

30-025-40378



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DEC 19 2011

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Mack Energy

Lea County
Diamond Rock State
#3
OH

Plan: Plan #1

Pathfinder X & Y Report

15 December, 2011

PATHFINDER[®]
A Schlumberger Company

DEC 19 2011



Pathfinder
Pathfinder X & Y Report

PATHFINDER
A Schlumberger Company

Company: Mack Energy
Project: Lea County
Site: Diamond Rock State
Well: #3
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #3
TVD Reference: KB = 17.5' @ 3954.5usft (Original Well Elev)
MD Reference: KB = 17.5' @ 3954.5usft (Original Well Elev)
North Reference: Gnd
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Project	Lea 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	Diamond Rock State		
Site Position:		Northing: 648,175.400 usft	Latitude: 32° 46' 43.980 N
From: Map		Easting: 768,308.700 usft	Longitude: 103° 27' 37.298 W
Position Uncertainty:	0.0 usft	Slot Radius: 13-3/16 "	Grid Convergence: 0.47 "

Well	#3		
Well Position	+N/-S 0.0 usft	Northing: 649,027.200 usft	Latitude: 32° 46' 52.352 N
	+E/-W 0.0 usft	Easting: 768,989.600 usft	Longitude: 103° 27' 29.241 W
Position Uncertainty	0.0 usft	Wellhead Elevation: usft	Ground Level: 3,937.0 usft

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination (°)
	IGRF200510	12/15/2011	7.50
			Dip Angle (°)
			60.73
			Field Strength (nT)
			48,947

Design	Plan #1		
Audit Notes:			
Version:	Phase: PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)
	0.0	0.0	0.0
			Direction (°)
			275.44

Survey Tool Program	Date 12/15/2011		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name
0.0	7,510.8	Plan #1 (OH)	MWD
			Description
			MWD - Standard



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Planned Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
0 0	0.00	0 00	0 0	-3,954.5	0 0	0 0	0.0	0.00	649,027.20	768,989.60	
100 0	0.00	0 00	100 0	-3,854.5	0 0	0 0	0.0	0.00	649,027.20	768,989.60	
200.0	0.00	0.00	200 0	-3,754.5	0.0	0.0	0.0	0.00	649,027.20	768,989.60	
300.0	0.00	0 00	300 0	-3,654.5	0 0	0.0	0.0	0.00	649,027.20	768,989.60	
400 0	0 00	0 00	400 0	-3,554.5	0 0	0.0	0.0	0.00	649,027.20	768,989.60	
500 0	0.00	0 00	500.0	-3,454.5	0.0	0.0	0.0	0.00	649,027.20	768,989.60	
600 0	0.00	0 00	600 0	-3,354.5	0 0	0.0	0.0	0.00	649,027.20	768,989.60	
700.0	0.00	0.00	700.0	-3,254.5	0.0	0.0	0.0	0.00	649,027.20	768,989.60	
800 0	0.00	0 00	800.0	-3,154.5	0 0	0.0	0.0	0.00	649,027.20	768,989.60	
900.0	0.00	0.00	900.0	-3,054.5	0.0	0.0	0.0	0.00	649,027.20	768,989.60	
1,000 0	0.00	0.00	1,000 0	-2,954.5	0 0	0.0	0.0	0.00	649,027.20	768,989.60	
1,100 0	0.00	0.00	1,100 0	-2,854.5	0 0	0.0	0.0	0.00	649,027.20	768,989.60	
1,200 0	0.00	0.00	1,200 0	-2,754.5	0 0	0.0	0.0	0.00	649,027.20	768,989.60	
1,300 0	0.00	0 00	1,300 0	-2,654.5	0 0	0.0	0.0	0.00	649,027.20	768,989.60	
1,400 0	0.00	0 00	1,400 0	-2,554.5	0 0	0.0	0.0	0.00	649,027.20	768,989.60	
1,500 0	0.00	0.00	1,500 0	-2,454.5	0 0	0.0	0.0	0.00	649,027.20	768,989.60	
1,600 0	0.00	0.00	1,600 0	-2,354.5	0.0	0.0	0.0	0.00	649,027.20	768,989.60	
1,700 0	0.00	0 00	1,700 0	-2,254.5	0 0	0.0	0.0	0.00	649,027.20	768,989.60	
1,800.0	2.00	275.44	1,800 0	-2,154.5	0.2	-1.7	1.7	2.00	649,027.37	768,987.86	
1,900 0	4.00	275.44	1,899.8	-2,054.7	0.7	-6.9	7.0	2.00	649,027.86	768,982.65	
1,948.1	4.96	275.44	1,947.8	-2,006.7	1.0	-10.7	10.7	2.00	649,028.22	768,978.91	
2,000.0	4.96	275.44	1,999.5	-1,955.0	1.4	-15.2	15.2	0.00	649,028.64	768,974.44	
2,100 0	4.96	275.44	2,099.1	-1,855.4	2.3	-23.8	23.9	0.00	649,029.46	768,965.83	
2,200.0	4.96	275.44	2,198.7	-1,755.8	3.1	-32.4	32.5	0.00	649,030.28	768,957.22	
2,300 0	4.96	275.44	2,298.4	-1,656.1	3.9	-41.0	41.2	0.00	649,031.10	768,948.61	
2,400 0	4.96	275.44	2,398.0	-1,556.5	4.7	-49.6	49.8	0.00	649,031.92	768,940.00	
2,500 0	4.96	275.44	2,497.6	-1,456.9	5.5	-58.2	58.5	0.00	649,032.74	768,931.39	



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MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
2,600.0	4.96	275.44	2,597.2	-1,357.3	6.4	-66.8	67.1	0.00	649,033.56	768,922.78
2,700.0	4.96	275.44	2,696.9	-1,257.6	7.2	-75.4	75.8	0.00	649,034.38	768,914.17
2,800.0	4.96	275.44	2,796.5	-1,158.0	8.0	-84.0	84.4	0.00	649,035.20	768,905.56
2,900.0	4.96	275.44	2,896.1	-1,058.4	8.8	-92.6	93.1	0.00	649,036.03	768,896.95
3,000.0	4.96	275.44	2,995.7	-958.8	9.6	-101.3	101.7	0.00	649,036.85	768,888.34
3,100.0	4.96	275.44	3,095.4	-859.1	10.5	-109.9	110.4	0.00	649,037.67	768,879.73
3,200.0	4.96	275.44	3,195.0	-759.5	11.3	-118.5	119.0	0.00	649,038.49	768,871.12
3,300.0	4.96	275.44	3,294.6	-659.9	12.1	-127.1	127.7	0.00	649,039.31	768,862.51
3,400.0	4.96	275.44	3,394.2	-560.3	12.9	-135.7	136.3	0.00	649,040.13	768,853.90
3,500.0	4.96	275.44	3,493.9	-460.6	13.7	-144.3	145.0	0.00	649,040.95	768,845.29
3,600.0	4.96	275.44	3,593.5	-361.0	14.6	-152.9	153.6	0.00	649,041.77	768,836.68
3,700.0	4.96	275.44	3,693.1	-261.4	15.4	-161.5	162.3	0.00	649,042.59	768,828.07
3,800.0	4.96	275.44	3,792.8	-161.7	16.2	-170.1	170.9	0.00	649,043.41	768,819.47
3,900.0	4.96	275.44	3,892.4	-62.1	17.0	-178.7	179.6	0.00	649,044.23	768,810.86
4,000.0	4.96	275.44	3,992.0	37.5	17.8	-187.4	188.2	0.00	649,045.05	768,802.25
4,100.0	4.96	275.44	4,091.6	137.1	18.7	-196.0	196.9	0.00	649,045.87	768,793.64
4,200.0	4.96	275.44	4,191.3	236.8	19.5	-204.6	205.5	0.00	649,046.69	768,785.03
4,300.0	4.96	275.44	4,290.9	336.4	20.3	-213.2	214.1	0.00	649,047.51	768,776.42
4,400.0	4.96	275.44	4,390.5	436.0	21.1	-221.8	222.8	0.00	649,048.33	768,767.81
4,500.0	4.96	275.44	4,490.1	535.6	21.9	-230.4	231.4	0.00	649,049.15	768,759.20
4,600.0	4.96	275.44	4,589.8	635.3	22.8	-239.0	240.1	0.00	649,049.97	768,750.59
4,662.7	4.96	275.44	4,652.2	697.7	23.3	-244.4	245.5	0.00	649,050.48	768,745.19
4,700.0	4.22	275.44	4,689.4	734.9	23.6	-247.4	248.5	2.00	649,050.76	768,742.22
4,800.0	2.22	275.44	4,789.2	834.7	24.1	-253.0	254.1	2.00	649,051.30	768,736.63
4,900.0	0.22	275.44	4,889.2	934.7	24.3	-255.1	256.2	2.00	649,051.50	768,734.52
4,910.8	0.00	0.00	4,900.0	945.5	24.3	-255.1	256.3	2.00	649,051.50	768,734.50
5,000.0	0.00	0.00	4,989.2	1,034.7	24.3	-255.1	256.3	0.00	649,051.50	768,734.50



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5,100.0	0.00	0.00	5,089.2	1,134.7	24.3	-255.1	256.3	0.00	649,051.50	768,734.50
5,200.0	0.00	0.00	5,189.2	1,234.7	24.3	-255.1	256.3	0.00	649,051.50	768,734.50
5,300.0	0.00	0.00	5,289.2	1,334.7	24.3	-255.1	256.3	0.00	649,051.50	768,734.50
5,400.0	0.00	0.00	5,389.2	1,434.7	24.3	-255.1	256.3	0.00	649,051.50	768,734.50
5,500.0	0.00	0.00	5,489.2	1,534.7	24.3	-255.1	256.3	0.00	649,051.50	768,734.50
5,600.0	0.00	0.00	5,589.2	1,634.7	24.3	-255.1	256.3	0.00	649,051.50	768,734.50
5,700.0	0.00	0.00	5,689.2	1,734.7	24.3	-255.1	256.3	0.00	649,051.50	768,734.50
5,800.0	0.00	0.00	5,789.2	1,834.7	24.3	-255.1	256.3	0.00	649,051.50	768,734.50
5,900.0	0.00	0.00	5,889.2	1,934.7	24.3	-255.1	256.3	0.00	649,051.50	768,734.50
6,000.0	0.00	0.00	5,989.2	2,034.7	24.3	-255.1	256.3	0.00	649,051.50	768,734.50
6,100.0	0.00	0.00	6,089.2	2,134.7	24.3	-255.1	256.3	0.00	649,051.50	768,734.50
6,200.0	0.00	0.00	6,189.2	2,234.7	24.3	-255.1	256.3	0.00	649,051.50	768,734.50
6,300.0	0.00	0.00	6,289.2	2,334.7	24.3	-255.1	256.3	0.00	649,051.50	768,734.50
6,400.0	0.00	0.00	6,389.2	2,434.7	24.3	-255.1	256.3	0.00	649,051.50	768,734.50
6,500.0	0.00	0.00	6,489.2	2,534.7	24.3	-255.1	256.3	0.00	649,051.50	768,734.50
6,600.0	0.00	0.00	6,589.2	2,634.7	24.3	-255.1	256.3	0.00	649,051.50	768,734.50
6,700.0	0.00	0.00	6,689.2	2,734.7	24.3	-255.1	256.3	0.00	649,051.50	768,734.50
6,800.0	0.00	0.00	6,789.2	2,834.7	24.3	-255.1	256.3	0.00	649,051.50	768,734.50
6,900.0	0.00	0.00	6,889.2	2,934.7	24.3	-255.1	256.3	0.00	649,051.50	768,734.50
7,000.0	0.00	0.00	6,989.2	3,034.7	24.3	-255.1	256.3	0.00	649,051.50	768,734.50
7,100.0	0.00	0.00	7,089.2	3,134.7	24.3	-255.1	256.3	0.00	649,051.50	768,734.50
7,200.0	0.00	0.00	7,189.2	3,234.7	24.3	-255.1	256.3	0.00	649,051.50	768,734.50
7,300.0	0.00	0.00	7,289.2	3,334.7	24.3	-255.1	256.3	0.00	649,051.50	768,734.50
7,400.0	0.00	0.00	7,389.2	3,434.7	24.3	-255.1	256.3	0.00	649,051.50	768,734.50
7,500.0	0.00	0.00	7,489.2	3,534.7	24.3	-255.1	256.3	0.00	649,051.50	768,734.50
7,510.8	0.00	0.00	7,500.0	3,545.5	24.3	-255.1	256.3	0.00	649,051.50	768,734.50



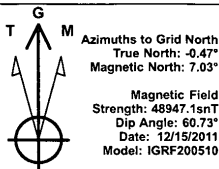
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Checked By: _____	Approved By: _____	Date: _____
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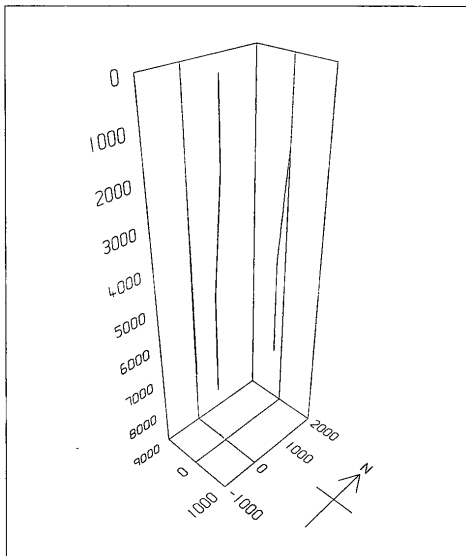
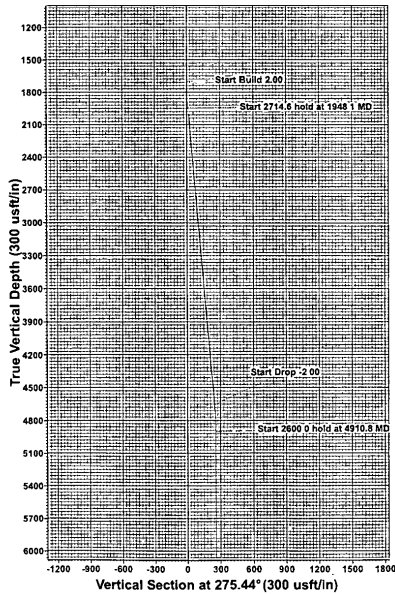
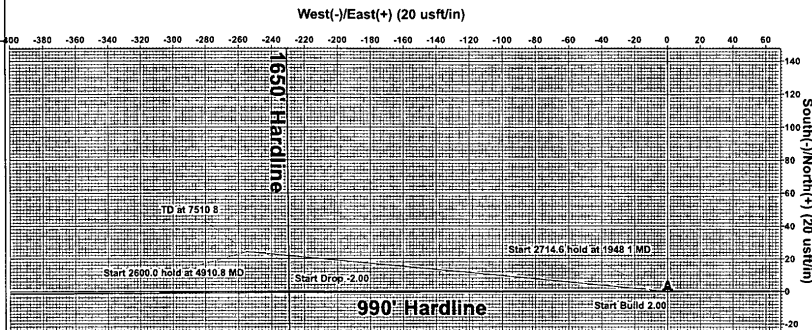


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Project: Lea County
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Well: #3
Wellbore: OH
Plan: Plan #1 (#3/OH)

PROJECT DETAILS: Lea 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



WELL DETAILS #3						
Ground Elevation: 3937.0						
RKB Elevation: 3954.5usft (Original Well Elev)						
Rig Name: Original Well Elev						
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	649027.200	768989.600	32°46' 52.352 N	103°27' 29.241 W	

SECTION DETAILS									
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFece	VSect Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0
2	1700.0	0.00	0.00	1700.0	0.0	0.0	0.00	0.00	0.0
3	1948.1	4.96	275.44	1947.8	1.0	-10.7	2.00	275.44	10.7
4	4662.7	4.96	275.44	4652.2	23.3	-244.4	0.00	0.00	245.5
5	4910.8	0.00	0.00	4900.0	24.3	-255.1	2.00	180.00	256.3
6	7510.8	0.00	0.00	7500.0	24.3	-255.1	0.00	0.00	256.3 BHL (DR State #3)

DESIGN TARGET DETAILS					
Name	TVD	+N/-S	+E/-W	Northing	Easting
BHL (DR State #3)	7500.0	24.3	-255.1	649051.500	768734.500

Plan: Plan #1 (#3/OH)		Well Energy
Created By: Michael Trout	Date: 15 38, December 15 2011	Lea County
Checked: _____	Date: _____	Geological Survey
		Original Survey Data
		Plan #1