

DISTRICT I

1625 N French Dr., Hobbs, NM 88240

Phone: (575) 393-6161 Fax: (575) 393-0728

DISTRICT II

811 S. First St., Artesia, NM 88210

Phone: (575) 748-1283 Fax: (575) 748-9720

DISTRICT III

1000 Rio Brazos Road, Aztec, NM 87410

Phone: (505) 334-6178 Fax: (505) 334-6170

DISTRICT IV

1220 S. St. Francis Dr., Santa Fe, NM 87505

Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico

Hobbs OGE Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION

1220 South St. Francis Dr.

Santa Fe, New Mexico 87505

Form C-102

Revised August 1, 2011

Submit one copy to appropriate
District Office☐ AMENDED REPORT

DEC 19 2011

RECEIVED

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-025-40243	Pool Code 61780	Pool Name Vacuum: Abo Reef
Property Code 38761	Property Name LEO STATE	Well Number 1
OGRID No. 013837	Operator Name MACK ENERGY CORPORATION	Elevation 3961

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	18	18-S	35-E		330	NORTH	990	EAST	LEA

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	18	18-S	35-E		965	NORTH	355	EAST	LEA

Dedicated Acres	Joint or Infill	Consolidation Code	Order No
40			

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

		OPERATOR CERTIFICATION I hereby certify that the information herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division. <u>Jerry W. Sherrell</u> 12/15/11 Signature Date Jerry W. Sherrell Printed Name jerrys@mec.com E-mail Address
GEODETIC COORDINATES NAD 27 NME SURFACE LOCATION Y=639068.4 N X=758949.1 E LAT.=32.754062° N LONG.=103.491046° W BOTTOM HOLE LOCATION Y=638434.7 N X=759591.5 E		SURVEYOR CERTIFICATION I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief. AUGUST 3, 2011 Date of Survey Signature & Seal of Professional Surveyor: Certificate Number Gary G. Eidson 12641 Ronald J. Eidson 3239 DSS JWSC W.O. 11 13 2376
CORNER COORDINATES TABLE A - Y=639397.9 N, X=758628.7 E B - Y=639400.0 N, X=759935.1 E C - Y=638075.0 N, X=758643.8 E D - Y=638077.8 N, X=759950.6 E		

SCANNED

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HOBBS OGD

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Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

Form C-102
Revised August 1, 2011
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District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-025-40243	Pool Code 61850	Pool Name Vacuum: Bl. nebr
Property Code 38761	Property Name LEO STATE	Well Number 1
OGRID No. 013837	Operator Name MACK ENERGY CORPORATION	Elevation 3961

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
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Bottom Hole Location If Different From Surface

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A	18	18-S	35-E		965	NORTH	355	EAST	LEA

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GEODETIC COORDINATES NAD 27 NME SURFACE LOCATION Y=639068.4 N X=758949.1 E LAT.=32.754062° N LONG.=103.491046° W BOTTOM HOLE LOCATION Y=638434.7 N X=759591.5 E		SURVEYOR CERTIFICATION I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision and that the same is true and correct to the best of my belief AUGUST 3, 2011 Date of Survey Signature & Seal of Professional Surveyor: Certificate Number Gary G. Eidson 12641 Ronald J. Eidson 3239 DSS JWSC W O 11 13 2376
CORNER COORDINATES TABLE ① - Y=639397.9 N, X=758628.7 E ② - Y=639400.0 N, X=759935.1 E ③ - Y=638075.0 N, X=758643.8 E ④ - Y=638077.8 N, X=759950.6 E		

SCANNED

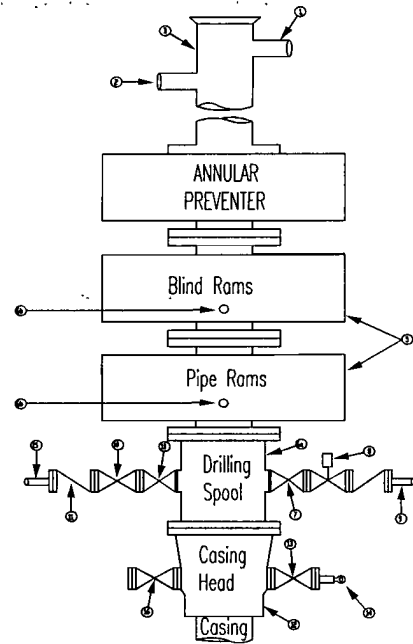
Mack Energy Corporation
Minimum Blowout Preventer Requirements
3000 psi Working Pressure
13 3/8 inch- 3 MWP
11 Inch - 3 MWP
EXHIBIT #1

Stack Requirements

NO.	Items	Min. I.D.	Min. Nominal
1	Flowline		2"
2	Fill up line		2"
3	Drilling nipple		
4	Annular preventer		
5	Two single or one dual hydraulically operated rams		
6a	Drilling spool with 2" min kill line and 3" min choke line outlets		2" Choke
6b	2" min. kill line and 3" min choke line outlets in ram (Alternate to 6a above)		
7	Valve Gate Plug	3 1/8	
8	Gate valve-power operated	3 1/8	
9	Line to choke manifold		3"
10	Valve Gate Plug	2 1/16	
11	Check valve	2 1/16	
12	Casing head		
13	Valve Gate Plug	1 13/16	
14	Pressure gauge with needle valve		
15	Kill line to rig mud pump manifold		2"

OPTIONAL

16	Flanged Valve	1 13/16	
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CONTRACTOR'S OPTION TO FURNISH:

1. All equipment and connections above bradenhead or casinghead. Working pressure of preventers to be 2000 psi minimum
2. Automatic accumulator (80 gallons, minimum) capable of closing BOP in 30 seconds or less and, holding them closed against full rated working pressure.
3. BOP controls, to be located near drillers' position.
4. Kelly equipped with Kelly cock.
5. Inside blowout preventer or its equivalent on derrick floor at all times with proper threads to fit pipe being used.
6. Kelly saver-sub equipped with rubber casing protector at all times.
7. Plug type blowout preventer tester.
8. Extra set pipe rams to fit drill pipe in use on location at all times.
9. Type RX ring gaskets in place of Type R

MEC TO FURNISH:

1. Bradenhead or casing head and side valves
2. Wear bushing If required.

10.
ME

GENERAL NOTES:

1. Deviations from this drawing may be made only with the express permission of MEC's Drilling Manager.
2. All connections, valves, fittings, piping, etc., subject to well or pump pressure must be flanged (suitable clamp connections acceptable) and have minimum working pressure equal to rated working pressure of preventers up through choke valves must be full opening and suitable for high pressure mud service.
3. Controls to be of standard design and each marked, showing opening and closing position
4. Chokes will be positioned so as not to hamper or delay changing of choke beans.

Replaceable parts for adjustable choke, or bean sizes, retainers, and choke wrenches to be conveniently located for immediate use.

5. All valves to be equipped with hand-wheels or handles ready for immediate use.
6. Choke lines must be suitably anchored
7. Handwheels and extensions to be connected and ready for use.
8. Valves adjacent to drilling spool to be kept open Use outside valves except for emergency.
9. All seamless steel control piping (2000 psi working pressure) to have flexible joints to avoid stress Hoses will be permitted
10. Casinghead connections shall not be used except in case of emergency.
11. Does not use kill line for routine fill up operations.

Mack Energy Corporation

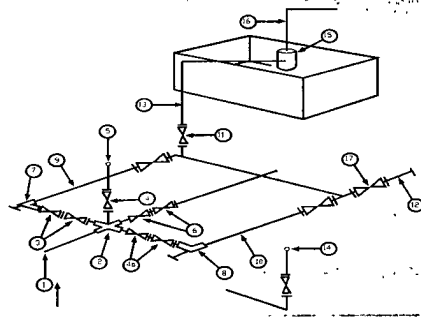
Exhibit #2

MINIMUM CHOKE MANIFOLD

3,000, 5,000, and 10,000 PSI Working Pressure

3M will be used

3 MWP - 5 MWP - 10 MWP



Mud Pit

Reserve Pit

* Location of separator optional

Below Substructure

Minimum requirements

No.		3,000 MWP			5,000 MWP			10,000 MWP		
		I.D.	Nominal	Rating	I.D.	Nominal	Rating	I.D.	Nominal	Rating
1	Line from drilling Spool		3"	3,000		3"	5,000		3"	10,000
2	Cross 3" x 3" x 3" x 2"			3,000			5,000			
2	Cross 3" x 3" x 3" x 2"									10,000
3	Valve Gate Plug	3 1/8"		3,000	3 1/8"		5,000	3 1/8"		10,000
4	Valve Gate Plug	1 13/16"		3,000	1 13/16"		5,000	1 13/16"		10,000
4a	Valves (1)	2 1/16"		3,000	2 1/16"		5,000	2 1/16"		10,000
5	Pressure Gauge			3,000			5,000			10,000
6	Valve Gate Plug	3 1/8"		3,000	3 1/8"		5,000	3 1/8"		10,000
7	Adjustable Choke (3)	2"		3,000	2"		5,000	2"		10,000
8	Adjustable Choke	1"		3,000	1"		5,000	2"		10,000
9	Line		3"	3,000		3"	5,000		3"	10,000
10	Line		2"	3,000		2"	5,000		2"	10,000
11	Valve Gate Plug	3 1/8"		3,000	3 1/8"		5,000	3 1/8"		10,000
12	Line		3"	1,000		3"	1,000		3"	2,000
13	Line		3"	1,000		3"	1,000		3"	2,000
14	Remote reading compound Standpipe pressure gauge			3,000			5,000			10,000
15	Gas Separator		2' x 5'			2' x 5'			2' x 5'	
16	Line		4"	1,000		4"	1,000		4"	2,000
17	Valve Gate Plug	3 1/8"		3,000	3 1/8"		5,000	3 1/8"		10,000

- (1) Only one required in Class 3M
- (2) Gate valves only shall be used for Class 10 M
- (3) Remote operated hydraulic choke required on 5,000 psi and 10,000 psi for drilling.

EQUIPMENT SPECIFICATIONS AND INSTALLATION INSTRUCTION

1. All connections in choke manifold shall be welded, studded, flanged or Cameron clamp of comparable rating.
2. All flanges shall be API 6B or 6BX and ring gaskets shall be API RX or BX. Use only BX for 10 MWP.
3. All lines shall be securely anchored
4. Chokes shall be equipped with tungsten carbide seats and needles, and replacements shall be available.
5. alternate with automatic chokes, a choke manifold pressure gauge shall be located on the rig floor in conjunction with the standpipe pressure gauge.
6. Line from drilling spool to choke manifold should be as straight as possible. Lines downstream from chokes shall make turns by large bends or 90 degree bends using bull plugged tees



Mack Energy

Lea County
Leo State
#1
OH

HOBBS OGD

DEC 19 2011

RECEIVED

Plan: Plan #1

Pathfinder X & Y Report

08 December, 2011

PATHFINDER®
A Schlumberger Company



Pathfinder

Pathfinder X & Y Report



A Schlumberger Company

Company: Mack Energy
Project: Lea County
Site: Leo State
Well: #1
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference:
TVD Reference: KB = 17' @ 3978.0usft (Original Well Elev)
MD Reference: KB = 17' @ 3978.0usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Well #1

KB = 17' @ 3978.0usft (Original Well Elev)
KB = 17' @ 3978.0usft (Original Well Elev)
Grid
Minimum Curvature
EDM 5000.1 Single User Db

Project	Lea County	System Datum:	Mean Sea Level
Map System:	US State Plane 1927 (Exact solution)		
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	Leo State		
Site Position:		639,068 400 usft	Latitude: 32° 45' 14 622 N
From:	Map	758,949 100 usft	Longitude: 103° 29' 27 766 W
Position Uncertainty:	0.0 usft	Slot Radius: 13-3/16 "	Grid Convergence: 0.46 °

Well	#1		
Well Position	+N/-S +E/-W	639,068 400 usft 758,949 100 usft	Latitude: 32° 45' 14 622 N Longitude: 103° 29' 27 766 W
Position Uncertainty	0.0 usft	Wellhead Elevation: usft	Ground Level: 3,961.0 usft

Wellbore	OH		
Magnetics	Model Name	Sample Date	Dip Angle
	IGRF200510	12/8/2011	60.70
		7.52	Field Strength (nT) 48,929

Design	Plan #1		
Audit Notes:			
Version:	Phase:	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	Direction (°)
	0.0	0.0	134.61

Survey Tool Program	Date	12/8/2011	
From (usft)	To (usft)	Survey (Wellbore)	Description
0.0	9,115.3	Plan #1 (OH)	MWD - Standard



Pathfinder

Pathfinder X & Y Report

PATHFINDER®
A Schlumberger Company

Company: Mack Energy
Project: Lea County
Site: Leo State
Well: #1
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:
Database:

Well #1
KB = 17' @ 3978 0usft (Original Well Elev)
KB = 17' @ 3978 0usft (Original Well Elev)
Grid
Minimum Curvature
EDM 5000 1 Single User Db

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	-3,978.0	0.0	0.0	0.0	0.00	639,068.40	758,949.10	
100.0	0.00	0.00	100.0	-3,878.0	0.0	0.0	0.0	0.00	639,068.40	758,949.10	
200.0	0.00	0.00	200.0	-3,778.0	0.0	0.0	0.0	0.00	639,068.40	758,949.10	
300.0	0.00	0.00	300.0	-3,678.0	0.0	0.0	0.0	0.00	639,068.40	758,949.10	
400.0	0.00	0.00	400.0	-3,578.0	0.0	0.0	0.0	0.00	639,068.40	758,949.10	
500.0	0.00	0.00	500.0	-3,478.0	0.0	0.0	0.0	0.00	639,068.40	758,949.10	
600.0	0.00	0.00	600.0	-3,378.0	0.0	0.0	0.0	0.00	639,068.40	758,949.10	
700.0	0.00	0.00	700.0	-3,278.0	0.0	0.0	0.0	0.00	639,068.40	758,949.10	
800.0	0.00	0.00	800.0	-3,178.0	0.0	0.0	0.0	0.00	639,068.40	758,949.10	
900.0	0.00	0.00	900.0	-3,078.0	0.0	0.0	0.0	0.00	639,068.40	758,949.10	
1,000.0	0.00	0.00	1,000.0	-2,978.0	0.0	0.0	0.0	0.00	639,068.40	758,949.10	
1,100.0	0.00	0.00	1,100.0	-2,878.0	0.0	0.0	0.0	0.00	639,068.40	758,949.10	
1,200.0	0.00	0.00	1,200.0	-2,778.0	0.0	0.0	0.0	0.00	639,068.40	758,949.10	
1,300.0	0.00	0.00	1,300.0	-2,678.0	0.0	0.0	0.0	0.00	639,068.40	758,949.10	
1,400.0	0.00	0.00	1,400.0	-2,578.0	0.0	0.0	0.0	0.00	639,068.40	758,949.10	
1,500.0	0.00	0.00	1,500.0	-2,478.0	0.0	0.0	0.0	0.00	639,068.40	758,949.10	
1,600.0	0.00	0.00	1,600.0	-2,378.0	0.0	0.0	0.0	0.00	639,068.40	758,949.10	
1,700.0	0.00	0.00	1,700.0	-2,278.0	0.0	0.0	0.0	0.00	639,068.40	758,949.10	
1,800.0	0.00	0.00	1,800.0	-2,178.0	0.0	0.0	0.0	0.00	639,068.40	758,949.10	
1,900.0	0.00	0.00	1,900.0	-2,078.0	0.0	0.0	0.0	0.00	639,068.40	758,949.10	
2,000.0	0.00	0.00	2,000.0	-1,978.0	0.0	0.0	0.0	0.00	639,068.40	758,949.10	
2,100.0	0.00	0.00	2,100.0	-1,878.0	0.0	0.0	0.0	0.00	639,068.40	758,949.10	
2,200.0	0.00	0.00	2,200.0	-1,778.0	0.0	0.0	0.0	0.00	639,068.40	758,949.10	
2,300.0	0.00	0.00	2,300.0	-1,678.0	0.0	0.0	0.0	0.00	639,068.40	758,949.10	
2,400.0	0.00	0.00	2,400.0	-1,578.0	0.0	0.0	0.0	0.00	639,068.40	758,949.10	
2,500.0	0.00	0.00	2,500.0	-1,478.0	0.0	0.0	0.0	0.00	639,068.40	758,949.10	
2,600.0	0.00	0.00	2,600.0	-1,378.0	0.0	0.0	0.0	0.00	639,068.40	758,949.10	



Pathfinder

Pathfinder X & Y Report

PATHFINDER®
A Schlumberger Company

Company: Mack Energy
Project: Lea County
Site: Lea State
Well: #1
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:
Database:

Well #1
KB = 17' @ 3978 0usft (Original Well Elev)
KB = 17' @ 3978 0usft (Original Well Elev)
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EDM 5000 1 Single User Db

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)	
2,700.0	0.00	0.00	2,700.0	-1,278.0	0.0	0.0	0.0	0.00	639,068.40	758,949.10	
2,800.0	0.00	0.00	2,800.0	-1,178.0	0.0	0.0	0.0	0.00	639,068.40	758,949.10	
2,900.0	0.00	0.00	2,900.0	-1,078.0	0.0	0.0	0.0	0.00	639,068.40	758,949.10	
3,000.0	0.00	0.00	3,000.0	-978.0	0.0	0.0	0.0	0.00	639,068.40	758,949.10	
3,100.0	0.00	0.00	3,100.0	-878.0	0.0	0.0	0.0	0.00	639,068.40	758,949.10	
3,200.0	0.00	0.00	3,200.0	-778.0	0.0	0.0	0.0	0.00	639,068.40	758,949.10	
3,300.0	0.00	0.00	3,300.0	-678.0	0.0	0.0	0.0	0.00	639,068.40	758,949.10	
3,400.0	0.00	0.00	3,400.0	-578.0	0.0	0.0	0.0	0.00	639,068.40	758,949.10	
3,500.0	0.00	0.00	3,500.0	-478.0	0.0	0.0	0.0	0.00	639,068.40	758,949.10	
3,600.0	0.00	0.00	3,600.0	-378.0	0.0	0.0	0.0	0.00	639,068.40	758,949.10	
3,700.0	0.00	0.00	3,700.0	-278.0	0.0	0.0	0.0	0.00	639,068.40	758,949.10	
3,800.0	0.00	0.00	3,800.0	-178.0	0.0	0.0	0.0	0.00	639,068.40	758,949.10	
3,900.0	0.00	0.00	3,900.0	-78.0	0.0	0.0	0.0	0.00	639,068.40	758,949.10	
4,000.0	0.00	0.00	4,000.0	22.0	0.0	0.0	0.0	0.00	639,068.40	758,949.10	
4,100.0	0.00	0.00	4,100.0	122.0	0.0	0.0	0.0	0.00	639,068.40	758,949.10	
4,200.0	0.00	0.00	4,200.0	222.0	0.0	0.0	0.0	0.00	639,068.40	758,949.10	
4,300.0	0.00	0.00	4,300.0	322.0	0.0	0.0	0.0	0.00	639,068.40	758,949.10	
4,400.0	0.00	0.00	4,400.0	422.0	0.0	0.0	0.0	0.00	639,068.40	758,949.10	
4,500.0	0.00	0.00	4,500.0	522.0	0.0	0.0	0.0	0.00	639,068.40	758,949.10	
4,600.0	0.00	0.00	4,600.0	622.0	0.0	0.0	0.0	0.00	639,068.40	758,949.10	
4,700.0	0.00	0.00	4,700.0	722.0	0.0	0.0	0.0	0.00	639,068.40	758,949.10	
4,800.0	0.00	0.00	4,800.0	822.0	0.0	0.0	0.0	0.00	639,068.40	758,949.10	
4,900.0	0.00	0.00	4,900.0	922.0	0.0	0.0	0.0	0.00	639,068.40	758,949.10	
4,930.0	0.00	0.00	4,930.0	952.0	0.0	0.0	0.0	0.00	639,068.40	758,949.10	
5,000.0	3.50	134.61	5,000.0	1,022.0	-1.5	1.5	2.1	5.00	639,066.90	758,950.62	
5,100.0	8.50	134.61	5,099.4	1,121.4	-8.8	9.0	12.6	5.00	639,059.56	758,958.06	
5,200.0	13.50	134.61	5,197.5	1,219.5	-22.2	22.5	31.7	5.00	639,046.16	758,971.64	



Pathfinder

Pathfinder X & Y Report



A Schlumberger Company

Company: Mack Energy
Project: Lea County
Site: Lea State
Well: #1
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:
Database:

Well #1
KB = 17' @ 3978 0usft (Original Well Elev)
KB = 17' @ 3978 0usft (Original Well Elev)
Grnd
Minimum Curvature
EDM 5000 1 Single User Db

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)
5,229.9	15.00	134.61	5,226.5	1,248.5	-27.4	27.8	39.0	5.00	639,040.99	758,976.89
5,300.0	15.00	134.61	5,294.2	1,316.2	-40.1	40.7	57.2	0.00	639,028.26	758,989.79
5,400.0	15.00	134.61	5,390.8	1,412.8	-58.3	59.1	83.0	0.00	639,010.09	759,008.22
5,500.0	15.00	134.61	5,487.4	1,509.4	-76.5	77.5	108.9	0.00	638,991.91	759,026.64
5,600.0	15.00	134.61	5,584.0	1,606.0	-94.7	96.0	134.8	0.00	638,973.74	759,045.06
5,700.0	15.00	134.61	5,680.6	1,702.6	-112.8	114.4	160.7	0.00	638,955.57	759,063.48
5,800.0	15.00	134.61	5,777.2	1,799.2	-131.0	132.8	186.5	0.00	638,937.39	759,081.90
5,900.0	15.00	134.61	5,873.8	1,895.8	-149.2	151.2	212.4	0.00	638,919.22	759,100.33
6,000.0	15.00	134.61	5,970.4	1,992.4	-167.4	169.6	238.3	0.00	638,901.05	759,118.75
6,100.0	15.00	134.61	6,067.0	2,089.0	-185.5	188.1	264.2	0.00	638,882.88	759,137.17
6,200.0	15.00	134.61	6,163.5	2,185.5	-203.7	206.5	290.1	0.00	638,864.70	759,155.59
6,300.0	15.00	134.61	6,260.1	2,282.1	-221.9	224.9	315.9	0.00	638,846.53	759,174.01
6,400.0	15.00	134.61	6,356.7	2,378.7	-240.0	243.3	341.8	0.00	638,828.36	759,192.44
6,500.0	15.00	134.61	6,453.3	2,475.3	-258.2	261.8	367.7	0.00	638,810.19	759,210.86
6,600.0	15.00	134.61	6,549.9	2,571.9	-276.4	280.2	393.6	0.00	638,792.01	759,229.28
6,700.0	15.00	134.61	6,646.5	2,668.5	-294.6	298.6	419.4	0.00	638,773.84	759,247.70
6,800.0	15.00	134.61	6,743.1	2,765.1	-312.7	317.0	445.3	0.00	638,755.67	759,266.12
6,900.0	15.00	134.61	6,839.7	2,861.7	-330.9	335.4	471.2	0.00	638,737.50	759,284.55
7,000.0	15.00	134.61	6,936.3	2,958.3	-349.1	353.9	497.1	0.00	638,719.32	759,302.97
7,100.0	15.00	134.61	7,032.9	3,054.9	-367.2	372.3	522.9	0.00	638,701.15	759,321.39
7,200.0	15.00	134.61	7,129.5	3,151.5	-385.4	390.7	548.8	0.00	638,682.98	759,339.81
7,300.0	15.00	134.61	7,226.1	3,248.1	-403.6	409.1	574.7	0.00	638,664.81	759,358.24
7,400.0	15.00	134.61	7,322.7	3,344.7	-421.8	427.6	600.6	0.00	638,646.63	759,376.66
7,500.0	15.00	134.61	7,419.3	3,441.3	-439.9	446.0	626.5	0.00	638,628.46	759,395.08
7,600.0	15.00	134.61	7,515.9	3,537.9	-458.1	464.4	652.3	0.00	638,610.29	759,413.50
7,700.0	15.00	134.61	7,612.5	3,634.5	-476.3	482.8	678.2	0.00	638,592.11	759,431.92
7,800.0	15.00	134.61	7,709.0	3,731.0	-494.5	501.2	704.1	0.00	638,573.94	759,450.35



Pathfinder Pathfinder X & Y Report



Company: Mack Energy
Project: Lea County
Site: Leo State
Well: #1
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:
Database:

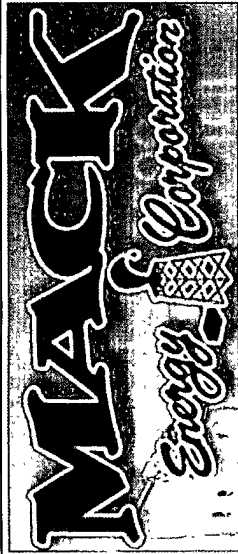
Well #1
KB = 17' @ 3978 Oustf (Original Well Elev)
KB = 17' @ 3978 Oustf (Original Well Elev)
Grid
Minimum Curvature
EDM 5000 1 Single User Db

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)	
7,900.0	15.00	134.61	7,805.6	3,827.6	-512.6	519.7	730.0	0.00	638,555.77	759,468.77	
8,000.0	15.00	134.61	7,902.2	3,924.2	-530.8	538.1	755.8	0.00	638,537.60	759,487.19	
8,100.0	15.00	134.61	7,998.8	4,020.8	-549.0	556.5	781.7	0.00	638,519.42	759,505.61	
8,200.0	15.00	134.61	8,095.4	4,117.4	-567.1	574.9	807.6	0.00	638,501.25	759,524.03	
8,300.0	15.00	134.61	8,192.0	4,214.0	-585.3	593.4	833.5	0.00	638,483.08	759,542.46	
8,400.0	15.00	134.61	8,288.6	4,310.6	-603.5	611.8	859.3	0.00	638,464.91	759,560.88	
8,415.4	15.00	134.61	8,303.5	4,325.5	-606.3	614.6	863.3	0.00	638,462.11	759,563.71	
8,500.0	10.77	134.61	8,385.9	4,407.9	-619.5	628.0	882.2	5.00	638,448.87	759,577.14	
8,600.0	5.77	134.61	8,484.9	4,506.9	-629.6	638.3	896.6	5.00	638,438.77	759,587.37	
8,700.0	0.77	134.61	8,584.7	4,606.7	-633.6	642.3	902.3	5.00	638,434.77	759,591.43	
8,715.3	0.00	0.00	8,600.0	4,622.0	-633.7	642.4	902.4	5.00	638,434.70	759,591.50	
8,800.0	0.00	0.00	8,684.7	4,706.7	-633.7	642.4	902.4	0.00	638,434.70	759,591.50	
8,900.0	0.00	0.00	8,784.7	4,806.7	-633.7	642.4	902.4	0.00	638,434.70	759,591.50	
9,000.0	0.00	0.00	8,884.7	4,906.7	-633.7	642.4	902.4	0.00	638,434.70	759,591.50	
9,100.0	0.00	0.00	8,984.7	5,006.7	-633.7	642.4	902.4	0.00	638,434.70	759,591.50	
9,115.3	0.00	0.00	9,000.0	5,022.0	-633.7	642.4	902.4	0.00	638,434.70	759,591.50	

Checked By: _____

Approved By: _____

Date: _____



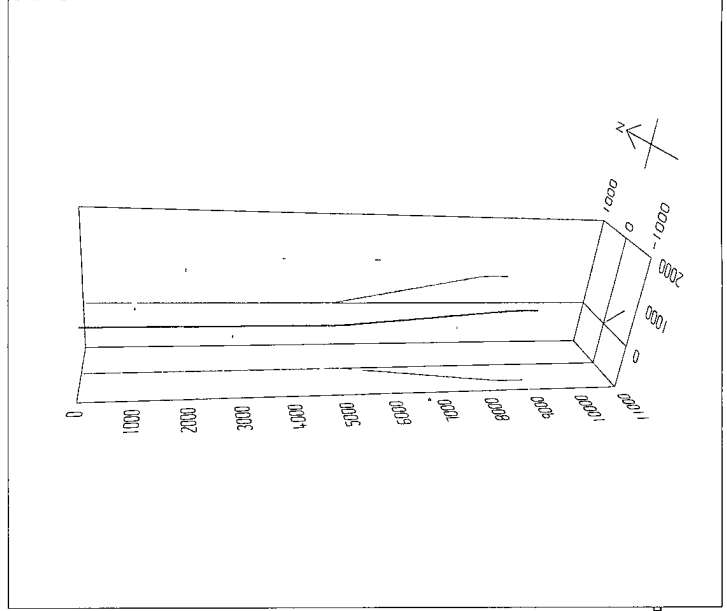
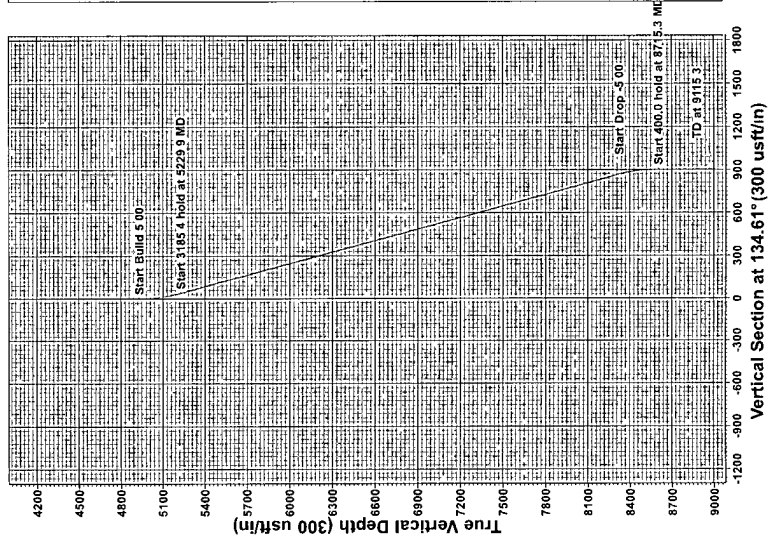
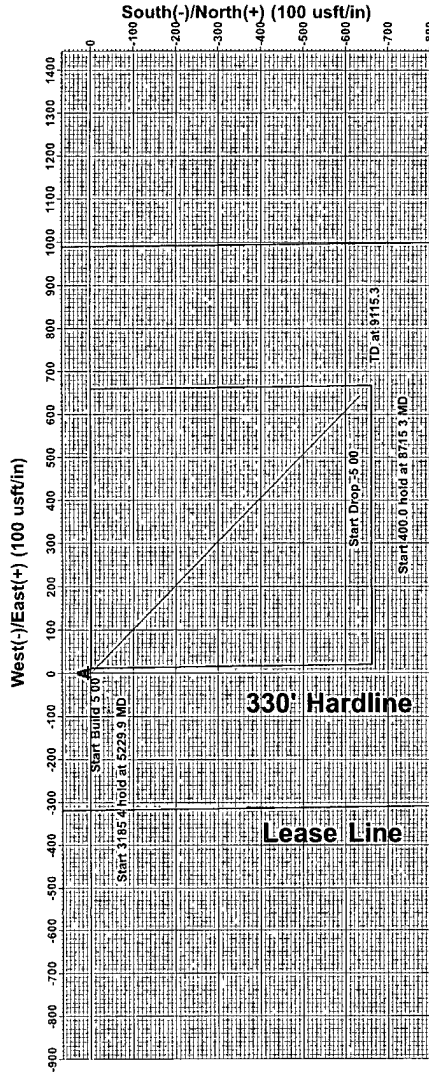
G M
T Azimuths to Grid North
True North: -0.46°
Magnetic North: 7.06°
Magnetic Field
Strength: 48929.1nT
Dip Angle: 60.70°
Date: 12/8/2011
Model: IGRF200510

PATHFINDER®

A Schlumberger Company

Project: Lea County
Site: Leo State
Well: #1
Wellbore: OH
Plan: Plan #1 (#1/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- #1

Ground Elevation: 3981.0
RKB Elevation: KS = 17 @ 3978 Quast (Original Well Elev)
Rig Name
+N/S +E/W Northing Easting Latitude Longitude Slot
0 0 0 0 63968 400 75895 100 32°45' 14.922 N 103°29' 27.768 W

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	0.00	0.00	0.00	0.0	0.0
2	493.0	0.00	493.0	493.0	0.0	0.00	0.00	0.00	0.0	0.0
3	5229.9	15.00	134.61	5226.5	-27.4	27.8	5.00	134.61	39.0	39.0
4	8415.4	15.00	134.61	8303.5	-606.3	614.6	0.00	0.00	863.3	863.3
5	8715.3	0.00	0.00	8600.0	-633.7	642.4	5.00	180.00	902.4	902.4
6	9115.3	0.00	0.00	9000.0	-633.7	642.4	0.00	0.00	902.4	902.4

BHL (Leo State #1)

DESIGN TARGET DETAILS

Name	TVD	+N/S	+E/W	Northing	Easting
BHL (Leo State #1)	9000.0	-633.7	642.4	638434.700	795991.500

Plan Plan #1 (#1/OH)

Created By: Michael Trout Date: 14.31, December 08 2011

Checked: _____ Date: _____

West County
Lea County
Original Well Elev
Plan #1