

TECHNICAL REVIEW: AIR PERMIT BY RULE

Permit No.:	113819	Company Name:	Laredo Petroleum, Inc.	APD Reviewer:	Mr. Jonathan Wilmoth, P.E.
Project No.:	199312	Unit Name:	DL McMaster A&B 156 TB	PBR No(s).:	106.352(I) 2012-NOV-22, 106.359 2013-SEP-10.

GENERAL INFORMATION			
Regulated Entity No.:	RN106917248	Project Type:	Permit by Rule Application
Customer Reference No.:	CN603858937	Date Received by TCEQ:	October 1, 2013
Account No.:	none	Date Received by Reviewer:	January 30, 2014
City/County:	Garden City, Reagan County	Physical Location:	Go south on FM 33 17.7 miles, turn left on Radio Tower Rd and go 4.5 miles, turn left onto gravel rd 0.7 mile to site

CONTACT INFORMATION					
Responsible Official/ Primary Contact Name and Title:	Mr. David Woolf EHS Manager	Phone No.:	(918) 858-5160	Email:	DWOOLF@LAREDOPE TRO.COM
Technical Contact/ Consultant Name and Title:	Mr. Scott Rose Air Specialist	Phone No.:	(918) 858-5177	Email:	SROSE@LAREDOPETR O.COM
		Fax No.:	(918) 513-4571		
		Fax No.:	(918) 513-4571		

GENERAL RULES CHECK	YES	NO	COMMENTS
Is confidential information included in the application?		X	
Are there affected NSR or Title V permits for the project?		X	
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	
Do NSPS, NESHAP, or MACT standards apply to this registration?		X	Company indicates none apply.
Does NOx Cap and Trade apply to this registration?		X	
Is the facility in compliance with all other applicable rules and regulations?	X		
Is Registration Certified?	X		
Does the site handle sour oil or gas?		X	
Did the company use a Simulator program (such as ProMax?)		X	
Is planned MSS included in the registration?	X		

DESCRIBE OVERALL PROCESS AT THE SITE
<p>Laredo Petroleum, Inc. (Laredo) owns and operates the DL McMaster A&B-156 TB (Facility), an oil and natural gas gathering facility. Oil, natural gas, and produced water, which will be produced from wells in the surrounding field, will be transported to the facility through a gathering-line system. As line pressure decreases production may increase. Laredo will maintain sufficient records to demonstrate that actual emissions do not exceed the annual limits certified in this PBR.</p> <p>Oil, gas, and water from the wellhead pass through two separators. Water is sent to the water tank and the remaining fluids go to the heater treaters. Oil from the heater treaters is sent to the oil storage tanks and water is sent to the water tank. Oil and water will be stored on site before being transported off-site via trucks. The tanks are controlled by a vapor recovery unit (VRU). The vapors captured by the VRU will be routed directly into the gas sales line on the location.</p> <p>Oil production is estimated to average 360 barrels per day (BPD). Water production is estimated to average 600 BPD. Emissions from all storage tanks were estimated using the E&P Tank software and a sample from a representative site. The water tank calculations and water loading calculations assume all of the water is crude oil and 1% is emitted.</p> <p>The gas analysis used in the fugitive calculations is from a site in the same reservoir as the DL McMaster A&B-156 TB facility. Both sites have similar equipment configurations. Both the DL McMaster A&B-156 TB site and the sampled site are natural gas sites with associated liquid hydrocarbons.</p> <p>Emissions from blowdowns/MSS activities and VRU downtime are included in this application. Approximately 1000 cubic feet of gas could be vented to the atmosphere per hour during a blowdown or MSS activity. It is estimated that annual Blowdowns/MSS activities will not exceed 50 MCF of vented gas. It is estimated that the VRU downtime will not exceed 876 hours (10%) per year.</p> <p>All emission sources at the Facility are authorized under Texas Commission on Environmental Quality (TCEQ) permit by rule (PBR) 106.352 and 106.359.</p>

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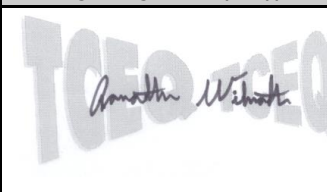
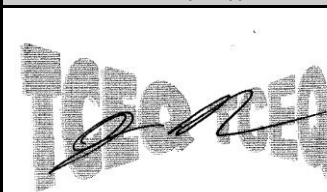
DESCRIBE PROJECT AND INVOLVED PROCESS

Company submitted initial PBR registration for this existing site.
Reviewer treated VRU downtime emissions as alternative operating scenario, not MSS.

ESTIMATED EMISSIONS

EPN / Emission Source	Specific VOC or Other Pollutants	VOC		NOx		CO		PM ₁₀		PM _{2.5}		SO ₂		Other	
		lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy
FUG / Sitewide Fugitive		0.46	2.01												
Tank 1 / Tank 1 – Crude Oil		0.56	2.46												
Tank 2 / Tank 2 – Crude Oil		0.56	2.46												
Tank 3 / Tank 3 – Produced Water		0.01	0.02												
HT 1 / Heater Treater 1		<0.01	0.01	0.05	0.22	0.04	0.18	<0.01	0.02	<0.01	0.02	<0.01	<0.01		
HT 2 / Heater Treater 2		<0.01	0.01	0.05	0.22	0.04	0.18	<0.01	0.02	<0.01	0.02	<0.01	<0.01		
HT 3 / Heater Treater 3		<0.01	0.01	0.05	0.22	0.04	0.18	<0.01	0.02	<0.01	0.02	<0.01	<0.01		
C LOAD / Crude Loading		29.76	7.09												
PW LOAD / Produced Water Loading		0.30	0.12												
MSS-VRU / VRU Downtime		21.63	9.47												
MSS-BLW / Site Blowdowns		20.46	0.51												
TOTAL EMISSIONS (TPY) *:			24.17		0.66		0.54		0.06		0.06		<0.01		
MAXIMUM OPERATING SCHEDULE:		Hours/Day				Days/Week				Weeks/Year			Hours/Year	8760	

*Total tpy emissions are as listed by company in registration file.

	TECHNICAL REVIEWER	PEER REVIEWER	FINAL REVIEWER
SIGNATURE:			See Hard Copy.
PRINTED NAME:	Mr. Jonathan Wilmoth, P.E.	Mr. James Nolan	Ms. Anne M. Inman, P.E., Manager
DATE:	January 30, 2014	January 30, 2014	February 3, 2014