



Precision 523-GL 1004 *KB 18 @ 1023.0usft
Gr. 1004.0

Ericson Unit 2H
Richie County WW
Northing: 14281131.53
Easting: 1661460.71
As Drilled



Genie Lightfoot
11.02, July 07 2015
Scientific Drilling
11220 NW 10th Street
Tulsa OK 73099

WELL DETAILS		Ericson Unit 2H	
+N/-S	+E/-W	Northing	Longitude
0.0	0.0	14281131.53	80° 55' 32.100 W
		Easting	Latitude
		1661460.71	39° 15' 38.448 N

PROJECT DETAILS: Richie County WW
Geodetic System: Universal Transverse Mercator (US Survey Feet)
Datum: NAD 1983 (NAD83 CONUS)
Ellipsoid: Clarke 1866
Zone: Zone 17N (84 W to 78 W)
System Datum: Mean Sea Level

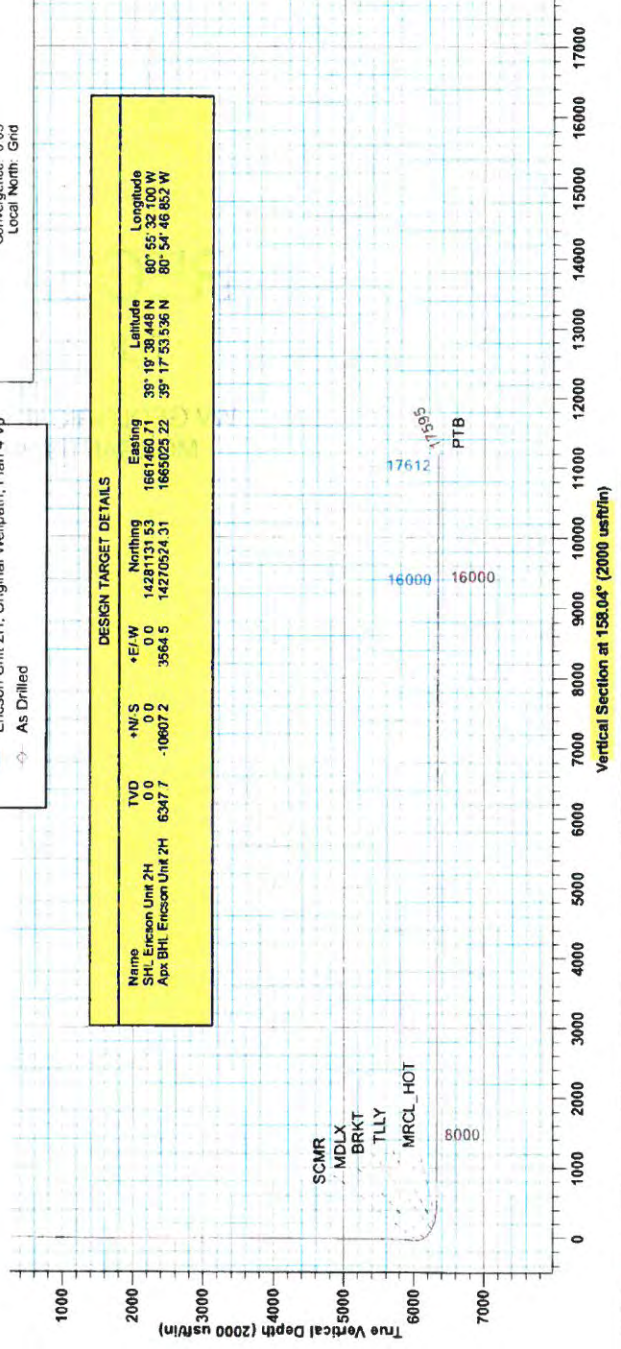
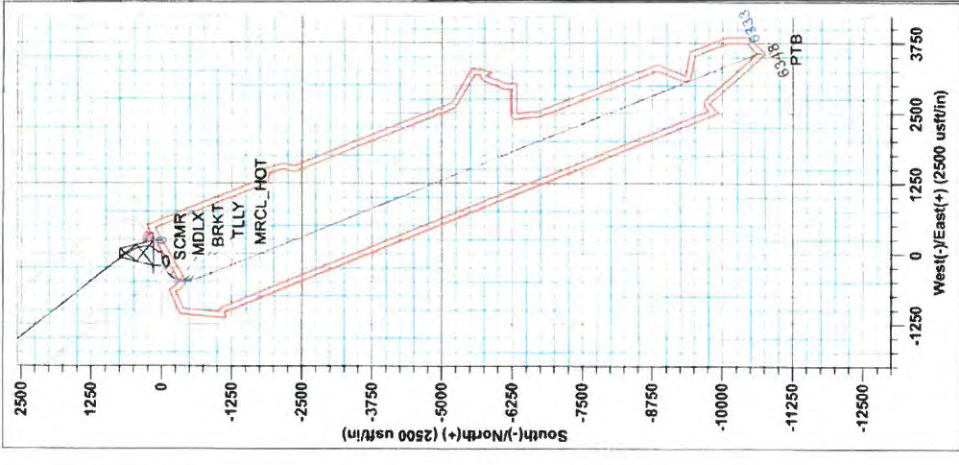
LEGEND

- Belle Unit 3H, Original Wellpath, As Drilled Y0
- Belle Unit 1H, Original Wellpath, As Drilled Y0
- Belle Unit 2H, Original Wellpath, As Drilled Y0
- Ericson Unit 2H, Original Wellpath, Plan 4 V0
- As Drilled

SITE DETAILS: Annie Horizontal Part BelleEricson
SHL Belle Unit 3H
Site Center
Site Centre Northing: 14281134.20
Easting: 1661500.66
Positional Uncertainty: 0.0
Convergence: 0.05
Local North: Grid

Azimuths to Grid North
True North: -0.05°
Magnetic North: -8.45°
Magnetic Field
Strength: 52165.4srT
Dip Angle: 66.83°
Date: 8/22/2015
North: 858182814

To convert Magnetic North to Grid, Subtract 8.45°
To convert True North to Grid, Subtract 0.05°



DESIGN TARGET DETAILS					
Name	TVD	+N/S	+E/W	Northing	Longitude
SHL Ericson Unit 2H	0.0	0.0	0.0	14281131.53	80° 55' 32.100 W
Apx BHl Ericson Unit 2H	6347.7	-10607.2	3564.5	14270524.31	80° 54' 46.882 W
				1665025.22	39° 17' 53.536 N



Antero

**Ritchie County WV
Annie Horizontal Pad: Belle/Ericson
Ericson Unit 2H
Original Wellpath**

Design: As Drilled

EOW Completion Report

07 July, 2015





Company: Antero	Local Co-ordinate Reference: Well Ericson Unit 2H
Project: Ritchie County WV	TVD Reference: Precision 523: GL 1004' + KB 19' @ 1023.0usft
Site: Annie Horizontal Pad: Belle/Ericson	MD Reference: Precision 523: GL 1004' + KB 19' @ 1023.0usft
Well: Ericson Unit 2H	North Reference: Grid
Wellbore: Original Wellpath	Survey Calculation Method: Minimum Curvature
Design: As Drilled	Database: Antero NE

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

Site Annie Horizontal Pad: Belle/Ericson, SHL Belle Unit 3H

Site Position:		Northing: 14,281,134.20 usft	Latitude: 39° 19' 38.474 N
From: Map		Easting: 1,661,500.66 usft	Longitude: 80° 55' 31.591 W
Position Uncertainty: 0.0 usft		Slot Radius: 13-3/16"	Grid Convergence: 0.05 °

Well Ericson Unit 2H, Marcellus

Well Position	+N/-S 0.0 usft	Northing: 14,281,131.53 usft	Latitude: 39° 19' 38.448 N
	+E/-W 0.0 usft	Easting: 1,661,460.71 usft	Longitude: 80° 55' 32.100 W
Position Uncertainty	2.0 usft	Wellhead Elevation: 1,023.0 usft	Ground Level: 1,004.0 usft

Wellbore Original Wellpath

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2014	6/22/2015	-8.40	66.83	52,165

Design As Drilled

Audit Notes:

Version: 1.0	Phase: ACTUAL	Tie On Depth: 0.0
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Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	158.04

Survey Program		Date			
From (usft)	To (usft)	7/7/2015	Survey (Wellbore)	Tool Name	Description
106.0	5,406.0		Survey #7 Def Gyro to KOP (Original Well	Standard Keeper 104	Standard Wireline Keeper ver 1.0.4
5,406.0	17,595.0		Survey #8 SDI MWD (Original Wellpath)	SDI MWD	Scientific Drilling Intl. MWD - Standard ver 1.0.1

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00
106.0	0.43	194.06	106.0	-0.4	-0.1	0.3	0.41
131.0	0.28	192.72	131.0	-0.5	-0.1	0.4	0.60
156.0	0.42	188.59	156.0	-0.7	-0.2	0.6	0.57
181.0	0.41	188.28	181.0	-0.9	-0.2	0.7	0.04
206.0	0.27	202.74	206.0	-1.0	-0.2	0.9	0.65
231.0	0.42	189.40	231.0	-1.2	-0.3	1.0	0.68
256.0	0.41	211.19	256.0	-1.3	-0.3	1.1	0.63
281.0	0.37	169.46	281.0	-1.5	-0.4	1.2	1.12
306.0	0.38	186.91	306.0	-1.6	-0.3	1.4	0.46
331.0	0.38	191.88	331.0	-1.8	-0.4	1.5	0.13



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North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Antero NE

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	EW (usft)	V. Sec (usft)	DLeg (°/100usft)
356.0	0.52	189.25	356.0	-2.0	-0.4	1.7	0.57
381.0	0.44	199.43	381.0	-2.2	-0.5	1.9	0.47
406.0	0.43	211.97	406.0	-2.4	-0.5	2.0	0.38
431.0	0.41	200.86	431.0	-2.5	-0.6	2.1	0.33
456.0	0.45	205.35	456.0	-2.7	-0.7	2.2	0.21
481.0	0.74	233.57	481.0	-2.9	-0.9	2.4	1.62
506.0	1.38	246.38	506.0	-3.1	-1.3	2.4	2.71
531.0	1.97	251.80	531.0	-3.4	-2.0	2.4	2.44
556.0	2.62	256.04	556.0	-3.6	-2.9	2.3	2.69
581.0	3.01	259.04	580.9	-3.9	-4.1	2.1	1.67
606.0	3.31	259.43	605.9	-4.2	-5.5	1.8	1.20
631.0	3.93	261.27	630.8	-4.4	-7.0	1.5	2.52
656.0	4.39	263.25	655.8	-4.7	-8.8	1.0	1.93
681.0	4.79	262.94	680.7	-4.9	-10.8	0.5	1.60
706.0	5.40	264.21	705.6	-5.1	-13.0	-0.1	2.48
731.0	5.64	265.14	730.5	-5.4	-15.4	-0.8	1.02
756.0	5.77	265.40	755.4	-5.6	-17.9	-1.5	0.53
781.0	5.82	265.44	780.2	-5.8	-20.4	-2.3	0.20
806.0	5.89	265.17	805.1	-6.0	-22.9	-3.0	0.30
831.0	5.89	264.72	830.0	-6.2	-25.5	-3.8	0.18
856.0	5.94	265.14	854.8	-6.4	-28.1	-4.5	0.26
881.0	5.94	265.16	879.7	-6.7	-30.6	-5.3	0.01
906.0	5.99	264.71	904.6	-6.9	-33.2	-6.0	0.27
931.0	6.04	264.96	929.4	-7.1	-35.8	-6.8	0.23
956.0	5.95	265.05	954.3	-7.3	-38.4	-7.6	0.36
981.0	5.62	265.32	979.2	-7.6	-41.0	-8.3	1.32
1,006.0	5.59	265.39	1,004.0	-7.8	-43.4	-9.0	0.12
1,031.0	4.81	264.92	1,028.9	-7.9	-45.6	-9.7	3.12
1,056.0	4.60	265.34	1,053.8	-8.1	-47.7	-10.3	0.85
1,081.0	4.25	264.88	1,078.8	-8.3	-49.6	-10.9	1.41
1,106.0	3.87	265.17	1,103.7	-8.4	-51.4	-11.4	1.52
1,131.0	3.52	265.31	1,128.7	-8.6	-53.0	-11.9	1.40
1,156.0	3.36	265.65	1,153.6	-8.7	-54.5	-12.3	0.65
1,181.0	2.99	265.68	1,178.6	-8.8	-55.9	-12.7	1.48
1,206.0	2.70	266.21	1,203.5	-8.9	-57.1	-13.1	1.16
1,231.0	2.36	265.99	1,228.5	-9.0	-58.2	-13.5	1.36
1,256.0	2.17	265.34	1,253.5	-9.0	-59.2	-13.8	0.77
1,281.0	1.89	267.24	1,278.5	-9.1	-60.1	-14.0	1.15
1,306.0	1.71	266.53	1,303.5	-9.1	-60.9	-14.3	0.73
1,331.0	1.46	265.42	1,328.5	-9.2	-61.5	-14.5	1.01
1,356.0	1.36	263.87	1,353.5	-9.2	-62.2	-14.7	0.43
1,381.0	1.25	264.23	1,378.5	-9.3	-62.7	-14.8	0.44
1,406.0	0.95	268.64	1,403.4	-9.3	-63.2	-15.0	1.25
1,431.0	0.93	267.85	1,428.4	-9.3	-63.6	-15.1	0.10



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Wellbore: Original Wellpath
Design: As Drilled

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MD Reference: Precision 523: GL 1004' + KB 19' @ 1023.0usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Antero NE

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
1,456.0	0.87	266.90	1,453.4	-9.4	-64.0	-15.3	0.25
1,481.0	0.82	262.70	1,478.4	-9.4	-64.4	-15.4	0.32
1,506.0	0.77	265.23	1,503.4	-9.4	-64.7	-15.5	0.24
1,531.0	0.75	268.47	1,528.4	-9.4	-65.0	-15.6	0.19
1,556.0	0.84	264.51	1,553.4	-9.5	-65.4	-15.7	0.42
1,581.0	0.88	263.96	1,578.4	-9.5	-65.8	-15.8	0.16
1,606.0	0.74	265.06	1,603.4	-9.5	-66.1	-15.9	0.56
1,631.0	0.62	263.40	1,628.4	-9.6	-66.4	-16.0	0.49
1,656.0	0.58	267.12	1,653.4	-9.6	-66.7	-16.0	0.22
1,681.0	0.53	261.92	1,678.4	-9.6	-66.9	-16.1	0.28
1,706.0	0.64	268.64	1,703.4	-9.6	-67.2	-16.2	0.52
1,731.0	0.60	257.83	1,728.4	-9.7	-67.4	-16.3	0.49
1,756.0	0.48	239.48	1,753.4	-9.7	-67.7	-16.3	0.84
1,781.0	0.52	233.35	1,778.4	-9.9	-67.8	-16.2	0.27
1,806.0	0.47	227.12	1,803.4	-10.0	-68.0	-16.1	0.29
1,831.0	0.60	232.51	1,828.4	-10.2	-68.2	-16.1	0.56
1,856.0	0.55	233.68	1,853.4	-10.3	-68.4	-16.0	0.21
1,881.0	0.58	232.52	1,878.4	-10.5	-68.6	-15.9	0.13
1,906.0	0.54	230.58	1,903.4	-10.6	-68.8	-15.9	0.18
1,931.0	0.55	230.07	1,928.4	-10.8	-68.9	-15.8	0.04
1,956.0	0.54	231.24	1,953.4	-10.9	-69.1	-15.7	0.06
1,981.0	0.56	230.58	1,978.4	-11.1	-69.3	-15.7	0.08
2,006.0	0.51	230.71	2,003.4	-11.2	-69.5	-15.6	0.20
2,031.0	0.47	237.66	2,028.4	-11.3	-69.7	-15.5	0.29
2,056.0	0.39	221.11	2,053.4	-11.5	-69.8	-15.5	0.59
2,081.0	0.26	210.93	2,078.4	-11.6	-69.9	-15.4	0.57
2,106.0	0.18	150.54	2,103.4	-11.6	-69.9	-15.3	0.93
2,131.0	0.07	271.19	2,128.4	-11.7	-69.9	-15.3	0.90
2,156.0	0.10	131.25	2,153.4	-11.7	-69.9	-15.3	0.64
2,181.0	0.03	70.35	2,178.4	-11.7	-69.9	-15.3	0.36
2,206.0	0.02	170.32	2,203.4	-11.7	-69.9	-15.3	0.16
2,231.0	0.12	121.28	2,228.4	-11.7	-69.9	-15.2	0.43
2,256.0	0.11	121.33	2,253.4	-11.8	-69.8	-15.2	0.04
2,281.0	0.07	95.18	2,278.4	-11.8	-69.8	-15.2	0.23
2,306.0	0.05	196.14	2,303.4	-11.8	-69.8	-15.2	0.37
2,331.0	0.09	140.72	2,328.4	-11.8	-69.8	-15.1	0.30
2,356.0	0.07	111.39	2,353.4	-11.8	-69.7	-15.1	0.18
2,381.0	0.09	223.02	2,378.4	-11.8	-69.7	-15.1	0.53
2,406.0	0.08	79.65	2,403.4	-11.9	-69.7	-15.1	0.65
2,431.0	0.04	233.49	2,428.4	-11.9	-69.7	-15.1	0.47
2,456.0	0.14	110.64	2,453.4	-11.9	-69.7	-15.0	0.66
2,481.0	0.05	186.97	2,478.4	-11.9	-69.7	-15.0	0.55
2,506.0	0.22	90.50	2,503.4	-11.9	-69.6	-15.0	0.92
2,531.0	0.22	93.12	2,528.4	-11.9	-69.5	-15.0	0.04
2,556.0	0.11	94.56	2,553.4	-11.9	-69.4	-14.9	0.44



Company: Antero
Project: Ritchie County WV
Site: Annie Horizontal Pad: Belle/Ericson
Well: Ericson Unit 2H
Wellbore: Original Wellpath
Design: As Drilled

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TVD Reference: Precision 523: GL 1004' + KB 19' @ 1023.0usft
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North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Antero NE

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
2,581.0	0.11	93.82	2,578.4	-11.9	-69.4	-14.9	0.01
2,606.0	0.17	95.38	2,603.4	-11.9	-69.3	-14.9	0.24
2,631.0	0.18	92.63	2,628.4	-11.9	-69.3	-14.8	0.05
2,656.0	0.09	92.43	2,653.4	-11.9	-69.2	-14.8	0.36
2,681.0	0.15	104.42	2,678.4	-11.9	-69.2	-14.8	0.26
2,706.0	0.16	93.41	2,703.4	-12.0	-69.1	-14.8	0.13
2,731.0	0.13	95.98	2,728.4	-12.0	-69.0	-14.7	0.12
2,756.0	0.17	102.84	2,753.4	-12.0	-69.0	-14.7	0.18
2,781.0	0.11	89.44	2,778.4	-12.0	-68.9	-14.7	0.27
2,806.0	0.16	98.31	2,803.4	-12.0	-68.8	-14.6	0.22
2,831.0	0.16	89.17	2,828.4	-12.0	-68.8	-14.6	0.10
2,856.0	0.12	97.58	2,853.4	-12.0	-68.7	-14.6	0.18
2,881.0	0.04	86.33	2,878.4	-12.0	-68.7	-14.6	0.32
2,906.0	0.04	135.48	2,903.4	-12.0	-68.7	-14.6	0.13
2,931.0	0.04	121.92	2,928.4	-12.0	-68.6	-14.5	0.04
2,956.0	0.19	93.78	2,953.4	-12.0	-68.6	-14.5	0.62
2,981.0	0.14	81.45	2,978.4	-12.0	-68.5	-14.5	0.24
3,006.0	0.09	106.52	3,003.4	-12.0	-68.5	-14.5	0.28
3,031.0	0.11	102.90	3,028.4	-12.0	-68.4	-14.4	0.08
3,056.0	0.15	108.09	3,053.4	-12.0	-68.4	-14.4	0.17
3,081.0	0.07	102.39	3,078.4	-12.1	-68.3	-14.4	0.32
3,106.0	0.15	109.91	3,103.4	-12.1	-68.3	-14.3	0.32
3,131.0	0.18	111.88	3,128.4	-12.1	-68.2	-14.3	0.12
3,156.0	0.10	125.79	3,153.4	-12.1	-68.2	-14.3	0.35
3,181.0	0.15	109.86	3,178.4	-12.1	-68.1	-14.2	0.24
3,206.0	0.15	120.14	3,203.4	-12.2	-68.1	-14.2	0.11
3,231.0	0.10	123.67	3,228.4	-12.2	-68.0	-14.1	0.20
3,256.0	0.07	105.15	3,253.4	-12.2	-68.0	-14.1	0.16
3,281.0	0.13	124.55	3,278.4	-12.2	-67.9	-14.1	0.27
3,306.0	0.17	110.75	3,303.4	-12.3	-67.9	-14.0	0.21
3,331.0	0.08	91.27	3,328.4	-12.3	-67.8	-14.0	0.39
3,356.0	0.22	107.33	3,353.4	-12.3	-67.8	-13.9	0.58
3,381.0	0.15	114.79	3,378.4	-12.3	-67.7	-13.9	0.30
3,406.0	0.16	123.41	3,403.4	-12.4	-67.6	-13.8	0.10
3,431.0	0.15	104.94	3,428.4	-12.4	-67.6	-13.8	0.20
3,456.0	0.17	120.20	3,453.4	-12.4	-67.5	-13.7	0.19
3,481.0	0.17	98.54	3,478.4	-12.4	-67.4	-13.7	0.26
3,506.0	0.21	95.72	3,503.4	-12.4	-67.4	-13.6	0.16
3,531.0	0.19	97.90	3,528.4	-12.5	-67.3	-13.6	0.09
3,556.0	0.23	96.94	3,553.4	-12.5	-67.2	-13.6	0.16
3,581.0	0.20	89.26	3,578.4	-12.5	-67.1	-13.5	0.17
3,606.0	0.18	86.57	3,603.4	-12.5	-67.0	-13.5	0.09
3,631.0	0.16	83.17	3,628.4	-12.5	-66.9	-13.5	0.09
3,656.0	0.21	70.86	3,653.4	-12.4	-66.9	-13.5	0.25



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Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
3,681.0	0.23	67.29	3,678.4	-12.4	-66.8	-13.5	0.10
3,706.0	0.24	47.69	3,703.4	-12.4	-66.7	-13.5	0.32
3,731.0	0.25	64.10	3,728.4	-12.3	-66.6	-13.5	0.28
3,756.0	0.25	55.76	3,753.4	-12.2	-66.5	-13.5	0.15
3,781.0	0.21	46.98	3,778.4	-12.2	-66.4	-13.5	0.21
3,806.0	0.20	45.77	3,803.4	-12.1	-66.4	-13.6	0.04
3,831.0	0.24	51.66	3,828.4	-12.1	-66.3	-13.6	0.18
3,856.0	0.17	37.73	3,853.4	-12.0	-66.2	-13.6	0.34
3,881.0	0.18	43.47	3,878.4	-11.9	-66.2	-13.7	0.08
3,906.0	0.27	50.69	3,903.4	-11.9	-66.1	-13.7	0.38
3,931.0	0.26	41.26	3,928.4	-11.8	-66.0	-13.8	0.18
3,956.0	0.23	44.71	3,953.4	-11.7	-65.9	-13.8	0.13
3,981.0	0.22	33.29	3,978.4	-11.6	-65.9	-13.8	0.18
4,006.0	0.31	48.89	4,003.4	-11.5	-65.8	-13.9	0.46
4,031.0	0.32	37.82	4,028.4	-11.5	-65.7	-14.0	0.25
4,056.0	0.39	46.39	4,053.4	-11.3	-65.6	-14.0	0.35
4,081.0	0.46	49.00	4,078.4	-11.2	-65.5	-14.1	0.29
4,106.0	0.39	45.67	4,103.4	-11.1	-65.3	-14.1	0.30
4,131.0	0.43	54.50	4,128.4	-11.0	-65.2	-14.2	0.30
4,156.0	0.41	55.11	4,153.4	-10.9	-65.0	-14.2	0.08
4,181.0	0.44	50.04	4,178.4	-10.8	-64.9	-14.3	0.19
4,206.0	0.45	48.26	4,203.4	-10.6	-64.7	-14.4	0.07
4,231.0	0.49	58.15	4,228.4	-10.5	-64.6	-14.4	0.36
4,256.0	0.50	50.88	4,253.4	-10.4	-64.4	-14.5	0.25
4,281.0	0.50	54.28	4,278.4	-10.2	-64.2	-14.5	0.12
4,306.0	0.57	56.29	4,303.4	-10.1	-64.0	-14.6	0.29
4,331.0	0.51	54.06	4,328.4	-10.0	-63.8	-14.6	0.25
4,356.0	0.57	58.06	4,353.4	-9.8	-63.7	-14.7	0.28
4,381.0	0.55	57.88	4,378.4	-9.7	-63.4	-14.7	0.08
4,406.0	0.59	51.99	4,403.4	-9.6	-63.2	-14.8	0.28
4,431.0	0.59	59.86	4,428.4	-9.4	-63.0	-14.8	0.32
4,456.0	0.57	57.70	4,453.4	-9.3	-62.8	-14.9	0.12
4,481.0	0.61	56.18	4,478.4	-9.2	-62.6	-14.9	0.17
4,506.0	0.59	57.22	4,503.4	-9.0	-62.4	-15.0	0.09
4,531.0	0.57	52.42	4,528.4	-8.9	-62.2	-15.0	0.21
4,556.0	0.62	56.88	4,553.4	-8.7	-62.0	-15.1	0.27
4,581.0	0.62	60.31	4,578.4	-8.6	-61.7	-15.1	0.15
4,606.0	0.74	54.85	4,603.4	-8.4	-61.5	-15.2	0.54
4,631.0	0.63	53.40	4,628.4	-8.2	-61.2	-15.3	0.45
4,656.0	0.70	56.23	4,653.4	-8.1	-61.0	-15.3	0.31
4,681.0	0.75	56.38	4,678.4	-7.9	-60.7	-15.4	0.20
4,706.0	0.70	56.33	4,703.4	-7.7	-60.5	-15.4	0.20
4,731.0	0.65	56.77	4,728.4	-7.6	-60.2	-15.5	0.20
4,756.0	0.74	57.80	4,753.4	-7.4	-60.0	-15.6	0.36



Company: Antero
Project: Ritchie County WV
Site: Annie Horizontal Pad: Belle/Ericson
Well: Ericson Unit 2H
Wellbore: Original Wellpath
Design: As Drilled

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North Reference: Grid
Survey Calculation Method: Minimum Curvature
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Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
4,781.0	0.68	59.25	4,778.4	-7.2	-59.7	-15.6	0.25
4,806.0	0.62	57.09	4,803.4	-7.1	-59.5	-15.7	0.26
4,831.0	0.84	64.49	4,828.4	-6.9	-59.2	-15.7	0.96
4,856.0	0.75	65.73	4,853.4	-6.8	-58.9	-15.7	0.37
4,881.0	0.75	62.24	4,878.3	-6.6	-58.6	-15.7	0.18
4,906.0	0.78	60.32	4,903.3	-6.5	-58.3	-15.8	0.16
4,931.0	0.74	62.67	4,928.3	-6.3	-58.0	-15.8	0.20
4,956.0	0.81	67.36	4,953.3	-6.2	-57.7	-15.8	0.38
4,981.0	0.86	64.18	4,978.3	-6.0	-57.4	-15.8	0.27
5,006.0	0.80	63.08	5,003.3	-5.9	-57.0	-15.9	0.25
5,031.0	0.76	64.75	5,028.3	-5.7	-56.7	-15.9	0.18
5,056.0	0.84	65.66	5,053.3	-5.6	-56.4	-15.9	0.32
5,081.0	0.91	60.50	5,078.3	-5.4	-56.1	-16.0	0.42
5,106.0	0.90	65.14	5,103.3	-5.2	-55.7	-16.0	0.30
5,131.0	0.90	66.05	5,128.3	-5.1	-55.4	-16.0	0.06
5,156.0	0.83	61.90	5,153.3	-4.9	-55.0	-16.0	0.38
5,181.0	0.88	60.81	5,178.3	-4.7	-54.7	-16.1	0.21
5,206.0	0.84	62.96	5,203.3	-4.5	-54.4	-16.1	0.21
5,231.0	0.80	57.20	5,228.3	-4.4	-54.1	-16.2	0.37
5,256.0	0.80	54.23	5,253.3	-4.2	-53.8	-16.2	0.17
5,281.0	0.70	54.98	5,278.3	-4.0	-53.5	-16.3	0.40
5,306.0	0.77	47.05	5,303.3	-3.8	-53.3	-16.4	0.49
5,331.0	0.70	57.07	5,328.3	-3.6	-53.0	-16.5	0.58
5,356.0	0.66	51.88	5,353.3	-3.4	-52.8	-16.6	0.29
5,381.0	0.73	57.20	5,378.3	-3.2	-52.5	-16.6	0.38
5,406.0	0.70	58.48	5,403.3	-3.1	-52.2	-16.7	0.14
5,437.0	0.85	66.29	5,434.3	-2.9	-51.9	-16.7	0.59
5,466.0	0.64	40.47	5,463.3	-2.7	-51.6	-16.8	1.35
5,496.0	0.67	77.16	5,493.3	-2.5	-51.3	-16.9	1.38
5,526.0	0.74	74.54	5,523.3	-2.4	-50.9	-16.8	0.26
5,556.0	0.65	48.15	5,553.3	-2.2	-50.6	-16.8	1.10
5,586.0	0.50	41.25	5,583.3	-2.0	-50.4	-17.0	0.55
5,616.0	1.34	249.71	5,613.3	-2.1	-50.7	-17.0	5.98
5,645.0	4.50	247.76	5,642.2	-2.6	-52.0	-17.0	10.90
5,675.0	8.17	248.63	5,672.1	-3.8	-55.1	-17.1	12.24
5,705.0	11.63	253.91	5,701.6	-5.4	-60.0	-17.4	11.91
5,735.0	14.75	255.24	5,730.8	-7.3	-66.6	-18.2	10.45
5,765.0	18.54	254.68	5,759.5	-9.5	-74.9	-19.2	12.64
5,795.0	21.93	253.31	5,787.7	-12.4	-84.9	-20.3	11.41
5,824.0	24.67	250.57	5,814.3	-15.9	-95.8	-21.0	10.16
5,854.0	27.86	250.66	5,841.2	-20.3	-108.3	-21.6	10.63
5,884.0	31.22	251.44	5,867.3	-25.1	-122.3	-22.4	11.27
5,914.0	34.35	252.79	5,892.5	-30.1	-137.7	-23.6	10.71
5,944.0	38.27	253.94	5,916.7	-35.2	-154.7	-25.2	13.26



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Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	EW (usft)	V. Sec (usft)	DLeg (°/100usft)
5,974.0	41.41	255.93	5,939.7	-40.2	-173.3	-27.6	11.30
6,004.0	44.47	256.53	5,961.7	-45.0	-193.2	-30.5	10.29
6,034.0	48.54	256.62	5,982.3	-50.1	-214.3	-33.7	13.57
6,064.0	51.76	256.17	6,001.6	-55.5	-236.7	-37.0	10.79
6,093.0	52.87	251.95	6,019.3	-61.8	-258.8	-39.4	12.13
6,123.0	52.06	247.13	6,037.6	-70.1	-281.0	-40.1	13.02
6,147.0	51.60	242.90	6,052.4	-78.1	-298.1	-39.1	14.00
SCMR							
6,153.0	51.51	241.83	6,056.1	-80.3	-302.3	-38.6	14.00
6,183.0	51.33	237.14	6,074.9	-92.2	-322.5	-35.1	12.23
6,213.0	52.17	232.89	6,093.4	-105.7	-341.8	-29.8	11.47
6,243.0	53.20	228.15	6,111.6	-120.8	-360.2	-22.6	13.02
6,272.0	53.75	223.39	6,128.9	-137.1	-376.9	-13.8	13.32
6,302.0	54.50	218.74	6,146.5	-155.4	-392.8	-2.8	12.80
6,307.0	54.80	217.99	6,149.4	-158.6	-395.4	-0.8	13.57
MDLX							
6,332.0	56.37	214.35	6,163.5	-175.3	-407.5	10.1	13.57
6,362.0	58.27	211.25	6,179.7	-196.5	-421.2	24.7	10.76
6,392.0	59.44	206.44	6,195.2	-219.0	-433.6	40.9	14.26
6,422.0	60.40	201.80	6,210.3	-242.6	-444.2	58.9	13.76
6,452.0	61.87	197.83	6,224.8	-267.4	-453.1	78.5	12.58
6,482.0	64.08	194.01	6,238.4	-293.0	-460.4	99.6	13.52
6,512.0	66.47	191.07	6,250.9	-319.6	-466.3	122.1	11.95
6,526.0	67.56	189.86	6,256.4	-332.3	-468.6	133.0	11.10
BRKT							
6,542.0	68.81	188.51	6,262.4	-347.0	-471.0	145.7	11.10
6,571.0	70.86	185.86	6,272.4	-374.0	-474.4	169.4	11.11
6,601.0	73.17	183.84	6,281.6	-402.4	-476.8	194.9	10.01
6,619.0	74.15	182.69	6,286.7	-419.7	-477.8	210.5	8.21
TLLY							
6,631.0	74.81	181.93	6,289.9	-431.2	-478.3	221.1	8.21
6,661.0	76.20	179.83	6,297.4	-460.3	-478.7	247.8	8.21
6,691.0	76.82	177.95	6,304.4	-489.4	-478.1	275.1	6.43
6,713.0	77.25	175.78	6,309.3	-510.8	-477.0	295.4	9.82
MRCL_HOT							
6,721.0	77.41	174.99	6,311.1	-518.6	-476.3	302.8	9.82
6,751.0	78.68	171.83	6,317.3	-547.8	-473.0	331.1	11.14
6,781.0	79.50	168.69	6,323.0	-576.8	-468.0	359.9	10.63
6,810.0	80.99	166.18	6,327.9	-604.7	-461.8	388.1	9.96
6,840.0	83.00	163.24	6,332.1	-633.3	-453.9	417.6	11.79
6,870.0	86.48	159.05	6,334.8	-661.6	-444.3	447.4	18.11
6,899.0	90.13	157.94	6,335.7	-688.5	-433.7	476.4	13.15
6,915.0	91.31	157.72	6,335.5	-703.4	-427.6	492.4	7.50
6,988.0	91.14	159.08	6,333.9	-771.2	-400.7	565.4	1.88
7,078.0	90.13	159.75	6,332.9	-855.5	-369.1	655.4	1.35



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Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
7,167.0	90.64	158.02	6,332.3	-938.5	-337.0	744.4	2.03
7,257.0	90.00	157.67	6,331.8	-1,021.8	-303.1	834.3	0.81
7,346.0	90.47	157.91	6,331.5	-1,104.2	-269.5	923.3	0.59
7,436.0	90.24	156.98	6,330.9	-1,187.3	-234.9	1,013.3	1.06
7,525.0	90.60	156.59	6,330.3	-1,269.1	-199.9	1,102.3	0.60
7,615.0	89.90	157.18	6,329.9	-1,351.9	-164.5	1,192.3	1.02
7,704.0	89.60	158.20	6,330.3	-1,434.2	-130.7	1,281.3	1.19
7,794.0	89.73	157.49	6,330.8	-1,517.6	-96.8	1,371.3	0.80
7,884.0	90.44	159.49	6,330.6	-1,601.3	-63.8	1,461.3	2.36
7,973.0	90.77	159.57	6,329.7	-1,684.7	-32.7	1,550.2	0.38
8,062.0	90.13	157.44	6,329.0	-1,767.5	-0.1	1,639.2	2.50
8,152.0	90.77	158.36	6,328.3	-1,850.9	33.8	1,729.2	1.25
8,242.0	89.03	157.98	6,328.5	-1,934.4	67.2	1,819.2	1.98
8,331.0	88.99	157.91	6,330.0	-2,016.9	100.7	1,908.2	0.09
8,421.0	90.34	157.27	6,330.5	-2,100.1	135.0	1,998.2	1.66
8,510.0	90.54	158.30	6,329.8	-2,182.5	168.6	2,087.2	1.18
8,600.0	89.87	159.89	6,329.5	-2,266.6	200.7	2,177.2	1.92
8,689.0	89.83	159.57	6,329.7	-2,350.1	231.6	2,266.1	0.36
8,779.0	90.03	158.98	6,329.9	-2,434.2	263.4	2,356.1	0.69
8,869.0	89.70	158.29	6,330.1	-2,518.0	296.2	2,446.1	0.85
8,958.0	90.10	157.66	6,330.2	-2,600.6	329.6	2,535.1	0.84
9,048.0	90.54	157.61	6,329.7	-2,683.8	363.8	2,625.1	0.49
9,137.0	89.70	156.90	6,329.5	-2,765.9	398.2	2,714.1	1.24
9,227.0	89.53	157.81	6,330.1	-2,848.9	432.9	2,804.1	1.03
9,316.0	90.03	158.24	6,330.5	-2,931.4	466.2	2,893.1	0.74
9,406.0	89.19	157.80	6,331.1	-3,014.9	499.9	2,983.1	1.05
9,495.0	89.56	157.88	6,332.1	-3,097.3	533.4	3,072.1	0.43
9,585.0	90.20	157.78	6,332.3	-3,180.7	567.4	3,162.1	0.72
9,675.0	89.46	158.71	6,332.5	-3,264.3	600.8	3,252.1	1.32
9,764.0	90.70	160.38	6,332.4	-3,347.6	631.9	3,341.0	2.34
9,854.0	90.30	158.89	6,331.6	-3,432.0	663.2	3,431.0	1.71
9,943.0	89.70	156.59	6,331.6	-3,514.4	696.9	3,520.0	2.67
10,033.0	90.30	156.15	6,331.6	-3,596.8	733.0	3,610.0	0.83
10,122.0	89.80	156.49	6,331.5	-3,678.3	768.7	3,698.9	0.68
10,212.0	90.30	158.34	6,331.5	-3,761.4	803.3	3,788.9	2.13
10,302.0	90.27	160.87	6,331.0	-3,845.8	834.6	3,878.9	2.81
10,391.0	90.81	162.07	6,330.2	-3,930.2	862.9	3,967.7	1.48
10,480.0	89.36	158.65	6,330.0	-4,014.0	892.8	4,056.6	4.17
10,570.0	89.43	158.32	6,331.0	-4,097.7	925.8	4,146.6	0.37
10,659.0	90.74	158.56	6,330.9	-4,180.5	958.5	4,235.6	1.50
10,749.0	90.37	155.85	6,330.0	-4,263.4	993.4	4,325.6	3.04
10,838.0	90.64	156.86	6,329.2	-4,344.9	1,029.1	4,414.5	1.17
10,928.0	89.16	157.98	6,329.4	-4,428.0	1,063.6	4,504.5	2.06
11,018.0	88.59	154.93	6,331.1	-4,510.5	1,099.6	4,594.5	3.45

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11,107.0	90.77	155.21	6,331.6	-4,591.2	1,137.1	4,683.3	2.47
11,197.0	90.24	157.01	6,330.8	-4,673.5	1,173.5	4,773.3	2.08
11,287.0	90.30	158.49	6,330.4	-4,756.8	1,207.6	4,863.3	1.65
11,376.0	88.52	157.61	6,331.3	-4,839.3	1,240.9	4,952.3	2.23
11,466.0	88.59	157.02	6,333.6	-4,922.3	1,275.6	5,042.2	0.66
11,555.0	90.70	159.12	6,334.1	-5,004.9	1,308.8	5,131.2	3.34
11,645.0	89.76	157.52	6,333.8	-5,088.5	1,342.1	5,221.2	2.06
11,734.0	90.17	158.59	6,333.8	-5,171.1	1,375.3	5,310.2	1.29
11,823.0	90.37	158.41	6,333.4	-5,253.9	1,407.9	5,399.2	0.30
11,913.0	89.93	157.12	6,333.2	-5,337.2	1,442.0	5,489.2	1.51
12,003.0	90.24	157.32	6,333.0	-5,420.2	1,476.8	5,579.2	0.41
12,092.0	90.30	159.37	6,332.6	-5,502.9	1,509.7	5,668.2	2.30
12,182.0	89.26	158.97	6,333.0	-5,587.0	1,541.7	5,758.2	1.24
12,271.0	89.33	158.08	6,334.1	-5,669.8	1,574.3	5,847.1	1.00
12,361.0	89.20	158.78	6,335.2	-5,753.5	1,607.3	5,937.1	0.79
12,450.0	89.26	158.26	6,336.4	-5,836.3	1,639.9	6,026.1	0.59
12,540.0	89.60	157.94	6,337.3	-5,919.8	1,673.5	6,116.1	0.52
12,629.0	89.93	158.17	6,337.7	-6,002.4	1,706.8	6,205.1	0.45
12,719.0	90.17	157.54	6,337.6	-6,085.7	1,740.7	6,295.1	0.75
12,808.0	89.03	157.18	6,338.2	-6,167.9	1,774.9	6,384.1	1.34
12,898.0	89.56	156.72	6,339.3	-6,250.7	1,810.2	6,474.1	0.78
12,987.0	89.97	157.55	6,339.7	-6,332.7	1,844.8	6,563.1	1.04
13,076.0	89.36	157.93	6,340.2	-6,415.0	1,878.5	6,652.1	0.81
13,166.0	89.30	157.23	6,341.3	-6,498.2	1,912.8	6,742.1	0.78
13,255.0	89.70	158.16	6,342.0	-6,580.6	1,946.6	6,831.1	1.14
13,345.0	90.07	159.74	6,342.2	-6,664.6	1,978.9	6,921.0	1.80
13,434.0	90.33	158.92	6,341.9	-6,747.8	2,010.3	7,010.0	0.97
13,523.0	90.74	158.69	6,341.1	-6,830.8	2,042.5	7,099.0	0.53
13,613.0	90.17	158.45	6,340.4	-6,914.6	2,075.4	7,189.0	0.69
13,702.0	90.47	158.63	6,339.9	-6,997.4	2,107.9	7,278.0	0.39
13,792.0	90.03	157.78	6,339.5	-7,081.0	2,141.3	7,368.0	1.06
13,881.0	90.03	158.14	6,339.4	-7,163.5	2,174.7	7,457.0	0.40
13,971.0	89.26	156.92	6,340.0	-7,246.6	2,209.1	7,547.0	1.60
14,060.0	90.33	157.10	6,340.3	-7,328.6	2,243.9	7,636.0	1.22
14,149.0	89.56	158.28	6,340.4	-7,410.9	2,277.7	7,725.0	1.58
14,239.0	89.40	157.35	6,341.2	-7,494.2	2,311.7	7,815.0	1.05
14,329.0	90.20	159.34	6,341.5	-7,577.9	2,344.9	7,905.0	2.38
14,418.0	90.27	159.39	6,341.2	-7,661.2	2,376.2	7,993.9	0.10
14,508.0	90.30	158.46	6,340.7	-7,745.1	2,408.6	8,083.9	1.03
14,597.0	89.46	157.05	6,340.9	-7,827.5	2,442.3	8,172.9	1.84
14,687.0	90.20	158.38	6,341.2	-7,910.8	2,476.4	8,262.9	1.69
14,776.0	89.53	157.52	6,341.4	-7,993.3	2,509.8	8,351.9	1.22
14,866.0	88.89	158.06	6,342.6	-8,076.6	2,543.9	8,441.9	0.93
14,955.0	89.70	158.96	6,343.7	-8,159.4	2,576.5	8,530.9	1.36



Company: Antero
Project: Ritchie County WV
Site: Annie Horizontal Pad: Belle/Ericson
Well: Ericson Unit 2H
Wellbore: Original Wellpath
Design: As Drilled

Local Co-ordinate Reference: Well Ericson Unit 2H
TVD Reference: Precision 523: GL 1004' + KB 19' @ 1023.0usft
MD Reference: Precision 523: GL 1004' + KB 19' @ 1023.0usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Antero NE

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
15,045.0	89.93	159.04	6,344.0	-8,243.4	2,608.7	8,620.9	0.27
15,135.0	90.17	158.33	6,343.9	-8,327.3	2,641.4	8,710.9	0.83
15,224.0	90.44	158.85	6,343.4	-8,410.1	2,673.9	8,799.9	0.66
15,314.0	89.87	157.66	6,343.2	-8,493.7	2,707.3	8,889.9	1.47
15,403.0	90.00	157.36	6,343.3	-8,575.9	2,741.3	8,978.8	0.37
15,493.0	90.03	156.70	6,343.3	-8,658.8	2,776.4	9,068.8	0.73
15,582.0	89.93	156.03	6,343.3	-8,740.3	2,812.1	9,157.8	0.76
15,672.0	89.87	158.48	6,343.5	-8,823.3	2,846.9	9,247.8	2.72
15,761.0	90.03	158.13	6,343.5	-8,906.0	2,879.8	9,336.8	0.43
15,851.0	90.34	158.23	6,343.3	-8,989.6	2,913.2	9,426.8	0.36
15,940.0	90.74	158.89	6,342.4	-9,072.4	2,945.8	9,515.8	0.87
16,030.0	90.27	159.71	6,341.6	-9,156.6	2,977.6	9,605.7	1.05
16,119.0	89.40	158.62	6,341.9	-9,239.8	3,009.2	9,694.7	1.57
16,209.0	89.66	158.45	6,342.6	-9,323.5	3,042.2	9,784.7	0.35
16,298.0	89.80	157.73	6,343.0	-9,406.1	3,075.4	9,873.7	0.82
16,388.0	89.26	157.38	6,343.8	-9,489.3	3,109.7	9,963.7	0.71
16,477.0	89.50	156.87	6,344.7	-9,571.3	3,144.3	10,052.7	0.63
16,567.0	89.87	156.15	6,345.2	-9,653.8	3,180.2	10,142.7	0.90
16,657.0	90.07	159.05	6,345.3	-9,737.0	3,214.5	10,232.6	3.23
16,746.0	89.70	158.72	6,345.5	-9,820.0	3,246.6	10,321.6	0.56
16,836.0	90.03	158.43	6,345.7	-9,903.8	3,279.4	10,411.6	0.49
16,925.0	89.36	158.94	6,346.1	-9,986.7	3,311.8	10,500.6	0.95
17,015.0	89.53	158.05	6,347.0	-10,070.5	3,344.8	10,590.6	1.01
17,104.0	89.80	157.83	6,347.5	-10,152.9	3,378.2	10,679.6	0.39
17,194.0	89.76	157.33	6,347.9	-10,236.1	3,412.5	10,769.6	0.56
17,283.0	89.66	157.94	6,348.3	-10,318.4	3,446.4	10,858.6	0.69
17,373.0	90.00	158.10	6,348.6	-10,401.9	3,480.1	10,948.6	0.42
17,462.0	90.10	157.41	6,348.5	-10,484.3	3,513.8	11,037.6	0.78
17,536.0	90.44	157.64	6,348.2	-10,552.7	3,542.1	11,111.6	0.55
17,595.0	90.44	157.64	6,347.7	-10,607.2	3,564.5	11,170.6	0.00

PTB

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
6,147.0	6,052.4	-78.1	-298.1	SCMR
6,307.0	6,149.4	-158.6	-395.4	MDLX
6,526.0	6,256.4	-332.3	-468.6	BRKT
6,619.0	6,286.7	-419.7	-477.8	TLLY
6,713.0	6,309.3	-510.8	-477.0	MRCL_HOT
17,595.0	6,347.7	-10,607.2	3,564.5	PTB

Checked By: _____ Approved By: _____ Date: _____