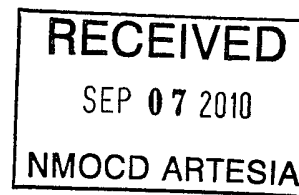


30.005-64127



Mack Energy

Chaves County

K2 *State*

#1

OH

Plan: Plan #1

Pathfinder X & Y Planning Report

03 September, 2010

PATHFINDER[®]

A Schlumberger Company

MR



Pathfinder

Pathfinder X & Y Planning Report

PATHFINDER
A Schlumberger Company

Company:	Mack Energy	Local Co-ordinate Reference:	Well #1
Project:	Chaves County	TVD Reference:	WELL @ 4041.50ft (Original Well Elev)
Site:	K2 Federal State	MD Reference:	WELL @ 4041.50ft (Original Well Elev)
Well:	#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:	K2 Federal		
Site Position:		Northing:	908,258.000 ft
From:	Map	Easting:	622,871.400 ft
Position Uncertainty:	0.00 ft	Slot Radius:	"
		Latitude:	33° 29' 46.068 N
		Longitude:	103° 55' 49.034 W
		Grid Convergence:	0.22 °

Well	#1					
Well Position	+N/-S	0.00 ft	Northing:	908,258.000 ft	Latitude:	33° 29' 46.068 N
	+E/-W	0.40 ft	Easting:	622,871.400 ft	Longitude:	103° 55' 49.034 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	4,024.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	09/03/2010	7.93	61.33	49,445

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	0.40	183.47

Survey Tool Program	Date	09/03/2010		
From	To	Survey (Wellbore)	Tool Name	Description
(ft)	(ft)			
0.00	7,515.51	Plan #1 (OH)	MWD	MWD - Standard



Pathfinder

Pathfinder X & Y Planning Report

PATHFINDER
A Schlumberger Company

Company:	Mack Energy	Local Co-ordinate Reference:	Well #1
Project:	Chaves County	TVD Reference:	WELL @ 4041.50ft (Original Well Elev)
Site:	K2 Boone State	MD Reference:	WELL @ 4041.50ft (Original Well Elev)
Well:	#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)	
0.00	0.00	0.00	0.00	-4,041.50	0.00	0.40	0.00	0.00	908,258.00	622,871.40	
100.00	0.00	0.00	100.00	-3,941.50	0.00	0.40	0.00	0.00	908,258.00	622,871.40	
200.00	0.00	0.00	200.00	-3,841.50	0.00	0.40	0.00	0.00	908,258.00	622,871.40	
300.00	0.00	0.00	300.00	-3,741.50	0.00	0.40	0.00	0.00	908,258.00	622,871.40	
400.00	0.00	0.00	400.00	-3,641.50	0.00	0.40	0.00	0.00	908,258.00	622,871.40	
500.00	0.00	0.00	500.00	-3,541.50	0.00	0.40	0.00	0.00	908,258.00	622,871.40	
600.00	0.00	0.00	600.00	-3,441.50	0.00	0.40	0.00	0.00	908,258.00	622,871.40	
700.00	0.00	0.00	700.00	-3,341.50	0.00	0.40	0.00	0.00	908,258.00	622,871.40	
800.00	0.00	0.00	800.00	-3,241.50	0.00	0.40	0.00	0.00	908,258.00	622,871.40	
900.00	0.00	0.00	900.00	-3,141.50	0.00	0.40	0.00	0.00	908,258.00	622,871.40	
1,000.00	0.00	0.00	1,000.00	-3,041.50	0.00	0.40	0.00	0.00	908,258.00	622,871.40	
1,100.00	0.00	0.00	1,100.00	-2,941.50	0.00	0.40	0.00	0.00	908,258.00	622,871.40	
1,200.00	0.00	0.00	1,200.00	-2,841.50	0.00	0.40	0.00	0.00	908,258.00	622,871.40	
1,300.00	0.00	0.00	1,300.00	-2,741.50	0.00	0.40	0.00	0.00	908,258.00	622,871.40	
1,400.00	0.00	0.00	1,400.00	-2,641.50	0.00	0.40	0.00	0.00	908,258.00	622,871.40	
1,500.00	0.00	0.00	1,500.00	-2,541.50	0.00	0.40	0.00	0.00	908,258.00	622,871.40	
1,600.00	0.00	0.00	1,600.00	-2,441.50	0.00	0.40	0.00	0.00	908,258.00	622,871.40	
1,700.00	0.00	0.00	1,700.00	-2,341.50	0.00	0.40	0.00	0.00	908,258.00	622,871.40	
1,800.00	0.00	0.00	1,800.00	-2,241.50	0.00	0.40	0.00	0.00	908,258.00	622,871.40	
1,900.00	0.00	0.00	1,900.00	-2,141.50	0.00	0.40	0.00	0.00	908,258.00	622,871.40	
2,000.00	0.00	0.00	2,000.00	-2,041.50	0.00	0.40	0.00	0.00	908,258.00	622,871.40	
2,100.00	0.00	0.00	2,100.00	-1,941.50	0.00	0.40	0.00	0.00	908,258.00	622,871.40	
2,200.00	0.00	0.00	2,200.00	-1,841.50	0.00	0.40	0.00	0.00	908,258.00	622,871.40	
2,300.00	0.00	0.00	2,300.00	-1,741.50	0.00	0.40	0.00	0.00	908,258.00	622,871.40	
2,400.00	0.00	0.00	2,400.00	-1,641.50	0.00	0.40	0.00	0.00	908,258.00	622,871.40	
2,500.00	0.00	0.00	2,500.00	-1,541.50	0.00	0.40	0.00	0.00	908,258.00	622,871.40	
2,600.00	0.00	0.00	2,600.00	-1,441.50	0.00	0.40	0.00	0.00	908,258.00	622,871.40	



Pathfinder

Pathfinder X & Y Planning Report

PATHFINDER
A Schlumberger Company

Company:	Mack Energy	Local Co-ordinate Reference:	Well #1
Project:	Chaves County	TVD Reference:	WELL @ 4041.50ft (Original Well Elev)
Site:	K2 Region <i>State</i>	MD Reference:	WELL @ 4041.50ft (Original Well Elev)
Well:	#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	-1,341.50	0.00	0.40	0.00	0.00	908,258.00	622,871.40	
2,800.00	0.00	0.00	2,800.00	-1,241.50	0.00	0.40	0.00	0.00	908,258.00	622,871.40	
2,900.00	3.50	183.47	2,899.94	-1,141.56	-3.05	0.22	3.05	3.50	908,254.95	622,871.22	
3,000.00	7.00	183.47	2,999.50	-1,042.00	-12.18	-0.34	12.20	3.50	908,245.82	622,870.66	
3,100.00	10.50	183.47	3,098.32	-943.18	-27.36	-1.26	27.41	3.50	908,230.64	622,869.74	
3,192.04	13.72	183.47	3,188.31	-853.19	-46.63	-2.43	46.72	3.50	908,211.37	622,868.57	
3,200.00	13.72	183.47	3,196.04	-845.46	-48.52	-2.54	48.61	0.00	908,209.48	622,868.46	
3,300.00	13.72	183.47	3,293.18	-748.32	-72.20	-3.98	72.33	0.00	908,185.80	622,867.02	
3,400.00	13.72	183.47	3,390.33	-651.17	-95.87	-5.42	96.05	0.00	908,162.13	622,865.58	
3,473.46	13.72	183.47	3,461.69	-579.81	-113.27	-6.47	113.47	0.00	908,144.73	622,864.53	
3,500.00	12.79	183.47	3,487.52	-553.98	-119.34	-6.84	119.56	3.50	908,138.66	622,864.16	
3,600.00	9.29	183.47	3,585.66	-455.84	-138.46	-8.00	138.71	3.50	908,119.54	622,863.00	
3,700.00	5.79	183.47	3,684.78	-356.72	-151.56	-8.79	151.83	3.50	908,106.44	622,862.21	
3,800.00	2.29	183.47	3,784.51	-256.99	-158.59	-9.22	158.88	3.50	908,099.41	622,861.78	
3,865.51	0.00	0.00	3,850.00	-191.50	-159.90	-9.30	160.19	3.50	908,098.10	622,861.70	
PBHL(K2 Fed #1)											
3,900.00	0.00	0.00	3,884.49	-157.01	-159.90	-9.30	160.19	0.00	908,098.10	622,861.70	
4,000.00	0.00	0.00	3,984.49	-57.01	-159.90	-9.30	160.19	0.00	908,098.10	622,861.70	
4,100.00	0.00	0.00	4,084.49	42.99	-159.90	-9.30	160.19	0.00	908,098.10	622,861.70	
4,200.00	0.00	0.00	4,184.49	142.99	-159.90	-9.30	160.19	0.00	908,098.10	622,861.70	
4,300.00	0.00	0.00	4,284.49	242.99	-159.90	-9.30	160.19	0.00	908,098.10	622,861.70	
4,400.00	0.00	0.00	4,384.49	342.99	-159.90	-9.30	160.19	0.00	908,098.10	622,861.70	
4,500.00	0.00	0.00	4,484.49	442.99	-159.90	-9.30	160.19	0.00	908,098.10	622,861.70	
4,600.00	0.00	0.00	4,584.49	542.99	-159.90	-9.30	160.19	0.00	908,098.10	622,861.70	
4,700.00	0.00	0.00	4,684.49	642.99	-159.90	-9.30	160.19	0.00	908,098.10	622,861.70	
4,800.00	0.00	0.00	4,784.49	742.99	-159.90	-9.30	160.19	0.00	908,098.10	622,861.70	
4,900.00	0.00	0.00	4,884.49	842.99	-159.90	-9.30	160.19	0.00	908,098.10	622,861.70	



Pathfinder

Pathfinder X & Y Planning Report

PATHFINDER
A Schlumberger Company

Company:	Mack Energy	Local Co-ordinate Reference:	Well #1
Project:	Chaves County	TVD Reference:	WELL @ 4041.50ft (Original Well Elev)
Site:	K2 20000 State	MD Reference:	WELL @ 4041.50ft (Original Well Elev)
Well:	#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)	
5,000.00	0.00	0.00	4,984.49	942.99	-159.90	-9.30	160.19	0.00	908,098.10	622,861.70	
5,100.00	0.00	0.00	5,084.49	1,042.99	-159.90	-9.30	160.19	0.00	908,098.10	622,861.70	
5,200.00	0.00	0.00	5,184.49	1,142.99	-159.90	-9.30	160.19	0.00	908,098.10	622,861.70	
5,300.00	0.00	0.00	5,284.49	1,242.99	-159.90	-9.30	160.19	0.00	908,098.10	622,861.70	
5,400.00	0.00	0.00	5,384.49	1,342.99	-159.90	-9.30	160.19	0.00	908,098.10	622,861.70	
5,500.00	0.00	0.00	5,484.49	1,442.99	-159.90	-9.30	160.19	0.00	908,098.10	622,861.70	
5,600.00	0.00	0.00	5,584.49	1,542.99	-159.90	-9.30	160.19	0.00	908,098.10	622,861.70	
5,700.00	0.00	0.00	5,684.49	1,642.99	-159.90	-9.30	160.19	0.00	908,098.10	622,861.70	
5,800.00	0.00	0.00	5,784.49	1,742.99	-159.90	-9.30	160.19	0.00	908,098.10	622,861.70	
5,900.00	0.00	0.00	5,884.49	1,842.99	-159.90	-9.30	160.19	0.00	908,098.10	622,861.70	
6,000.00	0.00	0.00	5,984.49	1,942.99	-159.90	-9.30	160.19	0.00	908,098.10	622,861.70	
6,100.00	0.00	0.00	6,084.49	2,042.99	-159.90	-9.30	160.19	0.00	908,098.10	622,861.70	
6,200.00	0.00	0.00	6,184.49	2,142.99	-159.90	-9.30	160.19	0.00	908,098.10	622,861.70	
6,300.00	0.00	0.00	6,284.49	2,242.99	-159.90	-9.30	160.19	0.00	908,098.10	622,861.70	
6,400.00	0.00	0.00	6,384.49	2,342.99	-159.90	-9.30	160.19	0.00	908,098.10	622,861.70	
6,500.00	0.00	0.00	6,484.49	2,442.99	-159.90	-9.30	160.19	0.00	908,098.10	622,861.70	
6,600.00	0.00	0.00	6,584.49	2,542.99	-159.90	-9.30	160.19	0.00	908,098.10	622,861.70	
6,700.00	0.00	0.00	6,684.49	2,642.99	-159.90	-9.30	160.19	0.00	908,098.10	622,861.70	
6,800.00	0.00	0.00	6,784.49	2,742.99	-159.90	-9.30	160.19	0.00	908,098.10	622,861.70	
6,900.00	0.00	0.00	6,884.49	2,842.99	-159.90	-9.30	160.19	0.00	908,098.10	622,861.70	
7,000.00	0.00	0.00	6,984.49	2,942.99	-159.90	-9.30	160.19	0.00	908,098.10	622,861.70	
7,100.00	0.00	0.00	7,084.49	3,042.99	-159.90	-9.30	160.19	0.00	908,098.10	622,861.70	
7,200.00	0.00	0.00	7,184.49	3,142.99	-159.90	-9.30	160.19	0.00	908,098.10	622,861.70	
7,300.00	0.00	0.00	7,284.49	3,242.99	-159.90	-9.30	160.19	0.00	908,098.10	622,861.70	
7,400.00	0.00	0.00	7,384.49	3,342.99	-159.90	-9.30	160.19	0.00	908,098.10	622,861.70	
7,500.00	0.00	0.00	7,484.49	3,442.99	-159.90	-9.30	160.19	0.00	908,098.10	622,861.70	
7,515.51	0.00	0.00	7,500.00	3,458.50	-159.90	-9.30	160.19	0.00	908,098.10	622,861.70	



Pathfinder

Pathfinder X & Y Planning Report

PATHFINDER
A Schlumberger Company

Company: Mack Energy
Project: Chaves County
Site: K2 ~~00000~~ *State*
Well: #1
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #1
TVD Reference: WELL @ 4041.50ft (Original Well Elev)
MD Reference: WELL @ 4041.50ft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
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									
PBHL(K2 Fed #1)	0.00	0.00	3,850.00	-159.90	-9.30	908,098.100	622,861.700	33° 29' 44.486 N	103° 55' 49.156 W
- plan hits target center									
- Point									

Checked By: _____ Approved By: _____ Date: _____

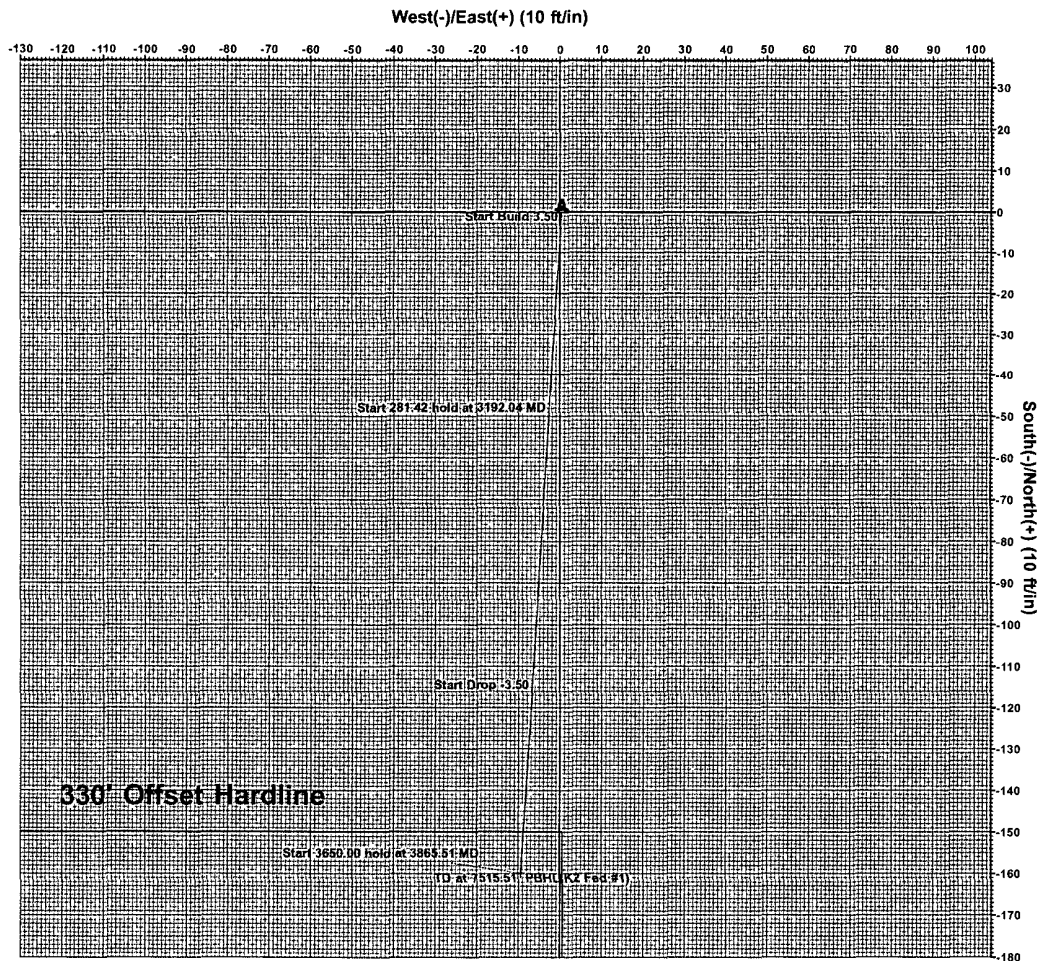
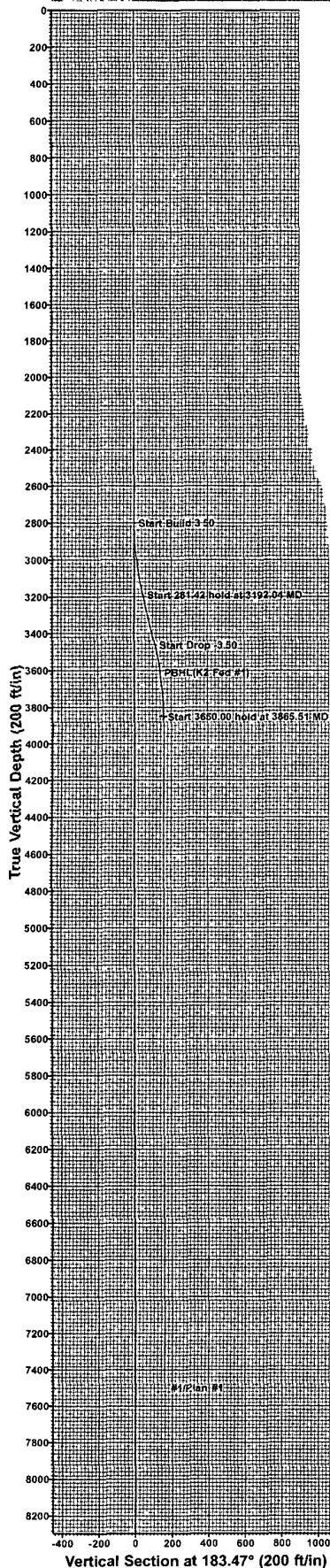


Azimuths to Grid North
True North: -0.22°
Magnetic North: 7.71°

Magnetic Field
Strength: 49444.9snT
Dip Angle: 61.33°
Date: 09/03/2010
Model: IGRF200510

PATHFINDER®

A Schlumberger Company



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	0.40	0.00	0.00	0.00	
2	2800.00	0.00	0.00	2800.00	0.00	0.40	0.00	0.00	0.00	
3	3192.04	13.72	183.47	3188.31	-46.63	-2.43	3.50	183.47	46.72	
4	3473.46	13.72	183.47	3461.69	-113.27	-6.47	0.00	0.00	113.47	
5	3865.51	0.00	0.00	3850.00	-159.90	-9.30	3.50	180.00	180.19	PBHL(K2 Fed #1)
6	7515.51	0.00	0.00	7500.00	-159.90	-9.30	0.00	0.00	180.19	

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)						
Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
PBHL(K2 Fed #1)	3850.00	-159.90	-9.30	908098.100	622861.700	Point

WELL DETAILS #1						
Ground Elevation		4024.00				
RKB Elevation		WELL @ 4041.50ft (Original Well Elev)				
Rig Name		Original Well Elev				
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.40	908258.000	622871.400	33° 29' 46.068 N	103° 55' 49.034 W	

Project: Chaves County
Site: K2 ~~Chaves~~ State
Well: #1
Wellbore: OH
Plan: Plan #1 (#1/OH)

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

Plan Plan #1 (#1/OH)	
Created By	Nate Bingham
Date	11/06/2010
Checked	
Date	