

Permit Renewal Source Analysis & Technical Review

Company	Gulf South Pipeline Company, LP	Permit Number	56414
City	Goodrich	Project Number	208939
County	Polk	Account Number	PF-0019-V
Project Type	Renewal	Regulated Entity Number	RN100218494
Project Reviewer	Laura Gibson, P.E.	Customer Reference Number	CN600129696
Site Name	Goodrich Compressor Station		

Project Overview

The applicant, Gulf South, is seeking to renew its new source review (NSR) construction permit authorizing emissions from its Goodrich Compressor Station. Sources authorized by the permit are three natural gas-fired reciprocator compressor engines installed prior to 1971.

Permit actions since initial NSR authorization in October 2004 are:

- Revision in February 2007 to fix an error in a special condition;
- Revision in April 2009 to incorporate Compliance Assurance Monitoring equipment and procedures;
- Revision in September 2011 to a special condition to require quarterly testing only after 100 hours of operation.

Other TCEQ Air Permitting Authorizations at this site:

Permit Number	Applicable Rules for Permits by Rule (PBRs)	Sources	Emission Point Numbers (EPNs)
Standard Permit No. 107976	116.617 Pre 2011	Compressor Engines 4, 5, 6 with Non-Selective Catalytic Reduction	C-4, C-5, C-6
Permit by Rule (PBR) Registration No. 116434	106.359	Maintenance, Startup, and Shutdown (MSS)	--
PBR Registration No. 56416	106.352, 106.511	Emergency Generators 1 & 2, Storage Tank 1, other fugitives	EG-1, EG-2, ST-1, L-1, FUG-1, FUG-2, V-1

Gulf South requests incorporation by reference of the above Standard Permit Registration No. 1097976 and PBRs 116434 and 56416.

The applicant has not requested any increases in emission rates nor changed the character of the emissions.

Emission Summary

Upon approval, the allowable emissions will remain as follows:

Air Contaminant	Current and Proposed Allowable Emission Rates (tpy)
PM	2.7
PM ₁₀ *	2.7
PM _{2.5} *	2.7
VOC	47.7
NO _x	153.0
CO	382.5
SO ₂	0.09

* PM₁₀ and PM_{2.5} are not currently represented in the permit, but have always been emitted.

Compliance History Evaluation - 30 TAC Chapter 60 Rules

A compliance history report was reviewed on:

October 1, 2014

Compliance period:

September 1, 2009 – August 31, 2014

Site rating & classification:

0.00, High

Company rating & classification:

1.81, Satisfactory

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If the rating is 50<RATING<55, what was the outcome, if any, based on the findings in the formal report:	NA
Has the permit changed on the basis of the compliance history or rating?	No

Public Notice Information - 30 TAC Chapter 39 Rules

Rule Citation	Requirement
39.403	Date Application Received: April 10, 2014
	Date Administratively Complete: May 1, 2014
	Small Business Source? No
	Date Leg Letters mailed: May 1, 2014
39.603	Date Published: May 22, 2014 and July 17, 2014
	Publication Name: Polk County Enterprise
	Pollutants: Organic compounds, nitrogen oxides, carbon monoxide, sulfur dioxide and particulate matter including particulate matter with diameters of 10 microns or less and 2.5 microns or less
	Date Affidavits/Copies Received: July 28, 2014 and June 20, 2014
	Is bilingual notice required? No, per affirmation from applicant that alternative language newspaper could not be located for the area.
	Language: Spanish
	Date Certification of Sign Posting / Application Availability Received: August 26, 2014
39.604	Public Comments Received? Yes
	Hearing Requested? Yes
	Meeting Request? No
	Date Response to Comments sent to OCC: February 12, 2015
	Request(s) withdrawn?
	Date Withdrawn:
	Consideration of Comments:
Is 2nd Public Notice required? No	
39.419	If no, give reason: Renewal meets criteria of 30 TAC § 39.419(e).
39.421	Request for Reconsideration Received?
	Final Action:
	Are letters Enclosed?

Renewal Requirements - 30 TAC Chapter 116 Rules

Rule Citation	Requirement
116.315(a)	Date of permit expiration: October 5, 2014
116.310	Date written notice of review was mailed: January 8, 2014
116.315(a)	Date application for Renewal (PI-1R) received: April 10, 2014
116.311(a)(1)	Do dockside vessel emissions associated with the facility comply with all regulations? Yes

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Rule Citation	Requirement	
116.311(a)(2)	Is the facility being operated in accordance with all requirements and conditions of the existing permit, including representations in the application for permit to construct and subsequent amendments, and any previously granted renewal, unless otherwise authorized for a qualified facility?	Yes
116.311(a)(3)	Subject to NSPS?	No, engines are not subject to 40 CFR Part 60, Subpart JJJJ because they were constructed prior to June 12, 2006
116.311(a)(4)	Subject to NESHAPS?	No
116.311(a)(5)	Subject to NESHAPS (MACT) for source categories?	No
116.311(a)(6)	Does this project require case-by-case MACT?	No
116.311(b)	Was there a condition of air pollution that had to be addressed during this project review?	No
116.314(a)	Does the facility meet all permit renewal requirements?	Yes
116.313	Permit Renewal Fee: \$ 10,000 Fee certification:	R423911
	Applicable Outstanding Fees:	NA

Title V Applicability - 30 TAC Chapter 122 Rules

Rule Citation	Requirement	
122.10(13)	Title V applicability: The site is subject to Title V and has Standard Operating Permit No. O3066.	
122.10(13)(A)	Is the site a major source under FCAA Section 112(b)?	No
	Does the site emit 10 tons or more of any single HAP?	No
	Does the site emit 25 tons or more of a combination?	No
122.10(13)(C)	Does the site emit 100 tons or more of any air pollutant?	Yes
122.10(13)(D)	Is the site a non-attainment major source?	No
122.602	Periodic Monitoring (PM) applicability: The site is subject to 30 TAC Chapter 122 and PM is applicable. Reference Method sampling 7E or 20 to stack test the engines for nitrogen oxide (NO _x) emissions is required every 15,000 hours. Recordkeeping of monitoring data and results of stack tests are required in Special Condition Nos. 10 and 11.	
122.604	Compliance Assurance Monitoring (CAM) applicability: CAM is applicable because this site is subject to 30 TAC Chapter 122. Special Condition Nos. 7 and 8 require the permit holder to operate a temperature monitoring device to measure engine exhaust temperature daily.	

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Request for Comments

Received From	Program/Area Name	Reviewed By/Date	Comments
Region:	10	Matthew Armstrong, Site Review 5/8/14	Low nuisance/odor potential, Low hazard potential. Goodrich Elementary and High Schools approximately 2000 ft away. No concerns at this time, proceed with permit review.
		Emily Bourg, Draft Permit Review	RFC sent 9/5/14; reviewer responded 9/9/14 with no comments.
City:	Goodrich		No local program.
County:	Polk		No local program.
ADMT:			No ADMT issues.
EB&T:			No EB&T issues.
Toxicology:			No toxicology issues.
Compliance:			No compliance issues.
Legal:			RTC sent 12/??
Comment resolution and/or unresolved issues:	NA		

Process/Project Description

The Goodrich Compressor Station uses six natural gas fired reciprocating engines to boost natural gas pressure along a natural gas pipeline in Polk County. The engines were installed prior to 1971 and became subject to the 2001 Texas legislative changes to the Texas Clean Air Act, which required all grandfathered facilities to obtain air permit authorization. The engines help maintain the line pressure necessary to deliver required gas volumes. Three of the engines (EPNs C-1, C-2, and C-3) are authorized by this permit. The applicant has requested a renewal of authorization to operate these engines, and has also requested incorporation by reference of facilities at the site authorized other than through NSR Permit No. 56414.

The other three engines at the site (EPNs C-4, C-5, and C-6) are authorized by Standard Permit Registration No. 107976. Ancillary equipment is authorized via PBR 56416, and MSS activities were authorized per PBR 116434 in May 2014. These permits were included by reference in Special Conditions Nos. 11 and 12.

Opacity language was added in Special Condition No. 5 with associated recordkeeping in Special Condition No. 10G. Speciation of PM₁₀ and PM_{2.5}, which has always existed but have not been previously quantified, were added to the Maximum Allowable Emission Rates Table, but otherwise emission rates are unchanged.

Pollution Prevention, Sources, and Controls - [30 TAC 116.311(b)(2)]

These three compressor engines are rich-burn, sweet natural gas-fired Ingersoll-Rand, KVG-123 1,320 brake horsepower (bhp) engines. Each engine is equipped with air-fuel ratio controllers and non-selective catalytic reduction (NSCR). When originally permitted in 2005, Gulf South averaged emissions from compressor engines from five different compressor stations (Goodrich, Carthage, Magasco, Refugio, and Edna) to meet the statutory NO_x reduction of 50%.

Currently, emissions from each engine are required per Special Condition 2 to meet 4.0 grams NO_x per brake horsepower hour (g NO_x / bhp-hr), and 10 g carbon monoxide / bhp-hr. Sweet natural gas is used to minimize emissions of sulfur dioxide and particulate matter, and records are kept of monthly usage for a period of five years.

Given the age, size, and location of the engines, the current controls are considered BACT.

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Permit Concurrence and Related Authorization Actions

Is the applicant in agreement with special conditions?	Yes
Company representative(s):	David Nickel
Contacted Via:	Email and telephone
Date of contact:	9/26/14, 10/10/14, 12/10/14
Other permit(s) or permits by rule affected by this action:	Yes
List permit and/or PBR number(s) and actions required or taken:	Standard Permit No. 107976 and PBR Registration Nos. 56416 and 116434 still exist and are still authorizing equipment at this site.

	2/17/15		
Project Reviewer	Date	Team Leader/Section Manager/Backup	Date

Item 4	February 03, 2011	(880284)
Item 5	January 19, 2012	(980453)
Item 6	July 30, 2013	(1104746)
Item 7	April 01, 2014	(1152268)

E. Written notices of violations (NOV) (CCEDS Inv. Track. No.):

A notice of violation represents a written allegation of a violation of a specific regulatory requirement from the commission to a regulated entity. A notice of violation is not a final enforcement action, nor proof that a violation has actually occurred.

N/A

F. Environmental audits:

G. Type of environmental management systems (EMSs):

N/A

H. Voluntary on-site compliance assessment dates:

N/A

I. Participation in a voluntary pollution reduction program:

N/A

J. Early compliance:

N/A

Sites Outside of Texas:

N/A

Emission Sources - Maximum Allowable Emission Rates

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This table lists the maximum allowable emission rates and all sources of air contaminants on the applicant's property covered by this permit. The emission rates shown are those derived from information submitted as part of the application for permit and are the maximum rates allowed for these facilities, sources, and related activities. Any proposed increase in emission rates may require an application for a modification of the facilities covered by this permit.

Air Contaminants Data

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
C-1	1,320 hp KVG-123 Compressor Engine	NO _x	11.6	51.0
		CO	29.1	127.5
		VOC	3.6	15.9
		PM	0.2	0.9
		PM ₁₀	0.2	0.9
		PM _{2.5}	0.2	0.9
		SO ₂	0.01	0.03
C-2	1,320 hp KVG-123 Compressor Engine	NO _x	11.6	51.0
		CO	29.1	127.5
		VOC	3.6	15.9
		PM	0.2	0.9
		PM ₁₀	0.2	0.9
		PM _{2.5}	0.2	0.9
		SO ₂	0.01	0.03
C-3	1,320 hp KVG-123 Compressor Engine	NO _x	11.6	51.0
		CO	29.1	127.5
		VOC	3.6	15.9
		PM	0.2	0.9
		PM ₁₀	0.2	0.9
		PM _{2.5}	0.2	0.9
		SO ₂	0.01	0.03

(1) Emission point identification - either specific equipment designation or emission point number from plot plan.

(2) Specific point source name. For fugitive sources, use area name or fugitive source name.

Emission Sources - Maximum Allowable Emission Rates

- (3) VOC - volatile organic compounds as defined in Title 30 Texas Administrative Code § 101.1
 - NO_x - total oxides of nitrogen
 - SO₂ - sulfur dioxide
 - PM - total particulate matter, suspended in the atmosphere, including PM₁₀ and PM_{2.5}, as represented
 - PM₁₀ - total particulate matter equal to or less than 10 microns in diameter, including PM_{2.5}, as represented
 - PM_{2.5} - particulate matter equal to or less than 2.5 microns in diameter
 - CO - carbon monoxide
- (4) Compliance with annual emission limits (tons per year) is based on a 12 month rolling period.

Date: xxx, 2015

Special Conditions

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Emission Standards

1. This permit authorizes emissions only from those points listed in the attached table entitled "Emission Sources - Maximum Allowable Emission Rates," and the facilities covered by this permit are authorized to emit subject to the emission rate limits on that table and other operating conditions specified in this permit.
2. The Rich Burn Engines identified as Unit Nos. C-1, C-2, and C-3 are equipped with air-fuel ratio (AFR) controllers and a non-selective catalytic reduction (NSCR) unit to reduce nitrogen oxide (NO_x) emissions from each engine exhaust. These modifications were completed by March 1, 2007. Unit Nos. C-1, C-2, and C-3 upon modification completion shall meet 4.0 grams NO_x per brake horsepower hour (bhp-hr) and 10.0 gram carbon monoxide (CO) per bhp-hr.
3. The holder of this permit shall install, calibrate, maintain, and operate an AFR controller for each engine which senses the oxygen (O₂) content of the exhaust upstream of the catalytic converter. Inlet O₂ concentration to the catalyst shall be maintained within a range which achieves the emission limits of Special Condition Nos. 1 and 2. Documentation for each AFR controller, manufacturer's or supplier's recommended maintenance that has been performed, including replacement of the O₂ sensor as necessary for O₂ sensor-based controllers, shall be kept at the plant site. The millivolt output of the sensors shall be visually inspected once a month. The millivolt values shall be logged and made available upon request. If the engine performance, O₂ sensor millivolt output or measured gas concentrations indicate problems with the O₂ sensor, it shall be replaced as soon as practicable.
4. Sweet natural gas will be used to fire each compressor engine. Natural gas usage shall be monitored and recorded for each combustion source and tabulated on a monthly basis. Records may be recorded electronically. Fuel usage may be monitored with a single fuel meter and apportioned to each engine on the basis of engine hours and other available information. These records shall be kept at the plant site for at least five years and be made immediately available to Texas Commission on Environmental Quality (TCEQ) personnel upon request.

Opacity / Visible Emission Limitations

5. During normal operations, the opacity of emissions from the engine stacks (Emission Point Numbers [EPNs] C-1, C-2, or C-3) shall not exceed 20% averaged over a six-minute period, as determined by a trained observer, as required by Title 30, Texas Administrative Code (30 TAC), Chapter 111.111(a)(1)(B); except for those periods described in 30 TAC § 111.111(a)(1)(E).

Opacity determination shall be made by first observing for visible emissions while each facility is in operation. Observations shall be made at least 15 feet and no more than 0.25 miles from the emission point. If visible emissions are observed from an emission point, then the opacity shall be determined and documented within 24 hours for that emission

point using Title 40 Code of Federal Regulations (40 CFR) Part 60, Appendix A, Test Method 9. Contributions from uncombined water shall not be included in determining compliance with this condition. Observations shall be performed and recorded quarterly, unless the emission unit is not operational for the entire quarter, which shall be noted on the records. If the opacity exceeds the referenced limit, corrective action to eliminate the source of visible emissions shall be taken promptly and documented within one week of first observation.

Initial Determination of Compliance

6. The holder of this permit shall perform initial stack sampling and other testing to establish the actual pattern and quantities of air contaminants being emitted into the atmosphere from Unit Nos. C-1, C-2, and C-3. The engines will be stack sampled within 180 days of retrofit completion required by Special Condition No. 2.

Gaseous sampling ports and sampling platforms or equivalent methods of access shall be incorporated into the design of each engine stack per specifications in the attachment entitled "Chapter 2, Stack Sampling Facilities" of the TCEQ Sampling Procedures Manual. Alternate sampling facility designs may be submitted for approval by the TCEQ Regional Director. Unless an equivalent method is used, sampling ports and sampling platforms will be installed prior to the pretest meeting.

During the pretest meeting, the applicant may request the use of the U.S. Environmental Protection Agency (EPA) Method 19 (as referenced by 30 TAC § 106.261) to calculate the stack flow in place of the requirements listed above. Pertinent data, including fuel flow, shall be recorded and included in the sampling report. Any data and/or records required in addition to the EPA Method 19 requirements shall be addressed at the pretest meeting.

- A. The appropriate TCEQ Regional Office shall be contacted as soon as testing is scheduled, but not less than 45 days prior to sampling to schedule a pretest meeting.

The notice shall include:

- (1) Date for pretest meeting.
- (2) Date sampling will occur.
- (3) Name of firm conducting sampling.
- (4) Type of sampling equipment to be used.
- (5) Method or procedure to be used in sampling.
- (6) Procedure to be used to determine engine horsepower load during sampling period.

The purpose of the pretest meeting is to review the necessary sampling and testing procedures, to provide the proper data forms for recording pertinent data, and to review the format procedures for submitting the test reports.

A written proposed description of any deviation from sampling procedures specified in permit conditions or the TCEQ or the EPA sampling procedures shall be made available to the TCEQ prior to the pretest meeting. The TCEQ Regional Director shall approve or disapprove of any deviation from specified sampling procedures.

- B. Air contaminants emitted from Unit Nos. C-1, C-2, and C-3 to be tested for include (but are not limited to) NO_x and CO, expressed in units of pounds per hour (lb/hr) and grams/bhp-hr. The sampling will be used to demonstrate initial compliance with the lb/hr emission limits of CO and NO_x on the maximum allowable emission rates table and the grams of NO_x and CO per bhp-hr limits from Special Condition No. 2.
- C. Engine emissions shall be determined by appropriate EPA methods or other methods approved by the TCEQ Regional Director prior to sampling. Methods described in 30 TAC § 106.512(2)(C)(iii) are considered to be approved methods.

Emissions shall be sampled at minimum, average, and maximum engine RPMs. Sampling at different RPMs is not required if the operating minimum, average, and maximum RPMs are within 10 percent of the maximum RPM. Every effort should be made to conduct initial compliance testing during conditions which demand the maximum horsepower expected for the engine.

For each test, the following engine operating parameters shall be clearly described in the sampling report: air-fuel ratio, exhaust O₂ content (upstream and downstream of the catalyst if NSCR is employed), percent water in the exhaust, engine speed, and engine horsepower.

- D. Sampling shall be performed at other such times as required by the TCEQ Regional Director or the TCEQ Executive Director. Requests for additional time to perform sampling shall be submitted to the TCEQ Regional Office.
- E. Copies of the final sampling report shall be forwarded to the TCEQ within 90 days after sampling is completed. Sampling reports shall comply with the attached provisions of Chapter 14 of the TCEQ Sampling Procedures Manual. These reports shall be distributed as follows:
 - One copy to the TCEQ Regional Office.
- F. Initial testing and sampling as required by this Special Condition were completed in August 2007.

Continuous Determination of Compliance

- 7. In order to demonstrate that emission limits specified in Special Condition No. 2 are continuously met, beginning the calendar quarter after completion of initial demonstration of compliance required by Special Condition No. 6, the holder of this permit shall perform the following for Unit Nos. C-1, C-2, and C-3.
 - A. Conduct evaluations of engine performance every three months (quarterly) by measuring the NO_x, CO, and O₂ content of the exhaust. Testing required under this

special condition shall begin no later than the first calendar quarter following the calendar quarter in which stack testing under Special Condition No. 6 was completed. If an engine does not operate more than 100 hours during a quarter, it does not need to be sampled for that quarter.

The use of portable analyzers specifically designed for measuring the concentration of each contaminant in parts per million by volume is acceptable for these evaluations. Three sets of measurements shall be averaged to determine the concentrations. Prior to the first measurement and following the last measurement, the portable analyzer shall be checked for accuracy using an audit gas that conforms to the specifications in 40 CFR Part 60, Appendix F, 5.1.2(3). Any other method approved by the appropriate TCEQ Regional Director is also acceptable.

- B. If the portable analyzer is capable of measuring nitric oxide and nitrogen dioxide (NO₂), then these measurements shall be summed to determine the NO_x emission rate. The NO_x emission rate shall be expressed as (using the molecular weight of) NO₂.

If the engine employs NSCR emission control, emissions testing shall be performed no later than seven days following any maintenance performed on the AFR controller, sensor, or catalyst (including catalyst cleaning or replacement) and following engine maintenance which may affect the character and quantity of emissions.

Emissions shall be measured and recorded in the as-found operating condition, except no compliance determination shall be established during start-up, shutdown, or under breakdown conditions.

- C. Emissions calculations shall be used to convert the portable analyzer data to lb/hr NO_x and CO on a quarterly basis for each engine.
8. On each of EPNs C-1, C-2, and C-3, the permit holder shall install and operate a temperature monitoring device to measure the engine exhaust temperature into the associated catalytic converter and manually record the measurement at least once per day. The temperature monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within ± two percent of the temperature reading or ± 2.5 degrees Celsius. The permit holder shall maintain the temperature of the engine exhaust so that the catalyst inlet temperature is greater than or equal to 700 degree Fahrenheit and less than or equal to 1,250 degree Fahrenheit.
9. The permit holder shall use Reference Method 7E or 20 to stack test the unit for NO_x emissions from EPNs C-1, C-2, and C-3 within 15,000 hours of operation after the previous emission test. Exhaust flow rate may be determined from measured fuel flow rate and EPA Method 19. California Air Resources Board Method A-100 is an acceptable alternate to EPA test methods. In addition, the permit holder shall install and operate an elapsed operating time meter to record hours of operation.

Recordkeeping

10. The following written records demonstrating compliance shall be made and maintained by the holder of this permit on a five-year rolling retention basis and shall be made immediately available upon request to designated representatives of the TCEQ or EPA.
 - A. The results of all stack tests and quarterly sampling required in Special Condition Nos. 6 and 7 shall be permanently kept on file at the plant site.
 - B. Date and description of any engine maintenance.
 - C. Copy of manufacturer's or supplier's written guidance for AFR controller recommended maintenance.
 - D. Copy of manufacturer's or supplier's written guidance for O₂ sensor replacement.
 - E. Log of all O₂ sensor replacement or AFR controller maintenance.
 - F. The results of all stack tests and temperature monitoring required in Special Condition Nos. 8 and 9 shall be permanently kept on file at the plant site.
 - G. Records (starting with issuance of renewed permit in xx/2015) of opacity measurements as described and specified in Special Condition No. 5.
11. The results of two consecutive quarterly portable analyzer tests shall be submitted to the TCEQ Regional Office once every six months. After six consecutive quarterly evaluations, submittals may be discontinued provided the following conditions are met:
 - A. The engine has been in compliance with all the conditions of this permit during the six consecutive quarterly periods, and
 - B. Approval is granted by the Director of the TCEQ Regional Office.

Permits by Rule and Standard Permit Authorizations

12. The following facilities at the site are authorized by permits by rule (PBR) under 30 TAC Chapter 106. These authorizations are listed here for reference purposes only.

Facilities	Registration Number	Rule Number
Maintenance, Startup, and Shutdown Emissions	116434	106.359
Emergency Generators 1 & 2, Storage Tank 1, Other fugitives	56416	106.352, 106.511

13. The following facilities are authorized by Standard Permits. This authorization is listed here for reference purposes only.

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Facilities	Standard Permit Rule	Registration Number
Compressor Engines 4, 5, 6 with Non-Selective Catalytic Reduction	116.617 Pre 2011	107976

Date: xxx, 2015