

TECHNICAL REVIEW: AIR PERMIT BY RULE

Permit No.:	86520	Company Name:	Texas Energy Midstream LP	APD Reviewer:	Mr. Alexander Amponsah
Project No.:	141836	Unit Name:	Mansfield Compressor Station	PBR No(s).:	106.352 and 106.512

GENERAL INFORMATION					
Regulated Entity No.:	RN105640742	Project Type:	Permit by Rule Application		
Customer Reference No.:	CN603418591	Date Received by TCEQ:	October 22, 2008		
Account No.:		Date Received by Reviewer:	October 29, 2008		
City/County:	Mansfield, Tarrant County	Physical Location:	1865 Callender Road 2.		

CONTACT INFORMATION					
Responsible Official/ Primary Contact Name and Title:	Mr. Dennis Moser President	Phone No.:	(214) 696-4999	Email:	dmoser@temlc.com
		Fax No.:	(214) 696-8635		
Technical Contact/ Consultant Name and Title:	Mr. Greg Lewis President	Phone No.:	(713) 476-9958	Email:	glewis@c3resources.com
		Fax No.:	(713) 476-9975		

GENERAL RULES CHECK	YES	NO	COMMENTS
Is confidential information included in the application?		X	
Are there affected NSR or Title V permits for the project?		X	There are no NSR or Title V Permits associated with the site. Site is a new site, therefore NOx amount doesn't trigger federal review for 1-hour ozone standard.
Is each PBR > 25/250 tpy?		X	See the Estimated Emissions table below.
Are PBR sitewide emissions > 25/250 tpy?		X	
Are there permit limits on using PBRs at the site?		X	
Is PSD or Nonattainment netting required?		X	The project has not triggered a PSD or a nonattainment review.
Do NSPS, NESHAP, or MACT standards apply to this registration?	X		Limited requirements of MACT HH will apply.
Does NOx Cap and Trade apply to this registration?		X	The site is not located in Houston/Galveston area
Is the facility in compliance with all other applicable rules and regulations?	X		Applicant certifies that Chapter 115 and Chapter 117.201-223 will be met

DESCRIBE OVERALL PROCESS AT THE SITE
Texas Energy Midstream, L.P. (TEM) is proposing to certify and register the emissions from the installation of a compressor station at the Mansfield Compressor Station (Mansfield) in Mansfield, Tarrant County.

DESCRIBE PROJECT AND INVOLVED PROCESS
<p>The Mansfield Compressor Station is used to compress natural gas from nearby wells. The site equipment includes and inlet separator, two 1,775 hp Cat 3606 compressors and a glycol unit to dehydrate the gas prior to sending the gas down the pipeline. The glycol unit will be fired by a natural gas reboiler. The still overhead emissions are sent to a condenser, where much of the heavy hydrocarbons are removed and sent to the slop tank. The remaining non-condensable material from the still overhead is burned as fuel in the glycol unit.</p> <p>Any oil or condensate associated with the inlet gas is separated out in the inlet separator and sent to a slop tank. Any liquids sent to the slop tank are trucked out a necessary TEM have assumed approximately 3 barrels/day in estimated emissions calculations.</p> <p>There is an emergency vent/blowdown stack. The engines will be blown down weekly for maintenance. TEM has chosen to register and certify MSS emission from 52 blowdowns per engine.</p> <p>The site is located with in the city limits of Mansfield, Texas. The compressors will be housed in a building designed to reduce noise. The vent will have a silencer installed to reduce noise.</p> <p><u>Engines:</u> The Cat 3606 engines (EPN E-01 and E-02), being greater than 500 HP qualifies for permit by rule by following the requirements of 30 T AC 106.512 (1) by submitting Form PI-7 and Table 29. Emissions factors for NOx (0.5 gm/hp-hr), CO (2.75 gm/hp-hr) and VOC (0.25 gm/hp-hr) from manufacturer data; PM10, SO2 and HCHO from AP-42.</p> <p><u>Blowdowns:</u> 52 blowdowns per year per engine, 1000 scf/blowdown, and inlet gas mol wt 18lb/lbmol, inlet gas wt% VOC 0.503.</p> <p><u>Heater:</u> There is one 1 MMBtu/hr heater (H-01). 1000 btu/scf fuel value. Emission estimates calculated using AP 42 emission factors.</p> <p><u>Fugitives:</u> Were estimated using Oil and Gas Production factors from API.</p> <p><u>Truck Loading:</u> Loading losses of 4.03 lb/1000 gal, Hourly emissions assuming 8820 gal/hr and 8820 tank capacity, throughput of 50,000 gal per year.</p> <p><u>Glycol Dehydrator:</u> The glycol dehydrator (EPNs GV-01 and H-01) is regenerated by a gas-fired 1.0 MMBtu/hr glycol regenerator reboiler (EPN H-01). Emissions from H1 were calculated using AP-42 factors. The throughput amount of 30 MMSCF has reached the threshold amount for MACT HH; however, benzene amount is below threshold amount. Therefore, only limited requirements of MACT HH will apply.</p> <p>Flash tank gas is vented to the atmosphere after being sent to 95% control and glycol dehydrator regenerator overhead vents to a 95% condenser. The GRI-GLYCalc Version 4.0 program was used to calculate emissions using a gas analysis. Please note from the gas analysis of the gas being dehydrated is very dry.</p> <p><u>Other Emission Source:</u> There will be one-100 barrel tank located at the site which will hold process water and condensate. To be conservative, 12 turnovers per year of</p>

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condensate were used to estimate VOC emissions from the tank using Tanks 4.0 and Vasquez Beggs.

30 TAC §106.352 RULE CHECK		
REQUIREMENTS	YES, NO, or n/a	OTHER / COMMENTS
If the site conditions the natural gas (with a glycol dehydrator, amine unit, sulfur recovery unit, etc.), it handles less than two long tons per day of sulfur compounds (1 long ton = 2240 pounds).	YES	
(1) All compressors will meet the requirements of 106.512.	YES	
(1) All flares will meet the requirements of 106.492.	N/A	There are no flares at the site.
(2) Total emissions, including process fugitives, combustion unit stacks, separator, or other process vents, tank vents, and loading emissions from all such facilities constructed at a site under this section, will be equal to or below 25 tons per year (tpy) each of sulfur dioxide (SO ₂), all other sulfur compounds combined, or all volatile organic compounds (VOC) combined; and 250 tpy each of nitrogen oxide and carbon monoxide. Emissions of VOC and sulfur compounds other than SO ₂ must include gas lost by equilibrium flash as well as gas lost by conventional evaporation.	YES	
(3) If the facility handles sour gas, it will be located at least ¼ mile from any recreational area or residence or other structure not occupied or used solely by the owner or operator of the facility or the owner of the property upon which the facility is located.	NO	Actual Distance = <u>1,000 feet</u> .
(4) Total emissions of sulfur compounds, excluding sulfur oxides, from all vents will be equal to or below 4.0 pounds per hour (lb/hr).	YES	Actual Sulfur Emissions = <u>0.02 lb/hr</u> .
(4) The height of each vent emitting sulfur compounds meets the following requirements, and is in no case less than 20 feet.	YES	Actual Vent Height = <u>>20 feet</u> .
(5) If the site handles sour gas, the company will register the site by submitting Form PI-7 or PI-7-CERT before operations begin.	NO	Form PI-7 CERT submitted.



30 TAC §106.512 RULE CHECK																							
REQUIREMENTS	YES, NO, or n/a	OTHER / COMMENTS																					
(1) The engines or turbines have been registered with Form PI-7 or PI-7-CERT within 10 days of the start of construction. Engines and turbines rated less than 240 horsepower (hp) need not be registered, but must meet paragraphs (5) and (6) of this section, relating to fuel and protection of air quality.	YES	HP of engine E-01 = <u>1,775</u> . HP of engine E-02 = <u>1,775</u> .																					
(1) Table 29 has been submitted for each proposed gas or liquid fuel-fired stationary internal combustion reciprocating engine.	YES	Information for Table 29 was submitted for both engines.																					
(2) Any engines rated greater than 500-hp will meet the requirements of subparagraphs (A) - (C) of this paragraph.	YES																						
(4) Any engine or turbine rated less than 500 hp is exempt from the emission limitations of paragraphs (2) and (3) above. Temporary replacement engines or turbines shall be limited to a maximum of 90 days of operation, after which they shall be removed or rendered physically inoperable.	YES	Horsepower of the two engines: <u>1,775 & 1,775</u> . Temporary? <u>NO</u> .																					
(5) The gas fuel will be limited to: sweet natural gas or liquid petroleum gas, fuel gas containing no more than ten grains total sulfur per 100 dry standard cubic feet, or field gas.	YES	Type of fuel: <u>Sweet natural gas</u> .																					
(6) Compliance with National Ambient Air Quality Standard (NAAQS) in the area of the proposed facility has been demonstrated.	YES	Which method was used (A, B, or C)? <u>A</u> .																					
(6)(A) Ambient sampling or dispersion modeling, accomplished pursuant to guidance obtained from the executive director, was used to demonstrate NAAQS:																							
<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="width: 10%;">Engine Identifier / EPN</th> <th style="width: 20%;">Max. Hourly Concentration of NO₂ / NO_x (from Screen3 modeling, µg/m³)</th> <th style="width: 20%;">Max. Annual Concentration of NO₂ / NO_x (Max. Hourly Conc. X 0.08, µg/m³)</th> <th style="width: 10%;">NO₂ / NO_x Ratio (from table below)</th> <th style="width: 30%;">Annual NO₂ Concentration (Max. Annual Conc. X NO₂ / NO_x Ratio) (µg/m³)</th> </tr> </thead> <tbody> <tr> <td>E-01</td> <td>3.9</td> <td>0.312</td> <td>0.4</td> <td>0.124</td> </tr> <tr> <td>E-02</td> <td>3.9</td> <td>0.312</td> <td>0.4</td> <td>0.124</td> </tr> </tbody> </table>	Engine Identifier / EPN	Max. Hourly Concentration of NO ₂ / NO _x (from Screen3 modeling, µg/m ³)	Max. Annual Concentration of NO ₂ / NO _x (Max. Hourly Conc. X 0.08, µg/m ³)	NO ₂ / NO _x Ratio (from table below)	Annual NO ₂ Concentration (Max. Annual Conc. X NO ₂ / NO _x Ratio) (µg/m ³)	E-01	3.9	0.312	0.4	0.124	E-02	3.9	0.312	0.4	0.124		<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 60%;">Annual Background Concentration for Culberson County = 20.0</td> <td>20.0</td> </tr> <tr> <td>TOTAL =</td> <td>20.248</td> </tr> <tr> <td>Is total below NAAQS limit for NO₂ of 100 µg/m³ (yes/no)?</td> <td>YES</td> </tr> </table>	Annual Background Concentration for Culberson County = 20.0	20.0	TOTAL =	20.248	Is total below NAAQS limit for NO ₂ of 100 µg/m ³ (yes/no)?	YES
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Is total below NAAQS limit for NO ₂ of 100 µg/m ³ (yes/no)?	YES																						
Unless otherwise documented by actual test data, the following nitrogen dioxide (NO ₂)/NO _x ratios shall be used for modeling NO ₂ :																							
(7) The engine or turbine will not be used to generate electricity.	YES																						

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ESTIMATED EMISSIONS													
EPN / Emission Source	Specific VOC or Other Pollutants	VOC		NOx		CO		PM ₁₀		SO ₂		Other	
		lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy
E-01 / Compressor Engine	Formaldehyde	0.977	4.281	1.955	8.562	10.75	47.09	0.465	2.038	0.008	0.034	0.669	2.928
E-02 / Compressor Engine	Formaldehyde	0.977	4.281	1.955	8.562	10.75	47.09	0.465	2.038	0.008	0.034	0.669	2.928
H-01 / 1 MMBtu Heater		0.005	0.02	0.10	0.438	0.084	0.367	0.007	0.033	0.001	0.002		
GV-01 / Still Vent	Benzene	0.02	0.089									0.009	0.039
F-01 / Fugitives		0.168	0.740										
TK-01 / Slop Tank		1.27	5.578										
TL-01 / Truck Loading		35.55	0.10										
CBD1 / Blowdowns		0.24	0.006										
CBD2 / Blowdowns		0.24	0.006										
TOTAL EMISSIONS (TPY):			15.10		17.56		94.55		4.11		0.07		5.90
MAXIMUM OPERATING SCHEDULE:		Hours/Day		Days/Week		Weeks/Year		Hours/Year				8760	

SITE REVIEW / DISTANCE LIMIT	Yes	No	Description/Outcome	Date	Reviewed by
Site Review Required?		X		November 21, 2008	Mr. Alexander Amponsah
PBR Distance Limits Met?	X		Applicant certifies that site is 1000 feet from nearest receptor.	November 21, 2008	Mr. Alexander Amponsah

	TECHNICAL REVIEWER	PEER REVIEWER	FINAL REVIEWER
SIGNATURE:			See hardcopy.
PRINTED NAME:	Mr. Alexander Amponsah	Mr. Raymond Lay	Ms. Anne M. Inman, P.E., Manager
DATE:	November 21, 2008	November 21, 2008	November 21, 2008

BASIS OF PROJECT POINTS	POINTS
Base Points:	2.0
Project Complexity Description and Points: Extra PBR	0.5
Technical Reviewer Project Points Assessment:	2.5
Final Reviewer Project Points Confirmation:	