OIL AND GAS TECHNICAL REVIEW

Permit No.:	180758	***Company Name:***	Firebird Energy II LLC	***APD Reviewer:***	Ms. Amanda Hernandez
Project No.:	395110	***Site/Area Name:***	Mockingbird Production Facility	***PBR No.:***	106.352 2012-NOV-22, 106.359

GENERAL INFORMATION			
Regulated Entity No.:	RN111584025	**Project Type:**	Permit by Rule Application
Customer Reference No.:	CN606185593	**Date Received by TCEQ:**	July 3, 2025
City/County:	Midland, Midland County	**Date Received by Reviewer:**	July 7, 2025
Physical Location:	from itxn of n big spring st & w illinois ave, head w on w illinois ave 1.3 mi to tx-158 3.1 mi. then slight r/merge onto n loop 250 frontage rd w & go 1.2 mi. turn left onto farm rd 1369/tremont ave and go 1.4 mi to destination on the west.		

CONTACT INFORMATION					
Responsible Official/Primary Contact Name and Title:	Chris Gardiner VP Of Operations	**Phone No.:** **Fax No.:**	(817) 857-7800	**Email:**	CGARDINER@FIREBIRDENERGY.COM
Technical Contact/Consultant Name and Title:	Eric Ward Air Quality Environmental And Regulatory Manager	**Phone No.:** **Fax No.:**	(970) 812-2657	**Email:**	ERIC.WARD@ROSEROCKENV.COM

Compliance History Evaluation - 30 TAC Chapter 60 Rules	
A compliance history report was reviewed on:	**July 8, 2025**
Site rating & classification:	**Unclassified**
Company rating & classification:	**Unclassified**
If site was rated unsatisfactory, what action(s) occurred as a result:	**N/A**

GENERAL PROJECT INFORMATION	**YES**	**NO**	**COMMENTS**
Is confidential information included in the application?		X	
Are there associated NSR or Title V permits at the site?		X	
Are there any registrations or permits that will be incorporated registration?		X	
Is the application for renewal of an existing standard permit?		X	
Do NSPS, NESHAP, or MACT standards apply to this registration?	X		NSPS A, OOOOb
Was the TCEQ Oil and Gas Emission Calculation Spreadsheet (or equivalent) included in the application?	X		
Was an impacts evaluation included in the application?		X	
Were appropriate gas and liquid analyses included in the application?	X		
Site-specific gas and liquid analysis used? If representative analysis used provide justification.	X		Site specific gas and liquid analysis included.
Extended analysis, including benzene?	X		
Has the fee been paid?	X		773688 / 582EA000675093

NONATTAINMENT AND PSD CHECK	**YES**	**NO**	**COMMENTS**
Is the site located in a nonattainment area?		X	Site is in Midland County.
Is the project major or is the site major for nonattainment source levels?		X	
Is the projects potential to emit of VOC or NOx increasing above the applicable nonattainment major modification level?		X	
Is the project's potential to emit of VOC or NOx increasing above the nonattainment netting trigger?		X	
Does NOx Cap and Trade apply to this registration?		X	
Are emissions of any criteria pollutant increasing by 250 tpy at an unnamed source?		X	
Are emissions increasing above the PSD significance levels at an existing PSD major source site?		X	

MAINTENANCE, STARTUP, AND SHUTDOWN (MSS) EMISSIONS	**YES**	**NO**	**COMMENTS**
Are planned MSS emissions being registered with this authorization?	X		Firebird Energy II LLC is certifying MSS emissions under rule 106.359.

OIL AND GAS TECHNICAL REVIEW

Permit No.:	180758	***Company Name:***	Firebird Energy II LLC	***APD Reviewer:***	Ms. Amanda Hernandez
Project No.:	395110	***Site/Area Name:***	Mockingbird Production Facility	***PBR No.:***	106.352 2012-NOV-22, 106.359

30 TAC §106.352 RULE CHECK		
REQUIREMENTS	YES, NO, or n/a	OTHER / COMMENTS
If the site conditions the natural gas (with a glycol dehydrator, amine unit, sulfur recovery unit, etc.), it handles less than two long tons per day of sulfur compounds (1 long ton = 2240 pounds). *Long tons per day sulfur compounds = (MMSCF/day of inlet gas)*(MW of inlet gas)*(H_2S wt fraction) / (0.84896)*	N/A	Site does not condition natural gas.
(1) All compressors will meet the requirements of 106.512.	N/A	Site does not have an engine.
(1) All flares will meet the requirements of 106.492.	N/A	There is an emergency flare on site, no emissions will be registered under this authorization.
(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 section, will be equal to or below 25 tons per year (tpy) each of sulfur dioxide (SO_2), all other sulfur compounds combined, or all volatile organic compounds (VOC) combined; and 250 tpy each of nitrogen oxide and carbon monoxide. 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.	Y	
(3) If the facility handles sour gas, it will be located at least 1/4 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.	N/A	Sweet site.
(4) Total emissions of sulfur compounds, excluding sulfur oxides, from all vents will be equal to or below 4.0 pounds per hour (lb/hr).	N/A	No vents emit H2S.
(4) The height of each vent emitting sulfur compounds meets the following requirements, and is in no case less than 20 feet: (NOTE: other values may be interpolated) H_2S (lb/hr) — Minimum Vent Height (ft) 0.27 — 20 0.60 — 30 1.94 — 50 3.00 — 60 4.00 — 68	N/A	
(5) If the site handles sour gas, the company will register the site by submitting Form PI-7 or PI-7-CERT before operations begin.	N/A	Sweet site. Site wide emissions certified, PI-7CERT submitted through STEERS.

FEDERAL STANDARDS APPLICABILITY			
Applicable Rule(s) :	*Y*	*NA*	*Explanation of how it meets (if applicable), or why it isn't applicable:*
NSPS Subpart A	X		Firebird Energy II LLC (Firebird) acknowledges their responsibility to NSPS subpart A and will comply with all applicable requirements.
NSPS Subpart Kb		X	In accordance with 40 CFR §60.110b(d)(4), Subpart Kb does not apply to storage vessels used for petroleum or condensate prior to custody transfer with a design capacity less than or equal to 1,589.874 m^3. The storage tanks at this site are used for pre-custody transfer purposes; therefore, Subpart Kb is not applicable.
NSPS Subpart Kc		X	As stated in 40 CFR §60.110c, storage vessels constructed, modified, or reconstructed after October 4, 2023, with a capacity ≥ 1,589.874 m^3 and used for petroleum or condensate prior to custody transfer are exempt. The facility's tanks meet this exemption; thus, Subpart Kc is not applicable.
NSPS Subpart OOOO		X	The Battery was not constructed, modified or reconstructed after September 18th, 2015, and on or before December 6th, 2022.
NSPS Subpart OOOOa		X	This subpart is not applicable because the facility commenced new construction/modification after December 6, 2022. Nine additional Mockingbird wells were completed, commencing operations on June 4, 2025. This resulted in increased production to the tank battery.
NSPS Subpart OOOOb	X		The Mockingbird Facility is subject to Subpart OOOOb. The facility commenced recompletion operations after December 6, 2022, and will comply with the applicable compliance monitoring, emissions limits, and control technology requirements outlined in this subpart. Collection of fugitive emissions components at well sites and compressor stations that commenced construction, modification, or reconstruction after December 6, 2022 are also subject to the leak detection and repair requirements listed under this rule. Firebird Energy II LLC (Firebird) will comply with these requirements.

OIL AND GAS TECHNICAL REVIEW

Permit No.:	180758	***Company Name:***	Firebird Energy II LLC	***APD Reviewer:***	Ms. Amanda Hernandez
Project No.:	395110	***Site/Area Name:***	Mockingbird Production Facility	***PBR No.:***	106.352 2012-NOV-22, 106.359

			Tank batteries that commenced construction, reconstruction, or modification after December 6, 2022 with potential to emit more than six (6) tons of VOC per year or more than twenty (20) tons of methane per year are subject to the rule. Compliance with §60.5370b(a)(3)(i) is applicable, and any associated control device requirements, Firebird will comply with these requirements. Process controllers that commenced construction, reconstruction, or modification after December 6, 2022 are subject to this rule. Firebird will comply with these requirements, as applicable.

DESCRIBE OVERALL PROCESS AT THE SITE

Natural Gas Handling: Produced natural gas is routed through a gas scrubber upon entering the tank battery, where it exits the site through sales. Flash gas from the heater treaters is routed through a separator and scrubber system prior to the sales gas pipeline.

Oil Handling: Crude oil enters the tank battery through two (2) 1.5 MMBTU/hr heater treaters for further separation of water and gas from the oil stream. The oil then flows to a vapor recovery tower (VRT) prior to being routed to five (5) 750-barrel oil storage tanks. Crude oil is transferred offsite through an electric driven Lease Automatic Custody Transfer (LACT) unit. Gas vapors from oil stream generated by the heater treaters are captured by the VRT and routed to an electric vapor recovery unit (VRU), which compresses the recovered vapors into the sales gas line. The VRU is expected to be operational 95% of the year, downtime vapors are routed to the Combustor (COMB-1).

Produced Water Handling: Produced water entering the tank battery is routed through a 1,000-barrel gun-barrel (GB1) for gravity separation before transfer to four (4) 750-barrel produced water tanks (TANK6–TANK9) for temporary storage. Oil from the gun barrel is routed to the oil storage tanks. Produced water is then pumped offsite to a nearby saltwater disposal (SWD) facility using electric-driven pumps.

Vapors generated (flashing/working/breathing losses) from gun-barrel, crude oil, and produced water storage tanks during normal operations are routed to an onsite enclosed combustor (COMB1) for destruction.

During maintenance periods, sales gas pipeline downtime, and compressor downtime, natural gas is directed to the facility's off site flare for vapor control and destruction. The facility processes gas containing less than 24 ppm H2S and is considered sweet. Fugitive emissions (FUG) from piping and equipment components, along with emissions associated with planned miscellaneous maintenance, startup, and shutdown (MSS) activities, have been included in the facility's emissions calculations for this registration.

DESCRIBE PROJECT AND INVOLVED PROCESS

Firebird Energy II LLC (Firebird) owns and operates the Mockingbird Production Facility located in Midland County, Texas. The Mockingbird Production Facility is a minor oil and natural gas production site consisting of three operational pads, a wellhead pad, tank battery pad, and off-site flare pad. The tank battery pad is the only site that will be authorized under this permit. The well pad and off-site flare pad are over 1,320 feet away from the tank battery, therefore are not included in this authorization.

The Mockingbird Production Facility is currently authorized under APD CERT permit number 170630. Firebird is requesting to void permit number 170630 upon issuance of this permit. All facilities at the site will now be authorized under this authorization (permit number 180758). Firebird has chosen to register and certify their site under rules 106.352(l) and 106.359.

OIL AND GAS FACILITY GENERAL INFORMATION

Natural Gas Throughput (MMSCF/day):	13,500	**H_2S Content of Inlet Gas:**	<24ppmv
Oil Throughput (bbl/day):	6,400	**Is the gas sweet or sour?**	Sweet
Condensate/ Oil Throughput (bbl/day):	---	**Is this an existing site?**	Yes
Produced Water Throughput (bbl/day):	10,000	**Has the site been registered before?**	Yes

EQUIPMENT/PROCESSES AT SITE

Number of each:	**Compressor Engines:**	---	**Glycol dehydrators:**	---	**VRU:**	Y
	Separators:	Y	**Amine units:**	---	**Fugitives:**	Y
	Storage Tanks:	10 (5 Oil / 4 Produced Water / 1 Gunbarrel)	**Heater Treaters:**	2	**MSS:**	Y
	Truck Loading:	N	**Combustor:**	1	**VRT:**	Y

STORAGE TANKS

Tank Identifier (EPN)	Capacity of Tank (bbl)	Throughput (bbl/day)	Contents of Tank	Working and breathing Loss Calculation Method*	Flash Loss Calculation Method	Other
TANK 1	750	6,400	Oil	Promax		
TANK 2	750	6,400	Oil			
TANK 3	750	6,400	Oil			
TANK 4	750	6,400	Oil			

OIL AND GAS TECHNICAL REVIEW

Permit No.:	180758	***Company Name:***	Firebird Energy II LLC	***APD Reviewer:***	Ms. Amanda Hernandez
Project No.:	395110	***Site/Area Name:***	Mockingbird Production Facility	***PBR No.:***	106.352 2012-NOV-22, 106.359

TANK 5	750	6,400	Oil		
TANK 6	750	10,000	Produced Water		
TANK 7	750	10,000	Produced Water		
TANK 8	750	10,000	Produced Water		
TANK 9	750	10,000	Produced Water		
GB1	1,000	10,000	Condensate		

VAPOR RECOVERY UNIT (VRU)	
What equipment/emissions are controlled by the VRU?	Heater treater oil stream vapors
Where are vapors routed?	Under normal operations, vapors are routed to sales gas pipeline. During VRU downtime (5% annually), alternative operating scenario (AOS) occurs where vapors are routed to combustor (COMB-1).
Control efficiency claimed?	100% control efficiency
Justification if more than 95% control efficiency claimed:	- 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; - Compressor capable of recovering both wet and dry gas that responds as needed to varying conditions; and - Proper continuous monitoring and recordkeeping.

HEATERS AND BOILERS (INCLUDING GLYCOL DEHYDRATOR REBOILERS)

Identifier (EPN)	Rating (MMBtu/hr)	Operating Hours per year	Fuel Heat Value (Btu/SCF)	NOx emissions Factor Used
HEAT1	1.5	8,760	1,118	100
HEAT2	1.5	8,760	1,118	100

TANK BATTERY FUGITIVES [EMISSIONS CALCULATED USING EMISSION FACTORS FROM EPA DOCUMENT 4531, R-95-017, Table 2-4]

	Valves	Flanges	Connectors	Open Ended lines	Pump Seals	Other	VOC content of stream (weight %)	Total Annual Emissions (tpy)
Gas	310	---	884	32	---	18	13.53	2.835
Light Oil	16	24	40	---	---	---	100.00	
Heavy Oil	16	24	40	---	---	---	100.00	

If VOC content of gas stream <100%, was inlet or other laboratory gas analysis included?	Yes	**Date of Sample:**	01/14/2025	**VOC content from lab analysis (wt %):**	13.59	**H_2S content from lab analysis (wt %):**	0.0001

THERMAL COMBUSTOR – COMB1

Process or Emergency flare?	Process	**NOx emission factor used:**	0.138 lb/MMBtu
Steam assisted (yes/no)?	No	**CO emissions factor used:**	0.2755 lb/MMBtu
VOC Destruction Efficiency: (must justify if over 98%)	98	**H_2S Destruction Efficiency:**	98

Sources of emissions routed to flare	Flow Rate of Each Source (SCF/hour)	Heat Content of Each Source (Btu/SCF)	H_2S Emissions From Each Source (lb/hr)	VOC Emissions From Each Source (lb/hr)
Pilot	55.0	1,118.0	---	0.48
Oil Tank Vapors	300.0	1,726.0		
Water Tank Vapors	422.0	932.0		
Heater Treater Oil Stream Vapors (VRU Downtime)	3,678	2,030		

MAXIMUM ALLOWABLE EMISSION RATES TABLE (MAERT)

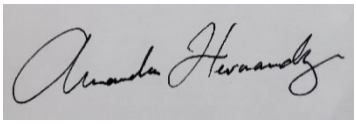
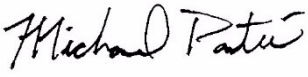
EPN / Emission Source	VOC		NOx		CO		PM/ $PM_{2.5}$/ PM_{10}		SO_2		Benzene		HAPs		H_2S	
	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy
HEAT1 / Heater Treater	0.01	0.03	0.13	0.59	0.11	0.49	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.06	---	---
HEAT2 / Heater Treater	0.01	0.03	0.13	0.60	0.11	0.50	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.06	---	---

OIL AND GAS TECHNICAL REVIEW

Permit No.:	180758	***Company Name:***	Firebird Energy II LLC	***APD Reviewer:***	Ms. Amanda Hernandez
Project No.:	395110	***Site/Area Name:***	Mockingbird Production Facility	***PBR No.:***	106.352 2012-NOV-22, 106.359

FUG1 / Tank Battery Fugitives		0.65	2.84	---	---	---	---	---	---	---	---	<0.01	<0.01	0.04	0.16	---	---
COMB1	Pilot	0.01	0.03	0.01	0.04	0.02	0.07	---	---	---	---	---	---	<0.01	<0.01	---	---
	Oil Tank Vapors	0.32	1.41	0.07	0.31	0.14	0.62	---	---	<0.01	0.01	<0.01	<0.01	0.05	0.23	---	---
	Water Tank Vapors	0.09	0.37	0.05	0.24	0.11	0.48	---	---	<0.01	0.01	<0.01	<0.01	0.02	0.10	---	---
	VRU Downtime	0.06	0.28	1.03	0.23	2.06	0.45	---	---	<0.01	0.01	<0.01	<0.01	0.06	0.26	---	---
TANK 1 / Oil Tank Emissions (Uncaptured)		0.06	0.28	---	---	---	---	---	---	---	---	<0.01	<0.01	0.01	0.05	---	---
TANK 2 / Oil Tank Emissions (Uncaptured)		0.06	0.28	---	---	---	---	---	---	---	---	<0.01	<0.01	0.01	0.05	---	---
TANK 3 / Oil Tank Emissions (Uncaptured)		0.06	0.28	---	---	---	---	---	---	---	---	<0.01	<0.01	0.01	0.05	---	---
TANK 4 / Oil Tank Emissions (Uncaptured)		0.06	0.28	---	---	---	---	---	---	---	---	<0.01	<0.01	0.01	0.05	---	---
TANK 5 / Oil Tank Emissions (Uncaptured)		0.06	0.28	---	---	---	---	---	---	---	---	<0.01	<0.01	0.01	0.05	---	---
TANK 6 / Produced Water Tank Emissions (Uncaptured)		0.02	0.09	---	---	---	---	---	---	---	---	<0.01	0.05	0.02	0.07	---	---
TANK 7 / Produced Water Tank Emissions (Uncaptured)		0.02	0.09	---	---	---	---	---	---	---	---	<0.01	0.05	0.02	0.07	---	---
TANK 8 / Produced Water Tank Emissions (Uncaptured)		0.02	0.09	---	---	---	---	---	---	---	---	<0.01	0.05	0.02	0.07	---	---
TANK 9 / Produced Water Tank Emissions (Uncaptured)		0.02	0.09	---	---	---	---	---	---	---	---	<0.01	0.05	0.02	0.07	---	---
GB1 / Produced Water Gunbarrel Tank Emissions (Uncaptured)		0.02	0.09	---	---	---	---	---	---	---	---	<0.01	0.05	0.02	0.07	---	---
MSS / Miscellaneous Maintenance, Start-up, and Shut down Activities		0.06	0.25	---	---	---	---	---	---	---	---	---	---	---	---	---	---
TOTAL EMISSIONS (TPY):			**7.09**		**2.01**		**2.61**		**<0.01**		**0.03**		**0.25**		**1.47**		**---**
																MAXIMUM OPERATING SCHEDULE: Hours/Year	**8,760**

Note: HAPs are not included in VOC totals.

	TECHNICAL REVIEWER	PEER REVIEWER	FINAL REVIEWER
SIGNATURE:			
PRINTED NAME:	Amanda Hernandez	Trishia McDonald, Team Leader	Michael Partee, Manager
DATE:	07/18/2025	07/18/2025	7/18/2025