TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

April 9, 2009

MR MIKE SCHOCH
DIRECTOR ENVIRONMENTAL REGULATORY SAFETY
HILCORP ENERGY COMPANY
PO BOX 612229
HOUSTON TX 77208-

Permit by Rule Registration Number:	50648
Location/City/County:	From Baytown go E on I10 on Trinity River Bridge go left on FM563 to FM770 go right on FM770 go to CR1180 crossing over CR118 follow lease rd to site, Baytown, Liberty County
Project Description/Unit:	Poole Tank Battery
Regulated Entity Number:	RN102711736
Customer Reference Number:	CN600125991
New or Existing Site:	Existing
Affected Permit (if applicable):	None
Renewal Date (if applicable):	None

Hilcorp Energy Company has registered the emissions associated with the Poole Tank Battery under Title 30 Texas Administrative Code §§ 106.352 and 106.512.

For rule information see: http://www.tceq.state.tx.us/permitting/air/nav/numerical_index.html

No planned MSS emissions have been represented or reviewed for this registration. The company is also reminded that these facilities may be subject to and must comply with other state and federal air quality requirements.

All analytical data generated by a mobile or stationary laboratory to support the compliance with an air permit must be obtained from a NELAC (National Environmental Laboratory Accreditation Conference) accredited laboratory. For additional information regarding the laboratory accreditation program, please see the following website which includes the accreditation and exemption information:

http://www.tceq.state.tx.us/compliance/compliance_support/qa/env_lab_accreditation.html

This registration is taken under the authority delegated by the Executive Director of the TCEQ. If you have questions, please contact Ms. Brittany Bowman at (512) 239-3512.

Sincerely,

Anne M. Inman, P.E., Manager
Rule Registrations Section
Air Permits Division

Represented Emissions:

VOCs	8.40	tpy
SO_2	<0.01	tpy
CO	3.97	tpy
NO_x	1.06	tpy
PM_{10}	0.07	tpy

cc: Air Section Manager, Region 12 - Houston

Project Number: 145576

TECHNICAL REVIEW: AIR PERMIT BY RULE

Permit No.:	50648	***Company Name:***	Hilcorp Energy Company	***APD Reviewer:***	Ms. Brittany Bowman
Project No.:	145576	***Unit Name:***	Poole Tank Battery	***PBR No(s).:***	106.352, 106.512

GENERAL INFORMATION			
Regulated Entity No.:	RN102711736	**Project Type:**	Permit by Rule Application
Customer Reference No.:	CN600125991	**Date Received by TCEQ:**	March 26, 2009
Account No.:	LH-0271-J	**Date Received by Reviewer:**	March 27, 2009
City/County:	Baytown, Liberty County	**Physical Location:**	From Baytown go east on I10 over Trinity river bridge go left on FM563 to FM770 go right on FM770 & go CR1180 stay on CR1180 crossing CR118 follow lease rd to site

CONTACT INFORMATION					
Responsible Official/ Primary Contact Name and Title:	Mr. Mike Schoch Director of Env Reg Safety	**Phone No.:** **Fax No.:**	(713) 209-2416 (713) 209-2420	**Email:**	MSCHOCH@HILCORP.COM
Technical Contact/ Consultant Name and Title:	Mr. John Connolly Environmental Consultant	**Phone No.:** **Fax No.:**	(225) 753-4723 (225) 753-4661	**Email:**	ERSSES@COX.NET

GENERAL RULES CHECK	YES	NO	COMMENTS
Is confidential information included in the application?		X	No confidential information submitted.
Are there affected NSR or Title V permits for the project?		X	This is an existing site with no previously issued NSR or Title V permits.
Is each PBR > 25/250 tpy?		X	
Are PBR sitewide emissions > 25/250 tpy?		X	
Are there permit limits on using PBRs at the site?		X	
Is PSD or Nonattainment netting required?		X	This site is located in a nonattainment county but emissions are below the major source thresholds, therefore PSD and nonattainment review are not required.
Do NSPS, NESHAP, or MACT standards apply to this registration?		X	None of the standards apply.
Does NOx Cap and Trade apply to this registration?		X	This site is located in the Houston/Galveston area but NOx emissions are not subject to NOx Cap and Trade.
Is the facility in compliance with all other applicable rules and regulations?	X		The applicant represents they are in compliance with all applicable rules and regulations.

DESCRIBE OVERALL PROCESS AT THE SITE

Hilcorp Energy Company operates the Poole Tank Battery in Liberty County.

DESCRIBE PROJECT AND INVOLVED PROCESS

Hilcorp Energy Company has submitted a PI-7 and supporting documentation to register the addition of a 202-hp Caterpillar G3306TA engine and removal of a 145-hp Caterpillar engine.

The facility consists of a compressor engine, saltwater pump engine, stock tank, loading, and fugitives. The facility is a typical oil and gas production facility designed to produce hydrocarbons from natural reservoirs through deep wells. The oil, gas, and water are transported to the facility via flow lines, where they are separated. The oil and water are stored in fixed roof tanks prior to truck loading. The gas is metered prior to sales to a pipeline. No planned MSS emissions have been represented or reviewed for this registration.

TECHNICAL SUMMARY - DESCRIBE HOW THE PROJECT MEETS THE RULES

§106.352 Oil and Gas Production Facilities

(1) The engine meets the requirements of §106.512. There are no flares at this site.

(2) Total emissions from all facilities, including fugitives and loading emissions are less than 25 tpy for SO_2 and VOC and less than 250tpy for CO and NOx.

(3) NA, this is a sweet site.

(4) NA, this is a sweet site.

(5) A Form PI-7 was submitted.

§106.512 Stationary Engines and Turbines

(1) A Form PI-7 and Table 29 has been submitted.

(2) The Caterpillar G3306TA compressor engine is rated 202-hp, therefore must comply with sections (5)-(6).

(3) NA, there are no turbines at this site.

(4) NA, the engine is not used for temporary replacement purposes

(5) Natural gas will be used.

TECHNICAL REVIEW: AIR PERMIT BY RULE

Permit No.:	50648	*Company Name:*	Hilcorp Energy Company	*APD Reviewer:*	Ms. Brittany Bowman
Project No.:	145576	*Unit Name:*	Poole Tank Battery	*PBR No(s).:*	106.352, 106.512

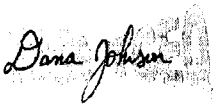
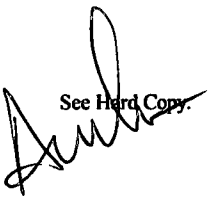
(6) Compliance with NAAQS is represented by (c) Facility emissions and property line distance where: D=100 * 0.3125=31.25tpy of NOx, actual NOx 1.06 tpy.
(7) The engine will not be used to generate electricity.

ESTIMATED EMISSIONS

EPN / Emission Source	Specific VOC or Other Pollutants	VOC		NOx		CO		PM_{10}		SO_2		Other	
		lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy
FUGAREA Fugitives		0.37	1.63										
TANK1 Oil Tank		1.41	6.17										
COMP1 CAT 3306 TA		0.04	0.20	0.22	0.97	0.89	3.90	0.02	0.07	<0.01	<0.01		
LOAD1 Loading		2.77	0.40										
ENG1 Pump Engine 25-hp		<0.01	<0.01	0.02	0.09	0.02	0.07	<0.01	<0.01	<0.01	<0.01		
TOTAL EMISSIONS (TPY):			8.40		1.06		3.97		0.07		<0.01		
MAXIMUM OPERATING SCHEDULE:		Hours/Day			Days/Week			Weeks/Year			Hours/Year		8760

Emissions calculated using the following methods: Compressor Engine - calculated using AP-42 3.2-1 and manufacturer's data.

SITE REVIEW / DISTANCE LIMIT	Yes	No	Description/Outcome	Date	Reviewed by
Site Review Required?		X	Site review not required.	April 3, 2009	Ms. Brittany Bowman
PBR Distance Limits Met?	X		Applicant represents they are more than 100ft from the nearest property line and off-site receptor.	April 3, 2009	Ms. Brittany Bowman

	TECHNICAL REVIEWER	PEER REVIEWER	FINAL REVIEWER
SIGNATURE:			 See Hard Copy.
PRINTED NAME:	Ms. Brittany Bowman	Ms. Dana Johnson	Ms. Anne M. Inman, P.E., Manager
DATE:	April 9, 2009	April 9, 2009	April 9, 2009

BASIS OF PROJECT POINTS	POINTS
Base Points:	1.0
Project Complexity Description and Points:	
Additional PBR	0.5
Completed < 22 days	0.5
Technical Reviewer Project Points Assessment:	2.0
Final Reviewer Project Points Confirmation:	

04/09/2009 ----------NSR IMS - PROJECT RECORD ----------

PROJECT#: 145576 PERMIT#: 50648 STATUS: PENDING DISP CODE: C
RECEIVED: 03/26/2009 PROJTYPE: REVISION AUTHTYPE: PBR ISSUED DT: 4/9/09
RENEWAL:
PROJECT ADMIN NAME: POOLE TANK BATTERY
PROJECT TECH NAME: POOLE TANK BATTERY

2.0
Donna

Assigned Team: RULE REG SECTION

STAFF ASSIGNED TO PROJECT:
HUNSBERGER , JOANNA - REVIEWR1_2 - AP INITIAL REVIEW
BOWMAN , BRITTANY - REVIEW ENG - RR TEAM

CUSTOMER INFORMATION (OWNER/OPERATOR DATA)
ISSUED TO: HILCORP ENERGY COMPANY
COMPANY NAME: HILCORP ENERGY COMPANY
CUSTOMER REFERENCE NUMBER: CN600125991

REGULATED ENTITY/SITE INFORMATION
REGULATED ENTITY NUMBER: RN102711736 ACCOUNT: LH0271J
SITE NAME: POOLE TANK BATTERY

REGULATED ENTITY LOCATION: FROM BAYTOWN GO E ON I10 OVER TRINITY RIVER BRIDGE GO L ON FM 563 TO FM 770 GO R ON FM 770 & FOLLOW TO CR 1180 CONT ON CR 1180 CROSSING OVER CR 118 FOLLOW LEASE RD TO SITE
REGION 12 - HOUSTON NEAR CITY: BAYTOWN COUNTY: LIBERTY

CONTACT DATA

CONTACT NAME: MR MICHAEL SCHOCH CONTACT ROLE: RESPONSIBLE OFFICIAL
JOB TITLE: EHS MANAGER ORGANIZATION:
MAILING ADDRESS: 1200 SMITH ST STE 1800 , HOUSTON, TX, 77002-4313
PHONE: (713) 209-2416 Ext: 0
FAX: (713) 209-2420 Ext: 0

CONTACT NAME: MR MIKE SCHOCH CONTACT ROLE: RESPONSIBLE OFFICIAL
JOB TITLE: DIRECTOR OF ENV REG SAFETY ORGANIZATION: HILCORP ENERGY COMPANY
MAILING ADDRESS: PO BOX 612229 , HOUSTON, TX, 77208-
PHONE: (713) 209-2416 Ext: 0
FAX: (713) 209-2420 Ext: 0
EMAIL:MSCHOCH@HILCORP.COM

CONTACT NAME: MR JOHN CONNOLLY CONTACT ROLE: TECHNICAL CONTACT
JOB TITLE: ORGANIZATION: ENERGY RESOURCE DEVELOPMENT INC
MAILING ADDRESS: 19345 POINT O WOODS CT , BATON ROUGE, LA, 70809-8717
PHONE: (225) 753-4723 Ext: 0
FAX: (225) 753-4661 Ext: 0
EMAIL:ERSSES@COX.NET

FEE:

Reference	Fee Receipt Number	Amount	Fee Receipt Date	Fee Payment Type
7130		450.00		CHECK

TRACKING ELEMENTS:

TE Name	Start Date	Complete Date
APIRT RECEIVED PROJECT (DATE)	03/26/2009	
APIRT TRANSFERRED PROJECT TO TECHNICAL STAFF (DATE)	03/27/2009	
CENTRAL REGISTRY UPDATED	03/27/2009	03/27/2009
PROJECT RECEIVED BY ENGINEER (DATE)	03/30/2009	
ENGINEER INITIAL REVIEW COMPLETED (DATE)	04/03/2009	
PEER / MANAGER REVIEW PERIOD	04/09/2009	04/09/2009

UNIT TYPES:
Project Unit Type:

Industry Group	Industry Type	Source Type	Control/BACT Type	Request	Authorization
CHEMICAL	OIL AND GAS				

PROJECT RULES:

Rule Desc	Request Type	On Application	Approve
106.352 OIL AND GAS PRODUCTION FACILITIES -	ADD	Y	APPROVE
106.512 ENGINES/TURBINES -	ADD	Y	APPROVE

PERMIT RULES:

Rule Desc	Start Date	End Date
106.352	04/23/2002	

From: Joanna Hunsberger
To: WWW - REGISTRY
Date: 3/27/2009 7:49 AM
Subject: RN102711736

RN102711736
POOLE TANK BATTERY

Please update physical location description from:

FR BAYTOWN ON IH 10 L ONTO FM 563 TO FM 770 R ON FM 770

to:

FROM BAYTOWN GO E ON I10 OVER TRINITY RIVER BRIDGE GO L ON FM 563 TO FM 770 GO R ON FM 770 & FOLLOW TO CR 1180 CONT ON CR 1180 CROSSING OVER CR 118 FOLLOW LEASE RD TO SITE

APIRT has the original

Thanks!

Jo Hunsberger
Air Permits Division
(512)-239-1274

Texas Commission on Environmental Quality
Registration for Permits by Rule (PBR)
Form PI-7 Submission Form

I. REGISTRANT INFORMATION			
A. TCEQ Customer Reference Number:	CN-600125991	TCEQ Regulated Entity Number:	RN- 102 711736 8A
Note: If "NO," CN or RN number was entered above; please fill out the required Core Data Form, which will be available in Step II of the submittal process.			
B. Company or Other Legal Customer Name: Hilcorp Energy Company			
Company Official Contact Name: Mike Schoch		Title: Director of Env., Reg., Safety	
Mailing Address: PO Box 61229			
City: Houston		State: Texas	Zip Code: 77208
Phone No.: 713-209-2416	Fax No.: 713-209-2420	E-mail Address: mschoch@hilcorp.com	
C. Technical Contact Name: John Connolly			
Company: Energy Resource Development, Inc.			
Mailing Address: 19345 Point O Woods Court			
City: Baton Rouge		State: Louisiana	Zip Code: 70809
Phone No. : 225-753-4723	Fax No.: 225-753-4661	E-mail Address: ersses@cox.net	
D. Facility Location Information - Street Address:			
If "NO," street address, provide written driving directions to the site: (attach description if additional space is needed)			
From Baytown, TX, travel East on I-10 over Trinity River Bridge. Turn left on FM 563 and travel to FM 770. Rutn right on FM 770 and follow to Bennie Rusk Road (CR 1180). Continue on CR 1180 crossing over CR 118. Follow lease road to location.			
City: Baytown	County: Liberty	Zip Code: 77520	
II. FACILITY AND SITE INFORMATION			
A. Name and Type of Facility: Redmond Creek – Poole Facility		☒ Permanent ☐ Portable	
B. PBR claimed under **30 TAC § 106** *(List all that apply in hard copy, or choose all that apply from the drop down menus in electronic version):*			
§ 106.512		§ 106.	
§ 106. 352		§ 106.	
§ 106. 4		§ 106.	
Are you claiming a **historical standard exemption or PBR**?		☐ YES ☒ NO	
If "YES," enter effective date and Rule Number:			

pmy 145576

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Registration for Permits by Rule (PBR)
Form PI-7 Submission Form

II. FACILITY AND SITE INFORMATION		
C. Is there a previous Standard Exemption or PBR for the facility in this registration? (Attach details regarding changes)		☒ YES ☐ NO
If "YES," enter Registration Number and Rule Number:	*50648*	
D. Are there any **other facilities** at this **site** which are **authorized by an Air Standard Exemption or PBR**?		☐ YES ☒ NO
If "YES," enter Registration Number and Rule Number:		
E. Are there any **other air preconstruction permits** at this site?		☐ YES ☒ NO
If "YES," enter Permit Numbers:		
Are there any other air preconstruction permits at this site that would be directly associated with this project?		☐ YES ☒ NO
If "YES," enter Permit Numbers:		
F. Is this facility located at a site which is required to obtain a federal operating permit 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:		

Identify the requirements of 30 TAC Chapter 122 that will be triggered if this claim is accepted: (*check all that apply*)

☐ Initial Application for an FOP ☐ Significant Revision for SOP ☐ Minor Revision for SOP

☐ Operational Flexibility/Off Permit Notification for an SOP ☐ Revision for GOP ☐ To be Determined ☒ None

Identify the type(s) issued and/or FOP application(s) submitted/pending for the site: (*check all that apply*)

☐ SOP ☐ GOP ☐ GOP application/revision application: *(submitted or under APD review)*

☐ SOP application/revision application: *(submitted or under APD review)* ☒ N/A

G. TCEQ Account Identification Number: *(if known)*	

III. FEE INFORMATION

To determine if a fee is required answer the following question. If "YES," to question III. A., a fee is not required, skip to Section IV. If "NO," to answer II. A., then go to Section III. B. See Section VI. for address to send fee or go to www.2.tceq.state.tx.us/epay to pay online.

A. Is this registration an update to a previously registered facility and accompanied by a Certification Form solely to establish a federally enforceable emission limit?	☐ *YES* ☒ *NO*
B. What is the fee amount?	*$ 450*

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Texas Commission on Environmental Quality
Registration for Permits by Rule (PBR)
Form PI-7 Submission Instructions

III. FEE INFORMATION			
To determine if a fee is required answer the following question. If "YES," to question III. A., a fee is not required, skip to Section IV. If "NO," to answer II. A., then go to Section III. B. See Section VI. for address to send fee or go to www.2.tceq.state.tx.us/epay to pay online.			
*If "YES," to any of the following three questions, a **$100** fee is require. Otherwise, a **$450** fee is required.*			
Does this business have less than 100 employees or have less than 6 million dollars in annual gross receipts?			☐ YES ☒ NO
Is this registration submitted by a governmental entity with a population of less than 10,000?			☐ YES ☒ NO
C. Check/Money Order or Transaction Number *(Payable to TCEQ)*:	7130	*Was fee **Paid** online?*	☐ YES ☒ NO
Company name of check: Energy Resource Development, Inc.		Fee amount:	$ 450.00
IV. SELECTED FACILITY REVIEWS ONLY–TECHNICAL INFORMATION ***Note: If claiming one of the following PBRs, complete this section, then skip to Section VI., "Submitting your registration" below:*** ***Animal Feeding Operations § 106.161, Livestock Auction Facilities § 106.162, Saw Mills § 106.223, Grain Handling, Storage and Drying § 106.283, Auto Body Refinishing Facilities § 106.436, Air Curtain Incinerator § 106.496***			
A. Is the applicable PBR checklist attached which shows the facility meets all general and specific requirements of the PBR(s) being claimed?			☐ YES ☐ NO
B. Distance from this facility's emission release point to the nearest property line:			feet
Distance from this facility's emission release point to the nearest off-property structure:			feet
V. TECHNICAL INFORMATION INCLUDING STATE AND FEDERAL REGULATORY REQUIREMENTS ***Registrants must be in compliance with all applicable state and federal regulations and standards to claim a PBR.***			
A. Is Confidential information submitted and properly marked "CONFIDENTIAL" with this registration?			☐ YES ☒ NO
B. Is a process flow diagram or a process description attached?			☐ YES ☒ NO
C. Are emissions data and calculations for this claim attached?			☒ YES ☐ NO
D. Is information attached showing how the **general** requirements (**30 TAC § 106.4**) of the PBR is met for this Registration? (**PBR checklists** may be used, but are optional)			☒ YES ☐ NO
*Note: Please be reminded that 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 NO_x allowances equivalent to the actual NO_x emissions from these facilities.*			
E. Is information attached showing how the **specific PBR** requirements are met for this registration? (***PBR checklist** may be used, but are optional*)			☒ YES ☐ NO

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Texas Commission on Environmental Quality
Registration for Permits by Rule (PBR)
Form PI-7 Submission Instructions

V. TECHNICAL INFORMATION INCLUDING STATE AND FEDERAL REGULATORY REQUIREMENTS ***Registrants must be in compliance with all applicable state and federal regulations and standards to claim a PBR.***		
F. 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:	**> 100**	feet
Note: In limited cases, a map or drawing of the site and surrounding land use may be requested during the technical review or at the request of the TCEQ Regional Office or local air pollution control program during an investigation.		

VI. SUBMITTING YOUR REGISTRATION

A. FEES – Pick one of the two options below for payment:

Who	*Where*	*What*
1. Fee Paid Online	**Go to Website www6.tceq.state.tx.us/epay**	No Additional Action Needed
2. Fee Mailed to 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 and Core Data Form

B. COPIES OF THE REGISTRATION – Copies must be sent as listed below:
Processing delays may occur if copies are not sent as noted.

1. Hard Copy Only Air Permits Initial Review Team (APIRT)	Regular, Certified, Priority Mail MC161, 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 Fax No.: (512) 239-2123 *(do not follow fax with paper copies)*	Originals Form PI-7, Core Data Form, and all attachments
2. Appropriate local and TCEQ Regional Office Programs	To Find your local or Regional Air Pollution Control Programs go to the TCEQ, APD Website at www.tceq.state.tx.us/nav/permits/air_permits.html or call (512) 239-1250	Copy of Form PI-7, Core Data Form, and all attachments to each office.
3. Print	(Blank for Print Button)	Prints a Hard Copy of the Form PI-7

TCEQ

TCEQ Core Data Form

TCEQ Use Only

For detailed instructions regarding completion of this form, please read the Core Data Form Instructions or call 512-239-5175.

SECTION I: General Information

1. Reason for Submission *(If other is checked please describe in space provided)*

☐ New Permit, Registration or Authorization *(Core Data Form should be submitted with the program application)*

☐ Renewal *(Core Data Form should be submitted with the renewal form)* ☒ Other **Reclaim PBR**

2. Attachments **Describe Any Attachments:** *(ex. Title V Application, Waste Transporter Application, etc.)*

☒ Yes ☐ No — Application to reclaim PBR at Redmond Creek - Poole Tank Battery.

3. Customer Reference Number *(if issued)*: **CN 600125991**

Follow this link to search for CN or RN numbers in Central Registry**

4. Regulated Entity Reference Number *(if issued)*: **RN 0** 102 711 736

SECTION II: Customer Information

5. Effective Date for Customer Information Updates (mm/dd/yyyy): 3/20/2009

6. Customer Role (Proposed or Actual) – *as it relates to the Regulated Entity listed on this form. Please check only one of the following:*

☐ Owner ☐ Operator ☒ Owner & Operator
☐ Occupational Licensee ☐ Responsible Party ☐ Voluntary Cleanup Applicant ☐ Other: _____

7. General Customer Information

☐ New Customer ☐ Update to Customer Information ☐ Change in Regulated Entity Ownership
☐ Change in Legal Name (Verifiable with the Texas Secretary of State) ☒ No Change**

If "No Change" and Section I is complete, skip to Section III – Regulated Entity Information.

8. Type of Customer:	☒ Corporation	☐ Individual	☐ Sole Proprietorship- D.B.A
☐ City Government	☐ County Government	☐ Federal Government	☐ State Government
☐ Other Government	☐ General Partnership	☐ Limited Partnership	☐ Other:

9. Customer Legal Name *(If an individual, print last name first: ex: Doe, John)*: Hilcorp Energy Company

If new Customer, enter previous Customer below — *End Date:*

10. Mailing Address: 1201 Louisiana, Suite 1400

City	State	ZIP	ZIP + 4
Houston	TX	77002	

11. Country Mailing Information *(if outside USA)*:

12. E-Mail Address *(if applicable)*: mschoch@hilcorp.com

13. Telephone Number: (713) 209-2416

14. Extension or Code:

15. Fax Number *(if applicable)*: (713) 209-2401

16. Federal Tax ID (9 digits)	17. TX State Franchise Tax ID (11 digits)	18. DUNS Number (if applicable)	19. TX SOS Filing Number (if applicable)
76-024494	76-0244942		

20. Number of Employees

☐ 0-20 ☐ 21-100 ☒ 101-250 ☐ 251-500 ☐ 501 and higher

21. Independently Owned and Operated?

☒ Yes ☐ No

SECTION III: Regulated Entity Information

22. General Regulated Entity Information *(If 'New Regulated Entity" is selected below this form should be accompanied by a permit application)*

☐ New Regulated Entity ☐ Update to Regulated Entity Name ☐ Update to Regulated Entity Information ☒ No Change** *(See below)*

****If "NO CHANGE" is checked and Section I is complete, skip to Section IV, Preparer Information.**

23. Regulated Entity Name *(name of the site where the regulated action is taking place)*: Hilcorp Energy Company - Poole Tank Battery

24. Street Address of the Regulated Entity: *(No P.O. Boxes)*	1201 Louis[illegible], Suite 1400							
	City	Houston	**State**	TX	**ZIP**	77208	**ZIP + 4**	
25. Mailing Address:	same							
	City		**State**		**ZIP**		**ZIP + 4**	

26. E-Mail Address:	mschoch@hilcorp.com		
27. Telephone Number	**28. Extension or Code**	**29. Fax Number** *(if applicable)*	
(713) 209-2416		(713) 209-2401	
30. Primary SIC Code (4 digits)	**31. Secondary SIC Code** (4 digits)	**32. Primary NAICS Code** (5 or 6 digits)	**33. Secondary NAICS Code** (5 or 6 digits)
1311			

34. What is the Primary Business of this entity? *(Please do not repeat the SIC or NAICS description.)*

Oil and gas production.

Questions 34 – 37 address geographic location. Please refer to the instructions for applicability.

35. Description to Physical Location:	From Baytown, TX. travel east on I-10 over Trinity River Bridge. Turn left on FM 563 and travel to FM 770. Turn right on FM 770 and follow to Bennie Rusk Road (CR 1180). Continue on CR 1180 crossing over CR 118. Follow lease road to location.

36. Nearest City	**County**	**State**	**Nearest ZIP Code**
Baytown	Liberty	TX	77520

37. Latitude (N) In Decimal:			**38. Longitude (W) In Decimal:**		
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
29	59	22	94	44	4.8

39. TCEQ Programs and ID Numbers Check all Programs and write in the permits/registration numbers that will be affected by the updates submitted on this form or the updates may not be made. If your Program is not listed, check other and write it in. See the Core Data Form instructions for additional guidance.

☐ Dam Safety	☐ Districts	☐ Edwards Aquifer	☐ Industrial Hazardous Waste	☐ Municipal Solid Waste
☒ New Source Review – Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS	☐ Sludge
☐ Stormwater	☐ Title V – Air	☐ Tires	☐ Used Oil	☐ Utilities
☐ Voluntary Cleanup	☐ Waste Water	☐ Wastewater Agriculture	☐ Water Rights	☒ Other: PBR

SECTION IV: Preparer Information

40. Name:	John T. Connolly	**41. Title:**	Agent

42. Telephone Number	**43. Ext./Code**	**44. Fax Number**	**45. E-Mail Address**
(225) 753-4723		(225) 753-4661	ersses@cox.net

SECTION V: Authorized Signature

46. By my signature below, I certify, to the best of my knowledge, that the information provided in this form is true and complete, and that I have signature authority to submit this form on behalf of the entity specified in Section II, Field 9 and/or as required for the updates to the ID numbers identified in field 39.

(See the Core Data Form instructions for more information on who should sign this form.)

Company:	Hilcorp Energy Company	**Job Title:**	Regulatory, Safety, Environmental Mgr.
Name *(In Print)*:	Michael Schoch	**Phone:**	(713) 209-2416
Signature:		**Date:**	3/24/09

APIRT
MAR 26 2009

Hilcorp Energy Company

Post Office Box 61229
Houston, TX 77208-1229

1201 Louisiana
Suite 1400
Houston, TX 77002

Phone: 713/209-2400
Fax: 713/209-2478

March 20, 2009

Ms. Anne Inman
Texas Commission on Environmental Quality
Office of Air Quality, NSR Division (MC-162)
PO Box 13087
Austin, Texas 78711-3087

Re: Request to Reclaim Permit by Rule Registration
Hilcorp Energy Company
Redmond Creek Field - Poole Tank Battery
Liberty County, Texas
Registration Number: 50648
Account Number: LH-0271-J

Dear Ms. Inman,

Hilcorp Energy Company requests to reclaim their Permit by Rule Registration to add a 202 hp Caterpillar G 3306 TA compressor engine (COMP2). The remaining emission sources will include a gas compressor engine, saltwater pump engine, stock tank, loading, and fugitives at their Poole Tank Battery facility in the Redmond Creek Field.

This facility is a typical oil and gas production facility designed to produce hydrocarbons from natural reservoirs through deep wells. The oil, gas, and water are transported to the facility via flow lines, where they are separated. The oil and water are stored in fixed roof tanks prior to transport by a tank truck, and the gas is metered prior to sales to a pipe line.

The facility will consist of a compressor engine, saltwater pump engine, one oil storage tank, loading, and fugitive emissions from these and other process equipment. The facility has proposed total emissions of 1.06 TPY of NOx, 3.97 TPYof CO, and 8.4010 TPY of VOC. Hilcorp Energy Company will construct and operate the facility in accordance with the conditions of the general rule, 30 TAC 106.4, 106.352, 106.512 and all applicable conditions of the exemption.

In accordance with the attached NAAQS calculations, the facility does not impact NAAQS requirements.

Attached to this application are the following documents:

1. Form PI-7
2. Core data form
3. Emissions summary table
4. NAAQS calculations
5. Check lists

Should you have any questions regarding this application, please call John Connolly at 225-753-4723.

Sincerely,

John T. Connolly
Agent for Hilcorp Energy Company

Cc: Air Program Manager
TNRCC Region 12
5425 Polk, Suite H
Houston, Texas 77023-3761

Mr. Mike Schoch
Hilcorp Energy Company
1201 Louisiana, Suite 1400
Houston, Texas77002

Distance Requirements for NAAQS Determination

Distance to nearest lease/property boundary >100 feet

0.3125 x 100 feet = 31.25 TPY

Therefore, total NOx emissions of 1.06 TPY does not impact the NAAQS requirements.

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

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

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

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

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

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

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

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

	SO_2	PM_{10}	VOC	NO_x	CO	Other
Total	.004	.069	8.401	1.06	3.972	

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

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

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

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

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

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

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

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

Are the facilities to be claimed under this PBR located in a designated ozone nonattainment county? X YES ❑ NO

If "Yes," please indicate which county by checking the appropriate box to the right.

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

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

Does this project trigger a nonattainment review? To determine the answer, review the information below: • Is the project's potential to emit (PTE) for emissions of VOC or NO_x increasing by 100 tpy or more? *PTE is the maximum capacity of a stationary source to emit any air pollutant under its worst-case physical and operational design unless limited by a permit, rule, or made federally enforceable by a certification.* • Is the site an existing major nonattainment site and are the emissions of VOC or NO_x increasing by 40 tpy or more? If needed, attach contemporaneous netting calculations per nonattainment guidance. Additional information can be found at: **www.tceq.state.tx.us/permitting/air/forms/newsourcereview/tables/nsr_table8.html** and **www.tceq.state.tx.us/permitting/air/nav/air_docs_newsource.html** If checklist is submitted as a hard copy, attach additional pages as needed. If checklist is submitted electronically, please email attachment to the following address: **apd@tceq.state.tx.us** *If "Yes," to any of the above, the project is a major source or a major modification and* ***a PBR may not be used.*** *A Nonattainment Permit review must be completed to authorize this project. If "No," continue to Section 3.*	❑ YES X NO ❑ YES X NO
3. 30 TAC § 106.4(a)(3): Prevention of Significant Deterioration (PSD) check	
Does this project trigger a review under PSD rules? To determine the answer, review the information below: • Are emissions of any regulated criteria pollutant increasing by 100 tpy of any criteria pollutant at a named source? • Are emissions of any criteria pollutant increasing by 250 tpy of any criteria pollutant at an unnamed source? • Are emissions increasing above significance levels at an existing major site? PSD information can be found at: **www.tceq.state.tx.us/permitting/air/forms/newsourcereview/tables/nsr_table9.html** and **www.tceq.state.tx.us/permitting/air/nav/air_docs_newsource.html** *If "Yes," to any of the above,* ***a PBR may not be used.*** *A PSD Permit review must be completed to authorize the project. If "No," continue to Section 4.*	❑ YES X NO ❑ YES X NO ❑ YES X NO
4. 30 TAC § 106.4(a)(6): Federal Requirements	
• Will all facilities under this PBR meet applicable requirements of Title 40 Code of Federal Regulations (40 CFR) Part 60, New Source Performance Standards (NSPS)? If "Yes," which Subparts are applicable?: Exempt from JJJJ, as engine manufactured prior to applicable date. • Will all facilities under this PBR meet applicable requirements of 40 CFR Part 63, Hazardous Air Pollutants Maximum Achievable Control Technology (MACT) standards? If "Yes," which Subparts are applicable?: Exempt from 112 g, as formaldehyde is less than 10 tpy. • Will all facilities under this PBR meet applicable requirements of 40 CFR Part 61, National Emissions Standards for Hazardous Air Pollutants (NESHAPs)? If "Yes," which Subparts are applicable?: If checklist is submitted as a hard copy, attach additional pages as needed. If checklist is submitted electronically, please email attachment to the following address: **apd@tceq.state.tx.us** *If "Yes" to any of the above, please attach a discussion of how the facilities will meet any applicable standards.*	YES ❑ NO X N/A YES ❑ NO X N/A YES ❑ NO X N/A
5. 30 TAC § 106.4(a)(7): PBR prohibition check	
Are there any air permits at the site containing conditions which prohibit or restrict the use of PBRs? *If "Yes," PBRs may not be used or their use must meet the restrictions of the permit. A new permit or permit amendment may be required.* ***List permit number(s):*** *If "No," continue to Section 6.*	❑ YES X NO

6. 30 TAC § 106.4(a)(8): NO_x Cap and Trade	
• Is the facility located in Harris, Brazoria, Chambers, Fort Bend, Galveston, Liberty, Montgomery, or Waller County? *If "Yes," answer the question below. If "No," continue to Section 7.*	X YES ❑ NO
• Will the proposed facility or group of facilities obtain required allowances for NO_x if they are subject to 30 TAC Chapter 101, Subchapter H, Division 3 (relating to the Mass Emissions Cap and Trade Program)?	X YES NO

7. Highly Reactive Volatile Organic Compounds (HRVOC) check		
• Is the facility located in Harris County? *If "Yes," answer the next question. If "No," skip to the box below.*		❑ YES X NO
• Will the project be constructed after June 1, 2006? *If "Yes," answer the next question. If "No," skip to the box below.*		❑ YES ❑ NO
• Will one or more of the following HRVOC be emitted as a part of this project?		❑ YES ❑ NO
If "Yes," complete the information below:	lb/hr	tpy
▸ 1,3-butadiene		
▸ all isomers of butene (e.g., isobutene [2-methylpropene or isobutylene])		
▸ alpha-butylene (ethylethylene)		
▸ beta-butylene (dimethylethylene, including both cis- and trans-isomers)		
▸ ethylene		
▸ propylene		
• Is the facility located in Brazoria, Chambers, Fort Bend, Galveston, Liberty, Montgomery, or Waller County? *If "Yes," answer the next question. If "No," the checklist is complete.*		X YES ❑ NO
• Will the project be constructed after June 1, 2006? *If "Yes," answer the next question. If "No," the checklist is complete.*		X YES ❑ NO
• Will one or more of the following HRVOC be emitted as a part of this project?		❑ YES X NO
If "Yes," complete the information below:	lb/hr	tpy
▸ ethylene		
▸ propylene		

Exemption §106.512 Checklist
(Previously Standard Exemption 6)

TNRCC Exemptions From Permitting 30 TAC §106.4 Applicability Checklist(s) should be used in conjunction with this checklist. Additionally, in order to complete this checklist, you must refer to specifics in Exemption §106.512.

Definitions:
Rich-burn Engine: A rich-burn engine is a gas fired spark-ignited engine that is operated with an exhaust oxygen content less than four percent by volume.
Lean-burn Engine: A lean-burn engine is a gas-fired spark-ignited engine that is operated with an exhaust oxygen content of four percent by volume, or greater.
Rated Engine Horsepower (hp): Engine rated horsepower 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.
Turbine Horsepower: Turbine rated horsepower shall be based on turbine base load, fuel power heating value, and International Standards Organization Standard Day Conditions of 59 degrees Fahrenheit, 1.0 atmosphere pressure, and 60 percent relative humidity.

***Part 1*: Is the engine or turbine rated less than 240 hp?**

YES _x__ Then you do not need to register, but you must comply with conditions (5) and (6) of the exemption. (*Go to Part 5 and 6 below*)

NO ____ Then you MUST register by submitting a completed Form PI-7 and Table 29 or Table 31 as applicable within 10 days after construction begins. (*Continue below*)

Is the equipment an engine or a turbine? Engine _x___ *(Go to Part 2)* Turbine ____ (*Go to Part 3)*

***Part 2*: Is the engine rated at 500 hp or greater?**

NO _x___ But it is greater than 240 hp. Then you only need to register the engine by submitting a completed Form PI-7 and Table 29 within 10 days after construction begins and you must comply with conditions (5) and (6) of the exemption. (*Go to Part 4, 5, and 6 below*)

YES ___ In addition to registration, the engine must operate in compliance with the following nitrogen oxide (NOx) emission limit(s). Check the limit(s) applicable to this engine.

The engine is a gas-fired rich-burn engine and will not exceed 2.0 grams per horsepower hour (g/hp-hr) under all operating conditions.

☐ The engine is a spark ignited gas-fired lean-burn engine or any compression-ignited dual fuel-fired engine manufactured new after June 18, 1992 and will not exceed 2.0 g/hp-hr NOx at manufacturer's rated full load and speed at all times; except, the engine will not exceed 5.0 g/hp-hr NOx under reduced speed and 80% to 100% of full torque conditions.

☐ The engine is any spark-ignited gas-fired lean-burn 2-cycle or 4-cycle engine or any compression-ignited dual fuel-fired engine rated 825 hp or greater and manufactured between September 23, 1982, and June 18, 1992 and will not exceed 5.0 g/hp-hr NOx under all operating conditions.

☐ The engine is any spark-ignited gas-fired lean-burn 4-cycle engine or compression-ignited dual fuel-fired engine that was manufactured before June 18, 1992 and is rated less than 825 hp, or was manufactured before September 23, 1982 and will not exceed 5.0 g/hp-hr NOx at manufacturer's rated full load and speed at all times; except, the engine will not exceed 8.0 g/hp-hr NOx under reduced speed and 80% to 100% of full torque conditions.

☐ The engine is any spark-ignited gas-fired 2-cycle lean-burn engine that was manufactured before June 18, 1992 and is rated less than 825 hp, or was manufactured before September 23, 1982 and will not exceed 8.0 g/hp-hr

NOx under all operating conditions.

☐ The engine is any compression-ignited liquid-fired engine and will not exceed 11.0 g/hp-hr NOx under all operating conditions.

Does the engine require an automatic air-fuel ratio controller to meet the NOx limit(s) above?

YES _x___ NO ____

Is the engine required to have an automatic air-fuel ratio controller under condition (2)(B) of the exemption?

YES _x___ NO ____

Are you aware of and accept responsibility for the record and testing requirements as specified in condition (2)(C) of the exemption?

YES __x__ NO ____

***Part 3*: Is the turbine rated 500 hp or more?**

NO ____ But it is greater than 240 hp. Then you only need to register the turbine by submitting Form PI-7 with the requested information, Table 31 within 10 days after construction begins and you must comply with conditions (5) and (6) of the exemption. (*Go to Part 4, 5, and 6 below*)

YES ____ In addition to registration, the turbine must operate in compliance with the following emission limit(s). The emissions of NOx shall not exceed 3.0 g/hp-hr for gas-firing and the turbine shall meet all applicable NOx and sulfur dioxide (or fuel sulfur) emissions limitations, monitoring requirements, and reporting requirements of EPA, NSPS 40 CFR 60 Subpart GG.

***Part 4*: Is the engine or turbine rated less than 500 hp or used for temporary replacement purposes?**

YES ____ Then the equipment shall be exempt from the emission limits of conditions (2) and (3) of the exemption; however, the temporary replacement equipment can only remain in service for a maximum of ninety days.

NO ____ (*Go to Part 5)*

***Part 5*: What type of fuel will be used?**

Natural Gas ___x_ Liquid Petroleum Gas ____ Field Gas ____ Liquid Fuel _____

Will the fuel meet all the requirements of condition (5) of the exemption? YES ____ NO_____

***Part 6*: How will the installation demonstrate compliance with the National Ambient Air Quality Standards?**

Modeling ____ Stack Height ____ Facility Emissions and Property Line Distance ____x_
Note: Attach modeling report and/or calculations and diagrams to support the selected method.

TNRCC Exemption §106.512 General Guidelines

		NO_X g/hp-hr Emission Limits								
Date Original Manufacture		n/a	n/a	Before 9/23/82		9/23/82 to 6/18/92			After 6/18/92	
Mfg. Rated Horsepower		< 240	>240 < 500	≥500*		500-824*		>825	>500*	
Operating Speed		n/a	n/a	Full	Reduced	Full	Reduced	n/a	Full	Reduced
Opreating Torque		n/a	n/a	n/a	80-100%	n/a	80-100%	n/a	n/a	80-100%
Ignition Type	*Engine Combustion Design*									
Spark	Rich Burn ††	n/a	n/a	2.0	2.0	2.0	2.0	2.0	2.0	2.0
	Lean Burn**	n/a	n/a	5.0	8.0	5.0	8.0	5.0	2.0	5.0
	2-Cycle	n/a	n/a	8.0	8.0	8.0	8.0	5.0	2.0	5.0
Compression	Dual Fuel	n/a	n/a	5.0	8.0	5.0	8.0	5.0	2.0	5.0
	Liquid Fuel	n/a	n/a	11.0	11.0	11.0	11.0	11.0	11.0	11.0
	Turbines†	n/a	n/a	3.0	3.0	3.0	3.0	3.0	3.0	3.0
PI-7 Registration		no	yes	yes	yes	yes	yes	yes	yes	yes
Emission Testing		no	no	Biennial	Biennial	Biennial	Biennial	Biennial	Biennial	Biennial

Notes:

* Lower emission rates apply to lean burn engine operating: Full Speed & Any Torque or Any Speed & <80% or >100% Torque

† Turbine emissions are also regulated by EPA NSPS Standards for NO_X and SO_2

** Lean Burn = > 4% exhaust 02.

†† Rich Burn = < 4% exhaust 02

Exemption §106.352, Checklist
(Previously Standard Exemption 66)

Oil and Gas Production, CO_2 Separation, and Pipeline Facilities

YOU MUST SUBMIT A PI-7 WITH REQUIRED ATTACHMENTS IF THE PROJECT COVERED BY THIS EXEMPTION INCLUDES HANDLING GAS WITH A HYDROGEN SULFIDE CONCENTRATION GREATER THAN 1.5 GR/100 SCF OR A TOTAL SULFUR CONCENTRATION GREATER THAN 30 GR/100 SCF.

The following checklist is designed to help you confirm that you meet Exemption §106.352, previously standard exemption 66 (STDX 66), requirements. **Any "no" answers indicate that the claim of registration may not meet all requirements for the use of Standard Exemption 66.** If you do not meet all the requirements, you may alter the project design/operation in such a way that all the requirements of the exemption are met or obtain a construction permit.

YES	NO	NA	DESCRIPTION
x	_	_	Have you included a description of how this exemption claim meets the general rule for the use of exemptions (§106.4 checklist is available)?
X	_	_	Are all the facilities covered by this exemption specifically named in the general section of §106.352, previously STDX 66?
x	_	_	Are all the facilities associated with production, conditioning, processing, and pipeline transfer of fluids found in geologic formations beneath the earth's surface?
_	_	X	Will gas sweetening, sulfur recovery, or other gas conditioning facilities only condition gas that contains less than two (2) long tons per day of sulfur compounds as sulfur?
x	_	_	Do all compressors and flares fully meet the requirements of §106.512 and §106.492, previously STDXs 6 and 80, respectively? Attach data showing how the exemptions are met. Checklists are available.
x	_	_	Have registrations (PI-7) for all compressors and flares (sour gas only) been filed if they are not included in this registration?
_	_	x	If the facility handles sour gas, is it located at least 1/4 mile from any recreational area, 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? Attach a scaled map.
_	_	x	Are total emissions of sulfur compounds, excluding sulfur oxides, less than 4.0 pounds per hour? Attach calculations.
_	_	x	Does the height of each vent emitting sulfur compounds meet or exceed the minimum vent height stated in §106.352, previously STDX 66? Required height _____ Actual height_____
_	_	x	If the facility was constructed under §106.353, previously STDX 67, does it meet all the requirements of §106.352, previously STDX 66, including registration prior to start of operations when sour gas is handled?

X	_	_	Have you attached calculations and other data, such as a gas analysis, showing that the emissions limits of the general rule are met?
_	_	X	If a glycol dehydrator is used, have VOC emissions from the still been calculated by use of an acceptable software program or a rich/lean analysis? If glycol dehydrator still vents must be controlled to stay within §106.4(a)(1) limits, describe the controls.

Emission Point No.	Description	Operating Rate (Max) or Tank Capacity	Operating Schedule (H/D)	(D/W)	(W/Y)
FUGAREA	FUGITIVES	NA	24	7	52
TNK1	Oil Tank	500 bbl	24	7	52
ENG1	SWD Pump Engine	25 hp	24	7	52
LOAD	Loading	300 BPH	1	1	37
COMP2	Compressor Engine (Cat 3306 TA)	202 hp	24	7	52

5. Summary of Emission Sources
(for entire plant as a whole)

	Annual (TPY)
a. Particulate Matter	0.069
b. Sulfur Dioxides	0.004
c. Nitrogen Oxides	1.06
d. Carbon Monoxide	3.972
e. Volitale Organic Compounds (Total)	8.401
Propane	1.738
i-Butane	0
n-Butane	1.347
i-Pentane	0
n-Pentane	0.491
f. Toxic Volitale Organic Compounds (Total)	0.233
(regulated under LAC 33:III Chapter 51)	
Benzene	0.01
Toluene	0.02
Ethylbenzene	0.007
Xylene	0.04
n-Hexane	0
Formaldehyde	0.156
g. Non-regulated VOC's	
Methane	3.425
Ethane	0.624

Emission Worksheet
Redmond Creek Field - Poole Tank Battery

SOURCE	CO	NOx	PM	SO2	Methane	Ethane	Propane	I-Butane	N-Butane	I-Pentane	N-Pentane	Total VOC's	Benzene	Toluene	E-benzene	Xylene	n-Hexane	Formaldehyde	Total Toxic VOC's
FUG001					3.425							1.631	0.002	0.004	0.001	0.002			0.009
TANK1						0.586	1.631		1.264		0.461	6.171	0.008	0.015	0.006	0.036			0.065
ENG1	0.074	0.086										0.001							0
LOAD1						0.038	0.107		0.083		0.03	0.403	0	0.001	0	0.002			0.003
COMP2	3.898	0.974	0.069	0.004								0.195						0.156	0.156
																			0
TOTALS:	**3.972**	**1.06**	**0.069**	**0.004**	**3.425**	**0.624**	**1.738**	**0**	**1.347**	**0**	**0.491**	**8.401**	**0.01**	**0.02**	**0.007**	**0.04**	**0**	**0.156**	**0.233**

* Figures in tons per year.

TNRCC

TEXAS

SINGLE POINT / AREA / VOLUME SOURCE

Emission Inventory Questionnaire (EIQ)

for Air Pollutants

Company Name	Plant location and name	Date of Submittal
Hilcorp Energy Company	Redmond Creek	3/20/2009

Source ID number	Descriptive name of the equipment serviced by this stack or vent	Approximate location of stack or vent		
COMP2	Compressor Engine G 3306 TA	UTM zone no.		Horizontal coordinate mE
				Vertical coordinagte mN

Stack and Discharge Physical Characteristics Change yes/no	Height of Stack (feet)	Diameter of Stack (feet)	Stack gas exit temperature (F)	Stack gas flow at process conditions	Stack gas exit velocity	Date of Cons./Mod.	Operating Rate (max) or tank capacity
	15	1.00	1043	975 cu ft/min	20.56 ft/sec.	Mar-09	202 hp

Fuel	Type of fuel used and heat input: Type of fuel	Heat Input (MM BTU/hr)	Operating Characteristics	Percent of annual throughput of pollutants through this emission point: Dec-Feb	Mar-May	Jun-Aug	Sep-Nov	Normal operating time of this point: hrs/day	days/wk	wk/yr	Normal Operating Rate
a	nat gas	1.6		25	25	25	25	24	7	52	10000 percent
b											
c											

Air Pollutant Specific Information

Pollutant	Control Equipment Code	Control Equipment Efficiency	Emission Rate: Average (lbs/hr)	Maximum (lbs/hr)	Annual (tons/yr)	Emission Estimation Method	Add, Change or Delete	Concentration in gases exiting at stack
Oxides of Nitrogen	0	0.5	0.222	0.222	0.974	3	Add	ppm/vol
Carbon Monoxide	0	2	0.890	0.890	3.898	3	Add	ppm/vol
VOC's	0	0.1	0.044	0.044	0.195	3	Add	ppm/vol
Sulfur Dioxide	0	0	0.001	0.001	0.004	3	Add	ppm/vol
Particulate Matter	0	0	0.016	0.016	0.069	3	Add	ppm/vol
Formaldehyde	0	0	0.036	0.036	0.156	3	Add	ppm/vol
								ppm/vol
								ppm/vol
								ppm/vol
								ppm/vol
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								ppm/vol
								ppm/vol
								ppm/vol
								ppm/vol
								ppm/vol

Natural Gas Fired Stationary Reciprocating Internal Combustion And Turbine Engine Emission Calculation Worksheet

Description:	**Compressor Engine**	Source ID: **COMP2**	Date: **3/20/2009**

Engine Data	
Manufacturer	**Caterpillar**
Serial Number	
Model Number	**G 3306 TA**
Horsepower Rating	**202**
Horsepower Utilized	202
Eng. Type (2/4 cycle)	**4**
Rich or Lean Burn	**Rich**
Controls (yes or no)	**yes**
Engine Load (%)	**100**

Location of stack or vent		
UTM Zone		
Horizontal		mE
Vertical		mN

Identification	
EID	
EPN	
FIN	
CIN	

Control Efficiency		
Control		
NOx	0.5	gm
CO	2	gm
VOC	0.1	gm

Common Standards
Fuel Use: 7.143 scf/hp-hr
Fuel Gas Sulfur:3.33 ppm

Action:	**Add**

Fuel Data	
Heat input (mmbtu/hr)	1.6
Heat input (btu/hp-hr)	**8155**
Heat content (btu/scf)	**1100**
Fuel type	**nat gas**
Fuel use (mcf/hour)	1.4975545
Fuel use (mcf/day)	35.941309

Stack and Discharge Physical Characteristics		
Height above grade	**15**	feet
Diameter at discharge	**1.0**	feet
Area of stack	0.79	ft ^2
Stack exit temperature	**1043**	deg F
Exhaust Flow	**975**	acfm

Operating Characteristics		
Continuous (yes/no)	yes	
Normal Operating Time	8760	
hours/day	**24**	
days/week	**7**	
weeks/year	**52**	52.145

Facility Data	
Operator	**Hilcorp Energy Company**
Field Name	**Redmond Creek**
Site Name	**POOLE FACILITY**
Site Operator	
Rental Company	

Emission Factors Utilized

Pollutant	Factor	Units	
PM	**0.0095**	lb/mmbtu	
SOx	**0.00185**	gm/bhp-hr	
NOx	**0.5**	gm/bhp-hr	NSCR
CO	**2**	gm/bhp-hr	NSCR
VOC	**0.1**	gm/bhp-hr	NSCR
Frmldhyd.	**0.08**	gm/bhp-hr	NSCR
Methane			

AP-42 and GRID-HAPCalc Air Emission Computation Factors

Equipment	Methane	PM	SOx	NOx	CO	VOC	Formaldehyde	Reference
		lb/mmbtu	gm/bhp-hr	gm/bhp-hr	gm/bhp-hr	gm/bhp-hr	gm/bhp-hr	GRID-HAPCalc V1
NG Turbines			0.00247	1.3	0.83	0.01	0.0159	AP42 3.2-1 & 3.1-1
NG 2-cycle lean burn		0.0384	0.00185	10.9	1.5	0.43	0.2432	AP42 3.2-1
NG 4-cycle lean burn		0.0000771	0.00185	11.8	1.6	0.72	0.1683	AP42 3.2-1
NG 4-cycle rich burn		0.0095	0.00185	10	8.6	0.14	0.0381	AP42 3.2-1

Formaldehyde emission factors from GRID-HAPCalc Version 1, for gas fired engines.

Manufacturers Air Emission Computation Factors

Emission Calculation Sheet

Emission Factors		
Pollutant	Factor	Unit
NOx	0.5	gm/bhp-hr
CO	2	gm/bhp-hr
VOC	0.1	gm/bhp-hr
PM	0.0095	lb/mmbtu
SO2	0.00185	gm/bhp-hr
Frmldhyd.	0.08	gm/bhp-hr

Process Air Data: Air/Fuel Ratio (lb/lb)

Fuel Gas Basis of Heating Value for Firing Capacity (LHV/HHV)

LHV = 927 HHV =

* Horsepower (hp) is the same as break horsepower (bhp)

* All calculations are based on the standard conditions of 60 def F and 1 atm

Fuel Flow Rate Calculations

$$\text{Fuel Flow} = \frac{202 \text{ (hp)} \times 8155 \text{ (btu/hp-hr)}}{1100 \text{ (btu/scf fuel)}} = 1497.555 \text{ scf/hr} = 35.94131 \text{ mcfd}$$

Exhaust Stack Flow Calculations

Stack Exhaust Flow = 975 acfm

10.53 flue gas/fuel gas

$$\text{Stack Velocity} = \text{Exhaust Flow}/(\text{Area} \times 60 \text{ sec}) = \frac{975}{0.79} \frac{\text{min}}{60} = 20.56051 \text{ ft/sec}$$

Emission Rate Calculations

$$\text{lb/hr} = \frac{\text{\# hp} \quad \frac{\text{\# gms}}{\text{hp-hr}} \quad \text{load factor} \quad \frac{\text{lb}}{454 \text{ gms}}}{}$$

$$\text{tons/year} = \frac{\text{\# hp} \quad \frac{\text{\# gms}}{\text{hp-hr}} \quad \text{load factor} \quad \frac{\text{lb}}{454 \text{ gms}} \quad \frac{\text{ton}}{2000 \text{ lb}} \quad \frac{\text{hr}}{\text{yr}}}{}$$

NOx =	202	0.5	1	lb / 454 gm	=	0.222	lb/hr	=	0.974 tons/yr
CO =	202	2	1	lb / 454 gm	=	0.890	lb/hr	=	3.898 tons/yr
VOC =	202	0.1	1	lb / 454 gm	=	0.044	lb/hr	=	0.195 tons/yr
SO2 =	202	0.00185	1	lb / 454 gm	=	0.001	lb/hr	=	0.004 tons/yr
PM-10 =	1.64731	0.0095000	(Formula in lb/mmbtu)		=	0.016	lb/hr	=	0.069 tons/yr
Frmldhyd. =	202	0.08	1	lb / 454 gm	=	0.036	lb/hr	=	0.156 tons/yr

Properties Used in Emission Inventories							
Engine Design Capacity	=	202.00	8155.00	1/1000000	=	1.65	MM Btu/hr
Annual Process Rate	=	1497.55	8760.36	1/1000000	=	13.12	MM scf/yr
Percentage of Max. Emissions Potential	=	1.00	8760	1/8760	=	100	%

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PREPARED FOR:

Mr. Keith Moreland
CDM

A. INFORMATION PROVIDED BY CATERPILLAR

Engine:	G3306 TA
DIM Sheet:	TM9278
Compression Ratio:	8.0:1
Load:	100%
RPM:	1800
Horsepower:	202
Fuel:	Natural Gas
Piping size:	5"
Annual Operating Hours:	8760
Exhaust Flow:	956 CFM
Exhaust Temperature:	1004 °F
Allowable Engine Backpressure:	27" WC

Emission Data

NO_x:	16.43	g/bhp-hr
CO:	16.44	g/bhp-hr
HCHO:	0.38	g/bhp-hr
VOC:	0.19	g/bhp-hr
Oxygen:	0.50	%

B. POST CATALYST EMISSIONS TO BE ACHIEVED BY EMISSION CONTROL EQUIPMENT

NO_x:	0.50 g/bhp-hr
CO:	2.00 g/bhp-hr
HCHO:	0.08 g/bhp-hr
VOC:	0.10 g/bhp-hr

C. CONTROL EQUIPMENT

CATALYTIC CONVERTER/SILENCER UNIT

Model	**EAH-1450T-0505F-D0CEE**
Catalyst Type	NSCR, Precious group metals
Manufacturer	EMIT Technologies, Inc.
Element Size	14.5" x 3.5"
Catalyst Elements	0
Housing Type	Dual bed
Catalyst Installation	Accessible Housing
Construction	10 ga Carbon Steel
Sample Ports	6 (0.5" NPT)
Inlet Connections	5"flat face flanges
Outlet Connections	5"flat face flanges
Configuration	Assume End In / End Out
Silencer	Integrated
Silencer Grade	Hospital
Insertion Loss	35-40 dBA

CATALYST ELEMENT

Model	**RE-1450-T**
Catalyst Type	NSCR, Precious group metals
Manufacturer	EMIT Technologies, Inc.
Element Size	14.5" x 3.5"
Element Shape	Round

AIR FUEL RATIO CONTROLLER

Part Number	**ENG-S-075**
Manufacturer	EMIT Technologies, Inc.
Description	***MODEL EDGE NG*** *CSA certified AFR controller kit complete with: EDGE NG Air Fuel Ratio Controller enclosure featuring: graphical display of oxygen sensor voltage, position of the digital power valve and thermocouple temperatures. Multiscreen digital display of controller and engine parameters. Integrated high temperature shutdown, Modbus enabled, 4 wire heated O2 sensor, O2 weldment, 25' Wiring harnesses, Digital power valve, Operations manual* ***SINGLE BANK ENGINE***
Digital Power Valve Size	0.75" NPT

D. WARRANTY

EMIT Technologies,Inc. warrants that the goods supplied will be free from defects in workmanship by EMIT Technologies, Inc. for a period of one (1) year from date of shipment. EMIT Technologies, Inc. will not be responsible for any defects which result from improper use, neglect, failure to properly maintain or which are attributable to defects, errors or omissions in any drawings, specifications, plans or descriptions, whether written or oral, supplied to EMIT Technologies, Inc. by Buyer.

Catalyst performance will be guaranteed for a period of 1 year from installation, or 8760 operating hours, whichever comes first. The catalyst shall be operated with an automatic air/fuel ratio controller. The performance guarantee shall not cover the effects of excessive ash masking due to operation at low load, improper engine maintenance, or inappropriate lubrication oil. The performance guarantee shall not cover the effects of continuous engine misfires (cylinder or ignition) exposing the catalyst to excessive exothermic reaction temperatures.

The exhaust temperature operating range at the converter inlet is 600°F minimum for oxidation catalyst and 750 °F for NSCR catalyst and 1250°F maximum.

If a high temperature shut down switch is not installed, thermal deactivation of catalyst at temperatures above 1300 °F is not covered.

The catalyst conversion efficiencies (% reduction) will be guaranteed for engine loads of 50 to 100 percent.

Engine lubrication oil shall contain less than 0.6% ash (by weight) with a maximum allowable specific oil consumption of 0.01 gal/bhp-hr. The maximum ash loading on the catalyst shall be limited to 350 g/m3. Phosphorous and zinc additives are limited to 0.03% (by weight).

The catalyst must not be exposed to the following know poisoning agents, including: iron, nickel, sodium, chromium, arsenic, zinc, lead, phosphorous, silicon, potassium, magnesium, copper, tin, and mercury. Total poison concentrations in the gas are limited to 0.3 ppm.

G3306 TA

GAS ENGINE TECHNICAL DATA

CATERPILLAR®

ENGINE SPEED:	1800	FUEL:	NAT GAS
COMPRESSION RATIO:	8:1	FUEL SYSTEM:	HPG IMPCO
AFTERCOOLER - MAX. INLET (°F):	130		WITH CUSTOMER SUPPLIED AIR FUEL RATIO
JACKET WATER - MAX. OUTLET (°F):	210	FUEL PRESS. RANGE (PSIG):	12.0 - 24.9
COOLING SYSTEM:	JW+OC, AC	MIN. METHANE NUMBER:	80
IGNITION SYSTEM:	MAG	RATED ALTITUDE (FT):	1500
EXHAUST MANIFOLD:	WC	AT AIR TO TURBO. TEMP. (°F):	77
COMBUSTION:	CATALYST	EXHAUST O2 EMISSION LEVEL	0.2 %O2
		FUEL LHV (BTU/SCF):	905
		APPLICATION:	INDUSTRIAL/PETROLEUM

RATING AND EFFICIENCY		NOTES	LOAD	100%	75%	50%
ENGINE POWER	(WITHOUT FAN)	(1)	BHP	202	152	101
ENGINE EFFICIENCY	**(ISO 3046/1)**	**(2)**	**%**	**31.2**	**29.3**	**27.2**
ENGINE EFFICIENCY	(NOMINAL)	(2)	%	31.2	29.3	27.2
THERMAL EFFICIENCY	(NOMINAL)	(3)	%	56.0	58.7	61.3
TOTAL EFFICIENCY	(NOMINAL)	(4)	%	87.2	88.0	88.5

ENGINE DATA						
FUEL CONSUMPTION	**(ISO 3046/1)**	**(5)**	**BTU/bhp-hr**	**8155**	**8681**	**9357**
FUEL CONSUMPTION	(NOMINAL)	(5)	BTU/bhp-hr	8155	8681	9357
AIR FLOW (77 °F, 14.7 psi)		(6)	SCFM	312	247	181
AIR FLOW		(6)	lb/hr	1381	1093	801
COMPRESSOR OUT PRESSURE			in. HG (abs)	44	40.2	34.3
COMPRESSOR OUT TEMPERATURE			°F	221	178	140
AFTERCOOLER AIR OUT TEMPERATURE			°F	132	131	129
INLET MAN. PRESSURE		(7)	in. HG (abs)	38.1	30.7	23.2
INLET MAN. TEMPERATURE	(MEASURED IN PLENUM)	(8)	°F	132	131	129
TIMING		(9)	°BTDC	34	34	34
EXHAUST STACK TEMPERATURE		(10)	°F	1043	1008	952
EXHAUST GAS FLOW (@ stack temp.)		(11)	CFM	975	754	531
EXHAUST MASS FLOW		(11)	lb/hr	1464	1160	849

EMISSIONS DATA					
NOx (as NO2)	(12)	g/bhp-hr	16.43	16.16	15.49
CO	(13)	g/bhp-hr	16.44	16.16	15.49
THC (molecular weight of 15.84)	(13)	g/bhp-hr	1.22	1.54	2
NMHC (molecular weight of 15.84)	(13)	g/bhp-hr	0.19	0.24	0.3
EXHAUST O2	(14)	% DRY	0.2	0.2	0.2
LAMBDA			1.04	1.03	1.05

HEAT BALANCE DATA					
LHV INPUT	(15)	BTU/min	27519	21971	15789
HEAT REJECTION TO JACKET	(16)	BTU/min	10672	8066	6309
HEAT REJECTION TO ATMOSPHERE	(17)	BTU/min	1101	879	632
HEAT REJECTION TO EXHAUST (LHV to 77°F)	(19)	BTU/min	6665	5105	3523
HEAT REJECTION TO EXHAUST (LHV to 350°F)	(19)	BTU/min	4737	3554	2372
HEAT REJECTION TO A/C	(20)	BTU/min	494	206	34

CONDITIONS AND DEFINITIONS

ENGINE RATING OBTAINED AND PRESENTED IN ACCORDANCE WITH ISO 3046/1STD. REF. CONDITIONS OF 77°F, 29.6 IN HG BAROMETRIC PRESSURE, 500 FT ALTITUDE). NO OVERLOAD PERMITTED AT RATING SHOWN. CONSULT ALTITUDE CHARTS FOR APPLICATIONS ABOVE MAXIMUM RATED ALTITUDE AND/OR TEMPERATURE.

EMISSION LEVELS ARE BASED ON THE ENGINE OPERATING AT STEADY STATE CONDITIONS. EMISSION TOLERANCES SPECIFIED ARE DEPENDANT UPON FUEL QUALITY. METHANE NUMBER CANNOT VARY MORE THAN ± 3. PUBLISHED PART LOAD DATA REQUIRES CUSTOMER SUPPLIED AIR FUEL RATIO CONTROL.

ENGINE RATING IS WITH 2 ENGINE DRIVEN WATER PUMPS.

FOR NOTES INFORMATION CONSULT PAGE THREE.

FUEL USAGE GUIDE

CAT METHANE NUMBER	30	35	40	45	50	55	60	65	70	75	80	100
IGNITION TIMING	20	21	23	25	26	27	28	30	31	32	34	34
DERATION FACTOR	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

ALTITUDE DERATION FACTORS

AIR TO TURBO (°F)	0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000
130	0.96	0.93	0.89	0.86	0.83	0.80	0.76	0.74	0.71	0.68	0.65	0.63	0.60
120	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.69	0.66	0.64	0.61
110	1.00	0.96	0.92	0.89	0.86	0.82	0.79	0.76	0.73	0.70	0.67	0.65	0.62
100	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.77	0.74	0.71	0.69	0.66	0.63
90	1.00	1.00	0.96	0.92	0.89	0.85	0.82	0.79	0.76	0.73	0.70	0.67	0.64
80	1.00	1.00	0.98	0.94	0.90	0.87	0.84	0.80	0.77	0.74	0.71	0.68	0.66
70	1.00	1.00	0.99	0.96	0.92	0.89	0.85	0.82	0.79	0.76	0.73	0.70	0.67
60	1.00	1.00	1.00	0.98	0.94	0.90	0.87	0.83	0.80	0.77	0.74	0.71	0.68
50	1.00	1.00	1.00	0.99	0.96	0.92	0.88	0.85	0.82	0.78	0.75	0.72	0.69

ALTITUDE (FEET ABOVE SEA LEVEL)

AFTERCOOLER HEAT REJECTION FACTORS

AIR TO TURBO (°F)	0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000
130	1.66	1.82	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90
120	1.52	1.68	1.76	1.76	1.76	1.76	1.76	1.76	1.76	1.76	1.76	1.76	1.76
110	1.37	1.53	1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.61
100	1.23	1.39	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46
90	1.09	1.24	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32
80	0.98	1.10	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
70	0.98	0.98	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
60	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
50	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98

ALTITUDE (FEET ABOVE SEA LEVEL)

FREE FIELD MECHANICAL & EXHAUST NOISE

100% Load Data			dB(A)	(dB)						
Free Field Mechanical	DISTANCE FROM THE ENGINE (FEET)	3.2	91.7	72.4	82.4	83.4	84.9	86.9	86.4	81.9	77.9
		22.9	81.7	65.6	76.1	74.1	72.6	78.1	76.1	70.6	65.6
		49.2	75.7	59.6	70.1	68.1	66.6	72.1	70.1	64.6	59.6
Free Field Exhaust	DISTANCE FROM THE ENGINE (FEET)	4.9	107.1	109.3	111.3	102.8	101.8	100.8	99.8	98.8	96.3
		22.9	93.7	97.4	99.4	87.9	86.9	86.9	86.4	86.4	83.4
		49.2	87.1	90.4	92.4	80.4	81.4	80.9	79.4	79.9	74.9
			Overal SPL	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 khz
				Octave Band Center Frequency (OBCF)							

FUEL USAGE GUIDE:

This table shows the derate factor required for a given fuel. Note that deration occurs as the methane number decreases. Methane number is a scale to measure detonation characteristics of various fuels. The methane number of a fuel is determined by using the Caterpillar Methane Number Calculation program.

ALTITUDE DERATION FACTORS:

This table shows the deration required for various air inlet temperatures and altitudes. Use this information along with the fuel usage guide chart to help determine actual engine power for your site.

ACTUAL ENGINE RATING:

It is important to note that the Altitude/Temperature deration and the Fuel Usage Guide deration are not cumulative. They are not to be added together. The same is true for the Low Energy Fuel deration (reference the Caterpillar Methane Number Program) and the Fuel Usage Guide deration. However, the Altitude/Temperature deration and Low Energy Fuel deration are cumulative, and they must be added together in the method shown below. To determine the actual power available, take the lowest rating between 1) and 2).

1) (Altitude/Temperature Deration) + (Low Energy Fuel Deration)

2) Fuel Usage Guide Deration

Note: For NA's always add the Low Energy Fuel deration to the Altitude/Temperature deration. For TA engines only add the Low Energy Fuel deration to the Altitude/Temperature deration whenever the Altitude/Temperature deration is less than 1.0 (100%). This will give the actual rating for the engine at the conditions specified.

AFTERCOOLER HEAT REJECTION FACTORS:

Aftercooler heat rejection is given for standard conditions of 77° F and 500 ft altitude. To maintain a constant air inlet manifold temperature, as the air to turbo temperature goes up, so must the heat rejection. As altitude increases, the turbocharger must work harder to overcome the lower atmospheric pressure. This increases the amount of heat that must be removed from the inlet air by the aftercooler. Use the aftercooler heat rejection factor to adjust for ambient and altitude conditions. Multiply this factor by the standard aftercooler heat rejection. Failure to properly account for these factors could result in detonation and cause the engine to shutdown or fail.

SOUND DATA:

Data determined by methods similar to ISO Standard DIS-8528-10. Accuracy Grade 3. SPL - Sound Pressure Level.

NOTES

1 ENGINE RATING IS WITH 2 ENGINE DRIVEN WATER PUMPS. TOLERANCE IS ± 3% OF FULL LOAD.

2 ISO 3046/1 ENGINE EFFICIENCY TOLERANCE IS (+)0, (-)5% OF FULL LOAD % EFFICIENCY VALUE. NOMINAL ENGINE EFFICIENCY TOLERANCE IS ± 5% OF FULL LOAD % EFFICIENCY VALUE

3 THERMAL EFFICIENCY: JACKET HEAT + LUBE OIL HEAT + EXH. HEAT TO 350°F.

4 TOTAL EFFICIENCY = ENGINE EFF + THERMAL EFF. TOLERANCE IS ± 10% OF FULL LOAD DATA.

5 ISO 3046/1 FUEL CONSUMPTION TOLERANCE IS (+)5, (-)0% OF FULL LOAD DATA. NOMINAL FUEL CONSUMPTION TOLERANCE IS ± 5 % OF FULL LOAD DATA.

6 UNDRIED AIR. FLOW TOLERANCE IS ± 5 %

7 INLET MANIFOLD PRESSURE TOLERANCE IS ± 5 %

8 INLET MANIFOLD TEMPERATURE TOLERANCE IS ± 9°F

9 TIMING INDICATED IS FOR USE WITH THE MINIMUM FUEL METHANE NUMBER SPECIFIED. CONSULT THE APPROPRIATE FUEL USAGE GUIDE FOR TIMING AT OTHER METHANE NUMBERS.

10 EXHAUST STACK TEMPERATURE TOLERANCE IS (+)63°F, (-)54°F.

11 WET EXHAUST. FLOW TOLERANCE IS ± 6 %

12 NOX VALUES ARE "NOT TO EXCEED"

13 CO. CO2. THC. and NMHC VALUES ARE "NOT TO EXCEED".

14 O2% TOLERANCE IS ± 0.2.

15 LHV RATE TOLERANCE IS ± 5%.

16 TOTAL JW HEAT (based on treated water) = JACKET HEAT + LUBE OIL HEAT TOLERANCE IS ± 10 % OF FULL LOAD DATA.

17 RADIATION HEAT RATE BASED ON TREATED WATER. TOLERANCE IS ± 50% OF FULL LOAD DATA.

18 LUBE OIL HEAT RATE BASED ON TREATED WATER. TOLERANCE IS ± 20% OF FULL LOAD DATA.

19 EXHAUST HEAT RATE BASED ON TREATED WATER. TOLERANCE IS ± 10% OF FULL LOAD DATA.

20 A/C HEAT (based on treated water) = A/C HEAT x A/C HEAT REJ. FACTOR. TOLERANCE IS ± 5 % OF FULL LOAD DATA.

Table 29
RECIPROCATING ENGINES

ENGINE DATA

Emission Point Number From Table 1(a) COMP2

APPLICATION
- X Gas Compression
- ___ Electric Generation
- ___ Refrigeration
- ___ Other (Specify) ___

Manufacturer Caterpillar
Model No. 3306 TA
Serial No. ___
Orig. Mfr. Date 5/2008
Rebuild Date(s) NA
No. of Cylinders ___
Compression Ratio ___

X 4 Stroke Cycle ___ Carburetted X Spark Ignited ___ Dual Fuel
___ 2 Stroke Cycle ___ Fuel Injected ___ Diesel

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

Ignition/Injection Timing: ___ Fixed ___ Variable

	Mfg. Rating	Proposed Operating Range
Horsepower	202	202
Speed (rpm)	1800	1800

FUEL DATA

X Field Gas ___ Landfill Gas ___ LP Gas ___ Other
___ Natural Gas ___ Digester Gas ___ Diesel

Engine Fuel Consumption 8155 BTU/bhp-hr
Heat Value (specify units) 905 (HHV) (LHV)
Fuel Sulfur Content <1% (granins/100 scf)(weight percent)

FULL LOAD EMISSIONS DATA

NO_x .5 g/bhp-hr ___ ppmv
CO 2.0 g/bhp-hr ___ ppmv
VOC(C_3^+) .1 g/bhp-hr ___ ppmv
Total HC ___ g/bhp-hr ___ ppmv

Attach information showing emissions versus engine speed and load.

Method of Emissions Control:
___ Lean Operation ___ Parameter Adjustment ___ SCR Catalyst
___ Stratified Charge X NSCR Catalyst ___ Other (Specify) ___

ADDITIONAL INFORMATION

On separate sheets attach the following:

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