ATS-13-103

Form 3160-3
(April 2004)

OCD Artesia

FORM APPROVED
OMB No. 1004-0137
Expires March 31, 2007

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.
NMNM-89882

6. If Indian, Allotee or Tribe Name

TQS 2/13/2013

1a. Type of work: ☒ DRILL ☐ REENTER

7 If Unit or CA Agreement, Name and No.

1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone

8. Lease Name and Well No.
Razorback Federal #7 c 38891

2. Name of Operator
Mack Energy Corporation c 13837

9. API Well No.
30-015-41098

3a. Address
P.O. Box 960 Artesia, NM 88211-0960

3b. PhoneNo. *(include area code)*
(575)748-1288

10. Field and Pool, or Exploratory
Tamano; San Andres c 58060

4. Location of Well *(Report location clearly and inaccorounce with any State requirements*)*

At surface 1372 FNL & 1331 FWL

At proposed prod. zone 1675 FNL & 1675 FWL

11. Sec., T. R. M. or Blk. and Survey or Area
Sec. 3 T18S R31E

14. Distance in miles and direction from nearest town or post office*
6 miles SW of Maljamar, NM

12. County or Parish
Eddy

13. State
NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drlg. unit line, if any) ~~1'~~ 133'	16. No. of acres in lease	17. Spacing Unit dedicated to this well
	640.26	40
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.	**19. Proposed Depth**	**20. BLM/BIA Bond No. on file**
40'	5589' M = 5500' V	NMB000286
21. Elevations (Show whether DF, KDB, RT, GL, etc.)	**22 Approximate date work will start***	**23. Estimated duration**
3749' GL	11/30/2012	15 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, shall be attached to this form:

1. Well plat certified by a registered surveyor.
2. A Drilling Plan.
3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO shall be filed with the appropriate Forest Service Office).
4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above),
5. Operator certification
6. Such other site specific information and/or plans as may be required by the authorized officer.

25. Signature	Name *(Printed/Typed)*	Date
Jerry W. Sherrell	Jerry W. Sherrell	10-30-2012
Title		
Production Clerk		
Approved by *(Signature)* /s/ Don Peterson	**Name *(Printed/Typed)*** /s/ Don Peterson	**Date** FEB -7 2013
Title FIELD MANAGER	**Office** CARLSBAD FIELD OFFICE	

Application approval does not warrantor certify that the applicant holds lega orequitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

APPROVAL FOR TWO YEARS

Title 18 U.S.C. Section 1001 and Tide 43 U.S.C. Section 1212, make it a crime for any person knowirilly and willfully to make to any department or agency ofthe United States any false, fictitious or fraudulent statements or representations as to any matter within its juris iction.

(Instructions on page 2)

Capitan Controlled Water Basin

RECEIVED
FEB 11 2013
NMOCD ARTESIA

Approval Subject to General Requirements & Special Stipulations Attached

SEE ATTACHED FOR CONDITIONS OF APPROVAL

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
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
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102
Revised August 1, 2011
Submit one copy to appropriate District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
30-015-41098	58060	Tamano; San Andres

[4] Property Code	[5] Property Name	[6] Well Number
~~38650~~ 38891	RAZORBACK FEDERAL	7

[7] OGRID No.	[8] Operator Name	[9] Elevation
13837	MACK ENERGY CORPORATION	3749.4

[10] Surface Location

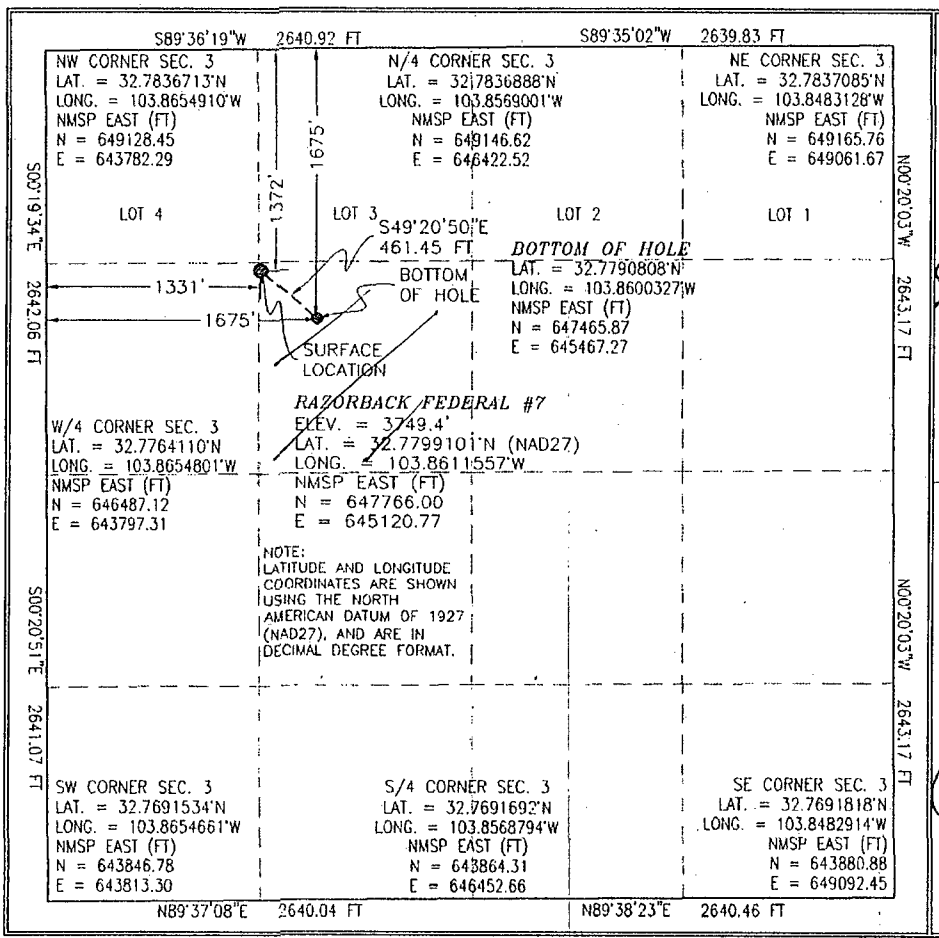
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
F	3	18 S	31 E		1372	NORTH	1331	WEST	EDDY

[11] 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
F	3	18 S	31 E		1675	NORTH	1675	WEST	EDDY

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] 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.



[17] OPERATOR CERTIFICATION

I hereby certify that the information contained 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 a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Jerry W. Sherrell 10-30-2012
Signature Date

Jerry W. Sherrell
Printed Name

jerrys@mec.com
E-mail Address

[18] 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.

OCTOBER 23, 2012
Date of Survey

Signature and Seal of Professional Surveyor

Certificate Number EDMUND F. JARAMILLO PLS 12797
SURVEY NO. 1312R

APD CERTIFICATION

I hereby certify that I, or person under my direct supervision, have inspected the proposed drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have full knowledge of State and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and the work associated with the operations proposed herein will be performed in conformity with this APD package and terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.

Date: 10-30-2012 Signed: Jerry W. Sherrell

Jerry W. Sherrell

Attached to Form 3160-3
Mack Energy Corporation
Razorback Federal #7
SL: 1372 FNL & 1331 FWL, SE/NW, Sec. 3 T18S R31E
BHL: 1675 FNL & 1675 FWL, SENW, Sec. 3 T18S R31E
Eddy County, NM

DRILLING PROGRAM

1. Geologic Name of Surface Formation

Quaternary

2. Estimated Tops of Important Geologic Markers:

Rustler	718'		
TOS	910'	Queen	3153'
BOS	2040'	Grayburg	3584'
Yates	2042'	San Andres	4156'
Seven Rivers	2478'		

3. Estimated Depths of Anticipated Fresh Water, Oil and Gas:

Water Sand	150'	Fresh Water
Yates	2042'	Oil/Gas
Queen	3153'	Oil/Gas
San Andres	4156'	Oil/Gas

No other formations are expected to give up oil, gas or fresh water in measurable quantities. Setting 13 3/8" casing to 800' and circulating cement back to surface will protect the surface fresh water sand. Salt section and zones will be protected by the 8 5/8" casing at 2050'and circulating cement back to surface. Any shallower zones above TD, which contain commercial quantities of oil and/or gas, will have cement circulated across them by cementing 5 ½" production casing, sufficient cement will be pumped to circulate back to surface.

4. Casing Program:

Hole Size	Interval	OD Casing	Wt, Grade, Jt, cond, collapse/burst/tension
17 1/2"	0-~~800'~~ 765	13 3/8"	48#,H-40, ST&C, New, 1.85/3.34/3.46
12 ¼"	0-2050'	8 5/8"	32#, J-55, ST&C, New, 2.326/8.210/7.86
7 7/8"	0-5589'	5 ½"	17#,L-80,LT&C, New, 2.36/2.41/2.58

SOC cont

5. Cement Program:

13 3/8" Surface Casing: Lead 500sx, Class C + 4% PF20 + .25% PF29, yield 1.75, excess 100% ,Tail 200sx Class C 1% PF1, yield 1.34.
8 5/8" Intermediate Casing: Lead 707sx, Class C + 4% PF20 + 2% PF1+ .25#/sk PF29, yield 1.75, excess 100%, Tail 350sx Class C 1% PF1, yield 1.34
5 ½" Production Casing: Lead 385sx POZ/C + 5% PF44 + 6% PF 20 + 1.5% PF 112 + .125/sk PF29 + .2# sk PF42 + .2% PF 46 + .2% PF13, yield 1.95, excess 35%, Tail 425sx PVL + 2% PF167 + .2% PF65 +.2% PF46 + .2% PF13 , yield 1.47.

6. Minimum Specifications for Pressure Control:

The blowout preventer equipment (BOP) shown in Exhibit #10 will consist of a double ram-type (3000 psi WP) minimum preventer, with annular. This unit will be hydraulically operated and the ram type preventer will be equipped with blind rams on top of 4 1/2" drill pipe rams on bottom. The 13 5/8" BOP will be nipped up on the 13 3/8" surface casing and tested by a 3rd party to 2000 psi. The 13 5/8" BOP will then be nipped up on the 8 5/8" casing using a double stud adapter and used continuously until TD is reached. All BOP's and accessory equipment will be tested to 2000 psi before drilling out of intermediate casing. Pipe rams will be operationally checked each 24-hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment (Exhibit #11) will include a Kelly cock and floor safety valve and choke lines and choke manifold (Exhibit #12) with a minimum 3000 psi WP rating

7. Types and Characteristics of the Proposed Mud System:

The well will be drilled to TD with a combination of brine and cut brine mud system. The applicable depths and properties of this system are as follows:

DEPTH	TYPE	WEIGHT	VISCOSITY	WATERLOSS
0-800' 785	Fresh Water	8.5	28	N.C.
800-2050	Brine	10	30	N.C.
2050'-TD'	Brine	9.1	29	N.C.

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept at the well site at all times.

8. Auxiliary Well Control and Monitoring Equipment:

A. Kelly cock will be kept in the drill string at all times.
B. A full opening drill pipe-stabbing valve with proper drill pipe connections will be on the rig floor at all times.
C. If gas is encountered. Well will be shut-in and a Mud Gas Seperator will be installed.

9. Logging, Testing and Coring Program: SEE COA

A. The electric logging program will consist of GR-Dual Laterolog, Spectral Density, Dual Spaced Neutron, CSNG Log from T.D. to 8 5/8 casing shoe.
B. Drill Stem test is not anticipated.
C. No conventional coring is anticipated.
D. Further testing procedures will be determined at TD.

10. Abnormal Conditions, Pressures, Temperatures and Potential Hazards:

No abnormal pressures or temperatures are anticipated. The estimated bottom hole at TD is 120 degrees and estimated maximum bottom hole pressure is 2,268 psig. Low levels of

Hydrogen sulfide have been monitors in producing wells in the area, so H2S may be present while drilling of the well; a plan is attached to the Drilling program. No major loss of circulation zones has been reported in offsetting wells.

11. Anticipated Starting Date and Duration of Operations:

Road and location work will not begin until approval has been received from the BLM. The anticipated spud date is November 30, 2012. Once commenced, the drilling operation should be finished in approximately 15 days. If the well is productive, an additional 30 days will be required for completion and testing before a decision is made to install permanent facilities.

Attachment to Exhibit #10
NOTES REGARDING THE BLOWOUT PREVENTERS
Razorback Federal #7
Eddy County, New Mexico

1. Drilling nipple to be so constructed that it can be removed without use of a welder through rotary table opening, with minimum I.D. equal to preventer bore.
2. Wear ring to be properly installed in head.
3. Blow out preventer and all fittings must be in good condition, 2000 psi WP minimum.
4. All fittings to be flanged.
5. Safety valve must be available on rig floor at all times with proper connections, valve to be full 2000 psi WP minimum.
6. All choke and fill lines to be securely anchored especially ends of choke lines.
7. Equipment through which bit must pass shall be at least as large as the diameter of the casing being drilled through.
8. Kelly cock on Kelly.
9. Extension wrenches and hands wheels to be properly installed.
10. Blow out preventer control to be located as close to driller's position as feasible.
11. Blow out preventer closing equipment to include minimum 40-gallon accumulator, two independent sources of pump power on each closing unit installation all API specifications.

Mack Energy Corp

Eddy County
Razorback Federal #7
Federal #7
#7

Plan: Plan #1

MEC Survey Report

24 October, 2012

Company:	Mack Energy Corp	**Local Co-ordinate Reference:**	Site Razorback Federal #7
Project:	Eddy County	**TVD Reference:**	WELL @ 3766.4usft (Original Well Elev)
Site:	Razorback Federal #7	**MD Reference:**	WELL @ 3766.4usft (Original Well Elev)
Well:	Federal #7	**North Reference:**	Grid
Wellbore:	#7	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #1	**Database:**	EDM 5000.1 Single User Db

Project Eddy 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 Razorback Federal #7

Site Position:		**Northing:**	647,766.00 usft	**Latitude:**	32° 46' 47.676 N
From:	Map	**Easting:**	645,120.77 usft	**Longitude:**	103° 51' 40.161 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.26 °

Well Federal #7

Well Position	**+N/-S**	0.0 usft	**Northing:**	647,766.00 usft	**Latitude:**	32° 46' 47.676 N
	+E/-W	0.0 usft	**Easting:**	645,120.77 usft	**Longitude:**	103° 51' 40.161 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	usft	**Ground Level:**	3,749.4 usft

Wellbore #7

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	10/24/2012	7.59	60.64	48,821

Design Plan #1

Audit Notes:

Version:		**Phase:**	PROTOTYPE	**Tie On Depth:**	0.0

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	130.90

Survey Tool Program **Date** 10/24/2012

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	5,588.3	Plan #1 (#7)		

Company:	Mack Energy Corp	**Local Co-ordinate Reference:**	Site Razorback Federal #7
Project:	Eddy County	**TVD Reference:**	WELL @ 3766.4usft (Original Well Elev)
Site:	Razorback Federal #7	**MD Reference:**	WELL @ 3766.4usft (Original Well Elev)
Well:	Federal #7	**North Reference:**	Grid
Wellbore:	#7	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #1	**Database:**	EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	647,766.00	645,120.77
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	647,766.00	645,120.77
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	647,766.00	645,120.77
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	647,766.00	645,120.77
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	647,766.00	645,120.77
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	647,766.00	645,120.77
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	647,766.00	645,120.77
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	647,766.00	645,120.77
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	647,766.00	645,120.77
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	647,766.00	645,120.77
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	647,766.00	645,120.77
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	647,766.00	645,120.77
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	647,766.00	645,120.77
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	647,766.00	645,120.77
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	647,766.00	645,120.77
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	647,766.00	645,120.77
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	647,766.00	645,120.77
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	647,766.00	645,120.77
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	647,766.00	645,120.77
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	647,766.00	645,120.77
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	647,766.00	645,120.77
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	647,766.00	645,120.77
2,150.0	0.00	0.00	2,150.0	0.0	0.0	0.0	0.00	647,766.00	645,120.77
2,200.0	2.03	130.90	2,200.0	-0.6	0.7	0.9	4.05	647,765.42	645,121.44
2,300.0	6.08	130.90	2,299.7	-5.2	6.0	8.0	4.05	647,760.79	645,126.78
2,400.0	10.13	130.90	2,398.7	-14.4	16.7	22.1	4.05	647,751.56	645,137.44
2,500.0	14.19	130.90	2,496.4	-28.2	32.6	43.1	4.05	647,737.77	645,153.36

Company:	Mack Energy Corp	**Local Co-ordinate Reference:**	Site Razorback Federal #7
Project:	Eddy County	**TVD Reference:**	WELL @ 3766.4usft (Original Well Elev)
Site:	Razorback Federal #7	**MD Reference:**	WELL @ 3766.4usft (Original Well Elev)
Well:	Federal #7	**North Reference:**	Grid
Wellbore:	#7	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #1	**Database:**	EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
2,600.0	18.24	130.90	2,592.4	-46.5	53.7	71.0	4.05	647,719.49	645,174.46
2,700.0	22.30	130.90	2,686.2	-69.2	79.9	105.7	4.05	647,696.82	645,200.64
2,800.0	26.35	130.90	2,777.3	-96.1	111.0	146.8	4.05	647,669.86	645,231.76
2,896.8	30.27	130.90	2,862.6	-126.2	145.7	192.8	4.05	647,639.80	645,266.47
2,900.0	30.27	130.90	2,865.3	-127.2	146.9	194.4	0.00	647,638.75	645,267.68
3,000.0	30.27	130.90	2,951.7	-160.3	185.0	244.8	0.00	647,605.75	645,305.78
3,041.4	30.27	130.90	2,987.4	-173.9	200.8	265.7	0.00	647,592.07	645,321.57
3,100.0	27.90	130.90	3,038.6	-192.6	222.3	294.1	4.05	647,573.43	645,343.09
3,200.0	23.85	130.90	3,128.6	-221.1	255.3	337.8	4.05	647,544.87	645,376.07
3,300.0	19.79	130.90	3,221.4	-245.5	283.4	374.9	4.05	647,520.54	645,404.16
3,400.0	15.74	130.90	3,316.6	-265.4	306.4	405.4	4.05	647,500.56	645,427.22
3,500.0	11.68	130.90	3,413.7	-281.0	324.4	429.1	4.05	647,485.05	645,445.13
3,600.0	7.63	130.90	3,512.3	-291.9	337.0	445.9	4.05	647,474.07	645,457.81
3,700.0	3.58	130.90	3,611.8	-298.3	344.4	455.7	4.05	647,467.67	645,465.19
3,788.3	0.00	0.00	3,700.0	-300.1	346.5	458.4	4.05	647,465.87	645,467.27
3,800.0	0.00	0.00	3,711.7	-300.1	346.5	458.4	0.00	647,465.87	645,467.27
3,900.0	0.00	0.00	3,811.7	-300.1	346.5	458.4	0.00	647,465.87	645,467.27
4,000.0	0.00	0.00	3,911.7	-300.1	346.5	458.4	0.00	647,465.87	645,467.27
4,100.0	0.00	0.00	4,011.7	-300.1	346.5	458.4	0.00	647,465.87	645,467.27
4,200.0	0.00	0.00	4,111.7	-300.1	346.5	458.4	0.00	647,465.87	645,467.27
4,300.0	0.00	0.00	4,211.7	-300.1	346.5	458.4	0.00	647,465.87	645,467.27
4,400.0	0.00	0.00	4,311.7	-300.1	346.5	458.4	0.00	647,465.87	645,467.27
4,500.0	0.00	0.00	4,411.7	-300.1	346.5	458.4	0.00	647,465.87	645,467.27
4,600.0	0.00	0.00	4,511.7	-300.1	346.5	458.4	0.00	647,465.87	645,467.27
4,700.0	0.00	0.00	4,611.7	-300.1	346.5	458.4	0.00	647,465.87	645,467.27
4,800.0	0.00	0.00	4,711.7	-300.1	346.5	458.4	0.00	647,465.87	645,467.27
4,900.0	0.00	0.00	4,811.7	-300.1	346.5	458.4	0.00	647,465.87	645,467.27

Company:	Mack Energy Corp	**Local Co-ordinate Reference:**	Site Razorback Federal #7
Project:	Eddy County	**TVD Reference:**	WELL @ 3766.4usft (Original Well Elev)
Site:	Razorback Federal #7	**MD Reference:**	WELL @ 3766.4usft (Original Well Elev)
Well:	Federal #7	**North Reference:**	Grid
Wellbore:	#7	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #1	**Database:**	EDM 5000.1 Single User Db

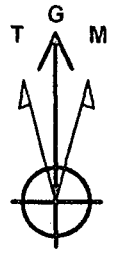
Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
5,000.0	0.00	0.00	4,911.7	-300.1	346.5	458.4	0.00	647,465.87	645,467.27
5,100.0	0.00	0.00	5,011.7	-300.1	346.5	458.4	0.00	647,465.87	645,467.27
5,200.0	0.00	0.00	5,111.7	-300.1	346.5	458.4	0.00	647,465.87	645,467.27
5,300.0	0.00	0.00	5,211.7	-300.1	346.5	458.4	0.00	647,465.87	645,467.27
5,400.0	0.00	0.00	5,311.7	-300.1	346.5	458.4	0.00	647,465.87	645,467.27
5,500.0	0.00	0.00	5,411.7	-300.1	346.5	458.4	0.00	647,465.87	645,467.27
5,588.3	0.00	0.00	5,500.0	-300.1	346.5	458.4	0.00	647,465.87	645,467.27

Checked By: _____ Approved By: _____ Date: _____

MACK Energy Corporation

SITE DETAILS: Razorback Federal #7
Site Centre Northing: 647766.00
Easting: 645120.77
Positional Uncertainity: 0.0
Convergence: 0.26
Local North: Grid



Azimuths to Grid North
True North: -0.26°
Magnetic North: 7.33°

Magnetic Field
Strength: 48821.4snT
Dip Angle: 60.64°
Date: 10/24/2012
Model: IGRF200510

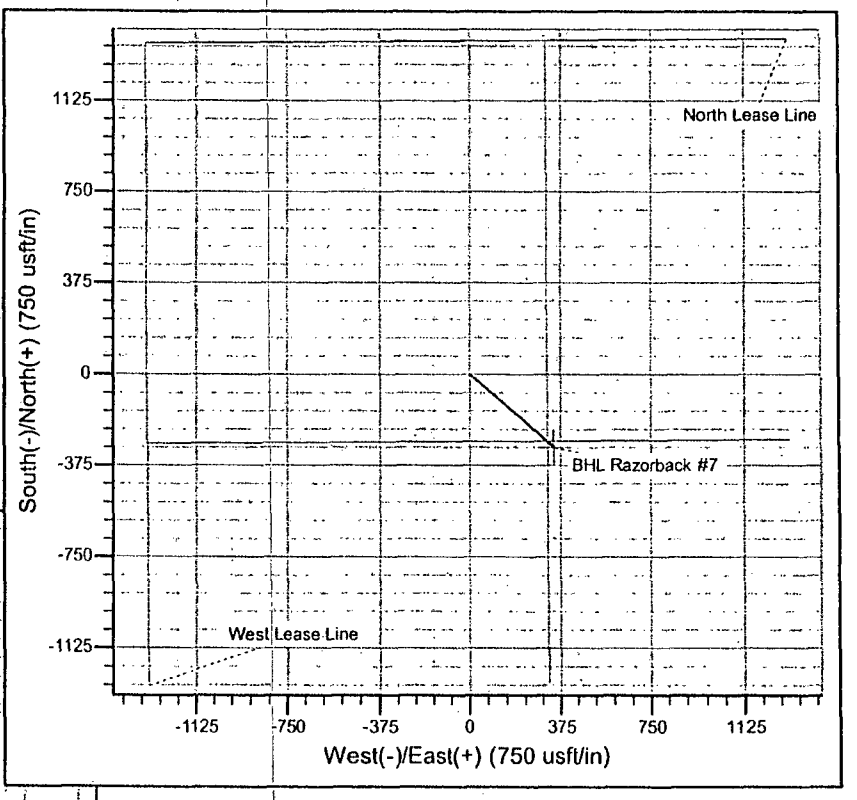
SECTION DETAILS

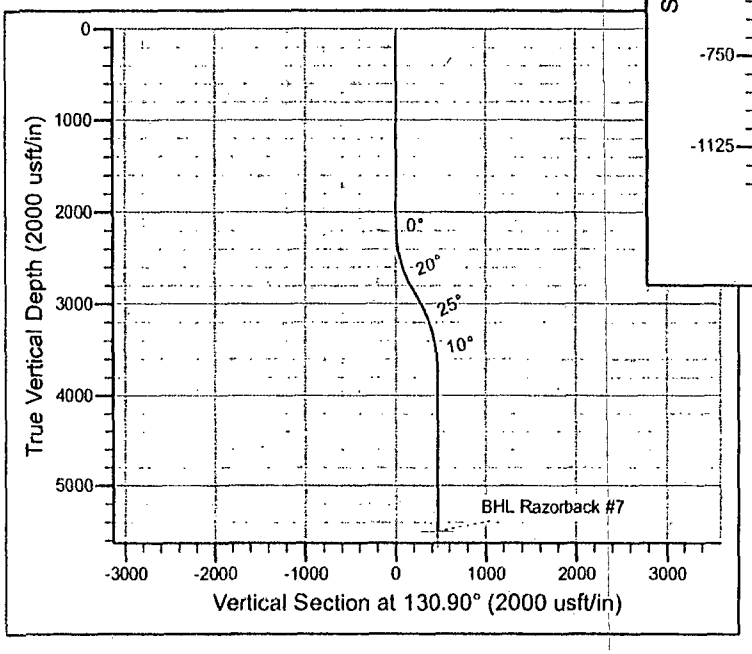
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	2150.0	0.00	0.00	2150.0	0.0	0.0	0.00	0.00	0.0	
3	2896.8	30.27	130.90	2862.6	-126.2	145.7	4.05	130.90	192.8	
4	3041.4	30.27	130.90	2987.4	-173.9	200.8	0.00	0.00	265.7	
5	3788.3	0.00	0.00	3700.0	-300.1	346.5	4.05	180.00	458.4	
6	5588.3	0.00	0.00	5500.0	-300.1	346.5	0.00	0.00	458.4	BHL Razorback #7

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
BHL Razorback #7	5500.0	-300.1	346.5	647465.87	645467.22	32° 46' 44.691 N	103° 51' 36.118 W	Point
- plan hits target center								

1650FNL and 1650FWL are Hard Lines. We can be south, east, or southeast of these hard lines, but not north, west, or northwest. From BHL the well is 25' south of the north hardline and 25' east of the west hardline.





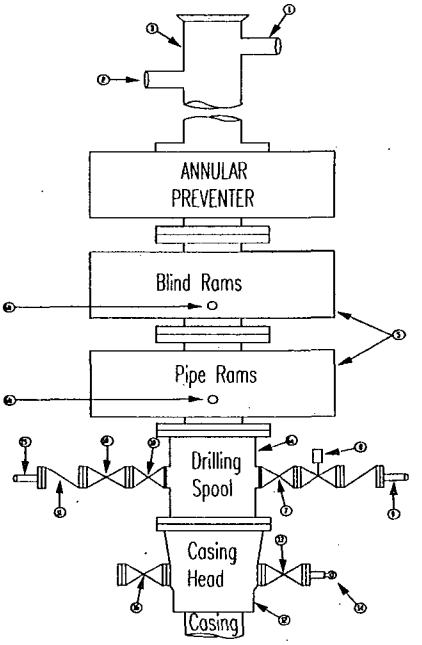
Mack Energy Corporation
Minimum Blowout Preventer Requirements
3000 psi Working Pressure
13 5/8 inch- 3 MWP
11 Inch - 3 MWP
EXHIBIT #10

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	



CONTRACTOR'S OPTION TO 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.
10. ME

MEC TO FURNISH:

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

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.
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.

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

Mack Energy Corporation

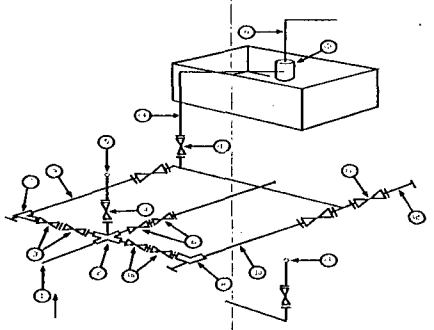
Exhibit #11

MIMIMUM 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

Mimimum 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 quage			3,000			5,000			10,000
15	Gas Separator		2' x5'			2' x5'			2' x5'	
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.

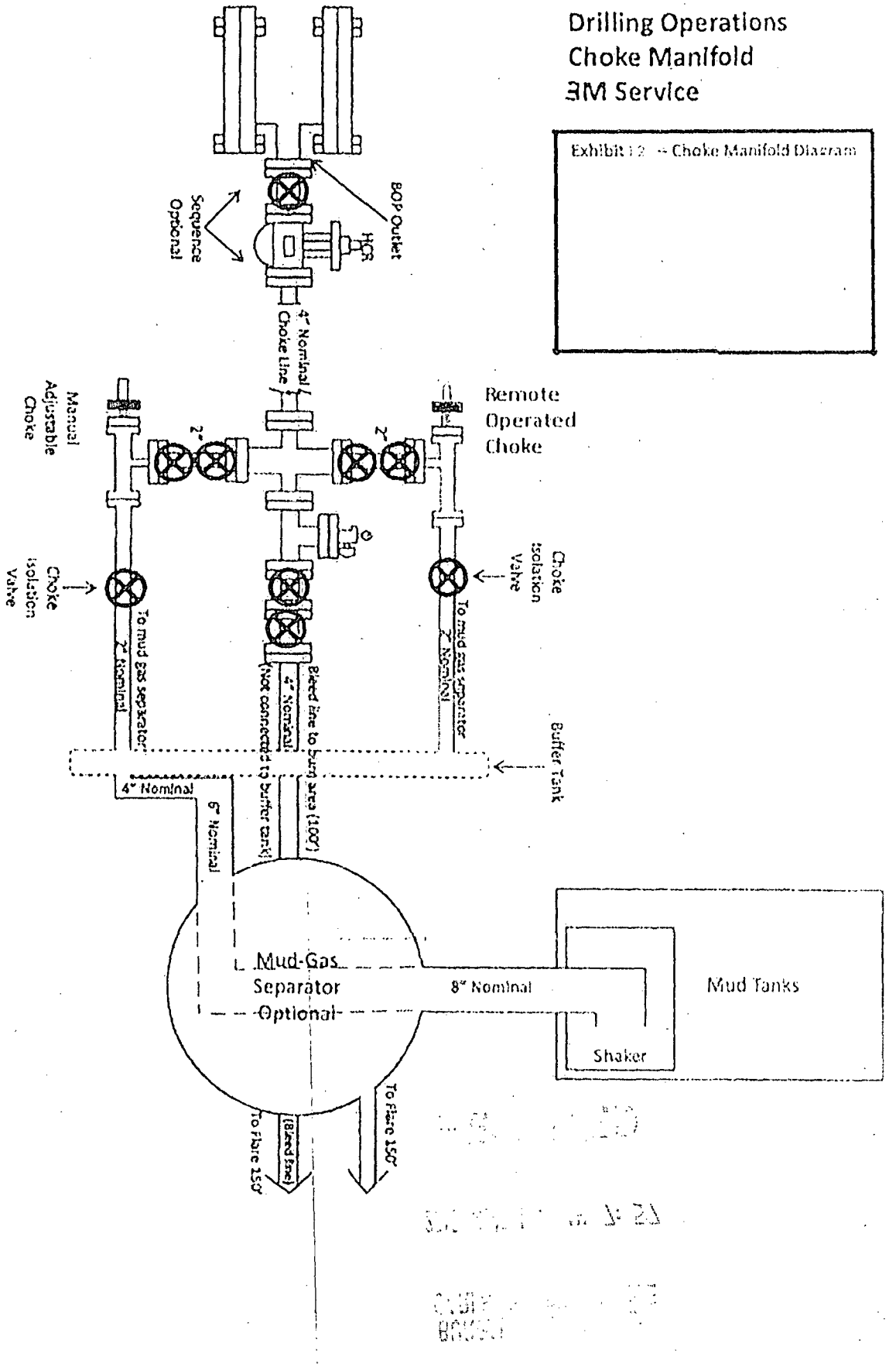
EQUIPMENT SPECIFICATIONS AND INSTALLATION INSTRUCTION

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 bee as straight as possible. Lines downstream from chokes shall make turns by large bends or 90 degree bends using bull plugged tees

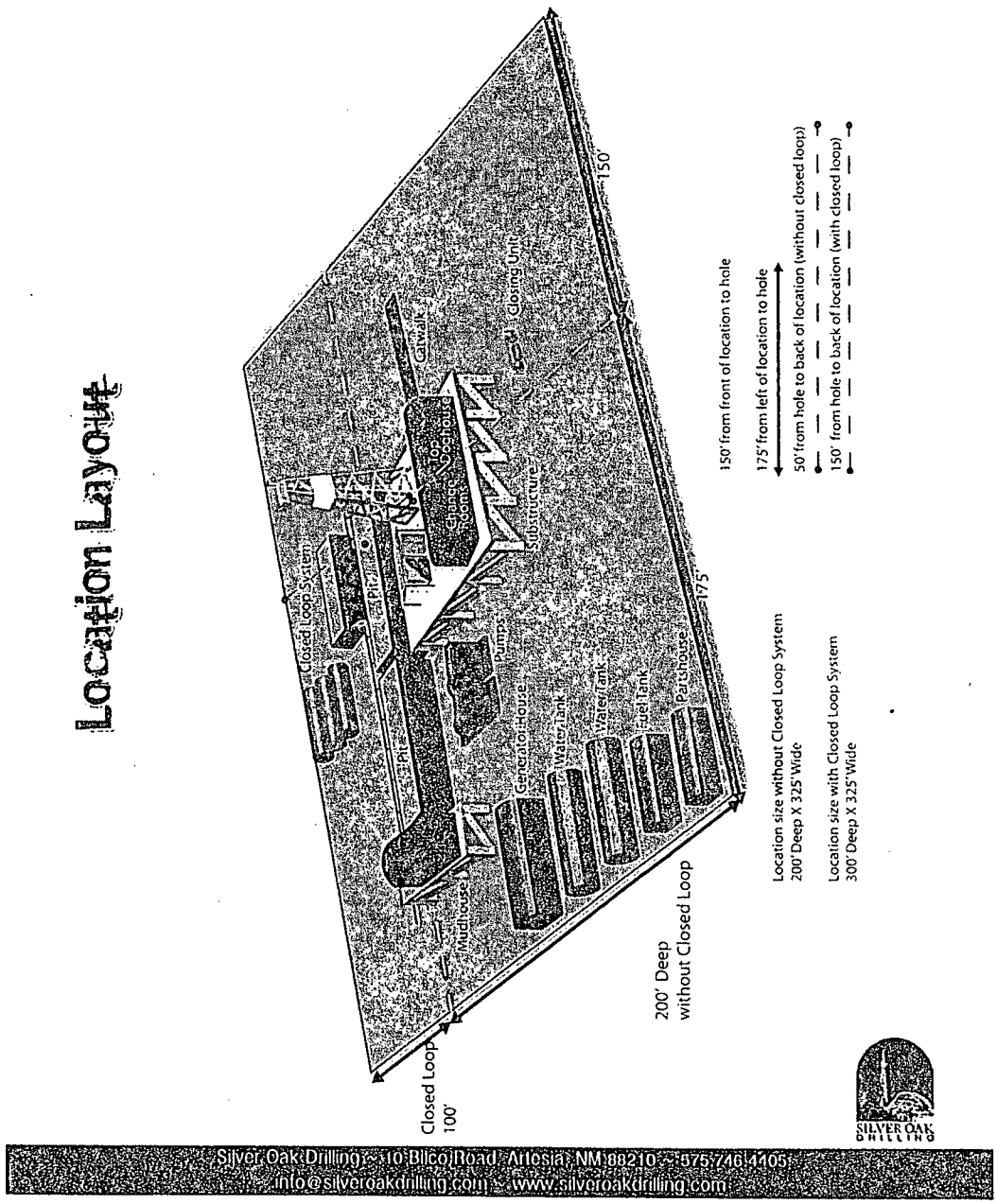
Mack Energy Corporation

MANIFOLD SCHEMATIC

Exhibit #12



DRILLING LOCATION H2S SAFTY EQUIPMENT
Exhibit # 8



Attached to Form 3160-3
Mack Energy Corporation
Razorback Federal #7
SL: 1372 FNL & 1331 FWL, SE/NW, Sec. 3 T18S R31E
BHL: 1675 FNL & 1675 FWL, SENW, Sec. 3 T18S R31E
Eddy County, NM

Mack Energy Corporation
Onshore Order #6
Hydrogen Sulfide Drilling Operation Plan

I. HYDROGEN SULFIDE TRAINING

All personnel, whether regularly assigned, contracted, or employed on an unscheduled basis, will receive training from a qualified instructor in the following areas prior to commencing drilling operations on this well:

1. The hazards an characteristics of hydrogen sulfide (H2S)
2. The proper use and maintenance of personal protective equipment and life support systems.
3. The proper use of H2S detectors alarms warning systems, briefing areas, evacuation procedures, and prevailing winds.
4. The proper techniques for first aid and rescue procedures.

In addition, supervisory personnel will be trained in the following areas:

1. The effects of H2S on metal components. If high tensile tubular are to be used, personnel well be trained in their special maintenance requirements.
2. Corrective action and shut-in procedures when drilling or reworking a well and blowout prevention and well control procedures.
3. The contents and requirements of the H2S Drilling Operations Plan and Public Protection Plan.

There will be an initial training session just prior to encountering a known or probable H2S zone (within 3 days or 500 feet) and weekly H2S and well control drills for all personnel in each crew. The initial training session shall include a review of the site specific H2S Drilling Operations Plan and the Public Protection Plan. The concentrations of H2S at wells in this area from surface to TD are low enough that a contingency plan is not required.

II. H2S SAFETY EQUIPMENT AND SYSTEMS

Note: All H2S safety equipment and systems will be installed, tested, and operational when drilling reaches a depth of 500 feet above, or three days prior to penetrating the first zone containing or reasonable expected to contain H2S.

1. **Well Control Equipment:**

   A. Flare line.
   B. Choke manifold w/remotely operated choke.
   C. Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit.

D. Auxiliary equipment may include if applicable: annular preventer & rotating head.

2. Protective equipment for essential personnel:

A. Mark II Survive air 30-minute units located in the doghouse and at briefing areas, as indicated on well site diagram.

3. H2S detection and monitoring equipment:

A. 1 portable H2S monitors positioned on location for best coverage and response. These units have warning lights and audible sirens when H2S levels of 20 PPM are reached.

4. Visual warning systems:

A. Wind direction indicators as shown on well site diagram (Exhibit #8).
B. Caution/Danger signs (Exhibit #7) shall be posted on roads providing direct access to location. Signs will be painted a high visibility yellow with black lettering of sufficient size to be readable at a reasonable distance from the immediate location. Bilingual signs will be used, when appropriate. See example attached.

5. Mud program:

A. The mud program has been designed to minimize the volume of H2S circulated to surface. Proper mud weight, safe drilling practices and the use of H2S scavengers will minimize hazards when penetrating H2S bearing zones.

6. Metallurgy:

A. All drill strings, casings, tubing, wellhead, blowout preventer, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H2S service.
B. All elastomers used for packing and seals shall be H2S trim.

7. Communication:

A. Cellular communications in company vehicles including hand held devices.
B. Land line (telephone) communication at Office.

8. Well testing:

A. Drill stem testing will be performed with a minimum number of personnel in the immediate vicinity, which are necessary to safely and adequately conduct the test. The drill stem testing will be conducted during daylight hours and formation fluids will not be flowed to the surface. All drill-stem-testing operations conducted in an H2S environment will use the closed chamber method of testing.

B. There will be no drill stem testing.

EXHIBIT #7

WARNING

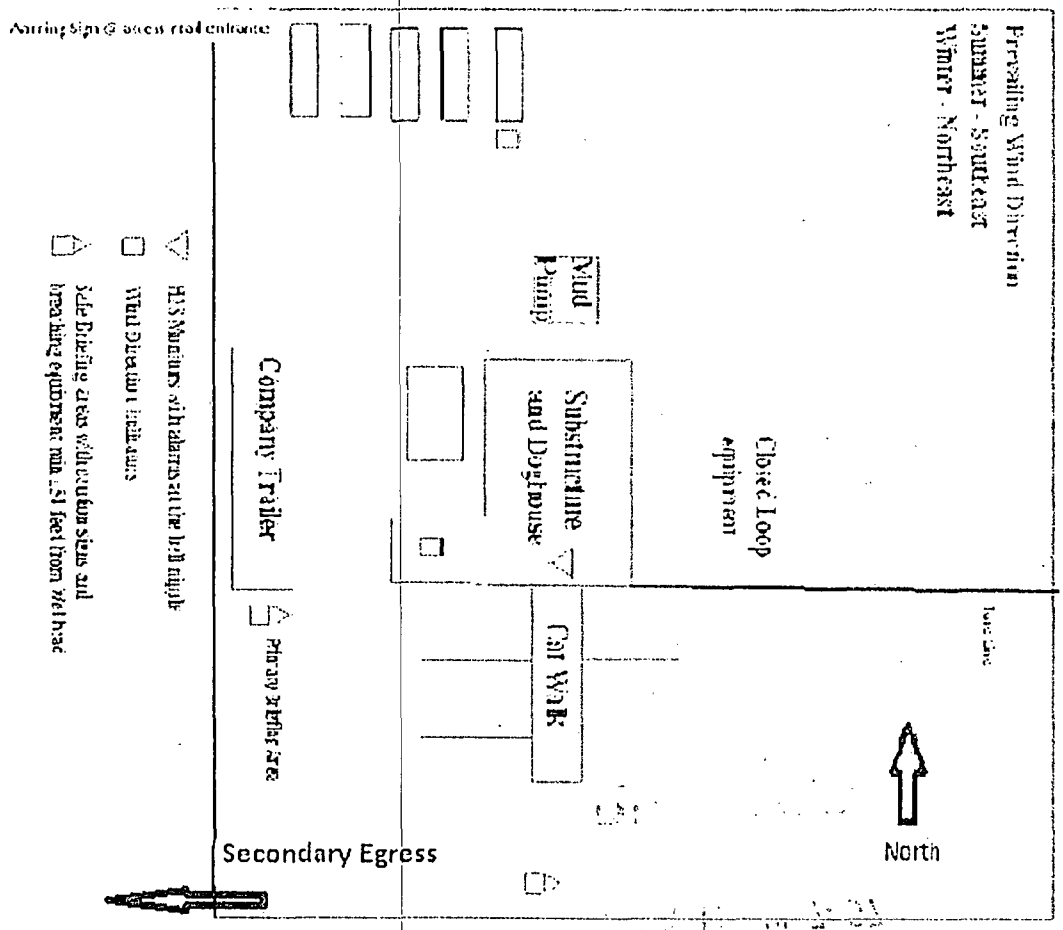
YOU ARE ENTERING AN H2S

AUTHORIZED PERSONNEL ONLY

1. BEARDS OR CONTACT LENSES NOT ALLOWED
2. HARD HATS REQUIRED
3. SMOKING IN DESIGNATED AREAS ONLY
4. BE WIND CONSCIOUS AT ALL TIMES
5. CHECK WITH MACK ENERGY FOREMAN AT OFFICE

MACK ENERGY CORPORATION

1-575-748-1288



Mack Energy Corporation Call List, Eddy County

Artesia (575)	Cellular	Office	Home
Jim Krogman	432-934-1596	748-1288	746-2674
Donald Archer	748-7875	748-1288	748-2287
Chris Davis	432-934-7846	748-1288	
Emilio Martinez	432-934-7586	748-1288	
Matt Buckles	432-212-3732	748-1288	
Kevin Garrett	432-934-7948	748-1288	

Agency Call List (575)

Artesia

State Police	746-2703
City Police	746-2703
Sheriff's Office	746-9888
Ambulance	911
Fire Department	746-2701
LEPC (Local Emergency Planning Committee	746-2122
NMOCD	748-1283

Carlsbad

State Police	885-3137
City Police	885-2111
Sheriff's Office	887-7551
Ambulance	911
Fire Department	885-2111
LEPC (Local Emergency Planning Committee	887-3798
Bureau of Land Management	887-6544
New Mexico Emergency Response Commission	(505)476-9690
24 Hour	(505)827-9126
Natonal Emergency Response Center (Washington)	(800)424-8802

Emergency Services

Boots & Coots IWC	1-800-256-9688 or (281)931-8884
Cudd pressure Control	(915)699-0139 or (915)563-3356
Halliburton	746-2757
B. J. Services	746-3569
Flight For Life-Lubbock, TX	(806)743-9911
Aerocare-Lubbock, TX	(806)747-8923
Med Flight Air Amb-Albuquerque, NM	(505)842-4433
Lifeguard Air Med Svc. Albuquerque, NM	(505)272-3115

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Mack Energy Corp
LEASE NO.:	NM89882
WELL NAME & NO.:	7 Razorback Federal
SURFACE HOLE FOOTAGE:	1372'/ FNL & 1331'/ FWL
BOTTOM HOLE FOOTAGE	1675'/ FNL & 1675'/ FWL
LOCATION:	Section 3, T.18 S., R.31 E., NMPM
COUNTY:	Eddy County, New Mexico

TABLE OF CONTENTS

Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.