Well Name: RIO BRAVO 27-15; BHD
API #: 3004533706
Source: BRADENHEAD
Sample Type: GAS

Analysis No: HS2021212
Cust No: 35825-13950

Well/Lease Information

Customer Name:	HILCORP (BHD PROJECT)	Source:	BRADENHEAD
Well Name:	RIO BRAVO 27-15; BHD	Well Flowing:	Y
County/State:	SAN JUAN NM	Pressure:	.3 PSIG
Location:		Flow Temp:	DEG. F
Lease/PA/CA:	NMSF-078463A	Ambient Temp:	DEG. F
Formation:	FC / DK	Flow Rate:	MCF/D
Cust. Stn. No.:	3004533706	Sample Method:	Purge & Fill
		Sample Date:	08/20/2021
		Sample Time:	10.00 AM
	AREA 2 / RUN 0202	Sampled By:	JOHN RUSSELL
Heat Trace:		Sampled by (CO):	
Remarks:	PRESSURED WITH HELIUM TO 30 LBS.		

Analysis

Component::	Mole%:	Unormalized %:	**GPM:	*BTU:	*SP Gravity:
Nitrogen	31.4041	8.6880	3.4590	0.00	0.3037
CO2	0.0654	0.0181	0.0110	0.00	0.0010
Methane	65.4793	18.1150	11.1130	661.34	0.3627
Ethane	2.7081	0.7492	0.7250	47.93	0.0281
Propane	0.1569	0.0434	0.0430	3.95	0.0024
Iso-Butane	0.0239	0.0066	0.0080	0.78	0.0005
N-Butane	0.0329	0.0091	0.0100	1.07	0.0007
I-Pentane	0.0112	0.0031	0.0040	0.45	0.0003
N-Pentane	0.0069	0.0019	0.0030	0.28	0.0002
Hexane Plus	0.1113	0.0308	0.0500	5.87	0.0037
Total	100.0000	27.6652	15.4260	721.66	0.7032

* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY
**@ 14.730 PSIA & 60 DEG. F.

COMPRESSIBLITY FACTOR (1/Z):	1.0014	CYLINDER #:	4171
BTU/CU.FT IDEAL:	723.3	CYLINDER PRESSURE:	PSIG
BTU/CU.FT (DRY) CORRECTED FOR (1/Z):	724.3	ANALYIS DATE:	09/01/2021
BTU/CU.FT (WET) CORRECTED FOR (1/Z):	711.7	ANALYIS TIME:	03:45:49 PM
DRY BTU @ 15.025:	738.8	ANALYSIS RUN BY:	RICHARD WILSON
REAL SPECIFIC GRAVITY:	0.7039		

GPM, BTU, and SPG calculations as shown above are based on current GPA constants.
GPA Standard: GPA-2261
GC: Danalyzer Model 500 **Last Cal/Verify: 09/07/2021**
GC Method: C6+ Gas

HILCORP (BHD PROJECT)

WELL ANALYSIS COMPARISON

Lease:	RIO BRAVO 27-15; BHD	BRADENHEAD	09/07/2021
Stn. No.:	3004533706	FC / DK	35825-13950
Mtr. No.:			

Smpl Date:	08/20/2021
Test Date:	09/01/2021
Run No:	HS2021212
Nitrogen:	31.4041
CO2:	0.0654
Methane:	65.4793
Ethane:	2.7081
Propane:	0.1569
I-Butane:	0.0239
N-Butane:	0.0329
I-Pentane:	0.0112
N-Pentane:	0.0069
Hexane+:	0.1113
BTU:	724.3
GPM:	15.4260
SPG:	0.7039

Well Name: RIO BRAVO 27-15; INTRM
API #: 3004533706
Source: INTERMEDIATE CASING
Sample Type: GAS

Analysis No: HS2021214
Cust No: 35825-13960

Well/Lease Information

Customer Name:	HILCORP (BHD PROJECT)	Source:	INTERMEDIATE CASING
Well Name:	RIO BRAVO 27-15; INTRM	Well Flowing:	Y
County/State:	SAN JUAN NM	Pressure:	16 PSIG
Location:		Flow Temp:	DEG. F
Lease/PA/CA:	NMSF-078463A	Ambient Temp:	DEG. F
Formation:	FC / DK	Flow Rate:	MCF/D
Cust. Stn. No.:	3004533706	Sample Method:	Purge & Fill
		Sample Date:	08/20/2021
		Sample Time:	10.00 AM
	AREA 2 / RUN 0202	Sampled By:	JOHN RUSSELL
Heat Trace:		Sampled by (CO):	
Remarks:	PRESSURED WITH HELIUM TO 30 LBS.		

Analysis

Component::	Mole%:	Unormalized %:	**GPM:	*BTU:	*SP Gravity:
Nitrogen	1.0730	0.7971	0.1180	0.00	0.0104
CO2	0.7241	0.5379	0.1240	0.00	0.0110
Methane	97.9856	72.7880	16.6410	989.65	0.5427
Ethane	0.1531	0.1137	0.0410	2.71	0.0016
Propane	0.0362	0.0269	0.0100	0.91	0.0006
Iso-Butane	0.0086	0.0064	0.0030	0.28	0.0002
N-Butane	0.0097	0.0072	0.0030	0.32	0.0002
I-Pentane	0.0031	0.0023	0.0010	0.12	0.0001
N-Pentane	0.0000	0.0000	0.0000	0.00	0.0000
Hexane Plus	0.0066	0.0049	0.0030	0.35	0.0002
Total	100.0000	74.2844	16.9440	994.34	0.5669

* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY
**@ 14.730 PSIA & 60 DEG. F.

COMPRESSIBLITY FACTOR (1/Z):	1.002	CYLINDER #:	6057
BTU/CU.FT IDEAL:	996.6	CYLINDER PRESSURE:	PSIG
BTU/CU.FT (DRY) CORRECTED FOR (1/Z):	998.6	ANALYIS DATE:	09/01/2021
BTU/CU.FT (WET) CORRECTED FOR (1/Z):	981.2	ANALYIS TIME:	04:02:23 PM
DRY BTU @ 15.025:	1018.6	ANALYSIS RUN BY:	RICHARD WILSON
REAL SPECIFIC GRAVITY:	0.5678		

GPM, BTU, and SPG calculations as shown above are based on current GPA constants.
GPA Standard: GPA-2261
GC: Danalyzer Model 500 **Last Cal/Verify: 09/07/2021**
GC Method: C6+ Gas

HILCORP (BHD PROJECT)

WELL ANALYSIS COMPARISON

Lease:	RIO BRAVO 27-15; INTRM	INTERMEDIATE CASING	09/07/2021
Stn. No.:	3004533706	FC / DK	35825-13960
Mtr. No.:			

Smpl Date:	08/20/2021
Test Date:	09/01/2021
Run No:	HS2021214
Nitrogen:	1.0730
CO2:	0.7241
Methane:	97.9856
Ethane:	0.1531
Propane:	0.0362
I-Butane:	0.0086
N-Butane:	0.0097
I-Pentane:	0.0031
N-Pentane:	0.0000
Hexane+:	0.0066
BTU:	998.6
GPM:	16.9440
SPG:	0.5678

Well Name: RIO BRAVO 27-15; CSG
API #: 3004533706
Source: CASING
Sample Type: GAS

Analysis No: HS2021213
Cust No: 35825-13955

Well/Lease Information

Customer Name:	HILCORP (BHD PROJECT)	Source:	CASING
Well Name:	RIO BRAVO 27-15; CSG	Well Flowing:	Y
County/State:	SAN JUAN NM	Pressure:	16 PSIG
Location:		Flow Temp:	DEG. F
Lease/PA/CA:	NMSF-078463A	Ambient Temp:	DEG. F
Formation:	FC / DK	Flow Rate:	MCF/D
Cust. Stn. No.:	3004533706	Sample Method:	Purge & Fill
		Sample Date:	08/20/2021
		Sample Time:	10.00 AM
	AREA 2 / RUN 0202	Sampled By:	JOHN RUSSELL
Heat Trace:		Sampled by (CO):	
Remarks:	PRESSURED WITH HELIUM TO 30 LBS.		

Analysis

Component::	Mole%:	Unormalized %:	**GPM:	*BTU:	*SP Gravity:
Nitrogen	1.0828	0.7329	0.1190	0.00	0.0105
CO2	0.7282	0.4929	0.1240	0.00	0.0111
Methane	97.9719	66.3133	16.6380	989.52	0.5427
Ethane	0.1542	0.1044	0.0410	2.73	0.0016
Propane	0.0362	0.0245	0.0100	0.91	0.0006
Iso-Butane	0.0078	0.0053	0.0030	0.25	0.0002
N-Butane	0.0087	0.0059	0.0030	0.28	0.0002
I-Pentane	0.0034	0.0023	0.0010	0.14	0.0001
N-Pentane	0.0000	0.0000	0.0000	0.00	0.0000
Hexane Plus	0.0068	0.0046	0.0030	0.36	0.0002
Total	100.0000	67.6861	16.9420	994.19	0.5670

* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY
**@ 14.730 PSIA & 60 DEG. F.

COMPRESSIBLITY FACTOR (1/Z):	1.002	CYLINDER #:	6120
BTU/CU.FT IDEAL:	996.5	CYLINDER PRESSURE:	PSIG
BTU/CU.FT (DRY) CORRECTED FOR (1/Z):	998.5	ANALYIS DATE:	09/01/2021
BTU/CU.FT (WET) CORRECTED FOR (1/Z):	981.1	ANALYIS TIME:	03:54:16 PM
DRY BTU @ 15.025:	1018.5	ANALYSIS RUN BY:	RICHARD WILSON
REAL SPECIFIC GRAVITY:	0.5679		

GPM, BTU, and SPG calculations as shown above are based on current GPA constants.
GPA Standard: GPA-2261
GC: Danalyzer Model 500 **Last Cal/Verify: 09/07/2021**
GC Method: C6+ Gas

HILCORP (BHD PROJECT)

WELL ANALYSIS COMPARISON

Lease:	RIO BRAVO 27-15; CSG	CASING	09/07/2021
Stn. No.:	3004533706	FC / DK	35825-13955
Mtr. No.:			

Smpl Date:	08/20/2021
Test Date:	09/01/2021
Run No:	HS2021213
Nitrogen:	1.0828
CO2:	0.7282
Methane:	97.9719
Ethane:	0.1542
Propane:	0.0362
I-Butane:	0.0078
N-Butane:	0.0087
I-Pentane:	0.0034
N-Pentane:	0.0000
Hexane+:	0.0068
BTU:	998.5
GPM:	16.9420
SPG:	0.5679

Well Name: RIO BRAVO 27-15; TBG
API #: 3004533706
Source: TUBING
Sample Type: GAS

Analysis No: HS2021215
Cust No: 35825-13965

Well/Lease Information

Customer Name:	HILCORP (BHD PROJECT)	Source:	TUBING
Well Name:	RIO BRAVO 27-15; TBG	Well Flowing:	Y
County/State:	SAN JUAN NM	Pressure:	418 PSIG
Location:		Flow Temp:	DEG. F
Lease/PA/CA:	NMSF-078463A	Ambient Temp:	DEG. F
Formation:	FC / DK	Flow Rate:	MCF/D
Cust. Stn. No.:	3004533706	Sample Method:	Purge & Fill
		Sample Date:	08/20/2021
		Sample Time:	10.00 AM
	AREA 2 / RUN 0202	Sampled By:	JOHN RUSSELL
Heat Trace:		Sampled by (CO):	
Remarks:			

Analysis

Component::	Mole%:	Unormalized %:	**GPM:	*BTU:	*SP Gravity:
Nitrogen	0.4410	0.4341	0.0490	0.00	0.0043
CO2	2.2311	2.1963	0.3820	0.00	0.0339
Methane	81.5442	80.2717	13.8660	823.60	0.4517
Ethane	9.6111	9.4611	2.5780	170.09	0.0998
Propane	3.4338	3.3802	0.9490	86.40	0.0523
Iso-Butane	0.3613	0.3557	0.1190	11.75	0.0073
N-Butane	0.5963	0.5870	0.1890	19.45	0.0120
I-Pentane	0.8299	0.8169	0.3040	33.20	0.0207
N-Pentane	0.7917	0.7793	0.2880	31.74	0.0197
Hexane Plus	0.1596	0.1571	0.0710	8.41	0.0053
Total	100.0000	98.4394	18.7950	1184.64	0.7068

* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY
**@ 14.730 PSIA & 60 DEG. F.

COMPRESSIBLITY FACTOR (1/Z):	1.0033	CYLINDER #:	6178
BTU/CU.FT IDEAL:	1187.4	CYLINDER PRESSURE:	391 PSIG
BTU/CU.FT (DRY) CORRECTED FOR (1/Z):	1191.3	ANALYIS DATE:	09/01/2021
BTU/CU.FT (WET) CORRECTED FOR (1/Z):	1170.6	ANALYIS TIME:	03:57:34 PM
DRY BTU @ 15.025:	1215.2	ANALYSIS RUN BY:	ALEXIS MITCHELL
REAL SPECIFIC GRAVITY:	0.7089		

GPM, BTU, and SPG calculations as shown above are based on current GPA constants.
GPA Standard: GPA-2261
GC: Danalyzer Model 500 **Last Cal/Verify: 09/07/2021**
GC Method: C6+ Gas

HILCORP (BHD PROJECT)

WELL ANALYSIS COMPARISON

Lease:	RIO BRAVO 27-15; TBG	TUBING	09/07/2021
Stn. No.:	3004533706	FC / DK	35825-13965
Mtr. No.:			

Smpl Date:	08/20/2021
Test Date:	09/01/2021
Run No:	HS2021215
Nitrogen:	0.4410
CO2:	2.2311
Methane:	81.5442
Ethane:	9.6111
Propane:	3.4338
I-Butane:	0.3613
N-Butane:	0.5963
I-Pentane:	0.8299
N-Pentane:	0.7917
Hexane+:	0.1596
BTU:	1191.3
GPM:	18.7950
SPG:	0.7089

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

CONDITIONS

Action 46685

CONDITIONS

Operator: HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID: 372171
	Action Number: 46685
	Action Type: [UF-GA] Gas Analysis (GAS ANALYSIS)

CONDITIONS

Created By	Condition	Condition Date
mkuehling	same gas intermediate and production casing	10/18/2021