



Steward Energy II, LLC

Lea County, NM (NAD 83)

Heisenberg State 7H

Well #1

Heisenberg State 7H

Design: Heisenberg State 7H

Standard Survey Report

25 June, 2017





Survey Report

Company:	Steward Energy II, LLC	Local Co-ordinate Reference:	Well Well #1
Project:	Lea County, NM (NAD 83)	TVD Reference:	GL 3818.00' + 18.5' RKB @ 3836.50ft (McVay 5)
Site:	Heisenberg State 7H	MD Reference:	GL 3818.00' + 18.5' RKB @ 3836.50ft (McVay 5)
Well:	Well #1	North Reference:	Grid
Wellbore:	Heisenberg State 7H	Survey Calculation Method:	Minimum Curvature
Design:	Heisenberg State 7H	Database:	EDM 5000.14 Single User Db

Project	Lea County, NM (NAD 83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Heisenberg State 7H				
Site Position:		Northing:	777,715.00 usft	Latitude:	33.132°N
From:	Map	Easting:	919,458.90 usft	Longitude:	103.098°W
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	0.68 °

Well	Well #1					
Well Position	+N/-S	0.00 ft	Northing:	777,715.00 usft	Latitude:	33.132°N
	+E/-W	0.00 ft	Easting:	919,458.90 usft	Longitude:	103.098°W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	3,818.00 ft

Wellbore	Heisenberg State 7H				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	6/7/2017	6.80	60.96	48,524.86674741

Design	Heisenberg State 7H				
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	359.64	

Survey Program	Date	6/25/2017			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
39.18	2,409.68	Surface Gyro VES (NAD 83) (Heisenberg)	CB_Film_GMS	Camera Based Film Gyro Multi-Shot	
2,488.00	13,387.00	Driltech MWD (Heisenberg State 7H)	MWD	MWD - Standard	

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
39.18	0.31	266.64	39.18	-0.01	-0.11	-0.01	0.79	0.79	0.00	
39' MD Begin VES Gyro										
134.00	1.22	246.30	133.99	-0.43	-1.29	-0.42	0.99	0.96	-21.45	
228.82	1.42	235.26	228.79	-1.50	-3.18	-1.48	0.34	0.21	-11.64	
323.64	1.21	240.91	323.58	-2.66	-5.02	-2.63	0.26	-0.22	5.96	
418.46	1.38	240.23	418.38	-3.71	-6.88	-3.67	0.18	0.18	-0.72	
513.28	1.18	232.30	513.17	-4.88	-8.65	-4.82	0.28	-0.21	-8.36	
608.10	1.17	222.59	607.97	-6.19	-10.07	-6.12	0.21	-0.01	-10.24	
702.92	1.14	220.56	702.77	-7.62	-11.34	-7.54	0.05	-0.03	-2.14	



Survey Report

Company:	Steward Energy II, LLC	Local Co-ordinate Reference:	Well Well #1
Project:	Lea County, NM (NAD 83)	TVD Reference:	GL 3818.00' + 18.5' RKB @ 3836.50ft (McVay 5)
Site:	Heisenberg State 7H	MD Reference:	GL 3818.00' + 18.5' RKB @ 3836.50ft (McVay 5)
Well:	Well #1	North Reference:	Grid
Wellbore:	Heisenberg State 7H	Survey Calculation Method:	Minimum Curvature
Design:	Heisenberg State 7H	Database:	EDM 5000.14 Single User Db

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
797.74	0.88	236.70	797.58	-8.73	-12.56	-8.65	0.40	-0.27	17.02	
892.56	0.66	237.11	892.39	-9.43	-13.63	-9.34	0.23	-0.23	0.43	
987.38	0.66	218.19	987.20	-10.15	-14.43	-10.06	0.23	0.00	-19.95	
1,082.20	0.64	187.71	1,082.02	-11.11	-14.84	-11.01	0.36	-0.02	-32.15	
1,177.02	0.37	217.49	1,176.83	-11.88	-15.09	-11.78	0.39	-0.28	31.41	
1,271.84	0.42	195.14	1,271.65	-12.45	-15.37	-12.36	0.17	0.05	-23.57	
1,366.66	0.21	193.05	1,366.47	-12.96	-15.50	-12.86	0.22	-0.22	-2.20	
1,461.48	0.53	182.88	1,461.29	-13.57	-15.56	-13.47	0.34	0.34	-10.73	
1,556.30	0.91	211.93	1,556.10	-14.64	-15.98	-14.54	0.54	0.40	30.64	
1,651.12	0.79	227.42	1,650.91	-15.72	-16.86	-15.62	0.27	-0.13	16.34	
1,745.94	0.64	222.65	1,745.72	-16.56	-17.70	-16.44	0.17	-0.16	-5.03	
1,840.76	0.73	200.79	1,840.54	-17.51	-18.27	-17.39	0.29	0.09	-23.05	
1,935.58	0.51	189.48	1,935.35	-18.49	-18.56	-18.37	0.26	-0.23	-11.93	
2,030.40	0.48	189.60	2,030.17	-19.30	-18.69	-19.18	0.03	-0.03	0.13	
2,125.22	0.51	173.39	2,124.98	-20.11	-18.71	-19.99	0.15	0.03	-17.10	
2,220.04	0.55	156.07	2,219.80	-20.94	-18.48	-20.83	0.17	0.04	-18.27	
2,314.86	0.57	168.64	2,314.62	-21.82	-18.20	-21.71	0.13	0.02	13.26	
2,409.68	0.49	169.24	2,409.43	-22.68	-18.03	-22.57	0.08	-0.08	0.63	
2409.68'MD: Tie into VES Gyro										
2,488.00	0.53	92.87	2,487.75	-23.03	-17.61	-22.92	0.81	0.05	-97.51	
2488'MD: Begin DrillTech MWD										
2,582.00	1.41	40.66	2,581.74	-22.18	-16.42	-22.07	1.24	0.94	-55.54	
2,677.00	1.85	49.54	2,676.70	-20.29	-14.49	-20.20	0.53	0.46	9.35	
2,771.00	2.64	61.05	2,770.63	-18.26	-11.44	-18.19	0.96	0.84	12.24	
2,865.00	4.31	49.10	2,864.45	-14.90	-6.88	-14.86	1.93	1.78	-12.71	
2,960.00	6.33	51.47	2,959.04	-9.30	-0.08	-9.30	2.14	2.13	2.49	
3,054.00	8.79	56.74	3,052.21	-2.13	9.98	-2.19	2.72	2.62	5.61	
3,148.00	10.46	58.59	3,144.89	6.25	23.27	6.11	1.81	1.78	1.97	
3,242.00	12.13	60.35	3,237.06	15.59	39.13	15.34	1.81	1.78	1.87	
3,337.00	13.54	61.40	3,329.69	25.85	57.57	25.49	1.50	1.48	1.11	
3,430.00	14.16	60.35	3,419.98	36.69	77.02	36.20	0.72	0.67	-1.13	
3,524.00	15.65	62.81	3,510.82	48.17	98.29	47.55	1.72	1.59	2.62	
3,618.00	17.32	62.99	3,600.95	60.32	122.03	59.55	1.78	1.78	0.19	
3,712.00	18.91	62.37	3,690.29	73.74	148.00	72.81	1.70	1.69	-0.66	
3,806.00	20.14	60.52	3,778.88	88.77	175.58	87.66	1.46	1.31	-1.97	
3,900.00	20.49	60.00	3,867.04	104.96	203.92	103.67	0.42	0.37	-0.55	
3,995.00	19.79	60.96	3,956.23	121.08	232.38	119.62	0.81	-0.74	1.01	
4,089.00	20.58	60.44	4,044.45	136.95	260.66	135.31	0.86	0.84	-0.55	
4,183.00	21.28	57.54	4,132.25	154.26	289.42	152.44	1.33	0.74	-3.09	
4,278.00	20.40	56.66	4,221.04	172.61	317.80	170.61	0.98	-0.93	-0.93	
4,371.00	20.58	57.45	4,308.15	190.31	345.12	188.14	0.35	0.19	0.85	
4,466.00	21.19	58.59	4,396.91	208.25	373.85	205.89	0.77	0.64	1.20	
4,560.00	19.96	59.82	4,484.91	225.17	402.22	222.63	1.39	-1.31	1.31	



Survey Report

Company:	Steward Energy II, LLC	Local Co-ordinate Reference:	Well Well #1
Project:	Lea County, NM (NAD 83)	TVD Reference:	GL 3818.00' + 18.5' RKB @ 3836.50ft (McVay 5)
Site:	Heisenberg State 7H	MD Reference:	GL 3818.00' + 18.5' RKB @ 3836.50ft (McVay 5)
Well:	Well #1	North Reference:	Grid
Wellbore:	Heisenberg State 7H	Survey Calculation Method:	Minimum Curvature
Design:	Heisenberg State 7H	Database:	EDM 5000.14 Single User Db

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N-S (ft)	+E-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,654.00	18.38	60.00	4,573.70	240.64	428.93	237.94	1.68	-1.68	0.19
4,747.00	18.73	56.04	4,661.87	256.32	454.01	253.46	1.41	0.38	-4.26
4,842.00	19.26	51.30	4,751.70	274.63	478.89	271.62	1.72	0.56	-4.99
4,936.00	19.17	46.20	4,840.47	295.01	502.13	291.85	1.79	-0.10	-5.43
5,031.00	19.87	40.13	4,930.02	318.15	523.80	314.86	2.26	0.74	-6.39
5,062.00	20.14	37.94	4,959.15	326.39	530.47	323.05	2.57	0.87	-7.06
5,094.00	22.16	34.42	4,988.99	335.71	537.27	332.33	7.45	6.31	-11.00
5,125.00	25.32	31.87	5,017.37	346.17	544.08	342.75	10.72	10.19	-8.23
5,156.00	29.72	30.11	5,044.85	358.45	551.44	354.98	14.43	14.19	-5.68
5,188.00	33.33	29.41	5,072.13	372.98	559.74	369.45	11.34	11.28	-2.19
5,219.00	36.14	28.80	5,097.60	388.41	568.32	384.83	9.13	9.06	-1.97
5,250.00	39.39	27.74	5,122.10	405.13	577.31	401.50	10.69	10.48	-3.42
5,281.00	42.56	27.21	5,145.50	423.17	586.68	419.47	10.29	10.23	-1.71
5,313.00	44.67	27.39	5,168.67	442.78	596.81	439.02	6.61	6.59	0.56
5,344.00	47.22	26.25	5,190.23	462.66	606.85	458.84	8.64	8.23	-3.68
5,375.00	49.77	24.93	5,210.77	483.60	616.88	479.72	8.82	8.23	-4.26
5,407.00	51.79	24.49	5,231.00	506.12	627.24	502.17	6.40	6.31	-1.38
5,438.00	55.57	24.31	5,249.36	528.86	637.55	524.85	12.20	12.19	-0.58
5,470.00	59.27	23.30	5,266.59	553.53	648.43	549.45	11.86	11.56	-3.16
5,501.00	62.17	22.03	5,281.75	578.48	658.84	574.33	10.01	9.35	-4.10
5,533.00	64.02	19.92	5,296.23	605.12	669.05	600.91	8.25	5.78	-6.59
5,564.00	65.77	18.51	5,309.38	631.63	678.29	627.36	6.99	5.65	-4.55
5,595.00	67.62	17.72	5,321.64	658.69	687.14	654.36	6.41	5.97	-2.55
5,626.00	70.26	17.28	5,332.78	686.28	695.84	681.89	8.62	8.52	-1.42
5,646.00	72.46	17.37	5,339.18	704.37	701.48	699.95	11.01	11.00	0.45
5,677.00	75.10	16.05	5,347.83	732.87	710.04	728.40	9.45	8.52	-4.26
5,708.00	76.77	14.65	5,355.37	761.87	717.99	757.34	6.94	5.39	-4.52
5,740.00	79.05	11.75	5,362.07	792.33	725.13	787.76	11.37	7.13	-9.06
5,772.00	81.78	9.55	5,367.40	823.33	730.96	818.73	10.90	8.53	-6.88
5,803.00	83.19	7.53	5,371.45	853.73	735.53	849.09	7.90	4.55	-6.52
5,835.00	85.56	6.21	5,374.59	885.34	739.33	880.68	8.47	7.41	-4.13
5,866.00	87.05	5.24	5,376.59	916.12	742.42	911.44	5.73	4.81	-3.13
5,898.00	88.02	4.27	5,377.96	947.98	745.07	943.28	4.28	3.03	-3.03
5,993.00	89.87	1.02	5,379.71	1,042.85	749.45	1,038.12	3.94	1.95	-3.42
6,087.00	90.22	0.14	5,379.64	1,136.84	750.40	1,132.10	1.01	0.37	-0.94
6,181.00	90.04	0.93	5,379.43	1,230.83	751.28	1,226.09	0.86	-0.19	0.84
6,275.00	89.52	359.70	5,379.79	1,324.83	751.80	1,320.08	1.42	-0.55	-1.31
6,369.00	91.45	359.97	5,378.99	1,418.82	751.53	1,414.07	2.07	2.05	0.29
6,463.00	91.63	359.97	5,376.47	1,512.79	751.48	1,508.04	0.19	0.19	0.00
6,557.00	91.80	0.32	5,373.65	1,606.75	751.71	1,601.99	0.41	0.18	0.37
6,651.00	91.28	1.81	5,371.13	1,700.69	753.46	1,695.92	1.68	-0.55	1.59
6,746.00	90.84	1.37	5,369.37	1,795.64	756.10	1,790.85	0.65	-0.46	-0.46
6,837.00	90.66	0.85	5,368.18	1,886.61	757.86	1,881.81	0.60	-0.20	-0.57
6,929.00	90.04	357.86	5,367.62	1,978.60	756.82	1,973.80	3.32	-0.67	-3.25



Survey Report

Company:	Steward Energy II, LLC	Local Co-ordinate Reference:	Well Well #1
Project:	Lea County, NM (NAD 83)	TVD Reference:	GL 3818.00' + 18.5' RKB @ 3836.50ft (McVay 5)
Site:	Heisenberg State 7H	MD Reference:	GL 3818.00' + 18.5' RKB @ 3836.50ft (McVay 5)
Well:	Well #1	North Reference:	Grid
Wellbore:	Heisenberg State 7H	Survey Calculation Method:	Minimum Curvature
Design:	Heisenberg State 7H	Database:	EDM 5000.14 Single User Db

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
7,022.00	89.69	357.86	5,367.84	2,071.53	753.35	2,066.76	0.38	-0.38	0.00
7,112.00	89.52	357.16	5,368.46	2,161.44	749.44	2,156.69	0.80	-0.19	-0.78
7,204.00	90.57	357.68	5,368.38	2,253.35	745.30	2,248.62	1.27	1.14	0.57
7,296.00	90.31	356.28	5,367.68	2,345.21	740.45	2,340.52	1.55	-0.28	-1.52
7,388.00	90.66	357.68	5,366.90	2,437.08	735.61	2,432.41	1.57	0.38	1.52
7,480.00	91.19	358.83	5,365.41	2,529.02	732.81	2,524.37	1.38	0.58	1.25
7,572.00	92.07	2.16	5,362.80	2,620.97	733.60	2,616.31	3.74	0.96	3.62
7,666.00	91.45	359.79	5,359.91	2,714.90	735.20	2,710.23	2.60	-0.66	-2.52
7,760.00	91.54	0.23	5,357.46	2,808.87	735.21	2,804.20	0.48	0.10	0.47
7,854.00	90.57	359.79	5,355.72	2,902.86	735.23	2,898.18	1.13	-1.03	-0.47
7,948.00	90.40	0.58	5,354.93	2,996.85	735.53	2,992.17	0.86	-0.18	0.84
8,042.00	90.48	0.49	5,354.21	3,090.84	736.41	3,086.16	0.13	0.09	-0.10
8,136.00	90.92	0.93	5,353.06	3,184.83	737.58	3,180.13	0.66	0.47	0.47
8,230.00	91.28	0.93	5,351.25	3,278.80	739.10	3,274.09	0.38	0.38	0.00
8,325.00	89.78	1.37	5,350.38	3,373.77	741.01	3,369.05	1.65	-1.58	0.46
8,419.00	89.78	359.26	5,350.74	3,467.77	741.52	3,463.04	2.24	0.00	-2.24
8,513.00	90.22	359.18	5,350.74	3,561.76	740.25	3,557.04	0.48	0.47	-0.09
8,608.00	92.15	2.25	5,348.77	3,656.71	741.43	3,651.98	3.82	2.03	3.23
8,701.00	88.64	359.26	5,348.13	3,749.68	742.65	3,744.94	4.96	-3.77	-3.22
8,796.00	90.48	0.14	5,348.86	3,844.67	742.16	3,839.93	2.15	1.94	0.93
8,890.00	90.75	356.36	5,347.85	3,938.60	739.29	3,933.88	4.03	0.29	-4.02
8,984.00	90.92	353.82	5,346.48	4,032.24	731.24	4,027.57	2.71	0.18	-2.70
9,079.00	90.75	351.00	5,345.10	4,126.39	718.70	4,121.79	2.97	-0.18	-2.97
9,173.00	91.01	353.73	5,343.65	4,219.53	706.21	4,215.01	2.92	0.28	2.90
9,267.00	89.16	356.72	5,343.51	4,313.19	698.39	4,308.72	3.74	-1.97	3.18
9,363.00	90.04	358.56	5,344.18	4,409.10	694.43	4,404.65	2.12	0.92	1.92
9,457.00	91.71	0.32	5,342.75	4,503.08	693.52	4,498.64	2.58	1.78	1.87
9,552.00	90.22	1.37	5,341.15	4,598.05	694.92	4,593.60	1.92	-1.57	1.11
9,646.00	91.36	0.76	5,339.85	4,692.03	696.66	4,687.56	1.38	1.21	-0.65
9,740.00	92.24	1.37	5,336.90	4,785.96	698.41	4,781.48	1.14	0.94	0.65
9,834.00	90.48	1.99	5,334.67	4,879.89	701.17	4,875.39	1.99	-1.87	0.66
9,928.00	90.13	2.60	5,334.17	4,973.81	704.93	4,969.29	0.75	-0.37	0.65
10,022.00	90.92	3.31	5,333.31	5,067.68	709.77	5,063.13	1.13	0.84	0.76
10,116.00	90.04	1.90	5,332.52	5,161.58	714.05	5,156.99	1.77	-0.94	-1.50
10,210.00	89.25	0.93	5,333.10	5,255.55	716.37	5,250.94	1.33	-0.84	-1.03
10,305.00	89.52	359.62	5,334.12	5,350.54	716.82	5,345.93	1.41	0.28	-1.38
10,399.00	90.75	359.18	5,333.90	5,444.53	715.84	5,439.93	1.39	1.31	-0.47
10,493.00	91.10	358.56	5,332.38	5,538.50	713.99	5,533.91	0.76	0.37	-0.66
10,588.00	91.89	358.30	5,329.90	5,633.43	711.38	5,628.85	0.88	0.83	-0.27
10,682.00	92.51	359.44	5,326.29	5,727.34	709.53	5,722.77	1.38	0.66	1.21
10,776.00	92.95	0.23	5,321.82	5,821.23	709.26	5,816.66	0.96	0.47	0.84
10,870.00	91.36	359.97	5,318.28	5,915.17	709.42	5,910.59	1.71	-1.69	-0.28
10,964.00	91.28	0.32	5,316.12	6,009.14	709.66	6,004.56	0.38	-0.09	0.37



Survey Report

Company:	Steward Energy II, LLC	Local Co-ordinate Reference:	Well Well #1
Project:	Lea County, NM (NAD 83)	TVD Reference:	GL 3818.00' + 18.5' RKB @ 3836.50ft (McVay 5)
Site:	Heisenberg State 7H	MD Reference:	GL 3818.00' + 18.5' RKB @ 3836.50ft (McVay 5)
Well:	Well #1	North Reference:	Grid
Wellbore:	Heisenberg State 7H	Survey Calculation Method:	Minimum Curvature
Design:	Heisenberg State 7H	Database:	EDM 5000.14 Single User Db

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
11,058.00	91.19	0.76	5,314.09	6,103.11	710.55	6,098.53	0.48	-0.10	0.47	
11,152.00	90.04	0.41	5,313.08	6,197.10	711.51	6,192.51	1.28	-1.22	-0.37	
11,247.00	90.57	359.62	5,312.58	6,292.10	711.53	6,287.50	1.00	0.56	-0.83	
11,341.00	90.75	359.44	5,311.49	6,386.09	710.76	6,381.50	0.27	0.19	-0.19	
11,436.00	90.66	358.83	5,310.32	6,481.07	709.33	6,476.49	0.65	-0.09	-0.64	
11,530.00	90.92	358.83	5,309.03	6,575.04	707.41	6,570.47	0.28	0.28	0.00	
11,625.00	90.92	358.65	5,307.50	6,670.01	705.32	6,665.44	0.19	0.00	-0.19	
11,718.00	91.36	359.62	5,305.65	6,762.98	703.92	6,758.42	1.15	0.47	1.04	
11,813.00	91.28	359.35	5,303.46	6,857.95	703.06	6,853.39	0.30	-0.08	-0.28	
11,907.00	91.19	359.44	5,301.44	6,951.92	702.07	6,947.37	0.14	-0.10	0.10	
12,001.00	91.19	359.09	5,299.49	7,045.89	700.86	7,041.35	0.37	0.00	-0.37	
12,096.00	91.01	359.18	5,297.66	7,140.86	699.43	7,136.33	0.21	-0.19	0.09	
12,189.00	91.28	359.00	5,295.80	7,233.83	697.95	7,229.31	0.35	0.29	-0.19	
12,283.00	91.19	359.97	5,293.78	7,327.81	697.11	7,323.28	1.04	-0.10	1.03	
12,377.00	91.01	359.62	5,291.97	7,421.79	696.77	7,417.26	0.42	-0.19	-0.37	
12,472.00	91.80	0.14	5,289.64	7,516.76	696.57	7,512.23	1.00	0.83	0.55	
12,564.00	91.01	0.67	5,287.39	7,608.73	697.22	7,604.20	1.03	-0.86	0.58	
12,659.00	91.28	1.37	5,285.49	7,703.69	698.92	7,699.15	0.79	0.28	0.74	
12,753.00	89.96	1.81	5,284.47	7,797.65	701.52	7,793.09	1.48	-1.40	0.47	
12,847.00	90.13	1.99	5,284.40	7,891.60	704.64	7,887.01	0.26	0.18	0.19	
12,941.00	90.48	1.37	5,283.90	7,985.56	707.40	7,980.95	0.76	0.37	-0.66	
13,036.00	90.75	1.11	5,282.88	8,080.53	709.45	8,075.91	0.39	0.28	-0.27	
13,129.00	90.40	1.55	5,281.95	8,173.50	711.61	8,168.86	0.60	-0.38	0.47	
13,223.00	89.43	1.20	5,282.08	8,267.47	713.87	8,262.82	1.10	-1.03	-0.37	
13,262.16	89.10	1.24	5,282.59	8,306.62	714.70	8,301.96	0.85	-0.84	0.10	
13262'MD: 330' Hardline Crossing FNL										
13,317.00	88.64	1.29	5,283.67	8,361.43	715.91	8,356.77	0.85	-0.84	0.10	
13387'MD: Final DrilTech MWD Survey										
13,387.00	88.64	1.29	5,285.33	8,431.40	717.48	8,426.72	0.00	0.00	0.00	
13387'MD: Projection to Total Depth - BHL - 206' FNL -- 620' FEL										

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
39.18	39.18	-0.01	-0.11	39'MD Begin VES Gyro	
2,409.68	2,409.43	-22.68	-18.03	2409.68'MD: Tie into VES Gyro	
2,488.00	2,487.75	-23.03	-17.61	2488'MD: Begin DrilTech MWD	
13,262.16	5,282.59	8,306.62	714.70	13262'MD: 330' Hardline Crossing FNL	
13,317.00	5,283.67	8,361.43	715.91	13387'MD: Final DrilTech MWD Survey	
13,387.00	5,285.33	8,431.40	717.48	13387'MD: Projection to Total Depth	
13,387.00	5,285.33	8,431.40	717.48	BHL - 206' FNL -- 620' FEL	



Survey Report

Company:	Steward Energy II, LLC	Local Co-ordinate Reference:	Well Well #1
Project:	Lea County, NM (NAD 83)	TVD Reference:	GL 3818.00' + 18.5' RKB @ 3836.50ft (McVay 5)
Site:	Heisenberg State 7H	MD Reference:	GL 3818.00' + 18.5' RKB @ 3836.50ft (McVay 5)
Well:	Well #1	North Reference:	Grid
Wellbore:	Heisenberg State 7H	Survey Calculation Method:	Minimum Curvature
Design:	Heisenberg State 7H	Database:	EDM 5000.14 Single User Db

Checked By: _____ Approved By: _____ Date: _____