

## STATEMENT OF BASIS

Transcontinental Gas Pipe Line Company, LLC  
Compressor Station 85  
Butler, Choctaw County, Alabama  
Facility/Permit No. 101-0021

This proposed Major Source Operating Permit (MSOP) 1<sup>st</sup> renewal is issued under the provisions of ADEM Admin. Code Chap. 335-3-16. The above named applicant has requested authorization to perform the work or operate the facility shown on the application and drawing, plans, and other documents attached hereto or on file with the Air Division of the Alabama Department of Environmental Management, in accordance with the terms and conditions of this permit. The current MSOP was issued on May 5, 2015, underwent a significant modification on September 27, 2016, in order to incorporate Air Permit No. X011 [Emission Unit No. 006 (Mainline Unit No. 4), and is scheduled to expire on May 4, 2020.

Transcontinental Gas Pipe Line Company, LLC (Transco) operates a compressor station for the transmission of natural gas. The significant sources of air pollutants at this facility are two (2) 4,735 hp Caterpillar 4-stroke, lean-burn (4SLB), spark ignition, natural gas-fired reciprocating engines (RICE), both equipped with an oxidation catalyst (ML 1 & 2); one (1) 8,180 hp Caterpillar G16CM34 4SLB, spark ignition, natural gas-fired RICE equipped with an oxidation catalyst (ML 3); one (1) 20,696 hp Solar Titan 130-20502S natural gas-fired combustion turbine equipped with SoLoNOx technology (ML 4); and two (2) 800 hp natural gas-fired Dresser Waukesha 4SLB, spark ignition, emergency generators (EMRG 1 & 2). Insignificant emission sources at this station include a 4,200 gallon used oil/condensate fixed roof storage tank; an 8,400 gallon lube oil fixed roof storage tank; a 4,200 gallon wastewater fixed roof storage tank; a 30 gallon parts washer/degreaser; and miscellaneous gas venting emissions.

### **Applicability: Federal Regulations**

#### **Title V**

This facility is a major source under Title V regulations because the potential emissions for nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), and volatile organic compounds (VOC) exceed the 100 TPY major source threshold. It is also a major source of Hazardous Air Pollutants (HAP) because individual HAP potential emissions are greater than 10 TPY (28.71 TPY for Formaldehyde) and the total HAP potential emissions are greater than 25 TPY (39.65 TPY).

#### **Prevention of Significant Deterioration (PSD)**

This facility is located in an attainment area for all criteria pollutants and the facility operations are not one of the 28 listed major source categories; therefore, the major source threshold is 250 TPY. The facility-wide potential emissions are below 250 TPY for each regulated criteria pollutant. Transco is considered a synthetic minor source under PSD regulations.

For Mainline Unit Nos. 1 through 3, Transco has synthetic minor limits below the 40 CFR Part 60, Subpart JJJJ NO<sub>x</sub>, CO, and VOC standards in order to remain below the PSD major source threshold of 250 TPY for criteria pollutants.

For Emergency Generator Nos. 1 and 2, Transco has synthetic minor limits below the 40 CFR Part 60, Subpart JJJJ NO<sub>x</sub>, CO, and VOC standards in order to remain below the PSD major source threshold of 250 TPY for criteria pollutants. The emergency generators are also limited to 500 hours operation during any 12-month period. The oxidation catalyst on each mainline engine reduces CO and VOC emissions. No add on controls are necessary for reducing NO<sub>x</sub>, but Transco has requested NO<sub>x</sub> emission limits below NSPS standards to reduce the potential to emit of the engines.

### **MACT**

#### ***National Emission Standards for Hazardous Air Pollutants (NESHAP) –Subpart ZZZZ***

Any reciprocating internal combustion engine is an affected source under 40 CFR Part 63, Subpart ZZZZ, National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (the RICE MACT) [Adopted by reference in ADEM Admin. Code r. 335-3-11-.06(103)]. All of the engines at this facility are considered new affected sources since they were constructed after June 12, 2006.

Emergency Generator Nos. 1 and 2 are 800 hp units. According to 40 CFR §63.6590(b)(1)(i), any new emergency stationary RICE with a site rating of more than 500 brake horsepower (hp) located at a major source of HAP emissions does not have to meet the requirements of the RICE MACT or of subpart A except for the initial notification requirements of 40 CFR §63.6645(f) and the usage limitations found in 40 CFR §63.6640(f).

#### **Emission Limitations**

Mainline Unit Nos. 1 and 2 are 4,735 hp 4SLB RICE, and Mainline Unit No. 3 is an 8,180 hp 4SLB RICE. According to 40 CFR §63.6600(b), any new 4SLB stationary RICE with a site rating of more than 500 brake hp located at a major source of HAP emissions must comply with the emission limitations in Table 2a and the operational limitations in Table 2b to this subpart that apply.

According to Table 2a, Item 2, new 4SLB engines are required to either reduce CO emissions by 93% or more or limit formaldehyde exhaust concentration to 14 ppmvd or less at 15% O<sub>2</sub>. The standard must be achieved at 100% load (± 10%). Transco can choose to demonstrate compliance with the CO reduction requirement using a method specified in Table 6 of Subpart ZZZZ.

#### **Operating Limitations**

According to Table 2b, Item 1, 4SLB engines using an oxidation catalyst to comply with the CO reduction requirement must maintain the catalyst such that the pressure drop across the catalyst does not change by more than 2 inches of water at 100% load (± 10%) from the pressure drop across the catalyst that is measured during the initial performance test. In addition, the temperature of the engine's exhaust must be maintained such that the catalyst inlet temperature is ≥ 450°F and ≤ 1350°F.

### Performance Testing

To comply with the RICE MACT, Transco is required to test CO emissions to determine if the required 93% reduction is being achieved. An initial performance test is required within 180 days after the compliance date of the engine (Test conducted on ML 1 on June 23, 2015, ML 2 on June 24, 2015, and ML 3 on November 12, 2015). According to Table 3, Item 1, Transco is also required to perform semiannual performance tests. After Transco has demonstrated compliance for two consecutive semiannual performance tests, the frequency of subsequent performance tests may be reduced to annually. However, if a performance test indicates that an engine is not in compliance with the CO emission limitation, or the engine has deviated from any operating limitations, Transco must resume semiannual performance tests. Performance test requirements are outlined in Table 4 to Subpart ZZZZ.

### Continuous Compliance Monitoring

Transco meets the CO reduction requirement by implementing a continuous parameter monitoring system (CPMS). In accordance with Table 6, Transco is required to collect catalyst inlet temperature data in accordance with the monitoring requirements of 40 CFR §63.8; reduce the data to 4-hour rolling averages; and measure the pressure drop across the catalyst once per month.

### Notifications

According to 40 CFR §63.6645(c), Transco is required to submit an Initial Notification not later than 120 days after the source becomes subject to the relevant standard. 40 CFR §63.6645(g) requires Transco to submit a Notification of Intent at least 60 days prior to conducting each performance test. They are also required to submit a Notification of Performance Evaluation and Site-Specific Performance Evaluation Test Plan for the CPMS at least 60 days prior to conducting each performance test. 40 CFR §63.6645(h)(2) requires Transco to submit a Notification of Compliance Status, including performance test results, within 60 days of completing the performance test.

### Reports

The reporting requirements are outlined in Table 7. Transco is required to submit a semiannual compliance report based on calendar year periods January – June and July – December. Each report must be submitted by July 31<sup>st</sup> and January 31<sup>st</sup>, respectively, and the compliance report must contain the information outlined in 40 CFR §63.6650(c) and (e).

### Recordkeeping

All notifications and reports (and supporting documentation) as well as records pertaining to initial and continuous compliance must be maintained for a period of 5 years from the date of each record or report. They must be maintained on-site for at least 2 years and may be kept off-site for the remaining 3 years.

General Provisions (40 CFR Part 63, Subpart A)

Transco is required to comply with all applicable general provisions of 40 CFR Part 63, Subpart A, except the provisions related to opacity or visible emission standards and COMS since Subpart ZZZZ does not contain these standards or requirements. Table 8 to Subpart ZZZZ also specifies what sections of the subpart have additional or more stringent requirements than the general provisions.

***NESHAP –Subpart YYYY***

Mainline Unit No. 4 is subject to the Initial Notification requirements only of the National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines (40 CFR Part 63, Subpart YYYY) [Adopted by reference in ADEM Admin. Code r. 335-3-11-.06(102)] as set forth in 40 CFR §63.6145. Transco’s application dated August 26, 2013, for the proposed turbine served as their initial notification.

**NSPS**

***New Source Performance Standards (NSPS) –Subpart JJJJ***

On January 18, 2008, the EPA promulgated 40 CFR Part 60, Subpart JJJJ, Standards of Performance for Stationary Spark Ignition Internal Combustion Engines (SI ICE) [Adopted by reference in ADEM Admin. Code r. 335-3-10-.02(88)].

40 CFR §60.4230(a)(4)(i) states that stationary SI ICE are subject to this subpart if construction commences after June 12, 2006, and the SI ICE is manufactured on or after July 1, 2007, for engines with a maximum engine power greater than or equal to 500 hp. Since the mainline units were ordered (“construction commenced”) on August 2008, and October 2009, respectively, they would be subject to this subpart.

For emergency engines with a maximum engine power greater than 19 KW (25 hp), 40 CFR §60.4230(a)(4)(iv) states that stationary SI ICE are subject to this subpart if construction commences after June 12, 2006, and the SI ICE is manufactured on or after January 1, 2009. Since the emergency generators were ordered on May 29, 2009, and May 21, 2010, respectively, they would be subject to this subpart.

Emission Limitations

The mainline engines and the emergency generators must each meet a NOx emission standard of 2.0 g/hp-hr (or 160 ppmvd at 15% O<sub>2</sub>), a CO emission standard of 4.0 g/hp-hr (or 540 ppmvd at 15% O<sub>2</sub>), and a VOC emission standard of 1.0 g/hp-hr (or 86 ppmvd at 15% O<sub>2</sub>). According to 40 CFR §60.4234, Transco must operate and maintain the mainline engines and the emergency generators in a manner that meets these emission standards over the entire life of the engines.

Compliance Requirements

40 CFR §60.4243(b)(2)(ii) states that an owner or operator of a stationary SI ICE greater than 500 hp must keep a maintenance plan and records of maintenance conducted on both the mainline

engines and the emergency generators, and must, to the extent practicable, maintain and operate the engines in a manner consistent with good air pollution control practices for minimizing emissions.

Also, for the emergency generators, 40 CFR §60.4243(d) limits the operation of each unit for the purpose of maintenance checks and readiness testing to no longer than 100 hours per year. Transco may operate each emergency generator up to 50 hours per year in non-emergency situations, but those 50 hours are counted towards the 100 hours per year provided for maintenance and testing. The 50 hours per year for non-emergency situations cannot be used for peak shaving, to generate income for a facility, or to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity. Any operation other than emergency operation, maintenance and testing, and operation in non-emergency situations for 50 hours per year is prohibited.

#### Testing Requirements

Performance test requirements are outlined in 40 CFR §60.4244. In accordance with 40 CFR §60.4243(b)(2)(ii), since the units are all non-certified, Transco performed an initial performance test for NO<sub>x</sub>, CO, and VOC on August 24, 2010, for Mainline Unit Nos. 1 and 2, on November 16, 2010, for Emergency Unit No. 1, on August 3, 2011, for Emergency Unit No. 2, and on August 5, 2011, for Mainline Unit No. 3. Transco is required to perform subsequent performance tests every 8,760 hours of operation or every three years, whichever comes first.

#### Notification, Reports, and Records

40 CFR §60.4245(a) requires that owners and operators of all stationary SI ICE that are subject to Subpart JJJJ keep records of all submitted notifications and any supporting documentation. Records of all maintenance conducted on the engines must also be maintained. Also, 40 CFR §60.4245(c) requires that owners and operators of stationary SI ICE greater than 500 hp submit an initial notification as required in 40 CFR §60.7(a)(1). Transco's applications dated March 13, 2009, May 21, 2009, and December 3, 2009, respectively, for the engines and emergency generators served as their initial notification. In addition, 40 CFR §60.4245(d) requires that a copy of all performance tests be submitted within 60 days after the test has been completed. All required records must be retained for at least five years from the date of generation of each record and be readily available for inspection upon request.

#### ***NSPS –Subpart KKKK***

On July 6, 2006, EPA promulgated 40 CFR Part 60, Subpart KKKK, Standards of Performance for Stationary Combustion Turbines [Adopted by reference in ADEM Admin. Code r. 335-3-10-.02(89)].

Since Mainline Unit No. 4 has a heat input at peak load greater than 10 MMBtu/hr and because construction commenced after the February 18, 2005, applicability date, it is subject to this subpart. The turbine is classified as a new turbine firing natural gas and with a heat input at peak load > 50 MMBtu/hr and ≤ 850 MMBtu/hr.

### Emission Limitations

Subpart KKKK regulates emissions of NO<sub>x</sub> and SO<sub>2</sub>. Transco is required to meet a NO<sub>x</sub> emission limit of 25 ppmvd at 15% O<sub>2</sub> or 150 ng/J of useful output (1.2 lb/MWh). 40 CFR §60.4330 provides two options for this unit for compliance with the SO<sub>2</sub> emission limit. Transco can either comply with option one, which states SO<sub>2</sub> gaseous discharge from the turbine may not exceed 110 ng/J (0.90 lb/MWh gross output), or option two, which states the emissions of total potential sulfur from the fuel burned in the turbine may not exceed 26 ng SO<sub>2</sub>/J (0.060 lb SO<sub>2</sub>/MMBtu) heat input. Transco's application indicates they chose option one. The turbine has potential to emit NO<sub>x</sub> at 15 ppmvd at 15% O<sub>2</sub>, CO at 25 ppmvd at 15% O<sub>2</sub>, and VOC at 25 ppmvd at 15% O<sub>2</sub>. In order to be exempt from monitoring the total sulfur content of the fuel burned in the turbine, Transco may demonstrate the fuel burned in the turbine does not exceed potential sulfur emissions of 26 ng/J (0.060 lb SO<sub>2</sub>/MMBtu) heat input by maintaining the fuel quality characteristics in a current, valid purchase contract, tariff sheet, or transportation contract for the fuel, specifying the maximum total sulfur content for oil use is 0.05 weight percent (500 ppmw) or less, the total sulfur content of natural gas use is 20.0 grains of sulfur or less per 100 standard cubic feet, or has potential sulfur emissions of less than 26 ng/J (0.060 lb SO<sub>2</sub>/MMBtu) heat input. Transco has opted to certify the fuel burned in the unit meets the definition of natural gas by maintaining a current tariff sheet specifying that the maximum total sulfur content of the fuel is 20.0 grains/100 scf or less as allowed by 40 CFR §60.4365(a) to demonstrate compliance with the SO<sub>2</sub> standard.

### Testing Requirements

40 CFR §60.4400 requires an initial performance test within 60 days of achieving maximum production rate, but not later than 180 days after initial startup as required by 40 CFR §60.8(a). Transco performed an initial performance test on September 24, 2015, which showed compliance with the applicable NO<sub>x</sub> emission limit. Subsequent NO<sub>x</sub> performance tests are required on an annual basis. 40 CFR §60.4340(a) states that if NO<sub>x</sub> emission results from the initial performance test are less than or equal to 75% of the NO<sub>x</sub> emission limit, then the frequency of subsequent performance tests may be reduced to once every two years (no more than 26 calendar months following the previous performance test). If the results of any subsequent performance test exceed 75% of the NO<sub>x</sub> emission limit, then annual performance testing must resume.

### Notification, Reports, and Records

40 CFR §60.8(d) requires Transco to notify the Air Division at least 30 days prior to conducting any performance test. 40 CFR §60.4375(b) requires Transco to submit a written test report within 60 days of completing the performance test. Transco will also comply with the reporting requirements in 40 CFR §60.7. Since this facility is a major source under Title V regulations, all records required under this Subpart must be retained for at least five years from the date of generation of each record and be readily available for inspection upon request.

### ***NSPS –Subpart OOOO***

The compressors associated with Mainline Unit Nos. 1-3 and Emergency Generator Nos. 1 and 2 commenced construction prior to the August 23, 2011, applicability of 40 CFR Part 60, Subpart OOOO, Standards of Performance for Crude Oil and Natural Gas Production, Transmission and

Distribution for which Construction, Modification or Reconstruction Commenced After August 23, 2011, and on or before September 18, 2015 [Adopted by reference in ADEM Admin. Code r. 335-3-10-.02(91)]; therefore, these units are not subject to this subpart.

The compressor associated with Mainline Unit No. 4 commenced construction on May 9, 2013. Therefore, this unit is a potential affected source under this subpart. However, since the centrifugal compressor does not employ wet seals and is not located between the wellhead and the point of custody transfer to the natural gas transmission and storage segment, it is not subject to this subpart.

### ***NSPS –Subpart OOOOa***

Compressor Station 85 is considered a natural gas compressor facility and is potentially subject to 40 CFR Part 60, Subpart OOOOa, Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification, or Reconstruction Commenced After September 18, 2015 [Adopted by reference in ADEM Admin. Code r. 335-3-10-.02(91)(a)]. However, all equipment and processes potentially subject to this regulation commenced construction or were modified prior to the applicability date, therefore, this facility is not subject to this subpart.

### **Applicability: State Regulations**

Although the reciprocating engines, turbine, and the natural gas-fired emergency generators at this facility are fuel combustion sources, they are not subject to any particulate matter (as TSP) emission limitation of ADEM Admin. Code Chap. 335-3-4 or any sulfur dioxide (SO<sub>2</sub>) emission limitation of ADEM Admin. Code Chap. 335-3-5 because they do not meet the definition of fuel burning equipment nor is this facility considered one of the process industries, general or specific. The engines, turbine, and generators would, however, be subject to the visible emissions standards of ADEM Admin. Code r. 335-3-4-.01(1). Since they are fired exclusively with natural gas, they would be expected to be able to comply with this standard.

### **Emission Testing and Monitoring**

Transco would be required to certify on a semiannual basis that only natural gas was burned in the reciprocating engines, turbine, and emergency generators as a method for monitoring compliance with the visible emission requirements of ADEM Admin. Code r. 335-3-4-.01(1) because opacity would be negligible while combusting natural gas.

Compliance with the applicable synthetic minor source limits for Mainline Unit Nos. 1-3, and Emergency Generator Nos. 1 and 2 shall be evaluated during the emission testing required for 40 CFR Part 60, Subpart JJJJ and 40 CFR Part 63, Subpart ZZZZ. Periodic monitoring proposed for Mainline Unit. No. 4 is the same as required for 40 CFR Part 60, Subpart KKKK. The first emission testing conducted following the issuance of this permit shall be conducted using an approved US EPA Reference Method. Emission testing for the remainder of the permit term may be conducted using either an approved EPA Reference Method or an alternate method if approved in advance by the Air Division. After the first emissions test conducted following the issuance of this renewal permit, no periodic monitoring will be required if a unit does not operate for production purposes during the annual testing period.

### **Recordkeeping and Reporting Requirements**

As part of the Semiannual Monitoring Report, in addition to the records requirements in 40 CFR §60.4245(a), (c), (d), 40 CFR §60.4375, 40 CFR §63.6650 and 40 CFR §63.6660, Transco would be required to include a statement addressing whether only natural gas was fired in each unit during the respective reporting period. Transco would also be required to include a statement addressing whether a unit operated for production purposes during the respective reporting period. Transco would be required to submit the results of all emission tests conducted to the Air Division within 30 days of the actual completion of the test. Transco would be required to maintain the most current fuel tariff sheet on-site in a form suitable for inspection.

### **Compliance Assurance Monitoring (CAM)**

Although Mainline Unit 3 utilizes an active control device to meet an emission standard, this unit would not be subject to CAM because 40 CFR §64.2(b)(i) exempts units subject to an emission standard proposed after November 15, 1990, pursuant to Section 111 or 112 of the Clean Air Act. This unit is subject to NSPS, Subpart JJJJ, Standards of Performance for Stationary Spark Ignition Internal Combustion Engines (SI ICE), which is a standard that meets this exemption.

### **Public Notice**

The renewal of this Title V MSOP would require a 30-day public comment period and a 45-day EPA review period.

### **Recommendation**

I recommend that Transcontinental Gas Pipe Line's Title V MSOP be renewed with the requirements noted above pending the resolution of any comments received during the 30-day public comment period and the EPA 45-day review.

*Andrea Sellers*

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Date

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