



EOG Resources - Midland

Lea County, NM (NAD 83 NME)

Mamba 30 State Com

#505H

OH

Design: OH

Final PVA Report

10 March, 2019



Final PVA Report

Company: EOG Resources - Midland Project: Lea County, NM (NAD 83 NME) Site: Mamba 30 State Com Well: #505H Wellbore: OH Design: OH		Local Co-ordinate Reference: Well #505H TVD Reference: KB = 33' @ 3586.0usft (Nabors X15) MD Reference: KB = 33' @ 3586.0usft (Nabors X15) North Reference: Grid Survey Calculation Method: Minimum Curvature Database: EDM 5000.14													
Project Lea County, NM (NAD 83 NME)															
Map System: US State Plane 1983 Geo Datum: North American Datum 1983 Map Zone: New Mexico Eastern Zone		System Datum: Mean Sea Level													
Site Mamba 30 State Com															
Site Position: From: Map Position Uncertainty: 0.0 usft		Northing: 430,807.00 usft Easting: 767,053.00 usft Slot Radius: 13-3/16" Latitude: 32° 10' 56.143 N Longitude: 103° 36' 13.509 W Grid Convergence: 0.39°													
Well #505H															
Well Position +N-S 0.0 usft +E-W 0.0 usft Position Uncertainty 0.0 usft		Northing: 430,825.00 usft Easting: 763,409.00 usft Wellhead Elevation: usft Latitude: 32° 10' 57.553 N Longitude: 103° 36' 55.899 W Ground Level: 3,553.0 usft													
Wellbore OH															
<table border="1"> <thead> <tr> <th>Magnetics</th> <th>Model Name</th> <th>Sample Date</th> <th>Declination (°)</th> <th>Dip Angle (°)</th> <th>Field Strength (nT)</th> </tr> </thead> <tbody> <tr> <td></td> <td>IGRF2015</td> <td>9/19/2018</td> <td>6.83</td> <td>60.00</td> <td>47,778.76230844</td> </tr> </tbody> </table>				Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)		IGRF2015	9/19/2018	6.83	60.00	47,778.76230844
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Design OH															
Audit Notes: Version: 1.0 Phase: ACTUAL Tie On Depth: 0.0															
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Final PVA Report

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Project:	Lea County, NM (NAD 83 NME)					TVD Reference:			KB = 33' @ 3586.0usft (Nabors X15)		
Site:	Mamba 30 State Com					MD Reference:			KB = 33' @ 3586.0usft (Nabors X15)		
Well:	#505H					North Reference:			Grid		
Wellbore:	OH					Survey Calculation Method:			Minimum Curvature		
Design:	OH					Database:			EDM 5000.14		
Survey											
MD (usft)	Inc (")	Azi (grid_north_azim)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg ("/100usft)	Build ("/100usft)	Turn ("/100usft)	High to Plan (usft)	Right to Plan (usft)	
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0
198.0	0.40	336.10	196.0	0.6	-0.3	0.20	0.20	0.00	-0.7	0.0	
318.0	0.70	321.00	318.0	1.6	-0.9	0.27	0.25	-12.38	-1.8	-0.3	
549.0	0.80	292.70	549.0	3.3	-3.3	0.16	0.04	-12.25	-4.3	-1.6	
705.0	1.10	277.00	705.0	3.9	-5.8	0.25	0.19	-10.06	-8.2	-3.2	
894.0	1.30	235.50	893.9	2.9	-8.4	0.46	0.11	-21.86	-8.1	-7.7	
1,083.0	1.70	206.70	1,082.9	-0.8	-12.4	0.44	0.21	-15.24	-8.3	-10.7	
1,171.0	2.50	183.00	1,170.8	-3.9	-13.1	1.32	0.91	-26.93	-4.6	-12.8	
1,350.0	1.50	166.10	1,349.7	-10.1	-12.7	0.64	-0.56	-9.44	-8.7	-14.6	
1,538.0	1.50	169.30	1,537.6	-14.9	-11.7	0.04	0.00	1.70	-12.4	-14.2	
1,725.0	1.40	171.20	1,724.6	-19.5	-10.9	0.06	-0.05	1.02	-17.6	-13.7	
1,913.0	1.00	168.80	1,912.5	-23.4	-10.2	0.21	-0.21	-1.38	-20.9	-14.6	
2,100.0	0.80	152.20	2,099.5	-26.2	-9.2	0.17	-0.11	-8.77	-18.8	-20.4	
2,289.0	0.80	165.80	2,288.5	-28.3	-8.4	0.14	-0.11	7.20	-25.4	-15.1	
2,476.0	0.70	156.10	2,475.5	-30.3	-7.7	0.08	0.05	-5.19	-24.6	-19.3	
2,664.0	0.60	184.90	2,663.5	-32.3	-7.3	0.18	-0.05	15.32	-32.8	-4.5	
2,851.0	0.90	180.20	2,850.4	-34.7	-7.4	0.16	0.16	-2.51	-34.8	-7.3	
3,040.0	0.70	215.70	3,039.4	-37.2	-8.1	0.28	-0.11	18.78	-34.9	15.1	
3,227.0	1.00	188.80	3,226.4	-39.7	-9.0	0.26	0.16	-14.39	-40.6	-2.8	
3,414.0	1.10	207.60	3,413.4	-42.9	-10.1	0.19	0.05	10.05	-42.7	11.0	
3,602.0	1.00	193.40	3,601.3	-46.1	-11.3	0.15	-0.05	-7.55	-47.5	-0.3	
3,790.0	0.80	175.10	3,789.3	-49.0	-11.6	0.18	-0.11	-9.73	-47.8	-15.7	
3,978.0	1.70	158.00	3,977.3	-52.9	-10.4	0.51	0.48	-9.10	-44.1	-29.0	
4,166.0	5.60	171.70	4,164.9	-64.6	-8.0	2.11	2.07	7.29	-50.1	-15.3	
4,353.0	8.70	166.30	4,350.4	-87.3	-3.4	1.69	1.66	-2.89	-49.1	-15.0	
4,539.0	8.00	166.10	4,534.4	-113.6	3.1	0.38	-0.38	-0.11	-51.0	-8.8	
4,727.0	9.00	165.80	4,720.3	-140.5	9.8	0.53	0.53	-0.16	-53.4	-2.6	



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Survey											
MD (usft)	Inc (°)	Azi (grid_north_azim)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)	
4,847.0	8.00	177.90	4,839.0	-158.0	12.4	1.70	-0.83	10.08	-53.7	11.3	
5,008.0	7.90	182.30	4,998.5	-180.2	12.4	0.38	-0.06	2.73	-52.5	15.4	
5,188.0	8.20	185.30	5,188.6	-208.8	10.6	0.27	0.16	1.58	-51.8	16.6	
5,386.0	7.90	183.90	5,372.8	-233.0	8.5	0.19	-0.16	-0.74	-52.4	13.4	
5,575.0	7.70	184.00	5,560.0	-256.6	6.7	0.11	-0.11	0.05	-51.8	11.9	
5,762.0	7.90	183.50	5,745.3	-283.9	5.1	0.11	0.11	-0.27	-51.3	9.9	
5,949.0	7.40	180.90	5,930.6	-308.8	4.1	0.33	-0.27	-1.39	-50.5	6.8	
6,138.0	6.90	180.20	6,116.2	-332.1	3.9	0.27	-0.27	-0.37	-47.8	6.2	
6,325.0	6.90	178.20	6,303.8	-354.8	4.2	0.13	0.00	-1.06	-44.4	5.1	
6,514.0	7.20	178.90	6,491.4	-378.0	4.8	0.17	0.16	0.37	-41.2	6.5	
6,700.0	4.10	187.00	6,676.5	-396.0	3.1	1.90	-1.87	9.73	-30.0	15.1	
6,888.0	1.10	188.80	6,864.2	-404.2	0.9	1.61	-1.60	-5.43	-15.9	5.7	
7,076.0	1.10	181.60	7,052.2	-407.8	0.6	0.05	0.00	-2.77	-5.5	3.8	
7,264.0	1.10	178.10	7,240.2	-411.4	0.6	0.04	0.00	-1.86	-6.5	3.4	
7,451.0	1.10	155.00	7,427.1	-414.8	1.4	0.24	0.00	-12.35	-10.8	-0.1	
7,638.0	0.60	181.40	7,614.1	-417.4	2.2	0.33	-0.27	14.12	-12.3	5.5	
7,827.0	0.50	219.70	7,803.1	-419.0	1.6	0.20	-0.05	20.28	-7.8	12.5	
8,014.0	0.80	209.90	7,990.1	-420.8	0.5	0.17	0.16	-5.24	-12.0	10.9	
8,200.0	0.70	183.20	8,176.1	-423.1	-0.2	0.19	-0.05	-14.35	-17.9	3.8	
8,388.0	0.80	217.40	8,364.1	-425.3	-1.1	0.24	0.05	18.19	-14.9	13.8	
8,576.0	1.10	222.90	8,552.0	-427.6	-3.1	0.17	0.16	2.93	-16.7	15.3	
8,764.0	0.20	303.20	8,740.0	-428.8	-4.6	0.58	-0.48	42.71	11.6	20.8	
8,953.0	0.40	280.40	8,929.0	-428.5	-5.6	0.12	0.11	-12.06	1.7	23.5	
9,141.0	1.00	330.80	9,117.0	-428.9	-7.0	0.43	0.32	26.81	17.2	14.2	
9,329.0	0.70	344.00	9,305.0	-424.4	-8.1	0.19	-0.16	7.02	17.2	10.3	
9,517.0	0.50	330.50	9,493.0	-422.6	-8.8	0.13	-0.11	-7.18	12.4	13.7	
9,704.0	1.60	329.90	9,679.9	-419.6	-10.6	0.59	0.59	-0.32	8.8	13.8	



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9,892.0	1.20	352.40	9,867.9	-415.4	-12.1	0.38	-0.21	11.97	9.1	10.4	
10,089.0	1.10	342.20	10,064.9	-411.5	-13.0	0.12	-0.05	-5.18	3.2	11.5	
10,276.0	0.70	337.70	10,251.8	-408.8	-14.0	0.22	-0.21	-2.41	-0.7	11.6	
10,369.0	0.50	310.10	10,344.8	-408.0	-14.5	0.37	-0.22	-29.68	-6.9	9.7	
10,463.0	0.40	15.10	10,438.8	-407.4	-14.7	0.52	-0.11	69.15	5.4	10.7	
10,496.6	1.78	50.21	10,472.4	-406.9	-14.3	4.32	4.05	104.50	9.9	5.7	
KOP (Mamba 30 State #505H)											
10,558.0	4.40	55.70	10,533.7	-405.0	-11.6	4.32	4.30	8.94	9.0	2.1	
10,653.0	13.50	2.80	10,627.6	-391.8	-8.1	11.99	9.58	-55.68	8.3	4.6	
10,700.0	19.90	352.10	10,672.6	-378.4	-8.9	15.05	13.62	-22.77	8.3	6.8	
10,747.0	24.40	353.30	10,716.1	-360.8	-11.1	9.62	9.57	2.55	8.6	8.8	
10,761.0	26.06	354.69	10,728.8	-354.9	-11.7	12.56	11.82	9.94	8.8	9.2	
HL Crossing, MD:10761.0', TVD:10728.8', N/S:-354.9', E/W:-11.7', INC:26.06											
10,794.0	30.00	357.40	10,757.9	-339.5	-12.8	12.56	11.95	8.21	9.1	9.7	
10,841.0	33.20	359.80	10,797.9	-314.8	-13.4	7.31	6.81	5.11	9.5	9.8	
10,888.0	33.80	355.90	10,837.1	-288.9	-14.4	4.75	1.28	-8.30	11.2	11.3	
10,935.0	40.20	357.50	10,874.6	-260.7	-15.9	13.77	13.62	3.40	14.7	12.6	
10,982.0	47.10	356.30	10,908.6	-228.3	-17.7	14.79	14.68	-2.55	16.1	14.4	
FTP (Mamba 30 State #505H)											
11,029.0	49.50	356.80	10,939.9	-193.3	-19.8	5.17	5.11	1.06	17.6	16.2	
11,076.0	53.20	355.90	10,969.2	-156.7	-22.2	8.01	7.87	-1.91	20.1	18.5	
11,122.0	59.30	357.40	10,994.8	-118.5	-24.4	13.53	13.26	3.26	22.7	20.2	
11,169.0	65.20	355.60	11,016.7	-77.0	-26.9	13.00	12.55	-3.83	23.6	22.8	
11,215.0	70.50	356.10	11,034.0	-34.5	-30.0	11.57	11.52	1.09	23.8	25.4	
11,262.0	74.40	356.50	11,048.2	10.2	-32.9	8.34	8.30	0.85	24.0	27.9	
11,309.0	77.90	355.80	11,059.4	55.7	-36.0	7.59	7.45	-1.49	24.7	30.7	
11,356.0	80.60	357.40	11,068.2	101.8	-38.7	6.65	5.74	3.40	26.7	33.0	



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11,403.0	84.70	356.80	11,074.2	148.3	-41.1	8.81	8.72	-1.28	29.4	35.1	
11,496.0	94.10	3.20	11,075.2	241.2	-41.1	12.22	10.11	6.88	29.7	34.5	
11,591.0	89.80	7.00	11,071.9	335.7	-32.6	6.04	-4.53	4.00	28.2	25.3	
11,686.0	88.80	6.50	11,073.1	430.0	-21.5	1.18	-1.05	-0.53	26.8	13.6	
11,781.0	88.60	4.20	11,075.2	524.6	-12.6	2.43	-0.21	-2.42	28.4	4.3	
11,875.0	88.50	359.30	11,077.6	618.5	-9.7	5.21	-0.11	-5.21	30.3	1.0	
11,969.0	88.50	358.80	11,080.1	712.4	-11.3	0.53	0.00	-0.53	32.3	2.0	
12,063.0	87.70	358.40	11,083.2	806.4	-13.6	0.95	-0.85	-0.43	34.9	3.8	
12,158.0	90.70	0.30	11,084.5	901.3	-14.7	3.74	3.16	2.00	35.7	4.3	
12,252.0	90.50	0.00	11,083.5	995.3	-14.4	0.38	-0.21	-0.32	34.3	3.5	
12,346.0	89.80	359.60	11,083.3	1,089.3	-14.8	0.86	-0.74	-0.43	33.5	3.3	
12,441.0	89.20	358.90	11,084.1	1,184.3	-16.0	0.97	-0.63	-0.74	33.9	4.0	
12,535.0	88.50	358.40	11,086.0	1,278.3	-18.2	0.92	-0.74	-0.53	35.3	5.7	
12,581.9	88.80	358.95	11,087.1	1,325.1	-19.3	1.45	0.85	1.17	36.1	6.5	
TGT 1 (Mamba 30 State #505H)											
12,629.0	89.30	359.50	11,087.8	1,372.2	-19.9	1.45	0.85	1.17	36.8	6.9	
12,724.0	92.30	1.00	11,086.5	1,467.2	-19.5	3.53	3.16	1.58	35.7	5.9	
12,818.0	92.40	1.00	11,082.6	1,561.1	-17.9	0.11	0.11	0.00	32.0	3.8	
12,913.0	92.20	0.90	11,078.8	1,656.0	-16.3	0.24	-0.21	-0.11	28.3	1.7	
13,008.0	90.00	0.70	11,077.0	1,749.0	-15.0	2.38	-2.37	-0.22	26.7	-0.2	
13,100.0	89.20	0.50	11,077.7	1,843.0	-14.0	0.88	-0.85	-0.21	27.5	-1.7	
13,194.0	88.50	0.30	11,079.6	1,937.0	-13.4	0.77	-0.74	-0.21	29.5	-2.9	
13,289.0	89.00	0.90	11,081.7	2,031.9	-12.4	0.82	0.53	0.63	31.7	-4.4	
13,383.0	90.50	0.90	11,082.1	2,125.9	-10.9	1.60	1.60	0.00	32.3	-6.4	
13,477.0	92.20	1.40	11,079.9	2,219.9	-9.0	1.89	1.81	0.53	30.2	-8.8	
13,570.0	89.50	359.10	11,078.5	2,312.8	-8.6	3.81	-2.90	-2.47	29.0	-9.8	
13,664.0	89.30	0.30	11,079.5	2,406.8	-9.1	1.29	-0.21	1.28	30.2	-9.8	



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Design:	OH	Database:	EDM 5000.14

MD (usft)	Inc (°)	Azi (grid_north_azim)	TVD (usft)	N/S (usft)	EW (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)
13,758.0	89.40	359.80	11,080.5	2,500.8	-9.0	0.54	0.11	-0.53	31.4	-10.4
13,853.0	89.10	0.20	11,081.8	2,595.8	-9.0	0.53	-0.32	0.42	32.8	-11.0
13,947.0	88.50	0.20	11,083.7	2,689.8	-8.7	0.64	-0.64	0.00	34.9	-11.8
14,040.0	88.70	359.30	11,086.0	2,782.8	-9.1	0.99	0.22	-0.97	37.3	-11.9
14,134.0	91.30	0.50	11,086.0	2,876.7	-9.3	3.05	2.77	1.28	37.5	-12.3
14,229.0	91.40	0.50	11,083.8	2,971.7	-8.4	0.11	0.11	0.00	35.4	-13.7
14,323.0	94.00	0.70	11,079.3	3,065.6	-7.4	2.77	2.77	0.21	31.1	-15.2
14,417.0	92.00	1.00	11,074.4	3,159.5	-6.1	2.15	-2.13	0.32	26.4	-17.1
14,512.0	90.00	359.30	11,072.8	3,254.4	-5.8	2.76	-2.11	-1.79	24.8	-17.9
14,606.0	89.70	359.50	11,073.0	3,348.4	-6.8	0.38	-0.32	0.21	25.2	-17.4
14,700.0	88.60	359.30	11,073.6	3,442.4	-7.8	0.24	-0.11	-0.21	26.0	-17.0
14,794.0	88.80	358.60	11,074.9	3,536.4	-9.5	1.13	-0.85	-0.74	27.4	-15.8
14,888.0	89.50	358.60	11,076.3	3,630.4	-11.8	0.74	0.74	0.00	29.0	-14.0
14,983.0	93.00	357.70	11,074.2	3,725.3	-14.9	3.80	3.68	-0.95	27.1	-11.5
15,075.6	94.77	358.19	11,067.9	3,817.6	-18.2	1.99	1.91	0.53	20.9	-8.7
TGT 2 (Mamba 30 State #505H)										
15,077.0	94.80	358.20	11,067.8	3,819.0	-18.2	1.99	1.91	0.53	20.8	-8.7
15,169.0	90.00	359.30	11,064.0	3,910.9	-20.2	5.35	-5.22	1.20	17.2	-7.2
15,264.0	89.30	359.50	11,064.6	4,005.8	-21.2	0.77	-0.74	0.21	18.0	-6.7
15,358.0	88.20	359.30	11,066.6	4,099.8	-22.2	1.19	-1.17	-0.21	20.2	-6.3
15,452.0	88.30	359.30	11,069.5	4,193.8	-23.3	0.11	0.11	0.00	23.3	-5.7
15,547.0	83.60	358.10	11,076.2	4,288.5	-25.5	5.11	-4.95	-1.26	30.2	-4.1
15,641.0	84.70	357.70	11,085.8	4,381.9	-28.9	1.24	1.17	-0.43	40.0	-1.2
15,736.0	87.20	356.50	11,092.5	4,476.6	-33.7	2.92	2.63	-1.26	46.9	3.1
15,830.0	95.80	357.90	11,090.0	4,570.3	-38.3	9.27	9.15	1.49	44.7	7.2
15,919.0	96.20	357.50	11,080.7	4,658.8	-41.9	0.63	0.45	-0.45	35.6	10.3
Final MWD Survey (MD=15919.0)										



Final PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #505H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 33' @ 3586.0usft (Nabors X15)
Site:	Mamba 30 State Com	ND Reference:	KB = 33' @ 3586.0usft (Nabors X15)
Well:	#505H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.14

Survey											
MD (usft)	Inc (")	Azi (grid_north_azim)	TVD (usft)	N/S (usft)	E/W (usft)	D Leg ("/100usft)	Build ("/100usft)	Turn ("/100usft)	High to Plan (usft)	Right to Plan (usft)	
15,973.0	88.20	357.50	11,074.9	4,712.4	-44.2	0.00	0.00	0.00	29.9	12.3	
Final Projection to Bit (MD=15973.0') - PBHL (Mamba 30 State #505H)											

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
10,761.0	10,728.8	-354.9	-11.7	HL Crossing, MD:10761.0', TVD:10728.8', N/S:-354.9', E/W:-11.7', INC:26.06
15,919.0	11,080.7	4,658.8	-41.9	Final MWD Survey (MD=15919.0')
15,973.0	11,074.9	4,712.4	-44.2	Final Projection to Bit (MD=15973.0')

Checked By: _____	Approved By: _____	Date: _____
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Lea County, NM (NAD 83 NME)

Mamba 30 State Com #505H

Nabors X15

Plan #1

PROJECT DETAILS: Lea County, NM (NAD 83 NME)

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone
System Datum: Mean Sea Level

WELL DETAILS: #505H

KB = 33' @ 3588.000ft (Nabors X15) 3553.0
Northing 430928.00 Easting 763409.00 Latitude 32° 10' 57.533 N Longitude 103° 38' 55.899 W

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N-S	+E-W	Dleg	TFace	VSect	Target
1	0.0	0.00	0.00	0.0	0.0	0.00	0.00	0.00	0.0	
2	3897.0	0.00	0.00	3897.0	0.0	0.00	0.00	0.00	0.0	
3	4297.1	8.00	180.42	4295.8	-27.9	-0.2	2.00	180.42	-27.9	
4	6806.0	8.00	180.42	6780.2	-377.1	-2.8	0.00	0.00	-377.1	
5	7206.0	0.00	0.00	7179.0	-405.0	-3.0	2.00	180.00	-405.0	
6	10489.0	0.00	0.00	10472.0	-405.0	-3.0	0.00	0.00	-405.0	KOP (Mamba 30 State #505H)
7	11396.0	89.70	359.68	11045.0	165.0	-6.2	10.00	359.68	165.0	TGT 1 (Mamba 30 State #505H)
8	12557.0	89.70	359.68	11051.0	1325.9	-12.8	0.00	0.00	1325.9	TGT 2 (Mamba 30 State #505H)
9	12576.6	90.09	359.68	11051.0	1345.5	-12.9	2.00	0.00	1345.5	
10	15047.1	90.09	359.68	11047.0	3815.9	-26.9	0.00	0.00	3815.9	
11	15048.8	90.13	359.68	11047.0	3817.6	-26.9	2.00	0.39	3817.7	
12	15945.2	90.13	359.68	11045.0	4714.0	-31.9	0.00	0.00	4714.1	PBHL (Mamba 30 State #505H)

CASING DETAILS

No casing data is available

WELLSBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N-S	+E-W	Northing	Easting
KOP (Mamba 30 State #505H)	10472.0	-405.0	-3.0	430928.00	763409.00
TGT 1 (Mamba 30 State #505H)	11051.0	1325.9	-12.8	432250.80	763398.21
TGT 2 (Mamba 30 State #505H)	11047.0	3815.9	-26.9	434740.80	763392.13
PBHL (Mamba 30 State #505H)	11045.0	4714.0	-31.9	435852.23	763377.08
FTP (Mamba 30 State #505H)	11051.0	-355.0	-3.0	430570.00	763406.00

