

103-02790



### Scientific Drilling Survey Report



Company: Stone Energy	Local Co-ordinate Reference: Well Lemons #411; Slot Lemons #411
Project: Heather Prospect (NAD 27)	TVD Reference: Saxon 131 @ 1345.0usft (18' RKB = 1327' GL)
Site: Lemons Pad, Wetzel County, PA	MD Reference: Saxon 141 @ 1345.0usft (18' RKB = 1327' GL)
Well: Lemons #411	North Reference: Grid
Wellbore: Original Well	Survey Calculation Method: Minimum Curvature
Design: As Drilled	Database: North East Database

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: Lemons Pad, Wetzel County, PA
Site Position: Northing: 421,856.00 usft Latitude: 39° 39' 3.725 N
From: Map Easting: 1,635,675.00 usft Longitude: 80° 47' 38.145 W
Position Uncertainty: 0.0 usft Slot Radius: 13-3/16" Grid Convergence: -0.83°

Well: Lemons #411; Slot Lemons #411
Well Position: +N-S 0.0 usft Northing: 421,857.00 usft Latitude: 39° 39' 3.738 N
+E-W 0.0 usft Easting: 1,635,702.00 usft Longitude: 80° 47' 37.800 W
Position Uncertainty: 0.0 usft Wellhead Elevation: usft Ground Level: 1,327.0 usft

Wellbore: Original Well
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Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	IGRF2010	2012/11/14	-8.48	67.25	52,671

Design: As Drilled
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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 0.0 156.83

Survey Program	Date: 2012/12/04	From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
		108.0	4,758.2	SDI Keeper Gyro (Original Well)	SDI Standard Keeper 103	SDI Standard Wireline Keeper ver 1.0.3
		4,819.0	7,473.0	Curve (Original Well)	MWD SDI	MWD - Standard ver 1.0.1
		7,535.0	12,303.0	Lateral (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)	Bulk 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
	108.0	0.99	317.91	108.0	0.7	-0.6	-0.9	0.92	0.92	0.00
First SDI Gyro Survey										
	208.0	0.23	324.67	208.0	1.5	-1.3	-1.9	0.76	-0.76	6.76
	308.0	0.04	135.13	308.0	1.6	-1.4	-2.1	0.27	-0.19	170.46
	408.0	0.16	139.36	408.0	1.5	-1.3	-1.9	0.12	0.12	4.23
	508.0	0.17	155.15	508.0	1.3	-1.1	-1.6	0.05	0.01	15.79
	608.0	0.22	160.71	608.0	0.9	-1.0	-1.3	0.05	0.05	5.56
	708.0	0.27	153.48	708.0	0.6	-0.8	-0.8	0.06	0.05	-7.23

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Survey Report



Company:	Stone Energy	Local Co-ordinate Reference:	Well Lemons #4H - Slot Lemons #4H
Project:	Heather Prospect (NAD 27)	TVD Reference:	Saxon 141 @ 1345.0usft (18' RKB - 1327' GL)
Site:	Lemons Pad - Wetzell County, PA	MD Reference:	Saxon 141 @ 1345.0usft (18' RKB - 1327' GL)
Well:	Lemons #4H	North Reference:	Grid
Wellbore:	Original Well	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	North East Database

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	N-S (usft)	E-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Bull's Rate (°/100usft)	Turn Rate (°/100usft)
808.0	0.12	115.36	808.0	0.3	-0.6	-0.5	0.19	-0.15	-38.12
908.0	0.07	90.63	908.0	0.3	-0.5	-0.4	0.06	-0.05	-24.73
1,008.0	0.03	314.20	1,008.0	0.3	-0.5	-0.4	0.09	-0.04	-138.43
1,108.0	0.17	354.93	1,108.0	0.4	-0.5	-0.6	0.15	0.14	40.73
1,208.0	0.20	5.19	1,208.0	0.8	-0.5	-0.9	0.04	0.03	10.26
1,308.0	0.14	16.53	1,308.0	1.1	-0.4	-1.1	0.07	-0.06	11.34
1,408.0	0.31	12.04	1,408.0	1.4	-0.3	-1.5	0.17	0.17	-4.49
1,508.0	0.46	0.45	1,508.0	2.1	-0.3	-2.0	0.17	0.15	-11.59
1,608.0	0.27	29.15	1,608.0	2.7	-0.2	-2.8	0.26	-0.19	28.70
1,708.0	0.16	88.01	1,708.0	2.9	0.1	-2.8	0.23	-0.11	58.86
1,808.0	0.06	39.45	1,808.0	3.0	0.3	-2.6	0.13	-0.10	-48.58
1,908.0	0.12	17.02	1,908.0	3.1	0.3	-2.7	0.07	0.06	-22.43
2,008.0	0.29	68.44	2,008.0	3.3	0.6	-2.8	0.23	0.17	51.42
2,108.0	0.38	28.95	2,108.0	3.7	1.0	-3.0	0.23	0.07	-39.49
2,208.0	0.60	18.95	2,208.0	4.4	1.3	-3.6	0.26	0.24	-12.00
2,308.0	0.39	38.84	2,308.0	5.2	1.7	-4.1	0.28	-0.21	21.89
2,408.0	0.91	33.85	2,408.0	6.1	2.3	-4.7	0.42	0.42	-4.99
2,508.0	0.91	34.90	2,508.0	7.3	3.1	-5.5	0.10	0.10	1.05
2,608.0	0.79	34.54	2,607.8	8.5	4.0	-6.3	0.12	-0.12	-0.36
2,708.0	0.82	11.58	2,707.9	9.8	4.5	-7.2	0.32	0.03	-22.86
2,808.0	1.58	287.45	2,807.9	10.9	3.3	-8.7	1.70	0.76	-84.13
2,908.0	2.51	271.71	2,907.9	11.4	-0.2	-10.5	1.08	0.93	-15.74
3,008.0	3.58	245.90	3,007.7	10.2	-5.2	-11.4	1.71	1.07	-25.81
3,108.0	5.66	227.87	3,107.4	5.6	-11.7	-9.8	2.51	2.09	-18.03
3,208.0	8.11	200.98	3,206.9	-2.7	-17.3	-4.3	2.77	0.45	-26.89
3,308.0	6.77	176.02	3,306.3	-13.5	-18.8	5.1	2.85	0.66	-24.96
3,408.0	6.53	173.79	3,405.8	-25.1	-17.8	16.1	0.35	-0.24	-2.23
3,508.0	6.47	172.53	3,505.0	-36.3	-16.4	26.9	0.15	-0.06	-1.26
3,608.0	6.12	173.25	3,604.3	-47.2	-15.1	37.5	0.36	-0.35	0.72
3,708.0	5.82	171.34	3,703.8	-57.6	-13.7	47.6	0.28	-0.20	-1.91
3,808.0	5.45	170.82	3,803.3	-67.4	-12.1	57.2	0.47	-0.47	-0.52
3,908.0	4.43	175.45	3,902.9	-75.9	-11.1	65.4	1.09	-1.02	4.83
4,008.0	3.72	179.02	4,002.7	-83.0	-10.7	72.1	0.75	-0.71	3.57
4,108.0	3.50	180.51	4,102.5	-89.3	-10.7	77.9	0.24	-0.22	1.49
4,208.0	2.56	192.91	4,202.3	-94.9	-11.3	82.8	0.88	-0.54	12.40
4,308.0	3.08	188.93	4,302.2	-100.0	-12.3	87.1	0.24	0.12	-3.98
4,408.0	3.28	177.04	4,402.0	-105.8	-12.5	92.1	0.69	0.20	-11.89
4,508.0	1.96	149.43	4,501.9	-109.9	-11.5	96.5	1.79	-1.32	-27.61
4,608.0	0.52	181.37	4,601.9	-111.8	-10.5	98.6	1.48	-1.44	11.94
4,708.0	0.39	181.00	4,701.9	-112.6	-10.4	99.4	0.20	-0.13	19.63
4,758.2	0.43	155.14	4,752.1	-112.9	-10.3	99.7	0.37	0.08	-51.51
4,758.2	0.43	155.12	4,752.1	-112.9	-10.3	99.7	0.37	0.16	-45.15

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Scientific Drilling  
Survey Report



<b>Company:</b>	Stone Energy	<b>Local Co-ordinate Reference:</b>	Well Lemons #4H - Slot Lemons#4H
<b>Project:</b>	Heather Prospect (NAD 27)	<b>TVD Reference:</b>	Saxon 141 @ 1345.0usft (18' RKB - 1327' GL)
<b>Site:</b>	Lemons Pad - Wetzel County, PA	<b>MD Reference:</b>	Saxon 141 @ 1345.0usft (18' RKB - 1327' GL)
<b>Well:</b>	Lemons #4H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Well	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	As Drilled	<b>Database:</b>	NorthEastDatabase

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)	
4,819.0	0.68	131.82	4,812.9	-113.3	-9.8	100.3	0.55	0.41	-38.35	
First SDI MWD Survey										
4,883.0	0.93	89.90	4,876.8	-113.6	-9.1	100.8	0.97	0.39	-65.51	
4,948.0	1.44	82.13	4,939.9	-113.5	-7.8	101.3	0.85	0.81	-12.33	
5,010.0	1.67	73.92	5,003.8	-113.1	-6.1	101.6	0.50	0.36	-12.83	
5,074.0	2.01	71.05	5,067.8	-112.5	-4.2	101.8	0.65	0.53	-4.48	
5,137.0	1.88	69.36	5,130.8	-111.8	-2.2	101.9	0.25	-0.24	-2.68	
5,201.0	1.02	67.51	5,194.8	-111.2	-0.7	102.0	1.31	-1.31	-2.89	
5,284.0	0.81	42.26	5,257.7	-110.7	0.1	101.8	0.85	-0.65	-40.08	
5,328.0	0.54	31.65	5,321.7	-110.2	0.5	101.5	0.20	-0.11	-16.58	
5,391.0	0.49	24.59	5,384.7	-109.7	0.7	101.2	0.13	-0.08	-11.21	
5,455.0	0.32	5.38	5,448.7	-109.3	0.9	100.8	0.34	-0.27	-30.02	
5,519.0	0.43	334.93	5,512.7	-108.9	0.8	100.4	0.35	0.17	-47.58	
5,583.0	0.54	306.97	5,576.7	-108.5	0.4	98.9	0.40	0.17	-43.69	
5,648.0	0.55	304.13	5,639.7	-108.2	-0.1	99.4	0.05	0.02	-4.51	
5,709.0	0.69	301.65	5,702.7	-107.8	-0.6	98.8	0.23	0.22	-3.94	
5,773.0	0.74	304.67	5,766.7	-107.3	-1.3	98.2	0.10	0.08	4.72	
5,836.0	0.71	302.57	5,829.7	-106.8	-2.0	97.5	0.06	-0.05	-3.33	
5,900.0	0.79	309.41	5,893.7	-106.4	-2.6	96.8	0.19	0.13	10.69	
5,963.0	0.90	226.47	5,956.7	-106.5	-3.3	96.6	1.78	0.17	-131.65	
5,995.0	3.30	189.66	5,988.7	-107.6	-3.7	97.4	8.23	7.50	-115.03	
6,027.0	5.79	183.63	6,020.6	-110.1	-3.9	99.7	7.81	7.78	-18.84	
6,059.0	8.31	179.68	6,052.3	-114.0	-4.0	103.2	8.01	7.88	-12.34	
6,090.0	10.25	176.77	6,082.8	-118.0	-3.9	107.9	6.44	6.28	-9.39	
6,122.0	11.84	175.73	6,114.3	-125.1	-3.4	113.7	5.32	5.28	-3.25	
6,154.0	13.00	175.58	6,145.6	-132.0	-2.9	120.2	3.31	3.31	-0.47	
6,186.0	13.89	177.19	6,176.7	-139.5	-2.5	127.2	3.02	2.78	5.03	
6,217.0	15.27	179.46	6,208.7	-147.3	-2.2	134.5	4.82	4.45	7.32	
6,249.0	17.30	180.98	6,237.4	-156.2	-2.3	142.7	6.48	6.34	4.75	
6,281.0	19.90	182.12	6,267.7	-166.4	-2.6	152.0	8.20	8.13	3.58	
6,313.0	22.47	181.18	6,297.6	-178.0	-2.9	162.5	8.10	8.03	-2.94	
6,345.0	24.68	179.91	6,326.9	-180.8	-3.0	174.2	7.12	6.94	-3.97	
6,378.0	26.22	178.48	6,354.9	-204.1	-2.8	186.5	5.32	4.94	-4.61	
6,408.0	27.97	178.79	6,383.4	-218.7	-2.5	200.1	5.49	5.47	0.97	
6,440.0	29.85	179.15	6,411.4	-234.1	-2.2	214.4	5.90	5.88	1.13	
6,471.0	31.98	179.05	6,438.0	-250.1	-1.8	229.1	6.81	6.81	-0.32	
6,503.0	33.98	180.59	6,464.8	-267.5	-1.8	245.2	6.83	6.31	4.81	
6,535.0	35.56	181.78	6,491.1	-285.7	-2.3	261.8	5.37	4.94	3.72	
6,567.0	37.06	181.55	6,516.9	-304.7	-2.8	279.0	4.71	4.69	-0.72	
6,599.0	39.13	182.83	6,542.1	-324.4	-3.6	298.8	6.92	6.47	4.00	
6,631.0	41.43	183.46	6,566.5	-345.0	-4.7	315.4	7.30	7.19	1.97	
6,662.0	42.89	183.85	6,589.5	-365.8	-6.0	333.9	4.78	4.71	1.26	
6,694.0	44.22	184.19	6,612.7	-387.8	-7.6	353.5	4.22	4.16	1.06	
6,726.0	45.94	184.38	6,635.3	-410.4	-9.3	373.7	5.39	5.38	0.59	



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Survey Report



<b>Company:</b>	Stone Energy	<b>Local Co-ordinate Reference:</b>	Well Lemons #4H - Slot Lemons#4H
<b>Project:</b>	Heather Prospect (NAD 27)	<b>TVD Reference:</b>	Saxon 141 @ 1345.0usft (18' RKB - 1327' GL)
<b>Site:</b>	Lemons Pad - Wetzel County, PA	<b>MD Reference:</b>	Saxon 141 @ 1345.0usft (18' RKB - 1327' GL)
<b>Well:</b>	Lemons #4H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Well	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	As Drilled	<b>Database:</b>	NorthEastDatabase

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)
6,757.0	47.89	184.66	6,656.5	-432.9	-11.1	393.7	5.68	5.85	0.90
6,789.0	48.43	185.35	6,677.9	-458.6	-13.1	414.6	2.81	2.31	2.16
6,820.0	49.83	184.68	6,698.1	-480.0	-15.2	435.3	5.11	4.84	-2.16
6,852.0	51.88	181.74	6,718.3	-504.8	-16.6	457.6	9.59	6.41	-9.19
6,884.0	54.52	179.16	6,737.4	-530.5	-16.8	481.1	10.23	7.94	-8.08
6,918.0	57.45	177.04	6,755.3	-557.0	-15.9	505.8	10.68	9.16	-8.63
6,948.0	59.64	174.70	6,772.0	-584.2	-13.9	531.6	9.26	8.84	-7.31
6,980.0	61.04	174.08	6,787.9	-611.8	-11.2	558.1	4.71	4.38	-2.00
7,012.0	62.53	173.67	6,803.0	-639.9	-8.2	585.1	4.78	4.66	-1.22
7,043.0	64.65	172.22	6,816.8	-667.4	-4.8	611.7	6.02	6.84	-4.68
7,074.0	67.74	170.64	6,829.3	-695.5	-0.5	639.2	11.00	9.97	-5.10
7,105.0	69.55	169.14	6,840.6	-723.9	4.5	667.3	7.38	5.84	-4.84
7,136.0	71.06	168.30	6,851.0	-752.5	10.3	695.9	5.50	4.87	-2.71
7,168.0	72.40	166.32	6,860.4	-780.3	16.5	723.9	7.70	4.47	-6.60
7,197.0	75.07	164.27	6,869.1	-809.1	24.1	753.3	10.70	8.81	-8.81
7,228.0	77.72	162.67	6,876.4	-838.0	32.6	783.2	9.91	8.55	-5.16
7,258.0	79.02	161.93	6,882.5	-866.0	41.6	812.5	4.96	4.33	-2.47
7,289.0	80.03	161.23	6,888.1	-894.9	51.2	842.9	3.94	3.26	-2.26
7,320.0	81.78	159.77	6,893.0	-923.7	61.4	873.4	7.31	5.85	-4.71
7,350.0	83.51	158.78	6,896.8	-951.6	72.0	903.1	6.63	5.77	-3.30
7,381.0	84.48	157.72	6,900.1	-980.2	83.4	934.0	4.58	3.08	-3.42
7,411.0	85.16	157.72	6,902.8	-1,007.8	94.7	963.8	2.33	2.33	0.00
7,442.0	85.70	157.82	6,905.3	-1,036.4	106.4	994.7	1.77	1.74	0.32
7,473.0	86.84	156.72	6,907.3	-1,065.0	118.4	1,025.7	5.10	3.88	-3.55
7,535.0	89.29	153.61	6,909.4	-1,121.2	144.4	1,087.6	6.38	3.95	-5.02
7,598.0	90.23	153.18	6,909.6	-1,175.7	171.7	1,148.5	1.89	1.54	-0.70
7,657.0	90.67	153.19	6,909.2	-1,230.2	199.2	1,209.4	0.72	0.72	0.02
7,718.0	90.78	151.88	6,908.4	-1,284.3	227.3	1,270.2	2.02	0.18	-2.02
7,779.0	91.31	152.68	6,907.3	-1,338.3	255.6	1,331.0	1.47	0.87	1.18
7,840.0	90.67	152.59	6,906.2	-1,392.5	283.7	1,391.8	1.06	-1.05	-0.15
7,901.0	90.97	152.75	6,905.3	-1,446.7	311.7	1,452.6	0.56	0.49	0.26
7,962.0	89.23	152.69	6,905.2	-1,500.9	339.6	1,513.5	2.85	-2.85	-0.10
8,023.0	88.76	153.05	6,906.3	-1,555.2	367.4	1,574.3	0.97	-0.77	0.59
8,084.0	88.80	152.80	6,907.1	-1,609.5	395.2	1,635.2	1.75	1.70	-0.41
8,147.0	90.30	153.18	6,907.0	-1,665.8	423.8	1,698.0	1.00	0.79	0.90
8,210.0	90.64	154.49	6,908.5	-1,722.1	451.6	1,760.9	2.15	0.54	2.08
8,274.0	91.14	154.88	6,905.5	-1,780.0	479.0	1,824.9	0.98	0.78	0.81
8,338.0	90.40	156.00	6,904.6	-1,838.2	505.6	1,888.9	2.10	-1.16	1.75
8,401.0	90.50	156.98	6,904.1	-1,896.0	530.7	1,951.9	1.58	0.16	1.58
8,464.0	91.24	157.15	6,903.2	-1,954.0	555.2	2,014.8	1.21	1.17	0.27
8,528.0	90.10	156.48	6,902.4	-2,012.8	580.4	2,078.8	2.07	-1.78	-1.05
8,591.0	88.69	155.85	6,903.1	-2,070.4	605.8	2,141.8	2.39	-2.24	-0.84
8,654.0	88.39	155.67	6,904.7	-2,127.9	631.6	2,204.8	0.65	-0.48	-0.44

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Scientific Drilling  
Survey Report



Company	Stone Energy	Local Co-ordinate Reference	Well Lemons #4H - Slot Lemons #4H
Project	Heather Prospect (NAD 27)	TVD Reference	Saxon 141 @ 1345.00sh (18'RKB - 1327' GL)
Site	Lemons Pad - Wetzel County, PA	MD Reference	Saxon 141 @ 1345.00sh (18'RKB - 1327' GL)
Well	Lemons #4H	North Reference	Grid
Wellbore	Original Well	Survey Calculation Method	Minimum Curvature
Design	As Drilled	Database	NorthEastDatabase

Survey

Measured Depth (ush)	Inclination (°)	Azimuth (°)	Vertical Depth (ush)	N-S (ush)	E-W (ush)	Vertical Section (ush)	Dogleg Rate (/100ush)	Bull Rate (/100ush)	Turn Rate (/100ush)
8,717.0	89.40	155.26	8,905.9	-2,185.2	657.8	2,267.8	1.73	1.60	-0.65
8,781.0	90.40	155.12	8,906.0	-2,243.3	684.6	2,331.7	1.58	1.58	-0.22
8,844.0	90.74	155.14	8,905.4	-2,300.4	711.1	2,394.7	0.54	0.54	0.03
8,908.0	90.27	155.52	8,904.9	-2,358.6	737.9	2,458.7	0.84	-0.73	0.59
8,972.0	91.14	155.80	8,904.1	-2,416.9	764.2	2,522.7	1.43	1.38	0.44
9,035.0	90.91	155.33	8,902.9	-2,474.2	790.3	2,585.6	0.83	-0.37	-0.75
9,099.0	91.78	155.39	8,901.4	-2,532.4	817.0	2,649.6	1.36	1.36	0.09
9,162.0	89.80	153.79	8,900.8	-2,589.3	844.0	2,712.5	4.04	-3.14	-2.54
9,226.0	89.23	152.66	8,901.1	-2,646.4	872.8	2,776.4	1.98	-0.88	-1.77
9,289.0	93.08	154.34	8,899.8	-2,702.8	900.9	2,839.3	6.64	6.08	2.67
9,353.0	93.46	154.15	8,896.2	-2,760.3	928.7	2,903.1	0.69	0.63	-0.30
9,418.0	90.87	154.63	8,893.8	-2,817.1	955.9	2,966.0	4.18	-4.11	0.76
9,480.0	90.24	155.24	8,893.2	-2,875.1	983.0	3,030.0	1.37	-0.98	0.85
9,544.0	91.71	155.24	8,892.1	-2,933.2	1,009.8	3,093.9	2.30	2.30	0.00
9,607.0	93.26	155.35	8,889.4	-2,990.4	1,036.1	3,156.8	2.51	2.51	0.17
9,671.0	94.34	156.56	8,885.1	-3,048.7	1,062.1	3,220.7	2.50	1.84	1.89
9,735.0	92.35	156.33	8,881.4	-3,107.2	1,087.7	3,284.6	3.13	-3.11	-0.36
9,798.0	90.94	155.03	8,879.8	-3,164.6	1,113.6	3,347.5	3.04	-2.24	-2.06
9,862.0	89.46	154.14	8,879.3	-3,222.4	1,141.1	3,411.5	2.70	-2.31	-1.39
9,925.0	89.53	154.34	8,879.9	-3,279.2	1,168.4	3,474.4	0.34	0.11	0.32
9,989.0	89.80	153.34	8,880.3	-3,336.6	1,196.6	3,538.3	1.62	0.42	-1.56
10,052.0	89.97	152.32	8,880.4	-3,392.7	1,225.4	3,601.2	1.64	0.27	-1.82
10,116.0	90.40	152.19	8,880.2	-3,449.3	1,255.2	3,665.0	0.70	0.67	-0.20
10,179.0	89.46	152.45	8,880.3	-3,505.1	1,284.5	3,727.8	1.55	-1.48	0.41
10,243.0	88.35	152.95	8,881.5	-3,561.9	1,313.8	3,791.6	1.90	-1.73	0.78
10,306.0	87.15	152.60	8,884.0	-3,617.9	1,342.6	3,854.4	1.98	-1.90	-0.56
10,370.0	87.68	152.48	8,886.9	-3,674.6	1,372.1	3,918.1	0.85	0.83	-0.19
10,433.0	88.29	152.31	8,889.1	-3,730.4	1,401.3	3,980.9	1.01	0.97	-0.27
10,497.0	88.25	152.20	8,891.0	-3,787.1	1,431.1	4,044.7	0.18	-0.06	-0.17
10,560.0	89.30	151.88	8,892.4	-3,842.7	1,460.6	4,107.4	1.74	1.67	-0.49
10,624.0	90.34	152.21	8,892.6	-3,899.2	1,490.6	4,171.2	1.70	1.63	0.50
10,687.0	90.23	152.77	8,892.2	-3,955.1	1,519.7	4,234.0	0.81	-0.17	0.89
10,751.0	90.74	152.03	8,891.7	-4,011.8	1,549.3	4,297.8	1.40	0.80	-1.16
10,815.0	90.74	151.75	8,890.9	-4,068.3	1,579.5	4,361.6	0.44	0.00	-0.44
10,878.0	91.64	152.07	8,889.6	-4,123.8	1,609.1	4,424.3	1.52	1.43	0.51
10,941.0	89.66	152.06	8,888.8	-4,179.5	1,638.6	4,487.1	3.14	-3.14	-0.02
11,004.0	88.46	152.27	8,889.9	-4,235.2	1,668.1	4,549.9	1.93	-1.90	0.33
11,068.0	89.63	152.74	8,890.9	-4,291.9	1,697.6	4,613.7	1.97	1.83	0.73
11,131.0	90.03	152.68	8,891.1	-4,347.9	1,726.5	4,676.5	0.64	0.63	-0.10
11,195.0	90.10	153.10	8,891.1	-4,404.9	1,755.7	4,740.4	0.67	0.11	0.66
11,259.0	90.94	152.82	8,890.5	-4,461.9	1,784.7	4,804.2	1.38	1.31	-0.44
11,323.0	91.21	152.87	8,889.3	-4,518.8	1,813.9	4,868.1	0.43	0.42	0.08
11,386.0	90.77	153.26	8,888.2	-4,575.0	1,842.5	4,930.9	0.93	-0.70	0.62
11,450.0	92.15	153.38	8,886.6	-4,632.2	1,871.2	4,994.8	2.16	2.16	0.19

103.02790



Scientific Drilling  
Survey Report



Company:	Stone Energy	Local Coordinate Reference:	Well Lemons #4H - Slot Lemons #4H
Project:	Heather Prospect (NAD 27)	TVD Reference:	Saxon 14.1 @ 1345.0usft (18' RKB - 1327' GL)
Site:	Lemons Pad - Wyzel County, PA	MD Reference:	Saxon 14.1 @ 1345.0usft (18' RKB - 1327' GL)
Well:	Lemons #4H	North Reference:	Grid
Wellbore:	Original Well	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	NorthEastDatabase

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)
11,513.0	92.22	153.05	6,884.2	-4,688.4	1,899.6	5,057.6	0.54	0.11	-0.52
11,576.0	90.03	152.44	6,882.9	-4,744.4	1,928.4	5,120.4	3.61	-3.48	-0.97
11,640.0	89.77	152.97	6,883.0	-4,801.2	1,957.8	5,184.3	0.92	-0.41	0.83
11,704.0	91.11	153.95	6,882.5	-4,858.5	1,986.4	5,248.2	2.59	2.09	1.53
11,768.0	89.93	155.27	6,882.0	-4,916.3	2,013.8	5,312.1	2.77	-1.84	2.06
11,831.0	90.10	155.59	6,881.9	-4,973.6	2,040.0	5,375.1	0.58	0.27	0.51
11,895.0	90.54	157.30	6,881.6	-5,032.2	2,065.6	5,439.1	2.76	0.69	2.67
11,958.0	90.60	157.61	6,881.0	-5,080.4	2,089.7	5,502.1	0.50	0.10	0.49
12,022.0	92.55	157.92	6,879.2	-5,149.6	2,113.9	5,566.0	3.09	3.05	0.48
12,085.0	93.03	158.07	6,876.1	-5,208.0	2,137.5	5,629.0	0.80	0.76	0.24
12,149.0	93.02	156.91	6,872.8	-5,267.0	2,162.0	5,682.9	1.81	-0.02	-1.61
12,212.0	93.93	155.88	6,868.9	-5,324.7	2,187.2	5,755.7	2.18	1.44	-1.63
12,244.0	96.12	155.45	6,866.1	-5,353.7	2,200.3	5,787.6	6.97	6.84	-1.34
<b>Last SDI MWD Survey</b>									
12,303.0	96.12	155.45	6,859.8	-5,407.1	2,224.7	5,846.3	0.00	0.00	0.00

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		N-S (usft)	E-W (usft)	
108.0	108.0	0.7	-0.6	First SDI Gyro Survey
4,758.2	4,752.1	-112.9	-10.3	Last SDI Gyro Survey
4,819.0	4,812.9	-113.3	-9.9	First SDI MWD Survey
12,244.0	6,866.1	-5,353.7	2,200.3	Last SDI MWD Survey
12,303.0	6,859.8	-5,407.1	2,224.7	Projection to TD

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_