



Stone Energy

Mary Prospect
Howell Pad
Howell 10H

OH

Design: As Drilled

Standard Survey Report

25 November, 2013



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WV Department of
Environmental Protection

06/12/2015



Company:	Stone Energy	Local Co-ordinate Reference:	Well Howell 10H
Project:	Mary Prospect	TVD Reference:	GL 1302' & KB 18' @ 1320.0usft (Saxon 141)
Site:	Howell Pad	MD Reference:	GL 1302' & KB 18' @ 1320.0usft (Saxon 141)
Well:	Howell 10H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Northeast District

Project	Mary Prospect, West Virginia		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	West Virginia North 4701		

Site	Howell Pad				
Site Position:		Northing:	401,702.68 usft	Latitude:	39° 35' 44.492 N
From:	Map	Easting:	1,635,235.83 usft	Longitude:	80° 47' 40.046 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0.83 °

Well	Howell 10H					
Well Position	+N/-S	0.0 usft	Northing:	401,744.71 usft	Latitude:	39° 35' 44.910 N
	+E/-W	0.0 usft	Easting:	1,635,251.37 usft	Longitude:	80° 47' 39.856 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	1,302.0 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	12/20/2012	-8.48	67.19	52,632
	IGRF2010	7/29/2013	-8.50	67.14	52,558
	BGGM2013	10/4/2013	-8.55	67.15	52,494
	BGGM2013	10/15/2013	-8.55	67.14	52,490

Design	As Drilled				
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	134.44	

Survey Program	Date	11/25/2013			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
103.0	5,787.0	Survey 3 - Top Hole (OH)	SDI Standard Keeper 103	SDI Standard Wireline Keeper ver 1.0.3	
2,503.0	13,186.0	Survey 2 - SDI MWD (OH)	MWD SDI	MWD - Standard ver 1.0.1	

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)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
103.0	1.21	234.85	103.0	-0.6	-0.9	-0.2	1.17	1.17	0.00	
First SDI Gyro Survey										
203.0	0.89	235.36	203.0	-1.7	-2.4	-0.5	0.32	-0.32	0.51	
303.0	0.45	220.16	303.0	-2.4	-3.3	-0.7	0.47	-0.44	-15.20	
403.0	0.29	195.82	403.0	-3.0	-3.6	-0.5	0.22	-0.16	-24.34	

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Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Northeast District

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)	
503.0	0.21	209.92	503.0	-3.4	-3.8	-0.3	0.10	-0.08	14.10	
603.0	0.40	166.47	603.0	-3.9	-3.8	0.0	0.29	0.19	-43.45	
703.0	0.21	144.31	703.0	-4.3	-3.6	0.5	0.22	-0.19	-22.16	
803.0	0.14	136.92	803.0	-4.6	-3.4	0.8	0.07	-0.07	-7.39	
903.0	0.13	205.13	903.0	-4.8	-3.4	0.9	0.15	-0.01	68.21	
1,003.0	0.20	181.72	1,003.0	-5.1	-3.4	1.1	0.10	0.07	-23.41	
1,103.0	0.27	180.86	1,103.0	-5.5	-3.4	1.4	0.07	0.07	-0.86	
1,203.0	0.19	141.38	1,203.0	-5.8	-3.3	1.7	0.17	-0.08	-39.48	
1,303.0	0.13	189.65	1,303.0	-6.1	-3.2	1.9	0.14	-0.06	48.27	
1,403.0	0.07	297.90	1,403.0	-6.2	-3.3	1.9	0.17	-0.06	108.25	
1,503.0	0.16	207.09	1,503.0	-6.3	-3.4	1.9	0.18	0.09	-90.81	
1,603.0	0.08	268.49	1,603.0	-6.4	-3.6	1.9	0.14	-0.08	61.40	
1,703.0	0.47	240.79	1,703.0	-6.6	-4.0	1.8	0.40	0.39	-27.70	
1,803.0	0.45	223.77	1,803.0	-7.1	-4.6	1.6	0.14	-0.02	-17.02	
1,903.0	0.35	216.91	1,903.0	-7.6	-5.1	1.7	0.11	-0.10	-6.86	
2,003.0	0.34	224.30	2,003.0	-8.0	-5.5	1.7	0.05	-0.01	7.39	
2,103.0	0.44	228.35	2,102.9	-8.5	-6.0	1.7	0.10	0.10	4.05	
2,203.0	0.46	210.90	2,202.9	-9.1	-6.5	1.8	0.14	0.02	-17.45	
2,303.0	0.32	158.04	2,302.9	-9.7	-6.6	2.1	0.37	-0.14	-52.86	
2,403.0	0.09	100.36	2,402.9	-10.0	-6.4	2.4	0.28	-0.23	-57.68	
2,503.0	0.39	44.61	2,502.9	-9.8	-6.1	2.5	0.35	0.30	-55.75	
First SDI MWD Survey										
2,603.0	1.80	73.45	2,602.9	-9.1	-4.3	3.3	1.47	1.41	28.84	
2,703.0	1.93	75.65	2,702.9	-8.2	-1.2	4.9	0.15	0.13	2.20	
2,803.0	2.29	68.67	2,802.8	-7.1	2.3	6.6	0.44	0.36	-6.98	
2,903.0	3.77	69.52	2,902.7	-5.2	7.3	8.8	1.48	1.48	0.85	
3,003.0	4.83	64.20	3,002.4	-2.2	14.1	11.6	1.13	1.06	-5.32	
3,103.0	5.35	63.99	3,102.0	1.7	22.1	14.6	0.52	0.52	-0.21	
3,203.0	6.25	64.21	3,201.5	6.1	31.2	18.0	0.90	0.90	0.22	
3,303.0	7.67	74.38	3,300.7	10.2	42.5	23.2	1.87	1.42	10.17	
3,403.0	8.89	75.58	3,399.7	14.0	56.4	30.5	1.23	1.22	1.20	
3,503.0	10.06	78.11	3,498.3	17.7	72.5	39.4	1.24	1.17	2.53	
3,603.0	10.53	82.97	3,596.7	20.6	90.1	49.9	0.99	0.47	4.86	
3,703.0	10.79	80.82	3,695.0	23.2	108.4	61.1	0.48	0.26	-2.15	
3,803.0	11.01	77.89	3,793.2	26.7	127.0	71.9	0.60	0.22	-2.93	
3,903.0	11.03	75.67	3,891.3	31.1	145.6	82.2	0.42	0.02	-2.22	
4,003.0	10.14	75.54	3,989.6	35.7	163.4	91.7	0.89	-0.89	-0.13	
4,103.0	10.09	78.92	4,088.1	39.5	180.5	101.2	0.60	-0.05	3.38	
4,203.0	9.80	75.09	4,186.6	43.4	197.3	110.5	0.72	-0.29	-3.83	
4,303.0	9.81	79.90	4,285.1	47.1	213.9	119.8	0.82	0.01	4.81	
4,403.0	9.55	82.82	4,383.7	49.6	230.5	129.8	0.56	-0.26	2.92	
4,503.0	9.62	79.65	4,482.3	52.2	247.0	139.8	0.53	0.07	-3.17	
4,603.0	9.21	77.42	4,581.0	55.4	263.0	149.0	0.55	-0.41	-2.23	
4,703.0	9.03	80.42	4,679.7	58.5	278.6	158.0	0.51	-0.18	3.00	

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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)
4,803.0	8.24	81.12	4,778.6	60.9	293.4	166.8	0.80	-0.79	0.70
4,903.0	8.04	78.86	4,877.5	63.3	307.3	175.1	0.38	-0.20	-2.26
5,003.0	7.46	81.57	4,976.6	65.6	320.6	183.0	0.69	-0.58	2.71
5,103.0	6.41	78.37	5,075.9	67.7	332.5	190.0	1.12	-1.05	-3.20
5,203.0	6.06	77.50	5,175.3	70.0	343.1	196.0	0.36	-0.35	-0.87
5,303.0	5.91	81.51	5,274.8	71.9	353.4	202.0	0.44	-0.15	4.01
5,403.0	5.64	81.24	5,374.3	73.4	363.3	208.0	0.27	-0.27	-0.27
5,503.0	5.53	81.71	5,473.8	74.8	372.9	213.9	0.12	-0.11	0.47
5,603.0	4.76	79.18	5,573.4	76.3	381.8	219.2	0.80	-0.77	-2.53
5,703.0	4.82	79.83	5,673.0	77.8	390.0	224.0	0.08	0.06	0.65
5,733.0	4.32	82.52	5,702.9	78.2	392.4	225.4	1.81	-1.67	8.97
5,793.0	4.04	86.80	5,762.8	78.6	396.7	228.2	0.70	-0.47	7.13
5,824.0	4.15	88.58	5,793.7	78.7	398.9	229.7	0.54	0.35	5.74
5,856.0	4.29	87.30	5,825.6	78.8	401.3	231.3	0.53	0.44	-4.00
5,888.0	4.65	81.43	5,857.5	79.0	403.7	232.9	1.82	1.13	-18.34
5,920.0	6.21	77.83	5,889.4	79.6	406.7	234.7	4.99	4.88	-11.25
5,952.0	7.89	77.31	5,921.1	80.4	410.6	236.8	5.25	5.25	-1.63
5,984.0	9.55	78.84	5,952.7	81.4	415.3	239.5	5.24	5.19	4.78
6,015.0	11.46	78.79	5,983.2	82.5	420.9	242.7	6.16	6.16	-0.16
6,047.0	13.35	78.98	6,014.5	83.9	427.6	246.6	5.91	5.91	0.59
6,079.0	15.14	79.86	6,045.5	85.3	435.3	251.1	5.63	5.59	2.75
6,111.0	17.59	82.52	6,076.2	86.7	444.2	256.5	8.00	7.66	8.31
6,142.0	20.13	84.57	6,105.5	87.8	454.2	262.8	8.47	8.19	6.61
6,174.0	22.85	85.27	6,135.3	88.8	465.9	270.4	8.54	8.50	2.19
6,206.0	24.62	85.74	6,164.6	89.8	478.7	278.9	5.56	5.53	1.47
6,238.0	26.48	85.53	6,193.5	90.9	492.5	288.0	5.82	5.81	-0.66
6,270.0	28.14	85.67	6,221.9	92.0	507.1	297.7	5.19	5.19	0.44
6,301.0	30.27	85.05	6,249.0	93.2	522.2	307.6	6.94	6.87	-2.00
6,333.0	32.30	84.84	6,276.3	94.7	538.7	318.3	6.35	6.34	-0.66
6,365.0	34.20	85.07	6,303.1	96.2	556.2	329.7	5.95	5.94	0.72
6,397.0	35.59	84.86	6,329.3	97.8	574.5	341.6	4.36	4.34	-0.66
6,429.0	37.89	85.22	6,354.9	99.5	593.5	354.1	7.22	7.19	1.13
6,461.0	40.28	85.78	6,379.8	101.1	613.6	367.3	7.55	7.47	1.75
6,493.0	42.86	86.47	6,403.7	102.5	634.8	381.5	8.19	8.06	2.16
6,524.0	44.05	86.71	6,426.2	103.8	656.1	395.8	3.88	3.84	0.77
6,556.0	45.72	86.82	6,448.9	105.0	678.6	411.0	5.22	5.22	0.34
6,585.0	47.05	86.25	6,468.9	106.3	699.6	425.1	4.80	4.59	-1.97
6,617.0	48.90	85.92	6,490.3	107.9	723.3	440.8	5.83	5.78	-1.03
6,649.0	50.40	85.30	6,511.0	109.8	747.6	456.9	4.91	4.69	-1.94
6,680.0	52.22	84.80	6,530.4	111.9	771.7	472.6	6.00	5.87	-1.61
6,712.0	53.45	84.58	6,549.7	114.3	797.1	489.1	3.88	3.84	-0.69
6,744.0	54.73	84.02	6,568.5	116.8	822.9	505.7	4.24	4.00	-1.75
6,807.0	56.81	83.97	6,604.0	122.3	874.7	538.9	3.30	3.30	-0.08

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Design:	As Drilled	Database:	Northeast District

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)
6,871.0	57.42	84.31	6,638.7	127.8	928.2	573.2	1.05	0.95	0.53
6,931.0	57.92	84.18	6,670.8	132.8	978.6	605.7	0.85	0.83	-0.22
6,962.0	58.30	84.02	6,687.2	135.6	1,004.8	622.5	1.30	1.23	-0.52
6,992.0	58.69	83.93	6,702.8	138.2	1,030.2	638.8	1.32	1.30	-0.30
7,022.0	59.21	84.34	6,718.3	140.9	1,055.8	655.2	2.09	1.73	1.37
7,052.0	59.72	87.59	6,733.6	142.7	1,081.6	672.3	9.48	1.70	10.83
7,083.0	60.01	91.12	6,749.1	143.0	1,108.4	691.2	9.89	0.94	11.39
7,113.0	60.19	94.11	6,764.1	141.8	1,134.4	710.6	8.66	0.60	9.97
7,142.0	59.77	96.47	6,778.6	139.5	1,159.4	730.1	7.19	-1.45	8.14
7,173.0	59.99	99.26	6,794.2	135.8	1,185.9	751.6	7.82	0.71	9.00
7,203.0	60.46	101.56	6,809.1	131.1	1,211.5	773.2	6.84	1.57	7.67
7,234.0	61.43	103.34	6,824.1	125.3	1,238.0	796.2	5.91	3.13	5.74
7,264.0	62.75	105.07	6,838.2	118.8	1,263.7	819.1	6.73	4.40	5.77
7,294.0	64.38	106.81	6,851.5	111.4	1,289.5	842.7	7.52	5.43	5.80
7,325.0	65.62	108.37	6,864.6	102.9	1,316.3	867.7	6.07	4.00	5.03
7,355.0	66.89	109.09	6,876.7	94.1	1,342.3	892.5	4.77	4.23	2.40
7,385.0	68.04	110.68	6,888.2	84.6	1,368.3	917.7	6.22	3.83	5.30
7,415.0	68.89	112.45	6,899.2	74.4	1,394.3	943.4	6.18	2.83	5.90
7,446.0	68.95	114.06	6,910.4	63.0	1,420.9	970.4	4.85	0.19	5.19
7,476.0	68.61	116.61	6,921.2	51.0	1,446.1	996.8	8.00	-1.13	8.50
7,506.0	68.46	119.00	6,932.2	38.0	1,470.8	1,023.5	7.43	-0.50	7.97
7,537.0	69.24	122.00	6,943.4	23.3	1,495.7	1,051.6	9.37	2.52	9.68
7,567.0	70.59	124.30	6,953.7	7.9	1,519.3	1,079.2	8.49	4.50	7.67
7,597.0	72.31	125.97	6,963.2	-8.5	1,542.6	1,107.3	7.79	5.73	5.57
7,628.0	73.42	128.30	6,972.4	-26.4	1,566.2	1,136.7	8.03	3.58	7.52
7,658.0	74.05	129.92	6,980.8	-44.5	1,588.5	1,165.3	5.59	2.10	5.40
7,689.0	75.55	132.13	6,988.9	-64.2	1,611.1	1,195.2	8.41	4.84	7.13
7,719.0	76.73	133.94	6,996.1	-84.0	1,632.4	1,224.3	7.06	3.93	6.03
7,749.0	78.42	136.34	7,002.5	-104.8	1,653.1	1,253.6	9.63	5.63	8.00
7,779.0	79.89	137.76	7,008.2	-126.4	1,673.1	1,283.0	6.75	4.90	4.73
7,810.0	81.36	139.42	7,013.2	-149.3	1,693.4	1,313.5	7.10	4.74	5.35
7,840.0	82.69	140.92	7,017.4	-172.1	1,712.4	1,343.1	6.65	4.43	5.00
7,870.0	83.77	142.96	7,020.9	-195.6	1,730.8	1,372.6	7.65	3.60	6.80
7,901.0	84.92	143.86	7,024.0	-220.3	1,749.1	1,403.1	4.70	3.71	2.90
7,932.0	87.04	145.09	7,026.2	-245.5	1,767.1	1,433.6	7.90	6.84	3.97
7,964.0	88.29	145.98	7,027.5	-271.9	1,785.2	1,464.9	4.79	3.91	2.78
8,028.0	89.43	146.16	7,028.7	-325.0	1,820.9	1,527.6	1.80	1.78	0.28
8,092.0	90.10	145.13	7,029.0	-377.8	1,857.0	1,590.4	1.92	1.05	-1.61
8,154.0	90.54	144.03	7,028.6	-428.3	1,893.0	1,651.4	1.91	0.71	-1.77
8,218.0	90.67	142.53	7,028.0	-479.6	1,931.2	1,714.6	2.35	0.20	-2.34
8,281.0	90.13	143.00	7,027.5	-529.8	1,969.3	1,777.0	1.14	-0.86	0.75
8,345.0	90.60	143.07	7,027.1	-580.9	2,007.8	1,840.3	0.74	0.73	0.11
8,409.0	91.11	142.47	7,026.2	-631.9	2,046.5	1,903.6	1.23	0.80	-0.94
8,473.0	91.11	143.67	7,024.4	-683.0	2,085.0	1,966.8	2.03	0.78	1.88

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Survey Report



Company:	Stone Energy	Local Co-ordinate Reference:	Well Howell 10H
Project:	Mary Prospect	TVD Reference:	GL 1302' & KB 18' @ 1320.0usft (Saxon 141)
Site:	Howell Pad	MD Reference:	GL 1302' & KB 18' @ 1320.0usft (Saxon 141)
Well:	Howell 10H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Northeast District

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)	
8,537.0	91.61	144.84	7,022.9	-734.9	2,122.4	2,029.9	1.83	0.00	1.83	
8,599.0	91.01	145.37	7,021.4	-785.8	2,157.8	2,090.8	1.29	-0.97	0.85	
8,660.0	90.77	147.03	7,020.5	-836.4	2,191.7	2,150.5	2.75	-0.39	2.72	
8,722.0	90.67	147.35	7,019.7	-888.6	2,225.3	2,211.0	0.54	-0.16	0.52	
8,786.0	91.34	147.07	7,018.6	-942.3	2,260.0	2,273.4	1.13	1.05	-0.44	
8,849.0	90.54	146.23	7,017.6	-995.0	2,294.6	2,334.9	1.84	-1.27	-1.33	
8,913.0	90.64	145.95	7,016.9	-1,048.1	2,330.3	2,397.6	0.46	0.16	-0.44	
8,977.0	91.01	145.46	7,016.0	-1,100.9	2,366.4	2,460.4	0.96	0.58	-0.77	
9,040.0	90.30	146.02	7,015.3	-1,153.0	2,401.8	2,522.1	1.44	-1.13	0.89	
9,103.0	90.91	147.80	7,014.6	-1,205.8	2,436.2	2,583.7	2.99	0.97	2.83	
9,167.0	91.88	148.53	7,013.0	-1,260.1	2,470.0	2,645.8	1.90	1.52	1.14	
9,231.0	91.48	149.74	7,011.2	-1,315.1	2,502.8	2,707.7	1.99	-0.63	1.89	
9,294.0	91.38	150.11	7,009.6	-1,369.6	2,534.4	2,768.4	0.61	-0.16	0.59	
9,358.0	92.05	149.83	7,007.7	-1,424.9	2,566.4	2,830.0	1.13	1.05	-0.44	
9,422.0	91.58	149.07	7,005.6	-1,480.0	2,598.9	2,891.8	1.40	-0.73	-1.19	
9,485.0	92.49	148.97	7,003.4	-1,534.0	2,631.3	2,952.7	1.45	1.44	-0.16	
9,549.0	92.92	149.62	7,000.4	-1,589.0	2,663.9	3,014.5	1.22	0.67	1.02	
9,612.0	91.31	149.65	6,998.1	-1,643.3	2,695.8	3,075.3	2.56	-2.56	0.05	
9,676.0	89.80	148.92	6,997.4	-1,698.3	2,728.5	3,137.1	2.62	-2.36	-1.14	
9,740.0	89.26	148.65	6,998.0	-1,753.0	2,761.6	3,199.1	0.94	-0.84	-0.42	
9,803.0	89.83	148.90	6,998.5	-1,806.9	2,794.3	3,260.2	0.99	0.90	0.40	
9,866.0	88.45	148.70	6,999.4	-1,860.8	2,826.9	3,321.2	2.21	-2.19	-0.32	
9,930.0	89.46	148.15	7,000.6	-1,915.3	2,860.4	3,383.3	1.80	1.58	-0.86	
9,993.0	89.60	146.40	7,001.1	-1,968.3	2,894.5	3,444.7	2.79	0.22	-2.78	
10,057.0	89.56	146.14	7,001.6	-2,021.5	2,930.0	3,507.4	0.41	-0.06	-0.41	
10,121.0	90.20	146.09	7,001.7	-2,074.7	2,965.7	3,570.0	1.00	1.00	-0.08	
10,185.0	89.93	146.99	7,001.6	-2,128.0	3,001.0	3,632.6	1.47	-0.42	1.41	
10,248.0	90.87	147.65	7,001.2	-2,181.1	3,035.0	3,694.0	1.82	1.49	1.05	
10,311.0	89.46	148.19	7,001.0	-2,234.5	3,068.4	3,755.3	2.40	-2.24	0.86	
10,375.0	89.19	147.84	7,001.8	-2,288.7	3,102.3	3,817.5	0.69	-0.42	-0.55	
10,438.0	90.07	148.06	7,002.2	-2,342.1	3,135.8	3,878.7	1.44	1.40	0.35	
10,502.0	89.26	146.37	7,002.5	-2,395.9	3,170.4	3,941.2	2.93	-1.27	-2.64	
10,566.0	88.66	144.60	7,003.7	-2,448.7	3,206.7	4,004.0	2.92	-0.94	-2.77	
10,629.0	90.27	145.56	7,004.3	-2,500.3	3,242.7	4,065.9	2.98	2.56	1.52	
10,693.0	91.75	146.42	7,003.2	-2,553.3	3,278.5	4,128.6	2.67	2.31	1.34	
10,756.0	92.45	146.47	7,000.8	-2,605.8	3,313.3	4,190.1	1.11	1.11	0.08	
10,820.0	90.74	145.80	6,999.1	-2,658.9	3,349.0	4,252.8	2.87	-2.67	-1.05	
10,883.0	89.90	144.45	6,998.7	-2,710.6	3,385.0	4,314.7	2.52	-1.33	-2.14	
10,946.0	90.13	143.59	6,998.7	-2,761.6	3,422.0	4,376.8	1.41	0.37	-1.37	
11,010.0	89.80	143.81	6,998.7	-2,813.2	3,459.9	4,440.0	0.62	-0.52	0.34	
11,073.0	90.54	144.25	6,998.5	-2,864.2	3,496.9	4,502.1	1.40	1.17	0.76	
11,137.0	90.40	144.93	6,999.0	-2,916.3	3,534.0	4,565.1	1.02	-0.22	1.00	
11,201.0	89.97	145.73	6,997.8	-2,969.0	3,570.4	4,627.9	1.42	-0.67	1.25	

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Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Northeast District

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)
11,264.0	90.60	147.91	6,997.5	-3,021.7	3,604.8	4,689.5	3.60	1.00	3.46
11,328.0	90.17	148.99	6,997.1	-3,076.2	3,638.3	4,751.6	1.82	-0.67	1.69
11,391.0	91.08	149.88	6,996.4	-3,130.5	3,670.4	4,812.4	2.02	1.44	1.41
11,455.0	89.40	150.31	6,996.1	-3,186.0	3,702.3	4,874.0	2.71	-2.63	0.67
11,518.0	89.16	150.45	6,996.9	-3,240.7	3,733.4	4,934.6	0.44	-0.38	0.22
11,582.0	90.61	151.66	6,997.0	-3,296.7	3,764.4	4,995.9	2.95	2.27	1.89
11,645.0	90.10	152.03	6,996.6	-3,352.3	3,794.1	5,056.0	1.00	-0.81	0.59
11,706.0	91.44	152.36	6,995.8	-3,406.2	3,822.5	5,114.1	2.26	2.20	0.54
11,770.0	91.18	150.63	6,994.4	-3,462.4	3,853.1	5,175.3	2.73	-0.41	-2.70
11,833.0	90.44	150.01	6,993.5	-3,517.2	3,884.3	5,235.9	1.53	-1.17	-0.98
11,897.0	89.23	149.50	6,993.7	-3,572.5	3,916.5	5,297.6	2.05	-1.89	-0.80
11,961.0	88.96	148.16	6,994.7	-3,627.2	3,949.6	5,359.6	2.14	-0.42	-2.09
12,024.0	90.03	148.88	6,995.2	-3,680.9	3,982.5	5,420.7	2.05	1.70	1.14
12,088.0	90.07	148.38	6,995.2	-3,735.6	4,015.8	5,482.8	0.78	0.06	-0.78
12,151.0	90.13	148.06	6,995.1	-3,789.1	4,049.0	5,543.9	0.52	0.10	-0.51
12,215.0	89.97	145.43	6,995.0	-3,842.7	4,084.1	5,606.5	4.12	-0.25	-4.11
12,279.0	90.77	144.35	6,994.6	-3,895.0	4,120.9	5,669.4	2.10	1.25	-1.69
12,342.0	91.95	144.53	6,993.1	-3,946.2	4,157.5	5,731.4	1.89	1.87	0.29
12,405.0	91.18	143.76	6,991.4	-3,997.3	4,194.4	5,793.5	1.73	-1.22	-1.22
12,469.0	90.37	143.93	6,990.5	-4,049.0	4,232.2	5,856.6	1.29	-1.27	0.27
12,533.0	88.75	144.22	6,991.0	-4,100.8	4,269.7	5,919.7	2.57	-2.53	0.45
12,596.0	89.80	144.38	6,991.8	-4,151.9	4,306.5	5,981.8	1.69	1.67	0.25
12,659.0	90.87	143.91	6,991.4	-4,203.0	4,343.4	6,043.9	1.86	1.70	-0.75
12,723.0	90.44	144.24	6,990.7	-4,254.8	4,380.9	6,107.0	0.85	-0.67	0.52
12,787.0	91.34	144.03	6,989.7	-4,306.7	4,418.4	6,170.1	1.44	1.41	-0.33
12,850.0	90.91	144.60	6,988.5	-4,357.8	4,455.2	6,232.1	1.13	-0.68	0.90
12,914.0	91.98	144.86	6,986.9	-4,410.1	4,492.1	6,295.1	1.72	1.67	0.41
12,977.0	90.87	145.50	6,985.3	-4,461.8	4,528.1	6,356.9	2.03	-1.76	1.02
13,041.0	89.97	145.69	6,984.8	-4,514.6	4,564.2	6,419.7	1.44	-1.41	0.30
13,105.0	90.74	145.40	6,984.4	-4,567.4	4,600.5	6,482.6	1.29	1.20	-0.45
Last SDI MWD Survey									
13,186.0	90.74	145.40	6,983.4	-4,634.0	4,646.4	6,562.0	0.00	0.00	0.00
Projection to Bit									

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
103.0	103.0	-0.6	-0.9	First SDI Gyro Survey	
2,503.0	2,502.9	-9.8	-6.1	First SDI MWD Survey	
13,105.0	6,984.4	-4,567.4	4,600.5	Last SDI MWD Survey	
13,186.0	6,983.4	-4,634.0	4,646.4	Projection to Bit	

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