

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-108130-GHG

**PERMITTEE:** Chamisa CAES at Tulia, LLC

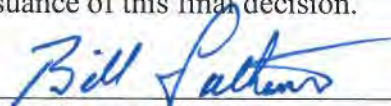
**FACILITY NAME:** Chamisa CAES at Tulia

**FACILITY LOCATION:** 1,000 meters SW of I-27 & SH 86  
Tulia, Swisher County, Texas 79088

Pursuant to the provisions of the Clean Air Act (CAA), Subchapter I, Part C (42 U.S.C. Section 7470, *et. Seq.*), and the Code of Federal Regulations (CFR) Title 40, Section 52.21, and the Federal Implementation Plan at 40 CFR § 52.2305 (effective May 1, 2011 and published at 76 FR 25178), the U.S. Environmental Protection Agency, Region 6 is issuing a *Prevention of Significant Deterioration* (PSD) permit to Chamisa CAES at Tulia (Chamisa) for Greenhouse Gas (GHG) emissions. The Permit applies to the construction of a new compressed air energy storage (CAES) facility, to be located near Tulia, Swisher County, Texas.

Chamisa is authorized to construct a new CAES bulk energy storage system using CAES technology 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) standard permit No. 108130. 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 Chamisa 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.

  
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Wren Stenger, Director  
Multimedia Planning and Permitting Division

March 21, 2014  
Date

**Chamisa CAES at Tulia (PSD-TX-108130-GHG)  
Prevention of Significant Deterioration Permit  
For Greenhouse Gas Emissions  
Final Permit Conditions**

**PROJECT DESCRIPTION**

Chamisa will construct a new compressed air energy storage (CAES) power plant near Tulia in Swisher County, Texas to produce up to 270 mega watts (MW) of electrical power. The Chamisa facility will consist of two nominally rated 135 MW power turbine trains. Each train will use CAES technology developed by Dresser-Rand and will be equipped with selective catalytic reduction (SCR) and catalytic oxidation units. CAES technology can use electrical power from the utility grid (produced by renewable and conventional power generation facilities) to operate multi-stage electric compressors to compress ambient air to pressures as high as 1,838 psia in underground storage caverns. As needed, the compressed air is released from storage, heated by mixing and combusting it with natural gas, and exhausting through an expansion combustion turbine to produce electricity. Bulk storage facilities such as CAES can hold weeks of megawatt-scale energy production capacity and provide an array of grid support services. Unlike traditional natural gas fired power plants, Chamisa will consume little water in its every day operations and use less fuel and produce fewer emissions than typical natural gas fired generators.

**EQUIPMENT LIST**

The following devices are subject to this GHG PSD permit:

<b>FIN</b>	<b>EPN</b>	<b>Description</b>
TURB1 TURB2	TURB1 TURB2	2 Natural Gas-Fired Gas Expansion Turbine Train (Combustion Units) Electrical generators driven by the gas expansion turbines have a peak gross production rate of 140 MW for each train.
EMERGEN	EMERGEN	1 Emergency Generator (Combustion Unit). 1,400 kW Natural Gas Fired Emergency Generator limited to 100 hours of operation per year for non-emergency activities.
NG-FUG	NG-FUG	Natural Gas Fugitives
NG-PURGE	NG-PURGE	Natural Gas Maintenance Purges
SF6-FUG	SF6-FUG	SF <sub>6</sub> Insulated Electrical Equipment (i.e., circuit breakers) with 2,920 lb SF <sub>6</sub> capacity

## **I. GENERAL PERMIT CONDITIONS**

### **A. PERMIT EXPIRATION**

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

- a. is not commenced (as defined in 40 CFR §52.21(b)(9)) within 18 months after the approval takes effect; or
- b. is discontinued for a period of 18 months or more; or
- c. 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 VI, 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 VI.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 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 Sections II and III of this permit.
2. Within 10 days of the restoration of normal operations after any failure described in I.D.1., Permittee shall provide a written supplement to the initial notification that includes a description of the malfunctioning equipment or abnormal operation, the date of the initial malfunction, the period of time over which emissions were increased due to the failure, the cause of the failure, the estimated resultant emissions in excess of those allowed in Section II and III, and the methods utilized to mitigate emissions and restore normal operations.
3. Compliance with this malfunction notification provision shall not excuse or otherwise constitute a defense to any violation of this permit or any law or regulation such malfunction may cause.

**E. RIGHT OF ENTRY**

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

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

**F. TRANSFER OF OWNERSHIP**

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

**G. SEVERABILITY**

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

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

Permittee shall construct this project in compliance with this PSD Permit, the application on which this permit is based, the TCEQ Permit 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

API	American Petroleum Institute
BACT	Best Available Control Technology
BSCFD	Billion Standard Cubic Feet per Day
CAA	Clean Air Act
CAES	Compressed Air Energy Storage
CC	Carbon Content
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
GHG	Greenhouse Gas
gr	Grains
GWP	Global Warming Potential
HHV	High Heating Value
hr	Hour
LAER	Lowest Achievable Emission Rate
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
NO <sub>x</sub>	Nitrogen 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
VOC	Volatile Organic Compound

## II. Annual Emission Limits

Annual emissions, in tons per year (TPY) on a 12-month, rolling total, shall not exceed the following:

**Table 1 Annual Emission Limits<sup>1</sup>**

FIN	EPN	Description	GHG Mass Basis		TPY CO <sub>2</sub> e <sup>2,3</sup>	BACT Requirements
				TPY <sup>2</sup>		
TURB1 TURB2	TURB1 TURB2	Gas Expansion Turbine Train 1	CO <sub>2</sub>	397,144 <sup>4</sup>	400,932 <sup>4</sup>	575 lb CO <sub>2</sub> /MWh (gross) <sup>5</sup> on a 12-operating month rolling average for each turbine. See Special Condition III.A.1.a.
			CH <sub>4</sub>	28.5 <sup>4</sup>		
			N <sub>2</sub> O	9.96 <sup>4</sup>		
EMERGEN	EMERGEN	Emergency Generator	CO <sub>2</sub>	86	107	Good Combustion and Operating Practices. Limit to 100 hours of operation per year. See Special Condition III.B.2.
			CH <sub>4</sub>	0.84		
NG-FUG	NG-FUG	Natural Gas Fugitives	CO <sub>2</sub>	No Numerical Limit Established <sup>6</sup>	No Numerical Limit Established <sup>6</sup>	Implementation of AVO program. See Special Condition III.C.
			CH <sub>4</sub>	No Numerical Limit Established <sup>6</sup>		
NG-PURGE	NG-PURGE	Natural Gas Maintenance Purges	CO <sub>2</sub>	No Numerical Limit Established <sup>7</sup>	No Numerical Limit Established <sup>7</sup>	Limit to 4 purges per year, after the first year of operation. See Special Condition III.D.1.
			CH <sub>4</sub>	No Numerical Limit Established <sup>7</sup>		
SF6-FUG	SF6-FUG	SF <sub>6</sub> Insulated Equipment	SF <sub>6</sub>	No Numerical Limit Established <sup>8</sup>	No Numerical Limit Established <sup>8</sup>	Instrumented monitoring and alarm/ LDAR. See Special Condition III.E.
<b>Totals<sup>9</sup></b>			CO <sub>2</sub>	<b>397,230</b>	<b>CO<sub>2</sub>e 401,326</b>	
			CH <sub>4</sub>	<b>34.2</b>		
			N <sub>2</sub> O	<b>9.96</b>		

1. Compliance with the annual emission limits (tons per year) is based on a 12-month rolling total.
2. 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.
3. Global Warming Potentials (GWP): CH<sub>4</sub> = 25, N<sub>2</sub>O = 298, SF<sub>6</sub> = 22,800
4. These values are for both turbine trains combined and is based on each turbine train operating for 5,000 hours per year at maximum production and includes MSS emissions. Each turbine train could operate at greater hours at lower production levels or at maximum production if the other train operated fewer hours.
5. The electrical output shall be measured at the generator terminals.
6. Natural gas fugitive emissions from EPN NG-FUG are estimated to be 0.04 TPY CO<sub>2</sub>, 4 TPY of CH<sub>4</sub> and 100 TPY CO<sub>2</sub>e. The emission limit will be a design/work practice standard as specified in the permit.
7. Natural gas maintenance purge emissions from EPN NG-PURGE are estimated to be 0.018 TPY CO<sub>2</sub>, 1.7 TPY of CH<sub>4</sub> and 42.5 TPY CO<sub>2</sub>e during the first 12 months of operation. After the first year, the emissions are estimated to be 0.009 TPY CO<sub>2</sub>, 0.85 TPY CH<sub>4</sub>, and 21 TPY CO<sub>2</sub>e. The emission limit will be a design/work practice standard as specified in the permit.
8. SF<sub>6</sub> fugitive emissions from EPN SF6-FUG are estimated to be 0.0073 TPY of SF<sub>6</sub> and 166 TPY of CO<sub>2</sub>e. The emission limit will be a design/work practice standard as specified in the permit.
9. Total emissions include the PTE for maintenance purges (first year) and fugitive emissions (including SF6). Totals are given for informational purposes only and do not constitute emission limits.



### III. SPECIAL PERMIT CONDITIONS

#### A. Requirements for the Gas Expansion Turbine Trains

##### 1. Gas Expansion Turbine Trains (TURB1 and TURB2) BACT Emission Limits and Operational Requirements

- a. Each of the gas expansion turbines shall not exceed a BACT limit of 575 lbs CO<sub>2</sub>/MWh (gross) on a 12-operating month rolling average basis. Upon demonstration that the gas expansion turbines are in compliance with the design emissions limit pursuant to Section V of this permit, the Permittee shall not discharge or cause the discharge of emissions from TURB1 and TURB2 into the atmosphere in excess of 575 lb CO<sub>2</sub>/MWh (gross) on a 12-operating month rolling average. To determine the BACT emission limit, the Permittee shall calculate the limit based on the measured net hourly energy output (MWh) and the tons of CO<sub>2</sub> emissions from the CEMS. The calculated hourly rate is averaged daily.
- b. The MWh output is measured directly at the exit of the energy turbines. Permittee shall determine the hourly CO<sub>2</sub> emission rate by installing and operating a volumetric stack gas flow monitor and associated data acquisition and handling system in accordance with the CO<sub>2</sub> CEMS system required under 40 CFR § 75.10(a)(3) and (a)(5).
- c. The gas expansion turbines shall combust pipeline quality natural gas with a fuel sulfur content of up to 5 grains of sulfur per 100 dry standard cubic feet (gr S/100 dscf).
- d. The gas expansion turbine trains (TURB1 and TURB2) shall have fuel metering and the Permittee shall:
  - i. Continuously monitor and record the fuel flow of the fuel fired in the gas expansion turbines (TURB1 and TURB2).
  - ii. Measure and record the fuel flow rate using an operational non-resettable elapsed flow meter or by recording the flow rate data in an electronic format with individual flow measurements being taken no less frequently than once every 15 minutes. Electronic data may be reduced to hourly averages for recordkeeping purposes.
  - iii. Record the total fuel combusted monthly.
  - iv. The fuel gross calorific value (GCV) [high heat value (HHV)] of the fuel shall be determined, at a minimum, annually by the procedures contained in 40 CFR Section 98.34(a)(6) and records shall be maintained of the annual fuel GCV for a period of five years. Upon request, Permittee shall provide a sample and/or analysis of the fuel that is fired in the heaters or shall allow a sample to be taken by EPA for analysis.

- e. Permittee shall calibrate and perform preventative maintenance check of the fuel gas flow meters and document annually.
- f. Permittee shall install and operate pressure and vibration monitoring equipment on the combustion turbine packages.
- g. Each gas expansion turbine train shall be equipped with a recuperator. The recuperator shall be continuously monitored for efficiency. Pressure and temperature measurements of the air at the recuperator inlet and outlet, and of the gas expansion turbine exhaust will be monitored and compared to expected values based on the gas expansion trains air mass flow and gas fuel input.
- h. Permittee shall calculate the amount of CO<sub>2</sub> emitted for the turbines from combustion in tons per hour (tons/hr) on a 12-month rolling average, and convert to tons per year (tpy) based on the CO<sub>2</sub> CEMS data.
- i. Permittee shall calculate the CH<sub>4</sub> and N<sub>2</sub>O emissions on a 12-month rolling average. Permittee shall determine compliance with the CH<sub>4</sub> and N<sub>2</sub>O emissions limits contained in section II using the default CH<sub>4</sub> and N<sub>2</sub>O emission factors contained in Table C-2 of 40 CFR Part 98 and the measured actual hourly heat input (HHV).
- j. Permittee shall calculate the CO<sub>2</sub>e emissions on a 12-month rolling average, based on the procedures and Global Warming Potentials (GWP) contained in Greenhouse Gas Regulations, 40 CFR Part 98, Subpart A, Table A-1.
- k. The Permittee shall perform a compliance test every 5 years, at or above ninety percent (90%) of maximum load operations for the atmospheric conditions which exist during testing, corrected to ISO conditions to demonstrate compliance with the proposed BACT limit in Table 1.
- l. On or after initial performance testing, Permittee shall use the work practices and designs as represented in the permit application.

## **2. Monitoring of CO<sub>2</sub> Emissions for TURB1 and TURB2**

- a. Permittee shall install a CO<sub>2</sub> CEMS and volumetric stack gas flow monitoring system with an automated data acquisition and handling system for measuring and recording CO<sub>2</sub> emissions discharged to the atmosphere.
- b. In accordance with 40 CFR Part 75, Appendix D and 40 CFR Part 60, the Permittee shall ensure that all required fuel flow meters are installed, a periodic schedule for GCV fuel sampling is initiated, 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 commercial operation (as defined in 40 CFR Part 75, Appendix D and G).
- c. Permittee shall ensure compliance with the specifications and test procedures for fuel flow metering and/or CO<sub>2</sub> emission monitoring system at stationary sources, in accordance with 40 CFR Part 75 and 40 CFR Part 60.

- d. Permittee shall meet the appropriate quality assurance requirements specified in 40 CFR Part 75, Appendix D and F and 40 CFR Part 60 for the fuel flow meter and/or CO<sub>2</sub> emission monitoring system.

**3. Requirements during Gas Expansion Turbine (TURB1 and TURB2) Startup and Shutdown**

- a. Permittee shall minimize emissions during start-up and shutdown activities by operating and maintaining the facility and associated air pollution control equipment in accordance with good air pollution control practices, safe operating practices, and protection of the facility.
- b. Emissions during startup and shutdown activities shall be minimized by limiting the duration of operation in startup and shutdown mode as follows:
  - i. A planned startup for each turbine is limited to 30 minutes per event.
  - ii. Planned startups shall not exceed 350 hours per year per turbine.
  - iii. A planned shutdown of the turbine is limited to 3.3 minutes per event.
  - iv. Shutdowns shall not exceed 38.5 hours per year per turbine.
- c. Permittee must record the time, date, fuel heat input (HHV) in MMBtu/hr and duration of each startup and shutdown event in order to calculate total CO<sub>2</sub>e emissions. The records must include hourly CO<sub>2</sub> emission levels as calculated by using the fuel flow meter measurements and/or O<sub>2</sub> emission monitor (or CO<sub>2</sub> CEMS with volumetric stack gas flow rate) and the calculations based on the actual heat input for the CO<sub>2</sub>, CO<sub>2</sub>e, O<sub>2</sub>, N<sub>2</sub>O, and CH<sub>4</sub> emissions during each startup and shutdown event based on the equations represented in the permit application. These records must be kept for five (5) years following the date of such event.

**B. Requirements for the Emergency Generator (EMERGEN)**

- 1. The Emergency Generator (EMERGEN) shall fire natural gas.
- 2. The Emergency Generator is limited to 100 hours of non-emergency operation per year. Compliance with the 100 hour non-emergency operational requirement is determined on a 12-month rolling total.
- 3. The Emergency Generator shall meet the applicable monitoring and recordkeeping requirements as required in 40 CFR Part 60 Subpart JJJJ, Standards of Performance for Stationary Spark Ignition Internal Combustion Engines.
- 4. Permittee shall install and maintain an operational non-resettable elapsed time meter for the Emergency Generator.
- 5. Permittee shall maintain a file of all records, data measurements, reports and documents related to the operation of the Emergency Generator, including, but not

limited to, the following: all records or reports pertaining to maintenance performed, all records relating to performance tests and monitoring of the emergency generator equipment; fuel heat input values; and hours of operation required in Special Condition III.B.2.; and all other information required by this permit recorded in a permanent form suitable for inspection. The file must be retained for not less than five years following the date of such measurements, maintenance, reports, and/or records.

**C. Requirements for Plant Wide Natural Gas Fugitive Emission Sources (NG-FUG)**

1. The Permittee shall implement an auditory, visual, and olfactory (AVO) method for detecting leaks in natural gas piping components and fugitive emission of methane from from natural gas piping components.
2. AVO monitoring shall be performed weekly.

**D. Requirements for Natural Gas Maintenance Purges (NG-PURGE)**

1. The Permittee shall limit the number of purges performed in a year to 8 during the first 12 months of operation, thereafter the number of purges is limit to 4 a year.
2. The Permittee shall keep records of each maintenance purge performed to include the date, time, duration, and estimated volume of gas released to the atmosphere.

**E. Requirements for SF<sub>6</sub> Circuit Breakers (SF<sub>6</sub>-FUG)**

1. For emission unit SF<sub>6</sub>-FUG, SF<sub>6</sub> emissions shall be calculated annually (calendar year) in accordance with the mass balance approach provided in equation DD-1 of the Mandatory Greenhouse Gas Reporting rules for Electrical Transmission and Distribution Equipment Use, 40 CFR Part 98, Subpart DD. Permittee shall not exceed insulated circuit breaker SF<sub>6</sub> capacity exceeding 2,920 lbs.
2. Permittee shall equip the circuit breakers with instrumentation to identify and/or prevent leaks. The SF<sub>6</sub> leak detection system shall be able to detect a leak of at least 1 lb per year.
3. Permittee shall maintain a file of all records, data measurements, reports and documents related to the fugitive emission sources including, but not limited to, the following: all records or reports pertaining to maintenance performed, all records relating to compliance with the Monitoring and Quality Assurance and Quality Control (QA/QC) procedures outlined in 40 CFR 98.304.

#### IV. RECORDKEEPING AND REPORTING

1. In order to demonstrate compliance with the GHG emission limits in Table 1, the Permittee will monitor the following parameters and summarize the data on a calendar month basis.
  - a. Operating hours for all air emission sources;
  - b. The natural gas 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);
  - c. Annual fuel sampling for natural gas; and
  - d. CO<sub>2</sub> CEMS data.
2. Permittee shall implement an AVO program and keep records of the monitoring results, as well as the repair and maintenance records.
3. Permittee shall maintain all records, data, measurements, reports, and documents related to the operation of the facility, including, but not limited to, the following: all records or reports pertaining to significant maintenance performed on any system or device at the facility; duration of startup, shutdown; the initial startup period for the emission units; pollution control 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. The records must be retained for not less than five years following the date of such measurements, maintenance, reports, and/or records.
4. 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.
5. Permittee shall maintain records and submit a written report of all GHG excess emissions to EPA semi-annually, except when: more frequent reporting is specifically required by an applicable subpart; or the Administrator or authorized representative, on a case-by-case basis, determines that more frequent reporting is necessary to accurately assess the compliance status of the source. The report is due on the 30<sup>th</sup> day following the end of each semi-annual period and shall include the following:
  - a. Time intervals, data and magnitude of the excess emissions, the nature and cause (if known), corrective actions taken and preventive measures adopted;
  - b. Applicable time and date of each period during which the monitoring equipment was inoperative (monitoring down-time);



- c. A statement in the report of a negative declaration; that is; a statement when no excess emissions occurred or when the monitoring equipment has not been inoperative, repaired or adjusted; and
  - d. Any failure to conduct any required source testing, monitoring, or other compliance activities.
6. Excess emissions shall be defined as any period in which the facility emissions exceed a maximum emission limit set forth in this permit.
  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. All records required by this PSD Permit shall be retained and remain accessible for not less than 5 years following the date of such measurements, maintenance, and reporting.

## **V. PERFORMANCE TESTING**

- 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 stacks of the Gas Expansion Turbines (TURB1 and TURB2) 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>.
  1. Multiply the CO<sub>2</sub> hourly average emission rate determined under maximum operating test conditions by 5,000 hours for the gas expansion turbines.
  2. If the above calculated CO<sub>2</sub> emission total does not exceed the tons per year (TPY) specified on Table 1, no compliance strategy needs to be developed.  
If the above calculated CO<sub>2</sub> emission total exceeds the tons per year (TPY) specified in Table 1, the facility shall:
    - a. Document the potential to exceed in the test report; and
    - b. Explain within the report how the facility will assure compliance with the CO<sub>2</sub> emission limit listed in Table 1.
- B. Within 60 days after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup of the facility, performance tests(s) must 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 EPA 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.** The turbine shall be tested at or above ninety percent (90%) of maximum load operations for the atmospheric conditions which exist during testing. The tested turbine load shall be identified in the sampling report. The permit holder shall present in the performance test protocol the manner in which stack sampling will be executed in order to demonstrate compliance with the emissions limits contained in Section II.
- E.** Performance tests must be conducted under such conditions to ensure representative performance of the affected facility. The owner or operator must make available to the EPA such records as may be necessary to determine the conditions of the performance tests.
- F.** The owner or operator 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.** Unless otherwise specified, each performance test shall consist of three separate runs using the applicable test method. Each run shall be conducted for the time and under the conditions specified in the applicable standard. For purposes of determining compliance with an applicable standard, the arithmetic mean of the results of the three runs shall apply.
- H.** Emissions testing, as outlined above, shall be performed every five years, plus or minus 6 months, of when the previous performance test was performed, or within 180 days after the issuance of a permit renewal, whichever comes later 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