



Marbob

Eddy County

VT 36 State

#1

OH

Plan: Plan #1

Pathfinder X & Y Planning Report

13 August, 2010

PATHFINDER



Pathfinder
Pathfinder X & Y Planning Report



Company:	Marbott	Local Co-ordinate Reference:	Well #1
Project:	Eddy County	TVD Reference:	WELL @ 3470.00ft (Original Well Elev)
Site:	VT 36 State	MD Reference:	WELL @ 3470.00ft (Original Well Elev)
Well:	#1	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	Midland Database

Project:	Eddy County		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site:		VT 36 State			
Site Position:		Northing:	590,321.500 ft	Latitude:	32° 37' 22.251 N
From:	Map	Easting:	465,535.700 ft	Longitude:	104° 26' 42.985 W
Position Uncertainty:	0.00 ft	Slot Radius:	"	Grid Convergence:	-0.06 °

Well:		#1				
Well Position	+N/-S	0.00 ft	Northing:	590,321.500 ft	Latitude:	32° 37' 22.251 N
	+E/-W	0.00 ft	Easting:	465,535.700 ft	Longitude:	104° 26' 42.985 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	3,451.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	08/13/2010	8.10	60.44	48,874

Design:	Plan #1			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	180.18

Survey Tool Program		Date 08/13/2010		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	7,015.08	Plan #1 (OH)	MWD	MWD - Standard



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Well:	#1	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	Midland Database

Planned Survey											
MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)	
0.00	0.00	0.00	0.00	-3,470.00	0.00	0.00	0.00	0.00	590,321.50	465,535.70	
100.00	0.00	0.00	100.00	-3,370.00	0.00	0.00	0.00	0.00	590,321.50	465,535.70	
200.00	0.00	0.00	200.00	-3,270.00	0.00	0.00	0.00	0.00	590,321.50	465,535.70	
300.00	0.00	0.00	300.00	-3,170.00	0.00	0.00	0.00	0.00	590,321.50	465,535.70	
400.00	0.00	0.00	400.00	-3,070.00	0.00	0.00	0.00	0.00	590,321.50	465,535.70	
500.00	0.00	0.00	500.00	-2,970.00	0.00	0.00	0.00	0.00	590,321.50	465,535.70	
600.00	0.00	0.00	600.00	-2,870.00	0.00	0.00	0.00	0.00	590,321.50	465,535.70	
700.00	0.00	0.00	700.00	-2,770.00	0.00	0.00	0.00	0.00	590,321.50	465,535.70	
800.00	0.00	0.00	800.00	-2,670.00	0.00	0.00	0.00	0.00	590,321.50	465,535.70	
900.00	0.00	0.00	900.00	-2,570.00	0.00	0.00	0.00	0.00	590,321.50	465,535.70	
1,000.00	0.00	0.00	1,000.00	-2,470.00	0.00	0.00	0.00	0.00	590,321.50	465,535.70	
1,100.00	0.00	0.00	1,100.00	-2,370.00	0.00	0.00	0.00	0.00	590,321.50	465,535.70	
1,200.00	0.00	0.00	1,200.00	-2,270.00	0.00	0.00	0.00	0.00	590,321.50	465,535.70	
1,300.00	0.00	0.00	1,300.00	-2,170.00	0.00	0.00	0.00	0.00	590,321.50	465,535.70	
1,400.00	0.00	0.00	1,400.00	-2,070.00	0.00	0.00	0.00	0.00	590,321.50	465,535.70	
1,500.00	0.00	0.00	1,500.00	-1,970.00	0.00	0.00	0.00	0.00	590,321.50	465,535.70	
1,600.00	0.00	0.00	1,600.00	-1,870.00	0.00	0.00	0.00	0.00	590,321.50	465,535.70	
1,700.00	0.00	0.00	1,700.00	-1,770.00	0.00	0.00	0.00	0.00	590,321.50	465,535.70	
1,800.00	0.00	0.00	1,800.00	-1,670.00	0.00	0.00	0.00	0.00	590,321.50	465,535.70	
1,900.00	0.00	0.00	1,900.00	-1,570.00	0.00	0.00	0.00	0.00	590,321.50	465,535.70	
2,000.00	0.00	0.00	2,000.00	-1,470.00	0.00	0.00	0.00	0.00	590,321.50	465,535.70	
2,100.00	0.00	0.00	2,100.00	-1,370.00	0.00	0.00	0.00	0.00	590,321.50	465,535.70	
2,200.00	0.00	0.00	2,200.00	-1,270.00	0.00	0.00	0.00	0.00	590,321.50	465,535.70	
2,272.50	0.00	0.00	2,272.50	-1,197.50	0.00	0.00	0.00	0.00	590,321.50	465,535.70	
2,275.00	0.30	180.18	2,275.00	-1,195.00	-0.01	0.00	0.01	12.00	590,321.49	465,535.70	
2,300.00	3.30	180.18	2,299.98	-1,170.02	-0.79	0.00	0.79	12.00	590,320.71	465,535.70	
2,325.00	6.30	180.18	2,324.89	-1,145.11	-2.88	-0.01	2.88	12.00	590,318.62	465,535.69	



Pathfinder

Pathfinder X & Y Planning Report



Company:	Marbob	Local Co-ordinate Reference:	Well #1
Project:	Eddy County	TVD Reference:	WELL @ 3470.00ft (Original Well Elev)
Site:	VT 36 State	MD Reference:	WELL @ 3470.00ft (Original Well Elev)
Well:	#1	North Reference:	Grd
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	Midland Database

Planned Survey											
MD (ft)	Incl (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)	
2,350.00	9.30	180.18	2,349.66	-1,120.34	-6.28	-0.02	6.28	12.00	590,315.22	465,535.68	
2,375.00	12.30	180.18	2,374.21	-1,095.79	-10.96	-0.03	10.96	12.00	590,310.54	465,535.67	
2,400.00	15.30	180.18	2,398.49	-1,071.51	-16.92	-0.05	16.92	12.00	590,304.58	465,535.65	
2,425.00	18.30	180.18	2,422.42	-1,047.58	-24.15	-0.08	24.15	12.00	590,297.35	465,535.62	
2,450.00	21.30	180.18	2,445.94	-1,024.06	-32.61	-0.10	32.61	12.00	590,288.89	465,535.60	
2,475.00	24.30	180.18	2,468.98	-1,001.02	-42.30	-0.13	42.30	12.00	590,279.20	465,535.57	
2,500.00	27.30	180.18	2,491.49	-978.51	-53.18	-0.17	53.18	12.00	590,268.32	465,535.53	
2,525.00	30.30	180.18	2,513.40	-956.60	-65.22	-0.20	65.22	12.00	590,256.28	465,535.50	
2,550.00	33.30	180.18	2,534.64	-935.36	-78.39	-0.25	78.39	12.00	590,243.11	465,535.45	
2,575.00	36.30	180.18	2,555.17	-914.83	-92.66	-0.29	92.66	12.00	590,228.84	465,535.41	
2,600.00	39.30	180.18	2,574.92	-895.08	-107.98	-0.34	107.98	12.00	590,213.52	465,535.36	
2,625.00	42.30	180.18	2,593.84	-876.16	-124.31	-0.39	124.31	12.00	590,197.19	465,535.31	
2,650.00	45.30	180.18	2,611.89	-858.11	-141.61	-0.44	141.61	12.00	590,179.89	465,535.26	
2,675.00	48.30	180.18	2,629.00	-841.00	-159.83	-0.50	159.83	12.00	590,161.67	465,535.20	
2,700.00	51.30	180.18	2,645.14	-824.86	-178.92	-0.56	178.92	12.00	590,142.58	465,535.14	
2,725.00	54.30	180.18	2,660.25	-809.75	-198.83	-0.62	198.83	12.00	590,122.67	465,535.08	
2,750.00	57.30	180.18	2,674.30	-795.70	-219.50	-0.69	219.51	12.00	590,102.00	465,535.01	
2,775.00	60.30	180.18	2,687.25	-782.75	-240.89	-0.76	240.89	12.00	590,080.61	465,534.94	
2,800.00	63.30	180.18	2,699.07	-770.93	-262.91	-0.83	262.92	12.00	590,058.59	465,534.87	
2,825.00	66.30	180.18	2,709.71	-760.29	-285.53	-0.90	285.53	12.00	590,035.97	465,534.80	
2,850.00	69.29	180.18	2,719.16	-750.84	-308.67	-0.97	308.68	12.00	590,012.83	465,534.73	
2,875.00	72.29	180.18	2,727.38	-742.62	-332.28	-1.04	332.28	12.00	589,989.22	465,534.66	
2,900.00	75.29	180.18	2,734.36	-735.64	-356.28	-1.12	356.29	12.00	589,965.22	465,534.58	
2,925.00	78.29	180.18	2,740.07	-729.93	-380.62	-1.20	380.62	12.00	589,940.88	465,534.50	
2,950.00	81.29	180.18	2,744.50	-725.50	-405.22	-1.27	405.22	12.00	589,916.28	465,534.43	
2,975.00	84.29	180.18	2,747.63	-722.37	-430.02	-1.35	430.02	12.00	589,891.48	465,534.35	
3,000.00	87.29	180.18	2,749.47	-720.53	-454.95	-1.43	454.95	12.00	589,866.55	465,534.27	



Pathfinder

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Design:	Plan #1	Database:	Midland Database

Planned Survey											
MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)	
3,022.56	90.00	180.18	2,750.00	-720.00	-477.50	-1.50	477.50	12.00	589,844.00	465,534.20	
3,100.00	90.00	180.18	2,750.00	-720.00	-554.94	-1.74	554.94	0.00	589,766.56	465,533.96	
3,200.00	90.00	180.18	2,750.00	-720.00	-654.94	-2.06	654.94	0.00	589,666.56	465,533.64	
3,300.00	90.00	180.18	2,750.00	-720.00	-754.94	-2.37	754.94	0.00	589,566.56	465,533.33	
3,400.00	90.00	180.18	2,750.00	-720.00	-854.94	-2.69	854.94	0.00	589,466.56	465,533.01	
3,500.00	90.00	180.18	2,750.00	-720.00	-954.94	-3.00	954.94	0.00	589,366.56	465,532.70	
3,600.00	90.00	180.18	2,750.00	-720.00	-1,054.94	-3.31	1,054.94	0.00	589,266.56	465,532.39	
3,700.00	90.00	180.18	2,750.00	-720.00	-1,154.94	-3.63	1,154.94	0.00	589,166.56	465,532.07	
3,800.00	90.00	180.18	2,750.00	-720.00	-1,254.94	-3.94	1,254.94	0.00	589,066.56	465,531.76	
3,900.00	90.00	180.18	2,750.00	-720.00	-1,354.94	-4.26	1,354.94	0.00	588,966.56	465,531.44	
4,000.00	90.00	180.18	2,750.00	-720.00	-1,454.94	-4.57	1,454.94	0.00	588,866.56	465,531.13	
4,100.00	90.00	180.18	2,750.00	-720.00	-1,554.94	-4.88	1,554.94	0.00	588,766.56	465,530.82	
4,200.00	90.00	180.18	2,750.00	-720.00	-1,654.94	-5.20	1,654.94	0.00	588,666.56	465,530.50	
4,300.00	90.00	180.18	2,750.00	-720.00	-1,754.94	-5.51	1,754.94	0.00	588,566.56	465,530.19	
4,400.00	90.00	180.18	2,750.00	-720.00	-1,854.94	-5.83	1,854.94	0.00	588,466.56	465,529.87	
4,500.00	90.00	180.18	2,750.00	-720.00	-1,954.94	-6.14	1,954.94	0.00	588,366.56	465,529.56	
4,600.00	90.00	180.18	2,750.00	-720.00	-2,054.93	-6.46	2,054.94	0.00	588,266.57	465,529.24	
4,700.00	90.00	180.18	2,750.00	-720.00	-2,154.93	-6.77	2,154.94	0.00	588,166.57	465,528.93	
4,800.00	90.00	180.18	2,750.00	-720.00	-2,254.93	-7.08	2,254.94	0.00	588,066.57	465,528.62	
4,900.00	90.00	180.18	2,750.00	-720.00	-2,354.93	-7.40	2,354.94	0.00	587,966.57	465,528.30	
5,000.00	90.00	180.18	2,750.00	-720.00	-2,454.93	-7.71	2,454.94	0.00	587,866.57	465,527.99	
5,100.00	90.00	180.18	2,750.00	-720.00	-2,554.93	-8.03	2,554.94	0.00	587,766.57	465,527.67	
5,200.00	90.00	180.18	2,750.00	-720.00	-2,654.93	-8.34	2,654.94	0.00	587,666.57	465,527.36	
5,300.00	90.00	180.18	2,750.00	-720.00	-2,754.93	-8.65	2,754.94	0.00	587,566.57	465,527.05	
5,400.00	90.00	180.18	2,750.00	-720.00	-2,854.93	-8.97	2,854.94	0.00	587,466.57	465,526.73	
5,500.00	90.00	180.18	2,750.00	-720.00	-2,954.93	-9.28	2,954.94	0.00	587,366.57	465,526.42	
5,600.00	90.00	180.18	2,750.00	-720.00	-3,054.93	-9.60	3,054.94	0.00	587,266.57	465,526.10	



Pathfinder

Pathfinder X & Y Planning Report



Company:	Marbob	Local Co-ordinate Reference:	Well #1
Project:	Eddy County	TVD Reference:	WELL @ 3470.00ft (Original Well Elev)
Site:	VT 36 State	MD Reference:	WELL @ 3470.00ft (Original Well Elev)
Well:	#1	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	Midland Database

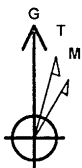
Planned Survey											
MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)	
5,700.00	90.00	180.18	2,750.00	-720.00	-3,154.93	-9.91	3,154.94	0.00	587,166.57	465,525.79	
5,800.00	90.00	180.18	2,750.00	-720.00	-3,254.93	-10.23	3,254.94	0.00	587,066.57	465,525.47	
5,900.00	90.00	180.18	2,750.00	-720.00	-3,354.93	-10.54	3,354.94	0.00	586,966.57	465,525.16	
6,000.00	90.00	180.18	2,750.00	-720.00	-3,454.93	-10.85	3,454.94	0.00	586,866.57	465,524.85	
6,100.00	90.00	180.18	2,750.00	-720.00	-3,554.93	-11.17	3,554.94	0.00	586,766.57	465,524.53	
6,200.00	90.00	180.18	2,750.00	-720.00	-3,654.93	-11.48	3,654.94	0.00	586,666.57	465,524.22	
6,300.00	90.00	180.18	2,750.00	-720.00	-3,754.93	-11.80	3,754.94	0.00	586,566.57	465,523.90	
6,400.00	90.00	180.18	2,750.00	-720.00	-3,854.93	-12.11	3,854.94	0.00	586,466.57	465,523.59	
6,500.00	90.00	180.18	2,750.00	-720.00	-3,954.93	-12.42	3,954.94	0.00	586,366.57	465,523.28	
6,600.00	90.00	180.18	2,750.00	-720.00	-4,054.92	-12.74	4,054.94	0.00	586,266.58	465,522.96	
6,700.00	90.00	180.18	2,750.00	-720.00	-4,154.92	-13.05	4,154.94	0.00	586,166.58	465,522.65	
6,800.00	90.00	180.18	2,750.00	-720.00	-4,254.92	-13.37	4,254.94	0.00	586,066.58	465,522.33	
6,900.00	90.00	180.18	2,750.00	-720.00	-4,354.92	-13.68	4,354.94	0.00	585,966.58	465,522.02	
7,000.00	90.00	180.18	2,750.00	-720.00	-4,454.92	-14.00	4,454.94	0.00	585,866.58	465,521.70	
7,015.08	90.00	180.18	2,750.00	-720.00	-4,470.00	-14.04	4,470.02	0.00	585,851.50	465,521.66	
PBHL(vt36)											

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
hit/miss:target									
Shape									
PBHL(vt36)	0.00	360.00	2,750.00	-4,470.00	-13.90	585,851.500	465,521.800	32° 36' 38.017 N	104° 26' 43.093 W
- plan hits target center									
- Point									

Checked By: _____	Approved By: _____	Date: _____
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Project: Eddy County
Site: VT 36 State
Well: #1
Wellbore: OH
Plan: Plan #1 (#1/OH)



Azimuths to Grid North
True North: 0.06°
Magnetic North: 8.16°

Magnetic Field
Strength: 48873.6snT
Dip Angle: 60.44°
Date: 08/13/2010
Model: IGRF200510

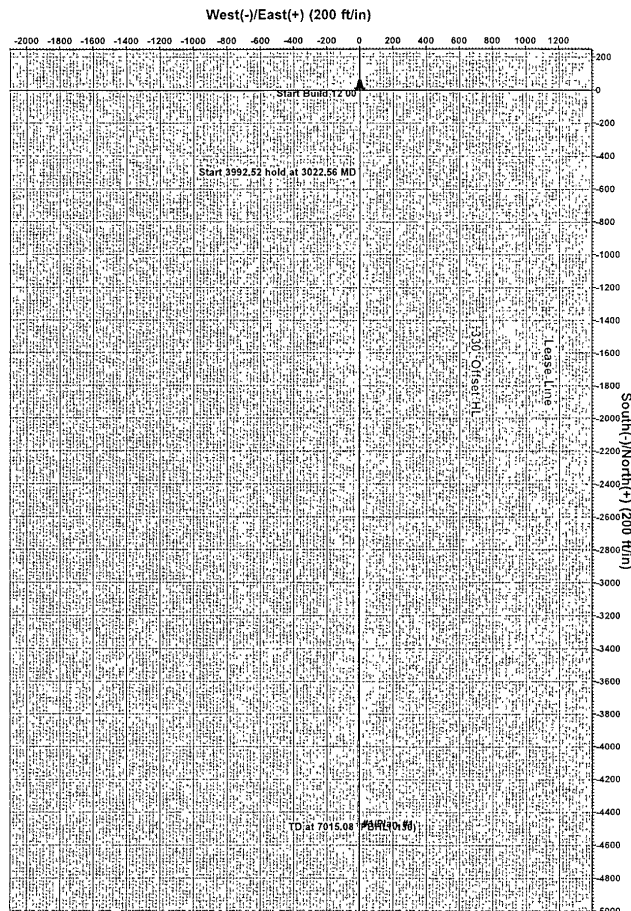
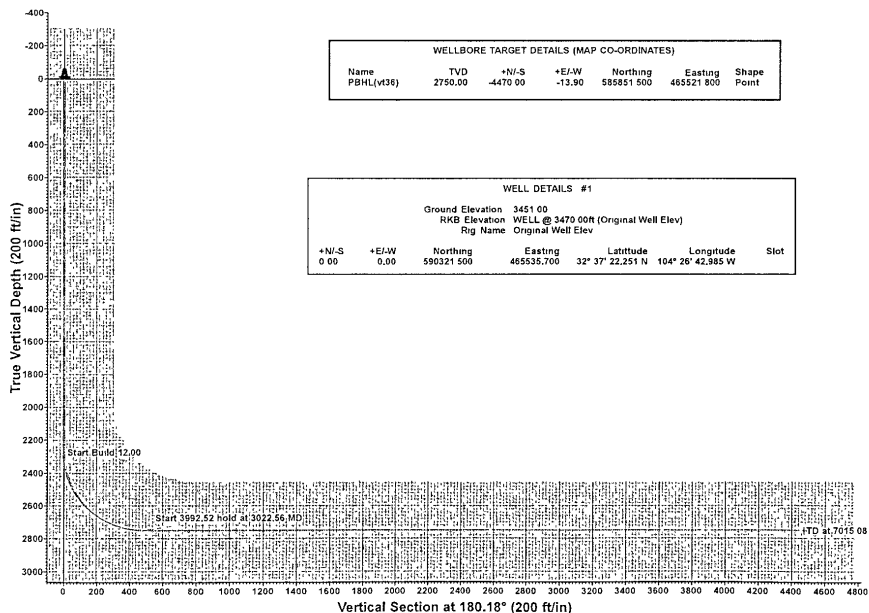


PROJECT DETAILS: Eddy County
Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001
System Datum: Mean Sea Level
Local North: Grid

SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	2272.50	0.00	0.00	2272.50	0.00	0.00	0.00	0.00	0.00	
3	3022.56	90.00	180.18	2750.00	-477.50	-1.50	12.00	180.18	477.50	
4	7015.08	90.00	180.18	2750.00	-4470.00	-14.04	0.00	0.00	4470.02	PBHL(v136)

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)						
Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
PBHL(v136)	2750.00	-4470.00	-13.90	585851.500	465521.800	Point

WELL DETAILS #1						
Ground Elevation		3451.00				
RKB Elevation		WELL @ 3470.00ft (Original Well Elev)				
Rig Name		Original Well Elev				
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	590321.500	465535.700	32° 37' 22.251 N	104° 26' 42.985 W	



Plan Plan #1 (#1/OH)			
Created By	Nate Bingham	Date	15 04, August 13 2010
Checked		Date	