



30-025-39815

RECEIVED

Mack Energy

Lea County

Kite State

#1H

OH

JUL 01 2010

HOBBSOCD

Plan: Plan #1

Pathfinder X & Y Planning Report

24 June, 2010

PATHFINDER



Pathfinder
Pathfinder X & Y Planning Report



Company:	Mack Energy	Local Co-ordinate Reference:	Well #1H
Project:	Lea County	TVD Reference:	WELL @ 4362.00ft (19' KB Correction)
Site:	Kite State	MD Reference:	WELL @ 4362.00ft (19' KB Correction)
Well:	#1H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	Midland Database

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						Kite State					
Site Position:											
From:		Map		Northing:		749,861.200 ft		Latitude:		33° 3' 36.178 N	
				Easting:		679,643.200 ft		Longitude:		103° 44' 49.155 W	
Position Uncertainty:		0.00 ft		Slot Radius:		"		Grid Convergence:		0.32 °	

Well	#1H					
Well Position	+N/-S	0.00 ft	Northing:	749,861.200 ft	Latitude:	33° 3' 36.178 N
	+E/-W	0.00 ft	Easting:	679,643.200 ft	Longitude:	103° 44' 49.155 W
Position Uncertainty	0.00 ft	Wellhead Elevation:	ft	Ground Level:	4,343.00 ft	

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	06/24/2010	7.84	60.97	49 222

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	179.60

Survey Tool Program		Date 06/24/2010		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	10,825.09	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)	D Leg (°/100ft)	Northing (ft)	Easting (ft)	
0.00	0.00	0.00	0.00	-4,362.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
100.00	0.00	0.00	100.00	-4,262.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
200.00	0.00	0.00	200.00	-4,162.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
300.00	0.00	0.00	300.00	-4,062.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
400.00	0.00	0.00	400.00	-3,962.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
500.00	0.00	0.00	500.00	-3,862.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
600.00	0.00	0.00	600.00	-3,762.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
700.00	0.00	0.00	700.00	-3,662.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
800.00	0.00	0.00	800.00	-3,562.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
900.00	0.00	0.00	900.00	-3,462.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
1,000.00	0.00	0.00	1,000.00	-3,362.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
1,100.00	0.00	0.00	1,100.00	-3,262.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
1,200.00	0.00	0.00	1,200.00	-3,162.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
1,300.00	0.00	0.00	1,300.00	-3,062.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
1,400.00	0.00	0.00	1,400.00	-2,962.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
1,500.00	0.00	0.00	1,500.00	-2,862.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
1,600.00	0.00	0.00	1,600.00	-2,762.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
1,700.00	0.00	0.00	1,700.00	-2,662.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
1,800.00	0.00	0.00	1,800.00	-2,562.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
1,900.00	0.00	0.00	1,900.00	-2,462.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
2,000.00	0.00	0.00	2,000.00	-2,362.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
2,100.00	0.00	0.00	2,100.00	-2,262.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
2,200.00	0.00	0.00	2,200.00	-2,162.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
2,300.00	0.00	0.00	2,300.00	-2,062.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
2,400.00	0.00	0.00	2,400.00	-1,962.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
2,500.00	0.00	0.00	2,500.00	-1,862.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
2,600.00	0.00	0.00	2,600.00	-1,762.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	



Pathfinder
Pathfinder X & Y Planning Report



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Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan.#1	Database:	Midland Database

Planned Survey											
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2,700.00	0.00	0.00	2,700.00	-1,662.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
2,800.00	0.00	0.00	2,800.00	-1,562.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
2,900.00	0.00	0.00	2,900.00	-1,462.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
3,000.00	0.00	0.00	3,000.00	-1,362.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
3,100.00	0.00	0.00	3,100.00	-1,262.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
3,200.00	0.00	0.00	3,200.00	-1,162.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
3,300.00	0.00	0.00	3,300.00	-1,062.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
3,400.00	0.00	0.00	3,400.00	-962.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
3,500.00	0.00	0.00	3,500.00	-862.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
3,600.00	0.00	0.00	3,600.00	-762.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
3,700.00	0.00	0.00	3,700.00	-662.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
3,800.00	0.00	0.00	3,800.00	-562.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
3,900.00	0.00	0.00	3,900.00	-462.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
4,000.00	0.00	0.00	4,000.00	-362.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
4,100.00	0.00	0.00	4,100.00	-262.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
4,200.00	0.00	0.00	4,200.00	-162.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
4,300.00	0.00	0.00	4,300.00	-62.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
4,400.00	0.00	0.00	4,400.00	38.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
4,500.00	0.00	0.00	4,500.00	138.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
4,600.00	0.00	0.00	4,600.00	238.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
4,700.00	0.00	0.00	4,700.00	338.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
4,800.00	0.00	0.00	4,800.00	438.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
4,900.00	0.00	0.00	4,900.00	538.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
5,000.00	0.00	0.00	5,000.00	638.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
5,100.00	0.00	0.00	5,100.00	738.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
5,200.00	0.00	0.00	5,200.00	838.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
5,300.00	0.00	0.00	5,300.00	938.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	



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5,400.00	0.00	0.00	5,400.00	1,038.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
5,500.00	0.00	0.00	5,500.00	1,138.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
5,600.00	0.00	0.00	5,600.00	1,238.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
5,700.00	0.00	0.00	5,700.00	1,338.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
5,800.00	0.00	0.00	5,800.00	1,438.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
5,900.00	0.00	0.00	5,900.00	1,538.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
6,000.00	0.00	0.00	6,000.00	1,638.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
6,100.00	0.00	0.00	6,100.00	1,738.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
6,200.00	0.00	0.00	6,200.00	1,838.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
6,300.00	0.00	0.00	6,300.00	1,938.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
6,400.00	0.00	0.00	6,400.00	2,038.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
6,500.00	0.00	0.00	6,500.00	2,138.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
6,600.00	0.00	0.00	6,600.00	2,238.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
6,700.00	0.00	0.00	6,700.00	2,338.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
6,800.00	0.00	0.00	6,800.00	2,438.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
6,900.00	0.00	0.00	6,900.00	2,538.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
7,000.00	0.00	0.00	7,000.00	2,638.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
7,100.00	0.00	0.00	7,100.00	2,738.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
7,200.00	0.00	0.00	7,200.00	2,838.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
7,300.00	0.00	0.00	7,300.00	2,938.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
7,400.00	0.00	0.00	7,400.00	3,038.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
7,500.00	0.00	0.00	7,500.00	3,138.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
7,600.00	0.00	0.00	7,600.00	3,238.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
7,700.00	0.00	0.00	7,700.00	3,338.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
7,800.00	0.00	0.00	7,800.00	3,438.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
7,900.00	0.00	0.00	7,900.00	3,538.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
8,000.00	0.00	0.00	8,000.00	3,638.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	



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8,100.00	0.00	0.00	8,100.00	3,738.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
8,200.00	0.00	0.00	8,200.00	3,838.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
8,300.00	0.00	0.00	8,300.00	3,938.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
8,400.00	0.00	0.00	8,400.00	4,038.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
8,500.00	0.00	0.00	8,500.00	4,138.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
8,600.00	0.00	0.00	8,600.00	4,238.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
8,700.00	0.00	0.00	8,700.00	4,338.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
8,800.00	0.00	0.00	8,800.00	4,438.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
8,900.00	0.00	0.00	8,900.00	4,538.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
9,000.00	0.00	0.00	9,000.00	4,638.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
9,100.00	0.00	0.00	9,100.00	4,738.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
9,200.00	0.00	0.00	9,200.00	4,838.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
9,220.00	0.00	0.00	9,220.00	4,858.00	0.00	0.00	0.00	0.00	749,861.20	679,643.20	
9,250.00	3.44	179.61	9,249.98	4,887.98	-0.90	0.01	0.90	11.46	749,860.30	679,643.21	
9,300.00	9.17	179.61	9,299.66	4,937.66	-6.39	0.04	6.39	11.46	749,854.81	679,643.24	
9,350.00	14.90	179.61	9,348.54	4,986.54	-16.80	0.11	16.80	11.46	749,844.40	679,643.31	
9,400.00	20.63	179.61	9,396.14	5,034.14	-32.05	0.22	32.05	11.46	749,829.15	679,643.42	
9,450.00	26.35	179.61	9,441.97	5,079.97	-51.97	0.35	51.97	11.46	749,809.23	679,643.55	
9,500.00	32.08	179.61	9,485.59	5,123.59	-76.37	0.52	76.37	11.46	749,784.83	679,643.72	
9,550.00	37.81	179.61	9,526.56	5,164.56	-105.00	0.71	105.00	11.46	749,756.20	679,643.91	
9,600.00	43.54	179.61	9,564.46	5,202.46	-137.57	0.94	137.58	11.46	749,723.63	679,644.14	
9,650.00	49.27	179.61	9,598.93	5,236.93	-173.77	1.18	173.77	11.46	749,687.43	679,644.38	
9,700.00	55.00	179.61	9,629.60	5,267.60	-213.23	1.45	213.23	11.46	749,647.97	679,644.65	
9,750.00	60.73	179.61	9,666.19	5,294.19	-255.55	1.74	255.55	11.46	749,605.65	679,644.94	
9,800.00	66.46	179.61	9,678.41	5,316.41	-300.31	2.04	300.32	11.46	749,560.89	679,645.24	
9,850.00	72.19	179.61	9,696.06	5,334.06	-347.07	2.36	347.08	11.46	749,514.13	679,645.56	
9,900.00	77.92	179.61	9,708.95	5,346.95	-395.36	2.69	395.37	11.46	749,465.84	679,645.89	



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Project:	Lea County	TVD Reference:	WELL @ 4362.00ft (19' KB Correction)
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9,950.00	83.65	179.61	9,716.96	5,354.96	-444.69	3.03	444.70	11.46	749,416.51	679,646.23	
10,000.00	89.38	179.61	9,720.00	5,358.00	-494.58	3.37	494.59	11.46	749,366.62	679,646.57	
10,010.50	90.58	179.61	9,720.00	5,358.00	-505.08	3.44	505.09	11.46	749,356.12	679,646.64	
10,100.00	90.58	179.61	9,719.09	5,357.09	-594.57	4.05	594.58	0.00	749,266.63	679,647.25	
10,200.00	90.58	179.61	9,718.08	5,356.08	-694.56	4.73	694.58	0.00	749,166.64	679,647.93	
10,300.00	90.58	179.61	9,717.07	5,355.07	-794.55	5.41	794.57	0.00	749,066.65	679,648.61	
10,400.00	90.58	179.61	9,716.06	5,354.06	-894.55	6.09	894.57	0.00	748,966.65	679,649.29	
10,505.44	90.58	179.61	9,714.99	5,352.99	-999.98	6.81	1,000.00	0.00	748,861.22	679,650.01	
10,521.60	90.90	179.59	9,714.78	5,352.78	-1,016.14	6.92	1,016.16	2.00	748,845.06	679,650.12	
10,600.00	90.90	179.59	9,713.55	5,351.55	-1,094.53	7.48	1,094.55	0.00	748,766.67	679,650.68	
10,700.00	90.90	179.59	9,711.97	5,349.97	-1,194.51	8.20	1,194.54	0.00	748,666.69	679,651.40	
10,800.00	90.90	179.59	9,710.40	5,348.40	-1,294.50	8.92	1,294.53	0.00	748,566.70	679,652.12	
10,825.11	90.90	179.59	9,710.00	5,348.00	-1,319.60	9.10	1,319.63	0.00	748,541.60	679,652.30	
PBHL(KS#1)											

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
PBHL(KS#1)	0.00	0.00	9,710.00	-1,319.60	9.10	748,541.600	679,652.300	33° 3' 23.120 N	103° 44' 49.135 W
- plan hits target center									
- Point									

Checked By: _____	Approved By: _____	Date: _____
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Azimuths to Grid North
True North: -0.32°
Magnetic North: 7.51°

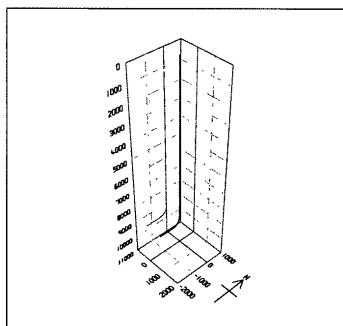
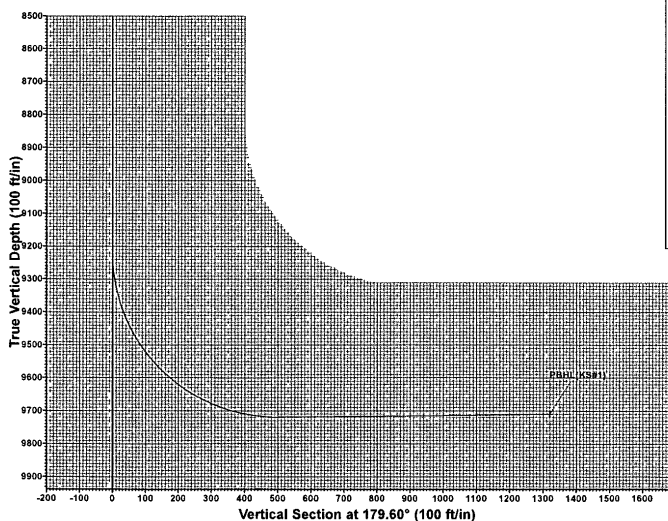
Magnetic Field
Strength: 49221.7nT
Dip Angle: 60.97°
Date: 06/24/2010
Model: IGRF200810

PATHFINDER

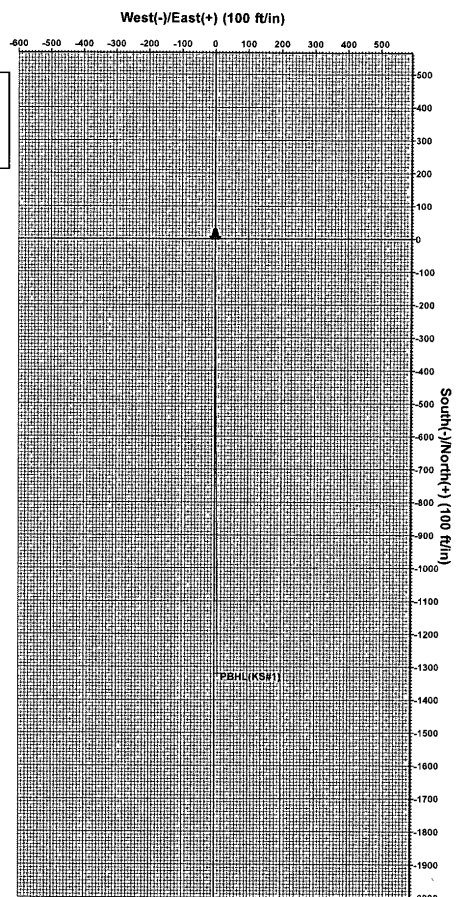
WELLS TARGET DETAILS				
Name	TVD	+N-S	+E-W	Shape
PBHL(KS#1)	9710.00	-1319.60	9.10	Point

WELL DETAILS #1H					
Ground Elevation: 4343.00					
RKB Elevation: WELL @ 4362.00ft (19' KB Correction)					
Rig Name					
+N-S	+E-W	Northing	Easting	Latitude	Longitude
0.00	0.00	748861.200	679643.200	33° 3' 55.178 N	103° 44' 40.155 W

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	9220.00	0.00	0.00	9220.00	0.00	0.00	0.00	0.00	0.00	
3	10010.50	90.58	179.61	9720.00	-505.08	3.44	11.46	179.61	505.09	
4	10505.44	90.58	179.61	9714.99	-999.98	6.81	0.00	0.00	1000.00	
5	10521.60	90.80	179.59	9714.78	-1016.14	6.92	2.00	-3.84	1016.16	
6	10825.11	90.90	179.59	9710.00	-1319.60	9.10	0.00	0.00	1319.63	PBHL(KS#1)



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



Plan Plan #1 (R114/04)	
Created By: Nate Bingham	Date: 11/22, June 24 2010
Checked: _____	Date: _____