TECHNICAL REVIEW: Oil and Gas Checklist

Permit No.:	174888	***Company Name:***	Pioneer Natural Resources USA, Inc.	***APD Reviewer:***	Ms. Amanda Andrews
Project No.:	388938	***Unit Name:***	Erwin 36-39h Tank Battery	***SP No(s).:***	6002 - 116.620 PRE 2011-FEB-27

GENERAL INFORMATION			
Regulated Entity No.:	RN111862033	**Date Received by TCEQ:**	February 14, 2025
Customer Reference No.:	CN600130447	**Date Received by Reviewer:**	February 18, 2025
City/County:	Greenwood, Midland County	**Physical Location:**	frm intx of fm 1379 n & farm to market 307 in greenwood, tx, e on farm to market 307 for 7.1 mi. l on tx-137 n for 1.5 mi. l on unnamed rd for 0.8 mi. to site on r.

CONTACT INFORMATION					
Responsible Official/ Primary Contact Name and Title:	Matt Mathis Vp Production Operations	**Phone No.:** **Fax No.:**	(432) 571-3105	**Email:**	MATTHEW.MATHIS@EXXONMOBIL.COM
Technical Contact/ Consultant Name and Title:	David Downard PE Hse Specialist	**Phone No.:** **Fax No.:**	(972) 969-5163	**Email:**	DAVID.DOWNARD@EXXONMOBIL.COM

GENERAL PROJECT INFORMATION	**YES**	**NO**	**COMMENTS**
Is confidential information included in the application?		X	
Are there affected NSR or Title V permits for the project?		X	
Are there permit limits on using PBRs at the site?		X	
Is PSD or Nonattainment netting required?		X	
Has the fee been paid?	X		Receipt number 582EA000652223; Reference 750113
Was an impacts evaluation required for the project?		X	
Have MSS emissions been accounted for in site-wide totals?		X	MSS will be claimed under 106.359.
Site Specific Analysis used?		X	Representative liquid and gas analysis meets TCEQ criteria. Site specific H2S analysis
Are all vents ≥ 20 ft, and meet 352(l)(4) as applicable?	X		Vent height(s) > 20 ft

Compliance History Evaluation - 30 TAC Chapter 60 Rules	
A compliance history report was reviewed on:	**March 4, 2025**
Site rating & classification:	**Unclassified**
Company rating & classification:	**0.78 / Satisfactory**

PROJECT RULES	**How was rule compliance demonstrated?** *(i.e., checklist, rule language, etc.)*
116.620	Compliance demonstrated through rule applicability and how the project meets each part.

DESCRIBE THE OVERALL PROCESS AT THE SITE

The Erwin 36-39H Tank Battery is a natural gas, oil, and water production site. A mixture of oil, gas, and water enters the Site through a series of separators and heater treaters (FINs HT1 – HT2) where the gas phase is separated from the liquid phase and the water is separated from the oil. The gas from this separation process is sent off site via the sales gas pipeline. A portion of the sales gas is diverted through the engine-driven compressors (FINs ENG1 – ENG2).

The oil from the separation process is sent into oil tanks (FINs TANK1 – TANK3). The water from the separation process flows into produced water storage tanks (FINs TANK4 – TANK6),

The sour streams will also be treated in H2S treatment skids. Scavenger liquid will be stored in scavenger liquid tanks (FIN TK-SCAV).

Alternate Operating Scenario
There is (1) alternate operating scenario (AOS) for the site. AOS-1 occurs when a portion of the facility gas is sent to the flare instead of the sales line. The permit has accounted for up to 500 hours flaring of the facility gas.
Vapor Recovery Units (VRU)

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Tank vapors will be captured by VRUs that will route uncondensed vapors to the sales gas pipeline. As production may vary, the quantity of VRUs maintained on site may fluctuate. At least two (2) VRUs will be on site at all times and additional VRUs will be placed on site on an as-needed basis. In each case, one (1) of the VRUs acts as a backup during downtime. It is assumed that when one (1) VRU is down for maintenance, vapors will be routed to the backup VRU. Therefore, tank emissions will be controlled during 100% of the year at 100% capture efficiency due to the multiple VRUs on site.

Loading Operations
Produced oil and water from the storage tanks are primarily piped off site. However, for operational flexibility it has been assumed that up to 1,576,800 barrels per year (bbl/yr) of the produced oil and up to 93,600 bbl/yr of the produced water will be loaded into tanker trucks and trucked off site. Vapors from the oil loading operations (FIN LOAD1) are controlled by a flare (FIN FL1). Produced water loading operations (FIN LOAD2) will be performed with no emissions controls.

DESCRIBE THE PROJECT

Pioneer Natural Resources USA, Inc. (Pioneer), owns and operates the Erwin 36-39H Tank Battery (the Site) located near Greenwood in Midland County, Texas.

This SP revision is being submitted to authorize the addition of two (2) reciprocating compressor engines, two (2) vapor recovery units, and two (2) scavenger liquid storage tanks, to register the site as sour, to update the production throughputs, to update the water truck loading emission calculation methodology, and to update the Alternate Operating Scenario (AOS).

FEDERAL STANDARDS APPLICABILITY

Applicable Rule(s) :	*Y*	*NA*	*Explanation of how it meets (if applicable), or why it isn't applicable:*
NSPS Subpart JJJJ	X		Applicable. Per 40 CFR §60.4230(a)(4)(i), engines manufactured on or after July 1, 2007 with maximum engine power greater than or equal to 500 horsepower (hp) are subject to the emission standards specified in the rule. ENG2 will comply with the applicable requirements listed in this rule. ENG1 was manufactured prior to the applicability date of this rule.
NSPS Subpart OOOOb	X		The Site now has NSPS OOOOb applicability due to site construction and new well production post December 6, 2022.
MACT Subpart ZZZZ	X		Applicable. The Site has two (2) stationary spark ignition internal combustion engines. ENG2 will comply with the requirements of this subpart by complying with applicable requirements listed under NSPS Subpart JJJJ. No further requirements apply under this subpart for ENG2. ENG1 will comply with all applicable requirements of this subpart.

SITE INFORMATION

What is the Natural Gas Throughput?	25	MMSCF/day
What is the Oil/Condensate Throughput?	12000	bbl/day
What is the Produced Water Throughput?	51000	bbl/day
Site specific H2S content of inlet gas (ppm)	800	ppm
If sour, provide distance (ft.) to nearest off property receptor.	4025	ft.

FACILITY INFORMATION

Equipment:	**# of each**	**Calculation Methodology**
Compressor Engines	2	MFG data; AP-42
Storage Tanks	7	ProMax
Heater Treaters	2	AP-42
Flares / Combustion Control Devices	1	ProMax and TNRCC Guidance Document for Flares and Vapor Oxidizers
VRUs	2 or more	ProMax
Separators	Y	

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Truck Loading	Y	AP-42
Fugitives	Y	TCEQ Air Permit Technical Guidance for Chemical Sources, Fugitive Guidance, dated June 2018.
MSS	Y	MSS will be claimed under 106.359.

CONTROL DEVICE(S)				
VRU	Runtime:	100%	Controls what?	Tank vapors will be captured by VRUs that will route uncondensed vapors to the sales gas pipeline.
	Capture Efficiency:	100%		
Flare	Destruction Efficiency:	98%	Controls what?	Vapors from the oil loading operations (FIN LOAD1) are controlled by a flare (FIN FL1).
Additional Notes:	NOTE: At least two (2) VRUs will be on site at all times and additional VRUs will be placed on site on an as-needed basis. In each case, one (1) of the VRUs acts as a backup during downtime. It is assumed that when one (1) VRU is down for maintenance, vapors will be routed to the backup VRU. Therefore, tank emissions will be controlled during 100% of the year at 100% capture efficiency due to the multiple VRUs on site. Operation of the VRUs will follow the requirements outlined in the Texas Commission on Environmental Quality (TCEQ) "Vapor Recovery Unit Capture/Control Guidance" document.1 The following equipment and operating procedures will be in place: • Mechanical VRU (mVRU) designed to capture vapors; • Sensing equipment that will allow the operator to verify proper functioning; • Redundant equipment to confirm proper functioning; • Proper rerouting equipment as described in the guidance; • Blanket gas system to ensure no oxygen enters the system; • Compressor capable of recovering both wet and dry gas that responds as needed to varying conditions; and •Proper continuous monitoring and recordkeeping.			

ENGINE INFORMATION	**YES**	**NO**	**COMMENTS**
Was NOx/NAAQs compliance demonstrated?	X		*Screen 3*
HCHO included in VOC total?		X	
Was a Catalyst Used?	X		Oxidation catalyst.

D= 4,305 feet and K = 8

PBR 106.261 and 106.262 Emission Limits

Chemical	PBR Claimed	L, mg/m^3	Emission Limit (E = L/K), lb/hr	Emission Limit tpy	Actual Emissions lb/hr	Actual Emissions tpy
Hydrogen Sulfide	116.620(a)(17)	10	1.25	5.00	0.4648	0.0309
Propane	106.261(a)(2)	--	6.00	10.00	5.9967	4.6593
Butanes	106.261(a)(2)	--	6.00	10.00	3.0946	2.4315
Pentanes	106.262(a)(2)	350	6.00	5.00	1.1668	0.9192
Hexanes	106.262(a)(2)	176	6.00	5.00	0.8225	0.7346
Heptanes	106.262(a)(2)	350	6.00	5.00	0.1555	0.1804
Octanes	106.262(a)(2)	350	6.00	5.00	0.2073	0.2842
Nonanes	106.262(a)(2)	1,050	6.00	5.00	0.0530	0.1542
n-Decane	106.261(a)(3)	--	1.00	4.38	0.0371	0.1623
Undecanes	106.261(a)(3)	--	1.00	4.38	0.0337	0.1475
Dodecane	106.261(a)(3)	--	1.00	4.38	0.0279	0.1222
Tridecane	106.261(a)(3)	--	1.00	4.38	0.0312	0.1366
Tetradecane	106.261(a)(3)	--	1.00	4.38	0.0271	0.1184

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Pentadecane	106.261(a)(3)	--	1.00	4.38	0.0251	0.1097
Hexadecane	106.261(a)(3)	--	1.00	4.38	0.0202	0.0885
Heptadecane	106.261(a)(3)	--	1.00	4.38	0.0199	0.0870
Octadecane	106.261(a)(3)	--	1.00	4.38	0.0207	0.0907
Nonadecane	106.261(a)(3)	--	1.00	4.38	0.0201	0.0879
Eicosane	106.261(a)(3)	--	1.00	4.38	0.0156	0.0684
Heneicosane	106.261(a)(3)	--	1.00	4.38	0.0144	0.0629
Docosane	106.261(a)(3)	--	1.00	4.38	0.0136	0.0594
Tricosane	106.261(a)(3)	--	1.00	4.38	0.0125	0.0546
Tetracosane	106.261(a)(3)	--	1.00	4.38	0.0115	0.0503
Pentacosane	106.261(a)(3)	--	1.00	4.38	0.0109	0.0475
Hexacosane	106.261(a)(3)	--	1.00	4.38	0.0102	0.0445
Heptacosane	106.261(a)(3)	--	1.00	4.38	0.0103	0.0451
Octacosane	106.261(a)(3)	--	1.00	4.38	0.0096	0.0418
Nonacosane	106.261(a)(3)	--	1.00	4.38	0.0096	0.0418
Triacontane	106.261(a)(3)	--	1.00	4.38	0.1089	0.4763
Benzene	106.262(a)(2)	3	0.38	1.64	0.1842	0.0305
Toluene	106.262(a)(2)	188	6.00	5.00	0.1433	0.0355
Ethylbenzene	106.262(a)(2)	434	6.00	5.00	0.1433	0.0137
Xylene	106.262(a)(2)	434	6.00	5.00	0.0483	0.0275
2,2,2 hexahydro-1,3,5-triazine	106.261(a)(3)		1.00	4.68	0.1235	0.2326
2-aminoethanol	106.262(a)(2)	7.5	0.94	4.11	0.1235	0.2326
Methanol 2-aminoethanol 1,3,5 Triazine Hexahydro - 1,3,5	106.262(a)(2)	262	6.00	5.00	0.1235	0.2326
Hexahydro - 1,3,5 trimethyl	106.261(a)(3)		1.00	4.38	0.1235	0.2326
				Total VOC Project Emissions:	**12.511**	**11.8467**
				Total H2S Project Emissions:	**0.4648**	**0.0309**

ESTIMATED EMISSIONS

EPN / Emission Source	VOC		NOx		CO		$PM_{2.5}$ / PM_{10}		SO_2		H2S		CH2O	
	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy
Newly Authorized EPNs														
ENG1 / Compressor Engine 1	1.83	7.99	4.56	19.99	4.56	19.99	0.08	0.33	<0.01	0.02			0.23	1.00
ENG2 / Compressor Engine 2	2.43	10.66	3.04	13.33	6.09	26.65	0.10	0.43	0.01	0.03			0.30	1.33
TK-SCAV / H2S Scavenger Liquid Storage	0.12	0.23												
Updated Previously Authorized EPNs														
FUG / Site Fugitives	3.67	16.09									0.01	0.04		
LOAD1 / Uncaptured Oil Loading	0.62	2.39									<0.01	<0.01		
LOAD2 / Water Loading	0.90	0.32									0.44	0.16		
FL1 / Flare	0.80	2.96	0.25	0.98	0.50	1.95	0.01	0.03	0.20	0.77	<0.01	0.01		
AOS-FL1 / AOS Flare Operations	23.20	5.80	14.17	3.54	28.29	7.07	0.65	0.16	11.76	2.94	0.13	0.03		
Unchanged Previously Authorized EPNs														
HT1 / Heater Treater 1	0.01	0.04	0.17	0.74	0.14	0.62	0.01	0.06	<0.01	<0.01			<0.01	<0.01
HT2 / Heater Treater 2	0.01	0.04	0.17	0.74	0.14	0.62	0.01	0.06	<0.01	<0.01			<0.01	<0.01

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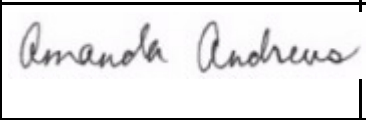
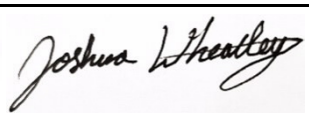
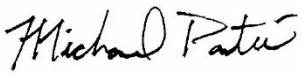
TOTAL EMISSIONS (TPY):		**46.52**		**39.32**		**56.90**		**1.07**		**3.76**		**0.24**		**2.33**
MAXIMUM OPERATING SCHEDULE:	**Hours/Day**	24	**Days/Week**	7	**Weeks/Year**	52	**Hours/Year**	8760						

NOTE: Formaldehyde (**CH2O)** is NOT included in the VOC emissions totals.

	TECHNICAL REVIEWER	**PEER REVIEWER**	**FINAL REVIEWER**
SIGNATURE:			
PRINTED NAME:	Amanda Andrews, Reviewer	Joshua Wheatley, Team Lead	Michael Partee, Manager
DATE:	March 5, 2025	March 5, 2025	March 6, 2025