

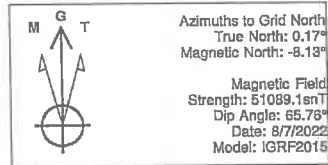
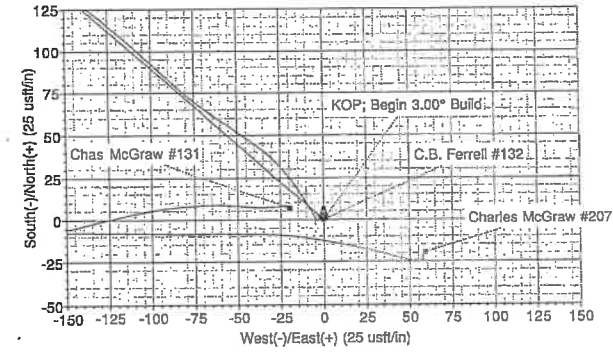
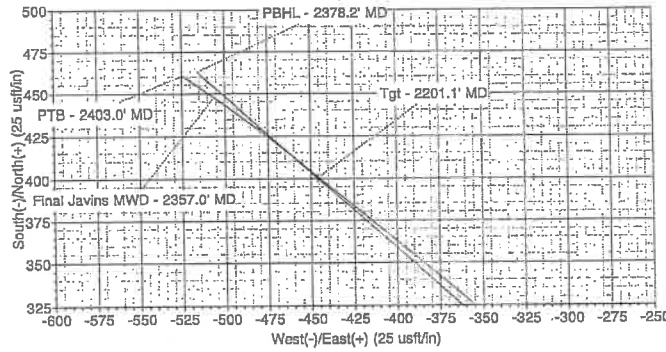
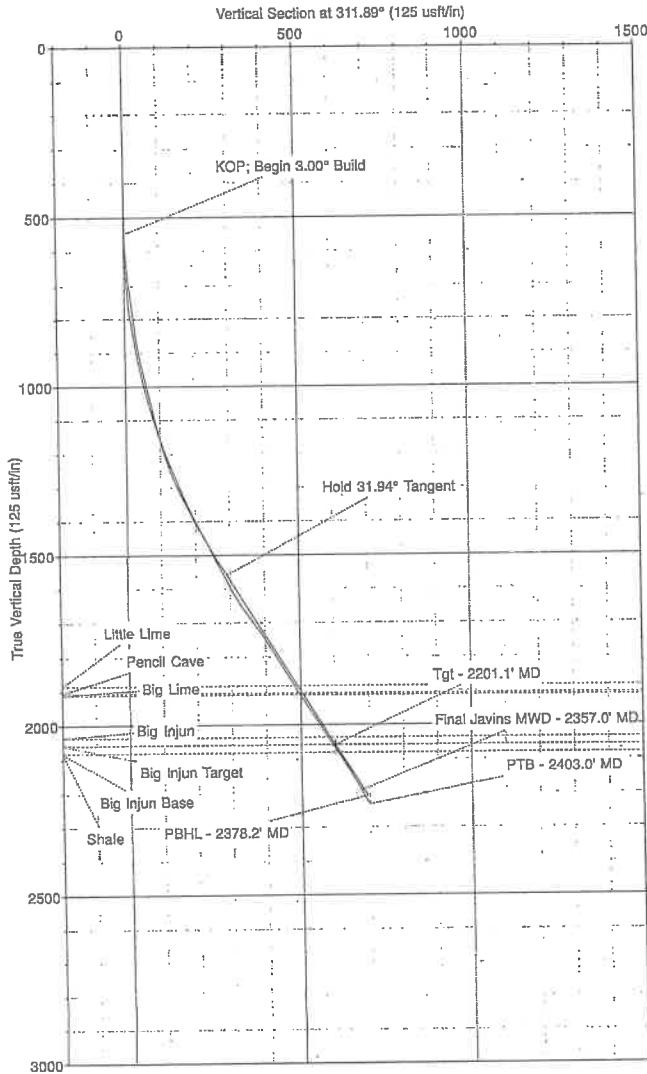
HG Energy, LLC

Project: Roane County, WV (UTM 17N - G)
 Site: Chas McGraw/Kinkead
 Well: C.B. Ferrell #132
 Wellbore: Wellbore #1
 Design: Design #1

WV Department of
 Environmental Protection

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C.B. Ferrell #132



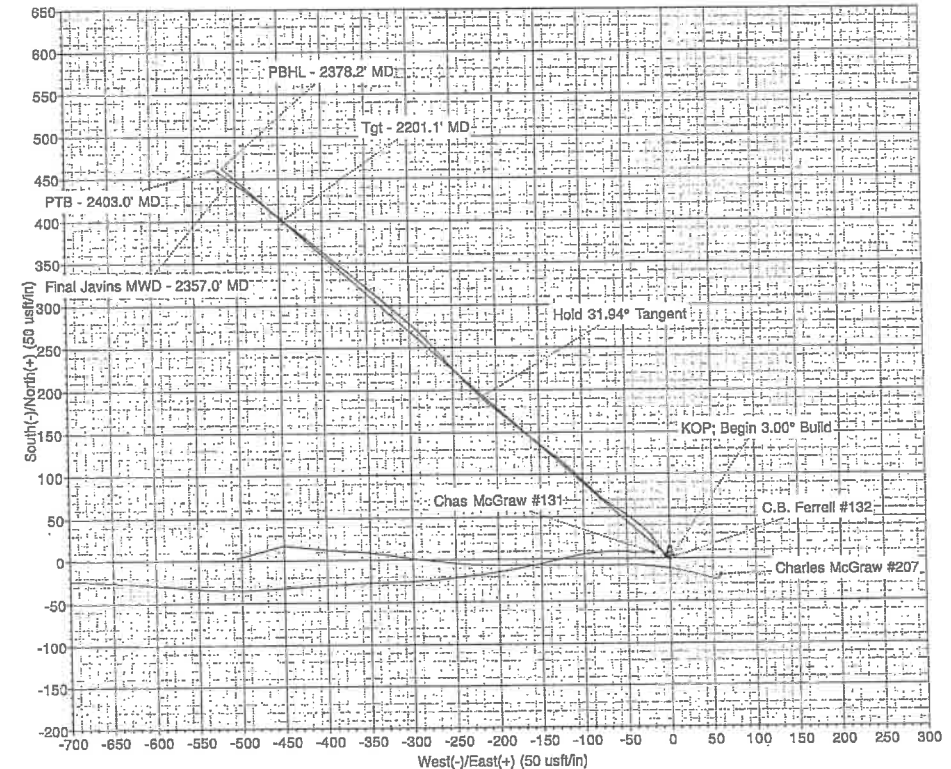
FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
1884.0	1996.0	Little Lime
1906.0	2022.0	Pencil Cave
1912.0	2029.0	Big Lime
2035.0	2175.2	Big Injun
2058.0	2201.1	Big Injun Target
2081.0	2228.2	Big Injun Base
	2228.2	Shale

CASING DETAILS			
TVD	MD	Name	Size
450.0	450.0	7"	7"



SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Annotation
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	550.0	0.00	0.00	550.0	0.0	0.0	0.00	0.00	0.0	KOP; Begin 3.00° Build
3	1614.8	31.94	311.89	1560.5	193.1	-215.3	3.00	311.89	289.2	Hold 31.94° Tangent
4	2201.1	31.94	311.89	2058.0	400.3	-446.2	0.00	0.00	599.4	Tgt - 2201.1' MD
5	2378.2	31.94	311.89	2208.3	462.8	-515.9	0.00	0.00	693.1	PBHL - 2378.2' MD

DESIGN TARGET DETAILS								
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape Point
Tgt - C.B. Ferrell #132	2058.0	400.3	-446.2	4235270.00	475963.00	38° 42' 56.697 N	81° 16' 35.353 W	



HG Energy, LLC

HG Energy, LLC

Roane County, WV (UTM 17N - GRID)

Chas McGraw/Kinhead

C.B. Ferrell #132

Wellbore #1

Design: Surveys

Survey Report - Geographic

29 August, 2022

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Company: HG Energy, LLC
Project: Roane County, WV (UTM 17N - GRID)
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Local Co-ordinate Reference: Well C.B. Ferrell #132
TVD Reference: WELL @ 1063.0usft (8' RKB)
MD Reference: WELL @ 1063.0usft (8' RKB)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Project	Roane County, WV (UTM 17N - GRID)	
Map System:	Universal Transverse Mercator (US Survey Fee	System Datum: Mean Sea Level
Geo Datum:	NAD83 West Virginia - HARN	
Map Zone:	Zone 17N (84 W to 78 W)	

Site Chas McGraw/Kinkead
Site Position: Northing: 4,285,178.00 m Latitude: 38° 42' 53.662 N
From: Map Easting: 475,452.00 m Longitude: 81° 16' 56.501 W
Position Uncertainty: 0.0 usft Slot Radius: 13-3/16 " Grid Convergence: -0.18 °

Well C.B. Ferrell #132
Well Position +N/-S 0.0 usft Northing: 4,285,148.00 m Latitude: 38° 42' 52.752 N
 +E/-W 0.0 usft Easting: 476,099.00 m Longitude: 81° 16' 29.706 W
Position Uncertainty 0.0 usft Wellhead Elevation: usft Ground Level: 1,055.0 usft

Wellbore	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
Wellbore #1	IGRF2015	8/7/2022	-8.30	65.76	51,089

Design Surveys
Audit Notes: 0.0
Version: 1.0 **Phase:** ACTUAL **Tie On Depth:** 0.0
Vertical Section: Depth From (TVD) (usft) +N/-S (usft) +E/-W (usft) Direction (°)
 0.0 0.0 0.0 311.30

Survey Program	Date	From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
	8/10/2022	497.0	2,403.0	Javins MWD (Wellbore #1)	MWD	OWSG MWD - Standard

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Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (m)	Map Easting (m)	Latitude	Longitude
0.0	0.00	0.00	0.0	0.0	0.0	4,285,148.00	476,099.00	38° 42' 52.752 N	81° 16' 29.706 W
497.0	0.85	258.68	497.0	-0.7	-3.6	4,285,147.78	476,097.90	38° 42' 52.745 N	81° 16' 29.752 W
527.0	0.39	284.48	527.0	-0.7	-3.9	4,285,147.77	476,097.80	38° 42' 52.745 N	81° 16' 29.756 W
557.0	0.40	268.78	557.0	-0.7	-4.1	4,285,147.78	476,097.74	38° 42' 52.745 N	81° 16' 29.758 W
587.0	1.80	349.53	587.0	-0.3	-4.3	4,285,147.92	476,097.68	38° 42' 52.749 N	81° 16' 29.761 W
617.0	3.76	333.45	616.9	1.1	-4.9	4,285,148.33	476,097.52	38° 42' 52.763 N	81° 16' 29.767 W
647.0	5.60	330.97	646.8	3.2	-6.0	4,285,148.99	476,097.17	38° 42' 52.784 N	81° 16' 29.782 W
677.0	7.76	329.04	676.6	6.3	-7.8	4,285,149.90	476,096.64	38° 42' 52.814 N	81° 16' 29.804 W
707.0	7.35	328.25	706.4	9.6	-9.8	4,285,150.93	476,096.01	38° 42' 52.847 N	81° 16' 29.830 W
737.0	7.27	329.20	736.1	12.9	-11.8	4,285,151.93	476,095.41	38° 42' 52.879 N	81° 16' 29.855 W
767.0	7.31	327.21	765.9	16.1	-13.8	4,285,152.91	476,094.80	38° 42' 52.911 N	81° 16' 29.881 W
797.0	7.26	327.55	795.6	19.3	-15.8	4,285,153.89	476,094.17	38° 42' 52.943 N	81° 16' 29.907 W

10/14/2022



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Database: EDM 5000.1 Single User Db

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 Environmental Protection

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (m)	Map Easting (m)	Latitude	Longitude
827.0	7.10	325.86	825.4	22.5	-17.9	4,285,154.84	476,093.54	38° 42' 52.974 N	81° 16' 29.933 W
857.0	8.22	322.16	855.1	25.7	-20.3	4,285,155.83	476,092.83	38° 42' 53.006 N	81° 16' 29.963 W
887.0	9.56	318.68	884.8	29.3	-23.2	4,285,156.91	476,091.92	38° 42' 53.041 N	81° 16' 30.000 W
917.0	10.90	317.16	914.3	33.2	-26.8	4,285,158.12	476,090.83	38° 42' 53.080 N	81° 16' 30.045 W
947.0	11.93	313.53	943.7	37.4	-31.0	4,285,159.40	476,089.56	38° 42' 53.121 N	81° 16' 30.098 W
977.0	13.21	306.88	973.0	41.6	-36.0	4,285,160.68	476,088.04	38° 42' 53.163 N	81° 16' 30.161 W
1,007.0	14.13	306.92	1,002.1	45.9	-41.6	4,285,161.98	476,086.31	38° 42' 53.205 N	81° 16' 30.233 W
1,037.0	13.44	305.82	1,031.3	50.1	-47.4	4,285,163.27	476,084.56	38° 42' 53.246 N	81° 16' 30.306 W
1,067.0	12.54	305.31	1,060.5	54.0	-52.9	4,285,164.47	476,082.89	38° 42' 53.285 N	81° 16' 30.375 W
1,097.0	13.24	304.35	1,089.8	57.9	-58.4	4,285,165.63	476,081.21	38° 42' 53.323 N	81° 16' 30.445 W
1,127.0	14.44	304.64	1,118.9	61.9	-64.3	4,285,166.87	476,079.41	38° 42' 53.363 N	81° 16' 30.520 W
1,157.0	14.95	305.77	1,147.9	66.3	-70.5	4,285,168.21	476,077.51	38° 42' 53.406 N	81° 16' 30.598 W
1,187.0	16.24	309.45	1,176.8	71.2	-76.9	4,285,169.71	476,075.57	38° 42' 53.454 N	81° 16' 30.679 W
1,217.0	17.15	311.86	1,205.5	76.9	-83.4	4,285,171.42	476,073.58	38° 42' 53.510 N	81° 16' 30.762 W
1,247.0	18.58	313.43	1,234.1	83.1	-90.2	4,285,173.32	476,071.52	38° 42' 53.571 N	81° 16' 30.847 W
1,277.0	20.27	313.80	1,262.4	90.0	-97.4	4,285,175.42	476,069.31	38° 42' 53.639 N	81° 16' 30.939 W
1,307.0	22.90	313.39	1,290.3	97.6	-105.4	4,285,177.74	476,066.88	38° 42' 53.714 N	81° 16' 31.040 W
1,337.0	25.43	312.72	1,317.6	106.0	-114.4	4,285,180.29	476,064.14	38° 42' 53.797 N	81° 16' 31.153 W
1,367.0	25.91	310.58	1,344.7	114.6	-124.1	4,285,182.93	476,061.18	38° 42' 53.882 N	81° 16' 31.276 W
1,397.0	26.64	308.86	1,371.6	123.1	-134.3	4,285,185.51	476,058.07	38° 42' 53.965 N	81° 16' 31.406 W
1,427.0	27.99	308.04	1,398.2	131.6	-145.1	4,285,188.12	476,054.78	38° 42' 54.050 N	81° 16' 31.542 W
1,457.0	29.17	308.71	1,424.6	140.6	-156.3	4,285,190.84	476,051.35	38° 42' 54.137 N	81° 16' 31.684 W
1,487.0	29.12	310.73	1,450.8	149.9	-167.6	4,285,193.68	476,047.93	38° 42' 54.229 N	81° 16' 31.826 W
1,517.0	27.59	309.75	1,477.2	159.1	-178.4	4,285,196.49	476,044.61	38° 42' 54.320 N	81° 16' 31.964 W
1,547.0	25.71	308.40	1,504.0	167.6	-188.9	4,285,199.07	476,041.43	38° 42' 54.404 N	81° 16' 32.096 W
1,577.0	26.78	309.09	1,530.9	175.9	-199.2	4,285,201.61	476,038.28	38° 42' 54.485 N	81° 16' 32.227 W
1,607.0	26.89	311.24	1,557.7	184.6	-209.6	4,285,204.27	476,035.12	38° 42' 54.571 N	81° 16' 32.358 W
1,637.0	27.09	312.60	1,584.4	193.7	-219.7	4,285,207.04	476,032.04	38° 42' 54.661 N	81° 16' 32.486 W
1,667.0	29.25	315.28	1,610.8	203.5	-229.9	4,285,210.04	476,028.93	38° 42' 54.758 N	81° 16' 32.615 W
1,697.0	32.66	317.66	1,636.6	214.7	-240.5	4,285,213.45	476,025.70	38° 42' 54.868 N	81° 16' 32.749 W
1,727.0	34.86	318.22	1,661.5	227.1	-251.7	4,285,217.22	476,022.29	38° 42' 54.990 N	81° 16' 32.891 W
1,757.0	35.01	318.18	1,686.1	239.9	-263.1	4,285,221.13	476,018.80	38° 42' 55.117 N	81° 16' 33.036 W
1,787.0	35.99	318.37	1,710.5	252.9	-274.7	4,285,225.09	476,015.27	38° 42' 55.245 N	81° 16' 33.183 W
1,817.0	33.29	316.11	1,735.2	265.5	-286.3	4,285,228.91	476,011.74	38° 42' 55.369 N	81° 16' 33.329 W
1,847.0	32.37	312.23	1,760.4	276.8	-297.9	4,285,232.36	476,008.19	38° 42' 55.480 N	81° 16' 33.477 W
1,877.0	31.38	310.44	1,785.9	287.3	-309.8	4,285,235.55	476,004.57	38° 42' 55.583 N	81° 16' 33.627 W
1,907.0	30.45	309.57	1,811.6	297.2	-321.6	4,285,238.57	476,000.97	38° 42' 55.681 N	81° 16' 33.777 W
1,937.0	31.68	309.89	1,837.3	307.1	-333.5	4,285,241.59	475,997.34	38° 42' 55.778 N	81° 16' 33.927 W
1,967.0	31.03	310.01	1,862.9	317.1	-345.5	4,285,244.64	475,993.69	38° 42' 55.877 N	81° 16' 34.079 W
1,997.0	30.94	310.52	1,888.7	327.1	-357.3	4,285,247.68	475,990.10	38° 42' 55.976 N	81° 16' 34.228 W
2,027.0	32.53	309.77	1,914.2	337.2	-369.3	4,285,250.78	475,986.42	38° 42' 56.076 N	81° 16' 34.380 W
2,057.0	32.92	309.87	1,939.4	347.6	-381.8	4,285,253.95	475,982.63	38° 42' 56.178 N	81° 16' 34.538 W
2,087.0	33.03	309.95	1,964.6	358.1	-394.3	4,285,257.14	475,978.81	38° 42' 56.281 N	81° 16' 34.696 W
2,117.0	33.08	309.91	1,989.7	368.6	-406.9	4,285,260.34	475,974.99	38° 42' 56.385 N	81° 16' 34.855 W
2,147.0	32.82	309.42	2,014.9	379.0	-419.4	4,285,263.52	475,971.16	38° 42' 56.487 N	81° 16' 35.014 W
2,177.0	33.16	309.76	2,040.1	389.4	-432.0	4,285,266.69	475,967.32	38° 42' 56.590 N	81° 16' 35.173 W
2,207.0	32.74	309.49	2,065.2	399.8	-444.6	4,285,269.86	475,963.49	38° 42' 56.693 N	81° 16' 35.332 W
2,237.0	32.68	309.61	2,090.5	410.2	-457.1	4,285,273.01	475,959.68	38° 42' 56.794 N	81° 16' 35.491 W
2,267.0	32.33	309.23	2,115.8	420.4	-469.5	4,285,276.13	475,955.88	38° 42' 56.895 N	81° 16' 35.648 W
2,297.0	30.75	307.39	2,141.4	430.1	-481.9	4,285,279.10	475,952.13	38° 42' 56.991 N	81° 16' 35.804 W
2,327.0	29.93	305.46	2,167.2	439.1	-494.0	4,285,281.84	475,948.42	38° 42' 57.080 N	81° 16' 35.958 W
2,357.0	29.14	305.38	2,193.3	447.7	-506.1	4,285,284.45	475,944.74	38° 42' 57.164 N	81° 16' 36.111 W
2,403.0	29.14	305.38	2,233.5	460.7	-524.4	4,285,288.41	475,939.18	38° 42' 57.292 N	81° 16' 36.342 W



Company: HG Energy, LLC
Project: Roane County, WV (UTM 17N - GRID)
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Design: Surveys

Local Co-ordinate Reference: Well C.B. Ferrell #132
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MD Reference: WELL @ 1063.0usft (8' RKB)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
2,357.0	2,193.3	447.7	-506.1	Final Javins MWD - 2357.0' MD
2,403.0	2,233.5	460.7	-524.4	PTB - 2403.0' MD

Checked By: Chris Thompson Approved By: Chris Thompson Date: 8/30/2022

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HG Energy, LLC

HG Energy, LLC

Roane County, WV (UTM 17N - GRID)
Chas McGraw/Kinhead
C.B. Ferrell #132
Wellbore #1

Design: Surveys

Javins Survey Report

29 August, 2022

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Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	38° 42' 53.662 N
		Longitude:	81° 16' 56.501 W
		Grid Convergence:	-0.18 °

Well	C.B. Ferrell #132			
Well Position	+N/-S	0.0 usft	Northing:	4,285,148.00 m
	+E/-W	0.0 usft	Easting:	476,099.00 m
Position Uncertainty	0.0 usft		Wellhead Elevation:	usft
			Latitude:	38° 42' 52.752 N
			Longitude:	81° 16' 29.706 W
			Ground Level:	1,055.0 usft

Wellbore	Wellbore #1					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)	
	IGRF2015	8/7/2022	-8.30	65.76	51,089	

Design	Surveys				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	311.30	

Survey Program	Date 8/10/2022			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
497.0	2,403.0	Javins MWD (Wellbore #1)	MWD	OWSG MWD - Standard

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HG Energy, LLC

Javins Corporation Javins Survey Report



Company: HG Energy, LLC
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Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	Closure Distance (usft)	Closure Azimuth (°)	DLeg (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.00	0.00
497.0	0.85	258.68	497.0	-0.7	-3.6	2.2	3.7	258.68	0.17
527.0	0.39	284.48	527.0	-0.7	-3.9	2.5	4.0	259.32	1.76
557.0	0.40	268.78	557.0	-0.7	-4.1	2.6	4.2	260.14	0.36
587.0	1.80	349.53	587.0	-0.3	-4.3	3.1	4.3	266.60	5.93
617.0	3.76	333.45	616.9	1.1	-4.9	4.4	5.0	282.62	6.97
647.0	5.60	330.97	646.8	3.2	-6.0	6.7	6.8	298.41	6.17
677.0	7.76	329.04	676.6	6.3	-7.8	10.0	10.0	308.93	7.24
707.0	7.35	328.25	706.4	9.6	-9.8	13.7	13.7	314.49	1.41
737.0	7.27	329.20	736.1	12.9	-11.8	17.4	17.5	317.57	0.48
767.0	7.31	327.21	765.9	16.1	-13.8	21.0	21.2	319.46	0.85
797.0	7.26	327.55	795.6	19.3	-15.8	24.7	25.0	320.67	0.22
827.0	7.10	325.86	825.4	22.5	-17.9	28.3	28.7	321.45	0.88
857.0	8.22	322.16	855.1	25.7	-20.3	32.2	32.7	321.75	4.08
887.0	9.56	318.68	884.8	29.3	-23.2	36.8	37.4	321.57	4.81
917.0	10.90	317.16	914.3	33.2	-26.8	42.0	42.7	321.11	4.56
947.0	11.93	313.53	943.7	37.4	-31.0	48.0	48.6	320.39	4.18
977.0	13.21	306.88	973.0	41.6	-36.0	54.5	55.0	319.17	6.43
1,007.0	14.13	306.92	1,002.1	45.9	-41.6	61.6	61.9	317.78	3.07
1,037.0	13.44	305.82	1,031.3	50.1	-47.4	68.7	69.0	316.61	2.46
1,067.0	12.54	305.31	1,060.5	54.0	-52.9	75.4	75.6	315.63	3.02
1,097.0	13.24	304.35	1,089.8	57.9	-58.4	82.0	82.2	314.75	2.44
1,127.0	14.44	304.64	1,118.9	61.9	-64.3	89.2	89.3	313.93	4.01
1,157.0	14.95	305.77	1,147.9	66.3	-70.5	96.7	96.8	313.25	1.95
1,187.0	16.24	309.45	1,176.8	71.2	-76.9	104.8	104.8	312.82	5.42
1,217.0	17.15	311.86	1,205.5	76.9	-83.4	113.4	113.4	312.66	3.81
1,247.0	18.58	313.43	1,234.1	83.1	-90.2	122.6	122.6	312.66	5.03

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8/29/2022 1:43:16PM



Company: HG Energy, LLC
Project: Roane County, WV (UTM 17N - GRID)
Site: Chas McGraw/Kinkead
Well: C.B. Ferrell #132
Wellbore: Wellbore #1
Design: Surveys

Local Co-ordinate Reference: Well C.B. Ferrell #132
TVD Reference: WELL @ 1063.0usft (8' RKB)
MD Reference: WELL @ 1063.0usft (8' RKB)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	Closure Distance (usft)	Closure Azimuth (°)	DLeg (°/100usft)
1,277.0	20.27	313.80	1,262.4	90.0	-97.4	132.6	132.6	312.73	5.65
1,307.0	22.90	313.39	1,290.3	97.6	-105.4	143.6	143.6	312.80	8.78
1,337.0	25.43	312.72	1,317.6	106.0	-114.4	155.9	155.9	312.82	8.48
1,367.0	25.91	310.58	1,344.7	114.6	-124.1	168.8	168.9	312.73	3.48
1,397.0	26.64	308.86	1,371.6	123.1	-134.3	182.1	182.2	312.51	3.52
1,427.0	27.99	308.04	1,398.2	131.6	-145.1	195.9	195.9	312.22	4.67
1,457.0	29.17	308.71	1,424.6	140.6	-156.3	210.2	210.2	311.96	4.08
1,487.0	29.12	310.73	1,450.8	149.9	-167.6	224.8	224.8	311.81	3.28
1,517.0	27.59	309.75	1,477.2	159.1	-178.4	239.1	239.1	311.72	5.33
1,547.0	25.71	308.40	1,504.0	167.6	-188.9	252.5	252.5	311.58	6.58
1,577.0	26.78	309.09	1,530.9	175.9	-199.2	265.7	265.8	311.44	3.71
1,607.0	26.89	311.24	1,557.7	184.6	-209.6	279.3	279.3	311.38	3.26
1,637.0	27.09	312.60	1,584.4	193.7	-219.7	292.9	292.9	311.40	2.16
1,667.0	29.25	315.28	1,610.8	203.5	-229.9	307.0	307.0	311.52	8.34
1,697.0	32.66	317.66	1,636.6	214.7	-240.5	322.4	322.4	311.76	12.07
1,727.0	34.86	318.22	1,661.5	227.1	-251.7	339.0	339.0	312.07	7.41
1,757.0	35.01	318.18	1,686.1	239.9	-263.1	356.0	356.1	312.36	0.51
1,787.0	35.99	318.37	1,710.5	252.9	-274.7	373.3	373.4	312.64	3.29
1,817.0	33.29	316.11	1,735.2	265.5	-286.3	390.3	390.4	312.84	9.97
1,847.0	32.37	312.23	1,760.4	276.8	-297.9	406.5	406.7	312.89	7.65
1,877.0	31.38	310.44	1,785.9	287.3	-309.8	422.3	422.5	312.84	4.56
1,907.0	30.45	309.57	1,811.6	297.2	-321.6	437.8	437.9	312.74	3.44
1,937.0	31.68	309.89	1,837.3	307.1	-333.5	453.2	453.3	312.63	4.14
1,967.0	31.03	310.01	1,862.9	317.1	-345.5	468.8	468.9	312.54	2.18
1,997.0	30.94	310.52	1,888.7	327.1	-357.3	484.3	484.4	312.47	0.93
2,027.0	32.53	309.77	1,914.2	337.2	-369.3	500.0	500.1	312.40	5.46
2,057.0	32.92	309.87	1,939.4	347.6	-381.8	516.3	516.3	312.32	1.31

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Company: HG Energy, LLC
Project: Roane County, WV (UTM 17N - GRID)
Site: Chas McGraw/Kinkead
Well: C.B. Ferrell #132
Wellbore: Wellbore #1
Design: Surveys

Local Co-ordinate Reference: Well C.B. Ferrell #132
TVD Reference: WELL @ 1063.0usft (8' RKB)
MD Reference: WELL @ 1063.0usft (8' RKB)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	Closure Distance (usft)	Closure Azimuth (°)	DLeg (°/100usft)
2,087.0	33.03	309.95	1,964.6	358.1	-394.3	532.6	532.7	312.24	0.39
2,117.0	33.08	309.91	1,989.7	368.6	-406.9	548.9	549.0	312.17	0.18
2,147.0	32.82	309.42	2,014.9	379.0	-419.4	565.3	565.3	312.10	1.24
2,177.0	33.16	309.76	2,040.1	389.4	-432.0	581.6	581.6	312.03	1.29
2,207.0	32.74	309.49	2,065.2	399.8	-444.6	597.9	597.9	311.97	1.48
2,237.0	32.68	309.61	2,090.5	410.2	-457.1	614.1	614.1	311.90	0.29
2,267.0	32.33	309.23	2,115.8	420.4	-469.5	630.2	630.2	311.84	1.35
2,297.0	30.75	307.39	2,141.4	430.1	-481.9	645.9	645.9	311.75	6.17
2,327.0	29.93	305.46	2,167.2	439.1	-494.0	661.0	661.0	311.63	4.25
2,357.0	29.14	305.38	2,193.3	447.7	-506.1	675.7	675.7	311.50	2.64
2,403.0	29.14	305.38	2,233.5	460.7	-524.4	698.0	698.0	311.30	0.00

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Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N-S (usft)	+E-W (usft)	
2,357.0	2,193.3	447.7	-506.1	Final Javins MWD - 2357.0' MD
2,403.0	2,233.5	460.7	-524.4	PTB - 2403.0' MD

Checked By: Chris Thompson Approved By: Chris Thompson Date: 8/30/2022



Reliance

Well Services, LLC

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15 BPM X-Link

HG Energy, LLC

Treater: Tony Lewellen

Date: 8/23/2022

Lease: C.B. Ferrell

Well #: 132

API #: 47-087-04806

Roane County, WV



Reliance

Well Services

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WELL SERVICES LLC

570 Crowberry Street
Suite 250
Erie, PA 16507
Phone: 214,454,1844
Fax: 214,454,1164
24 Hour: 412,306,0992

Operator: HG Energy, LLC
Lease: C.B. Ferrell
Well #: 132
Location: Roane County, WV
API #: 47-087-04806

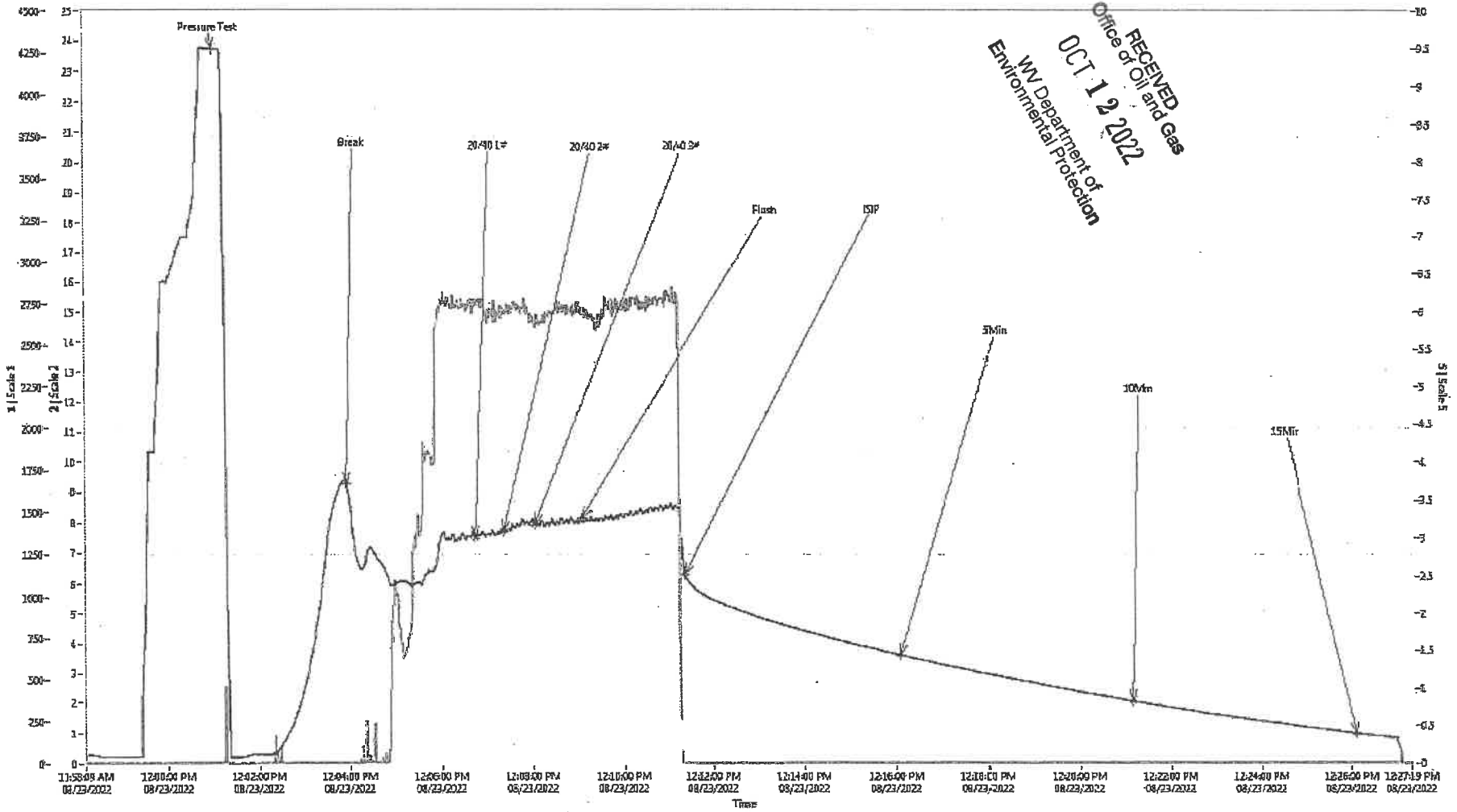
Supervisor: Tony Lewellen
Pump Time: 11:55 AM
Flush Time: 12:26 PM
Date: 8/23/2022

Stage	Depth	Breakdown (psi)	Clean Vol H2O (bbls)	Slurry Discharge (bbls)	Acid 15% HCL (gals)	(In Acid) 4 AND 1 Acid Inhibitor (gals)	API 20/40 Sand (sacks)	Ave. Rate (BPM)	Ave. Treating (psi)	Isip SIP (psi)	5 min. SIP (psi)	10 min SIP (psi)	15 min SIP (psi)	Pro Gel 4.0L Guar Gel (lbs)	GB-LEB Gel Breaker (gals)	BXL-10C X-Linker (gals)	BXL-A Breaker Activator (gals)	AP-1 Breaker (lbs)	Pro CLA Firm LP Clay Control (gals)	Pro NE-1 Biocide/Surfactant (gals)
1	2360	1,692	115	119	250.00	1.25	30.00	15	1,124	1,180	644	367	194	25.00	0.50	5.00	0.50	5.00	5.00	5.00
	Total				250.00	1.25	30.00							25.00	0.50	5.00	0.50	5.00	5.00	5.00



Comments:
Stage 1 8/23/2022: Treated per design.

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HG ENERGY, LLC - C.B. FERRELL #132 - STAGE 1 COMMENTS



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1 Pressure 1 
2 Discharge 



JOB COMMENTS AND DETAILS	
Job Name	C.B. Ferrell #132
Location	Roane County, WV
Company	HG Energy, LLC
Comments	Stage 1 of 1. Treated Per Design.

GRAPH NOTES AND RANGES

Timestamp	Annotation	Pressure 1	Discharge Rate	Stage Total (bbq)	Grand Total (bbq)	Grand Total (gall)
8/23/2022 12:01:00 PM	Pressure Test	4272.52	0.00	30.85	30.85	1295.59
8/23/2022 12:06:06 PM	Break	1331.74	15.35	41.59	41.59	1736.07
8/23/2022 12:06:44 PM	20/40 1#	1344.86	15.32	50.99	50.99	2130.82
8/23/2022 12:07:21 PM	20/40 2#	1385.92	15.11	9.28	60.53	2531.51
8/23/2022 12:08:02 PM	20/40 3#	1423.08	14.73	9.79	70.57	2953.57
8/23/2022 12:09:04 PM	Flush	1461.04	14.97	15.19	86.01	3601.74
8/23/2022 12:11:22 PM	ISIP	1129.52	0.00	32.39	119.15	5004.12
8/23/2022 12:16:05 PM	5Min	643.01	0.00	32.39	119.15	5004.12
8/23/2022 12:21:10 PM	10Min	367.21	0.00	32.39	119.15	5004.12
8/23/2022 12:26:06 PM	15Min	173.59	0.00	32.39	119.15	5004.12

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10-12-22