

JUN 29 2007 892 OCD-ARTESIA

Form 3160-3
(December 1990)

SUBMIT IN TRIPLICATE*
(Other instructions on
reverse side)

Form approved.
Budget Bureau No. 1004-0136
Expires: December 31, 1991

OCD-ARTESIA UNITED STATES HIGH CAVEKARST
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR DEEPEN

1. TYPE OF WORK

DRILL ☒

DEEPEN ☐

2. TYPE OF WELL

OIL WELL ☐

GAS WELL ☒

OTHER ☐

SINGLE ZONE ☒

MULTIPLE ZONE ☐

3. NAME OF OPERATOR

Fasken Oil and Ranch, Ltd

4. ADDRESS AND TELEPHONE NO.

303 W Wall, Suite 1800, Midland, TX 79701 (4432) 687-1777

5. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.)

At surface

990' FNL, 1980' FWL

At proposed prod. zone

CAPTAN CONTROLLED WATER BASIN

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*

5 miles north of Carlsbad, NM

bound NM2729

16. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drig. unit line, if any)

16. NO. OF ACRES IN LEASE

640.00

17. NO. OF ACRES ASSIGNED TO THIS WELL

320

18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.

19. PROPOSED DEPTH

11,250'

20. ROTARY OR CABLE TOOLS

Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.)

3281' GR

22. APPROX. DATE WORK WILL START*

July 15, 2007

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	GRADE, SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
17 1/2"	13 3/8", H-40	48#	350'	400 sx
12 1/4"	9 5/8", J-55	36#	2,275'	1000 sx
8 3/4"	5 1/2", N-80	17#	11,250'	1900 sx

The operator proposes to drill to a depth sufficient to test the Morrow formation. If productive, 5-1/2" casing will be set at TD and cemented back to approximately 2,275'. If non-commercial, the well will be plugged and abandoned in accordance with Federal regulations.

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

If earthen pits are used in association with the drilling of this well, an OCD pit permit must be obtained prior to pit construction.

Drilling Program:

Surface Use and Operating Plan

Exhibit No 1 - Area Maps

Exhibit No 2 - One-Mile Radius Map

Exhibit No 3 - Hydrogen Sulfide Drilling Operations Plan

Exhibit No 4 - Well Site Layout

Exhibit No 5 - Blowout Preventer Equipment

Exhibit No 6 - Lease Road Map

Exhibit No 7 - Pipeline Map

APPROVAL SUBJECT TO
GENERAL REQUIREMENTS
AND SPECIAL STIPULATIONS
ATTACHED

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24. James D. Carline TITLE Regulatory Affairs Coordinator DATE 06/05/07
(This space for Federal or State office use)

PERMIT NO. _____ APPROVAL DATE _____

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:

/s/ James Stovall

FIELD MANAGER

APPROVED BY _____ TITLE _____ DATE JUN 27 2007

*See Instructions On Reverse Side

APPROVAL FOR TWO YEARS

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the

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

Form C-102
Revised October 12, 2005

Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code 73280	Pool Name Burton Flat (Morrow)
Property Code	Property Name MARALO "35" FEDERAL	Well Number 5
OGRID No. 151416	Operator Name FASKEN OIL AND RANCH, LTD	Elevation 3281'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
C	35	20 S	27 E		990	NORTH	1980	WEST	EDDY

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 320	Joint or Infill	Consolidation Code	Order No.						

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

	<p>OPERATOR CERTIFICATION</p> <p>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.</p> <p><i>Jimmy D. Carlile</i> 6/5/07 Signature Date</p> <p>Jimmy D. Carlile Printed Name jimmyc@forl.com</p>
	<p>SURVEYOR CERTIFICATION</p> <p>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.</p> <p>MAY 01 2007</p> <p>Date Surveyed Signature of Gary L. Jones Professional Surveyor New Mexico 7977</p> <p>Certificate No. Gary L. Jones 7977</p> <p>BASIN SURVEYS</p>

STATEMENT ACCEPTING RESPONSIBILITY FOR OPERATIONS

Fasken Oil and Ranch, Ltd. accepts all applicable terms, conditions, stipulations, and restrictions concerning operations conducted on the land or portion thereof, as described below:

Federal Lease No.	Land description
LC-072015-C	Section 35, T20S, R27E Eddy County, New Mexico

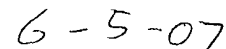
Formation: All Depths

Bond Coverage: \$25,000

BLM Bond File: NM 2729



Mark B. Merritt
Oil and Gas Manager



Date

APPLICATION FOR PERMIT TO DRILL
FASKEN OIL AND RANCH, LTD.
Maralo "35" Federal No.5
990' FNL & 1980' FWL
SEC.35, T20S, R27E
EDDY COUNTY, NM

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.
2. Estimate tops of geologic markers are as follows;

Bell Canyon Sand	2400'
Cherry Canyon	3000'
Brushy Canyon	3750'
Bone Springs	4500'
3rd Bone Springs	8000'
Wolfcamp	8500'
Cisco	9400'
Canyon	9560'
Strawn	9800'
Atoka	10,200'
Morrow Clastics	10,720'
Lower Morrow	10,980'
Barnett Shale	11,200'

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

Delaware group	2400'	Oil/Gas
Strawn	9800'	Gas
Atoka	10,200'	Gas
Morrow	10,720'	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 intermediate shoe at 2275'.

4. Proposed Casing Program:

<u>String</u>	<u>Footage</u>	<u>Size</u>	<u>Weight</u>	<u>Grade</u>	<u>Thread</u>
Surface	350'	13-3/8"	48.00#	H-40	ST&C
Intermediate	2,275'	9-5/8"	36.00#	J-55	ST&C
Production	11,250'	5-1/2"	17.00#	N-80	LT&C
Tubing	11,150'	2-3/8"	4.70#	N-80	EUE 8rd

Proposed Cementing Program:

Cement 13-3/8" casing with 400 sx Class "C" cement with 2% CaCl₂ (s.w. 14.8 ppg, yield 1.32 cuft/sx).

Cement 9-5/8" casing with 800 sx Class "C" with 4% gel and 2% CaCl₂, s.w. 13.51 ppg, yield 1.74 ft³/sx, plus 200 sx Class "C" with 2% CaCl₂; s.w. 14.8 ppg, yield 1.32 ft³/sx.

Cement 5-1/2" production casing (resin coated and centralized through pay zones) in two stages with DV tool approximately 7100' as follows;

First Stage: 10 bfw + 500 gallons Mud Clean II + 10 bfw and 1000 sx Super "C" Modified (15 #/sx Poz A and 11 #/sx CSE), 1% Salt, 1.1% FL-25 (s.w. 14.2 ppg, yield 1.35 ft³/sx). Open DV tool and circulate 6 hours.

Second stage: 400 sx BJ lite "C" with 6% gel, 5% Salt and 0.4% FL-62 (s.w. 12.56 ppg, yield 2.01 ft³/sx) plus 400 sx Super "C" Modified with 3% Salt, 1% FL-62, and 0.2% CD32 (s.w. 13.0 ppg, yield 1.63 ft³/sx) plus 100 sx Class "C" neat (s.w. 14.8 ppg, yield 1.32 ft³/sx). Calculate second stage cement volume for TOC at intermediate casing shoe.

SEE
COA

5. Pressure Control Equipment: BOP's to be hydrotested prior to drilling the Upper Pennsylvanian formation estimated to be at (9340') or first bit trip. See Exhibit #5 for BOP diagram. *Modified*

6. Mud Program:

<u>Depth</u>	<u>Type</u>	<u>Weight</u>	<u>Viscosity</u>	<u>Waterloss</u>
0-400'	Fresh Water	8.5	40	N.C.
400'-2325'	Fresh Water	8.5	26	N.C.
2325'-5000'	Fresh Water	8.5	26	N.C.
5000'-9800'	Cut Brine	9.5	26	N.C.
9800'-11,250'	Poly/Starch	9.5	34	10 cc

7. Auxiliary Equipment: Upper Kelly Cock, Full Opening Stabbing Valve, PVT.
8. Testing Logging and Coring Programs:
 - DST's: DST any mudlog shows.
 - Logging: 2-man Mudlogging unit from 2275' to T.D.
 - Electric Logs: Platform Express with CNL-LDT, DLL-MSFL, GR and Caliper.
 - Coring: None anticipated
9. Abnormal Pressure, Temperatures or Other Hazards: Lost circulation is anticipated in the surface. Maximum bottomhole pressure is estimated to be 4875 psig.
10. Anticipated Starting Date: July 15, 2007.

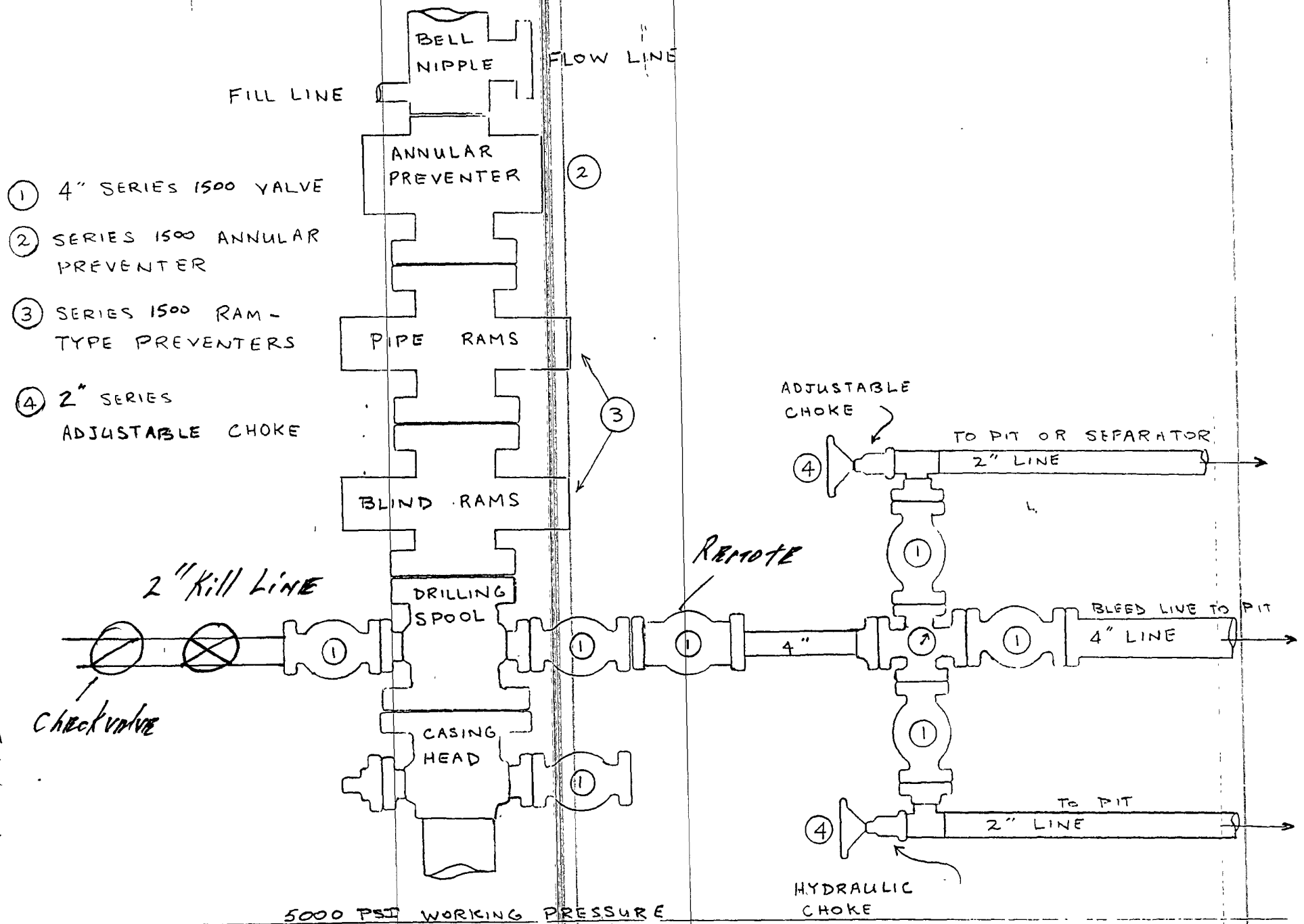


Exhibit #5

HYDROGEN SULFIDE DRILLING OPERATIONS PLAN

EXHIBIT #3
FASKEN OIL AND RANCH, LTD.
Maralo "35" Federal No.5
990' FNL & 1980' FWL
SEC.35, T20S, R27E
EDDY COUNTY, NM

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 well 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.

SURFACE USE PLAN

Fasken Oil and Ranch, Ltd.
Maralo "35" Federal No.5
990' FNL & 1980' FWL
Sec. 35, T20S, R27E
Eddy County, New Mexico

1. EXISTING ROADS - Area map, Exhibit #1, is a reproduction of the U.S.G.S., Lake McMillian, South, N.M. Quadrangle 7.5 minute series. Existing and proposed roads are shown on the exhibit. All roads shall be maintained in a condition equal to that which existed prior to start of construction.
 - A. Exhibit #1 shows the proposed development well site as staked.
 - B. From Carlsbad, New Mexico, travel North on Illinois Camp Rd. (206) to truck bypass, continue on (206) for 2.3 miles to CR-34. Turn Northwest on Black top CR-34 and go 2.7 miles. Turn North on caliche road and go 0.2 mile to location.
2. PLANNED ACCESS ROADS - 1181' of new road will be constructed from the Southwest corner of pad to CR-34.
3. LOCATION OF EXISTING WELLS IN A ONE-MILE RADIUS.
 - A. Water wells - None Known.
 - B. Disposal wells - None Known.
 - C. Drilling wells - None Known.
 - D. Producing wells - As shown on Exhibit #2

Fasken Oil and Ranch, Ltd.:	Maralo Federal No.1
Fasken Oil and Ranch, Ltd.:	Maralo Federal No.2
Fasken Oil and Ranch, Ltd.:	Maralo Federal No.3
UMC Petroleum:	Eddy State "FT" No. 1
Oxy:	Clarabell State No. 3
UMC Petroleum:	Avalon State "FT" No. 4
Premier Oil & Gas	Eddy State "FV" No. 5
 - E. Abandoned wells - As shown on Exhibit #2.

HBC:	Avalon State No. 1
E.A. Hanson:	McBride Federal No.1
4. If, upon completion, the well is a producer Fasken Oil and Ranch, Ltd. will furnish maps or plats showing "On Well Pad Facilities" and "Off Well Pad Facilities" (if needed) on a Sundry Notice before construction of these facilities starts.
5. LOCATION AND TYPE OF WATER SUPPLY

Brine & fresh water will be purchased locally from a private source and trucked over the access roads.

6. SOURCE OF CONSTRUCTION MATERIALS

If needed, construction materials will be obtained from the drill sites excavations or from a local source. These materials will be transported over the access roads as shown on Exhibit #1.

7. METHOD FOR HANDLING WASTE DISPOSAL

- A.
 1. Drill cuttings will be disposed of in the reserve pit.
 2. Trash, waste paper, and garbage will be contained in a trash trailer and disposed of in an approved public landfill.
 3. All mud materials including salts will be picked up by the mud supplier and transported back to their warehouse facilities.
 4. Sewage from trailer houses will drain into hole with a minimum depth of 10'. A "Porta John" will be provided for the rig crews. This will be properly maintained and removed after drilling operations are completed.
 5. Chemicals remaining after completion of the well will be stored in the manufacturer containers and picked up by the supplier.
- B. Remaining drilling fluids will be allowed to evaporate in the reserve pit until the pit is dry enough for backfilling. In the event drilling fluids will not evaporate in a reasonable period of time, they will be transported by tank truck to a state approved disposal site.

Water produced during testing of the well will be disposed of in the reserve pit. Oil produced during the testing of the well will be stored in test tanks until sold and hauled from the site.

8. ANCILLARY FACILITIES

No camps or airstrips will be constructed.

9. WELL SITE LAYOUT

- A. Exhibit #3 is the H₂S Drilling Operations Plan.
- B. Exhibit #4 (Scale 1" = 50') shows the proposed well site layout.
- C. This exhibit indicates the proposed location of reserve pit, trash trailer and living facilities.
- D. Mud pits in the active circulation system will be steel pits.
- E. The reserve pit will be lined with a polyethylene liner. The pit liner will be a minimum of 2' over the reserve pit walls where the liner will be anchored down.
- F. The reserve pit will be fenced on three sides with four strands of barbed wire during drilling and completion operations. The fourth side will be fenced after drilling has been completed. If the well is a producer, the reserve pit fence will be torn down. The reserve pit

and those areas of the location not essential to production facilities will be reclaimed and seeded per BLM requirements.

10. PLANS FOR RESTORATION OF SURFACE

Rehabilitation of the location and reserve pit will start in a timely manner after all drilling operations cease. The type of reclamation will depend on whether the well is a producer or a dry hole.

However, in either event, the reserve pit will be allowed to dry properly, and fluid removed and disposed of in accordance with Article 7.B as previously noted. The pit area will then be leveled and contoured to conform to the original and surrounding area. Drainage systems, if any, will be reshaped to the original configuration with provisions made to alleviate erosion. These may need to be modified in certain circumstances to prevent inundation of the location pad and surface facilities. After the area has been shaped and contoured, top soil from the spoil pile (if any) will be placed over the disturbed area to the extent possible. Revegetation procedures will comply with BLM standards.

If the well is a dry hole, the pad and road area will be recontoured to match the existing terrain. Topsoil will be spread to the extent possible. Revegetation will comply with BLM standards.

Should the well be a producer, the previously noted procedures will apply to those areas which are not required for production facilities.

11. OTHER INFORMATION

- A. The topography is of hilly terrain with vegetation of sagebrush and native grasses. The soils are silty and very shallow.
- B. The surface is used for livestock grazing. The surface is leased by Harley Ballard, P.O. Box 1777, Carlsbad, NM 88221
- C. The archeological study was performed by Boone Archaeological Services and is attached herewith.
- D. There are no buildings of any kind in the area.

12. OPERATOR'S REPRESENTATIVE - Field representative for contact regarding compliance with the Surface Use Plan is:

Before, during & after Construction:

Tommy E. Taylor
303 W. Wall Ave., Suite 1900
Midland, Texas 79701-5116
(432) 687-1777

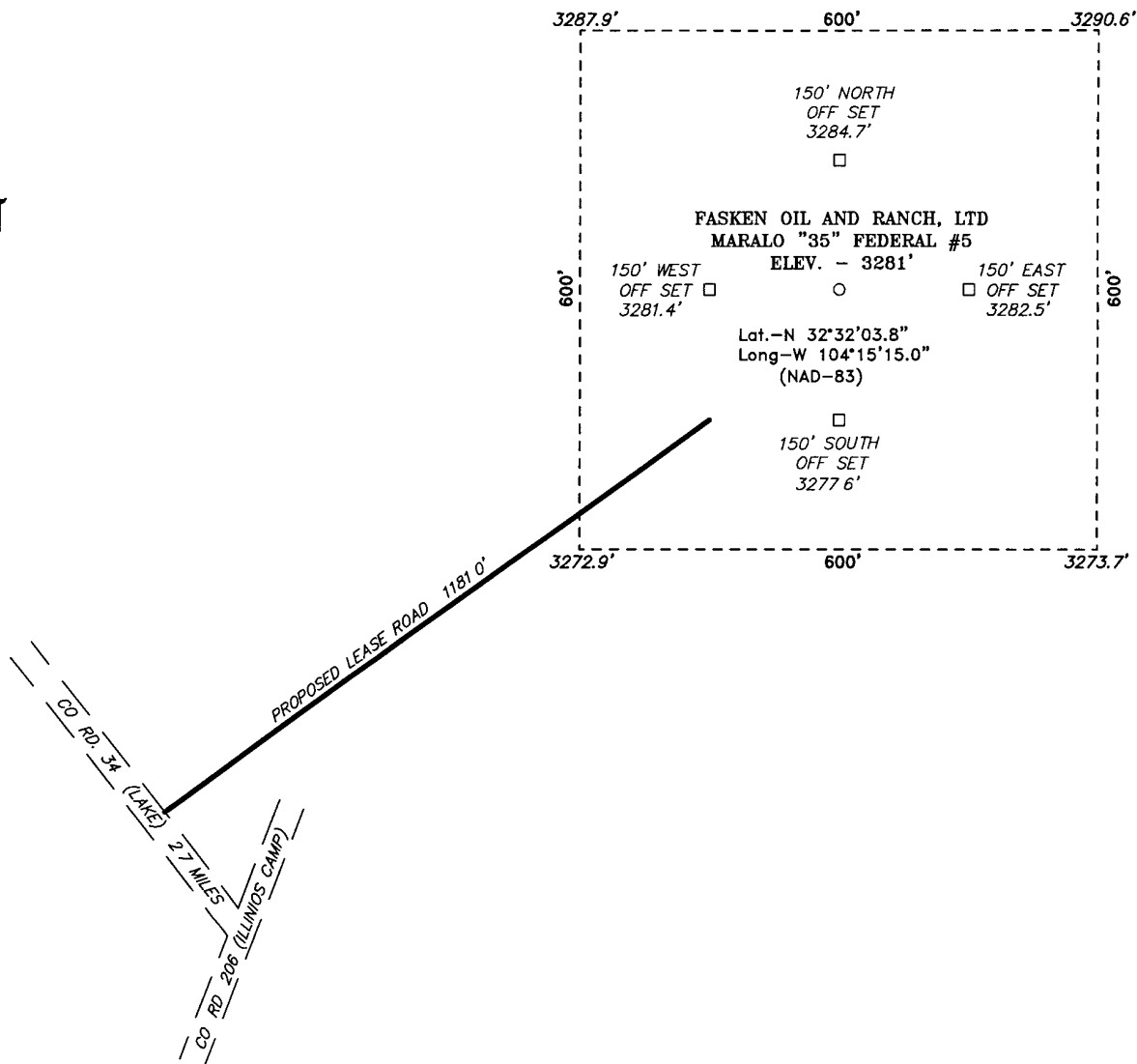
13. CERTIFICATION - I hereby certify that I, or persons under my direct supervision, have inspected the proposed drill site and access route; that I am familiar with the conditions which currently exists; that the statements made in this plan are to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed by Fasken Oil and Ranch, Ltd. and its contractors/subcontractors in conformity with this plan and the terms and

conditions under which it is approved. This statement is subject to the provisions of 18 U.S.C. 1001 for the filing of a false statement.

NAME: *Tommy C. Taylor*
DATE: *6/1/07*
TITLE: Drilling Manager

TET
(maralo355apd doc)

N



200 0 200 400 FEET

SCALE: 1" = 200'

FASKEN OIL AND RANCH, LTD

THE MARALO "35" FEDERAL #5 LOCATED 990' FROM
THE NORTH LINE AND 1980' FROM THE WEST LINE OF
SECTION 35, TOWNSHIP 20 SOUTH, RANGE 27 EAST,
N.M.P.M., EDDY COUNTY, NEW MEXICO.

Sheet	1	of	1	Sheets
-------	---	----	---	--------

Exhibit #6

Conditions of Approval Cave and Karst

EA#: NM-520-07-0892

Lease #: LC-072015C

Fasken Oil and Ranch, Ltd.

Maralo 35 Fed. #5

Cave/Karst Surface Mitigation

The following stipulations will be applied to minimize impacts during construction, drilling and production.

Berming:

Any tank batteries will be constructed and bermed large enough to contain any spills that may occur.

Bermed areas will be lined with rip-stop padding to prevent tears or punctures in liners and lined with a permanent 20 mil plastic liner.

Cave/Karst Subsurface Mitigation

The following stipulations will be applied to protect cave/karst and ground water concerns:

Rotary Drilling with Fresh Water:

Rotary drilling techniques in cave or karst areas will include the use of fresh water as a circulating medium in zones where caves or karst features are expected. Use depth to the deepest expected fresh water as listed in the geologist report.

Casing:

All casing will meet or exceed National Association of Corrosion Engineers specifications pertaining to the geology of the location and be run to American Petroleum Institute and BLM standards.

Lost Circulation:

ALL lost circulation zones from the surface to the base of the cave occurrence zone will be logged and reported.

Regardless of the type of drilling machinery used, if a void (bit drops) of four feet or more and circulation losses greater than 75 percent occur simultaneously while drilling in any cave-bearing zone, drilling operations will immediately stop and the BLM will be notified by the operator. The BLM will assess the consequences of the situation and work with operator on corrective actions to resolve the problem.

Delayed Blasting:

Any blasting will be a phased and time delayed.

Abandonment Cementing:

Upon well abandonment the well bore will be cemented completely from 100 feet below the bottom of the cave bearing zone to the surface.

Record Keeping:

The Operator will track customary drilling activities, including the rate of penetration, pump pressure, weight on bit, bit drops, percent of mud returns, and presence of absence of cuttings returning to the surface. As part of customary record keeping, each detectable void or sudden increase in the rate of penetration not attributable to a change in the formation type should be documented and evaluated as it is encountered.

CONDITIONS OF APPROVAL - DRILLING

Operator's Name: Fasken Oil and Ranch, Ltd
Well Name & No. Maralo 35 Federal # 5
Location: 990'FNL, 1980'FWL, SEC35, T20S, R27E, Eddy County, NM
Lease: LC-072015C

.....

I. DRILLING OPERATIONS REQUIREMENTS:

- A. The Bureau of Land Management (BLM) is to be notified a minimum of 4 hours in advance for a representative to witness:
1. Spudding well
 2. Setting and/or Cementing of all casing strings
 3. BOPE tests
- Eddy County call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220, (505) 361-2822
- B. A Hydrogen Sulfide (H₂S) Drilling Plan is N/A.
- C. 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.
- D. If 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.
-

II. CASING:

- A. The 13.375 inch surface casing shall be set at approximately 350 feet and cemented to the surface.
-
1. 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.
 2. Wait on cement (WOC) time for a primary cement job will be a minimum of 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compression strength, whichever is greater. (This is to include the lead cement)
 3. 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.
 4. If cement falls back, remedial action will be done prior to drilling out that string.
- B. The minimum required fill of cement behind the 9.625 inch intermediate casing is cement shall circulate to the surface. If cement does not circulate see A.1 thru 4.

- C. The minimum required fill of cement behind the 5.5 inch production casing is cement shall circulate to at least 200 feet above the shoe of the intermediate casing string or 200 feet above the most shallow lost circulation interval while drilling the intermediate casing well bore, if circulation is lost.
- D. 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.

III. PRESSURE CONTROL:

- A. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2.
- B. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be 2000 psi.
- C. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the 9.625 inch Intermediate casing shoe shall be 5000 psi.
- D. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
1. The tests shall be done by an independent service company.
 2. The results of the test shall be reported to the appropriate BLM office.
 3. 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.
 - ~~4. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi in accordance with API RP 53, section 17. 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.~~
 5. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation or during the first bit trip after drilling out of the 9.625 inch casing. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

IV. DRILLING MUD:

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the Wolfcamp formation, and shall be used until production casing is run and cemented.

1. Recording pit level indicator to indicate volume gains and losses.
2. Mud measuring device for accurately determining the mud volumes necessary to fill the hole during trips.
3. Flow-sensor on the flow line to warn of abnormal mud returns from the well

V. Hazards:

- A. Our geologist has indicated that there is High potential for Cave / Karst features and there are known caves in this area.
- B. Our geologist has indicated that there is potential for lost circulation in the Grayburg, San Andres, Delaware and Bone Springs.
- C. Our geologist has indicated that there is potential for abnormal pressures in the Wolfcamp formation and the Pennsylvanian system.

Engineering can be reached at 505-706-2779 for any variances necessary.

FWright 6/15/07