



Mack Energy

Chaves County
Jerry State
Jerry State #1
OH

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Plan: Plan #1

Pathfinder X & Y Survey Report

17 February, 2009

PATHFINDER
ENERGY SERVICES



Pathfinder X & Y Survey Report



Company:	Mack Energy	Local Co-ordinate Reference:	Well Jerry State #1
Project:	Chaves County	TVD Reference:	WELL @ 4427.00ft (18' RKB)
Site:	Jerry State	MD Reference:	WELL @ 4427.00ft (18' RKB)
Well:	Jerry State #1	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	Midland Database

Project	Chaves 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		Jerry State			
Site Position:		Northing:	727,994.600 ft	Latitude:	33° 0' 0.949 N
From:	Map	Easting:	657,764.200 ft	Longitude:	103° 49' 7.486 W
Position Uncertainty:	0.00 ft	Slot Radius:	"	Grid Convergence:	0.28 °

Well Jerry State #1						
Well Position	+N/-S	0.00 ft	Northing:	727,994.600 ft	Latitude:	33° 0' 0.949 N
	+E/-W	0.00 ft	Easting:	657,764.200 ft	Longitude:	103° 49' 7.486 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	4,409.00 ft

Wellbore						OH
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)	
	IGRF200510	02/17/2009	8.03	60.93	49,308	

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)	Direction (°)	
	0.00	0.00	0.00	269.74	

Survey Tool Program		Date 02/17/2009		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	13,215.46	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	-4,427.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
100.00	0.00	0.00	100.00	-4,327.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
200.00	0.00	0.00	200.00	-4,227.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
300.00	0.00	0.00	300.00	-4,127.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
400.00	0.00	0.00	400.00	-4,027.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
500.00	0.00	0.00	500.00	-3,927.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
600.00	0.00	0.00	600.00	-3,827.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
700.00	0.00	0.00	700.00	-3,727.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
800.00	0.00	0.00	800.00	-3,627.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
900.00	0.00	0.00	900.00	-3,527.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
1,000.00	0.00	0.00	1,000.00	-3,427.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
1,100.00	0.00	0.00	1,100.00	-3,327.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
1,200.00	0.00	0.00	1,200.00	-3,227.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
1,300.00	0.00	0.00	1,300.00	-3,127.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
1,400.00	0.00	0.00	1,400.00	-3,027.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
1,500.00	0.00	0.00	1,500.00	-2,927.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
1,600.00	0.00	0.00	1,600.00	-2,827.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
1,700.00	0.00	0.00	1,700.00	-2,727.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
1,800.00	0.00	0.00	1,800.00	-2,627.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
1,900.00	0.00	0.00	1,900.00	-2,527.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
2,000.00	0.00	0.00	2,000.00	-2,427.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
2,100.00	0.00	0.00	2,100.00	-2,327.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
2,200.00	0.00	0.00	2,200.00	-2,227.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
2,300.00	0.00	0.00	2,300.00	-2,127.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
2,400.00	0.00	0.00	2,400.00	-2,027.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
2,500.00	0.00	0.00	2,500.00	-1,927.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
2,600.00	0.00	0.00	2,600.00	-1,827.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20



Pathfinder X & Y Survey Report



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Well:	Jerry State #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)
2,700.00	0.00	0.00	2,700.00	-1,727.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
2,800.00	0.00	0.00	2,800.00	-1,627.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
2,900.00	0.00	0.00	2,900.00	-1,527.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
3,000.00	0.00	0.00	3,000.00	-1,427.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
3,100.00	0.00	0.00	3,100.00	-1,327.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
3,200.00	0.00	0.00	3,200.00	-1,227.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
3,300.00	0.00	0.00	3,300.00	-1,127.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
3,400.00	0.00	0.00	3,400.00	-1,027.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
3,500.00	0.00	0.00	3,500.00	-927.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
3,600.00	0.00	0.00	3,600.00	-827.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
3,700.00	0.00	0.00	3,700.00	-727.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
3,800.00	0.00	0.00	3,800.00	-627.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
3,900.00	0.00	0.00	3,900.00	-527.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
4,000.00	0.00	0.00	4,000.00	-427.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
4,100.00	0.00	0.00	4,100.00	-327.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
4,200.00	0.00	0.00	4,200.00	-227.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
4,300.00	0.00	0.00	4,300.00	-127.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
4,400.00	0.00	0.00	4,400.00	-27.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
4,500.00	0.00	0.00	4,500.00	73.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
4,600.00	0.00	0.00	4,600.00	173.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
4,700.00	0.00	0.00	4,700.00	273.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
4,800.00	0.00	0.00	4,800.00	373.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
4,900.00	0.00	0.00	4,900.00	473.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
5,000.00	0.00	0.00	5,000.00	573.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
5,100.00	0.00	0.00	5,100.00	673.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
5,200.00	0.00	0.00	5,200.00	773.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
5,300.00	0.00	0.00	5,300.00	873.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20



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MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
5,400.00	0.00	0.00	5,400.00	973.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
5,500.00	0.00	0.00	5,500.00	1,073.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
5,600.00	0.00	0.00	5,600.00	1,173.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
5,700.00	0.00	0.00	5,700.00	1,273.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
5,800.00	0.00	0.00	5,800.00	1,373.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
5,900.00	0.00	0.00	5,900.00	1,473.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
6,000.00	0.00	0.00	6,000.00	1,573.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
6,100.00	0.00	0.00	6,100.00	1,673.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
6,200.00	0.00	0.00	6,200.00	1,773.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
6,300.00	0.00	0.00	6,300.00	1,873.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
6,400.00	0.00	0.00	6,400.00	1,973.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
6,500.00	0.00	0.00	6,500.00	2,073.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
6,600.00	0.00	0.00	6,600.00	2,173.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
6,700.00	0.00	0.00	6,700.00	2,273.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
6,800.00	0.00	0.00	6,800.00	2,373.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
6,900.00	0.00	0.00	6,900.00	2,473.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
7,000.00	0.00	0.00	7,000.00	2,573.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
7,100.00	0.00	0.00	7,100.00	2,673.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
7,200.00	0.00	0.00	7,200.00	2,773.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
7,300.00	0.00	0.00	7,300.00	2,873.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
7,400.00	0.00	0.00	7,400.00	2,973.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
7,500.00	0.00	0.00	7,500.00	3,073.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
7,600.00	0.00	0.00	7,600.00	3,173.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
7,700.00	0.00	0.00	7,700.00	3,273.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
7,800.00	0.00	0.00	7,800.00	3,373.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
7,900.00	0.00	0.00	7,900.00	3,473.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
8,000.00	0.00	0.00	8,000.00	3,573.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20



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8,100.00	0.00	0.00	8,100.00	3,673.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
8,200.00	0.00	0.00	8,200.00	3,773.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
8,300.00	0.00	0.00	8,300.00	3,873.00	0.00	0.00	0.00	0.00	727,994.60	657,764.20
8,312.50	0.00	0.00	8,312.50	3,885.50	0.00	0.00	0.00	0.00	727,994.60	657,764.20
KOP-8312.50°MD,0.00°INC,0.00°AZI										
8,325.00	1.50	269.74	8,325.00	3,898.00	0.00	-0.16	0.16	12.00	727,994.60	657,764.04
8,350.00	4.50	269.74	8,349.96	3,922.96	-0.01	-1.47	1.47	12.00	727,994.59	657,762.73
8,375.00	7.50	269.74	8,374.82	3,947.82	-0.02	-4.08	4.08	12.00	727,994.58	657,760.12
8,400.00	10.50	269.74	8,399.51	3,972.51	-0.04	-7.99	7.99	12.00	727,994.56	657,756.21
8,425.00	13.50	269.74	8,423.96	3,996.96	-0.06	-13.19	13.19	12.00	727,994.54	657,751.01
8,450.00	16.50	269.74	8,448.11	4,021.11	-0.09	-19.66	19.66	12.00	727,994.51	657,744.54
8,475.00	19.50	269.74	8,471.88	4,044.88	-0.12	-27.38	27.38	12.00	727,994.48	657,736.82
8,500.00	22.50	269.74	8,495.22	4,068.22	-0.16	-36.34	36.34	12.00	727,994.44	657,727.86
8,525.00	25.50	269.74	8,518.06	4,091.06	-0.21	-46.51	46.51	12.00	727,994.39	657,717.69
8,550.00	28.50	269.74	8,540.33	4,113.33	-0.26	-57.85	57.85	12.00	727,994.34	657,706.35
8,575.00	31.50	269.74	8,561.98	4,134.98	-0.32	-70.35	70.35	12.00	727,994.28	657,693.85
8,600.00	34.50	269.74	8,582.94	4,155.94	-0.38	-83.96	83.96	12.00	727,994.22	657,680.24
8,625.00	37.49	269.74	8,603.17	4,176.17	-0.45	-98.65	98.65	12.00	727,994.15	657,665.55
8,650.00	40.49	269.74	8,622.60	4,195.60	-0.52	-114.38	114.38	12.00	727,994.08	657,649.82
8,675.00	43.49	269.74	8,641.17	4,214.17	-0.59	-131.11	131.11	12.00	727,994.01	657,633.09
8,700.00	46.49	269.74	8,658.85	4,231.85	-0.68	-148.78	148.78	12.00	727,993.92	657,615.42
8,725.00	49.49	269.74	8,675.58	4,248.58	-0.76	-167.35	167.36	12.00	727,993.84	657,596.85
8,750.00	52.49	269.74	8,691.31	4,264.31	-0.85	-186.78	186.78	12.00	727,993.75	657,577.42
8,775.00	55.49	269.74	8,706.01	4,279.01	-0.94	-207.00	207.00	12.00	727,993.66	657,557.20
8,800.00	58.49	269.74	8,719.63	4,292.63	-1.03	-227.96	227.96	12.00	727,993.57	657,536.24
8,825.00	61.49	269.74	8,732.13	4,305.13	-1.13	-249.61	249.61	12.00	727,993.47	657,514.59
8,850.00	64.49	269.74	8,743.48	4,316.48	-1.23	-271.88	271.88	12.00	727,993.37	657,492.32



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8,875.00	67.49	269.74	8,753.65	4,326.65	-1.34	-294.71	294.72	12.00	727,993.26	657,469.49	
8,900.00	70.49	269.74	8,762.61	4,335.61	-1.44	-318.05	318.05	12.00	727,993.16	657,446.15	
8,925.00	73.49	269.74	8,770.34	4,343.34	-1.55	-341.82	341.82	12.00	727,993.05	657,422.38	
8,950.00	76.49	269.74	8,776.82	4,349.82	-1.66	-365.96	365.97	12.00	727,992.94	657,398.24	
8,975.00	79.49	269.74	8,782.02	4,355.02	-1.77	-390.41	390.42	12.00	727,992.83	657,373.79	
9,000.00	82.49	269.74	8,785.93	4,358.93	-1.88	-415.10	415.11	12.00	727,992.72	657,349.10	
9,025.00	85.49	269.74	8,788.55	4,361.55	-2.00	-439.96	439.96	12.00	727,992.60	657,324.24	
9,050.00	88.49	269.74	8,789.87	4,362.87	-2.11	-464.92	464.93	12.00	727,992.49	657,299.28	
9,068.19	90.67	269.74	8,790.00	4,363.00	-2.19	-483.11	483.12	12.00	727,992.41	657,281.09	
EOC-9068.19°MD,90.67°INC,269.74°AZI,12.00°DLS,483.12°VS,-2.19°N,-483.11°E											
9,100.00	90.67	269.74	8,789.63	4,362.63	-2.34	-514.92	514.92	0.01	727,992.26	657,249.28	
9,137.68	90.66	269.74	8,789.19	4,362.19	-2.51	-552.60	552.60	0.02	727,992.09	657,211.60	
9,200.00	90.66	269.74	8,788.47	4,361.47	-2.79	-614.91	614.92	0.00	727,991.81	657,149.29	
9,300.00	90.66	269.74	8,787.31	4,360.31	-3.25	-714.90	714.91	0.00	727,991.35	657,049.30	
9,400.00	90.66	269.74	8,786.15	4,359.15	-3.70	-814.90	814.90	0.00	727,990.90	656,949.30	
9,500.00	90.66	269.74	8,784.99	4,357.99	-4.15	-914.89	914.90	0.00	727,990.45	656,849.31	
9,585.12	90.66	269.74	8,784.00	4,357.00	-4.54	-1,000.00	1,000.01	0.00	727,990.06	656,764.20	
LT#1-9585.12°MD,90.67°INC,269.74°AZI,8784.00°TVD,1000.01°VS,-4.54°N,-1000.00°E-LT1(JS1)-1000°VS											
9,597.80	90.92	269.74	8,783.82	4,356.82	-4.60	-1,012.68	1,012.69	2.00	727,990.00	656,751.52	
9,600.00	90.92	269.74	8,783.79	4,356.79	-4.61	-1,014.88	1,014.89	0.00	727,989.99	656,749.32	
9,700.00	90.92	269.74	8,782.19	4,355.19	-5.06	-1,114.87	1,114.88	0.00	727,989.54	656,649.33	
9,800.00	90.92	269.74	8,780.58	4,353.58	-5.52	-1,214.85	1,214.86	0.00	727,989.08	656,549.35	
9,900.00	90.92	269.74	8,778.98	4,351.98	-5.97	-1,314.84	1,314.85	0.00	727,988.63	656,449.36	
10,000.00	90.92	269.74	8,777.38	4,350.38	-6.42	-1,414.82	1,414.84	0.00	727,988.18	656,349.38	
10,100.00	90.92	269.74	8,775.78	4,348.78	-6.88	-1,514.81	1,514.83	0.00	727,987.72	656,249.39	
10,200.00	90.92	269.74	8,774.17	4,347.17	-7.33	-1,614.80	1,614.81	0.00	727,987.27	656,149.40	
10,300.00	90.92	269.74	8,772.57	4,345.57	-7.79	-1,714.78	1,714.80	0.00	727,986.81	656,049.42	



Pathfinder X & Y Survey Report



Company:	Mack Energy	Local Co-ordinate Reference:	Well Jerry State #1
Project:	Chaves County	TVD Reference:	WELL @ 4427.00r (18' RKB)
Site:	Jerry State	MD Reference:	WELL @ 4427.00r (18' RKB)
Well:	Jerry State #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)
10,400.00	90.92	269.74	8,770.97	4,343.97	-8.24	-1,814.77	1,814.79	0.00	727,986.36	655,949.43
10,500.00	90.92	269.74	8,769.37	4,342.37	-8.69	-1,914.75	1,914.77	0.00	727,985.91	655,849.45
10,585.26	90.92	269.74	8,768.00	4,341.00	-9.08	-2,000.00	2,000.02	0.00	727,985.52	655,764.20
LT#2 -10585.26°MD,90.92°INC,269.74°AZI, 8768.00°TVD, 2000.02°VS, -9.08°N, -2000.00°E - LT2(JS1)- 2000°VS										
10,599.76	90.63	269.74	8,767.80	4,340.80	-9.15	-2,014.51	2,014.53	2.00	727,985.45	655,749.69
10,700.00	90.63	269.74	8,766.71	4,339.71	-9.60	-2,114.73	2,114.76	0.00	727,985.00	655,649.47
10,800.00	90.63	269.74	8,765.61	4,338.61	-10.05	-2,214.73	2,214.75	0.00	727,984.55	655,549.47
10,900.00	90.63	269.74	8,764.51	4,337.51	-10.51	-2,314.72	2,314.74	0.00	727,984.09	655,449.48
11,000.00	90.63	269.74	8,763.42	4,336.42	-10.96	-2,414.71	2,414.74	0.00	727,983.64	655,349.49
11,100.00	90.63	269.74	8,762.32	4,335.32	-11.41	-2,514.71	2,514.73	0.00	727,983.19	655,249.49
11,200.00	90.63	269.74	8,761.22	4,334.22	-11.86	-2,614.70	2,614.73	0.00	727,982.74	655,149.50
11,300.00	90.63	269.74	8,760.13	4,333.13	-12.32	-2,714.69	2,714.72	0.00	727,982.28	655,049.51
11,400.00	90.63	269.74	8,759.03	4,332.03	-12.77	-2,814.68	2,814.71	0.00	727,981.83	654,949.52
11,500.00	90.63	269.74	8,757.94	4,330.94	-13.22	-2,914.68	2,914.71	0.00	727,981.38	654,849.52
11,585.33	90.63	269.74	8,757.00	4,330.00	-13.61	-3,000.00	3,000.03	0.00	727,980.99	654,764.20
LT#3 -11585.33°MD,90.63°INC,269.74°AZI, 8757.00°TVD, 3000.03°VS, -13.61°N, -3000.00°E - LT3(JS1)- 3000°VS										
11,600.00	90.92	269.74	8,756.80	4,329.80	-13.68	-3,014.67	3,014.70	2.00	727,980.92	654,749.53
11,614.50	91.21	269.74	8,756.53	4,329.53	-13.74	-3,029.17	3,029.20	2.00	727,980.86	654,735.03
11,700.00	91.21	269.74	8,754.72	4,327.72	-14.13	-3,114.65	3,114.68	0.00	727,980.47	654,649.55
11,800.00	91.21	269.74	8,752.61	4,325.61	-14.58	-3,214.62	3,214.66	0.00	727,980.02	654,549.58
11,900.00	91.21	269.74	8,750.50	4,323.50	-15.04	-3,314.60	3,314.63	0.00	727,979.56	654,449.60
12,000.00	91.21	269.74	8,748.38	4,321.38	-15.49	-3,414.58	3,414.61	0.00	727,979.11	654,349.62
12,100.00	91.21	269.74	8,746.27	4,319.27	-15.95	-3,514.55	3,514.59	0.00	727,978.65	654,249.65
12,200.00	91.21	269.74	8,744.15	4,317.15	-16.40	-3,614.53	3,614.57	0.00	727,978.20	654,149.67
12,300.00	91.21	269.74	8,742.04	4,315.04	-16.85	-3,714.51	3,714.55	0.00	727,977.75	654,049.69
12,400.00	91.21	269.74	8,739.92	4,312.92	-17.31	-3,814.48	3,814.52	0.00	727,977.29	653,949.72
12,500.00	91.21	269.74	8,737.81	4,310.81	-17.76	-3,914.46	3,914.50	0.00	727,976.84	653,849.74



Pathfinder X & Y Survey Report



Company:	Mack Energy	Local Co-ordinate Reference:	Well Jerry State #1
Project:	Chaves County	TVD Reference:	WELL @ 4427.00ft (18' RKB)
Site:	Jerry State	MD Reference:	WELL @ 4427.00ft (18' RKB)
Well:	Jerry State #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)
12,585.56	91.21	269.74	8,736.00	4,309.00	-18.15	-4,000.00	4,000.04	0.00	727,976.45	653,764.20
LT#4 -12585.56°MD,91.21°INC,269.74°AZI, 8736.00°TVD, 4000.04°VS, -18.15°N, -4000.00°E - LT4(JS1)- 4000°VS										
12,596.21	91.00	269.75	8,735.79	4,308.79	-18.20	-4,010.65	4,010.69	2.00	727,976.40	653,753.55
12,600.00	91.00	269.75	8,735.73	4,308.73	-18.21	-4,014.44	4,014.48	0.00	727,976.39	653,749.76
12,700.00	91.00	269.75	8,733.99	4,306.99	-18.65	-4,114.42	4,114.46	0.00	727,975.95	653,649.78
12,800.00	91.00	269.75	8,732.24	4,305.24	-19.09	-4,214.41	4,214.45	0.00	727,975.51	653,549.79
12,900.00	91.00	269.75	8,730.50	4,303.50	-19.52	-4,314.39	4,314.43	0.00	727,975.08	653,449.81
13,000.00	91.00	269.75	8,728.76	4,301.76	-19.96	-4,414.37	4,414.42	0.00	727,974.64	653,349.83
13,100.00	91.00	269.75	8,727.01	4,300.01	-20.40	-4,514.36	4,514.40	0.00	727,974.20	653,249.84
13,200.00	91.00	269.75	8,725.27	4,298.27	-20.83	-4,614.34	4,614.39	0.00	727,973.77	653,149.86
13,215.46	91.00	269.75	8,725.00	4,298.00	-20.90	-4,629.80	4,629.85	0.00	727,973.70	653,134.40
TD at 13215.46 - PBHL OH(JS#1)										



Pathfinder X & Y Survey Report

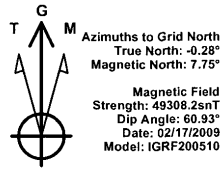


Company:	Mack Energy	Local Co-ordinate Reference:	Well Jerry State #1
Project:	Chaves County	TVD Reference:	WELL @ 4427.00ft (18' RKB)
Site:	Jerry State	MD Reference:	WELL @ 4427.00ft (18' RKB)
Well:	Jerry State #1	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	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 OH(JS#1) - plan hits target - Point	0.00	0.00	8,725.00	-20.90	-4,629.80	727,973.700	653,134.400	33° 0' 0.963 N	103° 50' 1.850 W
LT3(JS1)- 3000'VS - plan hits target - Point	0.00	0.00	8,757.00	-13.61	-3,000.00	727,980.990	654,764.200	33° 0' 0.959 N	103° 49' 42.713 W
LT1(JS1)- 1000'VS - plan hits target - Point	0.00	0.00	8,784.00	-4.54	-1,000.00	727,990.060	656,764.200	33° 0' 0.953 N	103° 49' 19.229 W
LT2(JS1)- 2000'VS - plan hits target - Point	0.00	0.00	8,768.00	-9.08	-2,000.00	727,985.520	655,764.200	33° 0' 0.956 N	103° 49' 30.971 W
LT4(JS1)- 4000'VS - plan hits target - Point	0.00	0.00	8,736.00	-18.15	-4,000.00	727,976.450	653,764.200	33° 0' 0.961 N	103° 49' 54.455 W

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
8,312.50	8,312.50	0.00	0.00	KOP-8312.50'MD,0.00°INC,0.00°AZI
9,068.19	8,790.00	-2.19	-483.11	EOC-9068.19'MD,90.67°INC,269.74°AZI,12.00°DLS, 483.12'VS, -2.19'
9,585.12	8,784.00	-4.54	-1,000.00	LT#1 -9585.12'MD,90.67°INC,269.74°AZI, 8784.00'TVD, 1000.01'VS, -
10,585.26	8,768.00	-4.60	-1,012.41	LT#2 -10585.26'MD,90.92°INC,269.74°AZI, 8768.00'TVD, 2000.02'VS, -
11,585.33	8,757.00	-9.08	-2,000.00	LT#3 -11585.33'MD,90.63°INC,269.74°AZI, 8757.00'TVD, 3000.03'VS, -
12,585.56	8,736.00	-9.15	-2,014.50	LT#4 -12585.56'MD,91.21°INC,269.74°AZI, 8736.00'TVD, 4000.04'VS, -
13,215.46	8,725.00	-13.61	-3,000.00	TD at 13215.46

Checked By: _____	Approved By: _____	Date: _____
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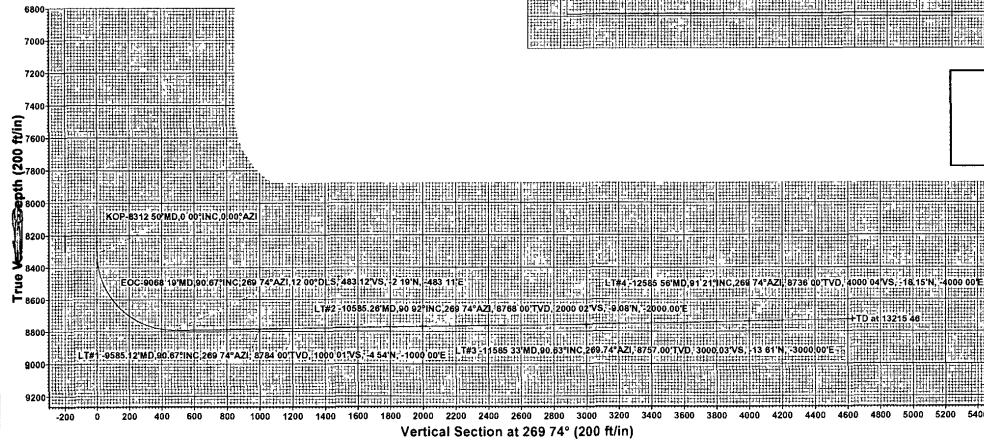
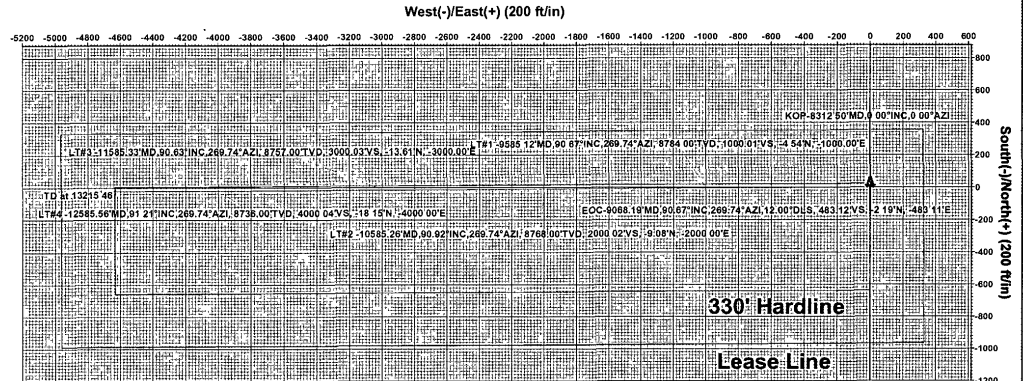
PATHFINDER

ENERGY SERVICES

PROJECT DETAILS: Chaves 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	Az	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	8312.50	0 00	0 00	8312.50	0 00	0 00	0 00	0 00	0 00		
3	9068.19	90 67	269.74	8760.00	-2.19	-483.11	12.00	269.74	483.12		
4	9137.68	90 66	269.74	8760.19	-2.51	-552.60	0 01	0 00	552.60	LT1(JS1)- 1000'VS	
5	9585.12	90 66	269.74	8764.00	-4.54	-1000.00	0 00	0 00	1000.01		
6	9597.80	90 92	269.74	8763.82	-4.60	-1012.88	2 00	0 03	1012.89		
7	10585.26	90 82	269.74	8768.00	-9.08	-2000.00	0 00	0 00	2000.02	LT2(JS1)- 2000'VS	
8	10599.76	90 63	269.74	8767.80	-9.15	-2014.51	2 00	179.89	2014.53		
9	11585.33	90 63	269.74	8757.00	-13.61	-3000.00	0 00	0 00	3000.03	LT3(JS1)- 3000'VS	
10	11814.50	91 21	269.74	8756.53	-13.74	-3029.17	2 00	-9.06	3029.20		
11	12585.56	91 21	269.74	8756.00	-18.15	-4000.00	0 00	0 00	4000.04	LT4(JS1)- 4000'VS	
12	12596.21	91 00	269.75	8735.79	-18.20	-4010.65	2 00	177.30	4010.69		
13	13215.48	91 00	269.75	8725.00	-20.90	-4629.80	0 00	0 00	4629.85	PBHL CH(JS#1)	

WELLBORE TARGET DETAILS				
Name	TVD	+N-S	+E-W	Shape
PBHL CH(JS#1)	8725.00	-20.90	-4629.80	Point
LT4(JS1)- 4000'VS	8738.00	-18.15	-4000.00	Point
LT3(JS1)- 3000'VS	8757.00	-13.61	-3000.00	Point
LT2(JS1)- 2000'VS	8768.00	-9.08	-2000.00	Point
LT1(JS1)- 1000'VS	8784.00	-4.54	-1000.00	Point



WELL DETAILS Jerry State #1						
Ground Elevation: 4409.00						
RKB Elevation: WELL @ 4427.00ft (16' RKB)						
Rig Name: 16' RKB						
+N-S	+E-W	Northing	Easting	Latitude	Longitude	Slot
0 00	0 00	727994.600	657764.200	33° 0' 0.949 N	103° 40' 7.488 W	

Project: Chaves County
Site: Jerry State
Well: Jerry State #1
Wellbore: OH
Plan: Plan #1 (Jerry State #1/OH)

Plan: Plan #1 (Jerry State #1/OH)		
Created By: Nate Bingham	Date: 10/26, February 17 2009	
Checked: _____	Date: _____	