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 1378-GHG

PERMITTEE: Tenaska Roan's Prairie Partners, LLC
14302 FNB Parkway
Omaha, NE 68154-5212

FACILITY NAME: Tenaska Roan's Prairie Generating Station

FACILITY LOCATION: Shiro, TX 77873

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 Tenaska Roan's Prairie Partners, LLC (TRPP) for greenhouse gas (GHG) emissions. The permit applies to three natural gas-fired simple-cycle combustion turbines, one diesel-powered emergency generator, one diesel-powered firewater pump engine, and fugitive emissions from seven circuit breakers and piping components at the new facility located near Shiro in Grimes County, Texas.

Tenaska Roan's Prairie Generating Station (RPGS) 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 permit application to Texas Commission on Environmental Quality (TCEQ). 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 TRPP 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.

Wren Stenger, Director
Multimedia Planning and Permitting Division

8/1/14
Date

Tenaska Roan's Prairie Generating Station
Prevention of Significant Deterioration Permit
For Greenhouse Gas Emissions
Permit Conditions

PROJECT DESCRIPTION

TRPP is proposing to construct three new simple cycle turbines in one of the following power generation configuration options (ratings are nominal at 69 °F ambient dry bulb):

1. Three Siemens SGT6-5000F(5ee) turbines, each rated at 231MW;
2. Three GE 7FA.05 turbines, each rated at 212 MW, or;
3. Three GE 7FA.04 turbines, each rated at 176 MW.

The primary objective of the proposed project is to provide peaking power 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 turbine configurations (507 to 694 MWe total nominal gross outputs) 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 two diesel-powered emergency engines, seven circuit breakers, and fugitive emissions.

EQUIPMENT LIST

The following devices are subject to this GHG PSD permit.

FIN	EPN	Description
TURB1 TURB2 TURB3	TURB1 TURB2 TURB3	One of the following gas-fired simple-cycle combustion turbine options (ratings are nominal at 69 °F ambient dry bulb): 1. Three Siemens SGT6-5000F(5ee) turbines, each rated at 231 MW. 2. Three GE 7FA.05 turbines, each rated at 212 MW. 3. Three GE 7FA.04 turbines, each rated at 176 MW.
FWPUMP	FWPUMP	One emergency diesel-powered engine (not to exceed 575 hp) for the firewater pump. In addition to emergency fire suppression activities, the unit is limited to 100 hrs of non-emergency operation on a 12-month rolling basis for maintenance and testing.
EMGEN	EMGEN	Diesel-powered emergency generator (2,937 hp). In addition to emergency outages, the unit is limited to 100 hrs of non-emergency operation on a 12-month rolling basis for maintenance and testing.
CBFUG	CBFUG	Fugitive SF_6 circuit breaker emissions
FUG	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 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. 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 (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_4	Methane
CO_2	Carbon Dioxide
CO_2e	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_2O	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
SF6	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 1. Annual Emission Limit – Siemens –SGT6-5000F(5ee) CT Annual emissions, in tons per year (TPY) on a 12-month, rolling total, shall not exceed the following						
FIN	EPN	Description	GHG Mass Basis		TPY CO_2e[1,2]	BACT Requirements
				TPY		
TURB1 TURB2 TURB3	TURB1 TURB2 TURB3	Natural Gas Fired Simple Cycle Turbine	CO_2	1,277,862[3]	1,279,154[3]	BACT limit of 1,334 lb CO_2/MW-hr (gross) on a 2,920 hour rolling basis, rolling daily, each turbine. Not to exceed 2,920 hours of operation on a 12-month rolling basis per turbine. See permit condition III.A.2 and 4.
			CH_4	23.57[3]		
			N_2O	2.36[3]		
TURB1 TURB2 TURB3	TURB1 TURB2 TURB3	Natural Gas Fired Simple Cycle Turbine – Startup and Shut down	CO_2	9801[3]	9,803[3]	Each event limited to 8.95 tons CO_2 per turbine. Limit of 365 events per turbine on a 12-month rolling total. Maximum heat input during startup limited to 1,857 MMBtu/hr per turbine See Special Condition III.A.4.b. through e.
			CH_4	0.06[3]		
			N_2O	No Numerical Limit Established[3,4]		
FWPUMP	FWPUMP	Diesel-powered Engine for Firewater Pump	CO_2	33	33	- Not to exceed 100 hours of non-emergency operation on a 12-month rolling basis - Use of Good Combustion Practices. - See permit condition III.B.
			CH_4	No Numerical Limit Established[4]		
			N_2O	No Numerical Limit Established[4]		
EMGEN	EMGEN	Diesel-powered Emergency Generator	CO_2	156	156	-Not to exceed 100 hours of non-emergency operation on a 12-month rolling basis - Use of Good Combustion Practices. - See permit condition III.C.
			CH_4	0.01		
			N_2O	No Numerical Limit Established[4]		
CBFUG	CBFUG	Fugitive SF_6 Circuit Breaker Emissions	SF_6	No Numerical Limit Established[5]	No Numerical Limit Established[5]	Maintenance and Implementation of AVO Program. See permit condition III.D.

Table 1. Annual Emission Limit – Siemens –SGT6-5000F(5ee) CT Annual emissions, in tons per year (TPY) on a 12-month, rolling total, shall not exceed the following						
FIN	**EPN**	**Description**	**GHG Mass Basis**		**TPY CO_2e[1,2]**	**BACT Requirements**
				TPY		
FUG	FUG	Component Fugitive Leak Emissions	CO_2	No Numerical Limit Established[6]	No Numerical Limit Established[6]	Implementation of AVO Program. See permit condition III.E.
			CH_4	No Numerical Limit Established[6]		
Totals[7]			CO_2	1,287,852.55	**CO_2e 1,289,432**	
			CH_4	26.99		
			N_2O	2.36		
			SF_6	0.01		

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_2=1, CH_4 = 25, N_2O = 298, SF_6=22,800
3. The GHG Mass Basis TPY limit and the CO2e TPY limit are for the three natural gas fired simple cycle turbines combined.
4. 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.
5. SF_6 fugitive emissions from EPN CBFUG are estimated to be less than 0.01 TPY of SF_6 and 200 TPY of CO_2e. In lieu of an emission limit, the emissions will be limited by using state of the art SF_6 circuit breakers with leak detection.
6. Fugitive Leak Emissions from EPN FUG are estimated to be 0.18 TPY CO_2, 3.3 TPY CH_4, and 82.65 TPY CO_2e. In lieu of an emission limit, the emissions will be limited by implementing a design/work practice standard as specified in the permit.
7. Total emissions include the PTE for fugitive emissions. Totals are given for informational purposes only and do not constitute emission limits.

Table 2. Annual Emission Limit – GE 7FA.04 CT Annual emissions, in tons per year (TPY) on a 12-month, rolling total, shall not exceed the following						
FIN	**EPN**	**Description**	**GHG Mass Basis**		**TPY CO_2e[1,2]**	**BACT Requirements**
				TPY		
TURB1 TURB2 TURB3	TURB1 TURB2 TURB3	Natural Gas Fired-Simple Cycle Turbine, each	CO_2	1,150,650[3]	1,151,813[3]	BACT limit of 1,321 lb CO_2/MW-hr (gross) on a 2,920 hour rolling basis, rolling daily, each turbine. Not to exceed 2,920 hours of operation on a 12-month rolling basis per turbine. See permit condition III.A.2 and 4
			CH_4	21.22[3]		
			N_2O	2.12[3]		
TURB1 TURB2 TURB3	TURB1 TURB2 TURB3	Natural Gas Fired Simple Cycle Turbine – Startup and Shut down	CO_2	11,715[3]	11,717[3]	Each event limited to 10.69 tons CO_2 per turbine. Limit of 365 events per turbine on a 12-month rolling total. Maximum heat input during startup limited to 1,603 MMBtu/hr per turbine.See Special Condition III.A.4.b. through e.
			CH_4	0.07[3]		
			N_2O	No Numerical Limit Established[3, 4]		

Table 2. Annual Emission Limit – GE 7FA.04 CT Annual emissions, in tons per year (TPY) on a 12-month, rolling total, shall not exceed the following						
FIN	**EPN**	**Description**	**GHG Mass Basis**		**TPY CO_2e[1,2]**	**BACT Requirements**
				TPY		
FWPUMP	FWPUMP	Diesel-powered Engine for Firewater Pump	CO_2	33	33	Not to exceed 100 hours of non-emergency operation on a 12-month rolling basis Use of Good Combustion Practices. See permit condition III.B.
			CH_4	No Numerical Limit Established[4]		
			N_2O	No Numerical Limit Established[4]		
EMGEN	EMGEN	Diesel-powered Emergency Generator	CO_2	156	156	Not to exceed 100 hours of non-emergency operation on a 12-month rolling basis Use of Good Combustion Practices. See permit condition III.C.
			CH_4	0.01		
			N_2O	No Numerical Limit Established[4]		
CBFUG	CBFUG	Fugitive SF_6 Circuit Breaker Emissions	SF_6	No Numerical Limit Established[5]	No Numerical Limit Established[5]	Maintenance and implementation of AVO Program. See permit condition III.D.
FUG	FUG	Components Fugitive Leak Emissions	CO_2	No Numerical Limit Established[6]	No Numerical Limit Established[6]	Implementation of AVO Program. See permit condition III.E.
			CH_4	No Numerical Limit Established[6]		
Totals[7]			CO_2	1,162,554	**1,164,005**	
			CH_4	24.64		
			N_2O	2.12		
			SF_6	0.01		

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_2=1, CH_4 = 25, N_2O = 298, SF_6=22,800
3. The GHG Mass Basis TPY limit and the CO_2e TPY limit are for the three natural gas fired simple cycle turbines combined.
4. 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.
5. SF_6 fugitive emissions from EPN CBFUG are estimated to be less than 0.01 TPY of SF_6 and 200 TPY of CO_2e. In lieu of an emission limit, the emissions will be limited by using state of the art SF_6 circuit breakers with leak detection.
6. Fugitive Leak Emissions from EPN FUG are estimated to be 0.18 TPY CO_2, 3.3 TPY CH_4, and 82.65 TPY CO_2e. In lieu of an emission limit, the emissions will be limited by implementing a design/work practice standard as specified in the permit.
7. Total emissions include the PTE for fugitive emissions. Totals are given for informational purposes only and do not constitute emission limits.

Table 3. Annual Emission Limit – GE 7FA.05 CT
Annual emissions, in tons per year (TPY) on a 12-month, rolling total, shall not exceed the following

FIN	EPN	Description	GHG Mass Basis		TPY CO_2e[1,2]	BACT Requirements
				TPY[1]		
TURB1 TURB2 TURB3	TURB1 TURB2 TURB3	Natural Gas Fired-Simple Cycle Turbine, each	CO_2	1,244,442[3]	1,245,700[3]	BACT limit of 1,310 lb CO_2/MW-hr (gross) on a 2,920 hour rolling basis, rolling daily, each turbine. Not to exceed 2,920 hours of operation on a 12-month rolling basis per turbine. See permit condition III.A.2 and 4.
			CH_4	22.95[3]		
			N_2O	2.30[3]		
TURB1 TURB2 TURB3	TURB1 TURB2 TURB3	Natural Gas Fired Simple Cycle Turbine – Startup and Shut down	CO_2	13,275[3]	13,277[3]	Each event limited to 12.12 tons CO per turbine. Limit of 365 events per turbine on a 12-month rolling total. Maximum heat input during startup limited to 1,774 MMBtu/hr per turbine. See Special Condition III.A.4.b. through e.
			CH_4	0.07[3]		
			N_2O	No Numerical Limit Established[3, 4]		
FWPU MP	FWPU MP	Diesel-powered Engine for Firewater Pump	CO_2	33	33	Not to exceed 100 hours of non-emergency operation on a 12-month rolling basis. Use of Good Combustion Practices. See permit condition III.B.
			CH_4	No Numerical Limit Established[4]		
			N_2O	No Numerical Limit Established[4]		
EMGEN	EMGEN	Diesel-powered Emergency Generator	CO_2	156	156	Not to exceed 100 hours of non-emergency operation on a 12-month rolling basis Use of Good Combustion Practices. See permit condition III.C.
			CH_4	0.01		
			N_2O	No Numerical Limit Established[4]		
CBFUG	CBFUG	Fugitive SF_6 Circuit Breaker Emissions	SF_6	No Numerical Limit Established[5]	No Numerical Limit Established[5]	Maintenance and implementation of AVO Program. See permit condition III.D.
FUG	FUG	Components Fugitive Leak Emissions	CO_2	No Numerical Limit Established[6]	No Numerical Limit Established[6]	Implementation of AVO Program. See permit condition III.E.
			CH_4	No Numerical Limit Established[6]		
Totals[7]			CO_2	1,257,907	**CO_2e 1,259,452**	
			CH_4	26.37		
			N_2O	2.3		
			SF_6	0.01		

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_2=1, CH_4 = 25, N_2O = 298, SF_6=22,800
3. The GHG Mass Basis TPY limit and the CO_2e TPY limit are for the three natural gas fired simple cycle turbines combined.
4. 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.
5. SF_6 fugitive emissions from EPN CBFUG are estimated to be less than 0.01 TPY of SF_6 and 200TPY of CO_2e. In lieu of an emission limit, the emissions will be limited by using state of the art SF_6 circuit breakers with leak detection.
6. Fugitive Leak Emissions from EPN FUG are estimated to be 0.18 TPY CO_2, 3.3 TPY CH_4, and 82.65 TPY CO_2e. In lieu of an emission limit, the emissions will be limited by implementing a design/work practice standard as specified in the permit.
7. 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: TURB1, TURB2, and TURB3)

1. Fuel Specifications:

The fuel for each turbine shall be pipeline quality natural gas.

2. Turbine BACT Requirements:

a. Depending upon the turbine model selected by TRPP, the applicable BACT limit specified in Table 1, 2, or 3 shall not be exceeded for the corresponding turbine model. The BACT limit for each proposed turbine is based on a 2,920 rolling operational hour basis, calculated daily using equations for CO_2 provided in 40 CFR Part 75, Appendix G, Procedure 2.3 or a Continuous Emissions Monitoring System (CEMS) and divided by each turbine's measured gross electrical output. The Permittee shall calculate each day a combustion turbine operates the CO_2 emissions over the rolling 2,920 hours of operation basis divided by its 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_2e emitted from each turbine in tons per year based on the measurement of the calculation of the CO_2 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_4 and N_2O. Compliance shall be based on a 12-month rolling basis. Depending upon the selected turbine model, the annual quantity of fuel used by each GE 7FA.05, GE FA.04 or SGT6-5000F(5ee) turbine shall not exceed 6,129,560 MMBtu (HHV), 5,156,210 MMBtu (HHV) or 6,785,520 MMBtu (HHV), respectively, in any 2,920 operational hour rolling period. The Permittee shall calculate, each day a combustion turbine operates, the quantity of fuel used by each turbine over the trailing 365-day 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.

c. Each turbine (EPNs: TURB1, TURB2, and TURB3) is limited to 2,920 operational hours per turbine, including periods of startup and shutdown, on a 12-month rolling basis.

d. The BACT emission limitations in Special Condition III.A.2.a. does not include periods of startup and shutdown.

3. Turbine Work Practice and Operational Requirements:

a. The Permittee shall determine the pounds of CO_2 emitted hourly from each turbine using the equation G-4 of 40 CFR Part 75, Appendix G and the hourly average heat input rate using the heat input calculation procedures contained in 40 CFR Part 75, Appendix F, equation F-20. The CO_2 emission factor used in the Appendix G calculation procedure may be the generic factor provided in equation G-4 or a factor based on fuel composition and GCV measurements

according to 40 CFR Part 75, Appendix F, equation F-7b.

b. The Permittee shall install, calibrate, and operate a fuel flow meter that is providing fuel to the combustion turbine. Permittee shall perform monthly fuel sampling and analysis to determine GCV. Permittee shall meet all applicable requirements, including certification testing as specified in 40 CFR Part 75, Appendix D and 40 CFR Part 60 to be used in conjunction with the F_c factor based on the procedures to calculate the CO_2 emission rate in 40 CFR Part 75, Appendix F.
c. As an alternative to Special Condition III.A.2.a, the Permittee may install a CO_2 CEMS and the CEMS shall include an automated data acquisition and handling system for measuring and recording CO_2 emissions discharged to the atmosphere for all operating hours, including startup and shutdown. The measurement of CO_2 shall be used to show compliance with the emission limit in Tables 1, 2 or 3.
d. The Permittee shall ensure that all required CO_2 monitoring system/equipment are 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. The Permitee shall maintain the following records for at least five years from the date or origin:
    i. One-hour measured CO_2 emission averages.
    ii. The results of all calibration and linearity checks.
    iii. RATA test plans and reports of test results, as applicable.
f. The Permittee shall ensure compliance with the specifications and test procedures for a CO_2 emission measurement system at stationary sources in 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_4 and N_2O emitted each calendar day by using the default CH_4 and N_2O 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.
    ii. Recording the total amount of fuel combusted for each turbine on a hourly basis.
    iii. The fuel gross calorific value (GCV), high heat value (HHV), carbon content and, if applicable, molecular weight of the fuels shall be determined by 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, 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. Permitee shall calibrate and perform preventative maintenance check 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. 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. Permitee 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 the 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.
    ii. A shutdown of the turbine is defined as the time period that begins when the combustion turbine drops out of the normal operating low-NOx combustion mode following an instruction to shut down, and ends when a flame is no longer detected in the combustion turbine combustor. A shutdown event will also end if the combustion turbine is instructed to return to normal operating low-NOx combustion operating mode and subsequently achieves normal operating low-NOx combustion mode.

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. A total duration of startup and shutdown is limited to no more than 25 minutes (for Siemens turbine) and 40 minutes (for GE turbines) per event.
    ii. No more than 365 startup and shutdown events per turbine on a 12-month rolling basis.

c. Start up and shutdown emissions shall not exceed the BACT emission limit of 12.12 tons CO_2 per event for the GE 7FA.05 combustion turbine, 10.69 tons CO_2 per event for the GE 7FA.04 combustion turbine or 8.95 tons CO_2 per event for the SGT6-5000F(5ee) combustion turbine, and an annual emission limit of 4,425 tons CO_2/yr for the GE 7FA.05 combustion turbine, 3,905 tons CO_2/yr for the GE 7FA.04 combustion turbine, or 3,267 tons CO_2/yr for the SGT6-5000F(5ee) combustion turbine.

d. The maximum heat input during startup shall be limited to 1,774 MMBtu/hr for the GE 7FA.05 combustion turbine, 1,603 MMBtu/hr for the GE FA.04 combustion turbine or 1,857 MMBtu/hr for the SGT6-5000F(5ee) combustion turbine.

e. The Permitee 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_2 emissions. The records must include hourly CO_2 emission levels as measured by the fuel flow meter and/or O_2 emission monitor (or CO_2 CEMS with volumetric stack gas flowrate) and the calculations based on the actual heat input for the CO_2, CO_2e, and CH_4 emissions during each startup and shutdown event based on the equations represented in the permit application. These records must be kept for five years.

B. Requirements for the Diesel-Powered Firewater Pump Engine (EPN: FWPUMP)

1. Fuel Specification:

The fuel for the firewater pump engine is limited to ultra-low sulfur diesel (ULSD) fuel.

2. Firewater Pump Engine 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.
c. The permittee shall install and maintain a non-resettable elapsed fuel flow meter.
d. The engine shall meet the requirements of 40 CFR Part 60, Subpart IIII, Standards of Performance for Stationary Compression Ignition Combustion Engines.
e. The Permittee shall calculate annual CO_2 and CH_4 emissions using the emission factors used in the permit application on a calendar year basis. These emissions data and the GWP contained in the Greenhouse Gas Regulations, 40 CFR Part 98, Subpart A, Table A-1for CH_4 shall be used to calculate CO_2e emissions on a calendar year basis.

C. Requirements for the Diesel-Powered Emergency Generator (EPN: EMGEN)

1. Fuel Specification:

The fuel for the emergency generator is limited to ultra-low sulfur diesel (ULSD) fuel.

2. Emergency Generator Work Practice and Operational Requirements:

a. The emergency 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 elapse time meter.
c. The permittee shall install and maintain a non-resettable elapsed fuel flow meter.
d. The emergency generator shall meet the requirements of 40 CFR Part 60, Subpart IIII, Standards of Performance for Stationary Compression Ignition Combustion Engines.
e. The Permittee shall calculate annual CO_2 and CH_4 emissions using the emission factors used in the permit application on a calendar year basis. These emissions data and the GWP contained in the Greenhouse Gas Regulations, 40 CFR Part 98, Subpart A, Table A-1for CH_4 shall be used to

calculate CO_2e emissions on a calendar year basis.

D. Requirements for the Fugitive SF_6 Circuit Breaker (EPN: CBFUG)

- **Fugitive SF_6 Circuit Breaker Work Practice and Operation Requirements:**

a. For EPN CBFUG, SF_6 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_6 inventory of the circuit breakers shall not exceed 3500 lb with leak detection.
b. The circuit breakers shall be equipped with a low density alarm and low density lockout.

E. Requirements for the Components Fugitive Leaks (EPN: 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.
b. AVO monitoring shall be performed a daily basis.
c. Any component found to be leaking during AVO monitoring shall be repaired or replaced as soon as practicable but no later than 30 days after leak detection.
d. Records of the 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 Tables 1, 2 or 3 (depending upon the turbine model selected by TRPP), the Permittee shall monitor the following parameters and summarize the data as specified in Special Conditions III. A, B, C, D, and E.

a. Operating hours for all air emission sources authorized by this permit;
b. Records of run time meter measurements for the fire pump engine and emergency generator;
c. The fuel usage for all turbines and engines 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; and
d. 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 (defined in 40 CFR 60.2) 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_2 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_6 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 30th 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.

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 TURB1, TURB2 and TURB3) and to determine the initial compliance with the CO_2 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_2.

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_2 emission rate shall be calculated as defined below and recorded for each test run in lb CO_2/MWh (gross) and lb CO_2/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_2 hourly average emission rate determined by the three runs at or above 90% of maximum load multiplied by 2,920 hours.
2. If the above calculated CO_2 emission total does not exceed the TPY specified in Tables 1, 2 or 3 (depending upon the turbine model selected by TRPP), no compliance strategy needs to be developed.
3. If the above calculated CO_2 emission total exceeds the TPY specified in Tables 1, 2 or 3 (depending upon the turbine model selected by TRPP), 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_2 emission limit listed in Tables 1, 2 or 3.

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 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 combustion turbines shall be performed every five years, plus or minus six months, from when the previous performance test was performed to verify continued performance at permitted emission limits.

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