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

POTASH

B-04-28

Form 3160-3
(August 1999)

FORM APPROVED
OMB No. 1004-0136
Expires November 30, 2000

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

157

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of Work: ☒ DRILL ☐ REENTER	5. Lease Serial No. 2844
1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☐ Single Zone ☐ Multiple Zone	6. If Indian, Allottee or Tribe Name N/A
2. Name of Operator SHACKELFORD OIL COMPANY	7. If Unit or CA Agreement, Name and No. N/A
3a. Address P O BOX 10665, MIDLAND, TX.79702	3b. Phone No. (include area code) (432) 682-9784
4. Location of Well (Report location clearly and in accordance with any State requirements.*) At surface 1650' FNL & 330' FWL Unit E At proposed prod. zone 1650' FNL & 330' FWL R-111-P Potash	8. Lease Name and Well No. LONE RANGER #3
	9. API Well No. 30-025-36517
	10. Field and Pool, or Exploratory West TEAS YATES SEVEN RIVERS
	11. Sec., T., R., M., or Blk. and Survey or Area SEC. 10, T-20S, R-33E
14. Distance in miles and direction from nearest town or post office* 18.5 miles SW of Maljamar, 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) 330'	16. No. of Acres in lease 160 / 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 3104 (943C-3TF)
21. Elevations (Show whether DF, KDB, RT, GL, etc.) GR	22. Approximate date work will start* 12-15-2003 / 23. Estimated duration 30 Days

24. Attachments

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

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

25. Signature	Name (Printed/Typed) Don G. Shackelford	Date 11-7-2003
Title OWNER		
Approved by (Signature) /s/ Carsten F. Goff	Name (Printed/Typed) /s/ Carsten F. Goff	Date 8 DEC 2003
Title STATE DIRECTOR	Office NM STATE OFFICE	

ACTING

Application approval does not warrant or certify the 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.

RECEIVED
DEC 2003
Hobbs
OCD

OPER. OGRID NO. 20595
PROPERTY NO. 32926
POOL CODE 59110
EFF. DATE 12/30/03
API NO. 30-025-36517

SHACKELFORD OIL COMPANY

SCHEDULE OF PERMIT AND EXHIBITS

1. **Well Locators and acreage Dedication Plat.**
2. **Application to Drill - Drilling Plan.**
3. **Multi-Point Surface Use and Operations Plan.**

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 South First, Artesia, NM 88210
District III
1000 Rio Brazos Rd., Aztec, NM 87410
District IV
2040 South Pacheco, Santa Fe, NM 87505

State of New Mexico
Energy, Minerals & Natural Resources

OIL CONSERVATION DIVISION
2040 South Pacheco
Santa Fe, NM 87505

Form C-102
Revised March 17, 1999

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
30-025-36517	59110	Teas Yates Seven River West

[4] Property Code	[5] Property Name	[6] Well Number
32926	Lone Ranger	#3

[7] OGRID No.	[8] Operator Name	[9] Elevation
20595	Shackelford Oil Company	3556

[10] Surface Location

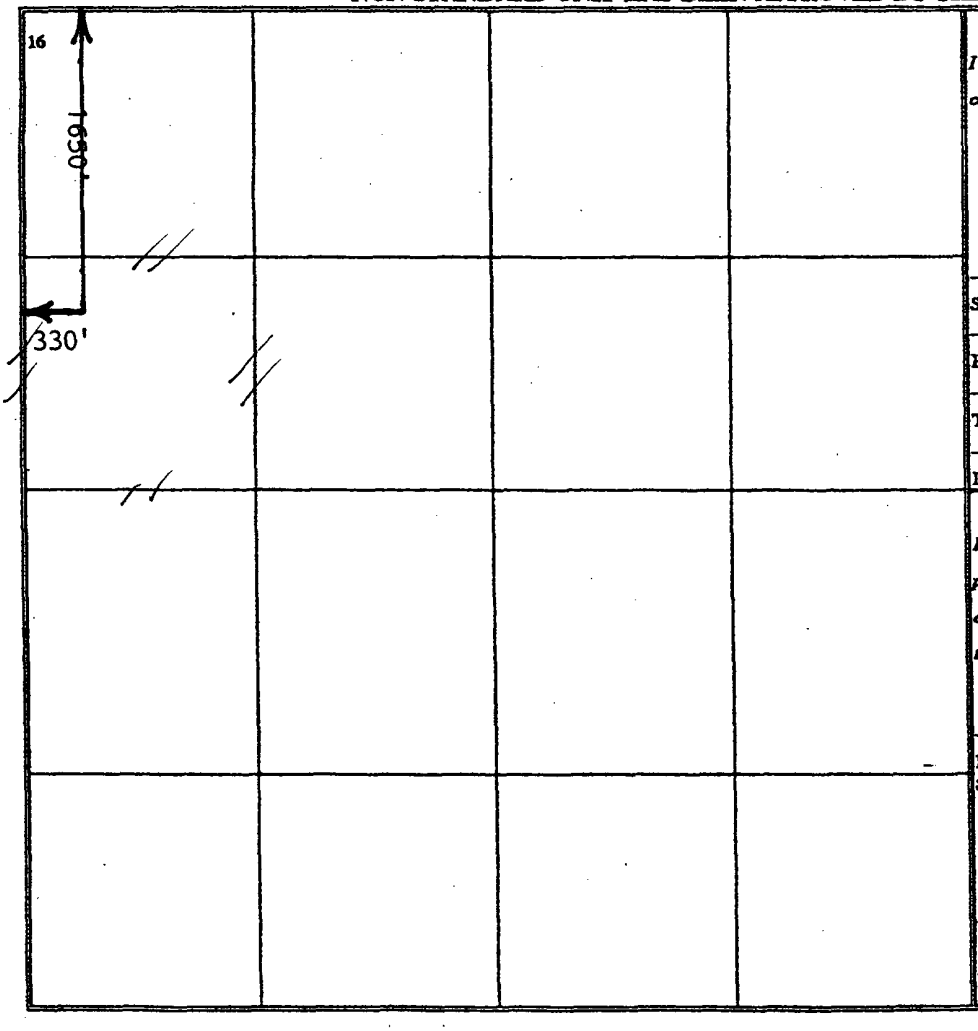
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
E	10	20S	33E		1650	North	330	West	Lea

[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

Signature

Printed Name Don Shackelford

Title Owner

Date 11-7-2003

[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.

Date of Survey

Signature and Seal of Professional Surveyor

NEW MEXICO 6295 2003 REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR

Certificate Number 6295

APPLICATION TO DRILL
DRILLING PLAN

In conjunction with Form 3160-3, Application for Permit to Drill, Shackelford Oil Co. Submits the subject well in accordance with Bureau of Land Management requirements.

1. The geologic surface formation is Quaternary.

2. The estimated tops of geologic markers are;

1.	Anhydrite	1350'
2.	Tansill	2950'
3.	Yates	3100'
4.	Seven Rivers	3350'

3. The estimated depths at which water, oil, or gas-bearing formation are expected:

Water	350'
Oil and Gas	3350'-3700' Yates-Seven Rivers

4. Casing

8 5/8"	24#	J-55	0-1400'
5 ½"	15.50#	J-55	0-3500'

5. Cement
   A. Cement from 1300' to surface with 310 sx 35/65 POZ Class C and 135 sx Class C.
   B. Cement from 3400' with 450 sx 35/65 POZ Class C and 135 sx Class C.

6. Pressure control equipment: the blowout preventer equipment (BOP) shown in Exhibit #1 will consist of a 3000 psi double ram type preventer for drilling the intermediate hole. The blowout preventer stack for the production hole will consist of at least a double-ram blowout preventer and annnular preventer rated to 5000 psi working pressure. A diagram of the BOPs and choke manifold is attached. All BOPs and accessory equipment will be tested according to Onshore Order No.2 beofre drilling out.

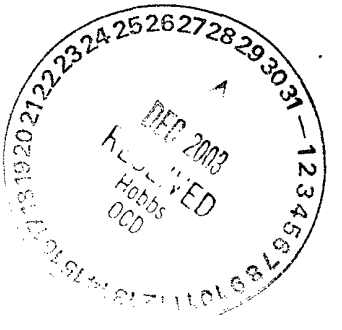
7. Mud program: See Exhibit #7

8. No abnormal pressures are expected

9. Testing, Logging and Coring Programs

   Wireline logging program: See Exhibit #7

10. Anticipated starting date: December 15, 2003



MULTI-POINT SURFACE USE AND OPERATIONS PLAN
Lone Ranger #3
1650' FNL and 330' FWL
Sec. 10, T-20-S, R-33-E
Lea County, New Mexico

This plan is submitted with Form 3160-3, application for permit to drill, covering the above described well. The purpose of this plan is to describe the location of the proposed well, the proposed construction activities and operations plan, the magnitude of necessary surface disturbance involved, and the procedures to be followed in rehabilitating the surface after completion of operations so that a complete appraisal can be made of the environmental effects associated with the operations.

1. **EXISTING ROADS**

   A. The wellsite and elevation plat for the proposed Lone Ranger #3 are reflected on Exhibit #2.

   B. All roads to the location are indicated on Exhibit #3.

   C. **DIRECTIONS:**

      1. Proceed west from Hobbs on US 62 - 180 for 32 miles.
      2. Turn right on Caliche Road and continue 1.5 miles to the location on the left.

2. **PLANNED ACCESS ROAD**

   A. See Item 1.

3. **LOCATION OF EXISTING WELLS**

   A. The locations of existing active wells located in and immediately adjacent to Section 10 are highlighted on Exhibit #4.

4. **LOCATION OF EXISTING AND PROPSED FACILITIES**

   A. There are no producing wells on this lease.

5. **LOCATION AND TYPE OF WATER SUPPLY**

A. It is planned to drill the proposed well with a cut-brine water system or with produced water. The water will be obtained from commercial source and will be hauled to location by truck over existing and proposed lease roads marked on Exhibit #3.

6. **SOURCES OF CONSTRUCTION MATERIALS**

A. Caliche required for construction of the location pad and access road will be obtained from caliche on the location or from the nearest BLM approved pit.

7. **METHODS OF HANDLING WASTE DISPOSAL**

A. Drill cuttings will be disposed of in the reserve pits.

B. Drilling fluids will be allowed to evaporate in the reserve pits until the pits are dry. The reserve pit will be fenced on three sides and will be totally isolated upon removal of the rig.

C. Water produced during operations will be collected in steel tanks or a reserve pit, if volumes prove excessive. After placing the well on production, all water will be collected in tanks.

D. Oil produced during operations will be stored at the existing battery and sold through transport trucks.

E. Current regulations pertaining to disposal of human waste will be complied with.

F. Trash, waste paper, garbage and junk will be kept in a trailer and disposed of at an approved landfill. All waste material will be contained to prevent scattering by the wind.

G. All trash and debris will be removed from the well site within 30 days after drilling and/or completion operations are terminated. At the point the reserve pit is dry it will be backfilled and reclaimed as outlined by BLM specifications. Only the portion of the drilling pad used by production equipment will remain in use. If deemed dry only a dry hole marker will remain.

8. **ANCILLARY FACILITIES**

A. No ancillary facilities will be required for this well.

9. **WELLSITE LAYOUT**

A. Exhibit #6 shows the dimensions of the well pad and reserve pits and the location of major rig components.

B. The ground surface at the drilling location is essentially flat.

C. The reserve pits will be plastic lined.

D. The pad and pit area have been staked and flagged.

10. **PLANS FOR RESTORATION OF THE SURFACE**

A. After finishing drilling and/or completion operations, all equipment and other material not needed for further operations will be removed. The location will be cleared of all trash and junk, to leave the wellsite in as aesthetically pleasing a condition as possible.

B. Unguarded pits, if any, containing fluids will be fenced until they have been filled.

C. If the proposed well is non-productive, all rehabilitation and/or vegetation requirements of the Bureau of Land Management and the United States Geological Survey will be complied with and will be accomplished as expeditiously as possible. All pits will be filled and leveled within 90 days after abandonment.

11. **SURFACE OWNERSHIP**

A. The wellsite is owned by the Bureau of Land Management.

B. The surface location will be restored in compliance with BLM rules.

12. **TOPOGRAPHY**

A. The wellsite and access route are located in a flat area with little relief.

B. The top soil at the wellsite is sand.

C. The vegetation cover at the wellsite is moderately sparse, with mesquite, grasses, yucca, scrub oak, and weeds.

D. No wildlife was observed but it is likely that rabbits, lizards, insects, and rodents traverse the area. The area is used for cattle grazing.

E. There are no ponds, lakes, streams, or rivers within several miles of the wellsite.

F. The wellsite is located on federal surface.

G. There is no evidence of any archaeological, historical, or cultural sites in the vicinity of the location.

13. **OPERATOR'S REPRESENTATIVES**

A. The field representatives responsible for assuring compliance with the approved surface use plan are:

Don G. Shackelford
Shackelford Oil Company
203 W. Wall, Suite 401
Midland, Texas 79701
Phone (432) 682-9784 (office)
(432) 694-0262 (home)

W. L. Shackelford
512 New Mexico Drive
Roswell, New Mexico 88201
Phone (505) 622-5902

ROAD FOR LONE RANGER #1

1. The road for the Lone Ranger #1 well, has approximately 1 ½ miles of existing road to the Chesapeake Energy, Inc. well, WTYSRU #444, located, 660' FSL and 660' FEL, Section 4, T-20S, R-33E. This well is located on fee land consisting of the S/2, SE/4, Section 4. The new road which will be necessary, will be 660' on the free land and approximately 330' on Federal acreage (this will be on a currently existing 2 track road).

ROAD FOR LONE RANGER #2

2. The road for the Lone Ranger #2, has approximately 1 ½ miles of existing road to the Chesapeake Energy, Inc. well, WTYSRU #444, located 660' FSL and 660' FEL, Section4, T-20S, R-33E. This well is located on fee land consisting of the S/2, SE/4, Section 4. The new road which will be necessary, will be 660' on the free land and 330' Southeast on Federal acreage to the location at 330' FNL and 330' FWL, Section 10, T-20S, R-33E.

ROAD FOR LONE RANGER #3

3. The road for the Lone Ranger #3, has approximately 1 ½ miles of existing road to the Chesapeake Energy, Inc. well, WTYSRU #444, located 660' FSL and 660' FEL, Section 4, T-20S, R-33E. This well is located on fee land consisting of the S/2, SE/4, Section 4. The new road will consist of the road from the WTYSRU #444 to the Lone Ranger #2 and 1320' from the Lone Ranger #2 to the Lone Ranger #3, due south.

ROAD FOR LONE RANGER #4

4. The road for the Lone ranger #4, has approximately 1 ½ miles of existing road to the Chesapeake Energy, Inc. well, WTYSRU #945, located 2412' FNL and 330' FEL, Section 9, T-20S, R-33E. The new road necessary will 660'.

14. **CERTIFICATION**

I hereby certify that I, or persons under my direct supervision, have inspected the proposed drillsite and access route; that I am familiar with the conditions which presently exist; 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 Shackelford Oil Company and its contractors and subcontractors in conformity with this plan and the terms and conditions under which it is approved.

11-7-2003
Date

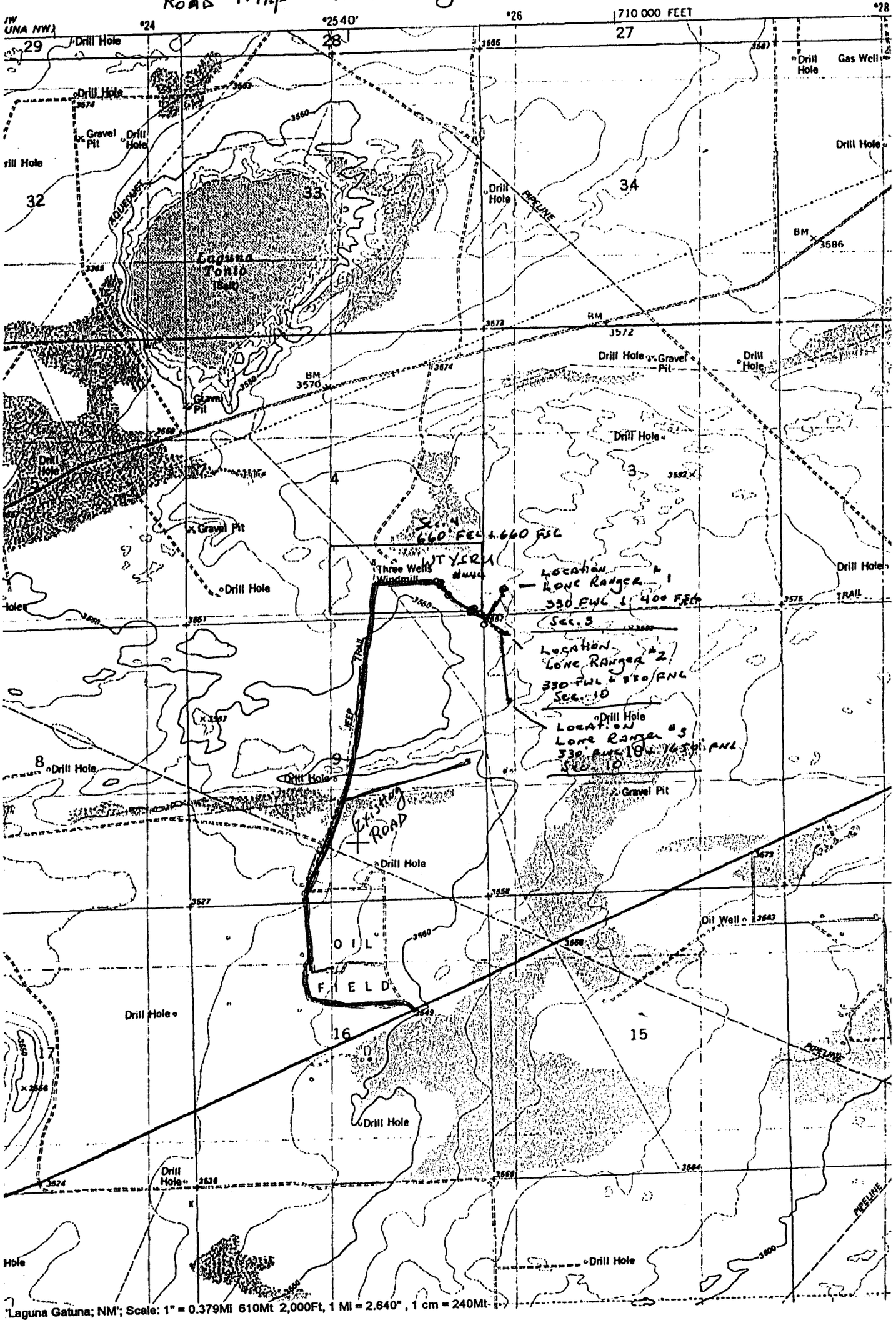
Don G. Shackelford

WP/aptodril.lr3

Exhibit 3

• Existing Road

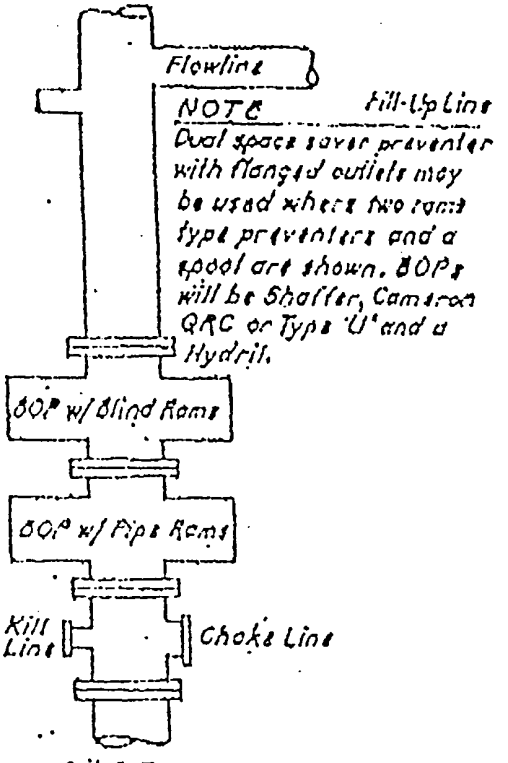
Road Map Lone Ranger #3



CAPSTAR DRILLING

301 BOYD, E
ALLEN, TEXAS 75002
(214) 727-8367

P. O. BOX 589
ALLEN, TEXAS 75002
In Texas (800) 442-5224



CASE I

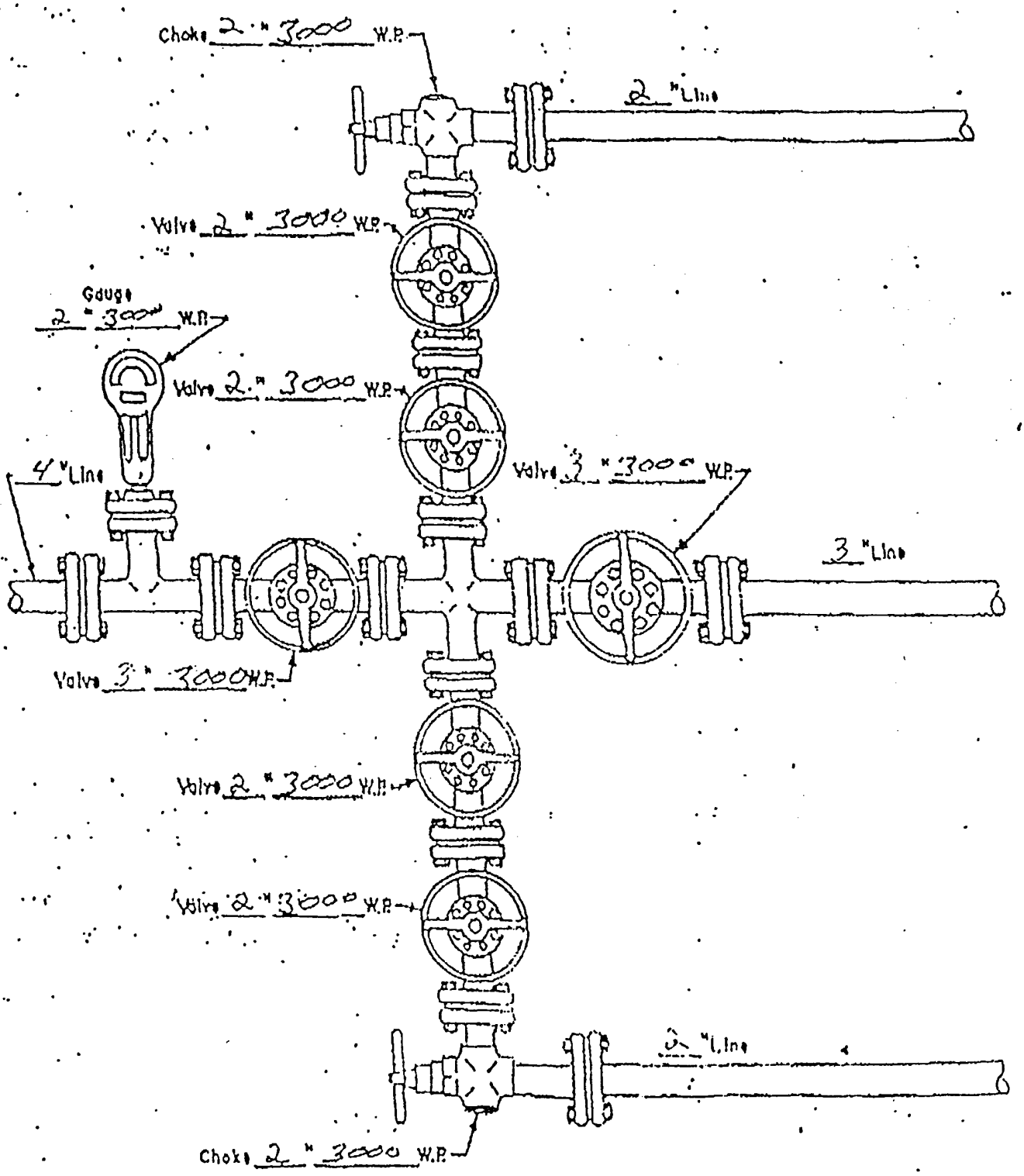
BLOWOUT PREVENTER HOOKUP

3000# Working Pressure

Exhibit 1

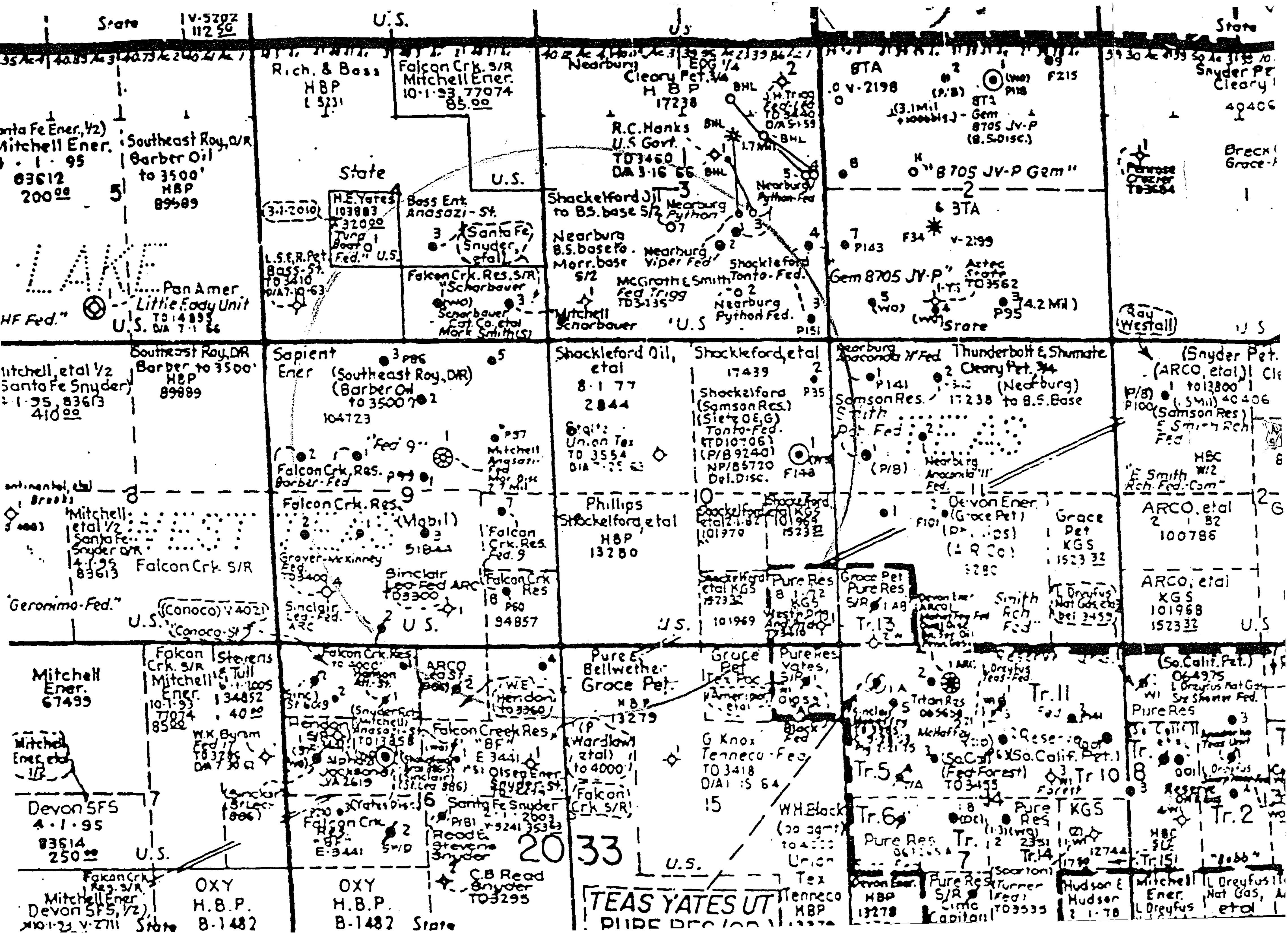
Choke Manifold

Exhibit 1-A



MANIFOLD
3000 W.P.

☒ Manual
☐ Hydraulic



State
U.S.
Rich. & Bass
HBP
Falcon Crk. S/R
Mitchell Ener.
10-1-93 77074
85.00
Nearburg
Cleary Pet. 1/4
HBP
17238
BTA
Snyder Pet.
Santa Fe Ener. 1/2
Mitchell Ener.
83612
200.00
Southeast Roy. O/R
Barber Oil
to 3500'
HBP
89589
5
H.E. Yates
103883
Bass Ent.
Anasazi-St.
R.C. Hanks
U.S. Govt.
TD 3460
DA 3-16-66
Shackelford Oil to B.S. base S/2
Nearburg
Python
Nearburg
B.S. base to Morr. base S/2
Nearburg Viper Fed.
Shackleford Tonto-Fed.
McGrath & Smith Fed. Trigg
Nearburg Python Fed.
3
2
8705 JV-P Gem
Gem 8705 JV-P
Aztec State TD3562
LAKE
Pan Amer
Little Eddy Unit
Falcon Crk. Res. S/R
Scharbauer
Mitchell
Scharbauer
Ray Westall
Southeast Roy. O/R
Barber to 3500'
HBP
89889
Mitchell, etal 1/2
Santa Fe Snyder
410.00
Sapient Ener
(Southeast Roy. O/R)
(Barber Oil to 3500')
104723
Shackleford Oil, etal
8-1-77
2844
Shackleford, etal
17439
Samson Res.
Thunderbolt & Shumate
Cleary Pet. 3/4
(Nearburg)
17238 to B.S. Base
(Snyder Pet.
(ARCO, etal)
Falcon Crk. Res.
Barber-Fed
9
10
11
Falcon Crk. Res.
(Mobil)
Phillips
Shackelford, etal
HBP
13280
Devon Ener.
(Grace Pet)
Grace Pet
KGS
152332
ARCO, etal
100786
Mitchell etal 1/2
Santa Fe Snyder O/R
83613
Falcon Crk. S/R
8
Falcon Crk. Res.
94857
Pure Res
Grace Pet
Pure Res
Smith Rch Fed.
ARCO, etal
KGS
101968
152332
Geronimo-Fed.
(Conoco) V-4021
Conoco-St.
U.S.
Mitchell Ener.
67499
Falcon Crk. S/R
Mitchell Ener.
10-1-93
77074
85.00
Stevens & Tull
134852
40.00
ARCO
Falcon Creek Res.
Pure & Bellwether
Grace Pet.
HBP
13279
Grace Pet
Pure Res Yates, S/P
Tr. 13
Tr. 11
(So. Calif. Pet.)
Pure Res
Tr. 5
Tr. 10
Tr. 6
Tr. 7
Tr. 14
Tr. 2
Tr. 15
G Knox
Tenneco Fed
TD 3418
15
(So. Calif. Pet.)
Pure Res
KGS
Devon SFS
4-1-95
83614
250.00
7
6
Santa Fe Snyder
Read & Stevens Snyder
C.B. Read Snyder TD3295
20
33
W.H. Black
Union Tex
Tenneco
HBP
Devon Ener.
HBP
13278
Pure Res S/R
Capitan
Turner (Fed)
TD3535
Hudson & Hudson
Mitchell Ener.
L Dreyfus
L Dreyfus Nat Gas, etal
Falcon Crk. Res. S/R
Mitchell Ener.
Devon SFS 1/2
OXY
H.B.P.
B-1482
State
TEAS YATES UT

Exhibit #4
LONE RANGER #3
T-20-S, R-33-E, Lea County

Section 3

Well Name	Location
Viper 3 Federal #1	2200' FSL & 1600' FEL
Tonto Federal #3	330' FSL & 330' FEL
Python 3 Federal #1	1900' FSL & 1650' FEL
Python 3 Federal #2	855' FSL & 1650' FEL
Python 3 Federal #3	2200' FSL & 1330' FEL
Python 3 Federal #7	1980' FSL & 2310' FWL
Python 3 Federal #4	1980' FSL & 2310' FWL
Python 3 Federal #6	1980' FSL & 2510' FWL

Section 4

West Texas Yates Seven Rivers Unit #434	660' FSL & 1980' FEL
Scharbauer 4 #2	330' FSL & 2055' FEL
West Texas Yates Seven Rivers Unit #444	660' FSL & 660' FEL
Anasazi 4 State #2	1650' FSL & 660' FEL
West Texas Yates Seven Rivers Unit #433	1650' FSL & 1980' FEL
Anasazi 4 State #1	660' FSL & 1980' FWL
Anasazi 4 Federal #5K	1650' FSL & 1981' FWL
Anasazi 4 Federal #6	2150' FNL & 660' FEL
Tuna Boat 4 Federal #1	1650' FSL & 1980' FWL
West Texas Yates Seven Rivers Unit #443	1650' FSL & 660' FEL

Section 9

ARC Federal #1	660' FSL & 1980' FEL
West Texas Yates Seven Rivers Unit #923	1980' FSL & 1650' FWL
West Texas Yates Seven Rivers Unit #922	1980' FNL & 1650' FWL
West Texas Yates Seven Rivers Unit #913	1980' FSL & 660' FWL
Federal #4	990' FSL & 990' FWL
West Texas Yates Seven Rivers Unit #933	1980' FSL & 2310' FEL
Federal #5	990' FSL & 2050' FWL
West Texas Yates Seven Rivers Unit #932	2310' FNL & 2310' FEL
Anasazi 9 Federal #1	1980' FNL & 1980' FEL
West Texas Yates Seven Rivers Unit #931	990' FNL & 2110' FEL
West Texas Yates Seven Rivers Unit #921	330' FNL & 2310' FL
Federal 9 #4	330' FNL & 990' FWL

Section 9 (cont'd)

Well Name	Location
Anasazi 9 Federal COM #2	830' FSL & 1980' FEL
Anasazi 9 Federal #3	2000' FNL & 2080' FEL
West Texas Yates Seven Rivers Unit #941	330' FNL & 990' FEL
West Texas Yates Seven Rivers Unit #942	1650' FNL & 990' FEL
West Texas Yates Seven Rivers Unit #943	2310' FSL & 990' FEL
West Texas Yates Seven Rivers Unit #944	990' FSL & 990' FEL
West Texas Yates Seven Rivers Unit #924	2560' FNL & 2210' FL
West Texas Yates Seven Rivers Unit #945	2612' FNL & 330' FEL

Section 10

Tonto Federal #1	1980' FNL & 660' FEL
Federal 10 #1	1700' FSL & 330' FWL
Tonto Federal #2	660' FNL & 330' FEL

Section 16

West Texas Yates Seven Rivers Unit #611	330' FNL & 2310 FL

NOTE:

Proposed Well - Shackelford Oil Company , #4 Lone Ranger - 2310' FSL and 330' FWL

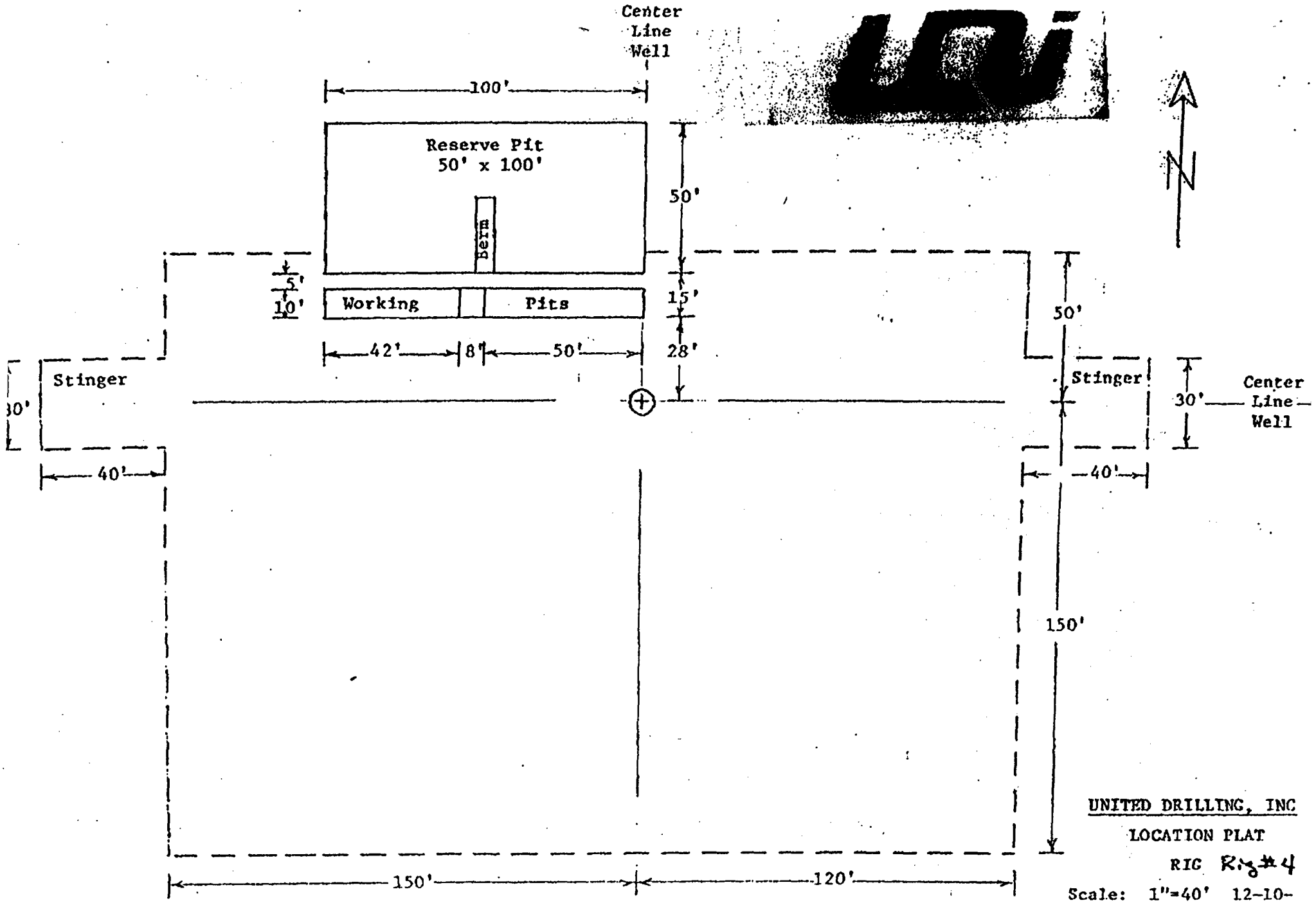
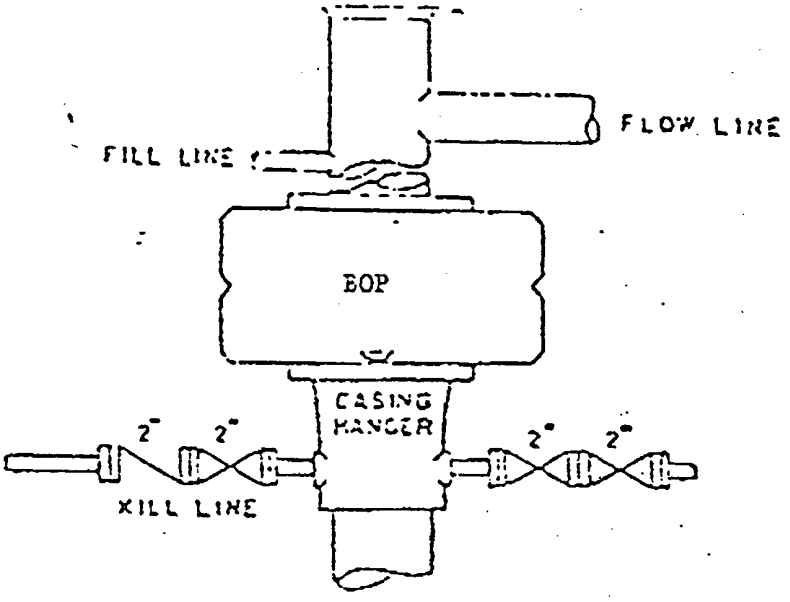

Center
Line
Well
100'
Reserve Pit
50' x 100'
Berm
50'
5'
10'
Working
Pits
15'
28'
42'
8'
50'
Stinger
30'
40'
50'
Stinger
30'
Center
Line
Well
40'
150'
150'
120'
UNITED DRILLING, INC
LOCATION PLAT
RIG Rig #4
Scale: 1"=40' 12-10-

Exhibit 6



ANNULAR BOP STACK

1000#

BOP ARRANGEMENT

EXHIBIT #7
DRILLING PROGNOSIS
LONE RANGER #3

Location	Section 10, T-20-S, R-33-E
Proposed Depth and Objective:	Yates Seven Rivers - 3500'

CASING PROGRAM:	8 5/8"	J-55	24#	1400'
	5 1/2"	J-55	15.50#	TD

Logging Program: A compensated neutron/formation density with gamma ray, and caliper will be run for porosity and lithology. A dual induction will be run for water saturation analysis. The gamma ray will be run from TD to the surface.

Mud Logging: Samples will be caught every 10' from 3000' to TD.

Mud Program:

0-1400' Spud 12 1/4" hole with fresh water containing gel and lime, if necessary for hole cleaning. Mud weight should be 8.5 - 8.7 LB/GAL with a velocity of 33-35 sec/1000cc.

1400' - 3400' Drill out below surface pipe using 7 7/8" bit with 10 LB/GAL brine for drilling the native salt section. Lime will be added to maintain a ph of 9.5 - 10.00.

SHACKELFORD OIL COMPANY

HYDROGEN SULFIDE DRILLING OPERATIONS 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 and characteristics of hydrogen sulfide (H2S).
2. The proper use and maintenance of personal protective equipment and life support system.
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 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 and the 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. 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 penetrating the first zone containing or reasonably expected to contain H2S.

1. Well Control Equipment:

   A. Flare line with electronic igniter or continuous pilot.

   B. Choke manifold with a minimum of one remote choke.

   C. Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit.

2. Protective equipment for essential personnel:

   A. Mark II Survivor 30-minute units located in the dog house and at briefing areas, as indicated on well site diagram.

3. H2S detection and monitoring equipment:

   A. 2 - 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.

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 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 the 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, casing, tubing wellhead, blowout preventers, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H2S service.

7. Communication:

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

   B. Land line (telephone) communications at field 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.