



Mack Energy

Lea County

B Lee State

#6

OH

HOBBS OCD

NOV 16 2011

RECEIVED

Plan: Plan #3

Pathfinder X & Y Report

10 November, 2011

PATHFINDER[®]
A Schlumberger Company

NOV 28 2011



Smith International, Inc.
Pathfinder X & Y Report

PATHFINDER
A Schlumberger Company

Company: Mack Energy
Project: Lea County
Site: B Lee State
Well: #6
Wellbore: OH
Design: Plan #3

Local Co-ordinate Reference: Well #6
TVD Reference: WELL @ 3995.0usft (Original Well Elev)
MD Reference: WELL @ 3995.0usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Project Lea 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 B Lee State

Site Position: Northing: 643,114.400 usft Latitude: 32° 45' 54.844 N
From: Map Easting: 756,530.800 usft Longitude: 103° 29' 55.707 W
Position Uncertainty: 0.0 usft Slot Radius: 13-3/16 " Grid Convergence: 0.45 °

Well #6

Well Position +N/-S 0.0 usft Northing: 641,601.700 usft Latitude: 32° 45' 39.987 N
+E/-W 0.0 usft Easting: 755,121.200 usft Longitude: 103° 30' 12.353 W
Position Uncertainty 0.0 usft Wellhead Elevation: usft Ground Level: 3,976.0 usft

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	2/18/2010	7.74	60.75	49,107

Design Plan #3

Audit Notes:

Version: Phase: PLAN Tie On Depth: 0.0

Vertical Section: Depth From (TVD) +N/-S +E/-W Direction
(usft) (usft) (usft) (°)
0.0 0.0 0.0 314.73

Survey Tool Program Date 11/10/2011

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	9,001.8	Plan #3 (OH)	MWD	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	-3,995.0	0.0	0.0	0.0	0.00	641,601.70	755,121.20
100.0	0.00	0.00	100.0	-3,895.0	0.0	0.0	0.0	0.00	641,601.70	755,121.20
200.0	0.00	0.00	200.0	-3,795.0	0.0	0.0	0.0	0.00	641,601.70	755,121.20
300.0	0.00	0.00	300.0	-3,695.0	0.0	0.0	0.0	0.00	641,601.70	755,121.20
400.0	0.00	0.00	400.0	-3,595.0	0.0	0.0	0.0	0.00	641,601.70	755,121.20
500.0	0.00	0.00	500.0	-3,495.0	0.0	0.0	0.0	0.00	641,601.70	755,121.20
600.0	0.00	0.00	600.0	-3,395.0	0.0	0.0	0.0	0.00	641,601.70	755,121.20
700.0	0.00	0.00	700.0	-3,295.0	0.0	0.0	0.0	0.00	641,601.70	755,121.20
800.0	0.00	0.00	800.0	-3,195.0	0.0	0.0	0.0	0.00	641,601.70	755,121.20
900.0	0.00	0.00	900.0	-3,095.0	0.0	0.0	0.0	0.00	641,601.70	755,121.20
1,000.0	0.00	0.00	1,000.0	-2,995.0	0.0	0.0	0.0	0.00	641,601.70	755,121.20
1,100.0	0.00	0.00	1,100.0	-2,895.0	0.0	0.0	0.0	0.00	641,601.70	755,121.20
1,200.0	0.00	0.00	1,200.0	-2,795.0	0.0	0.0	0.0	0.00	641,601.70	755,121.20
1,300.0	0.00	0.00	1,300.0	-2,695.0	0.0	0.0	0.0	0.00	641,601.70	755,121.20
1,400.0	0.00	0.00	1,400.0	-2,595.0	0.0	0.0	0.0	0.00	641,601.70	755,121.20
1,500.0	0.00	0.00	1,500.0	-2,495.0	0.0	0.0	0.0	0.00	641,601.70	755,121.20
1,600.0	0.00	0.00	1,600.0	-2,395.0	0.0	0.0	0.0	0.00	641,601.70	755,121.20
1,700.0	0.00	0.00	1,700.0	-2,295.0	0.0	0.0	0.0	0.00	641,601.70	755,121.20
1,750.0	0.00	0.00	1,750.0	-2,245.0	0.0	0.0	0.0	0.00	641,601.70	755,121.20
1,800.0	0.75	314.73	1,800.0	-2,195.0	0.2	-0.2	0.3	1.50	641,601.93	755,120.97
1,880.2	1.95	314.73	1,880.2	-2,114.8	1.6	-1.6	2.2	1.50	641,603.26	755,119.62
1,900.0	1.95	314.73	1,900.0	-2,095.0	2.0	-2.1	2.9	0.00	641,603.74	755,119.14
2,000.0	1.95	314.73	1,999.9	-1,995.1	4.4	-4.5	6.3	0.00	641,606.14	755,116.72
2,100.0	1.95	314.73	2,099.8	-1,895.2	6.8	-6.9	9.7	0.00	641,608.54	755,114.30
2,200.0	1.95	314.73	2,199.8	-1,795.2	9.2	-9.3	13.1	0.00	641,610.94	755,111.88
2,300.0	1.95	314.73	2,299.7	-1,695.3	11.6	-11.7	16.5	0.00	641,613.33	755,109.46
2,400.0	1.95	314.73	2,399.7	-1,595.3	14.0	-14.2	19.9	0.00	641,615.73	755,107.03



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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)
2,500.0	1.95	314.73	2,499.6	-1,495.4	16.4	-16.6	23.3	0.00	641,618.13	755,104.61
2,600.0	1.95	314.73	2,599.6	-1,395.4	18.8	-19.0	26.8	0.00	641,620.53	755,102.19
2,700.0	1.95	314.73	2,699.5	-1,295.5	21.2	-21.4	30.2	0.00	641,622.93	755,099.77
2,800.0	1.95	314.73	2,799.4	-1,195.6	23.6	-23.9	33.6	0.00	641,625.33	755,097.35
2,900.0	1.95	314.73	2,899.4	-1,095.6	26.0	-26.3	37.0	0.00	641,627.73	755,094.93
3,000.0	1.95	314.73	2,999.3	-995.7	28.4	-28.7	40.4	0.00	641,630.13	755,092.50
3,100.0	1.95	314.73	3,099.3	-895.7	30.8	-31.1	43.8	0.00	641,632.53	755,090.08
3,200.0	1.95	314.73	3,199.2	-795.8	33.2	-33.5	47.2	0.00	641,634.93	755,087.66
3,300.0	1.95	314.73	3,299.1	-695.9	35.6	-36.0	50.6	0.00	641,637.33	755,085.24
3,400.0	1.95	314.73	3,399.1	-595.9	38.0	-38.4	54.0	0.00	641,639.73	755,082.82
3,500.0	1.95	314.73	3,499.0	-496.0	40.4	-40.8	57.4	0.00	641,642.13	755,080.39
3,600.0	1.95	314.73	3,599.0	-396.0	42.8	-43.2	60.9	0.00	641,644.53	755,077.97
3,700.0	1.95	314.73	3,698.9	-296.1	45.2	-45.6	64.3	0.00	641,646.93	755,075.55
3,800.0	1.95	314.73	3,798.9	-196.1	47.6	-48.1	67.7	0.00	641,649.33	755,073.13
3,900.0	1.95	314.73	3,898.8	-96.2	50.0	-50.5	71.1	0.00	641,651.73	755,070.71
4,000.0	1.95	314.73	3,998.7	3.7	52.4	-52.9	74.5	0.00	641,654.13	755,068.28
4,100.0	1.95	314.73	4,098.7	103.7	54.8	-55.3	77.9	0.00	641,656.52	755,065.86
4,200.0	1.95	314.73	4,198.6	203.6	57.2	-57.8	81.3	0.00	641,658.92	755,063.44
4,300.0	1.95	314.73	4,298.6	303.6	59.6	-60.2	84.7	0.00	641,661.32	755,061.02
4,400.0	1.95	314.73	4,398.5	403.5	62.0	-62.6	88.1	0.00	641,663.72	755,058.60
4,500.0	1.95	314.73	4,498.5	503.5	64.4	-65.0	91.5	0.00	641,666.12	755,056.18
4,600.0	1.95	314.73	4,598.4	603.4	66.8	-67.4	94.9	0.00	641,668.52	755,053.75
4,700.0	1.95	314.73	4,698.3	703.3	69.2	-69.9	98.4	0.00	641,670.92	755,051.33
4,800.0	1.95	314.73	4,798.3	803.3	71.6	-72.3	101.8	0.00	641,673.32	755,048.91
4,871.5	1.95	314.73	4,869.8	874.8	73.3	-74.0	104.2	0.00	641,675.04	755,047.18
4,900.0	1.53	314.73	4,898.2	903.2	73.9	-74.6	105.1	1.50	641,675.65	755,046.56
5,001.8	0.00	0.00	5,000.0	1,005.0	74.9	-75.6	106.4	1.50	641,676.60	755,045.60



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5,100.0	0.00	0.00	5,098.2	1,103.2	74.9	-75.6	106.4	0.00	641,676.60	755,045.60
5,200.0	0.00	0.00	5,198.2	1,203.2	74.9	-75.6	106.4	0.00	641,676.60	755,045.60
5,300.0	0.00	0.00	5,298.2	1,303.2	74.9	-75.6	106.4	0.00	641,676.60	755,045.60
5,400.0	0.00	0.00	5,398.2	1,403.2	74.9	-75.6	106.4	0.00	641,676.60	755,045.60
5,500.0	0.00	0.00	5,498.2	1,503.2	74.9	-75.6	106.4	0.00	641,676.60	755,045.60
5,600.0	0.00	0.00	5,598.2	1,603.2	74.9	-75.6	106.4	0.00	641,676.60	755,045.60
5,700.0	0.00	0.00	5,698.2	1,703.2	74.9	-75.6	106.4	0.00	641,676.60	755,045.60
5,800.0	0.00	0.00	5,798.2	1,803.2	74.9	-75.6	106.4	0.00	641,676.60	755,045.60
5,900.0	0.00	0.00	5,898.2	1,903.2	74.9	-75.6	106.4	0.00	641,676.60	755,045.60
6,000.0	0.00	0.00	5,998.2	2,003.2	74.9	-75.6	106.4	0.00	641,676.60	755,045.60
6,100.0	0.00	0.00	6,098.2	2,103.2	74.9	-75.6	106.4	0.00	641,676.60	755,045.60
6,200.0	0.00	0.00	6,198.2	2,203.2	74.9	-75.6	106.4	0.00	641,676.60	755,045.60
6,300.0	0.00	0.00	6,298.2	2,303.2	74.9	-75.6	106.4	0.00	641,676.60	755,045.60
6,400.0	0.00	0.00	6,398.2	2,403.2	74.9	-75.6	106.4	0.00	641,676.60	755,045.60
6,500.0	0.00	0.00	6,498.2	2,503.2	74.9	-75.6	106.4	0.00	641,676.60	755,045.60
6,600.0	0.00	0.00	6,598.2	2,603.2	74.9	-75.6	106.4	0.00	641,676.60	755,045.60
6,700.0	0.00	0.00	6,698.2	2,703.2	74.9	-75.6	106.4	0.00	641,676.60	755,045.60
6,800.0	0.00	0.00	6,798.2	2,803.2	74.9	-75.6	106.4	0.00	641,676.60	755,045.60
6,900.0	0.00	0.00	6,898.2	2,903.2	74.9	-75.6	106.4	0.00	641,676.60	755,045.60
7,000.0	0.00	0.00	6,998.2	3,003.2	74.9	-75.6	106.4	0.00	641,676.60	755,045.60
7,100.0	0.00	0.00	7,098.2	3,103.2	74.9	-75.6	106.4	0.00	641,676.60	755,045.60
7,200.0	0.00	0.00	7,198.2	3,203.2	74.9	-75.6	106.4	0.00	641,676.60	755,045.60
7,300.0	0.00	0.00	7,298.2	3,303.2	74.9	-75.6	106.4	0.00	641,676.60	755,045.60
7,400.0	0.00	0.00	7,398.2	3,403.2	74.9	-75.6	106.4	0.00	641,676.60	755,045.60
7,500.0	0.00	0.00	7,498.2	3,503.2	74.9	-75.6	106.4	0.00	641,676.60	755,045.60
7,600.0	0.00	0.00	7,598.2	3,603.2	74.9	-75.6	106.4	0.00	641,676.60	755,045.60
7,700.0	0.00	0.00	7,698.2	3,703.2	74.9	-75.6	106.4	0.00	641,676.60	755,045.60



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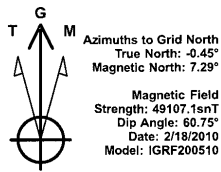
Company: Mack Energy
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Planned Survey

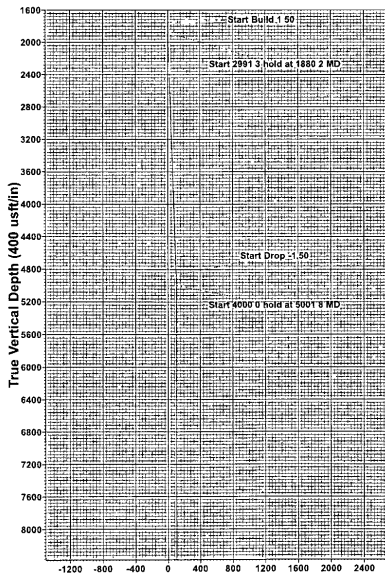
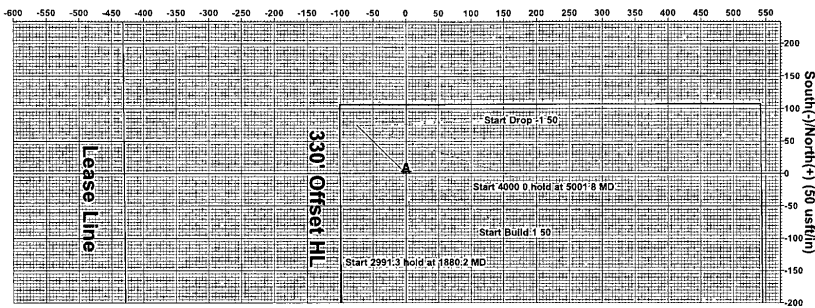
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
7,800.0	0.00	0.00	7,798.2	3,803.2	74.9	-75.6	106.4	0.00	641,676.60	755,045.60
7,900.0	0.00	0.00	7,898.2	3,903.2	74.9	-75.6	106.4	0.00	641,676.60	755,045.60
8,000.0	0.00	0.00	7,998.2	4,003.2	74.9	-75.6	106.4	0.00	641,676.60	755,045.60
8,100.0	0.00	0.00	8,098.2	4,103.2	74.9	-75.6	106.4	0.00	641,676.60	755,045.60
8,200.0	0.00	0.00	8,198.2	4,203.2	74.9	-75.6	106.4	0.00	641,676.60	755,045.60
8,300.0	0.00	0.00	8,298.2	4,303.2	74.9	-75.6	106.4	0.00	641,676.60	755,045.60
8,400.0	0.00	0.00	8,398.2	4,403.2	74.9	-75.6	106.4	0.00	641,676.60	755,045.60
8,500.0	0.00	0.00	8,498.2	4,503.2	74.9	-75.6	106.4	0.00	641,676.60	755,045.60
8,600.0	0.00	0.00	8,598.2	4,603.2	74.9	-75.6	106.4	0.00	641,676.60	755,045.60
8,700.0	0.00	0.00	8,698.2	4,703.2	74.9	-75.6	106.4	0.00	641,676.60	755,045.60
8,800.0	0.00	0.00	8,798.2	4,803.2	74.9	-75.6	106.4	0.00	641,676.60	755,045.60
8,900.0	0.00	0.00	8,898.2	4,903.2	74.9	-75.6	106.4	0.00	641,676.60	755,045.60
9,001.8	0.00	0.00	9,000.0	5,005.0	74.9	-75.6	106.4	0.00	641,676.60	755,045.60

Checked By: _____ Approved By: _____ Date: _____

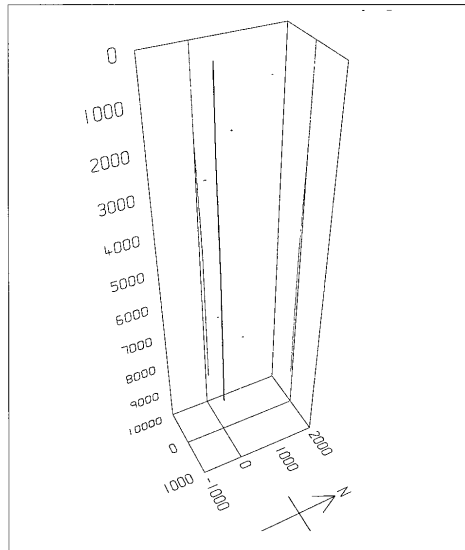


A Schlumberger Company

West(-)/East(+) (50 usft/in)



Vertical Section at 314.73° (400 usft/in)



Project: Lea County
Site: B Lee State
Well: #6
Wellbore: OH
Plan: Plan #3 (#6/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: #6

Ground Elevation: 3976.0
RKB Elevation: WELL @ 3985.0usft (Original Well Elev)
Rig Name: Original Well Elev

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	641661.700	755121.200	32°45'39.987 N	103°33'12.353 W	

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting
PBHL(BLEE#6)	9000.0	74.9	-75.6	641676.600	755045.600

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1750.0	0.00	0.00	1750.0	0.0	0.0	0.00	0.00	0.0	
3	1880.2	1.95	314.73	1880.2	1.6	-1.6	1.50	314.73	2.2	
4	4871.5	1.95	314.73	4869.6	73.3	-74.0	0.00	0.00	104.2	
5	5001.8	0.00	0.00	5000.0	74.9	-75.6	1.50	180.00	106.4	
6	9001.8	0.00	0.00	9000.0	74.9	-75.6	0.00	0.00	106.4	PBHL(BLEE#6)

Plan: Plan #3 (#6/OH)

Created By: Sam Bittle Date: 14.07. November 10 2011
Checked: _____ Date: _____