



Stone Energy

Mary Prospect

Blake Pad

4H

OH

Design: As Drilled

Standard Survey Report

08 March, 2014



www.scientificdrilling.com

06/02/2017



Project: Mary Prospect
 Site: Blake Pad
 Well: 4H
 Wellbore: OH
 Design: As Drilled



WELL DETAILS: 4H

REFERENCE INFORMATION

PROJECT DETAILS: Mary Prospect

+N/-S	+E/-W	Northing	Ground Level: Easting	1293.00	Latitude	Longitude
0.00	0.00	420269.00	1634335.00		39° 38' 47.850 N	80° 47' 54.982 W

Co-ordinate (N/E) Reference: Well 4H, Grid North
 Vertical (TVD) Reference: GL 1293' & KB 10' @ 1303.00ft (Highlands 2)
 Section (VS) Reference: Slot - (0.00N, 0.00E)
 Measured Depth Reference: GL 1293' & KB 10' @ 1303.00ft (Highlands 2)
 Calculation Method: Minimum Curvature

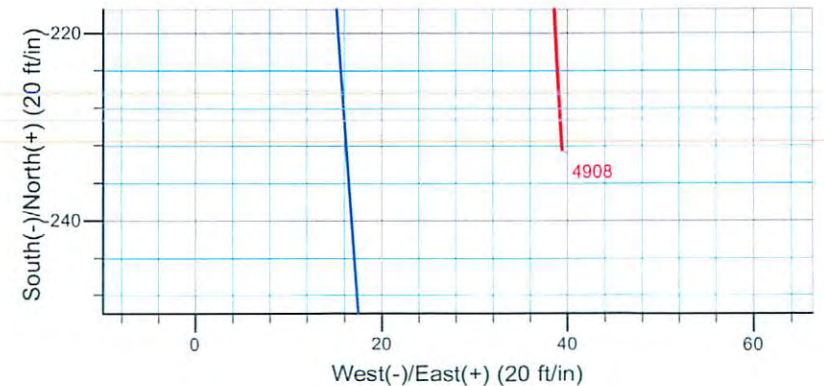
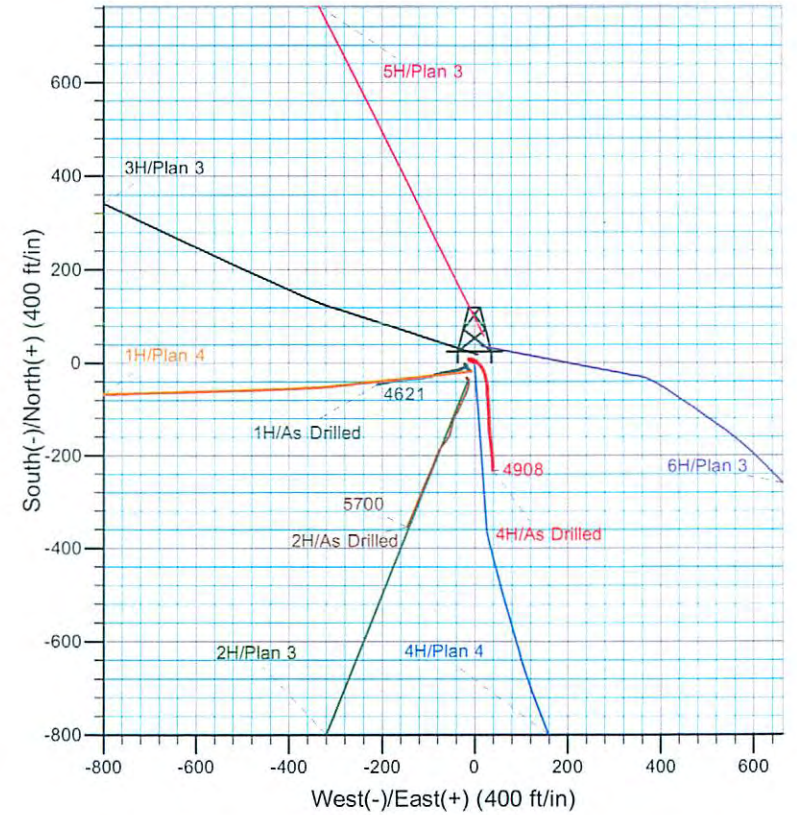
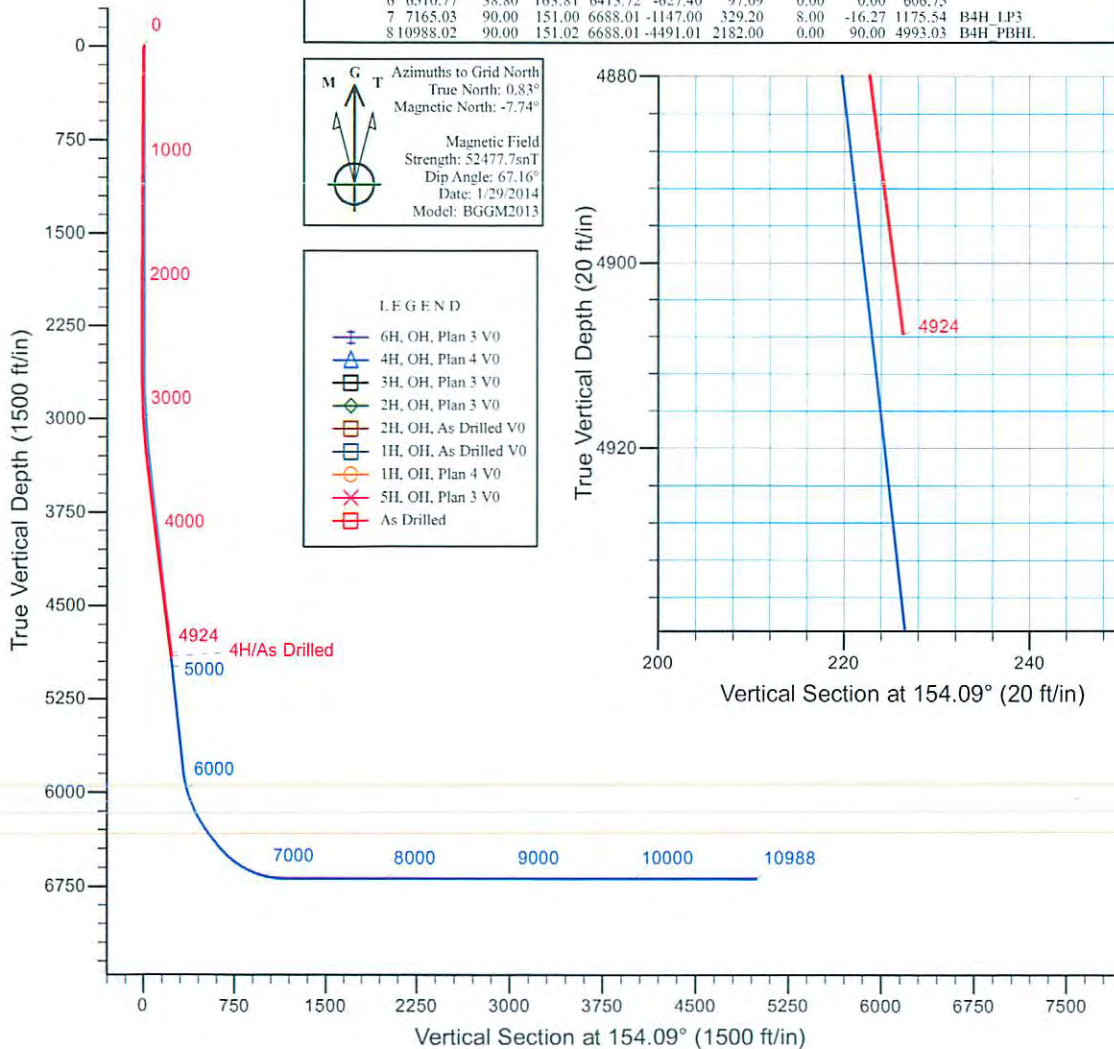
Geodetic System: US State Plane 1927 (Exact solution)
 Datum: NAD 1927 (NADCON CONUS)
 Ellipsoid: Clarke 1866
 Zone: West Virginia North 4701
 System Datum: Mean Sea Level

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSeet	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	2600.01	0.00	0.00	2600.01	0.00	0.00	0.00	0.00	0.00	
3	3300.01	7.00	176.00	3298.27	-42.60	2.98	1.00	176.00	39.62	
4	5850.01	7.00	176.00	5829.26	-352.61	24.66	6.00	0.00	327.94	
5	6383.09	38.80	163.81	6314.20	-550.57	74.79	6.00	-14.46	527.90	
6	6510.77	38.80	163.81	6413.72	-627.40	97.09	0.00	0.00	606.75	
7	7165.03	90.00	151.00	6688.01	-1147.00	329.20	8.00	-16.27	1175.54	B4H_LP3
8	10988.02	90.00	151.02	6688.01	-1491.01	2182.00	0.00	90.00	4993.03	B4H_PBHL

Azimuths to Grid North
 True North: 0.83°
 Magnetic North: -7.74°
 Magnetic Field
 Strength: 52477.7snT
 Dip Angle: 67.16°
 Date: 1/29/2014
 Model: BGGM2013

LEGEND

- 6H, OH, Plan 3 V0
- 4H, OH, Plan 4 V0
- 3H, OH, Plan 3 V0
- 2H, OH, Plan 3 V0
- 2H, OH, As Drilled V0
- 1H, OH, As Drilled V0
- 1H, OH, Plan 4 V0
- 5H, OH, Plan 3 V0
- As Drilled





Scientific Drilling
Survey Report



Company:	Stone Energy	Local Co-ordinate Reference:	Well 4H
Project:	Mary Prospect	TVD Reference:	GL 1293' & KB 10' @ 1303.00ft (Highlands 2)
Site:	Blake Pad	MD Reference:	GL 1293' & KB 10' @ 1303.00ft (Highlands 2)
Well:	4H	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	Blake Pad		
Site Position:		Northing:	420,250.00 usft
From:	Map	Easting:	1,634,328.00 usft
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "
		Latitude:	39° 38' 47.661 N
		Longitude:	80° 47' 55.068 W
		Grid Convergence:	-0.83 °

Well	4H			
Well Position	+N/-S	0.00 ft	Northing:	420,269.00 usft
	+E/-W	0.00 ft	Easting:	1,634,335.00 usft
Position Uncertainty		0.00 ft	Wellhead Elevation:	0.00 ft
			Latitude:	39° 38' 47.850 N
			Longitude:	80° 47' 54.982 W
			Ground Level:	1,293.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2013	11/14/2013	-8.56	67.18	52,505
	BGGM2013	1/29/2014	-8.57	67.16	52,478

Design	As Drilled				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.00	0.00	0.00	154.09	

Survey Program	Date	3/8/2014			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
25.00	2,595.35	Survey 2 - SDI Gyro (OH)	SDI Standard Keeper 103	SDI Standard Wireline Keeper ver 1.0.3	
2,615.00	4,924.00	Survey 3 - SDI MWD (OH)	MWD SDI	MWD - Standard ver 1.0.1	

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25.00	0.15	329.98	25.00	0.03	-0.02	-0.03	0.60	0.60	0.00	0.00
Ground Level										
50.00	0.30	329.98	50.00	0.11	-0.07	-0.13	0.60	0.60	0.00	0.00
First SDI Gyro Survey										
75.00	0.45	329.98	75.00	0.26	-0.15	-0.29	0.60	0.60	0.00	0.00
100.00	0.59	329.98	100.00	0.45	-0.26	-0.52	0.56	0.56	0.00	0.00
125.00	0.51	328.07	125.00	0.66	-0.38	-0.76	0.33	-0.32	-7.64	



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Survey Report



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Site:	Blake Pad	MD Reference:	GL 1293' & KB 10' @ 1303.00ft (Highlands 2)
Well:	4H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Northeast District

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
150.00	0.40	330.28	150.00	0.83	-0.49	-0.96	0.45	-0.44	8.84	
175.00	0.35	323.08	175.00	0.96	-0.58	-1.12	0.27	-0.20	-28.80	
200.00	0.41	312.44	200.00	1.09	-0.69	-1.28	0.37	0.24	-42.56	
225.00	0.39	307.76	224.99	1.20	-0.82	-1.44	0.15	-0.08	-18.72	
250.00	0.42	308.64	249.99	1.31	-0.96	-1.60	0.12	0.12	3.52	
275.00	0.40	305.18	274.99	1.42	-1.10	-1.75	0.13	-0.08	-13.84	
300.00	0.41	305.25	299.99	1.52	-1.25	-1.91	0.04	0.04	0.28	
325.00	0.40	315.46	324.99	1.63	-1.38	-2.07	0.29	-0.04	40.84	
350.00	0.33	305.31	349.99	1.73	-1.50	-2.22	0.38	-0.28	-40.60	
375.00	0.37	297.08	374.99	1.81	-1.63	-2.34	0.26	0.16	-32.92	
400.00	0.39	305.59	399.99	1.90	-1.77	-2.48	0.24	0.08	34.04	
425.00	0.40	304.90	424.99	2.00	-1.91	-2.63	0.04	0.04	-2.76	
450.00	0.38	308.19	449.99	2.10	-2.05	-2.78	0.12	-0.08	13.16	
475.00	0.37	309.03	474.99	2.20	-2.18	-2.93	0.05	-0.04	3.36	
500.00	0.36	306.91	499.99	2.30	-2.30	-3.08	0.07	-0.04	-8.48	
525.00	0.41	298.49	524.99	2.39	-2.44	-3.22	0.30	0.20	-33.68	
550.00	0.42	301.01	549.99	2.48	-2.60	-3.37	0.08	0.04	10.08	
575.00	0.48	302.45	574.99	2.58	-2.77	-3.53	0.24	0.24	5.76	
600.00	0.59	296.23	599.99	2.70	-2.97	-3.72	0.50	0.44	-24.88	
625.00	0.65	295.65	624.98	2.81	-3.22	-3.94	0.24	0.24	-2.32	
650.00	0.66	292.75	649.98	2.93	-3.48	-4.16	0.14	0.04	-11.60	
675.00	0.70	288.89	674.98	3.04	-3.75	-4.37	0.24	0.16	-15.44	
700.00	0.73	289.36	699.98	3.14	-4.05	-4.59	0.12	0.12	1.88	
725.00	0.74	287.80	724.98	3.24	-4.35	-4.82	0.09	0.04	-6.24	
750.00	0.83	286.53	749.97	3.34	-4.68	-5.05	0.37	0.36	-5.08	
775.00	0.77	286.70	774.97	3.44	-5.01	-5.29	0.24	-0.24	0.68	
800.00	0.74	284.10	799.97	3.53	-5.33	-5.50	0.18	-0.12	-10.40	
825.00	0.81	285.50	824.97	3.62	-5.66	-5.73	0.29	0.28	5.60	
850.00	0.85	283.81	849.96	3.71	-6.01	-5.96	0.19	0.16	-6.76	
875.00	0.81	285.92	874.96	3.80	-6.36	-6.20	0.20	-0.16	8.44	
900.00	0.86	289.04	899.96	3.91	-6.71	-6.45	0.27	0.20	12.48	
925.00	0.81	281.99	924.96	4.01	-7.06	-6.69	0.46	-0.20	-28.20	
950.00	0.67	283.12	949.95	4.08	-7.37	-6.89	0.56	-0.56	4.52	
975.00	0.69	279.84	974.95	4.14	-7.66	-7.07	0.18	0.08	-13.12	
1,000.00	0.65	278.52	999.95	4.18	-7.95	-7.24	0.17	-0.16	-5.28	
1,025.00	0.58	284.96	1,024.95	4.24	-8.21	-7.40	0.39	-0.28	25.76	
1,050.00	0.54	278.79	1,049.95	4.29	-8.45	-7.55	0.29	-0.16	-24.68	
1,075.00	0.51	279.51	1,074.95	4.32	-8.68	-7.68	0.12	-0.12	2.88	
1,100.00	0.33	281.03	1,099.95	4.36	-8.86	-7.79	0.72	-0.72	6.08	
1,125.00	0.41	282.07	1,124.95	4.39	-9.02	-7.89	0.32	0.32	4.16	
1,150.00	0.28	283.61	1,149.95	4.42	-9.16	-7.98	0.52	-0.52	6.16	
1,175.00	0.34	280.99	1,174.95	4.45	-9.30	-8.07	0.25	0.24	-10.48	
1,200.00	0.21	288.35	1,199.95	4.48	-9.41	-8.14	0.54	-0.52	29.44	
1,225.00	0.26	279.69	1,224.94	4.50	-9.51	-8.21	0.24	0.20	-34.64	



Scientific Drilling
Survey Report



Company:	Stone Energy	Local Co-ordinate Reference:	Well 4H
Project:	Mary Prospect	TVD Reference:	GL 1293' & KB 10' @ 1303.00ft (Highlands 2)
Site:	Blake Pad	MD Reference:	GL 1293' & KB 10' @ 1303.00ft (Highlands 2)
Well:	4H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Northeast District

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
1,250.00	0.23	289.28	1,249.94	4.53	-9.61	-8.28	0.20	-0.12	38.36
1,275.00	0.06	0.27	1,274.94	4.56	-9.66	-8.32	0.87	-0.68	283.96
1,300.00	0.26	282.48	1,299.94	4.58	-9.72	-8.37	1.02	0.80	-311.16
1,325.00	0.19	277.95	1,324.94	4.60	-9.81	-8.43	0.29	-0.28	-18.12
1,350.00	0.17	287.33	1,349.94	4.62	-9.89	-8.48	0.14	-0.08	37.52
1,375.00	0.18	287.79	1,374.94	4.64	-9.96	-8.53	0.04	0.04	1.84
1,400.00	0.23	281.35	1,399.94	4.66	-10.05	-8.59	0.22	0.20	-25.76
1,425.00	0.21	301.67	1,424.94	4.70	-10.14	-8.66	0.32	-0.08	81.28
1,450.00	0.30	315.36	1,449.94	4.77	-10.22	-8.76	0.43	0.36	54.76
1,475.00	0.36	338.25	1,474.94	4.89	-10.30	-8.90	0.57	0.24	91.56
1,500.00	0.39	333.83	1,499.94	5.04	-10.36	-9.06	0.17	0.12	-17.68
1,525.00	0.44	324.66	1,524.94	5.19	-10.46	-9.24	0.33	0.20	-36.68
1,550.00	0.37	334.71	1,549.94	5.34	-10.55	-9.42	0.40	-0.28	40.20
1,575.00	0.43	335.62	1,574.94	5.50	-10.62	-9.59	0.24	0.24	3.64
1,600.00	0.58	322.15	1,599.94	5.69	-10.74	-9.81	0.76	0.60	-53.88
1,625.00	0.45	349.30	1,624.94	5.88	-10.83	-10.03	1.09	-0.52	108.60
1,650.00	0.46	329.74	1,649.94	6.07	-10.90	-10.22	0.62	0.04	-78.24
1,675.00	0.40	337.85	1,674.94	6.23	-10.99	-10.41	0.34	-0.24	32.44
1,700.00	0.42	327.78	1,699.94	6.39	-11.07	-10.59	0.30	0.08	-40.28
1,725.00	0.44	331.06	1,724.94	6.55	-11.16	-10.77	0.13	0.08	13.12
1,750.00	0.50	331.77	1,749.93	6.73	-11.26	-10.98	0.24	0.24	2.84
1,775.00	0.50	327.12	1,774.93	6.92	-11.37	-11.19	0.16	0.00	-18.60
1,800.00	0.47	331.03	1,799.93	7.10	-11.48	-11.41	0.18	-0.12	15.64
1,825.00	0.47	330.96	1,824.93	7.28	-11.58	-11.61	0.00	0.00	-0.28
1,850.00	0.43	337.24	1,849.93	7.46	-11.67	-11.81	0.25	-0.16	25.12
1,875.00	0.48	331.72	1,874.93	7.64	-11.75	-12.00	0.27	0.20	-22.08
1,900.00	0.36	333.26	1,899.93	7.80	-11.84	-12.19	0.48	-0.48	6.16
1,925.00	0.33	354.68	1,924.93	7.94	-11.88	-12.33	0.53	-0.12	85.68
1,950.00	0.44	316.44	1,949.93	8.08	-11.95	-12.49	1.09	0.44	-152.96
1,975.00	0.38	322.64	1,974.93	8.22	-12.07	-12.67	0.30	-0.24	24.80
2,000.00	0.35	318.40	1,999.93	8.34	-12.17	-12.82	0.16	-0.12	-16.96
2,025.00	0.16	305.45	2,024.93	8.42	-12.25	-12.92	0.79	-0.76	-51.80
2,050.00	0.13	302.65	2,049.93	8.45	-12.30	-12.98	0.12	-0.12	-11.20
2,075.00	0.12	303.43	2,074.93	8.48	-12.35	-13.03	0.04	-0.04	3.12
2,100.00	0.25	301.52	2,099.93	8.53	-12.41	-13.09	0.52	0.52	-7.64
2,125.00	0.21	292.25	2,124.93	8.57	-12.50	-13.17	0.22	-0.16	-37.08
2,150.00	0.22	258.52	2,149.93	8.58	-12.59	-13.22	0.50	0.04	-134.92
2,175.00	0.23	176.69	2,174.93	8.52	-12.64	-13.19	1.18	0.04	-327.32
2,200.00	0.34	156.85	2,199.93	8.40	-12.60	-13.07	0.58	0.44	-79.36
2,225.00	0.35	157.68	2,224.93	8.26	-12.55	-12.92	0.04	0.04	3.32
2,250.00	0.47	151.34	2,249.93	8.10	-12.47	-12.74	0.51	0.48	-25.36
2,275.00	0.38	163.28	2,274.92	7.93	-12.40	-12.55	0.50	-0.36	47.76
2,300.00	0.41	150.60	2,299.92	7.78	-12.33	-12.38	0.37	0.12	-50.72

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Project:	Mary Prospect	TVD Reference:	GL 1293' & KB 10' @ 1303.00ft (Highlands 2)
Site:	Blake Pad	MD Reference:	GL 1293' & KB 10' @ 1303.00ft (Highlands 2)
Well:	4H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Northeast District

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
2,325.00	0.37	159.17	2,324.92	7.62	-12.26	-12.21	0.28	-0.16	34.28	
2,350.00	0.34	170.47	2,349.92	7.47	-12.21	-12.06	0.30	-0.12	45.20	
2,375.00	0.44	166.02	2,374.92	7.31	-12.18	-11.89	0.42	0.40	-17.80	
2,400.00	0.43	156.26	2,399.92	7.13	-12.12	-11.71	0.30	-0.04	-39.04	
2,425.00	0.40	167.52	2,424.92	6.96	-12.06	-11.53	0.35	-0.12	45.04	
2,450.00	0.34	155.63	2,449.92	6.80	-12.01	-11.37	0.39	-0.24	-47.56	
2,475.00	0.34	160.55	2,474.92	6.67	-11.96	-11.22	0.12	0.00	19.68	
2,500.00	0.36	164.29	2,499.92	6.52	-11.91	-11.07	0.12	0.06	14.96	
2,525.00	0.39	157.57	2,524.92	6.37	-11.86	-10.91	0.21	0.12	-26.88	
2,550.00	0.33	182.78	2,549.92	6.22	-11.83	-10.76	0.67	-0.24	100.84	
2,575.00	0.32	166.74	2,574.92	6.08	-11.82	-10.63	0.36	-0.04	-64.16	
2,595.00	0.28	171.49	2,594.92	5.97	-11.79	-10.53	0.23	-0.20	23.73	
Last SDI Gyro Survey										
2,595.35	0.28	171.58	2,595.27	5.97	-11.79	-10.53	0.23	-0.19	27.08	
2,615.00	0.19	70.87	2,614.92	5.94	-11.76	-10.48	1.86	-0.46	-512.52	
First SDI MWD Survey										
2,646.00	0.58	74.55	2,645.92	5.99	-11.56	-10.44	1.26	1.26	11.87	
2,709.00	1.36	55.59	2,708.91	6.50	-10.63	-10.49	1.32	1.24	-30.10	
2,741.00	1.64	60.66	2,740.90	6.94	-9.92	-10.58	0.97	0.88	15.84	
2,772.00	2.13	70.19	2,771.88	7.35	-8.99	-10.54	1.87	1.58	30.74	
2,866.00	2.98	100.52	2,865.79	7.50	-4.95	-8.91	1.67	0.90	32.27	
2,960.00	3.91	121.45	2,959.62	5.38	0.19	-4.76	1.65	0.99	22.27	
3,054.00	4.64	129.95	3,053.36	1.27	5.84	1.41	1.03	0.78	9.04	
3,148.00	5.28	137.09	3,147.01	-4.34	11.70	9.02	0.94	0.68	7.60	
3,242.00	5.89	152.44	3,240.57	-11.79	16.88	17.98	1.71	0.65	16.33	
3,336.00	6.77	157.22	3,334.00	-21.17	21.25	28.33	1.09	0.94	5.09	
3,431.00	7.06	168.26	3,428.31	-32.05	24.61	39.58	1.43	0.31	11.62	
3,525.00	7.12	172.55	3,521.59	-43.48	26.54	50.71	0.57	0.06	4.56	
3,619.00	7.09	176.02	3,614.87	-55.05	27.70	61.62	0.46	-0.03	3.69	
3,713.00	7.84	177.56	3,708.07	-67.24	28.37	72.88	0.83	0.80	1.64	
3,807.00	8.03	178.14	3,801.17	-80.21	28.86	84.75	0.22	0.20	0.62	
3,901.00	8.17	173.24	3,894.23	-93.40	29.86	97.06	0.75	0.15	-5.21	
3,997.00	8.40	175.65	3,989.23	-107.17	31.19	110.02	0.43	0.24	2.51	
4,091.00	7.66	180.70	4,082.31	-120.28	31.64	122.01	1.09	-0.79	5.37	
4,185.00	7.60	178.71	4,175.48	-132.76	31.70	133.26	0.29	-0.06	-2.12	
4,279.00	7.51	175.65	4,268.66	-145.10	32.31	144.63	0.44	-0.10	-3.26	
4,373.00	8.07	175.38	4,361.80	-157.80	33.30	155.49	0.60	0.60	-0.29	
4,467.00	8.04	172.59	4,454.87	-170.89	34.68	168.87	0.42	-0.03	-2.97	
4,484.00	7.93	172.98	4,471.70	-173.24	34.98	171.11	0.71	-0.64	2.29	
Last SDI MWD Survey										
4,562.00	7.44	174.91	4,549.00	-183.61	36.09	180.92	0.71	-0.63	2.48	
4,656.00	7.95	173.67	4,642.16	-196.13	37.34	192.73	0.57	0.54	-1.32	
4,750.00	7.72	178.15	4,735.28	-208.90	38.26	204.62	0.69	-0.24	4.77	
4,844.00	7.82	176.73	4,828.42	-221.60	38.83	216.29	0.23	0.11	-1.51	



Scientific Drilling
Survey Report



Company:	Stone Energy	Local Co-ordinate Reference:	Well 4H
Project:	Mary Prospect	TVD Reference:	GL 1293' & KB 10' @ 1303.00ft (Highlands 2)
Site:	Blake Pad	MD Reference:	GL 1293' & KB 10' @ 1303.00ft (Highlands 2)
Well:	4H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Northeast District

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,924.00	7.82	176.73	4,907.67	-232.46	39.45	226.33	0.00	0.00	0.00
Projection									

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
25.00	25.00	0.03	-0.02	Ground Level
50.00	50.00	0.11	-0.07	First SDI Gyro Survey
2,595.00	2,594.92	5.97	-11.79	Last SDI Gyro Survey
2,615.00	2,614.92	5.94	-11.76	First SDI MWD Survey
4,484.00	4,471.70	-173.24	34.98	Last SDI MWD Survey
4,924.00	4,907.67	-232.46	39.45	Projection

Checked By: _____ Approved By: _____ Date: _____