ☐ N/A
Is a Table 30 (Form 10196) entitled, Estimated Capital Cost and Fee Verification, attached?		☒ YES ☐ NO ☐ N/A

XII. Delinquent Fees and Penalties

This form will not be processed until all delinquent fees and/or penalties owed to the TCEQ or the Office of the Attorney General on behalf of the TCEQ is paid in accordance with the Delinquent Fee and Penalty Protocol. For more information regarding Delinquent Fees and Penalties, go to the TCEQ Web site at: www.tceq.texas.gov/agency/delin/index.html.

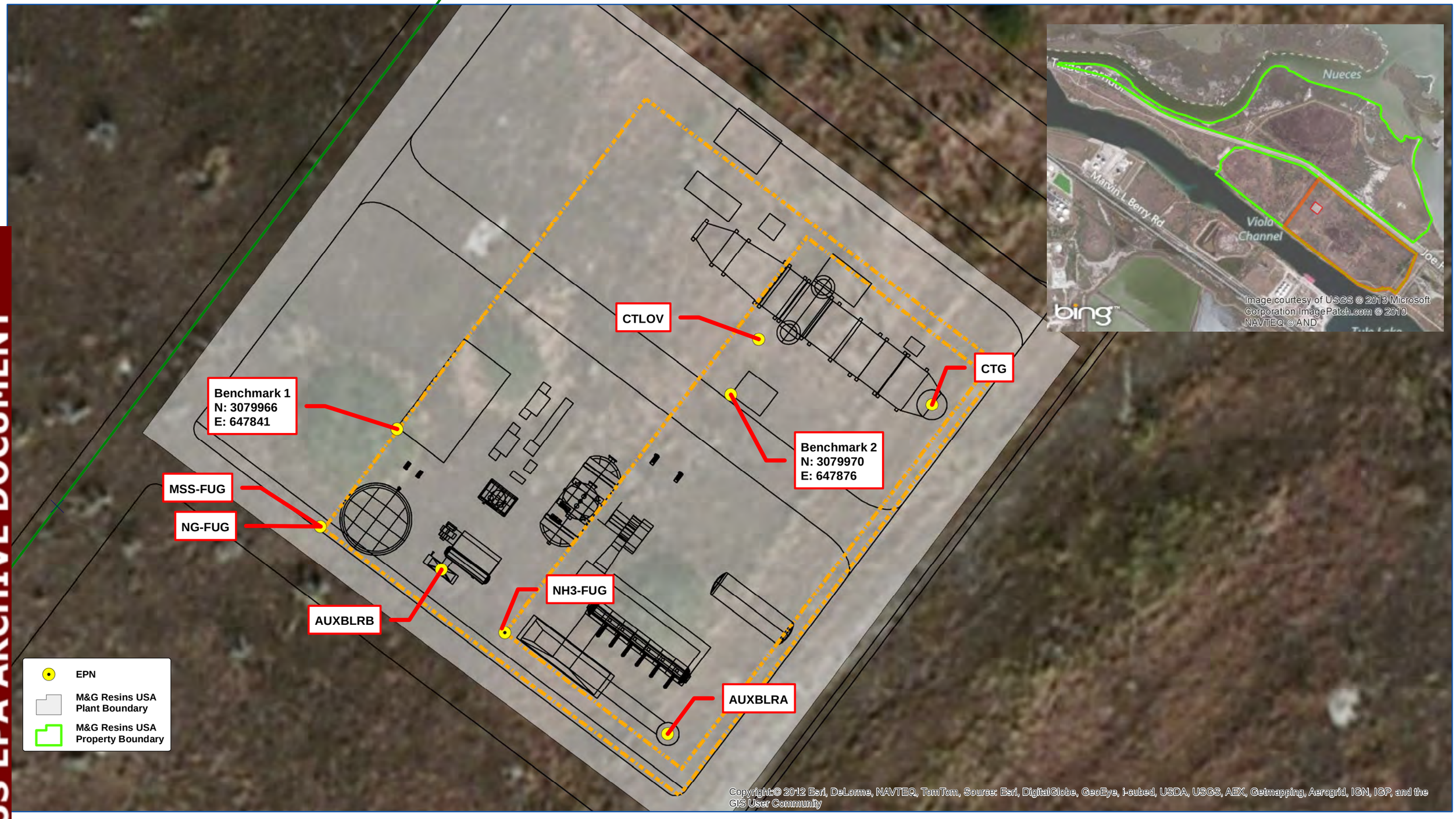
XIII. Signature

The signature below confirms that I have knowledge of the facts included in this application and that these facts are true and correct to the best of my knowledge and belief. I further state that to the best of my knowledge and belief, the project for which application is made will not in any way violate any provision of the Texas Water Code (TWC), Chapter 7, Texas Clean Air Act (TCAA), as amended, or any of the air quality rules and regulations of the Texas Commission on Environmental Quality or any local governmental ordinance or resolution enacted pursuant to the TCAA I further state that I understand my signature indicates that this application meets all applicable nonattainment, prevention of significant deterioration, or major source of hazardous air pollutant permitting requirements. The signature further signifies awareness that intentionally or knowingly making or causing to be made false material statements or representations in the application is a criminal offense subject to criminal penalties.

Name: Craig R. Eckberg

Signature: C. R. Eckberg
Original Signature Required

Date: 22 Feb 13



Map Sources:
ESRI Bing Hybrid & Streets
Datum: UTM Zone 14N

Scale 1:360 1 in = 30 ft

Meters: 0 10 20

Feet: 0 40 80

zephyr

PLOT PLAN

NRG CHP Site - Nueces County, Texas

File Location: H:\Chemtex\NRG Application\Graphics

Drafted By: T.Clark	Reviewed By: L. Moon	Project No.: 012453.002	

Datum:
GCS NAD 1983
Map Sources:
ESRI-Bing Hybrid & Streets
Basemaps; USA Named Streams,

zephyr

AREA MAP

New Source Review Application

NRG

Corpus Christi, Texas

File location: H:\Chemtex\NRG Application\Graphics

Drafted By:	Reviewed By:	Project No.:	Date:
J. Knowles	L. Moon	012453.002	01.22.2013

3.0 PROJECT DESCRIPTION AND GHG EMISSION SOURCES

3.1 PROCESS DESCRIPTION

With this application, NRG is seeking authorization to construct a new CHP plant in Nueces County, Texas to provide electrical power and steam to the neighboring PET plant. The power generating equipment, as well as ancillary equipment that will be sources of GHG emissions at the site, are listed below:

- One natural gas-fired combustion turbine equipped with lean pre-mix low-NO_x combustors
- One heat recovery steam generators with natural gas-fired duct burner system
- Natural gas piping and metering
- One 483 MMBtu/hr, natural gas-fired Auxiliary Boiler A
- One 63 MMBtu/hr, natural gas-fired Auxiliary Boiler B
- Electrical equipment insulated with sulfur hexafluoride (SF_6)

A process flow diagram is included at the end of this section.

The new CHP plant will generate approximately 49megawatts (MW), of gross electrical power in addition to high and low pressure steam for use in the PET plant. Pipeline natural gas is chosen as the only fuel for the combustion turbine, duct burner system and boilers due to local availability of fuel and infrastructure to support delivery of the fuel to the facility in adequate volume and pressure.

3.2 GHG EMISSION SOURCES

3.2.1 Combustion Turbine Generator

The CHP plant will consist of one General Electric LM6000PF, natural gas-fired combustion turbine generator (CTG). The combustion turbine will exhaust to a HRSG and thence to an aqueous ammonia selective catalytic reduction (SCR) unit. The emission point number (EPN) for the combustion turbine/HRSG is CTG.

The combustion turbine will burn pipeline natural gas to rotate an electrical generator to generate electricity. The main components of a combustion turbine generator consist of a compressor, combustor, turbine, and generator. The compressor pressurizes combustion air to the combustor where the fuel is mixed with the combustion air and burned. Hot exhaust gases then enter the turbine where the gases expand across the turbine blades, driving a shaft to power an electric generator. The exhaust gas will exit the combustion turbine and be routed to the HRSG for steam production.

3.2.2 Heat Recovery Steam Generator

Heat recovered in the HRSG will be utilized to produce steam. Steam generated within the HRSG will be supplied to the PET plant. The HRSG will be equipped with duct burners for supplemental steam production. The duct burners will be fired with pipeline-quality natural gas. The duct burners have a maximum heat input capacity of 263 MMBtu/hr per unit. The exhaust gases from the unit, including emissions from the CT and the duct burners, will exit through a stack to the atmosphere.

The normal duct burner operation will vary from 0 to 100 percent of the maximum capacity. Duct burners will be located in the HRSG prior to the selective catalytic reduction system.

The combustion turbine will be coupled to electric generators to produce electricity for use in the PET plant. The CTG has a maximum electric power output of approximately 50 MW. The project will not include a steam turbine electric generator. All steam produced by the HRSG will be routed to the steam header for use by the neighboring PET Plant.

3.2.3 Auxiliary Boiler A

The CHP Plant will include an auxiliary boiler (EPN AUXBLRA) for continuous supplemental steam generation. The Auxiliary Boiler A will have a maximum heat input of 483 MMBtu/hr and will burn pipeline natural gas. The auxiliary boiler could operate up to 8,760 hours per year.

3.2.4 Auxiliary Boiler B

The CHP Plant will include a smaller auxiliary boiler (EPN AUXBLRB) that will be available to provide the steam requirements of the customer during time where steam loads are less than the minimum output of either the combustion turbine or Auxiliary Boiler A. Auxiliary Boiler B will have a maximum heat input of 63 MMBtu/hr and will burn pipeline natural gas. The boiler will be limited to 500 hours per year of annual operation.

3.2.5 Natural Gas/Fuel Gas Piping

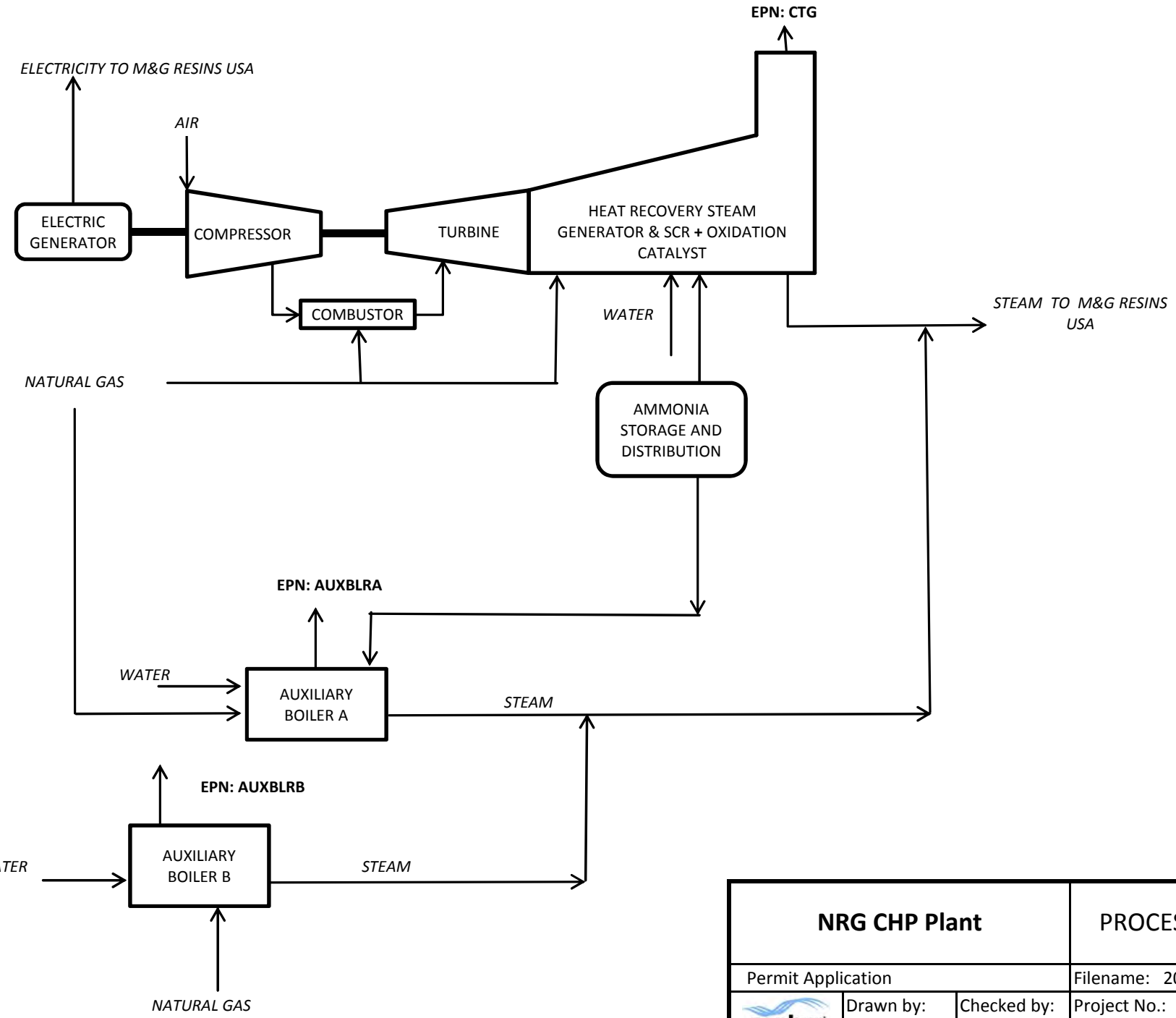
Natural gas will be delivered to the site via pipeline. Gas will be metered and piped to the new combustion turbine and duct burners. Project fugitive emissions from the gas piping components associated with the new CTG/HRSG unit will include emissions of methane (CH_4) and carbon dioxide (CO_2). The natural gas piping is designated as EPN NG-FUG.

3.2.6 Electrical Equipment Insulated with Sulfur Hexafluoride (SF_6)

The generator circuit breakers associated with the proposed units will be insulated with SF_6. SF_6 is a colorless, odorless, non-flammable gas. It is a fluorinated compound that has an extremely stable molecular structure. The unique chemical properties of SF_6 make it an efficient

electrical insulator. The gas is used for electrical insulation, arc quenching, and current interruption in high-voltage electrical equipment. SF_6 is only used in sealed and safe systems which under normal circumstances do not leak gas. The capacity of the circuit breakers associated with the proposed plant is currently estimated to be 495 lb of SF_6.

The proposed circuit breaker at the generator output will have a low pressure alarm and a low pressure lockout. The alarm will alert operating personnel of any leakage in the system and the lockout prevents any operation of the breaker due to lack of "quenching and cooling" SF_6 gas.



NRG CHP Plant			PROCESS FLOW DIAGRAM		
Permit Application			Filename: 2013-0206 NRG CHP PFD.xls		
zephyr	Drawn by: Z. Trieff	Checked by: L. Moon	Project No.: 012563	Date: 2/6/2013	Sheet: 1 of 1

4.0 GHG EMISSION CALCULATIONS

This section provides a description of the methods used to estimate GHG emissions from the proposed CHP plant GHG emission units. GHG emissions were estimated using the most appropriate source-specific emission calculation methodologies available in EPA's GHG Mandatory Reporting Rule (GHG MRR), 40 CFR 98. For each source type, either the applicable methodology or most appropriate methodology (based on the source type) was selected from Subparts C or W of the GHG MRR. The following provides an explanation of calculation methodologies by source type. A summary of GHG emissions, detailed emission calculations and supporting information can be found in Appendix A.

4.1 GHG EMISSIONS FROM NATURAL GAS COMBUSTION SOURCES

CO_2 emissions from the gas turbine, HRSG duct burners and natural gas-fired boilers are calculated using the emission factors (kg/MMBtu) for natural gas from Table C-1 of the Mandatory Greenhouse Gas Reporting Rules.[3] CH_4 and N_2O emissions from the boilers are calculated using the emission factors (kg/MMBtu) for natural gas from Table C-2 of the Mandatory Greenhouse Gas Reporting Rules.[4] The global warming potential factors used to calculate CO_2e emissions are based on Table A-1 of the Mandatory Greenhouse Gas Reporting Rules.[5]

4.2 GHG EMISSIONS FROM NATURAL GAS/FUEL GAS PIPING FUGITIVES AND NATURAL GAS/FUEL GAS MAINTENANCE AND STARTUP/SHUTDOWN RELATED RELEASES

GHG emission calculations for natural gas/fuel gas piping component fugitive emissions are based on emission factors from Table W-1A of the Mandatory Greenhouse Gas Reporting Rules, Subpart W – Petroleum and Natural Gas Systems[6]. The concentrations of CH_4 and CO_2 in the natural gas are based on a typical natural gas analysis. Since the CH_4 and CO_2 content of natural gas is variable, the concentrations of CH_4 and CO_2 from the typical natural gas analysis are used as a worst-case estimate. The global warming potential factors used to calculate CO_2e emissions are based on Table A-1 of the Mandatory Greenhouse Gas Reporting Rules.[7]

GHG emission calculations for releases of natural gas related to piping maintenance and turbine startup/shutdowns are calculated using the same CH_4 and CO_2 concentrations as natural gas/fuel gas piping fugitives.

---

[3] *Default CO_2 Emission Factors and High Heat Values for Various Types of Fuel*, 40 C.F.R. 98, Subpt. C, Tbl. C-1

[4] *Default CH_4 and N_2O Emission Factors for Various Types of Fuel*, 40 C.F.R. 98, Subpt. C, Tbl. C-2

[5] *Global Warming Potentials*, 40 C.F.R. Pt. 98, Subpt. A, Tbl. A-1.

[6] *Default Whole Gas Emission Factors for Onshore Petroleum and Natural Gas Production*, 40 C.F.R. 98, Subpt. W, Tbl.W-1A

[7] *Global Warming Potentials*, 40 C.F.R. Pt. 98, Subpt. A, Tbl. A-1.

4.3 GHG EMISSIONS FROM ELECTRICAL EQUIPMENT INSULATED WITH SF_6

SF_6 emissions from the new generator circuit breaker and yard breaker associated with the proposed units are calculated using a predicted SF_6 annual leak rate of 0.5% by weight. The global warming potential factors used to calculate CO_2e emissions are based on Table A-1 of the Mandatory Greenhouse Gas Reporting Rules.[8]

[8] *Global Warming Potentials*, 40 C.F.R. Pt. 98, Subpt. A, Tbl. A-1.

5.0 PREVENTION OF SIGNIFICANT DETERIORATION APPLICABILITY

Because the combined CHP Plant and PET Plant project emissions increase of GHG is greater than 100,000 ton/yr of CO_2e, PSD is triggered for GHG emissions. The emissions netting analysis is documented on the attached TCEQ PSD netting tables: Table 1F and Table 2F of Appendix B. Note that this is a new Greenfield site and, as such, there are no contemporaneous emission changes associated with the project.

6.0 BEST AVAILABLE CONTROL TECHNOLOGY (BACT)

The PSD rules define BACT as:

> *Best available control technology means an emissions limitation (including a visible emission standard) based on the maximum degree of reduction for each pollutant subject to regulation under [the] Act which would be emitted from any proposed major stationary source or major modification which the Administrator, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant. In no event shall application of best available control technology result in emissions of any pollutant which would exceed the emissions allowed by any applicable standard under 40 CFR parts 60 and 61. If the Administrator determines that technological or economic limitations on the application of measurement methodology to a particular emissions unit would make the imposition of an emissions standard infeasible, a design, equipment, work practice, operational standard, or combination thereof, may be prescribed instead to satisfy the requirement for the application of best available control technology. Such standard shall, to the degree possible, set forth the emissions reduction achievable by implementation of such design, equipment, work practice or operation, and shall provide for compliance by means which achieve equivalent results.*[9]

In the EPA guidance document titled *PSD and Title V Permitting Guidance for Greenhouse Gases*, EPA recommended the use of the Agency's five-step "top-down" BACT process to determine BACT for GHGs.[10] In brief, the top-down process calls for all available control technologies for a given pollutant to be identified and ranked in descending order of control effectiveness. The permit applicant should first examine the highest-ranked ("top") option. The top-ranked options should be established as BACT unless the permit applicant demonstrates to the satisfaction of the permitting authority that technical considerations, or energy, environmental, or economic impacts justify a conclusion that the top ranked technology is not "achievable" in that case. If the most effective control strategy is eliminated in this fashion, then the next most effective alternative should be evaluated, and so on, until an option is selected as BACT.

EPA has broken down this analytical process into the following five steps:

Step 1: Identify all available control technologies.
Step 2: Eliminate technically infeasible options.
Step 3: Rank remaining control technologies.

[9] 40 C.F.R. § 52.21(b)(12.)

[10] EPA, *PSD and Title V Permitting Guidance for Greenhouse Gases*, p. 18 (Nov. 2010).

Step 4: Evaluate most effective controls and document results.
Step 5: Select BACT

6.1 BACT FOR COMBUSTION TURBINE AND HEAT RECOVERY STEAM GENERATOR

6.1.1 Step 1: Identify All Available Control Technologies

6.1.1.1 Inherently Lower-Emitting Processes/Practices/Designs

CO_2 is a product of combustion of fuel containing carbon, which is inherent in any combined heat and power generation technology using fossil fuel. It is not possible to reduce the amount of CO_2 generated from combustion, as CO_2 is the essential product of the chemical reaction between the fuel and the oxygen in which it burns, not a byproduct caused by imperfect combustion. As such, there is no technology available that can effectively reduce CO_2 generation by adjusting the conditions in which combustion takes place.

The only effective means to reduce the amount of CO_2 generated by a fuel-burning power plant is to generate as much electricity and steam as possible from the combustion, thereby reducing the amount of fuel needed to meet the plant's required power and steam output. A summary of available, lower GHG emitting processes, practices, and designs for combustion turbine power generator is presented below.

Periodic Burner Tuning
Modern combustion turbines have regularly scheduled maintenance programs. These maintenance programs are important for the reliable operation of the unit, as well as to maintain optimal efficiency. As the combustion turbine is operated, the unit experiences degradation and loss in performance. The combustion turbine maintenance program helps restore the recoverable lost performance. The maintenance program schedule is determined by the number of hours of operation and/or turbine starts. There are three basic maintenance levels, commonly referred to as combustion inspections, hot gas path inspections, and major overhauls. Combustion inspections are the most frequent of the maintenance cycles. As part of this maintenance activity, the combustors are tuned to restore highly efficient low-emission operation.

Combustion Turbine Design
Good turbine design maximizes thermal efficiency. Modern combustion turbines have high operating temperatures. The high operating temperatures are a result of the heat of compression in the compressor along with the fuel combustion in the burners. To minimize heat loss from the combustion turbine and protect the personnel and equipment around the machine, insulation blankets are applied to the combustion turbine casing. These blankets minimize the heat loss through the combustion turbine shell and help improve the overall efficiency of the machine.

Instrumentation and Controls
Modern combustion turbines have sophisticated instrumentation and controls to automatically control the operation of the combustion turbine. The control system is a digital-type and is supplied with the combustion turbine. The distributed control system (DCS) controls all aspects of the turbine's operation, including the fuel feed and burner operations, to achieve efficient low-NO_x combustion. The control system monitors the operation of the unit and modulates the fuel flow and turbine operation to achieve optimal high-efficiency low-emission performance for full-load and part-load conditions.

Waste Heat Recovery
In a simple cycle configuration, the hot combustion gases exiting the combustion turbine are exhausted to the atmosphere as "wasted" heat. In a cogeneration configuration, these same hot gases are routed through a HRSG to produce steam that is then supplied to the neighboring chemical manufacturing plant as usable thermal energy. Additional natural gas is burned in duct burners in the HRSG to generate additional steam.

HRSG Design
Efficient design of the HRSG improves overall thermal efficiency. Efficient design features of the HRSG includes the following: use of finned tubes to extend the heat transfer surface; modular type heat recovery surfaces for efficient, economical heat recovery; use of a heat exchanger to recover heat from the HRSG exhaust gas to preheat incoming HRSG boiler feedwater; use of a heat exchanger to recover heat from the HRSG blowdown to preheat boiler feedwater; use of hot condensate as feedwater which results in less heat required to produce steam in the HRSG, thus improving thermal efficiency; and application of insulation to the HRSG surfaces and steam and water lines to minimize heat loss from radiation.

Minimizing Fouling of Heat Exchange Surfaces
HRSGs are made up of a number of tubes within the shell of the unit that are used to generate steam from the combustion turbine exhaust gas waste heat. To maximize this heat transfer, the tubes and their extended surfaces need to be as clean as possible. Fouling of the tube surfaces impedes the transfer of heat. Fouling occurs from the constituents within the exhaust gas stream. To minimize fouling, filtration of the inlet air to the combustion turbine is performed. Additionally, cleaning of the tubes is performed during periodic outages. By reducing the fouling, the efficiency of the unit is maintained.

6.1.1.2 Add On Controls

In addition to power and steam generation process technology options discussed above, it is appropriate to consider add-on technologies as possible ways to capture GHG emissions that are emitted from natural gas combustion in the proposed project's CTG/HRSG units and to prevent them from entering the atmosphere. These emerging carbon capture and storage (CCS) technologies generally consist of processes that separate CO_2 from combustion process flue gas, and then inject it into geologic formations such as oil and gas reservoirs, unmineable

coal seams, and underground saline formations. These three components of CCS are addressed separately below:

Carbon Capture

Of the emerging CO_2 capture technologies that have been identified, only amine absorption is currently commercially used for state-of-the-art CO_2 separation processes. The U.S. Department of Energy's National Energy Technology Laboratory (DOE-NETL) provides the following brief description of state-of-the-art post-combustion CO_2 capture technology and related implementation challenges. Although the DOE-NETL discussions focus on CCS application at combustion units in electrical generation service, elements of this discussion are applicable when discussing the application of CCS to sources in the chemical manufacturing industry. The following excerpts from DOE-NETL Information Portal illustrate some of the many challenges, but not all, that are present in applying available CO_2 Capture technologies at combustion and process sources located at chemical manufacturing plants.

> *…In the future, emerging R&D will provide numerous cost-effective technologies for capturing CO_2 from power plants. At present, however, state-of-the-art technologies for existing power plants are essentially limited to amine absorbents. Such amines are used extensively in the petroleum refining and natural gas processing industries… Amine solvents are effective at absorbing CO_2 from power plant exhaust streams—about 90 percent removal—but the highly energy-intensive process of regenerating the solvents decreases plant electricity output…*[11]

In its CCS information portal, the DOE-NETL adds:

> *…Separating CO_2 from flue gas streams is challenging for several reasons:*
>
> - *CO_2 is present at dilute concentrations (13-15 volume percent in coal-fired systems and 3-4 volume percent in gas-fired turbines) and at low pressure (15-25 pounds per square inch absolute [psia]), which dictates that a high volume of gas be treated.*
> - *Trace impurities (particulate matter, sulfur dioxide, nitrogen oxides) in the flue gas can degrade sorbents and reduce the effectiveness of certain CO_2 capture processes.*

It should be noted that the majority of the candidate CCS source vent streams (previously listed in this section) are dilute in CO_2 concentration and contain impurities such as PM, NO_X and SO_2, thus increasing the challenge of CO_2 separation for the Jumbo Project.

Compression and Transport

[11] DOE-NETL, *Carbon Sequestration: FAQ Information Portal*, http://extsearch1.netl.doe.gov/search?q=cache:e0yvzjAh22cJ:www.netl.doe.gov/technologies/carbon_seq/FAQs/tech-status.html+emerging+R%26D&access=p&output=xml_no_dtd&ie=UTF-8&client=default_frontend&site=default_collection&proxystylesheet=default_frontend&oe=ISO-8859-1 (last visited July 26, 2012).

The compression aspect of this component of CCS will represent a significant cost and additional environmental impact because of the energy required to provide the amount of compression needed. This is supported by DOE-NETL who states that:

> *Compressing captured or separated CO_2 from atmospheric pressure to pipeline pressure (about 2,000 psia) represents a large auxiliary power load on the overall plant system…*[12]

If CO_2 capture and compression can be achieved at a process or combustion source, it would need to be routed to a geologic formation capable of long-term storage. The long-term storage potential for a formation is a function of the volumetric capacity of a geologic formation and CO_2 trapping mechanisms within the formation, including dissolution in brine, reactions with minerals to form solid carbonates, and/or adsorption in porous rock. The DOE-NETL describes the geologic formations that could potentially serve as CO_2 storage sites and their associated technical challenges as follows:

> *Geologic carbon dioxide (CO_2) storage involves the injection of supercritical CO_2 into deep geologic formations (injection zones) overlain by competent sealing formations and geologic traps that will prevent the CO_2 from escaping. Current research and field studies are focused on developing better understanding of 11 major types of geologic storage reservoir classes, each having their own unique opportunities and challenges. Understanding these different storage classes provides insight into how the systems influence fluids flow within these systems today, and how CO_2 in geologic storage would be anticipated to flow in the future. The different storage formation classes include: deltaic, coal/shale, fluvial, alluvial, strandplain, turbidite, eolian, lacustrine, clastic shelf, carbonate shallow shelf, and reef. Basaltic interflow zones are also being considered as potential reservoirs. These storage reservoirs contain fluids that may include natural gas, oil, or saline water; any of which may impact CO_2 storage differently…*[13]

Therefore, as can be seen from the DOE-NETL Information Portal, CCS as a whole cannot be considered a commercial available, technically feasible option for the combustion and process vent emissions sources under review in the proposed Jumbo Project. The project will generate flue gas streams that contain CO_2 in dilute concentrations and the project is not located in an acceptable geological storage location. Even so, NRG provides even further and more detailed evaluation to address all 5 steps of the EPA BACT analysis.

[12] *Id.*

[13] DOE-NETL, ***Carbon Sequestration:*** *Geologic Storage Focus Area,* http://www.netl.doe.gov/technologies/carbon_seq/corerd/storage.html (last visited July 26, 2012)

6.1.2 Step 2: Eliminate Technically Infeasible Options

NRG addresses, in more detail, the potential feasibility of implementing CCS technology as BACT for GHG emissions from the proposed project GHG emission sources. The feasibility issues are different for each component of CCS technology (i.e., capture; compression and transport; and storage). Therefore, technical feasibility of each component is addressed separately below.

6.1.2.1 CO_2 Capture

Though amine absorption technology for CO_2 capture has routinely been applied to processes in the petroleum refining and natural gas processing industries it has not been applied to process vents at chemical manufacturing plants.

The Obama Administration's Interagency Task Force on Carbon Capture and Storage, in its recently completed report on the current status of development of CCS systems for power plants, states that carbon capture could be used on combustion units. However, the following discussion on carbon capture technology availability for high volume vent streams and large combustion unit shows that carbon capture is not commercially available for application.

Large commercial applications, such as the Jumbo Project sources, present even more difficult application of carbon capture, in part, due to the additional variability in flow volumes as typically experienced in chemical plants. Therefore, the discussion related to power plants also shows that of CO_2 capture for chemical process combustion and process vent stream are not commercially available.

> *Current technologies could be used to capture CO_2 from new and existing fossil energy power plants; however, they are not ready for widespread implementation primarily because they have not been demonstrated at the scale necessary to establish confidence for power plant application. Since the CO_2 capture capacities used in current industrial processes are generally much smaller than the capacity required for the purposes of GHG emissions mitigation at a typical power plant, there is considerable uncertainty associated with capacities at volumes necessary for commercial deployment*.[14]

In its current CCS research program plans (which focus on power plant application), the DOE-NETL confirms that commercial CO_2 capture technology for large-scale combustion units (e.g., power plants) is not yet available and suggests that it may not be available until at least 2020:

> *The overall objective of the Carbon Sequestration Program is to develop and advance CCS technologies that will be ready for widespread commercial*

[14] *Report of the Interagency Task Force on Carbon Capture and Storage* at 50 (Aug. 2010).

> *deployment by 2020. To accomplish widespread deployment, four program goals have been established:*
> *(1) Develop technologies that can separate, capture, transport, and store CO_2 using either direct or indirect systems that result in a less than 10 percent increase in the cost of energy by 2015;*
> *(2) Develop technologies that will support industries' ability to predict CO_2 storage capacity in geologic formations to within ±30 percent by 2015;*
> *(3) Develop technologies to demonstrate that 99 percent of injected CO_2 remains in the injection zones by 2015;*
> *(4) Complete Best Practices Manuals (BPMs) for site selection, characterization, site operations, and closure practices by 2020. Only by accomplishing these goals will CCS technologies be ready for safe, effective commercial deployment both domestically and abroad beginning in 2020 and through the next several decades.*[15A]

To corroborate that commercial availability of CO_2 capture technology for large-scale combustion (power plant) projects will not occur for several more years, Alstom, one of the major developers of commercial CO_2 capture technology using post-combustion amine absorption, post-combustion chilled ammonia absorption, and oxy-combustion, states on its web site that its CO_2 capture technology will become commercially available in 2015.[16] However, it should be noted that in committing to this timeframe, the company does not indicate whether such technology will be available for CO_2 emissions generated from chemical plant sources, like those included in the Jumbo Project.

6.1.2.1.1 CO_2 Compression and Transport

Notwithstanding the fact that the above discussion demonstrates that the carbon capture component of CCS is not commercial available for chemical plant combustion and process vents, NRG provides the following discussion concerning technical feasibility. This discussion further supports that the compression and transport component of CCS may be technically feasible but, as explained later, the cost evaluation shows that it is not economically reasonable. Therefore, CCS is not BACT for the Jumbo Project.

Even if it is assumed that CO_2 capture could feasibly be achieved for the proposed project, the high-volume CO_2 stream generated would need to be compressed and transported to a facility capable of storing it. Potential geologic storage sites in Texas, Louisiana, and Mississippi to which CO_2 could be transported if a pipeline was constructed are delineated on the map found at the end of this Appendix.[17] The hypothetical minimum length required for any such pipeline(s)

---

[15] DOE-NETL, *Carbon Sequestration Program: Technical Program Plan,* at 10 (Feb. 2011).

[16] Alstom, *Alstom's Carbon Capture Technology Commercially "Ready to Go" by 2015*, Nov.30, 2010, http://www.alstom.com/australia/news-and-events/pr/ccs2015/ (last visited July.26, 2012).

[17] Susan Hovorka, University of Texas at Austin, Bureau of Economic Geology, Gulf Coast Carbon Center, *New Developments: Solved and Unsolved Questions Regarding Geologic Sequestration of CO_2 as a Greenhouse Gas*

is the distance to the closest site with recognized potential for some geological storage of CO_2, which is an enhanced oil recovery (EOR) reservoir site located within 30 miles of the proposed project. However, none of the South and Southeast Texas EOR reservoir or other geologic formation sites have yet been technically demonstrated for large-scale, long-term CO_2 storage.

In comparison, the closest site that is currently being field-tested to demonstrate its capacity for large-scale geological storage of CO_2 is the Southwest Regional Partnership (SWP) on Carbon Sequestration's Scurry Area Canyon Reef Operators (SACROC) test site, which is located in Scurry County, Texas approximately 385 miles away (see the map at the end of this Appendix for the test site location). Therefore, to access this potentially large-scale storage capacity site, assuming that it is eventually demonstrated to indefinitely store a substantial portion of the large volume of CO_2 generated by the proposed project, a very long and sizable pipeline would need to be constructed to transport the large volume of high-pressure CO_2 from the plant to the storage facility, thereby rendering implementation of a CO_2 transport system infeasible.

The potential length of such a CO_2 transport pipeline is uncertain due to the uncertainty of identifying a site(s) that is suitable for large-scale, long-term CO_2 storage. The hypothetical minimum length required for any such pipeline(s) is estimated to be the lesser of the following:

- The distance to the closest site with established capability for some geological storage of CO_2, which is an enhanced oil recovery (EOR) reservoir site[18] located more than 620 kilometers from the proposed project; or
- The distance to a CO_2 pipeline that Denbury Green Pipeline-Texas is currently constructing approximately 280 kilometers (straight line distance) from the project site for the purpose of providing CO_2 to support various EOR operations in Southeast Texas beginning in late 2013.

6.1.2.2 CO_2 Sequestration

Even if it is assumed that CO_2 capture and compression could feasibly be achieved for the proposed project and that the CO_2 could be transported economically, the feasibility of CCS technology would still depend on the availability of a suitable pipeline or sequestration site as addressed in Step 4 of the BACT analysis. The suitability of potential storage sites is a function of volumetric capacity of their geologic formations, CO_2 trapping mechanisms within formations (including dissolution in brine, reactions with minerals to form solid carbonates, and/or adsorption in porous rock), and potential environmental impacts resulting from injection of CO_2 into the formations. Potential environmental impacts resulting from CO_2 injection that still require assessment before CCS technology can be considered feasible include:

Reduction Method (GCCC Digital Publication #08-13) at slide 4 (Apr. 2008), available at: http://www.beg.utexas.edu/gccc/forum/codexdownloadpdf.php?ID=100(last visited July 26, 2012).

[18] None of the nearby South Texas EOR reservoirs or other geologic formation sites have been technically demonstrated for large-scale, long-term CO_2 storage.

- Uncertainty concerning the significance of dissolution of CO_2 into brine,
- Risks of brine displacement resulting from large-scale CO_2 injection, including a pressure leakage risk for brine into underground drinking water sources and/or surface water,
- Risks to fresh water as a result of leakage of CO_2, including the possibility for damage to the biosphere, underground drinking water sources, and/or surface water,[19] and
- Potential effects on wildlife.

Potentially suitable storage sites, including EOR sites and saline formations, exist in Texas, Louisiana, and Mississippi. In fact, sites with such recognized potential for some geological storage of CO_2 are located within 15 miles of the proposed project, but such nearby sites have not yet been technically demonstrated with respect to all of the suitability factors described above. In comparison, the closest site that is currently being field-tested to demonstrate its capacity for geological storage of the volume of CO_2 that would be generated by the proposed power unit, i.e., SWP's SACROC test site is located in Scurry County, Texas approximately 385 miles away. It should be noted that, based on the suitability factors described above, currently the suitability of the SACROC site or any other test site to store a substantial portion of the large volume of CO_2 generated by the proposed project has yet to be fully demonstrated.

6.1.3 Step 3: Rank Remaining Control Technologies

As all of the energy efficiency related processes, practices, and designs discussed in Section 5.1.1.1 of this application are being proposed for this project, a ranking of the control technologies is not necessary for this application. As documented in Step 2 and 4, implementation of CCS technology is not technically or economically reasonable, leaving energy efficiency measures as the only feasible emission control options.

6.1.4 Step 4: Evaluate Most Effective Controls and Document Results

As all of the energy efficiency related processes, practices, and designs discussed in Section 5.1.1.1 of this application are being proposed for this project, an examination of the energy, environmental, and economic impacts of the efficiency designs is not necessary for this application.

In this section, NRG addresses the potential energy, environmental, and economic feasibility of implementing CCS technology as BACT for GHG emissions from the proposed project's gas turbine/HRSG trains. Each component of CCS technology (i.e., capture and compression, transport, and storage) is discussed separately.

[19] *Id.*

6.1.4.1 Additional Environmental Impacts and Considerations

There are a number of other environmental and operational issues related to the installation and operation of CCS that must also be considered in this evaluation. First, operation of CCS capture and compression equipment would require substantial additional electric power. For example, operation of carbon capture equipment at a typical natural gas fired combined cycle plant is estimated to reduce the net energy efficiency of the plant from approximately 50% (based on the fuel higher heating value (HHV)) to approximately 42.7% (based on fuel HHV).[20] To provide the amount of reliable electricity needed to power a capture system, NRG would need to significantly expand the scope of the utility plant proposed with this project to install one or more additional electric generating units, which are sources of conventional (non-GHG) and GHG air pollutants themselves. To put these additional power requirements in perspective, gas-fired electric generating units typically emit more than 100,000 tons CO_2e/yr and would themselves, require a PSD permit for GHGs in addition to non-GHG pollutants.

NRG would need to construct a pipeline that is estimated to be at least 175 miles in length to transport captured GHGs to the nearest potential purchaser (Denbury Green Pipeline). Constructing a pipeline of this magnitude would require procurement of right-of-ways which can be a lengthy and potentially difficult undertaking. Pipeline construction would also require extensive planning, environmental studies and possible mitigation of environmental impacts from pipeline construction. Therefore, the transportation of GHGs for this project would potentially result in negative impacts and disturbance to the environment in the pipeline right-of-way.

6.1.4.2 CCS Cost Evaluation

Based on the reasons provided above, NRG believes that CCS technology should be eliminated from further consideration as a potential feasible control technology for purposes of this BACT analysis. For the cost evaluation, NRG considered all plants (PET plant and Combined Heat and Power Plant) associated with the Jumbo project GHG emission sources for which CCS is considered technically feasible, for purposes of this analysis, even though separate permits are requested for each plant. These GHG emissions sources include the following emission units (respective plant names/permit applications shown in parenthesis):

- 4 process heaters (PET plant)
- 2 RTOs (PET plant)
- 1 gas-fired turbine (CHP Plant)
- 2 auxiliary boilers (CHP Plant)

NRG's cost estimation is conservatively low because it does not include additional costs for the following items that would be needed to implement CCS for the Jumbo Project:

[20] US Department of Energy, National Energy Technology Laboratory, "Costs and Performance Baseline For Fossil Energy Plants, Volume 1 - Bituminous Coal and Natural Gas to Energy", Revision 2, November 2010

- additional gas conditioning and stream cleanup to meet specifications for final sale
- thousands of feet of gas gathering system piping to collect vent gas from sources located in different areas of the plant
- costs of additional electric generating units required to power the capture and compression system (including design, procurement, permitting, installation, operating and maintenance costs)
- cost of obtaining rights of way for construction of a pipeline

These items would require significantly more effort to estimate and, since the conservatively low cost estimate demonstrates that this technology is not economically reasonable, it was not necessary to expend the extra time and resources to gather this additional data for the cost analysis.

The CCS system cost estimate, excluding these additional capital expenditure items, is presented on Table 6-1 at the end of this Appendix. The total CCS system cost is estimated at approximately $150 million dollars, which is about 15% of the total Jumbo Project capital cost (total estimated capital cost is 1 billion dollars). Increasing the capital cost of the project by this margin and increasing the ongoing operating and maintenance costs would render this project economically unviable. The margins of additional capital and operating costs are significantly greater if the aforementioned additional capital cost items, which were excluded, are taken into consideration.

As discussed above, CCS was determined to be not commercially available and not technically feasible; therefore, a detailed examination of the energy, environmental, and economic impacts of CCS is not required for this application. However, at the request of EPA Region 6, NRG included the estimated costs for implementation of CCS which are presented in Table 6-1. As discussed above these costs show that CCS is not commercially available, not technically feasible but also economically unreasonable. Therefore, it is not included as BACT for the Jumbo Project.

6.1.5 Step 5: Select BACT

NRG proposes as BACT for this project, the following energy efficiency processes, practices, and designs for the proposed combined heat and power combustion turbine:

- Efficient turbine design
- Periodic turbine burner tuning
- Instrumentation and controls
- Turbine inlet air cooling
- Reduction in heat loss
- Efficient heat exchanger design
- Insulation of HRSG
- Minimizing Fouling of heat exchange surfaces

NRG proposes to meet a 12-month rolling average minimum thermal efficiency for the combined heat and power combustion turbine and duct fired heat recovery steam generator of 60%. The CHP Unit thermal efficiency will be calculated as follows:

CHP Unit Efficiency = [(Heat Content of Steam Produced (MMBtu) + (Turbine Gross Electrical Output converted to MMBtu] / (Turbine and Duct Burner fuel firing rate x Gross Calorific Value of fuel (MMBtu))

The NRG CHP unit generates electricity with the gas turbine and steam in the duct fired heat recovery steam generator, which is sold to the neighboring PET Plant. The overall thermal efficiency of the CHP unit incorporates the efficiency of the gas turbine generating electricity and the efficiency of the heat recovery steam generator generating a saleable steam product. "Combined cycle" electric generating plants generate electricity in the gas turbine and the steam produced in the heat recovery steam generator is used to produce additional electricity in a steam turbine generator. The overall energy efficiency of the NRG CHP unit cannot be compared directly to the energy efficiency of "combined cycle" power plants because the "combined cycle" plants also incorporates the efficiency of the steam turbine generator converting the thermal energy of the steam into electricity. BACT limits in GHG permits for "combined cycle" electric generating plants have ranged from 7,525 Btu/KWh to 7,730 Btu/KWh, which is equivalent to thermal efficiencies of approximately 44% - 45%.

NRG performed a search of the EPA's RACT/BACT/LAER Clearinghouse for natural gas fired combined cycle and cogeneration combustion turbines greater than 25 MW and found four entries which address BACT for GHG emissions which are included in Appendix C. A comparison of the NRG CHP Units is made to other cogeneration units (i.e. units that generate electricity and steam but without steam turbine generators) in either issued GHG permits or pending GHG applications in the table below:

Comparison of Proposed Efficiency Standard to Other Cogeneration Facilities

Project	Permit Number	Equipment Description	BACT Limit
Westlake Vinyls Co., LP	PSD-LA-754 (12/06/2011)	Three cogeneration trains with GE LM6000 PF Sprint, 50 MW Gas Turbines with 70 MMBtu/hr Duct Fired Heat Recovery Steam Generators	Good Combustion Practices
BASF Final Petrochemicals	PSD-TX-903-GHG (08/24/2012)	310.4 MMBtu/hr Duct Burners on existing gas turbine	60% Thermal Efficiency for Cogeneration Unit, 12-month rolling average, calculated as: (Heat Content of Steam Produced) + (Heat Content Of Power Produced)/(Heat Content of Fuel Supply)

Project	Permit Number	Equipment Description	BACT Limit
Air Liquide Large Industries US	No draft permit yet	Four GE 7EA (80 MW) Gas Turbines exhausting to existing duct-fired Heat Recovery Steam Generators (no steam turbine generator)	The applicant proposed a combined cycle "equivalent" heat rate of 8334 Btu_{HHV}/KWh $_{gross}$ assuming that 9.1 lbs of high pressure steam generates 1 KW power in a steam turbine generator. 8334 BtuHHV/KWh equates to ~41% thermal efficiency
Copano Processing LP	PSD-TX-104949-GHG (draft)	Solar Mars 100 Gas Turbines (15,000 hp) with Heat Recovery Steam Generators	40% Thermal Efficiency, 12-month rolling average

6.2 BACT FOR SF_6 INSULATED ELECTRICAL EQUIPMENT

6.2.1 Step 1: Identify All Available Control Technologies

Step 1 of the Top-Down BACT analysis is to identify all feasible control technologies. One technology is the use of state-of-the-art SF_6 technology with leak detection to limit fugitive emissions. In comparison to older SF_6 circuit breakers, modern breakers are designed as a totally enclosed-pressure system with far lower potential for SF_6 emissions. In addition, the effectiveness of leak-tight closed systems can be enhanced by equipping them with a density alarm that provides a warning when 10% of the SF_6 (by weight) has escaped. The use of an alarm identifies potential leak problems before the bulk of the SF_6 has escaped, so that it can be addressed proactively in order to prevent further release of the gas.

One alternative considered in this analysis is to substitute another, non-GHG substance for SF_6 as the dielectric material in the breakers. Potential alternatives to SF_6 were addressed in the National Institute of Standards and Technology (NTIS) Technical Note 1425, *Gases for Electrical Insulation and Arc Interruption: Possible Present and Future Alternatives to Pure SF_6.*[21]

6.2.2 Step 2: Eliminate Technically Infeasible Options

According to the report NTIS Technical Note 1425, SF_6 is a superior dielectric gas for nearly all high voltage applications.[22] It is easy to use, exhibits exceptional insulation and arc-interruption properties, and has proven its performance by many years of use and investigation. It is clearly superior in performance to the air and oil insulated equipment used prior to the development of SF_6-insulated equipment. The report concluded that although "…various gas mixtures show considerable promise for use in new equipment, particularly if the equipment is designed

[21] Christophorous, L.G., J.K. Olthoff, and D.S. Green, *Gases for Electrical Insulation and Arc Interruption: Possible Present and Future Alternatives to Pure SF_6,* NIST Technical Note 1425, Nov.1997.

[22] *Id.* at 28 – 29.

specifically for use with a gas mixture… it is clear that a significant amount of research must be performed for any new gas or gas mixture to be used in electrical equipment." Therefore there are currently no technically feasible options besides use of SF_6.

6.2.3 Step 3: Rank Remaining Control Technologies

The use of state-of-the-art SF_6 technology with leak detection to limit fugitive emissions is the highest ranked control technology that is technically feasible for this application.

6.2.4 Step 4: Evaluate Most Effective Controls and Document Results

Energy, environmental, or economic impacts were not addressed in this analysis because the use of alternative, non-greenhouse-gas substance for SF_6 as the dielectric material in the breakers is not technically feasible.

6.2.5 Step 5: Select BACT

Based on this top-down analysis, NRG concludes that using state-of-the-art enclosed-pressure SF_6 circuit breakers with leak detection would be the BACT control technology option. The circuit breakers will be designed to meet the latest of the American National Standards Institute (ANSI) C37.013 standard for high voltage circuit breakers.[23] The proposed circuit breaker at the generator output will have a low pressure alarm and a low pressure lockout. This alarm will function as an early leak detector that will bring potential fugitive SF_6 emissions problems to light before a substantial portion of the SF_6 escapes. The lockout prevents any operation of the breaker due to lack of "quenching and cooling" SF_6 gas.

NRG will monitor emissions annually in accordance with the requirements of the Mandatory Greenhouse Gas Reporting rules for Electrical Transmission and Distribution Equipment Use.[24] Annual SF_6 emissions will be calculated according to the mass balance approach in Equation DD-1 of Subpart DD.

6.3 BACT FOR AUXILIARY BOILER A

One nominally rated 483 MMBtu/hr backup boiler (EPN AUXBLRA) will be used to generate steam for up to 8760 hours per year.

6.3.1 Step 1: Identify All Available Control Technologies

Step 1 of the Top-Down BACT analysis is to identify all feasible control technologies. The following technologies were identified as potential control options for boilers:

[23] ANSI Standard C37.013, *Standard for AC High-Voltage Generator Circuit Breakers on a Symmetrical Current*.

[24] *See* 40 C.F.R. Pt. 98, Subpt. DD.

- Periodic Tune-up: Periodically tune-up of the boilers to maintain optimal thermal efficiency.

- Efficient Boiler Design: New boilers can be designed with efficient burners and refractory and insulation materials in the boiler walls, floor, and other surface to minimize heat loss and increase overall thermal efficiency.

- Automated Boiler Air/Fuel Control: Monitoring of oxygen concentration in the flue gas to be used to control air to fuel ratio on a continuous basis for optimal efficiency

- Condensate Recovery – Return of hot condensate for use as feedwater to the boilers. Use of hot condensate as feedwater results in less heat required to produce steam in the boilers, thus improving thermal efficiency.

- Economizer – Use of a heat exchanger to recover heat from the exhaust gas to preheat incoming boiler feedwater.

- Boiler Blowdown Heat Recovery – Use of a heat exchanger to recover heat from boiler blowdown to preheat feedwater results in an increase in thermal efficiency.

- Use of Low Carbon Fuels: Natural gas will be used for Auxiliary Boiler A.

6.3.2 Step 2: Eliminate Technically Infeasible Options

This step of the top-down BACT analysis eliminates any control technology that is not considered technically feasible unless it is both available and applicable. All options identified in Step 1 are considered technically feasible. Use of natural gas as a low carbon fuel is technically feasible for this emission source type. There are no fuels available for this site that have a lower carbon content than pipeline natural gas.

6.3.3 Step 3: Rank Remaining Control Technologies

As all of the energy efficiency related processes, practices, and designs discussed in Section 5.3.1 of this application are being proposed for the boilers, a ranking of the control technologies is not necessary for this application.

6.3.4 Step 4: Evaluate Most Effective Controls and Document Results

As all of the energy efficiency related processes, practices, and designs discussed in Section 5.3.1 of this application are being proposed for this project, an examination of the energy, environmental, and economic impacts of the efficiency designs is not necessary for this application.

6.3.5 Step 5: Select BACT

NRG proposes as BACT for this project, the following energy efficiency processes, practices, and designs for the proposed combined heat and power combustion turbine:

- Periodic Tune-up
- Efficient boiler design
- Automated Boiler Air/Fuel Control
- Condensate Recovery
- Economizer
- Boiler Blowdown Heat Recovery
- Use of Low Carbon Fuel: Natural Gas

A comparison of the Auxiliary Boiler A is made to other similar sized boilers, designed to operate 8,760 hours per year, in issued GHG permits in the table below:

Comparison of Proposed BACT Limit for Auxiliary Boiler A to Similar Boilers

Project	Permit Number	Equipment Description	BACT Limit
Port Dolphin Energy, LLC	DPA-EPA-R4001 (Issued by EPA Region 4 on 12/01/2011)	Four 278 MMBtu/hr Natural Gas Fired Boilers	117 lb CO2e/MMBtu. Tuning, optimization, instrumentation and controls, and turbulent flow within the fire tubes for GHG control (no thermal efficiency limit)
Entergy Louisiana LLC Ninemile Point Electric Generating Plant	PSD-LA-752 (08/16/2011)	338 MMBtu/hr Natural Gas fired Boiler	117 lb/MMBtu. Proper operation and good combustion practices. (no thermal efficiency limit)
BASF Final Petrochemicals	PSD-TX-903-GHG (08/24/2012)	425.4 MMBtu/hr Natural Gas Fired Steam Package Boilers	77% Thermal Efficiency, 12-month rolling average
Iowa Fertilizer Company	12-A-386-P (10/26/2012)	472.4 Natural Gas Fired Auxiliary Boiler	51,748 ton/yr CO2e (no thermal efficiency limit)
Chevron Phillips Chemical	PSD-TX-748-GHG (01/17/2013)	500 MMBtu/hr Very High Pressure Boiler (natural gas fired)	77% Thermal Efficiency, 12-month rolling average

6.4 BACT FOR AUXILIARY BOILER B

The CHP Plant will include a smaller auxiliary boiler (EPN AUXBLRB) that will be available to provide the steam requirements of the customer during time where steam loads are less than the minimum output of either the combustion turbine or Auxiliary Boiler A. Auxiliary Boiler B will

have a maximum heat input of 63 MMBtu/hr and will burn pipeline natural gas. The boiler will be limited to 500 hours per year of annual operation.

6.4.1 Step 1: Identify All Available Control Technologies

Step 1 of the Top-Down BACT analysis is to identify all feasible control technologies. The following technologies were identified as potential control options for boilers:

- Periodic Tune-up: Periodically tune-up of the boilers to maintain optimal thermal efficiency.
- Efficient Boiler Design: New boilers can be designed with efficient burners and refractory and insulation materials in the boiler walls, floor, and other surface to minimize heat loss and increase overall thermal efficiency.
- Automated Boiler Air/Fuel Control: Monitoring of oxygen concentration in the flue gas to be used to control air to fuel ratio on a continuous basis for optimal efficiency
- Condensate Recovery – Return of hot condensate for use as feedwater to the boilers. Use of hot condensate as feedwater results in less heat required to produce steam in the boilers, thus improving thermal efficiency.
- Economizer – Use of a heat exchanger to recover heat from the exhaust gas to preheat incoming boiler feedwater.
- Boiler Blowdown Heat Recovery – Use of a heat exchanger to recover heat from boiler blowdown to preheat feedwater results in an increase in thermal efficiency.
- Use of Low Carbon Fuels: Natural gas will be used for Auxiliary Boiler A.
- Low annual capacity: Auxiliary Boiler B will be limited to 500 hours per year of annual operation.

6.4.2 Step 2: Eliminate Technically Infeasible Options

This step of the top-down BACT analysis eliminates any control technology that is not considered technically feasible unless it is both available and applicable. All options identified in Step 1 are considered technically feasible. Use of natural gas as a low carbon fuel is technically feasible for this emission source type. There are no fuels available for this site that have a lower carbon content than pipeline natural gas.

6.4.3 Step 3: Rank Remaining Control Technologies

As all of the energy efficiency related processes, practices, and designs discussed in Section 5.3.1 of this application are being proposed for the boilers, a ranking of the control technologies is not necessary for this application.

6.4.4 Step 4: Evaluate Most Effective Controls and Document Results

As all of the energy efficiency related processes, practices, and designs discussed in Section 5.3.1 of this application are being proposed for this project, an examination of the energy, environmental, and economic impacts of the efficiency designs is not necessary for this application.

6.4.5 Step 5: Select BACT

NRG proposes as BACT for this project, the following energy efficiency processes, practices, and designs for the proposed combined heat and power combustion turbine:

- Periodic Tune-up
- Efficient boiler design
- Automated Boiler Air/Fuel Control
- Condensate Recovery
- Economizer
- Boiler Blowdown Heat Recovery
- Use of Low Carbon Fuel: Natural Gas
- Low annual capacity

A comparison of the Auxiliary Boiler B is made to other similar sized, limited annual operation boilers, in issued GHG permits in the table below:

Comparison of Proposed BACT Limit for Auxiliary Boiler B to Similar Boilers

Project	Permit Number	Equipment Description	BACT Limit
Pioneer Valley Energy Center, Westfield, MA	052-042-MA15	21.0 MMBtu/hr Steam Boiler; 1,100 hr/yr operation	1100 hr/yr limit; Periodic burner inspection; Periodic air-to-fuel ratio controller inspection
City of Palmdale, Palmdale, CA	SE-09-01	110.0 MMBtu/hr Auxiliary Steam Boiler; 500 hr/yr operation	Annual boiler tune-ups

6.5 BACT FOR NATURAL GAS FUGITIVES

The proposed project will include natural gas piping components. These components are potential sources of methane and CO_2 emissions due to emissions from rotary shaft seals, connection interfaces, valve stems, and similar points.

6.5.1 Step 1: Identify All Available Control Technologies

Step 1 of the Top-Down BACT analysis is to identify all feasible control technologies. The following technologies were identified as potential control options for piping fugitives:

- Implementation of leak detection and repair (LDAR) program using a hand held analyzer;
- Implementation of alternative monitoring using a remote sensing technology such as infrared cameras; and
- Implementation of audio/visual/olfactory (AVO) leak detection program

6.5.2 Step 2: Eliminate Technically Infeasible Options

This step of the top-down BACT analysis eliminates any control technology that is not considered technically feasible unless it is both available and applicable. The use of instrument LDAR and remote sensing technologies are technically feasible. Since pipeline natural gas is odorized with a small amount of mercaptan, an AVO leak detection program for natural gas piping components is technically feasible.

6.5.3 Step 3: Rank Remaining Control Technologies

The use of a LDAR program with a portable gas analyzer meeting the requirements of 40 CFR 60, Appendix A, Method 21, can be effective for identifying leaking methane. Quarterly instrument monitoring with a leak definition of 10,000 part per million by volume (ppmv) (TCEQ 28M LDAR Program) is generally assigned a control efficiency of 75% for valves, relief valves, sampling connections, and compressors and 30% for flanges.[25] Quarterly instrument monitoring with a leak definition of 500 ppmv (TCEQ 28VHP LDAR Program) is generally assigned a control efficiency of 97% for valves, relief valves, and sampling connections, 85% for compressors, and 30% for flanges.[26] The U.S. EPA has allowed the use of an optical gas imaging instrument as an alternative work practice for a Method 21 portable analyzer for monitoring equipment for leaks in 40 CFR 60.18(g). For components containing inorganic or odorous compounds, periodic AVO walk-through inspections provide predicted control efficiencies of 97% control for valves, flanges, relief valves, and sampling connections, and 95% for compressors.[27]

[25] Air Permit Technical Guidance for Chemical Sources: Equipment Leak Fugitives, TCEQ, Oct. 2000

[26] Id. at page 52.

[27] Id. at page 52.

6.5.4 Step 4: Evaluate Most Effective Controls and Document Results

The frequency of inspection and the low odor threshold of mercaptans in natural gas make AVO inspections an effective means of detecting leaking components in natural gas service. As discussed in Section 5.5.3, the predicted emission control efficiency is comparable to the LDAR programs using Method 21 portable analyzers.

6.5.5 Step 5: Select BACT

Due to the very low volatile organic compound (VOC) content of natural gas, the NRG will not be subject to any VOC leak detection programs by way of its State/PSD air permit, TCEQ Chapter 115 – Control of Air Pollution from Volatile Organic Compounds, New Source Performance Standards (40 CFR Part 60), National Emission Standard for Hazardous Air Pollutants (40 CFR Part 61); or National Emission Standard for Hazardous Air Pollutants for Source Categories (40 CFR Part 63). Therefore, any leak detection program implemented will be solely due to potential greenhouse emissions. Since the uncontrolled CO_2e emissions from the natural gas piping represent less than 0.01% of the total site wide CO_2e emissions, any emission control techniques applied to the piping fugitives will provide minimal CO_2e emission reductions.

Based on this top-down analysis, NRG concludes that weekly AVO inspections are BACT for piping components in natural gas service.

Table 6-1
Range of Approximate Annual Costs for Installation and Operation of Capture, Transport, and Storage Systems for Control of CO_2 Emissions from the Jumbo Project

Carbon Capture and Storage (CCS) Component System	Factors for Approximate Costs for CCS Systems	Annual System CO_2 Throughput (tons of CO_2 captured, transported, and stored) [1]	Pipeline Length for CO_2 Transport System (km CO_2 transported) [4]	Approximate Annualized Costs for CCS System ($)
Post-Combustion CO_2 Capture and Compression System	$103.00 / ton of CO_2 avoided [2]	820,242		$84,484,949
CO_2 Transport System	$ 1.81 / ton of CO_2 transported per 100 km [3]	820,242	285	$4,241,434
CO_2 Storage System	$ 9.33 / ton of CO_2 stored [3]	820,242		$7,649,463
Total Annualized Cost for CO_2 Capture, Transport, and Storage Systems				**$96,375,846**
Estimated Construction Cost of CCS System [5] (Does not include pipeline costs)				**Approximate Construction Costs for CCS System ($)** **$156,737,415**

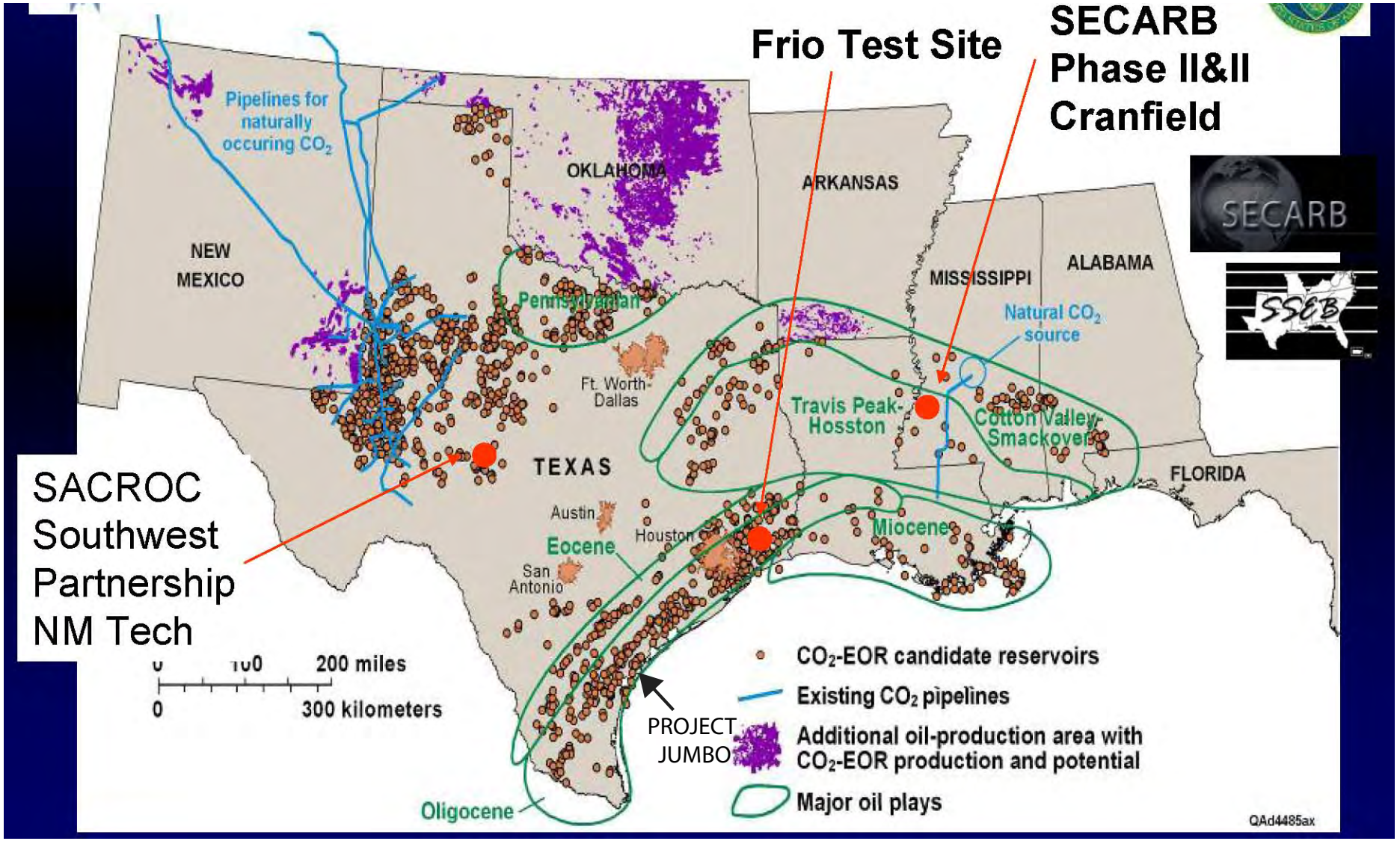
[1] Assumes the maximum possible annual CO_2 emissions scenario and assumes that a capture system would be able to capture 90% of the total CO_2 emissions generated by the PET Plant and the CHP Plant process stacks.

[2] These cost factors are from *Report of the Interagency Task Force on Carbon Capture and Storage* , pp.33, 34 (Aug. 2010) (http://www.fe.doe.gov/programs/sequestration/ccstf/CCSTaskForceReport2010.pdf). Reported costs in $/tonne of CO_2 avoided was converted to $/ton.

[3] These are cost factors are from *Report of the Interagency Task Force on Carbon Capture and Storage* , pp. 37 and 44 (Aug. 2010) (http://www.fe.doe.gov/programs/sequestration/ccstf/CCSTaskForceReport2010.pdf). The average cost factors were calculated as the arithmetic mean of the minimum and maximum factors provided in the document. Reported costs in $/tonne of CO_2 avoided were converted to $/ton. Cost estimates [for geologic storage of CO_2] are limited to capital and operational costs, and do not include potential costs associated with long-term liability (from p. 44).

[4] The length of the pipeline was assumed to be the distance to the closest potential geologic storage site, as identified by the University of Texas at Austin, Bureau of Economic Geology, Gulf Coast Carbon Center, available at: http://www.beg.utexas.edu/gccc/graphics/Basemap_state_lands_fp_lg.jpg (last visited Feb. 27, 2012).

[5] Construction cost estimate for CCS system from Cost and Performance Baseline for Fossil Energy Plants Volume 1: Bituminous Coal and Natural Gas to Electricity Revision 2, November 2010, DOE/NETL-2010/1397, pp. 474, 497, and 499).



7.0 OTHER PSD REQUIREMENTS

7.1 IMPACTS ANALYSIS

An impacts analysis is not being provided with this application in accordance with EPA's recommendations:

> *Since there are no NAAQS or PSD increments for GHGs, the requirements in sections 52.21(k) and 51.166(k) of EPA's regulations to demonstrate that a source does not cause contribute to a violation of the NAAQS are not applicable to GHGs. Therefore, there is no requirement to conduct dispersion modeling or ambient monitoring for CO_2 or GHGs.*[28]

An impacts analysis for non-GHG emissions is being submitted with the State/PSD/Nonattainment application submitted to the TCEQ.

7.2 GHG PRECONSTRUCTION MONITORING

A pre-construction monitoring analysis for GHG is not being provided with this application in accordance with EPA's recommendations:

> *EPA does not consider it necessary for applicants to gather monitoring data to assess ambient air quality for GHGs under section 52.21(m)(1)(ii), section 51.166(m)(1)(ii), or similar provisions that may be contained in state rules based on EPA's rules. GHGs do not affect "ambient air quality" in the sense that EPA intended when these parts of EPA's rules were initially drafted. Considering the nature of GHG emissions and their global impacts, EPA does not believe it is practical or appropriate to expect permitting authorities to collect monitoring data for purpose of assessing ambient air impacts of GHGs.*[29]

A pre-construction monitoring analysis for non-GHG emissions is being submitted with the State/PSD/Nonattainment application submitted to the TCEQ.

7.3 ADDITIONAL IMPACTS ANALYSIS

A PSD additional impacts analysis is not being provided with this application in accordance with EPA's recommendations:

> *Furthermore, consistent with EPA's statement in the Tailoring Rule, EPA believes it is not necessary for applicants or permitting authorities to assess impacts from*

[28] EPA, *PSD and Title V Permitting Guidance For Greenhouse Gases* at 48-49.

[29] *Id.* at 49.

> *GHGs in the context of the additional impacts analysis or Class I area provisions of the PSD regulations for the following policy reasons. Although it is clear that GHG emissions contribute to global warming and other climate changes that result in impacts on the environment, including impacts on Class I areas and soils and vegetation due to the global scope of the problem, climate change modeling and evaluations of risks and impacts of GHG emissions is typically conducted for changes in emissions orders of magnitude larger than the emissions from individual projects that might be analyzed in PSD permit reviews. Quantifying the exact impacts attributable to a specific GHG source obtaining a permit in specific places and points would not be possible with current climate change modeling. Given these considerations, GHG emissions would serve as the more appropriate and credible proxy for assessing the impact of a given facility. Thus, EPA believes that the most practical way to address the considerations reflected in the Class I area and additional impacts analysis is to focus on reducing GHG emissions to the maximum extent. In light of these analytical challenges, compliance with the BACT analysis is the best technique that can be employed at present to satisfy the additional impacts analysis and Class I area requirements of the rules related to GHGs.*[30]

A PSD additional impacts analysis for non-GHG emissions is being submitted with the State/PSD/Nonattainment application submitted to the TCEQ.

8.0 PROPOSED GHG MONITORING PROVISIONS

NRG proposes to monitor CO_2 emissions by monitoring the quantity of fuel combusted in the turbine and heat recovery steam generator and performing periodic fuel sampling as required by the applicable provisions of 40 CFR 98 Subpart C.

APPENDIX A

GHG EMISSION CALCULATIONS

TABLE 3-1
PLANTWIDE GHG EMISSION SUMMARY
NRG Combined Heat and Power Plant

Source Name	EPN	Calculation Table	GHG Mass Emissions	CO_2e
			ton/yr	ton/yr
GE LM-6000 Natural Gas Turbine and Duct Burner	CTG	TABLE 3-2	332,480	332,799
Auxiliary Boiler A	AUXBLRA	TABLE 3-3	247,286	247,524
Auxiliary Boiler B	AUXBLRB	TABLE 3-4	1,841	1,843
Natural Gas Fugitive Emissions	NG-FUG	TABLE 3-5	21	426
Gas Venting	MSS-FUG	TABLE 3-6	0.11	2
Electrical Equipment Insulated with SF6	SF6-FUG	TABLE 3-7	0.001	30
Sitewide Emissions			581,628	582,623

TABLE 3-2
TURBINE AND DUCT BURNER GHG ANNUAL EMISSION CALCULATIONS
NRG Combined Heat and Power Plant

EPN	Average Heat Input (MMBtu/hr)[1]	Annual Heat Input[2] (MMBtu/yr)	Pollutant	Emission Factor (kg/MMBtu)[3]	GHG Mass Emissions (tpy)	Global Warming Potential[4]	CO_2e (tpy)
CTG	649	5,688,744	CO_2	53.02	332,472.6	1	332,472.6
			CH_4	1.0E-03	6.27	21	131.7
			N_2O	1.0E-04	0.63	310	194.4
				Totals	**332,479.5**		**332,798.7**

Notes

1. Heat input is combined heat input of turbine and duct burner from Firing Case 4CT, 100% load, with inlet chiller on
2. The annual heat input includes hours of turbine startup/shutdown.
3. Factors based on natural gas values in Table C-1 and C-2 of 40 CFR Part 98, Mandatory Greenhouse Gas Reporting.
4. Global Warming Potential factors based on Table A-1 of 40 CFR 98 Mandatory Greenhouse Gas Reporting.

Sample Calculation, CO_2e:

GHG Mass Emissions (ton/yr) = 0.001 tons/kg x 5688744 MMBtu/yr x 0.001 kg/MMBtu = 6.3 tpy

CO2e (ton/yr) = 6.3 tpy x 21 = 131.7 tpy CO2e

TABLE 3-3
AUXILIARY BOILER A GHG ANNUAL EMISSION CALCULATIONS
NRG Combined Heat and Power Plant

EPN	Average Heat Input (MMBtu/hr)	Maximum Heat Input (MMBtu/yr)	Pollutant	Emission Factor (kg/MMBtu)[1]	GHG Mass Emissions (tpy)	Global Warming Potential[2]	CO_2e (tpy)
AUXBLRA	483	4,231,080	CO_2	53.02	247,281.01	1	247,281.0
			CH_4	1.0E-03	4.66	21	97.9
			N_2O	1.0E-04	0.47	310	144.6
				Totals	**247,286.1**		**247,523.5**

Notes

1. Factors based on natural gas values in Table C-1 and C-2 of 40 CFR Part 98, Mandatory Greenhouse Gas Reporting.
2. Global Warming Potential factors based on Table A-1 of 40 CFR 98 Mandatory Greenhouse Gas Reporting.

Sample Calculation, CO_2e:

GHG Mass Emissions (ton/yr) = 0.001 tons/kg x 4231080 MMBtu/yr x 0.001 kg/MMBtu = 4.7 tpy
CO2e (ton/yr) = 4.7 tpy x 21 = 97.9 tpy CO2e

TABLE 3-4
AUXILIARY BOILER B GHG ANNUAL EMISSION CALCULATIONS
NRG Combined Heat and Power Plant

EPN	Average Heat Input (MMBtu/hr)	Maximum Heat Input[1] (MMBtu/yr)	Pollutant	Emission Factor (kg/MMBtu)[2]	GHG Mass Emissions (tpy)	Global Warming Potential[3]	CO_2e (tpy)
AUXBLRB	63	31,500	CO_2	53.02	1,840.98	1	1,841.0
			CH_4	1.0E-03	0.035	21	0.7
			N_2O	1.0E-04	0.0035	310	1.1
				Totals	**1,841.0**		**1,842.8**

Notes

1. The annual heat input is based on 500 operating hours per year.
2. Factors based on natural gas values in Table C-1 and C-2 of 40 CFR Part 98, Mandatory Greenhouse Gas Reporting.
3. Global Warming Potential factors based on Table A-1 of 40 CFR 98 Mandatory Greenhouse Gas Reporting.

Sample Calculation, CO_2e:

GHG Mass Emissions (ton/yr) = 0.001 tons/kg x 31500 MMBtu/yr x 0.001 kg/MMBtu = 0.03 tpy

CO2e (ton/yr) = 0.03 tpy x 21 = 0.7 tpy CO2e

TABLE 3-5
NATURAL GAS PIPING GHG EMISSION CALCULATIONS
NRG Combined Heat and Power Plant

EPN	Source Type	Fluid State	Count	Emission Factor[1] scf/hr/comp	CO_2[2] (tpy)	Methane[3] (tpy)	Total (tpy)
NG-FUG	Valves	Gas/Vapor	600	0.121	0.45	12.74	
	Flanges	Gas/Vapor	2400	0.017	0.26	7.16	
	Relief Valves	Gas/Vapor	5	0.193	0.006	0.17	
	Sampling Connections	Gas/Vapor	10	0.031	0.0019	0.054	
	Compressors	Gas/Vapor	3	0.30	0.005631	0.1579	
GHG Mass-Based Emissions					0.72	20.27	***21.0***
Global Warming Potential[4]					1	21	
CO_2e Emissions					0.72	425.8	***426.5***

Notes

1. Emission factors from Table W-1A of 40 CFR 98 Mandatory Greenhouse Gas Reporting included in the August 3, 2012 Technical Corrections
2. CO_2 emissions based on vol% of CO_2 in natural gas 1.25%
3. CH_4 emissions based on vol% of CH_4 in natural gas 96.13%
4. Global Warming Potential factors based on Table A-1 of 40 CFR 98 Mandatory Greenhouse Gas Reporting.

Example Calculation

600 valves	0.123 scf gas	0.0125 scf CO2	lbmole	44 lb CO_2	8760 hr	ton =	0.45 ton/yr
	hr * valve	scf gas	385 scf	lbmole	yr	2000 lb	

TABLE 3-6
GASEOUS FUEL VENTING DURING TURBINE SHUTDOWN/MAINTENANCE AND SMALL EQUIPMENT AND FUGITIVE COMPONENT REPAIR/REPLACEMENT
NRG Combined Heat and Power Plant

	Initial Conditions			Final Conditions			CO_2[3]	CH_4[4]	Total
Location	**Volume[1] (ft^3)**	**Press. (psig)**	**Temp. (°F)**	**Press. (psig)**	**Temp. (°F)**	**Volume[2] (scf)**	**Annual (tpy)**	**Annual (tpy)**	**Annual (tpy)**
Turbine Fuel Line Shutdown/Maintenance	1,146	**50**	**50**	0	68	5,277	0.0038	0.11	
Small Equipment/Fugitive Component Repair/Replacement	6.7	**50**	**50**	0	68	31	0.00002	0.00061	
GHG Mass-Based Emissions							0.0038	0.1060	**0.11**
Global Warming Potential[5]							1	21	
CO_2e Emissions							0.0038	2.2	**2.2**

Notes

1. Initial volume is calculated by multiplying the cross-sectional area by the length of pipe using the following formula: V= pi * [(diameter in inches/12)/2]^2 * length in feet = ft^3
2. Final volume calculated using ideal gas law $[(PV/ZT)_i = (PV/ZT)_f]$. $V_f = V_i (P_i/P_f) (T_f/T_i) (Z_i/Z_i)$, where Z is estimated using the following equation: $Z = 0.9994 - 0.0002P + 3E\text{-}08P^2$.
3. CO_2 emissions based on vol% of CO_2 in natural gas 1.25% from natural gas analysis
4. CH_4 emissions based on vol% of CH_4 in natural gas 96.13% from natural gas analysis
5. Global Warming Potential factors based on Table A-1 of 40 CFR 98 Mandatory Greenhouse Gas Reporting.

Example Calculation

5277 scf Nat Gas	0.013 scf CO2	lbmole	44 lb CO_2	ton =	=	0.0038	ton/yr CO_2
yr	scf Nat Gas	385 scf	lbmole	2000 lb			

TABLE 3-7
ELECTRICAL EQUIPMEMT INSULATED WITH SF6 GHG EMISSION CALCULATIONS
NRG Combined Heat and Power Plant

Assumptions

Insulated circuit breaker SF_6 capacity	495	lb
Estimated annual SF_6 leak rate	0.5%	by weight
Estimated annual SF_6 mass emission rate	0.00124	ton/yr
Global Warming Potential[1]	23,900	
Estimated annual CO_2e emission rate	29.6	ton/yr

Notes

1. Global Warming Potential factor based on Table A-1 of 40 CFR 98 Mandatory Greenhouse Gas Reporting.

APPENDIX B

NETTING TABLES

TCEQ

TABLE 1F
AIR QUALITY APPLICATION SUPPLEMENT

Permit No.:	TBD	Application Submittal Date:	03/27/2013
Company	NRG Development Company, Inc.		
RN:	TBD	Facility Location:	NRG Combined Heat and Power Plant
City	Corpus Christi	County:	Nueces
Permit Unit I.D.:		Permit Name:	NRG Combined Heat and Power Plant
Permit Activity:	☑ New Major Source	☐ Modification	
Project or Process Description:	Construction of new combined cycle electric generating plant		

Complete for all pollutants with a project emission increase.	**POLLUTANTS**						
	Ozone		**CO**	**SO_2**	**PM**	**GHG**	**CO_2e**
	NOx	**VOC**					
Nonattainment? (yes or no)						No	No
Existing site PTE (tpy)	**This form for GHG only**					0	0
Proposed project increases (tpy from 2F)[3]						581,628	582,623
Is the existing site a major source? If not, is the project a major source by itself? (yes or no)	Yes						
If site is major, is project increase significant? (yes or no)						Yes	Yes
If netting required, estimated start of construction:		N/A					
5 years prior to start of construction:		N/A	Contemporaneous				
estimated start of operation:		N/A	Period				
Net contemporaneous change, including proposed project, from Table 3F (tpy)						581,628	582,623
FNSR applicable? (yes or no)						Yes	Yes

1. Other PSD pollutants
2. Nonattainment major source is defined in Table 1 in 30 TAC 116.12(11) by pollutant and county. PSD thresholds are found in 40 CFR §51.166(b)(1).
3. Sum of proposed emissions minus baseline emissions, increases only. Nonattainment thresholds are found in Table 1 in 30 TAC 116.12(11) and PSD thresholds in 40 CFR §51.166(b)(23).
4. Since there are no contemporaneous decreases which would potentially affect PSD applicability and an impacts analysis is not required for GHG emissions, contemporaneous emission changes are not included on this table.

The presentations made above and on the accompanying tables are true and correct to the best of my knowledge.

C.R. Ellis | Sr. Mgr | 27 Mar 13

Signature | Title | Date

TABLE 2F
PROJECT EMISSION INCREASE

Pollutant[1]:	GHG	**Permit:**	TBD
Baseline Period:	N/A **to** N/A		

	Affected or Modified Facilities[2] FIN	EPN	Permit No.	Actual Emissions[3]	Baseline Emissions[4]	Proposed Emissions[5]	Projected Actual Emissions	Difference (B - A) [6]	Correction[7]	Project Increase[8]
				A	**B**					
1	CTG/HRSG	CTG	TBD	0.00	0.00	332,480		332,480		332,480
2	AUXBLRA	AUXBLRA	TBD	0.00	0.00	247,286		247,286		247,286
3	AUXBLRB	AUXBLRB	TBD	0.00	0.00	1,841		1,841		1,841
4	NG-FUG	NG-FUG	TBD	0.00	0.00	21		21		21
5	MSS-FUG	MSS-FUG	TBD	0.00	0.00	0.11		0.11		0.11
6	SF6-FUG	SF6-FUG	TBD	0.00	0.00	0.0012		0.0012		0.0012
7										
8										
9										
10										
11										
12										
14										
15										
							Page Subotal[9]			581,628

TABLE 2F
PROJECT EMISSION INCREASE

Pollutant[1]:	CO_2e	**Permit:**	TBD
Baseline Period:	N/A **to** N/A		

	Affected or Modified Facilities[2] FIN	EPN	Permit No.	Actual Emissions[3]	A Baseline Emissions[4]	B Proposed Emissions[5]	Projected Actual Emissions	Difference (B - A) [6]	Correction[7]	Project Increase[8]
1	CTG/HRSG	CTG	TBD	0.00	0.00	332,799		332,799		332,799
2	AUXBLRA	AUXBLRA	TBD	0.00	0.00	247,524		247,524		247,524
3	AUXBLRB	AUXBLRB	TBD	0.00	0.00	1,843		1,843		1,843
4	NG-FUG	NG-FUG	TBD	0.00	0.00	426		426		426
5	MSS-FUG	MSS-FUG	TBD	0.00	0.00	2		2		2
6	SF6-FUG	SF6-FUG	TBD	0.00	0.00	30		30		30
7										
8										
9										
10										
11										
12										
13										
14										
15										
							Page Subotal[9]			582,623

All emissions must be listed in tons per year (tpy). The same baseline period must apply for all facilities for a given NSR pollutant.

1. Individual Table 2F's should be used to summarize the project emission increase for each criteria pollutant.
2. Emission Point Number as designated in NSR Permit or Emissions Inventory.
3. All records and calculations for these values must be available upon request.
4. Correct actual emissions for currently applicable rule or permit requirements, and periods of non-compliance. These corrections, as well as any MSS previously demonstrated under 30 TAC 101, should be explained in the Table 2F supplement.
5. If projected actual emission is used it must be noted in the next column and the basis for the projection identified in the Table 2F supplement.
6. Proposed Emissions (column B) Baseline Emissions (column A).
7. Correction made to emission increase for what portion could have been accommodated during the baseline period. The justification and basis for this estimate must be provided in the Table 2F supplement.
8. Obtained by subtracting the correction from the difference. Must be a positive number.
9. Sum all values for this page.

Appendix C

RBLC Search Results

COMPREHENSIVE REPORT
Report Date:03/05/2013

Facility Information

RBLC ID:	LA-0256 (final)	**Date Determination Last Updated:**	04/03/2012
Corporate/Company Name:	WESTLAKE VINYLS COMPANY LP	**Permit Number:**	PSD-LA-754
Facility Name:	COGENERATION PLANT	**Permit Date:**	12/06/2011 (actual)
Facility Contact:	KAREN KHONSARI (225) 673-0647 KKHONSARI@WESTLAKE.COM	**FRS Number:**	110000746328
Facility Description:	COGENERATION PLANT AT SYNTHETIC ORGANIC CHEMICAL MANUFACTURING FACILITY	**SIC Code:**	4939
Permit Type:	B: Add new process to existing facility	**NAICS Code:**	221112
Permit URL:			
EPA Region:	6	**COUNTRY:**	USA
Facility County:	ASCENSION		
Facility State:	LA		
Facility ZIP Code:	70734		
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: DAN NGUYEN, 225-219-3417		
Permit Notes:	APPLICATION ACCEPTED RECEIVED DATE = DATE OF ADMINISTRATIVE COMPLETENESS "FWE" REPRESENT POTENTIAL EMISSIONS ASSOCIATED WITH THE COGENERATION PLANT. NOX "NETTED OUT" OF PSD/NNSR.		

Facility-wide Emissions:

Pollutant Name:	Facility-wide Emissions Increase:
Carbon Monoxide	42.0800 (Tons/Year)
Nitrogen Oxides (NOx)	48.0400 (Tons/Year)
Particulate Matter (PM)	48.9300 (Tons/Year)
Sulfur Oxides (SOx)	18.6300 (Tons/Year)
Volatile Organic Compounds (VOC)	18.3600 (Tons/Year)

Process/Pollutant Information

PROCESS NAME: COGENERATION TRAINS 1-3 (1-10, 2-10, 3-10)

Process Type: 15.210 (Natural Gas (includes propane & liquified petroleum gas))

Primary Fuel: NATURAL GAS

Throughput: 475.00 MMBTU/H

Process Notes: EACH COGEN TRAIN CONSISTS OF A 50 MW GE LM6000 PF SPRINT TURBINE AND A HEAT RECOVERY STEAM GENERATOR EQUIPPED WITH A 70 MM BTU/HR DUCT BURNER.

POLLUTANT NAME: Carbon Dioxide Equivalent (CO2e)

CAS Number: CO2e
Test Method: Unspecified
Pollutant Group(s): (Greenhouse Gasses (GHG))
Emission Limit 1: 55576.7700 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) USE OF NATURAL GAS AS FUEL AND GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: IN ADDITION, AN ANNUAL LIMIT OF 243,426.26 TPY WAS ESTABLISHED BY THE ACCOMPANYING TITLE V PERMIT (3090-V0).

POLLUTANT NAME: Total Suspended Particulates

CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 3.7200 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) USE OF NATURAL GAS AS FUEL AND GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: IN ADDITION, AN ANNUAL LIMIT OF 16.31 TPY WAS ESTABLISHED BY THE ACCOMPANYING TITLE V PERMIT (3090-V0).

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 3.7200 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) USE OF NATURAL GAS AS FUEL AND GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: IN ADDITION, AN ANNUAL LIMIT OF 16.31 TPY WAS ESTABLISHED BY THE ACCOMPANYING TITLE V PERMIT (3090-V0).

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: 3.7200 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) USE OF NATURAL GAS AS FUEL AND GOOD COMBUSTION PRACTICES
Est. % Efficiency:

Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: IN ADDITION, AN ANNUAL LIMIT OF 16.31 TPY WAS ESTABLISHED BY THE ACCOMPANYING TITLE V PERMIT (3090-V0).

Process/Pollutant Information

PROCESS NAME: EMERGENCY GENERATOR
Process Type: 17.130 (Natural Gas (includes propane & liquified petroleum gas))
Primary Fuel: NATURAL GAS
Throughput: 1818.00 HP
Process Notes: NON-EMERGENCY OPERATION IS LIMITED TO 52 HR/YR.

POLLUTANT NAME: Total Suspended Particulates
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
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: OPERATING PERMIT
Control Method: (P) USE OF NATURAL GAS AS FUEL AND GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: LIMIT ESTABLISHED BY PSD-LA-754 IS

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/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) USE OF NATURAL GAS AS FUEL AND GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: LIMIT ESTABLISHED BY PSD-LA-754 IS

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/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) USE OF NATURAL GAS AS FUEL AND GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: LIMIT ESTABLISHED BY PSD-LA-754 IS

POLLUTANT NAME: Carbon Dioxide Equivalent (CO2e)
CAS Number: CO2e
Test Method: Unspecified

Pollutant Group(s):	(Greenhouse Gasses (GHG))
Emission Limit 1:	1509.2300 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) USE OF NATURAL GAS AS FUEL AND GOOD COMBUSTION PRACTICES
Est. % Efficiency:	
Cost Effectiveness:	0 $/ton
Incremental Cost Effectiveness:	0 $/ton
Compliance Verified:	Unknown
Pollutant/Compliance Notes:	IN ADDITION, AN ANNUAL LIMIT OF 39.24 TPY WAS ESTABLISHED BY THE ACCOMPANYING TITLE V PERMIT (3090-V0).

Facility Information

RBLC ID:	LA-0257 (final)	**Date Determination Last Updated:**	05/11/2012
Corporate/Company Name:	SABINE PASS LNG, LP & SABINE PASS LIQUEFACTION, LL	**Permit Number:**	PSD-LA-703(M3)
Facility Name:	SABINE PASS LNG TERMINAL	**Permit Date:**	12/06/2011 (actual)
Facility Contact:	PATRICIA OUTTRIM 713-375-5212 PAT.OUTTRIM@CHENIERE.COM	**FRS Number:**	110030770351
Facility Description:	A liquefaction section of the terminal which will include 24 compressor turbines, two generator turbines, two generator engines, flares, acid gas vents, and fugitives	**SIC Code:**	4925
Permit Type:	B: Add new process to existing 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: Permit writer: Dan Nguyen

Permit Notes:

Process/Pollutant Information

PROCESS NAME: Generator Engines (2)

Process Type: 17.130 (Natural Gas (includes propane & liquified petroleum gas))

Primary Fuel: Natural Gas

Throughput: 2012.00 hp

Process Notes:

POLLUTANT NAME: Particulate matter, total (TPM)

CAS Number: PM

Test Method: EPA/OAR Mthd 5 and 202

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.7500 LB/H HOURLY MAXIMUM

Emission Limit 2: 0.1700 TONS/YEAR ANNUAL MAXIMUM

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) fueled by natural gas

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: also for PM10 and PM2.5

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: 9.7600 LB/H HOURLY MAXIMUM

Emission Limit 2: 2.2200 TONS/YR ANNUAL MAXIMUM
Standard Emission: 2.0000 GRAM/B-HP-H
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) Comply with 40 CFR 60 Subpart JJJJ
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: 19.5100 LB/H HOURLY MAXIMUM
Emission Limit 2: 4.4300 TONS/YR ANNUAL MAXIMUM
Standard Emission: 4.0000 LB/B-HP-H
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) Comply with 40 CFR 60 Subpart JJJJ
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: EPA/OAR Mthd 25A
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 4.4300 LB/H HOURLY MAXIMUM

Emission Limit 2: 1.1100 TONS/YEAR ANNUAL MAXIMUM
Standard Emission: 1.0000 GRAM/B-HP-H
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) Comply with 40 CFR 60 Subpart JJJJ
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: 412.0000 TONS/YR ANNUAL 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:
Control Method: (P) Fueled by natural gas, good combustion/operating practices
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: Simple Cycle Refrigeration Compressor Turbines (16)
Process Type: 15.110 (Natural Gas (includes propane & liquified petroleum gas))
Primary Fuel: Natural Gas

Throughput: 286.00 MMBTU/H

Process Notes: GE LM2500+G4

POLLUTANT NAME: Particulate matter, total (TPM)

CAS Number: PM

Test Method: EPA/OAR Mthd 5 and 202

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 2.0800 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:

Control Method: (P) Good combustion practices and fueled by natural gas

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: also for PM10 and PM2.5

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: 0.6600 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:

Control Method: (P) Good combustion practices and fueled by 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: EPA/OAR Mthd 20
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 22.9400 LB/H HOURLY MAXIMUM
Emission Limit 2:
Standard Emission: 20.0000 PPMV AT 15% O2
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) water injection
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: 43.6000 LB/H HOURLY MAXIMUM
Emission Limit 2:
Standard Emission: 58.4000 PPMV AT 15% OXYGEN
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 and fueled by natural gas
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: 4872107.0000 TONS/YR ANNUAL MAXIMUM FROM THE FACILITYWIDE
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/operating practices and fueled by natural gas - use GE LM2500+G4 turbines
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: CO2(e)

Process/Pollutant Information

PROCESS NAME: Combined Cycle Refrigeration Compressor Turbines (8)
Process Type: 15.210 (Natural Gas (includes propane & liquified petroleum gas))
Primary Fuel: natural gas
Throughput: 286.00 MMBTU/H
Process Notes: GE LM2500+G4

POLLUTANT NAME: Particulate matter, total (TPM)
CAS Number: PM
Test Method: EPA/OAR Mthd 5 and 202
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 2.0800 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:

Control Method: (P) Good combustion practices and fueled by natural gas

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: also for PM10 and PM2.5

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: 0.6600 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:

Control Method: (P) Good combustion practices and fueled by 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: EPA/OAR Mthd 20

Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))

Emission Limit 1: 22.9400 LB/H HOURLY MAXIMUM

Emission Limit 2:

Standard Emission: 20.0000 PPMV AT 15% O2

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) water injection

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: 43.6000 LB/H HOURLY MAXIMUM

Emission Limit 2:

Standard Emission: 58.4000 PPMV AT 15% O2

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 and fueled by natural gas

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: 4872107.0000 TONS/YEAR ANNUAL MAXIMUM FROM THE FACILITYWIDE

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/operating practices and fueled by natural gas - use GE LM2500+G4 turbines

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: co2(e)

Process/Pollutant Information

PROCESS NAME: Simple Cycle Generation Turbines (2)

Process Type: 15.110 (Natural Gas (includes propane & liquified petroleum gas))

Primary Fuel: Natural Gas

Throughput: 286.00 MMBTU/H

Process Notes: GE LM2500+G4

POLLUTANT NAME: Particulate matter, total (TPM)

CAS Number: PM

Test Method: EPA/OAR Mthd 5 and 202

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 2.0800 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:

Control Method: (P) Good combustion practices and fueled by natural gas

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: also for PM10 and PM2.5

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: 0.6600 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:
Control Method: (P) Good combustion practices and fueled by 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: EPA/OAR Mthd 20
Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 28.6800 LB/H HOURLY MAXIMUM
Emission Limit 2:
Standard Emission: 25.0000 PPMV AT 15% O2
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) water injection
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: 17.4600 LB/H HOURLY MAXIMUM
Emission Limit 2:
Standard Emission: 25.0000 PPMV AT 15% O2
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 and fueled by natural gas
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: 4872107.0000 TONS/YR ANNUAL MAXIMUM FROM THE FACILITYWIDE
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/operating practices and fueled by natural gas - use GE LM2500+G4 turbines
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown

Pollutant/Compliance Notes: CO2(e)

Process/Pollutant Information

PROCESS NAME: Acid Gas Vents (4)

Process Type: 50.999 (Other Petroleum/Natural Gas Production & Refining Sources (except 42 - Liquid Marketing))

Primary Fuel:

Throughput: 0

Process Notes:

POLLUTANT NAME: Carbon Dioxide Equivalent (CO2e)

CAS Number: CO2e

Test Method: Unspecified

Pollutant Group(s): (Greenhouse Gasses (GHG))

Emission Limit 1: 39.2900 LB/H HOURLY MAXIMUM

Emission Limit 2: 172.0900 TONS/YR ANNUAL MAXIMUM

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: CO2(e)

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: 0.0300 TONS/YR ANNUAL MAXIMUM

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) No additional control
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: Marine Flare
Process Type: 19.390 (Other Flares)
Primary Fuel: natural gas
Throughput: 1590.00 MMBTU/H
Process Notes:

POLLUTANT NAME: Particulate matter, total (TPM)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 14.9700 LB/H HOURLY MAXIMUM
Emission Limit 2: 0.1700 TONS/YR ANNUAL MAXIMUM
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) proper plant operations and maintain the presence of the flame when the gas is routed to the flare
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: Also for PM10 and PM2.5

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: 185.1600 LB/H HOURLY MAXIMUM
Emission Limit 2: 2.1300 TONS/YR ANNUAL MAXIMUM
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) proper plant operations and maintain the presence of the flame when the gas is routed to the flare
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: 705.4900 LB/H HOURLY MAXIMUM
Emission Limit 2: 8.1200 TONS/YR ANNUAL MAXIMUM
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) proper plant operations and maintain the presence of the flame when the gas is routed to the flare
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: 10.8300 LB/H HOURLY MAXIMUM
Emission Limit 2: 0.1200 TONS/YR ANNUAL MAXIMUM
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) proper plant operations and maintain the presence of the flame when the gas is routed to the flare
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: 2909.0000 TONS/YR ANNUAL 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:
Control Method: (P) proper plant operations and maintain the presence of the flame when the gas is routed to the flare
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: CO2(e)

Process/Pollutant Information

PROCESS NAME: Wet/Dry Gas Flares (4)
Process Type: 19.390 (Other Flares)
Primary Fuel: natural gas
Throughput: 0.26 MMBTU/H
Process Notes:

POLLUTANT NAME: Particulate matter, total (TPM)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0100 LB/H HOURLY MAXIMUM
Emission Limit 2: 0.0100 TONS/YR ANNUAL MAXIMUM
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) proper plant operations and maintain the presence of the flame when the gas is routed to the flare
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: also for PM10 and PM2.5

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/H HOURLY MAXIMUM
Emission Limit 2: 0.1100 TONS/YR ANNUAL MAXIMUM
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) proper plant operations and maintain the presence of the flame when the gas is routed to the flare
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: 0.1100 LB/H HOURLY MAXIMUM
Emission Limit 2: 0.4200 TONS/YR ANNUAL MAXIMUM
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) proper plant operations and maintain the presence of the flame when the gas is routed to the flare
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: 0.0100 LB/H HOURLY MAXIMUM
Emission Limit 2: 0.0100 TONS/YR ANNUAL MAXIMUM
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) proper plant operations and maintain the presence of the flame when the gas is routed to the flare
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: 133.0000 TONS/YR ANNUAL 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:
Control Method: (P) proper plant operations and maintain the presence of the flame when the gas is routed to the flare
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: CO2(e)

Process/Pollutant Information

PROCESS NAME: Fugitive Emissions
Process Type: 50.999 (Other Petroleum/Natural Gas Production & Refining Sources (except 42 - Liquid Marketing))
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: 5.0300 LB/H HOURLY MAXIMUM
Emission Limit 2: 17.2100 TONS/YEAR ANNUAL MAXIMUM
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) Mechanical seals or equivalent for pumps and compressors that serve VOC with vapor pressure of 1.5 psia and above
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: 89629.0000 TONS/YR ANNUAL 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:
Control Method: (P) conduct a leak detection and repair (LDAR) program
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: CO2(e)

Facility Information

RBLC ID:	MI-0402 (draft)	**Date Determination Last Updated:**	11/30/2012
Corporate/Company Name:	WOLVERINE POWER SUPPLY COOPERATIVE INC.	**Permit Number:**	81-11
Facility Name:	SUMPTER POWER PLANT	**Permit Date:**	11/17/2011 (actual)
Facility Contact:	BRIAN WARNER 231-775-5700 BWARNER@WPSCI.COM	**FRS Number:**	2616305315
Facility Description:	Utility--Natural gas fired combustion turbine	**SIC Code:**	
Permit Type:	D: Both B (Add new process to existing facility) &C (Modify process at existing facility)	**NAICS Code:**	221112
Permit URL:			
EPA Region:	5	**COUNTRY:**	USA
Facility County:	WAYNE		
Facility State:	MI		
Facility ZIP Code:	48111		
Permit Issued By:	MICHIGAN DEPT OF ENVIRONMENTAL QUALITY (Agency Name) MS. CINDY SMITH(Agency Contact) (517)241-7461 SMITHC17@MICHIGAN.GOV		
Other Agency Contact Info:	Please contact permit engineer Julie Brunner at 517-373-7088 or brunnerj1@michigan.gov for questions related to this permit. Thank you.		
Permit Notes:	Other Facility Wide Pollutants not listed below: PM10 = 14.8 tpy PM2.5 = 14.8 tpy CO2e = 232,639 tpy		

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	95.4000 (Tons/Year)
Nitrogen Oxides (NOx)	74.2000 (Tons/Year)
Particulate Matter (PM)	11.2000 (Tons/Year)
Sulfur Oxides (SOx)	1.3000 (Tons/Year)
Volatile Organic Compounds (VOC)	5.8000 (Tons/Year)

Process/Pollutant Information

PROCESS NAME:	Combined cycle combustion turbine w/ HRSG
Process Type:	15.210 (Natural Gas (includes propane & liquified petroleum gas))
Primary Fuel:	Natural gas
Throughput:	130.00 MW electrical output

Process Notes: This is a combined-cycle combustion turbine with a non-fired heat recovery steam generator (HRSG). Natural gas-fired combustion turbine conversion to combined-cycle.

POLLUTANT NAME: Carbon Monoxide
CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 0.0480 LB/MMBTU 24-HR ROLLING AVERAGE
Emission Limit 2: 53.6000 LB/H 24-HR ROLLING AVERAGE
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: OTHER
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Yes
Pollutant/Compliance Notes: Good combustion practices--potential restricted to below major source thresholds. NOTE: There are three CO permit limits; however all cannot be included on one screen. The tpy limit will be included on its own screen. 'Other' applicable requirement listed above is NAAQS.

POLLUTANT NAME: Carbon Monoxide
CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 95.4000 T/YR 12-MONTH 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: OTHER CASE-BY-CASE
Other Applicable Requirements: OTHER
Control Method: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Yes
Pollutant/Compliance Notes: NOTE: This is the third CO limit which applies to the turbine. 'Other' applicable requirement listed above is NAAQS. Good combustion practices--potential restricted to below major source thresholds.

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 PPM 24-HR ROLLING AVERAGE
Emission Limit 2: 36.9000 LB/H 24-HR ROLLING 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 , OTHER
Control Method: (A) Low NOx burners
Est. % Efficiency: 90.000
Cost Effectiveness: 13733 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Yes
Pollutant/Compliance Notes: 2nd ranking option Emission limit 1 above is 9 ppmv dry at 15% oxygen Estimated efficiency (above) is a range of 60%-90%. 'Other' applicable requirement above is NAAQS.

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
Emission Limit 2: 7.4000 LB/H TEST
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: OTHER
Control Method: (N)
Est. % Efficiency:

Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: Good combustion practices--potential restricted to below major source thresholds. 'Other' applicable requirement above is NAAQS.

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
Emission Limit 2: 7.4000 LB/H TEST
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: (N)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: Top ranking option

POLLUTANT NAME: Carbon Dioxide Equivalent (CO2e)
CAS Number: CO2e
Test Method: Unspecified
Pollutant Group(s): (Greenhouse Gasses (GHG))
Emission Limit 1: 954.0000 LB/MW-H 12-MONTH 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: (N)

Est. % Efficiency: 49.600
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: Estimated efficiency (above) is 49.6% thermal efficiency (design) Top ranking option--thermal efficiency (design is gross summer 87 F degrees ambient and includes 6% factor for performance degradation).

Process/Pollutant Information

PROCESS NAME: Diesel fuel-fired combustion engine (RICE)
Process Type: 17.110 (Fuel Oil (ASTM # 1,2, includes kerosene, aviation, diesel fuel))
Primary Fuel: Diesel
Throughput: 732.00 HP
Process Notes: Diesel fuel-fired engine for emergency.

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: 4.8500 G/HP-H TEST
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 , OTHER
Control Method: (N) Good combustion practices
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: Top ranking option

POLLUTANT NAME: Carbon Monoxide
CAS Number: 630-08-0

Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 0.3100 G/HP-H TEST
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 , OTHER
Control Method: (N) Good combustion practices
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: Top ranking option

POLLUTANT NAME: Particulate matter, filterable (FPM)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0500 G/HP-H TEST
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 , OTHER , NESHAP
Control Method: (N) Good combustion practices
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: Top ranking option

POLLUTANT NAME: Particulate matter, total < 10 μ (TPM10)
CAS Number: PM

Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0573 LB/MMBTU TEST
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 , OTHER
Control Method: (N) Good combustion practices
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: Top ranking option

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: 0.0573 LB/MMBTU TEST
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 , OTHER
Control Method: (N) Good combustion practices
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: No
Pollutant/Compliance Notes: Top ranking option

POLLUTANT NAME: Carbon Dioxide Equivalent (CO2e)
CAS Number: CO2e

Test Method:	Unspecified
Pollutant Group(s):	(Greenhouse Gasses (GHG))
Emission Limit 1:	716.6000 LB/H TEST
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 , OTHER
Control Method:	(N) Good combustion practices
Est. % Efficiency:	
Cost Effectiveness:	0 $/ton
Incremental Cost Effectiveness:	0 $/ton
Compliance Verified:	No
Pollutant/Compliance Notes:	Top ranking option

Facility Information

RBLC ID:	CA-1212 (draft)	**Date Determination Last Updated:**	02/15/2013
Corporate/Company Name:	CITY OF PALMDALE	**Permit Number:**	SE 09-01
Facility Name:	PALMDALE HYBRID POWER PROJECT	**Permit Date:**	10/18/2011 (actual)
Facility Contact:	STEVE WILLIAMS	**FRS Number:**	
Facility Description:	570 MW NATURAL GAS FIRED COMBINED CYCLE POWER PLANT WITH AN INTEGRATED 50 MW SOLAR THERMAL PLANT	**SIC Code:**	4911
Permit Type:	A: New/Greenfield Facility	**NAICS Code:**	221112
Permit URL:	http://www.epa.gov/region9/air/permit/r9-permits-issued.html		
EPA Region:	9	**COUNTRY:**	USA
Facility County:	LOS ANGELES		
Facility State:	CA		
Facility ZIP Code:	93535		
Permit Issued By:	EPA REGION IX (Agency Name) MR. GERARDO RIOS(Agency Contact) (415)972-3974 rios.gerardo@epa.gov		
Permit Notes:			

Affected Boundaries:	Boundary Type:	Class 1 Area State:	Boundary:	Distance:
	CLASS1	CA	Cucamonga	< 100 km
	CLASS1	CA	San Gabriel	< 100 km

Facility-wide Emissions:	Pollutant Name:	Facility-wide Emissions Increase:
	Carbon Monoxide	250.2000 (Tons/Year)
	Nitrogen Oxides (NOx)	114.9000 (Tons/Year)
	Particulate Matter (PM)	79.1000 (Tons/Year)
	Sulfur Oxides (SOx)	8.9000 (Tons/Year)

Process/Pollutant Information

PROCESS NAME: COMBUSTION TURBINES (NORMAL OPERATION)

Process Type: 15.210 (Natural Gas (includes propane & liquified petroleum gas))

Primary Fuel: NATURAL GAS

Throughput: 154.00 MW

Process Notes: TWO NATURAL GAS-FIRED COMBUSTION TURBINE-GENERATORS (CTGS) RATED AT 154 MEGAWATT (MW, GROSS) EACH, TWO HEAT RECOVERY STEAM GENERATORS (HRSG), ONE STEAM TURBINE GENERATOR (STG) RATED AT 267 MW, AND 251 ACRES OF PARABOLIC SOLAR-THERMAL COLLECTORS WITH ASSOCIATED HEAT-TRANSFER EQUIPMENT

POLLUTANT NAME: Nitrogen Oxides (NOx)

CAS Number: 10102

Test Method: Other

Other Test Method: EPA METHOD 7E, OR METHOD 7E & 19

Pollutant Group(s): (InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))

Emission Limit 1: 2.0000 PPMVD @15% O2, 1-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: (B) DRY LOW NOX (DLN) COMBUSTORS, 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: EPA/OAR Mthd 10
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 1.5000 PPMVD @15% O2, 1-HR AVG (NO DUCT BURNING)
Emission Limit 2: 2.0000 PPMVD @15% O2, 1-HR AVG (W/ DUCT BURNING)
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 SYSTEM
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: 2.0 PPMVD @15% O2, 1-HR AVG (NO DUCT BURNING) APPLIES DURING 3-YEAR DEMONSTRATION PERIOD

POLLUTANT NAME: Particulate matter, total (TPM)

CAS Number: PM
Test Method: Other
Other Test Method: EPA METHODS 5 & 202, OR METHODS 201A & 202
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0048 LB/MMBTU 9-HR AVG (NO DUCT BURNING)
Emission Limit 2: 0.0049 LB/MMBTU 9-HR AVG (W/ DUCT BURNING)
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) USE PUC QUALITY 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: Other
Other Test Method: EPA METHODS 5 & 202, OR METHODS 201A & 202
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0048 LB/MMBTU 9-HR AVG (NO DUCT BURNING)
Emission Limit 2: 0.0049 LB/MMBTU 9-HR AVG (W/ DUCT BURNING)
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) USE PUC QUALITY 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: Other
Other Test Method: EPA METHODS 5 & 202, OR METHODS 201A & 202
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0048 LB/MMBTU 9-HR AVG (NO DUCT BURNING)
Emission Limit 2: 0.0049 LB/MMBTU 9-HR AVG (W/ DUCT BURNING)
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) USE PUC QUALITY NATURAL GAS

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: Other
Other Test Method: EPA METHOD 3B
Pollutant Group(s): (Greenhouse Gasses (GHG))
Emission Limit 1: 774.0000 LB/MW-HR 365-DAY ROLLING AVG (FACILITYWIDE)
Emission Limit 2: 7319.0000 BTU/KW-HR 365-DAY ROLLING AVG (FACILITYWIDE)
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: USE EPA METHOD 3B FOR CO2 EMISSIONS.

Process/Pollutant Information

PROCESS NAME: COMBUSTION TURBINES (STARTUP PERIODS)
Process Type: 15.210 (Natural Gas (includes propane & liquified petroleum gas))
Primary Fuel: NATURAL GAS
Throughput: 154.00 MW
Process Notes: TWO NATURAL GAS-FIRED COMBUSTION TURBINE-GENERATORS (CTGS) RATED AT 154 MEGAWATT (MW, GROSS) EACH, TWO HEAT RECOVERY STEAM GENERATORS (HRSG), ONE STEAM TURBINE GENERATOR (STG) RATED AT 267 MW, AND 251 ACRES OF PARABOLIC SOLAR-THERMAL COLLECTORS WITH ASSOCIATED HEAT-TRANSFER EQUIPMENT

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 410.0000 LB/EVENT COLD STARTUP PERIODS
Emission Limit 2: 329.0000 LB/EVENT WARM & HOT STARTUP PERIODS
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) CATALYST OXIDATION SYSTEM
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: DURING STARTUP OR SHUTDOWN, EMISSIONS OF CO FROM BOTH CTGS COMBINED SHALL NOT EXCEED 790 LB/HR; DURATION OF COLD STARTUP NOT TO EXCEED 110 MIN; DURATION OF WARM & HOT STARTUP NOT TO EXCEED 80 MIN

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: 96.0000 LB/EVENT COLD STARTUP PERIODS
Emission Limit 2: 40.0000 LB/EVENT WARM & HOT STARTUP PERIODS
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 (DLN) COMBUSTORS, SELECTIVE CATALYTIC REDUCTION (SCR)
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown

Pollutant/Compliance Notes: DURING STARTUP OR SHUTDOWN, EMISSIONS OF CO FROM BOTH CTGS COMBINED SHALL NOT EXCEED 790 LB/HR; DURATION OF COLD STARTUP NOT TO EXCEED 110 MIN; DURATION OF WARM & HOT STARTUP NOT TO EXCEED 80 MIN

Process/Pollutant Information

PROCESS NAME: COMBUSTION TURBINES (SHUTDOWN PERIODS)

Process Type: 15.210 (Natural Gas (includes propane & liquified petroleum gas))

Primary Fuel: NATURAL GAS

Throughput: 110.00 MMBTU/HR

Process Notes: TWO NATURAL GAS-FIRED COMBUSTION TURBINE-GENERATORS (CTGS) RATED AT 154 MEGAWATT (MW, GROSS) EACH, TWO HEAT RECOVERY STEAM GENERATORS (HRSG), ONE STEAM TURBINE GENERATOR (STG) RATED AT 267 MW, AND 251 ACRES OF PARABOLIC SOLAR-THERMAL COLLECTORS WITH ASSOCIATED HEAT-TRANSFER EQUIPMENT

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: 57.0000 LB/EVENT SHUTDOWN PERIODS

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) DRY LOW NOX (DLN) COMBUSTORS, SELECTIVE CATALYTIC REDUCTION (SCR)

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: DURING STARTUP OR SHUTDOWN, EMISSIONS OF CO FROM BOTH CTGS COMBINED SHALL NOT EXCEED 790 LB/HR; SHUTDOWN NOT TO EXCEED 30 MIN

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0

Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 337.0000 LB/EVENT SHUTDOWN PERIODS
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 SYSTEM
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: DURING STARTUP OR SHUTDOWN, EMISSIONS OF CO FROM BOTH CTGS COMBINED SHALL NOT EXCEED 790 LB/HR; SHUTDOWN NOT TO EXCEED 30 MIN

Process/Pollutant Information

PROCESS NAME: EMERGENCY IC ENGINE
Process Type: 17.110 (Fuel Oil (ASTM # 1,2, includes kerosene, aviation, diesel fuel))
Primary Fuel: DIESEL
Throughput: 2683.00 HP
Process Notes: UNIT IS 2000 KW.

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: 6.4000 G/KW-HR 3-HR AVG
Emission Limit 2: 4.8000 G/HP-HR 3-HR 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:

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: EPA/OAR Mthd 10
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 3.5000 G/KW-HR
Emission Limit 2: 2.6000 G/HR-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:
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: Other
Other Test Method: EPA METHODS 5 & 202, OR 201A & 202
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.2000 G/KW-HR
Emission Limit 2: 0.1500 G/HP-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:
Control Method: (P) USE ULTRA LOW SULFUR FUEL
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: Other
Other Test Method: EPA METHODS 5 & 202, OR 201A & 202
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.2000 G/KW-HR
Emission Limit 2: 0.1500 G/HP-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:
Control Method: (P) USE ULTRA LOW SULFUR FUEL
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: Other
Other Test Method: EPA METHODS 5 & 202, OR 201A & 202
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.2000 G/KW-HR
Emission Limit 2: 0.1500 G/HP-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:
Control Method: (P) USE ULTRA LOW SULFUR FUEL
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: EMERGENCY IC ENGINE
Process Type: 17.210 (Fuel Oil (ASTM # 1,2, includes kerosene, aviation, diesel fuel))
Primary Fuel: DIESEL
Throughput: 182.00 HP
Process Notes: UNIT IS 135 KW.

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: 4.0000 G/KW-HR 3-HR AVG
Emission Limit 2: 3.0000 G/HP-HR 3-HR 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:
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: EPA/OAR Mthd 10
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 3.5000 G/KW-HR
Emission Limit 2: 2.6000 G-HP-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:
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: Other
Other Test Method: EPA METHODS 5 & 202, OR 201A & 202
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.2000 G/KW-HR
Emission Limit 2: 0.1500 G/HP-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:
Control Method: (P) USE ULTRA LOW SULFUR FUEL
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: Other
Other Test Method: EPA METHODS 5 & 202, OR 201A & 202
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.2000 G/KW-HR
Emission Limit 2: 0.1500 G/HP-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:
Control Method: (P) USE ULTRA LOW SULFUR FUEL
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: Other
Other Test Method: EPA METHODS 5 & 202, OR 201A & 202
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.2000 G/KW-HR
Emission Limit 2: 0.1500 G/HP-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:
Control Method: (P) USE ULTRA LOW SULFUR FUEL
Est. % Efficiency:
Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: AUXILIARY HEATER
Process Type: 19.600 (Misc. Boilers, Furnaces, Heaters)
Primary Fuel: NATURAL GAS
Throughput: 40.00 MMBTU/HR
Process Notes:

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: 9.0000 PPMVD @3% O2, 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 Monoxide
CAS Number: 630-08-0
Test Method: EPA/OAR Mthd 10
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 50.0000 PPMVD @3% O2, 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: Other
Other Test Method: EPA METHODS 5 & 202, OR 201A & 202
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.3000 LB/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) USE PUC QUALITY PIPELINE 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: Other
Other Test Method: EPA METHODS 5 & 202, OR 201A & 202

Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.3000 LB/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) USE PUC QUALITY PIPELINE 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: Other
Other Test Method: EPA METHODS 5 & 202, OR 201A & 202
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.3000 LB/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) USE PUC QUALITY PIPELINE NATURAL GAS
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:
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) ANNUAL BOILER TUNEUPS
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: NO EMISSION LIMITS

Process/Pollutant Information

PROCESS NAME: COOLING TOWER
Process Type: 99.999 (Other Miscellaneous Sources)
Primary Fuel:
Throughput: 130000.00 GAL/MIN CIRCULATION RATE
Process Notes:

POLLUTANT NAME: Particulate matter, total (TPM)
CAS Number: PM
Test Method: Other
Other Test Method: MODIFIED METHOD 306 OR COOLING TOWER INSTITUTE TEST METHOD
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 1.6000 LB/HR
Emission Limit 2: 0.0005 % DRIFT
Standard Emission: 5000.0000 PPM TDS
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: Other
Other Test Method: MODIFIED METHOD 306 OR COOLING TOWER INSTITUTE TEST METHOD
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 1.6000 LB/HR
Emission Limit 2: 0.0005 % DRIFT
Standard Emission: 5000.0000 5000 PPM TDS
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: Other
Other Test Method: MODIFIED METHOD 306 OR COOLING TOWER INSTITUTE TEST METHOD
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 1.6000 LB/HR
Emission Limit 2: 0.0005 % DRIFT
Standard Emission: 5000.0000 PPM TDS
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: ENCLOSED PRESSURE SF6 CIRCUIT BREAKERS
Process Type: 99.999 (Other Miscellaneous Sources)
Primary Fuel:
Throughput: 0
Process Notes: 0.5% BY WT ANNUAL LEAKAGE RATE 10% BY WT LEAK DETECTION SYSTEM

POLLUTANT NAME: Carbon Dioxide Equivalent (CO2e)
CAS Number: CO2e
Test Method: Other
Other Test Method: EPA METHOD 3B FOR CO2
Pollutant Group(s): (Greenhouse Gasses (GHG))
Emission Limit 1: 9.5600 TPY 12-MONTH ROLLING 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:
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: MAINTENANCE VEHICLES

Process Type: 99.190 (Other Fugitive Dust Sources)

Primary Fuel:

Throughput: 0

Process Notes: MAINTENANCE VEHICLES GENERATING FUGITIVE ROAD DUST WHEN TRAVELING ON PAVED AND UNPAVED ROADWAYS IN THE SOLAR FIELD FOR THE PROJECT

POLLUTANT NAME: Particulate matter, fugitive

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s):

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:

Other Applicable Requirements:

Control Method: (P) FUGITIVE DUST CONTROL PLAN

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: AUXILIARY BOILER

Process Type: 12.310 (Natural Gas (includes propane and liquefied petroleum gas))

Primary Fuel: NATURAL GAS

Throughput: 110.00 MMBTU/HR

Process Notes:

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:
Control Method: (P) ANNUAL BOILER TUNE-UPS
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: 50.0000 PPMVD @3% O2, 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: 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: 9.0000 PPMVD @3% O2, 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: Other
Other Test Method: EPA METHODS 5 & 202, OR METHODS 201A & 202
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.8000 LB/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) USE PUC QUALITY 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: Other
Other Test Method: EPA METHODS 5 & 202, OR METHODS 201A & 202
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.8000 LB/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) USE PUC QUALITY 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: Other
Other Test Method: EPA METHODS 5 & 202, OR METHODS 201A & 202
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.8000 LB/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) USE PUC QUALITY NATURAL GAS
Est. % Efficiency:

Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

COMPREHENSIVE REPORT
Report Date:03/08/2013

Facility Information

RBLC ID:	NE-0054 (draft)	**Date Determination Last Updated:**	10/24/2012
Corporate/Company Name:	CARGILL, INCORPORATED	**Permit Number:**	12-042
Facility Name:	CARGILL, INCORPORATED	**Permit Date:**	03/01/2013 (estimated)
Facility Contact:	MICHELLE BUCKLIN 4024714204 MICHELLE_BUCKLIN@CARGILL.COM	**FRS Number:**	
Facility Description:		**SIC Code:**	2046
Permit Type:	B: Add new process to existing facility	**NAICS Code:**	311221
Permit URL:			
EPA Region:	7	**COUNTRY:**	USA
Facility County:	WASHINGTON		
Facility State:	NE		
Facility ZIP Code:	68008		
Permit Issued By:	NEBRASKA DEPT. OF ENVIRONMENTAL QUALITY (Agency Name) MR. BRAD REID(Agency Contact) (402) 471-4159 brad.reid@nebraska.gov		
Permit Notes:			

Process/Pollutant Information

PROCESS NAME:	Boiler K
Process Type:	11.310 (Natural Gas (includes propane and liquefied petroleum gas))
Primary Fuel:	natural gas
Throughput:	300.00 mmbtu/h
Process Notes:	

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:
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: (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:

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) LOW NOX BURNERS AND INDUCED FLUE GAS RECIRCULATION
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:
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:

Facility Information

RBLC ID: IA-0105 (draft)

Date Determination
Last Updated: 01/24/2013
Permit Number: 12-219

Corporate/Company Name:

Facility Name:	IOWA FERTILIZER COMPANY	**Permit Date:**	10/26/2012 (actual)
Facility Contact:	KEVIN STRUVE +44 (0) 2074394801 KSTRUVE@ORASCOMCI.CO.UK	**FRS Number:**	
Facility Description:	Nitrogeneous Fertilizer Manufacturing	**SIC Code:**	2873
Permit Type:	A: New/Greenfield Facility	**NAICS Code:**	325311
Permit URL:	https://aqbweb.iowadnr.gov/airpermit/eepsdpermit.jsp		
EPA Region:	7	**COUNTRY:**	USA
Facility County:	LEE		
Facility State:	IA		
Facility ZIP Code:	52658		
Permit Issued By:	IOWA DEPARTMENT OF NATURAL RESOURCES AIR QUALITY (Agency Name) MR. GARY SMITH(Agency Contact) (515) 281-4635 GARY.SMITH@DNR.IOWA.GOV		
Other Agency Contact Info:	Christopher A. Roling, PE Environmental Engineer Senior (515) 242-6002 chris.roling@dnr.iowa.gov		
Permit Notes:			

Facility-wide Emissions:

Pollutant Name:	Facility-wide Emissions Increase:
Carbon Monoxide	111.0000 (Tons/Year)
Nitrogen Oxides (NOx)	95.7000 (Tons/Year)
Particulate Matter (PM)	84.6000 (Tons/Year)
Sulfur Oxides (SOx)	3.3000 (Tons/Year)
Volatile Organic Compounds (VOC)	59.7000 (Tons/Year)

Process/Pollutant Information

PROCESS NAME:	Primary Reformer
Process Type:	61.012 (Fertilizer Production (except 61.009))
Primary Fuel:	natural gas
Throughput:	1.13 million cubic feet/hr
Process Notes:	

POLLUTANT NAME:	Particulate matter, total (TPM)
CAS Number:	PM
Test Method:	EPA/OAR Mthd 5 and 202
Pollutant Group(s):	(Particulate Matter (PM))

Emission Limit 1: 0.0024 LB/MMBTU AVERAGE OF 3 STACK TEST RUNS
Emission Limit 2: 11.9000 TONS/YR ROLLING 12 MONTH TOTAL
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 < 10 µ (TPM10)
CAS Number: PM
Test Method: EPA/OAR Mthd 201 and 202
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0024 LB/MMTU AVERAGE OF 3 STACK TEST RUNS
Emission Limit 2: 11.9000 TONS/YR ROLLING 12 MONTH TOTAL
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: EPA/OAR OTM 27 and Mthd 202
Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.0024 LB/MMBTU AVERAGE OF 3 TEST RUNS
Emission Limit 2: 11.9000 TONS/YR ROLLING 12 MONTH TOTAL
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: Visible Emissions (VE)
CAS Number: VE
Test Method: EPA/OAR Mthd 9
Pollutant Group(s):
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: (P) good operation 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: EPA/OAR Mthd 7E
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: 56.0000 TONS/YR ROLLING 12 MONTH TOTAL
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 (SCR)
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: EPA/OAR Mthd 25A
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 0.0014 LB/MMBTU AVERAGE OF 3 STACK TEST RUNS
Emission Limit 2: 6.9500 TONS/YR ROLLING 12 MONTH TOTAL
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: Carbon Monoxide
CAS Number: 630-08-0
Test Method: EPA/OAR Mthd 10
Pollutant Group(s): (InOrganic Compounds)

Emission Limit 1: 0.0194 LB/MMBTU AVERAGE OF 3 STACK TEST RUNS
Emission Limit 2: 96.3000 TONS/YR ROLLING 12 MONTH TOTAL
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: Carbon Dioxide
CAS Number: 124-38-9
Test Method: EPA/OAR Mthd 3A
Pollutant Group(s): (Acid Gasses/Mist , Greenhouse Gasses (GHG) , InOrganic Compounds)
Emission Limit 1: 117.0000 LB/MMBTU ROLLING 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: (P) good combustion practices
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Methane
CAS Number: 74-82-8
Test Method: EPA/OAR Mthd 18
Pollutant Group(s): (Greenhouse Gasses (GHG) , Organic Compounds (all) , Organic Non-HAP Compounds)

Emission Limit 1: 0.0023 LB/MMBTU AVERAGE OF 3 STACK TEST RUNS
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: Nitrous Oxide (N2O)
CAS Number: 10024-97-2
Test Method: EPA/OAR Mthd 320
Pollutant Group(s): (Greenhouse Gasses (GHG) , InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 0.0006 LB/MMBTU AVERAGE OF 3 STACK TEST RUNS
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: Carbon Dioxide Equivalent (CO2e)
CAS Number: CO2e
Test Method: Other
Other Test Method: recordkeeping

Pollutant Group(s): (Greenhouse Gasses (GHG))
Emission Limit 1: 596905.0000 TONS/YR ROLLING 12 MONTH 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:
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: CO2 Regenerator
Process Type: 61.012 (Fertilizer Production (except 61.009))
Primary Fuel:
Throughput: 3012.00 metric tons/day
Process Notes:

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: 0.1060 LB/TON OF AMMONIA AVERAGE OF 3 STACK TEST RUNS
Emission Limit 2: 51.2000 TONS/YR ROLLING 12 MONTH TOTAL
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 operational 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: EPA/OAR Mthd 10
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 0.0200 LB/TON OF AMMONIA AVERAGE OF 3 STACK TEST RUNS
Emission Limit 2: 9.6500 TONS/YR ROLLING 12 MONTH TOTAL
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 operational 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: EPA/OAR Mthd 3A
Pollutant Group(s): (Acid Gasses/Mist , Greenhouse Gasses (GHG) , InOrganic Compounds)
Emission Limit 1: 1.2600 TONS/TON OF AMMONIA ROLLING 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: (P) good operational 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: Other
Other Test Method: recordkeeping
Pollutant Group(s): (Greenhouse Gasses (GHG))
Emission Limit 1: 1211847.0000 TONS/YR ROLLING 12 MONTH 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:
Control Method: (P) good operational practices
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: Urea Ammonia Nitrate (UAN) Mixing Tank
Process Type: 61.012 (Fertilizer Production (except 61.009))
Primary Fuel:
Throughput: 0
Process Notes: The maximum capacity of the tank is 5,400 metric tons and it has an Acid Scrubber to control ammonia.

POLLUTANT NAME: Carbon Dioxide
CAS Number: 124-38-9
Test Method: EPA/OAR Mthd 3A

Pollutant Group(s): (Acid Gasses/Mist , Greenhouse Gasses (GHG) , InOrganic Compounds)
Emission Limit 1: 1.1000 LB/HR AVERAGE OF 3 STACK TEST RUNS
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 operational 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: Other
Other Test Method: recordkeeping
Pollutant Group(s): (Greenhouse Gasses (GHG))
Emission Limit 1: 4.9200 TONS/YR ROLLING 12 MONTH 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:
Control Method: (P) good operational practices
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: Urea Synthesis

Process Type: 61.012 (Fertilizer Production (except 61.009))

Primary Fuel:

Throughput: 2500.00 metric tons/day

Process Notes: There is an Acid Scrubber for ammonia control

POLLUTANT NAME: Carbon Dioxide

CAS Number: 124-38-9

Test Method: EPA/OAR Mthd 3A

Pollutant Group(s): (Acid Gasses/Mist , Greenhouse Gasses (GHG) , InOrganic Compounds)

Emission Limit 1: 165.4000 LB/H AVERAGE OF 3 STACK TEST RUNS

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 operational 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: Other

Other Test Method: recordkeeping

Pollutant Group(s): (Greenhouse Gasses (GHG))

Emission Limit 1: 724.5000 TONS/YR ROLLING 12 MONTH 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:

Control Method: (P) good operational practices
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: 1905.00 metric tons/day
Process Notes:

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: 5.0000 PPMV ROLLING 30 DAY AVERAGE
Emission Limit 2: 30.0000 TONS/YR ROLLING 12 MONTH TOTAL
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) De-NOx system
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: EPA/OAR Mthd 320
Pollutant Group(s): (Greenhouse Gasses (GHG) , InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 30.0000 PPMV AVERAGE OF 3 TEST RUNS
Emission Limit 2: 98.0000 % REDUCTION AVERAGE OF 3 TEST RUNS
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) De-N2O system
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Methane
CAS Number: 74-82-8
Test Method: EPA/OAR Mthd 18
Pollutant Group(s): (Greenhouse Gasses (GHG) , Organic Compounds (all) , Organic Non-HAP Compounds)
Emission Limit 1: 40.0000 PPMV AVERAGE OF 3 STACK TEST RUNS
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 operational 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: Other
Other Test Method: recordkeeping
Pollutant Group(s): (Greenhouse Gasses (GHG))
Emission Limit 1: 29543.0000 TONS/YR ROLLING 12 MONTH 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:
Control Method: (A) De-N2O system
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: Nitric Acid Storage Tank
Process Type: 62.014 (Nitric Acid Plants)
Primary Fuel:
Throughput: 0
Process Notes: The maximum storage capacity of the tank is 1,935,773 gallons

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: 0.7200 TONS/YR ROLLING 12 MONTH 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:

Control Method: (A) Acid/Water Vent Lock
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: Auxiliary Boiler
Process Type: 11.310 (Natural Gas (includes propane and liquefied petroleum gas))
Primary Fuel: natural gas
Throughput: 472.40 MMBTU/hr
Process Notes:

POLLUTANT NAME: Particulate matter, total (TPM)
CAS Number: PM
Test Method: EPA/OAR Mthd 5 and 202
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0024 LB/MMBTU AVERAGE OF 3 TEST RUNS
Emission Limit 2: 1.0600 TONS/YR ROLLING 12 MONTH TOTAL
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: EPA/OAR OTM 27 and Mthd 202
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0024 LB/MMBTU AVERAGE OF 3 TEST RUNS
Emission Limit 2: 1.0600 TONS/YR ROLLING 12 MONTH TOTAL
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 < 10 µ (TPM10)
CAS Number: PM
Test Method: EPA/OAR Mthd 201 and 202
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0024 LB/MMBTU AVERAGE OF 3 TEST RUNS
Emission Limit 2: 1.0600 TONS/YR ROLLING 12 MONTH TOTAL
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: Visible Emissions (VE)
CAS Number: VE

Test Method: EPA/OAR Mthd 9
Pollutant Group(s):
Emission Limit 1: % OPACITY
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: 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: 0.0125 LB/MMBTU ROLLING 30 DAY AVERAGE
Emission Limit 2: 5.5200 TONS/YR ROLLING 12 MONTH TOTAL
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) and Flue Gas Recirculation (FGR)
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: EPA/OAR Mthd 25A
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 0.0014 LB/MMBTU AVERAGE OF 3 STACK TEST RUNS
Emission Limit 2: 0.6200 TONS/YR ROLLING 12 MONTH TOTAL
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: Carbon Monoxide
CAS Number: 630-08-0
Test Method: EPA/OAR Mthd 10
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 0.0013 LB/MMBTU AVERAGE OF 3 STACK TEST RUNS
Emission Limit 2: 0.5700 TON/YR ROLLING 12 MONTH TOTAL
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: Carbon Dioxide
CAS Number: 124-38-9

Test Method: EPA/OAR Mthd 3A
Pollutant Group(s): (Acid Gasses/Mist , Greenhouse Gasses (GHG) , InOrganic Compounds)
Emission Limit 1: 117.0000 LB/MMBTU ROLLING 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: (P) good combustion practices
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Methane
CAS Number: 74-82-8
Test Method: EPA/OAR Mthd 18
Pollutant Group(s): (Greenhouse Gasses (GHG) , Organic Compounds (all) , Organic Non-HAP Compounds)
Emission Limit 1: 0.0023 LB/MMBTU AVERAGE OF 3 STACK TEST RUNS
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: Nitrous Oxide (N2O)
CAS Number: 10024-97-2

Test Method: EPA/OAR Mthd 320
Pollutant Group(s): (Greenhouse Gasses (GHG) , InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 0.0006 LB/MMBTU AVERAGE OF 3 STACK TEST RUNS
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: Carbon Dioxide Equivalent (CO2e)
CAS Number: CO2e
Test Method: Other
Other Test Method: recordkeeping
Pollutant Group(s): (Greenhouse Gasses (GHG))
Emission Limit 1: 51748.0000 TONS/YR ROLLING 12 MONTH 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:
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: Ammonia Flare
Process Type: 19.310 (Chemical Plant Flares)
Primary Fuel: natural gas
Throughput: 0.40 MMBTU/H
Process Notes: There are four (4) natural gas pilots

POLLUTANT NAME: Particulate matter, total (TPM)
CAS Number: PM
Test Method: EPA/OAR Mthd 5 and 202
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: (P) work practice/good combustion practices
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: There is no numeric emission limit in the permit.

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)
CAS Number: PM
Test Method: EPA/OAR Mthd 201 and 202
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: (P) work practice/good combustion practices
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: There is no numeric emission limit in the permit.

POLLUTANT NAME: Particulate matter, total < 2.5 μ (TPM2.5)
CAS Number: PM
Test Method: EPA/OAR OTM 27 and 28
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: (P) work practice/good combustion practices
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: There is no numeric emission limit in the permit.

POLLUTANT NAME: Visible Emissions (VE)
CAS Number: VE
Test Method: EPA/OAR Mthd 22
Pollutant Group(s):
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: (P) work practice/good combustion practices
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: EPA/OAR Mthd 320
Pollutant Group(s): (Greenhouse Gasses (GHG) , 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:
Control Method: (P) work practice/good combustion practices
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: There is no numeric emission limit in the permit.

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:
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/good combustion practices
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: There is no numeric emission limit in the permit.

POLLUTANT NAME: Carbon Dioxide Equivalent (CO2e)
CAS Number: CO2e
Test Method: Other
Other Test Method: recordkeeping
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:
Control Method: (P) work practice/good combustion practices
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: There is no numeric emission limit in the permit.

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:
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/good combustion practices
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: There is no numeric emission limit in the permit.

POLLUTANT NAME: Carbon Monoxide
CAS Number: 630-08-0
Test Method: EPA/OAR Mthd 10
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:
Control Method: (P) work practice/good combustion practices
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: There is no numeric emission limit in the permit.

POLLUTANT NAME: Carbon Dioxide
CAS Number: 124-38-9
Test Method: EPA/OAR Mthd 3A
Pollutant Group(s): (Acid Gasses/Mist , Greenhouse Gasses (GHG) , 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:
Control Method: (P) work practice/good combustion practices
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: There is no numeric emission limit in the permit.

POLLUTANT NAME: Methane
CAS Number: 74-82-8
Test Method: EPA/OAR Mthd 18
Pollutant Group(s): (Greenhouse Gasses (GHG) , Organic Compounds (all) , Organic Non-HAP 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:
Control Method: (P) work practice/good combustion practices
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: There is no numeric emission limit in the permit.

Process/Pollutant Information

PROCESS NAME: Emergency Generator
Process Type: 17.110 (Fuel Oil (ASTM # 1,2, includes kerosene, aviation, diesel fuel))
Primary Fuel: diesel fuel
Throughput: 142.00 GAL/H
Process Notes: rated @ 2,000 KW

POLLUTANT NAME: Particulate matter, total (TPM)

CAS Number: PM
Test Method: EPA/OAR Mthd 5 and 202
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.2000 G/KW-H AVERAGE OF 3 STACK TEST RUNS
Emission Limit 2: 0.2200 TONS/YR ROLLING 12 MONTH TOTAL
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 < 10 μ (TPM10)
CAS Number: PM
Test Method: EPA/OAR Mthd 201 and 202
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.2000 G/KW-H AVERAGE OF 3 STACK TEST RUNS
Emission Limit 2: 0.2200 TONS/YR ROLLING 12 MONTH TOTAL
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: EPA/OAR OTM 27 and 28
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.2000 G/KW-H AVERAGE OF 3 STACK TEST RUNS
Emission Limit 2: 0.2200 TONS/YR ROLLING 12 MONTH TOTAL
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: Visible Emissions (VE)
CAS Number: VE
Test Method: EPA/OAR Mthd 9
Pollutant Group(s):
Emission Limit 1: 5.0000 % OPACITY 6 MINUTE 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: (P) good combustion practices
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: 20% opacity is allowed during periods of startup, shutdown, malfunction (SSM)

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: 6.0000 G/KW-H AVERAGE OF 3 STACK TEST RUNS
Emission Limit 2: 6.6100 TONS/YR ROLLING 12 MONTH TOTAL
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: EPA/OAR Mthd 25A
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 0.4000 G/KW-H AVERAGE OF 3 STACK TEST RUNS
Emission Limit 2: 0.4400 TONS/YR ROLLING 12 MONTH TOTAL
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: Carbon Monoxide

CAS Number: 630-08-0
Test Method: EPA/OAR Mthd 10
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 3.5000 G/KW-H AVERAGE OF 3 STACK TEST RUNS
Emission Limit 2: 3.8600 TONS/YR ROLLING 12 MONTH TOTAL
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: Carbon Dioxide Equivalent (CO2e)
CAS Number: CO2e
Test Method: Other
Other Test Method: recordkeeping
Pollutant Group(s): (Greenhouse Gasses (GHG))
Emission Limit 1: 788.5000 TONS/YR ROLLING 12 MONTH 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:
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: EPA/OAR Mthd 3A
Pollutant Group(s): (Acid Gasses/Mist , Greenhouse Gasses (GHG) , InOrganic Compounds)
Emission Limit 1: 1.5500 G/KW-H AVERAGE OF 3 STACK TEST RUNS
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: Methane

CAS Number: 74-82-8
Test Method: EPA/OAR Mthd 18
Pollutant Group(s): (Greenhouse Gasses (GHG) , Organic Compounds (all) , Organic Non-HAP Compounds)
Emission Limit 1: 0.0001 G/KW-H AVERAGE OF 3 STACK TEST RUNS
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:

Process/Pollutant Information

PROCESS NAME: Fire Pump
Process Type: 17.210 (Fuel Oil (ASTM # 1,2, includes kerosene, aviation, diesel fuel))
Primary Fuel: diesel fuel
Throughput: 14.00 GAL/H
Process Notes: rated @ 235 KW

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)
CAS Number: PM
Test Method: EPA/OAR Mthd 201 and 202
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.2000 G/KW-H AVERAGE OF 3 STACK TEST RUNS
Emission Limit 2: 0.0300 TONS/YR ROLLING 12 MONTH TOTAL
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 (TPM)
CAS Number: PM
Test Method: EPA/OAR Mthd 5 and 202
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.2000 G/KW-H AVERAGE OF 3 STACK TEST RUNS
Emission Limit 2: 0.0300 TONS/YR ROLLING 12 MONTH TOTAL
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: EPA/OAR OTM 27 and 28
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.2000 G/KW-H AVERAGE OF 3 STACK TEST RUNS
Emission Limit 2: 0.0300 TONS/YR ROLLING 12 MONTH TOTAL
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: Visible Emissions (VE)
CAS Number: VE
Test Method: EPA/OAR Mthd 9
Pollutant Group(s):
Emission Limit 1: 5.0000 % 6 MINUTE 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: (P) good combustion practices
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: standard is 20% during periods of startup, shutdown, and malfunction (SSM)

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: 3.7500 G/KW-H AVERAGE OF 3 STACK TEST RUNS
Emission Limit 2: 0.4900 TONS/YR ROLLING 12 MONTH TOTAL
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: EPA/OAR Mthd 25A
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 0.2500 G/KW-H AVERAGE OF 3 STACK TEST RUNS
Emission Limit 2: 0.0300 TONS/YR ROLLING 12 MONTH TOTAL
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: Carbon Monoxide
CAS Number: 630-08-0
Test Method: EPA/OAR Mthd 10
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 3.5000 G/KW-H AVERAGE OF 3 STACK TEST RUNS
Emission Limit 2: 0.4500 TONS/YR ROLLING 12 MONTH TOTAL
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: Carbon Dioxide
CAS Number: 124-38-9
Test Method: EPA/OAR Mthd 3A
Pollutant Group(s): (Acid Gasses/Mist , Greenhouse Gasses (GHG) , InOrganic Compounds)
Emission Limit 1: 1.5500 G/KW-H AVERAGE OF 3 STACK TEST RUNS
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: Methane
CAS Number: 74-82-8
Test Method: EPA/OAR Mthd 18
Pollutant Group(s): (Greenhouse Gasses (GHG) , Organic Compounds (all) , Organic Non-HAP Compounds)
Emission Limit 1: 0.0001 G/KW-H AVERAGE OF 3 STACK TEST RUNS
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: Carbon Dioxide Equivalent (CO2e)
CAS Number: CO2e
Test Method: Other
Other Test Method: recordkeeping
Pollutant Group(s): (Greenhouse Gasses (GHG))
Emission Limit 1: 91.0000 TONS/YR ROLLING 12 MONTH 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:
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: Startup Heater
Process Type: 12.310 (Natural Gas (includes propane and liquefied petroleum gas))
Primary Fuel: Natural gas
Throughput: 110.12 MMBTU/H
Process Notes:

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)
CAS Number: PM
Test Method: EPA/OAR Mthd 201 and 202
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0024 LB/MMBTU AVERAGE OF 3 STACK TEST RUNS
Emission Limit 2: 0.0100 TONS/YR ROLLING 12 MONTH TOTAL
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 (TPM)

CAS Number: PM
Test Method: EPA/OAR Mthd 5 and 202
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0024 LB/MMBTU AVERAGE OF 3 STACK TEST RUNS
Emission Limit 2: 0.0100 TONS/YR ROLLING 12 MONTH TOTAL
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: EPA/OAR OTM 27 and 28
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0024 LB/MMBTU AVERAGE OF 3 STACK TEST RUNS
Emission Limit 2: 0.0100 TONS/YR ROLLING 12 MONTH TOTAL
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: Visible Emissions (VE)

CAS Number: VE
Test Method: EPA/OAR Mthd 9
Pollutant Group(s):
Emission Limit 1: % OPACITY
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: Volatile Organic Compounds (VOC)

CAS Number: VOC
Test Method: EPA/OAR Mthd 25A
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 0.0014 LB/MMBTU AVERAGE OF 3 STACK TEST RUNS
Emission Limit 2: 0.0100 TONS/YR ROLLING 12 MONTH TOTAL
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: 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: 0.1190 LB/MMBTU AVERAGE OF 3 STACK TEST RUNS
Emission Limit 2: 0.6300 TONS/YR ROLLING 12 MONTH TOTAL
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: Carbon Monoxide

CAS Number: 630-08-0
Test Method: EPA/OAR Mthd 10
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 0.0194 LB/MMBTU AVERAGE OF 3 STACK TEST RUNS
Emission Limit 2: 0.1000 TONS/YR ROLLING 12 MONTH TOTAL
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: Carbon Dioxide

CAS Number: 124-38-9
Test Method: EPA/OAR Mthd 3A
Pollutant Group(s): (Acid Gasses/Mist , Greenhouse Gasses (GHG) , InOrganic Compounds)
Emission Limit 1: 117.0000 LB/MMBTU AVERAGE OF 3 STACK TEST RUNS
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: Methane

CAS Number: 74-82-8
Test Method: EPA/OAR Mthd 18
Pollutant Group(s): (Greenhouse Gasses (GHG) , Organic Compounds (all) , Organic Non-HAP Compounds)
Emission Limit 1: 0.0023 LB/MMBTU AVERAGE OF 3 STACK TEST RUNS
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: Nitrous Oxide (N2O)

CAS Number: 10024-97-2
Test Method: EPA/OAR Mthd 320
Pollutant Group(s): (Greenhouse Gasses (GHG) , InOrganic Compounds , Oxides of Nitrogen (NOx) , Particulate Matter (PM))
Emission Limit 1: 0.0006 LB/MMBTU AVERAGE OF 3 STACK TEST RUNS
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: Carbon Dioxide Equivalent (CO2e)

CAS Number: CO2e
Test Method: Other
Other Test Method: recordkeeping
Pollutant Group(s): (Greenhouse Gasses (GHG))
Emission Limit 1: 638.0000 TONS/YR ROLLING 12 MONTH 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:
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: Urea Granulator

Process Type: 61.012 (Fertilizer Production (except 61.009))

Primary Fuel:

Throughput: 1500.00 metric tons/day

Process Notes:

POLLUTANT NAME: Particulate matter, total (TPM)

CAS Number: PM

Test Method: EPA/OAR Mthd 5 and 202

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.1000 KG/METRIC TON AVERAGE OF 3 STACK TEST RUNS

Emission Limit 2: 60.4000 TONS/YR ROLLING 12 MONTH TOTAL

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 < 10 μ (TPM10)

CAS Number: PM

Test Method: EPA/OAR Mthd 201 and 202

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.1000 KG/METRIC TON AVERAGE OF 3 STACK TEST RUNS

Emission Limit 2: 60.4000 TONS/YR ROLLING 12 MONTH TOTAL

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 < 2.5 μ (TPM2.5)
CAS Number: PM
Test Method: EPA/OAR OTM 27 and 28
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0250 KG/METRIC TON AVERAGE OF 3 STACK TEST RUNS
Emission Limit 2: 15.1000 TONS/YR ROLLING 12 MONTH TOTAL
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: Visible Emissions (VE)
CAS Number: VE
Test Method: EPA/OAR Mthd 9
Pollutant Group(s):
Emission Limit 1: % OPACITY
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: Cooling Tower
Process Type: 61.999 (Other Agricultural Chemical Manufacturing Sources)
Primary Fuel:
Throughput: 0
Process Notes: There are 2 cooling towers. One has 6 cells with a total flowrate of 74,040 gal/min and the other has 9 cells with a total flowrate of 111,060 gal/min

POLLUTANT NAME: Particulate matter, total (TPM)
CAS Number: PM
Test Method: EPA/OAR Mthd 5 and 202
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0005 %
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) drift eliminator
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: There is no numerical emission limit. The drift eliminator is required to have a control efficiency of 0.0005%.

POLLUTANT NAME: Particulate matter, total < 10 μ (TPM10)

CAS Number: PM
Test Method: EPA/OAR Mthd 201 and 202
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0005 %
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) drift eliminator
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: There is no numerical emission limit. The drift eliminator is required to have a control efficiency of 0.0005%.

POLLUTANT NAME: Visible Emissions (VE)

CAS Number: VE
Test Method: EPA/OAR Mthd 9
Pollutant Group(s):
Emission Limit 1: % OPACITY
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) drift eliminator
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: EPA/OAR OTM 27 and 28
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0005 %
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) drift eliminator
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: There is no numerical emission limit. The drift eliminator is required to have a control efficiency of 0.0005%.

Process/Pollutant Information

PROCESS NAME: Granulated Urea Transfer
Process Type: 61.999 (Other Agricultural Chemical Manufacturing Sources)
Primary Fuel:
Throughput: 1500.00 metric tons/day
Process Notes: There are six (6) different emission points. The transfer points are for the warehouse, train loading, and truck loading.

POLLUTANT NAME: Particulate matter, total (TPM)

CAS Number: PM
Test Method: EPA/OAR Mthd 5 and 202
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0050 GR/DSCF AVERAGE OF 3 STACK TEST RUNS
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) bin vent filter
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: The ton/yr limit varies for each of the 6 emission points depending on the flowrate.

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)
CAS Number: PM
Test Method: EPA/OAR Mthd 201 and 202
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0050 GR/DSCF AVERAGE OF 3 STACK TEST RUNS
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) bin vent filter
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: The ton/yr limit varies for each of the 6 emission points depending on the flowrate.

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)
CAS Number: PM
Test Method: EPA/OAR OTM 27 and 28
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0013 GR/DSCF AVERAGE OF 3 STACK TEST RUNS
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) bin vent filter
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: The ton/yr limit varies for each of the 6 emission points depending on the flowrate.

POLLUTANT NAME: Visible Emissions (VE)
CAS Number: VE
Test Method: EPA/OAR Mthd 9
Pollutant Group(s):
Emission Limit 1: % OPACITY
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) bin vent filter
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: MDEA storage tank
Process Type: 61.999 (Other Agricultural Chemical Manufacturing Sources)
Primary Fuel:
Throughput: 0
Process Notes: The storage tank capacity is 390,000 gallons

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: 0.1000 TONS/YR ROLLING 12 MONTH 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:

Control Method: (A) Nitrogen gas blanket

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

Process/Pollutant Information

PROCESS NAME: Haul Roads

Process Type: 99.140 (Paved Roads)

Primary Fuel:

Throughput: 0

Process Notes: There are two (2) paved haul roads. The length of one is 0.97 miles and the other is 1.07 miles long.

POLLUTANT NAME: Particulate matter, total (TPM)

CAS Number: PM

Test Method: EPA/OAR Mthd 5 and 202

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: (P) paved road, water flushing, and sweeping
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: There is no numeric emission limit in the permits.

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)
CAS Number: PM
Test Method: EPA/OAR Mthd 201 and 202
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: (P) paved road, water flushing, and sweeping
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: There is no numeric emission limit in the permits.

POLLUTANT NAME: Particulate matter, total < 2.5 µ (TPM2.5)
CAS Number: PM
Test Method: EPA/OAR OTM 27 and 28
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: (P) paved road, water flushing, and sweeping
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: There are no numeric emission limits in the permits.

POLLUTANT NAME: Visible Emissions (VE)
CAS Number: VE
Test Method: EPA/OAR Mthd 22
Pollutant Group(s):
Emission Limit 1: % OPACITY
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) paved road, water flushing, and sweeping
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

Facility Information

RBLC ID: FL-0330 (draft)
Date Determination Last Updated: 09/10/2012
Corporate/Company Name:
Permit Number: DPA-EPA-R4001
Facility Name: PORT DOLPHIN ENERGY LLC
Permit Date: 12/01/2011 (actual)
Facility Contact:
FRS Number: 110029520141

Facility Description:	Port Dolphin is a deepwater port designed to moor liquefied natural gas shuttle and regasification vessels 28 miles off the cost of Florida.	**SIC Code:**	4923
Permit Type:	A: New/Greenfield Facility	**NAICS Code:**	213112
Permit URL:			
EPA Region:	4	**COUNTRY:**	USA
Facility County:	HILLSBOROUGH		
Facility State:	FL		
Facility ZIP Code:	33616		
Permit Issued By:	EPA REGION IV (Agency Name) MS. KATY R. FORNEY(Agency Contact) (404) 562-9130 forney.kathleen@epa.gov		
Permit Notes:			

Process/Pollutant Information

PROCESS NAME: Boilers (4 - 278 mmbtu/hr each)

Process Type: 11.310 (Natural Gas (includes propane and liquefied petroleum gas))

Primary Fuel: natural gas

Throughput: 0

Process Notes:

POLLUTANT NAME: Carbon Dioxide

CAS Number: 124-38-9

Test Method: EPA/OAR Mthd 3A

Pollutant Group(s): (Acid Gasses/Mist , Greenhouse Gasses (GHG) , InOrganic Compounds)

Emission Limit 1: 117.0000 LB/MMBTU 8-HOUR 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:

Control Method: (P) tuning, optimization, instrumentation and controls, insulation, and turbulent flow.

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown
Pollutant/Compliance Notes: Emission limit if for CO2-equivalent (CO2e)

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: 0.0120 LB/MMBTU 3-HOUR 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:
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: Carbon Monoxide
CAS Number: 630-08-0
Test Method: EPA/OAR Mthd 10B
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 0.0150 LB/MMBTU 3-HOUR 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:
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: 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/MMBTU 3-HOUR 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:
Control Method: (P) use of natural gas
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: 0.3400 LB/H 3-HOUR 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:
Control Method: (P) use of 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: EPA/OAR Mthd 25A
Pollutant Group(s): (Volatile Organic Compounds (VOC))
Emission Limit 1: 0.0054 LB/MMBTU 3-HOUR 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:
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, filterable (FPM)
CAS Number: PM
Test Method: EPA/OAR Mthd 5
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0100 LB/MMBTU 3-HOUR 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:
Control Method: (P) 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 < 10 μ (TPM10)
CAS Number: PM
Test Method: EPA/OAR Mthd 201A and 202
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.0075 LB/MMBTU 3-HOUR 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:
Control Method: (P) use of natural gas
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: PM2.5 and PM10 limit the same

Process/Pollutant Information

PROCESS NAME: Power Generator Engines (3)
Process Type: 11.310 (Natural Gas (includes propane and liquefied petroleum gas))
Primary Fuel: natural gas
Throughput: 0
Process Notes: 2 - 11,400 kW dual fuel Wartsila engines and 1 - 5700 kW dual fuel Wartsila engine.

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: 0.2000 G/KW-H 3-HOUR 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:
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: Carbon Monoxide
CAS Number: 630-08-0
Test Method: EPA/OAR Mthd 10B
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 0.1650 G/KW-H 3-HOUR 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:
Control Method: (A) Catalytic Oxidation
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: 0.1600 G/KW-H 3-HOUR 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:

Control Method: (P) use of natural gas (99% of the time) and low sulfur fuel oil (1% of the time)

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: 8.2200 LB/H 3-HOUR 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:

Control Method: (P) use of primarily natural gas and low sulfur fuel oil (1% of the time)

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: EPA/OAR Mthd 25A

Pollutant Group(s): (Volatile Organic Compounds (VOC))

Emission Limit 1: 0.1500 G/KW-H 3-HOUR 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:

Control Method: (A) Catalytic Oxidation

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: EPA/OAR Mthd 5

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.0065 G/KW-H 3-HOUR 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:

Control Method: (P) primarily 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: EPA/OAR Mthd 201A and 202

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.0065 G/KW-H 3-HOUR 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:

Control Method: (P) use of primarily natural gas

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: PM10 and PM2.5 have same limit, including condensables.

POLLUTANT NAME: Carbon Dioxide

CAS Number: 124-38-9

Test Method: EPA/OAR Mthd 3A

Pollutant Group(s): (Acid Gasses/Mist , Greenhouse Gasses (GHG) , InOrganic Compounds)

Emission Limit 1: 181.0000 G/KW-H 8-HOUR ROLLING AVERAGE - NAT GAS

Emission Limit 2: 253.0000 G/KW-H 8-HOUR ROLLING AVERAGE - L S FUEL OIL

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) use of efficient engine design and use of primarily natural gas

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: Emission limit 1 - natural gas; Emission limit 2 - low sulfur fuel oil

Process/Pollutant Information

PROCESS NAME: Fugitive GHG emissions

Process Type: 99.999 (Other Miscellaneous Sources)

Primary Fuel:

Throughput: 0

Process Notes: Process Piping fugitives

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:

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) a gas and leak detection system will be used.

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes:

Facility Information

RBLC ID: LA-0254 (final)

Date Determination Last Updated: 12/12/2011

Corporate/Company Name: ENTERGY LOUISIANA LLC

Permit Number: PSD-LA-752

Facility Name: NINEMILE POINT ELECTRIC GENERATING PLANT

Permit Date: 08/16/2011 (actual)

Facility Contact: CHRISTEE HERBERT (504) 576-5699 CHERBER@ENTERGY.COM

FRS Number: 110002049328

Facility Description: 1827 MW POWER PLANT (PRE-PROJECT). NATURAL GAS IS PRIMARY FUEL; NO. 2 & NO. 4 FUEL OIL ARE SECONDARY FUELS. PROJECT INVOLVES DECOMMISSIONING OF 2 BOILERS AND THE CONSTRUCTION OF 2 COMBINED CYCLE GAS TURBINES WITH DUCT BURNERS, A NATURAL GAS-FIRED AUXILIARY BOILER, A DIESEL GENERATOR, 2 COOLING TOWERS, A FUEL OIL STORAGE TANK, A DIESEL-FIRED FIREWASTER PUMP, AND AN ANHYDROUS AMMONIA TANK. FUELS FOR THE TURBINES INCLUDE NATURAL GAS, NO. 2 FUEL OIL, AND ULTRA LOW SULFUR DIESEL.

SIC Code: 4911

Permit Type: B: Add new process to existing facility **NAICS Code:** 221112

Permit URL:

EPA Region: 6 **COUNTRY:** USA

Facility County: JEFFERSON

Facility State: LA

Facility ZIP Code: 70094

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: CHRIS SMITH, (225) 219-3417

Permit Notes: APPLICATION ACCEPTED RECEIVED DATE = DATE OF ADMINISTRATIVE COMPLETENESS BACT FOR GREENHOUSE GASES (CO2E) FROM THE COMBINED CYCLE TURBINE GENERATORS (UNITS 6A & 6B) IS OPERATING PROPERLY AND PERFORMING NECESSARY ROUTINE MAINTENANCE, REPAIR, AND REPLACEMENT TO MAINTAIN THE GROSS HEAT RATE AT OR BELOW 7630 BTU/KW-HR (HHV) (ANNUAL AVERAGE).

Process/Pollutant Information

PROCESS NAME: COMBINED CYCLE TURBINE GENERATORS (UNITS 6A & 6B)

Process Type: 15.210 (Natural Gas (includes propane & liquified petroleum gas))

Primary Fuel: NATURAL GAS

Throughput: 7146.00 MMBTU/H

Process Notes: TURBINES ALSO PERMITTED TO BURN NO. 2 FUEL OIL AND ULTRA LOW SULFUR DIESEL. FUEL OIL USE IS LIMITED TO 1000 HOURS PER YEAR.

POLLUTANT NAME: Particulate matter, total < 2.5 μ (TPM2.5)

CAS Number: PM

Test Method: Other

Other Test Method: METHOD 201A

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 26.2300 LB/H HOURLY AVERAGE W/O DUCT BURNER

Emission Limit 2: 33.1600 LB/H HOURLY AVERAGE W/ DUCT BURNER

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) WHILE FIRING NATURAL GAS: USE OF PIPELINE QUALITY NATURAL GAS AND GOOD COMBUSTION PRACTICES WHILE FIRING FUEL OIL: USE OF ULTRA LOW SULFUR FUEL OIL AND GOOD COMBUSTION PRACTICES

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: WHILE FIRING FUEL OIL, THE BACT LIMIT FOR PM2.5 IS 36.37 LB/HR (HOURLY AVERAGE) BACT FOR GREENHOUSE GASES (CO2E) FROM THE COMBINED CYCLE TURBINE GENERATORS (UNITS 6A & 6B) IS OPERATING PROPERLY AND PERFORMING NECESSARY ROUTINE MAINTENANCE, REPAIR, AND REPLACEMENT TO MAINTAIN THE GROSS HEAT RATE AT OR BELOW 7630 BTU/KW-HR (HHV) (ANNUAL AVERAGE).

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)

CAS Number: PM

Test Method: EPA/OAR Mthd 201A and 202

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 26.2300 LB/H HOURLY AVERAGE W/O DUCT BURNER

Emission Limit 2: 33.1600 LB/H HOURLY AVERAGE W/ DUCT BURNER

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) WHILE FIRING NATURAL GAS: USE OF PIPELINE QUALITY NATURAL GAS AND GOOD COMBUSTION PRACTICES WHILE FIRING FUEL OIL: USE OF ULTRA LOW SULFUR FUEL OIL AND GOOD COMBUSTION PRACTICES

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: WHILE FIRING FUEL OIL, THE BACT LIMIT FOR PM10 IS 36.37 LB/HR (HOURLY AVERAGE) BACT FOR GREENHOUSE GASES (CO2E) FROM THE COMBINED CYCLE TURBINE GENERATORS (UNITS 6A & 6B) IS OPERATING PROPERLY AND PERFORMING NECESSARY ROUTINE MAINTENANCE, REPAIR, AND REPLACEMENT TO MAINTAIN THE GROSS HEAT RATE AT OR BELOW 7630 BTU/KW-HR (HHV) (ANNUAL AVERAGE).

POLLUTANT NAME: Carbon Monoxide

CAS Number: 630-08-0
Test Method: Unspecified
Pollutant Group(s): (InOrganic Compounds)
Emission Limit 1: 3.0000 PPMVD @ 15% O2 HOURLY AVERAGE
Emission Limit 2:
Standard Emission: 3.0000 PPMVD @ 15% O2 HOURLY 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: (B) OXIDATION CATALYST AND GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: CO MONITORED USING CEMS. 3 PPMVD @ 15% O2 LIMIT APPLIES WHEN OPERATING W/ AND W/O THE DUCT BURNER AND WHEN FIRING FUEL OIL. STARTUP/SHUTDOWN: PROGRESS THROUGH THE SU/SD EVENT AS QUICKLY AS POSSIBLE WHILE FOLLOWING THE MANUFACTURER'S RECOMMENDED PROCEDURES. SU/SD OPERATIONS LIMITED TO 1302 HR/YR. BACT FOR GREENHOUSE GASES (CO2E) FROM THE COMBINED CYCLE TURBINE GENERATORS (UNITS 6A & 6B) IS OPERATING PROPERLY AND PERFORMING NECESSARY ROUTINE MAINTENANCE, REPAIR, AND REPLACEMENT TO MAINTAIN THE GROSS HEAT RATE AT OR BELOW 7630 BTU/KW-HR (HHV) (ANNUAL 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: 1.4000 PPMVD @ 15% O2 HOURLY AVERAGE W/O DUCT BURNER
Emission Limit 2: 3.8000 PPMVD @ 15% O2 HOURLY AVERAGE W/ DUCT BURNER
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
Est. % Efficiency:

Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: WHILE FIRING FUEL OIL, THE BACT LIMIT FOR VOC IS 3.1 PPMVD @ 15% O2 (HOURLY AVERAGE) STARTUP/SHUTDOWN: PROGRESS THROUGH THE SU/SD EVENT AS QUICKLY AS POSSIBLE WHILE FOLLOWING THE MANUFACTURER'S RECOMMENDED PROCEDURES. SU/SD OPERATIONS LIMITED TO 1302 HR/YR. BACT FOR GREENHOUSE GASES (CO2E) FROM THE COMBINED CYCLE TURBINE GENERATORS (UNITS 6A & 6B) IS OPERATING PROPERLY AND PERFORMING NECESSARY ROUTINE MAINTENANCE, REPAIR, AND REPLACEMENT TO MAINTAIN THE GROSS HEAT RATE AT OR BELOW 7630 BTU/KW-HR (HHV) (ANNUAL AVERAGE).

Process/Pollutant Information

PROCESS NAME: AUXILIARY BOILER (AUX-1)
Process Type: 11.310 (Natural Gas (includes propane and liquefied petroleum gas))
Primary Fuel: NATURAL GAS
Throughput: 338.00 MMBTU/H
Process 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/MMSCF ANNUAL AVERAGE
Emission Limit 2:
Standard Emission: 7.6000 LB/MMSCF 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) USE OF PIPELINE QUALITY NATURAL 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: 7.6000 LB/MMSCF ANNUAL AVERAGE
Emission Limit 2:
Standard Emission: 7.6000 LB/MMSCF 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) USE OF PIPELINE QUALITY NATURAL GAS 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: 84.0000 LB/MMSCF ANNUAL AVERAGE
Emission Limit 2:
Standard Emission: 84.0000 LB/MMSCF 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) USE OF PIPELINE QUALITY NATURAL GAS AND 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: 5.5000 LB/MMSCF ANNUAL AVERAGE
Emission Limit 2:
Standard Emission: 5.5000 LB/MMSCF 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) USE OF PIPELINE QUALITY NATURAL GAS AND 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: 117.0000 LB/MMBTU
Emission Limit 2:
Standard Emission: 117.0000 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
Control Method: (P) PROPER OPERATION AND GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Methane

CAS Number: 74-82-8
Test Method: Unspecified
Pollutant Group(s): (Greenhouse Gasses (GHG) , Organic Compounds (all) , Organic Non-HAP Compounds)
Emission Limit 1: 0.0022 LB/MMBTU
Emission Limit 2:
Standard Emission: 0.0022 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
Control Method: (P) PROPER OPERATION AND GOOD COMBUSTION PRACTICES
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: 0.0002 LB/MMBTU
Emission Limit 2:
Standard Emission: 0.0002 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
Control Method: (P) 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: CHILLER COOLING TOWER (CHILL CT)

Process Type: 99.009 (Industrial Process Cooling Towers)

Primary Fuel:

Throughput: 12000.00 GALS/MIN

Process Notes:

POLLUTANT NAME: Particulate matter, total < 10 µ (TPM10)

CAS Number: PM

Test Method: Unspecified

Pollutant Group(s): (Particulate Matter (PM))

Emission Limit 1: 0.0010 PERCENT DRIFT ANNUAL AVERAGE

Emission Limit 2:

Standard Emission: 0.0010 PERCENT DRIFT 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) HIGH EFFICIENCY MIST ELIMINATOR

Est. % Efficiency:

Cost Effectiveness: 0 $/ton

Incremental Cost Effectiveness: 0 $/ton

Compliance Verified: Unknown

Pollutant/Compliance Notes: MASS EMISSION RATES ARE NOT ESTABLISHED BY THE PSD PERMIT.

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: 0.0010 PERCENT DRIFT ANNUAL AVERAGE

Emission Limit 2:

Standard Emission: 0.0010 PERCENT DRIFT 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) HIGH EFFICIENCY MIST ELIMINATOR
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: MASS EMISSION RATES ARE NOT ESTABLISHED BY THE PSD PERMIT.

Process/Pollutant Information

PROCESS NAME: UNIT 6 COOLING TOWER
Process Type: 99.009 (Industrial Process Cooling Towers)
Primary Fuel:
Throughput: 115847.00 GALS/MIN
Process 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 PERCENT DRIFT ANNUAL AVERAGE
Emission Limit 2:
Standard Emission: 0.0005 PERCENT DRIFT 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) HIGH EFFICIENCY MIST ELIMINATOR
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: MASS EMISSION RATES ARE NOT ESTABLISHED BY THE PSD PERMIT.

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 PERCENT DRIFT ANNUAL AVERAGE
Emission Limit 2:
Standard Emission: 0.0005 PERCENT DRIFT 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) HIGH EFFICIENCY MIST ELIMINATOR
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: MASS EMISSION RATES ARE NOT ESTABLISHED BY THE PSD PERMIT.

Process/Pollutant Information

PROCESS NAME: EMERGENCY DIESEL GENERATOR
Process Type: 17.110 (Fuel Oil (ASTM # 1,2, includes kerosene, aviation, diesel fuel))
Primary Fuel: DIESEL
Throughput: 1250.00 HP
Process 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/HP-H ANNUAL AVERAGE
Emission Limit 2:
Standard Emission: 0.1500 G/HP-H 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) ULTRA LOW SULFUR DIESEL 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 < 10 µ (TPM10)
CAS Number: PM
Test Method: Unspecified
Pollutant Group(s): (Particulate Matter (PM))
Emission Limit 1: 0.1500 G/HP-H ANNUAL AVERAGE
Emission Limit 2:
Standard Emission: 0.1500 G/HP-H 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) ULTRA LOW SULFUR DIESEL 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: 2.6000 G/HP-H ANNUAL AVERAGE
Emission Limit 2:
Standard Emission: 2.6000 G/HP-H 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) ULTRA LOW SULFUR DIESEL AND 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 G/HP-H ANNUAL AVERAGE
Emission Limit 2:
Standard Emission: 1.0000 G/HP-H 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) ULTRA LOW SULFUR DIESEL AND 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: 163.0000 LB/MMBTU
Emission Limit 2:
Standard Emission: 163.0000 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
Control Method: (P) PROPER OPERATION AND GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Methane
CAS Number: 74-82-8
Test Method: Unspecified
Pollutant Group(s): (Greenhouse Gasses (GHG) , Organic Compounds (all) , Organic Non-HAP Compounds)
Emission Limit 1: 0.0061 LB/MMBTU
Emission Limit 2:
Standard Emission: 0.0061 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
Control Method: (P) PROPER OPERATION AND GOOD COMBUSTION PRACTICES
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: 0.0014 LB/MMBTU
Emission Limit 2:
Standard Emission: 0.0014 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
Control Method: (P) 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: EMERGENCY FIRE PUMP
Process Type: 17.210 (Fuel Oil (ASTM # 1,2, includes kerosene, aviation, diesel fuel))
Primary Fuel: DIESEL
Throughput: 350.00 HP
Process 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/HP-H ANNUAL AVERAGE
Emission Limit 2:
Standard Emission: 0.1500 G/HP-H 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) ULTRA LOW SULFUR DIESEL 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: 0.1500 G/HP-H ANNUAL AVERAGE
Emission Limit 2:
Standard Emission: 0.1500 G/HP-H 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) ULTRA LOW SULFUR DIESEL 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: 2.6000 G/HP-H LB/MM BTU
Emission Limit 2:
Standard Emission: 2.6000 G/HP-H 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) ULTRA LOW SULFUR DIESEL AND 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 G/HP-H ANNUAL AVERAGE
Emission Limit 2:
Standard Emission: 1.0000 G/HP-H 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) ULTRA LOW SULFUR DIESEL AND 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: 163.0000 LB/MMBTU
Emission Limit 2:
Standard Emission: 163.0000 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
Control Method: (P) PROPER OPERATION AND GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes:

POLLUTANT NAME: Methane

CAS Number: 74-82-8
Test Method: Unspecified
Pollutant Group(s): (Greenhouse Gasses (GHG) , Organic Compounds (all) , Organic Non-HAP Compounds)
Emission Limit 1: 0.0061 LB/MMBTU
Emission Limit 2:
Standard Emission: 0.0061 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
Control Method: (P) PROPER OPERATION AND GOOD COMBUSTION PRACTICES
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: 0.0014 LB/MMBTU
Emission Limit 2:
Standard Emission: 0.0014 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
Control Method: (P) PROPER OPERATION AND GOOD COMBUSTION PRACTICES
Est. % Efficiency:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Compliance Verified: Unknown
Pollutant/Compliance Notes: