

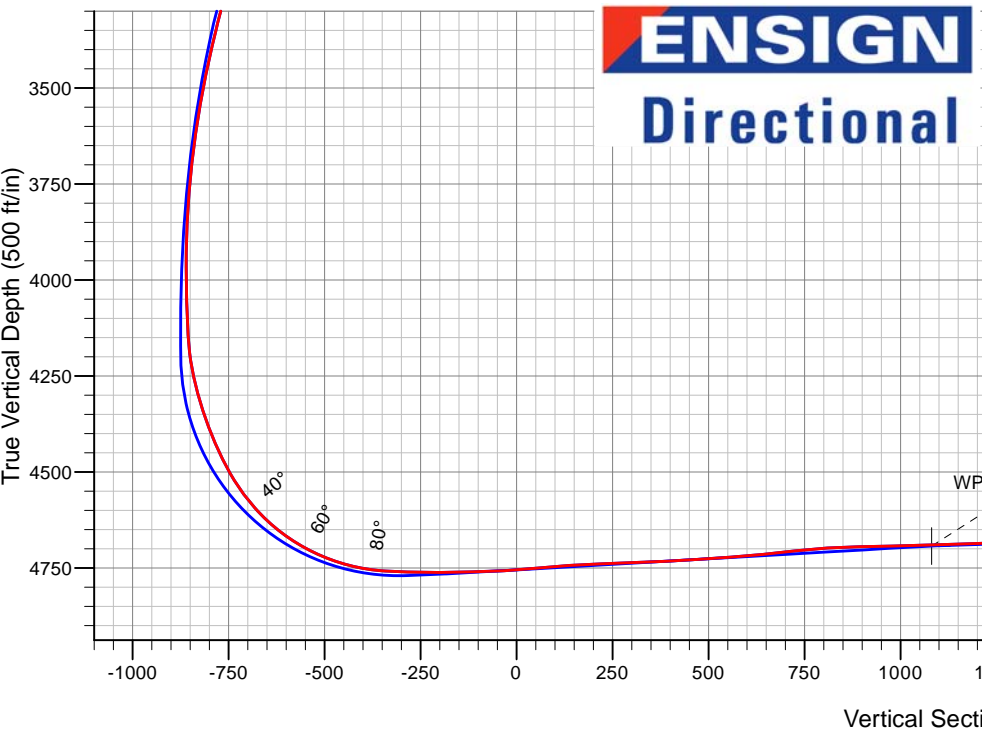
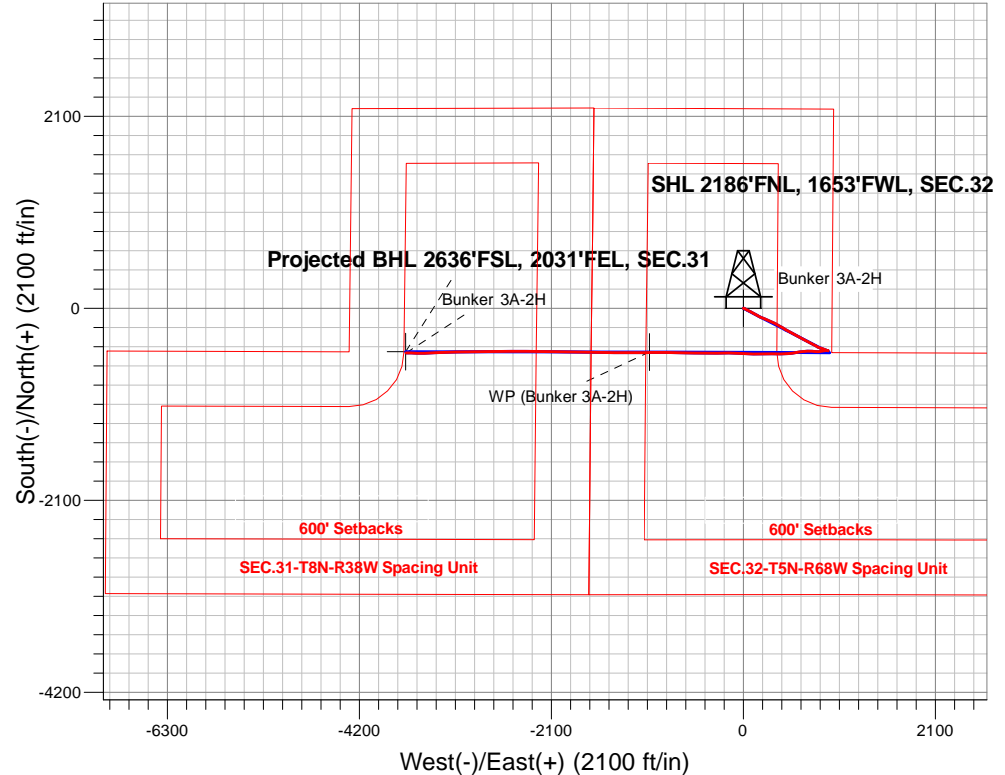
Magpie Operating, Inc.

Well Name: **Bunker 3A-2H**

Surface Location: Bunker 3A Pad Sec.32-T5N-R68W
 North American Datum 1983 , US State Plane 1983, Colorado Northern Zone
 Ground Elevation: 5050.0
 +N/-S+E/-W Northing Easting Latitude Longitude Slot
 0.0 0.0 1373551.303129774.49 40.357864 -105.034328
 Original Well Elev WELL @ 5068.0ft (Original Well Elev)

FINAL SURVEY

Projected Bottom Hole Location
9,297'MD 4681'TVD 488'S & 3688'W of SHL
91.5 degree Incl @ 270.7 degree AZM

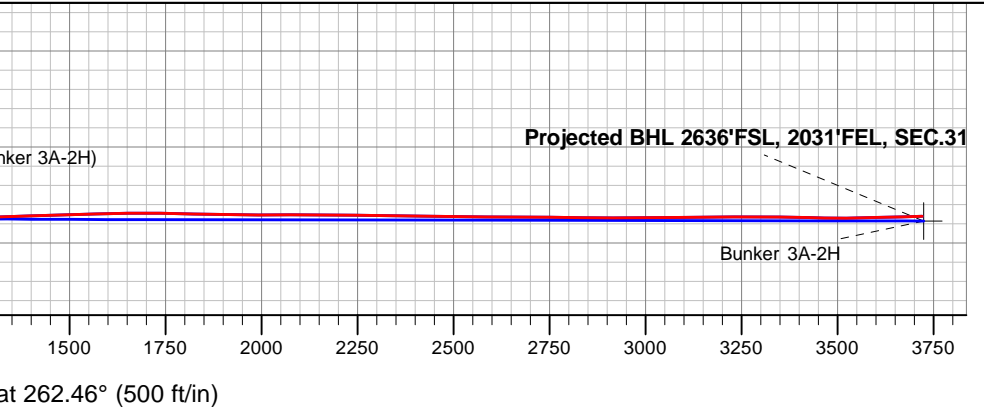


Bunker 3A Pad Sec.32-T5N-R68W
 Bunker 3A-2H
 Bunker 3A-2H Wellbore #1
 9:17, June 25 2018

ANNOTATIONS
 No annotation data is available.

LEGEND

- Bunker 3A-2H, Bunker 3A-2H Wellbore #1, Plan #3 (6-05-18) V0
- Bunker 3A-2H Wellbore #1
- Survey #1





Magpie Operating, Inc.

SEC.32-T5N-R68W

Bunker 3A Pad Sec.32-T5N-R68W

Bunker 3A-2H

Bunker 3A-2H Wellbore #1

Survey: Survey #1

Standard Survey Report

25 June, 2018

Company:	Magpie Operating, Inc.	Local Co-ordinate Reference:	Well Bunker 3A-2H
Project:	SEC.32-T5N-R68W	TVD Reference:	WELL @ 5068.0ft (Original Well Elev)
Site:	Bunker 3A Pad Sec.32-T5N-R68W	MD Reference:	WELL @ 5068.0ft (Original Well Elev)
Well:	Bunker 3A-2H	North Reference:	True
Wellbore:	Bunker 3A-2H Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Bunker 3A-2H Wellbore #1	Database:	US_EDM

Project	SEC.32-T5N-R68W		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		Using Well Reference Point
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site	Bunker 3A Pad Sec.32-T5N-R68W				
Site Position:		Northing:	1,373,556.30 usft	Latitude:	40.357878
From:	Lat/Long	Easting:	3,129,774.46 usft	Longitude:	-105.034328
Position Uncertainty:	0.0 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.30 °

Well	Bunker 3A-2H					
Well Position	+N/-S	0.0 ft	Northing:	1,373,551.30 usft	Latitude:	40.357864
	+E/-W	0.0 ft	Easting:	3,129,774.49 usft	Longitude:	-105.034328
Position Uncertainty		0.0 ft	Wellhead Elevation:	0.0 ft	Ground Level:	5,050.0 ft

Wellbore	Bunker 3A-2H Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	6/5/2018	8.43	66.63	52,247

Design	Bunker 3A-2H Wellbore #1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.0	0.0	0.0		262.46

Survey Program	Date	6/25/2018			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
143.0	9,297.0	Survey #1 (Bunker 3A-2H Wellbore #1)	MWD	MWD - Standard	

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)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
1.0	0.00	358.90	1.0	0.0	0.0	0.0	0.49	0.49	0.00	
SHL 2186'FNL, 1653'FWL, SEC.32										
143.0	0.70	358.90	143.0	0.9	0.0	-0.1	0.49	0.49	0.00	
231.0	1.10	68.00	231.0	1.7	0.8	-1.0	1.22	0.45	78.52	
320.0	1.60	85.10	320.0	2.2	2.8	-3.0	0.72	0.56	19.21	
409.0	2.90	122.00	408.9	1.1	5.9	-6.0	2.12	1.46	41.46	
498.0	4.80	118.60	497.7	-1.9	11.1	-10.8	2.15	2.13	-3.82	
588.0	6.40	118.10	587.3	-6.1	18.8	-17.9	1.78	1.78	-0.56	
633.0	7.10	119.50	631.9	-8.6	23.5	-22.1	1.60	1.56	3.11	
763.0	10.30	117.20	760.4	-17.9	40.8	-38.1	2.48	2.46	-1.77	

Company:	Magpie Operating, Inc.	Local Co-ordinate Reference:	Well Bunker 3A-2H
Project:	SEC.32-T5N-R68W	TVD Reference:	WELL @ 5068.0ft (Original Well Elev)
Site:	Bunker 3A Pad Sec.32-T5N-R68W	MD Reference:	WELL @ 5068.0ft (Original Well Elev)
Well:	Bunker 3A-2H	North Reference:	True
Wellbore:	Bunker 3A-2H Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Bunker 3A-2H Wellbore #1	Database:	US_EDM

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)
852.0	10.10	115.50	848.0	-24.9	54.9	-51.2	0.41	-0.22	-1.91
941.0	11.20	120.10	935.5	-32.6	69.5	-64.6	1.56	1.24	5.17
1,030.0	12.80	116.20	1,022.5	-41.3	85.8	-79.6	2.01	1.80	-4.38
1,119.0	16.30	117.60	1,108.7	-51.4	105.7	-98.0	3.95	3.93	1.57
1,207.0	16.60	119.50	1,193.1	-63.3	127.6	-118.2	0.70	0.34	2.16
1,296.0	19.30	119.00	1,277.7	-76.7	151.5	-140.1	3.04	3.03	-0.56
1,385.0	18.60	119.70	1,361.9	-90.9	176.7	-163.3	0.83	-0.79	0.79
1,474.0	17.90	113.00	1,446.4	-103.3	201.6	-186.3	2.48	-0.79	-7.53
1,562.0	17.70	110.40	1,530.2	-113.2	226.6	-209.8	0.93	-0.23	-2.95
1,651.0	20.10	110.00	1,614.4	-123.2	253.7	-235.3	2.70	2.70	-0.45
1,740.0	21.70	112.70	1,697.6	-134.7	283.2	-263.1	2.10	1.80	3.03
1,829.0	22.80	119.50	1,780.0	-149.6	313.4	-291.1	3.14	1.24	7.64
1,918.0	22.00	117.60	1,862.2	-165.8	343.2	-318.5	1.21	-0.90	-2.13
2,006.0	21.20	116.70	1,944.1	-180.6	372.0	-345.1	0.98	-0.91	-1.02
2,095.0	22.70	120.90	2,026.6	-196.6	401.1	-371.9	2.44	1.69	4.72
2,183.0	23.00	120.60	2,107.7	-214.1	430.5	-398.7	0.37	0.34	-0.34
2,272.0	23.00	119.70	2,189.6	-231.6	460.6	-426.2	0.40	0.00	-1.01
2,361.0	22.90	119.20	2,271.6	-248.6	490.8	-453.9	0.25	-0.11	-0.56
2,450.0	21.50	118.50	2,354.0	-264.9	520.2	-481.0	1.60	-1.57	-0.79
2,538.0	19.00	119.20	2,436.5	-279.6	546.9	-505.5	2.85	-2.84	0.80
2,626.0	20.20	117.20	2,519.4	-293.5	572.9	-529.5	1.56	1.36	-2.27
2,715.0	21.70	117.80	2,602.6	-308.2	601.2	-555.5	1.70	1.69	0.67
2,804.0	23.00	118.50	2,684.9	-324.2	631.0	-583.0	1.49	1.46	0.79
2,893.0	21.30	117.60	2,767.3	-339.9	660.6	-610.3	1.95	-1.91	-1.01
2,982.0	22.20	119.30	2,850.0	-355.7	689.6	-636.9	1.23	1.01	1.91
3,071.0	21.80	118.50	2,932.5	-371.8	718.8	-663.8	0.56	-0.45	-0.90
3,160.0	20.80	117.10	3,015.4	-386.9	747.4	-690.1	1.26	-1.12	-1.57
3,249.0	19.90	119.90	3,098.9	-401.6	774.6	-715.2	1.49	-1.01	3.15
3,338.0	18.40	118.50	3,182.9	-415.9	800.1	-738.5	1.76	-1.69	-1.57
3,426.0	18.00	113.40	3,266.5	-427.9	824.7	-761.4	1.87	-0.45	-5.80
3,515.0	14.60	107.00	3,351.9	-436.6	848.1	-783.4	4.32	-3.82	-7.19
3,604.0	12.80	107.20	3,438.4	-442.8	868.2	-802.6	2.02	-2.02	0.22
3,693.0	12.40	107.70	3,525.3	-448.7	886.8	-820.2	0.47	-0.45	0.56
3,782.0	9.20	116.50	3,612.7	-454.7	902.2	-834.7	4.03	-3.60	9.89
3,872.0	6.90	104.60	3,701.8	-459.3	913.9	-845.7	3.14	-2.56	-13.22
3,960.0	5.30	119.90	3,789.3	-462.7	922.6	-853.8	2.58	-1.82	17.39
4,049.0	2.10	109.20	3,878.1	-465.3	927.7	-858.6	3.66	-3.60	-12.02
4,138.0	0.70	351.90	3,967.1	-465.3	929.1	-860.0	2.81	-1.57	-131.80
4,227.0	2.40	309.50	4,056.1	-463.5	927.6	-858.7	2.18	1.91	-47.64
4,316.0	3.50	292.50	4,144.9	-461.3	923.7	-855.1	1.57	1.24	-19.10
4,360.0	6.90	276.30	4,188.8	-460.5	919.8	-851.4	8.34	7.73	-36.82
4,405.0	10.70	267.90	4,233.2	-460.4	912.9	-844.6	8.89	8.44	-18.67
4,449.0	13.90	263.80	4,276.2	-461.1	903.6	-835.2	7.53	7.27	-9.32

Company:	Magpie Operating, Inc.	Local Co-ordinate Reference:	Well Bunker 3A-2H
Project:	SEC.32-T5N-R68W	TVD Reference:	WELL @ 5068.0ft (Original Well Elev)
Site:	Bunker 3A Pad Sec.32-T5N-R68W	MD Reference:	WELL @ 5068.0ft (Original Well Elev)
Well:	Bunker 3A-2H	North Reference:	True
Wellbore:	Bunker 3A-2H Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Bunker 3A-2H Wellbore #1	Database:	US_EDM

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)	
4,494.0	17.10	260.10	4,319.6	-462.8	891.7	-823.2	7.44	7.11	-8.22	
4,538.0	19.70	259.80	4,361.3	-465.2	878.0	-809.4	5.91	5.91	-0.68	
4,583.0	21.60	258.60	4,403.4	-468.2	862.4	-793.5	4.33	4.22	-2.67	
4,627.0	24.50	262.10	4,443.9	-471.1	845.5	-776.3	7.29	6.59	7.95	
4,671.0	27.40	266.30	4,483.5	-473.0	826.3	-757.1	7.80	6.59	9.55	
4,716.0	32.30	271.20	4,522.5	-473.4	803.9	-734.8	12.16	10.89	10.89	
4,760.0	37.50	275.60	4,558.6	-471.8	778.8	-710.2	13.12	11.82	10.00	
4,805.0	42.50	275.10	4,593.0	-469.1	750.0	-682.0	11.13	11.11	-1.11	
4,849.0	46.70	271.40	4,624.4	-467.4	719.2	-651.6	11.22	9.55	-8.41	
4,894.0	51.60	265.60	4,653.8	-468.4	685.2	-617.8	14.61	10.89	-12.89	
4,938.0	57.20	262.40	4,679.4	-472.2	649.7	-582.1	14.03	12.73	-7.27	
4,982.0	62.50	260.10	4,701.5	-478.0	612.1	-544.0	12.86	12.05	-5.23	
5,027.0	67.30	261.20	4,720.6	-484.6	571.9	-503.3	10.89	10.67	2.44	
5,071.0	72.30	262.80	4,735.8	-490.3	531.0	-462.1	11.86	11.36	3.64	
5,115.0	77.60	265.10	4,747.2	-494.8	488.8	-419.6	13.06	12.05	5.23	
5,160.0	83.30	267.90	4,754.7	-497.5	444.5	-375.4	14.07	12.67	6.22	
5,195.0	85.40	270.30	4,758.1	-498.0	409.7	-340.8	9.09	6.00	6.86	
5,242.7	88.41	270.30	4,760.7	-497.8	362.0	-293.6	6.32	6.32	0.00	
LPL 2649'FSL, 2021'FWL, SEC.32										
5,252.0	89.00	270.30	4,760.9	-497.7	352.8	-284.4	6.32	6.32	0.00	
5,336.0	90.10	269.30	4,761.5	-498.0	268.8	-201.1	1.77	1.31	-1.19	
5,423.0	91.50	269.30	4,760.3	-499.1	181.8	-114.7	1.61	1.61	0.00	
5,508.0	92.90	271.20	4,757.1	-498.7	96.9	-30.5	2.78	1.65	2.24	
5,593.0	95.80	274.00	4,750.6	-494.9	12.2	52.9	4.74	3.41	3.29	
5,679.0	93.30	271.60	4,743.8	-490.7	-73.4	137.2	4.02	-2.91	-2.79	
5,764.0	92.50	270.30	4,739.5	-489.3	-158.3	221.1	1.79	-0.94	-1.53	
5,849.0	91.70	269.60	4,736.4	-489.3	-243.2	305.4	1.25	-0.94	-0.82	
5,934.0	92.90	269.50	4,733.0	-490.0	-328.2	389.6	1.42	1.41	-0.12	
6,019.0	94.40	271.00	4,727.6	-489.6	-413.0	473.7	2.49	1.76	1.76	
6,105.0	93.60	270.00	4,721.6	-488.9	-498.8	558.6	1.49	-0.93	-1.16	
6,190.0	95.80	271.80	4,714.6	-487.6	-583.5	642.4	3.34	2.59	2.12	
6,275.0	96.10	271.00	4,705.8	-485.5	-668.0	725.9	1.00	0.35	-0.94	
6,360.0	93.80	271.20	4,698.4	-483.9	-752.6	809.6	2.72	-2.71	0.24	
6,445.0	91.30	270.70	4,694.7	-482.5	-837.5	893.6	3.00	-2.94	-0.59	
6,530.0	90.60	270.00	4,693.3	-481.9	-922.5	977.8	1.16	-0.82	-0.82	
6,615.0	92.20	269.30	4,691.2	-482.5	-1,007.5	1,062.1	2.05	1.88	-0.82	
6,634.5	92.22	269.09	4,690.4	-482.7	-1,027.0	1,081.5	1.06	0.12	-1.06	
WP (Bunker 3A-2H)										
6,700.0	92.30	268.40	4,687.8	-484.2	-1,092.4	1,146.5	1.06	0.12	-1.06	
6,785.0	91.50	268.60	4,685.0	-486.4	-1,177.3	1,231.0	0.97	-0.94	0.24	
6,873.0	92.20	271.60	4,682.2	-486.2	-1,265.3	1,318.2	3.50	0.80	3.41	
6,958.0	91.40	271.00	4,679.5	-484.3	-1,350.2	1,402.1	1.18	-0.94	-0.71	
7,042.0	92.10	270.90	4,676.9	-482.9	-1,434.2	1,485.1	0.84	0.83	-0.12	
7,127.0	91.50	270.20	4,674.3	-482.1	-1,519.1	1,569.3	1.08	-0.71	-0.82	

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Site:	Bunker 3A Pad Sec.32-T5N-R68W	MD Reference:	WELL @ 5068.0ft (Original Well Elev)
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Wellbore:	Bunker 3A-2H Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Bunker 3A-2H Wellbore #1	Database:	US_EDM

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)	
7,212.0	90.60	270.20	4,672.7	-481.8	-1,604.1	1,653.5	1.06	-1.06	0.00	
7,297.0	89.20	271.40	4,672.9	-480.6	-1,689.1	1,737.6	2.17	-1.65	1.41	
7,384.0	88.40	271.20	4,674.7	-478.7	-1,776.0	1,823.5	0.95	-0.92	-0.23	
7,469.0	89.30	271.00	4,676.4	-477.0	-1,861.0	1,907.5	1.08	1.06	-0.24	
7,554.0	89.80	270.70	4,677.1	-475.8	-1,946.0	1,991.6	0.69	0.59	-0.35	
7,639.0	90.40	270.50	4,676.9	-474.9	-2,031.0	2,075.7	0.74	0.71	-0.24	
7,724.0	89.50	271.00	4,677.0	-473.8	-2,116.0	2,159.9	1.21	-1.06	0.59	
7,808.0	89.30	270.90	4,677.9	-472.4	-2,200.0	2,242.9	0.27	-0.24	-0.12	
7,893.0	88.80	270.90	4,679.3	-471.0	-2,284.9	2,327.0	0.59	-0.59	0.00	
7,979.0	89.30	270.50	4,680.7	-470.0	-2,370.9	2,412.1	0.74	0.58	-0.47	
8,066.0	89.90	270.30	4,681.3	-469.4	-2,457.9	2,498.3	0.73	0.69	-0.23	
8,151.0	89.40	270.00	4,681.8	-469.1	-2,542.9	2,582.5	0.69	-0.59	-0.35	
8,236.0	89.60	269.50	4,682.6	-469.5	-2,627.9	2,666.8	0.63	0.24	-0.59	
8,322.0	89.30	268.80	4,683.4	-470.8	-2,713.9	2,752.2	0.89	-0.35	-0.81	
8,407.0	89.60	268.80	4,684.2	-472.6	-2,798.9	2,836.7	0.35	0.35	0.00	
8,492.0	89.60	268.40	4,684.8	-474.7	-2,883.8	2,921.2	0.47	0.00	-0.47	
8,579.0	90.80	270.00	4,684.5	-475.9	-2,970.8	3,007.6	2.30	1.38	1.84	
8,664.0	90.70	270.00	4,683.4	-475.9	-3,055.8	3,091.8	0.12	-0.12	0.00	
8,752.0	90.40	268.90	4,682.5	-476.7	-3,143.8	3,179.2	1.30	-0.34	-1.25	
8,839.0	90.10	267.70	4,682.2	-479.3	-3,230.8	3,265.7	1.42	-0.34	-1.38	
8,926.0	89.10	266.80	4,682.8	-483.5	-3,317.7	3,352.4	1.55	-1.15	-1.03	
9,011.0	88.40	267.70	4,684.6	-487.5	-3,402.6	3,437.1	1.34	-0.82	1.06	
9,097.0	90.40	269.10	4,685.5	-489.9	-3,488.5	3,522.6	2.84	2.33	1.63	
9,181.0	91.80	270.90	4,683.9	-489.9	-3,572.5	3,605.9	2.71	1.67	2.14	
9,242.0	91.50	270.70	4,682.2	-489.1	-3,633.5	3,666.2	0.59	-0.49	-0.33	
9,297.0	91.50	270.70	4,680.7	-488.4	-3,688.4	3,720.6	0.00	0.00	0.00	
BHL 2650'FSL, 2036'FEL, SEC.31										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
SHL 2186'FNL, 1653'FV - hit/miss target - Shape - Point	0.00	0.00	1.0	0.0	0.0	1,373,551.30	3,129,774.49	40.357864	-105.034328	
WP (Bunker 3A-2H) - survey misses target center by 5.1ft at 6634.5ft MD (4690.4 TVD, -482.7 N, -1027.0 E) - Point	0.00	0.00	4,693.0	-478.3	-1,027.2	1,373,067.61	3,128,749.86	40.356551	-105.038014	
BHL 2650'FSL, 2036'FEI - survey misses target center by 19.3ft at 9297.0ft MD (4680.7 TVD, -488.4 N, -3688.4 E) - Point	0.00	0.00	4,693.0	-474.5	-3,693.9	1,373,057.41	3,126,083.29	40.356561	-105.047582	

Company:	Magpie Operating, Inc.	Local Co-ordinate Reference:	Well Bunker 3A-2H
Project:	SEC.32-T5N-R68W	TVD Reference:	WELL @ 5068.0ft (Original Well Elev)
Site:	Bunker 3A Pad Sec.32-T5N-R68W	MD Reference:	WELL @ 5068.0ft (Original Well Elev)
Well:	Bunker 3A-2H	North Reference:	True
Wellbore:	Bunker 3A-2H Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Bunker 3A-2H Wellbore #1	Database:	US_EDM

Checked By: _____	Approved By: _____	Date: _____
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