

US EPA ARCHIVE DOCUMENT

**PREVENTION OF SIGNIFICANT DETERIORATION PERMIT  
FOR GREENHOUSE GAS EMISSIONS  
ISSUED PURSUANT TO THE REQUIREMENTS AT 40 CFR § 52.21**

**U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION 6**

**PSD PERMIT NUMBER:** PSD-TX-1366-GHG

**PERMITEE:** Invenergy Thermal Development LLC  
1 South Wacker Dr., Suite 1900  
Chicago, IL 60606

**FACILITY NAME:** Ector County Energy Center

**FACILITY LOCATION:** SW 3601 Road  
Goldsmith, TX 79741

Pursuant to the provisions of the Clean Air Act (CAA), Subchapter I, Part C (42 U.S.C. Section 7470, *et. Seq.*), and the Code of Federal Regulations (CFR) Title 40, Section 52.21, and the Federal Implementation Plan at 40 CFR § 52.2305 (effective May 1, 2011 and published at 76 FR 25178), the U.S. Environmental Protection Agency, Region 6 is issuing a *Prevention of Significant Deterioration* (PSD) permit to Invenergy Thermal Development LLC (Invenergy) for Greenhouse Gas (GHG) emissions. The Permit applies to the addition of two natural gas-fired simple-cycle combustion turbines, natural gas-fired dew point heater, firewater pump engine, circuit breakers and fugitive emissions at a new facility located northeast of Goldsmith, Texas.

Invenergy is authorized to construct two new natural gas-fired simple-cycle combustion turbines, natural gas-fired dew point heater, firewater pump engine, circuit breakers and fugitive emissions as described herein, in accordance with the permit application (and plans submitted with the permit application), the federal PSD regulations at 40 CFR § 52.21, and other terms and conditions set forth in this PSD permit in conjunction with the corresponding Texas Commission on Environmental Quality (TCEQ) permit No. PSDTX1366. Failure to comply with any condition or term set forth in this PSD Permit may result in enforcement action pursuant to Section 113 of the Clean Air Act (CAA). This PSD Permit does not relieve Invenergy of the responsibility to comply with any other applicable provisions of the CAA (including applicable implementing regulations in 40 CFR Parts 51, 52, 60, 61, 72 through 75, and 98) or other federal and state requirements (including the state PSD program that remains under approval at 40 CFR § 52.2303).

In accordance with 40 CFR §124.15(b), this PSD Permit becomes effective 30 days after the service of notice of this final decision unless review is requested on the permit pursuant to 40 CFR §124.19.

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Wren Stenger, Director  
Multimedia Planning and Permitting Division

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Date

**Ector County Energy Center (PSD-TX-1366-GHG)  
Prevention of Significant Deterioration Permit  
For Greenhouse Gas Emissions  
Draft Permit Conditions**

**PROJECT DESCRIPTION**

Invenergy is proposing to add two (2) new gas-fired simple-cycle combustion turbines of 165 MW electric generating capability located near Goldsmith, Texas. The primary objective of the proposed project is to provide peaking capability at a new electric generating station which will be used during periods of increased demand for electricity. Due to the fluctuations in power requirements, the two new natural gas-fired simple-cycle turbines (165 MW nominal net each) are proposed to provide a fast ramp-up for electricity generation during peak electricity demand periods. In addition, the project also includes the installation of a dew-point heater, firewater pump engine, circuit breakers and fugitive emissions associated with the new facility.

**EQUIPMENT LIST**

The following devices are subject to this GHG PSD permit.

<b>FIN</b>	<b>EPN</b>	<b>Description</b>
CTG-1 CTG-2	CTG-1 CTG-2	Two 165 (nominal net) MW Natural Gas-fired Simple-Cycle GE 7FA.03 Combustion Turbine Generator (CTG) with a maximum net heat input rate of 11,707 Btu/kWh (HHV) at base load ISO conditions.
DPT HTR-3	DPT HTR-3	Natural Gas-Fired Dew-Point Heater with a maximum heat input of 9MMBtu/hr.
FWP-4	FWP-4	Diesel fire pump (250 hp, not to exceed) engine. In addition to emergency fire suppression activities, the unit is limited to 100 hrs per 12-month rolling basis for maintenance and testing.
SF-6	SF-6	Fugitive SF <sub>6</sub> Circuit Breaker Emissions
NG-FUG	NG-FUG	Fugitive emissions from various piping components

**US EPA ARCHIVE DOCUMENT**

## **I. GENERAL PERMIT CONDITIONS**

### **A. PERMIT EXPIRATION**

As provided in 40 CFR §52.21(r), this PSD Permit shall become invalid if construction:

1. is not commenced (as defined in 40 CFR §52.21(b)(9)) within 18 months after the approval takes effect; or
2. is discontinued for a period of 18 months or more; or
3. is not completed within a reasonable time.

Pursuant to 40 CFR §52.21(r), EPA may extend the 18-month period upon a written satisfactory showing that an extension is justified.

### **B. PERMIT NOTIFICATION REQUIREMENTS**

Permittee shall notify EPA Region 6 in writing or by electronic mail of the:

1. date construction is commenced, postmarked within 30 days of such date;
2. actual date of initial startup, as defined in 40 CFR § 60.2, postmarked within 15 days of such date; and
3. date upon which initial performance tests will commence, in accordance with the provisions of Section V, postmarked not less than 30 days prior to such date. Notification may be provided with the submittal of the performance test protocol required pursuant to Condition V.B.

### **C. FACILITY OPERATION**

At all times, including periods of startup, shutdown, and maintenance, Permittee shall, to the extent practicable, maintain and operate the facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the EPA, which may include, but is not limited to, monitoring results, review of operating maintenance procedures and inspection of the facility.

### **D. MALFUNCTION REPORTING**

1. Permittee shall notify EPA by mail, or other means identified by EPA, within 48 hours following the discovery of any failure of air pollution control equipment, process equipment, or of a process to operate in a normal manner, which results in an increase in GHG emissions above the allowable emission limits stated in Section II and III of this permit.

2. Within 10 days of the discovery of any GHG emissions above the allowable emission limits resulting from malfunctions as described in I.D.1., Permittee shall provide a written supplement to the initial notification that includes a description of the malfunctioning equipment or abnormal operation, the date of the initial malfunction, the period of time over which emissions were increased due to the failure, the cause of the failure, the estimated resultant emissions in excess of those allowed in Section II and III, and the methods utilized to mitigate emissions and restore normal operations.
3. Compliance with this malfunction notification provision shall not excuse or otherwise constitute a defense to any violation of this permit or any law or regulation such malfunction may cause.

#### **E. RIGHT OF ENTRY**

EPA authorized representatives, upon the presentation of credentials, shall be permitted:

1. to enter the premises where the facility is located or where any records are required to be kept under the terms and conditions of this PSD Permit;
2. during normal business hours, to have access to and to copy any records required to be kept under the terms and conditions of this PSD Permit;
3. to inspect any equipment, operation, or method subject to requirements in this PSD Permit; and,
4. to sample materials and emissions from the source(s).

#### **F. TRANSFER OF OWNERSHIP**

In the event of any changes in control or ownership of the facilities to be constructed, this PSD Permit shall be binding on all subsequent owners and operators. Permittee shall notify the succeeding owner and operator of the existence of the PSD Permit and its conditions by letter; a copy of the letter shall be forwarded to EPA Region 6 within thirty days of the letter signature.

#### **G. SEVERABILITY**

The provisions of this PSD Permit are severable, and, if any provision of the PSD Permit is held invalid, the remainder of this PSD Permit shall not be affected.

#### **H. ADHERENCE TO APPLICATION AND COMPLIANCE WITH OTHER ENVIRONMENTAL LAWS**

Permittee shall construct this project in compliance with this PSD Permit, the application on which this permit is based, the TCEQ PSD Permit PSD-TX-1366 (when issued) and all other applicable federal, state, and local air quality regulations. This PSD permit does not release the Permittee from any liability for compliance with other applicable federal, state and local environmental laws and regulations, including the Clean Air Act.

**I. ACRONYMS AND ABBREVIATIONS**

AVO	Auditory, Visual, and Olfactory
BACT	Best Available Control Technology
CAA	Clean Air Act
CCS	Carbon Capture and Sequestration
CEMS	Continuous Emissions Monitoring System
CFR	Code of Federal Regulations
CH <sub>4</sub>	Methane
CO <sub>2</sub>	Carbon Dioxide
CO <sub>2</sub> e	Carbon Dioxide Equivalent
dscf	Dry Standard Cubic Foot
EF	Emission Factor
EPN	Emission Point Number
FIN	Facility Identification Number
FR	Federal Register
GCV	Gross Calorific Value
GHG	Greenhouse Gas
gr	Grains
GWP	Global Warming Potential
HHV	High Heating Value
hr	Hour
lb	Pound
LDAR	Leak Detection and Repair
MMBtu	Million British Thermal Units
MSS	Maintenance, Start-up and Shutdown
N <sub>2</sub> O	Nitrous Oxides
NSPS	New Source Performance Standards
PSD	Prevention of Significant Deterioration
QA/QC	Quality Assurance and/or Quality Control
SCFH	Standard Cubic Feet per Hour
SCR	Selective Catalytic Reduction
SF <sub>6</sub>	Sulfur hexafluoride
TAC	Texas Administrative Code
TCEQ	Texas Commission on Environmental Quality
TPY	Tons per Year
USC	United States Code

## II. Annual Emission Limits

Annual emissions, in tons per year (TPY) on a 12-month, rolling total, shall not exceed the following for the General Electric 7FA combustion turbine model:

**Table 1. Annual Emission Limit – GE 7FA.03 CT**

FIN	EPN	Description	GHG Mass Basis		TPY CO <sub>2</sub> e <sup>1,2</sup>	BACT Requirements
				TPY		
CTG-1 CTG-2	CTG-1 CTG-2	Natural Gas Fired-Simple Cycle Turbine	CO <sub>2</sub>	239,420 <sup>3</sup>	239,649 <sup>3</sup>	<ul style="list-style-type: none"> <li>- BACT limit of 1,393 lb CO<sub>2</sub>/MW-hr (gross) on a 2,500 operational hour rolling basis, rolling daily, each turbine.</li> <li>-Not to exceed 2,500 hours of operation on a 12-month rolling basis per turbine.</li> <li>-See permit condition III.A.2.a. through d.</li> </ul>
			CH <sub>4</sub>	4.4 <sup>3</sup>		
			N <sub>2</sub> O	0.4 <sup>3</sup>		
CTG-1 CTG-2	CTG-1 CTG-2	Natural Gas Fired-Simple Cycle Turbine – MSS <sup>4</sup>	CO <sub>2</sub>	10,500 <sup>4</sup>	10,502 <sup>4</sup>	<ul style="list-style-type: none"> <li>-Each event limited to 21 tons CO<sub>2</sub>e.</li> <li>-Limit of 500 events on a 12-month rolling total.</li> <li>-Maximum heat input during startup limited to 1,320 MMBtu/hr.</li> <li>-See Special Condition III.A.4.c. through e.</li> </ul>
			CH <sub>4</sub>	0.06 <sup>4</sup>		
			N <sub>2</sub> O	No Numerical Limit Established <sup>5</sup>		
DPT HTR-3	DPT HTR-3	Natural Gas-Fired Dew-Point Heater	CO <sub>2</sub>	2,630	2,631	<ul style="list-style-type: none"> <li>-Not to exceed 5,000 hours per year on a 12-month rolling basis</li> </ul>
			CH <sub>4</sub>	0.05		
			N <sub>2</sub> O	No Numerical Limit Established <sup>5</sup>		
FWP-4	FWP-4	Firewater Pump Engine	CO <sub>2</sub>	5.44	5	<ul style="list-style-type: none"> <li>- Not to exceed 100 hours of non-emergency operation on a 12-month rolling basis</li> <li>- Use of Good Combustion Practices. See permit condition III.B.</li> </ul>
			CH <sub>4</sub>	No Numerical Limit Established <sup>5</sup>		
			N <sub>2</sub> O	No Numerical Limit Established <sup>5</sup>		

FIN	EPN	Description	GHG Mass Basis		TPY CO <sub>2</sub> e <sup>1,2</sup>	BACT Requirements
				TPY		
SF6FUG	SF6-FUG	Fugitive SF <sub>6</sub> Circuit Breaker Emissions	SF <sub>6</sub>	No Numerical Limit Established <sup>6</sup>	No Numerical Limit Established <sup>6</sup>	Work Practices. See permit condition III.C.
NGFUG	NG-FUG	Components Fugitive Leak Emissions	CH <sub>4</sub>	No Numerical Limit Established <sup>7</sup>	No Numerical Limit Established <sup>7</sup>	Implementation of AVO Program. See permit condition III.D.
<b>Totals<sup>8</sup></b>			CO <sub>2</sub>	502,475	<b>503,204 CO<sub>2</sub>e</b>	
			CH <sub>4</sub>	19		
			N <sub>2</sub> O	0.8		
			SF <sub>6</sub>	.0006		

1. The TPY emission limits specified in this table are not to be exceeded for this facility and include emissions from the facility during all operations and include MSS activities.
2. Global Warming Potentials (GWP): CO<sub>2</sub>=1, CH<sub>4</sub> = 25, N<sub>2</sub>O = 310, SF<sub>6</sub>=22,800
3. The GHG Mass Basis TPY limit and the CO<sub>2</sub>e TPY limit for the natural gas fired simple cycle turbines applies to each turbine and is not a combined limit.
4. The GHG Mass Basis TPY limit and the CO<sub>2</sub>e TPY limit for the natural gas fired simple cycle turbines – MSS includes emissions associated with gaseous fuel venting of the fuel lines during a turbine shutdown or maintenance and applies to each turbine and is not a combined limit.
5. These values indicated as “No Numerical Limit Established” are less than 0.01 TPY with appropriate rounding. The emission limit will be a design/work practice standard as specified in the permit.
6. Fugitive Leak Emissions from SF6-FUG are estimated to be 0.0006 TPY SF<sub>6</sub> and 13.7 TPY CO<sub>2</sub>e. In lieu of an emission limit, the emissions will be limited by implementing a design/work practice standard as specified in the permit.
7. Fugitive Leak Emissions from NG-FUG are estimated to be 0.134TPY CO<sub>2</sub>, 10.08 TPY CH<sub>4</sub>, and 252.25 TPY CO<sub>2</sub>e. In lieu of an emission limit, the emissions will be limited by implementing a design/work practice standard as specified in the permit.
8. Total emissions include the PTE for fugitive emissions. Totals are given for informational purposes only and do not constitute emission limits.



### III. SPECIAL PERMIT CONDITIONS

#### A. Requirements for the Natural Gas Fired-Simple Cycle Turbines (EPNs CTG-1 and CTG-2)

1. **Fuel Specifications:** The fuel for each turbine shall be pipeline quality natural gas.

2. **Turbine BACT Requirements:**

- a. The BACT limit of 1,393 lbs of CO<sub>2</sub>/MW-hr gross output applies to each turbine. The Permittee shall determine the hourly CO<sub>2</sub> emission rate from 40 CFR Part 75, Appendix G, using F<sub>c</sub> factors updated monthly from fuel analysis. The Permittee shall calculate each day a combustion turbine operates, CO<sub>2</sub> emissions over the rolling 2,500 hours of operation basis divided by gross electrical output over the same period for comparison to the limit for each combustion turbine.
- b. The Permittee shall calculate, on a daily basis, the amount of CO<sub>2</sub>e emitted from each turbine in tons per year based on the procedures and Global Warming Potentials (GWP) contained in the Greenhouse Gas Regulations, 40 CFR Part 98, Subpart A, Table A-1, as published on November 29, 2013 (74 FR 71904) for CH<sub>4</sub> and N<sub>2</sub>O. Compliance shall be based on a 12-month rolling basis.
- c. The annual quantity of fuel used by each turbine (EPNs CTG-1 and GTG-2) shall not exceed 4,028,700 MMBtu (HHV) in any 2,500 operational hour rolling period. The Permittee shall calculate each day a combustion turbine operates, the quantity of fuel used by each turbine over the previous 12-month basis by multiplying the gross calorific value of the fuel combusted by volume of fuel metered for comparison to the annual fuel limit for each combustion turbine.
- d. Each turbine (EPNs CTG-1 and CTG-2) is limited to 2,500 operational hours on a 12-month rolling basis which shall include periods of startup and shutdown.

3. **Combustion Turbine Work Practice and Operational Requirements:**

- a. Permittee shall determine the CO<sub>2</sub> hourly emission rate and CO<sub>2</sub> mass emissions for both combustion turbines based on equation G-4 of 40 CFR Part 75 and the average heat rate (gross) on an hourly basis based on the heat input calculation procedures contained in 40 CFR Part 75, Appendix F, equation F-20.
- b. Permittee shall calculate the CH<sub>4</sub> and N<sub>2</sub>O emissions on a 12-month rolling average. Permittee shall determine compliance with the CH<sub>4</sub> and N<sub>2</sub>O emissions limits contained in Section II using the default CH<sub>4</sub> and N<sub>2</sub>O emission factors contained in Table C-2 of 40 CFR Part 98 and the measured actual hourly heat input (HHV).

- c. Permittee shall calculate the CO<sub>2</sub>e emissions on a 12-month rolling total, based on the procedures and Global Warming Potentials (GWP) contained in Greenhouse Gas Regulations, 40 CFR Part 98, Subpart A, Table A-1.
- d. Permittee shall install, calibrate, and operate a fuel flow meter and perform periodic scheduled GCV fuel sampling for the combustion turbines and shall meet the applicable requirements, including certification testing, of 40 CFR Part 75, Appendix D and 40 CFR Part 60 to be used in conjunction with the F<sub>c</sub> factor based on the procedures to calculate the CO<sub>2</sub> emission rate in 40 CFR Part 75, Appendix F.
- e. The flow rate of the fuel combusted in combustion turbine emission units, identified as CTG-1 and CTG-2, shall be measured and recorded using an inline flow meter and automatically record the data with a data acquisition and handling system.
- f. Permittee shall ensure compliance with the specifications and test procedures for fuel flow meter and/or CO<sub>2</sub> emission monitoring system at stationary sources, 40 CFR Part 75 and 40 CFR Part 60.
- g. Permittee shall meet the appropriate quality assurance requirements specified in 40 CFR Part 75, Appendix D and F and 40 CFR Part 60 for the fuel flow meter and/or CO<sub>2</sub> emission monitoring system.
- h. Permittee shall measure and record the net energy output (MWh (net)) on an hourly basis.
- i. On or before the date of initial performance test required by 40 CFR 60.8, and thereafter, Permittee shall install, and continuously operate, and maintain the combustion turbines so emissions are at or below the emissions limits specified in this permit and TCEQ permit PSD-TX-1366.
- j. On or after initial performance testing, Permittee shall use the combustion turbines, plant-wide energy efficiency processes, and work practices and designs as represented in the permit application.
- k. As an alternative to Special Condition III.A.3.a, the Permittee may install a CO<sub>2</sub> CEMS and volumetric stack gas flow monitoring system with an automated data acquisition and handling system for measuring and recording CO<sub>2</sub> emissions discharged to the atmosphere.

#### **4. Startup and Shutdown Requirements for Turbines:**

- a. Permittee shall minimize emissions during startup and shutdown activities by operating and maintaining the facility and associated air pollution control equipment in accordance with good air pollution control practices, safe operating practices, and protection of the facility.
- b. Emissions during startup and shutdown activities shall be minimized by limiting the duration of operation in startup and shutdown mode as follows:

- i. A startup of each turbine is defined as the period that begins when fuel flow is initiated in the combustion turbine as indicated by flame detection and ends when the normal operating low-NOx combustion mode is achieved (which equates to approximately 60% combustion turbine load) plus 15 minutes. A startup time is limited to 60 minutes per event.
      - ii. A shutdown of each turbine is defined as the time period that begins when the combustion turbine drops out of the normal operating low-NOx combustion mode (which equates to approximately 60% combustion turbine load) following an instruction to shut down, and ends when flame is no longer detected in the combustion turbine combustors. A shutdown is limited to 60 minutes per event.
- c. Emissions during each startup and shutdown activity as well as annual startup and shutdown activities shall be minimized by limiting the duration of operation in startup and shutdown mode as follows:
  - i. No more than one of the two simple-cycle turbines will undergo a startup and/or shutdown in any 30 minute period, except that simultaneous startups of multiple turbines within a 30 minute period may occur 52 times on a 12-month rolling basis.
  - ii. Startups and shutdowns are limited to no more than 60 minutes per event.
  - iii. No more than 500 startup and shutdown events per turbine on a 12-month rolling basis.
- d. Start up and shutdown emissions shall not exceed the BACT emission of 21 tons CO<sub>2</sub>e per event, and an annual emission limit of 10,502 tons CO<sub>2</sub>e/year.
- e. The maximum heat input during startup shall be limited to 1,320 MMBtu/hr.
- f. The Permittee must record the time, date, fuel heat input (HHV) in MMBtu/hr, and duration of each startup and shutdown event in order to calculate the total CO<sub>2</sub>e emissions. The records must include hourly CO<sub>2</sub> emission levels as measured by the fuel flow meter and/or O<sub>2</sub> emission monitor (or CO<sub>2</sub> CEMS with volumetric stack gas flowrate) and the calculations based on the actual heat input for the CO<sub>2</sub>, CO<sub>2</sub>e, O<sub>2</sub>, N<sub>2</sub>O, and CH<sub>4</sub> emissions during each startup and shutdown event based on the equations represented in the permit application. These records must be kept for five years.
- g. The BACT emission limitations in Special Condition III.A.2.a. does not include periods of startup.

**B. Requirements for the Natural Gas-Fired Dew Point Heater (EPN: DPT HTR-3)**

**1. Fuel Specification:** The fuel for the gas-fired dew point heater will be natural gas.

**2. Natural Gas-Fired Dew Point Heater and Operational Requirements:**

- a. Permittee shall calculate, on a monthly basis, the amount of CO<sub>2</sub> emitted from combustion in tons/yr using equation C-2a in 40 CFR Part 98 Subpart C, converted to short tons. Compliance shall be based on a 12-month rolling basis.
- b. Permittee shall calculate the CH<sub>4</sub> and N<sub>2</sub>O emissions on a 12-month rolling basis. Permittee shall determine compliance with the CH<sub>4</sub> and N<sub>2</sub>O emissions limits contained in this section using the default CH<sub>4</sub> and N<sub>2</sub>O emission factors contained in Table C-2 and equation C-9a of 40 CFR Part 98 and the measured actual heat input (HHV), converted to short tons.
- c. Permittee shall calculate the CO<sub>2</sub>e emissions on a 12-month rolling basis, based on the procedures and Global Warming Potentials (GWP) contained in Greenhouse Gas Regulations, 40 CFR Part 98, Subpart A, Table A-1, as published on October 30, 2009 (74 FR 56395).
- d. The Permittee shall measure and record the fuel flow rate using an operational non-resettable elapsed flow meter or by recording the flow rate data in an electronic format with individual flow measurements being taken no less frequently than once every 15 minutes. Electronic data may be reduced to hourly averages for recordkeeping purposes.
- e. Permittee shall calibrate and perform a preventative maintenance check of the fuel gas flow meters and document annually.
- f. To maintain the EPN DPT HTR-3 operating at a high efficiency, the Permittee shall perform annual tune-ups and meet the associated requirements as follows (if the unit is not operating on the required date for a tune-up, the tune-up must be conducted within one week of startup) in accordance with manufacturer's specifications:
  - a. Inspect the burner, and clean or replace any components of the burner as necessary (Permittee may delay the burner inspection until the next scheduled unit shutdown, but must inspect each burner at least once every 18 months).
  - b. Inspect the flame pattern, and adjust the burner as necessary to optimize the flame pattern. The adjustment should be consistent with the manufacturer's specifications.
  - c. Inspect the system controlling the air-to-fuel ratio, and ensure that it is correctly calibrated and functioning properly.
- g. The gas-fired dew point heater shall not exceed 5,000 hours on a 12-month rolling basis and shall be operated and maintained in accordance with the manufacturer's recommendations.
- h. The Permittee shall install and maintain the gas-fired dew point heater to ensure a minimum thermal efficiency of 75%.
- i. The gas-fired dew point heater will be continuously monitored for exhaust temperature, input fuel temperature, and stack oxygen. Thermal efficiency for the heater will be calculated monthly from these parameters using equation G-1 from

**C. Requirements for the Firewater Pump Engine (EPN: FWP-4)**

**1. Fuel Specification:** The fuel for the firewater pump is limited to diesel fuel. Fuel used in the engines will meet the requirements of 40 CFR 80.510(b) regarding sulfur content (15 ppmw maximum) and a minimum Cetane Index of 40 or maximum aromatic content of 35% by volume.

**2. Firewater Pump Work Practice and Operational Requirements:**

- a. The firewater pump shall not exceed 100 hours of non-emergency operation on a 12-month rolling basis and shall be operated and maintained in accordance with the manufacturer's recommendations.
- b. The Permittee shall install and maintain an operational non-resettable elapse time meter for the firewater pump.
- c. The engine shall meet the requirements of 40 CFR Part 60 Subpart III, Standards of Performance for Stationary Compression Ignition Combustion Engines.
- d. The emergency firewater pump engine purchased will be certified to meet the applicable emission standards of 40 CFR 60.4205(c).
- e. The emission limit in Table 1 is based on each emergency generator engine operating 100 hours a year for maintenance and testing.
- f. Compliance with the Annual Emission Limit shall be demonstrated on a 12-month total, rolling monthly, calculated in accordance with 40 CFR §98.33(a)(1)(i).

**D. Requirements for the Fugitive SF<sub>6</sub> Circuit Breakers (EPN: SF6-FUG)**

**Fugitive SF<sub>6</sub> Circuit Breaker Work Practice and Operation Requirements:**

- a. For EPN SF6-FUG, SF<sub>6</sub> emissions shall be calculated annually (calendar year) in accordance with the mass balance approach provided in equation DD-1 of the Mandatory Greenhouse Gas Reporting Rule for Electrical Transmission and Distribution Equipment Use, 40 CFR Part 98, Subpart DD. The total SF<sub>6</sub> inventory of the circuit breakers shall not exceed 240 lb with leak detection.
- b. The circuit breakers shall be equipped with a low pressure alarm and low pressure lockout. The SF<sub>6</sub> leak detection system shall be able to detect a leak of at least 1 lb per year.

## **E. Requirements for the Components Fugitive Leaks (EPN: NG-FUG)**

### **Components Fugitive Leaks Work Practice and Operation Requirements:**

- a.** The Permittee shall implement an auditory/visual/olfactory (AVO) monitoring program for detecting leaking in natural gas piping components, including valves and flanges.
- c.** AVO monitoring shall be performed daily.
- d.** Any component found to be leaking during remote sensing or AVO monitoring shall be repaired within 15 days.
- e.** Records of the annual remote sensing results and daily AVO monitoring results shall be maintained on site.

## **IV. Recordkeeping and Reporting**

### **A. Records**

1. In order to demonstrate compliance with the GHG emission limits in Table 1, the Permittee shall monitor the following parameters and summarize the data as specified in Special Conditions III. A, B, C, and D.
  - a.** Operating hours for all air emission sources authorized by this permit;
  - b.** Records of the fuel consumed by each source authorized by this permit;
  - c.** Records of run time meter for the fire pump engine;
  - d.** The fuel usage for all turbines, and engine, using continuous fuel flow monitors (a group of equipment can utilize a common fuel flow meter, as long as actual fuel usage is allocated to the individual equipment based upon actual operating hours and maximum firing rate). A computer that collects, sums, and stores electronic data from continuous fuel flow meters is an acceptable totalizer;
  - e.** Semi-annual fuel sampling for natural gas or other frequencies as allowed by 40 CFR §98.34(b)(3).
2. Permittee shall maintain records of the following for GHG emissions from the Equipment List: all records or reports pertaining to significant maintenance performed; duration of startup, shutdown; the initial startup period for the emission units; malfunctions; all records relating to performance tests, calibrations, checks, and monitoring of combustion equipment; duration of an inoperative monitoring device and emission units with the required corresponding emission data; and all other information required by this permit recorded in a permanent form suitable for inspection. These records may be maintained in electronic databases. The records shall be retained for not less than five years following the date of such measurements, maintenance, reports, and/or records.

3. Permittee shall maintain records of all GHG emission units and CO<sub>2</sub> emission certification tests and monitoring and compliance information required by this permit.
4. Permittee shall maintain reports and documents pertaining to the maintenance performed and compliance with the Monitoring and Quality Assurance and Quality Control (QA/QC) procedures outlined in 40 CFR 98.304 for SF<sub>6</sub> circuit breakers.
5. Permittee shall maintain records and submit a written report of all excess emissions to EPA semi-annually, except when: more frequent reporting is specifically required by an applicable subpart; or the Administrator or authorized representative, on a case-by-case basis, determines that more frequent reporting is necessary to accurately assess the compliance status of the source. The report is due on the 30<sup>th</sup> day following the end of each semi-annual period and shall include the following:
  - a. Time intervals, date and magnitude of the excess emissions, the nature and cause (if known), corrective actions taken and preventive measures adopted;
  - b. Time and date of each period during which the monitoring equipment was inoperative (monitoring down-time);
  - c. If there has been no excess emissions or monitoring downtime during the reporting period, a statement to that effect;
  - d. Any failure to conduct any required source testing, monitoring, or other compliance activities; and
  - e. Any violation of limitations on operation, including but not limited to restrictions on hours of operation of the emergency generator or fire pump.
6. Excess emissions shall be defined as any period in which the facility emissions exceed a maximum emission limit set forth in this permit, a malfunction occurs if an emission unit listed in the Equipment List that results in excess GHG emissions, or any other unauthorized GHG emissions occur.
7. Excess emissions indicated by GHG emission source certification testing or compliance monitoring shall be considered violations of the applicable emission limit for the purpose of this permit.
8. Instruments and monitoring systems required by this PSD permit shall have a 95% on-stream time on an annual basis.
9. All records required by this PSD Permit shall be retained for not less than 5 years following the date of such measurements, maintenance, and reporting.

## V. SHAKEDOWN PERIODS

The combustion turbine emission limits and requirements in conditions II., III.A.1., and III.B. shall not apply during combustion shakedown periods. Shakedown is defined as the period beginning with initial startup and ending no later than initial performance testing, during which the Permittee conducts operational and contractual testing and tuning to ensure the safe, efficient and reliable operation of the plant. The shakedown period shall not exceed the time period for

performance testing as specified in 40 CFR § 60.8. The requirements of special condition I.C. of this permit shall apply at all times.

## **VI. Initial Performance Testing Requirements:**

- A.** The Permittee shall perform stack sampling and other testing to establish the actual pattern and quantities of air contaminants being emitted into the atmosphere from the two turbines (EPN CTG-1 and CTG-2) and to determine the initial compliance with the CO<sub>2</sub> emission limits established in this permit. Sampling shall be conducted in accordance with 40 CFR § 60.8 and EPA Method 3a or 3b for the concentration of CO<sub>2</sub>.

The stack test shall consist of three separate runs at or above 90% of maximum load operations and three separate runs below 70% but above 50% load operation. Stack gas flow rate measurements, as well as moisture measurements (if needed), shall be made during each test run. The electrical generation (gross megawatts) during each test run shall also be recorded. The CO<sub>2</sub> emission rate shall be calculated as defined below and recorded for each test run in lb CO<sub>2</sub>/MWh (gross) and lb CO<sub>2</sub>/hr. The arithmetic mean for the three test runs at or above 90% of maximum load operation and the arithmetic mean for the three test runs below 70% but above 50% load operation shall also be calculated and recorded.

1. The CO<sub>2</sub> hourly average emission rate determined by the three runs at or above 90% of maximum load by 5,000 hours.
  2. If the above calculated CO<sub>2</sub> emission total does not exceed the (TPY) specified on Table 1, no compliance strategy needs to be developed.
  3. If the above calculated CO<sub>2</sub> emission total exceeds the (TPY) specified in Table 1, the facility shall:
    - a. Document the exceedance in the test report; and
    - b. Explain within the report how the facility will assure compliance with the CO<sub>2</sub> emission limit listed in Table 1.
- B.** Within 60 days after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup of the facility, performance tests(s) shall be conducted and a written report of the performance testing results furnished to the EPA. Additional sampling may be required by TCEQ or EPA.
- C.** Permittee shall submit a performance test protocol to EPA no later than 30 days prior to the test to allow review of the test plan and to arrange for an observer to be present at the test. The performance test shall be conducted in accordance with the submitted protocol, and any changes required by EPA.
- D.** Performance tests shall be conducted under such conditions to ensure representative performance of the affected facility. The Permittee shall make available to the EPA such records as may be necessary to determine the conditions of the performance tests.
- E.** The Permittee shall provide the EPA at least 30 days' prior notice of any performance test,



except as specified under other subparts, to afford the EPA the opportunity to have an observer present and/or to attend a pre-test meeting. If there is a delay in the original test date, the facility must provide at least 7 days prior notice of the rescheduled date of the performance test unless EPA approves an earlier rescheduled date due to unforeseen events, such as delays that are caused by weather.

F. The Permittee shall provide, or cause to be provided, performance testing facilities as follows:

1. Sampling ports adequate for test methods applicable to this facility,
2. Safe sampling platform(s),
3. Safe access to sampling platform(s), and
4. Utilities for sampling and testing equipment.

G. Emission testing for the emergency engine (EPN: FWP-4), shall be performed every five years, plus or minus 6 months, from when the previous performance test was performed to verify continued performance at permitted emission limits.

## VII. Agency Notifications

Permittee shall submit GHG permit applications, permit amendments, and other applicable permit information to:

Multimedia Planning and Permitting Division  
EPA Region 6  
1445 Ross Avenue (6 PD-R)  
Dallas, TX 75202  
Email: Group R6AirPermits@EPA.gov

Permittee shall submit a copy of all compliance and enforcement correspondence as required by this Approval to Construct to:

Compliance Assurance and Enforcement Division  
EPA Region 6  
1445 Ross Avenue (6EN)  
Dallas, TX 75202