OFFICE OF ENVIRONMENTAL QUALITY CONTROL
BUREAU OF AIR QUALITY
POLLUTION CONTROL PROJECT (PCP) CONSTRUCTION PERMIT

Transcontinental Gas Pipeline Corporation – Station 140
2201 Moore-Duncan Hwy
Moore, SC 29369

Permission is hereby granted to perform combustion modifications / overhauls to Main Line Unit #'s 1 through 13 to reduce NOx emissions as part of a Pollution Control project. Combustion modifications will incorporate High Pressure Fuel Injection "HPFi" technology to reduce the NOx emissions.

NOTWITHSTANDING ANY OF THE CONDITIONS LISTED BELOW, NO APPLICABLE LAW, REGULATION, OR STANDARD MAY BE VIOLATED.

CONDITIONS

1. All official correspondence, plans, permit application forms, and written statements are an integral part of this permit.

2. **THE DIRECTOR OF THE ENGINEERING SERVICES DIVISION MUST BE NOTIFIED IN WRITING UPON THE BEGINNING OF CONSTRUCTION AND STARTUP OF EACH PERMITTED FACILITY.**

3. This construction permit shall expire one year from date issued. This permit may be extended one year upon approval by the Bureau following the written request from the permittee. This request must be made prior to the permit expiration.

4. An expired construction permit may be reactivated within one year of the expiration only upon approval by the Bureau following the written request of the permittee. This request shall address all laws, regulations, and standards applicable at the time of request for reactivation.

This is pursuant to the provisions of Section 48-1-110, 1976 *Codes of South Carolina*, as amended, and the *South Carolina Air Quality Control Regulation 61-62.1*, Section II.

PERMIT NUMBER: 2060-0179-CD
PLANT LOCATION: 2201 MOORE-DUNCAN HWY - MOORE, SC 29369
DATE OF ISSUE: April 27, 2004
FACILITY SIC CODE: 4922

I. STANDARD CONDITIONS

A. This permit expressly incorporates all the provisions of *South Carolina Department of Health and Environmental Control Regulation 61-62.1*, Section II, Paragraph C.

II. SPECIAL CONDITIONS

A. EMISSION LIMITATIONS

Air pollutant emissions shall not exceed the following:

EQUIP ID	Pollutant/ Standard	[1]Limit	Reference Method	Regulation	State Only
MU-1-MU-6	Opacity	40%	9	SC Regulation 61-62.5, Standard No. 4, Section IX B.	No
MU7-MU-13	Opacity	20%	9	SC Regulation 61-62.5, Standard No. 4, Section IX B.	No
MU-1	NO_x	25.6 lbs/hr	7 or 7(A-E)[2]	N/A	Yes
MU-2	NO_x	25.6 lbs/hr	7 or 7(A-E)[2]	N/A	Yes
MU-3	NO_x	25.6 lbs/hr	7 or 7(A-E)[2]	N/A	Yes
MU-4	NO_x	25.6 lbs/hr	7 or 7(A-E)[2]	N/A	Yes
MU-5	NO_x	25.6 lbs/hr	7 or 7(A-E)[2]	N/A	Yes
MU-6	NO_x	25.6 lbs/hr	7 or 7(A-E)[2]	N/A	Yes
MU-7	NO_x	26.9 lbs/hr	7 or 7(A-E)[2]	N/A	Yes
MU-8	NO_x	26.9 lbs/hr	7 or 7(A-E)[2]	N/A	Yes
MU-9	NO_x	26.9 lbs/hr	7 or 7(A-E)[2]	N/A	Yes
MU-10	NO_x	34.9 lbs/hr	7 or 7(A-E)[2]	N/A	Yes
MU-11	NO_x	34.9 lbs/hr	7 or 7(A-E)[2]	N/A	Yes
MU-12	NO_x	34.9 lbs/hr	7 or 7(A-E)[2]	N/A	Yes
MU-13	NO_x	34.9 lbs/hr	7 or 7(A-E)[2]	N/A	Yes

N/A = Not Applicable
[1] NOx limits are effective 01 May 2007 and apply during the Control Period 01 May through 30 September.
[2] As Approved per Test Plan

The emission limitations listed for each emission unit are based on operation at permitted capacity. Operation at less than permitted capacity must meet emission limits specified in the applicable regulations based on that operating rate. All test methods must be the most recent revisions that are published in the *Code of Federal Regulations*, in accordance with the requirements of SC Regulation 61-62.1, Section IV, Source Test.

B. CONTINUOUS MONITORING REQUIREMENTS

ID	Pollutant
N/A	N/A

N/A = Not Applicable

C. SOURCE TEST SCHEDULE

ID	Pollutant	Frequency	Method
All	NO_x	Initial	As Approved per Test Plan
One Engine per Group	NO_x	Every Control period	As Approved per Test Plan

N/A = Not Applicable

D. ADDITIONAL CONDITIONS

Condition Number	Conditions
1.	The permittee shall pay fees in accordance with SC Regulation 61-30, SC Environmental Protection Fees.
2.	In accordance with SC Regulation 61-62.1 Section II(C)(3), for all sources not required to have continuous emissions monitors, in the event of any malfunction of air pollution control equipment or system, process upset or other equipment failure which results in discharges of air contaminants lasting for one hour or more and which are greater than those discharges described for normal operation in the permit application shall be reported to the local Environmental Quality Control (EQC) District office within twenty-four (24) hours after the beginning of the occurrence. The permittee shall also submit a written report within thirty (30) days of the occurrence. This report shall be submitted to the Manager of the Technical Management Section, Bureau of Air Quality (BAQ). The report shall contain as a minimum, the following: the identity of the emission unit and associated equipment where excess emissions occurred, the magnitude of excess emissions, the time and duration of excess emissions, the steps taken to remedy the malfunction and to prevent a recurrence, documentation that control equipment and processes were at all times maintained and operated, to the maximum extent practicable, in a manner that was consistent with good practice for minimizing emissions. Such a report shall in no way serve to excuse, otherwise justify, or in any manner affect any potential liability or enforcement action resulting from the occurrence.
3.	Air dispersion modeling (or other method) has demonstrated that this facility's operation will not interfere with the attainment and maintenance of any state or federal standard. Any changes in the parameters used in the air dispersion modeling may require a review by the facility to determine continuing compliance with these standards. These potential changes include any decrease in stack height, decrease in stack velocity, increase in stack diameter, decrease in stack exit temperature, increase in building height or building additions, increase in emission rates, decrease in distance between stack and property line, changes in vertical stack orientation, and installation of a rain cap that impedes vertical flow. Parameters that are not required in the determination will not invalidate the demonstration if they are modified. The emission rates used in the determination are listed in Attachment A of this permit. Higher emission rates may be administratively incorporated into Attachment A of this permit provided a demonstration using these higher emission rates shows the attainment and maintenance of any state or federal standard or with any other applicable requirement. Variations from the input parameters in the demonstration shall not constitute a violation unless the maximum allowable ambient concentrations identified in the standard are exceeded. The owner/operator shall maintain this facility in compliance with the pollutant limitations in Section II(A) - Emissions Limitations, and/or as listed in Attachment A of this construction permit, whichever is more restrictive. This is a State Only enforceable requirement. Should the facility wish to increase the emission rates listed in Attachment A, it may do so by the administrative process specified in this permit condition.

Condition Number	Conditions
4.	These conditions shall not supersede any State or Federal requirements such as National Emission Standards for Hazardous Air Pollutants, unless these conditions would impose a more restrictive limit.
5.	This construction permit was reviewed and issued based on the permit application submitted by the owner/operator. The owner/operator shall obtain any Bureau authorization required under South Carolina Regulation 61-62.1, Section II(A)(1) prior to making modifications not covered under this construction permit.
6.	The owner/operator of this facility must submit a written request to obtain an operating permit to the Director of Engineering Services Division no later than fifteen (15) days prior to placing each modified engine into operation. After submittal of this request the facility may operate this source in accordance with the terms and conditions contained in this permit, until such time as the Bureau of Air Quality incorporates this source into the facility's operating permit.

Opacity	
7.	In accordance with SC Regulation 61-62.5, Standard No. 4 - Emissions from Process Industries, Section IX - Visible Emissions (Where Not Specified Elsewhere), where construction or modification began on or before December 31, 1985, emissions (including fugitive emissions) shall not exhibit an opacity greater than 40%.
8.	In accordance with SC Regulation 61-62.5, Standard No. 4 - Emissions from Process Industries, Section IX - Visible Emissions (Where Not Specified Elsewhere), where construction or modification began after December 31, 1985, emissions (including fugitive emissions) shall not exhibit an opacity greater than 20%.

Fuel Usage	
9.	Each engine described under this permit is permitted to burn only natural gas as fuel. The use of any other substances as fuel is prohibited without prior written approval from the Bureau of Air Quality.

Condition Number	Conditions
Notification Requirements	
10.	This project involves overhaul and combustion modification activities for multiple emission units. The notification requirements per page 1, condition 2 of this permit, may be complied with via a one-time written notification made to the Department within 10 days of commencement of project activities. Thereafter, the permittee shall submit quarterly progress reports to the Department. The quarterly reports shall address the status of overhaul and modification activities made to reciprocating engine units MU-1 through MU-13 to achieve compliance with the control period NOx emission limits effective May 1, 2007. The first quarterly report shall reflect progress made during the 2nd quarter of calendar year 2004. The report shall be submitted no later than thirty (30) days after the end of the calendar quarter. Each report shall contain the following minimum information: a. Status of each engine overhaul, including anticipated/actual start dates and anticipated/actual completion dates; b. Status of each engine modification, including anticipated/actual start dates and anticipated/actual completion dates; c. Projected dates for engine mapping, performance and compliance testing. Progress reports shall be required until such time that all engine combustion modifications have been completed and reported to the Department.

Compliance with NOx Emission Limitation	
11.	For each affected engine, the NOx emission rates as specified in Section II.A of this permit shall apply during the control period, beginning May 1, 2007. The control period emission rates reflect the per engine potential to emit (PTE) NOx emission rates stated in the permit application submitted by the Permittee. Actual control period NOx emission rates exceeding the PTE emission rates shall not occur without proper application and approval by the Department. During each control period beginning in 2007, the Permittee shall demonstrate compliance with the hourly control period NOx emission limits on a continuous basis per testing, monitoring, recordkeeping and reporting requirements of this permit. Control period means the period of time beginning May 1 of a year and ending September 30 of the same year, inclusive.

Condition Number	Conditions
General Source Requirements Using EPA Methods	
12.	The permittee shall cause to be conducted a performance test at any specified emission point when so required by the Department or as required under this permit. For any required performance or compliance test, the test shall be conducted according to SC DHEC Regulations 61-62.1, Section IV and as follows: i. The permittee shall ensure that affected engine initial performance tests, periodic performance tests and seasonal compliance tests are conducted while the affected engine is operating near the maximum expected production rate or other production rate or operating parameter that would result in the highest emissions for the pollutants being tested. ii. All instrumentation and recording devices installed shall be calibrated and operating when the performance or compliance test is conducted. iii. During the performance or compliance test, the Permittee shall measure and record operating data for the parameters that are required to be monitored under permit conditions 16 and 17. This information must be submitted along with the final test report. SC DHEC Regulations 61-62.1, Section IV requires submittal of a test plan for approval at least sixty (60) days before commencement of any performance test.
Engine Mapping Test Requirements Using EPA Methods	
13.	After completion of the combustion modifications, but prior to May 1, 2007, on each affected engine the permittee shall perform an engine mapping test comprised of a series of at least nine (9) stack test runs. The purpose of the mapping test is to establish a demonstrable correlation between engine operating parameters and NOx emissions using EPA Reference Methods (40 CFR 60, Appendix A). During the stack test runs, each affected engine shall operate over a range of operating conditions sufficient to determine the constants for an equation defining a critical trapped equivalence ratio (TER_C) as a function of operating rate. Within the timeframe specified per SC DHEC Regulation 61-62.1 Section IV, the permittee shall submit to the Department an engine mapping test report that includes, for each engine, the values of the constants A, B, and C to the equation per Condition 17 and defining TER_C as a function of fuel flow per revolution parameter (FF_{SCFM}/RPM). The test report shall also include the values of engine speed and % engine load (% torque) corresponding to each stack test run as measured during engine mapping. Values for parameters AF_{ST} (Stoichiometric Air Flow) and FSG (Fuel Specific Gravity), along with source derivation of the values shall also be included in the test report. The constants A, B and C and parameters AF_{ST} and FSG may be re-established with engine re-mapping, performed as required under this condition, following Department approval. Engine mapping, performed as required under this condition, shall be repeated whenever modifications or changes are made to an engine that significantly affects the parametric results established by prior engine mapping.
Initial/Periodic Performance Test Requirements Using EPA Methods	
14.	After completion of the combustion modifications on the affected engines, but prior to May 1, 2007, the permittee shall conduct initial performance tests to verify the mass emission rates of NO_X, CO, and VOC from each engine. Each affected engine shall undergo periodic performance retesting every five (5) years.

Condition Number	Conditions
Seasonal Compliance Testing	
15.	Beginning May 1, 2007, the permittee shall conduct annual control period compliance testing to confirm that operation of the engines, in accordance with the AMP_C equation specified in condition 16 with the constants established during mapping specified in Condition 13, continues to indicate compliance with the NOx emission limits. Seasonal compliance testing shall be conducted as follows: a. NOx emission measurements shall be conducted using a portable analyzer capable of measuring NOx emissions over the full range of expected engine operation; b. While NOx emission measurements are being made, the engine speed (RPM) and % engine load (% torque) shall also be recorded. c. Prior to performance of portable analyzer tests, a test plan must be submitted for approval in accordance with SC DHEC Regulations 61-62.1, Section IV. d. Each compliance test using a portable analyzer or alterative method shall be at least twenty (20) minutes in duration and measurements shall be made and recorded at one minute intervals. Three (3) test runs shall be conducted during the compliance testing. e. Any exceedance of the NOx emission limitations of Section II(A) resulting from averaging the measurements of the three (3) test runs of the NOx emission rates, shall be promptly reported to the Department, as required under permit Condition II.D.2 of this permit. f. The engine shall be tested in the "as found" condition. The engine may not be adjusted or tuned prior to any test for the purpose of lowering emissions, and then returned to previous settings or operating conditions after the test is completed. g. Seasonal compliance testing shall involve at least one engine per year from each Equipment ID group as defined below. h. A different engine from each Equipment ID group shall be tested in subsequent control periods. i. Compliance testing for any one engine shall not be repeated until all engines within its respective Equipment ID group shall have been subjected to the seasonal test cycle. j. Inconsistent test results may cause all engines to be tested during the next required engine-testing season. k. When periodic performance retesting per Condition 14 is conducted during the control period, on at least one engine from one of the four Engine ID groups, a control period compliance test for that Engine ID group will not be required for that control period season. l. The four engine Equipment ID groups are as follows: **Group 01 – MU-1 – MU-6 – 2500 hp (2400 nameplate)** **Group 02 – MU-7 – MU-9 – 2625 hp (2500 nameplate)** **Group 03 – MU-10 – MU-11 – 3400 hp (3400 nameplate)** **Group 04 – MU-12 – MU-13 – 3400 hp (3400 nameplate)**

Condition Number	Conditions
Monitoring Requirements	
16.	After completion of the combustion modifications on the affected engines, but prior to May 1, 2007, the permittee shall install, calibrate, maintain, and operate a parametric emissions monitoring system utilizing the equations specified in Condition 17. During each control period beginning May 1, 2007, the permittee shall collect the following data values at least once every fifteen (15) minutes with data averaged and recorded every sixty (60) minutes: FF_{SCFM} = Fuel Flow in Standard cubic feet per minute or SCFM RPM = Engine Speed in RPM % Torque = % Engine Load V_{TRAP} = Engine Trapped Volume in cubic feet AMT = Air Manifold Temperature in °F AMP_C = Critical Air Manifold Pressure in inches of Hg AMP_{ACT} = Actual Air Manifold Pressure in inches of Hg TER_C = Critical Trapped Equivalence ratio in inches of Hg Measurement records shall be maintained in logs, written or electronic (i.e., computerized data system) for the period specified in Condition 18.

Condition Number	Conditions
17.	During each control period beginning May 1, 2007, the permittee shall use the following equations and the data recorded under permit condition 16 to calculate the Critical Air Manifold Pressure, AMPc (inches of Hg) and the Critical Trapped Equivalence Ratio TERc at least once every fifteen minutes, with data averaged and recorded once every sixty (60) minutes as specified in Condition 16. $$AMPc = \left[\frac{\left(AF_{ST} \times (0.0765 \times FSG) \times \frac{FF_{SCFM}}{RPM} \times (AMT + 460) \right)}{(2.699 \times TER_C \times V_{TRAP})} - 14.73 \right] \times 2.036$$ where: AF_{ST} = Stoichiometric Air/Fuel Ratio . FSG = Fuel Gas Specific Gravity. FF_{SCFM} = Fuel Flow Rate (Standard cubic feet per minute or SCFM) RPM = Engine Speed in RPM AMT = Air Manifold Temperature (°F) TER_C = Critical Trapped Equivalence ratio V_{TRAP} = Engine Trapped Volume (cubic feet) AMP_C = Critical Air Manifold Pressure (inches of Hg) and $$TER_C = A \times \left(\frac{FF_{SCFM}}{RPM} \right)^2 + B \times \left(\frac{FF_{SCFM}}{RPM} \right) + C$$ where: A, B, and C are constants to be determined during the engine mapping tests per Condition 13. During nominal operation, the AMP_{ACT} for each affected engine is expected to be above the AMP_C for that same engine. A "deviation" from nominal operation shall be defined as any instance where the one-hour average AMP_{ACT} for an affected engine is less than the one-hour average AMP_C for the same affected engine and time period. For each affected engine during each control period beginning May 1, 2007, if the three-hour average AMP_{ACT} is less than the three-hour average AMP_C three times during the control period, the permittee shall repeat, for that engine, the testing required in Condition 13 to re-establish the correlation between parameter levels that indicate proper operation of that engine and assure compliance with the NOx limit. Testing shall be completed and the results submitted to the Department within 90 days of the third occurrence. As specified in Condition 16, recorded values shall be maintained in logs, written or electronic (i.e., computerized data system) for the period specified in Condition 18.

Condition Number	Conditions
Recordkeeping Requirements	
18.	All reports, test reports, records shall be maintained onsite for a period of five (5) years from date of record and made available upon request for Department personnel. Records may be maintained electronically.
19.	The permittee shall calculate and record actual NOx emissions during each control period, in terms of tons, beginning in 2007. Recordkeeping shall include the numbers of hours each engine is operated during the control period including startups, shutdowns, malfunctions, and the type and duration of maintenance and repairs.

Reporting Requirements	
20.	Unless otherwise specified, all reports required under this permit shall be submitted to the Manager of the Technical Management Section, Bureau of Air Quality postmarked no later than thirty (30) days after the end of the reporting period. If no incidences occurred during the reporting period then a letter shall indicate such.
21.	All test reports required under this permit shall be submitted to the Manager of the Source Evaluation Section, Bureau of Air Quality as per the approved test plan. Each mapping test report, initial performance test report, periodic performance test report or seasonal compliance test report shall include the current test date, the previous test date and the anticipated future test date, as applicable.
22.	Within sixty (60) days after the end of each control period, the permittee shall submit a report containing the following information, at minimum: a. For each affected engine, all incidences of deviation from AMP_C as defined in Condition 17 including date and time, duration, cause, and corrective action taken during the control period. If no incidences occurred during the reporting period then a letter shall indicate such; b. For each affected engine, the hours of operation during the control period; c. For each affected engine, the actual NOx emissions (tons) during the control period; d. For each affected engine, provide information on any portable or reference method tests performed during the control period per requirements of Condition 13, Condition 14, or Condition 17.

Carl W. Richardson, P.E., Director
Engineering Services Division
Bureau of Air Quality

ATTACHMENT A

Modeled Emission Rates
TRANSCONTINENTAL PIPLEINE CORPORATION – STATION 140
CONSTRUCTION PERMIT NUMBER: 2060-0179-CD

AMBIENT AIR QUALITY STANDARDS - STANDARD 2					
STACK	Modeled Emission Rates (lbs/hr)				
	TSP	PM_{10}	SO_2	NO_X	CO
C1 – Mainline Unit No. 1	0.88	0.88	0.012	153.97	5.4
C2 – Mainline Unit No. 2	0.88	0.88	0.012	153.97	5.4
C3 – Mainline Unit No. 3	0.88	0.88	0.012	153.97	5.4
C4 – Mainline Unit No. 4	0.88	0.88	0.012	153.97	5.4
C5 – Mainline Unit No. 5	0.88	0.88	0.012	153.97	5.4
C6 – Mainline Unit No. 6	0.88	0.88	0.012	153.97	5.4
C7 – Mainline Unit No. 7	0.93	0.93	0.012	133.10	5.7
C8 – Mainline Unit No. 8	0.93	0.93	0.012	133.10	5.7
C9 – Mainline Unit No. 9	0.93	0.93	0.012	133.10	5.7
C10 – Mainline Unit No. 10	1.2	1.2	0.016	208.0	7.3
C11 – Mainline Unit No. 11	1.2	1.2	0.016	208.0	7.3
C12 – Mainline Unit No. 12	1.2	1.2	0.016	75.0	7.3
C13 – Mainline Unit No. 13	1.2	1.2	0.016	75.0	7.3
C14 – Mainline Unit No. 14	1.94	1.94	0.025	303.1	10.50
C15 – Mainline Unit No. 15	5.29	5.29	0.069	20.7	14.99
AC1 – Air Compressor Unit No. 1	0.04	0.04	0.001	0.63	0.330
AC2 – Air Compressor Unit No. 2	0.04	0.04	0.001	2.43	0.330
AUX1 – Auxiliary Generator Unit No. 1	0.14	0.14	0.002	49.8	0.370
AUX2 – Auxiliary Generator Unit No. 2	0.14	0.14	0.002	49.8	0.430
AUX3 – Auxiliary Generator Unit No. 3	0.14	0.14	0.002	49.8	0.310
FACILITY TOTAL	20.6	20.6	0.274	2,365.38	105.96

AMBIENT AIR QUALITY STANDARDS - STANDARD 2		
STACK	Modeled Emission Rates (lbs/hr)	
	Lead	Gaseous Fluorides (as HF)

CLASS II PREVENTION OF SIGNIFICANT DETERIORATION - STANDARD 7			
STACK	Modeled Emission Rates (lbs/hr)		
	PM_{10}	SO_2	NO_X
AC2 – Air Compressor Unit No. 2	0.04	--	2.43
FACILITY TOTAL	0.04	--	2.43

TOXIC AIR POLLUTANTS MODELED - STANDARD 8					
STACK	Modeled Emission Rates (lbs/hr)				
	<POLLUTANT> <CAS NUMBER>	<POLLUTANT> <CAS NUMBER>	<POLLUTANT> <CAS NUMBER>	<POLLUTANT> <CAS NUMBER>	<POLLUTANT> <CAS NUMBER>

April 27, 2004

Transcontinental Gas Pipeline Corporation – Station 140
PO Box 1396
Houston, TX 77251-1396

ATTENTION: Mrs. Mary Beth Whitfield

Dear Mrs. Whitfield:

Your permit application has been reviewed by our technical staff. Enclosed is Construction Permit No. 2060-0179-CD. Please note the conditions on this permit by reading it carefully. In order to comply with Department Regulation 61-72, this construction permit is not effective until 15 calendar days after the date of issue listed on the permit.

In addition to this permit to construct, a permit to operate is required in accordance with the Air Pollution Control Regulations and Standards for the State of South Carolina. The regulations require a written request to obtain an operating permit be submitted to this Department no later than 15 days prior to placing the new, increased, or altered source in operation.

Please examine this new permit carefully for errors or omissions and notify the appropriate staff member, Jerry Freck, at (803) 898-7787, or by e-mail at freckje@dhec.sc.gov, promptly if any are discovered.

Sincerely,

Carl W. Richardson, P.E., Director
Engineering Services Division
Bureau of Air Quality

CWR:JEF:pe

Validity unknown Jerry E. Freck

Digitally signed by Jerry E. Freck
DN: cn=Jerry E. Freck, o=SCDHEC/EQC/BAQ, ou=ESD/Permitting, c=US
Date: 2004.11.15 14:10:50 -05'00'
Reason: Document is certified
Location: ESD/BAQ/SCDHEC

Enclosure

cc: Mr. Ron Garrett, Appalachia III District EQC Office
Permit File: 2060-0179
Main File: 2060-0179

D H E C
PROMOTE PROTECT PROSPER
South Carolina Department of Health and Environmental Control

2600 Bull Street, Columbia, SC 29201
Phone 803-898-4123 Fax: 803-898-4079

Validity unknown Jerry E. Freck

Digitally signed by Jerry E. Freck
DN: cn=Jerry E. Freck, o=SCDHEC/EGC/BAQ, ou=ESD/Permitting, c=US
Date: 2004.11.15 14:11:16 -05:00'
Reason: I am the author of this document
Location: ESD/BAQ/SCDHEC

ENGINEERING CALCULATION SHEET

BAQ ENGINEERING SERVICES DIVISION

PROJECT/PROPOSAL NAME:	WILLIAMS-TRANSCO STATION 140	PERMIT WRITER:	Jerry E. Freck
LOCATION (STREET, CITY):	2201 MOORE-DUNCAN HWY MOORE, S.C. 29369		
PERMIT NUMBER:	2060-0179-CD	DATE:	27 April 2004
SIC/NAICS CODE(S):	4922 / 486210		Page 1 of 26

DATE APPLICATION RECEIVED: 31 OCT 2003 Addendums received 06 JAN 2004 and 17 FEB 2004

FACILITY DESCRIPTION: The Transcontinental Gas Pipeline Corporation (TransCo) is held by the Williams Company of Houston, Texas. TransCo Station 140 is one of over 40 natural gas compressor stations on the TransCo network. Station 140 is located on a 37.4 acre site, approximately 5 miles northwest of the I-26 – US Hwy 221 interchange (Exit 28) in Spartanburg County and 1.6 miles northwest of the intersection of SC Hwy 290 and US Hwy 221. Station 140 is part of a major natural gas transmission pipeline originating in the gathering fields of Louisiana, Texas and the Gulf of Mexico and extending across a network of over 10,500 miles. The pipeline transports about 8 billion cubic feet of natural gas per day (333 x E9 Btu/Hr HHV) and services markets along the eastern seaboard of the United States including Atlanta, Washington DC, Baltimore, Philadelphia and New York.

The incoming pipeline consists of a single 30" diameter steel main, two 36" diameter steel mains and a 42" diameter steel main. Each incoming gas main delivers natural gas at a nominal operating pressure of 600 psi at an approximate linear velocity of 78 ft/sec. There are three outgoing gas mains – a single 30" diameter main and two 36" diameter lines – all operating at a maximum allowable pressure of 800 psi and an average linear gas velocity of 118 ft/sec. In addition, a 16" bulk delivery main exits the facility to feed natural gas to an electric generating utility located in Buncombe County, NC (Carolina Power and Light Skyland Power Plant). Incoming and outgoing gas mains that connect to the natural gas-fired internal combustion turbine are insulation jacketed to minimize potentially damaging high-frequency harmonic vibrations and audible noise. For safety reasons, gas mains are sub-surface except where they appear above ground to facilitate connection with the pumping station, metering stations and delivery points.

Station 140 was first constructed in 1951. It collects incoming natural gas, compresses it to a higher pressure and re-injects it into the outgoing gas transmission mains. This increase in pipeline pressure facilitates bulk transportation of the natural gas to the next pumping station (Station 145) near Grover, NC. Compression of the gas is accomplished via 14 mainline natural gas-fired reciprocating internal combustion engines and a natural gas-fired internal combustion turbine. The engines are divided into 5 groups by maximum horsepower rating size, ranging from 2,500 to 3,400 HP (20 to 44 x E6 Btu/hr) Each engine has a nominal operating speed of about 250 rpm. The turbine is rated at 15,000 HP (120 x E6 Btu/hr).

The combustion turbine, known as Main Line Unit #15, commenced construction under CP # 2060-0179-CA (issued on 03 February 1989 and extended on 03 May 1990) on 30 July 1990 and was placed into operation in November 1990. Other emission equipment includes three auxiliary generators and two plant air compressors. The auxiliary generators and the air compressors are all driven by natural gas-fired reciprocating internal combustion engines. The second air compressor commenced construction in October 1996 under CP# 2060-0179-CB and began operating in July 1997. The Emissions Inventory Report shows the older air compressor as Unit 801, but the newest air compressor is missing. Notification of this omission has been made to TransCo and the Emissions Inventory Section.

Station 140's Main Line Unit # 15 was originally rated at 12,600 HP, 100.8 E6 Btu/hr and was constructed in 1990. The turbine had an excess working capacity of 5,071 HP. Prior to 1996, operation of this turbine was subject to a permit condition that required shutdown of 5,071 HP of combined maximum operational capacity from other reciprocating internal combustion engines. The facility experienced increased demand and per TransCo request, this HP restriction was removed in 1996 (CP# 2060-0179-CC). Simultaneously with that change, Unit # 15's NOx emission rate was increased from an initial rate of 66 lb/hr and 60 TPY to 72.28 lb/hr and a PTE of 334 TPY.

The working capacity of Unit #15 was increased to 15,000 HP in 1996 and its annual operation was limited to 7,660 hours. Although documents show that Unit # 15's heat input rating also increased to 120 x E6 Btu/Hr, the heat input rating was NOT increased to 120 E6 Btu/hr in permit documents. Emission modifications were made to Unit # 15 in 1997 and NOx emission rates were reduced to 20 lb/hr. Unit #'s 12 & 13 initially had NOx emission rates of 134.2 lb/hr, but underwent *HPFI*™ modifications in 1996 that resulted in NOx rate reduction of 75 lb/hr per unit. *HPFI*™ modification technology is discussed in greater detail at the end of this greensheet.

Also in 1996, Unit # 15 was deemed subject to 40CFR60.330 Subpart GG on the basis of HI ≥ 10 E6 Btu and construction after 03 October 1977. As a result, a NOx emission rate limit of "93.1 lb/hr" was set for this source. However, it is likely the NOx emission rate, if applicable, should have been expressed either in units of ppm or as % by volume. In the existing Title V permit, subjection to Subpart GG is carried forward, but the NOx limit has been set at 125 ppm. Subpart GG sets two methods for calculating the NOx emission limit. The

method prescribed for units subject to 40CFR60.332(a)(1) results in a minimum NOx limit of 75 ppm. The method prescribed for units subject to 40CFR60.332(a)(2) results in a minimum NOx limit of 150 ppm. Therefore, the limit applied in the existing Title V permit must have been derived from applicability to 40CFR60.332(a)(1). However, this unit is not used by an electric generating unit as stipulated by 40CFR60.332(b) and 40CFR60.332(a)(1) is not applicable. The units heat input rate does not fall within the range between 10 x E6 and 100 x E6 Btu as established by 40CFR60.332(c) nor is the unit used to generate electrical power as implied by 40CFR60.330(d). Therefore, a revision of Subpart GG applicability may be required in the future. As of 1996, this facility had not triggered PSD.

DATE OF LAST INSPECTION: 13 NOV 2002. A site visit was made by Jerry Freck on 09 DEC 2003.

PROJECT DESCRIPTION: This project involves NOx emission reducing combustion modifications to Mainline Unit #'s 1 through 13 only. No changes are planned for Mainline Unit # 14. Unit #'s 1-11 use a variety of "flapper valves" or turbochargers for inlet air and fuel mixtures. Combustion modifications will encompass changes to engine piston heads, piston crowns and installation of a High Pressure Fuel Injection (*HPFI*™) system to replace the existing flapper valve and turbocharger systems.

In addition, a PLC-based parametric monitoring control technique is proposed that utilizes Trapped Fuel/Air Equivalence Ratio (TER) Control. Similar modifications have already been completed on similar engine units located at TransCo Station 120 (Stockbridge, Georgia) and Station 190 (Ellicott City, Maryland). In 1996, mainline Unit #'s 12 and 13 underwent parametric optimization to reduce NOx emissions. Mainline Unit # 12 underwent *HPFI*™ modifications in 2000. In order to further reduce NOx emissions, both Unit #'s 12 and 13 will undergo additional modification as part of this project.

Mainline Unit #'s 14 and 15 will not be part of this combustion modification project. However, (Mainline Unit #15 was formerly listed as having a capacity of 12,600 HP and a heat input rating of 100.8 E6 Btu/hr (based on 8,000 Btu/HP-hr). The unit's capacity was increased to 15,000 HP via CP # 2060-0179-CC, but the heat input rating was NOT increased to the new effective value of 120 E6 Btu/hr. The heat input rating will be changed to reflect the new effective value.

Engine overhauls are scheduled to commence in May 2004. This activity will encompass routine maintenance and repair work, but will also encompass some preparatory items for the follow-on combustion modifications scheduled to take place during 2005. Overhaul activity is being grouped with the modification activity for purposes of 112(g) applicability. The applicant has provided data to support the determination of routine maintenance and repair as opposed to "modification" for purposes of 112(g) applicability.

Large lean-burn natural gas-fired internal combustion engines are subject to EPA's NOx SIP Call. Large, as defined in the NOx SIP call (63 FR 57356, October 27, 1998), means an IC engine which emitted, on average, greater than 1.0 NOx ton/day during the 1995 ozone season. As part of the NOx SIP Call, TransCo Station 140 submitted 1995 ozone season NOx emissions data to the Bureau of Air Quality. These were validated and submitted to the EPA as part of the NOx SIP Call Program. The EPA utilized an economic growth factor, as derived by the Bureau of Economic Advisors, of 1.52. This projected 2007 ozone season NOx emission levels using 1995 ozone season data as a baseline.

The resulting levels were used to derive a 2007 "control period" NOx budget and NOx emission reductions and limits. In South Carolina, the "ozone season" is defined as the period of the year beginning on 01 April and running through 31 October. The "control period" is often confused with the "ozone season". The "control period" is defined as beginning on 01 May and running through 30 September. As of the time of project initiation, the EPA had not issued a final rule specifying what emission reduction percentage will be imposed for the 2007 control period. Reductions requirements during the Phase I NOx SIP call were set at 90% of projected 2007 values. In their Construction Permit application, TransCo proposes an 82% reduction from the projected 2007 control period NOx emission rates. There is some risk that reduction rates will be higher when final rule making occurs.

The critical nature of this facility allows no disruption of plant operation. Engine overhauls and modifications will occur in a phased approach, with engines being taken down two at a time. After combustion modifications are done, engine mapping tests will be conducted. These will measure the stack emission rates as a function of engine operating parameters. The tests will determine the optimal engine input parameters required to attain desired stack NOx emission rates. Once the parameters are established, they will form part of the software that monitors and controls engine operation. A follow-on performance test will then be conducted on each engine to establish engine NOx

emission rates across a multi-point matrix that defines the engine operating envelope. During performance testing, engine speed and torque are set at various nominal levels (i.e., "low", "medium" and high"). The low end of the performance matrix is when the engine is configured to operate at low speed and low torque, while the high end of the matrix is the high-speed, high torque configuration. A key component of the combustion modification will involve changes to the piston crowns and heads. Also, the natural gas fuel, which is mixed with air through conventional systems, will instead be introduced by means of a high-pressure fuel injection *HPFI*™ system.

The AP-42 emission rates for Ethane, Formaldehyde, Methane, NMHC and Propane indicate the facility will have emissions in excess of 10 TPY for each of these HAPs. In addition, the facility will have annual emissions in excess of 9 TPY for Acetaldehyde and Acrolein, and total HAPs emissions in excess of the 265 TPY limit for all HAPs combined. This would seem to subject TransCo Station 140 to MACT for HAPs. However, *40CFR63 Subpart ZZZZ* (the R.I.C.E. MACT) is not applicable regarding this project. The affected units are excepted from Subpart ZZZZ and Subpart A (NESHAP General Provisions) because they were in existence prior to 19 DEC 2002 as per § 63.6590(b)(2)(i).

Although the units within this project are undergoing combustion modifications, the definition of reconstruction in § 63.2 limits fixed capital cost of replacement components to of 50% of the cost to replace the entire unit. The applicant has stated that total costs for this project will range from 3% to 15% of replacement cost on a per unit basis. Therefore, engine overhauls are being collectively considered together for purposes of permit application as required by S.C. Regulation 61-62.1 Section II. Notification with respect to project commencement, completion, testing and start-up, on a per unit basis, shall be allowed via a comprehensive quarterly project status report. This is intended to alleviate the need for individual notifications as each unit within the scope of this project progresses toward completion.

This project involves NOx emission reductions and collateral increases in CO and VOC emissions. These necessitate an impact assessment, but certain exclusions may be made if this project is deemed to be a Pollution Control Project (PCP). Under guidance from EPA, a project may be deemed a PCP if it is found to be "environmentally beneficial". The project must neither cause nor "contribute to a violation of a national ambient air quality standard (NAAQS), a prevention of significant deterioration (PSD) increment, or adversely affect visibility or other air quality related value (AQRV)." *(see EPA memo from John S. Seitz dated 01 Jul 1994 subject: Pollution Control projects and New Source Review (NSR) Applicability)*

This project has been deemed to be environmentally beneficial. CO modeling has demonstrated no violation of NAAQS and no PSD increment has been broken. Proper notification relating to the project has been made to Mr. Jim Little of EPA Region 4 office and Mr. Bill Jackson, the Federal Land Manager for the Class I areas of Pisgah National Forest and Nantahalah National Forest just north and northwest of Spartanburg County.

At the time of project initiation, the existing Title V operating permit contained no NOx limits. Although the combustion modifications being undertaken are intrinsic in nature, the resulting project-based NOx limits will be applicable, demonstrable and enforceable during the "control period" only. The intrinsic nature of the modification forms the basis for an expected NOx emission reduction and environmental benefit during all times of the year. However, this is not being deemed as a regulatory basis for establishing NOx limits during the remainder of the calendar year. This permit will observe a stance of silence respecting NOx emission limits for periods of the year outside the bounds of the "control period".

Compliance with the NOx limit will be parameter based in that a value for the minimum Ambient Manifold Pressure (AMP) will be calculated and compared with the actual AMP. However, an incidence where the AMP_{ACT} falls below the AMP_C will not necessarily indicate an automatic exceedance of the NOx limit, but it may require performance testing to ensure characterization of the engine is still valid. If performance testing reveals the engine is exceeding NOx limits, exceedance of the NOx limit will be presumed to have originated from the time of initial indication.

Compliance with the notification requirements of Condition 2 on Page 1 of the Construction Permit will be demonstrated by means of a single notification of project commencement at time overhaul activity begins on the first unit. Thereafter, project status updates for all 13 units is to be made via quarterly reports (one per quarter) to SCDHEC as per Condition 10 on Page 5 of the Construction Permit.

SOURCE DESCRIPTION

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ENGINEERING CALCULATION SHEET
BAQ ENGINEERING SERVICES DIVISION

PROJECT/PROPOSAL NAME:	WILLIAMS-TRANSCO STATION 140	PERMIT WRITER:	Jerry E. Freck
LOCATION (STREET, CITY):	2201 MOORE-DUNCAN HWY MOORE, S.C. 29369		
PERMIT NUMBER:	2060-0179-CD	DATE: 27 April 2004	Page 4 of 26
SIC/NAICS CODE(S):	4922 / 486210		

CP ID: CD - Another aspect of this project involves re-alignment of Emission Unit ID designations for ALL emission units. Re-alignment details are shown in the following tables. The tables segregate those units that are part of the combustion modification project from those that are not being modified.

The initial 40CFR70 (Title V) Operating Air Permit was issued on 27 June 2001 and is due to expire on 31 July 2006. The structure of this Permit is such that the reciprocating internal combustion engines ("natural gas fired compressors) were placed into a single grouping – Unit ID 01. There are four engine sizes in this grouping, each having respective pollutant emission rates. Mainline Unit #14 is part of the original Unit ID 01 group, but is NOT undergoing combustion modifications as part of this project.

The facility was operating under an Air Permit when the initial Title V Permit was issued. Re-alignment returns the Emission Unit ID designations to those used in the operating permits issued prior to the initial Title V permit. The re-alignment is consistent with the structure employed by the Emissions Inventory Section and allows proper treatment of Unit # 14. Re-alignment is also consistent with requests made by the facility (see memo of 17 February 1999) and avoids inaccuracies that may stem from cumulative emission sources. *(see cross-reference table below).*

EMISSION UNIT ID RE-ALIGNMENT (UNITS UNDERGOING COMBUSTION MODIFICATIONS)

OLD OP ID	NEW OP ID	Equip ID	Equipment Description	Installation Date	Modification Date	Control Device ID	Stack ID
01	01	MU-1	Natural gas compressor, powered by a natural gas-fired reciprocating internal combustion engine, 20 x E6 Btu/hr, capacity 2,500 HP (2,400 HP nameplate), Cooper-Bessemer Model # GMW-10, S/N 42434, SCC: 2-02-002-52	Mar 1951	2004	None	C1
01	01	MU-2	Natural gas compressor, powered by a natural gas-fired reciprocating internal combustion engine, 20 x E6 Btu/hr, capacity 2,500 HP (2,400 HP nameplate), Cooper-Bessemer Model # GMW-10, S/N 42435, SCC: 2-02-002-52	Mar 1951	2004	None	C2
01	01	MU-3	Natural gas compressor, powered by a natural gas-fired reciprocating internal combustion engine, 20 x E6 Btu/hr, capacity 2,500 HP (2,400 HP nameplate), Cooper-Bessemer Model # GMW-10, S/N 42450, SCC: 2-02-002-52	Mar 1951	May 2004	None	C3
01	01	MU-4	Natural gas compressor, powered by a natural gas-fired reciprocating internal combustion engine, 20 x E6 Btu/hr, capacity 2,500 HP (2,400 HP nameplate), Cooper-Bessemer Model # GMW-10, S/N 42451, SCC: 2-02-002-52	Mar 1951	May 2004	None	C4

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ENGINEERING CALCULATION SHEET

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EMISSION UNIT ID RE-ALIGNMENT (UNITS UNDERGOING COMBUSTION MODIFICATIONS)

OLD OP ID	NEW OP ID	Equip ID	Equipment Description	Installation Date	Modification Date	Control Device ID	Stack ID
01	01	MU-5	Natural gas compressor, powered by a natural gas-fired reciprocating internal combustion engine, 20 x E6 Btu/hr, capacity 2,500 HP (2,400 HP nameplate), Cooper-Bessemer Model # GMW-10, S/N 42452, SCC: 2-02-002-52	Mar 1951	May 2004	None	C5
01	01	MU-6	Natural gas compressor, powered by a natural gas-fired reciprocating internal combustion engine, 20 x E6 Btu/hr, capacity 2,500 HP (2,400 HP nameplate), Cooper-Bessemer Model # GMW-10, S/N 42791, SCC: 2-02-002-52	Jan 1952	May 2004	None	C6
01	02	MU-7	Natural gas compressor, powered by a natural gas-fired reciprocating internal combustion engine, 21 x E6 Btu/hr, capacity 2,625 HP (2,500 HP nameplate), Cooper-Bessemer Model # GMWA-10, S/N 44885, SCC: 2-02-002-52	Dec 1959	May 2004	None	C7
01	02	MU-8	Natural gas compressor, powered by a natural gas-fired reciprocating internal combustion engine, 21 x E6 Btu/hr, capacity 2,625 HP (2,500 HP nameplate), Cooper-Bessemer Model # GMWA-10, S/N 45054, SCC: 2-02-002-52	Dec 1960	May 2004	None	C8
01	02	MU-9	Natural gas compressor, powered by a natural gas-fired reciprocating internal combustion engine, 21 x E6 Btu/hr, capacity 2,625 HP (2,500 HP nameplate), Cooper-Bessemer Model # GMWA-10, S/N 45168, SCC: 2-02-002-52	Oct 1961	May 2004	None	C9
01	03	MU-10	Natural gas compressor, powered by a natural gas-fired reciprocating internal combustion engine, 27.2 x E6 Btu/hr, capacity 3,400 HP nameplate, Cooper-Bessemer Model # GMWC-10, S/N 45678, SCC: 2-02-002-52	Nov 1962	May 2004	None	C10
01	03	MU-11	Natural gas compressor, powered by a natural gas-fired reciprocating internal combustion engine, 27.2 x E6 Btu/hr, capacity 3,400 HP nameplate, Cooper-Bessemer Model # GMWC-10, S/N 45798, SCC: 2-02-002-52	Nov 1963	May 2004	None	C11

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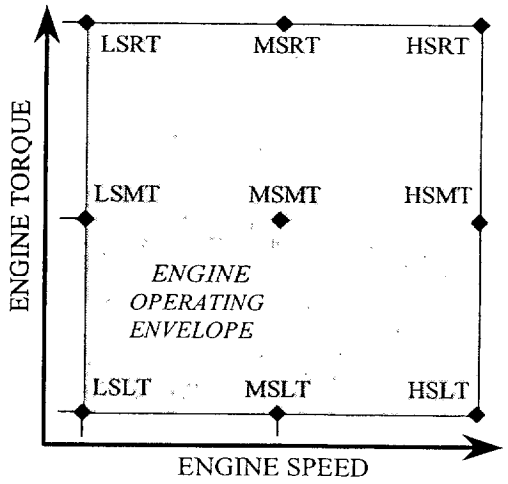
EMISSION UNIT ID RE-ALIGNMENT (UNITS UNDERGOING COMBUSTION MODIFICATIONS)

OLD OP ID	NEW OP ID	Equip ID	Equipment Description	Installation Date	Modification Date	Control Device ID	Stack ID
01	04	MU-12	Natural gas compressor, powered by a natural gas-fired reciprocating internal combustion engine, 27.2 x E6 Btu/hr, capacity 3,400 HP nameplate, Cooper-Bessemer Model #10-V250, with *HPFI*™ NOx Control, S/N 46843, SCC: 2-02-002-52	Dec 1967	May 2004	None	C12
01	04	MU-13	Natural gas compressor, powered by a natural gas-fired reciprocating internal combustion engine, 27.2 x E6 Btu/hr, capacity 3,400 HP nameplate, Cooper-Bessemer Model #10-V250, with *HPFI*™ NOx Control, S/N 47385, SCC: 2-02-002-52	Dec 1969	May 2004	None	C13

ENGINE OPERATING ENVELOPE

During each stack test, engine speed and % engine load are to take on a minimum of three (3) relative values (low, medium, high or rated) and each unique product of the two parameters is to be used to define the overall operating performance envelope for each affected engine. Each product is also used for establishing the matrix of nine (9) minimum stack test runs and the boundaries of the engine operating envelope as follows:

ENGINE SPEED	ENGINE TORQUE
HS HIGH SPEED	RT RATED TORQUE
MS MEDIUM SPEED	MT MEDIUM TORQUE
LS LOW SPEED	LT LOW TORQUE



LS = LOW SPEED, MS = MEDIUM SPEED, HS = HIGH SPEED
LT = LOW TORQUE, MT = MEDIUM TORQUE, RT = RATED TORQUE

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EMISSION UNIT ID RE-ALIGNMENT (UNITS NOT UNDERGOING COMBUSTION MODIFICATIONS)

OLD OP ID	NEW OP ID	Equip ID	Equipment Description	Installation Date	Modification Date	Control Device ID	Stack ID
01	05	MU-14	Natural gas compressor, powered by a natural gas-fired reciprocating internal combustion engine, 44 x E6 Btu/hr, capacity 5,500 HP nameplate, Cooper-Bessemer Model #16-V250, S/N 47390, SCC: 2-02-002-52	Dec 1969	May 2004	None	C14
04	06	MU-15	Natural gas compressor, powered by a natural gas-fired internal combustion turbine using dry low-NOx technology, 120 x E6 Btu/hr, 15,000 HP, (100.8 E6 Btu/Hr 12,600 HP nameplate), Solar Turbine Model # Mars, S/N MC89276, SCC: 2-02-002-01	Dec 1990	May 2004	None	C15
03	07	17	Auxiliary generator, powered by a natural gas-fired reciprocating internal combustion engine, 3.2 x E6 Btu/hr, capacity 400 HP (375 HP nameplate), Cooper-Bessemer Model #JS5-G, S/N 4523, SCC: 2-02-002-54	Jan 1951	N/A	None	AUX1
03	07	18	Auxiliary generator, powered by a natural gas-fired reciprocating internal combustion engine, 3.2 x E6 Btu/hr, capacity 400 HP (375 HP nameplate), Cooper-Bessemer Model #JS5-G, S/N 4524, SCC: 2-02-002-54	Jan 1951	N/A	None	AUX2
03	07	19	Auxiliary generator, powered by a natural gas-fired reciprocating internal combustion engine, 3.2 x E6 Btu/hr, capacity 400 HP (375 HP nameplate), Cooper-Bessemer Model #JS5-G, S/N 4525, SCC: 2-02-002-54	Jan 1951	N/A	None	AUX3
02	08	16	Plant air compressor, powered by a natural gas-fired reciprocating internal combustion engine, 0.8 x E6 Btu/hr, 100 HP nameplate capacity, Waukesha Model #F817GU, S/N 167977, SCC: 2-02-002-54	Dec 1969	N/A	None	AC1
02	08	20	Plant air compressor, powered by a natural gas-fired reciprocating internal combustion engine, 0.8 x E6 Btu/hr, 100 HP nameplate capacity, Model _____, S/N _____, SCC: 2-02-002-54	Oct 1996 Start-up Jul 1997	N/A	None	AC2

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CONTROL EQUIPMENT					
Control Device ID	**Control Device Description**	**Installation Date**	**Pollutant(s) Controlled**	**Efficiency Capture (%)**	**Efficiency Removal (%)**
N/A	N/A	N/A	N/A	N/A	N/A

PRE-PROJECT UNCONTROLLED POTENTIAL EMISSIONS					
NEW OP ID	**Pollutant**	**lb/hr per Unit**	**TPY@ 8,760 hours**		**Method for Estimating Emissions**
			per Unit	**Total**	
01 (MU-1 – MU-6)	CO	6.00	26.28	157.68	CP Application, Table 4-3
	NO_x	153.97	674.39	4,046.33	CP Application, Table 4-3
	PM	0.94	4.12	24.70	CP Application, Table 4-3
	SO_2	0.01	0.05	0.31	[2] AP-42, Table 3.2-1, July 2000
	VOC	2.40	10.51	63.07	CP Application, Table 4-3
02 (MU-7 – MU-9)	CO	5.50	24.09	72.27	CP Application, Table 4-3
	NO_x	133.10	582.98	1,748.93	CP Application, Table 4-3
	PM	0.99	4.34	13.01	CP Application, Table 4-3
	SO_2	0.01	0.05	0.16	[2] AP-42, Table 3.2-1, July 2000
	VOC	2.50	10.95	32.85	CP Application, Table 4-3
03 (MU-10, MU-11)	CO	6.50	28.47	56.94	CP Application, Table 4-3
	NO_x	208.00	911.04	1,822.08	CP Application, Table 4-3
	PM	1.29	5.65	11.30	CP Application, Table 4-3
	SO_2	0.02	0.07	0.14	[2] AP-42, Table 3.2-1, July 2000
	VOC	3.20	14.02	28.03	CP Application, Table 4-3
04 (MU-12, MU-13)	CO	5.88	25.75	51.51	CP Application, Table 4-3
	NO_x	74.95	328.28	656.56	CP Application, Table 4-3
	PM	1.29	5.65	11.30	CP Application, Table 4-3
	SO_2	0.02	0.07	0.14	[2] AP-42, Table 3.2-1, July 2000
	VOC	3.20	14.02	28.03	CP Application, Table 4-3
[1] Project Total (MU-1 - MU-13)	CO	[1] 5.94	[1] 26.03	338.40	Calculation
	NO_x	145.31	636.45	8,273.91	Calculation
	PM	1.06	4.64	60.31	Calculation
	SO_2	0.01	0.06	0.75	Calculation
	VOC	2.67	11.69	151.99	Calculation

[1] Lb/hr and TPY per unit figures are averaged across all 13 constituent units affected by this project.
[2] See CALCULATIONS section of this greensheet.

PRE-PROJECT UNCONTROLLED ACTUAL EMISSIONS – BASED ON 1998-99 OPERATING DATA				
NEW OP ID	**Pollutant**	**lb/hr per Unit**	**TPY@ [N] Average hrs**	**[2] Method for Estimating Emissions**
01 (MU-1 – MU-6)	CO	6.00	99.26 [33,088]	CP Application, Table 4-3
	NO_x	153.97	2,547.39 [33,088]	CP Application, Table 4-3
	PM	0.94	15.55 [33,088]	CP Application, Table 4-3
	SO_2	0.01	0.17 [33,088]	CP Application, Table 4-3
	VOC	2.40	39.71 [33,088]	CP Application, Table 4-3
02 (MU-7 – MU-9)	CO	5.50	54.48 [19,812]	CP Application, Table 4-3
	NO_x	133.10	1,318.57 [19,812]	CP Application, Table 4-3
	PM	0.99	9.81 [19,812]	CP Application, Table 4-3
	SO_2	0.01	0.10 [19,812]	CP Application, Table 4-3
	VOC	2.50	24.77 [19,812]	CP Application, Table 4-3
03 (MU-10, MU-11)	CO	6.50	49.45 [15,214]	CP Application, Table 4-3
	NO_x	208.00	1,582.28 [15,214]	CP Application, Table 4-3
	PM	1.29	9.81 [15,214]	CP Application, Table 4-3
	SO_2	0.02	0.15 [15,214]	CP Application, Table 4-3
	VOC	3.20	24.34 [15,214]	CP Application, Table 4-3
04 (MU-12, MU-13)	CO	5.88	46.73 [15,894]	CP Application, Table 4-3
	NO_x	74.95	595.63 [15,894]	CP Application, Table 4-3
	PM	1.29	10.25 [15,894]	CP Application, Table 4-3
	SO_2	0.02	0.16 [15,894]	CP Application, Table 4-3
	VOC	3.20	25.43 [15,894]	CP Application, Table 4-3
[1] Project Total (MU-1 - MU-13)	CO	4.39	249.93 [84,008]	CP Application, Table 4-3
	NO_x	106.14	6,043.87 [84,008]	CP Application, Table 4-3
	PM	0.80	45.42 [84,008]	CP Application, Table 4-3
	SO_2	0.01	0.55 [84,008]	CP Application, Table 4-3
	VOC	2.01	114.25 [84,008]	CP Application, Table 4-3

[1] Lb/hr per unit figures are averaged across all 13 constituent units affected by this project.
[2] All CP Application computations were independently verified during project analysis.

POST-PROJECT UNCONTROLLED POTENTIAL EMISSIONS – 8,760 HR/YEAR BASIS					
NEW OP ID	**Pollutant**	**lb/hr per Unit**	**TPY@ 8,760 hours**		**[2] Method for Estimating Emissions**
			per Unit	**Total**	
01 (MU-1 – MU-6)	CO	5.40	23.65	141.91	CP Application, Table 4-4
	NO_x	25.60	112.13	672.77	CP Application, Table 4-4
	PM	0.94	4.12	24.70	CP Application, Table 4-4
	SO_2	0.01	0.05	0.26	CP Application, Table 4-4
	VOC	3.30	14.45	86.72	CP Application, Table 4-4
02 (MU-7 – MU-9)	CO	5.70	24.97	74.90	CP Application, Table 4-4
	NO_x	26.90	117.82	353.47	CP Application, Table 4-4
	PM	0.99	4.34	13.01	CP Application, Table 4-4
	SO_2	0.01	0.04	0.13	CP Application, Table 4-4
	VOC	3.50	15.33	45.99	CP Application, Table 4-4

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Phone: 803-898-4123 Fax: 803-898-4079

ENGINEERING CALCULATION SHEET
BAQ ENGINEERING SERVICES DIVISION

PROJECT/PROPOSAL NAME:	WILLIAMS-TRANSCO STATION 140	PERMIT WRITER:	Jerry E. Freck
LOCATION (STREET, CITY):	2201 MOORE-DUNCAN HWY MOORE, S.C. 29369		
PERMIT NUMBER:	2060-0179-CD	DATE:	27 April 2004
SIC/NAICS CODE(S):	4922 / 486210		

POST-PROJECT UNCONTROLLED POTENTIAL EMISSIONS – 8,760 HR/YEAR BASIS

NEW OP ID	Pollutant	lb/hr per Unit	TPY@ 8,760 hours per Unit	TPY@ 8,760 hours Total	[2] Method for Estimating Emissions
03 (MU-10, MU-11)	CO	7.30	31.97	63.95	CP Application, Table 4-4
	NO_x	34.90	152.86	305.72	CP Application, Table 4-4
	PM	1.29	5.65	11.30	CP Application, Table 4-4
	SO_2	0.02	0.07	0.14	CP Application, Table 4-4
	VOC	4.50	19.71	39.42	CP Application, Table 4-4
04 (MU-12, MU-13)	CO	7.30	31.97	63.95	CP Application, Table 4-4
	NO_x	34.90	152.86	305.72	CP Application, Table 4-4
	PM	1.29	5.65	11.30	CP Application, Table 4-4
	SO_2	0.02	0.07	0.14	CP Application, Table 4-4
	VOC	4.50	19.71	39.42	CP Application, Table 4-4
[1] Project Total (MU-1 - MU-13)	CO	6.05	26.52	344.71	CP Application, Table 4-4
	NO_x	28.76	125.98	1,637.68	CP Application, Table 4-4
	PM	1.06	4.64	60.31	CP Application, Table 4-4
	SO_2	0.01	0.06	0.75	CP Application, Table 4-4
	VOC	3.72	16.27	211.55	CP Application, Table 4-4

[1] Lb/hr per unit figures are averaged across all 13 constituent units affected by this project.
[2] All CP Application computations were independently verified during project analysis.

PER UNIT CHANGE IN UNCONTROLLED EMISSIONS - POTENTIAL TO POTENTIAL

NEW OP ID	Pollutant	lb/hr per Unit	TPY@ 8,760 hours per Unit	TPY@ 8,760 hours Total	[2] Method for Estimating Emissions
01 (MU-1 – MU-6)	CO	(0.60)	(2.63)	(15.77)	CP Application, Table 4-4
	NO_x	(128.37)	(562.26)	(3,373.56)	CP Application, Table 4-4
	PM	0.00	0.00	0.00	CP Application, Table 4-4
	SO_2	0.00	0.00	0.00	CP Application, Table 4-4
	VOC	0.90	3.94	23.65	CP Application, Table 4-4
02 (MU-7 – MU-9)	CO	0.20	0.88	2.63	CP Application, Table 4-4
	NO_x	(106.20)	(465.16)	(1,395.47)	CP Application, Table 4-4
	PM	0.00	0.00	0.00	CP Application, Table 4-4
	SO_2	0.00	0.00	0.00	CP Application, Table 4-4
	VOC	1.00	4.38	13.14	CP Application, Table 4-4
03 (MU-10, MU-11)	CO	0.80	3.50	7.01	CP Application, Table 4-4
	NO_x	(173.10)	(758.18)	(1,516.36)	CP Application, Table 4-4
	PM	0.00	0.00	0.00	CP Application, Table 4-4
	SO_2	0.00	0.00	0.00	CP Application, Table 4-4
	VOC	1.30	5.69	11.39	CP Application, Table 4-4
04 (MU-12, MU-13)	CO	1.42	6.22	12.44	CP Application, Table 4-4
	NO_x	(40.05)	(175.42)	(350.84)	CP Application, Table 4-4
	PM	0.00	0.00	0.00	CP Application, Table 4-4
	SO_2	0.00	0.00	0.00	CP Application, Table 4-4
	VOC	1.30	5.69	11.39	CP Application, Table 4-4

PER UNIT CHANGE IN UNCONTROLLED EMISSIONS - POTENTIAL TO POTENTIAL					
NEW OP ID	Pollutant	lb/hr per Unit	TPY@ 8,760 hours		[2] Method for Estimating Emissions
			per Unit	Total	
[1] Project Total (MU-1 - MU-13)	CO	0.11	0.49	6.31	CP Application, Table 4-4
	NO_x	(116.55)	(510.48)	(6,636.23)	CP Application, Table 4-4
	PM	0.00	0.00	0.00	CP Application, Table 4-4
	SO_2	0.00	0.00	0.00	CP Application, Table 4-4
	VOC	1.05	4.58	59.57	CP Application, Table 4-4

[1] Lb/hr per unit figures are averaged across all 13 constituent units affected by this project.
[2] All CP Application computations were independently verified during project analysis.

PER UNIT CHANGE IN UNCONTROLLED EMISSIONS - ACTUAL TO POTENTIAL DELTA					
NEW OP ID	Pollutant	[1] lb/hr per Unit	TPY@ 8,760 hours		[2] Method for Estimating Emissions
			[1] per Unit	Total	
01 (MU-1 – MU-6)	CO	1.62	7.11	42.65	CP Application, Table 5-5
	NO_x	(71.35)	(312.53)	(1,875.51)	CP Application, Table 5-5
	PM	0.35	1.53	9.15	CP Application, Table 5-5
	SO_2	0.00	0.02	0.10	CP Application, Table 5-5
	VOC	1.78	7.84	47.02	CP Application, Table 5-5
02 (MU-7 – MU-9)	CO	1.55	6.81	20.42	CP Application, Table 5-5
	NO_x	(73.44)	(321.67)	(965.02)	CP Application, Table 5-5
	PM	0.24	1.07	3.20	CP Application, Table 5-5
	SO_2	0.00	0.01	0.03	CP Application, Table 5-5
	VOC	1.62	7.08	21.23	CP Application, Table 5-5
03 (MU-10, MU-11)	CO	1.66	7.25	14.50	CP Application, Table 5-5
	NO_x	(145.72)	(638.27)	(1,276.53)	CP Application, Table 5-5
	PM	0.17	0.75	1.49	CP Application, Table 5-5
	SO_2	0.00	0.01	0.02	CP Application, Table 5-5
	VOC	1.72	7.54	15.08	CP Application, Table 5-5
04 (MU-12, MU-13)	CO	1.97	8.61	17.22	CP Application, Table 5-5
	NO_x	(33.09)	(144.94)	(289.88)	CP Application, Table 5-5
	PM	0.12	0.53	1.05	CP Application, Table 5-5
	SO_2	0.00	0.01	0.02	CP Application, Table 5-5
	VOC	1.60	7.00	13.99	CP Application, Table 5-5
[3] Project Total (MU-1 - MU-13)	CO	1.66	7.29	94.78	CP Application, Table 5-5
	NO_x	(77.38)	(338.92)	(4,406.19)	CP Application, Table 5-5
	PM	0.26	1.15	14.89	CP Application, Table 5-5
	SO_2	0.00	0.01	0.18	CP Application, Table 5-5
	VOC	1.71	7.49	97.31	CP Application, Table 5-5

[1] Lb/hr and TPY per unit figures are averaged across the constituent units within each Unit ID affected by this project.
[2] All CP Application computations were independently verified during project analysis.
[3] Project Total lb/hr and TPY per unit figures are averaged across all 13 constituent units affected by this project.

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SUMMARIZED EMISSION CHANGES

EMISSIONS CHANGES – PRESENT ACTUAL TO FUTURE POTENTIAL DELTA				
6,462-ACTUAL AVERAGE HOUR/YEAR (1998-1999) TO FUTURE 8,760-HOUR/YEAR BASIS				
NEW OP ID	**Pollutant**	**lb/hr (total)**	**TPY@ 8,760 hours (total)**	**Method for Estimating Emissions**
01-04 (MU-1 - MU-13)	CO	[1] 1.665	94.79	Calculation
	NO_x	(77.38)	(4,406)	Calculation
	PM	0.262	14.89	Calculation
	SO_2	0.003	0.17	Calculation
	VOC	1.709	97.31	Calculation

[1] *lb/hr figures are average over all four Unit ID #'s on an 8,760-hour/year per unit basis.*

EMISSIONS CHANGES - POTENTIAL TO POTENTIAL DELTA				
CHANGE IN UNCONTROLLED POTENTIAL EMISSIONS - 8,760-HOUR/YEAR BASIS				
NEW OP ID	**Pollutant**	**lb/hr (total)**	**TPY@ 8,760 hours (total)**	**Method for Estimating Emissions**
01-04 (MU-1 - MU-13)	CO	[1] 0.111	6.307	Calculation
	NO_x	(116.5)	(6,636)	Calculation
	PM	0	0	Calculation
	SO_2	0	0	Calculation
	VOC	1.046	59.568	Calculation
EMISSIONS CHANGES - PRESENT POTENTIAL TO FUTURE POTENTIAL DELTA				
3,672-HOUR CONTROL PERIOD BASIS				
NEW OP ID	**Pollutant**	**lb/hr (total)**	**TPY@ 8,760 hours (total)**	**Method for Estimating Emissions**
01-04 (MU-1 - MU-13)	CO	[1] 0.111	2.644	Calculation
	NO_x	(116.5)	(2,782)	Calculation
	PM	0	0	Calculation
	SO_2	0	0	Calculation
	VOC	1.046	24.970	Calculation

[1] *lb/hr figures are average over all four Unit ID #'s on an 8,760-hour/year per unit basis.*

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POST-PROJECT FACILITY WIDE EMISSIONS

New Unit ID	Pollutant	Uncontrolled Emissions		Controlled Emissions	
		* lb/hr	* TPY @ 8,760 Hrs/Yr	* lb/hr	* TPY @ 8,760 Hrs/Yr
[1] 01-04 (13 units)	CO	[1] 78.70	344.71	[1] 78.70	344.71
	NO_x	373.90	1,637.68	373.90	1,637.68
	PM	13.77	60.31	13.77	60.31
	SO_2	0.17	0.75	0.17	0.75
	VOC	48.30	211.55	48.30	211.55
05 (1 unit)	CO	10.50	45.99	10.50	45.99
	NO_x	303.10	1,328.60	303.10	1,328.60
	PM	1.94	8.50	1.94	8.50
	SO_2	0.25	0.11	0.25	0.11
	VOC	5.20	22.78	5.20	22.78
06 (1 unit)	CO	12.97	56.81	12.97	56.81
	NO_x	20.80	91.10	20.80	91.10
	PM	4.44	19.45	4.44	19.45
	SO_2	0.06	0.26	0.06	0.26
	VOC	3.72	16.29	3.72	16.29
[2,3] 07 (3 units)	CO	[2,3] 3.04	13.33	[2,3] 3.04	13.33
	NO_x	39.17	171.56	39.17	171.56
	PM	0.10	0.42	0.10	0.42
	SO_2	0.01	0.03	0.01	0.03
	VOC	1.13	4.96	1.13	4.96
[3,4] 08 (2 units)	CO	[3,4] 0.51	2.22	[3,4] 0.51	2.22
	NO_x	6.53	28.59	6.53	28.59
	PM	0.02	0.07	0.02	0.07
	SO_2	0.00	0.00	0.00	0.00
	VOC	0.19	0.83	0.19	0.83
Fugitive	VOC	-	6.79	-	6.79
[5] Total 01-08 (20 units)	CO	[5] 105.72	463.06	[5] 105.72	463.06
	NO_x	743.50	3,256.51	743.50	3,256.51
	PM	20.26	88.74	20.26	88.74
	SO_2	0.26	1.15	0.26	1.15
	VOC	58.54	263.20	58.54	263.20

** Note: Facility-wide emissions figures do not include emissions from exempted sources at the facility.*

[1] lb/hr figures for Unit ID's 01 – 04 are total emissions across all 13 constituent units combined, on an 8,760 hour/year basis.

[2] lb/hr figures for Unit ID 07 are total emissions across all 3 constituent units combined, on an 8,760 hour/year basis.

[3] lb/hr figures for Unit ID's 07 – 08 are based on AP-42 (July 2000), Table 3.2-2. These do NOT agree with application.

[4] lb/hr figures for Unit ID 08 are total emissions across both constituent units combined, on an 8,760 hour/year basis.

[5] lb/hr figures for Unit ID's 01 – 08 are total emissions across all 20 constituent units combined, and include fugitive VOC emissions, on an 8,760 hour/year basis.

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APPLICABLE REGULATIONS

SC Regulations 61-62.5, Standard 1 - Emissions from Fuel Burning Operations

Not Applicable A "*Fuel Burning Operation*" as defined by *SC Regulation 61-62.1 Section I 28.* is "*Use of furnace, boiler, device or mechanism used principally, but not exclusively, to burn any fuel for the purpose of indirect heating in which the material being heated is not contacted by and adds no substance to the products of combustion.*" All reciprocating internal combustion engines and turbines at this facility are direct fired.

SC Regulations 61-62.5, Standard 2 - Ambient Air Quality Standards (AAQS)

Applicable This facility has demonstrated compliance through modeling for CO emissions increase; see modeling summary dated 17 February 2004. No operational restriction has been established to ensure compliance with the modeled emission rates. However, in its application, the facility fails to specifically mention that any adverse impact on ozone levels, due to the increase in VOC emissions, should be offset by the reduction in NO_x emissions

SC Regulations 61-62.5, Standard 3 - Waste Combustion and Reduction (State Only, except for PM & Opacity for industrial incinerators)

Not Applicable This process does not contain waste combustion or reduction sources.

SC Regulations 61-62.5, Standard 3.1 - Medical Waste Incineration (State Only)

Not Applicable No medical waste incineration.

SC Regulations 61-62.5, Standard 4 - Emissions from Process Industries

Applicable The following emission sources have opacity limits (including any fugitives) and Particulate Matter (PM) allowable emissions rates (based on a process weight rate in tons per hour) imposed by this standard:

New OP ID	Opacity (%)	PM Allowable (lb/hr)	Process Weight Rate (tons/hr)	Uncontrolled PM Emissions (lb/hr)	Controlled PM Emissions (lb/hr)	Periodic Monitoring
01	40%	N/A	N/A	0.94	0.94	per existing Title V Permit
02	[1] 20%			0.99	0.99	
03	[1] 20%			1.29	1.29	
04	[1] 20%			1.29	1.29	
05	40%			1.94	1.94	
06	20%			4.44	4.44	
07	40%			0.10	0.10	
08 (16)	40%			0.02	0.02	
08 (20)	[2] 20%			0.02	0.02	

[1] This is an opacity reduction (from 40%) resulting from application of definition of "modification" as contained in Standard 4. OP ID #'s 02 and 03 triggered the definition of "modification" because this project results in per unit increases in uncontrolled CO and/or VOC emissions ≥ 1.0 lb/hr. Per guidance document, notification must be made to the applicant of the possible opacity reduction and ascertain whether compliance with the lower opacity limitation can be demonstrated upon the effective date of granting approval via letter or construction permit. See guidance document for further compliance demonstration requirements: *F:\APPS\PERMIT\Guidance\Permitting\STD 4 modification guidance.doc*. Notification made 30 January 2004 – See *F:\APPS\PERMIT\FINAL\SPA\Correspondence\SPA179.TransCo STD 4 Opacity Limit Reduction Notice.doc*.

[2] Although Equipment ID No.'s 16 and 20 are both part of Unit ID No. 08, one unit was constructed after 31 December 1985 and is subject to an opacity limit of 20% as stipulated by *SC Regulation 61-62.5 Standard 4 SECTION IX B.* Opacity monitoring requirements are already part of the existing Title V Air Quality Operating Permit and will not be restated as part of this permit.

SC Regulations 61-62.5, Standard 5 - Volatile Organic Compounds (VOC)

Not Applicable This facility is not included in the processes described in SC Regulation 61-62.5 Standard 5 SECTION II and is not subject to this regulation.

SC Regulations 61-62.5, Standard 5.1 - Lowest Achievable Emission Rate (LAER) Applicable to Volatile Organic Compounds

Not Applicable The facility was built before July 1, 1979, but some additions and modifications have occurred at the site since then. The facility's baseline VOC emissions, current actual VOC emissions, and current PTE of VOC emissions in the following table: Based on this table, the facility is NOT subject to LAER at this time.

NEW OP ID	CP ID	Equipment ID	LAER Baseline (TPY) [1]	Actual VOC Emissions Pre-Project (TPY) [1]	Potential VOC Emissions Post-Project (TPY)
01	CD	MU-1 – MU-6	63.8	39.71	86.72
02	CD	MU-7 – MU-9	37.6	24.77	45.99
03	CD	MU-10 – MU-11	31.6	24.34	39.42
04	CD	MU-12 – MU-13	27.0	25.43	39.42
05	-	MU-14	26.3	22.78	22.78
06	CA, CC	MU-15	[2] N/A	16.29	16.29
07	-	AUX1-AUX3	3.1	[3] 1.89	[4] 4.96
08	-	AC1	0.1	[3] 0.11	[4] 0.41
	CB	AC2	[2] N/A	[3] 0.11	[4] 0.41
Fugitives			6.8	6.79	6.79
Total	-	All	196.3	162.22	263.20
LAER Trigger (+100 TPY)			296.3	LAER Trigger Margin	33.10

[1] As reported in application dated 30 October 2003, amended 06 JAN 2004, using 1998-99 actual operating hours and fuel usage figures. Baseline figures assume baseline date of 1982 operations – prior data unavailable.

[2] These sources were constructed after the baseline date of 1982.

[3] Data from Emissions Inventory files disagrees with lower value reported in application – application data NOT used.

[4] AP-42 JUL 2000, Table 3.2-2, SCC:2-02-002-54 VOC emission rate is 1.18 E-01 lb/hr. This is in disagreement with application – See **CALCULATIONS**

SC Regulations 61-62.5, Standard 6 - Alternative Emission Limitation Options (Bubble)

Not Applicable

SC Regulations 61-62.5, Standard 7 - Prevention of Significant Deterioration (PSD)

Not Applicable This project is PSD major for CO, NOx and VOC. Transco states in Section 2.4 and Section 5.4 of the application that the "significant" pollutants emitted by the facility are NO_x and CO and that VOCs are not significant because VOC emissions are less than 250 TPY. This is an incorrect statement. If any one regulated pollutant exceeds 250 TPY, then a facility is PSD major and other pollutants are significant if they exceed the significant emissions rate levels (e.g., 40 tpy for VOC). Transco's misstatement, however, does not cause any identifiable permitting problems.

OP ID	CP ID	Equipment ID	CP Issue Date	Pollutant	Emission Limitation (TPY)	BACT or Synthetic Minor (SM)

SC Regulations 61-62.5, Standard 7, Section II - Prevention of Significant Deterioration (PSD), Ambient Air Limits

Applicable This facility has demonstrated compliance through modeling for the PSD Class II increments for Spartanburg County; see modeling summary dated 17 February 2004.

SC Regulations 61-62.5, Standard 8 - Toxic Air Pollutants (TAPs) (State Only)

Not Applicable The TAPs from burning virgin fuel is not subject to this regulation.

SC Regulations 61-62.6 - Control of Fugitive Particulate Matter

Not Applicable This facility does not have fugitive PM (Dust) emissions.

SC Regulation 61-62.63 - National Emission Standards for Hazardous Air Pollutants: 112(g) (June 28, 1998)

Not Applicable The processes affected by this project do NOT trigger NESHAP applicability because they were constructed, reconstructed or replaced after to 19 December 2002. The combustion modifications of this project do NOT qualify as "reconstruction" since project costs are less than 50% of replacement costs on a per unit basis.

SC Regulation 61-62.68 (40 CFR 68) - Chemical Accident Prevention Provisions: 112(r)

Not Applicable

SC Regulation 61-62.70 - TITLE V Operating Permit Program

Applicable This change will be processed as a Minor Modification to the Title V permit.

40 CFR 60 - Standards of Performance for New Stationary Sources (NSPS)

Not Applicable This process does not contain sources subject to this standard.

40 CFR 61 - National Emission Standards for Hazardous Air Pollutants (NESHAP)

Not Applicable This process does not emit the pollutants subject to this standard (asbestos, benzene, beryllium, coke oven emissions, arsenic, mercury, radio nuclide, radon, or vinyl chloride).

40 CFR 63 - National Emission Standards for Hazardous Air Pollutants for Source Categories (MACT)

Not Applicable A final MACT for this source category has been proposed as *40 CFR 63 subpart ZZZZ - National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines* (RICE MACT). This amendment to *40CFR63* was signed by the EPA Administrator on 26 February 2004. The Final Rule may be viewed at http://www.epa.gov/airlinks/RICEfinalrule.pdf
40 CFR 63.6590(b)(3) of the Final Rule expressly excludes from applicability existing 2-stroke lean-burn reciprocating internal combustion engines. "Existing" is defined at 40CFR63.6590(a)(1)as units that were installed prior to 19 December 2002. The newest unit within the scope of this project was installed in December 1969. Therefore, the cited exception excludes all units within the scope of this project from applicability to *Subpart A - General Provisions* and *Subpart ZZZZ*. Such units are also excluded from the initial notification requirement within *40CFR63.6645(d)*.

40 CFR 64 - Compliance Assurance Monitoring (CAM): (April 20, 1998)

Not Applicable This process exceeds PTE Title V threshold limits (>100 TPY for criteria pollutants), but the process does not have 'active' control equipment associated with it. The combustion modifications, *HPFI™*, and TER technologies within the scope of this project are deemed to be intrinsic in nature and are not controls.

Operational Flexibility

If Applicable

EMISSION LIMITATIONS

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CP ID	OP ID	EQUIP ID	Pollutant/ Standard	Limit	Reference Method	Regulation	Periodic Monitoring
CD	01	MU-1 thru MU-6	NO_x	25.6 lbs/hr Control period only (May 1 thru Sep 30)	7 or 7(A-E)*	N/A	Stack test a minimum of one engine from same size group per control period – same engine not to be tested again until all engines in the group have been cycled through the test sequence.
			Opacity	40%	9	SC Reg. 61-62.5, Standard No. 4, Section IX B.	Daily readings
	02	MU-7 thru MU-9	NO_x	26.9 lbs/hr Control period only (May 1 thru Sep 30)	7 or 7(A-E)*	N/A	Stack test a minimum of one engine from same size group per control period – same engine not to be tested again until all engines in the group have been cycled through the test sequence.
			Opacity	20%	9	SC Reg. 61-62.5, Standard No. 4, Section IX B.	Daily readings
	03 and 04	MU-10 thru MU-13	NO_x	34.9 lbs/hr Control period only (May 1 thru Sep 30)	7 or 7(A-E)*	N/A	Stack test a minimum of one engine from same size group per control period – same engine not to be tested again until all engines in the group have been cycled through the test sequence.
			Opacity	20%	9	SC Reg. 61-62.5, Standard No. 4, Section IX B.	Daily readings

* As Approved per Test Plan

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MONITORING AND REPORTING

CP ID	OP ID	EQUIP ID	Pollutant/ Parameter	Limit	Required Monitoring	Monitoring Frequency	Reporting Frequency
CD	01	MU-1 thru MU-6	Engine Speed (RPM)	N/A	One measurement every 15 minutes	Data averaged and recorded once per hour	None
			% Engine Load (% Torque)	N/A	One measurement every 15 minutes	Data averaged and recorded once per hour	None
			Actual Air Manifold Pressure (inches of Hg)	N/A	One measurement every 15 minutes	Data averaged and recorded once per hour	None
			Actual Air Manifold Temperature (°F)	N/A	One measurement every 15 minutes	Data averaged and recorded once per hour	None
			Fuel Flow (SCFM)	N/A	One measurement every 15 minutes	Data averaged and recorded once per hour	None
			Critical Air Manifold Pressure AMP_c (inches of Hg)	N/A	One calculation every 15 minutes	Results averaged and recorded once per hour	None
			Critical Trapped Equivalence Ratio TER_c	N/A	One calculation every 15 minutes	Results averaged and recorded once per hour	None
			NO_x	25.7 lbs/hr	Per engine, total actual parameter-based NOx emissions (tons)	Continuous during the control period	Once per control period
			Operating Hours	N/A	Per engine, total actual operating hours		
			Deviations ($AMP_C > AMP_{ACT}$)	Dynamic real-time calculation and comparison	Per engine, deviations	Continuous during the control period	All deviations, once per control period.

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ENGINEERING CALCULATION SHEET
BAQ ENGINEERING SERVICES DIVISION

PROJECT/PROPOSAL NAME:	WILLIAMS-TRANSCO STATION 140	PERMIT WRITER:	Jerry E. Freck
LOCATION (STREET, CITY):	2201 MOORE-DUNCAN HWY MOORE, S.C. 29369		
PERMIT NUMBER:	2060-0179-CD	DATE: 27 April 2004	Page 19 of 26
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MONITORING AND REPORTING *(continued)*

CP ID	OP ID	EQUIP ID	Pollutant/ Parameter	Limit	Required Monitoring	Monitoring Frequency	Reporting Frequency
CD	02	MU-7 thru MU-9	Engine Speed (RPM)	N/A	One measurement every 15 minutes	Data averaged and recorded once per hour	None
			% Engine Load (% Torque)	N/A	One measurement every 15 minutes	Data averaged and recorded once per hour	None
			Actual Air Manifold Pressure (inches of Hg)	N/A	One measurement every 15 minutes	Data averaged and recorded once per hour	None
			Actual Air Manifold Temperature (°F)	N/A	One measurement every 15 minutes	Data averaged and recorded once per hour	None
			Fuel Flow (SCFM)	N/A	One measurement every 15 minutes	Data averaged and recorded once per hour	None
			Critical Air Manifold Pressure AMP_c (inches of Hg)	N/A	One calculation every 15 minutes	Results averaged and recorded once per hour	None
			Critical Trapped Equivalence Ratio TER_c	N/A	One calculation every 15 minutes	Results averaged and recorded once per hour	None
			NO_x	26.9 lbs/hr	Per engine, total actual parameter-based NOx emissions (tons)	Continuous during the control period	Once per control period
			Operating Hours	N/A	Per engine, total actual operating hours		
			Deviations ($AMP_C > AMP_{ACT}$)	Dynamic real-time calculation and comparison	Per engine, deviations	Continuous during the control period	All deviations, once per control period.

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MONITORING AND REPORTING *(continued)*

CP ID	OP ID	EQUIP ID	Pollutant/ Parameter	Limit	Required Monitoring	Monitoring Frequency	Reporting Frequency
CD	03 and 04	MU-10 Thru MU-13	Engine Speed (RPM)	N/A	One measurement every 15 minutes	Data averaged and recorded once per hour	None
			% Engine Load (% Torque)	N/A	One measurement every 15 minutes	Data averaged and recorded once per hour	None
			Actual Air Manifold Pressure (inches of Hg)	N/A	One measurement every 15 minutes	Data averaged and recorded once per hour	None
			Actual Air Manifold Temperature (°F)	N/A	One measurement every 15 minutes	Data averaged and recorded once per hour	None
			Fuel Flow (SCFM)	N/A	One measurement every 15 minutes	Data averaged and recorded once per hour	None
			Critical Air Manifold Pressure AMP_c (inches of Hg)	N/A	One calculation every 15 minutes	Results averaged and recorded once per hour	None
			Critical Trapped Equivalence Ratio TER_c	N/A	One calculation every 15 minutes	Results averaged and recorded once per hour	None
			NO_x	34.9 lbs/hr	Per engine, total actual parameter-based NOx emissions (tons)	Continuous during the control period	Once per control period
			Operating Hours	N/A	Per engine, total actual operating hours		
			Deviations ($AMP_C > AMP_{ACT}$)	Dynamic real-time calculation and comparison	Per engine, deviations	Continuous during the control period	All deviations, once per control period.

SUMMARY AND CONCLUSIONS

Analysis of this project has demonstrated its qualification as environmentally beneficial. CO modeling has demonstrated no violation of NAAQS and no PSD increment has been broken. It has been determined that this source, if operated in accordance with the submitted application, will meet all applicable requirements and emission standards.

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CALCULATIONS

The following emission tables reference this source: AP-42, July 2000 - TABLE 3.2-1
UNCONTROLLED EMISSION FACTORS FOR
NATURAL GAS-FIRED RECIPROCATING INTERNAL COMBUSTION ENGINES
2-STROKE LEAN-BURN (SCC 2-02-002-52)

ID 01 6 each natural gas-fired 2-stroke reciprocating internal combustion engines per unit capacity of 2500 HP (2400 HP nameplate), 20 x E6 Btu/hr

Pollutant	Emission Factor (lb / E6 Btu)	Emission Factor Rating	lb/hr per Unit	TPY @ 8,760 Hrs/Yr	
				per Unit	Total
CO (90-105% Load)	3.86 E-01	A	7.72	33.81	202.88
NO_x (90-105% Load)	3.17 E+00	A	63.40	277.69	1,666.15
[1] PM	9.91 E-03	E	0.20	0.87	5.21
[2] SO_2	5.88 E-04	A	0.01	0.05	0.31
VOC	1.20 E-01	C	2.40	10.51	63.07

ID 02 3 each natural gas-fired 2-stroke reciprocating internal combustion engines per unit capacity of 2625 HP (2500 HP nameplate), 21 x E6 Btu/hr

Pollutant	Emission Factor (lb / E6 Btu)	Emission Factor Rating	lb/hr per Unit	TPY @ 8,760 Hrs/Yr	
				per Unit	Total
CO (90-105% Load)	3.86 E-01	A	8.11	35.50	106.51
NO_x (90-105% Load)	3.17 E+00	A	66.57	291.58	874.73
PM	9.91 E-03	E	0.21	0.91	2.73
SO_2	5.88 E-04	A	0.01	0.05	0.16
VOC	1.20 E-01	C	2.52	11.04	33.11

ID 03 2 each natural gas-fired 2-stroke reciprocating internal combustion engines per unit capacity of 3400 HP (3400 HP nameplate), 27.2 x E6 Btu/hr

Pollutant	Emission Factor (lb / E6 Btu)	Emission Factor Rating	lb/hr per Unit	TPY @ 8,760 Hrs/Yr	
				per Unit	Total
CO (90-105% Load)	3.86 E-01	A	10.50	45.99	91.97
NO_x (90-105% Load)	3.17 E+00	A	86.22	377.66	755.32
PM	9.91 E-03	E	0.27	1.18	2.36
SO_2	5.88 E-04	A	0.02	0.07	0.14
VOC	1.20 E-01	C	3.26	14.30	28.59

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ID 04 2 each natural gas-fired 2-stroke reciprocating internal combustion engines per unit capacity of 3400 HP (3400 HP nameplate), 27.2 x E6 Btu/hr

Pollutant	Emission Factor (lb / E6 Btu)	Emission Factor Rating	lb/hr per Unit	TPY @ 8,760 Hrs/Yr	
				per Unit	Total
CO (90-105% Load)	3.86 E-01	A	10.50	45.99	91.97
NO_x (90-105% Load)	3.17 E+00	A	86.22	377.66	755.32
PM	9.91 E-03	E	0.27	1.18	2.36
SO_2	5.88 E-04	A	0.02	0.07	0.14
VOC	1.20 E-01	C	3.26	14.30	28.59

ID 05 1 each natural gas-fired 2-stroke reciprocating internal combustion engine Unit capacity is 5500 HP (5500 HP nameplate), 44 x E6 Btu/hr

Pollutant	Emission Factor (lb / E6 Btu)	Emission Factor Rating	lb/hr per Unit	TPY @ 8,760 Hrs/Yr	
				per Unit	Total
CO (90-105% Load)	3.86 E-01	A	16.98	74.39	74.39
NO_x (90-105% Load)	3.17 E+00	A	139.48	610.92	610.92
PM	9.91 E-03	E	0.44	1.91	1.91
SO_2	5.88 E-04	A	0.03	0.11	0.11
VOC	1.20 E-01	C	5.28	23.13	23.13

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The following emission table references this source: AP-42, April 2000 - TABLES 3.1-1 & 3.1-2a
EMISSION FACTORS FOR NITROGEN OXIDES (NO_x) AND CARBON MONOXIDE (CO)
FROM STATIONARY GAS TURBINES LEAN PRE-MIX (SCC 2-02-002-01),
EMISSION FACTORS FOR CRITERIA POLLUTANTS AND GREENHOUSE GASES
FROM STATIONARY GAS TURBINES (SCC 2-02-002-01)

ID 06 1 each natural gas-fired internal combustion turbine engine w/ Low NOx technology 15,000 HP capacity (12,600 HP nameplate), 120 x E6 Btu/hr (100.8 E6 Btu/hr nameplate)

Pollutant	Emission Factor (lb / E6 Btu)	Factor Rating	Emission Rate	
			lb/hr per Unit	TPY @ 8,760 Hrs/Yr
CO (90-105% Load)	1.5 E-02	D	1.80	7.88
NO_x (90-105% Load)	9.9 E-02	D	11.88	52.03
PM	6.6 E-03	C	0.79	3.47
SO_2	3.4 E-03	B	0.41	1.79
VOC	2.1 E-03	D	0.25	1.10

The following emission tables reference this source: AP-42, July 2000 - TABLE 3.2-2
UNCONTROLLED EMISSION FACTORS FOR
NATURAL GAS-FIRED RECIPROCATING INTERNAL COMBUSTION ENGINES
4-STROKE LEAN-BURN (SCC 2-02-002-54)

ID 07 3 each natural gas-fired 4-stroke reciprocating internal combustion engines per unit capacity of 400 HP (375 HP nameplate), 3.2 x E6 Btu/hr

Pollutant	Emission Factor (lb / E6 Btu)	Emission Factor Rating	lb/hr per Unit	TPY @ 8,760 Hrs/Yr	
				per Unit	Total
CO (90-105% Load)	3.17 E-01	C	1.014	4.443	13.33
NO_x (90-105% Load)	4.08 E+00	B	13.056	57.185	171.56
PM	9.91 E-03	D	0.032	0.139	0.42
SO_2	5.88 E-04	A	0.002	0.008	0.02
VOC	1.18 E-01	C	0.378	1.654	4.96

ID 08 2 each natural gas-fired 4-stroke reciprocating internal combustion engines per unit capacity of 100 HP (100 HP nameplate), 0.8 x E6 Btu/hr

Pollutant	Emission Factor (lb / E6 Btu)	Emission Factor Rating	lb/hr per Unit	TPY @ 8,760 Hrs/Yr	
				per Unit	Total
CO (90-105% Load)	3.17 E-01	C	0.254	1.111	2.22
NO_x (90-105% Load)	4.08 E+00	B	3.264	14.296	28.59
PM	9.91 E-03	D	0.008	0.035	0.07
SO_2	5.88 E-04	A	0.0005	0.002	0.004
VOC	1.18 E-01	C	0.094	0.413	0.83

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HPFI™ & TER Control

HPFI™ control is a technology for reducing NOx emissions through combustion modifications that improve pre-combustion fuel mixing parameters. Such modifications include changes to heads and piston crowns. Operational changes resulting from the application of HPFI™ become an intrinsic part of the engine's operating performance and should not be considered as "active control" for purposes of the Clean Air Act.

TER is an emissions control technology involving transducer-based monitoring and software-based control of engine combustion parameters. Although transducer input and software output is an active control system, TER control should not be construed as 'active' control for purposes of Clean Air Act applicability. Removal or shutdown of the TER system would cause a cessation of unit operation and is therefore, intrinsic to the unit. TER technology maintains proper emissions levels by controlling the trapped fuel to air equivalence ratio (ϕ) over a unit's operating range. The value of ϕ varies over the unit's operating range in a curvilinear relationship that is unique and variable for any given unit. Although an approximate relationship for many engine types can be predicted, the desired level of emissions control demands a higher accuracy than can be obtained through theoretical methods. In order to define the actual relationship for any given unit, engine performance and ϕ are mapped via empirical methods across the unit's operating range.

Engine mapping determines the relationship between NOx emissions, fuel flow, engine speed and ϕ. The value of ϕ is then correlated to an air manifold pressure set point (AMP_{SP}) by means of a 2nd-order equation. ϕ is used to calculate the desired AMP_{SP} which is then controlled through a turbocharger wastegate or other means. For more a detailed discussion, see *Application of Trapped Fuel/Air Equivalence Ratio Control for Maintaining NOx emissions from Natural Gas Fired, Spark ignited, Two-Stroke Cycle, Large-Bore Reciprocating Engines Operating on High Pressure Fuel Injection* by Gary C. Hutcherson, Enginuity International, Inc. A description of the *HPFI* control algorithm is provided below.

I $\quad FF_{RPM} = \text{SCF/rev} = FF_{SCFM} / RPM$

II $\quad TER_{SP} = = A(FF_{RPM})^2 + B(FF_{RPM}) + C$

III $\quad AMP_{SP} = \left[\left(\frac{0.7473 FF_{RPM} (AMT + 460)}{(2.699 \times TER_{SP} \times V_{TRAP})} \right) - 14.73 \right] \times 2.036$

A	=		=	A constant determined by engine mapping
AMP_{SP}	=	Inches Hg	=	Air Manifold Pressure set point
AMT	=	°F	=	Air manifold Temperature
B	=		=	A constant determined by engine mapping
C	=		=	A constant determined by engine mapping
°F	=	1.8°C + 32	=	Unit of temperature
FF_{SCFM}	=	SCF/min	=	Fuel Flow per unit time
FF_{RPM}	=	SCF/rev	=	Fuel Flow per unit revolution
ft	=	0.3048 m	=	Unit of length
min	=	60 sec	=	Unit of time
RPM	=	rev/min	=	Engine Speed
SCF	=	ft^3	=	Unit volume (Static Cubic Feet)
TER_{SP}	=		=	Trapped Fuel/Air Equivalence Ratio set point
V_{TRAP}	=	ft^3	=	Engine Trapped Volume

HPFI (Continued)

Transco proposes an alternate mathematical model, based on that previously discussed in Equation III. The grounds for the alternate model stem from the assertion that the 0.7473 constant in the numerator of Equation III results from the following product:

IV $AF_{ST} \times (0.0765 \times FSG)$, where

AF_{ST} = Stoichiometric Air/Fuel Ratio
FSG = Fuel Gas Specific Gravity

Use of this modification alters the prior relationship to read:

V $$AMP_C = \left[\left(\frac{AF_{ST} \times (0.0765 \times FSG)\, FF_{RPM}\, (AMT + 460)}{(2.699 \times TER_{SP} \times V_{TRAP})} \right) - 14.73 \right] \times 2.036$$

When the relationship from Equation I is substituted into the term FF_{RPM} in Equation V, the result reads:

VI $$AMP_C = \left[\left(\frac{AF_{ST} \times (0.0765 \times FSG) \times \frac{AFF_{SCFM}}{RPM} \times (AMT + 460)}{(2.699 \times TER_C \times V_{TRAP})} \right) - 14.73 \right] \times 2.036$$

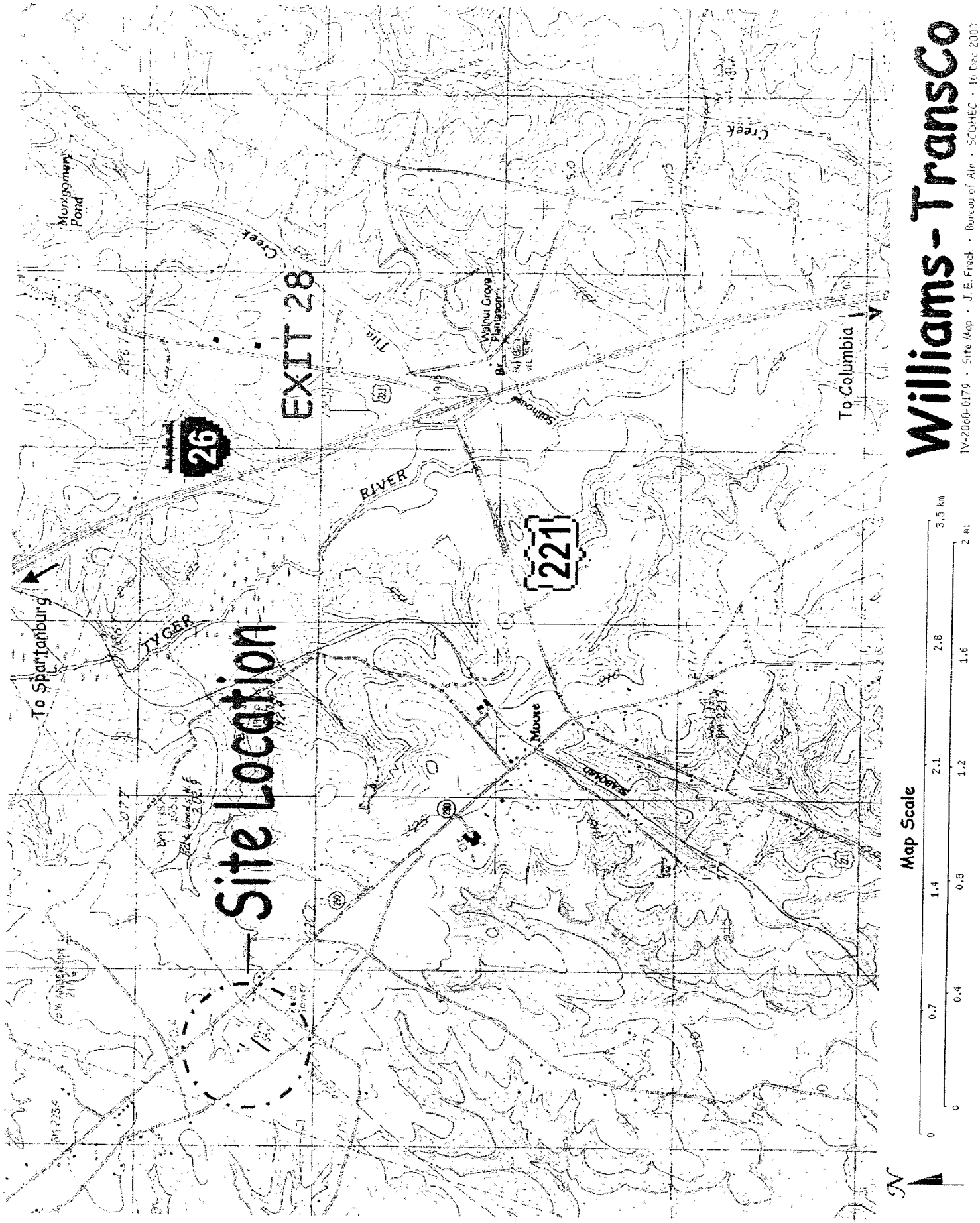
Equation VI is found in Section 4, Page 11 of the Construction Permit application submitted by TransCo on 30 October 2004. This modification augments the list of required parameters to read:

A	=		=	A constant determined by engine mapping
AF_{ST}	=		=	Stoichiometric Air/Fuel Ratio
AMP_C	=	Inches Hg	=	Air Manifold Pressure calculated
AMP_{ACT}	=	Inches Hg	=	Air Manifold Pressure measured
AMT	=	°F	=	Air manifold Temperature
B	=		=	A constant determined by engine mapping
C	=		=	A constant determined by engine mapping
°F	=	1.8°C + 32	=	Unit of temperature
FF_{SCFM}	=	SCF/min	=	Fuel Flow per unit time
FF_{RPM}	=	SCF/rev	=	Fuel Flow per unit revolution
FSG	=		=	Fuel Gas Specific Gravity
ft	=	0.3048 m	=	Unit of length
min	=	60 sec	=	Unit of time
RPM	=	rev/min	=	Engine Speed
SCF	=	ft^3	=	Unit volume (Static Cubic Feet)
TER_C	=		=	Trapped Fuel/Air Equivalence Ratio calculated
V_{TRAP}	=	ft^3	=	Engine Trapped Volume

During performance testing, an operating envelope will be established for each engine. The envelope measures various engine parameters (engine speed and % torque) while simultaneously measuring NOx emissions. Calculated values for indicator parameters will be compared to actual measurements to demonstrate operation within the established operating envelope. This operational constraint will be used to demonstrate compliance with the required NOx emission limitation or possibly indicate exceedance of the NOx limit.

SITE MAP

Williams TransCo Station 140 • 2201 Moore-Duncan Hwy Moore, S.C. 29369 • 2060-0179



Atachment 3

Copy of the transcript of the Public Hearing conducted on March 28, 2005

COPY

STATE OF SOUTH CAROLINA)	BEFORE THE SOUTH CAROLINA
)	BOARD OF HEALTH AND
COUNTY OF RICHLAND)	ENVIRONMENTAL CONTROL
PUBLIC HEARING:)	
)	
NOx SIP Call Phase II)	
Revisions)	
)	
)	TRANSCRIPT OF
)	
)	PROCEEDINGS
BUREAU OF AIR QUALITY)	
)	

Public hearing held at the South Carolina Department of Health and Environmental Control, before Facilitator Nelson Roberts in the Wallace Room (3141 Sims), 2600 Bull Street, Columbia, South Carolina, on Monday, March 28, 2005, commencing at 10:15 o'clock, A.M. and ending at 10:23 o'clock, A.M., in the above-entitled matter.

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(803) 798-2679 Fax# (803) 772-1108

A P P E A R A N C E S:

DHEC Staff Present:

Nelson Roberts, Facilitator

Heather Preston

Faye A. Grainger
Court Reporter

I N D E X

PROCEEDING

FACILITATOR ROBERTS: Good morning. My name is Nelson Roberts of the Bureau of Air Quality, and I will be the facilitator for this public hearing. Let the record show that this hearing was convened at 10:15 a.m. on Monday, March 28, 2005. Public notice of this hearing was published in the South Carolina State Register on February 25th, 2005. Copies of the notice were also sent to a mailing list maintained by the Bureau. Unless I hear an objection, a copy of this notice will be entered into the record as though it were read. Is there any objection?

The purpose of this forum is to answer questions, clarify issues and receive input from interested persons on the proposed revisions. Department staff shall consider comments received today in formulating the final draft of the State Implementation Plan.

The Department welcomes your input and assistance in perfecting the proposed

SIP revisions Please submit any written comments to me for the record.

I will now present a brief summary and explanation of the proposed SIP revision. Following this presentation, any member of the audience desiring to make any comments will be given an opportunity to do so. Speakers will be recognized in the order in which they registered and indicated a desire to speak. If there are any questions after a presentation, please direct them to me and I will either respond or ask the appropriate person to answer. If no one is able to answer the question today, an answer will be provided at a later date.

On October 27th, 1998, the United States Environmental Protection Agency (EPA), published a final rule titled, "Finding of Significant Contribution and Rulemaking for Certain States in the Ozone Transport Assessment Group Region for Purposes of Reducing Regional Transport of Ozone" (63 FR 57355). This rule, commonly referred to as the NOx SIP Call, required

South Carolina and certain other states to reduce the summertime emissions of oxides of nitrogen (NOx) which are one of the precursors of ozone pollution and to submit a revision to their SIPs that identified measures necessary to achieve these reductions.

EPA was subsequently challenged through the courts on the NOx SIP Call rule and on March 3, 2000, the DC Circuit Court issued a decision that largely favored the EPA while ruling against them on several issues. One of the issues for which the Court ruled against the EPA involved the failure to provide adequate notice of the change in control level assumed for large stationary internal combustion (IC) engines. The stay was lifted for the issues for which the Court ruled in EPA's favor, and the Department promulgated regulations and submitted a SIP revision to comply with the requirements of the NOx SIP Call on May 28, 2002. EPA published a final rule in the Federal Register approving this

revision on June 28, 2002 (67 FR 43546). This action is referred to as the Phase I SIP and addresses only those requirements for which the stay was lifted.

The EPA published a final rule on April 21st, 2004 (69 FR 21603), in response to the court decision. This rule, titled "Interstate Ozone Transport; Response to Court Decisions on the NOx SIP Call, NOx SIP Call Technical Amendments and Section 126 Rules (69 FR 21604)" is also referred to as Phase II and addresses the remaining requirements not included in Phase I of the NOx SIP Call. One of the actions of this rule is to set the control levels for stationary internal combustion (IC) engines. Trans Continental Pipeline Station 140, also known as TransCo, located in Moore, South Carolina, is the only facility in the state that is affected by this final rule. TransCo, by means of permit number TV-2060-0179 issued by the Department, has already initiated improvements that will enable it to meet the requirements of this Phase II rule.

The Department is proposing to revise the SIP to incorporate the permit it issued to TransCo. This action will meet the State's obligations under the Phase II of the NOx SIP Call rule.

At this point, I will recognize anyone who would like to comment on the proposed revision.

No one having comments, I would like to remind you that all comments that have been received will be considered in formulating the final draft of the State Implementation Plan (SIP) Phase II.

There being no further comments, this hearing is adjourned. Thank you for coming here today.

(Thereupon, at 10:23 o'clock, A.M., the same day, the proceedings were concluded)

STATE OF SOUTH CAROLINA)
) CERTIFICATE
COUNTY OF LEXINGTON)

Be it known that I am a duly qualified court reporter; that I was hired to take the testimony in this matter; that I took notes by stenomask of the said testimony; that the said notes were reduced to typewritten form by me; and that the foregoing eight (8) pages constitute a true, accurate and complete transcript, to the best of my skill and ability.

Witness my hand and seal at Columbia, South Carolina, this 31st day of March, 2005.

Faye A. Grainger
Notary Public for South Carolina
My Commission Expires: 6-6-2005