

Company:	Stone Energy	Local Co-ordinate Reference:	Well Mills Wetzel #13H - Slot MW#13H
Project:	Heather Prospect (NAD 27)	TVD Reference:	Saxon 141 @ 1321.0usft (18' RKB - 1303' GL)
Site:	Mills Wetzel Pad 2	MD Reference:	Saxon 141 @ 1321.0usft (18' RKB - 1303' GL)
Well:	Mills Wetzel #13H	North Reference:	Grid
Wellbore:	Original Well	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	EDM-Chris Testa

Project	Heather Prospect (NAD 27), Wetzel County, 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	Mills Wetzel Pad 2		
Site Position:		Northing:	374,564.00 usft
From:	Map	Easting:	1,674,001.00 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	39° 31' 21.507 N
		Longitude:	80° 39' 20.400 W
		Grid Convergence:	-0.74 °

Well	Mills Wetzel #13H - Slot MW#13H		
Well Position	+N/-S	0.0 usft	Northing: 374,041.12 usft
	+E/-W	0.0 usft	Easting: 1,673,620.33 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
		Latitude:	39° 31' 16.291 N
		Longitude:	80° 39' 25.172 W
		Ground Level:	1,303.0 usft

Wellbore	Original Well				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	08/03/12	-8.54	67.15	52,625

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	340.37	

Survey Program	Date	08/13/12			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
107.0	6,673.0	SDI Keeper Gyro (Original Well)	SDI Standard Keeper 103	SDI Standard Wireline Keeper ver 1.0.3	
6,719.0	11,281.0	SDI MWD (Original Well)	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	
107.0	0.42	153.32	107.0	-0.4	0.2	-0.4	0.39	0.39	0.00	
207.0	0.11	116.56	207.0	-0.7	0.4	-0.8	0.34	-0.31	-36.76	
307.0	0.28	153.23	307.0	-1.0	0.6	-1.1	0.20	0.17	36.67	
407.0	0.29	160.55	407.0	-1.4	0.8	-1.6	0.04	0.01	7.32	
507.0	0.07	164.47	507.0	-1.7	0.9	-1.9	0.22	-0.22	3.92	
607.0	0.06	50.97	607.0	-1.8	1.0	-2.0	0.11	-0.01	-113.50	
707.0	0.06	14.10	707.0	-1.7	1.0	-1.9	0.04	0.00	-36.87	
807.0	0.03	92.78	807.0	-1.6	1.1	-1.9	0.06	-0.03	78.68	
907.0	0.10	163.42	907.0	-1.7	1.1	-2.0	0.09	0.07	70.64	

Company: Stone Energy
Project: Heather Prospect (NAD 27)
Site: Mills Wetzel Pad 2
Well: Mills Wetzel #13H
Wellbore: Original Well
Design: As Drilled

Local Co-ordinate Reference: Well Mills Wetzel #13H - Slot MW#13H
TVD Reference: Saxon 141 @ 1321.0usft (18' RKB - 1303' GL)
MD Reference: Saxon 141 @ 1321.0usft (18' RKB - 1303' GL)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM-Chris Testa

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)
1,007.0	0.08	327.48	1,007.0	-1.7	1.1	-2.0	0.18	-0.02	164.06
1,107.0	0.06	126.77	1,107.0	-1.7	1.1	-2.0	0.14	-0.02	159.29
1,207.0	0.17	206.71	1,207.0	-1.9	1.1	-2.1	0.17	0.11	79.94
1,307.0	0.19	190.24	1,307.0	-2.2	1.0	-2.4	0.06	0.02	-16.47
1,407.0	0.35	165.64	1,407.0	-2.6	1.0	-2.8	0.19	0.16	-24.60
1,507.0	0.27	153.19	1,507.0	-3.1	1.2	-3.4	0.10	-0.08	-12.45
1,607.0	0.35	156.58	1,607.0	-3.6	1.4	-3.9	0.08	0.08	3.39
1,707.0	0.27	158.29	1,707.0	-4.1	1.7	-4.4	0.08	-0.08	1.71
1,807.0	0.41	144.28	1,807.0	-4.6	1.9	-5.0	0.16	0.14	-14.01
1,907.0	0.67	147.92	1,907.0	-5.4	2.5	-5.9	0.26	0.26	3.64
2,007.0	1.03	149.26	2,007.0	-6.7	3.2	-7.4	0.36	0.36	1.34
2,107.0	1.08	144.55	2,107.0	-8.2	4.2	-9.2	0.10	0.05	-4.71
2,207.0	1.08	144.06	2,206.9	-9.8	5.3	-11.0	0.01	0.00	-0.49
2,307.0	1.14	151.81	2,306.9	-11.4	6.4	-12.9	0.16	0.06	7.75
2,407.0	1.65	162.32	2,406.9	-13.6	7.3	-15.3	0.57	0.51	10.51
2,507.0	2.12	162.61	2,506.8	-16.8	8.3	-18.6	0.47	0.47	0.29
2,607.0	2.12	167.19	2,606.8	-20.4	9.2	-22.3	0.17	0.00	4.58
2,707.0	2.27	167.84	2,706.7	-24.1	10.1	-26.1	0.15	0.15	0.65
2,807.0	2.07	171.84	2,806.6	-27.8	10.7	-29.8	0.25	-0.20	4.00
2,907.0	1.46	181.47	2,906.6	-30.9	11.0	-32.8	0.68	-0.61	9.63
3,007.0	0.75	255.21	3,006.6	-32.3	10.3	-33.9	1.44	-0.71	73.74
3,107.0	1.45	357.76	3,106.5	-31.2	9.6	-32.6	1.77	0.70	102.55
3,207.0	2.69	8.40	3,206.5	-27.6	9.9	-29.4	1.29	1.24	10.64
3,307.0	3.93	15.15	3,306.3	-22.0	11.1	-24.5	1.30	1.24	6.75
3,407.0	4.43	22.83	3,406.0	-15.1	13.5	-18.8	0.75	0.50	7.68
3,507.0	4.67	22.66	3,505.7	-7.8	16.6	-12.9	0.24	0.24	-0.17
3,607.0	5.55	24.20	3,605.3	0.3	20.1	-6.4	0.89	0.88	1.54
3,707.0	6.54	28.38	3,704.8	9.8	24.8	0.9	1.08	0.99	4.18
3,807.0	7.13	27.87	3,804.1	20.3	30.4	8.9	0.59	0.59	-0.51
3,907.0	5.98	25.19	3,903.4	30.5	35.6	16.7	1.19	-1.15	-2.68
4,007.0	7.09	14.38	4,002.8	41.2	39.3	25.6	1.65	1.11	-10.81
4,107.0	9.03	12.72	4,101.8	54.8	42.6	37.3	1.95	1.94	-1.66
4,207.0	11.06	14.92	4,200.2	71.7	46.8	51.8	2.07	2.03	2.20
4,307.0	12.41	16.41	4,298.1	91.3	52.3	68.4	1.38	1.35	1.49
4,407.0	12.38	18.91	4,395.8	111.7	58.8	85.5	0.54	-0.03	2.50
4,507.0	12.03	22.20	4,493.5	131.5	66.2	101.6	0.78	-0.35	3.29
4,607.0	11.72	24.36	4,591.4	150.4	74.3	116.7	0.54	-0.31	2.16
4,707.0	11.58	26.95	4,689.3	168.6	83.1	130.9	0.54	-0.14	2.59
4,807.0	12.40	29.62	4,787.2	186.9	92.9	144.8	0.99	0.82	2.67
4,907.0	13.35	27.09	4,884.7	206.5	103.5	159.8	1.10	0.95	-2.53
5,007.0	13.13	26.15	4,982.0	227.0	113.7	175.6	0.31	-0.22	-0.94
5,107.0	13.19	25.43	5,079.4	247.5	123.7	191.6	0.17	0.06	-0.72
5,207.0	13.57	26.18	5,176.7	268.3	133.7	207.8	0.42	0.38	0.75

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Well:	Mills Wetzel #13H	North Reference:	Grid
Wellbore:	Original Well	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	EDM-Chris Testa

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)
5,307.0	12.71	26.29	5,274.0	288.7	143.8	223.6	0.86	-0.86	0.11
5,407.0	12.01	24.43	5,371.7	308.1	153.0	238.8	0.81	-0.70	-1.86
5,507.0	12.30	24.36	5,469.5	327.2	161.6	253.9	0.29	0.29	-0.07
5,607.0	12.72	24.95	5,567.1	346.9	170.7	269.4	0.44	0.42	0.59
5,707.0	12.26	24.61	5,664.7	366.6	179.8	284.9	0.47	-0.46	-0.34
5,807.0	13.02	25.09	5,762.3	386.4	188.9	300.5	0.77	0.76	0.48
5,907.0	13.50	25.70	5,859.6	407.1	198.8	316.7	0.50	0.48	0.61
6,007.0	12.44	26.01	5,957.1	427.3	208.6	332.4	1.06	-1.06	0.31
6,107.0	11.44	28.46	6,054.9	445.7	218.0	346.6	1.12	-1.00	2.45
6,207.0	12.00	28.89	6,152.8	463.5	227.8	360.1	0.57	0.56	0.43
6,307.0	12.86	29.74	6,250.5	482.3	238.3	374.2	0.88	0.86	0.85
6,407.0	13.32	29.57	6,347.9	502.0	249.5	389.0	0.46	0.46	-0.17
6,507.0	12.56	27.40	6,445.4	521.7	260.2	403.9	0.90	-0.76	-2.17
6,607.0	13.33	27.25	6,542.8	541.6	270.5	419.2	0.77	0.77	-0.15
6,673.0	13.80	27.24	6,607.0	555.3	277.6	429.8	0.71	0.71	-0.02
6,719.0	16.80	20.52	6,651.3	566.4	282.4	438.6	7.57	6.52	-14.62
6,750.0	18.86	16.97	6,680.9	575.4	285.5	446.1	7.51	6.65	-11.45
6,782.0	21.09	14.76	6,710.9	585.9	288.4	455.0	7.36	6.97	-6.91
6,814.0	22.31	13.09	6,740.7	597.4	291.3	464.9	4.27	3.81	-5.22
6,846.0	24.27	10.56	6,770.1	609.8	293.9	475.6	6.88	6.13	-7.91
6,877.0	25.02	6.82	6,798.2	622.6	295.8	487.0	5.58	2.42	-12.06
6,909.0	26.14	1.50	6,827.1	636.4	296.8	499.7	7.98	3.50	-16.63
6,941.0	27.21	356.17	6,855.7	650.7	296.5	513.3	8.19	3.34	-16.66
6,972.0	28.21	354.07	6,883.1	665.1	295.3	527.2	4.51	3.23	-6.77
7,004.0	28.04	351.14	6,911.4	680.0	293.3	542.0	4.35	-0.53	-9.16
7,036.0	27.49	347.39	6,939.7	694.7	290.5	556.7	5.72	-1.72	-11.72
7,068.0	28.20	343.66	6,968.0	709.1	286.8	571.6	5.88	2.22	-11.66
7,099.0	29.72	339.83	6,995.1	723.4	282.1	586.6	7.73	4.90	-12.35
7,131.0	31.05	337.38	7,022.7	738.4	276.2	602.7	5.68	4.16	-7.66
7,163.0	32.53	336.07	7,049.9	753.9	269.5	619.6	5.10	4.63	-4.09
7,195.0	34.83	336.28	7,076.5	770.1	262.4	637.2	7.20	7.19	0.66
7,227.0	38.47	337.23	7,102.2	787.7	254.8	656.3	11.51	11.38	2.97
7,259.0	43.15	338.18	7,126.4	807.0	246.9	677.2	14.75	14.63	2.97
7,290.0	47.62	338.78	7,148.2	827.6	238.8	699.2	14.48	14.42	1.94
7,322.0	52.42	338.98	7,168.7	850.4	230.0	723.7	15.01	15.00	0.63
7,354.0	55.68	338.47	7,187.5	874.6	220.6	749.6	10.27	10.19	-1.59
7,385.0	58.00	337.93	7,204.5	898.7	210.9	775.6	7.62	7.48	-1.74
7,417.0	61.62	336.65	7,220.6	924.2	200.3	803.2	11.83	11.31	-4.00
7,449.0	64.27	335.88	7,235.1	950.3	188.8	831.6	8.55	8.28	-2.41
7,481.0	67.70	335.25	7,248.1	976.9	176.7	860.7	10.87	10.72	-1.97
7,512.0	69.59	335.74	7,259.4	1,003.1	164.7	889.5	6.27	6.10	1.58
7,544.0	71.40	335.37	7,270.1	1,030.6	152.2	919.5	5.76	5.66	-1.16
7,576.0	73.22	335.08	7,279.8	1,058.3	139.5	949.9	5.75	5.69	-0.91

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Wellbore:	Original Well	Survey Calculation Method:	Minimum Curvature
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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)
7,608.0	75.18	334.91	7,288.5	1,086.2	126.4	980.6	6.15	6.13	-0.53
7,640.0	76.77	334.92	7,296.3	1,114.3	113.3	1,011.5	4.97	4.97	0.03
7,671.0	79.58	333.56	7,302.7	1,141.6	100.1	1,041.6	10.03	9.06	-4.39
7,702.0	81.82	332.71	7,307.7	1,168.9	86.3	1,072.0	7.72	7.23	-2.74
7,734.0	83.98	332.25	7,311.6	1,197.1	71.6	1,103.4	6.90	6.75	-1.44
7,766.0	86.51	331.70	7,314.3	1,225.2	56.6	1,135.0	8.09	7.91	-1.72
7,798.0	87.95	331.46	7,315.8	1,253.3	41.4	1,166.6	4.56	4.50	-0.75
7,830.0	90.13	331.34	7,316.4	1,281.4	26.1	1,198.2	6.82	6.81	-0.38
7,893.0	92.82	330.69	7,314.7	1,336.5	-4.4	1,260.3	4.39	4.27	-1.03
7,957.0	93.36	331.35	7,311.3	1,392.4	-35.4	1,323.4	1.33	0.84	1.03
8,020.0	91.81	332.71	7,308.4	1,448.0	-64.9	1,385.6	3.27	-2.46	2.16
8,083.0	90.50	333.59	7,307.2	1,504.2	-93.3	1,448.1	2.50	-2.08	1.40
8,147.0	89.30	332.84	7,307.3	1,561.3	-122.2	1,511.6	2.21	-1.88	-1.17
8,211.0	89.06	332.41	7,308.2	1,618.1	-151.6	1,575.0	0.77	-0.38	-0.67
8,275.0	89.56	333.01	7,309.0	1,675.0	-181.0	1,638.4	1.22	0.78	0.94
8,338.0	90.24	333.19	7,309.1	1,731.2	-209.5	1,700.9	1.12	1.08	0.29
8,402.0	90.84	332.35	7,308.5	1,788.1	-238.7	1,764.4	1.61	0.94	-1.31
8,465.0	91.21	332.43	7,307.4	1,843.9	-267.9	1,826.8	0.60	0.59	0.13
8,529.0	91.21	332.34	7,306.0	1,900.6	-297.6	1,890.1	0.14	0.00	-0.14
8,592.0	91.24	332.24	7,304.7	1,956.4	-326.9	1,952.5	0.17	0.05	-0.16
8,656.0	90.84	332.36	7,303.5	2,013.0	-356.6	2,015.8	0.65	-0.63	0.19
8,720.0	91.24	332.10	7,302.3	2,069.6	-386.4	2,079.2	0.75	0.63	-0.41
8,784.0	91.18	332.77	7,301.0	2,126.4	-416.0	2,142.6	1.05	-0.09	1.05
8,847.0	91.48	331.71	7,299.5	2,182.1	-445.4	2,204.9	1.75	0.48	-1.68
8,911.0	90.74	332.62	7,298.3	2,238.7	-475.3	2,268.2	1.83	-1.16	1.42
8,973.0	91.21	332.54	7,297.2	2,293.7	-503.8	2,329.7	0.77	0.76	-0.13
9,037.0	91.21	332.12	7,295.9	2,350.4	-533.5	2,393.0	0.66	0.00	-0.66
9,101.0	90.20	333.59	7,295.1	2,407.3	-562.7	2,456.5	2.79	-1.58	2.30
9,164.0	90.03	332.72	7,295.0	2,463.5	-591.2	2,519.0	1.41	-0.27	-1.38
9,227.0	89.63	333.07	7,295.1	2,519.6	-619.9	2,581.4	0.84	-0.63	0.56
9,291.0	90.30	333.43	7,295.2	2,576.8	-648.7	2,644.9	1.19	1.05	0.56
9,355.0	91.14	332.86	7,294.4	2,633.9	-677.6	2,708.4	1.59	1.31	-0.89
9,418.0	90.97	333.27	7,293.2	2,690.0	-706.1	2,770.9	0.70	-0.27	0.65
9,482.0	90.47	332.66	7,292.4	2,747.0	-735.2	2,834.3	1.23	-0.78	-0.95
9,546.0	90.44	332.95	7,291.9	2,803.9	-764.5	2,897.8	0.46	-0.05	0.45
9,609.0	89.56	333.16	7,291.9	2,860.1	-793.0	2,960.3	1.44	-1.40	0.33
9,673.0	90.37	332.95	7,291.9	2,917.1	-822.0	3,023.8	1.31	1.27	-0.33
9,737.0	90.64	333.24	7,291.4	2,974.2	-851.0	3,087.2	0.62	0.42	0.45
9,800.0	89.87	334.05	7,291.1	3,030.7	-878.9	3,149.8	1.77	-1.22	1.29
9,864.0	90.47	334.24	7,290.9	3,088.3	-906.8	3,213.4	0.98	0.94	0.30
9,927.0	90.94	334.14	7,290.1	3,145.0	-934.3	3,276.1	0.76	0.75	-0.16
9,991.0	90.13	334.68	7,289.5	3,202.7	-961.9	3,339.7	1.52	-1.27	0.84
10,055.0	90.57	333.99	7,289.1	3,260.4	-989.6	3,403.3	1.28	0.69	-1.08
10,119.0	89.87	334.48	7,288.9	3,318.0	-1,017.4	3,467.0	1.34	-1.09	0.77

Company:	Stone Energy	Local Co-ordinate Reference:	Well Mills Wetzel #13H - Slot MW#13H
Project:	Heather Prospect (NAD 27)	TVD Reference:	Saxon 141 @ 1321.0usft (18' RKB - 1303' GL)
Site:	Mills Wetzel Pad 2	MD Reference:	Saxon 141 @ 1321.0usft (18' RKB - 1303' GL)
Well:	Mills Wetzel #13H	North Reference:	Grid
Wellbore:	Original Well	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	EDM-Chris Testa

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)
10,182.0	90.87	333.85	7,288.5	3,374.7	-1,044.9	3,529.6	1.88	1.59	-1.00
10,246.0	91.31	334.41	7,287.3	3,432.3	-1,072.8	3,593.2	1.11	0.69	0.88
10,309.0	90.13	334.31	7,286.5	3,489.1	-1,100.1	3,655.9	1.88	-1.87	-0.16
10,373.0	90.97	333.79	7,285.9	3,546.6	-1,128.1	3,719.5	1.54	1.31	-0.81
10,436.0	91.41	333.28	7,284.6	3,603.0	-1,156.2	3,782.0	1.07	0.70	-0.81
10,499.0	90.20	332.99	7,283.7	3,659.2	-1,184.6	3,844.5	1.98	-1.92	-0.46
10,563.0	91.65	333.80	7,282.6	3,716.4	-1,213.3	3,908.0	2.60	2.27	1.27
10,626.0	91.44	332.39	7,280.9	3,772.6	-1,241.8	3,970.5	2.26	-0.33	-2.24
10,689.0	90.03	332.05	7,280.1	3,828.3	-1,271.1	4,032.8	2.30	-2.24	-0.54
10,753.0	89.77	332.21	7,280.2	3,884.9	-1,301.0	4,096.2	0.48	-0.41	0.25
10,816.0	90.47	332.32	7,280.1	3,940.6	-1,330.4	4,158.6	1.12	1.11	0.17
10,880.0	90.91	333.31	7,279.3	3,997.6	-1,359.6	4,222.0	1.69	0.69	1.55
10,943.0	90.00	333.18	7,278.8	4,053.8	-1,388.0	4,284.5	1.46	-1.44	-0.21
11,006.0	90.81	333.34	7,278.4	4,110.1	-1,416.3	4,347.0	1.31	1.29	0.25
11,070.0	91.27	333.81	7,277.2	4,167.4	-1,444.8	4,410.6	1.03	0.72	0.73
11,134.0	90.47	334.66	7,276.3	4,225.0	-1,472.6	4,474.2	1.82	-1.25	1.33
11,197.0	91.41	334.53	7,275.2	4,281.9	-1,499.6	4,536.8	1.51	1.49	-0.21
11,218.0	91.91	334.99	7,274.6	4,300.9	-1,508.6	4,557.7	3.23	2.38	2.19
11,281.0	91.91	334.99	7,272.5	4,358.0	-1,535.2	4,620.4	0.00	0.00	0.00

Checked By: _____ Approved By: _____ Date: _____