

3D-025-39238



Mack Energy

Boyz Fee #4

Boyz Fee #4

Boyz Fee

OH

Plan: Plan #1

Pathfinder X & Y Survey Report

29 October, 2008

PATHFINDER
ENERGY SERVICES



Pathfinder Energy Services

Pathfinder X & Y Survey Report



Company:	Mack Energy	Local Co-ordinate Reference:	Well Boyz Fee
Project:	Boyz Fee #4	TVD Reference:	WELL @ 3766.50ft (RKB= 17.5')
Site:	Boyz Fee #4	MD Reference:	WELL @ 3766.50ft (RKB= 17.5')
Well:	Boyz Fee	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	EDM 2003.16 Single User Db

Project: Boyz Gee #4			
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: Boyz Fee #4					
Site Position:		Northing: 629,524.400 ft		Latitude: 32° 43' 34.969 N	
From:	Map	Easting: 818,498.200 ft		Longitude: 103° 17' 51.641 W	
Position Uncertainty: 0.00 ft		Slot Radius: "		Grid Convergence: 0.56 °	

Well:		Boyz Fee				
Well Position	+N/-S	0.00 ft	Northing:	629,524.400 ft	Latitude:	32° 43' 34.969 N
	+E/-W	0.00 ft	Easting:	818,498.200 ft	Longitude:	103° 17' 51.641 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	3,749.00ft

Wellbore:		OH			
Magnetics:	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	IGRF200510	2008/10/28	7.80	60.78	49,237

Design:	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.00	0.00	0.00	179.44

Survey Tool Program		Date 2008/10/28		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	7,460.36	Plan #1 (OH)	MWD	MWD - Standard



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Site: Boyz Fee #4
Well: Boyz Fee
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well Boyz Fee
TVD Reference: WELL @ 3766.50ft (RKB= 17.5')
MD Reference: WELL @ 3766.50ft (RKB= 17.5')
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 2003.16 Single User Db

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	-3,766.50	0.00	0.00	0.00	0.00	629,524.40	818,498.20
100.00	0.00	0.00	100.00	-3,666.50	0.00	0.00	0.00	0.00	629,524.40	818,498.20
200.00	0.00	0.00	200.00	-3,566.50	0.00	0.00	0.00	0.00	629,524.40	818,498.20
300.00	0.00	0.00	300.00	-3,466.50	0.00	0.00	0.00	0.00	629,524.40	818,498.20
400.00	0.00	0.00	400.00	-3,366.50	0.00	0.00	0.00	0.00	629,524.40	818,498.20
500.00	0.00	0.00	500.00	-3,266.50	0.00	0.00	0.00	0.00	629,524.40	818,498.20
600.00	0.00	0.00	600.00	-3,166.50	0.00	0.00	0.00	0.00	629,524.40	818,498.20
700.00	0.00	0.00	700.00	-3,066.50	0.00	0.00	0.00	0.00	629,524.40	818,498.20
800.00	0.00	0.00	800.00	-2,966.50	0.00	0.00	0.00	0.00	629,524.40	818,498.20
900.00	0.00	0.00	900.00	-2,866.50	0.00	0.00	0.00	0.00	629,524.40	818,498.20
1,000.00	0.00	0.00	1,000.00	-2,766.50	0.00	0.00	0.00	0.00	629,524.40	818,498.20
1,100.00	0.00	0.00	1,100.00	-2,666.50	0.00	0.00	0.00	0.00	629,524.40	818,498.20
1,200.00	0.00	0.00	1,200.00	-2,566.50	0.00	0.00	0.00	0.00	629,524.40	818,498.20
1,300.00	0.00	0.00	1,300.00	-2,466.50	0.00	0.00	0.00	0.00	629,524.40	818,498.20
1,400.00	0.00	0.00	1,400.00	-2,366.50	0.00	0.00	0.00	0.00	629,524.40	818,498.20
1,500.00	0.00	0.00	1,500.00	-2,266.50	0.00	0.00	0.00	0.00	629,524.40	818,498.20
1,600.00	0.00	0.00	1,600.00	-2,166.50	0.00	0.00	0.00	0.00	629,524.40	818,498.20
1,650.00	0.00	0.00	1,650.00	-2,116.50	0.00	0.00	0.00	0.00	629,524.40	818,498.20
1,700.00	1.00	179.44	1,700.00	-2,066.50	-0.44	0.00	0.44	2.00	629,523.96	818,498.20
1,800.00	3.00	179.44	1,799.93	-1,966.57	-3.93	0.04	3.93	2.00	629,520.47	818,498.24
1,900.00	5.00	179.44	1,899.68	-1,866.82	-10.90	0.11	10.90	2.00	629,513.50	818,498.31
2,000.00	7.00	179.44	1,999.13	-1,767.37	-21.35	0.21	21.35	2.00	629,503.05	818,498.41
2,100.00	9.00	179.44	2,098.15	-1,668.35	-35.27	0.34	35.27	2.00	629,489.13	818,498.54
2,200.00	11.00	179.44	2,196.63	-1,569.87	-52.63	0.51	52.63	2.00	629,471.77	818,498.71
2,300.00	13.00	179.44	2,294.44	-1,472.06	-73.42	0.72	73.42	2.00	629,450.98	818,498.92
2,400.00	15.00	179.44	2,391.46	-1,375.04	-97.61	0.95	97.62	2.00	629,426.79	818,499.15
2,500.00	15.00	179.44	2,488.05	-1,278.45	-123.49	1.21	123.50	0.00	629,400.91	818,499.41



Pathfinder Energy Services
Pathfinder X & Y Survey Report



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Site:	Boyz Fee #4	MD Reference:	WELL @ 3766.50ft (RKB= 17.5')
Well:	Boyz Fee	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	EDM 2003.16 Single User Db

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)	
2,600.00	15.00	179.44	2,584.65	-1,181.85	-149.37	1.46	149.38	0.00	629,375.03	818,499.66	
2,700.00	15.00	179.44	2,681.24	-1,085.26	-175.25	1.71	175.26	0.00	629,349.15	818,499.91	
2,800.00	15.00	179.44	2,777.83	-988.67	-201.13	1.97	201.14	0.00	629,323.27	818,500.17	
2,900.00	15.00	179.44	2,874.42	-892.08	-227.01	2.22	227.02	0.00	629,297.39	818,500.42	
3,000.00	15.00	179.44	2,971.02	-795.48	-252.89	2.47	252.91	0.00	629,271.51	818,500.67	
3,100.00	15.00	179.44	3,067.61	-698.89	-278.78	2.72	278.79	0.00	629,245.62	818,500.92	
3,200.00	15.00	179.44	3,164.20	-602.30	-304.66	2.98	304.67	0.00	629,219.74	818,501.18	
3,300.00	15.00	179.44	3,260.80	-505.70	-330.54	3.23	330.55	0.00	629,193.86	818,501.43	
3,400.00	15.00	179.44	3,357.39	-409.11	-356.42	3.48	356.43	0.00	629,167.98	818,501.68	
3,500.00	15.00	179.44	3,453.98	-312.52	-382.30	3.74	382.32	0.00	629,142.10	818,501.94	
3,600.00	15.00	179.44	3,550.57	-215.93	-408.18	3.99	408.20	0.00	629,116.22	818,502.19	
3,680.50	15.00	179.44	3,628.33	-138.17	-429.01	4.19	429.03	0.00	629,095.39	818,502.39	
3,700.00	14.63	179.44	3,647.18	-119.32	-434.00	4.24	434.02	1.92	629,090.40	818,502.44	
3,800.00	12.70	179.44	3,744.35	-22.15	-457.62	4.47	457.64	1.92	629,066.78	818,502.67	
3,900.00	10.78	179.44	3,842.25	75.75	-477.97	4.67	477.99	1.92	629,046.43	818,502.87	
4,000.00	8.86	179.44	3,940.78	174.28	-495.02	4.84	495.05	1.92	629,029.38	818,503.04	
4,100.00	6.94	179.44	4,039.83	273.33	-508.77	4.97	508.79	1.92	629,015.63	818,503.17	
4,200.00	5.02	179.44	4,139.28	372.78	-519.18	5.07	519.20	1.92	629,005.22	818,503.27	
4,300.00	3.10	179.44	4,239.02	472.52	-526.25	5.14	526.28	1.92	628,998.15	818,503.34	
4,400.00	1.17	179.44	4,338.95	572.45	-529.97	5.18	530.00	1.92	628,994.43	818,503.38	
4,461.06	0.00	0.00	4,400.00	633.50	-530.60	5.19	530.63	1.92	628,993.80	818,503.39	
4,500.00	0.00	0.00	4,438.94	672.44	-530.60	5.19	530.63	0.00	628,993.80	818,503.39	
4,600.00	0.00	0.00	4,538.94	772.44	-530.60	5.19	530.63	0.00	628,993.80	818,503.39	
4,700.00	0.00	0.00	4,638.94	872.44	-530.60	5.19	530.63	0.00	628,993.80	818,503.39	
4,800.00	0.00	0.00	4,738.94	972.44	-530.60	5.19	530.63	0.00	628,993.80	818,503.39	
4,900.00	0.00	0.00	4,838.94	1,072.44	-530.60	5.19	530.63	0.00	628,993.80	818,503.39	
5,000.00	0.00	0.00	4,938.94	1,172.44	-530.60	5.19	530.63	0.00	628,993.80	818,503.39	



Pathfinder Energy Services

Pathfinder X & Y Survey Report



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Site:	Boyz Fee #4	MD Reference:	WELL @ 3766.50ft (RKB= 17.5')
Well:	Boyz Fee	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	EDM 2003.16 Single User Db

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)	
5,100.00	0.00	0.00	5,038.94	1,272.44	-530.60	5.19	530.63	0.00	628,993.80	818,503.39	
5,200.00	0.00	0.00	5,138.94	1,372.44	-530.60	5.19	530.63	0.00	628,993.80	818,503.39	
5,300.00	0.00	0.00	5,238.94	1,472.44	-530.60	5.19	530.63	0.00	628,993.80	818,503.39	
5,400.00	0.00	0.00	5,338.94	1,572.44	-530.60	5.19	530.63	0.00	628,993.80	818,503.39	
5,500.00	0.00	0.00	5,438.94	1,672.44	-530.60	5.19	530.63	0.00	628,993.80	818,503.39	
5,600.00	0.00	0.00	5,538.94	1,772.44	-530.60	5.19	530.63	0.00	628,993.80	818,503.39	
5,700.00	0.00	0.00	5,638.94	1,872.44	-530.60	5.19	530.63	0.00	628,993.80	818,503.39	
5,800.00	0.00	0.00	5,738.94	1,972.44	-530.60	5.19	530.63	0.00	628,993.80	818,503.39	
5,900.00	0.00	0.00	5,838.94	2,072.44	-530.60	5.19	530.63	0.00	628,993.80	818,503.39	
6,000.00	0.00	0.00	5,938.94	2,172.44	-530.60	5.19	530.63	0.00	628,993.80	818,503.39	
6,100.00	0.00	0.00	6,038.94	2,272.44	-530.60	5.19	530.63	0.00	628,993.80	818,503.39	
6,200.00	0.00	0.00	6,138.94	2,372.44	-530.60	5.19	530.63	0.00	628,993.80	818,503.39	
6,300.00	0.00	0.00	6,238.94	2,472.44	-530.60	5.19	530.63	0.00	628,993.80	818,503.39	
6,400.00	0.00	0.00	6,338.94	2,572.44	-530.60	5.19	530.63	0.00	628,993.80	818,503.39	
6,500.00	0.00	0.00	6,438.94	2,672.44	-530.60	5.19	530.63	0.00	628,993.80	818,503.39	
6,600.00	0.00	0.00	6,538.94	2,772.44	-530.60	5.19	530.63	0.00	628,993.80	818,503.39	
6,700.00	0.00	0.00	6,638.94	2,872.44	-530.60	5.19	530.63	0.00	628,993.80	818,503.39	
6,800.00	0.00	0.00	6,738.94	2,972.44	-530.60	5.19	530.63	0.00	628,993.80	818,503.39	
6,900.00	0.00	0.00	6,838.94	3,072.44	-530.60	5.19	530.63	0.00	628,993.80	818,503.39	
7,000.00	0.00	0.00	6,938.94	3,172.44	-530.60	5.19	530.63	0.00	628,993.80	818,503.39	
7,100.00	0.00	0.00	7,038.94	3,272.44	-530.60	5.19	530.63	0.00	628,993.80	818,503.39	
7,200.00	0.00	0.00	7,138.94	3,372.44	-530.60	5.19	530.63	0.00	628,993.80	818,503.39	
7,300.00	0.00	0.00	7,238.94	3,472.44	-530.60	5.19	530.63	0.00	628,993.80	818,503.39	
7,400.00	0.00	0.00	7,338.94	3,572.44	-530.60	5.19	530.63	0.00	628,993.80	818,503.39	
7,461.06	0.00	0.00	7,400.00	3,633.50	-530.60	5.19	530.63	0.00	628,993.80	818,503.39	
PBHL(Boyz #4)											



Pathfinder Energy Services
Pathfinder X & Y Survey Report



Company: Mack Energy
Project: Boyz Fee #4
Site: Boyz Fee #4
Well: Boyz Fee
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well Boyz Fee
TVD Reference: WELL @ 3766.50ft (RKB= 17.5')
MD Reference: WELL @ 3766.50ft (RKB= 17.5')
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 2003.16 Single User Db

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									
PBHL(Boyz #4)	0.00	0.00	7,400.00	-530.60	5.20	628,993.800	818,503.400	32° 43' 29.719 N	103° 17' 51.641 W
- plan hits target									
- Circle (radius 10.00)									

Checked By: _____ Approved By: _____ Date: _____



PATHFINDER

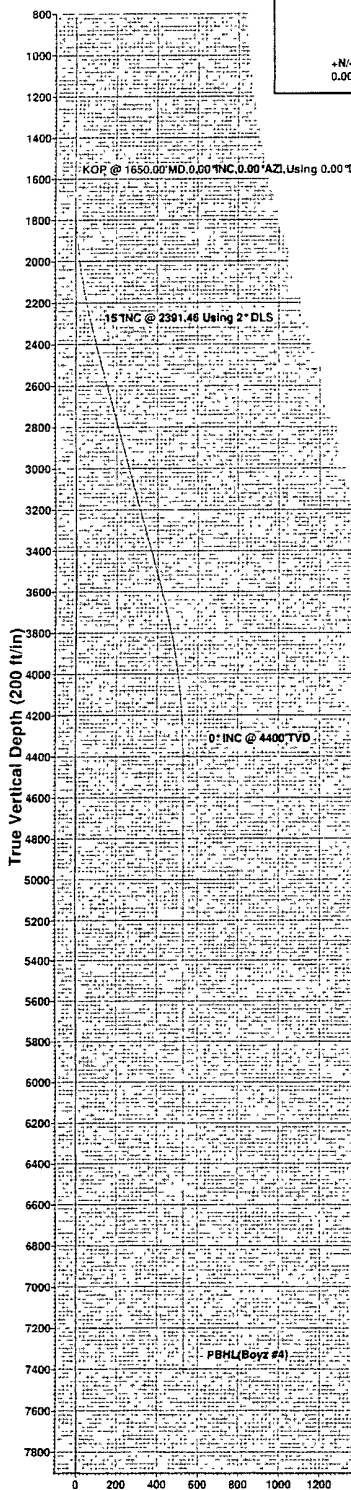
ENERGY SERVICES

PROJECT DETAILS: Boyz Fee #4
 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: Grd

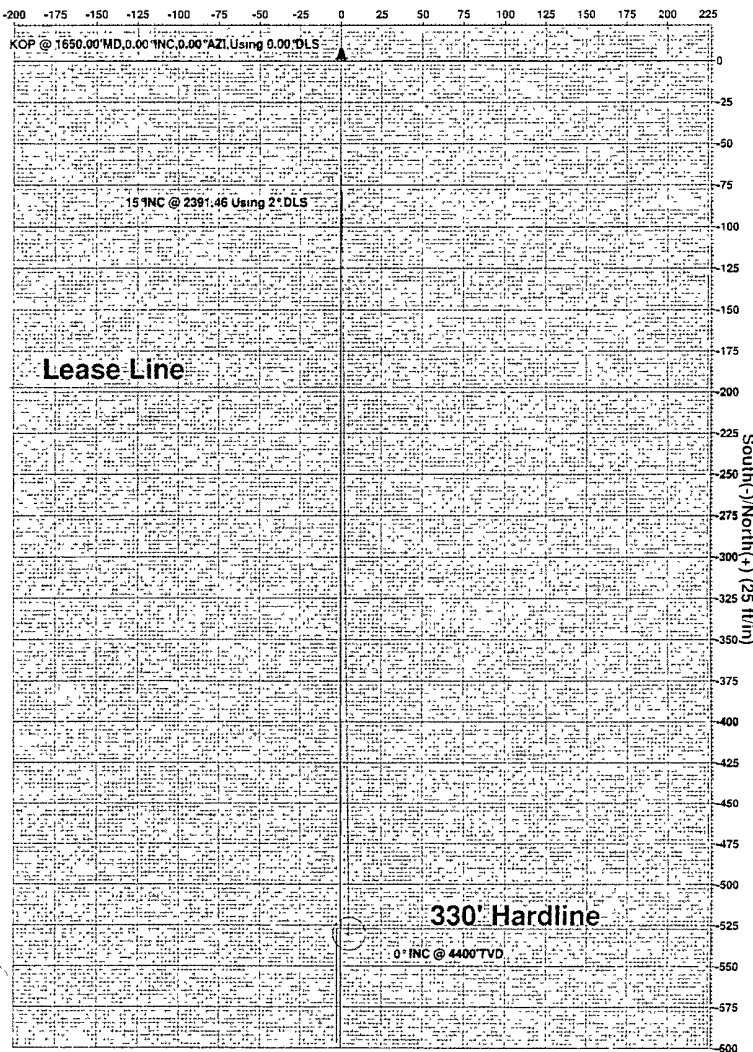
WELL DETAILS- Boyz Fee							
Ground Elevation: 3749.00							
RKB Elevation: WELL @ 3766.50H (RKB= 17.5')							
Rig Name: RKB= 17.5'							
+N-S	+E-W	Northing	Easting	Latitude	Longitude	Slot	
0.00	0.00	629524.400	818498.200	32° 43' 34.969 N	103° 17' 51.641 W		

Project: Boyz Fee #4
 Site: Boyz Fee #4
 Well: Boyz Fee
 Wellbore: OH
 Plan: Plan #1 (Boyz Fee/OH)

West(-)/East(+) (25 ft/in)



Vertical Section at 179.44° (200 ft/in)



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	1650.00	0.00	0.00	1650.00	0.00	0.00	0.00	0.00	0.00	
3	2400.00	15.00	179.44	2391.46	-97.61	0.55	2.00	179.44	97.62	
4	3680.50	15.00	179.44	3628.33	-429.01	4.19	0.00	0.00	429.03	
5	4461.06	0.00	0.00	4400.00	-530.60	5.19	1.92	180.00	530.63	PBHL(Boyz #4)
6	7461.06	0.00	0.00	7400.00	-530.60	5.19	0.00	0.00	530.63	PBHL(Boyz #4)

WELLBORE TARGET DETAILS			
Name	TVD	+N-S	+E-W
PBHL(Boyz #4)	7400.00	-530.60	5.20



Azimuths to Grid North
 True North: -0.56°
 Magnetic North: 7.24°
 Magnetic Field
 Strength: 49237.1nT
 Dip Angle: 60.78°
 Date: 2008/10/28
 Model: IGRF200510

Plan Plan #1 (Boyz Fee/OH)

Created By: Mark Freeman Date: 9.29, October 23 2008

Checked: _____ Date: _____