

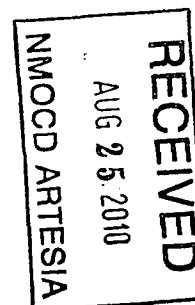
30-015-37465

Job Number: 101010750
 Company: Marbob
 Lease/Well: Honey Graham State #1H
 Location: Maliga
 Rig Name: McVay 7
 RKB: 18.00
 G.L. or M.S.L.: 0

State/Country: Eddy
 Declination:
 Grid:
 File name: C:\WINSERVE\0750.SVY
 Date/Time: 08-Jul-10 / 23:48
 Curve Name: as drilled sidetrack

Scientific Drilling

WINSERVE SURVEY CALCULATIONS
 Minimum Curvature Method
 Vertical Section Plane 180.08
 Vertical Section Referenced to Wellhead
 Rectangular Coordinates Referenced to Wellhead



Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE Distance FT	Direction Deg	Dogleg Severity Deg/100
Tie in to GyroData Gyro surveys.									
5900.00	1.74	191.27	5898.42	-15.17	32.36	15.12	35.74	115.12	.00
5963.00	1.58	196.63	5961.39	-16.94	31.92	16.90	36.14	117.95	.35
5995.00	2.99	171.95	5993.37	-18.19	31.92	18.14	36.73	119.68	5.28
6026.00	8.27	162.29	6024.21	-21.12	32.71	21.07	38.93	122.85	17.24
6058.00	14.77	162.29	6055.55	-27.20	34.65	27.15	44.05	128.13	20.31
6089.00	20.14	163.04	6085.11	-36.08	37.41	36.02	51.97	133.96	17.34
6121.00	24.27	163.65	6114.73	-47.66	40.87	47.60	62.79	139.39	12.93
6151.00	27.61	164.62	6141.70	-60.28	44.45	60.22	74.90	143.60	11.22
6183.00	30.16	165.50	6169.72	-75.22	48.43	75.15	89.46	147.22	8.08
6214.00	32.54	165.58	6196.19	-90.83	52.46	90.76	104.89	149.99	7.68
6245.00	34.65	167.52	6222.01	-107.52	56.44	107.44	121.43	152.30	7.64
6277.00	36.58	174.81	6248.04	-125.90	59.27	125.82	139.16	154.79	14.56

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
6308.00	39.13	182.11	6272.53	-144.89	59.74	144.81	156.73	157.59	16.62
6339.00	42.74	185.89	6295.94	-165.14	58.30	165.06	175.13	160.55	14.12
6371.00	46.08	185.45	6318.80	-187.42	56.09	187.34	195.64	163.34	10.48
6402.00	48.36	184.57	6339.85	-210.09	54.11	210.01	216.94	165.56	7.64
6433.00	50.56	182.63	6360.00	-233.59	52.64	233.52	239.45	167.30	8.54
6464.00	54.69	181.05	6378.82	-258.21	51.86	258.14	263.37	168.64	13.92
6495.00	59.09	181.14	6395.75	-284.17	51.36	284.09	288.77	169.75	14.20
6533.00	59.36	175.69	6415.20	-316.78	52.27	316.71	321.07	170.63	12.34
6564.00	62.26	175.34	6430.32	-343.76	54.38	343.68	348.04	171.01	9.41
6605.00	67.18	174.80	6447.82	-380.69	57.57	380.60	385.01	171.40	12.06
6637.00	71.49	175.72	6459.11	-410.52	60.04	410.43	414.88	171.68	13.73
6668.00	77.03	178.59	6467.52	-440.30	61.51	440.22	444.58	172.05	19.97
6699.00	82.13	181.73	6473.13	-470.78	61.42	470.69	474.77	172.57	19.23
6731.00	85.30	183.79	6476.63	-502.54	59.89	502.46	506.10	173.20	11.79
6762.00	88.20	185.41	6478.39	-533.39	57.40	533.31	536.47	173.86	10.71
6794.00	91.01	184.95	6478.61	-565.25	54.52	565.18	567.88	174.49	8.90
6859.00	92.33	184.92	6476.71	-629.98	48.93	629.91	631.88	175.56	2.03
6922.00	90.75	182.90	6475.02	-692.81	44.63	692.75	694.25	176.31	4.07
6985.00	91.71	183.07	6473.67	-755.71	41.35	755.65	756.84	176.87	1.55
7048.00	90.92	181.23	6472.22	-818.64	38.99	818.59	819.57	177.27	3.18
7111.00	90.22	179.73	6471.59	-881.64	38.46	881.58	882.48	177.50	2.63
7173.00	91.71	178.42	6470.55	-943.62	39.46	943.56	944.44	177.61	3.20
7237.00	91.10	177.98	6468.98	-1007.57	41.47	1007.51	1008.42	177.64	1.18
7300.00	90.40	179.21	6468.16	-1070.54	43.02	1070.48	1071.40	177.70	2.25
7362.00	88.99	176.92	6468.49	-1132.50	45.11	1132.43	1133.40	177.72	4.34
7425.00	89.52	175.69	6469.31	-1195.36	49.17	1195.29	1196.37	177.64	2.13
7488.00	90.40	174.37	6469.35	-1258.12	54.63	1258.04	1259.31	177.51	2.52
7551.00	90.48	175.16	6468.87	-1320.86	60.38	1320.77	1322.24	177.38	1.26
7614.00	90.04	175.34	6468.58	-1383.64	65.59	1383.55	1385.19	177.29	.75
7677.00	89.69	175.34	6468.73	-1446.43	70.71	1446.33	1448.16	177.20	.56
7772.00	90.84	174.90	6468.29	-1541.08	78.79	1540.97	1543.10	177.07	1.30
7866.00	90.57	175.51	6467.13	-1634.75	86.65	1634.62	1637.04	176.97	.71
7960.00	89.96	175.69	6466.70	-1728.47	93.86	1728.34	1731.01	176.89	.68
8055.00	88.90	175.25	6467.64	-1823.16	101.36	1823.02	1825.98	176.82	1.21

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
8150.00	90.13	176.57	6468.45	-1917.92	108.14	1917.76	1920.96	176.77	1.90
8246.00	91.28	177.71	6467.27	-2013.79	112.93	2013.63	2016.95	176.79	1.69
8341.00	90.66	177.98	6465.66	-2108.70	116.50	2108.54	2111.92	176.84	.71
8436.00	89.43	178.06	6465.58	-2203.65	119.78	2203.48	2206.90	176.89	1.30
8530.00	90.40	178.68	6465.72	-2297.61	122.46	2297.43	2300.87	176.95	1.22
8626.00	91.10	179.47	6464.47	-2393.58	124.01	2393.41	2396.79	177.03	1.10
8721.00	90.13	178.59	6463.45	-2488.56	125.61	2488.38	2491.73	177.11	1.38
8817.00	88.90	179.38	6464.26	-2584.54	127.31	2584.36	2587.68	177.18	1.52
8913.00	88.81	180.96	6466.18	-2680.52	127.03	2680.34	2683.53	177.29	1.65
9008.00	89.25	181.84	6467.79	-2775.48	124.71	2775.30	2778.28	177.43	1.04
9126.00	90.04	181.14	6468.52	-2893.43	121.64	2893.26	2895.99	177.59	.89
9222.00	91.63	181.40	6467.12	-2989.40	119.51	2989.23	2991.78	177.71	1.68
9317.00	90.92	181.14	6465.00	-3084.35	117.41	3084.18	3086.58	177.82	.80
9413.00	90.22	180.96	6464.05	-3180.33	115.65	3180.16	3182.43	177.92	.75
9508.00	89.34	181.05	6464.41	-3275.31	113.98	3275.15	3277.29	178.01	.93
9602.00	90.04	182.11	6464.92	-3369.27	111.39	3369.11	3371.11	178.11	1.35
9697.00	91.01	182.02	6464.05	-3464.20	107.97	3464.05	3465.89	178.21	1.03
9792.00	90.31	181.40	6462.96	-3559.15	105.13	3559.00	3560.71	178.31	.98
9885.00	89.78	181.84	6462.88	-3652.12	102.50	3651.97	3653.55	178.39	.74
9980.00	89.52	181.76	6463.46	-3747.07	99.52	3746.93	3748.39	178.48	.29
10076.00	87.67	180.17	6465.82	-3843.02	97.90	3842.88	3844.26	178.54	2.54
10171.00	88.11	179.91	6469.32	-3937.95	97.84	3937.81	3939.17	178.58	.54
10266.00	91.63	182.81	6469.53	-4032.90	95.58	4032.76	4034.03	178.64	4.80
10362.00	90.57	182.37	6467.69	-4128.78	91.25	4128.65	4129.79	178.73	1.20
10457.00	89.69	181.67	6467.47	-4223.72	87.90	4223.60	4224.64	178.81	1.18
10552.00	91.89	182.81	6466.16	-4318.63	84.18	4318.51	4319.45	178.88	2.61
10645.00	93.12	183.87	6462.10	-4411.38	78.77	4411.27	4412.09	178.98	1.75
10738.00	90.13	182.55	6459.46	-4504.19	73.57	4504.08	4504.79	179.06	3.51
10830.00	90.84	182.63	6458.68	-4596.09	69.41	4595.99	4596.61	179.13	.78
10922.00	89.25	181.23	6458.61	-4688.03	66.31	4687.94	4688.50	179.19	2.30
11016.00	87.76	181.40	6461.06	-4781.97	64.16	4781.88	4782.40	179.23	1.60
11108.00	90.22	180.96	6462.68	-4873.93	62.26	4873.84	4874.33	179.27	2.72
11201.00	88.11	180.61	6464.04	-4966.91	60.99	4966.82	4967.28	179.30	2.30
11293.00	88.64	181.05	6466.65	-5058.86	59.66	5058.77	5059.21	179.32	.75

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
11386.00	90.92	181.76	6467.01	-5151.83	57.38	5151.74	5152.15	179.36	2.57
11478.00	91.89	182.11	6464.75	-5243.74	54.27	5243.66	5244.03	179.41	1.12
11571.00	92.07	182.28	6461.54	-5336.62	50.71	5336.54	5336.86	179.46	.27
11666.00	90.40	182.19	6459.49	-5431.52	47.01	5431.45	5431.73	179.50	1.76
11758.00	91.19	182.19	6458.21	-5523.45	43.49	5523.38	5523.62	179.55	.86
11851.00	90.48	182.81	6456.86	-5616.35	39.44	5616.29	5616.49	179.60	1.01
11943.00	89.52	182.55	6456.86	-5708.25	35.13	5708.19	5708.35	179.65	1.08
12036.00	91.19	182.72	6456.28	-5801.14	30.86	5801.09	5801.22	179.70	1.80
12128.00	90.22	183.16	6455.15	-5893.01	26.14	5892.97	5893.07	179.75	1.16
12221.00	89.08	182.55	6455.72	-5985.89	21.51	5985.86	5985.93	179.79	1.39
12315.00	89.87	183.43	6456.58	-6079.76	16.61	6079.73	6079.78	179.84	1.26
12407.00	91.36	183.34	6455.59	-6171.59	11.17	6171.57	6171.60	179.90	1.62
12500.00	91.36	183.87	6453.38	-6264.38	5.33	6264.37	6264.38	179.95	.57
12592.00	89.78	182.72	6452.47	-6356.22	.04	6356.21	6356.22	180.00	2.12
12684.00	87.93	181.76	6454.31	-6448.13	-3.55	6448.12	6448.13	180.03	2.27
12777.00	88.46	182.02	6457.24	-6541.03	-6.62	6541.03	6541.03	180.06	.63
12869.00	88.20	181.84	6459.92	-6632.94	-9.72	6632.94	6632.94	180.08	.34
12962.00	89.43	182.11	6461.84	-6725.86	-12.92	6725.87	6725.87	180.11	1.35
13054.00	90.84	182.28	6461.62	-6817.79	-16.45	6817.81	6817.81	180.14	1.54
13126.00	91.28	182.99	6460.29	-6889.70	-19.75	6889.72	6889.73	180.16	1.16
Straight line projection to bit.									
13174.00	91.28	182.99	6459.22	-6937.62	-22.26	6937.65	6937.66	180.18	.00

Surf: 330' FWL, 660' FWL 29-26s-28e

EOL: 332' FSL, 638' FWL 32-26s-28e