Sandya Bhaskara

From: Christina Chermak [CChermak@TitanEngineering.com]
Sent: Wednesday, July 18, 2012 11:18 AM
To: Sandya Bhaskara
Subject: RE: Carter Trust 2 4 5 RN105248959 Update

Yes, that was (overly) conservatively represented in the first submittal by using the standards in JJJJ. In reality the emission factor and what the engine is tested at would be much lower. So we just brought it down to allow for the second engine. You can see when comparing the EFs we used to the ones on the vendor spec sheets that our representation is still conservative.

Thanks!

Christina Chermak, E.I.T, LEED AP
Project Manager
TITAN Engineering, Inc.
A Division of Apex Companies, LLC
2801 Network Blvd, Suite 200
Frisco, TX 75034
O) 469-365-1168 M) 512-689-4484

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From: Sandya Bhaskara [mailto:Sandya.Bhaskara@tceq.texas.gov]
Sent: Wednesday, July 18, 2012 11:12 AM
To: Christina Chermak
Subject: RE: Carter Trust 2 4 5 RN105248959 Update

Hi Christina:

I see a change in VOC emissions from compressor 1 engine in the updated emissions summary. Please justify the same.

Thank you
Sandya

From: Christina Chermak [mailto:CChermak@TitanEngineering.com]
Sent: Thursday, July 12, 2012 10:33 AM
To: Sandya Bhaskara
Subject: Carter Trust 2 4 5 RN105248959 Update

Sandya,

As discussed yesterday, here are the updates to the PBR submittal for Carter Trust 2 4 5 Pad. An engine has been added to the site and the attached document reflects those changes throughout the attachments that were submitted. You should be able to follow the page numbering to see which pages to replace in the version you have that was sent in at first. Please let me know if you have any questions about this or if I can help explain the updates.

We appreciate your cooperation with this small revision!

Thanks,

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Sandya Bhaskara

From: Christina Chermak [CChermak@TitanEngineering.com]
Sent: Wednesday, July 11, 2012 9:46 AM
To: Sandya Bhaskara
Subject: RE: Carter Trust 2 4 5 (RN105248959)

Sandya- we just got the data in this morning, is there any way we could get it to you by COB tomorrow and have that be ok? That would be greatly appreciated to avoid a second submittal and review process! It would just be updated engine calcs.

Christina Chermak, E.I.T, LEED AP
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From: Sandya Bhaskara [mailto:Sandya.Bhaskara@tceq.texas.gov]
Sent: Wednesday, July 11, 2012 8:33 AM
To: Christina Chermak
Subject: RE: Carter Trust 2 4 5 (RN105248959)

Hi Christina

This project is due from my side in a week. If you can send the revisions across by COB today, I will incorporate the new changes.

Thank you,
Sandya Rani Bhaskara, PMP
512-239-4740
sandya.bhaskara@tceq.texas.gov

From: Christina Chermak [mailto:CChermak@TitanEngineering.com]
Sent: Tuesday, July 10, 2012 4:32 PM
To: Sandya Bhaskara
Subject: Carter Trust 2 4 5 (RN105248959)

Hello Sandya-

The above referenced project (permit number **82363)** shows that you are the assigned review engineer. We have a few changes that have been made to that site (the addition of an engine) and I'm wondering if it would be possible to submit those updates before you approve the permit. Specifically so that we do not have to do a completely new revision submittal in such a close timeframe to having submitted the one you are currently looking at. Would you please let me know your guidance in this instance based on where the review process is for that site?

Thank you!

Christina Chermak, E.I.T, LEED AP
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Frisco, TX 75034
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Sandya Bhaskara

From: Christina Chermak [CChermak@TitanEngineering.com]
Sent: Thursday, July 19, 2012 11:23 AM
To: Sandya Bhaskara
Cc: Brad Bingham (BBingham@lng2.com)
Subject: RE: Carter Trust 2 4 5 RN105248959 Update
Attachments: 3606 LE.pdf

Sandya,

Please see the attached engine testing report. As you'll notice the VOC emissions were reported in PPM. By comparing the 14.733 ppm VOC from the test, to the ratio between g/hp-hr and ppm in JJJJ, it can be seen that the engine is testing around .17 g/hp-hr of VOC. This is well below the 0.5 g/hp-hr we represented in the permit and therefore will conservatively represent the engine operations at the site.

Please let me know if you have any other questions. Thank you!

Christina Chermak, E.I.T, LEED AP
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From: Sandya Bhaskara [mailto:Sandya.Bhaskara@tceq.texas.gov]
Sent: Thursday, July 19, 2012 10:18 AM
To: Christina Chermak
Cc: Joe Shine
Subject: RE: Carter Trust 2 4 5 RN105248959 Update

Hi Christina:

We need documentation of the test conducted on the engine to verify your statement in below email. Please send the same by COB tomorrow (7/20/2012).

Thank you,
Sandya Rani Bhaskara, PMP
512-239-4740
sandya.bhaskara@tceq.texas.gov

From: Christina Chermak [mailto:CChermak@TitanEngineering.com]
Sent: Thursday, July 19, 2012 9:37 AM
To: Sandya Bhaskara
Subject: RE: Carter Trust 2 4 5 RN105248959 Update

Engines of that make and model and running in that vicinity have all tested at well below the .63 g/hp-hr, so we were able to conservatively represent it at 0.5 g/hp-hr

Christina Chermak, E.I.T, LEED AP
Project Manager
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From: Sandya Bhaskara [mailto:Sandya.Bhaskara@tceq.texas.gov]
Sent: Wednesday, July 18, 2012 11:58 AM
To: Christina Chermak
Subject: RE: Carter Trust 2 4 5 RN105248959 Update

Christina:

I am looking at Eng-2 manufacture sheet. For 1775 hp, the corresponding VOC value is 0.63 g/hp-hr. The VOC emissions would be 10.8 tpy. This is more than what reported in the emissions summary and will not meet the PBR limit. Seems like 0.5 g/hp-hr of VOC is used in your calculation.

Please justify the same.

Thank you
Sandya

From: Christina Chermak [mailto:CChermak@TitanEngineering.com]
Sent: Wednesday, July 18, 2012 11:18 AM
To: Sandya Bhaskara
Subject: RE: Carter Trust 2 4 5 RN105248959 Update

Yes, that was (overly) conservatively represented in the first submittal by using the standards in JJJJ. In reality the emission factor and what the engine is tested at would be much lower. So we just brought it down to allow for the second engine. You can see when comparing the EFs we used to the ones on the vendor spec sheets that our representation is still conservative.

Thanks!

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From: Sandya Bhaskara [mailto:Sandya.Bhaskara@tceq.texas.gov]
Sent: Wednesday, July 18, 2012 11:12 AM
To: Christina Chermak
Subject: RE: Carter Trust 2 4 5 RN105248959 Update

Hi Christina:

I see a change in VOC emissions from compressor 1 engine in the updated emissions summary. Please justify the same.

Thank you
Sandya

From: Christina Chermak [mailto:CChermak@TitanEngineering.com]
Sent: Thursday, July 12, 2012 10:33 AM
To: Sandya Bhaskara
Subject: Carter Trust 2 4 5 RN105248959 Update

Sandya,

As discussed yesterday, here are the updates to the PBR submittal for Carter Trust 2 4 5 Pad. An engine has been added to the site and the attached document reflects those changes throughout the attachments that were submitted. You should be able to follow the page numbering to see which pages to replace in the version you have that was sent in at first. Please let me know if you have any questions about this or if I can help explain the updates.

We appreciate your cooperation with this small revision!

Thanks,

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Energy Resource Development, Inc.
19345 Point O Woods Court
Baton Rouge, Louisiana 70809
225-753-4723
LELAP Certification No. 03004

April 18, 2012

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
MR. JOHN SALDLIER
12100 PARK THIRTY-FIVE CIRCLE, BLDG C
AUSTIN, TX 78753

TCEQ - REGION 4
ATTN: MR. TONY WALKER
2309 GRAVEL DR.
FORT WORTH, TX 76118-6951

U.S. EPA - REGION 6
ATTN: 6EN-A
1445 ROSS AVENUE
DALLAS, TEXAS 75202

Re: PERFORMANCE TEST
Legend Natural Gas IV, LP.
MANSFIELD PARTNERS 2H
AI/RN: 105377501
PERMIT #: 83484
EPN: 08-1101
TARRANT COUNTY, TEXAS

This performance stack test was conducted to measure the amount of specific regulated pollutants, and/or surrogates, being emitted to demonstrate compliance with the following regulatory requirements:

EPA	40 CFR 60 NSPS JJJJ TABLE 1
TCEQ	TAC Chapter 117.8140(a)
TCEQ	TAC Chapter 106.512

The following are the conditions specific to this stack test, which was conduced at maximum engine load and under actual facility conditions:

Engine Make:	CATERPILLAR	Date of Stack Test:	03/29/12
Engine Model:	3606 LE	Number of Runs:	3
Rated Horsepower:	1775	Duration of Runs:	60 minutes
Tested Horsepower:	1370	Recording Time:	1 minute
Serial Number:	4ZS01085	Engine Load:	77.19 %
Emission Controls:	OXIDATION	Parameters Tested:	NOx, CO, VOC (if NSPS JJJJ)
Engine Speed (rpm):	900	Test Type:	INITIAL/ANNUAL

The following is a summary of the engine stack test results:

	Tested			Permit/Regulatory Limits		
	(lb/hr)	(tpy)	(gm/bhp-hr)	(lb/hr)	(tpy)	(gm/bhp-hr)
CO	5.084	22.269	1.685	9.383	41.099	2.400
NOx	0.700	3.068	0.232	1.955	8.562	0.500
VOC	14.733 ppm			60 ppm		

* NSPS JJJJ only

The operator contact information is as follows:

Legend Natural Gas IV, LP.
Brad R. Bingham, P.G.
777 Main St., Suite 900
Ft Worth, TX 76102

817-872-7808
BBingham@lng2.com

I certify that I have personally examined and am familiar with the information submitted herein, and based on my inquiries of those individuals

Brad R. Bingham, P.G.
Legend Natural Gas IV, LP.

JOHN CONNOLLY
ENERGY RESOURCE DEVELOPMENT, INC.

Should you have any questions, please call or email me at 225-753-4723 and ersses@cox.net, respectively.

Sincerely,

John R. Connolly
Laboratory/Technical Director

Texas Commission on Environmental Quality
Permit by Rule Applicability Checklist
Title 30 Texas Administrative Code § 106.4

Electronic Submittal - Only enter the PI-7 confirmation number here [ ] if submitting electronically.
Hard-Copy Submittal - Print and complete this checklist.

The following checklist was developed by the Texas Commission on Environmental Quality (TCEQ), **Air Permits Division**, to assist applicants in determining whether or not a facility meets all of the applicable requirements. Before claiming a specific Permit by Rule (PBR), a facility must first meet all of the requirements of **Title 30 Texas Administrative Code § 106.4** (30 TAC § 106.4), "Requirements for Permitting by Rule." Only then can the applicant proceed with addressing requirements of the specific Permit by Rule being claimed.

The use of this checklist is not mandatory; however, it is the responsibility of each applicant to show how a facility being claimed under a PBR meets the general requirements of 30 TAC § 106.4 and also the specific requirements of the PBR being claimed. If all PBR requirements cannot be met, a facility will not be allowed to operate under the PBR and an application for a construction permit may be required under 30 TAC § 116.110(a).

Registration of a facility under a PBR can be performed by completing **Form PI-7** (Registration for Permits by Rule) or **Form PI-7-CERT** (Certification and Registration for Permits by Rule). The appropriate checklist should accompany the registration form. Check the most appropriate answer and include any additional information in the spaces provided. If additional space is needed, please include an extra page and reference the question number. The PBR forms, tables, checklists and guidance documents are available from the TCEQ, Air Permits Division Web site at: **www.tceq.state.tx.us/permitting/air/nav/air_pbr.html**.

1. 30 TAC § 106.4(a)(1) & (4): Emission limits

List emissions in tpy for **each** facility (add additional pages or table if needed):

SO_2 = _____ PM_{10} = _____ VOC = _____ NO_x = _____ CO = _____ Other Benzene = _____
SO_2 = _____ PM_{10} = _____ VOC = _____ NO_x = _____ CO = _____ Other _____ = _____
SO_2 = _____ PM_{10} = _____ VOC = _____ NO_x = _____ CO = _____ Other _____ = _____

Total 0.07 0.97 24.68 15.45 91.58 0.04

See Table 3-1 for Individual Facilities

- Are the SO_2, PM_{10}, VOC, or other air contaminant emissions claimed for **each** facility in this PBR submittal less than 25 tpy? ☑ YES ☐ NO
- Are the NO_x and CO emissions claimed for each facility in this PBR submittal less than 250 tpy? ☑ YES ☐ NO

*If the answer to both is "Yes," continue to the question below. If the answer to either question is "No," a **PBR cannot be claimed**.*

Has any facility at the property had public notice and opportunity for comment under 30 TAC Section 116 for a regular permit or permit renewal? (This does not include public notice for voluntary emission reduction permits, grandfathered existing facility permits, or federal operating permits.) ☐ YES ☑ NO

If "Yes," skip to Section 2. If "No," continue to the questions below.

If the site has had no public notice, please answer the following:

- Are the SO_2, PM_{10}, VOC, or other emissions claimed for **all** facilities in this PBR submittal less than 25 tpy? ☑ YES ☐ NO
- Are the NO_x and CO emissions claimed for all facilities in this PBR submittal less than 250 tpy? ☑ YES ☐ NO

If the answer to both questions is "Yes," continue to Section 2.
*If the answer to either question is "No," **a PBR cannot be claimed**. A permit will be required under Chapter 116.*

2. 30 TAC § 106.4(a)(2): Nonattainment check

Are the facilities to be claimed under this PBR located in a designated ozone nonattainment county? ☑ YES ☐ NO
If "Yes," please indicate which county by checking the appropriate box to the right.

(Marginal) - Hardin, Jefferson, and Orange counties *(BPA)* ☐ BPA
(Moderate) - Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller counties *(HGA)* ☐ HGA
(Moderate) - Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Rockwall, and Tarrant counties *(DFW)* ☑ DFW

If "Yes," to any of the above, continue to the next question. If "No," continue to Section 3.

VI.	General Information and Questions/Descriptions *(continued)*	
6.	Are emissions of any criteria pollutant increasing by 250 tons per year (tpy) of any criteria pollutant at an unnamed source? PSD information can be found at: www.tceq.texas.gov/permitting/air/forms/newsourcereview/tables/nsr_table9.html ***If "Yes," a PBR may not be used**. A PSD Permit review must be completed to authorize the project.* *If "No," go to Question 7.*	☐ Yes ☒ No
7.	Are emissions increasing above significance levels at an existing major site? ***If "Yes," a PBR may not be used**.* *A PSD Permit review must be completed to authorize the project.*	☐ Yes ☒ No

VII. Table

Fill out the table below based on representative worst-case operations and planned MSS activities (if registering) and attach the TCEQ Oil and Gas Emission Calculation Spreadsheet (or equivalent).

Air Contaminant	Steady-state Pounds Per Hour (lb/hr)	<30 psig Periodic lb/hr up to 150 hr/yr	≥30 psig Periodic lb/hr up to 150 hr/yr	Total Tons Per Year (tpy)
Total VOC*	9.68			24.68
Total Crude Oil or Condensate VOC	2.08			8.69
Total Natural Gas VOC	3.63		3.14	15.89
Benzene	0.01			0.04
Hydrogen Sulfide				
Sulfur Dioxide	0.02			0.07
Nitrogen Oxides	3.53			15.45
Carbon Monoxide	20.91			91.58
PM_{10}	0.22			0.97
$PM_{2.5}$				

** VOC is defined in 101.1(115) and does not include methane and ethane.*

Table 29
RECIPROCATING ENGINES

ENGINE DATA

Emission Point Number From Table 1(a) COMP- 01

APPLICATION

- ✓ Gas Compression
- ____ Electric Generation
- ____ Refrigeration
- ____ Other (Specify) ____

Manufacturer Caterpillar
Model No. G3516ULB
Serial No. ____
Orig. Mfr. Date Btwn 7/07 - 7/10
Rebuild Date(s) ____
No. of Cylinders ____
Compression Ratio ____

✓ 4 Stroke Cycle ____ Carburetted ✓ Spark Ignited ____ Dual Fuel
____ 2 Stroke Cycle ____ Fuel Injected ____ Diesel

Naturally Aspirated ____ Blower/Pump Scavenged ____ Turbocharged & I.C. ____
Turbocharged ____ Intercooled (I.C.) ____ I.C. Water Temperature ____

Ignition/Injection Timing: ____Fixed ____Variable

	Mfg. Rating	Proposed Operating Range
Horsepower	1380	____
Speed (rpm)	1400	____

FUEL DATA

✓ Field Gas ____ Landfill Gas ____ LP Gas ____ Other
____ Natural Gas ____ Digester Gas ____ Diesel

Engine Fuel Consumption 7301 BTU/bhp-hr
Heat Value (specify units) ____ (HHV) (LHV)
Fuel Sulfur Content ____ (grains/100 scf)(weight percent)

FULL LOAD EMISSIONS DATA

No_x 0.5 g/bhp-hr CO 3.0 g/bhp-hr
____ ppmv ____ ppmv
VOC(C_3^+) 0.5 g/bhp-hr * Total HC ____ g/bhp-hr
____ ppmv ____ ppmv

Attach information showing emissions versus engine speed and load.

Method of Emissions Control:

✓ Lean Operation ____ Parameter Adjustment ____ SCR Catalyst
____ Stratified Charge ____ NSCR Catalyst ____ Other (Specify) ____

*Note: VOC factor shown includes Formaldehyde

ADDITIONAL INFORMATION

On separate sheets attach the following:

A. A copy of engine manufacturer's site rating or general rating specification for the engine model.
B. Tyical fuel analysis, including sulfur content and heating value. For gaseous fuels, provide mole percent of constituents.
C. Description of air/fuel ratio control system (manufacturers's information acceptable).
D. Details regarding principle of operation of emissions controls. If add-on equipment is used, provide make and model and manufacturer's information.
E. Exhaust parameter information on Table 1(a).

Table 29
RECIPROCATING ENGINES

ENGINE DATA

Emission Point Number From Table 1(a) COMP- 02

APPLICATION

- ✓ Gas Compression
- ____ Electric Generation
- ____ Refrigeration
- ____ Other (Specify) ____

Manufacturer Caterpillar
Model No. G3606 LE
Serial No. ____
Orig. Mfr. Date Btwn 7/07 - 7/10
Rebuild Date(s) ____
No. of Cylinders ____
Compression Ratio ____

✓ 4 Stroke Cycle ____ Carburetted ✓ Spark Ignited ____ Dual Fuel
____ 2 Stroke Cycle ____ Fuel Injected ____ Diesel

Naturally Aspirated ____ Blower/Pump Scavenged ____ Turbocharged & I.C. ____
Turbocharged ____ Intercooled (I.C.) ____ I.C. Water Temperature ____

Ignition/Injection Timing: ____ Fixed ____ Variable

	Mfg. Rating	Proposed Operating Range
Horsepower	1775	____
Speed (rpm)	1000	____

FUEL DATA

✓ Field Gas ____ Landfill Gas ____ LP Gas ____ Other
____ Natural Gas ____ Digester Gas ____ Diesel

Engine Fuel Consumption 6649 BTU/bhp-hr
Heat Value (specify units) ____ (HHV) (LHV)
Fuel Sulfur Content ____ (grains/100 scf)(weight percent)

FULL LOAD EMISSIONS DATA

No_x 0.5 g/bhp-hr ____ ppmv
CO 3.0 g/bhp-hr ____ ppmv
VOC(C_3^+) 0.50 g/bhp-hr * ____ ppmv
Total HC ____ g/bhp-hr ____ ppmv

Attach information showing emissions versus engine speed and load.

Method of Emissions Control:

✓ Lean Operation ____ Parameter Adjustment ____ SCR Catalyst
____ Stratified Charge ____ NSCR Catalyst ____ Other (Specify) Oxidation

*Note: VOC factor shown includes Formaldehyde

ADDITIONAL INFORMATION

On separate sheets attach the following:

A. A copy of engine manufacturer's site rating or general rating specification for the engine model.
B. Tyical fuel analysis, including sulfur content and heating value. For gaseous fuels, provide mole percent of constituents.
C. Description of air/fuel ratio control system (manufacturers's information acceptable).
D. Details regarding principle of operation of emissions controls. If add-on equipment is used, provide make and model and manufacturer's information.
E. Exhaust parameter information on Table 1(a).

ATTACHMENT 3
PROCESS/PROJECT DESCRIPTION

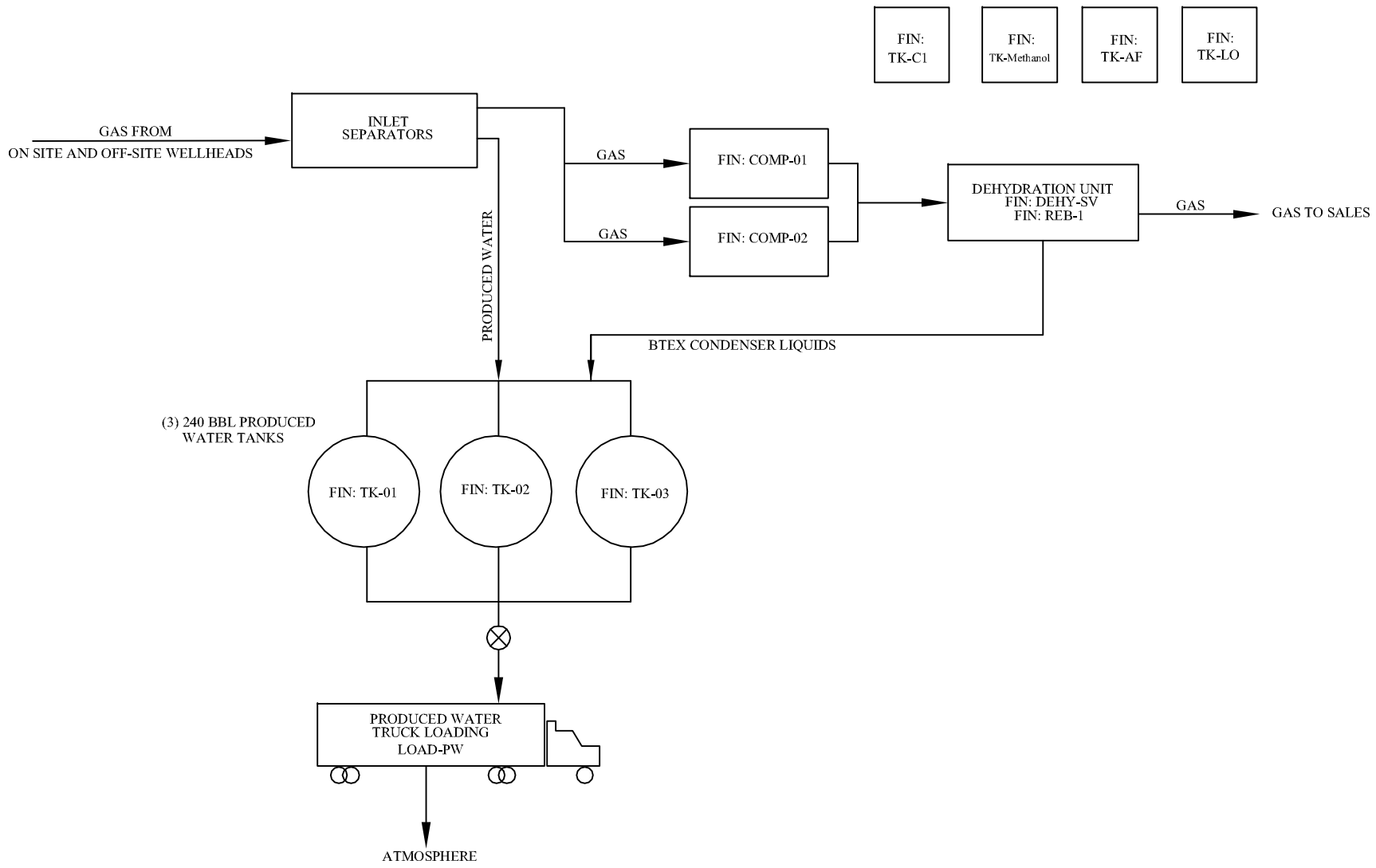
This Permit by Rule (PBR) revision is being submitted to authorize emissions from the Carter 2 4 5 Pad (the Site) located in Tarrant County, Texas. The Site includes potential emissions from two natural gas compressor engines, a glycol dehydration unit, atmospheric produced water liquid storage tanks, and associated piping and fugitive components. Figure 3-1 is an area map showing the location of the Site and the surrounding area. Figure 3-2 is a receptor map, showing the location of the Site and the distance to the nearest receptor. Figure 3-3 is a process flow diagram for the Site.

Sweet natural gas and associated liquids enter the Site from onsite and offsite wellheads via pressurized inlet separators. At the separators, the liquid is separated from the gas stream. Gas is routed through the compressor engines (FIN [Facility Identification Number] COMP-01 and COMP-02) and then sent through the glycol contactor tower. The dehydrated gas then leaves the site via a sales line.

The tri-ethylene glycol used in the contactor tower is part of a regenerative system. The rich glycol (water saturated) is first routed through a flash tank which collects off gas and recycles and recompresses it to the reboiler for combustion with the fuel gas. The rich glycol is sent from the flash tank through the regeneration unit where it is heated (FIN REB-1) and the water is removed, then re-sent to the contactor tower as lean glycol. Emissions associated with the dehy regenerator still vent (FIN DEHY-SV) are controlled by a BTEX condensor.

Produced water liquids from the inlet separators are routed to one of three atmospheric produced water storage tanks (FIN TK-PW) where flash and working/breathing emissions occur. The produced water tanks are loaded out periodically as needed by tanker truck (FIN LOAD-PW).

The Site will also emit emissions due to equipment component leaks (FIN FUG) and small chemical storage tanks (FIN TK-CI, TK-Methanol, TK-AF, and TK-LO). Attachment 4 contains emission rate calculations for the air emission sources and a summary of the Site's emission rates.



TITAN Engineering, Inc.
2801 Network Boulevard, Suite 200
Frisco, Texas 75034
Phone: (469) 365-1100 • Fax: (469) 365-1199
www.titanengineering.com • www.apexcos.com
A Division of Apex Companies, LLC

FIGURE 3-3
SIMPLIFIED PROCESS FLOW DIAGRAM

Legend Natural Gas, LLC
Carter Trust 2-4-5 Pad
Permit by Rule Revision

DESIGNED BY:	DETAILED BY:	CHECKED BY:
CIC	VCC	CIC
FILE NAME: T:\Legend Natural Gas -581-02.005\Report\CAD		
DATE: 07/2012	PROJECT NO.: 84800581-02.005	PLOT SCALE: NTS
DRAWING NO.: TEI-0000	REVISION: 02	FIGURE: **3-3**

POTENTIAL TO EMIT SUMMARY TABLE 4-1

PERMIT BY RULE REVISION

CARTER TRUST 2 4 5 PAD

LEGEND NATURAL GAS, LLC

			Proposed Emission Rates													
			CO		NO_X		$PM/PM_{10}/PM_{2.5}$		SO_2		VOC		CH_2O		Benzene	
EPN	FIN	Description	(lb/hr)	(T/yr)	(lb/hr)	(T/yr)	(lb/hr)	(T/yr)	(lb/hr)	(T/yr)	(lb/hr)	(T/yr)	(lb/hr)	(T/yr)	(lb/hr)	(T/yr)
FUG	FUG	Site Fugitives	--	--	--	--	--	--	--	--	0.32	1.38	--	--	0.0001	0.0004
COMP-01	COMP-01	Compressor Engine 1	9.13	39.98	1.52	6.66	0.10	0.44	0.01	0.03	1.52	6.66	0.53	2.33	0.004	0.02
COMP-01-BD	COMP-01-BD	Compressor Engine 1 Blowdown	--	--	--	--	--	--	--	--	0.71	0.02	--	--	0.0005	0.00001
COMP-01-SV	COMP-01-SV	Compressor Engine 1 Starter Vent	--	--	--	--	--	--	--	--	0.60	0.02	--	--	0.0004	0.00001
COMP-02	COMP-02	Compressor Engine 2	11.74	51.42	1.96	8.57	0.12	0.52	0.01	0.04	1.96	8.57	0.62	2.73	0.005	0.02
COMP-02-BD	COMP-02-BD	Compressor Engine 2 Blowdown	--	--	--	--	--	--	--	--	1.22	0.03	--	--	0.0008	0.00002
COMP-02-SV	COMP-02-SV	Compressor Engine 2 Starter Vent	--	--	--	--	--	--	--	--	0.60	0.02	--	--	0.0004	0.00001
REB-1	REB-1	Dehy Reboiler Heater	0.04	0.18	0.05	0.21	0.004	0.02	0.0003	0.001	0.003	0.01	0.00004	0.0002	0.000001	0.000005
DEHY-SV	DEHY-SV	Dehy Still Vent	--	--	--	--	--	--	--	--	0.04	0.18	--	--	<0.001	<0.001
	TK-01															
TK-PW	TK-02	Produced Water Storage Tank														
	TK-03		--	--	--	--	--	--	--	--	1.77	7.63	--	--	<0.001	<0.001
TK-CI	TK-CI	Corrosion Inhibitor Tanks	--	--	--	--	--	--	--	--	0.56	0.01	--	--	<0.001	<0.001
TK-Methanol	TK-Methanol	Methanol Tanks	--	--	--	--	--	--	--	--	0.28	0.005	--	--	<0.001	<0.001
TK-AF	TK-AF	Antifreeze Tanks	--	--	--	--	--	--	--	--	0.002	0.00002	--	--	<0.001	<0.001
TK-LO	TK-LO	Lube Oil Tanks	--	--	--	--	--	--	--	--	0.0002	0.000003	--	--	<0.001	<0.001
LOAD-PW	LOAD-PW	Produced Water Truck Loading	--	--	--	--	--	--	--	--	0.10	0.14	--	--	0.001	0.001
		Site-Wide Emissions:	**20.91**	**91.58**	**3.53**	**15.45**	**0.22**	**0.97**	**0.02**	**0.07**	**9.68**	**24.68**	**1.16**	**5.06**	**0.01**	**0.04**

SITE FUGITIVE EMISSIONS (FUG)

PERMIT BY RULE REVISION

CARTER TRUST 2 4 5 PAD

LEGEND NATURAL GAS, LLC

Component	Number of Components	Emission Factors [a] (lb/hr-component)	Annual Operating Hours (hr/yr)	Maximum VOC (wt%)	Maximum Benzene (wt%)	Reduction Credit [a] (%)	PTE VOC		PTE Benzene	
							Hourly [b] (lb/hr)	Annual [c] (T/yr)	Hourly [b] (lb/hr)	Annual [c] (T/yr)
Valves										
Gas Streams	510	0.00992	8,760	1.50%	0.001%	0%	0.08	0.33	0.00005	0.0002
Water/Light Oil	195	0.000216	8,760	--	0.001%	0%	0.04	0.18	0.0000004	0.000002
Heavy Oil	20	0.0000185	8,760	100%	1.00%	0%	0.0004	0.002	0.0000037	0.000016
Relief Valves										
Gas Streams	32	0.0194	8,760	1.50%	0.001%	0%	0.01	0.04	0.000006	0.00003
Compressors										
Gas Streams	8	0.0194	8,760	1.50%	0.001%	0%	0.002	0.01	0.000002	0.000007
Flanges										
Gas Streams	457	0.00086	8,760	1.50%	0.001%	0%	0.01	0.03	0.000004	0.00002
Water/Light Oil	398	0.000006	8,760	--	0.001%	0%	0.002	0.01	0.00000002	0.0000001
Connectors										
Gas Streams	1,947	0.00044	8,760	1.50%	0.001%	0%	0.01	0.06	0.00001	0.00004
Water/Light Oil	667	0.000243	8,760	--	0.001%	0%	0.16	0.71	0.000002	0.00001
Heavy Oil	126	0.0000165	8,760	100%	1.00%	0%	0.002	0.01	0.00002	0.0001
						TOTAL:	**0.32**	**1.38**	**0.0001**	**0.0004**

[a] Fugitive Emission Factors and Reduction Credits are per TCEQ Technical Guidance Document for Equipment Leak Fugitives, dated October 2000. The emission factors are for total hydrocarbon.

[b] Hourly VOC emission rates are calculated as follows:
(510 components) * (0.00992 lb/hr-component) * (1.50% VOC) * (100% - 0% reduction credit) = 0.08 lb/hr

[c] Annual VOC emission rates are calculated as follows:
(510 components) * (0.00992 lb/hr-component) * (8,760 hr/yr) * (1.50% VOC) * (100% - 0% reduction credit) / (2,000 lb/T) = 0.33 T/yr

CALCULATION OF COMPRESSOR ENGINE POTENTIAL TO EMIT

PERMIT BY RULE REVISION

CARTER TRUST 2 4 5 PAD

LEGEND NATURAL GAS, LLC

			Engine Ratings							Potential to Emit (PTE)	
EPN	FIN	Description	Type	Rated Horsepower (hp)	Fuel Consumption (Btu/hp-hr)	Annual Operating Hours (hr/yr)	Pollutant	Emission Factors [a]	Units	Hourly [a] (lb/hr)	Annual [b] (T/yr)
COMP-01	COMP-01	Compressor Engine 1	Caterpillar 3516 ULB Lean Burn	1,380	7,301	8,760	CO	3.00	g/hp-hr	9.13	39.98
							NO_X	0.50	g/hp-hr	1.52	6.66
							PM/PM_{10}	0.0099871	lb/MMBtu	0.10	0.44
							SO_2	4	ppm S	0.007	0.03
							VOC	0.50	g/hp-hr	1.52	6.66
							CH_2O	0.0528	lb/MMBtu	0.53	2.33
							Benzene	0.00044	lb/MMBtu	0.004	0.02
COMP-02	COMP-02	Compressor Engine 2	Caterpillar 3606 LE Lean Burn	1,775	6,649	8,760	CO	3.00	g/hp-hr	11.74	51.42
							NO_X	0.50	g/hp-hr	1.96	8.57
							PM/PM_{10}	0.0099871	lb/MMBtu	0.12	0.52
							SO_2	4	ppm S	0.008	0.04
							VOC	0.50	g/hp-hr	1.96	8.57
							CH_2O	0.0528	lb/MMBtu	0.62	2.73
							Benzene	0.00044	lb/MMBtu	0.005	0.02

[a] The Emission Factors for engines COMP-01 and COMP-02 for CO, NOX and VOC are based on stack test data and conservatively represented to meet federal and state requirements. The VOC emission factor includes CH_2O. An example calculation for hourly CO emissions for EPN COMP-01 follows:

CO (lb/hr) = (Rated Horsepower, hp)*(Emission Factor, g/hp-hr)*(1 lb/453.59 g)

CO (lb/hr) = (1380 hp)*(3.00 g/hp-hr)*(1 lb/453.59 g)

= 9.13 lb/hr CO

The PM/PM_{10}, CH_2O, and SO_2 Emission Factors for EPN COMP-01 and COMP-02 are from AP-42 Table 3.2-2 for Four-Stroke Lean Burn Engines (dated 7/00). An example calculation for hourly PM emissions for EPN COMP-01

PM (lb/hr) = (Fuel Consumption, Btu/hp-hr)*(Rated Horsepower, hp)*(1 MMBtu/10^6 Btu)*(Emission Factor, lb/MMBtu)

PM (lb/hr) = (7,301 Btu/hp-hr)*(1,380 hp)*(1 MMBtu/10^6 Btu)*(0.00999 lb/MMBtu)

= 0.10 lb/hr PM

A material balance approach was used to estimate the SO_2 emission rates using the maximum sulfur concentration in the natural gas. H_2S Scavenger liquids are used to bring the fuel gas H_2S concentration below 10 ppm S. An example calculation for hourly SO_2 emissions for EPN COMP-01 follows:

SO_2 (lb/hr) = (Fuel Consumption, Btu/hp-hr)*(Rated Horsepower, hp)/(Lower Fuel Heating Value, Btu/scf)*(Sulfur Content, ppmv)*(1 lb-mol/379 scf)*(32.06 lb S/lb-mol)*(64.06 lb SO_2/32.06 lb S)

SO_2 (lb/hr) = (7,301 Btu/hp-hr)*(1380 hp)/(998 Btu/scf)*(4 scf S/10^6 scf gas)*(1 lb-mol/379 scf)*(32.06 lb S/lb-mol)*(64.06 lb SO2/32.06 lb S)

= 0.007 lb/hr SO_2

[b] An example calculation for annual CO emissions for EPN COMP-01 follows:

CO (T/yr) = (Hourly PTE, lb/hr)*(Annual Operating Hours, hr/yr)*(1 T/2,000 lb)

CO (T/yr) = (9.13 lb/hr)*(8,760 hr/yr)*(1 T/2,000 lb)

= 39.98 T/yr CO

CALCULATION OF COMPRESSOR ENGINE BLOWDOWN POTENTIAL TO EMIT

PERMIT BY RULE REVISION

CARTER TRUST 2 4 5 PAD

LEGEND NATURAL GAS, LLC

Description	Facility Identification Number COMP-01-BD	Facility Identification Number COMP-02-BD
Number of Blowdowns per Year	52	52
Number of Blowdowns per Hour	1	1
Blowdown Volume per Event, scf	1,061	1,820
Gas Stream Specific Gravity	0.5853	0.5853
Gas Stream Density, lb/scf [a]	0.045	0.045
Max VOC Percentage in Gas Stream, wt%	1.5%	1.5%
Max Benzene Percentage in Gas Stream, wt%	0.001%	0.001%
VOC Hourly Emission Rates (lb/hr): [b]	0.71	1.22
VOC Annual Emission Rates (T/yr): [c]	0.02	0.03
Benzene Hourly Emission Rates (lb/hr): [b]	0.0005	0.0008
Benzene Annual Emission Rates (T/yr): [c]	0.00001	0.00002

[a] Gas stream density is calculated as follows:

(28.96 lb/mole) / (379 scf/mole) * (0.5853) = 0.045 lb/scf

[b] Hourly blowdown VOC emission rates are calculated as follows:

(1 blowdown/hr) * (1,061 scf/blowdown) * (0.045 lb/scf) * (1.50%) = 0.71 lb/hr

[c] Annual blowdown VOC emission rates are calculated as follows:

(52 blowdowns/yr) * (1,061 scf/blowdown) * (0.045 lb/scf) * (1.50%) / (2,000 lb/T) = 0.02 T/yr

CALCULATION OF COMPRESSOR ENGINE STARTER VENT POTENTIAL TO EMIT

PERMIT BY RULE REVISION

CARTER TRUST 2 4 5 PAD

LEGEND NATURAL GAS, LLC

Description	Facility Identification Number COMP-01-SV	Facility Identification Number COMP-02-SV
Number of Engine Starts per Year	52	52
Number of Engine Starts per Hour	1	1
Start Volume per Event, scf	900	900
Fuel Stream Specific Gravity	0.5853	0.5853
Fuel Stream Density, lb/scf [a]	0.045	0.045
VOC Percentage in Fuel Stream, wt%	1.5%	1.5%
Max Benzene Percentage in Fuel Stream, wt%	0.001%	0.001%
Hourly Emission Rates (lb/hr): [b]	0.60	0.60
Annual Emission Rates (T/yr): [c]	0.02	0.02
Benzene Hourly Emission Rates (lb/hr): [b]	0.0004	0.0004
Benzene Annual Emission Rates (T/yr): [c]	0.00001	0.00001

[a] Gas stream density is calculated as follows:

(28.96 lb/mole) / (379 scf/mole) * (0.5853) = 0.045 lb/scf

[b] Hourly starter VOC emission rates are calculated as follows:

(1 startup/hr) * (900 scf/startup) * (0.045 lb/scf) * (1.50%) = 0.60 lb/hr

[c] Annual starter VOC emission rates are calculated as follows:

(52 startups/yr) * (900 scf/startup) * (0.045 lb/scf) * (1.50%) / (2,000 lb/T) = 0.02 T/yr

ATTACHMENT 5
QUALIFICATION FOR PERMIT BY RULE

This attachment discusses how the Legend Natural Gas, LLC (Legend) Carter Trust 2 4 5 Pad (the Site) meets the general PBR requirements codified in 30 Texas Administrative Code (TAC) §106.4 and the specific PBR requirements codified in 30 TAC §106.352. Copies of these PBR rules are located in Attachment 6 of this document.

30 TAC §106.4, effective May 15, 2011

30 TAC §106.4(a)(1)

This rule states that actual emissions authorized under PBR from the facility shall not exceed 250 tons per year (T/yr) of carbon monoxide (CO) or nitrogen oxides (NO_X); or 25 T/yr of volatile organic compounds (VOC), sulfur dioxide (SO_2), or inhalable particulate matter (PM): or 15 T/yr of particulate matter with diameters of 10 microns or less (PM_{10}); or 10 T/yr of particulate matter with diameters of 2.5 microns or les ($PM_{2.5}$); or 25 T/yr of any other air contaminant; except carbon dioxide, water, nitrogen, methane, ethane, hydrogen and oxygen.

The total emissions authorized under PBR are as follows:

- **CO: 91.58 T/yr**
- **NO_X: 15.45 T/yr**
- **$PM/PM_{10}/PM_{2.5}$: 0.97 T/yr**
- **SO_2: 0.07 T/yr**
- **VOC: 24.68 T/yr**
- **CH_2O: 5.06 T/yr**
- **Benzene: 0.04 T/yr**

As shown above, the Site will meet the requirements of this rule.

30 TAC §106.4(a)(2)

This rule requires a project that constitutes a new major stationary source or major modification under the new source review requirements of the Federal Clean Air Act (FCAA), Part D (Nonattainment), to obtain a permit in accordance with Chapter 116, Subchapter B of this title (relating to New Source Review Permits) and prohibits such a project from qualifying for PBR.

The Site is located in Tarrant County, which is classified as serious non-attainment for 8-hour ozone. The potential emissions associated with the Site are below the major source thresholds for nonattainment in this county. Therefore, the Site will meet the requirements of this rule.

30 TAC §106.4(a)(3)

This rule requires a project that constitutes a new major stationary source or major modification, as defined in 40 Code of Federal Regulations (CFR) §52.21, under the new source review requirements of the Federal Clean Air Act (FCAA), Part C (Prevention of Significant Deterioration [PSD]), to obtain a permit in accordance with Chapter 116, Subchapter B of this title (relating to New Source Review Permits) and prohibits such a project from qualifying for PBR.

The Site is not a new major source or major modification as those terms are defined in 40 CFR §52.21. Therefore, this rule does not apply.

30 TAC §106.4(a)(4)

This rule limits the total actual emissions from all PBR facilities at the site to 250 T/yr of CO or NO_X and 25 T/yr of VOC, SO_2, PM_{10}, or 25 T/yr of any other air contaminant except carbon dioxide, water, nitrogen, methane, ethane, hydrogen, and oxygen unless at least one facility at the account has been subject to public notification and comment as required in Chapter 116, Subchapter B or Subchapter D.

As shown previously, the potential emissions from the PBR facilities at the Site are below these limitations. Therefore, the requirements of this rule will be met.

30 TAC §106.4(a)(5)

This rule requires that a Project comply with the version of the PBR that is effective on the date that construction commences.

This PBR registration document addresses the Site's compliance with the most recent versions of 30 TAC §106.4 and §106.352. If another version of any of these PBR sections becomes effective before the commencement of construction on the Project, the Site will comply with that version of the PBR section(s).

30 TAC §106.4(a)(6)

This rule requires that a Project comply with all applicable provisions of the FCAA, §111 (New Source Performance Standards [NSPS]) and §112 (Hazardous Air Pollutants [HAPs]), and the new source review requirements of the FCAA, Part C and Part D and regulations promulgated thereunder.

MACT Subpart ZZZZ- COMP-01 and COMP-01 are new RICE because they were constructed after June 12, 2006. According to §63.6590(c)(1) in the amended regulation, new Spark Ignited Rice must meet the requirements of this part by meeting the requirements of NSPS JJJJ.

NSPS Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines became effective June 28, 2011. According to Title 40 of the Code of Federal Regulations (40 CFR) §60.4230(a)(4)(ii), spark ignition lean burn internal combustion engines with a maximum engine power ≥ 500 HP and manufactured after July 1, 2007 but before July 1, 2010 are subject to these standards, including specific emissions limits. COMP-01 and COMP-02 are subject to this rule and will meet the maintenance and emission limit requirements outlined in the rule text.

MACT Subpart HH - National Emission Standards for Hazardous Air Pollutants from Oil and Natural Gas Production Facilities. According to 40 CFR §63.764(e)(1)(ii), since the actual average emissions of benzene from the glycol dehydration unit are below 0.9 megagram per year the unit is subject to limited requirements in this rule. These requirements include keeping on-site records of benzene emission determinations and the natural gas flowrates for the dehydration unit.

As stated previously, the Site does not trigger Nonattainment or PSD permitting requirements.

30 TAC §106.4(a)(7)

This rule prohibits the use of a PBR when there is a permit condition precluding the use of the PBR.

The Site does not have an active air permit prohibiting the use of a PBR. Therefore, the Site meets the requirements of this rule.

30 TAC §106.4(a)(8)

This rule contains requirements for facilities in the Houston/Galveston nonattainment area.

The Site is not located in the Houston/Galveston nonattainment area; therefore, this rule does not apply.

30 TAC §106.4(b)

This rule prohibits circumventing the permitting requirements of Chapter 116 by artificial limitations.

The emission rates for the Site's sources are estimated based upon the anticipated maximum operating configuration. Therefore, Legend is not taking artificial limitations to avoid permitting under Chapter 116.

30 TAC §106.4(c)

This rule requires that the facility comply with all rules and regulations of the commission and with the intent of the TCAA, including protection of health and property of the public, and that all emissions control equipment shall be maintained in good condition and operated properly during operation of the facility.

Legend will operate the Site in compliance with the applicable state and federal air rules. Specifically, the requirements in 30 TAC §115 and §117.

30 TAC Chapter 115 - Control of Air Pollution from Volatile Organic Compounds regulates VOC emissions according to source type and site location (county). The Site is located in Tarrant County, which is classified as serious non-attainment for 8-hour ozone.

Section Number	Reference	Applicability	Compliance Explanation
§§115.112-119	Storage of VOC	Yes	The Site does handle VOC storage; however, the tanks are less than 1,000 gallons. Therefore, these sections do not apply.
§§115.120-129	Vent Gas Control	No	The Station's vent gas streams comply with these requirements.
§§115.131-139	Water Separation	Yes	The Site has separators and the emissions from the separators have a combined weight of VOC equal to or less than 100 pound (lbs) in any contiguous 24-hr period; therefore, the water separators are exempt from this rule.
§§115.140-149	Industrial Wastewater	No	The Site does not handle Industrial Wastewater, so these sections do not apply.
§§115.152-159	Municipal Solid Waste Landfills	No	The Site does not have a Municipal Solid Waste Landfill, so these sections do not apply.
§§115.160-169	Batch Processes	No	The Site does not include Batch Processes, so these sections do not apply.

Section Number	Reference	Applicability	Compliance Explanation
§§115.211-259	VOC Transfer Operations	No	The Site does not handle VOC loading or unloading, so these sections do not apply.
§115.311-359	Petroleum Refining, Natural Gas Processing, and Petrochemical Processes	No	The Site is not a natural gas processing plant, so these sections do not apply.
§§115.412-419	Degreasing Processes	No	The Site does not include Degreasing Processes, so these sections do not apply.
§§115.420-429	Surface Coating Processes	No	The Site does not include Surface Coating Processes, so these sections do not apply.
§§115.430-449	Printing Processes	No	The Site does not include Printing Processes, so these sections do not apply.
§§115.510-559	Miscellaneous Industrial Sources	No	The Site does not include any of the miscellaneous industrial activities defined in this section.
§§115.600-629	Consumer-Related Sources and Products	No	The Site does not produce consumer products.
§§115.720-789	Highly-Reactive Volatile Organic Compounds (HRVOC)	No	The Site is not located in the Houston-Galveston nonattainment area.
§§115.901-950	Administrative Provisions	Yes	This rule contains the compliance dates and other administrative provisions. The Site will not be utilizing an alternative method of control or emission reduction credits to comply with the applicable Chapter 115 requirements.

30 TAC Chapter 117 - Control of Air Pollution from Nitrogen Compounds includes regulations for sources of NO_X in ozone nonattainment areas. The Site is located in Tarrant County, which is classified as serious non-attainment for 8-hr ozone.

Section Number	Reference	Applicability	Compliance Explanation
§§117.100-156	Combustion Control Beaumont– Port Arthur	No	The Site is not within the geographic area of applicability.
§§117.200-256	Combustion Control Dallas-Fort Worth	No	The Site is not major for NO_X, so these sections do not apply.
§§117.300-356	Combustion Control Houston-Galveston-Brazoria	No	The Site is not within the geographic area of applicability.
§§117.400-456	Combustion Control Dallas/Fort Worth 8-Hour	No	The Site is not major for NO_X, so these sections do not apply.
§§117.1000-1056	Combustion Control at Major Utility Electric Generation Sources Beaumont- Port Arthur	No	The Site is not within the geographic area of applicability.
§§117.1100-1156	Combustion Control at Major Utility Electric Generation Sources Dallas-Fort Worth	No	The Site is not a utility electric generation facility, so these sections do not apply.
§§117.1200-1256	Combustion Control at Major Utility Electric Generation Sources Houston-Galveston-Brazoria	No	The Site is not within the geographic area of applicability.

Section Number	Reference	Applicability	Compliance Explanation
§§117.1300-1356	Combustion Control at Major Utility Electric Generation Sources Dallas-Fort Worth 8-Hour	No	The Site is not a utility electric generation facility, so these sections do not apply.
§§117.2000-2145	Combustion Control at Minor Sources	Yes	The Site does include engines and is a minor source of NO_X. As demonstrated in the emissions calculations, the site will meet the requirements set forth in this rule.
§§117.3000-3345	Multi-Region Combustion Control	No	The Site is not within the geographic area of applicability; therefore, these sections of 30 TAC 117 do not apply.
§§117.4000-4210	Acid Manufacturing	No	The Site is not an acid manufacturing facility; therefore, these sections of 30 TAC 117 do not apply.
§§117.8000-8140	General Monitoring and Testing Requirements	Yes	The Station will comply with these requirements, as applicable.
§§117.9000-9810	Compliance Schedule and Compliance Flexibility	Yes	The Station will comply with these requirements, as applicable.

30 TAC §106.4(d)

This rule requires that the Project be registered with or permitted by any local air pollution control agency with jurisdiction.

The Site is located in an area that does not have a local air regulatory agency. Therefore, this rule does not apply.

30 TAC §106.352, effective February 27, 2011

30 TAC §106.352(a)(1)

This rule states that the requirements in subsections (a) - (k) are applicable only for new projects and related facilities located in the Barnett Shale (Archer, Bosque, Clay, Comanche, Cooke, Coryell, Dallas, Denton, Eastland, Ellis, Erath, Hill, Hood, Jack, Johnson, Montague, Palo Pinto, Parker, Shackelford, Stephens, Somervell, Tarrant, and Wise Counties) on or after April 1, 2011. For all other new projects and related facilities in all other counties of the state, subsection (l) of this section is applicable.

The Project is located in Tarrant County. Therefore, the requirements of subsections (a) to (k) apply to the Project-affected equipment.

30 TAC §106.352(a)(2)

This rule states that only one PBR for an Oil and Gas Site (OGS) may be claimed or registered for each combination of dependent facilities and authorizes all facilities in sweet or sour service. A PBR may not be used if operationally dependent facilities are authorized under Air Quality Standard Permit for Oil and Gas Sites or a permit under 30 TAC §106.111.

The Site will be authorized by a single OGS PBR. It has no Standard Permit or any other permit that prevents the use of this OGS PBR.

30 TAC §106.352(a)(3)

This rule states that the owner or operator must continue to comply with any other applicable provision of the Texas Health and Safety Code, Texas Water Code, rules of the Texas Commission on Environmental Quality (TCEQ), or any additional local, state, or federal laws or regulations.

The Site will comply with this rule.

30 TAC §106.352(a)(4)

Emissions from upsets, emergencies, or malfunctions are not authorized by this section. This section does not regulate methane, ethane, or carbon dioxide.

Legend is not using this section to permit upsets, emergencies, or malfunctions. Therefore, the requirements of this rule are satisfied.

30 TAC §106.352(b)(1)-(5)

These rules state the definitions of a Facility, Receptors, and OGS. The rules also state that the definitions of 30 TAC §122.10 relating to the Federal Operating Permits program apply. A project is defined as any new facility or group of operationally dependent facilities at an OGS, and physical or operational changes to existing authorized facilities which increase the potential to emit over previously certified limits.

The nomenclature and definitions referenced in this PBR comply with this rule text.

30 TAC §106.352(b)(6)(A-E)

This rule states that all facilities or group of facilities at an OGS which are operationally dependent on each other shall be included in the registration under Permit By Rule. This includes facilities that are operationally dependent on each other and are located within ¼ mile of a project emission point, vent, or fugitive component. Facilities authorized under existing PBR registrations must be incorporated into the new project under this rule. If the incorporated existing facilities are not changing character or quantity of emissions, they must only meet subsections (i) and (k) and otherwise retain their existing authorization. Upon registration the boundaries will become fixed and no individual facility may be authorized under more than one registration. This rule does not apply, and facilities can be considered separate, when piping or fugitive components are the only connection between facilities and the distance between facilities exceeds ¼ mile.

The Site does not have any operationally dependent equipment located within ¼ mile. Therefore, the equipment in this PBR registration is an accurate depiction of the "site."

30 TAC §106.352(b)(6)(F)

This rule states that all facilities at an OGS registered under this section must collectively emit less than or equal to 250 tons per year (tpy) of nitrogen oxides (NO_X) or carbon monoxide (CO); 15 tpy of particulate matter with less than 10 microns (PM_{10}); 10 tpy of particulate matter less than 2.5 microns ($PM_{2.5}$); and 25 tpy of volatile organic compounds (VOC), sulfur dioxide (SO_2), hydrogen sulfide (H_2S), or any other air contaminant except carbon dioxide, water, nitrogen, methane, ethane, hydrogen, and oxygen.

The Site's total emissions authorized under PBR are as follows:

- **CO: 91.58 T/yr**
- **NO_X: 15.45 T/yr**
- **$PM/PM_{10}/PM_{2.5}$: 0.97 T/yr**
- **SO_2: 0.07 T/yr**
- **VOC: 24.68 T/yr**
- **CH_2O: 5.06 T/yr**
- **Benzene: 0.04 T/yr**

As shown above, the Site meets the requirements of this rule.

30 TAC §106.352(b)(7)

For purposes of all previous claims of this section (or previous version of this section) where no project is occurring, existing authorized facilities or group of facilities at an OGS must meet only 30 TAC §106.352(i) of this section no later than January 5, 2012 and submit a notification in accordance with 30 TAC §106.352(f) no later than January 1, 2013.

This Project involves the inclusion of new equipment at the Site, and thus this section does not apply.

30 TAC §106.352(b)(8)

This rule states that impact analysis, as stated in 30 TAC §106.352(k) of this section must be completed. All impact analysis must be done on a contaminant-by-contaminant basis for any net project increases. If

a claim is only for planned MSS under subsection (j), the analysis shall evaluate planned MSS scenarios only. Hourly and annual emissions shall be limited based on the most stringent of 30 TAC §106.352(g), (h), or (k).

The annual emissions shall be limited based on 30 TAC§106.352(g). The hourly emissions shall be limited based on 30 TAC§106.352(k) in accordance with this rule.

30 TAC §106.352(c)(1)(A-B)

This rule lists exemptions and allowances for existing OGS sites that may not require Immediate Registration based upon small increases in emissions over prescribed time periods. Sites that meet the terms listed in this rule must only meet subsection (e), (i), and (j) of this section, and be incorporated into the registration at the next revision or certification.

The Project involves the addition of new equipment which increases the rolling emissions above the criteria for exemption from immediate Registration.

30 TAC §106.352(c)(1)(C)

This paragraph states that facilities authorized under 30 TAC §116.111 may only use section §106.352 for planned MSS as specified in 30 TAC §106.352.

The Site is not authorized under 30 TAC §116.111; therefore, this rule does not apply.

30 TAC §106.352(c)(2)(A)

This rule states that new, changed, or replacement facilities shall not exceed the thresholds for major source or major modification as defined in 30 TAC §116.12 (relating to Nonattainment and Prevention of Significant Deterioration Review Definitions), and in Federal Clean Air Act, §112(g) or §112(j).

As shown previously, the Project does not trigger PSD or NNSR permitting.

30 TAC §106.352(c)(2)(B)

This rule states that all facilities shall comply with all applicable 40 Code of Federal Regulations (CFR), Parts 60, 61, and 63 requirements for New Source Performance Standards (NSPS), National Emission Standards for Hazardous Air Pollutants (NESHAP), and Maximum Achievable Control Technology (MACT).

MACT Subpart ZZZZ- COMP-01 and COMP-02 are new RICE because they were constructed after June 12, 2006. According to §63.6590(c)(1) in the amended regulation, new Spark Ignited Rice must meet the requirements of this part by meeting the requirements of NSPS JJJJ.

NSPS Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines became effective June 28, 2011. According to Title 40 of the Code of Federal Regulations (40 CFR) §60.4230(a)(4)(ii), spark ignition lean burn internal combustion engines with a maximum engine power ≥ 500 HP and manufactured after July 1, 2007 but before July 1, 2010 are subject to these standards, including specific emissions limits. COMP-01 and COMP-01 are subject to this rule and will meet the maintenance and emission limit requirements outlined in the rule text.

MACT Subpart HH - National Emission Standards for Hazardous Air Pollutants from Oil and Natural Gas Production Facilities. According to 40 CFR §63.764(e)(1)(ii), since the actual average emissions of benzene from the glycol dehydration unit are below 0.9 megagram per year the unit is subject to limited requirements in this rule. These requirements include keeping on-site records of benzene emission determinations and the natural gas flowrates for the dehydration unit.

As stated previously, the Site does not trigger Nonattainment or PSD permitting requirements.

30 TAC §106.352(c)(2)(C)

All facilities shall comply with all applicable requirements of 30 TAC Chapters 111 (relating to Control of Air Pollution from Visible Emissions and Particulate Matter), 112 (relating to Control of Air Pollution from Sulfur Compounds), 113 (relating to Standards of Performance for Hazardous Air Pollutants and for Designated Facilities and Pollutants), 115 (relating to Control of Air Pollution from Volatile Organic Compounds), and 117 (relating to Control of Air Pollution from Nitrogen Compounds).

The Site will continue to comply with this rule and all applicable requirements.

30 TAC §106.352(c)(3)

This rule states that in order to be eligible for this PBR, in addition to the requirements found in 30 TAC §106.4 (relating to Requirements for Permitting by Rule), an applicant:

(A) shall meet all applicable requirements as set forth in this section;
(B) shall not misrepresent or fail to fully disclose all relevant facts in obtaining the permit; and
(C) shall not be indebted to the state for failure to make payment of penalties or taxes imposed by the statutes or rules within the commission's jurisdiction.

Legend will meet the applicable requirements for PBR, will not misrepresent relevant information in order to obtain the permit, and is not indebted to the state. Therefore, the Project is eligible for PBR.

30 TAC §106.352(c)(4)

This rule covers groups of facilities associated with wellheads, pump-jacks, Christmas trees, metering stations, and other similar facilities handling or containing crude oil, condensate, natural gas, or a mixture of those. These projects are considered authorized and must only comply with 30 TAC §106.352(e)(1) and (2) (Best Management Practices), and applicable portions of 30 TAC §106.352(j) (Records, sampling, and monitoring). Subsections (A) to (C) specify all facilities that must be included for claims under this paragraph.

The Project involves equipment outside the scope of this exemption. Therefore, this section does not apply.

30 TAC §106.352(d)

This subsection lists the facilities which have been evaluated for this PBR and may be included under this section. Paragraph (2) lists specific exclusions which are not authorized under this section.

The Site includes separators, two engines, a dehy, produced water storage tanks, chemical storage tanks, and fugitive components that may be included in the registration, per the requirements of this rule.

30 TAC §106.352(e)

This rule states Best Management Practices and Minimum Requirements. For any new project and any associated emission control equipment registered under this section, paragraphs (1)-(5) of this subsection shall be met as applicable. These requirements are not applicable to existing, unchanging facilities. Equipment design and control device requirements listed in paragraphs (6)-(12) of this subsection only apply to those that are chosen by the operator to meet the limitations of this section.

Project equipment will comply with Best Management Practices as directed by this section.

30 TAC §106.352(e)(1)

All facilities which have the potential to emit air contaminants must be maintained in good working order and operated properly during facility operations. Each operator shall establish and maintain a program to replace, repair, and/or maintain facilities to keep them in good working order. The minimum requirements of this program shall include:

(A) Compliance with manufacturer's specifications and recommended programs;
(B) cleaning and routine inspection of all equipment; and
(C) replacement and repair of equipment on schedules which prevent equipment failures and maintain performance.

Legend will comply with the requirements of this rule.

30 TAC §106.352(e)(2)

This rule states that any facility shall be operated at least 50 feet from any property line or receptor (whichever is closer to the facility). This distance limitation does not apply to the following:

(A) any fugitive components that are used for isolation and/or safety purposes may be located at 1/2 of the width of any applicable easement;
(B) any facility at a location for which the distance requirements were satisfied at the time this section is claimed, registered, or certified (provided that the authorization was maintained) regardless of whether a receptor is subsequently built or put to use 50 feet from any OGS facility; or
(C) existing facilities which are located less than 50 feet from a property line or receptor when constructed and previously authorized. If modified or replaced the operator shall consider, to the extent that good engineering practice will permit, moving these facilities to meet the 50-foot requirement. Replacement facilities must meet all other requirements of this section.

The Project will satisfy the 50-foot requirement. Some existing unmodified facilities were constructed less than 50 feet from the property line, and thus this distance limitation does not apply.

30 TAC §106.352(e)(3)

This rule states that engines and turbines shall meet the emission and performance standards listed in 30 TAC §106.352(m) Table 6 and the following requirements:

(A) liquid fueled engines used for back-up power generation and periodic power needs at the OGS are authorized if the fuel has no more than 0.05% sulfur and the engine is operated less than 876 hours per rolling 12-month period;

(B) engines and turbines used for electric generation more than 876 hours per rolling 12-month period are authorized if no reliable electric service is readily available and 30 TAC §106.352(m) Table 6 is met. In all other circumstances, electric generators must meet the technical requirements of the Air Quality Standard Permit for Electric Generating Unit (EGU) and the emissions shall be included in the registration under this section;
(C) all applicable requirements of Chapter 117 of this title (relating to Control of Air Pollution from Nitrogen Compounds);
(D) all applicable requirements of 40 CFR Parts 60 and 63; and
(E) compression ignition engines that are rated less than 225 kilowatts (300 hp) and emit less than or equal to the emission tier for an equivalent-sized model year 2008 non-road compression ignition engine located at 40 CFR §89.112, Table 1 are authorized.

This Project includes two compressor engines and by meeting the Federal requirements previously mentioned, meets the requirements listed in this rule.

30 TAC §106.352(e)(4)

This rule states that open-topped tanks or ponds containing VOCs or H_2S are allowed up to a potential to emit equal to 1.0 tpy of VOC and 0.1 tpy of H_2S.

This Project does not involve open-topped tanks or ponds containing VOCs or H_2S. Therefore, this rule does not apply.

30 TAC §106.352(e)(5)

This chapter includes rules regarding the inspection and repair of fugitive components. All components shall be physically inspected quarterly for leaks, and any leaks shall be repaired. At manned sites, leaks shall be repaired no later than 30 days after the leak is found, or no later than 60 days at an unmanned site. Tank hatches shall remain closed except for sampling, gauging, loading, unloading, or planned maintenance activities. New and reworked valves and piping connections shall be located in a place that is reasonably accessible for leak checking during plant operation.

The Project will comply with the stated inspection and repair requirements and, to the extent of good engineering practice, will comply with the leak accessibility requirements.

30 TAC §106.352(e)(6)

This rule states that when leak detection and repair (LDAR) fugitive monitoring is chosen by the operator, Table 9 shall apply. In addition, all components shall be physically inspected at least weekly by operating personnel walk-through.

LDAR fugitive monitoring is not implemented at the Site, and thus, this requirement does not apply.

30 TAC §106.352(e)(7)

This rule states requirements for tanks and vessels that use a paint color to minimize the effects of solar heating. Solar absorptance should be 0.43 or less, as referenced in AP-42 Table 7.1 – 6 and paint shall be applied in sufficient quantity as to be considered solar resistant. Paint coatings shall be maintained in good condition and will not compromise tank integrity. Minimal amounts of rust may be present not to exceed 10% of the external surface area of the roof or walls of the tank and in no way may compromise tank integrity.

This Site includes tanks; therefore, Legend will comply with the requirements of this rule.

30 TAC §106.352(e)(8)

This rule states that all emission estimation methods including computer programs must be used with monitoring data generated in accordance with 30 TAC §106.352(m) Table 8. All emission estimation methods must also be used in a way that are consistent with protocols established by the commission or promulgated in federal regulations (NSPS, NESHAPS). Where control is relied upon to meet 30 TAC §106.352(k) (emission limits based on impact evaluation), control monitoring is required.

The Project will comply with all applicable monitoring and record demonstration requirements, and all emission estimation methods will comply with the requirements of this rule.

30 TAC §106.352(e)(9)

This rule states that process reboilers, heaters, and furnaces that are also used for control of waste gas streams:

(A) may claim 50% to 99% destruction efficiency for VOCs and H_2S depending on the design and level of monitoring applied. The 90% destruction may be claimed where the waste gas is delivered to the flame zone or combustion fire box with basic monitoring as specified in 30 TAC §106.352(j). Any value greater than 90% and up to 99% destruction efficiency may be claimed where enhanced monitoring and/or testing are applied as specified in 30 TAC §106.352(j);
(B) if the waste gas is premixed with the primary fuel gas and used as the primary fuel in the device through the primary fuel burners, 99% destruction may be claimed with basic monitoring as specified in 30 TAC §106.352(j);
(C) in systems where the combustion device is designed to cycle on and off, records of run time and enhanced monitoring are required to claim any run time beyond 50%.

The Site includes a heater but it is not utilized for the control of waste gas streams. Therefore, this rule does not apply.

30 TAC §106.352(e)(10)

This rule states that Vapor Recovery Units (VRUs) may claim up to 100% control. The VRUs must meet the appropriate design, monitoring, and recordkeeping in subsection (m) Table 7 and Table 8.

The Project does not involve the use of a VRU; therefore, this rule does not apply.

30 TAC §106.352(e)(11)

This rule states that flares used for control of emissions from production, planned MSS, emergency, or upset events may claim design destruction efficiency of 98%. 99% may be claimed for destruction of compounds containing only carbon, hydrogen, and oxygen with no more than three carbon atoms. The rule also provides guidelines for the design and operation of flares.

The Project does not involve the use of flares; therefore, this rule does not apply.

30 TAC §106.352(e)(12)

This rule establishes the design destruction efficiency that thermal oxidation and vapor combustion control devices may claim, depending on the design and level of monitoring applied, variability of waste gas streams to control, and stack testing.

The Project does not involve the use of thermal oxidizers; therefore, this rule does not apply.

30 TAC §106.352(f)(1)

This rule states notification, certification, and registration requirements for all previous claims of PBR (or any previous version of the PBR) for existing authorized facilities, or group of facilities, identified in 30 TAC §106.352 (b)(7) must submit a notification no later than January 1, 2013.

(A) For actively operating facilities which have never been registered with the commission, submit updated Core Data and basic identifying information (previously claimed historical versions of the PBR and lease name or well numbers as provided to the Texas Railroad Commission).

(B) For those facilities which have previously registered with the commission and updates are needed to the commission's Central Registry (CR), submit a hard copy of a Core Data Form with an attachment listing identifying information (previously claimed historical versions of the PBR and lease name or well numbers as provided to the Texas Railroad Commission). If no updates to CR are required, no further action is needed.
(C) No fee is required for this notification.

The Project requires registration and therefore an Initial Notification was submitted electronically, thus neither updates to the commission's Central Registry nor a Core Data Form are required.

30 TAC §106.352(f)(2)

If no other changes, except for authorizing planned MSS, occur at an existing site under this section, or any previous version of this section, the following apply no later than January 5, 2012:
(A) Records demonstrating compliance with subsection (i) of this section must be kept;
(B) If the existing OGS is certified, an addendum to the OGS certification may be filed using Form APD-CERT. No fee is required for this updated certification; and
(C) Planned MSS does not require registration if no other project is occurring, and shall be incorporated at the next revision or update to a registration under this section after January 5, 2012.

The Project involves the addition of equipment that will require registration. Therefore, the requirements of this rule do not apply.

30 TAC §106.352(f)(3)

This rule states that for facilities authorized under 30 TAC §116.111, only records of MSS as specified in this section must be kept. Planned MSS shall be incorporated into the permit at the next permit renewal or amendment after January 5, 2012.

The Project is not authorized under 30 TAC §116.111 (New Source Review Permits); therefore, this rule does not apply.

30 TAC §106.352(f)(4)

This rule states that prior to construction or implementation of changes for any project which meets this section, a notification shall be submitted through the ePermits system (or hard copy). This notification shall include the following:
(A) Identifying information (Core Data) and a general description of the project.
(B) A fee of $25 for small businesses as defined in 30 TAC §106.50 (Registration Fees for Permits by Rule), or $50 for all others.

Legend submitted the appropriate notification through the ePermits system along with the $50 fee, as required by this rule.

30 TAC §106.352(f)(5)

This rule states that for any registration which meets the emission limitations of Level 1 as required in 30 TAC §106.352(g):
(A) Within 180 days after start of operation or implemented changes (whichever occurs first), the facilities must be registered.

(B) This registration shall include a detailed summary of maximum emissions estimates and documentation demonstrating compliance with all applicable requirements of this section.
(C) The fee for this registration shall be $25 for small businesses, or $175 for all others.

The Project meets the emission limitations of Level 2; therefore this rule does not apply.

30 TAC §106.352(f)(6)

This rule states that for any registration which meets the emission limitations of Level 2 as required in 30 TAC §106.352(h):
(A) Within 90 days after start of operation or implemented changes (whichever occurs first), the facilities must be registered.
(B) This registration shall include a detailed summary of maximum emissions and compliance with all applicable requirements of this section.
(C) The fee for this registration shall be $75 for small businesses or $400 for all others.

The project meets the emission limitation of Level 2. In addition, Legend is submitting the required $400 fee concurrent with this registration.

30 TAC §106.352(f)(7)

This rule states that certified registrations or certifications are required in the following circumstances:

(A) For projects at existing major sites, establish emission increases less than any applicable threshold or contemporaneous emission increases for major sources or major modifications under PSD, NNSR as specified in 30 TAC §116.12 and in Federal Clean Air Act §112(g), §112(j), or the definition of major source in 30 TAC §122.10.
(B) If a project or registration includes control for reductions, limited hours, throughput, and materials or other operational limitations which are less than the potential to emit, and if modeling is used to demonstrate compliance with subsection (k) of this section.
(C) If a project is located at a site subject to NO_X cap and trade requirements in 30 TAC Chapter 101, Subchapter H (Emissions Banking and Trading) or relies on controls to comply with any state or federal regulation.
(D) For projects which resolve compliance issues and are the result of a commission or United States Environmental Protection Agency order.

Legend is submitting a Form PI-7-CERT with this registration.

30 TAC §106.352(f)(8)

This rule states that if the ePermits system is not available for more than 24 hours or not otherwise accessible, hard copies of notifications, registrations, or certifications may be submitted by first-class mail.

Legend will comply with this rule, as applicable.

30 TAC §106.352(f)(9)

This rule states that if emissions increase at an OGS to a level where it exceeds its current authorization, either through a change in production or addition of facilities, the site may claim and register its facilities under the applicable authorization (Level 1 or Level 2 PBR or Standard Permit) as follows:

(A) Within 90 days from the initial notification of construction of an oil and gas facility, a registration can update the authorization mechanism by submitting a revision to the PBR or an application for a standard permit; and

(B) Within 90 days of the change of production or installation of additional equipment, a revision to the PBR or an application for a standard permit has been submitted.

Legend will comply with this rule, as applicable.

30 TAC §106.352(g)

This rule states Level 1 Requirements. Total maximum estimated emissions shall meet the most stringent of the following:

(1) The applicable limits for a major stationary source or major modification for PSD, NNSR and in Federal Clean Air Act, §112(g), §112(j), or the definition of major source in §122.10 of this title.

(2) The limitations established in 30 TAC §106.352(k).

(3) Figure 30 TAC §106.352(g)(3).

The Project will comply with the Level 2 requirements; therefore, this rule does not apply.

30 TAC §106.352(h)

This rule states that if the requirements of Level 1 cannot be met, then the total maximum estimated registered or certified emissions shall meet the most stringent of the following:

(1) The applicable limits for a major stationary source or major modification for PSD and NNSR as specified in §116.12 of this title.

(2) The limitations established in 30 TAC §106.352(k).

(3) Figure 30 TAC §106.352(h)(3).

The Project will comply with these requirements.

30 TAC §106.352(i)(1)

This rule states that prior to January 5, 2012, representations and registration of planned MSS is voluntary, but if represented must meet the applicable limits of this section. After January 5, 2012, all emissions from planned MSS activities and facilities must be considered for compliance with applicable limits of this section. This section may not be used at a site or for facilities authorized under §116.111 of this title if planned MSS has already been authorized under that permit.

MSS is represented in this application and meets the applicable limits of this section.
30 TAC §106.352(i)(2)

This rule states that releases of air contaminants during, or as result of, planned MSS must be quantified and meet the emission limits in this section, as applicable. This analysis must include:

(A) alternate operational scenarios or redirection of vent streams;

(B) pigging, purging, and blowdowns;

(C) temporary facilities if used for degassing or purging of tanks, vessels, or other facilities;
(D) degassing or purging of tanks, vessels, or other facilities; and
(E) management of sludge from pits, ponds, sumps, and water conveyances.

The Project includes MSS events as listed in this rule.

30 TAC §106.352(i)(3)

This rule states all planned MSS activities authorized by this section. These planned MSS activities require only recordkeeping of the activity.

The MSS activities listed in this rule are not included in the registration but recordkeeping will be maintained as required.

30 TAC §106.352(i)(4)

This rule states that engine and compressor startups associated with preventative system shutdown activities have the option to be authorized as part of typical operations if:

(A) prior to operation, alternative operating scenarios to divert gas or liquid streams are registered and certified with all supporting documentation;
(B) engine/compressor shutdowns shall result in no greater than 4 lb/hr of natural gas emissions; and
(C) emissions which result from the subsequent compressor startup activities are controlled to a minimum of 98% efficiency for VOC and H_2S.

The engines included in the Project and the associated MSS activities are included in this revision in accordance with this rule.

30 TAC §106.352(j)

This rule contains requirements for records, sampling, and monitoring. The following records shall be maintained at the facility site (or an office within Texas having day-to-day operational control of the plant site) in written or electronic form and be readily available to the agency or local air pollution control program with jurisdiction upon request:

(1) Sampling and demonstrations of compliance shall include the requirements listed in 30 TAC §106.352(m) Table 7.
(2) Monitoring and records for demonstrations of compliance shall include the requirements listed in 30 TAC §106.352(m) Table 8.

Legend will comply with all recordkeeping requirements to satisfy this rule.

30 TAC §106.352(k)(1)

This rule states requirements for determining emission limits based on impact evaluation.
All impacts evaluations must be completed on a contaminant-by-contaminant basis for any net emissions increases resulting from a project and must meet the following as appropriate:

(A) Compliance with state or federal ambient air standards shall be demonstrated for nitrogen dioxide (NO_2), SO_2, and H_2S at any property-line within 1/4 mile or 1/2 mile of a project under Level 1 or Level 2 requirements, respectively.

(B) Compliance with hourly and annual ESLs for benzene, shall be demonstrated at the nearest receptor within 1/4 mile or 1/2 mile of a project under Level 1 or Level 2 requirements, respectively.

All emissions were below the applicable state or federal ambient air standards or ESLs as required by this rule.

30 TAC §106.352(k)(2)

For each facility or group of facilities, the shortest corresponding distance from any emission point, vent, or fugitive component to the nearest property line must be used with the appropriate compliance determination method:

(A) With the published ESL.

(B) With any applicable state or federal ambient air quality standard.

Impacts evaluations were not required for the Site; therefore, this rule does not apply.

30 TAC §106.352(k)(3)

Impacts evaluations are not required under the following cases:

(A) If there is no receptor within 1/4 mile of a Level 1 registration, or 1/2 mile of a Level 2 registration, no further ESL review is required.

(B) If there is no property line within 1/4 mile of a Level 1 registration, or 1/2 mile of a Level 2 registration, no further ambient air quality standard review is required.

(C) If the project total emissions are less than 0.039 lb/hr benzene, 0.025 lb/hr Hydrogen Sulfide, 2 lb/hr Sulfur dioxide, or 4 lb/hr Nitrogen Oxides, no additional analysis or demonstration of the specified air contaminant is required.

The Project is a Level 2 registration within ½ mile of the nearest receptor. However, the project total emissions are below the screening values listed in this rule; therefore, no additional analysis or demonstration for these specified air contaminants is necessary.

30 TAC §106.352(k)(4)

This rule states that emission evaluations shall meet the following:

(A) For all evaluations of NO_X to NO_2, a conversion factor of 0.20 for 4-stroke rich and lean-burn engines and 0.50 for 2-stroke lean-burn engines may be used.

(B) The maximum predicted concentration or rate at the property boundary or receptor, whichever is appropriate, must not exceed a state or federal ambient air standard or ESL.

Impacts evaluations were not required for the Site; therefore, this rule does not apply.

30 TAC §106.352(k)(5)(A)

The following shall be met for ESL reviews:

(i) If a project's air contaminant maximum predicted concentrations are equal to or less than 10% of the appropriate ESL, no further review is required.

(ii) If a project's air contaminant maximum predicted concentrations combined with project increases for that contaminant over a 60-month period after the effective date of this revised section are equal to or less than 25% of the appropriate ESL, no further review is required.

(iii) In all other cases, all facility emissions at an OGS, regardless of authorization type, located within 1/4 mile of a project requiring registration under this section shall be evaluated.

Impacts evaluations were not required for the Site; therefore, this rule does not apply.

30 TAC §106.352(k)(5)(B)

The following shall be met for state and federal ambient air quality standard reviews:

(i) If a project's air contaminant maximum predicted concentrations are equal to or less than the significant impact level (also known as de minimis impact in 30 TAC Chapter 101) no further review is required;

(ii) In all other cases, all facility emissions at an OGS, regardless of authorization type, located within 1/4 mile of a project requiring registration under this section shall be evaluated.

Impacts evaluations were not required for the Site; therefore, this rule does not apply.

30 TAC §106.352(k)(6)

Evaluation must comply with one of the methods listed with no changes or exceptions.

(A) Tables. Emission impact Tables 2 - 5F in 30 TAC §106.352(m) may be used in accordance with the limits and descriptions in Table 1 in 30 TAC §106.352(k)(6).

(B) Screening Modeling. A screening model may be used to demonstrate acceptable emissions from an OGS under this section if all of the parameters in the screening modeling protocol provided by the commission are met.

(C) Dispersion Modeling. A refined dispersion model may be used to demonstrate acceptable emissions from an OGS if all of the parameters in the refined dispersion modeling protocol provided by the commission are met.

Impacts evaluations were not required for the Site; therefore, this rule does not apply.

ATTACHMENT 6
SUPPORTING DOCUMENTATION

PERMIT BY RULE REVISION

CARTER TRUST 2 4 5 PAD

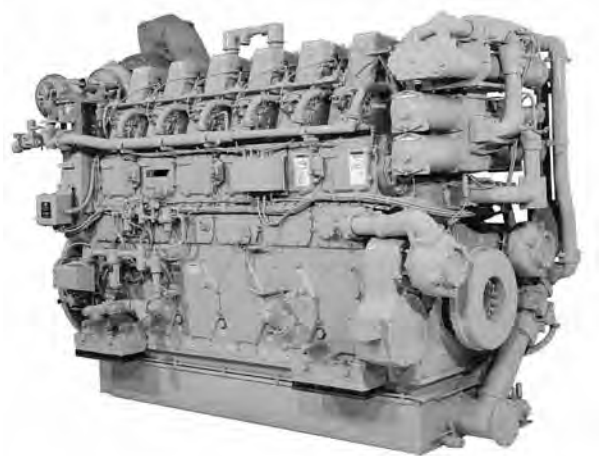
LEGEND NATURAL GAS, LLC

Description **Page**

G3606 LE Gas Petroleum Engine

1324-1413 bkW (1775-1895 bhp) 1000 rpm

0.5 g/bhp-hr NOx or 0.7 g/bhp-hr NOx (NTE)



Shown with Optional Equipment

CAT® ENGINE SPECIFICATIONS

In-Line 6, 4-Stroke-Cycle

Bore	300 mm (11.8 in.)
Stroke	300 mm (11.8 in.)
Displacement	127.2 L (7,762 cu. in.)
Aspiration	Turbocharged-Aftercooled
Digital Engine Management	
Governor and Protection	Electronic (ADEM™ A3)
Combustion	Low Emission (Lean Burn)
Engine Weight	
net dry (approx)	15,676 kg (34,560 lb)
Power Density	11.1 kg/kW (18.2 lb/hp)
Power per Displacement	14.9 bhp/L
Total Cooling System Capacity	401.3 L (106 gal)
Jacket Water	340.7 L (90 gal)
Aftercooler Circuit	60.6 L (16 gal)
Lube Oil System (refill)	707.9 L (187 gal)
Oil Change Interval	5000 hours
Rotation (from flywheel end)	Counterclockwise
Flywheel Teeth	255

FEATURES

Engine Design
- Proven reliability and durability
- Ability to burn a wide spectrum of gaseous fuels
- Robust diesel strength design prolongs life and lowers owning and operating costs
- Broad operating speed range

Emissions
Meets U.S. EPA Spark Ignited Stationary NSPS Emissions for 2010/11 with the use of an oxidation catalyst

Lean Burn Engine Technology
Lean-burn engines operate with large amounts of excess air. The excess air absorbs heat during combustion reducing the combustion temperature and pressure, greatly reducing levels of NOx. Lean-burn design also provides longer component life and excellent fuel consumption.

Ease of Operation
- High-strength pan and rails for excellent mounting and stability
- Side covers on block allow for inspection of internal components

Advanced Digital Engine Management
ADEM A3 engine management system integrates speed control, air/fuel ratio control, and ignition/detonation controls into a complete engine management system. ADEM A3 has improved: user interface, display system, shutdown controls, and system diagnostics.

Full Range of Attachments
Large variety of factory-installed engine attachments reduces packaging time.

Testing
Every engine is full-load tested to ensure proper engine performance.

Gas Engine Rating Pro
GERP is a PC-based program designed to provide site performance capabilities for Cat® natural gas engines for the gas compression industry. GERP provides engine data for your site's altitude, ambient temperature, fuel, engine coolant heat rejection, performance data, installation drawings, spec sheets, and pump curves.

Product Support Offered Through Global Cat Dealer Network
More than 2,200 dealer outlets

Cat factory-trained dealer technicians service every aspect of your petroleum engine

Cat parts and labor warranty

Preventive maintenance agreements available for repair-before-failure options

S•O•S℠ program matches your oil and coolant samples against Caterpillar set standards to determine:
- Internal engine component condition
- Presence of unwanted fluids
- Presence of combustion by-products
- Site-specific oil change interval

Over 80 Years of Engine Manufacturing Experience
Over 60 years of natural gas engine production

Ownership of these manufacturing processes enables Caterpillar to produce high quality, dependable products
- Cast engine blocks, heads, cylinder liners, and flywheel housings
- Machine critical components
- Assemble complete engine

Web Site
For all your petroleum power requirements, visit www.catoilandgas.cat.com.

STANDARD EQUIPMENT

Air Inlet System
Air cleaner — standard-duty inlet air adapter

Control System
ADEM A3 control system provides electronic governing integrated with air/fuel ratio control and individual cylinder ignition timing control

Cooling System
Jacket water pump
Jacket water thermostats and housing
Aftercooler pump
Aftercooler water thermostats and housing
Single-stage aftercooler

Exhaust System
Dry wrapped exhaust manifolds
Vertical outlet adapter

Flywheels and Flywheel Housing
SAE standard rotation

Fuel System
Gas admission valves with electronically controlled fuel supply pressure

Ignition System
A3 control system senses individual cylinder detonation and controls individual cylinder timing

Instrumentation
LCD display panel monitors engine parameters and displays diagnostic codes

Lube System
Crankcase breathers (top mounted)
Oil cooler
Oil filter
Oil pan drain valve

Mounting System
Engine mounting feet (four total)

Protection
Electronic shutoff system with purge cycle
Crankcase explosion relief valves
Gas shutoff valve

Starting System
Air starting system

General
Paint — Cat yellow
Vibration dampers

OPTIONAL EQUIPMENT

Air Inlet System
Heavy-duty air cleaner with precleaners
Heavy-duty air cleaner with rain protection

Charging System
Charging alternators

Control System
Custom control system software is available for non-standard ratings. Software is field programmable using flash memory.

Cooling System
Expansion tank
Flexible connections
Jacket water heater

Exhaust System
Flexible bellows adapters
Exhaust expander
Weld flanges

Fuel System
Fuel filter
Gas pressure regulator
Flexible connection
Low energy fuel system
Corrosive gas fuel system

Ignition System
CSA certification

Instrumentation
Remote data monitoring and speed control
Compatible with Cat® Electronic Technician (ET) and Data View
Communication Device — PL1000T/E
Display panel deletion is optional

Lube System
Air or electric motor-driven prelube
Duplex oil filter
LH or RH service
Lube oil makeup system

Mounting System
Mounting plates (set of six)

Power Take-Offs
Front stub shafts

Starting System
Air pressure reducing valve
Natural gas starting system

General
Engine barring device
Damper guard

TECHNICAL DATA

G3606 LE Gas Petroleum Engine — 1000 rpm

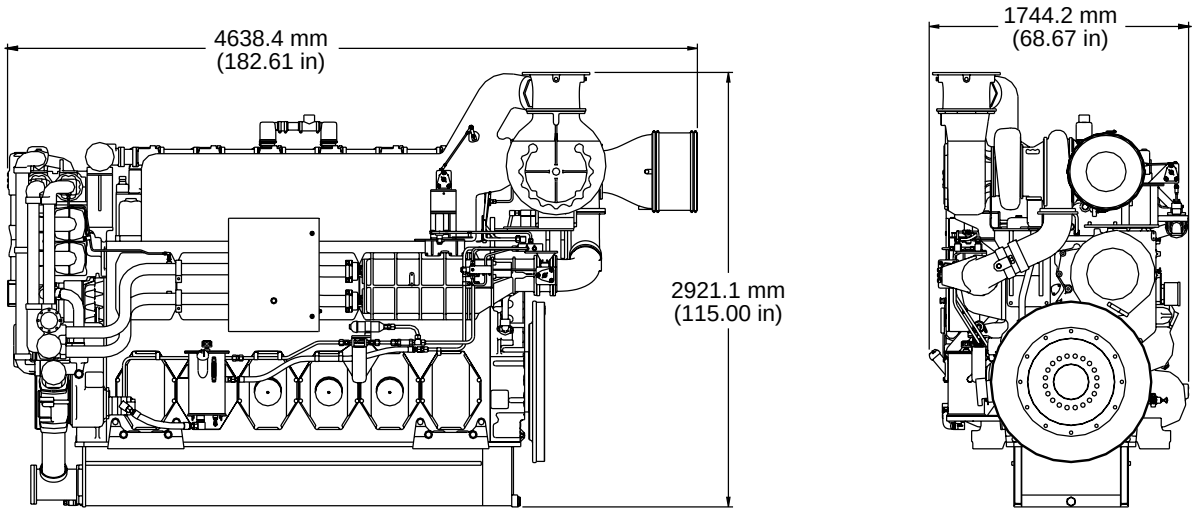
		DM5137-03	DM5432-05	DM5433-05	DM8605-02
Engine Power					
@ 100% Load	bkW (bhp)	1368 (1835)	1413 (1895)	1324 (1775)	1324 (1775)
@ 75% Load	bkW (bhp)	1026 (1376)	1060 (1421)	993 (1331)	993 (1331)
Engine Speed	rpm	**1000**	**1000**	**1000**	**1000**
Max Altitude @ Rated Torque and 38°C (100°F)	m (ft)	1219.2 (4000)	1219.2 (4000)	609.6 (2000)	609.6 (2000)
Speed Turndown @ Max Altitude, Rated Torque, and 38°C (100°F)	%	20	20	23	22
SCAC Temperature	°C (°F)	43 (110)	32 (90)	54 (130)	54 (130)
Emissions*					
NOx	g/bkW-hr (g/bhp-hr)	.94 (0.7)	.94 (0.7)	.94 (0.7)	.67 (0.5)
CO	g/bkW-hr (g/bhp-hr)	3.4 (2.5)	3.4 (2.5)	3.4 (2.5)	3.69 (2.75)
CO_2	g/bkW-hr (g/bhp-hr)	589 (439)	589 (438)	590 (440)	593 (442)
VOC**	g/bkW-hr (g/bhp-hr)	0.8 (0.6)	0.79 (0.59)	0.81 (0.6)	0.85 (0.63)
Fuel Consumption***					
@ 100% Load	MJ/bkW-hr (Btu/bhp-hr)	9.34 (6600)	9.31 (6580)	9.37 (6620)	9.41 (6649)
@ 75% Load	MJ/bkW-hr (Btu/bhp-hr)	9.73 (6876)	9.69 (6849)	9.77 (6903)	9.81 (6933)
Heat Balance					
Heat Rejection to Jacket Water					
@ 100% Load	bkW (Btu/mn)	321 (18,281)	327 (18,645)	314 (17,894)	314 (17,875)
@ 75% Load	bkW (Btu/mn)	278 (15,801)	283 (16,145)	270 (15,400)	272 (15,473)
Heat Rejection to Aftercooler					
@ 100% Load	bkW (Btu/mn)	269 (15,297)	305 (17,339)	235 (13,350)	244 (13,912)
@ 75% Load	bkW (Btu/mn)	149 (8466)	170 (9679)	128 (7300)	134 (7633)
Heat Rejection to Exhaust LHV to 25°C (77° F)					
@ 100% Load		1334 (75,883)	1346 (76,571)	1320 (75,085)	1325 (75,359)
@ 75% Load	bkW (Btu/mn)	1061 (60,310)	1073 (61,021)	1047 (59,560)	1051 (59,787)
Exhaust System					
Exhaust Gas Flow Rate					
@ 100% Load	m^3/min (cfm)	346.48 (12,236)	352.77 (12,458)	339.92 (12,004)	343.94 (12,146)
@ 75% Load	m^3/min (cfm)	273.97 (9675)	278.35 (9830)	269.49 (9517)	272.69 (9630)
Exhaust Stack Temperature					
@ 100% Load	°C (°F)	454 (850)	445 (832)	464 (867)	453 (847)
@ 75% Load	°C (°F)	471 (880)	465 (869)	477 (891)	466 (870)
Intake System					
Air Inlet Flow Rate					
@ 100% Load	m^3/min (scfm)	133.29 (4707)	137.53 (4857)	129.01 (4556)	132.69 (4686)
@ 75% Load	m^3/min (scfm)	102.96 (3636)	105.42 (3723)	100.50 (3549)	103.36 (3650)
Gas Pressure	kPag (psig)	295-324 (42.8-47)	295-324 (42.8-47)	295-324 (42.8-47)	295-324 (42.8-47)

*at 100% load and speed, all values are listed as not to exceed

**Volatile organic compounds as defined in U.S. EPA 40 CFR 60, subpart JJJJ

***ISO 3046/1

GAS PETROLEUM ENGINE



DIMENSIONS		
Length	mm (in.)	4638.4 (182.61)
Width	mm (in.)	1744.2 (68.67)
Height	mm (in.)	2921.1 (115.00)
Shipping Weight	kg (lb)	15,676 (34,560)

Note: General configuration not to be used for installation. See general dimension drawings for detail.

RATING DEFINITIONS AND CONDITIONS

Engine performance is obtained in accordance with SAE J1995, ISO3046/1, BS5514/1, and DIN6271/1 standards.

Transient response data is acquired from an engine/ generator combination at normal operating temperature and in accordance with ISO3046/1 standard ambient conditions. Also in accordance with SAE J1995, BS5514/1, and DIN6271/1 standard reference conditions.

Conditions: Power for gas engines is based on fuel having an LHV of 33.74 kJ/L (905 Btu/cu ft) at 101 kPa (29.91 in. Hg) and 15° C (59° F). Fuel rate is based on a cubic meter at 100 kPa (29.61 in. Hg) and 15.6° C (60.1° F). Air flow is based on a cubic foot at 100 kPa (29.61 in. Hg) and 25° C (77° F). Exhaust flow is based on a cubic foot at 100 kPa (29.61 in. Hg) and stack temperature.

Performance Numbers: DM5137-03, DM5432-05, DM5433-05, DM8605-02
LEHW0039-02 (8-10)

SITE DATA

PERMIT BY RULE REVISION

CARTER TRUST 2 4 5 PAD

LEGEND NATURAL GAS, LLC

	Stream 1		Stream 2	
	Inlet Gas		Flash Gas	
Component	mole %	wgt. %	mole %	wgt. %
Nitrogen	0.5910%	0.978%	0.342%	0.540%
Carbon Dioxide	1.9550%	5.084%	2.065%	5.127%
Water	0.0000%	0.000%	5.054%	9.121%
Hydrogen Sulfide	0.0000%	0.000%	0.000%	0.000%
Methane	95.6490%	90.667%	90.757%	82.128%
Ethane	1.7330%	3.079%	1.707%	2.895%
Propane	0.0670%	0.175%	0.073%	0.181%
I-Butane	0.0020%	0.007%	0.001%	0.003%
N-Butane	0.0030%	0.010%	0.001%	0.004%
I-Pentane	0.0000%	0.000%	0.000%	0.000%
N-Pentane	0.0000%	0.000%	0.000%	0.000%
Cyclopentane	0.0000%	0.000%	0.000%	0.000%
n-Hexane	0.0000%	0.000%	0.000%	0.000%
Cyclohexane	0.0000%	0.000%	0.000%	0.000%
Other Hexanes	0.0000%	0.000%	0.000%	0.000%
Heptanes	0.0000%	0.000%	0.000%	0.000%
Octanes	0.0000%	0.000%	0.000%	0.000%
Nonanes Plus	0.0000%	0.000%	0.000%	0.000%
Benzene	0.0000%	0.000%	0.000%	0.000%
Toluene	0.0000%	0.000%	0.000%	0.000%
Ethylbenzene	0.0000%	0.000%	0.000%	0.000%
Xylene	0.000%	0.000%	0.000%	0.000%
Totals	100.000%	100.00%	100.000%	100.00%
Totals (C3+)		0.19%		0.19%
VOC max (%)		1.50%		1.50%
Benzene Max (%)		0.001%		0.001%
Relative Density	0.5853			

Note: As represented on the inlet gas analysis, benzene concentration is less than 0.001% based on significant figures reported in laboratory report. Therefore, benzene emissions are conservatively represented throughout entire calculation set.

Fuel Gas Higher Heating Value	980
Fuel Gas Lower Heating Value	998

DFW LABORATORIES
2440 Chambers Street, Suite A
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Certificate of Analysis

Number: 3040-2011090161-011A

September 28, 2011

Sean Baker
P.O. Box 1174
Grandbury TX 76084
United States Of America

Sample ID:		Sampled By:	JW
Station Name :	Carter Trust FG	Sample Of:	Natural Gas Spot
Station Number :	CT00FG	Sample Date:	09/21/2011
Station Location :	Carter Park	Sample Conditions:	306.4 psig , @ 81.0°F
Sample Point:		PO / Ref. No:	
		Effective Date:	

ANALYTICAL DATA

Components	Mol %	Wt %	GPM at 14.650 psia	Method	Lab Tech.	Date Analyzed
				GPA-2261 M	LM	9/27/2011
Nitrogen	0.591	0.978				
Carbon Dioxide	1.955	5.084				
Methane	95.649	90.667				
Ethane	1.733	3.079	0.461			
Propane	0.067	0.175	0.018			
Iso Butane	0.002	0.007	0.001			
n-Butane	0.003	0.010	0.001			
Iso Pentane	0.000	0.000	0.000			
n-Pentane	0.000	0.000	0.000			
Hexanes Plus	0.000	0.000	0.000			
	100.000	100.000	0.481			

	C2 +	C3 +	iC5 +	
GPM TOTAL :	0.481	0.020	0.000	
Relative Density	Real Gas			0.5853
Calculated Molecular Weight				16.92
Compressibility Factor				0.9979

Calculated Gross BTU per ft³ @14.650 psia & 60°F

Real Gas	Dry Basis	998
	Saturated Basis	980

Comments :

Cylinder Number 81

Hydrocarbon Laboratory Manager

Quality Assurance: The above analyses are performed in accordance with ASTM, UOP or GPA guidelines for quality assurance, unless otherwise stated