

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-1374-GHG

**PERMITTEE:** Indeck Wharton LLC  
600 N. Buffalo Grove Road, Suite 300  
Buffalo Grove, IL 60089

**FACILITY NAME:** Indeck Wharton Energy Center  
West off Route 71, ½ mile south of Danevang

**FACILITY LOCATION:** Danevang, TX

Pursuant to the provisions of the Clean Air Act (CAA), Subchapter I, Part C (42 U.S.C. § 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 Indeck Wharton LLC (Indeck) for Greenhouse Gas (GHG) emissions. The permit applies to the construction of a new natural gas-fired simple-cycle electric generating plant known as the Indeck Wharton Energy Center (IWEC) to be located near Danevang, Texas.

Indeck is authorized to construct a new natural gas-fired simple cycle electric generating plant 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. PSDTX1374. 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 Indeck 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)(3), this PSD permit becomes effective immediately upon issuance of this final decision.

  
for Wren Stenger, Director  
Multimedia Planning and Permitting Division

May 12, 2014  
Date

**Indeck Wharton Energy Center (PSD-TX-1374-GHG)  
Prevention of Significant Deterioration Permit  
For Greenhouse Gas Emissions  
Draft Permit Conditions**

## PROJECT DESCRIPTION

Indeck is proposing to construct a new 650 MW peaking power generating project based on three natural gas-fired simple-cycle combustion turbines. The primary objective of the proposed project is to provide peaking capability, which will be used during periods of increased demand for electricity. Due to the fluctuations in power requirements, the three new natural gas-fired simple-cycle turbines (215-225 MW each) are proposed to provide a fast ramp up for electricity generation during peak electricity demand periods. IWECC will consist of the following sources of GHG emissions:

- Three natural gas-fired simple cycle combustion turbines;
- One diesel-fired emergency generator;
- One diesel-fired fire water pump engine;
- One natural gas pipeline heater;
- Electrical equipment insulated with sulfur hexafluoride (SF<sub>6</sub>); and
- Fugitive emissions associated with the planned facility.

## EQUIPMENT LIST

The following devices are subject to this GHG PSD permit.

| FIN            | EPN               | Description                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 01<br>02<br>03 | GT1<br>GT2<br>GT3 | Three (nominal net) 215-225 MW Natural Gas-fired Simple Cycle "F" Class Combustion Turbine Generator (CTG) with a maximum net heat input rate of 9985 Btu/kWhr (HHV) for the GE 7FA.05 turbines or 10,462Btu/kWhr for the Siemens SGT-5000F(5) turbines at full load average ambient conditions. The turbines are limited to 2500 hours of operation on a 12-month rolling basis, exclusive of startup/shutdown operation. |
| 04             | EDG               | One emergency diesel generator engine (not to exceed 600 ekW) limited to 100 hours of non-emergency operation on a 12-month rolling total basis for maintenance and testing.                                                                                                                                                                                                                                               |
| 05             | FP                | One diesel fire water pump engine (not to exceed 175 hp) limited to 52 hours of non-emergency operation on a 12-month rolling total basis for maintenance and testing.                                                                                                                                                                                                                                                     |
| 06             | GH                | One 3 MMBtu/hr gas pipeline heater limited to 3500 hours of operation per 12-month rolling total basis.                                                                                                                                                                                                                                                                                                                    |

|    |     |                                                    |
|----|-----|----------------------------------------------------|
| 07 | SF6 | Fugitive SF <sub>6</sub> circuit breaker emissions |
| 08 | FUG | Fugitive emissions from various piping components  |

## **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.C.

### **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 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, and a copy of the letter shall be forwarded to EPA Region 6 within 30 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-1374 (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

**Table 1A. Annual Emission Limit – Option 1: GE 7FA.05 CT**

| FIN            | EPN               | Description                                           | GHG Mass Basis   |                                             | TPY<br>CO <sub>2</sub> e <sup>1,2,6</sup>   | BACT Requirements                                                                                                                                                                                                                                                                           |
|----------------|-------------------|-------------------------------------------------------|------------------|---------------------------------------------|---------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                |                   |                                                       |                  | TPY <sup>1</sup>                            |                                             |                                                                                                                                                                                                                                                                                             |
| 01<br>02<br>03 | GT1<br>GT2<br>GT3 | Natural Gas<br>Fired-Simple<br>Cycle<br>Turbine, each | CO <sub>2</sub>  | 320,703 <sup>3</sup>                        | 321,028 <sup>3</sup>                        | - BACT limit of 1,276 lb CO <sub>2</sub> /MW-hr (gross) on a 2,500 operational hour rolling basis, rolling daily, each turbine.<br>-Not to exceed 2,500 hours of operation on a 12-month rolling basis per turbine, excluding startup and shutdown.<br>-See permit condition III.A.2 and 4. |
|                |                   |                                                       | CH <sub>4</sub>  | 5.93 <sup>3</sup>                           |                                             |                                                                                                                                                                                                                                                                                             |
|                |                   |                                                       | N <sub>2</sub> O | 0.59 <sup>3</sup>                           |                                             |                                                                                                                                                                                                                                                                                             |
| 04             | EDG               | Emergency Diesel Generator                            | CO <sub>2</sub>  | 48.51                                       | 48.68                                       | - Not to exceed 100 hours of non-emergency operation on a 12-month rolling basis.<br>- See permit condition III.C.                                                                                                                                                                          |
|                |                   |                                                       | CH <sub>4</sub>  | 0.002                                       |                                             |                                                                                                                                                                                                                                                                                             |
|                |                   |                                                       | N <sub>2</sub> O | 0.0004                                      |                                             |                                                                                                                                                                                                                                                                                             |
| 05             | FP                | Firewater Pump Engine                                 | CO <sub>2</sub>  | 5.32                                        | 5.34                                        | - Not to exceed 52 hours of non-emergency operation on a 12-month rolling basis<br>- Use of Good Combustion Practices. See permit condition III.B.                                                                                                                                          |
|                |                   |                                                       | CH <sub>4</sub>  | .0004                                       |                                             |                                                                                                                                                                                                                                                                                             |
|                |                   |                                                       | N <sub>2</sub> O | 0.00003                                     |                                             |                                                                                                                                                                                                                                                                                             |
| 06             | GH                | Natural Gas Pipeline Heater                           | CO <sub>2</sub>  | 624.23                                      | 624.78                                      | - Not to exceed 3500 hours of operation on a 12-month rolling basis<br>- Use of Good Combustion Practices. See permit condition III.D.                                                                                                                                                      |
|                |                   |                                                       | CH <sub>4</sub>  | 0.01                                        |                                             |                                                                                                                                                                                                                                                                                             |
|                |                   |                                                       | N <sub>2</sub> O | 0.001                                       |                                             |                                                                                                                                                                                                                                                                                             |
| 07             | SF6               | Fugitive SF <sub>6</sub> Circuit Breaker Emissions    | SF <sub>6</sub>  | No Numerical Limit Established <sup>5</sup> | No Numerical Limit Established <sup>5</sup> | Work Practices. See permit condition III.E.                                                                                                                                                                                                                                                 |
| 08             | FUG               | Components Fugitive Leak Emissions                    | CH <sub>4</sub>  | No Numerical Limit Established <sup>5</sup> | No Numerical Limit Established <sup>5</sup> | Implementation of AVO Program. See permit condition III.F.                                                                                                                                                                                                                                  |



| FIN                 | EPN | Description | GHG Mass Basis   |                  | TPY<br>CO <sub>2</sub> e <sup>1,2,6</sup> | BACT Requirements |
|---------------------|-----|-------------|------------------|------------------|-------------------------------------------|-------------------|
|                     |     |             |                  | TPY <sup>1</sup> |                                           |                   |
| Totals <sup>4</sup> |     |             | CO <sub>2</sub>  | 962,787          | 965,959                                   |                   |
|                     |     |             | CH <sub>4</sub>  | 92.11            |                                           |                   |
|                     |     |             | N <sub>2</sub> O | 1.77             |                                           |                   |
|                     |     |             | SF <sub>6</sub>  | 0.015            |                                           |                   |

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. All emissions are expressed in terms of short tons.
2. Global Warming Potentials (GWP): CO<sub>2</sub> = 1, CH<sub>4</sub> = 25, N<sub>2</sub>O = 298, 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. All 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.
5. Total emissions include the PTE for fugitive emissions. Totals are given for informational purposes only and do not constitute emission limits.
6. Fugitive Leak Emissions from SF<sub>6</sub> and FUG are estimated to be 0.0153 TPY SF<sub>6</sub> (348.99 TPY CO<sub>2</sub>e) from SF61 and 0.02 TPY CO<sub>2</sub> and 74.3 TPY CH<sub>4</sub> (74.31 TPY CO<sub>2</sub>e) from FUG. In lieu of an emission limit, the emissions will be limited by implementing a design/work practice standard as specified in the permit.
7. Annual CO<sub>2</sub>e emissions in TPY are based on 12-month rolling total basis.

**Table 1B. Annual Emission Limit – Option 2: Siemens SGT-5000F(5)**

| FIN            | EPN               | Description                                           | GHG Mass Basis   |                      | TPY<br>CO <sub>2</sub> e <sup>1,2,7</sup> | BACT Requirements                                                                                                                                                                                                                                                |
|----------------|-------------------|-------------------------------------------------------|------------------|----------------------|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                |                   |                                                       |                  | TPY <sup>1</sup>     |                                           |                                                                                                                                                                                                                                                                  |
| 01<br>02<br>03 | GT1<br>GT2<br>GT3 | Natural Gas<br>Fired-Simple<br>Cycle<br>Turbine, each | CO <sub>2</sub>  | 358,165 <sup>3</sup> | 358,529 <sup>3</sup>                      | - BACT limit of 1,337 lb CO <sub>2</sub> /MWhr (gross) on a 2,500 operational hour rolling basis, rolling daily, each turbine.<br>-Not to exceed 2,500 hours of operation on a 12-month rolling total basis per turbine.<br>-See permit condition III.A.2 and 4. |
|                |                   |                                                       | CH <sub>4</sub>  | 6.63 <sup>3</sup>    |                                           |                                                                                                                                                                                                                                                                  |
|                |                   |                                                       | N <sub>2</sub> O | 0.66 <sup>3</sup>    |                                           |                                                                                                                                                                                                                                                                  |
| 04             | EDG               | Emergency<br>Diesel<br>Generator                      | CO <sub>2</sub>  | 48.51                | 48.68                                     | - Not to exceed 100 hours of non-emergency operation on a 12-month rolling total basis<br>- See permit condition III.C.                                                                                                                                          |
|                |                   |                                                       | CH <sub>4</sub>  | 0.002                |                                           |                                                                                                                                                                                                                                                                  |
|                |                   |                                                       | N <sub>2</sub> O | 0.0004               |                                           |                                                                                                                                                                                                                                                                  |

| FIN                       | EPN             | Description                                                 | GHG Mass Basis   |                                                      | TPY<br>CO <sub>2</sub> e <sup>1,2,7</sup>            | BACT Requirements                                                                                                                                        |
|---------------------------|-----------------|-------------------------------------------------------------|------------------|------------------------------------------------------|------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
|                           |                 |                                                             |                  | TPY <sup>1</sup>                                     |                                                      |                                                                                                                                                          |
| 05                        | FP              | Firewater<br>Pump Engine                                    | CO <sub>2</sub>  | 5.32                                                 | 5.34                                                 | - Not to exceed 52 hours of non-emergency operation on a 12-month rolling total basis<br>- Use of Good Combustion Practices. See permit condition III.B. |
|                           |                 |                                                             | CH <sub>4</sub>  | 0.0002                                               |                                                      |                                                                                                                                                          |
|                           |                 |                                                             | N <sub>2</sub> O | 0.00004                                              |                                                      |                                                                                                                                                          |
| 06                        | GH              | Natural Gas<br>Pipeline<br>Heater                           | CO <sub>2</sub>  | 624.23                                               | 624.78                                               | - Not to exceed 3500 hours of operation on a 12-month rolling total basis<br>- Use of Good Combustion Practices. See permit condition III.D.             |
|                           |                 |                                                             | CH <sub>4</sub>  | 0.01                                                 |                                                      |                                                                                                                                                          |
|                           |                 |                                                             | N <sub>2</sub> O | 0.001                                                |                                                      |                                                                                                                                                          |
| 07                        | SF <sub>6</sub> | Fugitive SF <sub>6</sub><br>Circuit<br>Breaker<br>Emissions | SF <sub>6</sub>  | No<br>Numerical<br>Limit<br>Established <sup>6</sup> | No<br>Numerical<br>Limit<br>Established <sup>6</sup> | Work Practices. See permit condition III.E.                                                                                                              |
| 08                        | FUG             | Components<br>Fugitive<br>Leak<br>Emissions                 | CH <sub>4</sub>  | No<br>Numerical<br>Limit<br>Established <sup>6</sup> | No<br>Numerical<br>Limit<br>Established <sup>6</sup> | Implementation of AVO Program. See permit condition III.F.                                                                                               |
| <b>Totals<sup>5</sup></b> |                 |                                                             | CO <sub>2</sub>  | 1,075,173                                            | <b>1,078,460</b>                                     |                                                                                                                                                          |
|                           |                 |                                                             | CH <sub>4</sub>  | 94.2                                                 |                                                      |                                                                                                                                                          |
|                           |                 |                                                             | N <sub>2</sub> O | 1.98                                                 |                                                      |                                                                                                                                                          |
|                           |                 |                                                             | SF <sub>6</sub>  | 0.015                                                |                                                      |                                                                                                                                                          |

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. All emissions are expressed in terms of short tons.
2. Global Warming Potentials (GWP): CO<sub>2</sub> = 1, CH<sub>4</sub> = 25, N<sub>2</sub>O = 298, 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. All 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.
5. Total emissions include the PTE for fugitive emissions. Totals are given for informational purposes only and do not constitute emission limits.
6. Fugitive Leak Emissions from SF<sub>6</sub> and FUG are estimated to be 0.0153 TPY SF<sub>6</sub> (348.99 TPY CO<sub>2</sub>e) from SF<sub>6</sub>1 and 0.02 TPY CO<sub>2</sub> and 74.3 TPY CH<sub>4</sub> (74.31 TPY CO<sub>2</sub>e) from FUG. In lieu of an emission limit, the emissions will be limited by implementing a design/work practice standard as specified in the permit.
7. Annual CO<sub>2</sub>e emissions in TPY are based on 12-month rolling total basis.

### III. SPECIAL PERMIT CONDITIONS

#### A. Requirements for the Natural Gas-Fired Simple Cycle Turbines (EPNs: GT1, GT2, and GT3)

The Permittee shall comply with Table 1A or 1B depending on the selection of manufacturer and model of simple cycle combustion turbine selected. Upon selection of a combustion turbine model, Indeck must submit a permit application amendment to remove the turbine model not selected.

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

**2. Turbine BACT Requirements:**

- a. The output-based emission limit for each turbine is 1,276 lbs of CO<sub>2</sub>/MWhr gross output for the GE turbines or 1,337 lbs CO<sub>2</sub>/MWhr gross output for the Siemens turbines based on each turbine's daily CO<sub>2</sub> emissions measured using a Continuous Emissions Monitoring System (CEMS) and divided by each turbine's measured gross electrical output. Each day a combustion turbine operates, the Permittee shall calculate, 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 measurement of the CO<sub>2</sub> CEMS and the procedures and Global Warming Potentials (GWP) contained in the Greenhouse Gas Regulations, 40 CFR Part 98, Subpart A, Table A-1 for CH<sub>4</sub> and N<sub>2</sub>O. Compliance shall be based on a 365-day rolling basis.
- c. The annual quantity of fuel used by each turbine (EPNs GT1, GT2, and GT3) shall not exceed 5,394,500 MMBtu (HHV) for the GE turbines or 6,024,650 MMBtu (HHV) for the Siemens turbines. Each day a combustion turbine operates, the Permittee shall calculate the quantity of fuel used by each turbine over the previous 12-month rolling 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 GT1, GT2, and GT3) is limited to 2,500 operational hours on a 12-month rolling basis, which shall include periods of startup and shutdown.

### 3. Turbine Work Practice and Operational Requirements:

- a. The Permittee shall determine the pounds of CO<sub>2</sub> emitted hourly from each turbine using the procedure provided in 40 CFR § 75.13(b) or (c). If 40 CFR § 75.13(c) is used, the Permittee shall determine hourly CO<sub>2</sub> concentration and mass emissions with a flow monitoring system; a continuous O<sub>2</sub> concentration monitor; fuel F and F<sub>c</sub> factors; and, where O<sub>2</sub> concentration is measured on a dry basis (or where Equation F-14b in appendix F to this part is used to determine CO<sub>2</sub> concentration), either, a continuous moisture monitoring system, as specified in 40 CFR § 75.11(b)(2), or a fuel-specific default moisture percentage (if applicable), as defined in 40 CFR § 75.11(b)(1); and by using the methods and procedures specified in appendix F to 40 CFR Part 75.
- b. The CEMS required by this permit shall be installed, calibrated, operated, audited, tested and maintained in accordance with the manufacturer's recommendations and the appropriate performance standards and quality assurance requirements in the appendices of either 40 CFR Part 60 or 40 CFR Part 75.
- c. If 40 CFR § 75.13(c) is used to determine CO<sub>2</sub> emissions, for each turbine, an O<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 shall be installed and operated for all operating hours, including startup and shutdown. Otherwise, all monitoring requirements as specified under 40 CFR § 75.13(b) shall be used to determine CO<sub>2</sub> emissions. The measurement from each turbine's CEMS shall be used to show compliance with the emission limit in Table 1A (for GE turbines) or Table 1B (for Siemens turbines).
- d. The Permittee shall ensure that all required monitoring systems/equipment are installed, GCV fuel sampling equipment is installed, and all certification tests are completed on or before the earlier of 90 unit operating days or 180 calendar days after the date the unit commences operation.
- e. In addition to any recordkeeping requirements contained in this permit, the Permittee shall maintain the following records for at least five years from the date of origin:
  - i. One-hour measured O<sub>2</sub> emission averages,
  - ii. One-hour calculated CO<sub>2</sub> emission averages,
  - iii. The results of all calibration and linearity checks, and
  - iv. RATA test plans and reports of test results.
- f. The Permittee shall ensure compliance with the specifications and test procedures for CO<sub>2</sub> emission monitoring system at stationary sources, 40 CFR Part 75, or 40 CFR Part 60, Appendix B, Performance Specification numbers 1 through 9, as applicable.
- g. The Permittee shall calculate the pounds of CH<sub>4</sub> and N<sub>2</sub>O emitted each

calendar day by 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).

- h.** For each turbine, fuel metering shall include:
  - i.** Measurement and recording of the natural gas flow rate using an operational non-resettable elapsed flow meter installed at each turbine inlet, or a natural gas flow meter which meets the requirements of 40 CFR Part 75 Appendix D,
  - ii.** Recording the total amount of fuel combusted for each turbine on an hourly basis, and
  - iii.** The fuel gross calorific value (GCV), high heat value (HHV), carbon content, and, if applicable, molecular weight of the fuels shall be determined monthly according to the procedures contained in 40 CFR § 98.34(b)(3). Records of the fuel GCV shall be maintained for a minimum period of five years. Upon request, the Permittee shall provide a sample and/or analysis of the fuel that is fired in any unit covered by this permit at the time of the request, or shall allow a sample to be taken by EPA for analysis.
- i.** The Permittee shall calibrate and perform preventative maintenance checks of the fuel gas flow meters and document annually.
- j.** The gross energy output (MWh gross) for each turbine shall be measured and recorded on an hourly basis.
- k.** The Permittee shall substitute data per the Missing Data Substitution Procedures specified under 40 CFR Part 75, Subpart D.

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

- a.** The 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.
  - 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-NO<sub>x</sub> combustion mode is achieved (which equates to approximately 40% combustion turbine load) plus 15 minutes. A startup time is limited to 30 total minutes.
  - 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-NO<sub>x</sub> 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 event will also end if the combustion

turbine is instructed to return to normal operating low-NO<sub>x</sub> combustion operating mode and subsequently achieves normal operating low-NO<sub>x</sub> combustion mode. A shutdown is limited to 10 minutes.

- b. 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. Startups and shutdowns are limited to no more than 30 minutes per event.
  - ii. No more than 300 startup and shutdown events per turbine on a 12-month rolling total basis.

## **B. Requirements for the Firewater Pump Engine (EPN: FP)**

**1. Fuel Specification:** The fuel for the firewater pump is limited to containing no more than 0.0015 percent sulfur by weight, ultra-low sulfur diesel (ULSD) fuel.

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

- a. The firewater pump shall not exceed 52 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 elapsed time meter for the firewater pump.
- c. The Permittee shall install and maintain a non-resettable elapsed flue flow meter for the firewater pump.
- d. The engine shall meet the requirements of 40 CFR Part 60 Subpart IIII, Standards of Performance for Stationary Compression Ignition Combustion Engines.

## **C. Requirements for the Emergency Diesel Generator (EPN: EDG)**

**1. Fuel Specification:** The fuel for the emergency diesel generator is limited to containing no more than 0.0015 percent sulfur by weight, ultra-low sulfur diesel (ULSD) fuel.

### **2. Emergency Diesel Generator Work Practice and Operational Requirements:**

- a. The emergency diesel generator 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 elapsed time meter for the emergency diesel generator.
- c. The Permittee shall install and maintain a non-resettable elapsed fuel flow meter for



the emergency diesel generator.

- d. The engine shall meet the requirements of 40 CFR Part 60, Subpart IIII, Standards of Performance for Stationary Compression Ignition Combustion Engines.

#### **D. Requirements for the Natural Gas Pipeline Heater (EPN: GH)**

1. **Fuel Specification:** The fuel for the Natural Gas Pipeline Heater is limited to pipeline quality natural gas as a fuel.

2. **Natural Gas Pipeline Heater Work Practice and Operational Requirements:**

- a. The natural gas pipeline heater shall not exceed 2,500 hours of operation plus 1,000 hours to include startups and shutdowns 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 elapsed time meter for the natural gas pipeline heater.
- c. The Permittee shall install and maintain a non-resettable elapse flue flow meter for the natural gas pipeline heater.
- d. The Permittee shall calculate and record the operating thermal efficiency of the 3.0 MMBtu/hr natural gas heater on a monthly basis.
- e. On a monthly basis, the Permittee shall use the annual heat input (calculated using the data obtained from monitoring required by Conditions III.D.2.b and c) and data from 40 CFR Part 98, Table C-1 to calculate and record CO<sub>2</sub>e emissions from the 3.0 MMBtu/hr natural gas heater on a 12-month rolling total basis.

#### **E. Requirements for the Fugitive SF<sub>6</sub> Circuit Breaker (EPN: SF6)**

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

- a. 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 1,380 lb with leak detection.
- b. The circuit breakers shall be equipped with a low pressure alarm and low pressure lockout.

#### **F. Requirements for the Components Fugitive Leaks (EPN: FUG)**

1. **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.

- b. AVO monitoring shall be performed daily.
- c. Any component found to be leaking during remote sensing or AVO monitoring shall be repaired within 15 days.
- d. Records of the daily AVO monitoring results shall be maintained on site.

#### **IV. Recordkeeping and Reporting**

##### **1. Records**

**A.** 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.

- 1. Operating hours for all air emission sources authorized by this permit;
- 2. Records of the fuel consumed by each source authorized by this permit;
- 3. Records of run time meter and fuel flow meter measurements for the fire pump engine, emergency generator, and the natural gas pipeline heater;
- 4. The fuel usage for all combustion sources 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;
- 5. Semi-annual fuel sampling for natural gas or other frequencies as allowed by 40 CFR § 98.34(b)(3).

**B.** The Permittee shall maintain records of the following for GHG emissions from the Equipment List: all records or reports pertaining to significant maintenance performed; the number and duration of startups and shutdowns; 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.

**C.** The 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.

- D. The 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.
- E. The 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:
  - 1. Time intervals, date and magnitude of the excess emissions, the nature and cause (if known), corrective actions taken and preventive measures adopted;
  - 2. Time and date of each period during which the monitoring equipment was inoperative (monitoring down-time);
  - 3. If there have been no excess emissions or monitoring downtime during the reporting period, a statement to that effect;
  - 4. Any failure to conduct any required source testing, monitoring, or other compliance activities; and
  - 5. Any violation of limitations on operation, including but not limited to restrictions on hours of operation of the emergency generator or fire pump.
- F. 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 at an emission unit listed in the Equipment List that results in excess GHG emissions, or any other unauthorized GHG emissions occur.
- G. 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.
- H. Instruments and monitoring systems required by this PSD permit shall have a 95% on-stream time on an annual basis.

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. 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 three turbines (EPNs GT1, GT2, and GT3) 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>. Alternately, the procedures of 40 CFR § 75.13(b) and Appendices F and G

(using fuel flow data and  $F_c$  factors) may be used to determine hourly CO<sub>2</sub> emissions.

- B.** 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. Multiply the CO<sub>2</sub> hourly average emission rate determined by the sum of emissions for three runs at or above 90% of maximum load by 2,500 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.
- C.** 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 EPA. Additional sampling may be required by TCEQ or EPA.
- D.** 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.
- E.** Performance tests shall be conducted under such conditions to ensure representative performance of the affected facility. The Permittee shall make available to EPA such records as may be necessary to determine the conditions of the performance tests.
- F.** The Permittee shall provide EPA at least 30 days' prior notice of any performance test, except as specified under other subparts, to afford 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.
- G.** 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.

**H.** The Permittee shall conduct its initial O<sub>2</sub> CEMS relative accuracy test audit (RATA), in accordance with 40 CFR Part 60, Appendix F, Procedure 1, to evaluate compliance of each turbine with the emission standards on a continuous basis, on or before the earlier of 90 unit days or 180 calendar days after the date the unit commences operation.

## **VI. 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