ATS-08-140

OCD-HOBBS 259

Form 3160-3
(February 2005)

SECRETARY'S POTASH

Split Estate

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

1a. Type of work ☑ DRILL ☐ REENTER UNORTHODOX LOCATION	5 Lease Serial No. **NM-14496**
1b. Type of Well ☐ Oil Well ☑ Gas Well ☐ Other ☑ Single Zone ☐ Multiple Zone	6 If Indian, Allotee or Tribe Name
2 Name of Operator **Fasken Oil and Ranch, Ltd.** (151416)	7 If Unit or CA Agreement, Name and No.
3a Address **303 West Wall, Suite 1800 Midland, TX 79701**	3b Phone No. *(include area code)* **(432) 687-1777**
4. Location of Well *(Report location clearly and in accordance with any State requirements.*)* At surface **1660' FSL, 2310' FEL** Unit J; Capitan Controlled Water Basin; At proposed prod zone	8 Lease Name and Well No. **Ling Federal No. 4** (18167)
	9 API Well No. **30-025-38748**
	10 Field and Pool, or Exploratory **Quail Ridge (Morrow)** (83280)
	11 Sec., T R M or Blk and Survey or Area **Sec. 31, T19S, R34E**
14 Distance in miles and direction from nearest town or post office* **29 miles SW of Hobbs, NM**	12 County or Parish **Lea** / 13 State **NM**

15 Distance from proposed* location to nearest property or lease line, ft (Also to nearest drig unit line, if any) **1660'**	16 No of acres in lease **600**	17 Spacing Unit dedicated to this well **320 acres, E/2 Sec. 31**
18 Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft	19 Proposed Depth **13,700'**	20. BLM/BIA Bond No. on file **NM 2729 Statewide Bond**
21 Elevations (Show whether DF, KDB, RT, GL, etc.) **3623' GR**	22. Approximate date work will start* **02/01/2008**	23 Estimated duration **45 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 Jimmy D. Carlile / Title **Regulatory Affairs Coordinator**	Name *(Printed/Typed)* **Jimmy D. Carlile**	Date **12/12/2007**
Approved by *(Signature)* Hanson R. Stuart / Title ACTING STATE DIRECTOR	Name *(Printed/Typed)* Hanson R. Stuart / Office **NM STATE OFFICE**	Date JAN 30 2008

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. APPROVAL FOR TWO YEARS

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

*(Instructions on page 2)

***This application requires a non-standard location exception from the New Mexico Oil Conservation Division. An application is being prepared and will be submitted to the NMOCD in the next week.

SEE ATTACHED FOR CONDITIONS OF APPROVAL

RECEIVED
FEB - 6 2008
HOBBS OCD

APPROVAL SUBJECT TO GENERAL REQUIREMENTS AND SPECIAL STIPULATIONS ATTACHED

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-025-38748	83280	Quail Ridge;Morrow

Property Code	Property Name	Well Number
18167	LING FEDERAL	4

OGRID No.	Operator Name	Elevation
151416	FASKEN OIL AND RANCH, LTD	3623'

Surface Location

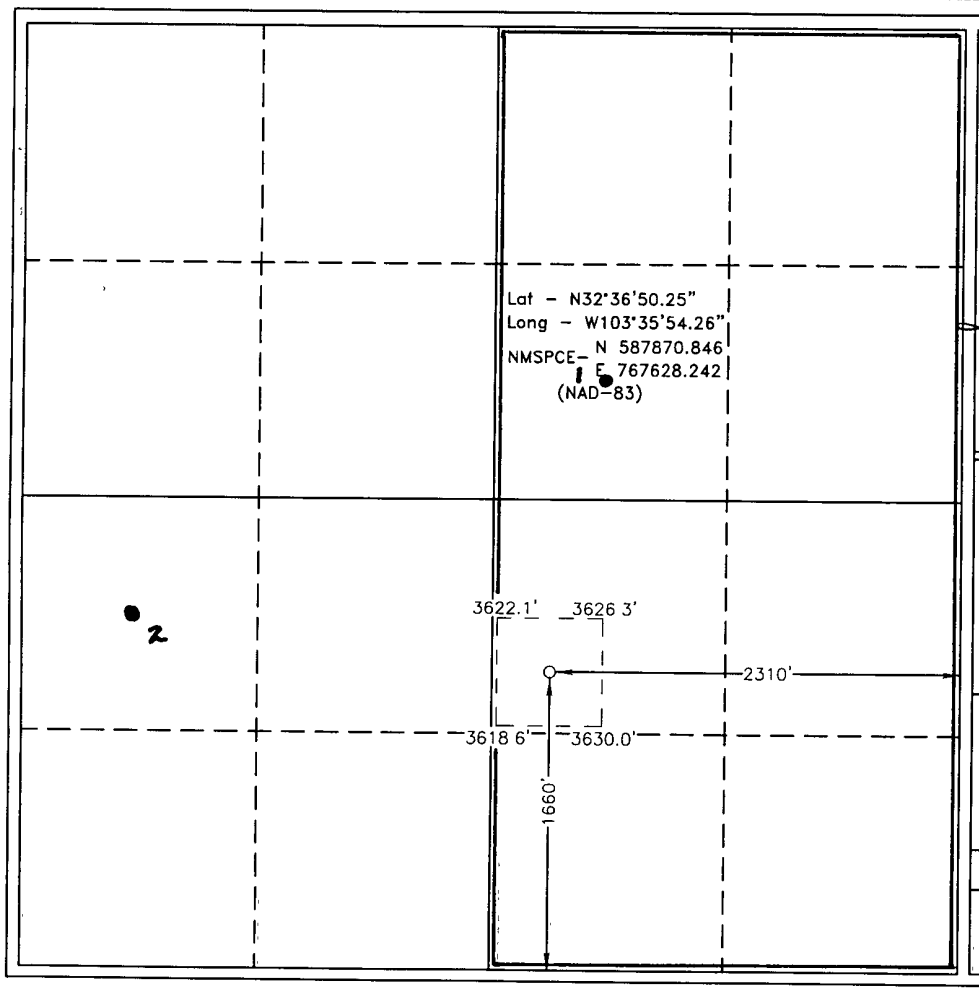
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
J	31	19 S	34 E		1660	SOUTH	2310	EAST	LEA

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
320			

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 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 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.

Signature 12/12/07 Date

Jimmy D. Carlile
Printed Name
jimmyc@forl.com

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 supervison, and that the same is true and correct to the best of my belief

NOVEMBER 15, 2007
Date Surveyed

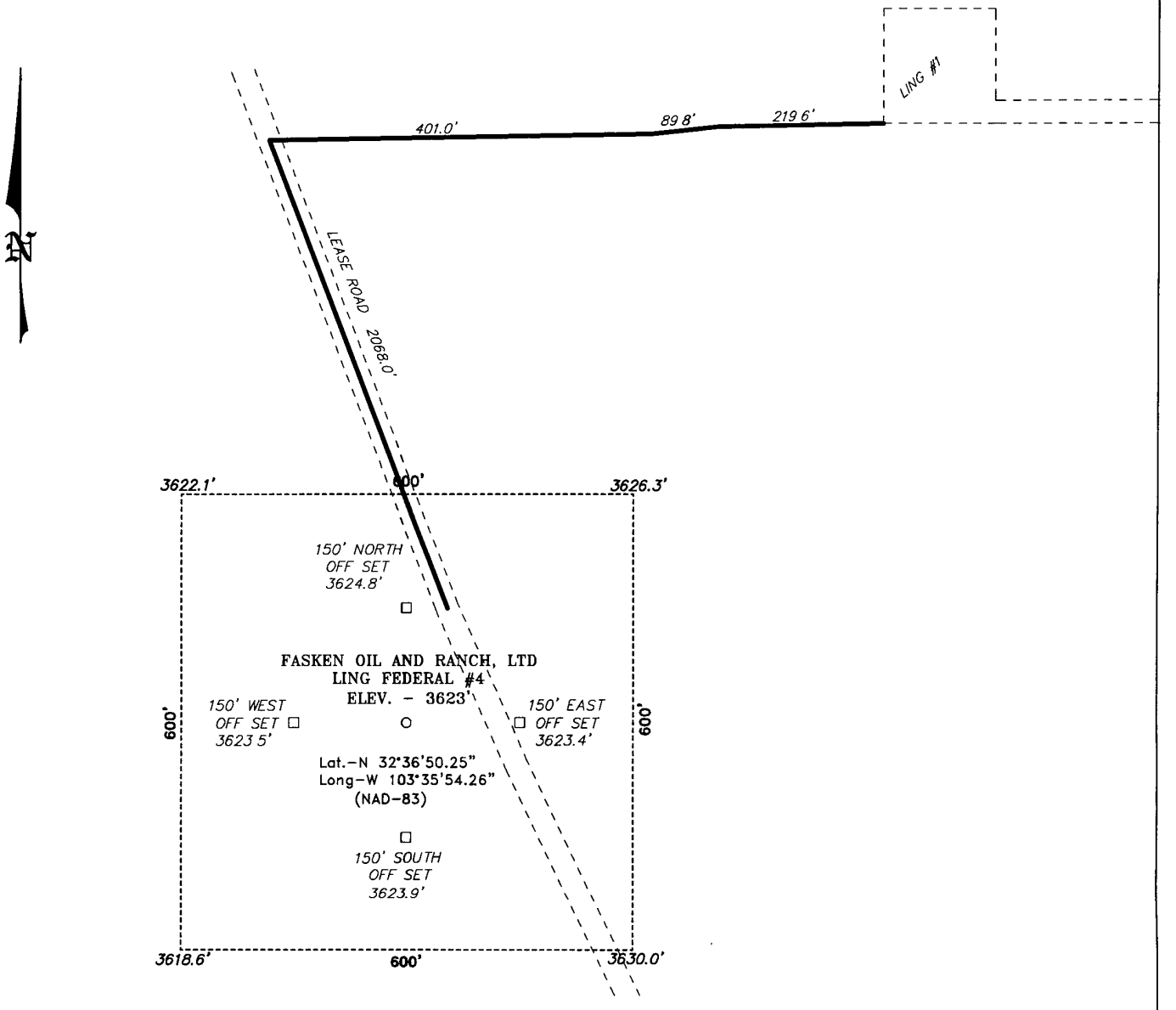
Signature & Seal of Professional Surveyor
GARY L. JONES
NEW MEXICO
7977

W.O. Number: 24113

Certificate No. Gary L. Jones 7977

BASIN SURVEYS

SECTION 31, TOWNSHIP 19 SOUTH, RANGE 34 EAST, N.M.P.M.,
LEA COUNTY, **NEW MEXICO.**



Directions to Location

FROM THE JUNCTION US HWY 62-180 AND SMITH RANCH, GO NORTHWEST ON SMITH RANCH FOR APPROX. 1.6 MILES TO LEASE ROAD, ON LEASE ROAD GO ~~EAST~~ west APPROX 1.5 MILES TO PROPOSED LEASE ROAD

BASIN SURVEYS P.O. BOX 1786 - HOBBS, NEW MEXICO

W.O. Number: 18813	Drawn By: J. M. SMALL		
Date: 11-16-2007	Disk: JMS 18813W	Survey Date: 11-15-2007	Sheet 1 of 1 Sheets

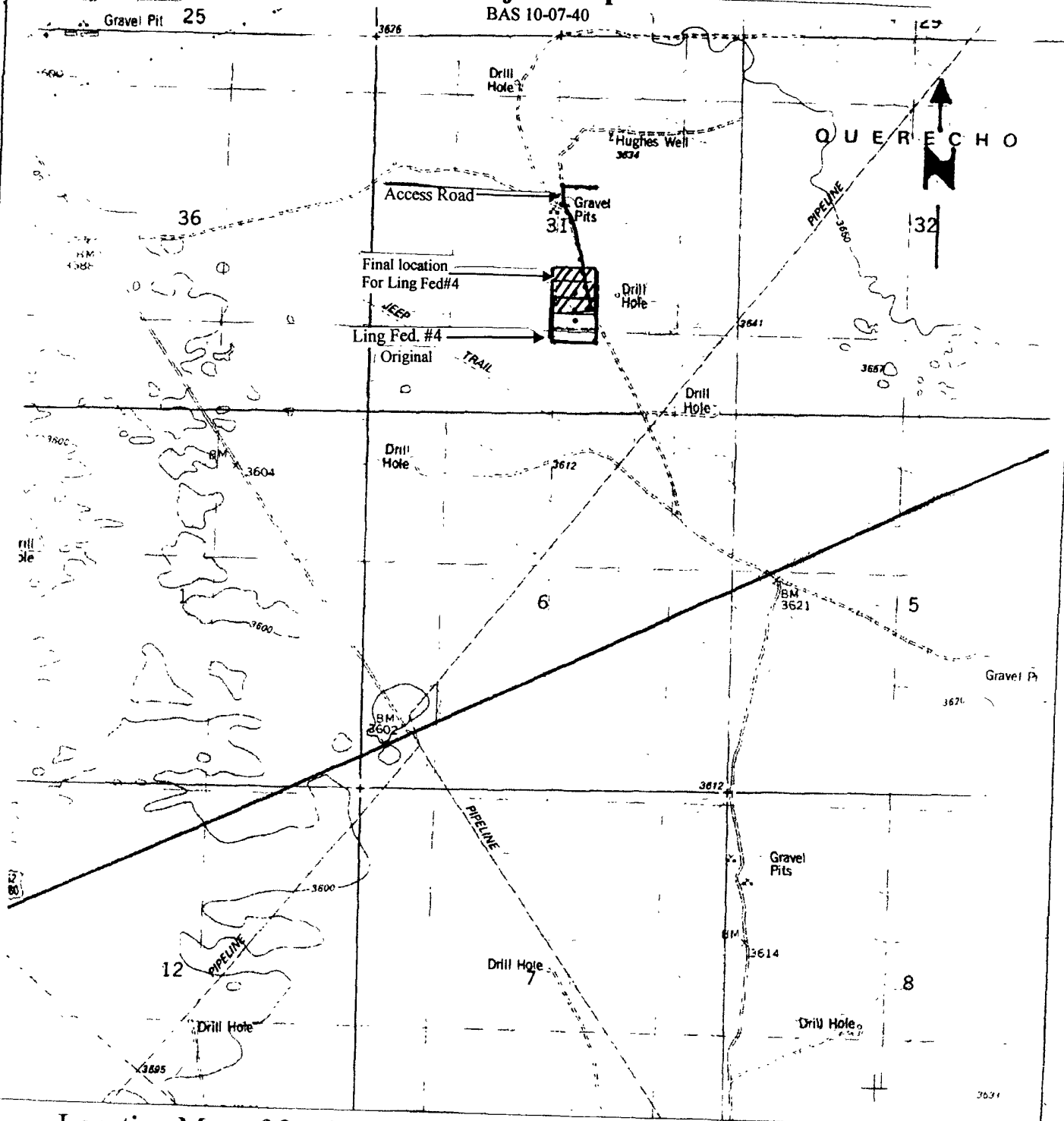
FASKEN OIL AND RANCH, LTD

REF LING FEDERAL #4 / WELL PAD TOPO

THE LING FEDERAL #4 LOCATED 1660' FROM THE SOUTH LINE AND 2310' FROM THE EAST LINE OF SECTION 31, TOWNSHIP 19 SOUTH, RANGE 34 EAST, N.M.P.M., LEA COUNTY, NEW MEXICO.

Project Map

BAS 10-07-40



Location Map of for the Ling Federal well #4 pad, associated access road for Fasken Oil & Ranch Inc.

Section 31, T 19S, R 34E; NMPM, Lea County, New Mexico.

Map Reference USGS 7.5' Series: LEA, NM (1984) 32103-E5

SCALE 1:24000

1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 KILOMETER

BAS

APPLICATION FOR PERMIT TO DRILL
Fasken Oil and Ranch, Ltd.
Ling Federal No. 4
1660' FSL and 2310' FEL
Sec. 31, T19S, R34E
Lea County, New Mexico

In conjunction with Form 3160-3, Application for Permit to Drill, Fasken Oil and Ranch, Ltd. submits the following items of pertinent information in accordance with Onshore Oil & Gas Order Nos. 1 & 2, and with all other applicable federal and state regulations.

1. The geologic surface formation is of Permian age. Ground elevation is 3623'.

2. Estimate tops of geologic markers are as follows;

Rustler	1500'
Yates	3400'
Queen	4550'
San Andres	5150'
Delaware	5700'
Bone Springs	8250'
1st Bone Springs Sand	9400'
2nd Bone Springs Sand	9925'
3rd Bone Spring Sand	10,600'
Wolfcamp	11,180'
Strawn	12,200'
Atoka	12,400'
Morrow Lime	12,750'
Morrow Clastics	13,010'

3. The estimated depths at which water, oil or gas formation are expected to be encountered;

Yates	3400'	Oil
San Andres	5150'	Oil
Bone Springs	9400'	Oil
Strawn	12,200'	Gas
Atoka	12,400'	Gas
Morrow	13,010'	Gas

* Groundwater to be protected by 13-3/8" surface casing with cement circulated to the surface.
** Potentially productive horizons to be protected by 5-1/2" production casing with cement tied back to 4800'.

4. Proposed Casing Program: All casing strings will new pipe. Minimum design safety factors are 1.0 for burst, 1.125 for collapse and 1.8 for tension on 8rd threaded pipe.

String	Footage	Hole Size	Casing Size	Weight	Grade	Thread
Surface	1100'	17-1/2"	13-3/8"	48 00#	H-40	ST&C
	500'	17-1/2"	13-3/8"	54.50#	K-55	ST&C
	1600'					

Intermediate	3100'	12-1/4"	9-5/8"	36.00#	J-55	ST&C
	1000'	12-1/4"	9-5/8"	40.00#	J-55	ST&C
	1100'	12-1/4"	9-5/8"	40.00#	HCK-55	ST&C
	5200'					
Production	3200'	8-3/4"	5-1/2"	17.00#	N-80	BT&C
	5800'	8-3/4"	5-1/2"	17.00#	N-80	LT&C
	4700'	8-3/4"	5-1/2"	20.00#	N-80	LT&C
	13,700'					
Tubing	13,500'		2-3/8"	4.60#	N-80	EUE 8rd

5. Proposed Cementing Program:

Cement 13-3/8" casing with 800 sx Class "C" with 4% gel and 2% $CaCl_2$ (s.w. 13.5 ppg, yield 1.74 ft^3/sx) plus 500 sx Class "C" cement with 2% $CaCl_2$ (s.w. 14.8 ppg, yield 1.32 ft^3/sx). Circulate cement to surface.

Cement 9-5/8" casing with 1600 sx Halliburton Lite "C" with 15# salt and 21/8# Poly-E-Flake (12.6 ppg, yield 2.23 ft^3/sx) plus 300 sx Class "C" neat (s.w. 14.8 ppg, yield 1.32 ft^3/sx). Circulate cement to surface.

Cement 5-1/2" production casing (resin coated and centralized through pay zones) in two stages with DV tool at approximately 7800'.

1st stage: 10 bfw, 500 gallons Mud Clean II, 10 bfw, 1200 sx Super "H" Modified (15#/sx Poz A and 11 #/sx CSE), 2# salt, 0.4% LAP-1, 0.4% CFR-3, 0.2% HR-7 and 1/8# Poly-E-Flake (s.w. 13.2 ppg, yield 1.63 ft^3/sx). Open DV tool and circulate for 6 hrs.

2nd stage: 775 sx Halliburton Light "H" with 1/8# Poly-E-Flake and 0.4% Halad-9 (s.w. 12.4 ppg, yield 2.03 ft^3/sx) plus 200 sx "H" neat (s.w. 15.6 ppg, yield 1.18 ft^3/sx). Calculate second stage cement volume for TOC @ 4800'. ← See COA

6. Pressure Control Equipment: See exhibit #5. Operator request variance and proposes to pressure test BOP stack with rig pump to 1000 psig prior to drilling out the 13-3/8" casing shoe. The 9-5/8" casing will be Hydrotested before drill out the shoe joint. Hydrotest will included testing the rams, choke line, choke manifold, upper and lower kelly valves and floor safety valves to 5000 psig high and 300 psig low. The annular preventor will be hydrotested to 2500 psig high and 300 psig low. Additional BOP Hydrotesting will be performed after any pressure seal is broken, following any BOP repair and at 30 day intervals.

7. Mud Program:

Depth	Type	Weight	Viscosity	Waterloss
0-1600'	Fresh Water	8.5	40	N.C.
1600'-5200'	Brine Water	10.0-10.5	29	N C.
5200'-10,000'	Fresh Water	8.4-8.8	28	N.C.
10,000'-12,100'	Brine Water	10.0-10.5	29	N.C.
12,100'-13,700'	Gel/Starch/PAC	10.0-10.5	36	10 cc

8. Auxiliary Equipment: Upper Kelly Cock, Full Opening Stabbing Valve, PVT.

9. Testing Logging and Coring Programs:

- DST's: DST any mudlog shows. DST's will comply with the "Drill Stem Testing Requirements" of Onshore Oil and Gas Order No. 2.

- Logging: 2-man Mudlogging unit from 5200' to T.D.

- Electric Logs: Platform Express with CNL-LDT, DLL-MSFL, GR and Caliper.

- Coring: None anticipated

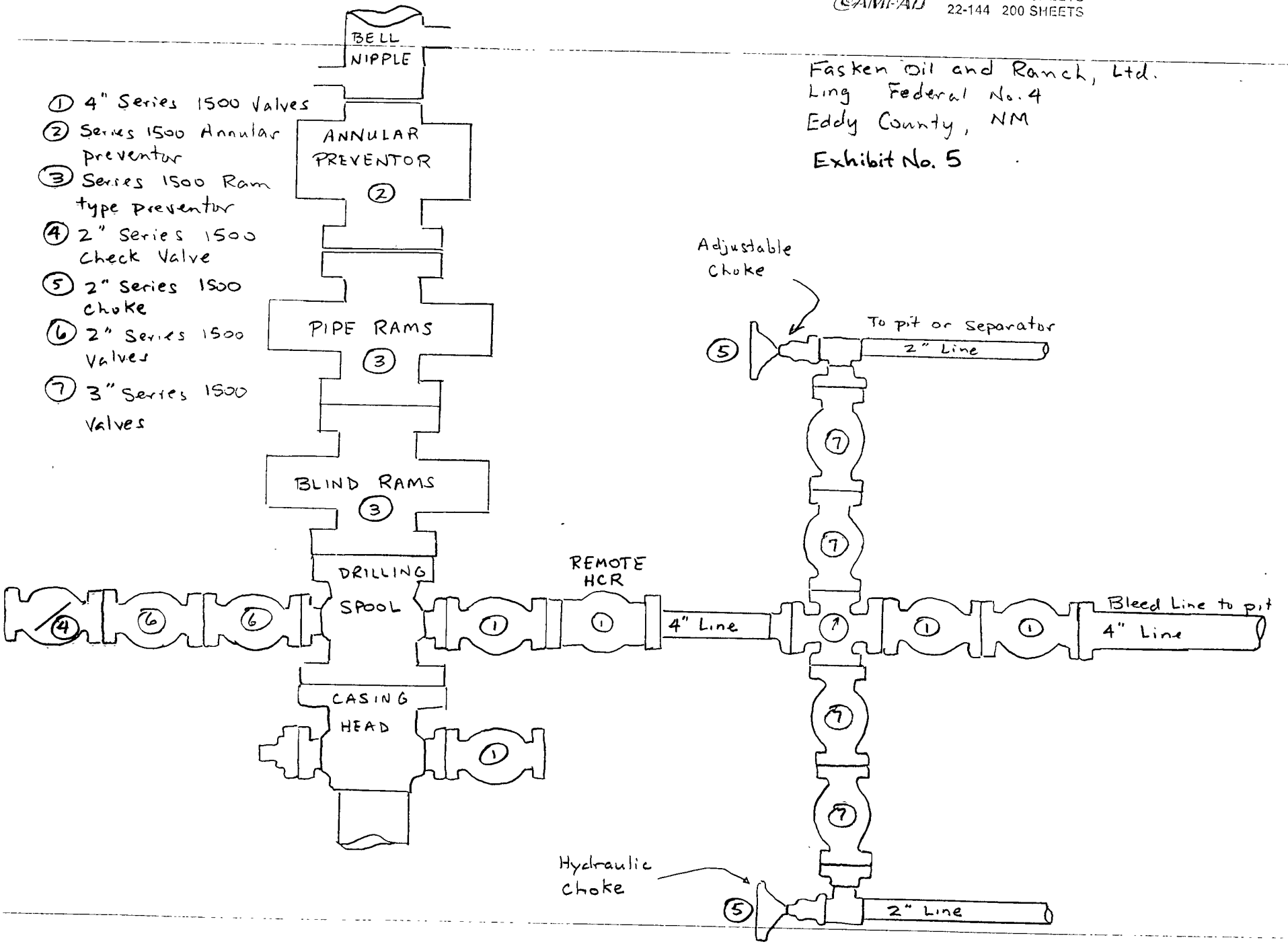
10. Abnormal Pressure, Temperatures or Other Hazards: No lost circulate is anticipated. Maximum bottomhole pressure is estimated to be 7124 psig based on offset well information.

11. Anticipated Starting Date: February 1, 2008

Fasken Oil and Ranch, Ltd.
Ling Federal No. 4
Eddy County, NM

Exhibit No. 5

1. 4" Series 1500 Valves
2. Series 1500 Annular preventor
3. Series 1500 Ram type preventor
4. 2" Series 1500 Check Valve
5. 2" Series 1500 choke
6. 2" Series 1500 Valves
7. 3" Series 1500 Valves



HYDROGEN SULFIDE DRILLING OPERATIONS PLAN

EXHIBIT #3
Fasken Oil and Ranch, Ltd.
Ling Federal No. 4
1660' FSL and 1320' FEL
Sec. 31, T19S, R34E
Lea County, New Mexico

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 and 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 of first aid and rescue procedures.

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

1. The effects of H2S on metal components. If high tensile tubulars are to be used, personnel will 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.

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. This plan shall be available at the will site. All personnel will be required to carry documentation that they have received the proper training.

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 penetration 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 to include: annular preventer, mud-gas separator (if necessary) and rotating head.

2. Protective equipment for essential personnel:

A. 5-minute escape units located in the dog house and 30-minute air units at briefing areas, as indicated on well site diagram.

3. H2S detection and monitoring equipment:

A. 3 - 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.

B. 1 - portable SO2 monitor positioned near flare line during H2S flaring operations.

4. Visual warning systems:

A. Wind direction indicators as shown on well site diagram.

B. Caution/Danger signs 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 a readable distance from the immediate location

5. Mud program:

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

B. A Mud-gas separator will be utilized.

6. Metallurgy:

A. All drill strings, casings, tubing, wellhead, blowout preventors, drilling spools kill lines, choke manifold and lines valves shall be suitable for H2S service.

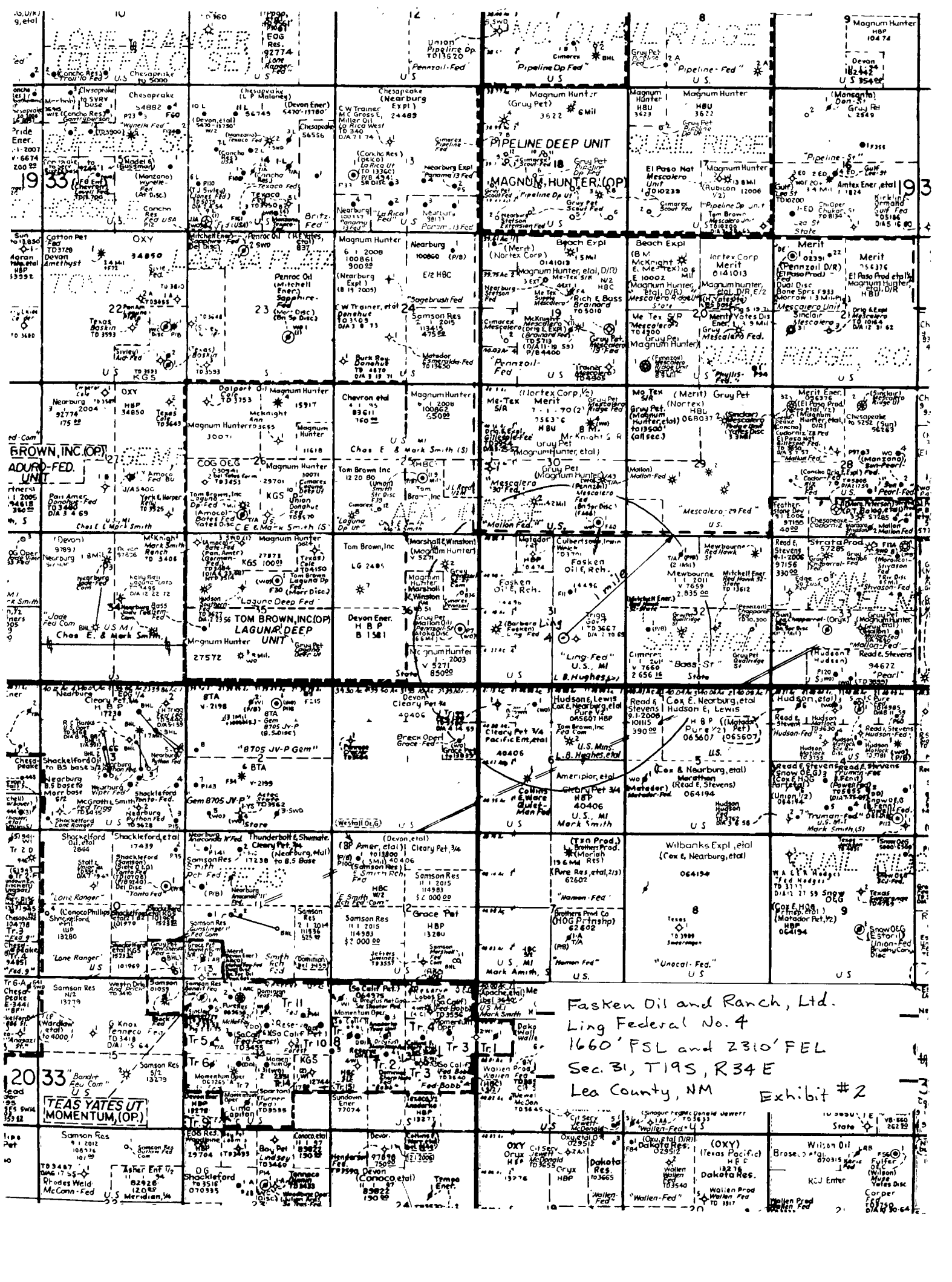
B. All elastomers used for packing and seals shall be H2S trimmed.

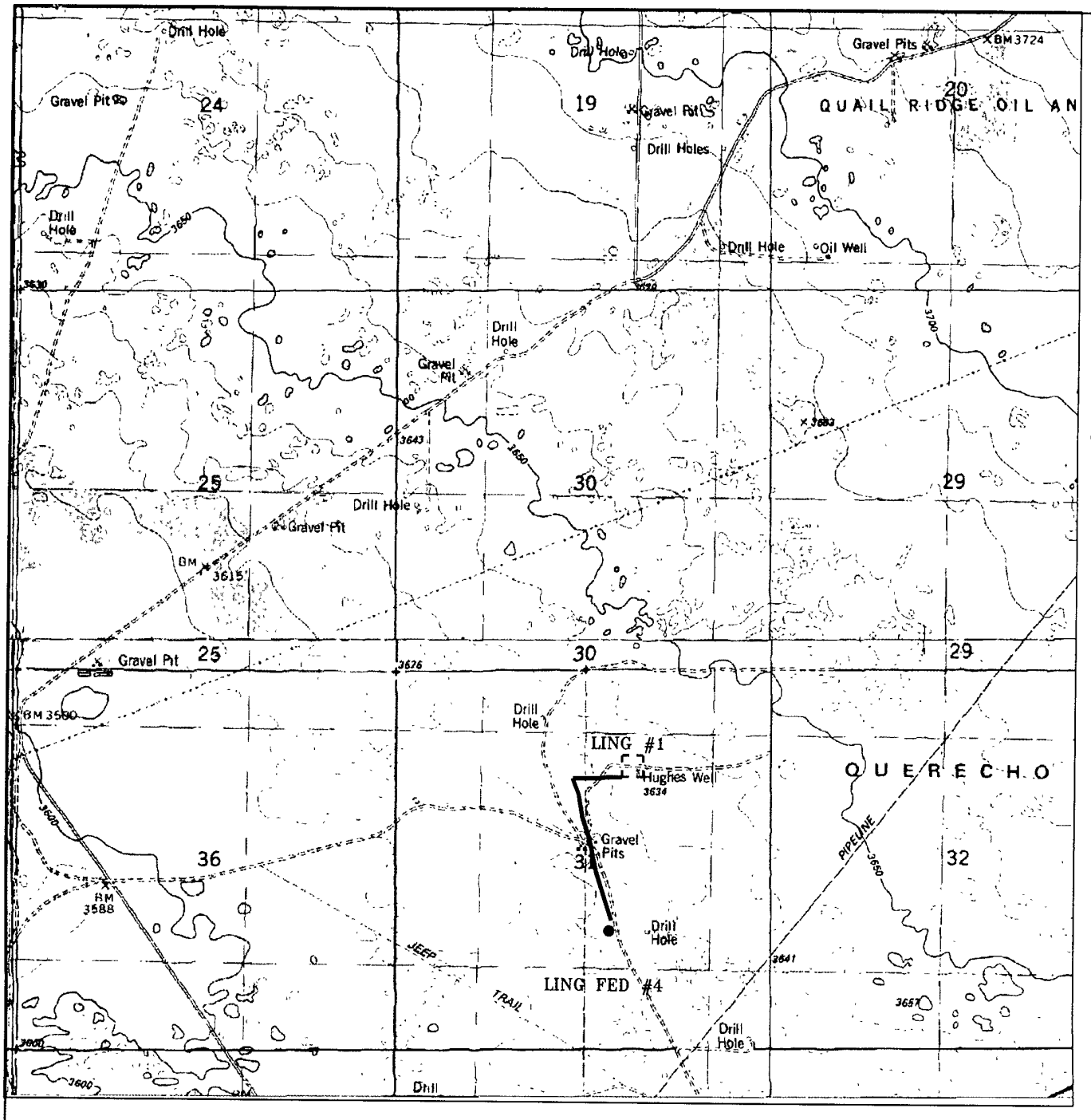
7. Communications:

A. Radio communications will be available in company vehicles and rig dog house.

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 of any known formation that contains H2S will be conducted during daylight hours.


BROWN, INC. (OP)
ADURO-FED. UNIT
TOM BROWN, INC. (OP)
LAGUNA DEEP
UNIT
TEAS YATES UT
MOMENTUM, (OP.)
MAGNUM HUNTER (OP)
PIPELINE DEEP UNIT
Fasken Oil and Ranch, Ltd.
Ling Federal No. 4
1660' FSL and 2310' FEL
Sec. 31, T19S, R34E
Lea County, NM
Exhibit #2



LING FEDERAL #4
Located 1660' FSL and 2310' FEL
Section 31, Township 19 South, Range 34 East,
N.M.P.M., Lea County, New Mexico.

Exhibit #1

basin surveys
focused on excellence in the oilfield

P.O. Box 1786
1120 N. West County Rd.
Hobbs, New Mexico 88241
(505) 393-7316 - Office
(505) 392-3074 - Fax
basinsurveys.com

W O Number:	JMS 18813T
Survey Date.	11-15-2007
Scale:	1" = 2000'
Date:	11-16-2007

FASKEN OIL AND RANCH, LTD

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Fasken Oil & Ranch Ltd
LEASE NO.:	NM-14496
WELL NAME & NO.:	4-Ling Federal
SURFACE HOLE FOOTAGE:	1660' FSL & 2310' FEL
BOTTOM HOLE FOOTAGE	
LOCATION:	Section 31, T. 19 S., R 34 E., NMPM
COUNTY:	Lea County, New Mexico

TABLE OF CONTENTS

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

I. GENERAL PROVISIONS

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

II. PERMIT EXPIRATION

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

IV. NOXIOUS WEEDS

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

V. SPECIAL REQUIREMENT(S)

Timing Limitation Stipulation/Condition of Approval for Lesser Prairie-Chicken: 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 15 through June 15 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. Additionally, no new drilling will be allowed within up to 200 meters of leks known at the time of permitting. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 ft. from the source of the noise.

VI. CONSTRUCTION

A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (505) 234-5972 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

B. TOPSOIL

There is no measurable soil on this well pad to stockpile. No topsoil stockpile is required.

C. RESERVE PITS

The reserve pit shall be constructed and closed in accordance with the NMOCD rules.

The reserve pit shall be constructed 160' X 160' on the North side of the well pad.

The reserve pit shall be constructed, so that upon completion of drilling operations, the dried pit contents shall be buried a minimum depth of three feet below ground level. Should the pit content level not meet the three foot minimum depth requirement, the excess contents shall be removed until the required minimum depth of three feet below ground level has been met. The operator shall properly dispose of the excess contents at an authorized disposal site.

The reserve pit shall be constructed and maintained so that runoff water from outside the location is not allowed to enter the pit. The berms surrounding the entire perimeter of the pit shall extend a minimum of two (2) feet above ground level. At no time will standing fluids in the pit be allowed to rise above ground level.

The reserve pit shall be fenced on three (3) sides during drilling operations. The fourth side shall be fenced immediately upon rig release.

D. FEDERAL MINERAL MATERIALS PIT

If the operator elects to surface the access road and/or well pad, mineral materials extracted during construction of the reserve pit may be used for surfacing the well pad and access road and other facilities on the lease.

Payment shall be made to the BLM prior to removal of any additional federal mineral materials from any site other than the reserve pit. Call the Carlsbad Field Office at (505) 234-5972.

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may 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 needs.

F. ON LEASE ACCESS ROADS

Road Width
The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed thirty (30) feet.

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 may 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.

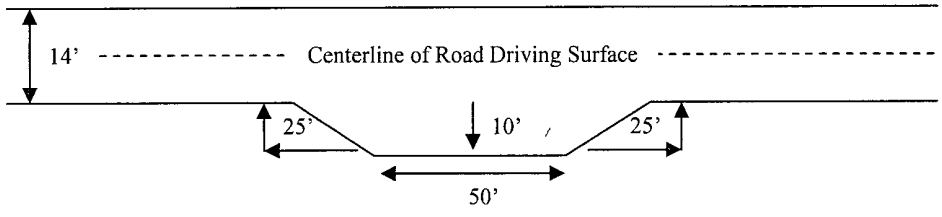
Crowning
Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

Ditching

Ditching shall be required on both sides of the road.

Turnouts
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall be constructed on all blind curves. Turnouts shall conform to the following diagram:

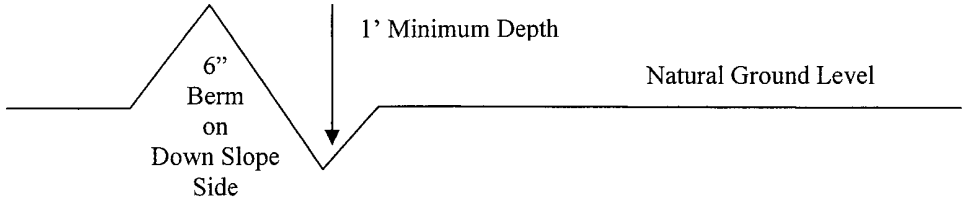
Standard Turnout – Plan View



Drainage
Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outsloping and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.

Cross Section of a Typical Lead-off Ditch



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

Formula for Spacing Interval of Lead-off Ditches

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

$$\text{400 foot road with 4\% road slope: } \frac{400'}{4\%} + 100' = 200' \text{ lead-off ditch interval}$$

Culvert Installations
Appropriately sized culvert(s) shall be installed at the deep waterway channel flow crossing.

Cattleguards
An appropriately sized cattleguard(s) sufficient to carry out the project shall be installed and maintained at fence crossing(s).

Any existing cattleguard(s) on the access road shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattleguard(s) that are in place and are utilized during lease operations.

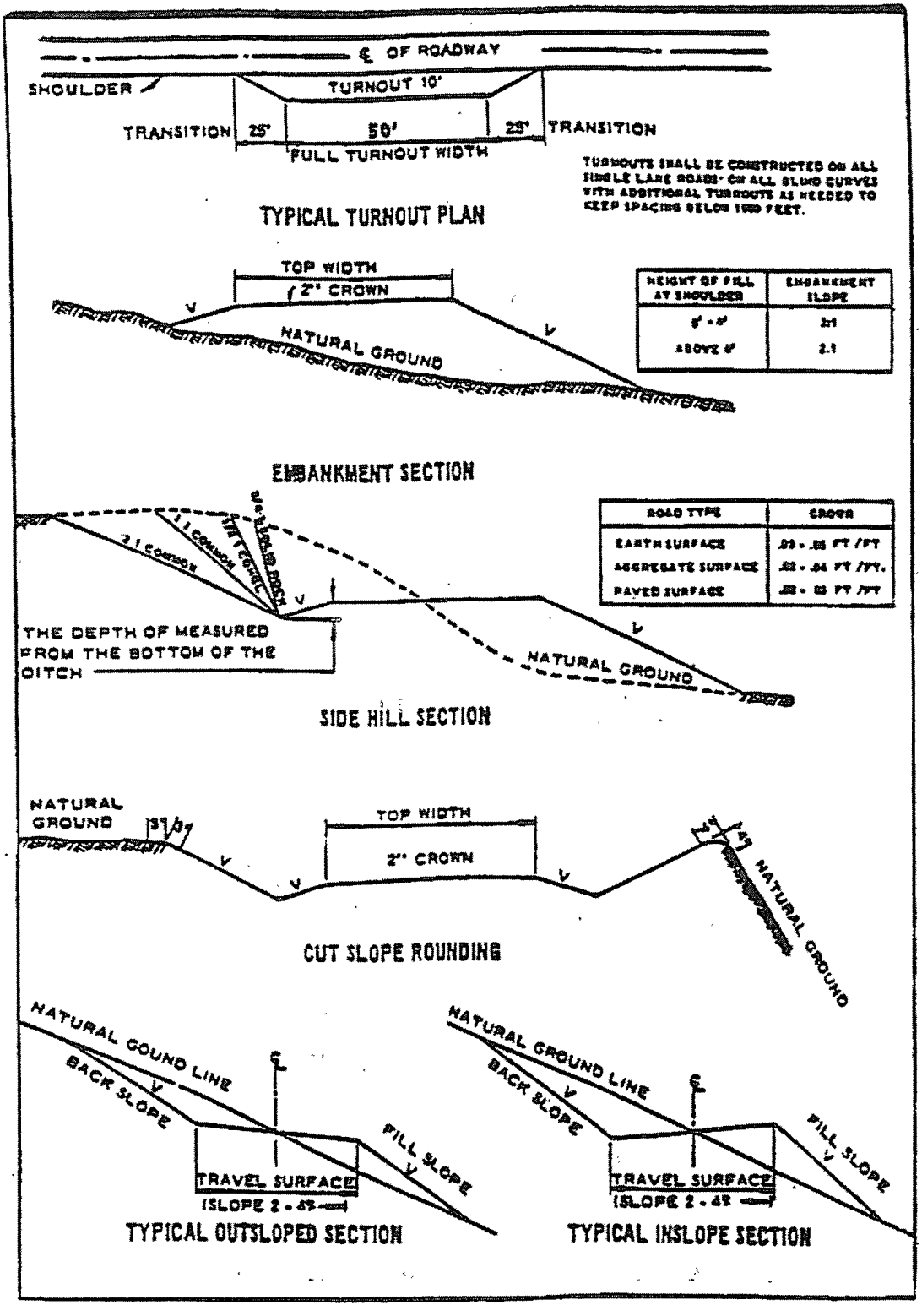
A gate shall be constructed and fastened securely to H-braces.

Fence Requirement
Where entry is required across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting.

The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fence(s).

Public Access
Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.

Figure 1 – Cross Sections and Plans For Typical Road Sections



VII. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

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

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

☒ **Lea County**
Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240,
(575) 393-3612

1. A Hydrogen Sulfide (H2S) Drilling Plan should be activated 500 feet prior to drilling into the **Yates** formation. **H2S has been measured at 500-700 ppm in gas streams and 300-7000 ppm in STVs in neighboring sections.**

2. 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.

3. When floor controls are required, (3M or Greater) controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.

B. CASING

1. The **13-3/8** inch surface casing shall be set **a minimum of 25 feet into the Rustler Anhydrite at approximately 1600** feet and cemented to the surface.

   a. If cement does not circulate to the surface, the appropriate BLM 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, 24 hours in the potash area, or 500 pounds compressive 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 compressive strength, whichever is greater.

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

If the Capitan Reef is encountered while drilling the intermediate hole, operator is to switch to fresh water mud to setting of intermediate casing.

Possible lost circulation or water flows in the Capitan Reef.

2. The minimum required fill of cement behind the **9-5/8** inch intermediate casing is:

   ☒ Cement to surface. If cement does not circulate see B.1.a-d above. **Please provide WOC times to inspector for cement slurries.**

3. The minimum required fill of cement behind the **5-1/2** inch production casing is:

   ☒ Cement should tie-back at least 500 feet into previous casing string. Operator shall provide method of verification. **Tie-back of 500' due to Secretary's Potash. Please provide WOC times to inspector for cement slurries.**

4. 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.

C. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.

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

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

   b. The results of the test shall be reported to the appropriate BLM office.

   c. 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 appropriate BLM office.

d. 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.

e. A variance to test the surface casing and BOP/BOPE to the reduced pressure of **1000** psi with the rig pumps is approved.

D. DRILL STEM TEST

If drill stem tests are performed, Onshore Order 2.III.D shall be followed.

Engineer on call phone (after hours): **Carlsbad: (575) 706-2779**

WWI 011008

VIII. PRODUCTION (POST DRILLING)

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
Shale Green, Munsell Soil Color Chart # 5Y 4/2

IX. INTERIM RECLAMATION & RESERVE PIT CLOSURE

A. INTERIM RECLAMATION

If the well is a producer, interim reclamation shall be conducted on the well site in accordance with the orders of the Authorized Officer. The operator shall submit a Sundry Notices and Reports on Wells (Notice of Intent), Form 3160-5, prior to conducting 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.

At the time reserve pits are to be reclaimed, operators should work with BLM surface management specialists to devise the best strategies to reduce the size of the location. Any reductions should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche may be used for road repairs, fire walls or for building other roads and locations. 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.

B. RESERVE PIT CLOSURE

The reserve pit, when dried and closed, shall be recontoured, all trash removed, and reseeded as follows:

Seed Mixture for LPC Sand/Shinnery Sites

The holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

Species	lb/acre
Plains Bristlegrass	5lbs/A
Sand Bluestem	5lbs/A
Little Bluestem	3lbs/A
Big Bluestem	6lbs/A
Plains Coreopsis	2lbs/A
Sand Dropseed	1lbs/A
**Four-winged Saltbush	5lbs/A

* This can be used around well pads and other areas where caliche cannot be removed.

*Pounds of pure live seed:

Pounds of seed **x** percent purity **x** percent germination = pounds pure live seed

X. FINAL ABANDONMENT & REHABILITATION REQUIREMENTS

Upon abandonment of the well and/or when the access road is no longer in service the Authorized Officer shall issue instructions and/or orders for surface reclamation and restoration of all disturbed areas.

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 agreement.