New Mexico Oil Conservation Division, District I
1625 N. French Drive
Hobbs, NM 88240

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Form 3160 -3
(April 2004)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

APPLICATION FOR PERMIT TO DRILL OR REENTER

5 Lease Serial No	NMNM-32409
6 If Indian, Allotee or Tribe Name	
7 If Unit or CA Agreement, Name and No	
8, Lease Name and Well No.	Sam Federal #4 (306347)
9 API Well No.	30-005-29105
10 Field and Pool, or Exploratory	Little Lucky Lake;Wolfcamp
11 Sec., T R M. or Blk. and Survey or Area	Sec. 28 T15S R30E
12. County or Parish	Chaves
13 State	NM

1a. Typeofwork- ☒ DRILL ☐ REENTER

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

2. Name of Operator
Mack Energy Corporation (13837)

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

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

4. Location of Well *(Report location clearly and inaccorounce with any State requirements*)*
At surface 2285 FNL & 380 FWL Unit E
At proposed prod zone 2285 FNL & 330 FEL Unit H

14 Distance in miles and direction from nearest town or post office*
10 miles north/northeast of Loco Hills, NM

15 Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drlg unit line, if any) 330	16. No. of acres in lease 1520	17 Spacing Unit dedicated to this well 160
18 Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 1320	19 Proposed Depth MD 13,196' VD 9005'	20. BLM/BIA Bond No on file NMB000286
21. Elevations (Show whether DF, KDB, RT, GL, etc) 3987' GR	22 Approximate date work will start* 5/17/09	23. Estimated duration 40 days

24. Attachments

ROSWELL CONTROLLED WATER BASIN

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 Jerry W. Sherrell	Name *(Printed/Typed)* Jerry W. Sherrell	Date 4/20/09
Title Production Clerk		
Approved by *(Signature)* /S/ Angel Mayes	Name *(Printed/Typed)* Angel Mayes	Date AUG 03 2009
Title Assistant Field Manager, Lands And Minerals	Office ROSWELL 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

APPROVED FOR 2 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)

DECLARED WATER BASIN

CEMENT BEHIND THE 13⅜" CASING MUST BE CIRCULATED

WITNESS

KZ APPROVAL SUBJECT TO GENERAL REQUIREMENTS AND SPECIAL STIPULATIONS ATTACHED

RECEIVED
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DISTRICT I
1625 N. FRENCH DR., HOBBS, NM 88240

DISTRICT II
1301 W. GRAND AVENUE, ARTESIA, NM 88210

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

DISTRICT IV
1220 S. ST. FRANCIS DR., SANTA FE, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION
1220 SOUTH ST. FRANCIS DR.
Santa Fe, New Mexico 87505

Form C-102
Revised October 12, 2005
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number	Pool Code	Pool Name
30-005-29105	97247	Little Lucky Lake;Wolfcamp

Property Code	Property Name	Well Number
306347	SAM FEDERAL	4H

OGRID No.	Operator Name	Elevation
013837	MACK ENERGY CORPORATION	3987'

Surface Location

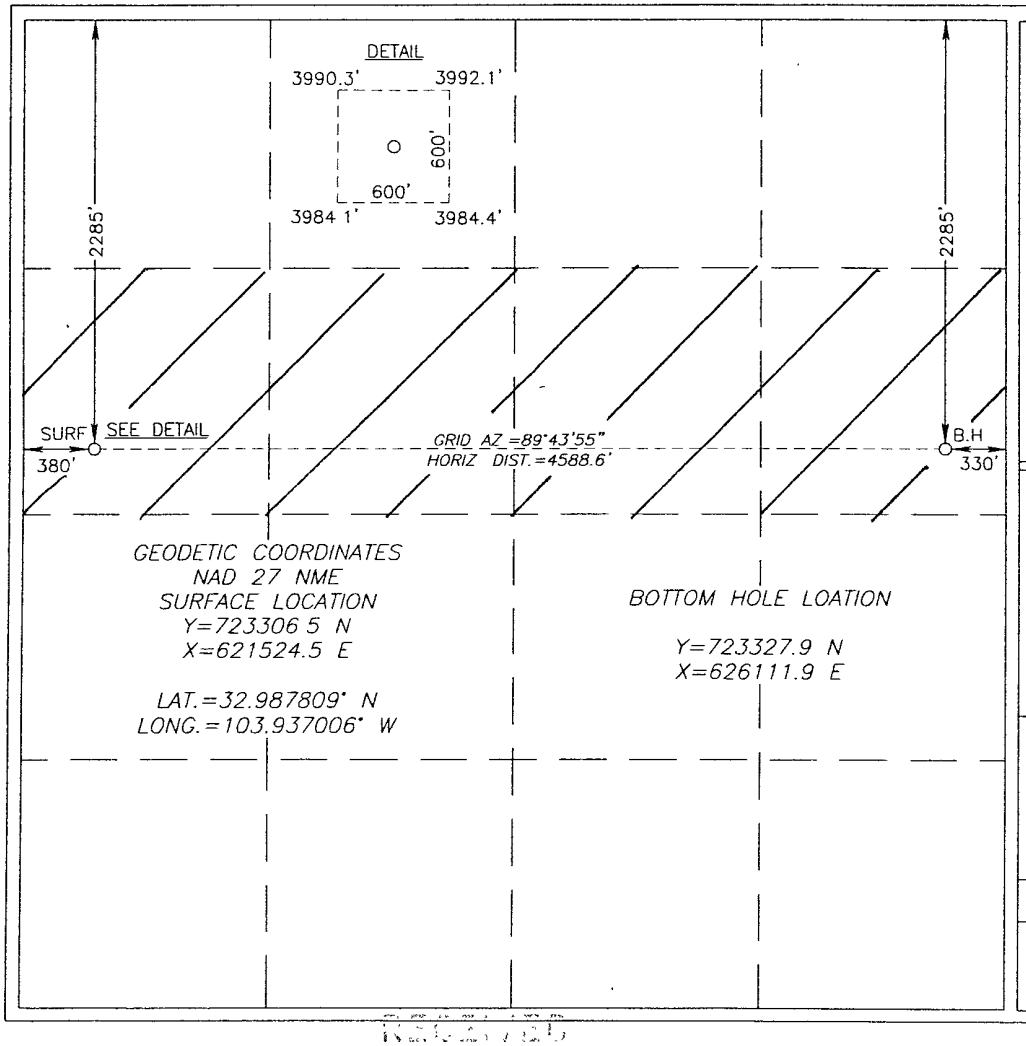
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
E	28	15-S	30-E		2285	NORTH	380	WEST	CHAVES

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
H	28	15-S	30-E		2285	NORTH	330	EAST	CHAVES

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
160			

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.

Jerry W. Sherrell 4-20-09
Signature Date

Jerry W. Sherrell
Printed Name

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.

RONALD J. EIDSON
NEW MEXICO
3239

FEBRUARY 18, 2009
Date Surveyed

Signature & Seal of Professional Surveyor

Ronald J. Eidson 03/03/09

09.11.0164

Certificate No. GARY EIDSON 12641
RONALD J. EIDSON 3239

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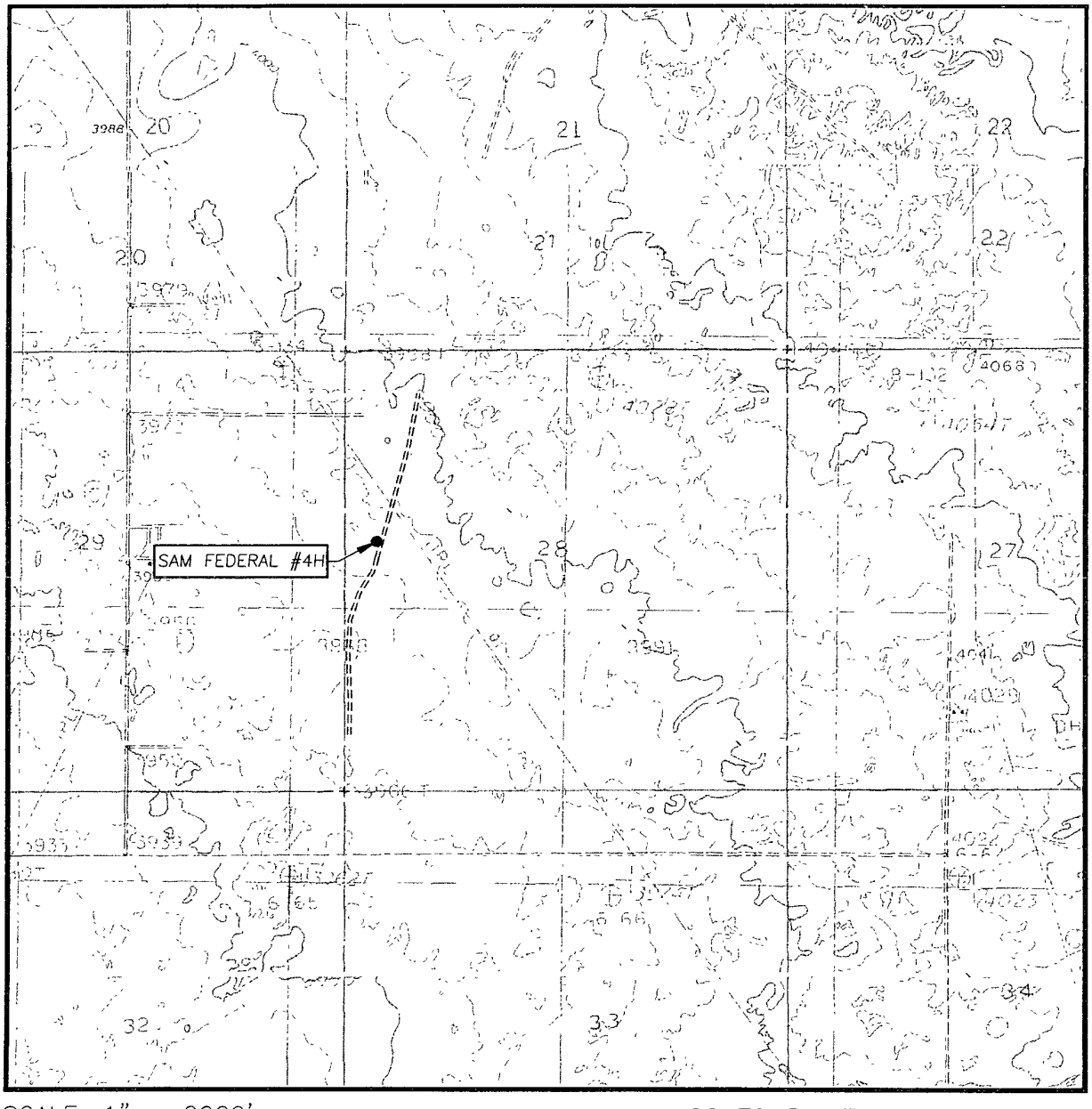
MAR 04 2009

LOCATION VERIFICATION MAP



SCALE: 1" = 2000'

CONTOUR INTERVAL:
HENSHAW TANK, N.M. – 10'

SEC. 28 TWP. 15-S RGE. 30-E

SURVEY N.M.P.M.

COUNTY CHAVES STATE NEW MEXICO

DESCRIPTION 2285' FNL & 380' FWL

ELEVATION 3987'

OPERATOR MACK ENERGY CORPORATION

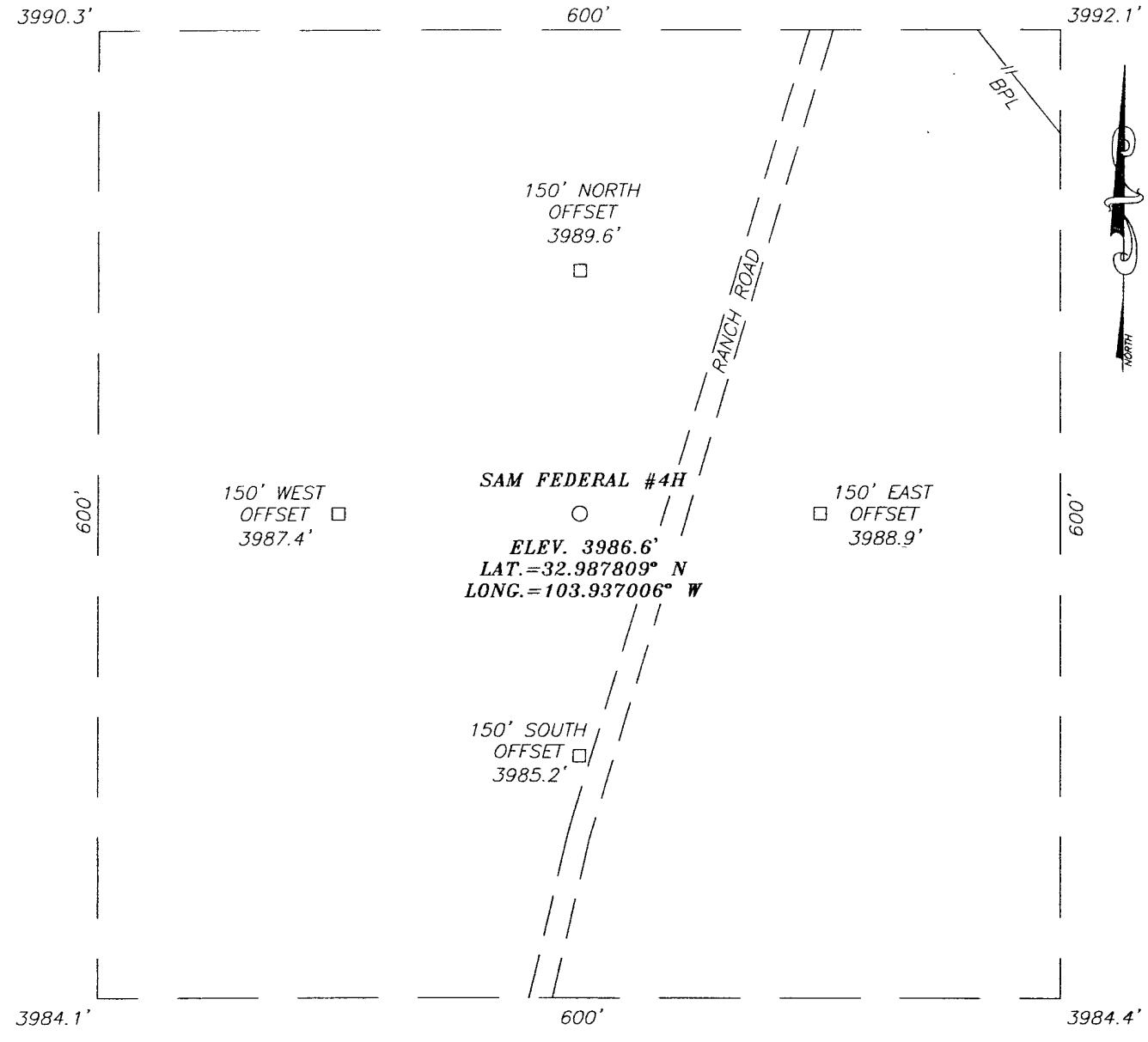
LEASE SAM FEDERAL

U.S.G.S. TOPOGRAPHIC MAP
HENSHAW TANK, N.M.

PROVIDING SURVEYING SERVICES
SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

SECTION 28, TOWNSHIP 15 SOUTH, RANGE 30 EAST, N.M.P.M.,

CHAVES COUNTY, NEW MEXICO



DIRECTIONS TO LOCATION

FROM THE INTERSECTION OF HWY. #249 AND CO. RD. #217, GO SOUTH ON CO. RD. #217 APPROX. 5.0 MILES. TURN LEFT AND GO EAST APPROX. 1.5 MILES. VEER RIGHT AND GO SOUTH APPROX. 0.2 MILES. VEER LEFT AND GO EAST APPROX. 0.6 MILES. TURN LEFT AND GO NORTH APPROX. 1.0 MILE. TURN RIGHT AND GO EAST APPROX. 0.4 MILES. TURN RIGHT AND GO SOUTH APPROX. 0.8 MILES TO PEERY #4 WELL PAD AND PROPOSED ROAD SURVEY. FOLLOW ROAD SURVEY NORTHEAST APPROX. 2130 FEET TO THIS LOCATION.

100 0 100 200 Feet

Scale: 1"=100'

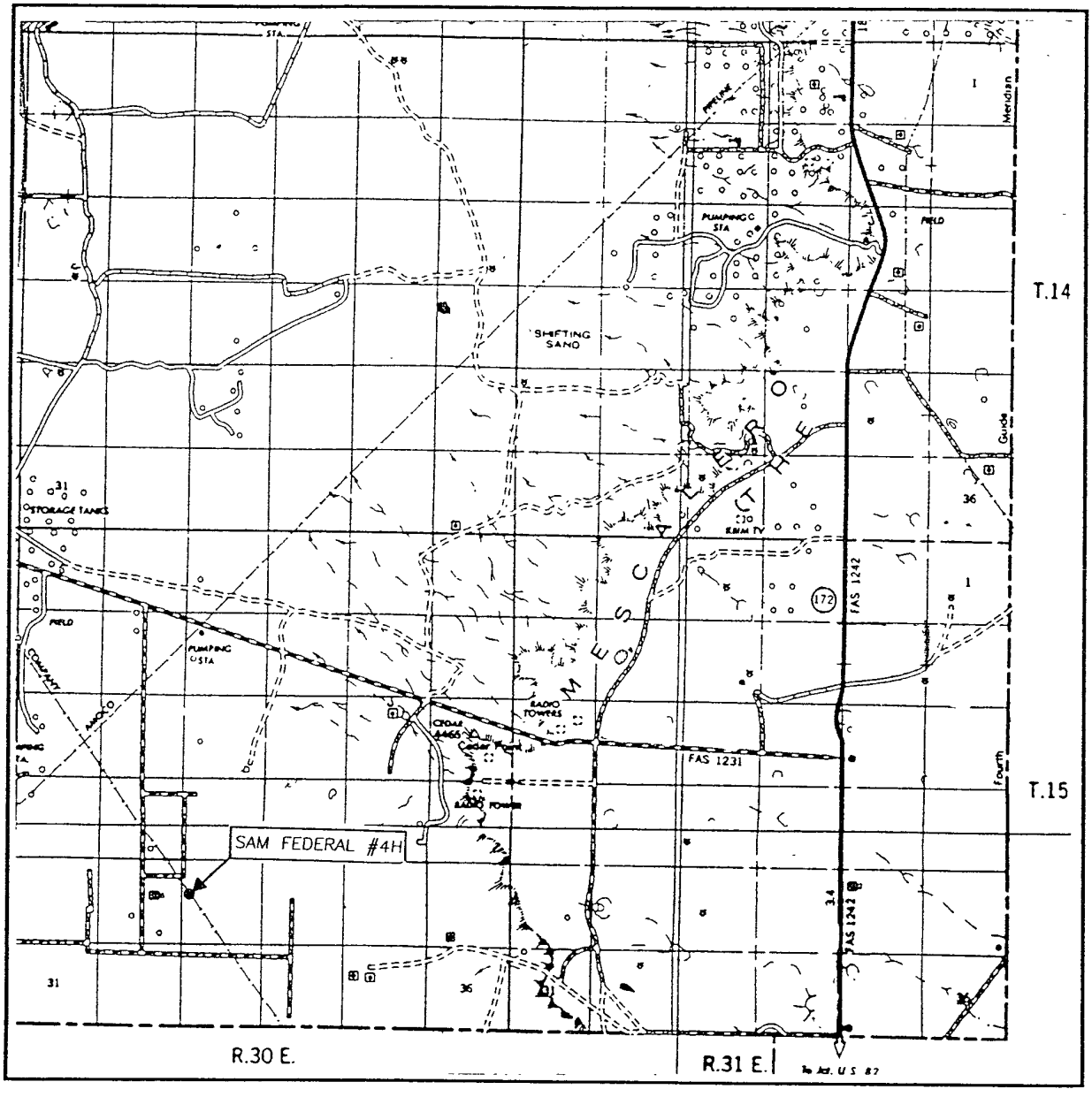
PROVIDING SURVEYING SERVICES
SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

MACK ENERGY CORPORATION

SAM FEDERAL #4H WELL
LOCATED 2285 FEET FROM THE NORTH LINE
AND 380 FEET FROM THE WEST LINE OF SECTION 28,
TOWNSHIP 15 SOUTH, RANGE 30 EAST, N.M.P.M.,
CHAVES COUNTY, NEW MEXICO.

Survey Date: 2/18/09	Sheet 1 of 1 Sheets		
W.O. Number: 09.11.0164	Dr By: AR		Rev 1:N/A
Date: 3/02/09	Disk:	09110164	Scale: 1"=100'

VICINITY MAP



SCALE: 1" = 2 MILES

SEC. 28 TWP. 15-S RGE. 30-E

SURVEY N.M.P.M.

COUNTY CHAVES STATE NEW MEXICO

DESCRIPTION 2285' FNL & 380' FWL

ELEVATION 3987'

OPERATOR MACK ENERGY CORPORATION

LEASE SAM FEDERAL

PROVIDING SURVEYING SERVICES
SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

Attached to Form 3160-3
Mack Energy Corporation
Sam Federal #4
SL 2285 FNL & 380 FWL, Unit E, Sec. 28 T15S R30E
BHL 2285 FNL & 330 FEL, Unit H, Sec. 28 T15S R30E
Chaves County, NM

DRILLING PROGRAM

1. Geologic Name of Surface Formation

Quaternary

2. Estimated Tops of Important Geologic Markers:

Yates	1450'	Tubb	5725'
Queen	2250'	Abo	6530'
San Andres	2925'	WC	7700'
Glorieta	4540'	Strawn	9725'

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

Water Sand	150'	Fresh Water
San Andres	2925'	Oil/Gas
Abo	6530'	Oil/Gas
WC	7700'	Oil/Gas

No other formations are expected to give up oil, gas or fresh water in measurable quantities. Setting 13 3/8" casing to 450' and circulating cement back to surface will protect the surface fresh water sand. Salt Section will be protected by setting 8 5/8" casing to 3050' 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 a combination string of 5 1/2" and 4 ½" production casing thru a ported collar @ 8100', 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 ½"	0-450'	13 3/8"	48#, H-40, ST&C, New, 3.364/3.365/3.460
12 ¼"	0-3050'	8 5/8"	32#, J-55, ST&C, New, 1.633/13.806/13.100
7 7/8"	0-7850'	5 ½"	17#, HCP-110, LT&C, New, 2.189/3.364/3.547
6 1/8"	7850-13,196'	4 ½"	11.6# HCP-110, LT&C, New, 1.422/3.286/3.56

5. Cement Program:

13 3/8" Surface Casing: Class C, 350sx yield 1.34
8 5/8 Intermediate Casing: Class C, 1250sx, yield 1.34.
5 ½" Production Casing: Class C, 1000sx, yield 1.34.
4 ½" Production Casing: Set with isolation packers.

6. Minimum Specifications for Pressure Control:

The blowout preventer equipment (BOP) shown in Exhibit #9 will consist of a double ram-type (3000 psi WP) minimum preventer. 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 BOP will be nippled up on the 13 3/8" surface casing and tested to 1000 psi using the rig pump.** The BOP will then be nippled up on the 8 5/8" intermediate casing and tested by a 3rd party to 2000 psi 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 #10) will include a Kelly cock and floor safety valve and choke lines and choke manifold (Exhibit #11) 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, cut brine and polymer mud system. The applicable depths and properties of this system are as follows:

DEPTH	TYPE	WEIGHT	VISCOSITY	WATERLOSS
0-450'	Fresh Water	8.5	28	N.C.
450-3050'	Brine	10	30	N.C.
3050'-TD	Cut 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.

9. Logging, Testing and Coring Program:

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 2250 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 May 17, 2009. Once commenced, the drilling operation should be finished in approximately 12 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.

1. Well Site Layout:

A. The drill pad layout, with elevations staked by John West Engineering, is shown in Exhibit #6. Dimensions of the pad are shown. Topsoil, if available, will be stockpiled per BLM specifications. Because the pad is almost level no major cuts will be required.

B. Diagram below shows the proposed orientation of the location. No permanent living facilities are planned, but a temporary foreman/toolpusher's trailer will be on location during the drilling operations.

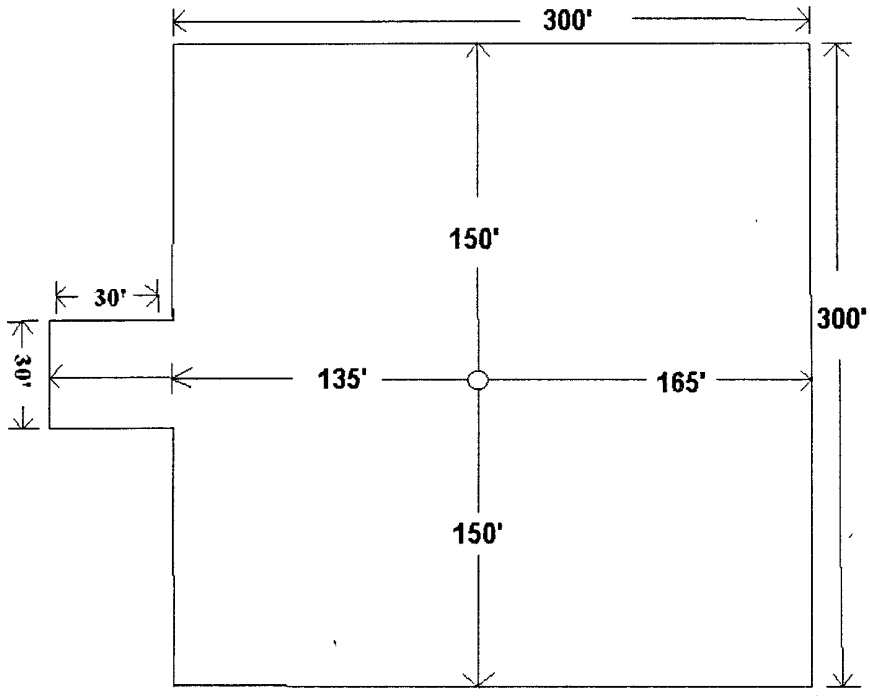


Exhibit #6

Attachment to Exhibit #9
NOTES REGARDING THE BLOWOUT PREVENTERS
Sam Federal #4
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 Corporation

Minimum Blowout Preventer Requirements

3000 psi Working Pressure

3 MWP

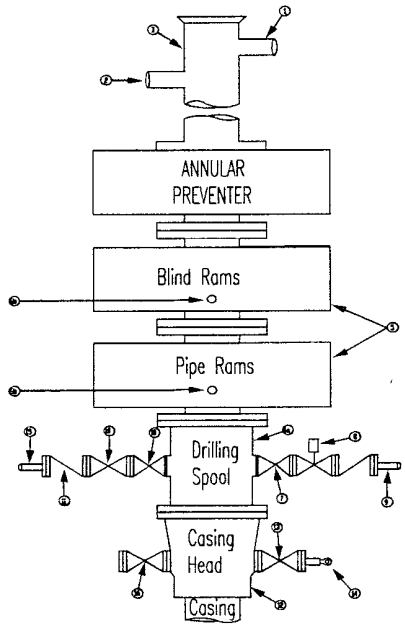
EXHIBIT #10

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 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.

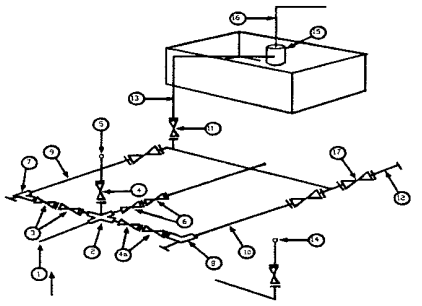
1. Deviations from this drawing may be made only with the express permission of MEC's Drilling Manager.
2. All connections, valves, fittings, piping, etc., subject to well or pump pressure must be flanged (suitable clamp connections acceptable) and have minimum working pressure equal to rated working 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 #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 I.D.	Nominal	Rating	5,000 MWP I.D.	Nominal	Rating	10,000 MWP 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
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 of 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.

   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. Radio communications in company vehicles including cellular telephone and 2-way radio.

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

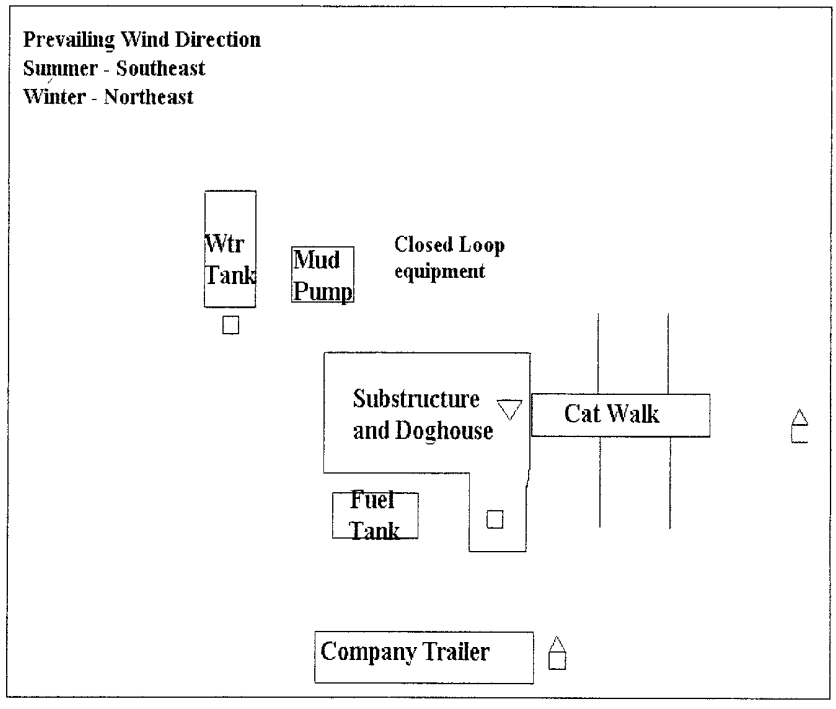
AUTHORIZED PERSONNEL ONLY

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

DRILLING LOCATION H2S SAFTY EQUIPMENT
Exhibit # 8



▽ H2S Monitors with alarms at the bell nipple

□ Wind Direction Indicators

△ □ Safe Briefing areas with caution signs and breathing equipment min 150 feet from

Mack Energy Corporation Call List, Chaves County

Artesia (575)	Cellular	Office	Home
Jim Krogman	746-5515	748-1288	746-2674
Lonnie Archer	746-7889	748-1288	365-2998
Donald Archer	748-7875	748-1288	748-2287
Chris Davis	746-7132	748-1288	
Kevin Garrett	746-7423	748-1288	

Agency Call List (575)

Roswell

State Police	622-7200
City Police	624-6770
Sheriff's Office	624-7590
Ambulance	624-7590
Fire Department	624-7590
LEPC (Local Emergency Planning Committee	624-6770
NMOCD	748-1283
Bureau of Land Management	627-0272

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

Mack Energy

Chaves County
Sam Federal
#4H
OH

RECEIVED
AUG 06 2009
HOBBSOCD

Plan: Plan #1

Pathfinder X & Y Survey Report

16 April, 2009

PATHFINDER

MACK Energy Corporation

PATHFINDER

Azimuths to Grid North
True North: -0.22°
Magnetic North: 7.84°

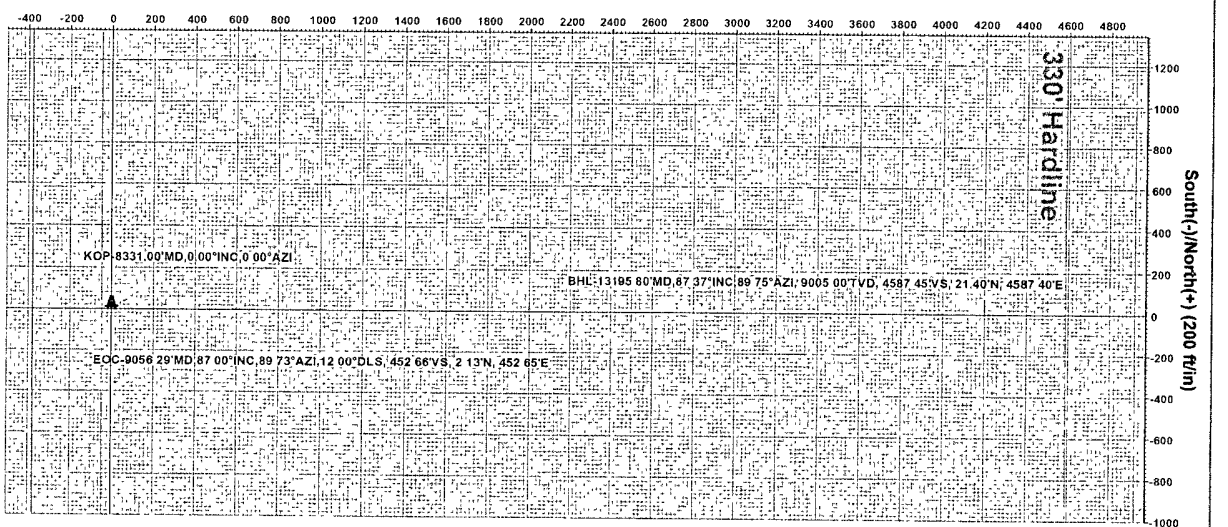
Magnetic Field
Strength: 49275.0snT
Dip Angle: 60.90°
Date: 04/16/2009
Model: IGRF200510

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
LT#1(#4H)	8816.00	2.83	599.99	Point
LT#2(#4H)	8839.00	4.71	999.99	Point
LT#3(#4H)	8887.00	9.42	1999.98	Point
LT#4(#4H)	8932.00	14.14	2999.97	Point
LT#5(#4H)	8978.00	18.85	3999.96	Point
PBHL(#4H)	9005.00	21.40	4587.40	Point

SECTION DETAILS

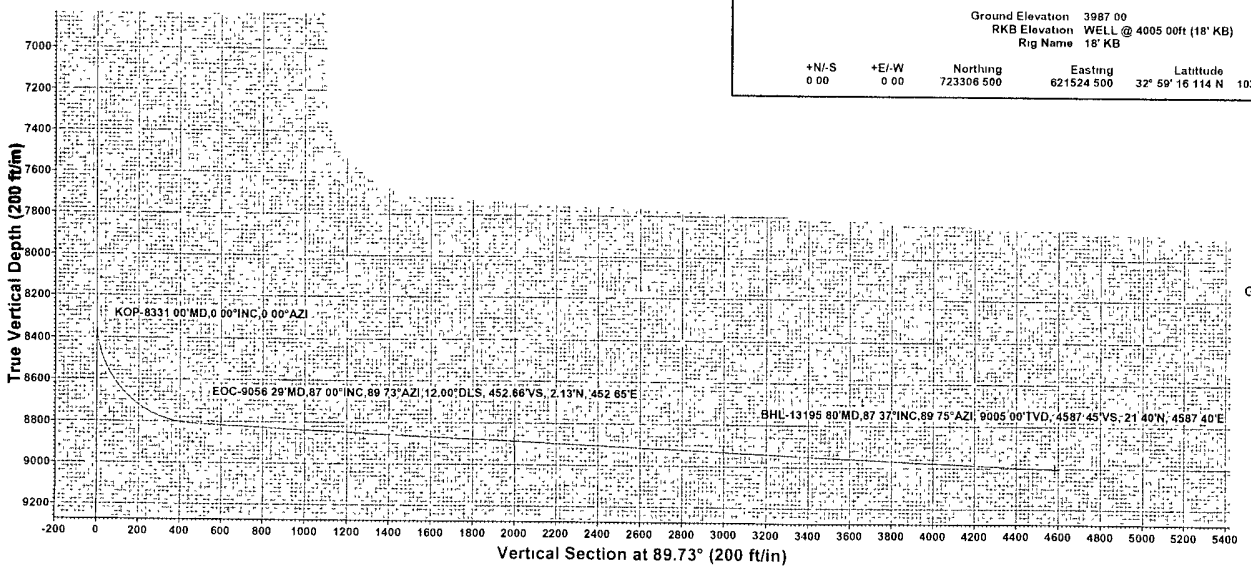
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	8331.00	0.00	0.00	8331.00	0.00	0.00	0.00	0.00	0.00	
3	9056.29	87.00	89.73	8808.00	2.13	452.65	12.00	89.73	452.66	
4	9211.29	87.00	89.73	8816.11	2.86	607.44	0.00	0.00	607.44	
5	9228.51	86.66	89.73	8817.06	2.94	624.63	2.00	180.00	624.64	
6	9604.51	86.66	89.73	8839.00	4.71	999.99	0.00	0.00	1000.00	LT#2(#4H)
7	9634.78	87.26	89.73	8840.61	4.85	1030.22	2.00	0.00	1030.23	
8	10605.66	87.26	89.73	8887.00	9.42	1999.98	0.00	0.00	2000.00	LT#3(#4H)
9	10613.81	87.42	89.73	8887.38	9.46	2008.12	2.00	0.00	2008.14	
10	11606.68	87.42	89.73	8932.00	14.14	2999.97	0.00	0.00	3000.00	LT#4(#4H)
11	11609.57	87.37	89.73	8932.13	14.15	3002.86	2.00	-180.00	3002.89	
12	12607.73	87.37	89.73	8978.00	18.85	3999.96	0.00	0.00	4000.00	LT#5(#4H)
13	12608.80	87.37	89.75	8978.05	18.85	4001.02	2.00	83.83	4001.07	
14	13195.80	87.37	89.75	9005.00	21.40	4587.40	0.00	0.00	4587.45	PBHL(#4H)

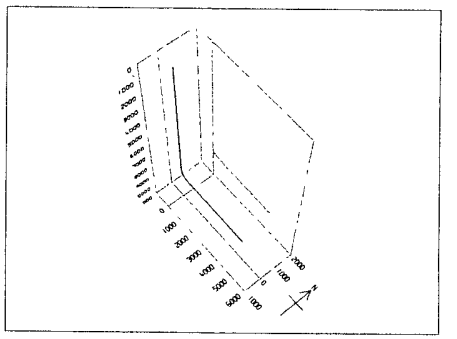


WELL DETAILS #4H

Ground Elevation 3987.00
RKB Elevation WELL @ 4005.00ft (18' KB)
Rig Name 18' KB

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	723306.500	621524.500	32° 59' 16.114 N	103° 56' 13.221 W	





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 (#4H/OH)

Created By Nate Bingham Date 12:23, April 16 2009

Checked _____ Date _____

Pathfinder Energy Services

Pathfinder X & Y Survey Report

Company:	Mack Energy	**Local Co-ordinate Reference:**	Well #4H
Project:	Chaves County	**TVD Reference:**	WELL @ 4005.00ft (18' KB)
Site:	Sam Federal	**MD Reference:**	WELL @ 4005.00ft (18' KB)
Well:	#4H	**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 Sam Federal

Site Position:		**Northing:**	720,718.100 ft	**Latitude:**	32° 58' 50 496 N
From:	Map	**Easting:**	621,684.500 ft	**Longitude:**	103° 56' 11.457 W
Position Uncertainty:	0.00 ft	**Slot Radius:**	"	**Grid Convergence:**	0.22 °

Well #4H

Well Position	**+N/-S**	0.00 ft	**Northing:**	723,306.500 ft	**Latitude:**	32° 59' 16.114 N
	+E/-W	0.00 ft	**Easting:**	621,524.500 ft	**Longitude:**	103° 56' 13.221 W
Position Uncertainty		0.00 ft	***Wellhead Elevation:***	ft	**Ground Level:**	3,987.00 ft

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	04/16/2009	8.06	60.90	49,275

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	0.00	89 73

Survey Tool Program Date 04/16/2009

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	13,195.80	Plan #1 (OH)	MWD	MWD - Standard

Company:	Mack Energy	**Local Co-ordinate Reference:**	Well #4H
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Site:	Sam Federal	**MD Reference:**	WELL @ 4005.00ft (18' KB)
Well:	#4H	**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	-4,005.00	0 00	0.00	0.00	0 00	723,306.50	621,524 50
100 00	0.00	0 00	100.00	-3,905.00	0.00	0.00	0.00	0.00	723,306.50	621,524.50
200.00	0.00	0.00	200.00	-3,805.00	0.00	0.00	0.00	0.00	723,306.50	621,524.50
300.00	0 00	0.00	300.00	-3,705.00	0.00	0.00	0.00	0.00	723,306.50	621,524 50
400 00	0 00	0.00	400.00	-3,605.00	0.00	0.00	0.00	0.00	723,306.50	621,524 50
500 00	0.00	0.00	500.00	-3,505 00	0.00	0.00	0.00	0.00	723,306.50	621,524.50
600.00	0.00	0.00	600.00	-3,405 00	0.00	0.00	0.00	0.00	723,306.50	621,524.50
700.00	0.00	0.00	700.00	-3,305 00	0.00	0.00	0.00	0.00	723,306.50	621,524.50
800.00	0.00	0.00	800 00	-3,205.00	0.00	0.00	0.00	0.00	723,306.50	621,524.50
900 00	0 00	0.00	900.00	-3,105 00	0.00	0.00	0.00	0.00	723,306.50	621,524.50
1,000.00	0.00	0 00	1,000.00	-3,005.00	0.00	0.00	0.00	0.00	723,306.50	621,524.50
1,100.00	0 00	0.00	1,100.00	-2,905.00	0.00	0.00	0.00	0.00	723,306.50	621,524.50
1,200.00	0.00	0.00	1,200.00	-2,805.00	0.00	0.00	0.00	0.00	723,306.50	621,524.50
1,300 00	0.00	0,00	1,300.00	-2,705.00	0.00	0.00	0 00	0.00	723,306.50	621,524.50
1,400.00	0.00	0 00	1,400.00	-2,605.00	0.00	0.00	0.00	0.00	723,306.50	621,524.50
1,500.00	0 00	0.00	1,500.00	-2,505.00	0.00	0.00	0.00	0.00	723,306.50	621,524.50
1,600.00	0 00	0.00	1,600.00	-2,405.00	0.00	0.00	0.00	0.00	723,306.50	621,524.50
1,700 00	0.00	0.00	1,700.00	-2,305.00	0.00	0.00	0.00	0.00	723,306.50	621,524.50
1,800.00	0.00	0.00	1,800.00	-2,205 00	0.00	0.00	0.00	0 00	723,306.50	621,524 50
1,900.00	0 00	0.00	1,900.00	-2,105.00	0.00	0.00	0.00	0 00	723,306.50	621,524.50
2,000 00	0 00	0.00	2,000.00	-2,005.00	0.00	0.00	0.00	0.00	723,306.50	621,524.50
2,100.00	0.00	0.00	2,100 00	-1,905.00	0.00	0.00	0.00	0.00	723,306.50	621,524.50
2,200 00	0.00	0.00	2,200.00	-1,805.00	0 00	0 00	0.00	0.00	723,306.50	621,524.50
2,300.00	0.00	0 00	2,300.00	-1,705.00	0.00	0.00	0.00	0.00	723,306 50	621,524.50
2,400.00	0.00	0.00	2,400.00	-1,605.00	0.00	0.00	0.00	0.00	723,306 50	621,524.50
2,500 00	0 00	0.00	2,500.00	-1,505.00	0.00	0.00	0.00	0.00	723,306.50	621,524.50
2,600.00	0.00	0.00	2,600.00	-1,405.00	0.00	0 00	0.00	0.00	723,306.50	621,524.50

Pathfinder Energy Services

Pathfinder X & Y Survey Report

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Project:	Chaves County	**TVD Reference:**	WELL @ 4005.00ft (18' KB)
Site:	Sam Federal	**MD Reference:**	WELL @ 4005.00ft (18' KB)
Well:	#4H	**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	-1,305.00	0.00	0.00	0.00	0.00	723,306.50	621,524.50
2,800.00	0.00	0.00	2,800.00	-1,205.00	0.00	0.00	0.00	0.00	723,306.50	621,524.50
2,900.00	0.00	0.00	2,900.00	-1,105.00	0 00	0.00	0.00	0 00	723,306.50	621,524 50
3,000.00	0.00	0.00	3,000.00	-1,005.00	0.00	0.00	0.00	0 00	723,306.50	621,524.50
3,100.00	0.00	0.00	3,100.00	-905.00	0.00	0.00	0.00	0.00	723,306 50	621,524.50
3,200.00	0.00	0.00	3,200.00	-805.00	0.00	0.00	0.00	0.00	723,306.50	621,524.50
3,300 00	0.00	0.00	3,300.00	-705.00	0.00	0.00	0.00	0.00	723,306.50	621,524.50
3,400.00	0.00	0.00	3,400.00	-605.00	0.00	0.00	0.00	0.00	723,306.50	621,524.50
3,500 00	0.00	0.00	3,500.00	-505.00	0.00	0.00	0 00	0.00	723,306.50	621,524.50
3,600.00	0.00	0.00	3,600.00	-405.00	0.00	0.00	0.00	0.00	723,306.50	621,524.50
3,700 00	0.00	0.00	3,700.00	-305.00	0.00	0.00	0.00	0.00	723,306.50	621,524.50
3,800.00	0.00	0.00	3,800.00	-205 00	0.00	0.00	0 00	0.00	723,306.50	621,524.50
3,900.00	0.00	0.00	3,900 00	-105.00	0.00	0.00	0.00	0.00	723,306 50	621,524.50
4,000.00	0 00	0.00	4,000.00	-5.00	0.00	0.00	0 00	0.00	723,306.50	621,524.50
4,100 00	0.00	0.00	4,100.00	95.00	0.00	0.00	0.00	0.00	723,306.50	621,524.50
4,200.00	0.00	0.00	4,200.00	195.00	0.00	0.00	0.00	0.00	723,306.50	621,524.50
4,300.00	0.00	0.00	4,300.00	295.00	0.00	0.00	0.00	0.00	723,306.50	621,524.50
4,400.00	0.00	0.00	4,400.00	395.00	0.00	0.00	0.00	0.00	723,306.50	621,524.50
4,500 00	0.00	0.00	4,500.00	495.00	0.00	0 00	0.00	0.00	723,306.50	621,524.50
4,600 00	0.00	0.00	4,600.00	595.00	0.00	0.00	0.00	0.00	723,306.50	621,524.50
4,700.00	0.00	0.00	4,700.00	695.00	0 00	0.00	0.00	0.00	723,306.50	621,524.50
4,800.00	0.00	0.00	4,800 00	795 00	0.00	0.00	0.00	0.00	723,306.50	621,524.50
4,900 00	0 00	0 00	4,900.00	895.00	0.00	0.00	0 00	0 00	723,306.50	621,524.50
5,000.00	0.00	0.00	5,000.00	995.00	0.00	0.00	0.00	0.00	723,306.50	621,524.50
5,100.00	0.00	0.00	5,100.00	1,095.00	0.00	0.00	0.00	0 00	723,306 50	621,524.50
5,200.00	0.00	0 00	5,200.00	1,195.00	0.00	0 00	0.00	0.00	723,306.50	621,524.50
5,300 00	0.00	0 00	5,300.00	1,295.00	0 00	0.00	0.00	0.00	723,306 50	621,524.50

Company:	Mack Energy	**Local Co-ordinate Reference:**	Well #4H
Project:	Chaves County	**TVD Reference:**	WELL @ 4005.00ft (18' KB)
Site:	Sam Federal	**MD Reference:**	WELL @ 4005.00ft (18' KB)
Well:	#4H	**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)
5,400 00	0.00	0.00	5,400.00	1,395.00	0.00	0.00	0.00	0 00	723,306 50	621,524.50
5,500.00	0.00	0.00	5,500 00	1,495.00	0.00	0.00	0.00	0.00	723,306.50	621,524 50
5,600.00	0.00	0.00	5,600.00	1,595 00	0.00	0.00	0.00	0.00	723,306.50	621,524.50
5,700.00	0.00	0.00	5,700 00	1,695.00	0.00	0.00	0.00	0.00	723,306.50	621,524.50
5,800.00	0.00	0.00	5,800 00	1,795.00	0.00	0.00	0.00	0.00	723,306.50	621,524.50
5,900.00	0.00	0.00	5,900.00	1,895.00	0.00	0.00	0.00	0.00	723,306.50	621,524 50
6,000.00	0.00	0.00	6,000.00	1,995.00	0 00	0.00	0.00	0.00	723,306 50	621,524.50
6,100.00	0.00	0 00	6,100.00	2,095.00	0.00	0 00	0.00	0.00	723,306.50	621,524.50
6,200.00	0.00	0 00	6,200.00	2,195.00	0 00	0.00	0.00	0.00	723,306.50	621,524.50
6,300.00	0.00	0.00	6,300.00	2,295.00	0.00	0.00	0.00	0.00	723,306.50	621,524.50
6,400.00	0 00	0.00	6,400.00	2,395.00	0.00	0.00	0.00	0.00	723,306 50	621,524.50
6,500.00	0.00	0.00	6,500.00	2,495.00	0.00	0.00	0.00	0 00	723,306.50	621,524.50
6,600.00	0.00	0.00	6,600 00	2,595.00	0.00	0.00	0 00	0 00	723,306.50	621,524.50
6,700.00	0.00	0.00	6,700.00	2,695.00	0.00	0.00	0.00	0 00	723,306.50	621,524.50
6,800.00	0.00	0.00	6,800.00	2,795.00	0.00	0 00	0.00	0 00	723,306.50	621,524.50
6,900.00	0.00	0.00	6,900.00	2,895.00	0.00	0.00	0.00	0 00	723,306.50	621,524.50
7,000.00	0 00	0 00	7,000.00	2,995.00	0.00	0 00	0 00	0.00	723,306.50	621,524.50
7,100.00	0 00	0.00	7,100.00	3,095.00	0.00	0.00	0.00	0.00	723,306.50	621,524.50
7,200.00	0.00	0.00	7,200.00	3,195.00	0.00	0.00	0.00	0 00	723,306.50	621,524.50
7,300.00	0.00	0.00	7,300.00	3,295.00	0.00	0.00	0.00	0 00	723,306.50	621,524.50
7,400.00	0.00	0.00	7,400.00	3,395.00	0 00	0.00	0.00	0.00	723,306.50	621,524 50
7,500.00	0.00	0.00	7,500.00	3,495.00	0.00	0.00	0.00	0.00	723,306.50	621,524.50
7,600.00	0 00	0.00	7,600 00	3,595.00	0.00	0.00	0.00	0.00	723,306 50	621,524.50
7,700.00	0.00	0.00	7,700.00	3,695.00	0.00	0.00	0.00	0.00	723,306.50	621,524.50
7,800.00	0.00	0.00	7,800.00	3,795.00	0 00	0.00	0.00	0.00	723,306.50	621,524.50
7,900 00	0.00	0.00	7,900.00	3,895.00	0.00	0.00	0.00	0.00	723,306 50	621,524.50
8,000.00	0.00	0.00	8,000 00	3,995.00	0.00	0.00	0.00	0 00	723,306.50	621,524.50

Company:	Mack Energy	Local Co-ordinate Reference:	Well #4H
Project:	Chaves County	TVD Reference:	WELL @ 4005.00ft (18' KB)
Site:	Sam Federal	MD Reference:	WELL @ 4005.00ft (18' KB)
Well:	#4H	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)
8,100.00	0.00	0.00	8,100.00	4,095.00	0.00	0.00	0.00	0.00	723,306.50	621,524 50
8,200 00	0 00	0.00	8,200 00	4,195.00	0.00	0.00	0.00	0.00	723,306.50	621,524.50
8,300.00	0.00	0.00	8,300 00	4,295.00	0.00	0.00	0.00	0.00	723,306 50	621,524.50
8,331 00	0 00	0.00	8,331.00	4,326.00	0.00	0.00	0.00	0.00	723,306.50	621,524.50
KOP-8331.00'MD,0.00°INC,0.00°AZI										
8,350.00	2 28	89.73	8,349.99	4,344.99	0.00	0.38	0 38	12.00	723,306.50	621,524.88
8,375.00	5.28	89.73	8,374.94	4,369 94	0.01	2.03	2.03	12.00	723,306.51	621,526.53
8,400.00	8.28	89 73	8,399.76	4,394.76	0.02	4.98	4 98	12.00	723,306 52	621,529.48
8,425 00	11.28	89.73	8,424.39	4,419.39	0.04	9.22	9.22	12.00	723,306 54	621,533.72
8,450.00	14.27	89 73	8,448 77	4,443.77	0.07	14.75	14.75	12.00	723,306.57	621,539.25
8,475 00	17 27	89.73	8,472.83	4,467.83	0.10	21.54	21.54	12.00	723,306.60	621,546.04
8,500.00	20.27	89.73	8,496.50	4,491.50	0 14	29.59	29 59	12.00	723,306.64	621,554.09
8,525.00	23.27	89.73	8,519.71	4,514.71	0.18	38.86	38.86	12.00	723,306 68	621,563.36
8,550.00	26 27	89.73	8,542.41	4,537.41	0.23	49.33	49.33	12.00	723,306.73	621,573.83
8,575.00	29.27	89.73	8,564.53	4,559.53	0.29	60.98	60.98	12 00	723,306.79	621,585.48
8,600.00	32.27	89.73	8,586.00	4,581.00	0.35	73.76	73.77	12.00	723,306.85	621,598.26
8,625.00	35.27	89 73	8,606.78	4,601.78	0.41	87.66	87.66	12.00	723,306.91	621,612.16
8,650 00	38 26	89 73	8,626.81	4,621.81	0.48	102.62	102.62	12.00	723,306.98	621,627.12
8,675 00	41.26	89 73	8,646.02	4,641.02	0.56	118.61	118.61	12.00	723,307 06	621,643.11
8,700 00	44.26	89 73	8,664.38	4,659.38	0.64	135.58	135.58	12.00	723,307.14	621,660 08
8,725 00	47.26	89.73	8,681.82	4,676.82	0.72	153.49	153.49	12.00	723,307 22	621,677.99
8,750 00	50.26	89 73	8,698.29	4,693.29	0.81	172.29	172.29	12 00	723,307.31	621,696.79
8,775.00	53.26	89.73	8,713.77	4,708.77	0.90	191 92	191 92	12 00	723,307.40	621,716.42
8,800 00	56 26	89.73	8,728.19	4,723.19	1 00	212.33	212.34	12.00	723,307.50	621,736.83
8,825 00	59.26	89 73	8,741.53	4,736.53	1 10	233 48	233.48	12.00	723,307.60	621,757.98
8,850 00	62.26	89 73	8,753.74	4,748 74	1.20	255.29	255.29	12.00	723,307.70	621,779.79
8,875 00	65.25	89 73	8,764.79	4,759.79	1.31	277.71	277.71	12.00	723,307.81	621,802.21

Company:	Mack Energy	Local Co-ordinate Reference:	Well #4H
Project:	Chaves County	TVD Reference:	WELL @ 4005.00ft (18' KB)
Site:	Sam Federal	MD Reference:	WELL @ 4005.00ft (18' KB)
Well:	#4H	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)
8,900.00	68.25	89.73	8,774.66	4,769.66	1.42	300.68	300.68	12.00	723,307.92	621,825.18
8,925.00	71.25	89 73	8,783.31	4,778 31	1.53	324.13	324.13	12.00	723,308.03	621,848.63
8,950.00	74.25	89.73	8,790.72	4,785.72	1.64	348.00	348 00	12 00	723,308.14	621,872.50
8,975 00	77 25	89.73	8,796.88	4,791 88	1 75	372 23	372.23	12.00	723,308.25	621,896.73
9,000.00	80 25	89.73	8,801.75	4,796 75	1.87	396.74	396.75	12.00	723,308.37	621,921.24
9,025.00	83.25	89 73	8,805 34	4,800.34	1.99	421.48	421.49	12 00	723,308.49	621,945.98
9,050.00	86.25	89 73	8,807.63	4,802.63	2.10	446.37	446.38	12.00	723,308.60	621,970 87
9,056.29	87.00	89.73	8,808.00	4,803.00	2.13	452 65	452.66	12 00	723,308.63	621,977.15
EOC-9056.29'MD,87.00°INC,89.73°AZI,12.00°DLS, 452.66'VS, 2.13'N, 452.65'E										
9,100 00	87 00	89.73	8,810.29	4,805.29	2 34	496.30	496.31	0.00	723,308.84	622,020.80
9,200.00	87.00	89.73	8,815.52	4,810.52	2 81	596 16	596.17	0.00	723,309.31	622,120.66
9,203.85	87 00	89.73	8,815.72	4,810.72	2.83	600.01	600.01	0 00	723,309.33	622,124.51
LT#1(#4H)										
9,211.29	87.00	89.73	8,816.11	4,811.11	2.86	607.44	607 44	0.00	723,309.36	622,131.94
9,228.51	86 66	89.73	8,817.06	4,812 06	2.94	624.63	624.64	2.00	723,309 44	622,149.13
9,300.00	86.66	89.73	8,821.24	4,816 24	3.28	696.00	696.01	0.00	723,309.78	622,220.50
9,400.00	86.66	89.73	8,827 07	4,822.07	3.75	795.83	795.84	0.00	723,310.25	622,320.33
9,500.00	86.66	89.73	8,832.90	4,827.90	4.22	895.66	895.67	0 00	723,310.72	622,420.16
9,604.51	86.66	89.73	8,839.00	4,834.00	4.71	999.99	1,000.00	0.00	723,311.21	622,524 49
LT#2(#4H)										
9,634.78	87 26	89 73	8,840.61	4,835 61	4.85	1,030.22	1,030.23	2.00	723,311 35	622,554.72
9,700 00	87.26	89.73	8,843.72	4,838.72	5.16	1,095.36	1,095.37	0.00	723,311.66	622,619.86
9,800 00	87 26	89 73	8,848.50	4,843.50	5.63	1,195.24	1,195.26	0.00	723,312.13	622,719.74
9,900 00	87.26	89 73	8,853.28	4,848.28	6.10	1,295.13	1,295.14	0.00	723,312.60	622,819.63
10,000 00	87.26	89.73	8,858.06	4,853.06	6.57	1,395.01	1,395.03	0 00	723,313 07	622,919.51
10,100.00	87.26	89.73	8,862.84	4,857.84	7.04	1,494.90	1,494.91	0.00	723,313.54	623,019.40
10,200.00	87.26	89 73	8,867.62	4,862.62	7 52	1,594.78	1,594 80	0 00	723,314.02	623,119.28

Company:	Mack Energy	**Local Co-ordinate Reference:**	Well #4H
Project:	Chaves County	**TVD Reference:**	WELL @ 4005.00ft (18' KB)
Site:	Sam Federal	**MD Reference:**	WELL @ 4005.00ft (18' KB)
Well:	#4H	**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)
10,300.00	87.26	89.73	8,872.39	4,867.39	7.99	1,694.67	1,694.69	0.00	723,314.49	623,219.17
10,400.00	87.26	89.73	8,877.17	4,872.17	8.46	1,794 55	1,794.57	0.00	723,314.96	623,319 05
10,500 00	87.26	89.73	8,881.95	4,876.95	8 93	1,894 44	1,894.46	0.00	723,315.43	623,418.94
10,605.66	87 26	89.73	8,887.00	4,882.00	9.42	1,999.98	2,000.00	0 00	723,315.92	623,524.48
LT#3(#4H)										
10,613 81	87.42	89.73	8,887.38	4,882.38	9.46	2,008.12	2,008.14	2.00	723,315.96	623,532 62
10,700.00	87.42	89.73	8,891.25	4,886.25	9.87	2,094.22	2,094.24	0 00	723,316 37	623,618.72
10,800 00	87.42	89.73	8,895.75	4,890.75	10.34	2,194.12	2,194.14	0.00	723,316.84	623,718 62
10,900.00	87.42	89.73	8,900.24	4,895 24	10.81	2,294 01	2,294.04	0.00	723,317.31	623,818 51
11,000.00	87.42	89.73	8,904.73	4,899 73	11.28	2,393.91	2,393.94	0 00	723,317.78	623,918.41
11,100.00	87 42	89.73	8,909.23	4,904.23	11 75	2,493 81	2,493.84	0.00	723,318.25	624,018.31
11,200.00	87.42	89.73	8,913.72	4,908.72	12 22	2,593.71	2,593.74	0.00	723,318.72	624,118.21
11,300.00	87 42	89.73	8,918 22	4,913.22	12.69	2,693.60	2,693.63	0.00	723,319 19	624,218.10
11,400.00	87 42	89.73	8,922.71	4,917.71	13.16	2,793.50	2,793.53	0.00	723,319.66	624,318.00
11,500.00	87.42	89.73	8,927.21	4,922.21	13.63	2,893 40	2,893.43	0.00	723,320.13	624,417.90
11,606.68	87.42	89.73	8,932.00	4,927.00	14.14	2,999.97	3,000.00	0.00	723,320.64	624,524.47
LT#4(#4H)										
11,609.57	87.37	89.73	8,932.13	4,927.13	14.15	3,002.86	3,002.89	2.00	723,320.65	624,527.36
11,700.00	87.37	89 73	8,936.29	4,931.29	14.58	3,093.19	3,093.23	0 00	723,321.08	624,617.69
11,800 00	87.37	89.73	8,940.88	4,935.88	15.05	3,193.09	3,193.12	0 00	723,321.55	624,717.59
11,900.00	87 37	89 73	8,945.48	4,940.48	15.52	3,292.98	3,293.02	0.00	723,322.02	624,817.48
12,000.00	87.37	89.73	8,950.07	4,945.07	15.99	3,392 87	3,392.91	0.00	723,322.49	624,917 37
12,100.00	87.37	89.73	8,954.67	4,949.67	16.46	3,492.76	3,492.80	0 00	723,322.96	625,017.26
12,200.00	87 37	89.73	8,959.26	4,954.26	16.93	3,592.66	3,592 70	0 00	723,323.43	625,117.16
12,300.00	87.37	89.73	8,963.86	4,958.86	17.40	3,692.55	3,692.59	0.00	723,323.90	625,217.05
12,400.00	87.37	89.73	8,968.45	4,963.45	17.87	3,792.44	3,792.49	0.00	723,324.37	625,316.94
12,500.00	87 37	89 73	8,973.05	4,968.05	18.34	3,892.34	3,892.38	0.00	723,324 84	625,416.84

Company:	Mack Energy	**Local Co-ordinate Reference:**	Well #4H
Project:	Chaves County	**TVD Reference:**	WELL @ 4005.00ft (18' KB)
Site:	Sam Federal	**MD Reference:**	WELL @ 4005.00ft (18' KB)
Well:	#4H	**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)
12,607.73	87.37	89.73	8,978 00	4,973 00	18.85	3,999.96	4,000.00	0.00	723,325 35	625,524.46
LT#5(#4H)										
12,608 80	87.37	89.75	8,978.05	4,973.05	18.85	4,001.02	4,001.07	2.00	723,325.35	625,525.52
12,700.00	87.37	89.75	8,982 24	4,977.24	19.25	4,092.12	4,092 17	0.00	723,325 75	625,616.62
12,800.00	87.37	89.75	8,986.83	4,981 83	19.68	4,192.02	4,192.06	0.00	723,326 18	625,716.52
12,900 00	87.37	89.75	8,991.42	4,986 42	20.12	4,291.91	4,291.96	0.00	723,326.62	625,816.41
13,000.00	87 37	89.75	8,996.01	4,991.01	20.55	4,391.81	4,391.85	0.00	723,327.05	625,916.31
13,100.00	87.37	89.75	9,000.60	4,995.60	20.98	4,491.70	4,491.75	0.00	723,327.48	626,016.20
13,195 80	87.37	89.75	9,005.00	5,000.00	21.40	4,587 40	4,587.45	0.00	723,327.90	626,111.90
BHL-13195.80'MD,87.37°INC,89.75°AZI, 9005.00'TVD, 4587.45'VS, 21.40'N, 4587.40'E - PBHL(#4H)										

Company:	Mack Energy	Local Co-ordinate Reference:	Well #4H
Project:	Chaves County	TVD Reference:	WELL @ 4005.00ft (18' KB)
Site:	Sam Federal	MD Reference:	WELL @ 4005.00ft (18' KB)
Well:	#4H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	Midland Database

Targets

Target Name - hit/miss target Shape	Dip Angle (°)	Dip Dir (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
LT#3(#4H) - plan hits target - Point	0.00	0.00	8,887 00	9.42	1,999.98	723,315.925	623,524.478	32° 59' 16.132 N	103° 55' 49.740 W
LT#5(#4H) - plan hits target - Point	0.00	0.00	8,978 00	18.85	3,999.96	723,325.349	625,524.456	32° 59' 16.149 N	103° 55' 26.259 W
LT#2(#4H) - plan hits target - Point	0 00	0.00	8,839.00	4.71	999.99	723,311.212	622,524.489	32° 59' 16.123 N	103° 56' 1.480 W
PBHL(#4H) - plan hits target - Point	0.00	0.00	9,005.00	21.40	4,587.40	723,327.900	626,111.900	32° 59' 16.151 N	103° 55' 19.362 W
LT#4(#4H) - plan hits target - Point	0.00	0.00	8,932.00	14 14	2,999 97	723,320.637	624,524 467	32° 59' 16.140 N	103° 55' 37.999 W
LT#1(#4H) - plan hits target - Point	0.00	0.00	8,816.00	2.83	599.99	723,309.327	622,124.493	32° 59' 16 119 N	103° 56' 6.177 W

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
8,331.00	8,331 00	0 00	0.00	KOP-8331.00'MD,0.00°INC,0.00°AZI
9,056.29	8,808 00	2.13	452.65	EOC-9056.29'MD,87.00°INC,89.73°AZI,12.00°DLS, 452 66'VS, 2.13'N,
13,195.80	9,005 00	2.86	607.44	BHL-13195.80'MD,87.37°INC,89.75°AZI, 9005.00'TVD, 4587.45'VS, 21

Checked By: _____ Approved By: _____ Date. _____

V. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

1. Call the Roswell Field Office, 2909 West Second St., Roswell, NM 88201. During office hours call (575) 627-0205 or after office hours call (575) 910-6024. Engineer on call during office hours call (575) 627-0275 or after office hours call (575) 626-5749.

2. The BLM is to be notified a minimum of 24 hours in advance for a representative to witness:

a. Spudding well
b. Setting and/or Cementing of all casing strings

The BLM is to be notified a minimum of 4 hours in advance for a representative to witness:

BOPE Tests

3. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.

4. Include the API Number assigned to well by NMOCD on the subsequent report of setting the first casing string.

5. The operator will accurately measure the drilling rate in ft/min to set the base of the usable water protection casing string(s) opposite competent rock. The record of the drilling rate along with the caliper-gamma ray-neutron well log run to surface will be submitted to this office as well as all other logs run on the borehole 30 days from completion.

6. A closed loop fresh water and non toxic drilling mud system will be used to drill to the base of the usable water to set the protection casing string(s). Any polymers used will be water based and non-toxic. Steel tanks should be bermed sufficiently to contain any leaks or overflows.

B. CASING

1. The 13-3/8 inch usable water protection casing string(s) shall be set at approximately 450 feet in competent bedrock.

If not the operator is required to set usable water protecting casing in the next thick competent bedding (i.e. 15 to 25 ft or greater) encountered and cemented to the surface.

a. If cement does not circulate to the surface, the Roswell Field Office shall be notified and a temperature survey utilizing an electronic type temperature survey with a surface log readout will be used or a cement bond log shall be run to verify the top of the cement.

b. Wait on cement (WOC) time for a primary cement job will be a minimum 18 hours for a water basin or 500 pounds compression strength, whichever is greater. (This is to include the lead cement).

c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compression strength, whichever is greater.

d. If cement falls back, remedial action will be done prior to drilling out that string.

2. The minimum required fill of cement behind the **8-5/8** inch intermediate casing is **sufficient to circulate to the surface.** If cement does not circulate see B.1.a-d above.

3. The minimum required fill of cement behind the **5-1/2** inch production casing is **sufficient to tie back 200 feet into the 8-5/8 inch intermediate casing set at approximately 3050 feet**. If cement does not circulate, a temperature survey utilizing an electronic type temperature survey with a surface log readout will be used or a cement bond log shall be run to verify the top of the cement.

4. There is no required fill of cement behind the **4-1/2** inch production casing since a Peak Systems Iso-Pak liner will be used for lateral and will not require cementing.

5. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

6. All casing shall be new or reconditioned and tested casing and meet API standards for new casing. The use of reconditioned and tested casing shall be subject to approval by the authorized officer. Approval will be contingent upon the wall thickness of any casing being verified to be at least 87-1/2 per cent of the nominal wall thickness of new casing.

C. PRESSURE CONTROL

1. Before drilling below the **13-3/8** inch surface casing shoe, the blowout preventer assembly shall consist of a minimum of One Annular Preventer or Two Ram-Type Preventers and a Kelly Cock/Stabbing Valve. Before drilling below the **8-5/8** inch intermediate casing shoe, the blowout preventer assembly shall consist of a minimum of One Annular Preventer, Two Ram-Type Preventers, and a Kelly Cock/Stabbing Valve.

2. Before drilling below the **13-3/8** inch surface casing shoe, minimum working pressure of the blowout preventer and related equipment (BOPE) shall be **2000** psi. Before drilling below the **8-5/8** inch intermediate casing shoe, minimum working pressure of the blowout preventer and related equipment (BOPE) shall be **3000** psi.

3. The BOPE shall be installed before drilling below the **13-3/8** inch surface casing and shall be tested as described in Onshore Order No. 2. Any equipment failing to test satisfactorily shall be repaired or replaced.

a. The BLM Roswell Field office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.

b. The tests shall be done by an independent service company.

c. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug.

d. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the BLM Roswell Field Office at 2909 West Second Street, Roswell, New Mexico 88201.

e. Testing fluid must be water or an appropriate clear liquid suitable for sub-freezing temperatures. Use of drilling mud for testing is not permitted since it can mask small leaks.

f. Testing must be done in a safe workman like manner. Hard line connections shall be required.

g. A variance to test the BOPE to the reduced pressure of **1000** psi prior to drilling below the **13-3/8** inch surface casing is approved.

VI. PRODUCTION

A. WELL STRUCTURES & FACILITIES

Placement of Production Facilities

Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

Containment Structures

The containment structure shall be constructed to hold the capacity of the entire contents of the largest tank, plus 24 hour production, unless more stringent protective requirements are deemed necessary by the Authorized Officer.

Painting Requirement

All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color, **Juniper Green,** standard environmental color chart.

VII. INTERIM RECLAMATION

During the life of the development, all disturbed areas not needed for active support of production operations should undergo "interim" reclamation in order to minimize the environmental impacts of development on other resources and uses. Earthwork for interim and final reclamation must be completed within 6 months of well completion or well plugging (weather permitting). The operator shall submit a Sundry Notices and Reports on Wells (Notice of Intent), Form 3160-5, prior to conducting interim reclamation.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche may be used in road repairs, fire walls or for building other roads and locations. In addition, in order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

PECOS DISTRICT, BLM
SEED MIX FOR
Sandy Plains CP-2 Ecological Site, Sand Hills CP-2 Ecological Site, Deep Sand SD-3 Ecological Site

Common Name and Preferred Variety	Scientific Name	Pounds of Pure Live Seed Per Acre
Sand bluestem,	(*Andropogon hallii)*	0.5
Little bluestem	(*Schizachyrium scoparium*)	0.5
Sideoats grama,	(*Bouteloua curtipendula)*	1.5
Sand dropseed	(*Sporobolus cryptandrus)*	0.5
Spike dropseed	(*S. contractus*)	0.5
Mesa dropseed	(*S. flexuosus*)	0.5
Plains bristlegrass	(*Setaria macrostachya)*	2.0
Desert or Scarlet Globemallow	(*Sphaeralcea ambigua*) or (*S. coccinea)*	0.5
Buckwheat	(*Eriogonum* spp.)	1.5
TOTAL POUNDS PURE LIVE SEED (pls) PER ACRE		8.00

Certified Weed Free Seed

IF ONE SPECIES IS NOT AVAILABLE
INCREASE ALL OTHER PROPORTIONATELY
NO LESS THAN SIX (6) SPECIES WITH A MINIMUM OF ONE (1) FORB.
NO LESS THAN 8.0 POUNDS PLS PER ACRE SHALL BE APPLIED.

VIII. FINAL ABANDONMENT & REHABILITATION REQUIREMENTS

a) Upon abandonment of the well and/or when the access road is no longer in service, a Notice of Intent for Final Abandonment with the proposed surface restoration procedure must be submitted for approval.

b) On private surface/federal mineral estate land the reclamation procedures on the road and well pad shall be accomplished in accordance with the Private Surface Land Owner agreements and a copy of the release is to be submitted upon abandonment.

c) Upon abandonment of the well, all casing shall be cut-off at the base of the cellar or 3-feet below final restored ground level (whichever is deeper). The well bore shall then be covered with a metal plate at least ¼ inch thick and welded in place. The following information shall be permanently inscribed on the dry hole marker: Well name and number, the name of the operator, the lease serial number, the surveyed location (the quarter-quarter section, section, township and range or other authorized survey designation acceptable to the authorized officer; such as metes and bounds).

d) Surface Reclamation must be completed within 6 months of well plugging. If the operator proposes to modify the plans for surface reclamation approved on the APD, the operator must attach these modifications to the Subsequent Report of Plug and Abandon using Sundry Notices and Reports on Wells, Form 3160-5.

IX. SEASONAL DRILLING REQUIREMENT - Lesser Prairie Chicken Stipulation:

The Roswell Approved Resource Management Plan and Record of Decision addresses the preservation of the Lesser Prairie Chicken wildlife habitat.

1. There shall be no earthmoving construction activities, well exploratory and/or developmental drilling, well completion, plugging and abandonment activities, **between March 1st through June 15th**, of each year. During that period, other activities, including the operation and maintenance of oil and gas facilities, will not be allowed between **3:00 A.M.** and **9:00 A.M.**. To the extent practicable, activities occurring for a short period of time may be conducted so long as they do not commence until after **9:00 A.M.**. Any deviation from this stipulation must be approved in writing by the Roswell Field Office Manager or the appropriate Authorized Officer.

2. All motors or engines that produce high noise levels shall have mufflers installed that effectively reduce excessive noise levels within prairie chicken habitat. High noise levels produced by motors or engines shall be reduced and muffled so as not to exceed **75 db** measured at 30 feet from the source of the noise.

3. Upon abandonment of the well, reclamation activities can be conducted between **March 1st through June 15th**, so long as reclamation work shall not be conducted between the hours of **3:00 AM** to **9:00 AM**. Any deviation from this requirement shall require prior approval by the Authorized Officer.

4. In an emergency situation, the Authorized Officer can allow a pit to be constructed for the purpose of collecting crude oil for removal. To prevent wildlife from entering the pit, netting of adequate size to deter access by wildlife shall cover the pit until it is no longer a threat to wildlife, and the pit is reclaimed.