



Mason & Tackett No. 518
Lincoln County, WV
Noah Horn 294 Rig

December 10, 2021

Survey Certification Report

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WV Department of
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PRODIRECTIONAL

Survey Certification Letter

December 10, 2021



Operator Name: HG Energy
 Well Name: Mason & Tackett No. 518
 County/Parish: Lincoln County,
 State: WV
 Rig Name: Noah Horn 294
 Job Number: LWV3163621

This is to certify the surveys performed on the referenced well by Professional Directional Ent., Inc. are true and correct MWD Surveys, data provided as follows:

Surveyor	Surveyed Depths	Projection to Bit	Dates Performed	Type of Survey
ProDirectional	596' MD – 2,696' MD	2,750' MD	11/30/21 – 12/02/21	MWD

Sincerely,

Mike Coats
 Regulatory Specialist
 Professional Directional

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WV Department of
 Environmental Protection

850 Conroe Park West Drive | Conroe, TX 77303 | Phone: 936.441.7266

prodirectional.com

03/04/2022

HG Energy LLC
 Lincoln County, West Virginia UTM
 Mason/Tackett/Fowler
 Mason & Tackett #518
 Plan #1- Mason & Tackett #518



Universal Transverse Mercator
 NAD83 West Virginia - HARN
 CRS 1980
 Zone 17N (84 W to 78 W)
 Mean Sea Level



Azimuths to Grid North
 True North: 0.60°
 Magnetic North: -7.97°

Magnetic Field
 Strength: 51211.3enT
 Dip Angle: 65.33°
 Date: 12/1/2021
 Model: HDGM

Azimuth Corrections

Total Magnetic Corr. (M to G): Subtract 7.97°

RKB Elevation: 1006+8=KB @ 1014.00usft

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	13888098.70	1363845.60	38.241961	-81.864014	

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSeet
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	650.00	0.00	0.00	650.00	0.00	0.00	0.00	0.00	0.00
3	1157.51	15.23	228.04	1151.56	-44.92	-49.85	3.00	228.04	97.03
4	2565.37	15.23	228.04	2510.00	-292.00	-324.80	0.00	0.00	438.76
5	2725.37	15.23	228.04	2664.38	-320.09	-356.05	0.00	0.00	478.78

Targets

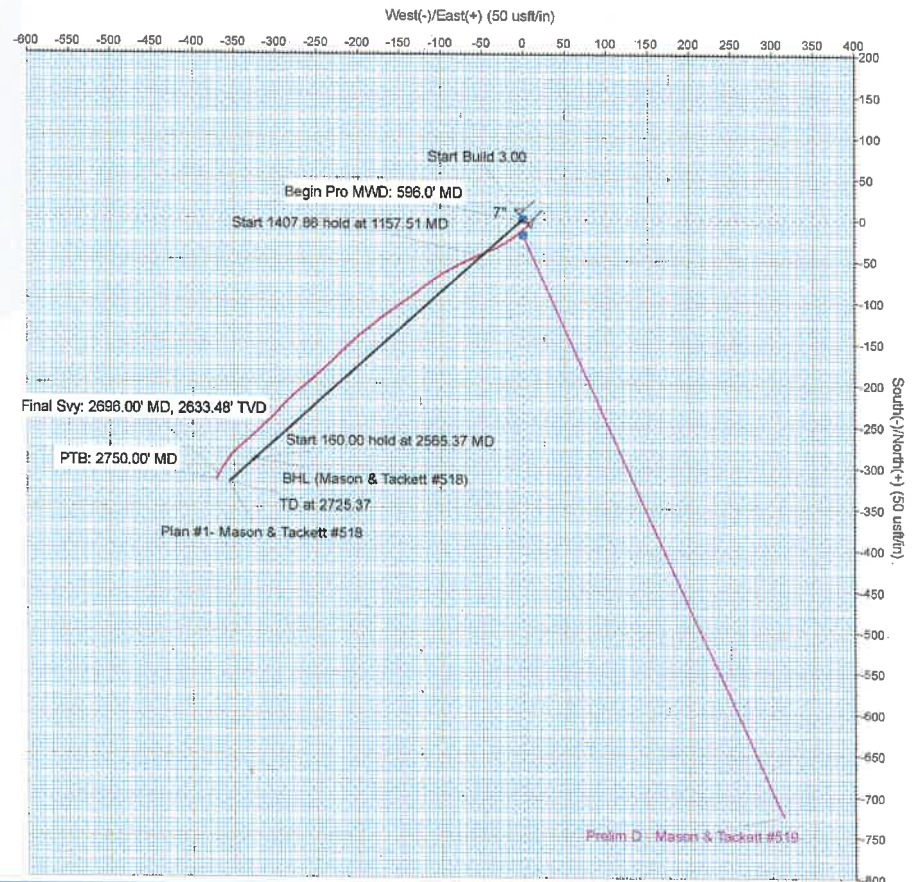
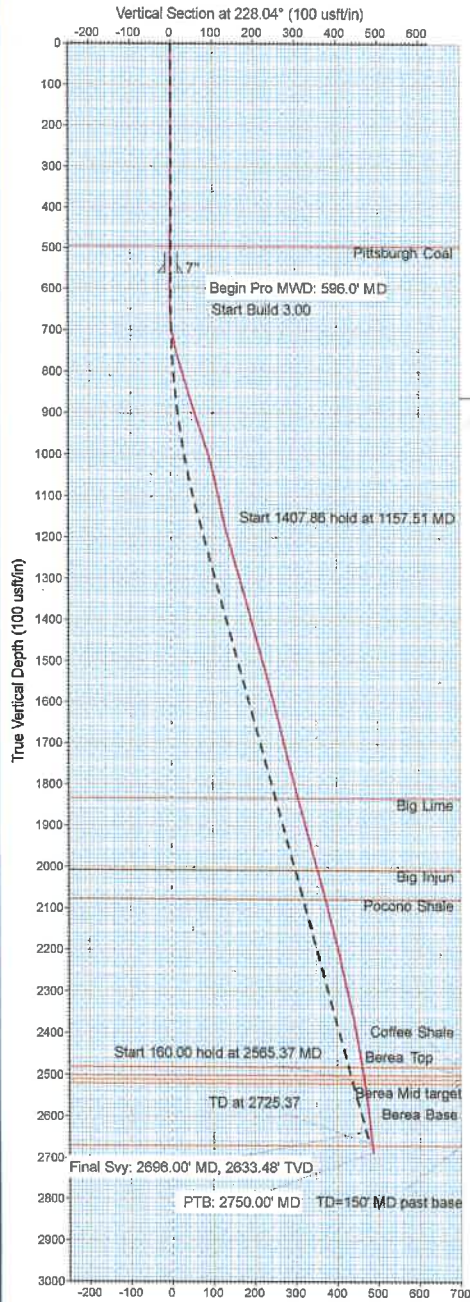
Name	TVD	+N/-S	+E/-W	Northing	Easting
BHL (Mason & Tackett #518)	2670.00	-292.00	-324.80	13887808.70	1363320.80

Formations

TVDPath	MDPath	Formation
494.00	494.00	Pittsburgh Coal
1833.00	1863.74	Big Lime
2007.00	2044.07	Big Injun
2077.00	2116.62	Pocono Shale
2480.00	2534.28	Coffee Shale
2500.00	2555.00	Berea Top
2510.00	2565.37	Berea Mid target
2520.00	2575.73	Berea Base

Casing

TVD	MD	Name	Size
560.00	560.00		7" 7



36" x 48"

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ProDirectional Survey Report

Company: HG Energy LLC	Local Co-ordinate Reference: Well Mason & Tackett #518
Project: Lincoln County, West Virginia UTM83	TVD Reference: 1006+8=KB @ 1014.00usft
Site: Mason/Tackett/Fowler	MD Reference: 1006+8=KB @ 1014.00usft
Well: Mason & Tackett #518	North Reference: Grid
Wellbore: OH	Survey Calculation Method: Minimum Curvature
Design: Mason & Tackett #518 Svy	Database: WellPlanner1

Project Lincoln County, West Virginia UTM83			
Map System: Universal Transverse Mercator (US Survey Feet)	System Datum: Mean Sea Level		
Geo Datum: NAD83 West Virginia - HARN			
Map Zone: Zone 17N (84 W to 78 W)			

Site Mason/Tackett/Fowler			
Site Position:	Northing: 13,883,128.40 usft	Latitude: 38.228441	
From: Map	Easting: 1,368,294.51 usft	Longitude: -81.947647	
Position Uncertainty: 0.00 usft	Slot Radius: 13-3/16 "	Grid Convergence: -0.59 °	

Well Mason & Tackett #518			
Well Position	Northing: 13,888,098.70 usft	Latitude: 38.241961	
+N-S 0.00 usft	Easting: 1,363,645.60 usft	Longitude: -81.964014	
+E-W 0.00 usft	Wellhead Elevation: usft	Ground Level: 1,006.00 usft	
Position Uncertainty 0.00 usft			

Wellbore OH			
Magnetics	Model Name	Sample Date	Declination
	HDGM	12/1/2021	(°) -8.57
			Dip Angle (°) 65.33
			Field Strength (nT) 51,223.10

Design Mason & Tackett #518 Svy			
Audit Notes:			
Version: 1.0	Phase: ACTUAL	Tie On Depth: 0.00	
Vertical Section:	Depth From (TVD)	+N-S	+E-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			Direction (°) 228.04

Survey Program	Date 12/10/2021	Tool Name	Description
From (usft)	Survey (Wellbore)	MWD - OWSG	MWD - OWSG
0.00	Survey #1 (OH)		

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ProDirectional Survey Report

Company: HG Energy LLC
Project: Lincoln County, West Virginia UTM83
Site: Mason/Tackett/Fowler
Well: Mason & Tackett #518
Wellbore: OH
Design: Mason & Tackett #518 Svy

Local Co-ordinate Reference: Well Mason & Tackett #518
TVD Reference: 1006+8=KB @ 1014.00usft
MD Reference: 1006+8=KB @ 1014.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13,888,098.70	1,363,645.60
596.00	1.57	121.11	595.93	-2.38	-4.22	6.99	8.17	121.11	13,888,094.48	1,363,652.59
Begin Pro MWD: 596.0' MD										
626.00	1.64	121.58	625.91	-2.62	-4.66	7.71	9.01	121.13	13,888,094.04	1,363,653.31
656.00	3.02	209.72	655.90	-1.99	-5.57	7.68	9.49	125.93	13,888,093.13	1,363,653.28
686.00	6.75	223.65	685.78	0.52	-7.53	6.07	9.67	141.11	13,888,091.17	1,363,651.67
716.00	10.56	228.10	715.44	5.03	-10.64	2.81	11.01	165.22	13,888,088.06	1,363,648.41
746.00	13.88	230.87	744.75	11.37	-14.75	-2.03	14.89	187.84	13,888,083.95	1,363,643.57
776.00	16.58	233.35	773.70	19.23	-19.58	-8.26	21.25	202.87	13,888,079.12	1,363,637.34
806.00	17.20	234.16	802.40	27.90	-24.73	-15.29	29.07	211.72	13,888,073.97	1,363,630.31
836.00	16.85	236.19	831.09	36.62	-29.75	-22.50	37.29	217.10	13,888,068.95	1,363,623.10
866.00	17.13	241.77	859.78	45.21	-34.26	-30.00	45.54	221.21	13,888,064.44	1,363,616.60
896.00	19.08	247.18	888.29	54.14	-38.25	-38.41	54.21	225.12	13,888,060.45	1,363,607.19
926.00	20.49	247.65	916.52	63.72	-42.15	-47.79	63.72	228.59	13,888,056.55	1,363,597.81
956.00	19.57	245.71	944.71	73.45	-46.21	-57.23	73.55	231.08	13,888,052.49	1,363,588.37
986.00	18.35	244.94	973.08	82.76	-50.28	-66.08	83.04	232.74	13,888,048.42	1,363,579.52
1,016.00	15.77	243.83	1,001.76	91.20	-54.08	-74.02	91.67	233.85	13,888,044.62	1,363,571.58
1,046.00	14.59	242.59	1,030.71	98.78	-57.61	-81.04	99.43	234.59	13,888,041.09	1,363,564.56
1,076.00	14.02	241.35	1,059.78	105.98	-61.10	-87.58	106.78	235.10	13,888,037.60	1,363,558.02
1,106.00	12.73	240.37	1,088.97	112.74	-64.47	-93.64	113.69	235.45	13,888,034.23	1,363,551.96
1,136.00	11.55	236.84	1,118.30	118.94	-67.75	-99.03	119.99	235.62	13,888,030.95	1,363,546.57
1,166.00	10.32	235.44	1,147.65	125.08	-71.21	-104.18	126.19	235.65	13,888,027.49	1,363,541.42
1,196.00	9.90	234.47	1,176.86	131.84	-75.12	-109.75	132.99	235.61	13,888,023.58	1,363,535.85
1,226.00	15.87	232.37	1,205.86	139.51	-79.72	-115.93	140.69	235.49	13,888,018.98	1,363,529.67
1,256.00	16.39	232.04	1,234.68	147.82	-84.82	-122.52	149.01	235.30	13,888,013.88	1,363,523.08
1,286.00	16.42	232.57	1,263.45	156.27	-90.01	-129.22	157.48	235.14	13,888,008.69	1,363,516.38
1,316.00	16.53	233.30	1,292.22	164.75	-95.13	-136.01	165.98	235.03	13,888,003.57	1,363,509.59

Environmental Protection Department
 Department of Environmental Protection

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ProDirectional Survey Report

Company: HG Energy LLC
Project: Lincoln County, West Virginia UTM83
Site: Mason/Tackett/Fowler
Well: Mason & Tackett #518
Wellbore: OH
Design: Mason & Tackett #518 Svy

Local Co-ordinate Reference: Well Mason & Tackett #518
TVD Reference: 1006+8=KB @ 1014.00usft
MD Reference: 1006+8=KB @ 1014.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)
1,346.00	16.45	233.37	1,320.99	173.22	-100.22	-142.84	174.49	234.95	13,887,998.48	1,363,502.76
1,376.00	15.46	236.23	1,349.83	181.41	-104.97	-149.57	182.73	234.94	13,887,993.73	1,363,496.03
1,406.00	15.25	235.86	1,378.76	189.28	-109.41	-156.16	190.68	234.98	13,887,989.29	1,363,489.44
1,436.00	15.02	234.54	1,407.72	197.05	-113.88	-162.59	198.51	234.99	13,887,984.82	1,363,483.01
1,466.00	15.20	231.63	1,436.68	204.84	-118.58	-168.84	206.32	234.92	13,887,980.12	1,363,476.76
1,496.00	15.16	230.68	1,465.64	212.68	-123.50	-174.96	214.16	234.78	13,887,975.20	1,363,470.64
1,526.00	15.18	231.29	1,494.59	220.52	-128.45	-181.06	221.99	234.65	13,887,970.25	1,363,464.54
1,556.00	15.10	230.80	1,523.55	228.35	-133.37	-187.15	229.81	234.52	13,887,965.33	1,363,458.45
1,586.00	15.11	231.47	1,552.51	236.15	-138.28	-193.24	237.62	234.41	13,887,960.42	1,363,452.36
1,616.00	14.97	231.60	1,581.49	243.92	-143.12	-199.34	245.39	234.32	13,887,955.58	1,363,446.26
1,646.00	14.17	226.97	1,610.52	251.46	-148.03	-205.06	252.91	234.17	13,887,950.67	1,363,440.54
1,676.00	14.17	226.24	1,639.61	258.80	-153.08	-210.39	260.19	233.96	13,887,945.62	1,363,435.21
1,766.00	13.61	226.01	1,726.98	280.40	-168.05	-225.97	281.61	233.36	13,887,930.65	1,363,419.63
1,796.00	13.41	224.99	1,756.15	287.40	-172.96	-230.97	288.55	233.17	13,887,925.74	1,363,414.63
1,826.00	14.46	224.45	1,785.26	294.61	-178.10	-236.05	295.70	232.97	13,887,920.60	1,363,409.55
1,856.00	15.39	227.91	1,814.25	302.33	-183.44	-241.63	303.37	232.79	13,887,915.26	1,363,403.97
1,886.00	15.64	229.85	1,843.16	310.35	-188.72	-247.67	311.38	232.69	13,887,909.98	1,363,397.93
1,916.00	15.37	229.59	1,872.07	318.37	-193.90	-253.79	319.39	232.62	13,887,904.80	1,363,391.81
1,946.00	15.23	230.25	1,901.00	326.28	-199.00	-259.85	327.29	232.55	13,887,899.70	1,363,385.75
1,976.00	15.16	230.40	1,929.96	334.14	-204.02	-265.90	335.15	232.50	13,887,894.68	1,363,379.70
2,006.00	14.90	227.27	1,958.93	341.91	-209.14	-271.76	342.91	232.42	13,887,889.56	1,363,373.84
2,036.00	14.06	225.79	1,987.98	349.41	-214.29	-277.20	350.37	232.29	13,887,884.41	1,363,368.40
2,066.00	14.85	225.82	2,017.03	356.89	-219.51	-282.57	357.82	232.16	13,887,879.19	1,363,363.03
2,096.00	15.05	225.44	2,046.01	364.63	-224.93	-288.10	365.51	232.02	13,887,873.77	1,363,357.50
2,126.00	15.32	224.54	2,074.96	372.47	-230.48	-293.66	373.31	231.87	13,887,868.22	1,363,351.94
2,156.00	14.20	221.81	2,103.97	380.09	-236.05	-298.89	380.86	231.70	13,887,862.65	1,363,346.71
2,186.00	13.76	224.73	2,133.09	387.31	-241.33	-303.85	388.03	231.54	13,887,857.37	1,363,341.75

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ProDirectional Survey Report

Company: HG Energy LLC
Project: Lincoln County, West Virginia UTM83
Site: Mason/Tackett/Fowler
Well: Mason & Tackett #518
Wellbore: OH
Design: Mason & Tackett #518 Svy

Local Co-ordinate Reference: Well Mason & Tackett #518
TVD Reference: 1006+8=KB @ 1014.00usft
MD Reference: 1006+8=KB @ 1014.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)
2,216.00	14.52	228.10	2,162.18	394.63	-246.38	-309.16	395.33	231.45	13,887,852.32	1,363,336.44
2,246.00	14.16	227.71	2,191.24	402.06	-251.36	-314.68	402.74	231.38	13,887,847.34	1,363,330.92
2,276.00	12.91	226.00	2,220.41	409.08	-256.15	-319.80	409.74	231.31	13,887,842.55	1,363,325.80
2,306.00	12.37	225.61	2,249.68	415.64	-260.73	-324.51	416.28	231.22	13,887,837.97	1,363,321.09
2,336.00	12.58	226.27	2,278.97	422.11	-265.24	-329.17	422.73	231.14	13,887,833.46	1,363,316.43
2,366.00	13.01	228.08	2,308.23	428.76	-269.75	-334.04	429.36	231.08	13,887,828.95	1,363,311.56
2,396.00	12.50	229.46	2,337.49	435.38	-274.12	-339.02	435.98	231.04	13,887,824.58	1,363,306.58
2,426.00	11.72	230.09	2,366.82	441.67	-278.18	-343.83	442.27	231.02	13,887,820.52	1,363,301.77
2,456.00	10.83	225.64	2,396.24	447.53	-282.11	-348.18	448.12	230.98	13,887,816.59	1,363,297.42
2,486.00	10.04	218.30	2,425.75	452.92	-286.13	-351.81	453.48	230.88	13,887,812.57	1,363,293.79
2,516.00	9.55	215.76	2,455.31	457.93	-290.20	-354.89	458.44	230.73	13,887,808.50	1,363,290.71
2,546.00	9.44	216.17	2,484.90	462.77	-294.21	-357.80	463.22	230.57	13,887,804.49	1,363,287.80
2,576.00	8.87	214.32	2,514.52	467.43	-298.10	-360.55	467.83	230.42	13,887,800.60	1,363,285.05
2,606.00	8.23	213.10	2,544.18	471.75	-301.81	-363.03	472.10	230.26	13,887,796.89	1,363,282.57
2,636.00	7.46	209.40	2,573.90	475.67	-305.31	-365.16	475.98	230.10	13,887,793.39	1,363,280.44
2,666.00	6.75	208.14	2,603.67	479.17	-308.56	-366.94	479.43	229.94	13,887,790.14	1,363,278.66
2,696.00	6.11	205.83	2,633.48	482.31	-311.55	-368.47	482.53	229.78	13,887,787.15	1,363,277.13
Final Svy: 2696.00' MD, 2633.48' TVD										
2,750.00	6.11	205.83	2,687.18	487.63	-316.73	-370.98	487.79	229.51	13,887,781.97	1,363,274.62

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MD Reference: 1006+8=KB @ 1014.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
596.00	595.93	-4.22	6.99	Begin Pro MWD: 596.0' MD
2,696.00	2,633.48	-311.55	-368.47	Final Svy: 2696.00' MD, 2633.48' TVD
2,750.00	2,687.18	-316.73	-370.98	PTB: 2750.00' MD

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Project Lincoln County, West Virginia UTM83			
Map System: Universal Transverse Mercator (US Survey Feet)	System Datum:	Mean Sea Level	
Geo Datum: NAD83 West Virginia - HARN			
Map Zone: Zone 17N (84 W to 78 W)			

Site Mason/Tackett/Fowler				
Site Position:	Northing:	4,231,586.00 m	Latitude:	38° 13' 42.388 N
From: Map	Easting:	417,057.00 m	Longitude:	81° 56' 51.529 W
Position Uncertainty: 0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-0.59 °

Well Mason & Tackett #518				
Well Position	+N/-S	0.0 ft	Northing:	4,233,100.95 m
	+E/-W	0.0 ft	Easting:	415,640.01 m
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft
			Latitude:	38° 14' 31.059 N
			Longitude:	81° 57' 50.452 W
			Ground Level:	1,006.0 ft

Wellbore OH						
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength	
			(°)	(°)	(nT)	
	HDGM	12/1/2021	-8.57	65.33	51,223.10000000	

Design Mason & Tackett #518 Svy					
Audit Notes:					
Version:	Phase:	ACTUAL		Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(ft)	(ft)	(ft)	(°)	
	0.0	0.0	0.0	228.04	

Survey Production Date 12/10/2021				
From	To	Survey (Wellbore)	Tool Name	Description
(ft)	(ft)			
596.0	2,750.0	Survey #1 (OH)	MWD - OWSG	MWD - OWSG

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ProDirectional Survey Report

Company: HG Energy LLC
Project: Lincoln County, West Virginia UTM83
Site: Mason/Tackett/Fowler
Well: Mason & Tackett #518
Wellbore: OH
Design: Mason & Tackett #518 Svly

Local Co-ordinate Reference: Well Mason & Tackett #518
TVD Reference: 1006+8=KB @ 1014.0ft
MD Reference: 1006+8=KB @ 1014.0ft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Survey

MD (ft)	Inc (°)	Azi (azimuth) (°)	TVD (ft)	V. Sec (ft)	N/S (ft)	E/W (ft)	Closure Distance (ft)	Closure Azimuth (°)	Northing (m)	Easting (m)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.00	4,233,100.95	415,640.01
596.0	1.57	121.11	595.9	-2.4	-4.2	7.0	8.2	121.11	4,233,099.66	415,642.14
Begin Pro MWD: 596.0' MD										
626.0	1.64	121.58	625.9	-2.6	-4.7	7.7	9.0	121.13	4,233,099.53	415,642.36
656.0	3.02	209.72	655.9	-2.0	-5.6	7.7	9.5	125.93	4,233,099.25	415,642.35
686.0	6.75	223.65	685.8	0.5	-7.5	6.1	9.7	141.11	4,233,098.65	415,641.86
716.0	10.56	228.10	715.4	5.0	-10.6	2.8	11.0	165.22	4,233,097.71	415,640.87
746.0	13.88	230.87	744.8	11.4	-14.8	-2.0	14.9	187.84	4,233,096.45	415,639.39
776.0	16.58	233.35	773.7	19.2	-19.6	-8.3	21.2	202.87	4,233,094.98	415,637.49
806.0	17.20	234.16	802.4	27.9	-24.7	-15.3	29.1	211.72	4,233,093.41	415,635.35
836.0	16.85	236.19	831.1	36.6	-29.7	-22.5	37.3	217.10	4,233,091.88	415,633.15
866.0	17.13	241.77	859.8	45.2	-34.3	-30.0	45.5	221.21	4,233,090.51	415,630.87
896.0	19.08	247.18	888.3	54.1	-38.2	-38.4	54.2	225.12	4,233,089.29	415,628.30
926.0	20.49	247.65	916.5	63.7	-42.1	-47.8	63.7	228.59	4,233,088.10	415,625.44
956.0	19.57	245.71	944.7	73.5	-46.2	-57.2	73.6	231.08	4,233,086.87	415,622.57
986.0	18.35	244.94	973.1	82.8	-50.3	-66.1	83.0	232.74	4,233,085.63	415,619.87
1,016.0	15.77	243.83	1,001.8	91.2	-54.1	-74.0	91.7	233.85	4,233,084.47	415,617.45
1,046.0	14.59	242.59	1,030.7	98.8	-57.6	-81.0	99.4	234.59	4,233,083.39	415,615.31
1,076.0	14.02	241.35	1,059.8	106.0	-61.1	-87.6	106.8	235.10	4,233,082.33	415,613.32
1,106.0	12.73	240.37	1,089.0	112.7	-64.5	-93.6	113.7	235.45	4,233,081.30	415,611.47
1,136.0	11.55	236.84	1,118.3	118.9	-67.7	-99.0	120.0	235.62	4,233,080.30	415,609.83
1,166.0	12.32	235.44	1,147.6	125.1	-71.2	-104.2	126.2	235.65	4,233,079.25	415,608.26
1,196.0	13.90	234.47	1,176.9	131.8	-75.1	-109.7	133.0	235.61	4,233,078.05	415,606.56
1,226.0	15.87	232.37	1,205.9	139.5	-79.7	-115.9	140.7	235.49	4,233,076.65	415,604.67
1,256.0	16.39	232.04	1,234.7	147.8	-84.8	-122.5	149.0	235.30	4,233,075.10	415,602.67
1,286.0	16.42	232.57	1,263.5	156.3	-90.0	-129.2	157.5	235.14	4,233,073.52	415,600.62
1,316.0	16.53	233.30	1,292.2	164.7	-95.1	-136.0	166.0	235.03	4,233,071.95	415,598.55

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ProDirectional Survey Report

Company: HG Energy LLC
Project: Lincoln County, West Virginia UTM83
Site: Mason/Tackett/Fowler
Well: Mason & Tackett #518
Wellbore: OH
Design: Mason & Tackett #518 Svy

Local Co-ordinate Reference: Well Mason & Tackett #518
TVD Reference: 1006+8=KB @ 1014.0ft
MD Reference: 1006+8=KB @ 1014.0ft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Survey

MD (ft)	Inc (°)	Azi (azimuth) (°)	TVD (ft)	V. Sec (ft)	N/S (ft)	E/W (ft)	Closure Distance (ft)	Closure Azimuth (°)	Northing (m)	Easting (m)
1,346.0	16.45	233.37	1,321.0	173.2	-100.2	-142.8	174.5	234.95	4,233,070.40	415,596.47
1,376.0	15.46	236.23	1,349.8	181.4	-105.0	-149.6	182.7	234.94	4,233,068.95	415,594.42
1,406.0	15.25	235.86	1,378.8	189.3	-109.4	-156.2	190.7	234.98	4,233,067.60	415,592.41
1,436.0	15.02	234.54	1,407.7	197.1	-113.9	-162.6	198.5	234.99	4,233,066.24	415,590.45
1,466.0	15.20	231.63	1,436.7	204.8	-118.6	-168.8	206.3	234.92	4,233,064.81	415,588.55
1,496.0	15.16	230.68	1,465.6	212.7	-123.5	-175.0	214.2	234.78	4,233,063.31	415,586.68
1,526.0	15.18	231.29	1,494.6	220.5	-128.4	-181.1	222.0	234.65	4,233,061.80	415,584.82
1,556.0	15.10	230.80	1,523.6	228.3	-133.4	-187.2	229.8	234.52	4,233,060.30	415,582.97
1,586.0	15.11	231.47	1,552.5	236.2	-138.3	-193.2	237.6	234.41	4,233,058.80	415,581.11
1,616.0	14.97	231.60	1,581.5	243.9	-143.1	-199.3	245.4	234.32	4,233,057.33	415,579.25
1,646.0	14.17	226.97	1,610.5	251.5	-148.0	-205.1	252.9	234.17	4,233,055.83	415,577.51
1,676.0	14.17	226.24	1,639.6	258.8	-153.1	-210.4	260.2	233.96	4,233,054.29	415,575.88
1,766.0	13.61	226.01	1,727.0	280.4	-168.1	-226.0	281.6	233.36	4,233,049.73	415,571.13
1,796.0	13.41	224.99	1,756.2	287.4	-173.0	-231.0	288.6	233.17	4,233,048.23	415,569.61
1,826.0	14.46	224.45	1,785.3	294.6	-178.1	-236.1	295.7	232.97	4,233,046.67	415,568.06
1,856.0	15.39	227.91	1,814.3	302.3	-183.4	-241.6	303.4	232.79	4,233,045.04	415,566.36
1,886.0	15.64	229.85	1,843.2	310.4	-188.7	-247.7	311.4	232.69	4,233,043.43	415,564.52
1,916.0	15.37	229.59	1,872.1	318.4	-193.9	-253.8	319.4	232.62	4,233,041.85	415,562.65
1,946.0	15.23	230.25	1,901.0	326.3	-199.0	-259.8	327.3	232.55	4,233,040.30	415,560.81
1,976.0	15.16	230.40	1,930.0	334.1	-204.0	-265.9	335.2	232.50	4,233,038.77	415,558.96
2,006.0	14.90	227.27	1,958.9	341.9	-209.1	-271.8	342.9	232.42	4,233,037.21	415,557.18
2,036.0	14.06	225.79	1,988.0	349.4	-214.3	-277.2	350.4	232.29	4,233,035.63	415,555.52
2,066.0	14.85	225.82	2,017.0	356.9	-219.5	-282.6	357.8	232.16	4,233,034.04	415,553.88
2,096.0	15.05	225.44	2,046.0	364.6	-224.9	-288.1	365.5	232.02	4,233,032.39	415,552.20
2,126.0	15.32	224.54	2,075.0	372.5	-230.5	-293.7	373.3	231.87	4,233,030.70	415,550.50
2,156.0	14.20	221.81	2,104.0	380.1	-236.1	-298.9	380.9	231.70	4,233,029.00	415,548.91
2,186.0	13.76	224.73	2,133.1	387.3	-241.3	-303.9	388.0	231.54	4,233,027.39	415,547.40

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ProDirectional Survey Report

Company: HG Energy LLC
Project: Lincoln County, West Virginia UTM83
Site: Mason/Tackett/Fowler
Well: Mason & Tackett #518
Wellbore: OH
Design: Mason & Tackett #518 Svy

Local Co-ordinate Reference: Well Mason & Tackett #518
TVD Reference: 1006+8=KB @ 1014.0ft
MD Reference: 1006+8=KB @ 1014.0ft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Survey

MD (ft)	Inc (°)	Azi (azimuth) (°)	TVD (ft)	V. Sec (ft)	N/S (ft)	E/W (ft)	Closure Distance (ft)	Closure Azimuth (°)	Northing (m)	Easting (m)
2,216.0	14.52	228.10	2,162.2	394.6	-246.4	-309.2	395.3	231.45	4,233,025.85	415,545.78
2,246.0	14.16	227.71	2,191.2	402.1	-251.4	-314.7	402.7	231.38	4,233,024.34	415,544.10
2,276.0	12.91	226.00	2,220.4	409.1	-256.2	-319.8	409.7	231.31	4,233,022.87	415,542.53
2,306.0	12.37	225.61	2,249.7	415.6	-260.7	-324.5	416.3	231.22	4,233,021.48	415,541.10
2,336.0	12.58	226.27	2,279.0	422.1	-265.2	-329.2	422.7	231.14	4,233,020.11	415,539.68
2,366.0	13.01	228.08	2,308.2	428.8	-269.8	-334.0	429.4	231.08	4,233,018.73	415,538.19
2,396.0	12.50	229.46	2,337.5	435.4	-274.1	-339.0	436.0	231.04	4,233,017.40	415,536.68
2,426.0	11.72	230.09	2,366.8	441.7	-278.2	-343.8	442.3	231.02	4,233,016.16	415,535.21
2,456.0	10.83	225.64	2,396.2	447.5	-282.1	-348.2	448.1	230.98	4,233,014.96	415,533.89
2,486.0	10.04	218.30	2,425.8	452.9	-286.1	-351.8	453.5	230.88	4,233,013.74	415,532.78
2,516.0	9.55	215.76	2,455.3	457.9	-290.2	-354.9	458.4	230.73	4,233,012.50	415,531.84
2,546.0	9.44	216.17	2,484.9	462.8	-294.2	-357.8	463.2	230.57	4,233,011.28	415,530.95
2,576.0	8.87	214.32	2,514.5	467.4	-298.1	-360.6	467.8	230.42	4,233,010.09	415,530.11
2,606.0	8.23	213.10	2,544.2	471.7	-301.8	-363.0	472.1	230.26	4,233,008.96	415,529.36
2,636.0	7.46	209.40	2,573.9	475.7	-305.3	-365.2	476.0	230.10	4,233,007.89	415,528.71
2,666.0	6.75	208.14	2,603.7	479.2	-308.6	-366.9	479.4	229.94	4,233,006.90	415,528.17
2,696.0	6.11	205.83	2,633.5	482.3	-311.6	-368.5	482.5	229.78	4,233,005.99	415,527.70
Final Svy: 2696.00' MD, 2633.48' TVD										
2,750.0	6.11	205.83	2,687.2	487.6	-316.7	-371.0	487.8	229.51	4,233,004.41	415,526.94
PTB: 2750.00' MD										

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
2,696.0	2,633.5	-311.6	-368.5	Final Svy: 2696.00' MD, 2633.48' TVD
2,750.0	2,687.2	-316.7	-371.0	PTB: 2750.00' MD

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