

December 12, 2018

FESCO, Ltd.
1100 Fesco Ave. - Alice, Texas 78332

For: Marathon Oil Permian, LLC
5555 San Felipe Street
Houston, Texas 77056

Sample: Gravel Grinder 10H
Inlet Separator
Spot Gas Sample @ 135 psig & 108 °F

Date Sampled: 11/27/2018

Job Number: 84435.001

CHROMATOGRAPH EXTENDED ANALYSIS - GPA 2286

COMPONENT	MOL%	GPM
Hydrogen Sulfide*	< 0.001	
Nitrogen	0.915	
Carbon Dioxide	0.067	
Methane	72.631	
Ethane	13.453	3.686
Propane	7.170	2.024
Isobutane	0.959	0.322
n-Butane	2.307	0.745
2-2 Dimethylpropane	0.009	0.004
Isopentane	0.522	0.196
n-Pentane	0.608	0.226
Hexanes	0.532	0.224
Heptanes Plus	<u>0.827</u>	<u>0.357</u>
Totals	100.000	7.783

Computed Real Characteristics Of Heptanes Plus:

Specific Gravity -----	3.464	(Air=1)
Molecular Weight -----	99.85	
Gross Heating Value -----	5313	BTU/CF

Computed Real Characteristics Of Total Sample:

Specific Gravity -----	0.803	(Air=1)
Compressibility (Z) -----	0.9953	
Molecular Weight -----	23.15	
Gross Heating Value		
Dry Basis -----	1410	BTU/CF
Saturated Basis -----	1386	BTU/CF

*Hydrogen Sulfide tested on location by: Stain Tube Method (GPA 2377)
Results: <0.013 Gr/100 CF, <0.2 PPMV or <0.001 Mol %

Base Conditions: 15.025 PSI & 60 Deg F

Sampled By: (16) JRG/EJG
Analyst: LPJ
Processor: NG
Cylinder ID: T-4233

Certified: FESCO, Ltd. - Alice, Texas

David Dannhaus 361-661-7015

FESCO, Ltd.

Job Number: 84435.001

CHROMATOGRAPH EXTENDED ANALYSIS - GPA 2286
TOTAL REPORT

COMPONENT	MOL %	GPM	WT %
Hydrogen Sulfide*	< 0.001		< 0.001
Nitrogen	0.915		1.107
Carbon Dioxide	0.067		0.127
Methane	72.631		50.334
Ethane	13.453	3.686	17.475
Propane	7.170	2.024	13.658
Isobutane	0.959	0.322	2.408
n-Butane	2.307	0.745	5.792
2,2 Dimethylpropane	0.009	0.004	0.028
Isopentane	0.522	0.196	1.627
n-Pentane	0.608	0.226	1.895
2,2 Dimethylbutane	0.007	0.003	0.026
Cyclopentane	0.000	0.000	0.000
2,3 Dimethylbutane	0.052	0.022	0.194
2 Methylpentane	0.162	0.069	0.603
3 Methylpentane	0.087	0.036	0.324
n-Hexane	0.224	0.094	0.834
Methylcyclopentane	0.102	0.036	0.371
Benzene	0.015	0.004	0.051
Cyclohexane	0.116	0.040	0.422
2-Methylhexane	0.031	0.015	0.134
3-Methylhexane	0.034	0.016	0.147
2,2,4 Trimethylpentane	0.000	0.000	0.000
Other C7's	0.095	0.042	0.407
n-Heptane	0.078	0.037	0.338
Methylcyclohexane	0.109	0.045	0.462
Toluene	0.021	0.007	0.084
Other C8's	0.099	0.047	0.471
n-Octane	0.031	0.016	0.153
Ethylbenzene	0.002	0.001	0.009
M & P Xylenes	0.012	0.005	0.055
O-Xylene	0.003	0.001	0.014
Other C9's	0.044	0.023	0.240
n-Nonane	0.010	0.006	0.055
Other C10's	0.016	0.010	0.098
n-Decane	0.004	0.003	0.025
Undecanes (11)	<u>0.005</u>	<u>0.003</u>	<u>0.032</u>
Totals	100.000	7.783	100.000

Computed Real Characteristics of Total Sample

Specific Gravity -----	0.803	(Air=1)
Compressibility (Z) -----	0.9953	
Molecular Weight -----	23.15	
Gross Heating Value		
Dry Basis -----	1410	BTU/CF
Saturated Basis -----	1386	BTU/CF

December 12, 2018

FESCO, Ltd.
1100 Fesco Ave. - Alice, Texas 78332

Sample: Gravel Grinder 10H
Inlet Separator
Spot Gas Sample @ 135 psig & 108 °F

Date Sampled: 11/27/2018

Job Number: 84435.001

GLYCALC FORMAT

COMPONENT	MOL%	GPM	Wt %
Carbon Dioxide	0.067		0.127
Hydrogen Sulfide	< 0.001		< 0.001
Nitrogen	0.915		1.107
Methane	72.631		50.334
Ethane	13.453	3.686	17.475
Propane	7.170	2.024	13.658
Isobutane	0.959	0.322	2.408
n-Butane	2.316	0.749	5.820
Isopentane	0.522	0.196	1.627
n-Pentane	0.608	0.226	1.895
Cyclopentane	0.000	0.000	0.000
n-Hexane	0.224	0.094	0.834
Cyclohexane	0.116	0.040	0.422
Other C6's	0.308	0.130	1.147
Heptanes	0.340	0.146	1.397
Methylcyclohexane	0.109	0.045	0.462
2,2,4 Trimethylpentane	0.000	0.000	0.000
Benzene	0.015	0.004	0.051
Toluene	0.021	0.007	0.084
Ethylbenzene	0.002	0.001	0.009
Xylenes	0.015	0.006	0.069
Octanes Plus	<u>0.209</u>	<u>0.107</u>	<u>1.074</u>
Totals	100.000	7.783	100.000

Real Characteristics Of Octanes Plus:

Specific Gravity ----- 4.127 (Air=1)
Molecular Weight ----- 118.99
Gross Heating Value ----- 6297 BTU/CF

Real Characteristics Of Total Sample:

Specific Gravity ----- 0.803 (Air=1)
Compressibility (Z) ----- 0.9953
Molecular Weight ----- 23.15
Gross Heating Value
Dry Basis ----- 1410 BTU/CF
Saturated Basis ----- 1386 BTU/CF

January 7, 2019

FESCO, Ltd.
1100 FESCO Avenue - Alice, Texas 78332

For: Marathon Oil Permian, LLC
5555 San Felipe Street
Houston, Texas 77056

Sample: Gravel Grinder 10H
Inlet Separator Hydrocarbon Liquid
Sampled @ 135 psig & 108 °F

Date Sampled: 11/27/18

Job Number: 84435.012

CHROMATOGRAPH EXTENDED ANALYSIS - GPA 2186-M

COMPONENT	MOL %	LIQ VOL %	WT %
Nitrogen	0.027	0.005	0.005
Carbon Dioxide	0.007	0.002	0.002
Methane	3.134	0.903	0.349
Ethane	3.169	1.441	0.662
Propane	5.480	2.567	1.678
Isobutane	1.538	0.856	0.621
n-Butane	5.225	2.801	2.109
2,2 Dimethylpropane	0.107	0.070	0.054
Isopentane	2.604	1.619	1.304
n-Pentane	3.813	2.350	1.910
2,2 Dimethylbutane	0.046	0.033	0.028
Cyclopentane	0.000	0.000	0.000
2,3 Dimethylbutane	0.258	0.180	0.154
2 Methylpentane	1.413	0.997	0.846
3 Methylpentane	0.820	0.569	0.491
n-Hexane	2.500	1.748	1.496
Heptanes Plus	<u>69.859</u>	<u>83.860</u>	<u>88.292</u>
Totals:	100.000	100.000	100.000

Characteristics of Heptanes Plus:

Specific Gravity -----	0.8170 (Water=1)
°API Gravity -----	41.70 @ 60°F
Molecular Weight -----	182.0
Vapor Volume -----	13.89 CF/Gal
Weight -----	6.81 Lbs/Gal

Characteristics of Total Sample:

Specific Gravity -----	0.7759 (Water=1)
°API Gravity -----	50.86 @ 60°F
Molecular Weight -----	144.0
Vapor Volume -----	16.67 CF/Gal
Weight -----	6.47 Lbs/Gal

Base Conditions: 15.025 PSI & 60 °F

Certified: FESCO, Ltd. - Alice, Texas

Sampled By: (16) EJ Garza
Analyst: XG
Processor: XGdjv
Cylinder ID: W-2029

David Dannhaus 361-661-7015

FESCO, Ltd.

Job Number: 84435.012

TANKS DATA INPUT REPORT - GPA 2186-M

COMPONENT	Mol %	LiqVol %	Wt %
Carbon Dioxide	0.007	0.002	0.002
Nitrogen	0.027	0.005	0.005
Methane	3.134	0.903	0.349
Ethane	3.169	1.441	0.662
Propane	5.480	2.567	1.678
Isobutane	1.538	0.856	0.621
n-Butane	5.333	2.871	2.163
Isopentane	2.604	1.619	1.304
n-Pentane	3.813	2.350	1.910
Other C-6's	2.538	1.779	1.519
Heptanes	10.071	7.056	6.554
Octanes	11.984	9.259	8.865
Nonanes	5.745	5.251	5.056
Decanes Plus	39.282	60.556	65.862
Benzene	0.147	0.070	0.080
Toluene	0.640	0.365	0.410
E-Benzene	0.269	0.176	0.198
Xylenes	1.720	1.127	1.268
n-Hexane	2.500	1.748	1.496
2,2,4 Trimethylpentane	0.000	0.000	0.000
Totals:	100.000	100.000	100.000

Characteristics of Total Sample:

Specific Gravity -----	0.7759	(Water=1)
°API Gravity -----	50.86	@ 60°F
Molecular Weight-----	144.0	
Vapor Volume -----	16.67	CF/Gal
Weight -----	6.47	Lbs/Gal

Characteristics of Decanes (C10) Plus:

Specific Gravity -----	0.8439	(Water=1)
Molecular Weight-----	241.5	

Characteristics of Atmospheric Sample:

°API Gravity -----	46.87	@ 60°F
Reid Vapor Pressure Equivalent (D-6377)-----	9.69	psi

QUALITY CONTROL CHECK		
	Sampling Conditions	Test Samples
Cylinder Number	-----	W-2029* -----
Pressure, PSIG	135	132 -----
Temperature, °F	108	108 -----

* Sample used for analysis

FESCO, Ltd.

Job Number: 84435.012

TOTAL EXTENDED REPORT - GPA 2186-M

COMPONENT	Mol %	LiqVol %	Wt %
Nitrogen	0.027	0.005	0.005
Carbon Dioxide	0.007	0.002	0.002
Methane	3.134	0.903	0.349
Ethane	3.169	1.441	0.662
Propane	5.480	2.567	1.678
Isobutane	1.538	0.856	0.621
n-Butane	5.225	2.801	2.109
2,2 Dimethylpropane	0.107	0.070	0.054
Isopentane	2.604	1.619	1.304
n-Pentane	3.813	2.350	1.910
2,2 Dimethylbutane	0.046	0.033	0.028
Cyclopentane	0.000	0.000	0.000
2,3 Dimethylbutane	0.258	0.180	0.154
2 Methylpentane	1.413	0.997	0.846
3 Methylpentane	0.820	0.569	0.491
n-Hexane	2.500	1.748	1.496
Methylcyclopentane	1.614	0.971	0.943
Benzene	0.147	0.070	0.080
Cyclohexane	2.327	1.347	1.360
2-Methylhexane	0.887	0.701	0.617
3-Methylhexane	0.854	0.667	0.594
2,2,4 Trimethylpentane	0.000	0.000	0.000
Other C-7's	2.002	1.498	1.379
n-Heptane	2.387	1.873	1.661
Methylcyclohexane	4.343	2.969	2.961
Toluene	0.640	0.365	0.410
Other C-8's	5.615	4.526	4.297
n-Octane	2.026	1.764	1.607
E-Benzene	0.269	0.176	0.198
M & P Xylenes	1.136	0.749	0.837
O-Xylene	0.584	0.377	0.430
Other C-9's	4.356	3.921	3.818
n-Nonane	1.390	1.330	1.238
Other C-10's	4.365	4.319	4.282
n-decane	1.118	1.167	1.105
Undecanes(11)	4.316	4.380	4.405
Dodecanes(12)	3.324	3.644	3.715
Tridecanes(13)	3.462	4.070	4.207
Tetradecanes(14)	2.858	3.599	3.770
Pentadecanes(15)	2.579	3.478	3.688
Hexadecanes(16)	1.845	2.659	2.843
Heptadecanes(17)	1.689	2.574	2.779
Octadecanes(18)	1.543	2.476	2.689
Nonadecanes(19)	1.344	2.247	2.454
Eicosanes(20)	1.071	1.861	2.045
Heneicosanes(21)	0.845	1.546	1.708
Docosanes(22)	0.834	1.589	1.766
Tricosanes(23)	0.766	1.512	1.691
Tetracosanes(24)	0.722	1.477	1.659
Pentacosanes(25)	0.579	1.229	1.387
Hexacosanes(26)	0.431	0.949	1.075
Heptacosanes(27)	0.443	1.011	1.151
Octacosanes(28)	0.347	0.819	0.936
Nonacosanes(29)	0.389	0.948	1.086
Triacontanes(30)	0.315	0.792	0.910
Hentriacontanes Plus(31+)	<u>4.098</u>	<u>12.210</u>	<u>14.510</u>
Total	100.000	100.000	100.000

January 7, 2019

FESCO, Ltd.
1100 FESCO Avenue - Alice, Texas 78332

For: Marathon Oil Permian, LLC
 5555 San Felipe Street
 Houston, Texas 77056

Sample: Gravel Grinder 10H
 Atmospheric Hydrocarbon Liquid
 Sampled from Flash Residual Oil

Date Sampled: 11/27/18

Job Number: 84435.002

CHROMATOGRAPH EXTENDED ANALYSIS - GPA 2186-M

COMPONENT	MOL %	LIQ VOL %	WT %
Nitrogen	0.000	0.000	0.000
Carbon Dioxide	0.000	0.000	0.000
Methane	0.000	0.000	0.000
Ethane	0.530	0.225	0.101
Propane	2.575	1.123	0.718
Isobutane	1.120	0.580	0.412
n-Butane	4.387	2.190	1.613
2,2 Dimethylpropane	0.022	0.013	0.010
Isopentane	2.573	1.490	1.174
n-Pentane	3.900	2.238	1.780
2,2 Dimethylbutane	0.061	0.040	0.033
Cyclopentane	0.000	0.000	0.000
2,3 Dimethylbutane	0.414	0.269	0.226
2 Methylpentane	1.742	1.145	0.950
3 Methylpentane	1.029	0.665	0.561
n-Hexane	3.071	2.000	1.674
Heptanes Plus	<u>78.574</u>	<u>88.021</u>	<u>90.749</u>
Totals:	100.000	100.000	100.000

Characteristics of Heptanes Plus:

Specific Gravity -----	0.8179 (Water=1)
°API Gravity -----	41.51 @ 60°F
Molecular Weight -----	182.6
Vapor Volume -----	13.86 CF/Gal
Weight -----	6.81 Lbs/Gal

Characteristics of Total Sample:

Specific Gravity -----	0.7933 (Water=1)
°API Gravity -----	46.87 @ 60°F
Molecular Weight -----	158.1
Vapor Volume -----	15.53 CF/Gal
Weight -----	6.61 Lbs/Gal

Base Conditions: 15.025 PSI & 60 °F

Certified: FESCO, Ltd. - Alice, Texas

Sampled By: (16) JL
 Analyst: XG
 Processor: XGdjv
 Cylinder ID: Vial

 David Dannhaus 361-661-7015

FESCO, Ltd.

Job Number: 84435.002

TANKS DATA INPUT REPORT - GPA 2186-M

COMPONENT	Mol %	LiqVol %	Wt %
Carbon Dioxide	0.000	0.000	0.000
Nitrogen	0.000	0.000	0.000
Methane	0.000	0.000	0.000
Ethane	0.530	0.225	0.101
Propane	2.575	1.123	0.718
Isobutane	1.120	0.580	0.412
n-Butane	4.409	2.203	1.623
Isopentane	2.573	1.490	1.174
n-Pentane	3.900	2.238	1.780
Other C-6's	3.246	2.119	1.769
Heptanes	11.672	7.604	6.912
Octanes	13.435	9.662	9.050
Nonanes	6.411	5.455	5.138
Decanes Plus	43.814	63.417	67.578
Benzene	0.209	0.093	0.103
Toluene	0.776	0.411	0.452
E-Benzene	0.303	0.185	0.203
Xylenes	1.955	1.193	1.313
n-Hexane	3.071	2.000	1.674
2,2,4 Trimethylpentane	<u>0.000</u>	<u>0.000</u>	<u>0.000</u>
Totals:	100.000	100.000	100.000

Characteristics of Total Sample:

Specific Gravity -----	0.7933	(Water=1)
°API Gravity -----	46.87	@ 60°F
Molecular Weight-----	158.1	
Vapor Volume -----	15.53	CF/Gal
Weight -----	6.61	Lbs/Gal

Characteristics of Decanes (C10) Plus:

Specific Gravity -----	0.8453	(Water=1)
Molecular Weight-----	243.9	

Characteristics of Atmospheric Sample:

°API Gravity -----	46.87	@ 60°F
Reid Vapor Pressure Equivalent (D-6377)-----	9.69	psi

QUALITY CONTROL CHECK		
	Sampling Conditions	Test Samples
Cylinder Number	-----	-----
Pressure, PSIG	-----	-----
Temperature, °F	-----	-----

* Sample used for analysis

FESCO, Ltd.

Job Number: 84435.002

TOTAL EXTENDED REPORT - GPA 2186-M

COMPONENT	Mol %	LiqVol %	Wt %
Nitrogen	0.000	0.000	0.000
Carbon Dioxide	0.000	0.000	0.000
Methane	0.000	0.000	0.000
Ethane	0.530	0.225	0.101
Propane	2.575	1.123	0.718
Isobutane	1.120	0.580	0.412
n-Butane	4.387	2.190	1.613
2,2 Dimethylpropane	0.022	0.013	0.010
Isopentane	2.573	1.490	1.174
n-Pentane	3.900	2.238	1.780
2,2 Dimethylbutane	0.061	0.040	0.033
Cyclopentane	0.000	0.000	0.000
2,3 Dimethylbutane	0.414	0.269	0.226
2 Methylpentane	1.742	1.145	0.950
3 Methylpentane	1.029	0.665	0.561
n-Hexane	3.071	2.000	1.674
Methylcyclopentane	1.933	1.083	1.029
Benzene	0.209	0.093	0.103
Cyclohexane	2.706	1.458	1.440
2-Methylhexane	1.013	0.746	0.642
3-Methylhexane	0.989	0.719	0.627
2,2,4 Trimethylpentane	0.000	0.000	0.000
Other C-7's	2.309	1.609	1.449
n-Heptane	2.722	1.988	1.725
Methylcyclohexane	4.897	3.117	3.041
Toluene	0.776	0.411	0.452
Other C-8's	6.265	4.702	4.367
n-Octane	2.272	1.843	1.642
E-Benzene	0.303	0.185	0.203
M & P Xylenes	1.304	0.801	0.876
O-Xylene	0.651	0.392	0.437
Other C-9's	4.861	4.075	3.882
n-Nonane	1.549	1.380	1.257
Other C-10's	4.990	4.597	4.459
n-decane	1.238	1.203	1.114
Undecanes(11)	4.858	4.591	4.516
Dodecanes(12)	3.816	3.896	3.886
Tridecanes(13)	3.665	4.012	4.056
Tetradecanes(14)	3.068	3.598	3.687
Pentadecanes(15)	2.786	3.500	3.630
Hexadecanes(16)	1.961	2.632	2.753
Heptadecanes(17)	1.819	2.582	2.727
Octadecanes(18)	1.566	2.341	2.487
Nonadecanes(19)	1.608	2.503	2.674
Eicosanes(20)	1.194	1.933	2.077
Heneicosanes(21)	0.933	1.589	1.717
Docosanes(22)	1.003	1.779	1.935
Tricosanes(23)	0.815	1.500	1.640
Tetracosanes(24)	0.779	1.485	1.631
Pentacosanes(25)	0.611	1.208	1.332
Hexacosanes(26)	0.444	0.910	1.009
Heptacosanes(27)	0.485	1.030	1.147
Octacosanes(28)	0.394	0.866	0.967
Nonacosanes(29)	0.434	0.984	1.103
Triacotanes(30)	0.357	0.836	0.940
Hentriacotanes Plus(31+)	<u>4.989</u>	<u>13.843</u>	<u>16.091</u>
Total	100.000	100.000	100.000



December 31, 2018

FESCO Ltd.
1100 Fesco Avenue - Alice, Texas 78332

For: Marathon Oil Permian, LLC
5555 San Felipe Street
Houston, Texas 77056

LABORATORY TEST RESULTS

Lease/Well		Gravel Grinder 10H		Job Number		J84435
				Date Sampled		11/27/2018
Sample ID	Test	Results	Units	Test Method		
Inlet Separator	Total Sulfur	152.1	ppm wt	D-5453		
Hydrocarbon Liquid		0.01521	wt %			

FESCO Ltd. - Alice, Texas

David Dannhaus 361-661-7015

January 7, 2019

FESCO, Ltd.
1100 Fesco Avenue - Alice, Texas 78332

For: Marathon Oil Permian, LLC
 5555 San Felipe Street
 Houston, Texas 77056

Date Sampled: 11/27/18

Date Analyzed: 12/11/18

Sample: Gravel Grinder 10H

Job Number: J84435

FLASH LIBERATION OF HYDROCARBON LIQUID		
	Separator HC Liquid	Stock Tank
Pressure, psig	135	0
Temperature, °F	108	70
Gas Oil Ratio (1)	-----	76.8
Gas Specific Gravity (2)	-----	1.334
Separator Volume Factor (3)	1.0725	1.000

STOCK TANK FLUID PROPERTIES	
Shrinkage Recovery Factor (4)	0.9324
Oil API Gravity at 60 °F	46.87
Reid Vapor Pressure Equivalent (D-6377), psi (5)	9.69

Quality Control Check			
	Sampling Conditions	Test Samples	
Cylinder No.	-----	W-2029*	-----
Pressure, psig	135	132	-----
Temperature, °F	108	108	-----

(1) - Scf of flashed vapor per barrel of stock tank oil

(2) - Air = 1.000

(3) - Separator volume / Stock tank volume

(4) - Fraction of first stage separator liquid

(5) - Absolute pressure at 100 deg F

Analyst: J.L.

* Sample used for flash study

Base Conditions: 15.025 PSI & 60 °F

Certified: FESCO, Ltd. - Alice, Texas

David Dannhaus 361-661-7015

December 13, 2018

FESCO, Ltd.
1100 Fesco Ave. - Alice, Texas 78332

For: Marathon Oil Permian, LLC
5555 San Felipe Street
Houston, Texas 77056

Sample: Gravel Grinder 10H
Gas Evolved from Hydrocarbon Liquid Flashed
From 135 psig & 108 °F to 0 psig & 70 °F

Date Sampled: 11/27/2018

Job Number: 84435.011

CHROMATOGRAPH EXTENDED ANALYSIS - GPA 2286

COMPONENT	MOL%	GPM
Hydrogen Sulfide*	< 0.001	
Nitrogen	0.128	
Carbon Dioxide	0.049	
Methane	27.462	
Ethane	23.530	6.508
Propane	25.736	7.333
Isobutane	4.248	1.438
n-Butane	10.628	3.465
2-2 Dimethylpropane	0.039	0.015
Isopentane	2.360	0.893
n-Pentane	2.562	0.960
Hexanes	1.508	0.642
Heptanes Plus	<u>1.750</u>	<u>0.740</u>
Totals	100.000	21.995

Computed Real Characteristics Of Heptanes Plus:

Specific Gravity -----	3.395	(Air=1)
Molecular Weight -----	96.95	
Gross Heating Value -----	5146	BTU/CF

Computed Real Characteristics Of Total Sample:

Specific Gravity -----	1.334	(Air=1)
Compressibility (Z) -----	0.9860	
Molecular Weight -----	38.11	
Gross Heating Value -----		
Dry Basis -----	2265	BTU/CF
Saturated Basis -----	2226	BTU/CF

*Hydrogen Sulfide tested in laboratory by: Stain Tube Method (GPA 2377)
Results: <0.013 Gr/100 CF, <0.2 PPMV or <0.001 Mol %

Base Conditions: 15.025 PSI & 60 Deg F

Sampled By: (16) JL
Analyst: MR
Processor: NG
Cylinder ID: FL-12S

Certified: FESCO, Ltd. - Alice, Texas

David Dannhaus 361-661-7015

FESCO, Ltd.

Job Number: 84435.011

**CHROMATOGRAPH EXTENDED ANALYSIS - GPA 2286
TOTAL REPORT**

COMPONENT	MOL %	GPM	WT %
Hydrogen Sulfide*	< 0.001		< 0.001
Nitrogen	0.128		0.094
Carbon Dioxide	0.049		0.057
Methane	27.462		11.561
Ethane	23.530	6.508	18.566
Propane	25.736	7.333	29.780
Isobutane	4.248	1.438	6.479
n-Butane	10.628	3.465	16.210
2,2 Dimethylpropane	0.039	0.015	0.074
Isopentane	2.360	0.893	4.468
n-Pentane	2.562	0.960	4.851
2,2 Dimethylbutane	0.023	0.010	0.052
Cyclopentane	0.000	0.000	0.000
2,3 Dimethylbutane	0.158	0.067	0.357
2 Methylpentane	0.473	0.203	1.070
3 Methylpentane	0.248	0.105	0.561
n-Hexane	0.606	0.258	1.370
Methylcyclopentane	0.274	0.098	0.605
Benzene	0.039	0.011	0.080
Cyclohexane	0.294	0.104	0.649
2-Methylhexane	0.070	0.034	0.184
3-Methylhexane	0.077	0.036	0.202
2,2,4 Trimethylpentane	0.000	0.000	0.000
Other C7's	0.219	0.099	0.570
n-Heptane	0.161	0.077	0.423
Methylcyclohexane	0.235	0.098	0.605
Toluene	0.041	0.014	0.099
Other C8's	0.178	0.086	0.515
n-Octane	0.048	0.025	0.144
Ethylbenzene	0.003	0.001	0.008
M & P Xylenes	0.016	0.006	0.045
O-Xylene	0.003	0.001	0.008
Other C9's	0.062	0.033	0.205
n-Nonane	0.011	0.006	0.037
Other C10's	0.013	0.008	0.048
n-Decane	0.003	0.002	0.011
Undecanes (11)	<u>0.003</u>	<u>0.002</u>	<u>0.012</u>
Totals	100.000	21.995	100.000

Computed Real Characteristics Of Total Sample:

Specific Gravity -----	1.334	(Air=1)
Compressibility (Z) -----	0.9860	
Molecular Weight -----	38.11	
Gross Heating Value		
Dry Basis -----	2265	BTU/CF
Saturated Basis -----	2226	BTU/CF

Flaring/Venting Event Volume (MCF):	53.3
Flare or vent:	Flare
Date:	2/11/2023
Time discovered:	7:35 AM
Time terminated:	7:40 AM
Total Duration (hrs):	0:05

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

DEFINITIONS

Action 193659

DEFINITIONS

Operator: MARATHON OIL PERMIAN LLC 990 Town & Country Blvd. Houston, TX 77024	OGRID: 372098
	Action Number: 193659
	Action Type: [C-129] Venting and/or Flaring (C-129)

DEFINITIONS

For the sake of brevity and completeness, please allow for the following in all groups of questions and for the rest of this application: • this application's operator, hereinafter "this operator"; • venting and/or flaring, hereinafter "vent or flare"; • any notification or report(s) of the C-129 form family, hereinafter "any C-129 forms"; • the statements in (and/or attached to) this, hereinafter "the statements in this"; • and the past tense will be used in lieu of mixed past/present tense questions and statements.
--

District I

1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720

District II

811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720

District III

1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170

District IV

1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

QUESTIONS

Action 193659

QUESTIONS

Operator: MARATHON OIL PERMIAN LLC 990 Town & Country Blvd. Houston, TX 77024	OGRID: 372098
	Action Number: 193659
	Action Type: [C-129] Venting and/or Flaring (C-129)

QUESTIONS**Prerequisites**

Any messages presented in this section, will prevent submission of this application. Please resolve these issues before continuing with the rest of the questions.

Incident Well	[30-015-44630] GRAVEL GRINDER FEE 23 28 18 WXY #010H
Incident Facility	Unavailable.

Determination of Reporting Requirements

Answer all questions that apply. The Reason(s) statements are calculated based on your answers and may provide additional guidance.

Was this vent or flare caused by an emergency or malfunction	No
Did this vent or flare last eight hours or more cumulatively within any 24-hour period from a single event	No
Is this considered a submission for a vent or flare event	Yes, minor venting and/or flaring of natural gas.

An operator shall file a form C-141 instead of a form C-129 for a release that, includes liquid during venting and/or flaring that is or may be a major or minor release under 19.15.29.7 NMAC.

Was there at least 50 MCF of natural gas vented and/or flared during this event	Yes
Did this vent or flare result in the release of ANY liquids (not fully and/or completely flared) that reached (or has a chance of reaching) the ground, a surface, a watercourse, or otherwise, with reasonable probability, endanger public health, the environment or fresh water	No
Was the vent or flare within an incorporated municipal boundary or within 300 feet from an occupied permanent residence, school, hospital, institution or church in existence	No

Equipment Involved

Primary Equipment Involved	Not answered.
Additional details for Equipment Involved. Please specify	Not answered.

Representative Compositional Analysis of Vented or Flared Natural Gas

Please provide the mole percent for the percentage questions in this group.

Methane (CH4) percentage	73
Nitrogen (N2) percentage, if greater than one percent	1
Hydrogen Sulfide (H2S) PPM, rounded up	0
Carbon Dioxide (CO2) percentage, if greater than one percent	0
Oxygen (O2) percentage, if greater than one percent	0

If you are venting and/or flaring because of Pipeline Specification, please provide the required specifications for each gas.

Methane (CH4) percentage quality requirement	Not answered.
Nitrogen (N2) percentage quality requirement	Not answered.
Hydrogen Sulfide (H2S) PPM quality requirement	Not answered.
Carbon Dioxide (CO2) percentage quality requirement	Not answered.
Oxygen (O2) percentage quality requirement	Not answered.

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

QUESTIONS, Page 2

Action 193659

QUESTIONS (continued)

Operator: MARATHON OIL PERMIAN LLC 990 Town & Country Blvd. Houston, TX 77024	OGRID: 372098
	Action Number: 193659
	Action Type: [C-129] Venting and/or Flaring (C-129)

QUESTIONS

Date(s) and Time(s)	
Date vent or flare was discovered or commenced	02/11/2023
Time vent or flare was discovered or commenced	07:35 AM
Time vent or flare was terminated	07:40 AM
Cumulative hours during this event	0

Measured or Estimated Volume of Vented or Flared Natural Gas	
Natural Gas Vented (Mcf) Details	Cause: Downhole Well Maintenance Well Natural Gas Vented Released: 53 Mcf Recovered: 0 Mcf Lost: 53 Mcf.
Natural Gas Flared (Mcf) Details	Not answered.
Other Released Details	Not answered.
Additional details for Measured or Estimated Volume(s). Please specify	Not answered.
Is this a gas only submission (i.e. only significant Mcf values reported)	Yes, according to supplied volumes this appears to be a "gas only" report.

Venting or Flaring Resulting from Downstream Activity	
Was this vent or flare a result of downstream activity	No
Was notification of downstream activity received by this operator	Not answered.
Downstream OGRID that should have notified this operator	Not answered.
Date notified of downstream activity requiring this vent or flare	Not answered.
Time notified of downstream activity requiring this vent or flare	Not answered.

Steps and Actions to Prevent Waste	
For this event, this operator could not have reasonably anticipated the current event and it was beyond this operator's control.	True
Please explain reason for why this event was beyond this operator's control	WO rig supervisor was trying to reduce wellhead pressure prior to nipping down the production tree and nipping up the BOP. The pressure reduction was conducted for safety reasons.
Steps taken to limit the duration and magnitude of vent or flare	The WO supervisor did not blow the well down to zero psi but rather limited the blow down period.
Corrective actions taken to eliminate the cause and reoccurrence of vent or flare	A temporary flare will be attempted to be used. Well blowdown had to be completed for safety reasons and downhole well maintenance.

District I

1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720

District II

811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720

District III

1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170

District IV

1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

ACKNOWLEDGMENTS

Action 193659

ACKNOWLEDGMENTS

Operator: MARATHON OIL PERMIAN LLC 990 Town & Country Blvd. Houston, TX 77024	OGRID: 372098
	Action Number: 193659
	Action Type: [C-129] Venting and/or Flaring (C-129)

ACKNOWLEDGMENTS

☒	I acknowledge that I am authorized to submit a <i>Venting and/or Flaring</i> (C-129) report on behalf of this operator and understand that this report can be a complete C-129 submission per 19.15.27.8 and 19.15.28.8 NMAC.
☒	I acknowledge that upon submitting this application, I will be creating a new incident file (assigned to this operator) to track any C-129 forms, pursuant to 19.15.27.7 and 19.15.28.8 NMAC and understand that this submission meets the notification requirements of Paragraph (1) of Subsection G and F respectively.
☒	I hereby certify the statements in this report are true and correct to the best of my knowledge and acknowledge that any false statement may be subject to civil and criminal penalties under the Oil and Gas Act.
☒	I acknowledge that the acceptance of any C-129 forms by the OCD does not relieve this operator of liability should their operations have failed to adequately investigate, report, and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment.
☒	I acknowledge that OCD acceptance of any C-129 forms does not relieve this operator of responsibility for compliance with any other applicable federal, state, or local laws and/or regulations.

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 193659

CONDITIONS

Operator: MARATHON OIL PERMIAN LLC 990 Town & Country Blvd. Houston, TX 77024	OGRID: 372098
	Action Number: 193659
	Action Type: [C-129] Venting and/or Flaring (C-129)

CONDITIONS

Created By	Condition	Condition Date
icastro	If the information provided in this report requires an amendment, submit a [C-129] Amend Venting and/or Flaring Incident (C-129A), utilizing your incident number from this event.	3/7/2023