

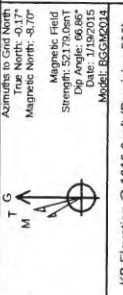


Antero
Doddridge County WV
R.J. Smith Pad: Costlow/Duff/Gibson/Mishka/Mola
Gibson Unit 2H
Original Hole
Plan 3

8:52, June 05 2015

MD 027 (MADCON COMUS)
Universal Zone 17N (84 W to 78 W)
Magnetic North: -8.70°
Strength: 52.79 Deut
Date: 06/05/2015
Model: ES2GM2014

Armutas to Grid North
True North: 0.17°
Magnetic North: -8.70°
Strength: 52.79 Deut
Date: 06/05/2015
Model: ES2GM2014



SURFACE DETAILS Ground Level: 998.0 KB Elevation @ 1016.0usft (Precision 522)

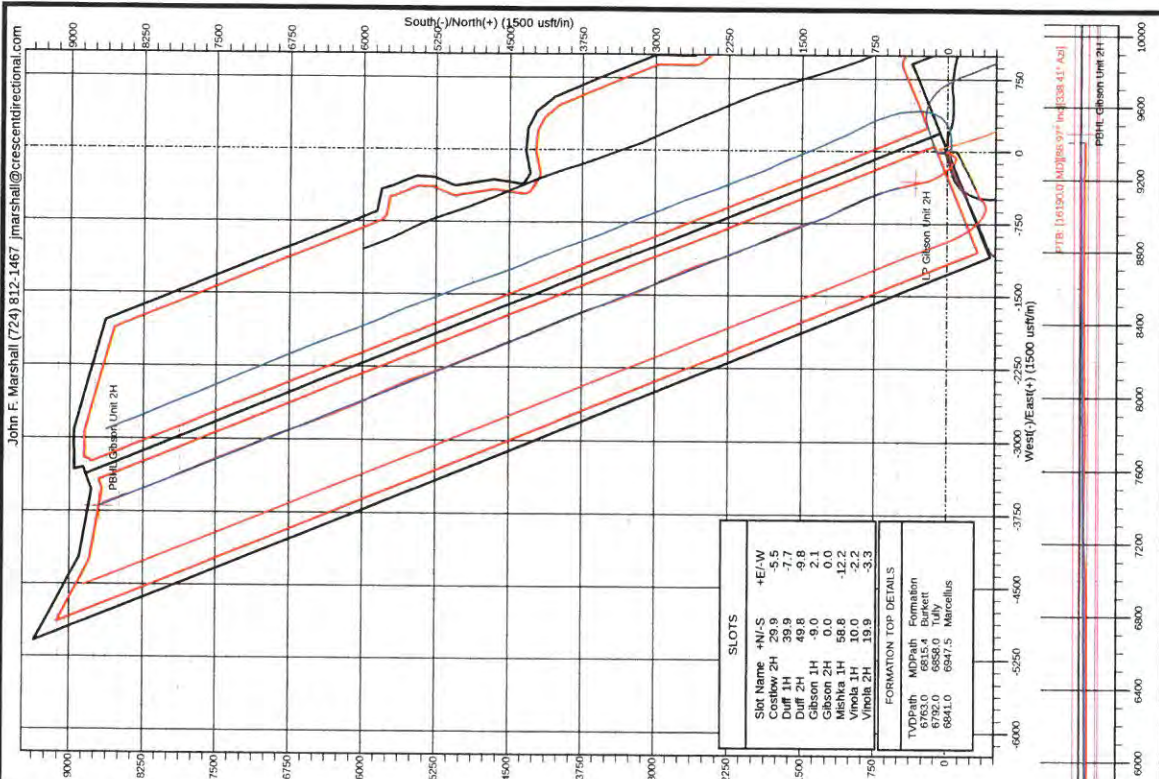
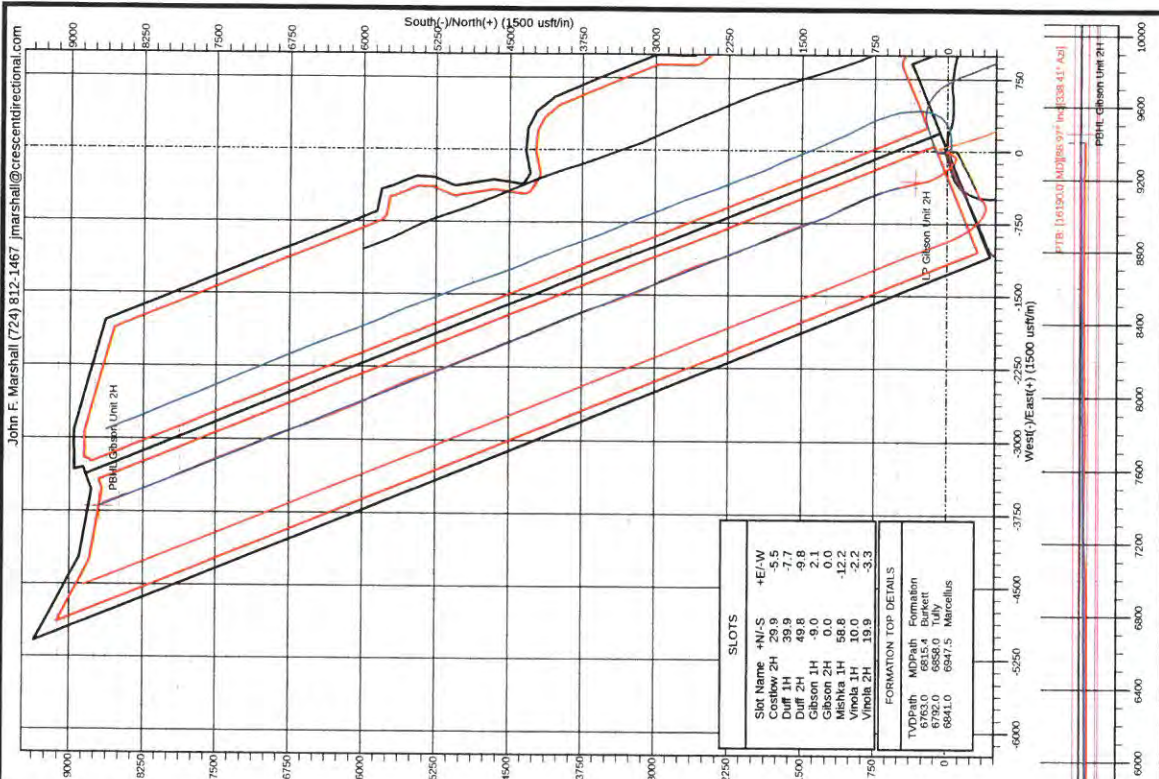
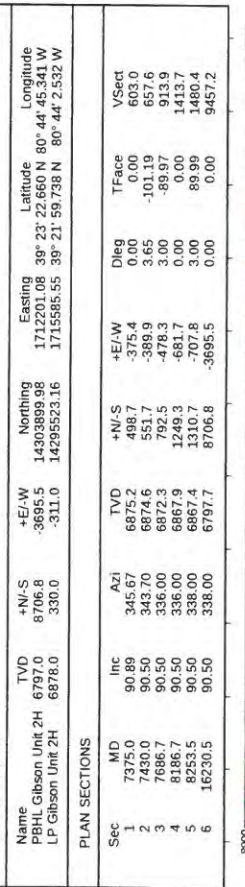
+N/-S	+E/-W	Northing	Latitude	Longitude	Slot
0.0	0.0	14295193.16	39° 21' 56.466 N	80° 43' 58.583 W	

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Latitude	Longitude
PBHL Gibson Unit 2H	6797.0	8706.8	-3685.5	14303899.98	1712201.08	39° 23' 22.660 N 80° 44' 45.341 W
LP Gibson Unit 2H	6878.0	330.0	-311.0	14295523.16	1715585.55	39° 21' 59.738 N 80° 44' 2.532 W

PLAN SECTIONS

Sec	MD	Inc	Azi	+N/-S	TVD	+E/-W	Dleg	TFace	VSect
1	7375.0	90.89	345.67	498.7	6875.2	-375.4	0.00	0.00	603.0
2	7686.0	90.50	343.70	551.7	6874.6	-389.9	3.65	-101.19	657.6
3	7997.0	90.50	336.00	622.5	6872.3	-478.3	3.00	-89.97	913.9
4	8186.7	90.50	338.00	1249.3	6867.9	-681.7	0.00	0.00	1413.7
5	8263.5	90.50	338.00	3310.7	6867.4	-707.8	3.00	89.99	1480.4
6	16230.5	90.50	338.00	8706.8	6797.7	-3695.5	0.00	0.00	9457.2



John F. Marshall (724) 812-1467 jmarshall@crestedirectional.com

Marcellus
Landing Point
Onedipiga
LP Gibson Unit 2H
PTB: 101500 (MD) vs 97 (MD) [338.41° Azi]

Antero

Doddridge County WV

R.J. Smith Pad: Costlow/Duff/Gibson/Mishka/Vinola

Gibson Unit 2H

Original Hole

Design: Surveys

Standard Survey Report

05 June, 2015

Survey Report

Company: Antero	Local Co-ordinate Reference: Well Gibson Unit 2H
Project: Doddridge County WV	TVD Reference: KB Elevation @ 1016.0usft (Precision 522)
Site: R.J. Smith Pad: Costlow/Duff/Gibson/Mishka/Vinola	MD Reference: KB Elevation @ 1016.0usft (Precision 522)
Well: Gibson Unit 2H	North Reference: Grid
Wellbore: Original Hole	Survey Calculation Method: Minimum Curvature
Design: Surveys	Database: North East R5000 Database

Project	Doddridge County WV, McClellan District		
Map System:	Universal Transverse Mercator (US Survey Feet)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	Zone 17N (84 W to 78 W)		

Site	R.J. Smith Pad: Costlow/Duff/Gibson/Mishka/Vinola				
Site Position:		Northing:	14,295,223.06 usft	Latitude:	39° 21' 56.762 N
From:	Map	Easting:	1,715,891.05 usft	Longitude:	80° 43' 58.652 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.17 °

Well	Gibson Unit 2H, Marcellus					
Well Position	+N/-S	0.0 usft	Northing:	14,295,193.16 usft	Latitude:	39° 21' 56.466 N
	+E/-W	0.0 usft	Easting:	1,715,896.55 usft	Longitude:	80° 43' 58.583 W
Position Uncertainty		2.0 usft	Wellhead Elevation:	1,009.0 usft	Ground Level:	998.0 usft

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	User Defined	1/19/2015	-8.53	66.86	52,179

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	338.00	

Survey Program	Date	6/5/2015			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
105.0	6,035.5	Gyro (Original Hole)	EMS	EMS - Standard	
6,070.0	16,190.0	Crescent MWD (Original Hole)	MWD	MWD - Standard	

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
105.0	0.23	326.93	105.0	0.2	-0.1	0.2	0.22	0.22	0.00
130.0	0.31	337.19	130.0	0.3	-0.2	0.3	0.37	0.32	41.04
155.0	0.27	321.42	155.0	0.4	-0.2	0.4	0.36	-0.16	-63.08
180.0	0.30	316.44	180.0	0.5	-0.3	0.6	0.16	0.12	-19.92
205.0	0.26	314.49	205.0	0.6	-0.4	0.7	0.16	-0.16	-7.80
230.0	0.17	307.90	230.0	0.6	-0.5	0.8	0.37	-0.36	-26.36
255.0	0.23	338.69	255.0	0.7	-0.5	0.8	0.48	0.24	123.16
280.0	0.23	330.73	280.0	0.8	-0.6	0.9	0.13	0.00	-31.84

Survey Report

Company: Antero
Project: Doddridge County WV
Site: R.J. Smith Pad:
 Costlow/Duff/Gibson/Mishka/Vinola
Well: Gibson Unit 2H
Wellbore: Original Hole
Design: Surveys

Local Co-ordinate Reference: Well Gibson Unit 2H
TVD Reference: KB Elevation @ 1016.0usft (Precision 522)
MD Reference: KB Elevation @ 1016.0usft (Precision 522)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: North East R5000 Database

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
305.0	0.08	256.72	305.0	0.8	-0.6	1.0	0.89	-0.60	-296.04
330.0	0.20	249.98	330.0	0.8	-0.7	1.0	0.48	0.48	-26.96
355.0	0.03	263.16	355.0	0.8	-0.7	1.0	0.68	-0.68	52.72
380.0	0.12	220.72	380.0	0.8	-0.7	1.0	0.40	0.36	-169.76
405.0	0.28	217.39	405.0	0.7	-0.8	1.0	0.64	0.64	-13.32
430.0	0.71	219.36	430.0	0.5	-0.9	0.8	1.72	1.72	7.88
455.0	0.81	222.83	455.0	0.3	-1.1	0.7	0.44	0.40	13.88
480.0	1.07	221.51	480.0	0.0	-1.4	0.5	1.04	1.04	-5.28
505.0	1.47	214.95	505.0	-0.5	-1.8	0.2	1.70	1.60	-26.24
530.0	2.22	212.37	530.0	-1.1	-2.2	-0.2	3.02	3.00	-10.32
555.0	3.07	208.71	554.9	-2.1	-2.8	-0.9	3.46	3.40	-14.64
580.0	3.57	208.98	579.9	-3.4	-3.5	-1.8	2.00	2.00	1.08
605.0	3.69	206.91	604.9	-4.8	-4.2	-2.9	0.71	0.48	-8.28
630.0	4.19	208.65	629.8	-6.3	-5.0	-4.0	2.06	2.00	6.96
655.0	5.01	208.52	654.7	-8.1	-6.0	-5.2	3.28	3.28	-0.52
680.0	5.22	209.18	679.6	-10.0	-7.1	-6.6	0.87	0.84	2.64
705.0	5.62	208.39	704.5	-12.1	-8.2	-8.1	1.63	1.60	-3.16
730.0	5.69	208.51	729.4	-14.3	-9.4	-9.7	0.28	0.28	0.48
755.0	5.80	208.13	754.3	-16.5	-10.5	-11.3	0.47	0.44	-1.52
780.0	5.82	209.04	779.1	-18.7	-11.8	-12.9	0.38	0.08	3.64
805.0	5.88	208.76	804.0	-20.9	-13.0	-14.5	0.27	0.24	-1.12
830.0	5.94	208.54	828.9	-23.2	-14.2	-16.2	0.26	0.24	-0.88
855.0	5.94	209.28	853.7	-25.4	-15.5	-17.8	0.31	0.00	2.96
880.0	5.64	209.74	878.6	-27.6	-16.7	-19.4	1.21	-1.20	1.84
905.0	4.98	209.81	903.5	-29.6	-17.9	-20.8	2.64	-2.64	0.28
930.0	4.79	209.48	928.4	-31.5	-18.9	-22.1	0.77	-0.76	-1.32
955.0	4.51	208.64	953.3	-33.3	-19.9	-23.4	1.15	-1.12	-3.36
980.0	4.28	208.74	978.2	-34.9	-20.8	-24.6	0.92	-0.92	0.40
1,005.0	3.85	208.70	1,003.2	-36.5	-21.7	-25.7	1.72	-1.72	-0.16
1,030.0	3.56	209.11	1,028.1	-37.9	-22.5	-26.7	1.16	-1.16	1.64
1,055.0	3.25	209.99	1,053.1	-39.2	-23.2	-27.7	1.26	-1.24	3.52
1,080.0	2.97	209.35	1,078.0	-40.4	-23.9	-28.5	1.13	-1.12	-2.56
1,105.0	3.01	210.28	1,103.0	-41.5	-24.5	-29.3	0.25	0.16	3.72
1,130.0	2.73	211.63	1,128.0	-42.6	-25.2	-30.1	1.15	-1.12	5.40
1,155.0	2.53	213.10	1,153.0	-43.6	-25.8	-30.7	0.84	-0.80	5.88
1,180.0	2.19	214.76	1,177.9	-44.4	-26.3	-31.3	1.39	-1.36	6.64
1,205.0	1.91	216.93	1,202.9	-45.1	-26.9	-31.8	1.16	-1.12	8.68
1,230.0	1.75	216.45	1,227.9	-45.8	-27.3	-32.2	0.64	-0.64	-1.92
1,255.0	1.68	217.60	1,252.9	-46.4	-27.8	-32.6	0.31	-0.28	4.60
1,280.0	1.37	211.75	1,277.9	-46.9	-28.2	-32.9	1.39	-1.24	-23.40
1,305.0	1.23	211.86	1,302.9	-47.4	-28.5	-33.3	0.56	-0.56	0.44
1,330.0	1.17	211.97	1,327.9	-47.8	-28.7	-33.6	0.24	-0.24	0.44

Survey Report

Company: Antero
Project: Doddridge County WV
Site: R.J. Smith Pad:
 Costlow/Duff/Gibson/Mishka/Vinola
Well: Gibson Unit 2H
Wellbore: Original Hole
Design: Surveys

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North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: North East R5000 Database

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
1,355.0	1.05	208.52	1,352.9	-48.3	-29.0	-33.9	0.55	-0.48	-13.80
1,380.0	0.99	208.31	1,377.9	-48.6	-29.2	-34.2	0.24	-0.24	-0.84
1,405.0	0.90	206.20	1,402.9	-49.0	-29.4	-34.4	0.39	-0.36	-8.44
1,430.0	0.79	206.87	1,427.9	-49.3	-29.6	-34.7	0.44	-0.44	2.68
1,455.0	0.65	204.55	1,452.9	-49.6	-29.7	-34.9	0.57	-0.56	-9.28
1,480.0	0.53	214.67	1,477.9	-49.9	-29.8	-35.1	0.63	-0.48	40.48
1,505.0	0.60	202.63	1,502.9	-50.1	-29.9	-35.2	0.54	0.28	-47.36
1,530.0	0.57	208.87	1,527.9	-50.3	-30.0	-35.4	0.27	-0.12	24.16
1,555.0	0.43	216.15	1,552.9	-50.5	-30.2	-35.5	0.61	-0.56	29.12
1,580.0	0.50	207.80	1,577.9	-50.7	-30.3	-35.6	0.39	0.28	-33.40
1,605.0	0.42	205.25	1,602.9	-50.8	-30.4	-35.8	0.33	-0.32	-10.20
1,630.0	0.47	196.67	1,627.8	-51.0	-30.4	-35.9	0.33	0.20	-34.32
1,655.0	0.43	190.07	1,652.8	-51.2	-30.5	-36.1	0.26	-0.16	-26.40
1,680.0	0.49	193.63	1,677.8	-51.4	-30.5	-36.2	0.27	0.24	14.24
1,705.0	0.47	194.36	1,702.8	-51.6	-30.6	-36.4	0.08	-0.08	2.92
1,730.0	0.44	181.16	1,727.8	-51.8	-30.6	-36.6	0.44	-0.12	-52.80
1,755.0	0.46	195.01	1,752.8	-52.0	-30.6	-36.7	0.44	0.08	55.40
1,780.0	0.45	189.45	1,777.8	-52.2	-30.7	-36.9	0.18	-0.04	-22.24
1,805.0	0.38	179.71	1,802.8	-52.4	-30.7	-37.1	0.40	-0.28	-38.96
1,830.0	0.30	189.72	1,827.8	-52.5	-30.7	-37.2	0.40	-0.32	40.04
1,855.0	0.36	202.63	1,852.8	-52.7	-30.7	-37.3	0.38	0.24	51.64
1,880.0	0.20	200.27	1,877.8	-52.8	-30.8	-37.4	0.64	-0.64	-9.44
1,905.0	0.21	210.23	1,902.8	-52.8	-30.8	-37.5	0.15	0.04	39.84
1,930.0	0.13	205.41	1,927.8	-52.9	-30.8	-37.5	0.32	-0.32	-19.28
1,955.0	0.17	249.02	1,952.8	-52.9	-30.9	-37.5	0.47	0.16	174.44
1,980.0	0.08	226.16	1,977.8	-53.0	-30.9	-37.5	0.40	-0.36	-91.44
2,005.0	0.08	247.10	2,002.8	-53.0	-31.0	-37.5	0.12	0.00	83.76
2,030.0	0.07	326.33	2,027.8	-53.0	-31.0	-37.5	0.38	-0.04	316.92
2,055.0	0.07	162.85	2,052.8	-53.0	-31.0	-37.5	0.55	0.00	-653.92
2,080.0	0.12	246.15	2,077.8	-53.0	-31.0	-37.5	0.53	0.20	333.20
2,105.0	0.07	206.10	2,102.8	-53.0	-31.0	-37.5	0.32	-0.20	-160.20
2,130.0	0.22	200.53	2,127.8	-53.1	-31.1	-37.6	0.60	0.60	-22.28
2,155.0	0.21	224.16	2,152.8	-53.2	-31.1	-37.6	0.35	-0.04	94.52
2,180.0	0.12	251.96	2,177.8	-53.2	-31.2	-37.7	0.47	-0.36	111.20
2,205.0	0.14	270.37	2,202.8	-53.2	-31.2	-37.6	0.18	0.08	73.64
2,230.0	0.15	288.18	2,227.8	-53.2	-31.3	-37.6	0.18	0.04	71.24
2,255.0	0.15	316.59	2,252.8	-53.2	-31.3	-37.6	0.29	0.00	113.64
2,280.0	0.04	328.27	2,277.8	-53.1	-31.4	-37.5	0.44	-0.44	46.72
2,305.0	0.15	256.70	2,302.8	-53.1	-31.4	-37.5	0.57	0.44	-286.28
2,330.0	0.11	289.49	2,327.8	-53.1	-31.5	-37.5	0.33	-0.16	131.16
2,355.0	0.15	282.61	2,352.8	-53.1	-31.5	-37.5	0.17	0.16	-27.52
2,380.0	0.09	128.51	2,377.8	-53.1	-31.5	-37.5	0.94	-0.24	-616.40
2,405.0	0.07	331.95	2,402.8	-53.1	-31.5	-37.5	0.63	-0.08	-626.24

Survey Report

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Project: Doddridge County WV
Site: R.J. Smith Pad:
 Costlow/Duff/Gibson/Mishka/Vinola
Well: Gibson Unit 2H
Wellbore: Original Hole
Design: Surveys

Local Co-ordinate Reference: Well Gibson Unit 2H
TVD Reference: KB Elevation @ 1016.0usft (Precision 522)
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North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: North East R5000 Database

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
2,430.0	0.15	295.94	2,427.8	-53.1	-31.6	-37.4	0.41	0.32	-144.04
2,455.0	0.06	292.13	2,452.8	-53.1	-31.6	-37.4	0.36	-0.36	-15.24
2,480.0	0.10	328.76	2,477.8	-53.1	-31.6	-37.4	0.25	0.16	146.52
2,505.0	0.13	269.76	2,502.8	-53.0	-31.7	-37.3	0.46	0.12	-235.91
2,530.0	0.14	248.69	2,527.8	-53.1	-31.7	-37.3	0.20	0.04	-84.28
2,555.0	0.17	233.67	2,552.8	-53.1	-31.8	-37.3	0.20	0.12	-60.08
2,580.0	0.18	218.24	2,577.8	-53.1	-31.8	-37.3	0.19	0.04	-61.72
2,605.0	0.14	194.13	2,602.8	-53.2	-31.9	-37.4	0.31	-0.16	-96.44
2,630.0	0.13	172.09	2,627.8	-53.3	-31.9	-37.4	0.21	-0.04	-88.16
2,655.0	0.16	193.66	2,652.8	-53.3	-31.9	-37.5	0.25	0.12	86.28
2,680.0	0.15	234.59	2,677.8	-53.4	-31.9	-37.5	0.44	-0.04	163.72
2,705.0	0.14	205.31	2,702.8	-53.4	-32.0	-37.6	0.30	-0.04	-117.12
2,730.0	0.19	201.01	2,727.8	-53.5	-32.0	-37.6	0.21	0.20	-17.20
2,755.0	0.18	208.41	2,752.8	-53.6	-32.0	-37.7	0.10	-0.04	29.60
2,780.0	0.22	214.65	2,777.8	-53.6	-32.1	-37.7	0.18	0.16	24.96
2,805.0	0.18	207.62	2,802.8	-53.7	-32.1	-37.8	0.19	-0.16	-28.12
2,830.0	0.18	194.47	2,827.8	-53.8	-32.1	-37.8	0.16	0.00	-52.60
2,855.0	0.14	188.48	2,852.8	-53.9	-32.1	-37.9	0.17	-0.16	-23.96
2,880.0	0.13	180.56	2,877.8	-53.9	-32.2	-37.9	0.08	-0.04	-31.68
2,905.0	0.05	183.28	2,902.8	-54.0	-32.2	-38.0	0.32	-0.32	10.88
2,930.0	0.06	252.94	2,927.8	-54.0	-32.2	-38.0	0.25	0.04	278.64
2,955.0	0.05	248.78	2,952.8	-54.0	-32.2	-38.0	0.04	-0.04	-16.64
2,980.0	0.11	254.03	2,977.8	-54.0	-32.2	-38.0	0.24	0.24	21.00
3,005.0	0.14	249.26	3,002.8	-54.0	-32.3	-38.0	0.13	0.12	-19.08
3,030.0	0.11	236.50	3,027.8	-54.0	-32.3	-38.0	0.16	-0.12	-51.04
3,055.0	0.14	266.29	3,052.8	-54.0	-32.4	-38.0	0.28	0.12	119.16
3,080.0	0.15	233.66	3,077.8	-54.1	-32.4	-38.0	0.33	0.04	-130.52
3,105.0	0.10	231.59	3,102.8	-54.1	-32.5	-38.0	0.20	-0.20	-8.28
3,130.0	0.12	228.39	3,127.8	-54.1	-32.5	-38.0	0.08	0.08	-12.80
3,155.0	0.14	262.71	3,152.8	-54.1	-32.6	-38.0	0.32	0.08	137.28
3,180.0	0.15	216.12	3,177.8	-54.2	-32.6	-38.0	0.46	0.04	-186.36
3,205.0	0.13	181.15	3,202.8	-54.2	-32.6	-38.1	0.35	-0.08	-139.88
3,230.0	0.17	207.63	3,227.8	-54.3	-32.6	-38.1	0.32	0.16	105.92
3,255.0	0.20	210.41	3,252.8	-54.4	-32.7	-38.2	0.13	0.12	11.12
3,280.0	0.19	220.56	3,277.8	-54.4	-32.7	-38.2	0.14	-0.04	40.60
3,305.0	0.21	206.59	3,302.8	-54.5	-32.8	-38.3	0.21	0.08	-55.88
3,330.0	0.18	235.09	3,327.8	-54.6	-32.8	-38.3	0.40	-0.12	114.00
3,355.0	0.20	207.38	3,352.8	-54.6	-32.9	-38.3	0.37	0.08	-110.84
3,380.0	0.25	217.19	3,377.8	-54.7	-32.9	-38.4	0.25	0.20	39.24
3,405.0	0.24	209.69	3,402.8	-54.8	-33.0	-38.4	0.13	-0.04	-30.00
3,430.0	0.22	224.63	3,427.8	-54.9	-33.1	-38.5	0.25	-0.08	59.76
3,455.0	0.33	213.89	3,452.8	-55.0	-33.1	-38.6	0.48	0.44	-42.96

Survey Report

Company: Antero
Project: Doddridge County WV
Site: R.J. Smith Pad:
 Costlow/Duff/Gibson/Mishka/Vinola
Well: Gibson Unit 2H
Wellbore: Original Hole
Design: Surveys

Local Co-ordinate Reference: Well Gibson Unit 2H
TVD Reference: KB Elevation @ 1016.0usft (Precision 522)
MD Reference: KB Elevation @ 1016.0usft (Precision 522)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: North East R5000 Database

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
3,480.0	0.24	196.18	3,477.8	-55.1	-33.2	-38.6	0.50	-0.36	-70.84
3,505.0	0.27	203.29	3,502.8	-55.2	-33.2	-38.7	0.17	0.12	28.44
3,530.0	0.20	211.80	3,527.8	-55.3	-33.3	-38.8	0.31	-0.28	34.04
3,555.0	0.17	211.30	3,552.8	-55.3	-33.3	-38.8	0.12	-0.12	-2.00
3,580.0	0.19	235.21	3,577.8	-55.4	-33.4	-38.9	0.31	0.08	95.64
3,605.0	0.21	210.22	3,602.8	-55.5	-33.4	-38.9	0.35	0.08	-99.96
3,630.0	0.21	204.11	3,627.8	-55.5	-33.5	-39.0	0.09	0.00	-24.44
3,655.0	0.21	211.93	3,652.8	-55.6	-33.5	-39.0	0.11	0.00	31.28
3,680.0	0.27	223.05	3,677.8	-55.7	-33.6	-39.1	0.30	0.24	44.48
3,705.0	0.21	216.75	3,702.8	-55.8	-33.6	-39.1	0.26	-0.24	-25.20
3,730.0	0.28	235.71	3,727.8	-55.9	-33.7	-39.2	0.42	0.28	75.84
3,755.0	0.30	233.46	3,752.8	-55.9	-33.8	-39.2	0.09	0.08	-9.00
3,780.0	0.26	231.91	3,777.8	-56.0	-33.9	-39.2	0.16	-0.16	-6.20
3,805.0	0.38	225.85	3,802.8	-56.1	-34.0	-39.3	0.50	0.48	-24.24
3,830.0	0.30	221.61	3,827.8	-56.2	-34.1	-39.3	0.34	-0.32	-16.96
3,855.0	0.20	217.94	3,852.8	-56.3	-34.2	-39.4	0.40	-0.40	-14.68
3,880.0	0.30	220.92	3,877.8	-56.4	-34.3	-39.4	0.40	0.40	11.92
3,905.0	0.28	209.17	3,902.8	-56.5	-34.3	-39.5	0.25	-0.08	-47.00
3,930.0	0.30	211.24	3,927.8	-56.6	-34.4	-39.6	0.09	0.08	8.28
3,955.0	0.29	209.71	3,952.8	-56.7	-34.5	-39.7	0.05	-0.04	-6.12
3,980.0	0.26	200.49	3,977.8	-56.8	-34.5	-39.7	0.21	-0.12	-36.88
4,005.0	0.30	193.65	4,002.8	-56.9	-34.6	-39.8	0.21	0.16	-27.36
4,030.0	0.29	195.54	4,027.8	-57.0	-34.6	-39.9	0.06	-0.04	7.56
4,055.0	0.29	197.34	4,052.8	-57.2	-34.6	-40.0	0.04	0.00	7.20
4,080.0	0.30	194.52	4,077.8	-57.3	-34.7	-40.1	0.07	0.04	-11.28
4,105.0	0.27	206.87	4,102.8	-57.4	-34.7	-40.2	0.27	-0.12	49.40
4,130.0	0.31	184.67	4,127.8	-57.5	-34.7	-40.3	0.47	0.16	-88.80
4,155.0	0.30	192.36	4,152.8	-57.7	-34.8	-40.4	0.17	-0.04	30.76
4,180.0	0.27	200.92	4,177.8	-57.8	-34.8	-40.5	0.21	-0.12	34.24
4,205.0	0.31	189.65	4,202.8	-57.9	-34.8	-40.6	0.28	0.16	-45.08
4,230.0	0.32	194.41	4,227.8	-58.0	-34.8	-40.8	0.11	0.04	19.04
4,255.0	0.24	201.65	4,252.8	-58.2	-34.9	-40.8	0.35	-0.32	28.96
4,280.0	0.24	239.34	4,277.8	-58.2	-35.0	-40.9	0.62	0.00	150.76
4,305.0	0.26	197.36	4,302.8	-58.3	-35.0	-40.9	0.72	0.08	-167.92
4,330.0	0.23	204.76	4,327.8	-58.4	-35.1	-41.0	0.17	-0.12	29.60
4,355.0	0.23	190.28	4,352.8	-58.5	-35.1	-41.1	0.23	0.00	-57.92
4,380.0	0.26	185.21	4,377.8	-58.6	-35.1	-41.2	0.15	0.12	-20.28
4,405.0	0.25	167.28	4,402.8	-58.7	-35.1	-41.3	0.32	-0.04	-71.72
4,430.0	0.22	165.39	4,427.8	-58.8	-35.1	-41.4	0.12	-0.12	-7.56
4,455.0	0.20	151.25	4,452.8	-58.9	-35.0	-41.5	0.22	-0.08	-56.56
4,480.0	0.19	134.59	4,477.8	-59.0	-35.0	-41.6	0.23	-0.04	-66.64
4,505.0	0.15	131.12	4,502.8	-59.0	-34.9	-41.6	0.17	-0.16	-13.88
4,530.0	0.14	119.00	4,527.8	-59.1	-34.9	-41.7	0.13	-0.04	-48.48

Survey Report

Company: Antero
Project: Doddridge County WV
Site: R.J. Smith Pad:
 Costlow/Duff/Gibson/Mishka/Vinola
Well: Gibson Unit 2H
Wellbore: Original Hole
Design: Surveys

Local Co-ordinate Reference: Well Gibson Unit 2H
TVD Reference: KB Elevation @ 1016.0usft (Precision 522)
MD Reference: KB Elevation @ 1016.0usft (Precision 522)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: North East R5000 Database

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,555.0	0.12	76.18	4,552.8	-59.1	-34.8	-41.7	0.39	-0.08	-171.28
4,580.0	0.07	128.04	4,577.8	-59.1	-34.8	-41.7	0.38	-0.20	207.44
4,605.0	0.02	137.46	4,602.8	-59.1	-34.8	-41.8	0.20	-0.20	37.68
4,630.0	0.10	238.13	4,627.8	-59.1	-34.8	-41.8	0.42	0.32	402.68
4,655.0	0.09	242.43	4,652.8	-59.1	-34.8	-41.8	0.05	-0.04	17.20
4,680.0	0.07	266.43	4,677.8	-59.1	-34.9	-41.8	0.15	-0.08	96.00
4,705.0	0.08	207.21	4,702.8	-59.1	-34.9	-41.8	0.30	0.04	-236.88
4,730.0	0.18	199.23	4,727.8	-59.2	-34.9	-41.8	0.41	0.40	-31.92
4,755.0	0.20	214.85	4,752.8	-59.3	-34.9	-41.9	0.22	0.08	62.48
4,780.0	0.11	208.98	4,777.8	-59.3	-35.0	-41.9	0.37	-0.36	-23.48
4,805.0	0.15	162.26	4,802.8	-59.4	-35.0	-42.0	0.44	0.16	-186.88
4,830.0	0.14	185.85	4,827.8	-59.4	-35.0	-42.0	0.24	-0.04	94.36
4,855.0	0.18	158.41	4,852.8	-59.5	-35.0	-42.1	0.34	0.16	-109.76
4,880.0	0.18	120.12	4,877.8	-59.6	-34.9	-42.1	0.47	0.00	-153.16
4,905.0	0.14	138.11	4,902.8	-59.6	-34.9	-42.2	0.25	-0.16	71.96
4,930.0	0.14	145.94	4,927.8	-59.7	-34.8	-42.3	0.08	0.00	31.32
4,955.0	0.15	79.05	4,952.8	-59.7	-34.8	-42.3	0.64	0.04	-267.56
4,980.0	0.11	74.77	4,977.8	-59.7	-34.7	-42.3	0.16	-0.16	-17.12
5,005.0	0.16	42.01	5,002.8	-59.6	-34.7	-42.3	0.36	0.20	-131.04
5,030.0	0.07	44.52	5,027.8	-59.6	-34.6	-42.3	0.36	-0.36	10.04
5,055.0	0.15	47.70	5,052.8	-59.6	-34.6	-42.3	0.32	0.32	12.72
5,080.0	0.12	18.82	5,077.8	-59.5	-34.6	-42.2	0.29	-0.12	-115.52
5,105.0	0.16	20.34	5,102.8	-59.5	-34.5	-42.2	0.16	0.16	6.08
5,130.0	0.16	23.47	5,127.8	-59.4	-34.5	-42.1	0.03	0.00	12.52
5,155.0	0.19	21.11	5,152.8	-59.3	-34.5	-42.1	0.12	0.12	-9.44
5,180.0	0.12	23.23	5,177.8	-59.3	-34.5	-42.0	0.28	-0.28	8.48
5,205.0	0.23	0.82	5,202.8	-59.2	-34.5	-42.0	0.51	0.44	-89.64
5,230.0	0.22	17.65	5,227.8	-59.1	-34.4	-41.9	0.27	-0.04	67.32
5,255.0	0.27	359.13	5,252.8	-59.0	-34.4	-41.8	0.37	0.20	-74.08
5,280.0	0.31	347.74	5,277.8	-58.9	-34.4	-41.7	0.28	0.16	-45.56
5,305.0	0.35	342.04	5,302.8	-58.7	-34.5	-41.5	0.21	0.16	-22.80
5,330.0	0.28	323.19	5,327.8	-58.6	-34.5	-41.4	0.50	-0.28	-75.40
5,355.0	0.45	329.27	5,352.8	-58.5	-34.6	-41.2	0.70	0.68	24.32
5,380.0	0.38	330.12	5,377.8	-58.3	-34.7	-41.1	0.28	-0.28	3.40
5,405.0	0.36	325.77	5,402.8	-58.2	-34.8	-40.9	0.14	-0.08	-17.40
5,430.0	0.26	313.07	5,427.8	-58.1	-34.9	-40.8	0.48	-0.40	-50.80
5,455.0	0.40	339.04	5,452.8	-57.9	-35.0	-40.6	0.81	0.56	103.88
5,480.0	0.32	340.96	5,477.8	-57.8	-35.0	-40.5	0.32	-0.32	7.68
5,505.0	0.32	331.77	5,502.8	-57.7	-35.1	-40.3	0.21	0.00	-36.76
5,530.0	0.32	325.92	5,527.8	-57.6	-35.1	-40.2	0.13	0.00	-23.40
5,555.0	0.40	337.89	5,552.8	-57.4	-35.2	-40.0	0.44	0.32	47.88
5,580.0	0.47	345.73	5,577.8	-57.2	-35.3	-39.9	0.37	0.28	31.36

Survey Report

Company: Antero
Project: Doddridge County WW
Site: R.J. Smith Pad:
 Costlow/Duff/Gibson/Mishka/Vinola
Well: Gibson Unit 2H
Wellbore: Original Hole
Design: Surveys

Local Co-ordinate Reference: Well Gibson Unit 2H
TVD Reference: KB Elevation @ 1016.0usft (Precision 522)
MD Reference: KB Elevation @ 1016.0usft (Precision 522)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: North East R5000 Database

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,605.0	0.40	353.15	5,602.8	-57.0	-35.3	-39.7	0.36	-0.28	29.68
5,630.0	0.38	358.33	5,627.8	-56.9	-35.3	-39.5	0.16	-0.08	20.72
5,655.0	0.17	25.65	5,652.8	-56.8	-35.3	-39.4	0.97	-0.84	109.28
5,680.0	0.14	5.03	5,677.8	-56.7	-35.3	-39.3	0.25	-0.12	-82.48
5,705.0	0.24	347.02	5,702.8	-56.6	-35.3	-39.3	0.46	0.40	-72.04
5,730.0	0.20	347.14	5,727.8	-56.5	-35.3	-39.2	0.16	-0.16	0.48
5,755.0	0.14	2.47	5,752.8	-56.4	-35.3	-39.1	0.30	-0.24	61.32
5,780.0	0.18	4.46	5,777.8	-56.4	-35.3	-39.0	0.16	0.16	7.96
5,805.0	0.04	30.44	5,802.8	-56.3	-35.3	-39.0	0.58	-0.56	103.92
5,830.0	0.12	345.03	5,827.8	-56.3	-35.3	-39.0	0.38	0.32	-181.64
5,855.0	0.13	194.40	5,852.8	-56.3	-35.3	-39.0	0.97	0.04	-602.52
5,880.0	0.26	297.55	5,877.8	-56.3	-35.4	-38.9	1.26	0.52	412.60
5,905.0	0.09	264.51	5,902.8	-56.3	-35.5	-38.9	0.76	-0.68	-132.16
5,930.0	0.07	19.69	5,927.8	-56.3	-35.5	-38.9	0.54	-0.08	460.72
5,955.0	0.25	190.58	5,952.8	-56.3	-35.5	-38.9	1.28	0.72	683.56
5,980.0	0.24	188.90	5,977.8	-56.4	-35.5	-39.0	0.05	-0.04	-6.72
6,005.0	0.10	173.83	6,002.8	-56.5	-35.5	-39.1	0.58	-0.56	-60.28
6,030.0	0.17	155.54	6,027.8	-56.5	-35.5	-39.1	0.33	0.28	-73.16
6,035.5	0.05	172.47	6,033.3	-56.5	-35.5	-39.1	2.23	-2.18	307.26
6,070.0	0.18	270.79	6,067.8	-56.6	-35.5	-39.1	0.56	0.38	285.05
6,163.0	1.34	197.32	6,160.8	-57.6	-36.0	-39.9	1.40	1.25	-79.00
6,193.0	3.47	192.68	6,190.8	-58.8	-36.3	-40.9	7.12	7.10	-15.47
6,224.0	5.67	198.67	6,221.7	-61.2	-37.0	-42.9	7.25	7.10	19.32
6,255.0	7.40	201.91	6,252.5	-64.5	-38.2	-45.5	5.70	5.58	10.45
6,286.0	9.93	205.71	6,283.1	-68.8	-40.1	-48.7	8.36	8.16	12.26
6,317.0	12.24	206.49	6,313.5	-74.1	-42.8	-52.7	7.47	7.45	2.52
6,348.0	12.33	216.45	6,343.8	-79.7	-46.2	-56.6	6.83	0.29	32.13
6,379.0	11.57	235.56	6,374.2	-84.1	-50.7	-59.0	12.94	-2.45	61.65
6,409.0	12.41	249.99	6,403.5	-86.9	-56.2	-59.5	10.35	2.80	48.10
6,440.0	13.22	261.60	6,433.8	-88.6	-62.9	-58.6	8.69	2.61	37.45
6,471.0	14.93	272.98	6,463.8	-88.9	-70.4	-56.1	10.47	5.52	36.71
6,502.0	16.76	284.68	6,493.7	-87.6	-78.7	-51.7	11.85	5.90	37.74
6,533.0	18.25	291.68	6,523.2	-84.6	-87.5	-45.7	8.31	4.81	22.58
6,564.0	20.99	297.07	6,552.4	-80.3	-97.0	-38.1	10.58	8.84	17.39
6,594.0	23.89	300.59	6,580.2	-74.8	-107.0	-29.2	10.65	9.67	11.73
6,625.0	26.65	304.99	6,608.2	-67.6	-118.1	-18.4	10.76	8.90	14.19
6,656.0	29.53	310.61	6,635.5	-58.6	-129.6	-5.8	12.61	9.29	18.13
6,687.0	31.82	313.49	6,662.2	-48.0	-141.3	8.4	8.78	7.39	9.29
6,718.0	34.55	313.86	6,688.1	-36.3	-153.6	23.9	8.83	8.81	1.19
6,749.0	38.19	316.96	6,713.1	-23.2	-166.5	40.8	13.15	11.74	10.00
6,779.0	40.99	319.28	6,736.2	-9.0	-179.2	58.8	10.55	9.33	7.73
6,810.0	43.61	320.81	6,759.1	7.0	-192.6	78.7	9.08	8.45	4.94
6,841.0	47.65	323.59	6,780.8	24.5	-206.2	100.0	14.52	13.03	8.97

Survey Report

Company: Antero
Project: Doddridge County WV
Site: R.J. Smith Pad:
 Costlow/Duff/Gibson/Mishka/Vinola
Well: Gibson Unit 2H
Wellbore: Original Hole
Design: Surveys

Local Co-ordinate Reference: Well Gibson Unit 2H
TVD Reference: KB Elevation @ 1016.0usft (Precision 522)
MD Reference: KB Elevation @ 1016.0usft (Precision 522)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: North East R5000 Database

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
6,872.0	51.88	324.25	6,800.8	43.7	-220.1	122.9	13.74	13.65	2.13
6,903.0	56.19	325.77	6,819.0	64.2	-234.5	147.4	14.46	13.90	4.90
6,933.0	61.88	327.62	6,834.5	85.7	-248.6	172.6	19.69	18.97	6.17
6,964.0	67.68	329.64	6,847.7	109.7	-263.2	200.3	19.62	18.71	6.52
6,995.0	71.88	332.87	6,858.4	135.2	-277.2	229.1	16.71	13.55	10.42
7,026.0	75.71	338.14	6,867.0	162.2	-289.5	258.9	20.47	12.35	17.00
7,057.0	78.80	343.20	6,873.9	190.8	-299.5	289.0	18.78	9.97	16.32
7,098.0	84.08	346.75	6,880.0	229.9	-310.0	329.3	15.46	12.88	8.66
7,190.0	91.15	346.50	6,883.8	319.3	-331.2	420.1	7.69	7.68	-0.27
7,283.0	94.31	346.24	6,879.4	409.5	-353.1	512.0	3.41	3.40	-0.28
7,375.0	90.89	345.67	6,875.2	498.7	-375.4	603.0	3.77	-3.72	-0.62
7,468.0	89.52	343.70	6,874.9	588.4	-400.0	695.4	2.58	-1.47	-2.12
7,560.0	89.55	340.36	6,875.6	675.9	-428.4	787.1	3.63	0.03	-3.63
7,652.0	90.08	339.80	6,875.9	762.4	-459.7	879.0	0.84	0.58	-0.61
7,745.0	89.22	337.77	6,876.5	849.0	-493.4	972.0	2.37	-0.92	-2.18
7,837.0	89.94	335.40	6,877.2	933.5	-529.9	1,064.0	2.69	0.78	-2.58
7,930.0	91.51	334.57	6,876.0	1,017.7	-569.2	1,156.9	1.91	1.69	-0.89
8,022.0	91.37	331.28	6,873.7	1,099.6	-611.1	1,248.5	3.58	-0.15	-3.58
8,115.0	91.12	334.51	6,871.7	1,182.4	-653.4	1,341.1	3.48	-0.27	3.47
8,207.0	90.14	336.43	6,870.6	1,266.0	-691.6	1,432.9	2.34	-1.07	2.09
8,300.0	91.37	342.05	6,869.4	1,353.0	-724.6	1,525.9	6.19	1.32	6.04
8,392.0	91.79	342.76	6,866.9	1,440.6	-752.4	1,617.6	0.90	0.46	0.77
8,484.0	89.97	340.43	6,865.5	1,527.9	-781.4	1,709.4	3.21	-1.98	-2.53
8,577.0	91.29	338.50	6,864.5	1,615.0	-814.0	1,802.3	2.51	1.42	-2.08
8,670.0	92.82	335.73	6,861.1	1,700.6	-850.2	1,895.2	3.40	1.65	-2.98
8,762.0	93.36	335.61	6,856.2	1,784.3	-888.0	1,987.0	0.60	0.59	-0.13
8,855.0	91.79	336.35	6,852.0	1,869.2	-925.8	2,079.9	1.87	-1.69	0.80
8,948.0	89.30	335.84	6,851.1	1,954.2	-963.5	2,172.8	2.73	-2.68	-0.55
9,040.0	90.11	337.07	6,851.6	2,038.5	-1,000.3	2,264.8	1.60	0.88	1.34
9,133.0	90.06	336.39	6,851.4	2,123.9	-1,037.0	2,357.8	0.73	-0.05	-0.73
9,225.0	89.86	336.80	6,851.5	2,208.4	-1,073.6	2,449.7	0.50	-0.22	0.45
9,318.0	90.45	339.75	6,851.2	2,294.8	-1,108.0	2,542.7	3.23	0.63	3.17
9,410.0	91.03	342.97	6,850.1	2,381.9	-1,137.4	2,634.5	3.56	0.63	3.50
9,503.0	89.41	342.06	6,849.7	2,470.6	-1,165.3	2,727.2	2.00	-1.74	-0.98
9,596.0	88.18	339.84	6,851.7	2,558.5	-1,195.7	2,820.1	2.73	-1.32	-2.39
9,689.0	90.00	338.70	6,853.1	2,645.5	-1,228.6	2,913.1	2.31	1.96	-1.23
9,781.0	91.06	335.40	6,852.3	2,730.2	-1,264.4	3,005.0	3.77	1.15	-3.59
9,874.0	92.26	338.02	6,849.6	2,815.5	-1,301.2	3,098.0	3.10	1.29	2.82
9,967.0	91.01	334.81	6,846.9	2,900.7	-1,338.4	3,190.9	3.70	-1.34	-3.45
10,059.0	88.21	331.72	6,847.6	2,982.9	-1,379.8	3,282.5	4.53	-3.04	-3.36
10,152.0	87.12	333.85	6,851.3	3,065.5	-1,422.3	3,375.1	2.57	-1.17	2.29
10,244.0	89.19	336.24	6,854.3	3,148.8	-1,461.0	3,466.9	3.44	2.25	2.60

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Survey Calculation Method: Minimum Curvature
Database: North East R5000 Database

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
10,337.0	92.96	338.78	6,852.6	3,234.7	-1,496.6	3,559.8	4.89	4.05	2.73
10,430.0	93.30	338.61	6,847.5	3,321.3	-1,530.3	3,652.7	0.41	0.37	-0.18
10,522.0	92.01	340.68	6,843.2	3,407.4	-1,562.3	3,744.5	2.65	-1.40	2.25
10,615.0	92.12	339.05	6,839.9	3,494.7	-1,594.3	3,837.4	1.76	0.12	-1.75
10,708.0	90.92	339.53	6,837.4	3,581.6	-1,627.2	3,930.4	1.39	-1.29	0.52
10,800.0	90.25	340.60	6,836.5	3,668.1	-1,658.5	4,022.3	1.37	-0.73	1.16
10,893.0	88.60	339.17	6,837.4	3,755.4	-1,690.5	4,115.2	2.35	-1.77	-1.54
10,985.0	88.27	338.20	6,839.9	3,841.1	-1,723.9	4,207.2	1.11	-0.36	-1.05
11,078.0	89.80	337.96	6,841.5	3,927.4	-1,758.7	4,300.2	1.67	1.65	-0.26
11,170.0	90.50	339.44	6,841.2	4,013.1	-1,792.1	4,392.2	1.78	0.76	1.61
11,263.0	89.72	337.93	6,841.1	4,099.7	-1,825.9	4,485.2	1.83	-0.84	-1.62
11,355.0	90.11	336.97	6,841.2	4,184.7	-1,861.2	4,577.2	1.13	0.42	-1.04
11,448.0	90.95	337.10	6,840.3	4,270.3	-1,897.4	4,670.1	0.91	0.90	0.14
11,540.0	91.26	335.74	6,838.6	4,354.6	-1,934.2	4,762.1	1.52	0.34	-1.48
11,633.0	90.25	337.38	6,837.3	4,439.9	-1,971.2	4,855.0	2.07	-1.09	1.76
11,726.0	89.69	340.01	6,837.4	4,526.5	-2,005.0	4,948.0	2.89	-0.60	2.83
11,818.0	90.20	338.76	6,837.5	4,612.7	-2,037.4	5,040.0	1.47	0.55	-1.36
11,911.0	90.20	338.30	6,837.1	4,699.2	-2,071.4	5,133.0	0.49	0.00	-0.49
12,003.0	90.56	338.20	6,836.5	4,784.6	-2,105.5	5,225.0	0.41	0.39	-0.11
12,095.0	90.67	338.72	6,835.5	4,870.2	-2,139.3	5,317.0	0.58	0.12	0.57
12,188.0	89.75	338.84	6,835.2	4,956.9	-2,173.0	5,410.0	1.00	-0.99	0.13
12,280.0	89.58	336.99	6,835.7	5,042.2	-2,207.6	5,502.0	2.02	-0.18	-2.01
12,373.0	90.17	338.25	6,835.9	5,128.1	-2,243.0	5,595.0	1.50	0.63	1.35
12,465.0	90.00	339.23	6,835.8	5,213.9	-2,276.3	5,687.0	1.08	-0.18	1.07
12,558.0	89.58	340.94	6,836.2	5,301.3	-2,308.0	5,779.9	1.89	-0.45	1.84
12,650.0	89.08	340.12	6,837.2	5,388.0	-2,338.7	5,871.8	1.04	-0.54	-0.89
12,743.0	88.83	339.11	6,838.9	5,475.2	-2,371.1	5,964.7	1.12	-0.27	-1.09
12,835.0	88.99	336.53	6,840.7	5,560.4	-2,405.8	6,056.7	2.81	0.17	-2.80
12,928.0	90.95	336.90	6,840.7	5,645.8	-2,442.5	6,149.7	2.14	2.11	0.40
13,020.0	91.48	336.76	6,838.8	5,730.4	-2,478.7	6,241.6	0.60	0.58	-0.15
13,113.0	89.92	334.02	6,837.6	5,814.9	-2,517.5	6,334.5	3.39	-1.68	-2.95
13,205.0	90.14	332.65	6,837.6	5,897.1	-2,558.7	6,426.2	1.51	0.24	-1.49
13,298.0	90.67	333.28	6,836.9	5,979.9	-2,601.0	6,518.9	0.89	0.57	0.68
13,390.0	90.50	334.65	6,836.0	6,062.6	-2,641.4	6,610.6	1.50	-0.18	1.49
13,483.0	90.64	337.70	6,835.1	6,147.7	-2,678.9	6,703.6	3.28	0.15	3.28
13,576.0	91.01	339.56	6,833.7	6,234.3	-2,712.8	6,796.5	2.04	0.40	2.00
13,668.0	89.80	338.42	6,833.1	6,320.1	-2,745.8	6,888.5	1.81	-1.32	-1.24
13,761.0	92.04	338.54	6,831.6	6,406.6	-2,779.9	6,981.5	2.41	2.41	0.13
13,853.0	93.30	340.86	6,827.3	6,492.8	-2,811.8	7,073.4	2.87	1.37	2.52
13,946.0	92.49	341.51	6,822.6	6,580.7	-2,841.8	7,166.1	1.12	-0.87	0.70
14,038.0	90.50	340.66	6,820.2	6,667.7	-2,871.6	7,257.9	2.35	-2.16	-0.92
14,131.0	89.19	339.48	6,820.5	6,755.2	-2,903.3	7,350.9	1.90	-1.41	-1.27
14,224.0	89.25	339.15	6,821.7	6,842.2	-2,936.1	7,443.8	0.36	0.06	-0.35

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Survey Calculation Method: Minimum Curvature
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Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
14,316.0	89.25	338.20	6,822.9	6,927.8	-2,969.6	7,535.8	1.03	0.00	-1.03
14,409.0	89.47	337.61	6,824.0	7,014.0	-3,004.6	7,628.8	0.68	0.24	-0.63
14,501.0	90.08	337.25	6,824.3	7,099.0	-3,039.9	7,720.8	0.77	0.66	-0.39
14,594.0	90.22	338.97	6,824.1	7,185.3	-3,074.5	7,813.8	1.86	0.15	1.85
14,687.0	90.87	338.47	6,823.2	7,271.9	-3,108.3	7,906.8	0.88	0.70	-0.54
14,779.0	90.75	338.12	6,821.9	7,357.4	-3,142.3	7,998.8	0.40	-0.13	-0.38
14,872.0	91.40	338.03	6,820.1	7,443.6	-3,177.0	8,091.8	0.71	0.70	-0.10
14,964.0	89.52	337.61	6,819.4	7,528.8	-3,211.8	8,183.7	2.09	-2.04	-0.46
15,057.0	89.97	336.79	6,819.8	7,614.6	-3,247.8	8,276.7	1.01	0.48	-0.88
15,149.0	90.48	335.74	6,819.5	7,698.8	-3,284.8	8,368.7	1.27	0.55	-1.14
15,242.0	90.06	336.77	6,819.0	7,783.9	-3,322.3	8,461.6	1.20	-0.45	1.11
15,334.0	90.25	337.87	6,818.8	7,868.8	-3,357.7	8,553.6	1.21	0.21	1.20
15,427.0	90.89	337.04	6,817.9	7,954.7	-3,393.4	8,646.6	1.13	0.69	-0.89
15,520.0	90.28	338.02	6,816.9	8,040.6	-3,428.9	8,739.6	1.24	-0.66	1.05
15,612.0	89.44	338.25	6,817.1	8,126.0	-3,463.2	8,831.6	0.95	-0.91	0.25
15,705.0	89.89	337.69	6,817.7	8,212.2	-3,498.1	8,924.6	0.77	0.48	-0.60
15,795.0	89.39	338.09	6,818.2	8,295.6	-3,532.0	9,014.6	0.71	-0.56	0.44
15,890.0	90.14	341.05	6,818.6	8,384.6	-3,565.1	9,109.6	3.21	0.79	3.12
15,982.0	89.50	342.27	6,818.9	8,471.9	-3,594.1	9,201.4	1.50	-0.70	1.33
16,075.0	88.97	339.54	6,820.2	8,559.8	-3,624.5	9,294.2	2.99	-0.57	-2.94
16,135.0	88.97	338.41	6,821.2	8,615.8	-3,646.0	9,354.2	1.88	0.00	-1.88
16,190.0	88.97	338.41	6,822.2	8,666.9	-3,666.2	9,409.2	0.00	0.00	0.00

PTB: [16190.0' MD][88.97° Inc][338.41° Azi]

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PBHL Gibson Unit 2H	0.00	0.00	6,797.0	8,706.8	-3,695.5	14,303,899.98	1,712,201.08	39° 23' 22.660 N	80° 44' 45.341 W
- actual wellpath misses target center by 55.5usft at 16190.0usft MD (6822.2 TVD, 8666.9 N, -3666.2 E)									
- Point									
LP Gibson Unit 2H	0.00	0.00	6,878.0	330.0	-311.0	14,295,523.16	1,715,585.55	39° 21' 59.738 N	80° 44' 2.532 W
- actual wellpath misses target center by 22.9usft at 7195.9usft MD (6883.7 TVD, 325.0 N, -332.6 E)									
- Point									

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
16,190.0	6,822.2	8,666.9	-3,666.2	PTB: [16190.0' MD][88.97° Inc][338.41° Azi]

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Checked By: _____	Approved By: _____	Date: _____
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