FLATROCK
ENGINEERING & ENVIRONMENTAL

June 8, 2022

Texas Commission on Environmental Quality (TCEQ)
Air Permits Initial Review Team (APIRT)
Mail Code 161
P.O. Box 13087
Austin, Texas 78711-3087

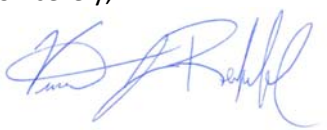
Re: APD-CERT Initial Application
Magnolia Oil & Gas Operating LLC (CN605556885)
Dutton Ranch SWD
Washington County, Texas

APIRT:

On behalf of Magnolia Oil & Gas Operating LLC (Magnolia), Flatrock Engineering & Environmental, LLC respectfully submits the attached APD-Certification application for the Dutton Ranch SWD location in Washington County, Texas. This application is being submitted via the STEERS e-permits program.

Should you have any questions or concerns, please feel free to contact me at Vincent.rehkopf@flatrockenergy.net.

Sincerely,



Vincent Rehkopf
EHS Specialist
Flatrock Engineering & Environmental, LLC

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FLATROCK ENGINEERING & ENVIRONMENTAL, LLC.
ON BEHALF OF MAGNOLIA OIL & GAS OPERATING LLC

Dutton Ranch SWD

APD-CERTIFICATION APPLICATION

SUBMITTED TO TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
OFFICE OF AIR
JUNE 2022

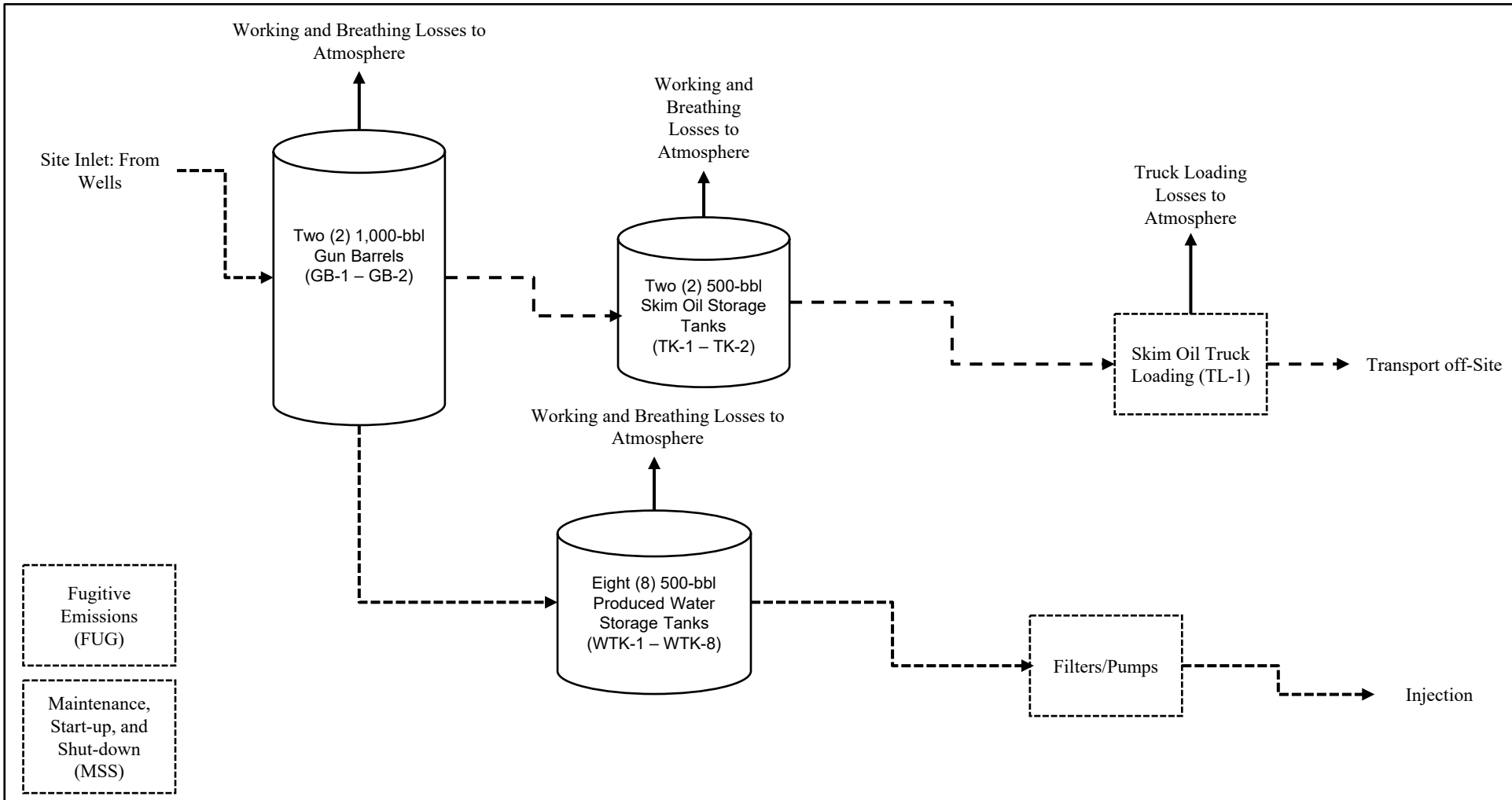
INTRODUCTION

Magnolia Oil & Gas Operating LLC (Magnolia) operates the Dutton Ranch SWD (Site) in Washington County, Texas pursuant to the terms and conditions of 30 TAC §106.4, 30 TAC §106.351, 30 TAC §106.352(l), and 30 TAC §106.359. With this application Magnolia requests the APD-Certification authorization for this Site.

The Site now consists of two (2) 1,000-bbl produced water gunbarrel tanks (GB-1 – GB-2), two (2) 500-bbl skim oil storage tanks (TK-1 – TK-2), eight (8) 500-bbl produced water storage tanks (WTK-1 – WTK-8), truck loading operations (TL-1), emissions from fugitive sources (FUG), and planned maintenance, startup, and shutdown (MSS) activities.

PROCESS DESCRIPTION

Produced water enters the Site through pipeline and is routed to two (2) 1,000-bbl produced water gunbarrel tanks (GB-1 – GB-2) for additional separation. Skim oil from GB-1 – GB-2 is routed to two (2) 500-bbl skim oil storage tanks (TK-1 – TK-2) prior to being loaded into truck (TL-1). Produced water from GB-1 – GB-2 is routed to eight (8) 500-bbl produced water storage tanks (WTK-1 – WTK-8). Produced water from WTK-1 – WTK-8 exits the Site via injection into disposal well(s). Vapors from GB-1 – GB-2, TK-1 – TK-2, WTK-1 – WTK-8, and TL-1 are vented to atmosphere. In addition to these processes, there are emissions from fugitive sources (FUG) and planned maintenance, start-up, and shut-down activities (MSS).



Dutton Ranch SWD

Process Flow Diagram

Washington County, TX

June 2022

Gas/Vapors

Skim Oil

Produced Water

Texas Commission on Environmental Quality
Form APD – CERT
Certification of Emission Limits
(Page 1)

I. Company and Site Information		
A. Company Name: Magnolia Oil & Gas Operating LLC		
B. Responsible Official Name: Kevin Bernard		
Responsible Official's Title: Senior HSE Specialist		
Mailing Address: Nine Greenway Plaza Suite 1300		
City: Houston	County: Harris	
State: TX	ZIP Code: 77046	
Telephone: (713) 614-2037	Fax:	
E-mail Address: kbernard@mgyoil.com		
C. Site Name: Dutton Ranch SWD		
Street Address: (*if different from above)*		
If "NO," street address describe physical location with driving directions:		
From Carmine, TX, head N onto N Hauptstrasse St toward Umland st for 1.3 mi, turn L onto Koether Rd for 2.1 mi, slight L onto Moye Rd for 1.4 mi, turn R onto Bascome Ln for 0.3 mi, turn R onto lease rd for 0.1 mi to the site.		
City or nearest city: Carmine	County: Washington	ZIP Code: 78932
D. TCEQ Account Identification Number *(leave blank if unknown)*:		
E. TCEQ Customer Reference Number *(leave blank if unknown)*: CN605556885		
TCEQ Regulated Entity Number *(leave blank if unknown)*:		
F. Does the site have a Title V Permit?		☐ YES ☒ NO
G. Title V Permit Number:		
H. Is this a small business?		☐ YES ☒ NO
II. Attach the Following Documentations		
A. Copies of a previously completed Form PI-7 and all supporting documentation.		
B. A list of each source of air emissions at the site.		
C. A summary of the certified emission rates.		
D. A process description.		
III. Maintain Records On Site to Demonstrate Continuing Compliance and Make the Records Available on Request		

Texas Commission on Environmental Quality
Form APD – CERT
Certification of Emission Limits
(Page 2)

IV. Purpose of this Certification *(choose and complete all that are appropriate)*	
This certification is intended to establish emission rates below state and federal rule thresholds and triggers for:	
☒ 30 TAC § 106.4 for Permits by Rule	☐ Permit by Rule Number:
☐ HR VOC Emissions Cap and Trade Program	☐ Emissions Banking and Trading Program (other than HRVOC)
☐ 30 TAC § 115 for Volatile Organic Compounds	☐ 30 TAC § 117 for Nitrogen Oxides
☒ 40 CFR Part 60 OOOO, OOOOa	☐ 40 CFR Part 61, Subpart
☐ 40 CFR Part 63	☐ Title V Permit Major Source Applicability
☐ Standard Permit:	☐ Other:

V. Requests Associated with this Certification	
A. Are you requesting to withdraw your Title V operating permit application?	☐ YES ☒ NO
If "YES," submit the original of this certification, directly to the assigned Title V permit reviewer and send a copy to the locations indicated in the Mailing Instruction below.	
B. Are you requesting to void an issued Title V operating permit or authorization to operate under a general operating permit?	☐ YES ☒ NO
If "YES," submit this certification to the locations indicated in the Mailing Instructions page 9	
C. For issued Title V permits, are you subject to Title V permitting requirements, but are submitting this certification to demonstrate that you are not subject to MACT requirements?	☐ YES ☒ NO
If "YES," submit this certification to the locations indicated in the Mailing Instructions page 9	
D. For pending Title V permits, are you subject to Title V permitting requirements, but are submitting this certification to demonstrate that you are not subject to MACT requirements?	☐ YES ☒ NO
*If "YES," submit the **original** of this certification directly to the assigned Title V permit reviewer and send a **copy** to the locations indicated in the Mailing Instructions page 9.*	

VI. Certification by Responsible Official

All representations in this certification of emissions are conditions upon which the stationary source shall operate. This certification reflects the maximum emission rates for the operation of this facility. The facility will operate in compliance with all regulations of the Texas Commission on Environmental Quality and with Federal U.S. Environmental Protection Agency regulations governing air pollution. It shall be unlawful for any person to vary from such representation unless the certification is first revised. The signature below indicates that, based on information and belief formed after reasonable inquiry, the statements, and information contained in the attached documents are true, accurate, and complete.

NAME and TITLE: Kevin Bernard – Senior HSE Specialist
SIGNATURE: Signed via e-Permitting on STEERS **Date:** Signed via e-Permitting on STEERS
ORIGINAL SIGNATURE REQUIRED

Reminder: The original of this certification must be sent to the TCEQ in Austin and copies sent to the appropriate TCEQ Regional office and any local air pollution control programs with jurisdiction. A copy must also be maintained on site or, for sites that normally operate unattended, at an office within Texas having day-to-day operational control of the site.

Texas Commission on Environmental Quality
Form APD – CERT
Certification of Emission Limits
Attach additional pages if needed if needed.
(Page 3)

Emission Rate Data									
FIN	**Facility Name**	**EPN**	**Point Name**	**Authorization Type**	**Authorization Date**	**Permit or Registration Number (if applicable)**	**Air Contaminant Name**	**Maximum Certified Emission Rates**	
								Pounds/Hour	**Tons/Year**
See Summary of Emissions									
							Emissions Totals:		

ATTACHMENT 1 – EMISSION CALCULATIONS

Magnolia Oil & Gas Operating LLC (CN605556885)
Dutton Ranch SWD
TCEQ Emission Summary

ESTIMATED EMISSIONS

Equipment	Unit ID	Specific VOC or Other Pollutants	VOC		NOx		CO		SO_2		PM_{10}		$PM_{2.5}$		H_2S	
			lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
Two (2) 500-bbl Skim Oil Tanks	TK-1 - TK-2		1.45	2.95	-	-	-	-	-	-	-	-	-	-	<0.01	<0.01
Eight (8) 500-bbl Produced Water Tanks	WTK-1 - WTK-8		1.35	2.15	-	-	-	-	-	-	-	-	-	-	<0.01	<0.01
Two (2) 1,000-bbl Gunbarrel Tanks	GB-1 - GB-2		0.43	1.88	-	-	-	-	-	-	-	-	-	-	<0.01	<0.01
Skim Oil Truck Loading	TL-1		57.10	0.94	-	-	-	-	-	-	-	-	-	-	<0.01	<0.01
Fugitive Emissions	FUG		0.46	2.02	-	-	-	-	-	-	-	-	-	-	<0.01	<0.01
Planned Maintenance, Startup, Shutdown Activities	MSS		208.00	0.99	-	-	-	-	-	-	-	-	-	-	<0.01	<0.01
TOTAL EMISSIONS (TPY):				**10.94**		**0.00**		**0.00**		**0.00**		**0.00**		**0.00**		**<0.01**

MAXIMUM OPERATING SCHEDULE:	Hours/Day	24	Days/Week	7	Weeks/Year	52	Hours/Year	8,760

Magnolia Oil & Gas Operating LLC (CN605556885)
Dutton Ranch SWD
Summary of Criteria Air Pollutant and H_2S Emissions

Equipment	Unit ID	NOx		CO		VOC[1]		SO_2		PM		H_2S	
		lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
Two (2) 500-bbl Skim Oil Tanks	TK-1 - TK-2	-	-	-	-	1.45	2.95	-	-	-	-	<0.01	<0.01
Eight (8) 500-bbl Produced Water Tanks	WTK-1 - WTK-8	-	-	-	-	1.35	2.15	-	-	-	-	<0.01	<0.01
Two (2) 1,000-bbl Gunbarrel Tanks	GB-1 - GB-2	-	-	-	-	0.43	1.88	-	-	-	-	<0.01	<0.01
Skim Oil Truck Loading	TL-1	-	-	-	-	57.10	0.94	-	-	-	-	<0.01	<0.01
Fugitive Emissions	FUG	-	-	-	-	0.46	2.02	-	-	-	-	<0.01	<0.01
Planned Maintenance, Startup, Shutdown Activities	MSS	-	-	-	-	208.00	0.99	-	-	-	-	<0.01	<0.01
Total =		**0.00**	**0.00**	**0.00**	**0.00**	**268.79**	**10.94**	**0.00**	**0.00**	**0.00**	**0.00**	**<0.01**	**<0.01**

Total actual emission rate of sulfur compounds, excluding sulfur oxides, from all vents (lb/hr)[1] =	**<0.01**

Notes:
1) Truck loading and fugitive sources are not considered vents. Per TCEQ guidance, MSS activities included under §106.359 do not have to meet the vent height requirements in §106.352(l).

Magnolia Oil & Gas Operating LLC (CN605556885)
Dutton Ranch SWD
Summary of Hazardous Air Pollutants

Equipment	Unit ID	Estimated Emissions (lb/hr)										
		Acetalde-hyde	Acrolein	Benzene	Ethyl-benzene	Formalde-hyde	Methanol	n-Hexane	Toluene	Xylenes	Other HAP	Total HAP
Two (2) 500-bbl Skim Oil Tanks	TK-1 - TK-2	-	-	0.01	<0.01	-	-	0.02	0.02	0.01	0.01	0.08
Eight (8) 500-bbl Produced Water Tanks	WTK-1 - WTK-8	-	-	0.01	<0.01	-	-	0.02	0.02	0.01	0.01	0.07
Two (2) 1,000-bbl Gunbarrel Tanks	GB-1 - GB-2	-	-	<0.01	<0.01	-	-	0.01	0.01	<0.01	<0.01	0.02
Skim Oil Truck Loading	TL-1	-	-	0.51	0.06	-	-	0.91	0.74	0.29	0.51	3.03
Fugitive Emissions	FUG	-	-	<0.01	<0.01	-	-	0.01	<0.01	0.01	<0.01	0.02
Planned Maintenance, Startup, Shutdown Activities	MSS	-	-	1.72	0.19	-	-	3.39	2.68	1.04	1.71	10.72
Total =		**0.00**	**0.00**	**2.26**	**0.25**	**0.00**	**0.02**	**4.36**	**3.47**	**1.35**	**2.25**	**13.96**

Equipment	Unit ID	Estimated Emissions (tons/yr)										
		Acetalde-hyde	Acrolein	Benzene	Ethyl-benzene	Formalde-hyde	Methanol	n-Hexane	Toluene	Xylenes	Other HAP	Total HAP
Two (2) 500-bbl Skim Oil Tanks	TK-1 - TK-2	-	-	0.03	<0.01	-	-	0.05	0.04	0.01	0.03	0.16
Eight (8) 500-bbl Produced Water Tanks	WTK-1 - WTK-8	-	-	0.02	<0.01	-	-	0.03	0.03	0.01	0.02	0.11
Two (2) 1,000-bbl Gunbarrel Tanks	GB-1 - GB-2	-	-	0.02	<0.01	-	-	0.03	0.02	0.01	0.02	0.10
Skim Oil Truck Loading	TL-1	-	-	0.01	<0.01	-	-	0.01	0.01	<0.01	0.01	0.05
Fugitive Emissions	FUG	-	-	<0.01	0.01	-	-	0.03	0.02	0.02	0.01	0.09
Planned Maintenance, Startup, Shutdown Activities	MSS	-	-	0.01	<0.01	-	-	0.02	0.02	0.01	0.01	0.07
Total =		**0.00**	**0.00**	**0.08**	**0.02**	**0.00**	**0.10**	**0.18**	**0.14**	**0.07**	**0.08**	**0.68**

Magnolia Oil & Gas Operating LLC (CN605556885)
Dutton Ranch SWD
Tank Emissions Calculations - Criteria Air Pollutants

Equipment Information

Unit ID:	TK-1 - TK-2	WTK-1 - WTK-8	GB-1 - GB-2
Contents[1]:	Skim Oil	Produced Water	Gun Barrel
Percent Water:	0%	99%	99%
Number of Tanks:	2	8	2
Capacity (bbl):	500	500	1,000
Capacity (gal):	21,000	21,000	42,000
Total:			
Throughput (bbl/yr):	9,125	2,555,000	2,564,125
Throughput (gal/yr):	383,250	107,310,000	107,693,250
Average Throughput (bbl/d):	25.00	7,000.00	7,025.00
Max Throughput (bbl/d):	80.00	20,000.00	20,080.00
Per Tank:			
Throughput (bbl/yr):	4,563	319,375	1,282,063
Throughput (gal/yr):	191,625	13,413,750	53,846,625
Throughput (bbl/d):	12.50	875.00	3,512.50
Working Volume (gal):	19,461	19,461	39,526
Turnovers:	9.85	689.28	1,362.29
Average Working Losses (lb/yr):	1,553.59	503.82	1,817.25
Breathing Losses (lb/yr):	1,399.08	34.20	65.72
Control Type:	None	None	None

Uncontrolled VOC Emissions[2]

Unit ID:	TK-1 - TK-2		WTK-1 - WTK-8		GB-1 - GB-2	
Emissions	**Avg. lb/hr[3]**	**tons/yr**	**Max lb/hr[3]**	**tons/yr**	**Avg. lb/hr[3]**	**tons/yr**
Working	1.14	1.55	1.31	2.02	0.41	1.82
Breathing	0.32	1.40	0.03	0.14	0.02	0.07
Flashing	0.00	0.00	0.00	0.00	0.00	0.00
Total =	**1.45**	**2.95**	**1.35**	**2.15**	**0.43**	**1.88**
Per Tank =	**0.73**	**1.48**	**0.17**	**0.27**	**0.21**	**0.94**

Notes:
1) Skim oil modeled as Gasoline RVP 8.
2) Working and breathing calculated using AP-42 Chapter 7 Equations and databases.
3) Due to variable short-term emission rates, average lb/hr based on annual emissions shown for reference only.

Magnolia Oil & Gas Operating LLC (CN605556885)
Dutton Ranch SWD
Tank Emissions Calculations - Hazardous Air Pollutants

Equipment Information

Unit ID:	TK-1 - TK-2	WTK-1 - WTK-8	GB-1 - GB-2
Contents:	Skim Oil	Produced Water	Gun Barrel
Number of Tanks:	2	8	2
Capacity (bbl):	500	500	1,000
Capacity (gal):	21,000	21,000	42,000
Total:			
Throughput (bbl/yr):	9,125	2,555,000	2,564,125
Throughput (gal/yr):	383,250	107,310,000	107,693,250
Average Throughput (bbl/d):	25.00	7,000.00	7,025.00
Per Tank:			
Throughput (bbl/yr):	4,563	319,375	1,282,063
Throughput (gal/yr):	191,625	13,413,750	53,846,625
Throughput (bbl/d):	12.50	875.00	3,512.50
Control Type:	None	None	None

Uncontrolled Hazardous Air Pollutant Emissions[1]

Unit ID:	TK-1 - TK-2		WTK-1 - WTK-8		GB-1 - GB-2	
Pollutant	**Avg. lb/hr[2]**	**tons/yr**	**Max lb/hr[2]**	**tons/yr**	**Avg. lb/hr**	**tons/yr**
Total Tank Vapors =	**1.45**	**2.95**	**1.35**	**2.15**	**0.43**	**1.88**
Hydrogen Sulfide	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
n-Hexane	0.02	0.05	0.02	0.03	0.01	0.03
Benzene	0.01	0.03	0.01	0.02	<0.01	0.02
Toluene	0.02	0.04	0.02	0.03	0.01	0.02
Ethylbenzene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Xylenes	0.01	0.01	0.01	0.01	<0.01	0.01
2,2,4-Trimethylpentane	0.01	0.03	0.01	0.02	<0.01	0.02
Total HAP =	**0.08**	**0.16**	**0.07**	**0.11**	**0.02**	**0.10**
Per Tank =	**0.04**	**0.08**	**0.01**	**0.01**	**0.01**	**0.05**

Estimated HAP Composition (% by Weight)[3]

Pollutant	Wt%
Hydrogen Sulfide	0.0036%
n-Hexane	1.6000%
Benzene	0.9000%
Toluene	1.3000%
Ethylbenzene	0.1000%
Xylenes	0.5000%
2,2,4-Trimethylpentane	0.9000%
Total HAP =	**5.3000%**

Notes:
1) VOC emissions calculated in Criteria Air Pollutant calculations.
2) Due to variable short-term emission rates, average lb/hr based on annual emissions shown for reference only.
3) Table 11.3-2, "HAP Percent of VOC Emissions," Gasoline Marketing (Stage I and Stage II), EPA Document Revised Final 1/2001.

Magnolia Oil & Gas Operating LLC (CN605556885)
Dutton Ranch SWD
Calculation Methodology for AP-42-7.1 Organic Liquid Storage Tanks

Equipment Information

	Units	TK-1 - TK-2	WTK-1 - WTK-8	GB-1 - GB-2
Nearest City:	-	Austin, TX	Austin, TX	Austin, TX
Annual Avg. Max Temp (T_{AX}):	°F	79.1000	79.1000	79.1000
Annual Avg. Min Temp (T_{AN}):	°F	57.8000	57.8000	57.8000
Daily Avg. Ambient Temp (T_{AA}):	°R	528.1200	528.1200	528.1200
Daily Ambient Temp Range (ΔT_A):	°R	21.3000	21.3000	21.3000
Annual Avg. Solar (I):	Btu/(ft^2 day)	1484.00	1484.00	1484.00
Shell Color:	-	Tan	Tan	Tan
Shell Condition:	-	New	New	New
Shell Paint Factor (α_S):	dimensionless	0.43	0.43	0.43
Roof Color:	-	Tan	Tan	Tan
Roof Condition:	-	New	New	New
Roof Paint Factor (α_R):	dimensionless	0.43	0.43	0.43
Liquid Bulk Temp (T_B):	°R	530.034	530.034	530.034
Daily Vapor Temp Range (ΔT_V):	°R	28.1369	28.1369	28.0997
Daily Avg. Surface Temp (T_{LA}):	**°R**	**531.56**	**531.56**	**531.59**
Average Vapor Temperature (T_V):	**°R**	**533.09**	**533.09**	**533.15**
Reid Vapor Pressure (RVP):	psia	8.0	8.0	8.0
Modeled As:	-	Gasoline	Gasoline	Gasoline
Material Stored:	-	Gasoline RVP 8	Gasoline RVP 8	Gasoline RVP 8
Vapor MW (M_{V1}):	lb/lb-mol	68	68	68
Liquid MW (M_{L1}):	lb/lb-mol	92	92	92
TVP at Daily Avg. Surface Temp (P_1):	psia	5.1026	5.1026	5.1057
Constant A:	dimensionless	11.7923	11.7923	11.7923
Constant B:	°R	5,402.01	5,402.01	5,402.01
Percent Water:	%	0%	99%	99%
Liquid Mole Ratio of VOL (x_1):	dimensionless	1.000	0.002	0.002
Liquid Mole Ratio of Water (x_2):	dimensionless	0.000	0.998	0.998
TVP at Daily Avg. Surface Temp (P_2):	psia	0.3871	0.3871	0.3876
Combined TVP @ T_{LA} (P_{VA}):	**psia**	**5.1026**	**0.3965**	**0.3969**
Combined Vapor MW (M_V):	**lb/lb-mol**	**68.0000**	**19.2902**	**19.2896**
Atmospheric Pressure (P_A):	psia	14.3300	14.3300	14.3300
Breather Vent Pressure (P_{BP}):	psia	0.03	0.03	0.03
Breather Vent Vacuum (P_{BV}):	psia	-0.03	-0.03	-0.03
Breather Vent Pres. Setting Range (ΔP_B):	psia	0.06	0.06	0.06
Roof Type:	-	Cone	Cone	Cone
Shell Height (H_S):	ft	25.0	25.0	30.0
Shell Diameter (D):	ft	12.0	12.0	15.5
Tank Shell Radius (R_S):	ft	6.0	6.0	7.8

Magnolia Oil & Gas Operating LLC (CN605556885)
Dutton Ranch SWD
Calculation Methodology for AP-42-7.1 Organic Liquid Storage Tanks

Equipment Information

	Units	TK-1 - TK-2	WTK-1 - WTK-8	GB-1 - GB-2
Liquid Height (H_L):	ft	12.5	12.5	15.0
Cone Roof Slop:	ft/ft	0.0625	0.0625	0.0625
Tank Cone Roof Height (H_R):	ft	0.375	0.375	0.484
Cone Roof Outage (H_{RO}):	ft	0.125	0.125	0.161
Tank Dome Radius (R_R):	ft	12.0	12.0	15.5
Tank Dome Roof Height (H_R):	ft	1.608	1.608	2.077
Cone Dome Outage (H_{RO}):	ft	0.822	0.822	1.062
Vapor Space Outage (H_{VO}):	ft	12.6250	12.6250	15.1615
Tank Vapor Space Volume (V_V):	**ft^3**	**1,427.8539**	**1,427.8539**	**2,860.8445**
Vented Vapor Saturation Factor (K_S):	**dimensionless**	**0.2265**	**0.7903**	**0.7582**
Daily Max Surface Temp (T_{LX}):	°R	538.5958	538.5958	538.6181
TVP at Daily Max Surface Temp (P_{X1}):	psia	5.8269	5.8269	5.8293
TVP at Daily Max Surface Temp (P_{X2}):	psia	0.4895	0.4895	0.4899
Combined TVP @ T_{LX} (P_{VX}):	psia	5.8269	0.5000	0.5004
Daily Min Surface Temp (T_{LN}):	°R	524.5274	524.5274	524.5683
TVP at Daily Min Surface Temp (P_{N1}):	psia	4.4525	4.4525	4.4561
TVP at Daily Min Surface Temp (P_{N2}):	psia	0.3040	0.3040	0.3044
Combined TVP @ T_{LX} (P_{VX}):	psia	4.4525	0.3122	0.3126
Daily Vapor Pressure Range (ΔP_V):	psia	1.3744	0.1879	0.1878
Vapor Space Expansion Factor (K_E):	**dimensionless**	**0.1954**	**0.0621**	**0.0620**
Ideal Gas Law Constant (R):	psia ft^3/ lb-mole °R	10.7310	10.7310	10.7310
Stock Vapor Density (W_V):	**lb/ft^3**	**0.0607**	**0.0013**	**0.0013**
Average Throughput (Q):	bbl/yr	4,563	319,375	1,282,063
Max Throughput (Q):	bbl/yr	14,600	912,500	3,664,600
Maximum Liquid Height (H_{LX}):	ft	24.0	24.0	29.0
Tank Max Liquid Volume (V_{LX}):	ft^3	2,714.3338	2,714.3338	5,472.0607
Tank Capacity:	gallons	21,000.0	21,000.0	42,000.0
Override Working Volume Calculation?:	-	No	No	No
Number of Turnovers per year (N):	dimensionless	9.8468	689.2759	1,362.2923
Annual Sum of Liquid Level Increase ($\sum H_{QI}$):	ft/yr	226.4764	15,853.3465	38,144.1839
Average Net Working Loss Throughput (V_Q):	**ft^3/yr**	**25,613.8750**	**1,792,971.2500**	**7,197,498.8750**
Working Loss Turnover Factor (K_N):	**dimensionless**	**1.0000**	**0.2102**	**0.1887**
Working Loss Product Factor (K_P):	**dimensionless**	**1.00**	**1.00**	**1.00**
Vent Setting Correction Factor (K_B):	**dimensionless**	**1.000**	**1.000**	**1.000**
Standing Storage Loss (L_S):	**lb/yr**	**1,399.0788**	**34.2011**	**65.7153**
Average Working Loss (L_W):	**lb/yr**	**1,553.5902**	**503.8239**	**1,817.2488**

Notes:
1) Calculations based on AP-42 Chapter 7 (11-2019).

Magnolia Oil & Gas Operating LLC (CN605556885)
Dutton Ranch SWD
Truck Loading Emissions Calculations - Criteria and Hazardous Air Pollutants + H_2S

Equipment Information

Unit ID:	**TL-1**
Emission Point ID:	TL-1
Contents Loaded:	Skim Oil
Fill Method:	Submerged
Type of Service:	Dedicated
Mode of Operation:	Normal
Saturation Factor:	0.6
Annual Throughput (1000 gal):	383.250
Short-Term Emission Factor (lb/1000 gal)[1]:	7.14
Annual Emission Factor (lb/1000 gal)[1]:	4.89
Maximum Loading Rate (gal/hr):	8,000
Control Type:	None
Control ID:	N/A

Annual Loading Loss (lb/1000 gal) = 12.46 *S*P_{AVG}*M/T, where:

P = True vapor pressure of liquid loaded (avg. psia)	5.1026
M = Molecular weight of vapor (lb/lb-mol)	68
T = Temperature of bulk liquid loaded (average °F)	70.36
T = Temperature of bulk liquid loaded (°F + 460 = °R)	530.36

Short-term Loading Loss (lb/1000 gal) = 12.46 *S*P_{MAX}*M/T, where:

P = True vapor pressure of liquid loaded (max. psia)	7.7923
M = Molecular weight of vapor (lb/lb-mol)	68
T = Temperature of bulk liquid loaded (average °F)	95.00
T = Temperature of bulk liquid loaded (°F + 460 = °R)	555

Uncontrolled VOC and HAP Emissions

Unit ID: **TL-1**

Pollutant	Avg. lb/hr	Max. lb/hr[3]	tons/yr
Total Loading Loss =	**0.21**	**57.10**	**0.94**
Hydrogen Sulfide	<0.01	<0.01	<0.01
n-Hexane	<0.01	0.91	0.01
Benzene	<0.01	0.51	0.01
Toluene	<0.01	0.74	0.01
Ethylbenzene	<0.01	0.06	<0.01
Xylenes	<0.01	0.29	<0.01
2,2,4-Trimethylpentane	<0.01	0.51	0.01
Total HAP =	**0.01**	**3.03**	**0.05**

Estimated H_2S and HAP Composition (% by Weight)[2]

Pollutant	Wt%
Hydrogen Sulfide	0.0036%
n-Hexane	1.6000%
Benzene	0.9000%
Toluene	1.3000%
Ethylbenzene	0.1000%
Xylenes	0.5000%
2,2,4-Trimethylpentane	0.9000%
Total HAP =	**5.3000%**

Notes:
1) AP-42 5.2-4 Eq.1: Loading Loss (lb/1000 gal) = 12.46 *S*P*M/T. Properties based on AP-42 Chapter 7 (11-2019).
2) Table 11.3-2, "HAP Percent of VOC Emissions," Gasoline Marketing (Stage I and Stage II), EPA Document Revised Final 1/2001.
3) Due to variable short-term emission rates, maximum lb/hr rate shown for reference only.

Magnolia Oil & Gas Operating LLC (CN605556885)
Dutton Ranch SWD
Fugitive Emissions Calculations

Equipment Information

Source Type/Service	Number of Sources[1]	Em. Factor (lb/hr/source)[2]	Control Efficiency	TOC lb/hr	TOC tons/yr	VOC Wt %[3]
Valves - Gas	6	9.92E-03	0.00%	0.060	0.261	100.000%
Relief Valves - Gas	6	1.94E-02	0.00%	0.116	0.510	100.000%
Connectors - Gas	106	4.41E-04	0.00%	0.047	0.205	100.000%
Total TOC (Gas Components) =				**0.223**	**0.975**	-
Valves - Light Oil	22	5.51E-03	0.00%	0.121	0.531	100.000%
Pump Seals - Light Oil	2	2.87E-02	0.00%	0.057	0.251	100.000%
Connectors - Light Oil	83	4.63E-04	0.00%	0.038	0.168	100.000%
Flanges - Light Oil	46	2.43E-04	0.00%	0.011	0.049	100.000%
Flanges - Light Oil	46	2.43E-04	0.00%	0.011	0.049	100.000%
Total TOC (Liquid Components) =				**0.239**	**1.048**	-

Proposed Emissions

Source Type/Service	VOC		CH_4		CO_2	
	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
Valves - Gas	0.06	0.26	0.03	0.13	<0.01	0.02
Relief Valves - Gas	0.12	0.51	0.06	0.25	0.01	0.04
Connectors - Gas	0.05	0.20	0.02	0.10	<0.01	0.01
Total (Gas Components) =	**0.22**	**0.98**	**0.11**	**0.49**	**0.02**	**0.07**
Valves - Light Oil	0.12	0.53	<0.01	<0.01	<0.01	<0.01
Pump Seals - Light Oil	0.06	0.25	<0.01	<0.01	<0.01	<0.01
Connectors - Light Oil	0.04	0.17	<0.01	<0.01	<0.01	<0.01
Flanges - Light Oil	0.01	0.05	<0.01	<0.01	<0.01	<0.01
Flanges - Light Oil	0.01	0.05	<0.01	<0.01	<0.01	<0.01
Total (Liquid Components) =	**0.24**	**1.05**	**<0.01**	**<0.01**	**<0.01**	**<0.01**
Total (All Components) =	**0.46**	**2.02**	**0.11**	**0.49**	**0.02**	**0.07**

Proposed Hazardous Air Pollutant (HAP) Emissions (lb/hr)

Source Type/Service	n-Hexane	Benzene	Toluene	Ethylbenzene	Xylenes	2,2,4-Trimeth.	Total
Valves - Gas	<0.01	<0.01	<0.01	<0.01	<0.01	0.00	<0.01
Relief Valves - Gas	<0.01	<0.01	<0.01	<0.01	<0.01	0.00	<0.01
Connectors - Gas	<0.01	<0.01	<0.01	<0.01	<0.01	0.00	<0.01
Total (Gas Components) =	**<0.01**	**<0.01**	**<0.01**	**<0.01**	**<0.01**	**0.00**	**0.01**
Valves - Light Oil	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01
Pump Seals - Light Oil	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Connectors - Light Oil	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Flanges - Light Oil	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Flanges - Light Oil	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Total (Liquid Components) =	**<0.01**	**<0.01**	**<0.01**	**<0.01**	**<0.01**	**<0.01**	**0.01**
Total (All Components) =	**0.01**	**<0.01**	**<0.01**	**<0.01**	**0.01**	**<0.01**	**0.02**

Proposed Hazardous Air Pollutant (HAP) Emissions (tons/yr)

Source Type/Service	n-Hexane	Benzene	Toluene	Ethylbenzene	Xylenes	2,2,4-Trimeth.	Total
Valves - Gas	<0.01	<0.01	<0.01	<0.01	<0.01	0.00	0.01
Relief Valves - Gas	0.01	<0.01	0.01	<0.01	<0.01	0.00	0.02
Connectors - Gas	<0.01	<0.01	<0.01	<0.01	<0.01	0.00	0.01
Total (Gas Components) =	**0.02**	**<0.01**	**0.01**	**<0.01**	**0.01**	**0.00**	**0.04**
Valves - Light Oil	0.01	<0.01	<0.01	<0.01	0.01	<0.01	0.03
Pump Seals - Light Oil	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01
Connectors - Light Oil	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01
Flanges - Light Oil	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Flanges - Light Oil	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Other - Light Oil	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total (Liquid Components) =	**0.01**	**<0.01**	**0.01**	**0.01**	**0.02**	**0.01**	**0.05**
Total (All Components) =	**0.03**	**<0.01**	**0.02**	**0.01**	**0.02**	**0.01**	**0.09**

Notes:

1) Component count estimated based on a similar site component count.

2) EPA-453/R-95-017 Emission Factors

3) Total organic compound (TOC) emission rates multiplied by VOC content of stream (weight percent) to obtain VOC emissions. Assumed 100% wt VOC for gas and liquids conservatively.

4) Table 11.3-2, "HAP Percent of VOC Emissions," Gasoline Marketing (Stage I and Stage II), EPA Document Revised Final 1/2001.

Magnolia Oil & Gas Operating LLC (CN605556885)
Dutton Ranch SWD
Maintenance, Startup, and Shutdown (MSS) Emission Calculations - Maintenance Events

MSS Event Information

Description	Equipment
	Tank Degassing
Number of Events per Year	2
Number of Events per hour [1]	0.25
Volume per Event, scf	5,615
Stream Specific Gravity	1.6344
Air MW, lb/mol	28.96
Fuel Stream Density, lb/scf [2]	0.125
Emissions Control?	No

Emissions[3,4]

Pollutant	Emissions					
	Skim Oil Tank Degassing		30 TAC §106.359 (b1)-(b6) Activity		Total Maintenance Emissions	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
VOC	175.31	0.70	-	0.25	175.31	0.95
Hydrogen Sulfide	<0.01	<0.01	-	<0.01	<0.01	<0.01
Carbon Dioxide	<0.01	<0.01	-	0.02	<0.01	0.02
Methane	<0.01	<0.01	-	0.36	<0.01	0.36
n-Hexane	2.81	0.01	-	0.01	2.81	0.02
Benzene	1.58	0.01	-	<0.01	1.58	0.01
Toluene	2.28	0.01	-	0.01	2.28	0.02
Ethylbenzene	0.18	<0.01	-	<0.01	0.18	<0.01
Xylenes	0.88	<0.01	-	<0.01	0.88	0.01
2,2,4-Trimethylpentane	1.58	0.01	-	0.00	1.58	0.01
Total HAP =	**9.29**	**0.04**	**-**	**0.03**	**9.29**	**0.06**

Pollutant	Emissions					
	Skim Oil Tank Degassing		30 TAC §106.359 (b1)-(b6) Activity		Total Maintenance Emissions	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
VOC	175.31	0.70	-	0.25	175.31	0.95
Hydrogen Sulfide	<0.01	<0.01	-	<0.01	<0.01	<0.01
Carbon Dioxide	<0.01	<0.01	-	0.02	<0.01	0.02
Methane	<0.01	<0.01	-	0.36	<0.01	0.36
n-Hexane	2.81	0.01	-	0.01	2.81	0.02
Benzene	1.58	0.01	-	<0.01	1.58	0.01
Toluene	2.28	0.01	-	0.01	2.28	0.02
Ethylbenzene	0.18	<0.01	-	<0.01	0.18	<0.01
Xylenes	0.88	<0.01	-	<0.01	0.88	0.01
2,2,4-Trimethylpentane	1.58	0.01	-	0.00	1.58	0.01
Total HAP =	**9.29**	**0.04**	**-**	**0.03**	**9.29**	**0.06**

Notes:

1) A single storage tank degassing event is assumed to take at least 4 hours to complete.

2) Gas stream density is calculated as follows:

(28.96 lb/mole) / (379 scf/mole) * (1.6344) = 0.125 lb/scf

3) Hourly emission rates are calculated as follows:

(0.25 event/hr) * (5,615 scf/event) * (0.125 lb/scf) * (100.00%) = 175.31 lb/hr

4) Annual emission rates are calculated as follows:

(2 event/yr) * (5,615 scf/event) * (0.125 lb/scf) * (100.00 %) / (2,000 lb/T) = 0.70 T/yr

5) Table 11.3-2, "HAP Percent of VOC Emissions," Gasoline Marketing (Stage I and Stage II), EPA Document Revised Final 1/2001.

Magnolia Oil & Gas Operating LLC (CN605556885)
Dutton Ranch SWD
Maintenance, Startup, and Shutdown (MSS) Emission Calculations - Tank Cleaning

Material Collected by Vacuum Truck	Activity	Saturation Factor	Max. VP (psia)	Avg. VP (psia)	Vapor MW (lb/mole)	Temp. Bulk Liq. (°F)	Liquid Heel (% Vol. Tank)	Throughput (1,000 gal)	VOC Fraction	Max. Load (lb/1,000 gal)	Avg. Load (lb/1,000)	Safety Factor	Number of Activities per Year	VOC[1]	
														lb/hr	TPY
Skim Oil	Tank Cleanout	0.6	7.7923	5.1026	68.0000	95.00	0.2	4.20	1.00	7.14	4.67	1.00	2	29.98	0.03
Produced Water	Tank Cleanout	0.6	0.8294	0.3965	19.2902	95.00	0.2	4.20	1.00	0.22	0.10	1.00	8	0.91	<0.01
Gun Barrel	Tank Cleanout	0.6	0.8294	0.3969	19.2896	95.00	0.2	8.40	1.00	0.22	0.10	1.00	2	1.81	<0.01
													Uncontrolled Total VOC Emissions =	**32.69**	**0.04**

1) AP-42 5.2-4 Eq.1: Loading Loss (lb/1000 gal) = 12.46 *S*P*M/T. Properties based on AP-42 Chapter 7 (11-2019).

Sample Calculations:
Maximum Loading Loss = 12.46 * Saturation Factor * Max. Vapor Pressure, psia * Vapor MW, lb/lb-mol/Temp. Bulk Liquid, R
Maximum Loading Loss = 12.46 * (0.6) * (7.79 psia) * (68.0 lb/lb-mol) / (95.0 + 460) R = 7.1376 lb/1,000 gal

Average Loading Loss = 12.46 * Saturation Factor * Avg. True Vapor Pressure, psia * Vapor MW, lb/lb-mol/Temp. Bulk Liquid, R
Average Loading Loss = 12.46 * (0.6) * (5.10 psia) * (68.0 lb/lb-mol) / (95.0 + 460) R = 4.6739 lb/1,000 gal

Hourly PTE = Amount Loaded, 1,000 gal/hr * Max. Loading Loss, lb/1,000 gal * VOC Fraction * Safety Factor
Hourly PTE = (4.20 1,000 gal/hr) * (7.1376 lb/1,000 gal) * (1.0000) * (1.00) = 29.98 lb/hr

Annual PTE = Hourly VOC PTE, lb/hr * Number of Events per year/2,000 lb/Ton
Annual PTE = (29.98 lb/hr) * (2 event) / (2,000 lb/T) = 0.03 TPY

ATTACHMENT 2 - APPLICABILITY

STATE REGULATORY APPLICABILITY

Chapter 115: Control of VOC Emissions

The Site is located in Washington County, TX which is covered attainment county. Magnolia will comply with VOC loading and unloading recordkeeping requirements under 30 TAC §115 Subchapter C.

Storage Tanks

Produced water from the Site inlet is routed to two (2) 1,000-bbl produced water gunbarrel tanks (GB-1 – GB-2) for additional separation prior to being routed to the respective tanks. Produced water is estimated as 1% skim oil (Gasoline RVP 8). Produced water gunbarrel tanks emissions for GB-1 – GB-2 were calculated based on a maximum anticipated throughput 107,693,250 gal/yr for the Site and AP-42 Chapter 7 for working and breathing losses.

Skim oil is collected and stored prior to being loaded into trucks in two (2) 500-bbl skim oil storage tanks (TK-1 - TK-2). Skim oil storage tanks emissions for TK-1 – TK-2 were calculated based on a maximum anticipated throughput 383,250 gal/yr for the Site and AP-42 Chapter 7 for working and breathing losses.

Produced water is collected and stored prior to being loaded into trucks in eight (8) 500-bbl produced water storage tanks (WTK-1 – WTK-8). Produced water was conservatively estimated to be 1% skim oil (Gasoline RVP 8). Produced water storage tanks emissions for WTK-1 – WTK-8 were calculated based on a maximum anticipated throughput 107,310,000 gal/yr for the Site and AP-42 Chapter 7 for working and breathing losses.

Working and breathing emissions from GB-1 – GB-2, TK-1 – TK-2, and WTK-1 – WTK-8 are vented to atmosphere.

Truck Loading

Skim oil truck loading (TL-1) emissions were calculated using AP-42, Chapter 5, Section 5.2-4 with methodology and characteristics of the respective stream from AP-42 Chapter 7 databases. Truck loading emissions from TL-1 are uncontrolled and vented to atmosphere.

Fugitive Emissions

Fugitive emissions (FUG) were calculated using EPA-453/R-95-017 emissions factors.

Planned Maintenance, Start-up, Shutdowns (MSS)

Planned Maintenance, Startup, and Shutdown (MSS) which include routine maintenance, start-up and shutdown of facilities and temporary maintenance, have been estimated and are included in this registration. MSS emissions are vented to the atmosphere.

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

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 website at: www.tceq.texas.gov/permitting/air/nav/air_pbr.html.

1. 30 TAC § 106.4(a)(1) and (4): Emission Limits	
List emissions in tpy for **each** facility (add additional pages or table if needed):	
• Are the SO_2, PM, VOC, or other air contaminant emissions claimed for **each** facility in this PBR submittal less than 25 tpy?	☒ YES ☐ NO
• Are the PM_{10} emission less than 15 TPY and are the $PM_{2.5}$ emissions less than 10 TPY for **each** claimed facility in the PBR submittal?	☒ YES ☐ NO
• Are the NO_x and CO emissions claimed for each facility in this PBR submittal less than 250 tpy?	☒ 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.)	☐ YES ☒ NO
If "Yes," skip to Section 2. If "No," continue to the questions below.	

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

1. 30 TAC § 106.4(a)(1) and (4): Emission Limits *(continued)*	
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?	☒ YES ☐ NO
• Are the PM_{10} emission less than 15 TPY and are the $PM_{2.5}$ emissions less than 10 TPY for **all** claimed facilities in this PBR submittal?	☒ YES ☐ NO
• Are the NO_x and CO emissions claimed for **all** facilities in this PBR submittal less than 250 tpy?	☒ 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?	☐ YES ☒ NO
If "Yes," please indicate which county by checking the appropriate box to the right.	
(Moderate) - Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller counties:	☐ HGB
(Moderate) - Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Rockwall, Tarrant, and Wise counties:	☐ 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?	☐ YES ☐ NO
• 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, rules, or made federally enforceable by a certification.*	☐ YES ☐ NO
• Is the site an existing major nonattainment site and are the emissions of VOC or NO_x increasing by 40 tpy or more?	☐ YES ☐ NO
If needed, attach contemporaneous netting calculations per nonattainment guidance.	
Additional information can be found at: www.tceq.texas.gov/permitting/air/forms/newsourcereview/tables/nsr_table8.html and www.tceq.texas.gov/permitting/air/nav/air_docs_newsource.html	
*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.*	

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?	☐ YES ☒ NO
• Are emissions of any criteria pollutant increasing by 250 tpy of any criteria pollutant at an unnamed source?	☒ YES ☒ NO
• Are emissions increasing above significance levels at an existing major site?	☐ YES ☒ NO
PSD information can be found at: www.tceq.texas.gov/assets/public/permitting/air/Forms/NewSourceReview/Tables/10173tbl.pdf and www.tceq.texas.gov/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.*	
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)?	☒ YES ☐ NO ☐ NA
If "Yes," which Subparts are applicable?	
See attached applicability analysis.	
• Will all facilities under this PBR meet applicable requirements of 40 CFR Part 63, Hazardous Air Pollutants Maximum Achievable Control Technology (MACT) standards?	☒ YES ☐ NO ☐ NA
If "Yes," which Subparts are applicable?	
See attached applicability analysis.	
• Will all facilities under this PBR meet applicable requirements of 40 CFR Part 61, National Emissions Standards for Hazardous Air Pollutants (NESHAPs)?	☐ YES ☐ NO ☒ NA
If "Yes," which Subparts are applicable?	
If "Yes" to any of the above, please attach a discussion of how the facilities will meet any applicable standards.	

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?	☐ YES ☒ NO
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):*	
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?	☐ YES ☒ NO
If "Yes," answer the question below. If "No," continue to Section 7.	
• 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)?	☐ YES ☐ NO
7. Highly Reactive Volatile Organic Compounds (HRVOC) Check	
• Is the facility located in Harris County?	☐ YES ☒ NO
If "Yes," answer the next question. If "No," skip to the box below.	
• Will the project be constructed after June 1, 2006?	☐ YES ☐ NO
If "Yes," answer the next question. If "No," skip to the box below.	
• 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 transisomers)		
► ethylene		
► propylene		

7. **Highly Reactive Volatile Organic Compounds (HRVOC) Check *(continued)***		
• Is the facility located in Brazoria, Chambers, Fort Bend, Galveston, Liberty, Montgomery, or Waller County?		☐ YES ☒ NO
If "Yes," answer the next question. If "No," the checklist is complete.		
• Will the project be constructed after June 1, 2006?		☐ YES ☐ NO
If "Yes," answer the next question. If "No," the checklist is complete.		
• 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**
► ethylene		
► propylene		

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Air Permits by Rule (PBR) Checklist
Title 30 Texas Administrative Code § 106.352(l)

Check the most appropriate answer and include any technical information in the spaces provided. If additional space is needed, please include an extra page that references this checklist. The forms, checklists, and guidance documents are available from the Texas Commission on Environmental Quality (TCEQ), Air Permits Division Web site at: www.tceq.texas.gov/permitting/air/permitbyrule/subchapter-o/oil_and_gas.html. If you have any questions, or need additional assistance, please contact the Air Permits Division at (512) 239-1250.

The facility can register by submitting this application and any supporting documentation. Below is a checklist to ensure you have provided all appropriate documentation. For sites that require registration or if the company chooses to register the site with the TCEQ, a Core Data Form is required with this checklist.
For additional assistance with your application, including resources to help calculate your emissions, please visit the Small Business and Local Government Assistance (SBLGA) webpage at the following link: www.TexasEnviroHelp.org.

This checklist is for use by the operator to ensure a complete application.		
Have you included each of the following items in the application?		
☒	Process Description.	
☒	Plot plan or area map.	
☒	TCEQ Oil and Gas Emission Calculation Spreadsheet (or equivalent).	
☒	Detailed summary of maximum emissions estimates with supporting documentation, such as result reports from any emission estimation computer program.	
☐	Gas and Liquid analyses. If a site specific analysis is not submitted, please provide justification as to why a representative site was used.	
☒	Technical documents (manufacturer's specification sheet, operational design sheets)	
☒	State and Federal applicability.	
☐	Core Data Form (for new sites that have never been registered with the TCEQ).	
1	Is the project located in one of the Barnett Shale counties and did the start of construction or modification begin on or after April 1, 2011?	☐ Yes ☒ No
Note: *Counties included in the Barnett Shale area: Cooke, , Dallas, Denton, , Ellis, Erath, Hill, Hood, Jack, Johnson, Montague, Palo Pinto, Parker, Somervell, Tarrant, and Wise counties.*		
For what is considered start of construction see: www.tceq.texas.gov/assets/public/permitting/air/Guidance/NewSourceReview/factsheet-const.pdf		
*If **"Yes,"** do not complete this checklist. The project is subject to the requirements of §106.352(a)-(k). Additional information for Barnett Shale area projects can be found at:* www.tceq.texas.gov/permitting/air/permitbyrule/subchapter-o/oil_and_gas.html.		

Texas Commission on Environmental Quality
Oil and Gas Handling and Production Facilities
Air Permits by Rule (PBR) Checklist
Title 30 Texas Administrative Code § 106.352(l)

General Information and Questions/Descriptions *(continued)*		
2	Are the total site-wide emissions from all facilities claimed under 30 TAC §106.352(l) less than 25 tpy VOC, 250 tpy NOx, 250 tpy CO, and 25 tpy SO_2?	☒ Yes ☐ No
3.	Are there flares, engines, or turbines at the site?	☐ Yes ☒ No
*If **"Yes,"** attach supporting documentation to demonstrate compliance with the requirements.*		
Additional information and checklists can be found at: *§106.492 Flares:* www.tceq.texas.gov/permitting/air/permitbyrule/subchapter-v/flares.html *§106.512 Stationary Engines and turbines:* www.tceq.texas.gov/permitting/air/permitbyrule/subchapter-w/stationary_eng_turb.html		
4.	Does any facility at the site handle a stream with more than 24 ppm hydrogen sulfide (H_2S)?	☐ Yes ☒ No
*If **"Yes,"** proceed to question (4)(a) and (4)(b) and then proceed to questions 5 and 6 .*		
*If **"No,"** continue to questions 5 and 6.*		
4a.	What is the actual H_2S content of the stream? ……..	ppm
Site specific H_2S analysis is required.		
4b.	Indicate the actual distance from the nearest emissions point to the nearest offsite receptor:	_____ ft.
Note: *An offsite receptor includes any recreational area, residence, or other structure not occupied or used solely by the owner or operator of the facility. A facility handling sour gas must be located at least 1/4 mile from the nearest offsite receptor.*		
5.	Indicate the total actual emission rate of sulfur compounds, excluding sulfur oxides, from all vents	<0.01 lb/hr.
6.	Does the height of all vents at the site emitting sulfur compounds meet the minimum required height based on the H_2S emission rate in 106.352(l)(4)?	☒ Yes ☐ No
Note: *Truck loading and fugitive sources are not considered vents.*		

Recordkeeping: To demonstrate compliance with the requirements of the PBR, sufficient records must be maintained at all times. The records must be made available immediately upon request to the commission or any air pollution control program having jurisdiction. If you have any questions about the recordkeeping requirements, contact the Air Permits Division or the Air Program in the TCEQ Regional Office for the region in which the site is located.

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Have you included each of the following items in the application?		
☒	Process Description.	
☒	Plot plan or area map.	
☒	TCEQ Oil and Gas Emission Calculation Spreadsheet (or equivalent).	
☒	Detailed summary of maximum emissions estimates with supporting documentation, such as result reports from any emission estimation computer program.	
☐	Gas and Liquid analyses. If a site specific analysis is not submitted, please provide justification as to why a representative site was used.	
☒	Technical documents (manufacturer's specification sheet, operational design sheets)	
☒	State and Federal applicability.	
☐	Core Data Form (for new sites that have never been registered with the TCEQ).	
1	Is the project located in one of the Barnett Shale counties and did the start of construction or modification begin on or after April 1, 2011?	☐ Yes ☒ No
Note: *Counties included in the Barnett Shale area: Cooke, , Dallas, Denton, , Ellis, Erath, Hill, Hood, Jack, Johnson, Montague, Palo Pinto, Parker, Somervell, Tarrant, and Wise counties.*		
For what is considered start of construction see: www.tceq.texas.gov/assets/public/permitting/air/Guidance/NewSourceReview/factsheet-const.pdf		
*If **"Yes,"** do not complete this checklist. The project is subject to the requirements of §106.352(a)-(k). Additional information for Barnett Shale area projects can be found at:* www.tceq.texas.gov/permitting/air/permitbyrule/subchapter-o/oil_and_gas.html.		

Texas Commission on Environmental Quality
Oil and Gas Handling and Production Facilities
Air Permits by Rule (PBR) Checklist
Title 30 Texas Administrative Code § 106.352(l)

General Information and Questions/Descriptions *(continued)*		
2	Are the total site-wide emissions from all facilities claimed under 30 TAC §106.352(l) less than 25 tpy VOC, 250 tpy NOx, 250 tpy CO, and 25 tpy SO_2?	☒ Yes ☐ No
3.	Are there flares, engines, or turbines at the site?	☐ Yes ☒ No
*If **"Yes,"** attach supporting documentation to demonstrate compliance with the requirements.*		
Additional information and checklists can be found at: *§106.492 Flares:* www.tceq.texas.gov/permitting/air/permitbyrule/subchapter-v/flares.html *§106.512 Stationary Engines and turbines:* www.tceq.texas.gov/permitting/air/permitbyrule/subchapter-w/stationary_eng_turb.html		
4.	Does any facility at the site handle a stream with more than 24 ppm hydrogen sulfide (H_2S)?	☐ Yes ☒ No
*If **"Yes,"** proceed to question (4)(a) and (4)(b) and then proceed to questions 5 and 6 .*		
*If **"No,"** continue to questions 5 and 6.*		
4a.	What is the actual H_2S content of the stream?	.20 ppm
Site specific H_2S analysis is required.		
4b.	Indicate the actual distance from the nearest emissions point to the nearest offsite receptor:	_____ ft.
Note: *An offsite receptor includes any recreational area, residence, or other structure not occupied or used solely by the owner or operator of the facility. A facility handling sour gas must be located at least 1/4 mile from the nearest offsite receptor.*		
5.	Indicate the total actual emission rate of sulfur compounds, excluding sulfur oxides, from all vents	<0.01 lb/hr.
6.	Does the height of all vents at the site emitting sulfur compounds meet the minimum required height based on the H_2S emission rate in 106.352(l)(4)?	☒ Yes ☐ No
Note: *Truck loading and fugitive sources are not considered vents.*		

Recordkeeping: To demonstrate compliance with the requirements of the PBR, sufficient records must be maintained at all times. The records must be made available immediately upon request to the commission or any air pollution control program having jurisdiction. If you have any questions about the recordkeeping requirements, contact the Air Permits Division or the Air Program in the TCEQ Regional Office for the region in which the site is located.

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FEDERAL REGULATORY APPLICABILITY

New Source Performance Standards Applicability

New Source Performance Standards (NSPS) contained in 40 CFR Part 60 regulate specific new, modified, or reconstructed sources of emissions. The following is an analysis of NSPS potentially applicable to the Site.

Subpart Kb, Standard of Performance for Volatile Organic Liquid Storage Vessels. This subpart affects emission sources from storage vessels constructed, reconstructed, or modified after July 23, 1984. Two (2) 1,000-bbl produced water gunbarrel tanks (GB-1 – GB-2) are not subject to this subpart as they meet the definition of process vessel. Two (2) 500-bbl skim oil storage tanks (TK-1 – TK-2) and eight (8) 500-bbl skim oil storage tanks (WTK-1 – WTK-8) exceed 75 m^3 in storage space but have less than 1,589.874 m^3 storage space and are used for storage of petroleum or condensate prior to custody transfer. Therefore, TK-1 – TK-2 and WTK-1 – WTK-8 are exempt from the requirements of this subpart.

Subpart OOOO & OOOOa, Standards of Performance for Crude Oil and Natural Gas Production, Transmission, and Distribution. The emissions sources affected by this subpart include well completions, pneumatic controllers, equipment leaks from natural gas processing plants, sweetening units at natural gas processing plants, reciprocating compressors, centrifugal compressor, and storage vessels. In addition, Subpart OOOOa also affects well site and compressor station fugitives and pneumatic pumps. Subpart OOOO applies to sources constructed, modified or reconstructed after August 23, 2011 and on or before September 18, 2015. Subpart OOOOa applies to sources constructed after September 18, 2015.

Magnolia uses low-bleed (< 6SCFH) pneumatic controllers that will not be subject to this subpart.

Tanks emissions are uncontrolled and less than 6 TPY VOC and are therefore not subject to the requirements of this subpart.

This Site is not considered a compressor station, a well site or natural gas processing plant and is not currently planned to have sweetening unit, centrifugal compressors, reciprocating compressors, or pneumatic pumps of NSPS Subpart OOOO or OOOOa for those affected facilities.

National Emissions Standards for Hazardous Air Pollutants Applicability

The project is not subject to current National Emissions Standards for Hazardous Air Pollutants (NESHAP) under 40 CFR Part 61. However, Maximum Achievable Control Technology (MACT) standards under 40 CFR Part 63 may apply.

Subpart HH, Oil and Natural Gas Production Facilities. This subpart applies to affected emission points that are located at facilities that are major and area sources of HAPs, and either process, upgrade, or store hydrocarbon liquids prior to custody transfer or that process, upgrade, or store natural gas prior to entering the natural gas transmission and storage source category. The Site is an area source of HAPs and does not contain an affected facility under this subpart.

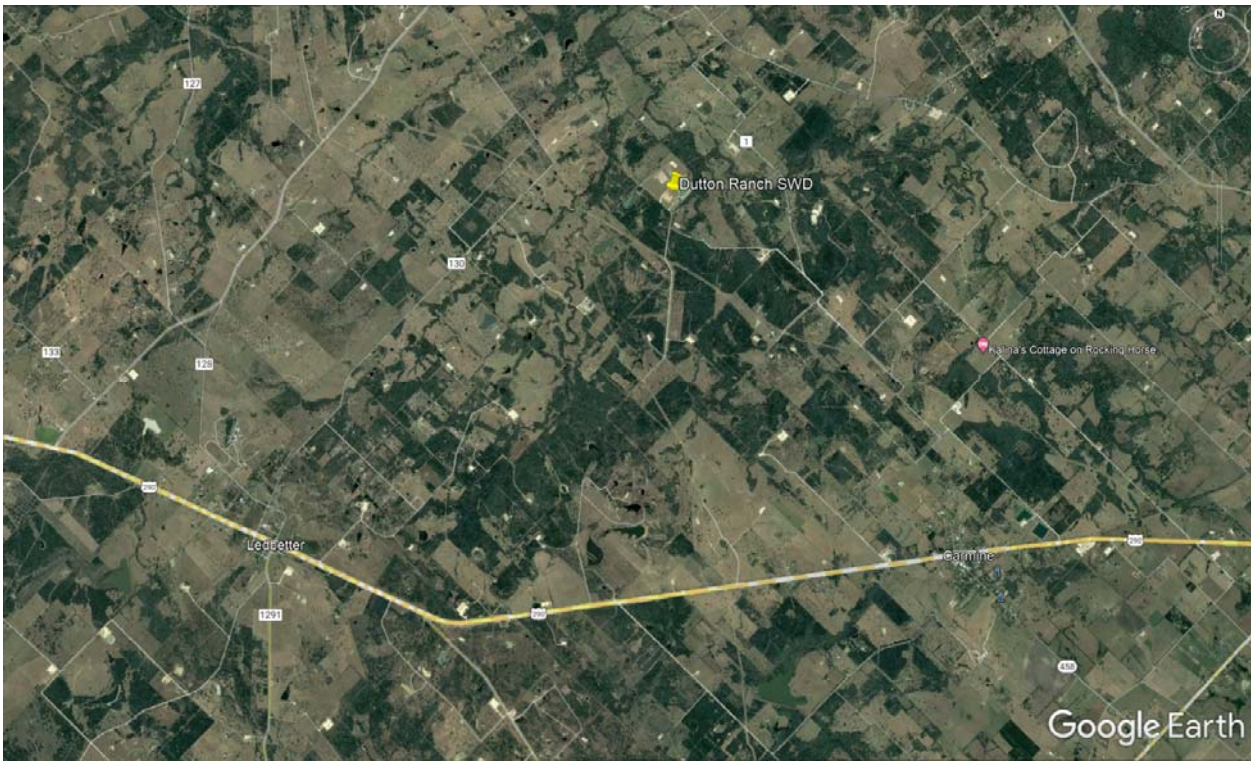
ATTACHMENT 3 – SUPPORTING DOCUMENTATION

Gas & Liquid Analysis

A representative liquid analysis is used for estimating potential emissions from the Dutton Ranch SWD. This liquid analysis is from the same producing reservoir/formation from which the Dutton Ranch SWD inlet produced water originates. The 20 ppm_v of H_2S at Dutton Ranch SWD is used in the calculations and it is greater than representative of 0 ppm_v H_2S.

ATTACHMENT 4 – FIGURES & TABLES

AREA MAP



Dutton Ranch SWD

Washington County, TX

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Table 1(a) Emission Point Summary

Date:	6/8/2022	Permit No.:		Regulated Entity No.:	
Area Name:	Dutton Ranch SWD			Customer Reference No.:	CN605556885

Review of applications and issuance of permits will be expedited by supplying all necessary information requested on this Table.

AIR CONTAMINANT DATA					
1. Emission Point			2. Component or Air Contaminant Name	3. Air Contaminant Emission Rate	
(A) EPN	(B) FIN	(C) NAME		(A) POUND PER HOUR	(B) TPY
TK-1 - TK-2	TK-1 - TK-2	Two (2) 500-bbl Skim Oil Tanks	VOC	1.45	2.95
			H_2S	<0.01	<0.01
			Total HAP	0.08	0.16
WTK-1 - WTK-8	WTK-1 - WTK-8	Eight (8) 500-bbl Produced Water Tanks	VOC	1.35	2.15
			H_2S	<0.01	<0.01
			Total HAP	0.07	0.11
GB-1 - GB-2	GB-1 - GB-2	Two (2) 1,000-bbl Gunbarrel Tanks	VOC	0.43	1.88
			H_2S	<0.01	<0.01
			Total HAP	0.02	0.10
TL-1	TL-1	Skim Oil Truck Loading	VOC	57.10	0.94
			H_2S	<0.01	<0.01
			Total HAP	3.03	0.05
FUG	FUG	Fugitive Emissions	VOC	0.46	2.02
			H_2S	<0.01	<0.01
			Total HAP	0.02	0.09
MSS	MSS	Planned Maintenance, Startup, Shutdown Activities	VOC	208.00	0.99
			H_2S	<0.01	<0.01
			Total HAP	10.72	0.07

EPN = Emission Point Number
FIN = Facility Identification Number

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Table 1(a) Emission Point Summary

Date:	6/8/2022	Permit No.:		Regulated Entity No.:	
Area Name:	Dutton Ranch SWD			Customer Reference No.:	CN605556885

Review of applications and issuance of permits will be expedited by supplying all necessary information requested on this Table.

AIR CONTAMINANT DATA			EMISSION POINT DISCHARGE PARAMETERS											
1. Emission Point			4. UTM Coordinates of Emission Point			Source								
						5. Building	6. Height Above	7. Stack Exit Data			8. Fugitives			
EPN (A)	FIN (B)	Name (C)	Zone	East (Meters)	North (Meters)	Height (Ft.)	Ground (Ft.)	Diameter (Ft.) (A)	Velocity (FPS) (B)	Temperature (°F) (C)	Length (Ft.) (A)	Width (Ft.) (B)	Axis Degrees (C)
TK-1 - TK-2	TK-1 - TK-2	Two (2) 500-bbl Skim Oil Tanks	14R	718394	3342795		25.0			Ambient			
WTK-1 - WTK-8	WTK-1 - WTK-8	Eight (8) 500-bbl Produced Water Tanks	14R	718394	3342795		25.0			Ambient			
GB-1 - GB-2	GB-1 - GB-2	Two (2) 1,000-bbl Gunbarrel Tanks	14R	718394	3342795		30.0			Ambient			
TL-1	TL-1	Skim Oil Truck Loading	14R	718394	3342795			N/A	NA	Ambient			
FUG	FUG	Fugitive Emissions	14R	718394	3342795			N/A	NA	Ambient			
MSS	MSS	Planned Maintenance, Startup, Shutdown Activities	14R	718394	3342795								

EPN = Emission Point Number
FIN = Facility Identification Number

End of the application.