



MARKSMEN DIRECTIONAL, INC.

UPDATED

OPERATOR: Enduring Resources LLC
 WELL: University 47-48 #1809H
 LOCATION: Reagan County, Texas
 Rig: Ensign 765

START: _____
 FINISH: _____
 DIR. DRILLER M. Johnston D. Gresham
 CO. REP. Mike Doyle

TIE-IN SURVEY PROVIDED BY: _____

Comments: _____

DECLINATION (+E / -W): 6.2
Grid Conv.

Directional by Marksmen Directional

MWD Surveys Provided By Kingsley Energy Services

MINIMUM CURVATURE CALCULATIONS(SPE-3362)

PROPOSED DIR.: 0.66

*****Survey Input*****

Survey	Measured No.	inc	TRUE AZM	TVD	North + - South	East + - West	Vertical Section	DLS/ 100
GYRO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GYRO	100.00	0.36	300.30	100.00	0.16	-0.27	0.16	0.36
GYRO	200.00	0.36	280.30	200.00	0.37	-0.85	0.36	0.13
GYRO	300.00	0.28	275.70	300.00	0.45	-1.40	0.44	0.08
GYRO	400.00	0.11	315.41	400.00	0.55	-1.71	0.53	0.21
GYRO	500.00	0.11	335.67	500.00	0.70	-1.82	0.68	0.04
GYRO	600.00	0.19	317.68	599.99	0.91	-1.97	0.89	0.09
GYRO	700.00	0.23	288.87	699.99	1.10	-2.27	1.07	0.11
GYRO	800.00	0.25	284.72	799.99	1.22	-2.67	1.19	0.03
GYRO	900.00	0.15	322.56	899.99	1.38	-2.97	1.35	0.16
GYRO	994.00	0.40	266.55	993.99	1.46	-3.37	1.42	0.36
1	1073.00	0.60	289.50	1072.99	1.58	-4.03	1.53	0.35
2	1167.00	1.10	288.50	1166.98	2.03	-5.35	1.97	0.53
3	1261.00	1.70	285.00	1260.95	2.68	-7.56	2.59	0.64
4	1355.00	3.20	277.20	1354.86	3.37	-11.51	3.23	1.63
5	1449.00	3.70	278.30	1448.69	4.13	-17.11	3.94	0.54
6	1543.00	3.80	281.60	1542.49	5.20	-23.16	4.93	0.25
7	1637.00	3.60	271.10	1636.29	5.88	-29.16	5.54	0.75
8	1732.00	3.80	270.60	1731.10	5.97	-35.29	5.56	0.21
9	1826.00	4.00	271.30	1824.88	6.08	-41.69	5.60	0.22
10	1920.00	3.90	262.00	1918.66	5.71	-48.13	5.15	0.69
11	2014.00	4.10	259.00	2012.43	4.62	-54.59	3.99	0.31
12	2108.00	3.60	256.50	2106.22	3.29	-60.76	2.59	0.56
13	2202.00	3.80	257.00	2200.02	1.90	-66.67	1.13	0.22
14	2296.00	2.30	248.00	2293.88	0.49	-71.45	-0.33	1.67
15	2390.00	2.00	246.50	2387.82	-0.87	-74.70	-1.73	0.32
16	2484.00	1.00	231.70	2481.78	-2.03	-76.85	-2.91	1.13
17	2578.00	0.50	225.00	2575.78	-2.83	-77.79	-3.72	0.54
18	2673.00	0.70	231.40	2670.77	-3.48	-78.53	-4.39	0.22
19	2766.00	0.90	215.40	2763.76	-4.43	-79.40	-5.35	0.32
20	2860.00	0.10	350.40	2857.76	-4.95	-79.84	-5.87	1.04
21	2954.00	0.40	23.40	2951.76	-4.57	-79.72	-5.49	0.34
22	3049.00	0.70	22.70	3046.75	-3.73	-79.37	-4.65	0.32
23	3143.00	0.70	13.20	3140.75	-2.64	-79.02	-3.55	0.12
24	3237.00	0.80	39.90	3234.74	-1.58	-78.46	-2.48	0.38
25	3331.00	0.80	52.80	3328.73	-0.68	-77.52	-1.57	0.19
26	3425.00	0.80	35.50	3422.72	0.25	-76.62	-0.63	0.26
27	3519.00	0.90	40.60	3516.71	1.35	-75.75	0.47	0.13
28	3613.00	0.60	70.00	3610.70	2.07	-74.81	1.21	0.51
29	3707.00	0.80	86.70	3704.69	2.28	-73.69	1.43	0.30



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30	3801.00	0.80	74.20	3798.69	2.50	-72.41	1.66	0.19
31	3895.00	0.10	122.50	3892.68	2.63	-71.71	1.81	0.78
32	3989.00	0.20	272.30	3986.68	2.59	-71.80	1.77	0.31
33	4083.00	0.50	311.00	4080.68	2.87	-72.28	2.04	0.39
34	4177.00	0.70	292.00	4174.68	3.35	-73.12	2.51	0.30
35	4270.00	0.80	314.50	4267.67	4.02	-74.11	3.17	0.33
36	4365.00	0.90	302.40	4362.66	4.89	-75.21	4.02	0.22
37	4459.00	0.40	291.30	4456.65	5.40	-76.14	4.52	0.55
38	4553.00	0.30	222.70	4550.65	5.34	-76.61	4.46	0.43
39	4647.00	0.10	186.90	4644.65	5.08	-76.79	4.19	0.24
40	4741.00	0.40	133.60	4738.65	4.77	-76.56	3.89	0.37
41	4842.00	0.40	109.20	4839.65	4.41	-75.97	3.53	0.17
42	4936.00	0.40	86.30	4933.64	4.32	-75.33	3.46	0.17
43	5030.00	0.40	71.00	5027.64	4.45	-74.70	3.59	0.11
44	5124.00	0.40	53.30	5121.64	4.75	-74.12	3.90	0.13
45	5218.00	1.10	246.10	5215.63	4.58	-74.69	3.72	1.59
46	5312.00	0.80	239.80	5309.62	3.89	-76.08	3.01	0.34
47	5406.00	0.60	240.10	5403.61	3.31	-77.07	2.43	0.21
48	5500.00	0.40	226.60	5497.61	2.84	-77.74	1.95	0.25
49	5594.00	0.30	217.30	5591.61	2.42	-78.12	1.52	0.12
50	5689.00	0.10	259.10	5686.61	2.21	-78.36	1.31	0.25
51	5783.00	1.60	179.70	5780.60	0.88	-78.43	-0.02	1.69
52	5877.00	1.20	165.40	5874.57	-1.38	-78.18	-2.28	0.56
53	5971.00	1.00	158.20	5968.55	-3.10	-77.62	-3.99	0.26
54	6065.00	0.80	147.90	6062.54	-4.42	-76.97	-5.30	0.27
55	6159.00	0.70	128.00	6156.53	-5.33	-76.17	-6.20	0.29
56	6253.00	0.60	109.00	6250.53	-5.84	-75.25	-6.71	0.25
57	6347.00	0.70	93.50	6344.52	-6.03	-74.21	-6.89	0.21
58	6378.00	0.80	46.80	6375.52	-5.90	-73.86	-6.75	1.94
59	6409.00	3.10	14.30	6406.50	-4.94	-73.50	-5.78	7.95
60	6441.00	6.40	9.30	6438.38	-2.34	-73.00	-3.18	10.38
61	6472.00	10.20	8.60	6469.05	2.08	-72.31	1.25	12.26
62	6503.00	13.50	7.90	6499.39	8.38	-71.40	7.56	10.66
63	6535.00	16.70	6.70	6530.28	16.65	-70.35	15.84	10.05
64	6566.00	19.80	5.10	6559.72	26.31	-69.36	25.51	10.13
65	6598.00	22.50	3.90	6589.56	37.82	-68.46	37.02	8.54
66	6629.00	25.10	2.70	6617.92	50.30	-67.75	49.52	8.53
67	6660.00	27.80	1.60	6645.67	64.10	-67.24	63.32	8.85
68	6692.00	30.40	0.20	6673.63	79.66	-67.00	78.88	8.40
69	6723.00	32.90	359.20	6700.02	95.92	-67.09	95.14	8.24



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70	6755.00	35.30	358.30	6726.51	113.86	-67.49	113.07	7.66
71	6786.00	38.30	358.60	6751.33	132.42	-67.99	131.63	9.69
72	6817.00	41.20	359.20	6775.17	152.23	-68.37	151.44	9.44
73	6848.00	44.60	0.00	6797.87	173.33	-68.51	172.53	11.11
74	6880.00	48.10	0.00	6819.96	196.48	-68.51	195.68	10.94
75	6911.00	51.00	359.30	6840.07	220.07	-68.66	219.27	9.51
76	6942.00	53.80	358.80	6858.98	244.63	-69.07	243.81	9.12
77	6974.00	55.90	359.20	6877.40	270.79	-69.52	269.97	6.64
78	7005.00	58.30	359.00	6894.24	296.81	-69.93	295.98	7.76
79	7037.00	61.00	358.40	6910.41	324.41	-70.56	323.58	8.59
80	7068.00	63.30	359.70	6924.89	351.82	-71.01	350.97	8.29
81	7099.00	65.80	359.70	6938.21	379.80	-71.16	378.96	8.06
82	7131.00	68.20	0.00	6950.71	409.26	-71.23	408.41	7.55
83	7162.00	70.80	0.20	6961.57	438.29	-71.18	437.44	8.41
84	7193.00	73.00	0.00	6971.20	467.76	-71.13	466.91	7.12
85	7225.00	74.40	0.20	6980.18	498.47	-71.08	497.62	4.42
86	7256.00	77.00	0.00	6987.83	528.51	-71.03	527.65	8.41
87	7287.00	80.70	359.90	6993.83	558.92	-71.05	558.06	11.94
88	7319.00	83.80	359.20	6998.14	590.62	-71.30	589.76	9.93
89	7350.00	86.80	0.60	7000.68	621.51	-71.35	620.65	10.67
90	7381.00	87.70	0.00	7002.17	652.47	-71.19	651.61	3.49
91	7475.00	91.40	0.60	7002.91	746.45	-70.70	745.59	3.99
92	7569.00	90.70	3.00	7001.18	840.38	-67.75	839.55	2.66
93	7663.00	90.20	2.10	7000.45	934.29	-63.57	933.49	1.10
94	7757.00	89.80	3.70	7000.45	1028.16	-58.81	1027.42	1.75
95	7852.00	90.30	3.00	7000.36	1123.00	-53.26	1122.31	0.91
96	7946.00	91.00	6.00	6999.30	1216.69	-45.89	1216.08	3.28
97	8040.00	90.00	5.50	6998.48	1310.21	-36.47	1309.71	1.19
98	8134.00	90.10	5.10	6998.39	1403.81	-27.79	1403.40	0.44
99	8228.00	90.70	5.30	6997.74	1497.42	-19.27	1497.10	0.67
100	8322.00	90.40	4.60	6996.84	1591.07	-11.16	1590.83	0.81
101	8416.00	90.10	2.70	6996.43	1684.87	-5.17	1684.70	2.05
102	8510.00	90.50	3.90	6995.93	1778.71	0.24	1778.60	1.35
103	8604.00	90.40	4.60	6995.20	1872.45	7.20	1872.41	0.75
104	8698.00	90.50	2.10	6994.46	1966.28	12.70	1966.29	2.66