



Mack Energy

Eddy County
Jack Frost State Com
#1H
OH

Plan: Plan #1

Pathfinder X & Y Planning Report

01 July, 2010

PATHFINDER



Pathfinder
Pathfinder X & Y Planning Report



Company:	Mack Energy	Local Co-ordinate Reference:	Well #1H
Project:	Eddy County	TVD Reference:	WELL @ 3515.00ft (Original Well Elev)
Site:	Jack Frost State Com	MD Reference:	WELL @ 3515.00ft (Original Well Elev)
Well:	#1H	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: Jack Frost State Com					
Site Position:		Northing:	684,113.800 ft	Latitude:	32° 52' 50.386 N
From:	Map	Easting:	533,400.600 ft	Longitude:	104° 13' 28.326 W
Position Uncertainty:	0.00 ft	Slot Radius:	"	Grid Convergence:	0.06 °

Well	#1H					
Well Position	+N/-S	0.00 ft	Northing:	684,113.800 ft	Latitude:	32° 52' 50.386 N
	+E/-W	0.00 ft	Easting:	533,400.600 ft	Longitude:	104° 13' 28.326 W
Position Uncertainty	0.00 ft		Wellhead Elevation:	ft	Ground Level:	3,496.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	07/01/2010	8.04	60.72	49,065

Design:		Plan #1		
Audit Notes:				
Version:		Phase:	PLAN	Tie On Depth: 0.00
Vertical Section:		Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)
		0.00	0.00	Direction (°) 272.17

Survey Tool Program		Date: 07/01/2010		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	10,588.66	Plan #1 (OH)	MWD	MWD - Standard



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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	-3,515.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60
100.00	0.00	0.00	100.00	-3,415.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60
200.00	0.00	0.00	200.00	-3,315.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60
300.00	0.00	0.00	300.00	-3,215.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60
400.00	0.00	0.00	400.00	-3,115.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60
500.00	0.00	0.00	500.00	-3,015.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60
600.00	0.00	0.00	600.00	-2,915.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60
700.00	0.00	0.00	700.00	-2,815.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60
800.00	0.00	0.00	800.00	-2,715.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60
900.00	0.00	0.00	900.00	-2,615.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60
1,000.00	0.00	0.00	1,000.00	-2,515.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60
1,100.00	0.00	0.00	1,100.00	-2,415.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60
1,200.00	0.00	0.00	1,200.00	-2,315.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60
1,300.00	0.00	0.00	1,300.00	-2,215.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60
1,400.00	0.00	0.00	1,400.00	-2,115.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60
1,500.00	0.00	0.00	1,500.00	-2,015.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60
1,600.00	0.00	0.00	1,600.00	-1,915.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60
1,700.00	0.00	0.00	1,700.00	-1,815.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60
1,800.00	0.00	0.00	1,800.00	-1,715.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60
1,900.00	0.00	0.00	1,900.00	-1,615.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60
2,000.00	0.00	0.00	2,000.00	-1,515.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60
2,100.00	0.00	0.00	2,100.00	-1,415.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60
2,200.00	0.00	0.00	2,200.00	-1,315.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60
2,300.00	0.00	0.00	2,300.00	-1,215.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60
2,400.00	0.00	0.00	2,400.00	-1,115.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60
2,500.00	0.00	0.00	2,500.00	-1,015.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60
2,600.00	0.00	0.00	2,600.00	-915.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60



Pathfinder

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2,700.00	0.00	0.00	2,700.00	-815.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60
2,800.00	0.00	0.00	2,800.00	-715.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60
2,900.00	0.00	0.00	2,900.00	-615.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60
3,000.00	0.00	0.00	3,000.00	-515.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60
3,100.00	0.00	0.00	3,100.00	-415.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60
3,200.00	0.00	0.00	3,200.00	-315.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60
3,300.00	0.00	0.00	3,300.00	-215.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60
3,400.00	0.00	0.00	3,400.00	-115.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60
3,500.00	0.00	0.00	3,500.00	-15.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60
3,600.00	0.00	0.00	3,600.00	85.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60
3,700.00	0.00	0.00	3,700.00	185.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60
3,800.00	0.00	0.00	3,800.00	285.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60
3,900.00	0.00	0.00	3,900.00	385.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60
4,000.00	0.00	0.00	4,000.00	485.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60
4,100.00	0.00	0.00	4,100.00	585.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60
4,200.00	0.00	0.00	4,200.00	685.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60
4,300.00	0.00	0.00	4,300.00	785.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60
4,400.00	0.00	0.00	4,400.00	885.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60
4,500.00	0.00	0.00	4,500.00	985.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60
4,600.00	0.00	0.00	4,600.00	1,085.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60
4,700.00	0.00	0.00	4,700.00	1,185.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60
4,800.00	0.00	0.00	4,800.00	1,285.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60
4,900.00	0.00	0.00	4,900.00	1,385.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60
5,000.00	0.00	0.00	5,000.00	1,485.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60
5,100.00	0.00	0.00	5,100.00	1,585.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60
5,200.00	0.00	0.00	5,200.00	1,685.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60
5,300.00	0.00	0.00	5,300.00	1,785.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60



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5,400.00	0.00	0.00	5,400.00	1,885.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60	
5,500.00	0.00	0.00	5,500.00	1,985.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60	
5,600.00	0.00	0.00	5,600.00	2,085.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60	
5,700.00	0.00	0.00	5,700.00	2,185.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60	
5,800.00	0.00	0.00	5,800.00	2,285.00	0.00	0.00	0.00	0.00	684,113.80	533,400.60	
5,850.00	5.21	272.17	5,849.93	2,334.93	0.09	-2.27	2.27	10.42	684,113.89	533,398.33	
5,900.00	10.42	272.17	5,899.45	2,384.45	0.34	-9.06	9.07	10.42	684,114.14	533,391.54	
5,950.00	15.62	272.17	5,948.15	2,433.15	0.77	-20.31	20.33	10.42	684,114.57	533,380.29	
6,000.00	20.83	272.17	5,995.62	2,480.62	1.36	-35.94	35.96	10.42	684,115.16	533,364.66	
6,050.00	26.04	272.17	6,041.48	2,526.48	2.11	-55.80	55.84	10.42	684,115.91	533,344.80	
6,100.00	31.25	272.17	6,085.35	2,570.35	3.02	-79.75	79.80	10.42	684,116.82	533,320.85	
6,150.00	36.46	272.17	6,126.86	2,611.86	4.08	-107.57	107.65	10.42	684,117.88	533,293.03	
6,200.00	41.67	272.17	6,165.67	2,650.67	5.27	-139.04	139.14	10.42	684,119.07	533,261.56	
6,250.00	46.87	272.17	6,201.46	2,686.46	6.59	-173.91	174.03	10.42	684,120.39	533,226.69	
6,300.00	52.08	272.17	6,233.93	2,718.93	8.03	-211.88	212.03	10.42	684,121.83	533,188.72	
6,350.00	57.29	272.17	6,262.83	2,747.83	9.57	-252.63	252.81	10.42	684,123.37	533,147.97	
6,400.00	62.50	272.17	6,287.90	2,772.90	11.21	-295.84	296.05	10.42	684,125.01	533,104.76	
6,450.00	67.71	272.17	6,308.94	2,793.94	12.93	-341.15	341.39	10.42	684,126.73	533,059.45	
6,500.00	72.91	272.17	6,325.78	2,810.78	14.71	-388.17	388.45	10.42	684,128.51	533,012.43	
6,550.00	78.12	272.17	6,338.28	2,823.28	16.54	-436.53	436.85	10.42	684,130.34	532,964.07	
6,600.00	83.33	272.17	6,346.33	2,831.33	18.41	-485.83	486.18	10.42	684,132.21	532,914.77	
6,650.00	88.54	272.17	6,349.87	2,834.87	20.30	-535.65	536.03	10.42	684,134.10	532,864.95	
6,671.70	90.80	272.17	6,350.00	2,835.00	21.12	-557.33	557.73	10.42	684,134.92	532,843.27	
6,671.92	90.80	272.17	6,350.00	2,835.00	21.13	-557.55	557.95	0.00	684,134.93	532,843.05	
6,700.00	90.80	272.17	6,349.60	2,834.60	22.19	-585.61	586.03	0.00	684,135.99	532,814.99	
6,800.00	90.80	272.17	6,348.21	2,833.21	25.98	-685.53	686.02	0.00	684,139.78	532,715.07	
6,900.00	90.80	272.17	6,346.81	2,831.81	29.76	-785.45	786.01	0.00	684,143.56	532,615.15	



Pathfinder

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Planned Survey

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7,000.00	90.80	272.17	6,345.42	2,830.42	33.55	-885.36	886.00	0.00	684,147.35	532,515.24
7,100.00	90.80	272.17	6,344.02	2,829.02	37.33	-985.28	985.99	0.00	684,151.13	532,415.32
7,114.02	90.80	272.17	6,343.00	2,828.00	37.86	-999.28	1,000.00	0.00	684,151.66	532,401.32
LT#1(JF#1)										
7,119.87	90.92	272.17	6,342.91	2,827.91	38.09	-1,005.13	1,005.85	2.00	684,151.89	532,395.47
7,200.00	90.92	272.17	6,341.63	2,826.63	41.12	-1,085.19	1,085.96	0.00	684,154.92	532,315.41
7,300.00	90.92	272.17	6,340.03	2,825.03	44.91	-1,185.10	1,185.95	0.00	684,158.71	532,215.50
7,400.00	90.92	272.17	6,338.43	2,823.43	48.69	-1,285.02	1,285.94	0.00	684,162.49	532,115.58
7,500.00	90.92	272.17	6,336.83	2,821.83	52.48	-1,384.93	1,385.93	0.00	684,166.28	532,015.67
7,600.00	90.92	272.17	6,335.23	2,820.23	56.26	-1,484.85	1,485.91	0.00	684,170.06	531,915.75
7,700.00	90.92	272.17	6,333.63	2,818.63	60.05	-1,584.76	1,585.90	0.00	684,173.85	531,815.84
7,800.00	90.92	272.17	6,332.03	2,817.03	63.84	-1,684.68	1,685.89	0.00	684,177.64	531,715.92
7,900.00	90.92	272.17	6,330.43	2,815.43	67.62	-1,784.59	1,785.88	0.00	684,181.42	531,616.01
8,000.00	90.92	272.17	6,328.83	2,813.83	71.41	-1,884.51	1,885.86	0.00	684,185.21	531,516.09
8,100.00	90.92	272.17	6,327.23	2,812.23	75.19	-1,984.43	1,985.85	0.00	684,188.99	531,416.17
8,114.15	90.92	272.17	6,327.00	2,812.00	75.73	-1,998.57	2,000.00	0.00	684,189.53	531,402.03
LT#2(JF#1)										
8,117.04	90.86	272.17	6,326.96	2,811.96	75.84	-2,001.45	2,002.89	2.00	684,189.64	531,399.15
8,200.00	90.86	272.17	6,325.71	2,810.71	78.98	-2,084.34	2,085.84	0.00	684,192.78	531,316.26
8,300.00	90.86	272.17	6,324.21	2,809.21	82.77	-2,184.26	2,185.83	0.00	684,196.57	531,216.34
8,400.00	90.86	272.17	6,322.71	2,807.71	86.55	-2,284.18	2,285.82	0.00	684,200.35	531,116.42
8,500.00	90.86	272.17	6,321.21	2,806.21	90.34	-2,384.09	2,385.80	0.00	684,204.14	531,016.51
8,600.00	90.86	272.17	6,319.71	2,804.71	94.12	-2,484.01	2,485.79	0.00	684,207.92	530,916.59
8,700.00	90.86	272.17	6,318.21	2,803.21	97.91	-2,583.93	2,585.78	0.00	684,211.71	530,816.67
8,800.00	90.86	272.17	6,316.71	2,801.71	101.70	-2,683.84	2,685.77	0.00	684,215.50	530,716.76
8,900.00	90.86	272.17	6,315.21	2,800.21	105.48	-2,783.76	2,785.76	0.00	684,219.28	530,616.84
9,000.00	90.86	272.17	6,313.71	2,798.71	109.27	-2,883.68	2,885.75	0.00	684,223.07	530,516.92



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9,100.00	90.86	272.17	6,312.21	2,797.21	113.05	-2,983.60	2,985.74	0.00	684,226.85	530,417.00	
9,114.26	90.86	272.17	6,312.00	2,797.00	113.59	-2,997.85	3,000.00	0.00	684,227.39	530,402.75	
LT#3(JF#1)											
9,122.89	90.69	272.17	6,311.88	2,796.88	113.92	-3,006.47	3,008.63	2.00	684,227.72	530,394.13	
9,200.00	90.69	272.17	6,310.96	2,795.96	116.84	-3,083.52	3,085.73	0.00	684,230.64	530,317.08	
9,300.00	90.69	272.17	6,309.76	2,794.76	120.63	-3,183.44	3,185.72	0.00	684,234.43	530,217.16	
9,400.00	90.69	272.17	6,308.56	2,793.56	124.41	-3,283.36	3,285.71	0.00	684,238.21	530,117.24	
9,500.00	90.69	272.17	6,307.36	2,792.36	128.20	-3,383.28	3,385.71	0.00	684,242.00	530,017.32	
9,600.00	90.69	272.17	6,306.16	2,791.16	131.98	-3,483.20	3,485.70	0.00	684,245.78	529,917.40	
9,700.00	90.69	272.17	6,304.97	2,789.97	135.77	-3,583.12	3,585.69	0.00	684,249.57	529,817.48	
9,800.00	90.69	272.17	6,303.77	2,788.77	139.56	-3,683.04	3,685.69	0.00	684,253.36	529,717.56	
9,900.00	90.69	272.17	6,302.57	2,787.57	143.34	-3,782.96	3,785.68	0.00	684,257.14	529,617.64	
10,000.00	90.69	272.17	6,301.37	2,786.37	147.13	-3,882.88	3,885.67	0.00	684,260.93	529,517.72	
10,100.00	90.69	272.17	6,300.17	2,785.17	150.92	-3,982.81	3,985.66	0.00	684,264.72	529,417.79	
10,114.34	90.69	272.17	6,300.00	2,785.00	151.46	-3,997.13	4,000.00	0.00	684,265.26	529,403.47	
LT#4(JF#1)											
10,116.30	90.72	272.18	6,299.98	2,784.98	151.53	-3,999.10	4,001.97	2.00	684,265.33	529,401.50	
10,200.00	90.72	272.18	6,298.92	2,783.92	154.72	-4,082.73	4,085.66	0.00	684,268.52	529,317.87	
10,300.00	90.72	272.18	6,297.65	2,782.65	158.52	-4,182.65	4,185.65	0.00	684,272.32	529,217.95	
10,400.00	90.72	272.18	6,296.39	2,781.39	162.32	-4,282.57	4,285.64	0.00	684,276.12	529,118.03	
10,500.00	90.72	272.18	6,295.12	2,780.12	166.13	-4,382.48	4,385.63	0.00	684,279.93	529,018.12	
10,588.69	90.72	272.18	6,294.00	2,779.00	169.50	-4,471.10	4,474.31	0.00	684,283.30	528,929.50	
PBHL(JF#1H)											



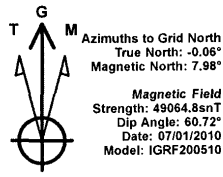
Pathfinder
Pathfinder X & Y Planning Report



Company:	Mack Energy	Local Co-ordinate Reference:	Well #1H
Project:	Eddy County	TVD Reference:	WELL @ 3515.00ft (Original Well Elev)
Site:	Jack Frost State Corn	MD Reference:	WELL @ 3515.00ft (Original Well Elev)
Well:	#1H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	Midland Database

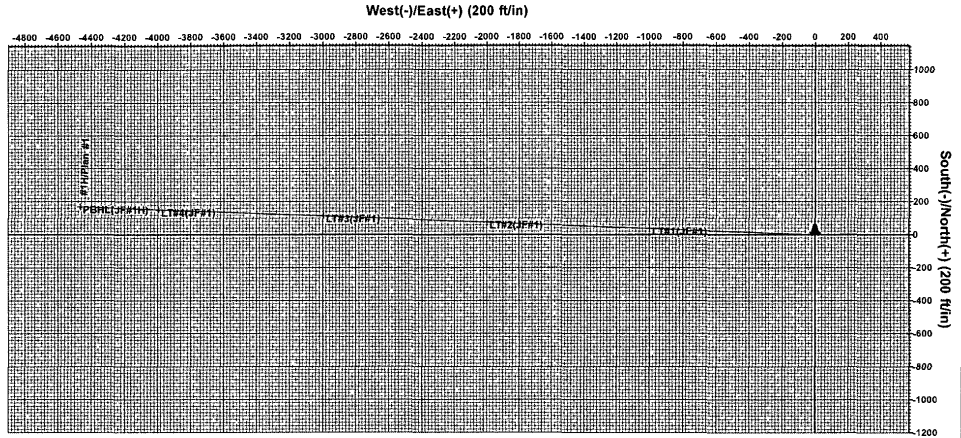
Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
- Shape									
LT#4(JF#1)	0.00	0.00	6,300.00	151.46	-3,997.13	684,265.258	529,403.468	32° 52' 51.923 N	104° 14' 15.197 W
- plan hits target center									
- Point									
LT#1(JF#1)	0.00	0.00	6,343.00	37.86	-999.28	684,151.665	532,401.317	32° 52' 50.771 N	104° 13' 40.044 W
- plan hits target center									
- Point									
PBHL(JF#1H)	0.00	0.00	6,294.00	169.50	-4,471.10	684,283.300	528,929.500	32° 52' 52.106 N	104° 14' 20.755 W
- plan hits target center									
- Point									
LT#2(JF#1)	0.00	0.00	6,327.00	75.73	-1,998.57	684,189.529	531,402.034	32° 52' 51.155 N	104° 13' 51.761 W
- plan hits target center									
- Point									
LT#3(JF#1)	0.00	0.00	6,312.00	113.59	-2,997.85	684,227.394	530,402.751	32° 52' 51.539 N	104° 14' 3.479 W
- plan hits target center									
- Point									

Checked By: _____ Approved By: _____ Date: _____

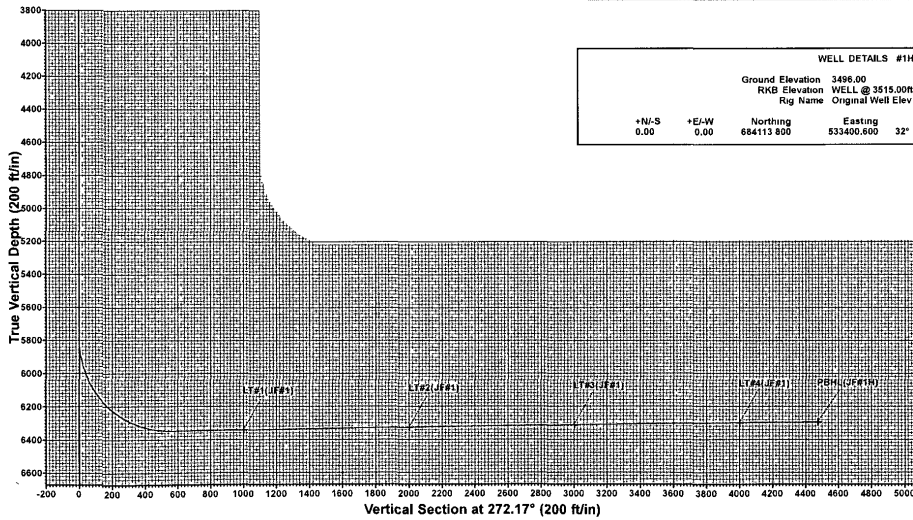


PATHFINDER

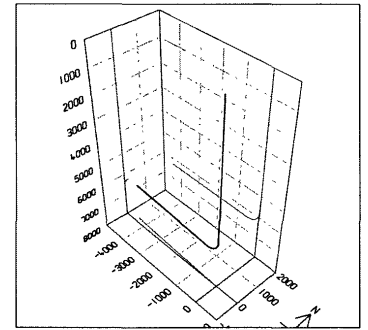
WELLBORE TARGET DETAILS				
Name	TVD	+N/-S	+E/-W	Shape
PBHL(JF#1H)	6294.00	169.50	-4471.10	Point
LT#4(JF#1)	6300.00	151.46	-3997.13	Point
LT#3(JF#1)	6312.00	113.59	-2997.85	Point
LT#2(JF#1)	6327.00	75.73	-1998.57	Point
LT#1(JF#1)	6343.00	37.86	-999.28	Point



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	5800.00	0.00	0.00	5800.00	0.00	0.00	0.00	0.00	0.00		
3	6671.70	90.80	272.17	6350.00	21.12	-557.33	10.42	272.17	557.73		
4	6671.92	90.80	272.17	6350.00	21.13	-557.55	0.00	0.00	557.95		
5	7114.02	90.80	272.17	6343.00	37.86	-999.28	0.00	0.00	1000.00	LT#1(JF#1)	
6	7119.87	90.92	272.17	6342.91	38.09	-1005.13	2.00	0.00	1005.85		
7	8114.15	90.92	272.17	6327.00	75.73	-1998.57	0.00	0.00	2000.00	LT#2(JF#1)	
8	8117.04	90.86	272.17	6326.96	75.94	-2001.45	2.00	180.00	2002.89		
9	9114.26	90.86	272.17	6312.00	113.59	-2997.85	0.00	0.00	3000.00	LT#3(JF#1)	
10	9122.89	90.89	272.17	6311.88	113.32	-3006.47	2.00	-180.00	3008.63		
11	10114.34	90.69	272.17	6300.00	151.46	-3997.13	0.00	0.00	4000.00	LT#4(JF#1)	
12	10116.30	90.72	272.18	6299.98	151.53	-3999.10	2.00	14.63	4001.97		
13	10358.69	90.72	272.18	6294.00	169.50	-4471.10	0.00	0.00	4474.31	PBHL(JF#1H)	



WELL DETAILS #1H							
Ground Elevation: 3496.00							
RKB Elevation: WELL @ 3515.00ft (Original Well Elev)							
Rig Name: Original Well Elev							
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot	
0.00	0.00	684113.800	533400.600	32° 52' 50.386 N	104° 13' 28.328 W		



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

Plan: Plan #1 (#1H/OH)	
Created By: Nate Bingham	Date: 15 May, July 01 2010
Checked: _____	Date: _____