



Marbob
Eddy County
Hearse State
#1H
OH

Survey: MWD #1

Pathfinder X & Y Survey Report

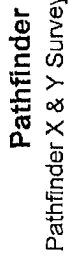
28 July, 2010

MR

PATHFINDER

30-015-37927





ENDER

Design	OH	Audit Notes:	Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:					Depth From (TWG)	+N/S (ft)	+E/W (ft)	Direction (°)
					0.00	0.00	0.00	0.18



Pathfinder

Pathfinder X & Y Survey Report

PATHFINDER

Company: Marathon
Project: Eddy County
Site: Hearse State
Well: #1H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well #1H
TVD Reference: WELL @ 3452.00ft (14' KB Correction)
MD Reference: WELL @ 3452.00ft (14' KB Correction)
North Reference: Gnd
Survey Calculation Method: Minimum Curvature
Database: Midland Database

Survey Program	From (ft)	To (ft)	Date	Tool Name	Description
	100.00	1,958.00	07/15/2010	CB-GYRO-MS	Camera based gyro multishot
	2,021.00	4,555.00		MWD	MWD - Standard

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	EW (ft)	V. Sec (ft)	D/Leg (°/100ft)	North (ft)	East (ft)
1,958.00	1.10	151.91	1,957.01	-1,494.99	-52.24	24.60	-52.16	0.00	588,438.06	466,214.50
2,021.00	1.06	163.14	2,020.00	-1,432.00	-53.33	25.05	-53.25	0.34	588,436.97	466,214.95
2,219.00	1.56	317.39	2,217.98	-1,234.02	-53.08	23.74	-53.00	1.30	588,437.22	466,213.64
2,241.00	1.49	315.54	2,239.97	-1,212.03	-52.65	23.33	-52.58	0.47	588,437.65	466,213.23
2,272.00	3.08	339.36	2,270.95	-1,181.05	-51.58	22.75	-51.51	5.87	588,438.72	466,212.65
2,304.00	7.12	351.68	2,302.81	-1,149.19	-48.81	22.16	-48.74	13.01	588,441.49	466,212.06
2,335.00	12.05	355.43	2,333.37	-1,118.63	-43.68	21.63	-43.62	16.02	588,446.62	466,211.53
2,366.00	17.41	358.60	2,363.34	-1,088.66	-35.82	21.26	-35.75	17.48	588,454.48	466,211.16
2,398.00	21.90	359.74	2,393.47	-1,058.53	-25.06	21.11	-24.99	14.08	588,465.24	466,211.01
2,429.00	23.92	359.26	2,422.02	-1,029.98	-12.89	21.00	-12.92	6.54	588,477.31	466,210.90
2,461.00	26.03	356.00	2,451.03	-1,000.97	0.50	20.43	0.57	7.87	588,490.80	466,210.33
2,492.00	28.84	357.86	2,478.54	-973.46	14.76	19.68	14.82	9.48	588,505.06	466,209.58
2,524.00	31.66	357.04	2,506.18	-945.82	30.87	18.96	30.93	8.91	588,521.17	466,208.86
2,554.00	35.00	355.96	2,531.24	-920.76	47.32	17.94	47.37	11.31	588,537.62	466,207.84
2,586.00	38.51	356.04	2,556.88	-895.12	66.41	16.61	66.47	10.97	588,556.71	466,206.51
2,617.00	41.59	356.27	2,580.61	-871.39	86.31	15.27	86.36	9.95	588,576.61	466,205.17
2,649.00	44.58	356.31	2,603.97	-848.03	108.12	13.86	108.17	9.34	588,598.42	466,203.76
2,680.00	47.75	357.04	2,625.44	-826.56	130.45	12.56	130.48	10.37	588,620.75	466,202.46
2,712.00	51.62	357.32	2,646.14	-805.86	154.81	11.37	154.85	12.11	588,645.11	466,201.27
2,743.00	56.01	357.79	2,664.44	-787.56	179.80	10.30	179.83	14.21	588,670.10	466,200.20
2,774.00	59.44	357.44	2,680.99	-771.01	205.99	9.21	206.01	11.11	588,696.29	466,199.11



Pathfinder

Pathfinder X & Y Survey Report



Company: Marbob
 Project: Eddy County
 Site: Hearse State
 Well: #1H
 Wellbore: OH
 Design: OH

Local Co-ordinate Reference:
 TVD Reference:
 MD Reference:
 North Reference:
 Survey Calculation Method:
 Database:

Well #1H
 WELL @ 3452.00ft (14' KB Correction)
 WELL @ 3452.00ft (14' KB Correction)
 Grid
 Minimum Curvature
 Midland Database

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	EW (ft)	V. Sec (ft)	D Leg (°/100ft)	Northing (ft)	Easting (ft)
2,806.00	63.14	357.58	2,696.36	-755.64	234.02	7.99	234.05	11.57	588,724.32	466,197.89
2,837.00	66.74	356.79	2,709.49	-742.51	262.06	6.61	262.08	11.84	588,752.36	466,196.51
2,869.00	70.43	356.19	2,721.17	-730.83	291.79	4.78	291.81	11.66	588,782.09	466,194.68
2,900.00	73.51	355.56	2,730.76	-721.24	321.19	2.66	321.20	10.12	588,811.49	466,192.56
2,963.00	80.81	357.08	2,744.76	-707.24	382.45	-1.27	382.44	11.82	588,872.75	466,188.63
2,995.00	86.09	357.91	2,748.41	-703.59	414.20	-2.65	414.19	16.70	588,904.50	466,187.25
3,026.00	87.41	358.45	2,750.16	-701.84	445.13	-3.64	445.12	4.60	588,935.43	466,186.26
3,089.00	92.07	358.99	2,750.45	-701.55	508.10	-5.04	508.08	7.45	588,998.40	466,184.86
3,183.00	90.04	358.06	2,748.72	-703.28	602.04	-7.46	602.02	2.38	589,092.34	466,182.44
3,245.00	88.64	358.17	2,749.43	-702.57	664.00	-9.50	663.97	2.27	589,154.30	466,180.40
3,339.00	90.22	357.37	2,750.37	-701.63	757.92	-13.16	757.88	1.88	589,248.22	466,176.74
3,435.00	89.78	357.28	2,750.37	-701.63	853.82	-17.64	853.76	0.47	589,344.12	466,172.26
3,528.00	88.02	357.51	2,752.17	-699.83	947.70	-21.91	947.63	1.89	589,438.00	466,167.99
3,624.00	90.22	358.96	2,753.63	-698.37	1,042.64	-24.84	1,042.55	2.77	589,532.94	466,165.06
3,718.00	91.98	359.60	2,751.83	-700.17	1,136.61	-26.02	1,136.52	1.99	589,626.91	466,163.88
3,813.00	91.98	359.20	2,748.54	-703.46	1,231.54	-27.01	1,231.45	0.42	589,721.84	466,162.89
3,908.00	91.89	358.99	2,745.34	-706.66	1,326.48	-28.51	1,326.38	0.24	589,816.78	466,161.39
4,001.00	89.60	358.18	2,744.13	-707.87	1,419.44	-30.81	1,419.33	2.61	589,909.74	466,159.09
4,096.00	89.16	358.22	2,745.16	-706.84	1,514.38	-33.79	1,514.27	0.47	590,004.68	466,156.11
4,189.00	88.99	357.47	2,746.66	-705.34	1,607.30	-37.29	1,607.18	0.83	590,097.60	466,152.61
4,284.00	88.90	356.44	2,748.41	-703.59	1,702.15	-42.33	1,702.01	1.09	590,192.45	466,147.57
4,340.00	89.08	355.74	2,749.39	-702.61	1,758.01	-46.15	1,757.86	1.29	590,248.31	466,143.75
4,440.00	89.16	355.17	2,750.93	-701.07	1,857.69	-54.07	1,857.51	0.58	590,347.99	466,135.83
4,509.00	89.16	354.94	2,751.94	-700.06	1,926.42	-60.02	1,926.22	0.33	590,416.72	466,129.88
4,555.00	89.16	354.94	2,752.61	-699.39	1,972.24	-64.08	1,972.03	0.00	590,462.54	466,125.82

BHL-4555.00 MD, 89.16° INC, 354.94° AZI, 2752.61 TVD, 1972.03° VS, 1972.24° N, -64.08° E - PBHL (Hearse#1)

WHL 2310 fwl 990 fwl
 BHL 338 fwl 926 fwl



Pathfinder

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Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well #1H
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North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Midland Database

Targets

Target Name
- hit/miss target
- Shape

Dip Angle
(°)

Dip Dir.
(°)

TVD
(ft)

+N/S
(ft)

+E/W
(ft)

Northing
(ft)

Easting
(ft)

Latitude

Longitude

PBHL(Hearse#1)

- survey misses target center by 70.59ft at 4555.00ft MD (2752.61 TVD, 1972.24 N, -64.08 E)
- Point

0.00
360.00
2,750.00
1,979.40
6.10
590,469.700
466,196.000
32° 37' 23.725 N
104° 26' 35.266 W

Survey Annotations

Measured
Depth
(ft)

Vertical
Depth
(ft)

Local Coordinates
+N/S
(ft)

+E/W
(ft)

Comment

Comment

Comment

Comment

4,555.00
2,752.61
1,972.24
-64.08
BHL-4555.00 MD, 89.16° INC, 354.94° AZI, 2752.61 TVD, 1972.03 VS, 19

Checked By: _____

Approved By: _____

Date: _____