March 25, 2025

Air Permits Initial Review Team (APIRT)
Texas Commission on Environmental Quality (TCEQ)
Submitted via STEERS

Re: Permits by Rule (PBRs) §§106.352(l), 106.359, and 106.512 - Revision Application
Registration Number: 52918
South Bonus Field, RN102923364
Hilcorp Energy Company, CN600125991
Wharton County, Texas

Dear APIRT:

Hilcorp Energy Company (Hilcorp) is submitting the attached revision application to certify emissions for the sources authorized by the Permits by Rule (PBRs) §§106.352(l), 106.359, and 106.512 at the South Bonus Field, located in Wharton County, Texas.

Hilcorp is certifying emissions associated with this PBR authorization via the State of Texas Environmental Electronic Reporting System (STEERS). This document demonstrates that the applicable PBR requirements will be met.

If you have any questions or comments about the information presented in this application, please contact me or Logan Kocian, Hilcorp, at 713-757-5240 (lkocian@hilcorp.com).

Sincerely,
GLOW Environmental

Kristin Parsons
Co-President & Senior Consultant

cc: Air Section Manager, TCEQ Region 12 – Houston
Logan Kocian, Hilcorp Energy Company
Mr. Cory Johnson, Hilcorp Energy Company

512.923.8446 ☎
kristin@GLOWenvironmental.com ✉
www.linkedin.com/company/glow-environmental-llc ⊕

TCEQ PERMIT BY RULE CERTIFIED REGISTRATION (REVISION)

30 TAC §§106.352(l), 106.359, and 106.512
Registration No. 52918

South Bonus Field

RN102923364
Glen Flora, Wharton County, Texas

Prepared For:

Hilcorp Energy Company, CN600125991

Houston, TX

Prepared By:

GLOW Environmental, LLC
Austin, TX 78757
512.923.8446
Project No. HILC25005

March 2025

Certification and Registration for Permits by Rule
Form PI-7-CERT
Page 1
Texas Commission on Environmental Quality

I.	Registrant Information
A. Company or Other Legal Customer Name:	**Hilcorp Energy Company**
B. Company Official Contact Information	☒ Mr. ☐ Mrs. ☐ Ms. ☐ Other:
Name:	**Cory Johnson**
Title:	**Regional Environmental Manager**
Mailing Address:	**1111 Travis St.**
City:	**Houston**
State:	**TX**
ZIP Code:	**77002**
Telephone No.:	**713-289-2691**
Fax No.:	
Email Address:	**cjohnson@hilcorp.com**
All PBR registration responses will be sent via e-mail.	
C. Technical Contact Information	☒ Mr. ☐ Mrs. ☐ Ms. ☐ Other:
Name:	**Logan Kocian**
Title:	**Senior Environmental Specialist**
Company Name:	**Hilcorp Energy Company**
Mailing Address:	**1111 Travis St.**
City:	**Houston**
State:	**TX**
ZIP Code:	**77002**
Telephone No.:	**713-757-5240**
Fax No.:	
Email Address:	**lkocian@hilcorp.com**

II. Facility and Site Information	
A. Name and Type of Facility	
Facility Name: **South Bonus Field**	
Type of Facility: ☒ Permanent ☐ Temporary	
For portable units, please provide the serial number of the equipment being registered below.	
Serial No(s):	
B. Facility Location Information	
Street Address: **N/A**	
If there is no street address, provide written driving directions to the site and provide the closest city or town, county and ZIP code for the site (attach description if additional space is needed).	
JUST N OF INTX AT FM RD 1161 & FM RD 102 TURN L ONTO CR 257 GO 1.3 MI TURN R ON CR 238 GO 1.4 MI TO FACILITY ON R	
City: **Glen Flora**	
County: **Wharton**	
ZIP Code: **77443**	
C. TCEQ Core Data Form	
Is the Core Data Form (TCEQ Form 10400) attached? ☐ YES ☒ NO	
If "NO," provide customer reference number (CN) and regulated entity number (RN) below.	
Customer Reference Number (CN): **CN600125991**	
Regulated Entity Number (RN): **RN102923364**	
D. TCEQ Account Identification Number (if known): **N/A**	
E. Type of Action	
☐ Initial Application ☒ Change to Registration	
For Change to Registration provide the Registration Number: **52918**	
F. PBR number(s) claimed under 30 TAC 106	
(List all the individual rule number(s) that are being claimed.)	
106. **352(I)**	106.
106. **359**	106.
106. **512**	106.
106.	106.

II. Facility and Site Information *(continued)*		
G. Historical Standard Exemption or PBR		
Are you claiming a historical standard exemption or PBR?	☐ YES	☒ NO
If "YES," enter rule number(s) and associated effective date in the spaces provided below.		
Rule Number:	Effective Date:	
Rule Number:	Effective Date:	
H. Previous Standard Exemption or PBR Registration Number		
Is this authorization for a change to an existing facility previously authorized under a standard exemption or PBR?	☐ YES	☒ NO
If "YES," enter previous standard exemption number(s) and PBR registration number(s) and associated effective dates in the spaces provided below.		
Standard Exemption and PBR Registration Number(s):		
Effective Date:		
I. Other Facilities at this Site Authorized by Standard Exemption, PBR, or Standard Permit		
Are there any other facilities at this site that are authorized by an Air Standard Exemption, PBR, or Standard Permit?	☐ YES	☒ NO
If "YES," enter standard exemption number(s) PBR registration number(s), and Standard Permit registration number(s), and associated effective date in the spaces provided below.		
Standard Exemption, PBR Registration, and Standard Permit Registration Number(s):		
Effective Date:		
Standard Exemption, PBR Registration, and Standard Permit Registration Number(s):		
Effective Date:		
J. Other Air Preconstruction Permits		
Are there any other air preconstruction permits at this site?	☐ YES	☒ NO
If "YES," enter permit number(s) in the spaces provided below.		
K. Affected Air Preconstruction Permits		
Does the PBR being claimed directly affect any permitted facility?	☐ YES	☒ NO

II. Facility and Site Information *(continued)*			
If "YES," enter permit number(s) in the spaces provided below.			
L. Federal Operating Permit (FOP) Requirements (30 TAC Chapter 122 Applicability)			
1. Is this facility located at a site which is required to obtain a FOP pursuant to 30 TAC Chapter 122?	☐ YES	☒ NO	☐ To Be Determined
If the site currently has an existing federal operating permit, enter the permit number:			
Check the requirements of 30 TAC Chapter 122 that will be triggered if this certification is accepted. *(check all that apply)*			
☐ Initial Application for an FOP	☐ Significant Revision for an SOP	☐ Minor Revision for an SOP	
☐ Operational Flexibility/off Permit Notification for an SOP		☐ Revision for GOP	
☐ To be determined	☒ None		
2. Identify the type(s) of FOP issued and/or FOP application(s) submitted/pending for the site. *(check all that apply)*			
☐ SOP	☐ GOP	☐ GOP application/revision (*submitted or under APD review*)	
☒ N/A	☐ SOP application/revision (*submitted or under APD review*)		
III. Fee Information *(See Section VII. for address to send fee or go to www.tceq.texas.gov/epay to pay online)*			
A. Fee Requirements			
Is a fee required per Title 30 TAC § 106.50?		☒ YES	☐ NO
If "NO," specify the exception. There are three exceptions to paying a PBR fee.		*(check all that apply)*	
1. Registration is solely to establish a federally enforceable emission limit.		☐	
2. Registration is within six-months of an initial PBR review, and it is addressing deficiencies, administrative changes, or other allowed changes.		☐	
3. Registration is for a remediation project (30 TAC §106.533).		☐	
B. Fee amount			
1. A $100 fee is required if any of the answers in III.B.1 are "YES."			
This business has less than 100 employees.		☐ YES	☒ NO
This business has less than 6 million dollars in annual gross receipts.		☐ YES	☒ NO
This registration is submitted by a governmental entity with a population of <10,000.		☐ YES	☒ NO
This registration is submitted by a non-profit organization.		☐ YES	☒ NO

III.	**Fee Information** *(See Section VII. for address to send fee or go to www.tceq.texas.gov/epay to pay online) (continued)*		
2.	A $450 fee is required for all other registrations.		
A.	Payment Information		
Check/money order/transaction or voucher number:	**Paid online via STEERS/ePay**		
Individual or company name on check:			
Fee amount:	**$450**		
Was fee Paid online?		☒ YES	☐ NO
IV.	**Technical Information Including State And Federal Regulatory Requirements** **Check the appropriate box to indicate what is included it in your submittal.** **NOTE:** *Any technical or essential information needed to confirm that facilities are meeting the requirements of the PBR must be provided. Not providing key information could result in an automatic deficiency and voiding of the project.*		
A.	PBR requirements (Checklists are optional; however, your review will go faster if you provide applicable checklists.)		
Did you demonstrate that the General Requirements in 30 TAC §106.4 are met?		☒ YES	☐ NO
Did you demonstrate that the Individual Requirements of the specific PBR are met?		☒ YES	☐ NO
B.	Confidential Information Included (If confidential information is submitted with this registration, all confidential pages must be properly marked "CONFIDENTIAL")	☐ YES	☒ NO
C.	Process Flow Diagram	☒ YES	☐ NO
D.	Process Description	☒ YES	☐ NO
E.	Maximum Emissions Data and Calculations	☒ YES	☐ NO
Note: *If the facilities listed in this registration are subject to the Mass Emissions Cap & Trade program under* ***30 TAC Chapter 101, Subchapter H, Division 3****, the owner/operator of these facilities must possess NOx allowances equivalent to the actual NOx, emissions from these facilities.*			
F.	Is this certification being submitted to certify the emissions for the entire site?	☒ YES	☐ NO
If "NO", include a summary of the specific facilities and emissions being certified.			
G.	Table 1(a) (Form 10153) Emission Point Summary	☐ YES	☒ NO
H.	Distances to Property Line and Nearest Off-Property Structure		
Distance from this facility's emission release point to the nearest property line:		**≥ 100**	feet
Distance from this facility's emission release point to the nearest off-property structure:		**≥ 500**	feet

IV. Technical Information Including State And Federal Regulatory Requirements **Check the appropriate box to indicate what is included it in your submittal.** **NOTE:** *Any technical or essential information needed to confirm that facilities are meeting the requirements of the PBR must be provided. Not providing key information could result in an automatic deficiency and voiding of the project.*
I. Project Status
Has the company implemented the project or waiting on a response from TCEQ? ☒ Implemented ☐ Waiting
J. Projected Start of Construction and Projected Start of Operation Dates
Projected start of Construction (provide date):
Projected start of Operation (provide date):
V. Delinquent Fees
This form **will not be processed** until all delinquent fees and/or penalties owed to the TCEQ or the Office of the Attorney General on behalf of the TCEQ is paid in accordance with the Delinquent Fee and Penalty Protocol. For more information regarding Delinquent Fees and Penalties, go to the TCEQ Web site at: www.tceq.texas.gov/agency/financial/fees/delin/index.html.
VI. Signature For Registration And Certification
The signature below confirms that I have knowledge of the facts included in this application and that these facts are true and correct to the best of my knowledge and belief. I further state that to the best of my knowledge and belief, the project for which this application is made will not in any way violate any provision of the Texas Water Code (TWC), Chapter 7, Texas Clean Air Act (TCAA), as amended, or any of the air quality rules and regulations of the Texas Commission on Environmental Quality or any local governmental ordinance or resolution enacted pursuant to the TCAA. I further state that I understand my signature indicates that this application meets all applicable nonattainment, prevention of significant deterioration, or major source of hazardous air pollutant permitting requirements. The signature further signifies awareness that intentionally or knowingly making or causing to be made false material statements or representations in the application is a criminal offense subject to criminal penalties.
Name (printed):
Cory Johnson
Signature (original signature required):
(e-signed via STEERS)
Date:

VII. Submitting Copies of the Certification and Registration

Copies must be sent as listed below:
Processing delays may occur if copies are not sent as noted.

Who	Where	What
Air Permits Initial Review Team (APIRT)	Regular, Certified, Priority Mail MC 161, P.O. Box 13087 Austin, Texas 78711-3087 Hand Delivery, Overnight Mail MC 161, 12100 Park 35 Circle, Building C, Third Floor Austin, Texas 78753	Originals Form PI-7-CERT, Core Data Form and all attachments. Not required if using ePermits[1].
Revenue Section, TCEQ	Regular, Certified, Priority Mail MC 214, P.O. Box 13088 Austin, Texas 78711-3088 Hand Delivery, Overnight Mail MC 214, 12100 Park 35 Circle, Building A, Third Floor Austin, Texas 78753	Original Money Order or Check, Copy of Form PI-7-CERT and Core Data Form. Not required if fee was paid using ePay[2].
Appropriate TCEQ Regional Office	To find your Regional Office address, go to the TCEQ website at ww.tceq.texas.gov/agency/directory/region, or call (512) 239-1250.	Copy of Form PI-7-CERT, Core Data Form, and all attachments. Not required if using ePermits.
Appropriate Local Air Pollution Control Program(s)	To Find your local or Regional Air Pollution Control Programs go to the TCEQ, APD website at www.tceq.texas.gov/permitting/air/local_programs.html, or call (512) 239-1250	Copy of Form PI-7-CERT, Core Data Form, and all attachments.

[1] ePermits located at **www.3.tceq.texas.gov/steers/**

[2] ePay located at **www.tceq.texas.gov/epay**

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SECTION 1

Project Overview

South Bonus Field
Hilcorp Energy Company
TCEQ Permit by Rule Certified Registration (Revision)
March 2025

Section 1.1
Project Information

General Information	
Company Name	Hilcorp Energy Company
Site Name	South Bonus Field
Authorization	Permits by Rule (PBRs) §§106.352(l), 106.359, and 106.512
Application Type	Revision Application
PBR Project Type	Certified Registration (Form PI-7 CERT)
SIC Code	1311
NAICS	211111
Nearest City, State, & Zip Code	Glen Flora, Texas 77443
County	Wharton
Area Attainment Status	Classified as attainment or unclassified for all pollutants Source: U.S. EPA Green Book; http://www3.epa.gov/airquality/greenbook/anayo_tx.html
TCEQ Region	Region 12, Houston
Latitude / Longitude	29.401161 / -96.277393
Driving Directions	JUST N OF INTX AT FM RD 1161 & FM RD 102 TURN L ONTO CR 257 GO 1.3 MI TURN R ON CR 238 GO 1.4 MI TO FACILITY ON R
Distance to Nearest Property Line	≥ 100 ft
Distance to Nearest Receptor	≥ 500 ft
Customer Number	CN600125991
Regulated Number	RN102923364
Permit/Registration Number	52918
Date of Application	March 2025

Contact Information	Technical Contact	Responsible Official
Contact Name	Logan Kocian	Cory Johnson
Organization	Hilcorp Energy Company	Hilcorp Energy Company
Title	Senior Environmental Specialist	Regional Environmental Manager
Address	1111 Travis St.	1111 Travis St.
City, State and Zip	Houston, TX 77002	Houston, TX 77002
Telephone	713-757-5240	713-289-2691
Email	lkocian@hilcorp.com	cjohnson@hilcorp.com

South Bonus Field
Hilcorp Energy Company
TCEQ Permit by Rule Certified Registration (Revision)
March 2025

Section 1.1
Project Information

Project Scope

Hilcorp Energy Company (Hilcorp) owns and operates the South Bonus Field, an existing oil and gas site located near Glen Flora in Wharton County, Texas. Hilcorp proposes to authorize the below listed updates at the oil and gas site under Permits by Rule (PBRs) §§106.352(l), 106.359, and 106.512 (Registration No. 52918).

Hilcorp is revising this registration to update the following:
- Removal of a 625 HP Caterpillar G398 TA compressor engine (EPN: 28-17-ICE-ES)
- Addition of a 400 HP Caterpillar CG137-8 compressor engine (EPN: 30-25-ICE)
- Addition of emissions from miscellaneous planned MSS activities (EPN: MSS)

Process Description

Production from the lease wells enters the facility through the separators. From the high pressure separators, gas is compressed, dehydrated, and sent to sales. Oil/condensate from the high pressure separator is routed to on-site storage tanks before being routed off site via tank truck.
Water from the high pressure separator is routed to a gunbarrel and then to one of five water storage tanks prior to being routed offsite to an injection well disposal.

Other sources of emissions include piping fugitive emissions (FIN: FUG) and emissions from planned MSS activities associated with compressor blowdowns and downtime.

A simplified process flow diagram is included in this section (see Section 1.3).

Site-wide Throughputs

Product	Maximum Daily		Average Daily		Annual	
Natural Gas	0.01	MMscf/day	0.01	MMscf/day	3	MMscf/yr
Crude Oil	75.00	bbl/day	75.00	bbl/day	27,375	bbl/yr
Produced Water	1,200.00	bbl/day	1,200.00	bbl/day	438,000	bbl/yr

Constant Variables Used in Emission Calculations

Ideal Gas Law (scf/lb-mole) =	R × (Temperature (°R) / Pressure (psia)
R, Ideal Gas Constant =	10.73159 psia ft^3/lb-mole °R
Basis for Gas Constant:	Standard Conditions as defined by API (60 °F and 101.325 kPa)
Ideal Gas Law Value:	379.48 scf/lb-mole

Sulfur Content

Maximum H_2S Content of Production (ppm_v)	≤10.0
Is the production sweet or sour?	Sweet

South Bonus Field
Hilcorp Energy Company
TCEQ Permit by Rule Certified Registration (Revision)
March 2025

Section 1.1
Project Information

Site Operations, Equipment, and Emission Sources					
Equipment/Activity Category	Source Name:	EPN(s):	FIN(s):	Authorization:	Description
Compressor Engine	CAT CG137-8 Compressor Engine	30-25-ICE	30-25-ICE	PBR 106.512	400-hp 4SRB engine
MSS	Miscellaneous MSS Activities	MSS	MISC	PBR 106.359	TCEQ miscellaneous MSS activities
MSS	MSS Emissions	MSS	MSS-MISC	PBR 106.359	Planned MSS Activities
Fugitives	Fugitive Emissions	FUG	FUG	PBR 106.352(l)	Fugitive piping components
MSS	MSS Emissions	MSS	MSS-MISC	PBR 106.359	Planned MSS Activities
Process Vessel	Gunbarrel	GB1	GB1	PBR 106.352(l)	600-bbl Gunbarrel separator; 1200 bwpd & 2 bopd
Fixed Roof Storage Tank	Oil Storage Tank	TK-1	TK-1	PBR 106.352(l)	400-bbl Fixed Roof Tank
Fixed Roof Storage Tank	Oil Storage Tank	TK-2	TK-2	PBR 106.352(l)	400-bbl Fixed Roof Tank
Fixed Roof Storage Tank	Oil Storage Tank	TK-3	TK-3	PBR 106.352(l)	400-bbl Fixed Roof Tank
Fixed Roof Storage Tank	Oil Storage Tank	TK-4	TK-4	PBR 106.352(l)	400-bbl Fixed Roof Tank
Fixed Roof Storage Tank	Oil Storage Tank	TK-5	TK-5	PBR 106.352(l)	400-bbl Fixed Roof Tank
Fixed Roof Storage Tank	Oil Storage Tank	TK-6	TK-6	PBR 106.352(l)	400-bbl Fixed Roof Tank
Fixed Roof Storage Tank	Oil Storage Tank	TK-7	TK-7	PBR 106.352(l)	400-bbl Fixed Roof Tank

South Bonus Field
Hilcorp Energy Company
TCEQ Permit by Rule Certified Registration (Revision)
March 2025

Section 1.1
Project Information

Site Operations, Equipment, and Emission Sources					
Equipment/Activity Category	Source Name:	EPN(s):	FIN(s):	Authorization:	Description
Fixed Roof Storage Tank	Oil Storage Tank	TK-8	TK-8	PBR 106.352(l)	400-bbl Fixed Roof Tank
Fixed Roof Storage Tank	Oil Storage Tank	TK-9	TK-9	PBR 106.352(l)	400-bbl Fixed Roof Tank
Fixed Roof Storage Tank	Oil Storage Tank	TK-10	TK-10	PBR 106.352(l)	400-bbl Fixed Roof Tank
Fixed Roof Storage Tank	Water Storage Tank	TK-11	TK-11	PBR 106.352(l)	400-bbl Fixed Roof Tank
Fixed Roof Storage Tank	Water Storage Tank	TK-12	TK-12	PBR 106.352(l)	400-bbl Fixed Roof Tank
Fixed Roof Storage Tank	Water Storage Tank	TK-13	TK-13	PBR 106.352(l)	400-bbl Fixed Roof Tank
Fixed Roof Storage Tank	Water Storage Tank	TK-15	TK-15	PBR 106.352(l)	400-bbl Fixed Roof Tank
Fixed Roof Storage Tank	Water Storage Tank	TK-17	TK-17	PBR 106.352(l)	400-bbl Fixed Roof Tank
Boiler	Glycol Reboiler	DEHY1	DEHY1	PBR 106.352(l)	1.0 MMBtu/hr
Glycol Unit	Glycol Condenser	DEHY2	DEHY2	PBR 106.352(l)	2.5 MMscf/yr
Truck Loading	Truck Loading Losses	TRUCK1	TRUCK1	PBR 106.352(l)	27,375 bbl/yr
Fixed Roof Storage Tank	Water Storage Tank	29a-17-WST	29a-17-WST	PBR 106.352(l)	400-bbl Fixed Roof Tank
Fixed Roof Storage Tank	Water Storage Tank	29a-17-WST	29a-17-WST	PBR 106.352(l)	400-bbl Fixed Roof Tank

Section 1.2

AREA MAP

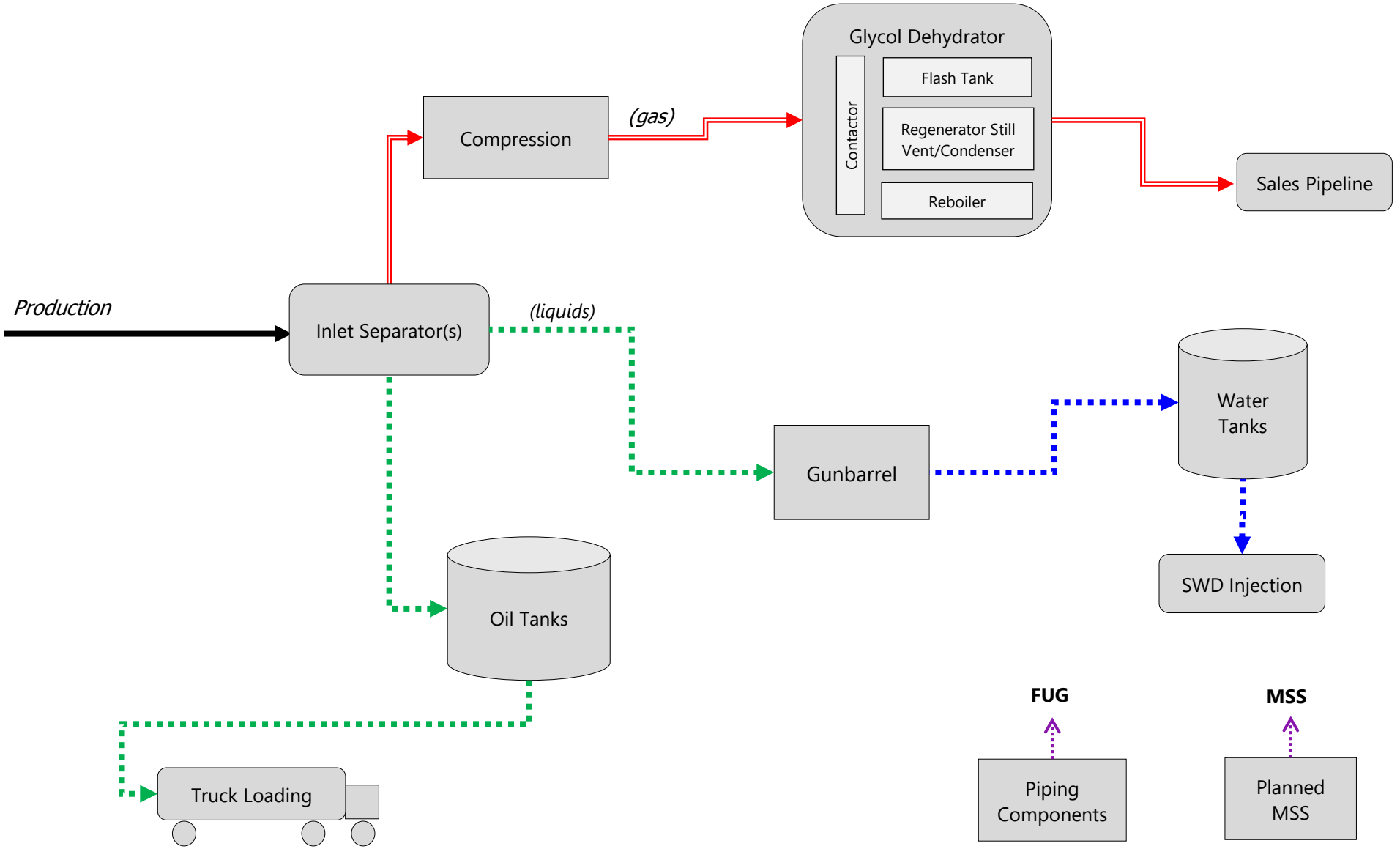
South Bonus Field

Hilcorp Energy Company

Wharton County, TX (29.401161, -96.277393)

GLOW Environmental

● Site Location



Section 1.3
PROCESS FLOW DIAGRAM

South Bonus Field
Hilcorp Energy Company
March 2025

GLOW Environmental

- Produced Water
- Gas
- Gas/Liquids
- HC Liquids/Oil
- Emissions to Atmosphere

South Bonus Field
Hilcorp Energy Company
TCEQ Permit by Rule Certified Registration (Revision)
March 2025

Section 1.4
Emission Summary

EPN	FIN	Source Name	VOC		NO_x		CO		$PM_{TOTAL/10/2.5}$		SO_2		HAPs	
			lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
New Sources with this Revision Application														
30-25-ICE	30-25-ICE	CAT CG137-8 Compressor Engine	0.67	2.93	0.44	1.93	1.76	7.72	0.06	0.25	<0.01	0.01	0.07	0.31
MSS	MISC	Miscellaneous MSS Activities	0.06	0.25	--	--	--	--	--	--	--	--	--	--
Sources Unchanged with this Revision Application														
MSS	MSS-MISC	MSS Emissions	33.18	0.03	--	--	--	--	--	--	--	--	--	--
FUG	FUG	Fugitive Emissions	0.37	1.61	--	--	--	--	--	--	--	--	--	--
MSS	MSS-MISC	MSS Emissions	33.18	0.03	--	--	--	--	--	--	--	--	--	--
GB1	GB1	Gunbarrel	0.22	0.98	--	--	--	--	--	--	--	--	--	--
TK-1	TK-1	Oil Storage Tank	1.69	0.74	--	--	--	--	--	--	--	--	--	--
TK-2	TK-2	Oil Storage Tank	1.69	0.74	--	--	--	--	--	--	--	--	--	--
TK-3	TK-3	Oil Storage Tank	1.69	0.74	--	--	--	--	--	--	--	--	--	--
TK-4	TK-4	Oil Storage Tank	1.69	0.74	--	--	--	--	--	--	--	--	--	--
TK-5	TK-5	Oil Storage Tank	1.69	0.74	--	--	--	--	--	--	--	--	--	--
TK-6	TK-6	Oil Storage Tank	1.69	0.74	--	--	--	--	--	--	--	--	--	--
TK-7	TK-7	Oil Storage Tank	1.69	0.74	--	--	--	--	--	--	--	--	--	--

South Bonus Field
Hilcorp Energy Company
TCEQ Permit by Rule Certified Registration (Revision)
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Section 1.4
Emission Summary

EPN	FIN	Source Name	VOC		NO_x		CO		$PM_{TOTAL/10/2.5}$		SO_2		HAPs	
			lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
TK-8	TK-8	Oil Storage Tank	1.69	0.74	--	--	--	--	--	--	--	--	--	--
TK-9	TK-9	Oil Storage Tank	1.69	0.74	--	--	--	--	--	--	--	--	--	--
TK-10	TK-10	Oil Storage Tank	1.69	0.74	--	--	--	--	--	--	--	--	--	--
TK-11	TK-11	Water Storage Tank	0.15	0.12	--	--	--	--	--	--	--	--	--	--
TK-12	TK-12	Water Storage Tank	0.15	0.12	--	--	--	--	--	--	--	--	--	--
TK-13	TK-13	Water Storage Tank	0.15	0.12	--	--	--	--	--	--	--	--	--	--
TK-15	TK-15	Water Storage Tank	0.15	0.12	--	--	--	--	--	--	--	--	--	--
TK-17	TK-17	Water Storage Tank	0.15	0.12	--	--	--	--	--	--	--	--	--	--
DEHY1	DEHY1	Glycol Reboiler	--	0.02	0.09	0.40	0.08	0.33	0.01	0.03	--	--	--	--
DEHY2	DEHY2	Glycol Condenser	0.03	0.14	--	--	--	--	--	--	--	--	--	--
TRUCK1	TRUCK1	Truck Loading Losses	50.20	2.71	--	--	--	--	--	--	--	--	--	--
29a-17-WST	29a-17-WST	Water Storage Tank	0.15	0.12	--	--	--	--	--	--	--	--	--	--
29a-17-WST	29a-17-WST	Water Storage Tank	0.15	0.12	--	--	--	--	--	--	--	--	--	--
TOTAL EMISSIONS			135.71	**16.94**	0.53	**2.33**	1.84	**8.05**	0.07	**0.28**	<0.01	**0.01**	0.07	**0.31**

South Bonus Field
Hilcorp Energy Company
TCEQ Permit by Rule Certified Registration (Revision)
March 2025

Section 1.5

Emission Summary - Emission Limit Review

EMISSIONS TYPE	VOC	NO_x	CO	PM	SO_2	HAPs
TOTAL ANNUAL EMISSIONS	**16.94 tpy**	**2.33 tpy**	**8.05 tpy**	**0.25 tpy**	**0.01 tpy**	**0.31 tpy**
TOTAL ANNUAL EMISSION LIMITS	*25 tpy*	*250 tpy*	*250 tpy*	*25 tpy*	*25 tpy*	*no limit*

FEDERAL EMISSION THRESHOLDS	VOC	NO_x	CO	PM	SO_2	HAPs
TOTAL EMISSIONS MINUS FUGITIVES [1]	**15.33 tpy**	**2.33 tpy**	**8.05 tpy**	**0.25 tpy**	**0.01 tpy**	**0.31 tpy**
Title V Major Source Thresholds	*100 tpy*	*100 tpy*	*100 tpy*	*100 tpy*	*100 tpy*	*25 tpy*
Less than Threshold?	Yes	Yes	Yes	Yes	Yes	Yes
PSD Major Source Thresholds	*250 tpy*	*250 tpy*	*250 tpy*	*250 tpy*	*250 tpy*	
Less than Threshold?	Yes	Yes	Yes	Yes	Yes	

[1] Because this site is not a named source, fugitive emissions are not considered in federal major source threshold comparisons.

SECTION 2

Lab Analyses & Compositions

South Bonus Field
Hilcorp Energy Company
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Section 2.1
Sales Gas Composition

Gas Sample Information		
Site	South Bonus Sales	
Gas Sample Type	Site-specific Sample	
Date Sampled	3/5/2009	
Point in Process	Sales Gas	
Temperature (°F) / Pressure (psig)	72 ˚F	669 psig

Component	Molecular Weight lb/lb-mole	Mole %	Weight %	Heating Values Net/LHV Btu/scf	Heating Values Gross/HHV Btu/scf
H_2S	34.08	--	--	586.8	637.02
Nitrogen	28.01	0.0945%	0.1346%	--	--
CO_2	44.01	3.2951%	7.3737%	--	--
CH_4	16.04	85.3718%	69.6429%	909.4	1,009.7
Ethane (C2)	30.07	6.4192%	9.8150%	1,618.7	1,768.7
Propane (C3)	44.10	2.7689%	6.2090%	2,314.9	2,517.2
Isobutane (i-C4)	58.12	0.5589%	1.6517%	3,000.4	3,256.6
n-Butane (n-C4)	58.12	0.7764%	2.2945%	3,010.8	3,262.0
Isopentane (i-C5)	72.15	0.2092%	0.7675%	3,699.0	3,999.7
n-Pentane (n-C5)	72.15	0.1490%	0.5466%	3,703.9	4,000.7
Other Hexanes (C6)	86.18	0.3570%	1.5644%	4,395.14	4,747.3
Heptanes (C7)	100.20		--	5,100.3	5,502.5
Octanes (C8)	114.23		--	5,796.2	6,248.9
Nonanes (C9)	128.25		--	6,493.6	6,996.5
Decanes Plus (C10+)	142.28		--	7,189.9	7,742.9
Benzene	78.11		--	3,590.9	3,741.9
Toluene	92.14		--	4,273.6	4,474.8
Ethylbenzene	106.16		--	4,970.5	5,222.1
Xylenes	106.17		--	4,958.2	5,208.7
n-Hexane	86.18		--	4,395.14	4,756.1
2,2,4-Trimethylpentane	114.23		--	5,778.9	6,231.7
Totals:	**19.67**	**100.00%**	**100.00%**	**1,013.47**	**1,120.04**

Other Sample Properties	Value	Unit
TOC	92.4917%	Weight %
VOC	13.0338%	Weight %
HAPs	0.0000%	Weight %

SECTION 3

Emission Calculations

South Bonus Field
Hilcorp Energy Company
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Section 3.1

Compressor Engine Emissions

EPN(s): 30-25-ICE
FIN(s): 30-25-ICE
Source Name: **CAT CG137-8 Compressor Engine**

Total Emissions:

Pollutant	lb/hr	tpy
VOC	0.67	2.93
NOx	0.44	1.93
CO	1.76	7.72
$PM_{TOTAL/10/2.5}$	0.06	0.25
SO_2	1.75E-03	0.01
HAPs	0.07	0.31

Calculation Basis:

Emissions from the natural gas-fired internal combustion engines, including NO_x, CO, VOC, SO_2, PM, HCHO, and HAP, are calculated according to fuel type, engine type, and emission factors as indicated in the below emission calculations.

Fuel heat content is based on the site-specific sample taken from South Bonus Sales - Sales Gas (sampled on 03/05/2009).
No control efficiency is applied to the HAP emissions. Represented HAP emissions are worst-case uncontrolled.

Engine Data		
Engine Manufacturer	Caterpillar	
Engine Model	CG137-8	
Engine Manufacture Date	On	11/10/2014
Engine Construction Date	After	6/12/2006
Number of Engines	1	
Engine Serial Number	WWF00249	
Engine Application	Gas Compression	
Engine Type	4SRB	
Method of Control	NSCR Catalyst	
Horsepower	400	hp
Fuel Consumption Rate	7,431	Btu/hp-hr
Annual Operation	8,760	hr/yr

Stack Parameters		
Stack Height	≥ 15.0	ft
Stack Diameter	0.50	ft
Stack Temperature	210	°F
Stack Flow	531	cfm
	45.07	fps

Federal/State Standards Applicability		
NSPS JJJJ	Yes	Non-certified
MACT ZZZZ	Yes	Remote
30 TAC 117	No	

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Section 3.1
Compressor Engine Emissions

Fuel Data		
Basis for Fuel Heat Content		South Bonus Sales - Sales Gas
Fuel type		Field Gas
Heat Content	(LHV)	4,395 Btu/scf
	(HHV)	4,756 Btu/scf

Optional Engine Data	
No. of Cylinders	8
Compression Ratio	10.25 : 1

Emission Factors (EF)

Pollutant	Unit	Pre-control	Claimed Control Efficiency	Post-control	Source of EF Data	Meets NSPS JJJJ?	Meets NRSP BACT (Table 6)?
NOx	g/hp-hr	11.78	96%	0.50	Vendor Spec Sheet	Yes	N/A
CO	g/hp-hr	11.78	83%	2.00	NSPS JJJJ Limit	Yes	N/A
VOC	g/hp-hr	0.22	N/A	0.70	NSPS JJJJ Limit	Yes	N/A
HCHO	g/hp-hr	0.04	0%	0.040	Vendor Spec Sheet	N/A	N/A

Does **VOC** EF include formaldehyde (HCHO)?	No
Does **VOC** EF include acetaldehyde/acrolein (aldehydes)?	No

Emission Calculations:

Pollutants	Emission Factor (EF)	Units	Source of Emission Factor	Engine Emissions	
				lb/hr	tpy
VOC (w/o Aldehydes)	0.7	g/hp-hr	NSPS JJJJ Limit	**0.62**	**2.70**
VOC (with Aldehydes)	---	---	See Note [1]	**0.67**	**2.93**
NO_x	0.5	g/hp-hr	Vendor Spec Sheet	**0.44**	**1.93**
CO	2	g/hp-hr	NSPS JJJJ Limit	**1.76**	**7.72**
PM (condensable)	0.00991	lb/MMBtu	AP-42, Table 3.2-3	**0.03**	**0.13**
PM_{10} (filterable)	0.0095	lb/MMBtu	AP-42, Table 3.2-3	**0.03**	**0.12**
$PM_{2.5}$ (filterable)	0.0095	lb/MMBtu	AP-42, Table 3.2-3	**0.03**	**0.12**
$PM_{TOTAL/10/2.5}$	0.01941	lb/MMBtu	AP-42, Table 3.2-3	**0.06**	**0.25**
SO_2	0.000588	lb/MMBtu	AP-42, Table 3.2-3	**1.75E-03**	**0.01**
TOTAL HAP	--	--	See Speciated HAP	**0.07**	**0.31**

[1] Formaldehyde, acetaldehyde, and acrolein emissions have been added to the VOC without aldehydes emissions to yield total VOC.

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Section 3.1
Compressor Engine Emissions

Emission Calculations - Speciated HAP:

Pollutants	Emission Factor (EF)	Units	Source of Emission Factor	Engine Emissions	
				lb/hr	tpy
1,1,2,2-Tetrachloroethane	0.0000253	lb/MMBtu	AP-42, Table 3.2-3	**7.52E-05**	**3.29E-04**
1,1,2-Trichloroethane	0.0000153	lb/MMBtu	AP-42, Table 3.2-3	**4.55E-05**	**1.99E-04**
1,3-Butadiene	0.000663	lb/MMBtu	AP-42, Table 3.2-3	**1.97E-03**	**0.01**
1,3-Dichloropropene	0.0000127	lb/MMBtu	AP-42, Table 3.2-3	**3.77E-05**	**1.65E-04**
Acetaldehyde	0.00279	lb/MMBtu	AP-42, Table 3.2-3	**0.01**	**0.04**
Acrolein	0.00263	lb/MMBtu	AP-42, Table 3.2-3	**0.01**	**0.03**
Benzene	0.00158	lb/MMBtu	AP-42, Table 3.2-3	**4.70E-03**	**0.02**
Carbon Tetrachloride	0.0000177	lb/MMBtu	AP-42, Table 3.2-3	**5.26E-05**	**2.30E-04**
Chlorobenzene	0.0000129	lb/MMBtu	AP-42, Table 3.2-3	**3.83E-05**	**1.68E-04**
Chloroform	0.0000137	lb/MMBtu	AP-42, Table 3.2-3	**4.07E-05**	**1.78E-04**
Ethylbenzene	0.0000248	lb/MMBtu	AP-42, Table 3.2-3	**7.37E-05**	**3.23E-04**
Ethylene Dibromide	0.0000213	lb/MMBtu	AP-42, Table 3.2-3	**6.33E-05**	**2.77E-04**
Formaldehyde (HCHO)	0.04	g/hp-hr	Vendor Spec Sheet	**0.04**	**0.15**
Methanol	0.00306	lb/MMBtu	AP-42, Table 3.2-3	**0.01**	**0.04**
Methylene Chloride	0.0000412	lb/MMBtu	AP-42, Table 3.2-3	**1.22E-04**	**5.36E-04**
Naphthalene	0.0000971	lb/MMBtu	AP-42, Table 3.2-3	**2.89E-04**	**1.26E-03**
PAH	0.000141	lb/MMBtu	AP-42, Table 3.2-3	**4.19E-04**	**1.84E-03**
Styrene	0.0000119	lb/MMBtu	AP-42, Table 3.2-3	**3.54E-05**	**1.55E-04**
Toluene	0.000558	lb/MMBtu	AP-42, Table 3.2-3	**1.66E-03**	**0.01**
Vinyl Chloride	0.0000072	lb/MMBtu	AP-42, Table 3.2-3	**2.13E-05**	**9.35E-05**
Xylenes	0.000195	lb/MMBtu	AP-42, Table 3.2-3	**5.80E-04**	**2.54E-03**

Equations used:

A. Pollutant Emissions, lb/hr = (Pollutant EF, g/hp-hr) x (Engine Horsepower, hp) / (453.5924 g/lb)
B. Pollutant Emissions, lb/hr = (Pollutant EF, lb/MMBtu) x (Engine Horsepower, hp) x (Fuel Consumption, Btu/hp-hr)
C. Pollutant Emissions, tpy = (Pollutant Emissions, lb/hr) x (Annual Operation, hr/yr) / (2,000 lb/ton)

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Section 3.2

Miscellaneous MSS Activities

EPN(s): MSS
FIN(s): MISC
Source Name: **Miscellaneous MSS Activities**

Total Emissions:

Pollutant	lb/hr	tpy
VOC	0.06	0.25

Calculation Basis:

The planned MSS activities and associated calculations represented here are taken from the TCEQ oil and gas emissions spreadsheet (revised 10/2/2014). These default values conservatively estimate emissions from typical planned MSS activities that may occur at the site. Emissions from miscellaneous activities (as outlined in 30 TAC 106.359(b)) are intended to represent potential emissions from miscellaneous activities and should not be interpreted as an authorization claim under 30 TAC §106.359 unless explicitly stated in this document.

Additionally, not all activities represented below occur at this site, and MSS activities not specifically represented here may occur; however, the emission limits of the permit will not be exceeded. The basis of the example emission calculation (such as volume, concentration, pressure) are example conditions and should not be interpreted as representations of a specific facility or activity condition under 30 TAC §116.116(a). Individual activities in this MSS category which are performed may have slight variations in procedure or equipment configuration.

MSS Descriptions and Input Parameters

MSS Activity	§106.359 Paragraph	MSS Activity Description - Emissions asscociated with:	Input Parameters	
Engine Oil changes / Filter Changes	(b)(1)	Engine oil/filter change occur during the draining of the used engine oil into oil pan.	Number of Engine/Turbines	1
			Annual Activities	10
Engine Rod Packing Changes	(b)(1), (b)(4)	Changing of the rod would be from clingage of lubricant in the casing.	Annual Activities	10
Engine Wet / Dry Seal Changes	(b)(3)	Changing seals would be from clingage of lubricant in the casing.	Annual Activities	2
Glycol dehydration unit	(b)(2)	Replacement of glycol solution used in dehydration unit (contactor and regenerator).	No. of Dehy units	1
			Annual Activities	1
Heater Treater	(b)(2)	Repair, adjustment, calibration, lubrication, and cleaning of heater treaters.	No. of Heaters	1
			Activities/year	1
Aerosol Lubricants	(b)(2)	Lubrication of site process equipment.	16oz cans used/yr	100
Piping Components	(b)(3)	Replacement of piping components (based on 100 ft pipe length).	No. of pipes	10
			Activities/year	1
Calibration	(b)(2)	Calibration of site process equipment.	No. of cylinders	1

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Section 3.2

Miscellaneous MSS Activities

Emission Calculations:

MSS Activity	Default Parameters			Equation Used	Calculated Value	Emissions tpy
Engine Oil Changes/ Filter Changes *(b)(1)*	Temperature, **T**	212	˚F	Loading Loss, L_L	0.00928 lb/Mgal 0.0010 lb/activity	0.01
	Vapor Pressure, P_V	0.001	psia			
	Saturation Factor, **S**	1.00	dimensionless			
	Molecular Weight, M_W	500	lb/lb-mol			
	Motor Oil Usage	112	gal/activity			
	wind speed, **U**	3.52	m/s			
	Vapor Pressure, P_V	10.0	Pa	Evaporation Loss, L_E	1.0272 lb/activity	
	Surface Area, A_P	1.48	m^2			
	Evaporation time, **t**	10	hours			
	Safety Factor-large HP	2		**Total**	**20.565 lb/yr/engine**	
Engine Rod Packing Changes *(b)(1) & (b)(4)*	Temperature, **T**	104	˚F	Clingage Loss, **LSL max**	0.0001 lb/activity	5.84E-07
	Vapor Pressure, P_V	0.001	psia			
	Saturation Factor, **S**	0.60	dimensionless			
	Molecular Weight, M_W	500	lb/lb-mol			
	Ideal Gas Constant, **R**	10.73159	psia ft^3/lb-mol °R			
	Casing Volume, V_V	2.355		**Total**	**0.001 lb/yr/engine**	
Engine Wet / Dry Seal Changes *(b)(3)*	Temperature, **T**	104	˚F	Clingage Loss, **LSL max**	0.0001 lb/activity	1.17E-07
	Vapor Pressure, P_V	0.001	psia			
	Saturation Factor, **S**	0.60	dimensionless			
	Molecular Weight, M_W	500	lb/lb-mol			
	Ideal Gas Constant, **R**	10.73159	psia ft^3/lb-mol °R			
	Casing Volume, V_V	2.355	ft^3	**Total**	**0.0002 lb/yr/engine**	
Glycol Dehydration Unit *(b)(2)*	Temperature, **T**	68	˚F	Loading Loss, L_L	0.00147 lb/Mgal 0.0059 lb/activity	1.07E-05
	Vapor Pressure, P_V	0.001	psia			
	Saturation Factor, **S**	1.00	dimensionless			
	Glycol solution	4,000	gal/activity			
	Vessel Volume, V_V	2,355	ft^3	Clingage Loss, **LSL max**	0.0155 lb/activity	
	Ideal Gas Constant, **R**	10.73159	psia ft^3/lb-mol °R			
	Molecular Weight, M_W	62.07	lb/lb-mol	**Total**	**0.021 lb/yr/unit**	
Heater Treater *(b)(2)*	Temperature, **T**	100	˚F	Clingage Loss, **LSL max**	8.6952 lb/activity	4.35E-03
	Vapor Pressure, P_V	10.5	psia			
	Molecular Weight, M_W	66	lb/lb-mol			
	Ideal Gas Constant, **R**	10.73159	psia ft^3/lb-mol °R	**Total**	**8.70 lb/yr/unit**	
	Vessel Volume, V_V	125.6	ft^3			

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Section 3.2

Miscellaneous MSS Activities

Emission Calculations:

MSS Activity	Default Parameters		Equation Used	Calculated Value	Emissions tpy
Aerosol Lubricants *(b)(2)*	WD-40 Aerosol Lubricant *based on 16oz can*	45-50 wt% VOC volatilizes	Emissions	0.5 lb/can	0.03
Piping Components *(b)(3)*	Temperature, **T**	100 °F	Clingage Loss, **LSL $_{max}$**	5.4345 lb/activity	0.03
	Vapor Pressure, **P_V**	10.5 psia			
	Saturation Factor, **S**	0.60 dimensionless			
	Molecular Weight, **M_W**	66 lb/lb-mol			
	Ideal Gas Constant, **R**	10.73159 psia ft^3/lb-mol °R	**Total**	**5.43 lb/yr/unit**	
	Vessel Volume, **V_V**	78.5 ft^3			
Calibration *(b)(2)*	Pounds of pentane in one cylinder of calibration gas	Assumed typical cylinder of calibration gas (pentane) contains 100 lb	**Total**	100 lb pentane/ cylinder	0.05
Miscellaneous *(b)(6)*	Safety factor to account for MSS activities with the same character and quantity of emissions as those listed in paragraphs (b) (1) - (5) of §106.359.				214.02%

Emission Rates

Pollutant	Pollutant Wt.% [1]	lb/hr	tpy
VOC	100.00%	0.06	0.25

[1] The gas composition is conservatively based on 100% VOC.

Equations used:

A. Loading Loss Emission Rate, **L_L**, lb/Mgal
AP-42, Chapter 5.2, Equation 1

$$L_L = 12.46 \times \frac{S\ P_V\ M_V}{T_B}$$

B. Ideal Gas Law: n = PV/RT

$$\text{Total Emissions} = \frac{P_V\ V_V}{R\ T} \times M_W \times \text{Concentration (Wt\%)}$$

C. Evaporative Loss Equation, **L_E**
Reference:Ajay Kumar, N.S. Vatcha, and John Schmelzle, "Estimate Emissions from Atmospheric Releases of Hazardous Substances," Environmental Engineering World, November-December 1996.

$$L_E = 4.14 \times 10^{-5} \times U0.78 \times P_V \times M_W 0.67 \times Ap\ 0.94 \times t$$

D. Clingage Loss Equation, **LSL $_{max}$**
AP-42, Ch. 7, Equation 3-14
(Constrained by an upper limit = filling loss for IFR w/liquid heel)

$$LSL_{max} = 0.60 \times \frac{P_V\ V_V}{R\ T} \times M_W$$

where:

S = Saturation Factor - AP-42, Table 5.2-1
P_V = True Vapor Pressure (psia)
M_W = Molecular weight (lb/lb-mol)
T = Standard Temperature (°R)
Ap = liquid surface area (m^2)
t = time (hrs)
V_V = Vessel Volume (ft^3)

SECTION 4

Impacts Analysis

Section 4.1
Impacts Evaluation

In accordance with 30 TAC §101.21 and §112.32, authorized emission sources must be able to demonstrate compliance with the applicable NAAQS and State Property Line Standards.

The site operates a gas-fired engine; therefore, a NAAQS evaluation for NO_2 is included with this application. However, impacts evaluations for SO_2 and H_2S were not conducted as the concentrations are not expected to exceed any applicable standard.

The modeled impacts are based on the input parameters listed in Section 4.2. Impacts evaluations for SO_2 and H_2S can be provided upon request.

Section 4.2

Impacts Evaluation Parameters

Impacts Parameters by Source:

FIN	EPN	Emission Source	Distance to		Stack Parameters	Unit Impact Multiplier, G (µg/m³/lb/hr)	
			Property Line ft	Receptor ft	Stack Height ft	Source [1]	@ Property Line
30-25-ICE	30-25-ICE	CAT CG137-8 Compressor Engine (400 hp)	≥ 100	≥ 500	15	Engine 250< HP ≤500 (Table #5B)	**43.1014**
DEHY1	DEHY1	Glycol Reboiler	≥ 100	≥ 500	--	Process Vessel (Table #2)	**469.00**

Notes:

[1] Unit Impact Multipliers (G) are interpolated from TCEQ's Generic Modeling Results Tables or are from SCREEN3 modeling runs. SCREEN3 models are set up per the Generic Modeling Approach, where a generic impact is determined for each source by modeling each source with a unit emission rate of 1 pound per hour.

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Section 4.3

NO_2 NAAQS Compliance Demonstration

Basis: This section demonstrates compliance with the NO_2 National Ambient Air Quality Standard (NAAQS) emission limitations in accordance with 30 TAC §101.21 and §112.32.

Method Used for Site Wide Impacts Evaluation	Predicted Impact	
County	Wharton	
TCEQ Region	Region 12, Houston	
1-hr Background NO_2 Concentration	70	µg/m³
Annual Background NO_2 Concentration	20	µg/m³
Short-term NO_2 NAAQS, **P**	188	µg/m³
Long-term NO_2 NAAQS, **P**	100	µg/m³

Site-Wide Impacts Evaluation:

FIN	EPN	Emission Source	Unit Impact Multiplier, G @ Property Line µg/m³/lb/hr	NOx Emissions		NO_2:NO_x Ratio	NO_2 Emissions		Predicted Concentration	
				Hourly lb/hr	Annual tpy		Hourly lb/hr	Annual tpy	Hourly µg/m³	Annual µg/m³
30-25-ICE	30-25-ICE	CAT CG137-8 Compressor Engine (400 hp)	43.1014362	0.44	1.93	0.40	0.18	0.77	7.60	0.61
DEHY1	DEHY1	Glycol Reboiler	469.00	0.09	0.40	0.80	0.07	0.32	33.77	2.74
TOTALS				**0.53**	**2.33**		**0.25**	**1.09**	**41.37**	**3.35**

Compliance Demonstration	Hourly	Annual
Predicted Site Wide NO_2 Concentration	41.37 µg/m³	3.35 µg/m³
Background NO_2 Concentration	70.00 µg/m³	20.00 µg/m³
Total NO_2 Concentration	111.37 µg/m³	23.35 µg/m³
NO_2 NAAQS (**P**)	188.00 µg/m³	100.00 µg/m³
Compliance Demonstrated? (Concentration ≤NAAQS)	**Yes**	**Yes**

Section 4.3

NO_2 NAAQS Compliance Demonstration

Notes:

[1] Unit Impact Multipliers (G) are from SCREEN3 modeling runs, or are interpolated from the TCEQ's Generic Modeling Results Tables. Annual Impacts are calculated by multiplying G by 0.08, per the TCEQ guidance document "Modeling and Effects Review Applicability (MERA)", APDG 5874v5, Revised 03/18.

[2] The NO_X to NO_2 conversion factor is determined in accordance with 30 TAC §106.512(6)(A) Figure 1, which is based the NOx emission rate (g/hp-hr) and device type.

[3] Variables used in above Impacts Table:

P: applicable standard - lesser of NAAQS, 30 TAC 112 limit, and ESL (as applicable) ($\mu g/m^3$)
G: applicable generic value ($\mu g/m^3/lb/hr$) from the Generic Modeling Results Tables paragraph (m) OR SCREEN3 modeling runs

[4] Background concentration from TCEQ's Interim 1-Hour NO_2 Screening Background Concentrations, located at: http://www.tceq.texas.gov/assets/public/permitting/air/memos/interim_1hr_screen.pdf

[5] Background concentration from TNRCC's Interoffice Memorandum "Modeling Guidance for Exemption 106.512 (Formerly SE 6)", Screening Background Concentrations, August 3, 1998, located at: https://www.tceq.texas.gov/assets/public/permitting/air/memos/106512.pdf

Equations used:

A. NO_2 Emissions, lb/hr or tpy = (NOx Emissions, lb/hr or tpy) x (Source NO_2:NOx Ratio)

B. Predicted Hourly Concentration, $\mu g/m^3$ = (PTE Emissions from Source, lb/hr) x (G, $\mu g/m^3/lb/hr$)

C. Predicted Annual Concentration, $\mu g/m^3$ = (PTE Emissions from Source, tpy) x (2,000 lb/ton) x (G, $\mu g/m^3/lb/hr$) x 0.08 / (Annual Operation, hr/yr)

SECTION 5

State and Federal Rule Applicability

South Bonus Field
Hilcorp Energy Company
TCEQ Permit by Rule Certified Registration (Revision)
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Section 5.1

PBR §106.4 - Requirements for Permitting by Rule

Requirement	Company Response
(a) *To qualify for a permit by rule, the following general requirements must be met.*	All of the following requirements will be met.
(1) *Total actual emissions authorized under permit by rule from the facility shall not exceed the following limits, as applicable:* **(A)** *250 tons per year (tpy) of carbon monoxide (CO) or nitrogen oxides (NO_X);* **(B)** *25 tpy of volatile organic compounds (VOC), sulfur dioxide (SO_2), or inhalable particulate matter (PM);* **(C)** *15 tpy of particulate matter with diameters of 10 microns or less (PM_{10});* **(D)** *10 tpy of particulate matter with diameters of 2.5* **(E)** *25 tpy of any other air contaminant except:* **(i)** *water, nitrogen, ethane, hydrogen, and oxygen; and* **(ii)** *notwithstanding any provision in any specific permit by rule to the contrary, greenhouse gases as defined in §101.1 of this title (relating to Definitions).*	All emission rates for each facility to be authorized under Permit by Rule (PBR) are within the specified limits. Please see the Emissions Summary section for details.
(2) *Any facility or group of facilities, which constitutes a new major stationary source, as defined in §116.12 of this title (relating to Nonattainment and Prevention of Significant Deterioration Review Definitions), or any modification which constitutes a major modification, as defined in §116.12 of this title, under the new source review requirements of the Federal Clean Air Act (FCAA), Part D (Nonattainment) as amended by the FCAA Amendments of 1990, and regulations promulgated thereunder, must meet the permitting requirements of Chapter 116, Subchapter B of this title (relating to New Source Review Permits) and cannot qualify for a permit by rule under this chapter. Persons claiming a permit by rule under this chapter should see the requirements of §116.150 of this title (relating to New Major Source or Major Modification in Ozone Nonattainment Areas) to ensure that any applicable netting requirements have been satisfied.*	According to 30 TAC §116.12(19), a major source for nonattainment pollutants is a source located in a nonattainment area that emits or has the potential to emit at rates equal to or greater than the major source emission rates listed in Table I of §116.12(20)(A). For existing major sources, a project would be considered a major modification if project emission increases were equal to or greater than the significance levels listed in Table I of §116.12(20)(A). This site is not located in a nonattainment area. Therefore, nonattainment review is not triggered.

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PBR §106.4 - Requirements for Permitting by Rule

Requirement	Company Response
(2) *Any facility or group of facilities, which constitutes a new major stationary source, as defined in §116.12 of this title (relating to Nonattainment and Prevention of Significant Deterioration Review Definitions), or any modification which constitutes a major modification, as defined in §116.12 of this title, under the new source review requirements of the Federal Clean Air Act (FCAA), Part D (Nonattainment) as amended by the FCAA Amendments of 1990, and regulations promulgated thereunder, must meet the permitting requirements of Chapter 116, Subchapter B of this title (relating to New Source Review Permits) and cannot qualify for a permit by rule under this chapter. Persons claiming a permit by rule under this chapter should see the requirements of §116.150 of this title (relating to New Major Source or Major Modification in Ozone Nonattainment Areas) to ensure that any applicable netting requirements have been satisfied.*	According to 30 TAC §116.12(19), a major source for prevention of significant deterioration (PSD) pollutants is a source that emits, or has the potential to emit at rates equal to or greater than those listed in 40 CFR §51.166(b)(1). According to 30 TAC §116.12(20)(A), for existing major sources, a project would be considered a major modification if emissions were equal to or greater than the significance levels listed in 40 CFR §51.166(b)(23). This site is an existing minor source. Project emission increases do not exceed the major source thresholds listed in 40 CFR §51.166(b)(1). Therefore, this project does not trigger PSD review. Because neither nonattainment nor PSD review is triggered, the use of PBRs is not precluded.

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PBR §106.4 - Requirements for Permitting by Rule

Requirement	Company Response
(3) *Any facility or group of facilities, which constitutes a new major stationary source, as defined in 40 Code of Federal Regulations (CFR) §52.21, or any change which constitutes a major modification, as defined in 40 CFR §52.21, under the new source review requirements of the FCAA, Part C (Prevention of Significant Deterioration) as amended by the FCAA Amendments of 1990, and regulations promulgated thereunder because of emissions of air contaminants other than greenhouse gases, must meet the permitting requirements of Chapter 116, Subchapter B of this title and cannot qualify for a permit by rule under this chapter. Notwithstanding any provision in any specific permit by rule to the contrary, a new major stationary source or major modification which is subject to Chapter 116, Subchapter B, Division 6 of this title due solely to emissions of greenhouse gases may use a permit by rule under this chapter for air contaminants that are not greenhouse gases. However, facilities or projects which require a prevention of significant deterioration permit due to emissions of greenhouse gases may not commence construction or operation until the prevention of significant deterioration permit is issued.*	According to 40 CFR §52.21, a new major source under the PSD program is a source that emits, or has the potential to emit at rates equal to or greater than those listed in 40 CFR §52.21(b)(1). According to 40 CFR 52.21(b)(2), a major modification under the PSD program is a project at an existing major source that results in an increase in emissions equal to or greater than the Significance Levels listed in 40 CFR 52.21(b)(23). This site is an existing minor source. Project emission increases do not exceed the major source thresholds listed in 40 CFR §52.21(b)(1). Therefore, this project does not trigger PSD review. Because PSD review is not triggered, the use of PBRs is not precluded.
(4) *Unless at least one facility at an account has been subject to public notification and comment as required in Chapter 116, Subchapter B or Subchapter D of this title (relating to New Source Review Permits or Permit Renewals), total actual emissions from all facilities permitted by rule at an account shall not exceed 250 tpy of CO or NO_X; or 25 tpy of VOC or SO_2 or PM; or 15 tpy of PM_{10}; or 10 tpy of $PM_{2.5}$; or 25 tpy of any other air contaminant except water, nitrogen, ethane, hydrogen, oxygen, and GHGs (as specified in §106.2 of this title (relating to Applicability)).*	This site has not been through public notice; therefore, the combined emission rates from all facilities to be authorized under PBR will be within the specified limits.
(5) *Construction or modification of a facility commenced on or after the effective date of a revision of this section or the effective date of a revision to a specific permit by rule in this chapter must meet the revised requirements to qualify for a permit by rule.*	This site will meet all current requirements of the applicable permits by rule.

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Requirement	Company Response
(6) *A facility shall comply with all applicable provisions of the FCAA, §111 (Federal New Source Performance Standards) and §112 (Hazardous Air Pollutants), and the new source review requirements of the FCAA, Part C and Part D and regulations promulgated thereunder.*	Facilities at this site will comply with applicable federal regulations. See the Federal Regulation Applicability Section for details.
(7) *There are no permits under the same commission account number that contain a condition or conditions precluding the use of a permit by rule under this chapter.*	There are no other permits for this site that restrict the use of a PBR.
(8) *The proposed facility or group of facilities shall obtain allowances for NO_X if they are subject to Chapter 101, Subchapter H, Division 3 of this title (relating to Mass Emissions Cap and Trade Program).*	This site is not in the Houston-Galveston Brazoria ozone nonattainment area; therefore, the Mass Emissions Cap and Trade Program is not applicable.
(b) *No person shall circumvent by artificial limitations the requirements of §116.110 of this title (relating to Applicability).*	The requirements of §116.110, will not be circumvented.
(c) *The emissions from the facility shall comply with all rules and regulations of the commission and with the intent of the Texas Clean Air Act (TCAA), including protection of health and property of the public, and all emissions control equipment shall be maintained in good condition and operated properly during operation of the facility.*	Emissions from this site will comply with all rules, regulations, and intent of the TCAA.
(d) *Facilities permitted by rule under this chapter are not exempted from any permits or registrations required by local air pollution control agencies. Any such requirements must be in accordance with Texas Health and Safety Code, §382.113 and any other applicable law.*	All requirements of any local pollution control agency will be complied with.

Source Note: *The provisions of this §106.4 adopted to be effective November 15, 1996, 21 TexReg 10881; amended to be effective April 7, 1998, 23 TexReg 3502; amended to be effective September 4, 2000, 25 TexReg 8653; amended to be effective March 29, 2001, 26 TexReg 2396; amended to be effective May 15, 2011, 36 TexReg 2852; amended to be effective April 17, 2014, 39 TexReg 2891*

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Section 5.2

PBR §106.6 - Registration of Emissions

Requirement	Company Response
(a) *An owner or operator may certify and register the maximum emission rates from facilities permitted by rule under this chapter in order to establish federally-enforceable allowable emission rates which are below the emission limitations in §106.4 of this title (relating to Requirements for Permitting by Rule).*	This registration is being certified.
(b) *All representations with regard to construction plans, operating procedures, and maximum emission rates in any certified registration under this section become conditions upon which the facility permitted by rule shall be constructed and operated.*	Because the company is certifying this registration, all representations in the permit are also conditions of the permit.
(c) *It shall be unlawful for any person to vary from such representation if the change will cause a change in the method of control of emissions, the character of the emissions, or will result in an increase in the discharge of the various emissions, unless the certified registration is first revised.*	The company understands that it must first revise a certified registration if the method of control, quantity, or character of emissions are changed.
(d) *The certified registration must include documentation of the basis of emission estimates and a written statement by the registrant certifying that the maximum emission rates listed on the registration reflect the reasonably anticipated maximums for operation of the facility.*	Documentation of the basis of the certified emission rates are included in this submittal.
(e) *Certified registrations used to demonstrate that Chapter 122 of this title (relating to Federal Operating Permits) does not apply to a source shall be submitted on the required form to the executive director; to the appropriate commission regional office; and to all local air pollution control agencies having jurisdiction over the site.* **(1)** *Certified registrations established prior to the effective date of this rule shall be submitted on or before February 3, 2003.* **(2)** *Certified registrations established on or after the effective date of this rule shall be submitted no later than the date of operation.*	This registration is being submitted to establish federally enforceable limits.

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PBR §106.6 - Registration of Emissions

Requirement	Company Response
(f) *All certified registrations shall be maintained on-site and be provided immediately upon request by representatives of the commission or any local air pollution control agency having jurisdiction over the site. If however, the site normally operates unattended, certified registrations and records demonstrating compliance with the certified registration must be maintained at an office within Texas having day-to-day operational control of the site. Upon request, the commission shall make any such records of compliance available to the public in a timely manner.*	A copy of this registration will be maintained on-site or at the office having day-to-day operational control of the site.
(g) *Copies of certified registrations shall be included in permit applications subject to review under Chapter 116, Subchapter B of this title (relating to New Source Review Permits).*	If an application for a New Source Review permit is submitted for this site, it will include a copy of this certified registration.

Source Note: *The provisions of this §106.6 adopted to be effective November 15, 1996, 21 TexReg 10881; amended to be effective September 4, 2000, 25 TexReg 8653; amended to be effective December 11, 2002, 27 TexReg 11569*

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Section 5.3

PBR §106.8 - Recordkeeping

Requirement	Company Response
(a) *Owners or operators of facilities and sources that are de minimis as designated in §116.119 of this title (relating to De Minimis Facilities or Sources) are not subject to this section.*	The facilities to be authorized by PBR are not considered *de minimis* sources; therefore, they are subject to this section.
(b) *Owners or operators of facilities operating under a permit by rule (PBR) in Subchapter C of this chapter (relating to Domestic and Comfort Heating and Cooling) or under those PBRs that only name the type of facility and impose no other conditions in the PBR itself do not need to comply with specific recordkeeping requirements of subsection (c) of this section. A list of these PBRs will be available through the commission's Austin central office, regional offices, and the commission's website. Upon request from the commission or any air pollution control program having jurisdiction, claimants must provide information that would demonstrate compliance with §106.4 of this title (relating to Requirements for Permitting by Rule), or the general requirements, if any, in effect at the time of the claim, and the PBR under which the facility is authorized.*	The PBRs used to authorize facilities at this site are not exempt from recordkeeping.
(c) *Owners or operators of all other facilities authorized to be constructed and operate under a PBR must retain records as follows:*	All required records will be kept.
(1) *maintain a copy of each PBR and the applicable general conditions of §106.4 of this title or the general requirements, if any, in effect at the time of the claim under which the facility is operating. The PBR and general requirements claimed should be the version in effect at the time of construction or installation or changes to an existing facility, whichever is most recent. The PBR holder may elect to comply with a more recent version of the applicable PBR and general requirements;*	
(2) *maintain records containing sufficient information to demonstrate compliance with the following:* **(A)** *all applicable general requirements of §106.4 of this title or the general requirements, if any, in effect at the time of the claim; and* **(B)** *all applicable PBR conditions;*	
(3) *keep all required records at the facility site. If however, the facility normally operates unattended, records must be maintained at an office within Texas having day-to-day operational control of the plant site;*	
(4) *make the records available in a reviewable format at the request of personnel from the commission or any air pollution control program having jurisdiction;*	All required records will be kept.

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Section 5.3

PBR §106.8 - Recordkeeping

Requirement	Company Response
(5) *beginning April 1, 2002, keep records to support a compliance demonstration for any consecutive 12-month period. Unless specifically required by a PBR, records regarding the quantity of air contaminants emitted by a facility to demonstrate compliance with §106.4 of this title prior to April 1, 2002 are not required under this section; and*	
(6) *for facilities located at sites designated as major in accordance with §122.10(13) of this title (relating to General Definitions) or subject to or potentially subject to any applicable federal requirement, retain all records demonstrating compliance for at least five years. For facilities located at all other sites, all records demonstrating compliance must be retained for at least two years. These record retention requirements supercede any retention conditions of an individual PBR.*	

Source Note: *The provisions of this §106.8 adopted to be effective November 1, 2001, 26 TexReg 8518*

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Section 5.4

PBR §106.352 - Oil and Gas Handling and Production Facilities

Requirement	Company Response
(a) - (k)	This project is being authorized under subsection (l). Therefore, subsections (a) through (k) do not apply.
(l) The requirements in this subsection are applicable to new and modified facilities except those specified in subsection (a)(1) of this section. Any oil or gas production facility, CO2 separation facility, or oil or gas pipeline facility consisting of one or more tanks, separators, dehydration units, free water knockouts, gunbarrels, heater treaters, natural gas liquids recovery units, or gas sweetening and other gas conditioning facilities, including sulfur recovery units at facilities conditioning produced gas containing less than two long tons per day of sulfur compounds as sulfur are permitted by rule, provided that the following conditions of this subsection are met. This subsection applies only to those facilities named which handle gases and liquids associated with the production, conditioning, processing, and pipeline transfer of fluids found in geologic formations beneath the earth's surface.	This site is not located in one of the Barnett-Shale counties, and meets all other specified requirements. Therefore, this subsection is applicable and all requirements below will be met.
(1) Compressors and flares shall meet the requirements of §106.492 and §106.512 of this title (relating to Flares; and Stationary Engines and Turbines, respectively). Oil and gas facilities which are authorized under historical standard exemptions and remain unchanged maintain that authorization and the remainder of this subsection does not apply.	All engines and turbines will meet the applicable requirements of §106.512. There are no flares at this 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 subsection shall not exceed 25 tpy each of SO_2, all other sulfur compounds combined, or all VOCs combined; and 250 tpy each of NO_X and CO. 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.	Total emissions authorized under this PBR will not exceed the specified emission limits.
(3) Any facility handling sour gas shall be located at least one-quarter 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.	Not applicable. This site does not handle sour gas.

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PBR §106.352 - Oil and Gas Handling and Production Facilities

Requirement	Company Response
(4) Total emissions of sulfur compounds, excluding sulfur oxides, from all vents shall not exceed 4.0 pounds per hour (lb/hr) and the height of each vent emitting sulfur compounds shall meet the following requirements, except in no case shall the height be less than 20 feet, where the total emission rate as H_2S, lb/hr, and minimum vent height (feet), and other values may be interpolated: *(A) 0.27 lb/hr at 20 feet;* *(B) 0.60 lb/hr at 30 feet;* *(C) 1.94 lb/hr at 50 feet;* *(D) 3.00 lb/hr at 60 feet; and* *(E) 4.00 lb/hr at 68 feet.*	Total emissions of sulfur, excluding sulfur oxides will not exceed 4 lb/hr. All vents emitting sulfur compounds and authorized under this PBR will meet the specified vent height requirements.
(5) Before operation begins, facilities handling sour gas shall be registered with the executive director in Austin using Form PI-7 along with supporting documentation that all requirements of this subsection will be met. For facilities constructed under §106.353 of this title (relating to Temporary Oil and Gas Facilities), the registration is required before operation under this subsection can begin. If the facilities cannot meet this subsection, a permit under Chapter 116 of this title (relating to Control of Air Pollution by Permits for New Construction or Modification) is required prior to continuing operation of the facilities.	This site handles sweet gas; therefore, the site is not subject to this requirement.

Source Note: *The provisions of this §106.352 adopted to be effective February 27, 2011, 36 TexReg 943; amended to be effective February 2, 2012, 37 TexReg 333; amended to be effective November 22, 2012, 37 TexReg 9100*

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Section 5.5

PBR §106.359 - Planned MSS at Oil and Gas Handling and Production Facilities

Requirement	Company Response
(a) Applicability. This section applies to certain authorized oil and gas handling or production facilities or sites, and authorizes emissions from planned maintenance, startup, and shutdown (MSS) facilities and activities, and any associated emission capture and control facilities, if all of the applicable requirements of this section are met. *(1) This section does not apply to oil and gas handling or production facilities or sites authorized under §106.352(a) - (k) of this title (relating to Oil and Gas Handling and Production Facilities), subsections (a) - (k) of the non-rule Air Quality Standard Permit for Oil and Gas Handling and Production Facilities, §106.355 of this title (relating to Pipeline Metering, Purging, and Maintenance), or Subchapter U of this chapter (relating to Tanks, Storage, and Loading).* *(2) This section may not be used to supersede an existing authorization for planned MSS under this chapter or §116.620 of this title (relating to Installation and/or Modification of Oil and Gas Facilities) unless any previously represented emission control methods, techniques, and devices remain in use and there is no resulting increase in hourly emissions.*	This site is not authorized under the Barnett Shale PBR [§106.352(a)-(k)], the Barnett Shale Non-Rule Standard Permit, or §106.355. In addition, this PBR is not being used to supersede an existing authorization under the Oil & Gas Standard Permit [§116.620]. Therefore, MSS emissions may be authorized under this PBR.
(b) Activities. Planned MSS activities and facilities authorized by this section include the following: *(1) engine, compressor, turbine, and other combustion facilities maintenance;* *(2) repair, adjustment, calibration, lubrication, and cleaning of site process equipment;* *(3) replacement of piping components, pneumatic controllers, boiler refractories, wet and dry seals, meters, instruments, analyzers, screens, and filters;* *(4) turbine or engine component swaps;* *(5) piping used to bypass a facility during maintenance;* *(6) planned MSS activities with the same character and quantity of emissions as those listed in paragraphs (1) - (5) of this subsection;* *(7) pigging and purging of piping;* *(8) blowdowns;*	Only activities listed in this subsection are being authorized by this PBR.

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Section 5.5

PBR §106.359 - Planned MSS at Oil and Gas Handling and Production Facilities

Requirement	Company Response
(b) Activities. (continued): *(9) emptying, purging, degassing, or refilling of process equipment, storage tanks and vessels (except landing floating roof tanks for convenience purposes), if subparagraphs (A) - (C) of this paragraph are met.* *(A) all contents from process equipment or tanks must be removed to the maximum extent practicable prior to opening facilities to commence degassing and maintenance.* *(B) facilities must be degassed using best management practices to ensure air contaminants are removed from the system to the extent allowed by facility design.* *(C) tanks may be emptied or degassed by forced ventilation if:* *(i) only one vacuum truck is in use at any time;* *(ii) emissions are directed out the top of the tank; or* *(iii) emissions are routed through a closed system to a control device.* *(10) abrasive blasting, surface preparation, and surface coating of facilities and structures used at the site in oil and gas handling and production.*	Only activities listed in this subsection are being authorized by this PBR.
(c) Best Management Practices. *(1) All facilities with the potential to emit air contaminants must be maintained in good condition and operated properly.* *(2) Each permit holder shall establish, implement, and update, as appropriate, a program to maintain and repair facilities as required by paragraph (1) of this subsection. The minimum requirements of this program must include:* *(A) a maintenance program developed by the permit holder for all facilities that is consistent with good air pollution control practices, or alternatively, manufacturer's specifications and recommended programs applicable to facility performance and the effect on emissions;* *(B) cleaning and routine inspection of all facilities;* *(C) repair of facilities on timeframes that minimize failures and maintain performance;* *(D) training of personnel who implement the maintenance program; and* *(E) records of conducted planned MSS activities.*	All facilities authorized by the PBR will be maintained in good condition and operated properly. A maintenance program will be developed that is consistent with good pollution control practices and manufacturer's specifications & recommendations, which will cover the cleaning and routine inspection of all facilities, will ensure that any repairs are completed in a timely manner, and will ensure that all personnel are appropriately trained. Records of all MSS activities will be maintained.

Source Note: *The provisions of this §106.359 adopted to be effective September 10, 2013, 38 TexReg 5271*

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Section 5.6

PBR §106.512 Stationary Engines and Turbines

Requirement	Company Response
Gas or liquid fuel-fired stationary internal combustion reciprocating engines or gas turbines that operate in compliance with the following conditions of this section are permitted by rule.	All natural gas-fired engines at this site will meet the following requirements.
(1) *The facility shall be registered by submitting the commission's Form PI-7, Table 29 for each proposed reciprocating engine, and Table 31 for each proposed gas turbine to the commission's Office of Permitting, Remediation, and Registration in Austin within ten days after construction begins. Engines and turbines rated <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. Engine hp rating shall be based on the engine manufacturer's maximum continuous load rating at the lesser of the engine or driven equipment's maximum published continuous speed. A rich-burn engine is a gas-fired spark-ignited engine that is operated with an exhaust oxygen content less than 4.0% by volume. A lean-burn engine is a gas-fired spark-ignited engine that is operated with an exhaust oxygen content of 4.0% by volume, or greater.*	A Table 29 is included in this registration application for each engine over 240 hp.
(2) *For any engine rated 500 hp or greater, subparagraphs (A) - (C) of this paragraph shall apply.*	Not applicable. The engine(s) are < 500-hp.
(A) *The emissions of nitrogen oxides (NOx) shall not exceed the following limits:* **(i)** *2.0 grams per horsepower-hour (g/hp-hr) under all operating conditions for any gas-fired rich-burn engine;* **(ii)** *2.0 g/hp-hr at manufacturer's rated full load and speed, and other operating conditions, except 5.0 g/hp-hr under reduced speed, 80-100% of full torque conditions, for any spark-ignited, gas-fired lean-burn engine, or any compression-ignited dual fuel-fired engine manufactured new after 6/18/1992;* **(iii)** *5.0 g/hp-hr under all operating conditions for any spark-ignited, gas-fired, lean-burn two-cycle or four-cycle engine or any compression-ignited dual fuel-fired engine rated 825 hp or greater and manufactured after 9/23/1982, but prior to 6/18/1992;* **(iv)** *5.0 g/hp-hr at manufacturer's rated full load and speed and other operating conditions, except 8.0 g/hp-hr under reduced speed, 80-100% of full torque conditions for any spark-ignited, gas-fired, lean-burn four-cycle engine, or any compression-ignited dual fuel-fired engine that:* **(I)** *was manufactured prior to 6/18/1992, and is rated <825 hp; or* **(II)** *was manufactured prior to 9/23/1982;* **(v)** *8.0 g/hp-hr under all operating conditions for any spark-ignited, gas-fired, two-cycle lean-burn engine that:* **(I)** *was manufactured prior to 6/18/1992, and is rated <825 hp; or* **(II)** *was manufactured prior to 9/23/1982;* **(vi)** *11.0 g/hp-hr for any compression-ignited liquid-fired engine.*	

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PBR §106.512 Stationary Engines and Turbines

Requirement	Company Response
(B) *For such engines which are spark-ignited gas-fired or compression-ignited dual fuel-fired, the engine shall be equipped as necessary with an automatic air-fuel ratio (AFR) controller which maintains AFR in the range required to meet the emission limits of subparagraph (A) of this paragraph. An AFR controller shall be deemed necessary for any engine controlled with a non-selective catalytic reduction (NSCR) converter and for applications where the fuel heating value varies more than ±50 British thermal unit/standard cubic feet from the design lower heating value of the fuel. If an NSCR converter is used to reduce NOx, the automatic controller shall operate on exhaust oxygen control.*	Not applicable. The engine(s) are < 500-hp.
(C) *Records shall be created and maintained by the owner or operator for a period of at least two years, made available, upon request, to the commission and any local air pollution control agency having jurisdiction, and shall include the following:* **(i)** *documentation for each AFR controller, manufacturer's, or supplier's recommended maintenance that has been performed, including replacement of the oxygen sensor as necessary for oxygen sensor-based controllers. The oxygen sensor shall be replaced at least quarterly in the absence of a specific written recommendation;* **(ii)** *documentation on proper operation of the engine by recorded measurements of NOx and carbon monoxide (CO) emissions as soon as practicable, but no later than seven days following each occurrence of engine maintenance which may reasonably be expected to increase emissions, changes of fuel quality in engines without oxygen sensor-based AFR controllers which may reasonably be expected to increase emissions, oxygen sensor replacement, or catalyst cleaning or catalyst replacement. Stain tube indicators specifically designed to measure NOx and CO concentrations shall be acceptable for this documentation, provided a hot air probe or equivalent device is used to prevent error due to high stack temperature, and three sets of concentration measurements are made and averaged. Portable NOx and CO analyzers shall also be acceptable for this documentation;*	Not applicable. The engine(s) are < 500-hp.

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PBR §106.512 Stationary Engines and Turbines

Requirement	Company Response
(iii) *documentation within 60 days following initial engine start-up and biennially thereafter, for emissions of NOx and CO, measured in accordance with US EPA Reference Method 7E or 20 for NOx and Method 10 for CO. Exhaust flow rate may be determined from measured fuel flow rate and EPA Method 19. California Air Resources Board Method A-100 (adopted 6/29/1983) is an acceptable alternate to EPA test methods. Modifications to these methods will be subject to the prior approval of the Source and Mobile Monitoring Division of the commission. Emissions shall be measured and recorded in the as-found operating condition; however, compliance determinations shall not be established during start-up, shutdown, or under breakdown conditions. An owner or operator may submit to the appropriate regional office a report of a valid emissions test performed in Texas, on the same engine, conducted no more than 12 months prior to the most recent start of construction date, in lieu of performing an emissions test within 60 days following engine start-up at the new site. Any such engine shall be sampled no less frequently than biennially (or every 15,000 hours of elapsed run time, as recorded by an elapsed run time meter) and upon request of the executive director. Following the initial compliance test, in lieu of performing stack sampling on a biennial calendar basis, an owner or operator may elect to install and operate an elapsed operating time meter and shall test the engine within 15,000 hours of engine operation after the previous emission test. The owner or operator who elects to test on an operating hour schedule shall submit in writing, to the appropriate regional office, biennially after initial sampling, documentation of the actual recorded hours of engine operation since the previous emission test, and an estimate of the date of the next required sampling.*	Not applicable. The engine(s) are < 500-hp.
(3) *For any gas turbine rated 500 hp or more, subparagraphs (A) and (B) of this paragraph shall apply.*	There are no turbines at this site; therefore this section is not applicable.
(A) *The emissions of NOx shall not exceed 3.0 g/hp-hr for gas-firing.*	
(B) *The turbine shall meet all applicable NO x and sulfur dioxide (SO2) (or fuel sulfur) emissions limitations, monitoring requirements, and reporting requirements of EPA New Source Performance Standards Subpart GG--Standards of Performance for Stationary Gas Turbines. Turbine hp rating shall be based on turbine base load, fuel lower heating value, and International Standards Organization Standard Day Conditions of 59 degrees Fahrenheit, 1.0 atmosphere and 60% relative humidity.*	

South Bonus Field
Hilcorp Energy Company
TCEQ Permit by Rule Certified Registration (Revision)
March 2025

Section 5.6

PBR §106.512 Stationary Engines and Turbines

Requirement	Company Response
(4) *Any engine or turbine rated less than 500 hp or used for temporary replacement purposes shall be exempt from the emission limitations of paragraphs (2) and (3) of this section. 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.*	There are no temporary engines at this site.
(5) *Gas fuel shall 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. If field gas contains more than 1.5 grains hydrogen sulfide or 30 grains total sulfur compounds per 100 standard cubic feet (sour gas), the engine owner or operator shall maintain records, including at least quarterly measurements of fuel hydrogen sulfide and total sulfur content, which demonstrate that the annual SO_2 emissions from the facility do not exceed 25 tons per year (tpy). Liquid fuel shall be petroleum distillate oil that is not a blend containing waste oils or solvents and contains less than 0.3% by weight sulfur.*	All fuel will meet the specified requirements.
(6) *There will be no violations of any National Ambient Air Quality Standard (NAAQS) in the area of the proposed facility. Compliance with this condition shall be demonstrated by one of the following three methods:*	There will be no violations of any NAAQS. Please see below.
(A) *ambient sampling or dispersion modeling accomplished pursuant to guidance obtained from the executive director. Unless otherwise documented by actual test data, the following nitrogen dioxide (NO_2)/NOx ratios shall be used for modeling NO_2 NAAQS;* NOx Emission Rate (Q) Device — g/hp-hr — NO_2/NO_x Ratio *IC Engine — Less than 2.0 — 0.4* *IC Engine — 2.0 thru 10.0 — 0.15 + (0.5/Q)* *IC Engine — Greater than 10.0 — 0.2* *Turbines — 0.25* *IC Engine with catalytic converter — 0.85*	This method was used to demonstrate compliance. Please see the NO_2 analysis in Section 4.

Section 5.6

PBR §106.512 Stationary Engines and Turbines

Requirement	Company Response
(B) *all existing and proposed engine and turbine exhausts are released to the atmosphere at a height at least twice the height of any surrounding obstructions to wind flow. Buildings, open-sided roofs, tanks, separators, heaters, covers, and any other type of structure are considered as obstructions to wind flow if the distance from the nearest point on the obstruction to the nearest exhaust stack is less than five times the lesser of the height, Hb, and the width, Wb, where:* *Hb = maximum height of the obstruction, and* *Wb = projected width of obstruction = SQRT(LW/3.141)* *where:* *L = length of obstruction* *W = width of obstruction*	This method was not used to demonstrate compliance.
(C) *the total emissions of NOx (nitrogen oxide plus NO_2) from all existing and proposed facilities on the property do not exceed the most restrictive of the following:* **(i)** *250 tpy;* **(ii)** *the value (0.3125 D) tpy, where D equals the shortest distance in feet from any existing or proposed stack to the nearest property line.*	This method was not used to demonstrate compliance.
(7) *Upon issuance of a standard permit for electric generating units, registrations under this section for engines or turbines used to generate electricity will no longer be accepted, except for:* **(A)** *engines or turbines used to provide power for the operation of facilities registered under the Air Quality Standard Permit for Concrete Batch Plants;* **(B)** *engines or turbines satisfying the conditions for facilities permitted by rule under Subchapter E of this title (relating to Aggregate and Pavement); or* **(C)** *engines or turbines used exclusively to provide power to electric pumps used for irrigating crops.*	There are no engines or turbines used to generate electricity at this site being authorized under this PBR.

Source Note: *The provisions of this §106.512 adopted to be effective March 14, 1997, 22 TexReg 2439; amended to be effective September 4, 2000, 25 TexReg 8653; amended to be effective June 13, 2001, 26 TexReg 4108*

Section 5.7

State Regulation Applicability

30 TAC		Rule	Applicable (Yes/No)	Company Response
Chapter 101	Subchapter A	General Rules	**Yes**	This site will comply with all applicable general rules of this Subchapter.
	Subchapter F, Division 1	Emission Events	**Yes**	If an unauthorized emission event occurs, all required records will be maintained, and all required reports will be submitted.
	Subchapter H, Division 3	Mass Emissions Cap and Trade Program	No	This site is not located in the HGB ozone nonattainment area.
Chapter 111	Subchapter A, Division 1	Visible Emissions	**Yes**	This site will comply with the applicable opacity limits and test methods specified in this division.
	Subchapter A, Division 5	Emission Limits on Nonagricultural Processes	**Yes**	This site will comply with the applicable PM emission limits specified in this division.
Chapter 112	Subchapter A	Control of Sulphur Dioxide	**Yes**	Emissions of SO_2 will comply with all applicable requirements of this chapter.
	Subchapter B	Control of Hydrogen Sulfide	**Yes**	Emissions of H_2S will comply with all applicable requirements of this chapter.
Chapter 113	Subchapter B	National Emission Standards for Hazardous Air Pollutants (FCAA, §112, 40 CFR Part 61)	No	This site is not subject to 40 CFR 61, Subpart R. Therefore, it is not subject to this subchapter.
	Subchapter D	National Emission Standards for Hazardous Air Pollutants for Source Categories (FCAA, §112, 40 CFR Part 63)	**Yes**	This chapter addresses the control of hazardous air pollutants. The site will comply with all applicable standards of performance for hazardous air pollutants, as described in the Federal Regulation section.

South Bonus Field
Hilcorp Energy Company
TCEQ Permit by Rule Certified Registration (Revision)
March 2025

Section 5.7

State Regulation Applicability

30 TAC		Rule	Applicable (Yes/No)	Company Response
Chapter 115	Subchapter B, Division 1	Storage of Volatile Organic Compounds	No	This site is not located in a county subject to this division of Chapter 115.
	Subchapter B, Division 2	Vent Gas Control	No	This site is not located in a county subject to this division of Chapter 115.
	Subchapter B, Division 7	Oil and Natural Gas Service in Ozone Nonattainment Areas	No	Not applicable. This site is not located in the HGB or DFW ozone nonattainment areas.'
	Subchapter C, Division 1	Loading and Unloading of Volatile Organic Compounds	No	Not applicable. This site is not located in the BPA, DFW, or HGB areas.
Chapter 117	Subchapter B	Combustion Control at Major Industrial, Commercial, and Institutional Sources in Ozone Nonattainment Areas	No	The site is not a major source as defined in §122.10 of this title. Therefore it is not subject to Title V permitting.
	Subchapter D	Combustion Control at Minor Sources in Ozone Nonattainment Areas	No	This site is a minor source. However, it is not located in the HGB or DFW areas. Therefore, this subchapter does not apply.
Chapter 122	Subchapter B	Federal Operating Permits Program - Permit Requirements	No	The site is not a major source as defined in §122.10 of this title. Therefore it is not subject to Title V permitting.

Section 5.8
Federal Regulation Applicability

Title 40 CFR Part 60 – New Source Performance Standards (NSPS)

NSPS Subpart	Rule Title	Applicable (Yes/No)	Company Response
A	General Provisions	**Yes**	This site is subject to a NSPS and is, therefore, subject to the general provisions of this subpart.
Db	Standards of Performance for Industrial-Commercial Institutional Steam Generating Units	No	This site does not operate a steam generating unit as defined in this subpart; therefore, this subpart does not apply.
Dc	Standards of Performance for Small Industrial-Commercial Institutional Steam Generating Units	No	This site does not operate a steam generating unit as defined in this subpart; therefore, this subpart does not apply.
K	Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After June 11, 1973, and Prior to May 19, 1978	No	The storage tanks to be authorized by this project did not commence construction, reconstruction, or modification after June 11, 1973 and prior to May 19, 1978; therefore, this subpart does not apply.
Ka	Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After May 18, 1978 and Prior to July 23, 1984	No	The storage tanks to be authorized by this project did not commence construction, reconstruction, or modification after May 18, 1978 and prior to July 23, 1984; therefore, this subpart does not apply.
Kb	Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984	No	The storage tanks at the site commenced construction after July 23, 1984 and are used to store VOC liquid; however, each tank has a storage capacity less than 75 m^3 (472 bbl). Therefore, this subpart does not apply per §60.110b(a).
KKK	Standards of Performance for Equipment Leaks of VOC From Onshore Natural Gas Processing Plants for Which Construction, Reconstruction, or Modification Commenced After January 20, 1984, and on or Before August 23, 2011	No	This Site does not meet the definition of natural gas processing plant as defined in 40 CFR §60.631; therefore, this subpart does not apply.

South Bonus Field
Hilcorp Energy Company
TCEQ Permit by Rule Certified Registration (Revision)
March 2025

Section 5.8
Federal Regulation Applicability

NSPS Subpart	Rule Title	Applicable (Yes/No)	Company Response
JJJJ	Standards of Performance for Stationary Compression Ignition Internal Combustion Engine.	**Yes**	The engine at this site is subject to this subpart and will comply as applicable.
OOOO	Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution for which Construction, Modification, or Reconstruction Commenced after August 23, 2011, and on or before September 18, 2015	**Yes**	This subpart covers gas wells, compressors, pneumatic controllers, storage vessels, and specified process equipment that are located at an onshore natural gas processing plant. The applicability for affected facilities under this subpart, per §60.5365, is addressed below. Compliance with applicable requirements will be maintained within the required timeframes outlined in this subpart.
		Yes	•*Centrifugal or Reciprocating Compressor:* The on-site reciprocating compressor was constructed after August 23, 2011 and before September 18, 2015; therefore, it is an affected facilities subject to the requirements of this subpart.
OOOOa	Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification, or Reconstruction Commenced after September 18, 2015 and On or Before December 6, 2022	No	This subpart covers oil and gas wells, compressors, pneumatic controllers, pneumatic pumps, storage vessels, and specified process equipment that are located at an onshore natural gas processing plant. All potentially affected facilities at this site were not constructed, modified, or reconstruced after September 18, 2015 and on or before December 6, 2022; therefore, this subpart does not apply.
OOOOb	Standards of Performance for Crude Oil and Natural Gas Facilities for Which Construction, Modification or Reconstruction Commenced After December 6, 2022	No	All potentially affected facilities were constructed, modified, or reconstructed before December 6, 2022; therefore, this subpart does not apply.

Section 5.8
Federal Regulation Applicability

Title 40 CFR Part 61 – National Emission Standards for Hazardous Air Pollutants (NESHAP)

NESHAP Subpart	Rule Title	Applicable (Yes/No)	Company Response
A	General Provisions	No	The facilities authorized by this project are not subject to a NESHAP. Therefore, they are not subject to the general provisions of this subpart.
V	National Emission Standards for Equipment Leaks (Fugitive Emission Sources)	No	The facilities to be authorized by this project will not operate in volatile hazardous air pollutant service, as defined in §61.241 of this subpart; therefore, this subpart does not apply.

Title 40 CFR Part 63 – National Emission Standards for Hazardous Air Pollutants Maximum Achievable Control Technology (MACT)

MACT Subpart	Rule Title	Applicable (Yes/No)	Company Response
A	General Provisions	No	The facilities to be authorized by this project are not subject to a MACT standard; therefore, they are not subject to the general provisions of this subpart.
HH	National Emission Standards for Hazardous Air Pollutants From Oil and Natural Gas Production Facilities	**Yes**	This site is an area source of HAPs and operates a TEG dehydration unit, which is an affected source for area sources of HAPs. The unit is exempt from the requirements of §63.764(d) for area source of HAPs per §63.764(e)(ii) – Actual annual average emissions of benzene from the glycol dehydration process vent to atmosphere are less than 0.9 Mg/yr (1.0 tpy).
ZZZZ	National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines	**Yes**	The engine at the site is a new stationary RICE located at an area source of HAPs and is an affected source. Per §63.6590(c)(1), the engine meets the requirements of this subpart by meeting the requirements of NSPS JJJJ.

SECTION 6

Supporting Documentation

Texas Commission on Environmental Quality
Table 29 Reciprocating Engines

I. Engine Data

Manufacturer:	Model No.	Serial No.	Manufacture Date:
Caterpillar	CG137-8	WWF00249	11/10/2014
Rebuild Date:	**No. of Cylinders:**	**Compression Ratio:**	**EPN:**
	8	10.25:1	30-25-ICE

Application: ☒ Gas Compression ☐ Electric Generation ☐ Refrigeration ☐ Emergency/Stand By

☐ 4 Stroke Cycle ☐ 2 Stroke Cycle ☐ Carbureted ☒ Spark Ignited ☐ Dual Fuel ☐ Fuel Injected

☐ Diesel ☐ Naturally Aspirated ☐ Blower/Pump Scavenged ☐ Turbo Charged and I ☒ Turbo Charged

☐ Intercooled ☐ I.C. Water Temperature ☐ Lean Burn ☒ Rich Burn

Ignition/Injection Timing: Fixed: Variable:

Manufacture Horsepower Rating: 400 Proposed Horsepower Rating: 400

Discharge Parameters

Stack Height (Feet)	Stack Diameter (Feet)	Stack Temperature (°F)	Exit Velocity (FPS)
15.0	0.50	210	45.1

II. Fuel Data

Type of Fuel: ☒ Field Gas ☐ Landfill Gas ☐ LP Gas ☐ Natural Gas ☐ Digester Gas ☐ Diesel

Fuel Consumption (BTU/bhp-hr): 7,431 Heating Value: 4,756 Btu/scf Lower Heating Value: 4,395 Btu/scf

Sulfur Content (grains/100 scf -weight %): Negligible

III. Emission Factors (Before Control)

NO_x		CO		SO_2		VOC		Formaldehyde		PM10
g/hp-hr	ppmv	g/hp-hr	ppmv	g/hp-hr	ppmv	g/hp-hr	ppmv	g/hp-hr	ppmv	g/hp-hr
11.78		11.78		0.00		0.22		0.04		0.07

Source of Emission Factors: ☒ Manufacturer Data ☒ AP-42 ☐ Other (Specify):

IV. Emission Factors (Post Control)

NO_x		CO		SO_2		VOC		Formaldehyde		PM10
g/hp-hr	ppmv	g/hp-hr	ppmv	g/hp-hr	ppmv	g/hp-hr	ppmv	g/hp-hr	ppmv	g/hp-hr
0.50		2.0		0.0		0.70		0.04		0.07

Method of Emission Control: ☒ NSCR Catalyst ☐ Lean Operation ☐ Parameter Adjustment

☐ Stratified Charge ☐ JLCC Catalyst ☐ Other (specify):

Note: Must submit a copy of any manufacturer control information that demonstrates control efficiency.

Is Formaldehyde included in the VOCs? ☐ Yes ☒ No

V. Federal and State Standards (Check all that apply)

☒ NSPS JJJJ ☒ MACT ZZZZ ☐ NSPS IIII ☐ Title 30 Ch. 117 - List County:

VI. Additional Information

1. Submit a copy of the engine manufacturer's site rating or general rating specification data.
2. Submit a typical fuel gas analysis, including sulfur content and heating value. For gaseous fuels, provide mole percent of constituents.
3. Submit description of air/fuel ratio control system (manufacturer information is acceptable).

Metron Gas Measurement
Shreveport,LA Tyler,TX Victoria,TX Midland,TX
Fairfield,TX Oklahoma City,OK Mounds,OK Tulsa,OK
WWW.METRONGAS.COM
888-226-9110

Metron Number:			***Run Date:***
Customer Name:	XTOS610CTX210103		2009-03-31
Station Name:	SOUTH BONUS SALES C/M		
Station Number:	CTX210103	***Sampled by:***	AJ
Producer:		***Procure Date:***	2009-03-05
Field:	610 CTX	***Pressure (lbs.):***	669.0
Co. or Pr.:	WHARTON	***Temperature (°F):***	72.0
State:	TX	***Bottle Number:***	0850
Sampled by:	AJ	***Effective Date:***	2009-05-01
	Good	***Line Pressure:***	

Remarks:

Component	***Mole Percent***	***GPM @ 14.696***	***Ideal BTU @ 14.696***
Methane	85.3718	0.000	862.26
Ethane	6.4192	1.712	113.60
Propane	2.7689	0.761	69.67
I-Butane	0.5589	0.182	18.17
N-Butane	0.7764	0.244	25.33
I-Pentane	0.2092	0.076	8.37
N-Pentane	0.1490	0.054	5.97
Hexane +	0.3570	0.155	18.31
Nitrogen	0.0945	0.000	0.00
Carbon Dioxide	3.2951	0.000	0.00
Hydrogen Sulfide			
Oxygen			
Hellum			
Hydrogen			
TOTAL	**100.0000**	**3.185**	**1121.68**

Ideal Gravity	0.6658	**Real Gravity**	0.6678	
Compressibility Factor (Z) @ 14.696 PSIA & 60 DEG. F =				0.9970
Base Pressures				**14.73**
GPM				3.1922
Ideal BTU Dry				1124.2765
Ideal BTU Sat.				1104.7096
Real BTU Dry				1127.6111
Real BTU Sat.				1108.3290
Ideal BTU as delivered				
Real BTU as delivered				

Note: Water Content

Note: Calibration, Standards, and testing procedures are achieved pursuant to GPA regulations.

We appreciate your business

Case Summary

Company: USA
Quote:
7.7.8.0

Customer: Hilcorp
Inquiry:
Project: Trust

Pkg	Description	Cmpr	Throw 1	Throw 2 CE	Throw 2 HE	Driver
2		JGJ/2	9.750RJ	7.375RJ-CE	3.875RJ-HE	CG137-8

Pkg	Case	Description	Calc BHP	RPM	Ts, F	Ps, psig	Pd, psig	Final-Calc, MMSCFD
2	1		257	1775.0	80.00	25.00	1150.00	1.113
2	2		285	1775.0	80.00	30.00	1150.00	1.281
2	3		308	1775.0	80.00	35.00	1150.00	1.439

Ariel Performance

ARIEL 7.7.8.0

Company: USA
Quote:
Case 1:

Customer: Hilcorp
Inquiry:
Project: Trust

USA COMPRESSION

Compressor Data:

Elevation,ft:	50.00	Barmtr,psia:	14.669	Ambient,F:	110.00	**Driver Data:**	
Frame:	JGJ/2	Stroke, in:	3.50	Rod Dia, in:	1.500	Type:	Nat. Gas
Max RL Tot, lbf:	42000	Max RL Tens, lbf:	21000	Max RL Comp, lbf:	23000	Mfg:	Caterpillar
Rated RPM:	1800	Rated BHP:	620.0	Rated PS FPM:	1050.0	Model:	CG137-8
Calc RPM:	1775.0	BHP:	257	Calc PS FPM:	1035.4	BHP:	378 (4.00%)
						Avail:	353 (25)

Services	**Service 1**		
Gas Model	VMG-APRNGL2		
Stage Data:	**1 (SG)**	**2**	**3**
Target Flow, MMSCFD	1.200	1.200	1.200
Flow Calc, MMSCFD	1.129	1.129	1.115
BHP per Stage	92.7	82.4	76.2
Specific Gravity	0.6500	0.6501	0.6403
Ratio of Sp Ht (N)	1.2468	1.2467	1.2662
Comp Suct (Zs)	0.9925	0.9789	0.9394
Comp Disch (Zd)	0.9892	0.9739	0.9420
Pres Suct Line, psig	25.00	N/A	N/A
Pres Suct Flg, psig	23.81	123.60	411.49
Pres Disch Flg, psig	127.20	418.97	1161.65
Pres Disch Line, psig	N/A	N/A	1150.00
Pres Ratio F/F	3.687	3.136	2.760
Temp Suct, F	80.00	120.00	120.00
Temp Clr Disch, F	120.00	120.00	120.00
Cylinder Data:	**Throw 1**	**Throw 2**	**Throw 2**
Cyl Model	9-3/4RJ	7-3/8RJ-CE	3-7/8RJ-HE
Cyl Bore, in	9.750	7.375	3.875
Cyl RDP (API), psig	577.3	768.2	2000.0
Cyl MAWP, psig	635.0	845.0	2200.0
Cyl Action	DBL	CE	HE
Cyl Disp, CFM	530.5	147.2	42.4
Pres Suct Intl, psig	20.90	115.31	364.28
Temp Suct Intl, F	88	126	125
Pres Disch Intl, psig	139.57	442.87	1265.53
Temp Disch Intl, F	272	292	295
HE Suct Gas Vel, FPM	9025	0	10941
HE Disch Gas Vel, FPM	9327	N/A	9265
HE Spcrs Used/Max	0/2	N/A	0/0
HE Vol Pkt Avail	1.11+51.77	N/A	0.83+47.57
Vol Pkt Used	0.00 (V) %	N/A %	10.00 (V) %
HE Min Clr, %	17.39	N/A	17.39
HE Total Clr, %	18.50	N/A	22.98
CE Suct Gas Vel, FPM	8812	8163	0
CE Disch Gas Vel, FPM	9106	7367	N/A
CE Spcrs Used/Max	0/2	0/2	N/A
CE Min Clr, %	18.25	20.88	N/A
CE Total Clr, %	18.25	20.88	N/A
Suct Vol Eff HE/CE, %	58.0/58.4	N/A/61.8	66.0/N/A
Disch Event HE/CE, ms	4.7/5.4	N/A/6.0	5.8/N/A
Suct Pseudo-Q HE/CE	7.9/7.5	N/A/6.0	6.9/N/A
Gas Rod Ld Comp, %	38.8 C	61.0 C	61.0 C
Gas Rod Ld Tens, %	40.9 T	47.7 T	47.7 T
Gas Rod Ld Total, %	41.7	57.2	57.2
Xhd Pin Deg/%Rvrsl lbf	160/74.6	135/73.6	135/73.6
Flow Calc, MMSCFD	1.129	1.129	1.115
Cyl BHP	92.7	82.4	76.2

Ariel Performance

Company: USA
Quote:
7.7.8.0 Case 2:
Customer: Hilcorp
Inquiry:
Project: Trust

Compressor Data:

Elevation,ft:	50.00	Barmtr,psia:	14.669	Ambient,F:	110.00	**Driver Data:**	
Frame:	JGJ/2	Stroke, in:	3.50	Rod Dia, in:	1.500	Type:	Nat. Gas
Max RL Tot, lbf:	42000	Max RL Tens, lbf:	21000	Max RL Comp, lbf:	23000	Mfg:	Caterpillar
Rated RPM:	1800	Rated BHP:	620.0	Rated PS FPM:	1050.0	Model:	CG137-8
Calc RPM:	1775.0	BHP:	285	Calc PS FPM:	1035.4	BHP:	378 (4.00%)
						Avail:	353 (25)

Services	**Service 1**		
Gas Model	VMG-APRNGL2		
Stage Data:	**1 (SG)**	**2**	**3**
Target Flow, MMSCFD	1.200	1.200	1.200
Flow Calc, MMSCFD	1.299	1.299	1.284
BHP per Stage	104.4	89.7	84.7
Specific Gravity	0.6500	0.6504	0.6406
Ratio of Sp Ht (N)	1.2465	1.2472	1.2665
Comp Suct (Zs)	0.9913	0.9762	0.9356
Comp Disch (Zd)	0.9875	0.9707	0.9374
Pres Suct Line, psig	30.00	N/A	N/A
Pres Suct Flg, psig	28.66	137.24	426.80
Pres Disch Flg, psig	141.14	434.58	1161.65
Pres Disch Line, psig	N/A	N/A	1150.00
Pres Ratio F/F	3.596	2.957	2.665
Temp Suct, F	80.00	120.00	120.00
Temp Clr Disch, F	120.00	120.00	120.00
Cylinder Data:	**Throw 1**	**Throw 2**	**Throw 2**
Cyl Model	9-3/4RJ	7-3/8RJ-CE	3-7/8RJ-HE
Cyl Bore, in	9.750	7.375	3.875
Cyl RDP (API), psig	577.3	768.2	2000.0
Cyl MAWP, psig	635.0	845.0	2200.0
Cyl Action	DBL	CE	HE
Cyl Disp, CFM	530.5	147.2	42.4
Pres Suct Intl, psig	25.38	128.09	377.65
Temp Suct Intl, F	87	126	125
Pres Disch Intl, psig	154.83	459.72	1266.83
Temp Disch Intl, F	268	283	290
HE Suct Gas Vel, FPM	9025	0	10941
HE Disch Gas Vel, FPM	9327	N/A	9265
HE Spcrs Used/Max	0/2	N/A	0/0
HE Vol Pkt Avail	1.11+51.77	N/A	0.83+47.57
Vol Pkt Used	0.00 (V) %	N/A %	0.00 (V) %
HE Min Clr, %	17.39	N/A	17.39
HE Total Clr, %	18.50	N/A	18.22
CE Suct Gas Vel, FPM	8812	8163	0
CE Disch Gas Vel, FPM	9106	7367	N/A
CE Spcrs Used/Max	0/2	0/2	N/A
CE Min Clr, %	18.25	20.88	N/A
CE Total Clr, %	18.25	20.88	N/A
Suct Vol Eff HE/CE, %	59.2/59.6	N/A/64.6	73.1/N/A
Disch Event HE/CE, ms	4.8/5.5	N/A/6.3	6.3/N/A
Suct Pseudo-Q HE/CE	7.9/7.5	N/A/6.0	6.9/N/A
Gas Rod Ld Comp, %	42.3 C	60.6 C	60.6 C
Gas Rod Ld Tens, %	44.6 T	48.2 T	48.2 T
Gas Rod Ld Total, %	45.5	57.3	57.3
Xhd Pin Deg/%Rvrsl lbf	159/76.8	146/75.4	146/75.4
Flow Calc, MMSCFD	1.299	1.299	1.284
Cyl BHP	104.4	89.7	84.7

Ariel Performance

Company: USA
Quote:
7.7.8.0 Case 3:
Customer: Hilcorp
Inquiry:
Project: Trust

USA COMPRESSION

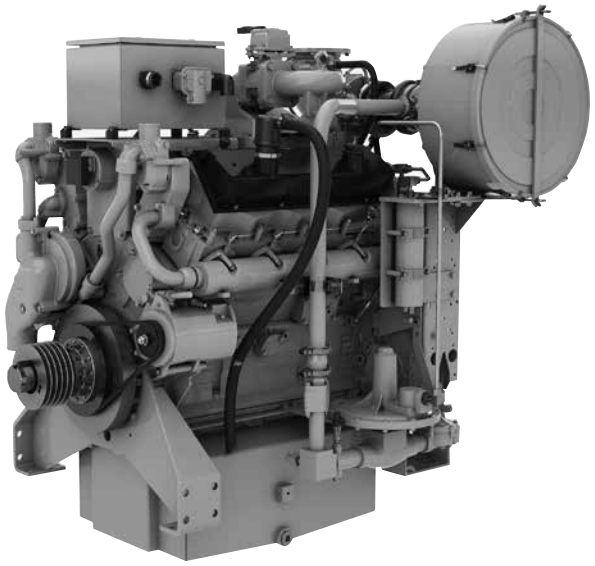
Compressor Data:

Elevation,ft:	50.00	Barmtr,psia:	14.669	Ambient,F:	110.00	**Driver Data:**	
Frame:	JGJ/2	Stroke, in:	3.50	Rod Dia, in:	1.500	Type:	Nat. Gas
Max RL Tot, lbf:	42000	Max RL Tens, lbf:	21000	Max RL Comp, lbf:	23000	Mfg:	Caterpillar
Rated RPM:	1800	Rated BHP:	620.0	Rated PS FPM:	1050.0	Model:	CG137-8
Calc RPM:	1775.0	BHP:	308	Calc PS FPM:	1035.4	BHP:	378 (4.00%)
						Avail:	353 (25)

Services	**Service 1**		
Gas Model	VMG-APRNGL2		
Stage Data:	**1 (SG)**	**2**	**3**
Target Flow, MMSCFD	1.200	1.200	1.200
Flow Calc, MMSCFD	1.457	1.457	1.442
BHP per Stage	116.1	98.3	88.1
Specific Gravity	0.6500	0.6500	0.6397
Ratio of Sp Ht (N)	1.2465	1.2480	1.2685
Comp Suct (Zs)	0.9903	0.9737	0.9308
Comp Disch (Zd)	0.9861	0.9680	0.9328
Pres Suct Line, psig	35.00	N/A	N/A
Pres Suct Flg, psig	33.51	152.63	460.94
Pres Disch Flg, psig	156.81	469.00	1161.65
Pres Disch Line, psig	N/A	N/A	1150.00
Pres Ratio F/F	3.559	2.891	2.473
Temp Suct, F	80.00	120.00	120.00
Temp Clr Disch, F	120.00	120.00	120.00
Cylinder Data:	**Throw 1**	**Throw 2**	**Throw 2**
Cyl Model	9-3/4RJ	7-3/8RJ-CE	3-7/8RJ-HE
Cyl Bore, in	9.750	7.375	3.875
Cyl RDP (API), psig	577.3	768.2	2000.0
Cyl MAWP, psig	635.0	845.0	2200.0
Cyl Action	DBL	CE	HE
Cyl Disp, CFM	530.5	147.2	42.4
Pres Suct Intl, psig	29.86	142.54	407.76
Temp Suct Intl, F	87	126	124
Pres Disch Intl, psig	171.92	496.23	1268.73
Temp Disch Intl, F	267	280	279
HE Suct Gas Vel, FPM	9025	0	10941
HE Disch Gas Vel, FPM	9327	N/A	9265
HE Spcrs Used/Max	0/2	N/A	0/0
HE Vol Pkt Avail	1.11+51.77	N/A	0.83+47.57
Vol Pkt Used	0.00 (V) %	N/A %	0.00 (V) %
HE Min Clr, %	17.39	N/A	17.39
HE Total Clr, %	18.50	N/A	18.22
CE Suct Gas Vel, FPM	8812	8163	0
CE Disch Gas Vel, FPM	9106	7367	N/A
CE Spcrs Used/Max	0/2	0/2	N/A
CE Min Clr, %	18.25	20.88	N/A
CE Total Clr, %	18.25	20.88	N/A
Suct Vol Eff HE/CE, %	59.6/60.1	N/A/65.6	75.8/N/A
Disch Event HE/CE, ms	4.9/5.6	N/A/6.5	6.6/N/A
Suct Pseudo-Q HE/CE	7.9/7.5	N/A/6.0	7.0/N/A
Gas Rod Ld Comp, %	46.4 C	60.2 C	60.2 C
Gas Rod Ld Tens, %	49.0 T	51.4 T	51.4 T
Gas Rod Ld Total, %	49.9	58.7	58.7
Xhd Pin Deg/%Rvrsl lbf	157/79.3	165/74.4	165/74.4
Flow Calc, MMSCFD	1.457	1.457	1.442
Cyl BHP	116.1	98.3	88.1

CG137-8 Gas Petroleum Engine

298 bkW (400 bhp)
1800 rpm



CAT® ENGINE SPECIFICATIONS

V8, 4-Stroke-Cycle

Emissions	NSPS Site Compliant Capable
Bore	137 mm (5.4 in)
Stroke	152 mm (6 in)
Displacement	18 L (1099 in³)
Compression Ratio	10.25:1
Aspiration	Turbocharged-Aftercooled
Rotation (from flywheel end)	Counterclockwise
Flywheel & Flywheel Housing	SAE No. 0
Flywheel Teeth	136
Power per Displacement	22.2 bhp/L
Engine Weight[1]	2835 kg (6250 lb)
Catalyst Weight[2]	81.6/88.5 kg (180/195 lb)
Flywheel & Flywheel Housing	SAE No. 0
Capacity for Liquids — L (U.S. gal)	
Cooling System[2]	55 L (14.5 U.S. gal)
Lube Oil System (refill)	148 L (39 U.S. gal)
Oil Change Interval[3]	750 hours
Governor	Electronic ADEM™ A4
Ignition, Protection	Electronic ADEM A4
Air/Fuel Ratio Control	Electronic ADEM A4

[1]Engine only, dry
[2]Engine only
[3]Can be extended through S•O•S℠ program

FEATURES

Engine Design
- Tough and durable, with field-proven head design
- When configured with customer-supplied air fuel ratio control and three-way catalyst, the engine is capable of meeting NSPS and non-attainment area emissions levels.
- Integrated operator interface panel reduces hands-on time with the engine
- Operator interface panel allows setup and servicing without a laptop
- Runs on a broad range of fuels and speeds at any emissions level
- Factory-installed components with single connection point eases packaging

Advanced Digital Engine Management

The ADEM A4 system represents the next generation of engine management systems while reducing the number of mechanical components and easing troubleshooting. Features include:
- Electronic ignition
- Electronic governing/speed control
- Start/stop logic
- Engine protection and monitoring

Full Range of Attachments

Large variety of factory-installed engine attachments reduces packaging time

Gas Engine Rating Pro (GERP)

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

Caterpillar 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.catoilandgasinfo.com.

STANDARD EQUIPMENT

Air Inlet System
Air cleaner — single element with service indicator
Optional air inlet adapter and rain cap — recommended for weather protection

Control System
ADEM A4
Class 1, Division 2, Group C & D and Zone 2

Cooling System
Jacket water thermostats and housing — full open temperature 98°C (208°F)
Jacket water pump — gear driven, centrifugal, non-self-priming
Aftercooler water pump — gear driven, centrifugal, non-self-priming
Aftercooler core — for treated water and sea air atmosphere

Exhaust System
Exhaust manifolds — watercooled
Exhaust elbow — dry 203 mm (8 in)

Flywheels & Flywheel Housings
Flywheel, SAE No. 0
Flywheel housing, SAE No. 0
SAE standard rotation

Fuel System
Gas pressure regulator
Natural gas carburetor

Lube System
Crankcase breather — top mounted
Oil cooler
Oil filter — RH
Oil filler in valve cover, dipstick — RH

Protection System
ADEM A4 protection
The following include alarm and shutdown:
- inlet manifold air temperature
- inlet manifold air pressure
- oil pressure
- oil temperature
- coolant temperature
- engine speed (overspeed)
- battery voltage

The following is display only
- service hours

General
Paint, Caterpillar yellow
Crankshaft vibration damper and drive pulleys
Lifting eyes
Cylinder block inspection covers

OPTIONAL EQUIPMENT

Charging Alternator
24V, 60A CSA alternator

Exhaust System
Exhaust flex fitting
Exhaust elbow
Exhaust flange — ANSI

Instrumentation
Operator interface panel
Operator interface panel enclosure
15', 20', 50' interconnect harness

Starting System
Air pressure regulator
Air start silencer
Vane starter
Electric starter
Turbine starter

Fuel System
Fuel filter

Air Inlet System
Precleaner
Rain cap

TECHNICAL DATA

CG137-8 Gas Petroleum Engine — 1800 rpm

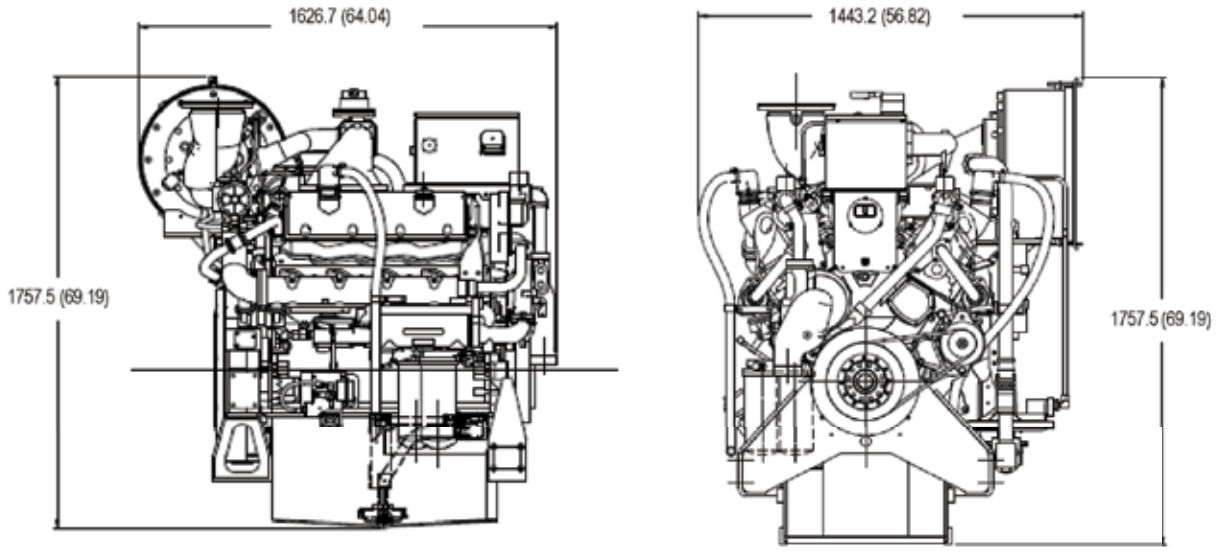
		DM9293-00
Engine Power		
@ 100% Load	bkW (bhp)	298 (400)
Engine Speed	rpm	1800
Max Altitude @ Rated Torque and 38°C (100°F)	m (ft)	1524 (5000)
Speed Turndown @ Max Altitude, Rated Torque, and 38°C (100°F)	%	18
Aftercooler Temperature		
JW Temperature	°C (°F)	99 (210)
SCAC Temperature	°C (°F)	54 (130)
Compression Ratio		8.3:1
Emissions (NTE)*		
NOx	g/bkW-hr (g/bhp-hr)	4893 (11.78)
CO	g/bkW-hr (g/bhp-hr)	4893 (11.78)
VOC**	g/bkW-hr (g/bhp-hr)	101 (0.22)
Fuel Consumption***		
@ 100% Load	MJ/bkW-hr (Btu/bhp-hr	10.51 (7431)
Heat Balance		
Heat Rejection to Jacket Water JW & OC	bkW (Btu/min)	295 (19,070)
Heat Rejection to Aftercooler @ 100% Load	bkW (Btu/min)	17 (1005)
Heat Rejection to Exhaust @ 100% Load	bkW (Btu/min)	185 (10,492)
Heat Rejection to Atmosphere @ 100% Load	bkW (Btu/min)	35 (1980)
Intake System		
Air Inlet Flow Rate @ 100% Load	N•m³/min (scfm)	2.77 (531)
Gas Pressure	kPag (psig)	10-34 (1.5-5.0)

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

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

***ISO 3046/1

GAS PETROLEUM ENGINE



Note: Dimensions are in mm (inches).

DIMENSIONS		
Length	1626.7 mm	64.04 in
Width	1443.2 mm	56.82 in
Height	1757.5 mm	69.19 in

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.