

**INFORMATION RELATIVE TO
THE DRAFT TITLE V OPERATING PERMIT
October 13, 2023**

GENERAL FACILITY INFORMATION

Facility Name: Texas Gas Transmission LLC, Lake Cormorant Compressor Station
Facility Address: 2672 Wilson Mill Road, Lake Cormorant, MS 38641
County: Desoto
SIC Code(s): 4922
NAICS Code(s): 221210

APPLICATION SUMMARY

Permit No.: 0680-00009	NSPS (Part 60): A, GG, KKKK
Permit Action: Modification	NESHAP (Part 61): N/A
Permit Folder: PER20230001	NESHAP (Part 63): A, ZZZZ, DDDDD
Application Receipt Date:	112(r) / RMP: N/A
Application Deemed Complete:	Other: N/A
CBI Submitted?: No	

FACILITY DESCRIPTION

Texas Gas Transmission owns and operates its Lake Cormorant Compressor Station located at 2672 Wilson Mill Road, Lake Cormorant, Mississippi, for the purpose of transporting natural gas through its pipeline distribution system. The Lake Cormorant Compressor Station operates seven (7) reciprocating compressor engines, two (2) compressor turbines, and three (3) electrical power generating engines. The station also operates one (1) 347-HP emergency generator engine, one (1) 925-HP emergency generator engine, two (2) small boilers, one (1) evaporator, one (1) air compressor, as well as insignificant activities. All combustion units at the Lake Cormorant Compressor Station are fired with natural gas.

The purpose of the Air Title V permit modification is to convert Emission Point AA-002, an existing regenerative cycle turbine to a simple cycle turbine. According to data provided by the turbine manufacturer (General Electric-GE), the physical changes will significantly decrease hourly emissions of nitrogen oxides (NOx) while slightly decreasing emissions of carbon monoxide (CO) with no changes in emissions of volatile organic compounds (VOC). The physical changes will increase the brake-specific fuel consumption (BSFC) for the unit which yields calculated hourly emission increases for particulate matter (PM), sulfur dioxide (SO2) and hazardous air pollutants (HAP). The physical changes will have no impact on the unit's rated brake-horsepower (bhp).

Emission Points and Pollution Control Devices

Emission Point	Description
AA-002	14,050 HP (at ISO conditions) 12,090 HP (at NEMA conditions) General Electric simple cycle

Emission Point	Description
	natural gas-fired compressor turbine (Model Number M3122R, Reference Number TB04)
AA-003	2,000 HP Cooper-Bessemer 2-stroke lean burn (2SLB) spark ignition natural gas-fired non-emergency compressor engine (Model Number GMW-8TF, Reference Number RC01)
AA-004	2,000 HP Cooper-Bessemer 2-stroke lean burn (2SLB) spark ignition natural gas-fired non-emergency compressor engine (Model Number GMW-8TF, Reference Number RC02)
AA-005	2,000 HP Cooper-Bessemer 2-stroke lean burn (2SLB) spark ignition natural gas-fired non-emergency compressor engine (Model Number GMW-8TF, Reference Number RC03)
AA-006	2,000 HP Cooper-Bessemer 2-stroke lean burn (2SLB) spark ignition natural gas-fired non-emergency compressor engine (Model Number GMW-8TF, Reference Number RC04)
AA-007	2,000 HP Cooper-Bessemer 2-stroke lean burn (2SLB) spark ignition natural gas-fired non-emergency compressor engine (Model Number GMWA-8, Reference Number RC05)
AA-008	2,000 HP Cooper-Bessemer 2-stroke lean burn (2SLB) spark ignition natural gas-fired non-emergency compressor engine (Model Number GMWA-8, Reference Number RC06)
AA-009	2,000 HP Cooper-Bessemer 2-stroke lean burn (2SLB) spark ignition natural gas-fired non-emergency compressor engine (Model Number GMWA-8, Reference Number RC07)
AA-010	300 HP Ingersoll-Rand 4-stroke rich burn (4SRB) spark ignition natural gas-fired non-emergency electrical power generator engine (Model Number PVGH-6, Reference Number AX01)
AA-011	300 HP Ingersoll-Rand 4-stroke rich burn (4SRB) spark ignition natural gas-fired non-emergency electrical power generator engine (Model Number PVGH-6, Reference Number AX02)
AA-012	300 HP Ingersoll-Rand 4-stroke rich burn (4SRB) spark ignition natural gas-fired non-emergency electrical power generator engine (Model Number PVGH-6, Reference Number AX03)
AA-021	347 HP Waukesha 4-stroke rich burn (4SRB) spark ignition natural gas-fired emergency electric generator engine (Model Number F2895GL, Reference Number AX04)
AA-026	925 HP Waukesha 4-stroke lean burn (4SLB) spark ignition natural gas-fired emergency electric generator engine (Reference Number AX06)
AA-027	10,011 HP (at ISO conditions) 8,683 HP (at NEMA conditions) Solar simple-stroke natural gas-fired compressor turbine (Reference Number TB05)
AA-029	3.78 MMBTU/hr natural gas-fired boiler
AA-030	2.1 MMBTU/hr natural gas-fired boiler
AA-032	35 HP 4-stroke rich burn (4SRB) spark ignition natural gas-fired non-emergency Auxiliary Air Compressor engine (Reference Number AX05)
AA-033	0.55 MMBTU/hr natural gas-fired evaporator

TITLE V SOURCE APPLICABILITY

The Lake Cormorant Compressor Station is a major source as defined by Title V of the Federal Clean Air Act due to its potential to emit more than 100 tons per year, each, of Carbon Monoxide (CO) and Nitrogen Oxides (NOx). The station also has the potential to emit more than 25 tons per year of total hazardous air pollutants (HAP) and more than 10 tons per year of an individual HAP, formaldehyde. Therefore, the facility is classified as a major source with respect to HAP emissions.

Facility-Wide Potential-to-Emit Summary¹

Pollutant	Facility-Wide PTE Emissions (tons/yr)	Modification Project PTE Emissions (tons/yr)
Particulate Matter (TSP)	20.78	0.95
PM ₁₀	30.14	0.95
PM _{2.5}	30.14	0.95
Sulfur Dioxide (SO ₂)	0.82	0.09
Nitrogen Oxides (NO _x)	2,296.20	38.85
Carbon Monoxide (CO)	324.97	3.66
Volatile Organic Compounds (VOC)	77.04	1.28
Total Reduced Sulfur (TRS)	-	-
Lead	-	-
Total HAP	38.15	0.50

¹ The PTE emissions reflect any emission limits or enforceable restrictions included in the proposed permit.

PREVENTION OF SIGNIFICANT DETERIORATION (PSD) APPLICABILITY

The potential emissions of NOx and CO from the existing equipment at the compressor station does exceed 250 tpy and hence the facility is considered an existing major source for PSD purposes. This permitting action is to modify the Title V Operating permit and avoid triggering PSD by taking a NOx limit of 130.6. The paragraph below explains in better detail why the hourly rate for NOx is decreasing but the ton per year projected actual emissions are increasing due to the project. The baseline emissions of NOx for Emission Point AA-002 are 91.75 tpy and the projected actual emissions are 130.60 tpy which equals a net increase of 38.85 tpy. Although 38.85 tpy is less than the 40 tpy threshold for a PSD modification, we are establishing a limit of 130.6 to ensure the facility remains under the 40 tpy PSD threshold for NOx emissions. Consequently, this permitting action does not change the PSD status of the facility.

During the baseline actual period, Emission Point AA-002 generally operated as a backup unit or was utilized primarily during periods of peak demand. Texas Gas projects that annual operation of the turbine could increase following the project due to the unit's increased reliability. However, the unit will likely remain utilized mostly as a backup unit or during periods of peak demand. In order to provide a conservative projection of future turbine operation, projected

actual emissions are based on roughly double the highest operating hours during the baseline actual period. Projected actual emissions are based on 4,000 operating hours per year.

FACILITY MODIFICATIONS AND/OR PERMIT CHANGES

The significant modifications to the facility and permit changes that are proposed as part of this permitting action include the conditions below. Rationale for these changes are further discussed in the 40 CFR 60, Subparts GG and KKKK subsections.

1. Emission Point AA-002 is reclassified from a regenerative compressor turbine to a simple cycle compressor turbine.
2. Condition 3.B.8 has been included for Emission Point AA-002 to specify it is subject to applicable provisions of NSPS KKKK.
3. Condition 3.B.9 has been included for Emission Point AA-002 to specify it is subject to the NSPS KKKK standard for SO₂ emissions of 0.060 lb SO₂/MMBtu.
4. Condition 3.B.9 has been included for Emission Point AA-002 to specify it is subject to a 130.6 tons per year NO_x emission limitation on a rolling, consecutive twelve-month total basis for PSD avoidance purposes
5. Condition 3.D.5 has been included for Emission Point AA-002 to operate and maintain the stationary combustion turbine, air pollution control equipment, and monitoring equipment in a manner consistent with good air pollution control practices for minimizing emissions at all times including during startup, shutdown, and malfunction.
6. Condition 5.B.2 has been included to denote Emission Point AA-002 is subject to an initial NO_x performance stack test and annual stack testing thereafter.
7. Condition 5.B.3 has been included to denote Emission Point AA-002 is required to monitor and record monthly and on a consecutive, rolling twelve-month total NO_x emissions based on the annual performance stack tests and operating hours.
8. Condition 5.B.4 has been included to denote Emission Point AA-002 is subject to the natural gas recordkeeping requirements of NSPS KKKK.
9. Condition 5.C.2 has been included for Emission Point AA-002 to submit semiannual reports of the monthly and rolling, consecutive twelve-month NO_x emissions.

COMPLIANCE ASSURANCE MONITORING (CAM) APPLICABILITY

40 CFR Part 64 specifies the requirements for CAM. The general applicability of this rule can be found in 40 CFR 64.2 and requires a Title V source to comply with the CAM requirements if all three of the following criteria are met for a pollutant-specific emission unit (PSEU):

1. The unit is subject to an emission limitation or standard for a regulated air pollutant other than exemptions under 40 CFR 64.2(b)(1);
2. The unit uses a control device to comply with the standard; and
3. The unit has pre-control emissions exceeding Title V major source threshold.

There is no control equipment associated with any of the emission units subject to an emission limit or standard at this facility, therefore, Compliance Assure Monitoring does not apply to the Lake Cormorant Compressor Station.

NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS (NESHAP) APPLICABILITY

The facility is a major source of Hazardous Air Pollutants (HAP) since the facility has the potential to emit more than 25 tons per year of total HAPs and 10 tpy of an individual HAP, formaldehyde.

40 CFR 63 Subpart YYYY

The NESHAP for Stationary Combustion Turbines establishes national emission limitations and operating limitations for HAP emissions from stationary combustion turbines located at major sources of HAP emissions, and requirements to demonstrate initial and continuous compliance with the emission and operating limitations.

Emission Points AA-002 and AA-027 each qualify as existing stationary combustion turbines since each were constructed before January 14, 2003. However, existing stationary combustion turbines in all subcategories of NESHAP YYYY do not have to meet any requirements of NESHAP YYYY or of NESHAP A. Therefore, AA-002 and AA-027 are categorized as existing stationary combustion turbines per 63.6090(a)(1) and are therefore not subject to any requirements from Subpart YYYY per 63.6090(b)(4).

40 CFR 63 Subpart ZZZZ - National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

The permittee is subject to Subpart ZZZZ—National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines and shall comply with all applicable requirements.

Emission Points AA-003 through AA-009 are existing spark ignition 2 stroke lean burn (2SLB) non-emergency stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions and as such are not required to meet the requirements of 40 CFR Part 63, Subpart ZZZZ or the General Provisions in Subpart A.

Emission Points AA-010, AA-011, and AA-012 are existing, non-emergency four-stroke rich-burn (4SRB) engines, each with a site rating of less than 500 brake HP located at a major source of HAP emissions and as such are required to meet the applicable requirements of 40 CFR Part 63, Subpart ZZZZ and the General Provisions in Subpart A. The concentration of formaldehyde in each engine's exhaust shall not exceed 10.3 ppmvd at 15% O₂.

Emission Point AA-021 is an existing spark ignition 4 stroke rich burn (4SRB) emergency stationary RICE with a site rating of less than 500 brake HP located at a major source of HAP emissions and as such is required to meet the operational requirements of 40 CFR Part 63, Subpart ZZZZ.

Emission Point AA-026 is an existing spark ignition 4 stroke lean burn (4SLB) emergency stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions and as such is also required to meet the operational emergency requirements of 40 CFR Part 63, Subpart ZZZZ.

Emission Unit AA-032 is a natural gas-fired auxiliary air compressor, which is classified as an existing non-emergency 4SRB stationary RICE with a site rating of less than 100 brake HP located at a major source of HAP emissions, and as such is required to meet the operational requirements of 40 CFR Part 63, Subpart ZZZZ.

40 CFR 63 Subpart DDDDD - National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters

Since the Lake Cormorant Compressor Station is a major source of Hazardous Air Pollutant (HAP) emissions, the facility is potentially subject to 40 CFR 63, Subpart DDDDD. The facility has several insignificant space heaters; however, space heaters are not process heaters per the definition of process heaters in §63.7575, and thus are not subject to the requirements of the NESHAP for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters, 40 CFR Part 63, Subpart DDDDD.

Emission Points AA-029 and AA-030 are existing boilers and thus are subject to the requirements of the NESHAP for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters, 40 CFR Part 63, Subpart DDDDD. Both sources are in the “units designed to burn gas 1 fuel” subcategory as listed in 40 CFR 63.7499(1) and defined in 40 CFR 63.7575. These units do not have any applicable emission standards and only have to comply with the work practice standards of 40 CFR 63, Subpart DDDDD. Each unit must have a tune-up completed every 5-years and a 1-time energy assessment. Initial notifications were submitted for each unit in 2013 and the 1-time energy assessment and the Notification of Compliance Status were submitted for each unit in 2016.

The 0.55-MMBTUH water evaporator (Emission Point AA-033) does not meet the definition of a boiler or process heater since the unit does not recover thermal energy in the form of steam or hot water and does not heat a process material or heat transfer material for use in a process unit.

NEW SOURCE PERFORMANCE STANDARDS (NSPS) APPLICABILITY

40 CFR 60 SUBPART GG

The provisions of 40 CFR 60 Subpart GG - New Source Performance Standards for Stationary Gas Turbines (NSPS GG) are applicable to stationary gas turbines with a heat input at peak load equal to or greater than 10 MMBTUH, which commenced construction, modification, or reconstruction after October 3, 1977. Emission Points AA-002 was constructed in 1969 but was substantially modified in 1985. Emission Point AA-027 was constructed in 2000/01 and qualifies as a simply cycle turbine. Therefore, Emission Point AA-027 is subject to the applicable provisions of NSPS GG.

Prior to the proposed simple cycle conversion project, Emission Point AA-002 was exempt from the NO_x standards of NSPS GG per 40 CFR 60.332(1) since the unit qualified as a regenerative cycle gas turbine with a heat input less than or equal to 107.2 gigajoules per hour (100 million Btu/hour).

While the proposed conversion project from regenerative to a simple cycle unit does not increase NO_x emissions, it would still make Emission Point AA-002 subject to the NO_x standard found in

60.332(a)(2) since the 40 CFR 60.332(1) exemption criteria (regenerative cycle unit) is no longer met. Therefore, Emission Point AA-002 will be subject to the NSPS GG NO_x standard from 60.332(a)(2).

40 CFR 60.334 outlines the compliance monitoring obligations for turbines subject to the Subpart GG NO_x standard. Emission Point AA-002 will not use water or steam injection to comply with the NO_x standard; therefore, either 60.334(c) or (e) applies to the turbine. Emission Point AA-002 was constructed well prior to July 8, 2004, and has not been reconstructed or modified (with respect to NO_x) since its original installation. However, 60.334(c) presumes that such turbines already have established procedures for compliance monitoring. This is not the case for Emission Point AA-002 since it has not been subject to the Subpart GG NO_x standard up until the conversion project is completed. As such, the requirements of 60.334(e) seem more appropriate for this permitting action. Consequently, Texas Gas will be required to complete an initial performance test for NO_x in accordance with 40 CFR 60.335 and annually, thereafter.

40 CFR 60 Subpart KKK

The provisions of 40 CFR 60, Subpart KKK - Standards of Performance for Equipment Leaks of VOC from Onshore Natural Gas Processing Plants (NSPS KKK) apply to affected facilities in onshore natural gas processing plants that commences construction, reconstruction, or modification after January 20, 1984, and on or before August 23, 2011. Since the Lake Cormorant Compressor Station is not located at an onshore natural gas processing plant, as defined in 40 CFR 60.631, the Lake Cormorant Compressor Station is not subject to NSPS KKK.

40 CFR 60 Subpart IIII

The provisions of 40 CFR 60 Subpart IIII - New Source Performance Standards for Compression Ignition Internal Combustion Engines (NSPS IIII) are applicable to stationary compression ignition internal combustion engines that commenced construction, modification, or reconstruction after April 1, 2006. None of the compressor station's engines are compression ignition internal combustion engines, therefore, none of the compressor station's engines are subject to any requirements of NSPS IIII.

40 CFR 60 Subpart JJJJ

The provisions of 40 CFR 60 Subpart JJJJ - New Source Performance Standards for Stationary Spark Ignition Internal Combustion Engines (NSPS JJJJ) are applicable to stationary spark ignition internal combustion engines that commenced construction, modification, or reconstruction after June 12, 2006. None of the compressor station's engines were constructed, modified, or reconstructed after the NSPS JJJJ effective date, therefore, none of the compressor station's engines are subject to any requirements of NSPS JJJJ.

40 CFR 60 SUBPART KKKK

The provisions of 40 CFR 60 Subpart KKKK - New Source Performance Standards for Stationary Combustion Turbines (NSPS KKKK) are applicable to stationary combustion turbines with a heat input at peak load equal to or greater than 10.7 gigajoules (10 MMBtu) per hour, based on the higher heating value of the fuel, which commenced construction, modification, or reconstruction after February 18, 2005. Emission Point AA-027 is not subject to the

requirements of 40 CFR 60 Subpart KKKK, since the unit was constructed prior to the NSPS KKKK effective date of February 18, 2005, and has not been modified since February 18, 2005.

Emission Point AA-002 was originally constructed at the facility in 1969, before the applicability date for Subpart KKKK. The cost of the simple cycle conversion project, described within this TV modification application, is less than 50% of the cost for a new turbine; therefore, the project does not constitute “reconstruction” as defined in 40 CFR 60.15. Pursuant to 40 CFR 60.14(a), an existing emission unit is modified if any physical or operational change is made that increases the emission rate of a pollutant to which a standard applies. 60.14(a) further states that “upon modification, an existing facility shall become an affected facility for each pollutant to which a standard applies and for which there is an increase in the emission rate to the atmosphere.” In the case of the proposed simple cycle conversion project, the physical changes are expected to result in an increased emission rate for SO₂. However, the changes are not expected to result in an increased emission rate for NO_x based on the GE data provided. Pursuant to the last sentence of 60.14(a), the conversion project would subject the turbine to the SO₂ standard found in Subpart KKKK; however, the NO_x standard from Subpart KKKK would not be triggered since the emission rate of NO_x will not increase. Consequently, Emission Point AA-002 will be subject to 40 CFR 60.4330(a)(2) and must not exceed SO₂ emissions of 0.060 lb/MMBtu heat input. The turbine will continue to burn only natural gas and should easily comply with the SO₂ standard following its conversion to simple cycle. The facility will be required to keep a record of the fuel quality characteristics in a current, valid tariff sheet that can be used to demonstrate compliance with the SO₂ standard.

40 CFR 60 Subpart OOOO

The provisions of 40 CFR 60, Subpart OOOO - Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution (NSPS OOOO) are potentially applicable to owners and operators of onshore affected facilities that commence construction, modification, or reconstruction after August 23, 2011. The only potentially affected sources at the Lake Cormorant Compressor Station are the facility’s compressor engines and oil condensate storage vessel. However, the compressor engines and storage vessels are not new and have not been modified or reconstructed after August 23, 2011; consequently, NSPS OOOO does not apply to the Lake Cormorant Compressor Station.

40 CFR 60 Subpart OOOOa

The provisions of 40 CFR 60, Subpart OOOOa - Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015 (NSPS OOOOa) are potentially applicable to new and modified sources in the oil and gas industry after August 18, 2015. The only potentially affected sources at the Lake Cormorant Compressor Station are the facility’s compressor engines, with respect to Leak Detection and Repair (LDAR), and pneumatic controllers. However, there have been no new compressors installed at the facility resulting in increased compression, nor has the facility modified any existing compressor engines or pneumatic controllers; consequently, NSPS OOOOa does not apply to the Lake Cormorant Compressor Station.

SPECIFIC APPLICABLE REQUIREMENTS

The eighteen (18) significant air emission combustion sources are subject to state standards for PM and Opacity. Emission Points AA-010, AA-011, AA-012, AA-021, AA-026, AA-029, AA-

030, AA-032, and AA-033 have a particulate matter emission limitation of 0.6 lbs/MMBTU, because each unit has a rated heat input less than 10 MMBTU/hr. Emission Points AA-002 through AA-009 and AA-027 each have a rated heat input greater than 10 MMBTU/hr and thus are subject to a particulate matter limit of $E=0.8808 * I^{-0.1667}$ where E is the emission rate in pounds per million BTU per hour heat input and I is the heat input in millions of BTU per hour.

The only fuel that is being used for the eighteen (18) significant air emission combustion sources is natural gas. Since natural gas is a clean burning fuel, these units should have a large margin of compliance with the PM and Opacity standards.

The facility's small comfort space heaters qualify as insignificant activities. These activities are subject to the state standards for PM, SO₂ and Opacity. Since these units combust natural gas and the size of the units are small, no monitoring is proposed for the units. There are no other applicable requirements for the facility's other insignificant activities listed in their Title V application.

Emission Point No.	Pollutant/Parameter	Limit/ Standard	Monitoring Requirements
AA-002 through AA-009 and AA-027	PM	$E=0.8808 * I^{-0.1667}$	Record Type and Quality of Fuel Used
AA-010, AA-011, AA-012, AA-021, AA-026, AA-029, AA-030, AA-032, and AA-033	PM	0.6 lb/MMBTU	Record Type and Quality of Fuel Used
AA-029, AA-030, and AA-033	SO ₂	4.8 lb/MMBTU	Record Type and Quality of Fuel Used
AA-027	SO ₂	≤ 0.8 percent by weight	Record Type and Quality of Fuel Used
AA-002	SO ₂	0.060 lb/MMBTU	Record Type and Quality of Fuel Used
AA-002 And AA-027	NO _x	STD = 0.015[(14.4)/Y] + F	Performance Stack Testing
AA-010 through AA-012	CO	10.3 ppmvd or less concentration of formaldehyde at 15 percent O ₂	Performance Stack Testing
AA-021 and AA-032	HAPs	100 hours per calendar year for maintenance and testing	Record type and quantity of fuel used, and record runtime during emergency and non-emergency situations using non-resettable hour meter.

Emission Point No.	Pollutant/Parameter	Limit/ Standard	Monitoring Requirements
AA-029 And AA-030	HAPs	Perform Tune-ups every 5-years	Maintain annual operational and maintenance reports.
		Minimizing Emissions	Monitoring of operations