Form 3160-3
(March 2012)

N.M. OIL CONSERVATION DIVISION
811 S. FIRST STREET
ARTESIA, NM 88210

FORM APPROVED
OMB No. 1004-0137
Expires October 31, 2014

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.: NMNM-119751

6. If Indian, Allotee or Tribe Name:

7. If Unit or CA Agreement, Name and No.:

1a. Type of work: ☒ DRILL ☐ REENTER

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

8. Lease Name and Well No.: Liberator Federal #1

2. Name of Operator: Mack Energy Corporation

9. API Well No.: 30-005-64220

3a. Address: PO Box 960 Artesia, NM 88211-0960

3b. Phone No. *(include area code)*: (575)748-1288

10. Field and Pool, or Exploratory: Wildcat;San Andres (97627)

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

At surface: 2310 FNL & 330 FWL

At proposed prod. zone:

11. Sec., T. R. M. or Blk. and Survey or Area: Sec. 21 T14S R29E

14. Distance in miles and direction from nearest town or post office*: 18 miles northwest of Loco Hills, NM

12. County or Parish: Chaves

13. State: 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: 1959.84

17. Spacing Unit dedicated to this well: 40

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.: N/A

19. Proposed Depth: 3500'

20. BLM/BIA Bond No. on file: NMB000286

21. Elevations (Show whether DF, KDB, RT, GL, etc.): 3777' GR

22. Approximate date work will start*: 2/15/2014

23. Estimated duration: 7 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, must 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 must 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 BLM.

25. Signature: Jerry W. Sherrell — Name *(Printed/Typed)*: Jerry W. Sherrell — Date: 1-7-2014

Title: Production Clerk

Approved by (Signature): /s/ Al Collar — Name *(Printed/Typed)*: /s/ Al Collar — Date: DEC 29 2014

Title: Assistant Field Manager, Lands & Minerals — Office: ROSWELL FIELD OFFICE

APPROVED FOR 2 YEARS

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

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Continued on page 2) *(Instructions on page 2)

ROSWELL CONTROLLED WATER BASIN

CEMENT BEHIND THE 8 5/8" CASING MUST BE CIRCULATED SURFACE

WITNESS

APPROVAL SUBJECT TO GENERAL REQUIREMENTS AND SPECIAL STIPULATIONS ATTACHED

NM OIL CONSERVATIO
ARTESIA DISTRICT
DEC 31 2014
RECEIVED

12. Lessee's and Operator's Representative:

The Mack Energy Corporation representative responsible for assuring compliance with the surface use plan is as follows:

Jerry W. Sherrell
Mack Energy Corporation
P.O. Box 960
Artesia, NM 88211-0960
Phone (575) 748-1288 (office)
jerrys@mec.com

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: 2-18-2014 **Signed:** Jerry W. Sherrell
Jerry W. Sherrell

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
30-005-64220	97662	WC; Lone Wolf; San Andres, South

[4] Property Code	[5] Property Name	[6] Well Number
314057	LIBERATOR FEDERAL	1

[7] OGRID No.	[8] Operator Name	[9] Elevation
13837	MACK ENERGY CORPORATION	3777.3

[10] Surface Location

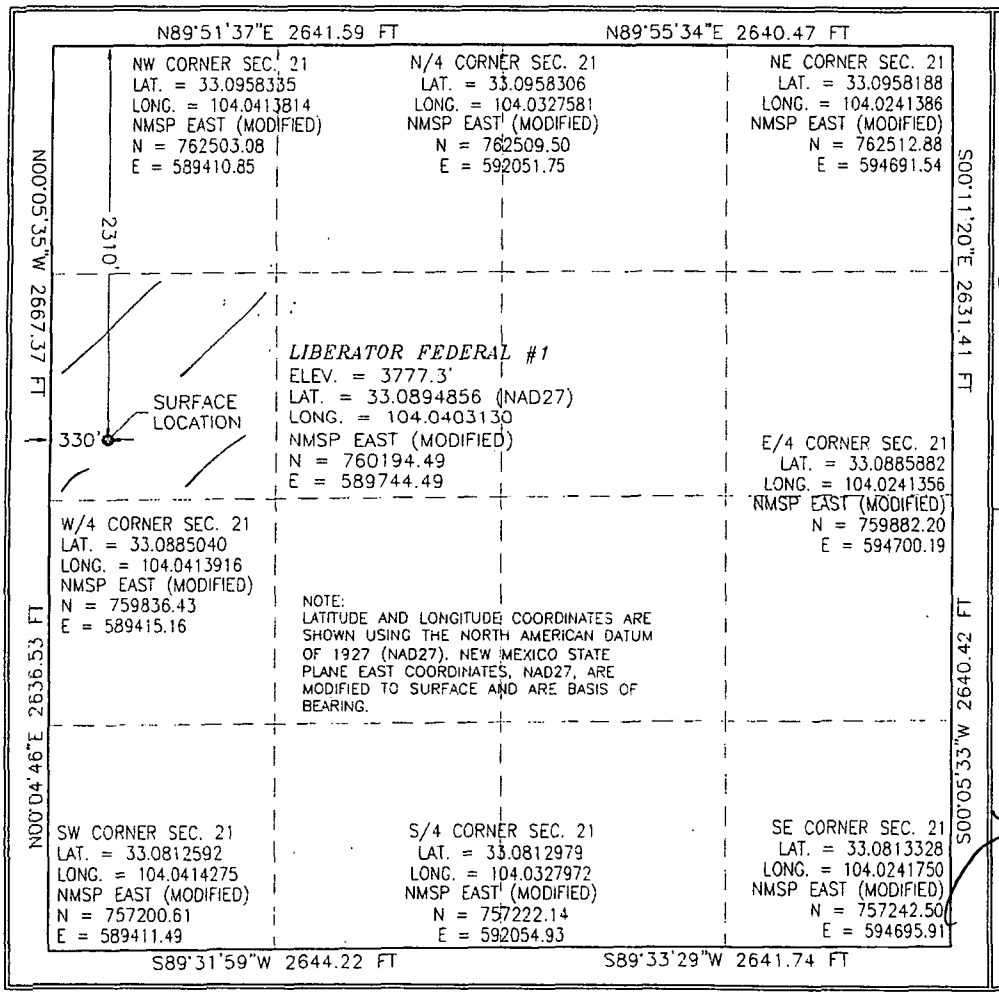
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
E	21	14 S	29 E		2310	NORTH	330	WEST	CHAVES

[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

[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 — 1/7/14
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.

AUGUST 3, 2013
Date of Survey

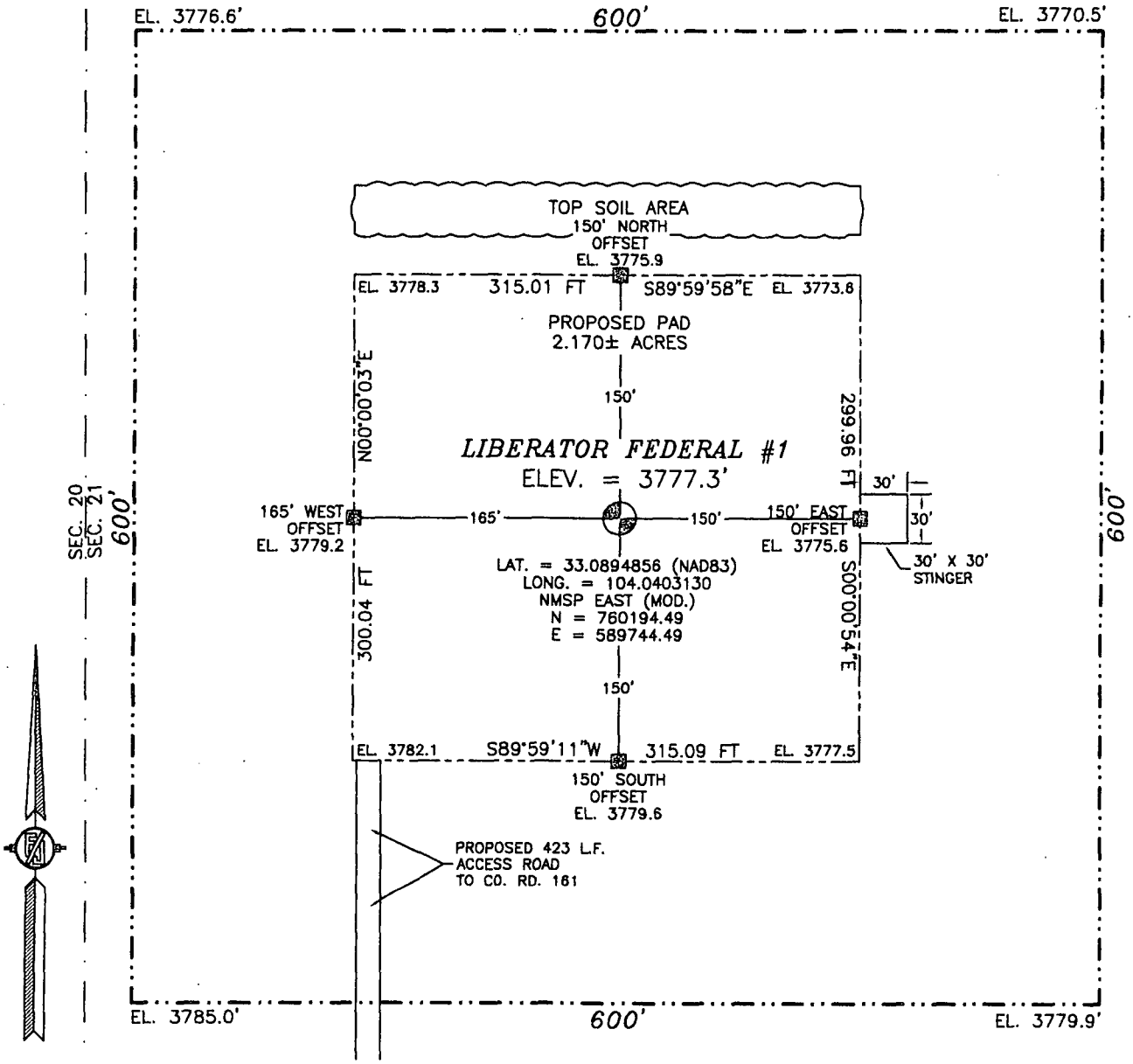
Signature and Seal of Professional Surveyor

Certificate Number FILIMON F. JARAMILLO-PLS 12797

SURVEY NO. 2056

SECTION 21, TOWNSHIP 14 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO

NOTE: LATITUDE AND LONGITUDE COORDINATES ARE SHOWN USING THE NORTH AMERICAN DATUM OF 1927 (NAD27). NEW MEXICO STATE PLANE EAST COORDINATES, NAD 27, ARE MODIFIED TO SURFACE AND ARE BASIS OF BEARING.



010 50 100 200

SCALE 1" = 100'

DIRECTIONS TO LOCATION

FROM THE INTERSECTION OF CO. RD. 161 (KATRINA) AND CO. RD. 27 (TERESA) GO NORTHWEST ON 161 FOR APPROX. 1 MILE. LOCATION IS APPROX. 570' NORTH

MACK ENERGY CORPORATION
LIBERATOR FEDERAL #1

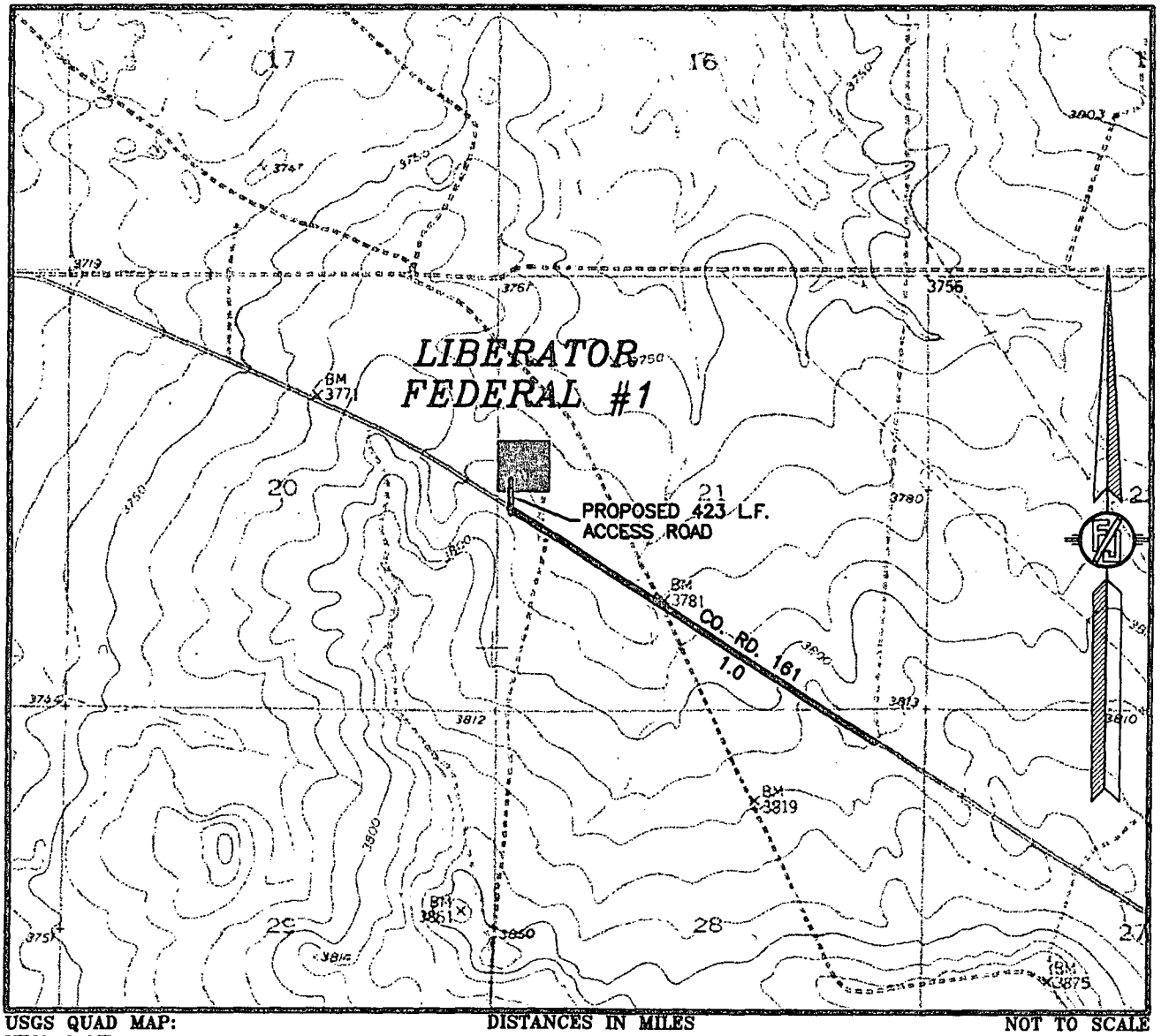
LOCATED 2310 FT. FROM THE NORTH LINE AND 330 FT. FROM THE WEST LINE OF SECTION 21, TOWNSHIP 14 SOUTH, RANGE 29 EAST, N.M.P.M. CHAVES COUNTY, STATE OF NEW MEXICO

AUGUST 3, 2013

SURVEY NO. 2056

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

SECTION 21, TOWNSHIP 14 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO
LOCATION VERIFICATION MAP



USGS QUAD MAP:
KING CAMP

DISTANCES IN MILES

NOT TO SCALE

DIRECTIONS TO LOCATION
FROM THE INTERSECTION OF CO. RD. 161 (KATRINA) AND CO. RD. 27 (TERESA) GO NORTHWEST ON 161 FOR APPROX. 1 MILE. LOCATION IS APPROX. 570' NORTH

MACK ENERGY CORPORATION
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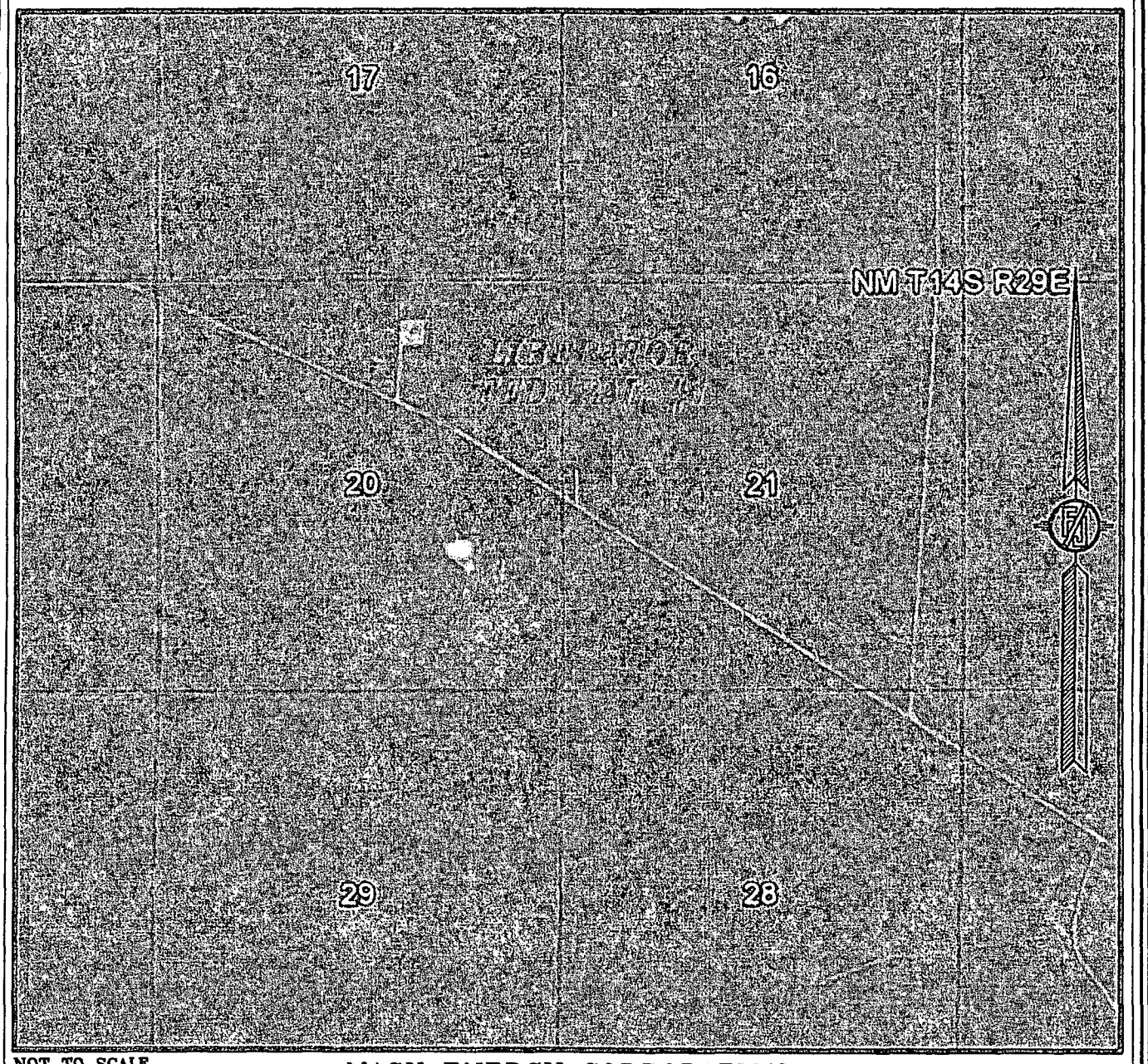
AUGUST 3, 2013

SURVEY NO. 2056

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 *CARLSBAD, NEW MEXICO*

SECTION 21, TOWNSHIP 14 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO

AERIAL PHOTO



NOT TO SCALE
AERIAL PHOTO:
GOOGLE EARTH
JULY 2011

MACK ENERGY CORPORATION
LIBERATOR FEDERAL #1
LOCATED 2310 FT. FROM THE NORTH LINE
AND 330 FT. FROM THE WEST LINE OF
SECTION 21, TOWNSHIP 14 SOUTH,
RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO

AUGUST 3, 2013

SURVEY NO. 2056

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

Attached to Form 3160-3
Mack Energy Corporation
Liberator Federal #1
2310 FNL & 330 FWL, SW/NW, Sec. 21 T14S R29E
Chaves County, NM

DRILLING PROGRAM

1. Geologic Name of Surface Formation

Quaternary

2. Estimated Tops of Important Geologic Markers:

Quarternary	760'	Grayburg	2000'
Yates	920'	San Andres	2282'
Queen	1670'		

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

Water Sand	150'	Fresh Water
Yates	920'	Oil/Gas
Queen	1670'	Oil/Gas
San Andres	2282'	Oil/Gas

No other formations are expected to give up oil, gas or fresh water in measurable quantities. Setting 8 5/8" casing to 450' and circulating cement back to surface will protect the surface fresh water sand. Salt section and 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
12 ¼"	0-450'	8 5/8"	32#, J-55, ST&C, New, 12.572/7.377/7.860
7 7/8"	0-3500	5 ½"	17#,L-80,LT&C, New, 2.698/1.817/1.773

5. Cement Program:

8 5/8" Surfac Casing: 450sx, Class C + 1% PF1, yield 1.33, wt 14.8 ppg, excess 100%
5 ½" Production Casing: Lead 225sx 35/65 Poz C + 5% PF44 + 6% PF20 + .25#/sx PF46 + .125#/sx PF29 + 3% PF46, yield 2.47, wt 11.9 ppg, excess 35%, Tail 200sx PVL + 1.3% PF44, 5% PF174 + 5% PF606 + .1% PF153 +.2% PF13, yield 1.47, wt 13.0 ppg, 35% excess.

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. 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 11" BOP will be nipped up on the 8 5/8" surface casing and tested by a 3rd party to 2000 psi 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 and cut brine 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'-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.

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 1,515 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 February 15 2014. Once commenced, the drilling operation should be finished in approximately 7 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.

Attached to Form 3160-3
Mack Energy Corporation
Liberator Federal #1
2310 FNL & 330 FWL, SW/NW, Sec. 21 T14S R29E
Chaves County, NM

Attachment to Exhibit #10
NOTES REGARDING THE BLOWOUT PREVENTERS
Liberator Federal #1
Chaves 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.

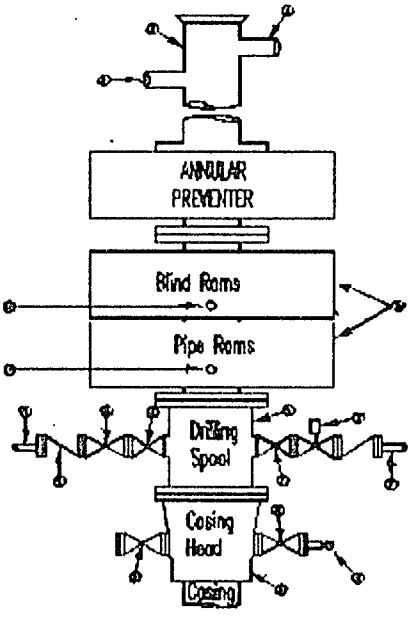
10. Blow out preventer control to be located as close to driller's position as feasible.

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
13 3/8 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:

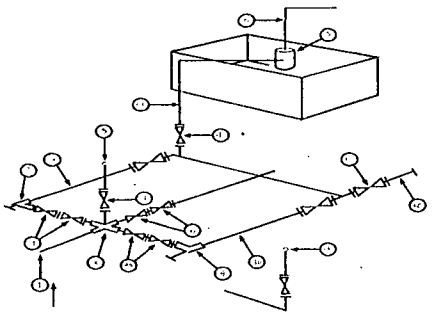
1. Bradenhead or casing head and side valves.
2. Wear bushing, if required.

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. 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

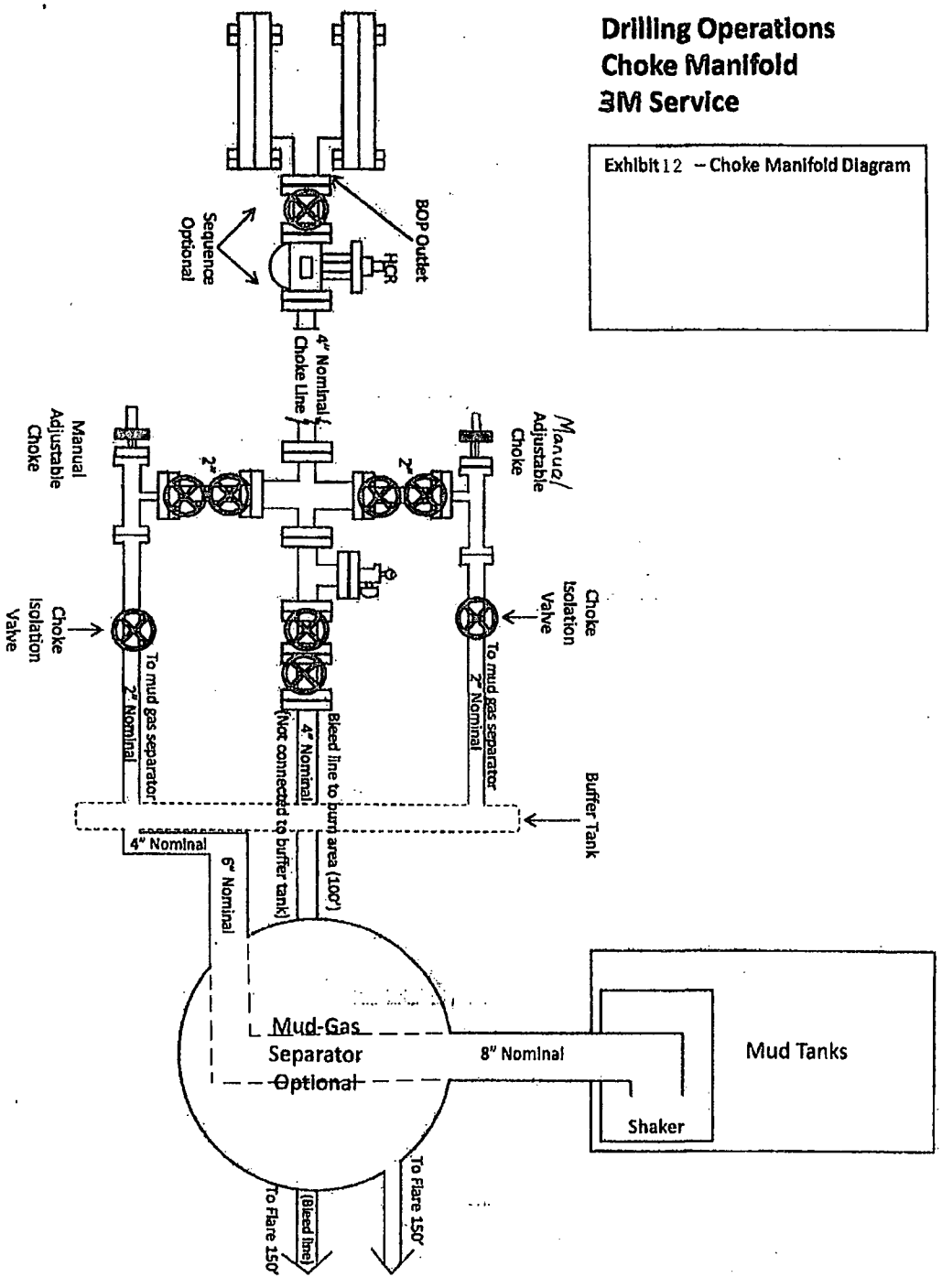
(1) Only one required in Class 3M
(2) Gate valves only shall be used for Class 10 M
(3) Remote operated hydraulic choke required on 5,000 psi and 10,000 psi for drilling.

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

MANIFOLD SCHEMATIC
Exhibit #12



Attached to Form 3160-3
Mack Energy Corporation
Liberator Federal #1
2310 FNL & 330 FWL, SW/NW, Sec. 21 T14S R29E
Chaves 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 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

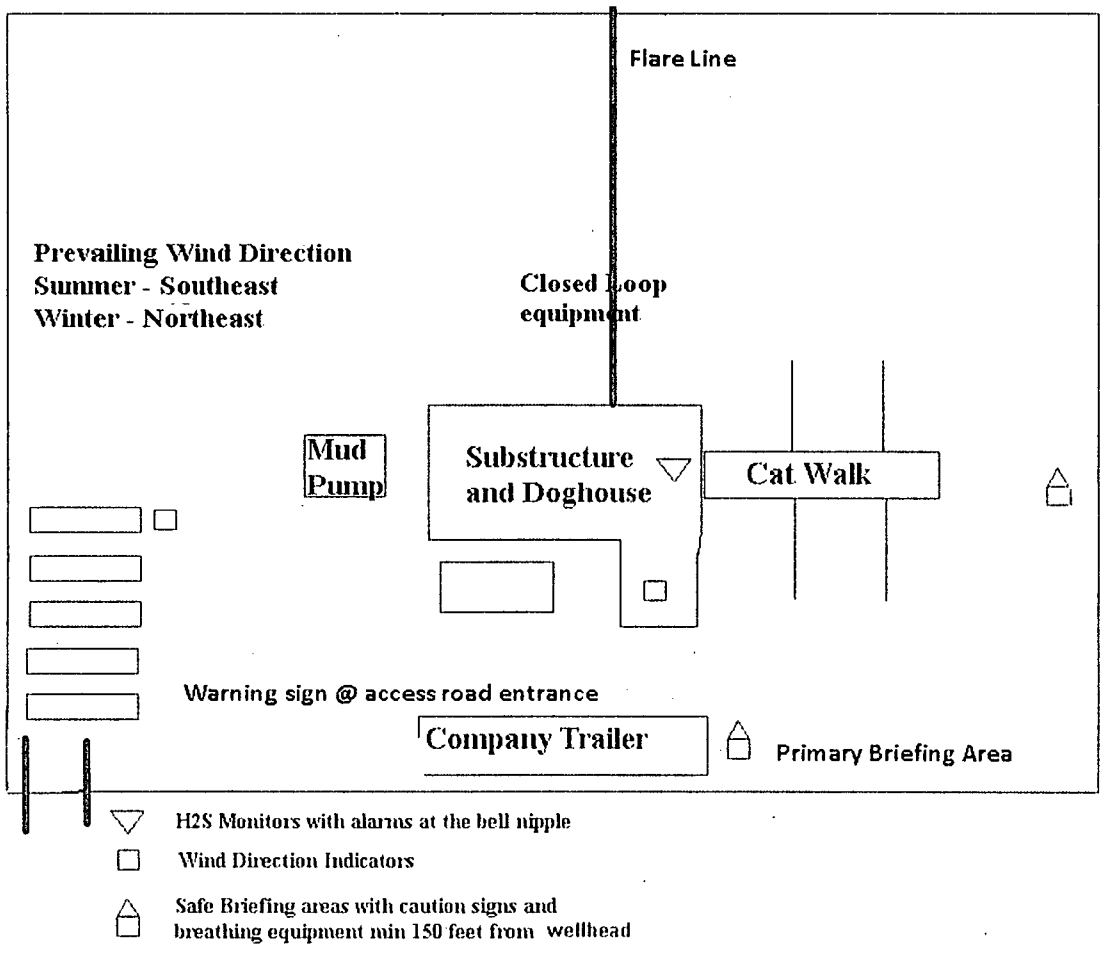
YOU ARE ENTERING AN H2S

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

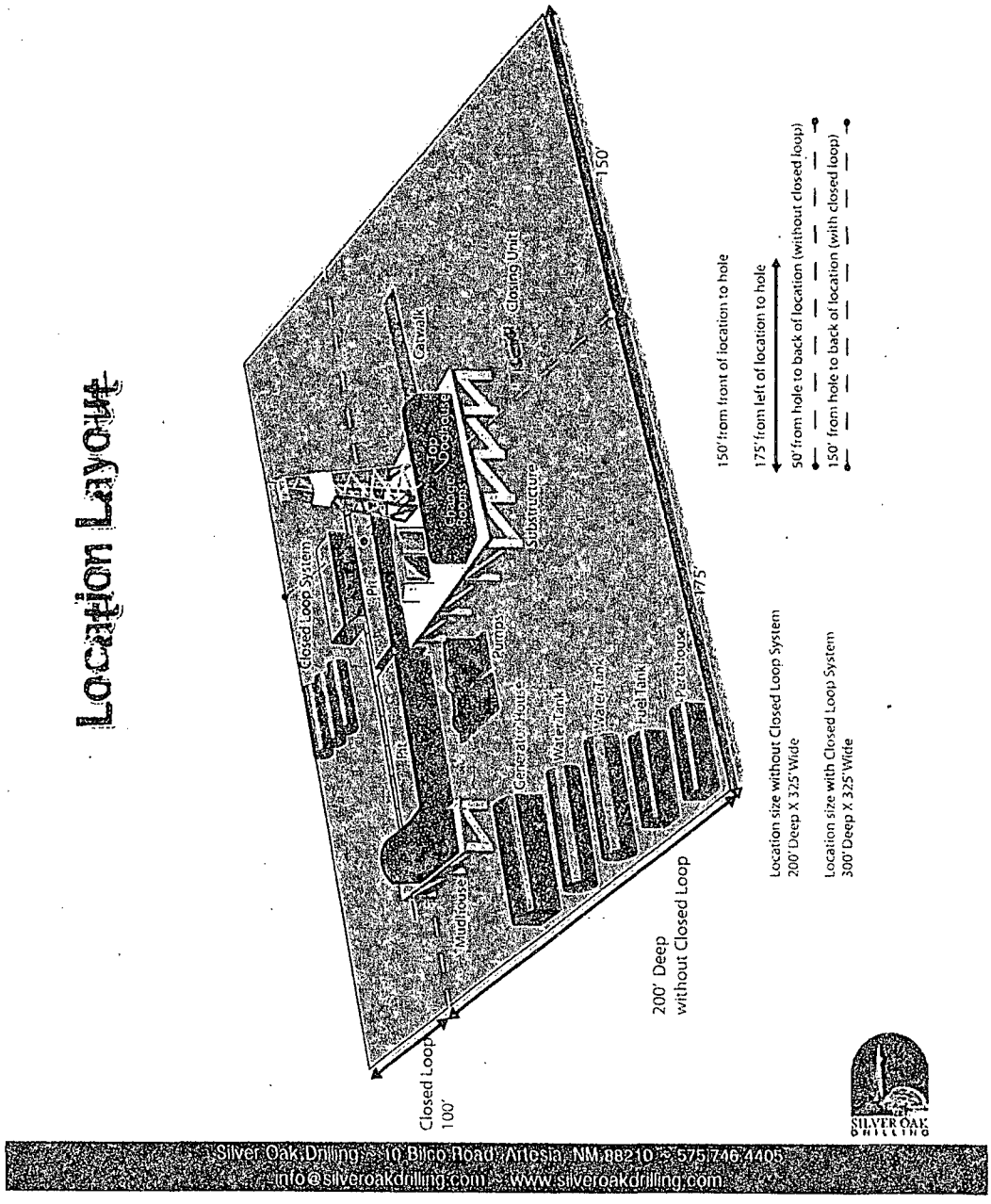
MACK ENERGY CORPORATION

1-575-748-1288



DRILLING LOCATION H2S SAFTY EQUIPMENT

Exhibit # 8



Mack Energy Corporation Call List, Chaves County

Artesia (575)	Cellular	Office
Jim Krogman	432-934-1596	748-1288
Donald Archer	748-7875	748-1288
Emilio Martinez	432-934-7586	748-1288
Kevin Garrett	432-934-7948	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
Par Five	748-9539
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

SURFACE USE AND OPERATING PLAN

1. Existing Access Roads

A. All roads to the location are shown in Exhibit #6. The existing lease roads are illustrated and are adequate for travel during drilling and production operations. Upgrading existing roads prior to drilling well, will be done where necessary.

B. Directions to Location: From the intersection of County Rd. 161 and County Rd. 27, go northwest on 161 approx. 1 mile, this location is 570' north.

C. Routine grading and maintenance of existing roads will be conducted as necessary to maintain their condition as long as any operations continue on this lease.

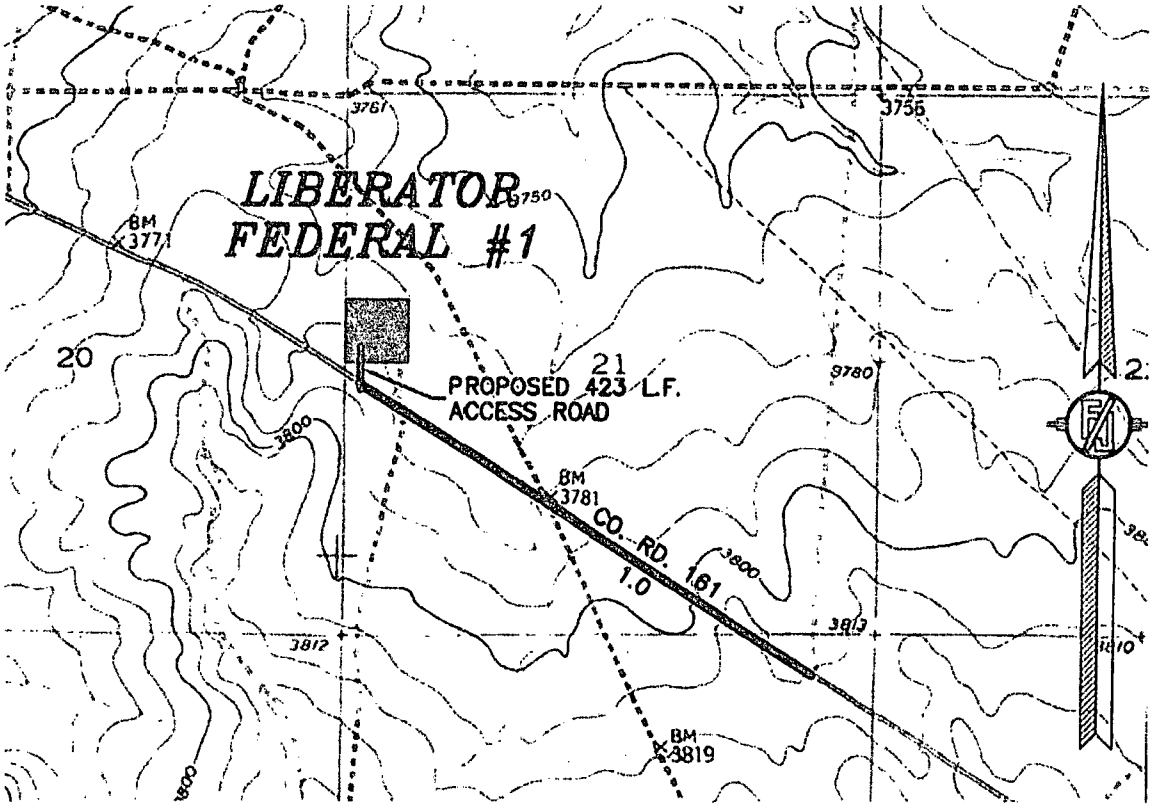


Exhibit #6

1. Proposed Access Road:

Vicinity Map this location with existing road and 423' of new road. Proposed upgrade of existing road will be done along staked centerline survey. Necessary maintenance will be done to insure traffic stays within proposed ROW. The road has been constructed as follows:

A. The Maximum width of the running surface will be 14'. The road will be crowned and ditched and constructed of 6" rolled and compacted caliche. Ditches will be at 3:1 slope and 3 feet wide. Water will be diverted where necessary to avoid ponding, prevent erosion, maintain good drainage, and to be consistent with local drainage patterns.

B. The average grade will be less than 1%.

C. No turnouts are planned.

D. No culverts, cattleguard, gates, low water crossings or fence cuts are necessary.

E. Surfacing material will consist of native caliche. Caliche will be obtained from the nearest BLM approved caliche pit.

F. The access road as shown in Exhibit #6 is existing.

2. Location of Existing Wells:

Exhibit #16 shows all existing wells within a one-mile radius of this well.

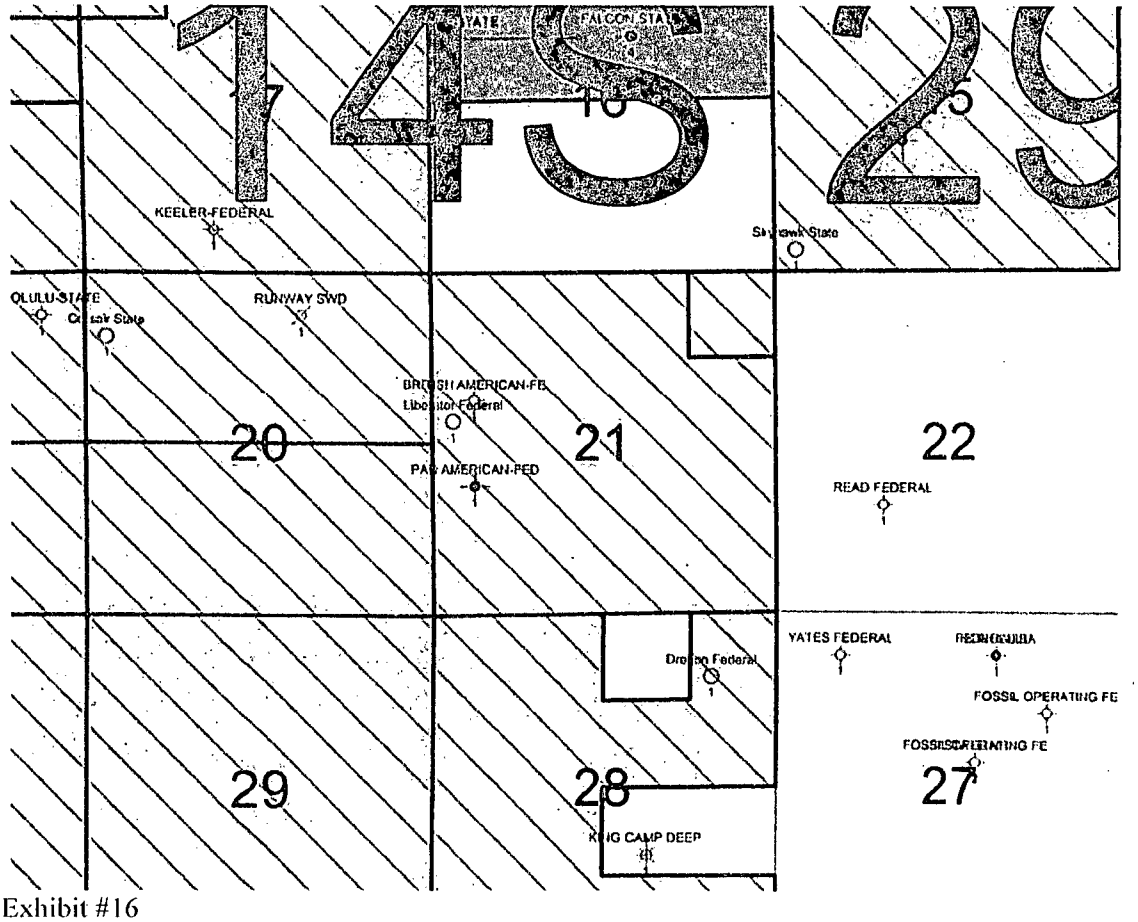


Exhibit #16

3. Location of Existing and/or Proposed Facilities:

A. Mack Energy Corporation will construct a facility at this location.

B. If the well is productive, contemplated facilities will be as follows:

1) Round Tank;San Andres Completion: Will be sent to the Liberator Federal TB located at the #1 well. The Facility is shown in Exhibit #13.

2) The tank battery and facilities including all flow lines and piping will be installed according to API specifications.

3) Any additional caliche will be obtained from a BLM approved caliche pit. Any additional construction materials will be purchased from contractors.

4) It will be necessary to run electric power if this well is productive. Power will be run by CVE and they will send in a separate plan for power.

C. Proposed flow lines will stay on this location. A Tank Battery facility will be constructed.

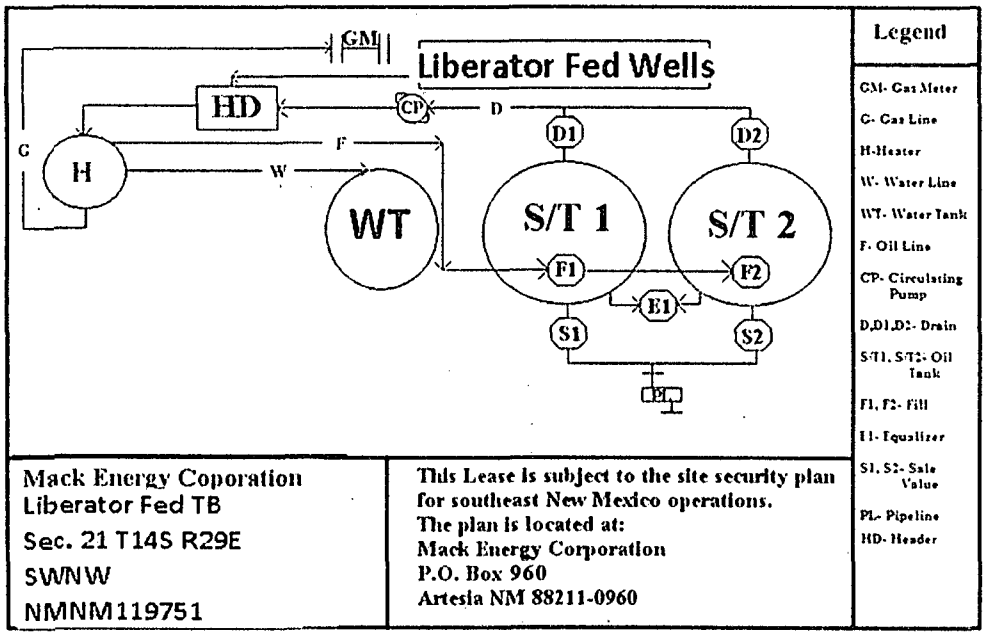


Exhibit #13

4. Location and Type of Water Supply:

The well will be drilled with combination brine and fresh water mud system as outlined in the drilling program. The water will be obtained from commercial water stations in the area and hauled to location by transport truck over the existing and proposed access roads shown in Exhibit #6. If a commercial fresh water source is nearby, fasline may be laid along existing road ROW's and fresh water pumped to the well. No water well will be drilled on the location.

5. Source of Construction Materials:

All caliche required for construction of the drill pad and proposed new access road (approximately 2500 cubic yards) will be obtained from a BLM approved caliche pit.

6. Methods of Handling Waste:

A. Drill cuttings and fluids will be disposed into the steel tanks and hauled to R-360 disposal facility, permit number NM-01-0006. Located on Hwy 62 at MM 66.

B. Water produced from the well during completion may be disposed into a steel tank. After the well is permanently placed on production, produced water will be collected in tanks (fiberglass) until pumped to our Round Tank SWD; produced oil will be collected in steel tanks until sold.

C. Garbage and trash produced during drilling or completion operations will be collected in a trash bin and hauled to an approved local landfill. No toxic waste or hazardous chemicals will be produced by this operation.

D. After the rig is moved out and the well is either completed or abandoned, all waste materials will be cleaned up within 30 days. In the event of a dry hole only a dry hole marker will remain.

E. Sewage and Gray Water will be placed in container and hauled to a approved facility. Container and disposal handled by L&S Septic.

F. Drilling fluids will be contained in steel tanks using a closed loop system Exhibit #12. No pits will be used during drilling operations

7. Ancillary Facilities:

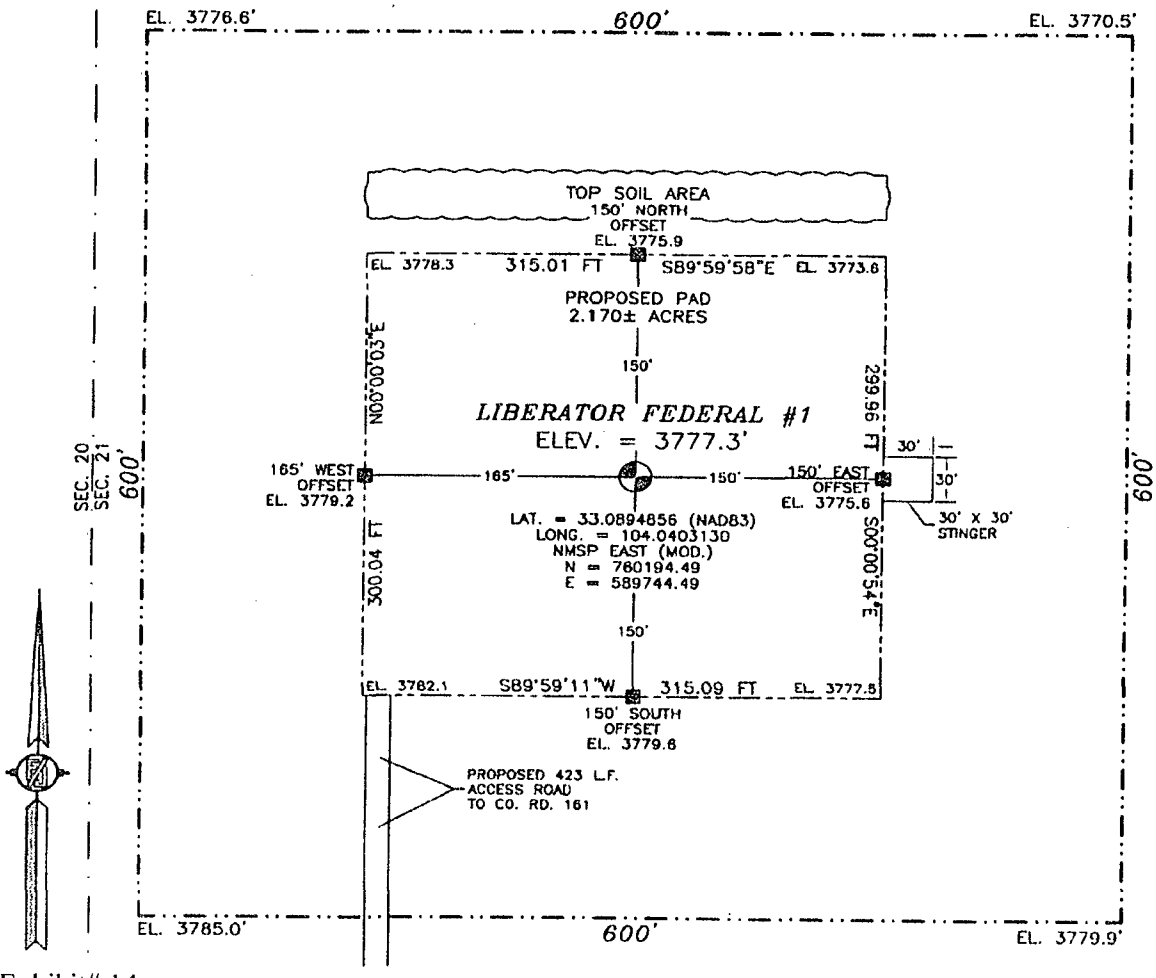
No airstrip, campsite or other facilities will be built as a result of the operation on this well.

8. Well Site Layout:

A. The well site and elevation plat for the proposed well is shown in Exhibit #14. It was staked by Maddron Surveying, Hobbs, NM.

B. The drill pad layout, with elevations staked by Maddron Surveying, is shown in Exhibit #14. 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.

C. 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# 14

9. Plans for Restoration of the Surface:

A. Upon completion of the proposed operations, if the well is completed, any additional caliche required for facilities will be obtained from a BLM approved caliche pit.

B. Plans for interim and or final remediation:

1) Caliche will be removed, ground ripped and stockpiled topsoil used to recontoured as close as possible to the original natural level to prevent erosion and ponding of water.
2) Area will be reseeded as per BLM specifications. Seeding will be done when moisture is available and weather permitting. Pure live seed will be used to prevent noxious weeds. Annual inspection of growth will be done and necessary measures taken to eliminate noxious weeds.

C. Exhibit #15 below shows the proposed downsized well site after Interim Reclamation. Dimensions are estimates on present conditions and are subject to change.

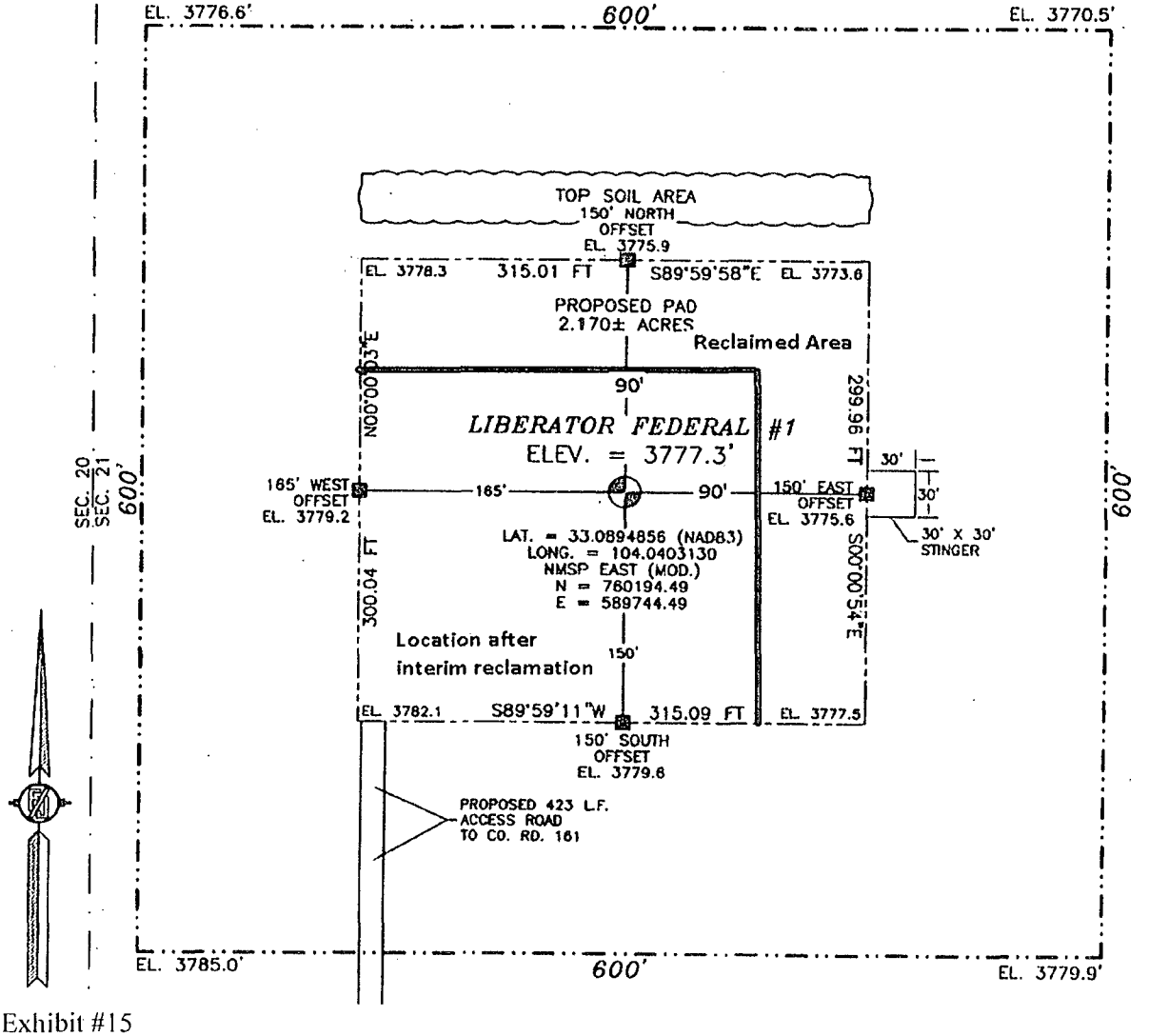


Exhibit #15

10. Surface Ownership:

The well site and lease is located entirely on Federal surface. We have notified the surface lessee of the impending operations. According to BLM the leasee is Bogel Limited Company, PO Box 460 Dexter, NM 88230 (575) 365-2996.

11. Other Information:

A. The area around the well site is grassland and the topsoil is sandy. The vegetation is native scrub grass with sagebrush.

B. There is no permanent or live water in the immediate area.

C. A Cultural Resources Examination has been requested and will be forwarded to your office in the near future.

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME: Mack Energy Corporation - , Jerry Sherrell
LEASE NO.: NMNM-119750
WELL NAME & NO.: CATALINA FEDERAL - 1
LOCATION: Section 007, T014. S., R 029 E., NMPM
COUNTY: Chaves County, New Mexico

OPERATOR'S NAME: Mack Energy Corporation - , Jerry Sherrell
LEASE NO.: NMNM-119751
WELL NAME & NO.: LIBERATOR FEDERAL - 1
LOCATION: Section 021, T014. S., R 029 E., NMPM
COUNTY: Chaves County, New Mexico

OPERATOR'S NAME: Mack Energy Corporation - , Jerry Sherrell
LEASE NO.: NMNM-119752
WELL NAME & NO.: DRAGON FEDERAL - 1
LOCATION: Section 028, T014. S., R 029 E., NMPM
COUNTY: Chaves County, New Mexico

1. All surface disturbances shall follow the operating standards and guidelines within The Gold Book , Fourth Edition – Revised 2007. To obtain a copy with no charge contact Harley Davis (575) 627-0247 or visit BLM on the web at: http://www.blm.gov/wo/st/en/prog/energy/oil_and_gas/best_management_practices/gold_book.html
   All construction and operations shall follow the Onshore Oil and Gas Operations as described in the 43 CFR part 3160.

2. A complete copy of the *approved* APD and the attached Conditions of Approval (COAs) shall be kept on the well's location for reference upon inspections.

3. Containment Dikes

A containment structure or earthen dike shall be constructed and maintained on the north, south, and east sides of the outside boundary of the Dragon Federal #1 well pad in order to protect the nearby ephemeral drainage to the east. If the well pad is constructed into a cut on a slope then the uphill side of the well pad will not require the construction of the containment structure or earthen dike, but the construction of the containment structure or dike will be required on the remaining three sides of the well pad which will extend into the uphill portion of the well pad. The containment structure or earthen dike is required so that if

oilfield waste contaminant or product contaminant were leaked, spilled, and or released upon the well pad the oilfield waste contaminant or product contaminant shall be contained on the well pad and not enter into the nearby ephemeral drainage to the east. The containment structure or earthen dike shall be constructed two (2) feet high (the containment structure or earthen dike can be constructed higher than the two (2) feet high minimum). The containment structure or earthen dike shall be constructed and maintained during the drilling phase, the production phase and for the life of the well. During interim reclamation, if the surface area of the constructed well pad is reduced then the original constructed containment structure or earthen dike and a portion of the constructed well pad will be excavated and removed. During interim reclamation, the containment structure or earthen dike will then be re-constructed on the outside boundaries of the reduced in size constructed well pad. Topsoil will not be used to construct the containment structure. During interim reclamation the east side of the pad will be reduced by 70 feet in order to avoid the drainage located to the east of the well pad.

Any water erosion that may occur due to the construction of the well pad during the life of the well will be quickly corrected and proper measures will be taken to prevent future erosion.

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.

4. Well Pad Surfacing:
Surfacing of the well pad is not required. If the operator elects to surface the well pad, the surfacing material will be required to be removed at the time of reclamation. The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational need.

5. Road Surfacing:
Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material will be required to be removed at the time of reclamation. Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water. The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

Ditching shall be required on both sides of the constructed road.

6. PIPELINE PROTECTION REQUIREMENT
Precautionary measures shall be taken by the operator during construction of the access road to protect existing pipelines that the access road will cross over. An earthen berm; 2 feet high by 3 feet wide and 14 feet across the access road travelway (2' X 3' X 14'), shall be

constructed over existing pipelines. The operator shall be held responsible for any damage to existing pipelines. If the pipeline is ruptured and/or damaged the operator shall immediately cease construction operations and repair the pipeline. The operator shall be held liable for any unsafe construction operations that threaten human life and/or cause the destruction of equipment.

7. PALEONTOLOGICAL RESOURCES

If previously undocumented paleontological sites are encountered during construction, the project proponent will immediately stop all construction activities in the immediate vicinity of the discovery. The proponent with then immediately notify the paleontological monitor (if required), or the BLM/RFO paleontology resource staff. It is necessary to protect fossil material and their geological context upon discovered during construction. The BLM would then evaluate the site. Should the discovery be evaluated as significant, it will be protected in place until mitigation measures can be developed and implemented according to guidelines set by the BLM. Mitigation measures such as data and fossil recovery may be required by the BLM to prevent impacts to newly identified paleontological resources.

8. WASTES, HAZARDOUS AND SOLID

Waste materials produced during all phases of operation will be disposed of promptly in an approved manner so it will not impact the air, soil, water, vegetation or animals. "Waste" means all discarded matter including, but not limited to, human waste, trash, garbage, refuse, oil drums, petroleum products, ashes and equipment. All liquid waste, completion fluids and drilling products associated with oil and gas operations will be contained and then removed and deposited in an approved disposal site. Portable toilets will remain on site throughout well pad construction, drilling and reclamation.

The operator and contractors shall ensure that all use, production, storage, transportation and disposal of hazardous materials, solid wastes and hazardous wastes associated with the drilling, completion and production of this well will be in accordance with all applicable existing or hereafter promulgated federal, state and local government rules, regulations and guidelines. All project related activities involving hazardous materials will be conducted in a manner to minimize potential environmental impacts. A file will be maintained onsite containing current Material Safety Data Sheets (MSDS) for all chemicals, compounds and/or substances which are used in the course of construction, drilling, completion and production operations.

9. Drilling:

DRILLING OPERATIONS REQUIREMENTS:

1. Call the Roswell Field Office, 2909 West Second St., Roswell, NM 88201. During or after office hours call (575) 627-0205. 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
c. BOPE Tests

3. A Hydrogen Sulfide (H2S) Drilling Operation Contingency Plan shall be activated prior to drilling into the **San Andres** formation. A copy of the plan shall be posted at the drilling site.

4. 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.

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

6. The operator will accurately measure the drilling rate in feet/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.

7. Air, air-mist or fresh water and nontoxic drilling mud shall be used to drill to the base of the usable water protection casing string(s). Any polymers used will be water based and non-toxic.

CASING:

1. Deepest depth of usable water occurs at a depth under 100 feet according to the State Engineer. The operator will run **100** feet of conductor pipe and ready mix cement to the surface. The **8-5/8** inch usable water protection casing string(s) shall be set between **380** feet and **450** feet.

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 **5-1/2** inch production casing is **sufficient to circulate to the surface**. 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.

3. 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.

4. 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.

PRESSURE CONTROL:

1. Before drilling below the **8-5/8** 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.

2. Before drilling below the **8-5/8** inch surface casing shoe, minimum working pressure of the blowout preventer and related equipment (BOPE) shall be **2000** psi. If operator chooses to use a control device greater than the minimum stand they will have to follow all guidelines as stated within Bureau of Land Management 43 CFR part 3160 and Onshore Oil and Gas Order No. 2 Drilling Operations.

3. The BOPE shall be installed before drilling below the **8-5/8** inch surface casing shoe 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 24 hours in advance for a representative to witness the tests.

b. 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.

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

d. 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.

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

f. The requested variance to test the BOPE prior to **drilling below the 8-5/8 inch surface casing** to the reduced pressure of **2000** psi by a third party is approved.

10. INTERIM RECLAMATION

Reclamation earthwork for interim and/or final reclamation shall be completed within 6 months of well completion or well plugging (weather permitting), and shall consist of: 1) backfilling pits, 2) re-contouring and stabilizing the well site, access road, cut/fill slopes, drainage channels, utility and pipeline corridors, and all other disturbed areas, to approximately the original contour, shape, function, and configuration that existed before construction (any compacted backfilling activities shall ensure proper spoils placement , settling, and stabilization)., 3) surface ripping, prior to topsoil placement, to a depth of 18-24 inches deep on 18-24 inch centers to reduce compaction, 4) final grading and replacement of all topsoil so that no topsoil's remains in the stockpile, 5) seeding in accordance with reclamation portions of the APD and these COA's.

Any subsequent re-disturbance of interim reclamation shall be reclaimed within six (6) months by the same means described herein.

Prior to conducting interim reclamation, the operator is required to:

- Submit a Sundry Notices and Reports on Wells (Notice of Intent), Form 3160-5, prior to conducting interim reclamation.

- Contact BLM at least three (3) working days prior to conducting any interim reclamation activities, and prior to seeding.

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.

Disturbing re-vegetated areas for production or work over operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be re-vegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

Use a certified noxious weed-free seed mixture. Use seed tested for viability and purity in accordance with State law(s) within nine months prior to purchase. Use a commercial seed mixture certified or registered and tagged in accordance with State law(s). Make the seed mixture labels available for BLM inspection.

11. SEE ATTACHED SEED MIX: The Ecological Site Description for the well pad and access road is as follows:

Well Name	Ecosite Access rd	Ecosite Pad
Catalina 1	Sandy SD-3	Sandy SD-3
Liberator 1	Sandy SD-3	Shallow SD-3
Dragaon 1	Sandy SD-3	Sandy SD-3

12. FINAL ABANDONMENT

a. Upon abandonment of the well a Notice of Intent for Plug and Abandonment describing plugging procedures. Followed within 30 days you shall file with this office, a Subsequent Report of Abandonment (Form 3160-5). To be included with this report is where the plugs were placed; volumes of cement used and well bore schematic as plugged.

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. The Operator shall promptly plug and abandoned each newly completed, re-completed or producing well which is not capable of producing in paying quantities. No well may be temporarily abandoned for more than 30 days without prior approval from this office. When justified by the Operator, BLM may authorize additional delays, no one of which may exceed an additional 12 months. Upon removal of drilling or producing equipment form the site of a well which is to be permanently abandoned, the surface of the lands disturbed shall be reclaimed in accordance with an approved Notice of Intent for reclamation.

13. SURFACE USE PLAN OF OPERATIONS

1. Surface Reclamation must be completed within 6 months of well plugging. The Operator shall submit to this office a Notice of Intent for Reclamation with described procedures, Form 3160-5.

14. SPECIAL STIPULATION:

If frac ponds are necessary submit for approval a right-of-way application or sundry notice (Form 3160-5) to the BLM, Roswell Field Office 2909 West Second, Roswell, NM 88201. If frac pond is located on private/State surface and support the enhanced production of federal minerals BLM approval is necessary.

The frac pond will only be authorized to contain freshwater and testing of water quality is required. Additives are not allowed without consent of the authorized officer. If at any time the water in the frac pond becomes polluted with salts or other contaminants, use of the frac pond will cease and desist, and all liquids will be removed from the frac pond and disposed of properly. Mineral materials extracted during construction of the frac pond will be stored on-location and/or used for constructing the frac pond.

Fresh water will be trucked in from the City of Carlsbad water well field for the fracing of the Catalina Federal #1, Liberator Federal #1, and the Dragon Federal #1.

All production facilities shall have a lined containment structure large enough to contain **110% of the largest Tank (PLUS) 24 hours of production.** (43 CFR 3162.5-1) Environmental Obligations.

For the purpose of: Protecting Lesser Prairie-Chickens

Oil and gas activities including 3-D geophysical exploration, and drilling will NOT be allowed in lesser prairie-chicken habitat during the period from March 1st through July 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, geophysical exploration other than 3-D operations, and pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Normal vehicle use on

existing roads will not be restricted. Regardless of the time of year, exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 feet from the source of the noise.

PECOS DISTRICT
SEED MIX FOR

The following Soils or Soil associations may represent these ecological sites: Alama-Poquita, Alama-Reeves, Anthony sandy loam, Berino, Blakeney-Ima, Cacique, Dona Ana, Glendale-Harkey, Harkey sandy loam, Karro loam, Kermit-Berino fine sands, Mobeetie fine sandy loam, Pajarito-Bluepoint, Poquita, Potter-Simona complex, Sharvana-Redona, Simona, Simona-Bippus complex, Sotim-Berino, Sotim-Simona association, moderately undulating, Tonuco loamy sands,Vinton

Ecological Site: Shallow Sand SD-3
Ecological Site: Sandy SD-3

April 4, 2006

Common Name and Preferred Variety	Scientific Name	Pounds of Pure Live Seed Per Acre
Black grama or Blue grama,	*(Bouteloua eriopoda)* *(Bouteloua gracilis)*	3.0
Sideoats grama	*(Bouteloua curtipendula)*	2.0
Sand dropseed or Mesa dropseed or Spike dropseed	*(Sporobolus cryptandrus)* *(S. flexuosus)* *(S. contractus)*	1.5
Desert or Scarlet Globemallow	*(Sphaeralcea ambigua)* or *(S. coccinea)*	1.0
Croton	*(Croton* spp.*)*	1.0
TOTAL POUNDS PURE LIVE SEED (pls) PER ACRE Certified Weed Free Seed		8.5

IF ONE SPECIES IS NOT AVAILABLE,
INCREASE ALL OTHERS PROPORTIONATELY

Use no less than 4 species, including 1 forb

No less than 8.5 pounds pls per acre shall be applied

APPROVED: /s/ Douglas J. Burger
District Manager- Pecos District