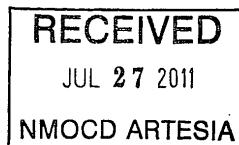




Marbob

Eddy County
Rocket Federal
#5H
OH

30-015-37778



Survey: MWD #1

Pathfinder X & Y Survey Report

25 August, 2010

PATHFINDER



Pathfinder
Pathfinder X & Y Survey Report



Company: Marbob
Project: Eddy County
Site: Rocket Federal
Well: #5H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well #5H
TVD Reference: WELL @ 2997.00ft (17' KB)
MD Reference: WELL @ 2997.00ft (17' KB)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Midland Database

Project: Eddy County

Map System: US State Plane 1927 (Exact solution)
Geo Datum: NAD 1927 (NADCON CONUS)
Map Zone: New Mexico East 3001

System Datum: Mean Sea Level

Site: Rocket Federal

Site Position: Northing: 387,584.200 ft Latitude: 32° 3' 54.264 N
From: Map Easting: 611,493.900 ft Longitude: 103° 58' 24.298 W
Position Uncertainty: 0.00 ft Slot Radius: " Grid Convergence: 0.19 °

Well: #5H

Well Position: +N/-S 0.00 ft Northing: 387,428.200 ft Latitude: 32° 3' 52.672 N
+E/-W 0.00 ft Easting: 612,924.000 ft Longitude: 103° 58' 7.685 W
Position Uncertainty: 0.00 ft Wellhead Elevation: ft Ground Level: 2,980.00 ft

Wellbore: OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip/Angle (°)	Field Strength (nT)
	IGRF200510	02/16/2010	7.90	60.02	48,642

Design: OH

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	357.30



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Survey Program Date 08/25/2010

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
100.00	6,830.00	GYRO (OH)	CB-GYRO-MS	Camera based gyro multishot
6,923.00	12,088.00	MWD #1 (OH)	MWD	MWD - Standard

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
6,830.00	1.80	180.65	6,828.08	3,831.08	10.89	-4.93	11.11	0.00	387,439.09	612,919.07
6,923.00	6.33	190.98	6,920.82	3,923.82	4.39	-5.92	4.66	4.91	387,432.59	612,918.08
6,955.00	5.36	189.40	6,952.65	3,955.65	1.18	-6.50	1.49	3.07	387,429.38	612,917.50
6,986.00	5.28	196.07	6,983.52	3,986.52	-1.62	-7.13	-1.28	2.01	387,426.58	612,916.87
7,018.00	5.72	198.83	7,015.37	4,018.37	-4.54	-8.05	-4.15	1.60	387,423.66	612,915.95
7,050.00	1.58	228.69	7,047.30	4,050.30	-6.34	-8.90	-5.91	13.81	387,421.86	612,915.10
7,082.00	4.66	352.07	7,079.27	4,082.27	-5.34	-9.41	-4.89	17.76	387,422.86	612,914.59
7,113.00	10.82	11.37	7,109.98	4,112.98	-1.24	-9.01	-0.81	21.30	387,426.96	612,914.99
7,145.00	16.88	10.16	7,141.03	4,144.03	6.29	-7.60	6.64	18.96	387,434.49	612,916.40
7,176.00	22.42	10.48	7,170.22	4,173.22	16.54	-5.73	16.79	17.87	387,444.74	612,918.27
7,207.00	27.79	10.40	7,198.28	4,201.28	29.47	-3.34	29.59	17.32	387,457.67	612,920.66
7,239.00	33.73	8.57	7,225.76	4,228.76	45.60	-0.67	45.59	18.79	387,473.80	612,923.33
7,270.00	38.16	5.46	7,250.86	4,253.86	63.66	1.52	63.52	15.45	387,491.86	612,925.52
7,302.00	42.74	3.70	7,275.20	4,278.20	84.35	3.17	84.10	14.75	387,512.55	612,927.17
7,333.00	47.40	0.90	7,297.09	4,300.09	106.27	4.02	105.96	16.33	387,534.47	612,928.02
7,365.00	52.67	359.86	7,317.64	4,320.64	130.78	4.18	130.44	16.66	387,558.98	612,928.18
7,404.00	59.88	358.35	7,339.28	4,342.28	163.19	3.65	162.84	18.76	387,591.39	612,927.65
7,436.00	64.10	357.12	7,354.30	4,357.30	191.42	2.53	191.08	13.62	387,619.62	612,926.53
7,467.00	66.04	356.51	7,367.37	4,370.37	219.48	0.97	219.19	6.51	387,647.68	612,924.97
7,499.00	66.83	357.91	7,380.16	4,383.16	248.78	-0.46	248.52	4.71	387,676.98	612,923.54
7,530.00	68.15	358.53	7,392.03	4,395.03	277.40	-1.35	277.16	4.64	387,705.60	612,922.65



Pathfinder

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Survey

MD (ft)	Inc. (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
7,561.00	70.16	358.62	7,403.06	4,406.06	306.36	-2.07	306.12	6.49	387,734.56	612,921.93
7,593.00	71.67	359.06	7,413.53	4,416.53	336.60	-2.68	336.35	4.89	387,764.80	612,921.32
7,625.00	72.63	0.02	7,423.34	4,426.34	367.05	-2.92	366.78	4.14	387,795.25	612,921.08
7,657.00	74.04	359.94	7,432.51	4,435.51	397.71	-2.93	397.41	4.41	387,825.91	612,921.07
7,688.00	76.06	359.85	7,440.51	4,443.51	427.66	-2.99	427.32	6.52	387,855.86	612,921.01
7,720.00	78.00	359.67	7,447.69	4,450.69	458.84	-3.12	458.48	6.09	387,887.04	612,920.88
7,752.00	80.02	359.76	7,453.79	4,456.79	490.25	-3.28	489.86	6.32	387,918.45	612,920.72
7,784.00	82.04	359.76	7,458.78	4,461.78	521.86	-3.41	521.44	6.31	387,950.06	612,920.59
7,816.00	83.80	359.67	7,462.72	4,465.72	553.61	-3.57	553.16	5.51	387,981.81	612,920.43
7,848.00	85.91	359.15	7,465.59	4,468.59	585.48	-3.89	585.01	6.79	388,013.68	612,920.11
7,879.00	88.11	358.97	7,467.21	4,470.21	616.43	-4.40	615.95	7.12	388,044.63	612,919.60
7,943.00	91.10	358.44	7,467.65	4,470.65	680.41	-5.85	679.93	4.74	388,108.61	612,918.15
8,006.00	91.63	358.53	7,466.15	4,469.15	743.37	-7.51	742.89	0.85	388,171.57	612,916.49
8,102.00	91.01	359.15	7,463.94	4,466.94	839.32	-9.46	838.83	0.91	388,267.52	612,914.54
8,260.00	90.31	0.02	7,462.12	4,465.12	997.30	-10.60	996.69	0.71	388,425.50	612,913.40
8,419.00	89.60	0.55	7,462.24	4,465.24	1,156.30	-9.81	1,155.48	0.56	388,584.50	612,914.19
8,576.00	91.71	1.08	7,460.45	4,463.45	1,313.26	-7.58	1,312.16	1.39	388,741.46	612,916.42
8,735.00	90.92	359.50	7,456.80	4,459.80	1,472.21	-6.77	1,470.90	1.11	388,900.41	612,917.23
8,894.00	90.84	358.97	7,454.36	4,457.36	1,631.18	-8.90	1,629.79	0.34	389,059.38	612,915.10
9,053.00	90.75	356.42	7,452.15	4,455.15	1,790.02	-15.29	1,788.76	1.60	389,218.22	612,908.71
9,210.00	88.72	355.98	7,452.88	4,455.88	1,946.67	-25.69	1,945.72	1.32	389,374.87	612,898.31
9,337.00	89.34	356.32	7,455.03	4,458.03	2,073.36	-34.22	2,072.67	0.56	389,501.56	612,889.78
9,494.00	86.17	355.48	7,461.18	4,464.18	2,229.82	-45.43	2,229.48	2.09	389,658.02	612,878.57
9,653.00	89.08	356.51	7,467.77	4,470.77	2,388.27	-56.53	2,388.29	1.94	389,816.47	612,867.47
9,844.00	90.75	357.40	7,468.05	4,471.05	2,579.00	-66.67	2,579.27	0.99	390,007.20	612,857.33
9,937.00	90.40	356.66	7,467.12	4,470.12	2,671.87	-71.49	2,672.27	0.88	390,100.07	612,852.51
10,029.00	89.69	355.41	7,467.04	4,470.04	2,763.64	-77.85	2,764.24	1.56	390,191.84	612,846.15



Pathfinder Pathfinder X & Y Survey Report



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Wellbore: OH
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Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
10,121.00	89.78	355.14	7,467.47	4,470.47	2,855.33	-85.43	2,856.18	0.31	390,283.53	612,838.57
10,213.00	89.43	355.39	7,468.10	4,471.10	2,947.01	-93.02	2,948.12	0.47	390,375.21	612,830.98
10,306.00	88.81	354.32	7,469.53	4,472.53	3,039.63	-101.36	3,041.03	1.33	390,467.83	612,822.64
10,399.00	88.90	354.59	7,471.39	4,474.39	3,132.17	-110.35	3,133.89	0.31	390,560.37	612,813.65
10,492.00	90.13	354.42	7,472.18	4,475.18	3,224.74	-119.25	3,226.78	1.34	390,652.94	612,804.75
10,584.00	89.60	354.33	7,472.39	4,475.39	3,316.30	-128.27	3,318.66	0.58	390,744.50	612,795.73
10,677.00	91.36	354.68	7,471.61	4,474.61	3,408.86	-137.17	3,411.54	1.93	390,837.06	612,786.83
10,769.00	91.54	354.37	7,469.29	4,472.29	3,500.41	-145.95	3,503.40	0.39	390,928.61	612,778.05
10,863.00	90.84	353.38	7,467.33	4,470.33	3,593.85	-155.98	3,597.21	1.29	391,022.05	612,768.02
10,955.00	91.71	353.42	7,465.29	4,468.29	3,685.22	-166.55	3,688.97	0.95	391,113.42	612,757.45
11,049.00	89.87	353.89	7,463.99	4,466.99	3,778.63	-176.93	3,782.77	2.02	391,206.83	612,747.07
11,141.00	88.55	354.08	7,465.26	4,468.26	3,870.11	-186.57	3,874.61	1.45	391,298.31	612,737.43
11,231.00	88.90	356.72	7,467.26	4,470.26	3,959.79	-193.79	3,964.53	2.96	391,387.99	612,730.21
11,323.00	89.16	355.70	7,468.82	4,471.82	4,051.58	-199.87	4,056.50	1.14	391,479.78	612,724.13
11,416.00	90.13	356.35	7,469.40	4,472.40	4,144.35	-206.32	4,149.47	1.26	391,572.55	612,717.68
11,508.00	91.80	356.50	7,467.85	4,470.85	4,236.16	-212.05	4,241.44	1.82	391,664.36	612,711.95
11,601.00	91.45	356.16	7,465.21	4,468.21	4,328.93	-218.00	4,334.39	0.52	391,757.13	612,706.00
11,693.00	91.10	355.90	7,463.16	4,466.16	4,420.68	-224.37	4,426.35	0.47	391,848.88	612,699.63
11,786.00	91.80	355.85	7,460.81	4,463.81	4,513.41	-231.06	4,519.29	0.75	391,941.61	612,692.94
11,878.00	91.01	356.77	7,458.55	4,461.55	4,605.19	-236.98	4,611.24	1.32	392,033.39	612,687.02
11,971.00	91.28	355.36	7,456.70	4,459.70	4,697.95	-243.36	4,704.20	1.54	392,126.15	612,680.64
12,040.00	89.78	354.18	7,456.06	4,459.06	4,766.66	-249.65	4,773.13	2.77	392,194.86	612,674.35
12,088.00	89.78	354.18	7,456.24	4,459.24	4,814.41	-254.51	4,821.06	0.00	392,242.61	612,669.49

BHL-12088.00°MD,89.78°INC,354.18°AZI, 7456.24°TVD, 4821.06°VS, 4814.41°N, -254.51°E - PBHL(RF#5)



Pathfinder
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Targets:

Target Name	Dip Angle	Dip Dir.	TVD	+N-S	+E-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
- Shape									
PBHL(RF#5)	0.00	0.00	7,450.00	4,839.80	-227.90	392,268.000	612,696.100	32° 4' 40.577 N	103° 58' 10.143 W
- survey misses target center by 37.31ft at 12088.00ft MD (7456.24 TVD, 4814.41 N, -254.51 E)									
- Point									

Survey Annotations:

Measured Depth	Vertical Depth	Local Coordinates		Comment
(ft)	(ft)	+N-S	+E-W	
		(ft)	(ft)	
12,088.00	7,456.24	4,814.41	-254.51	BHL-12088.00MD,89.78°INC,354.18°AZI, 7456.24'TVD, 4821.06'VS, 4

Checked By: _____ Approved By: _____ Date: _____