

ATS-10-589  
EA-10-1009

OCD-ARTESIA

Form 5160-3  
(April 2004)

SECRETARY'S POTASH

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

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: <input type="checkbox"/> DRILL <input checked="" type="checkbox"/> REENTER		5. Lease Serial No. NM-06767
1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <input type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		6. If Indian, Allottee or Tribe Name
2. Name of Operator Shackelford Oil Company		7. If Unit or CA Agreement, Name and No.
3a. Address 3510 N. A Street, Bldg B-100 Midland, TX 79705		8. Lease Name and Well No. <b>38392</b> Hackberry Federal, Well No. 1
3b. Phone No. (include area code) 432-682-9784		9. API Well No. 30-015-21025
4. Location of Well (Report location clearly and in accordance with any State requirements.) At surface 1980' FNL & 1980' FEL (ULG) At proposed prod. zone same		10. Field and Pool, or Exploratory Wildcat
11. Sec., T. R. M. or Blk. and Survey or Area Sec. 25-T19S-R30E		12. County or Parish Eddy
13. State NM		14. Distance in miles and direction from nearest town or post office* 25 miles NE of Carlsbad, NM.
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) N/A	16. No. of acres in lease 600	17. Spacing Unit dedicated to this well 40
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.	19. Proposed Depth 9,165'	20. BLM/BIA Bond No. on file <del>3104</del> NM 2156
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3306' GL	22. Approximate date work will start* 08/09/2010	23. Estimated duration 3 - 4 Weeks

24. Attachments

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

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

25. Signature <i>George R. Smith</i>	Name (Printed/Typed) George R. Smith	Date 07/08/2010
Title POA agent for Shackelford Oil Company		
Approved by (Signature) /s/ Linda S.C. Rundell	Name (Printed/Typed)	Date OCT 27 2010
Title STATE DIRECTOR	Office NM STATE OFFICE	

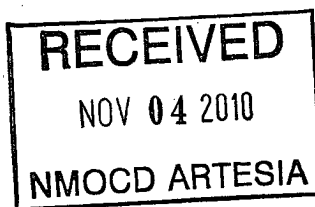
Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.  
Conditions of approval, if any, are attached.

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)

Capitan Controlled Water Basin



Approval Subject to General Requirements  
& Special Stipulations Attached

K2 11/22/10

SEE ATTACHED FOR  
CONDITIONS OF APPROVAL

N. MEXICO OIL CONSERVATION COMMISSION  
WELL LOCATION AND ACREAGE DEDICATION PLAT

Form C-102  
Supersedes C-12R  
Effective 1-1-85

All distances must be from the outer boundaries of the Section.

Operator Shackelford Oil Company		Lease Hackberry Federal		Well No. 1
Unit Letter Julien Ard	Section 25	Township 19-South	Range 30-East	County Eddy
Actual Postage Location of Well:				
Ground Level Elev. 1980	Producing Formation Harrow Sand	Pool WILLIAMS SINK; BONE SPRING	Dedicated Acreage 40	
				ACRES 320

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.

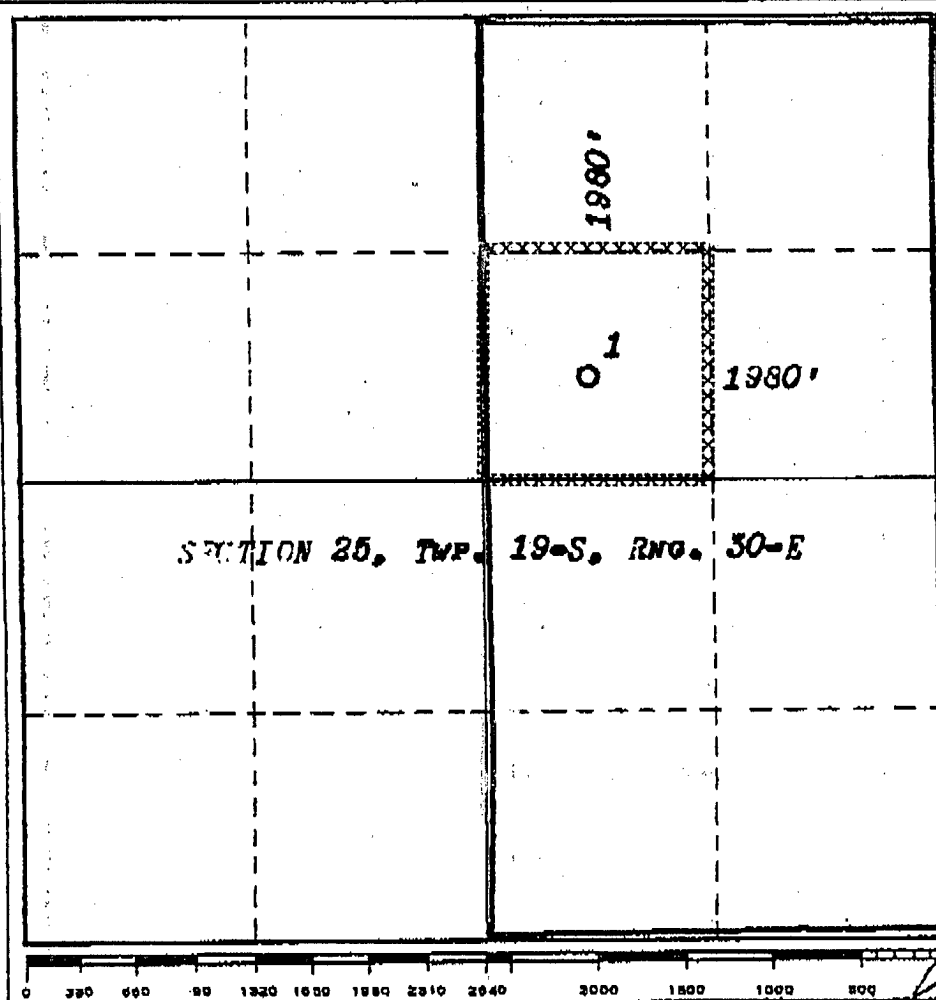
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

☐ Yes ☒ No If answer is "yes," type of consolidation \_\_\_\_\_

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) \_\_\_\_\_

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.



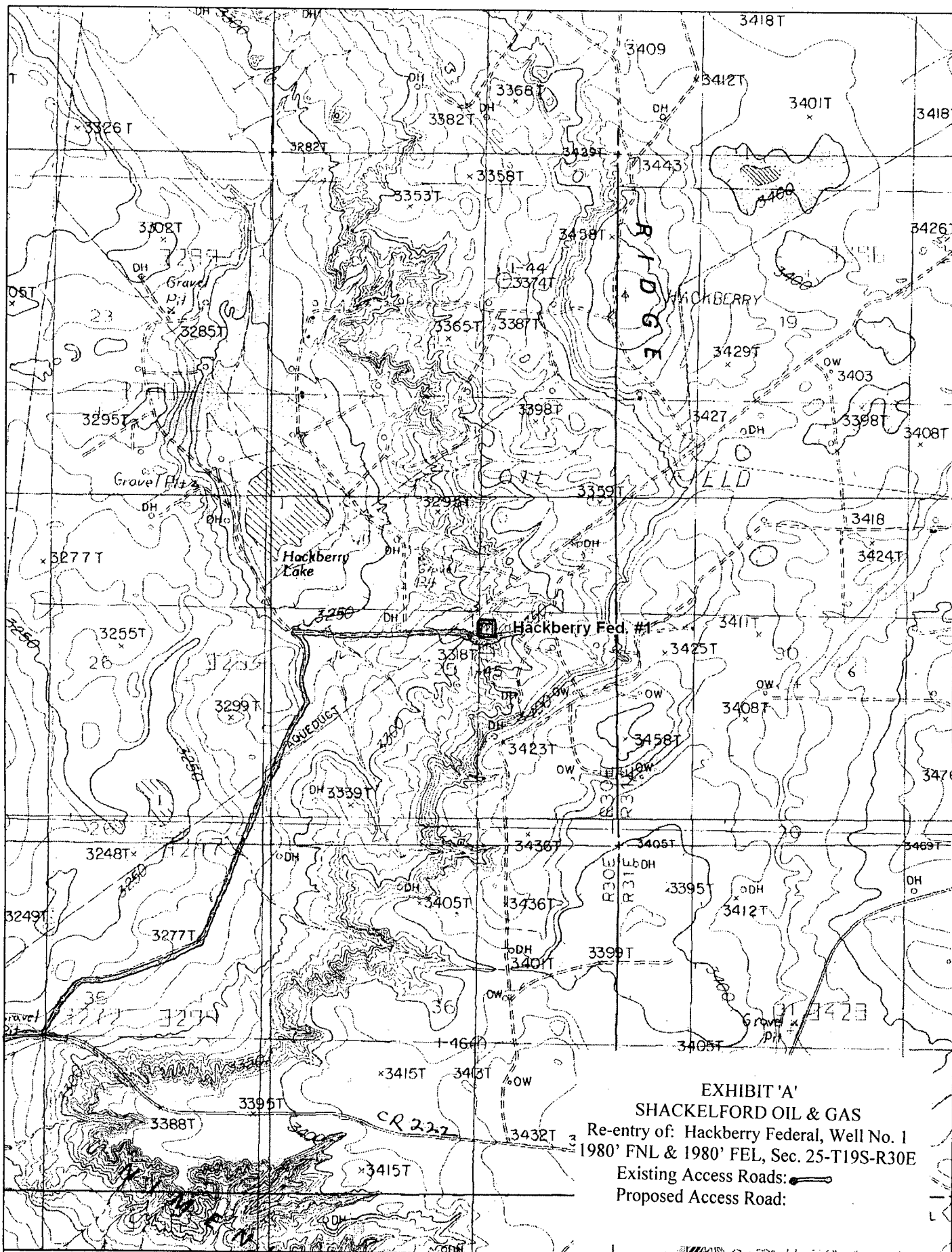
CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

Name  
Julien Ard  
Position  
Owner  
Company  
Julien Ard  
Date  
11-8-73

I hereby certify that the well location shown on this plat was taken from field notes of actual surveys made by me or under my supervision and that the same are correct to the best of my knowledge and belief.

Date Surveyed  
Nov. 7, 1973  
Registered Professional Engineer and/or Land Surveyor  
Certificate No.  
754

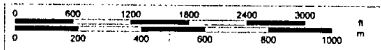


**EXHIBIT 'A'**  
**SHACKELFORD OIL & GAS**  
 Re-entry of: Hackberry Federal, Well No. 1  
 1980' FNL & 1980' FEL, Sec. 25-T19S-R30E  
 Existing Access Roads: ———  
 Proposed Access Road: - - - - -

**DELORME**

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 www.delorme.com

Scale 1 : 24,000  
 1" = 2000 ft



TN  
 MN  
 0.0°W

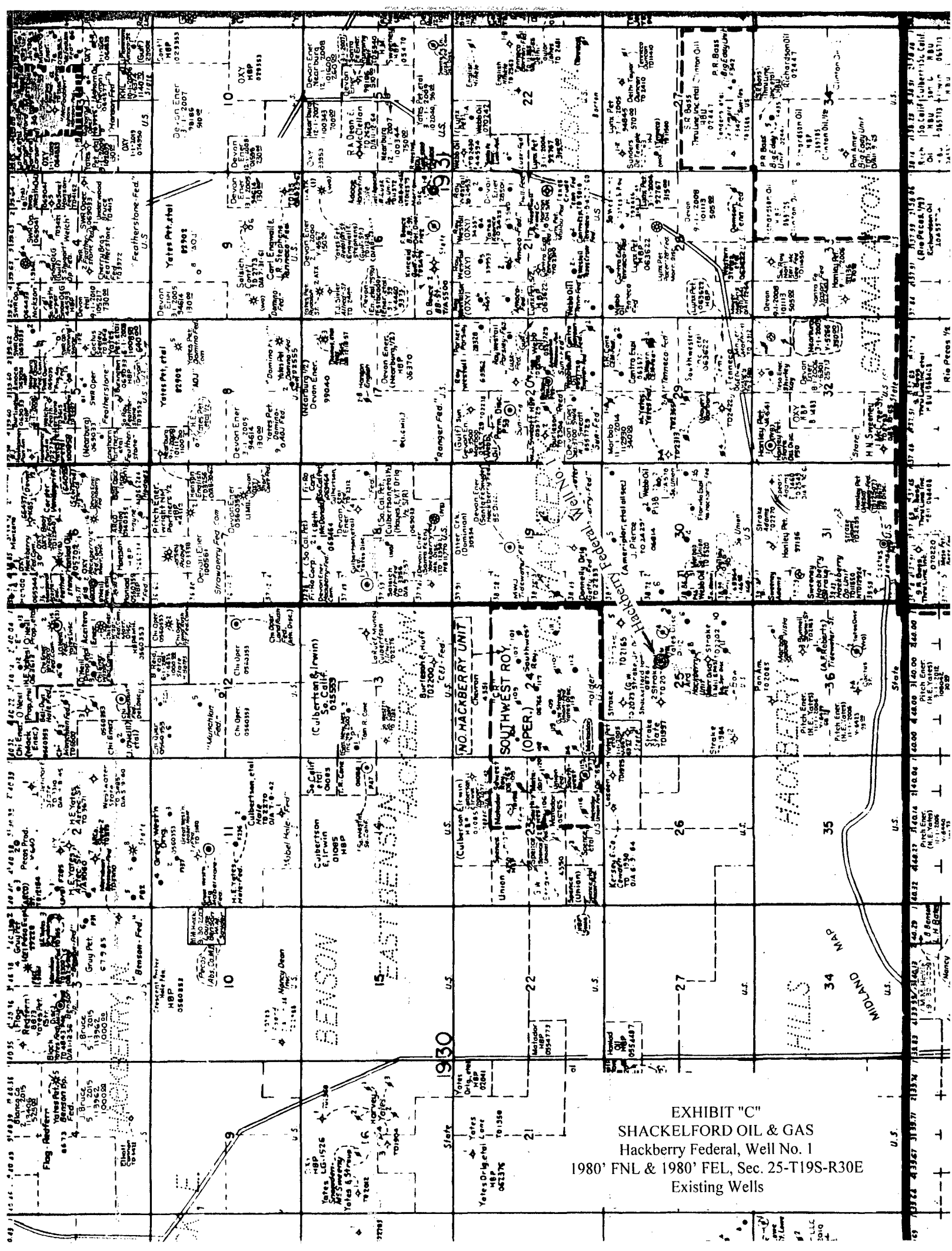


EXHIBIT "C"  
SHACKELFORD OIL & GAS  
Hackberry Federal, Well No. 1  
1980' FNL & 1980' FEL, Sec. 25-T19S-R30E  
Existing Wells

**SHACKELFORD OIL COMPANY, HACKBERRY FED., Well No.1**  
**API: 30-015-21025 (re-entry)**

**A- Sec. 25, T19S R30E: 1980' FNL & 1980' FEL EDDY Co., NM**

**DESIGN: Closed Loop System with roll-off steel bin (pits)**

**CRI/Hobbs** will supply (1) bin ( ) volume, rails and transportation relating to the Close Loop system. Specifications of Closed Loop System attached.

Contacts: Don Shackelford #432-682-9784 Office, # 432-528-9477 Cell  
“ Art Marquez, Office # 432-682-9784, Cell #575-405-1334

Monitoring: 12 hour service

Equipment:

500 bbl waste fluid tank

500 bbl brine water tank

500 bbl 2% KCL Water Tank

Pump, swivel manifold

Reverse tank

1 CRI Bin with track system

Air pumps on location for immediate remediation process

Layout of Close Loop System with bin, attached.

Cuttings and associated liquids will be hauled to a State regulated third party disposal site, Via CRI (Controlled Recovery, Inc.) Disposal Facility Permit # R9166

**OPERATIONS:**

Closed Loop equipment will be inspected daily by each tour and any necessary maintenance performed.

Any leak in system will be repaired and or/contained immediately.

OCD will be notified within 48 hours of the spill.

Remediation process started immediately.

**CLOSURE:**

During drilling operations all liquids, drilling fluids and cuttings will be hauled off via CRI (Controlled Recovery Incorporated) Disposal Facility Permit # R9166

**APPLICATION FOR DRILLING  
SHACKELFORD OIL COMPANY**  
Re-entry: Hackberry Federal, Well No. 1  
1980 FNL & 1980 FEL, Sec. 25-T19S-R30E  
Eddy County, New Mexico  
Lease No.: NMNM-06767  
(Exploratory Well)

In conjunction with Form 3160-3, Application for Permit to Drill (Deepen) subject well, SHACKELFORD OIL COMPANY submits the following items of pertinent information in accordance with BLM requirements:

1. The geologic surface formation is recent Permian with quaternary alluvium and other surficial deposits.
2. The estimated tops of geologic markers are as follows:

Anhydrite	287'	Bone Spring	6,434'
Yates	1,814'	1 <sup>st</sup> Bone Spring	7,730'
Seven Rivers	2,026'	2 <sup>nd</sup> Bone Spring	8,250'
Capitan Reef	2,128'	T.D.	9,165'
Delaware	4,044'		

3. The estimated depths at which water, oil or gas formations are anticipated to be encountered:

Water: Surface water in the between 50' - 230'. Behind existing casing.

Oil: Possible in the, Yates below 1862', Delaware below 4,100' and the 1st Bone Spring below 7,750 and 2<sup>nd</sup> Bone Spring below 8250'.

Gas: None expected.

4. Proposed New Casing Program:

HOLE SIZE	CASING SIZE	WEIGHT	GRADE	JOINT	SETTING DEPTH	COLLAPSE DESIGN FACTOR	BURST DESIGN FACTOR	TENSION DESIGN FACTOR
17 1/2"	13 3/8"	48.0#	N-80	TOC surface	820'	Existing in	hole with	850 sx cmt
11"	8 5/8"	24&32#	N-80		4,043'	" See <del>COA</del>	TOC 471'	1300 sx cmt
NEW	CASING:							
7 7/8"	5 1/2"	17.0#	N-80	LTC	7,180' TOC 3550'	1.68	2.07	3.08
7 7/8"	5 1/2"	20& 17.#	N-80		12,500'	Exist. with plug @ 9165'	Cmt from TD to 7180'	600 sx cmt

5. Cement Program

CASING	SETTING DEPTH	QUANTITY OF CEMENT	YEILD
13 3/8"	820'	Casing existing in hole and cemented with 850 sacks TOC surface	N/A
8 5/8"	4,043'	Casing existing in hole and cemented with 1300 sacks <del>TOC 471'</del> See COA	N/A
5 1/2"	7,180' 12,500'	Casing existing in hole with 600 sx "H" cmt TOC 7,180'	N/A
5 1/2"	7,180'	570 sx 30/70 Poz/Premium w/.57 LAP-1, .49 CFR-3, 31lbm/skgilsonite, 1 lbm/sk salt. .25 lbm/sk d-air TOC 3550'	1.39

See COA for running C.I.T(s)

**SHACKELFORD OIL COMPANY**

Hackberry Federal, Well No. 1

Page 2

**6. Proposed Control Equipment: See Exhibit "E":****BOP Program:**

A 10" 3000 psi wp Shaffer Type E double gate hydraulic ram BOP, will be installed on the 8 5/8" casing. Casing and BOP will be tested as described in Onshore Order No. 2 before drilling out with 7 7/8". The pipe rams will be operated and checked daily, plus each time drill pipe is out of hole. This will be documented on driller's log. See Exhibit "E".

**7. Mud Program**

MUD PROGRAM		MUD WEIGHT	VIS.	W/L CONTROL
DEPTH	MUD			
0 - 9,165	Brine sweeps	10.0 ppg	29	No W/L control

**8. Auxiliary Equipment:** Blowout Preventer, gas detector, Kelly cock,.**9. Testing, Logging, and Coring Program:**

Drill Stem Tests: None unless warranted.

Logging: 7,180' to 4,043': CNL/LDT/ CAL/G/R

7,180' to 4,043': DLL/MSFL/GR

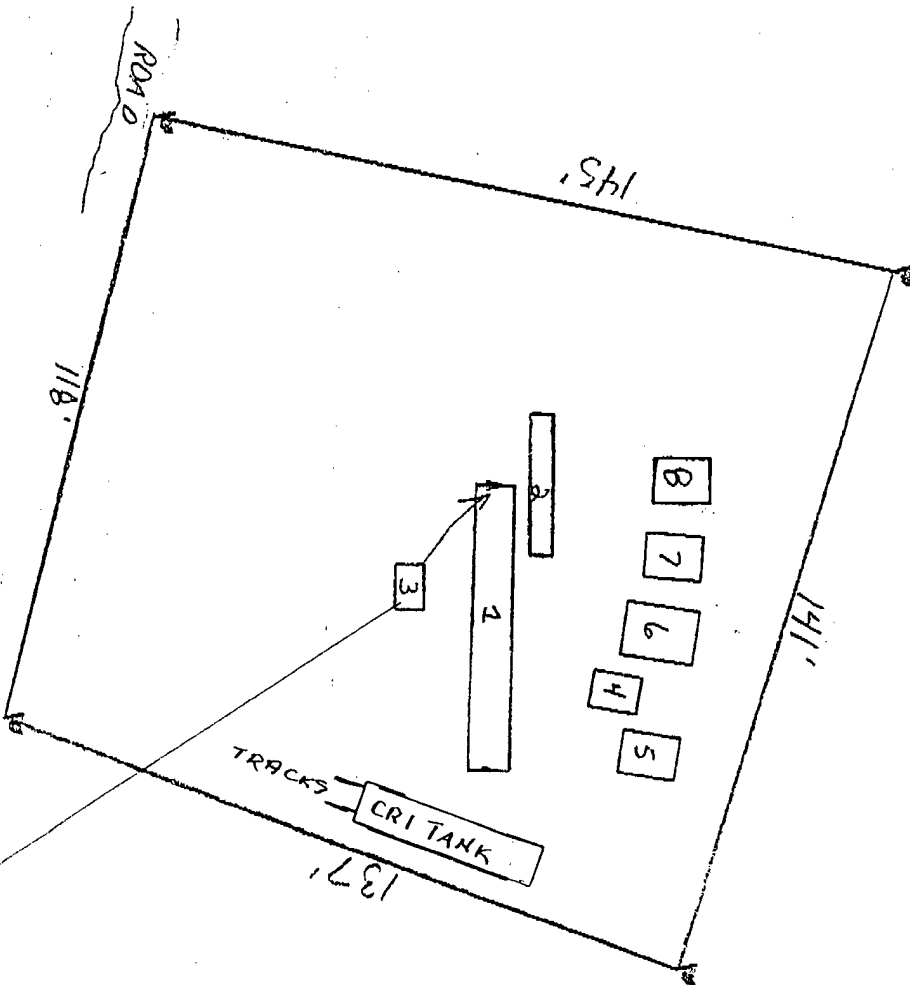
Coring: Plan to do sidewall coring of the Delaware 4100' - 4250'.

Bond Log: From 9,000' to 3,000'

**10.** No abnormal pressures or temperatures are anticipated. In the event abnormal pressures are encountered, the proposed mud program will be modified to increase the mud weight. Estimated (evac) BHP=4766, surface pressure = 2756 psi (part. evac. hole) with BH temperature of 152°.**11. H<sub>2</sub>S: None expected.** None in previously drilled wells, but the Mud Log Unit will be cautioned to use a gas trap to detect H<sub>2</sub>S and if any is detected the mud weight will be increased along with H<sub>2</sub>S inhibitors sufficient to control the gas. The well will be shut down until a mud separator and flare line can be installed on the choke manifold, if the gas monitor approaches 10.**12.** Anticipated starting date: August 9, 2010.

Anticipated completion of drilling operations: Approx. 3 -4 wks

HACKBERRY FEDERAL #1  
RTG LAYOUT PLAT  
25-195-30E



N

OPTIONAL  
1" N62050 → FLAG &  
KNOCKOUT DRUM

1. RTG
2. PIPE RACKS
3. BOP - ACCUMULATOR
4. PUMP, SWIVEL MANIFOLD
5. REVERSE TANK
6. 500 BBL-6 WASTE FLUID
7. 500 BBL-6 BRINE WATER TANK
8. 500 BBL-6 290 KCL WATER TANK

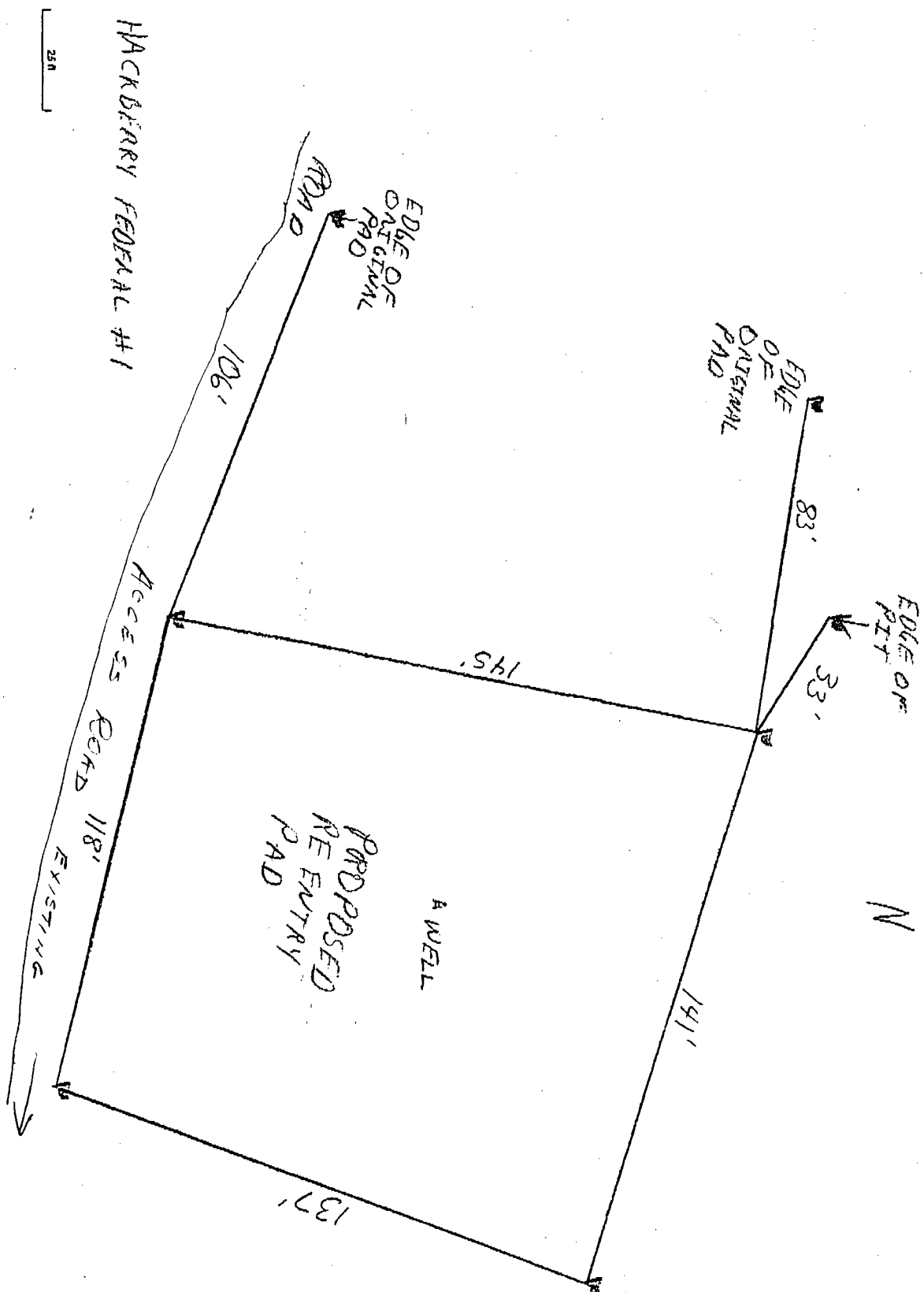
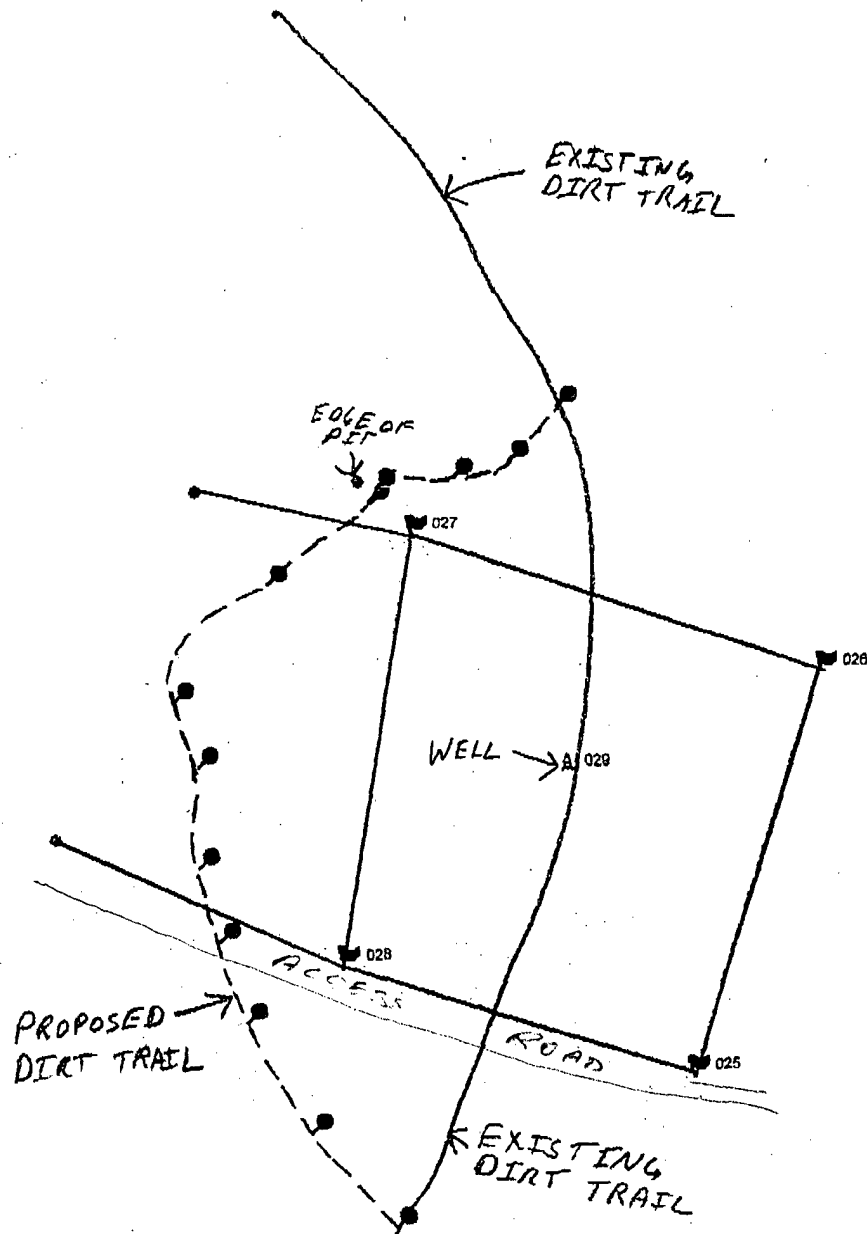


EXHIBIT "D"  
SHACKELFORD OIL & GAS  
Hackberry Federal, Well No. 1  
Pad & Pit Layout



- ▼ PROPOSED RE ENTRY PAD
- PROPOSED DIRT TRAIL
- EDGE OF ORIGINAL PAD

EXHIBIT "D-1"  
Bike Trail Move to New Location

HACKBERRY FEDERAL #1  
SEC. 05-195-30E  
1980 FNL + 1980 FEL

## BOP DIAGRAM 3000# SYSTEM

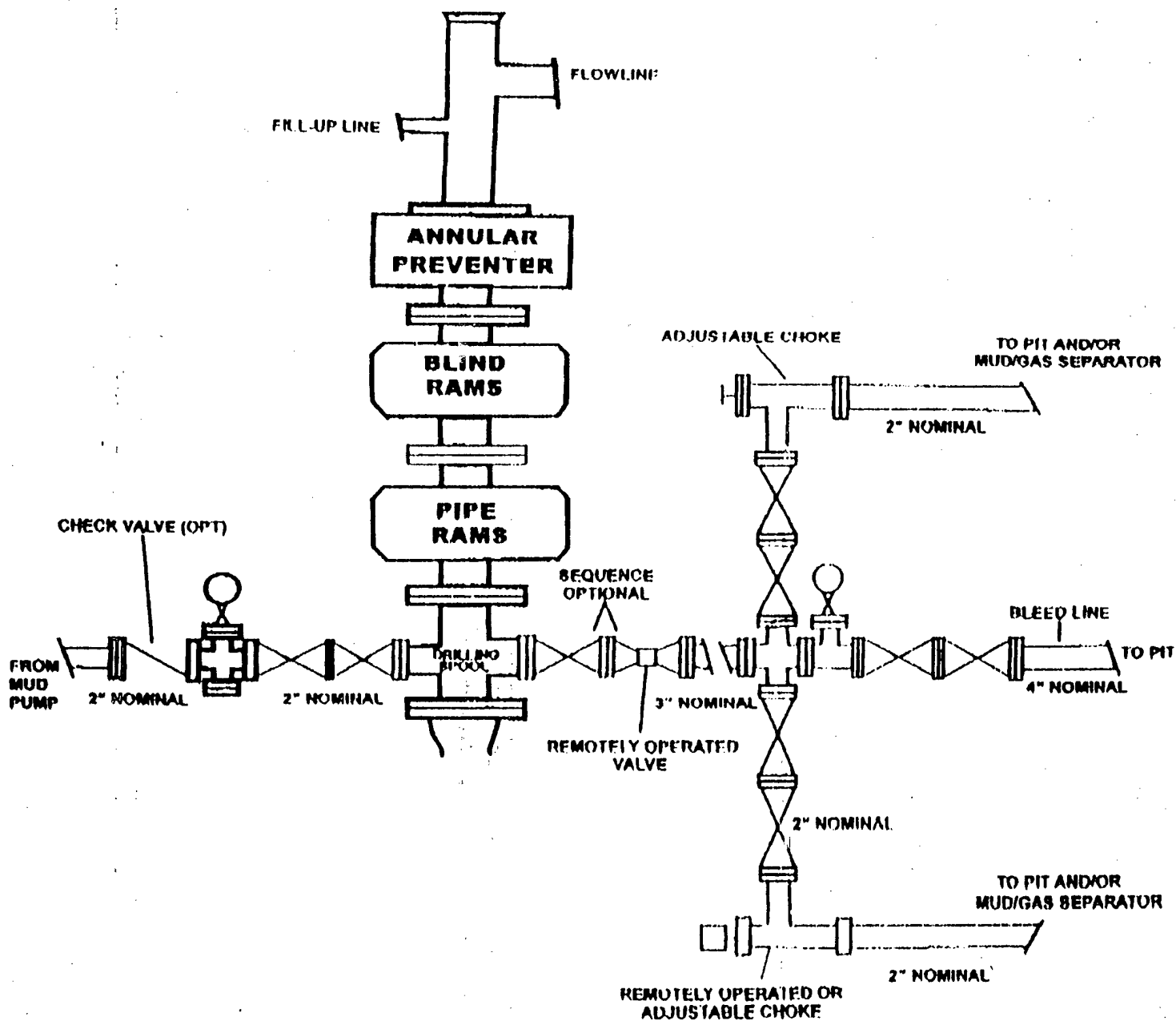
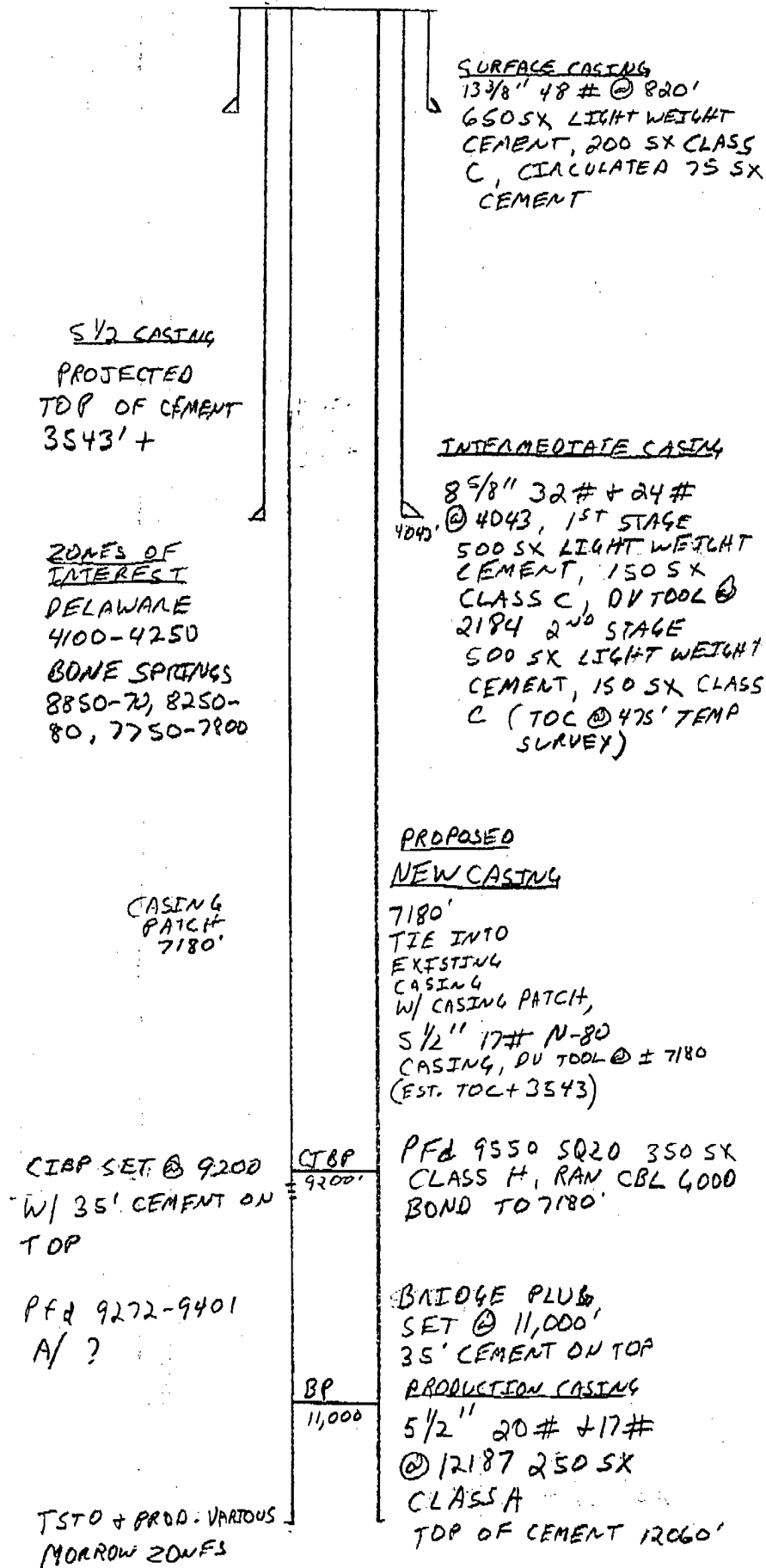


EXHIBIT "E"  
SHACKELFORD OIL & GAS  
Hackberry Federal, Well No. 1  
BOP Specifications

HACKBERRY FEDERAL #1  
PROPOSED WELL SCHEMATIC  
SEC. 25-195-30E



# HACKBERRY #1

SFC. 25-193-30E  
1980' FNL + FEL

50' CEMENT  
PLUS @ SURFACE

100' CEMENT  
PLUS @ 820' 1378'  
CSG SHOE

100' CEMENT PLUS  
@ DV TOOL 2184'

100' CEMENT PLUS @  
2100

100' CEMENT PLUS  
@ 8 5/8" CSG SHOE

DELAWARE ZONES  
4100 - 4250

150' CEMENT PLUS  
@ 5600'

BS ZONES OF  
INTEREST 8850-70  
8250-80 7750-7800

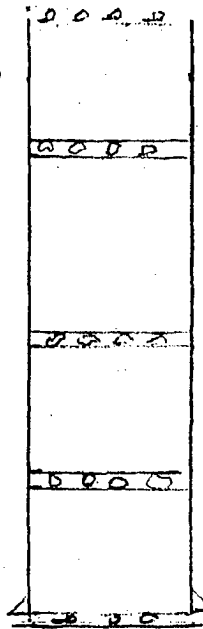
CUT 5 1/2" @ 7170  
150' CEMENT PLUS @  
STUB

SET CCBP @ 9200  
W/ 35' CEMENT PA TOP

P+D 9272-9401,  
A/ ?

ESTIMATE 1200 + 1500

1ST D + PROD. UNIFORM  
MODERATE ZONES



## SURFACE CASING

1378' 48# 450 SX 2W  
820' 300 SX CLASS C  
CIRCULATED 75 SX  
CEMENT

## INTERMEDIATE CASING

8 5/8" 32# + 24#  
@ 4043  
1ST STAGE 500 SX LW

150 SX CLASS C  
DV TOOL @ 2184  
2ND STAGE 500 SX 2W

150 SX CLASS C  
(TOC @ 475' TEMP. SURVEY)

OH 4043-7180'  
7 7/8" HOLE

7180'

RAN CBL GOOD BOND TO 7180'

PT 7850 SQZ 350 SX CLASS  
H ESTIMATED TOC 7180'

SET 8 1/2" 35' CEMENT  
ON 7180'

## PRODUCTION CASING

5 1/2" 20# + 17#  
@ 12187 100 SX CLASS H  
+ 250 SX CLASS H

## **MULTI POINT SURFACE USE AND OPERATIONS PLAN**

### **SHACKELFORD OIL CO.**

Hackberry Federal, Well No. 1 Re-Entry  
1980' FNL & 1980' FEL, Sec. 25-T19S-R30E  
Eddy County, New Mexico  
Lease No.: NM-06767  
(Exploratory Well)

This plan is submitted with the Application for Permit to Drill the above described well. The purpose of the plan is to describe the location of the proposed well, the proposed construction activities and operations plan, to be followed in rehabilitating the surface environmental effects associated with the operations.

#### **1. EXISTING ROADS:**

- A. Exhibit "A" is a portion of a USGS/BLM Topo map showing the location of the proposed well as staked. The well site location is approximately 25 road miles northeast of Carlsbad, New Mexico. Traveling east from Carlsbad there will be approximately 23 miles of paved highway and 2 miles of gravel ranch/oilfield roads.
- B. Directions: Travel east from Carlsbad, NM on U.S. Highway 62/180 for approximately 15 miles to the NM Highway 360 turnoff. Turn north on Highway 360 for 6 miles to C/R #222. Turn east on #222 for 1.7 miles to a north turnoff road, with a small park area. Turn northeast for 1.5 miles to a turn off to the east. Turn east for .5 mile to the well site on the north side of the road. The well site marker is approximately 100 feet on the north side of the road. The existing access road will access the southwest corner of the existing Hackberry Federal, Well No. 1 well pad.

#### **2. PLANNED ACCESS ROAD:**

- A. Length and Width: The existing access road is on the south side of the existing well pad for approximately 250 feet and 12 foot wide.
- B. Construction: The existing access road will be repaired, as needed, by grading and topping with compacted caliche and will be properly drained.
- C. Turnouts: None required.
- D. Culverts: None required.
- E. Cuts and Fills: None required.
- F. Gates, Cattle guards: None required.
- G. Off-Lease R/W: An off lease ROW for the existing road will be required in Sec. 26 and 35-T19S-R30E. To be submitted after the APD is submitted so a category determination can be made.

#### **3. LOCATION OF EXISTING WELLS:**

- A. Existing wells within a two-mile radius are shown on Exhibit "C".

**4. LOCATION OF EXISTING AND/OR PROPOSED FACILITIES;**

- A. There are production facilities on the lease at this time.
- B. If the well proves to be commercial, the necessary production facilities, gas production-process equipment and tank battery will be installed on the drilling pad.

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

- A. It is planned to drill the proposed well with fresh water that will be obtained from private or commercial sources and will be transported over the existing access roads.

**6. SOURCE OF CONSTRUCTION MATERIALS:**

- A. No caliche will be required for surfacing the existing access road and well site pad. No surface materials will be disturbed except those necessary for actual grading and clearing of the existing drill site.

**7. METHODS OF HANDLING WASTE DISPOSAL:**

- A. Drill cuttings and liquids will be stored in steel tanks of the closed loop mud system during the drilling operation. Drill cuttings will be delivered to CRI, Permit No. R-9166, as needed, and at closure. Drilling liquids will be hauled to a separate approved disposal system.
- B. There are no mud pits to be fenced.
- C. Water produced during operations will be collected in tanks until hauled to an approved disposal system, or a separate disposal application will be submitted to the BLM for approval.
- D. Oil produced during operations will be stored in tanks until sold.
- E. Current laws and regulations pertaining to the disposal of human waste will be complied with.
- F. Trash, waste paper, garbage and junk will be contained in trash bins to prevent scattering by the wind and will be removed for deposit in an approved sanitary landfill within 30 days after finishing drilling and/or completion operations.

**8. ANCILLARY FACILITIES:**

- A. None required.

**9. WELL SITE LAYOUT:**

- A. Exhibit "D" shows the relative location and dimensions of the well pad, closed loop system, and major rig components of the work over drilling rig.
- B. Mat Size: 130' X 145', including work over rig closed mud system.
- C. Cut & Fill: None
- D. The existing surface is currently topped with compacted caliche with a shallow layer of blown and washed in soil.

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

- A. After completion of drilling and/or completion operations, all equipment and other material not required for operations will be removed. The location will be cleaned of all trash and junk to leave the well site in an aesthetically pleasing a condition as possible
- B. All produced mud and fluids of the closed mud system will be removed to authorized disposal sites.
- C. If the proposed well is non-productive, all rehabilitation and/or vegetation requirements of the Bureau of Land Management will be complied with and will be accomplished as expeditiously as possible.

**11. OTHER INFORMATION:**

- A. Topography: The proposed well site and access road is located west of the Nimenim Ridge and southeast of Hackberry Lake with a southwesterly slope of 3 - 4% from an elevation of 3306'. There is a bike trail on the east side of the center hole on the drill site, which will be relocated to the west. See Exhibit D-1.
- B. Soil: The topsoil around the well site is a yellowish-red colored, calcareous loamy fine sand with a hummocky surface. The soil is of the Pajarito fine sand land complex of the Pajarito series.
- C. Flora and Fauna: The vegetation cover is a sparse to fair grass cover of three-awn, grama, dropseed and other miscellaneous native grasses along with plants of mesquite, yucca, creosote bush, sage, javalina brush, broomweed, cacti and miscellaneous weeds and wildflowers. The wildlife consists of rabbits, coyotes, rattlesnakes, lizards, dove, quail and other wildlife typical of the semi-arid desert land.
- D. Ponds and Streams: None except Hackberry Lake 3,000' to the northwest.
- E. Residences and Other Structures: None, but existing oil field facilities. An existing bike trail crosses the pad near the center hole and will be moved west to reconnect to the trail north of the pad. See exhibit D-1.
- F. Land Use: Cattle grazing.
- G. Surface Ownership: The proposed well site and access roads are on Federal surface.
- H. There is no evidence of archaeological, historical or cultural sites on the existing large drill site pad of the 12,000 foot well drilled on the pad..

**12. OPERATOR'S REPRESENTATIVE:**

- A. The field representative responsible for assuring compliance with the approved surface use and operations plan is as follows:

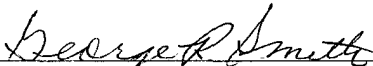
Don Shackelford  
Shackelford Oil Company  
3510 N. A St., Bldg B-100  
Midland, TX 79705  
Office Phone: (432) 682-9784

Bob Shackelford  
Shackelford Oil Company  
3510 N. A St., Bldg B-100  
Midland, TX 79705  
Office Phone: (432) 682-9784

# **CERTIFICATION**

I hereby certify that I have inspected the proposed drill site and access route; that I am familiar with the conditions which presently exist; that the statements made in the 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 CO. and its contractors and 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.

July 9, 2010

  
\_\_\_\_\_  
George R. Smith  
Agent for: SHACKELFORD OIL CO.

**POWER OF ATTORNEY**  
**DESIGNATION OF AGENT**

SHACKELFORD OIL COMPANY, hereby names the following person as its agent

Name of Agent: George R. Smith d/b/a Energy Administrative Services Company

Agents Address: P.O. Box 458, Roswell, NM 88202

Agent's Telephone Number: (575) 623-4940

**GRANT OF SPECIAL AUTHORITY**

SHACKELFORD OIL COMPANY, grants its agent the authority to act for it with respect to the following only:

- 1 Executing forms required to be filed with the Bureau of Land Management of the Department of Interior of the United States of America.
2. Executing forms required to be filed with the Oil Conservation Division of the New Mexico Energy, Minerals and Natural Resources Department.

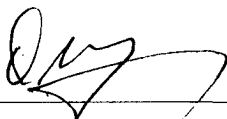
**EFFECTIVE DATE**

This power of attorney is effective immediately.

**RELIANCE ON THE POWER OF ATTORNEY**

Any person, including the agent, may rely upon the validity of this power of attorney or a copy of it unless that person knows it has terminated or is invalid.

**SIGNATURE AND ACKNOWLEDGMENT**



By: DON SHACKELFORD

Title: PRESIDENT

Date: 5-27-10

Address: 3510 N. A ST. BLDG B STE. 100  
MIDLAND, TX. 79705

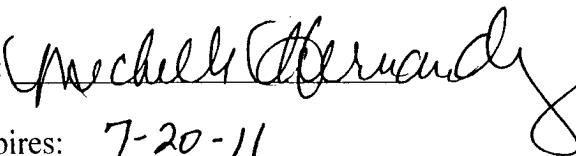
Telephone: 432-682-9784

STATE OF

COUNTY OF

This instrument was acknowledged before me on 5-27-10 by  
DON SHACKELFORD of SHACKELFORD OIL COMPANY  
, acting on behalf of said corporation.

Signatory of notary:



My commission expires: 7-20-11



# PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	SHACKELFORD OIL CO.
LEASE NO.:	NM-06767
WELL NAME & NO.:	1-HACKBERRY FEDERAL
SURFACE HOLE FOOTAGE:	1980' FNL & 1980' FEL
BOTTOM HOLE FOOTAGE:	SAME
LOCATION:	Section 25, T. 19 S., R. 30 E., NMPM
COUNTY:	Eddy County, New Mexico

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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.

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## **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)**

### **Historic Pit Area**

The operator shall conduct reclamation of historic pit area. Measures may include removal of pit contents. Operators shall contact a BLM surface protection specialist prior to construction of the well pad (Jim Amos: 575-234-5909).

### **OHV Recreation Area**

The pipeline shall be buried a minimum of 24 inches under all roads, "two-tracks," and trails. Burial of the pipe will continue for 20 feet on each side of each crossing. During all phases of construction, open ditches shall have proper signage notifying trail users of potential hazards. Upon completion of construction, the road shall be returned to pre-construction condition with no bumps or dips. Power line poles will be spaced to avoid pole placement within trails and "two tracks." All vehicle and equipment operators will observe speed limits and practice responsible defensive driving habits. As discussed during the onsite visit, if trails need to be re-located around the edge of the pad, they will be done so at the company's expense.

## **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 (575) 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. V-DOOR DIRECTION: not stipulated**

### **C. TOPSOIL**

The operator shall stockpile the topsoil in a low profile manner in order to prevent wind/water erosion of the topsoil. The topsoil to be stripped is approximately 6 inches in depth. The topsoil will be used for interim and final reclamation.

### **D. CLOSED LOOP SYSTEM**

Tanks are required for drilling operations: No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

### **E. FEDERAL MINERAL MATERIALS PIT**

Payment shall be made to the BLM prior to removal of any federal mineral materials. Call the Carlsbad Field Office at (575) 234-5972.

### **F. 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.

### **G. 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**

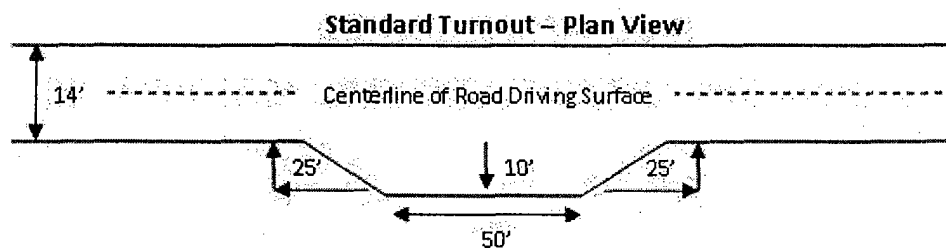
Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

### **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:

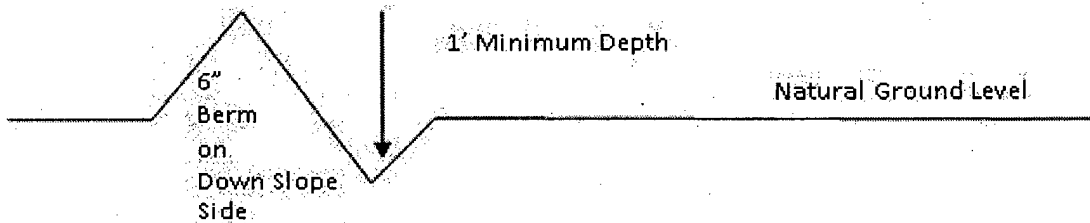


### **Drainage**

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:

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

#### **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**

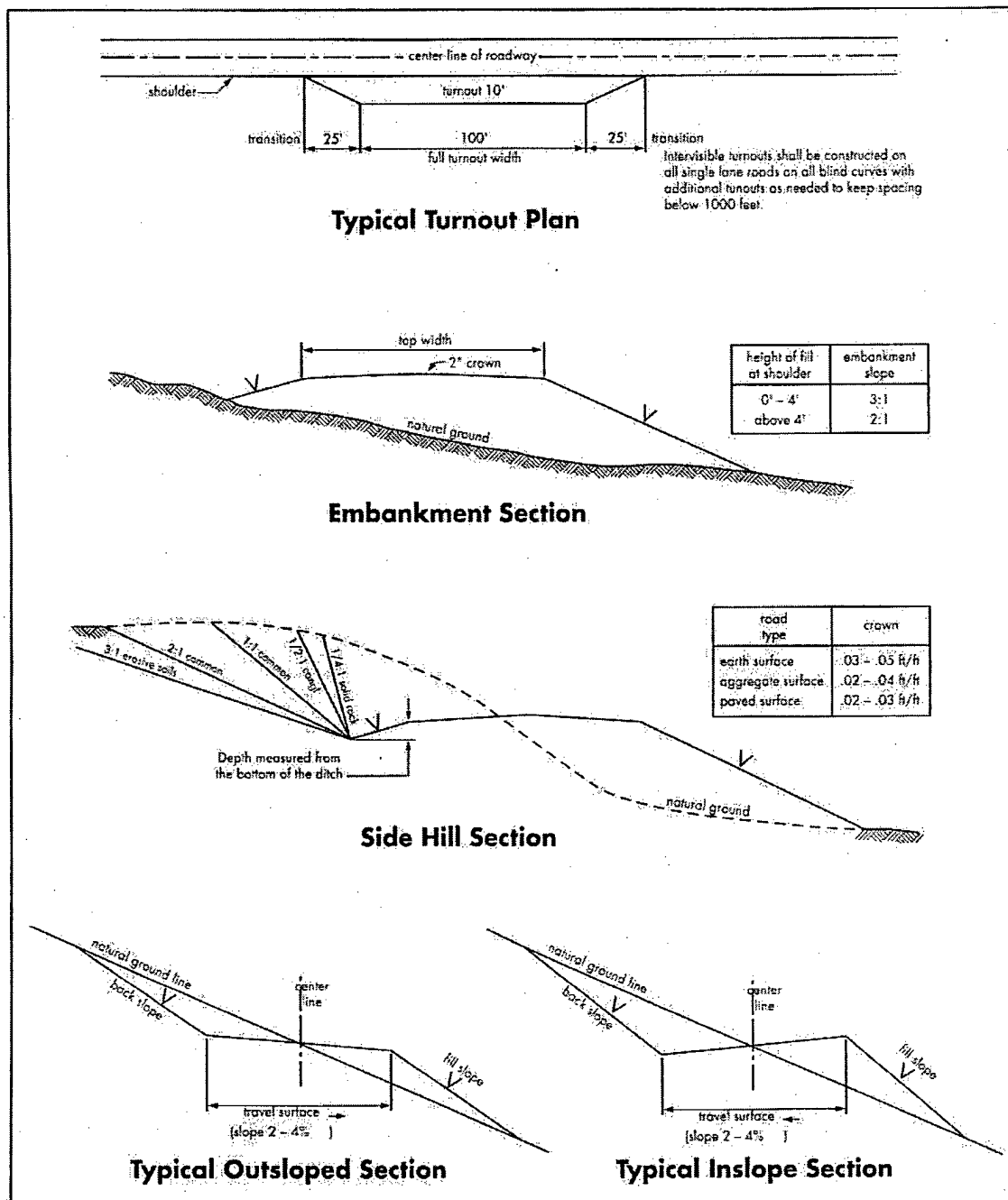
Where entry is required across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting.

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**



## **I. DRILLING – RE-ENTRY**

### **A. DRILLING OPERATIONS REQUIREMENTS**

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

- a. BOPE test
- b. CIT tests

☒ **Lea County**

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

1. **Hydrogen Sulfide has been reported as a hazard. It is recommended that monitoring equipment be onsite for potential Hydrogen Sulfide. If Hydrogen Sulfide is encountered, please report measurements and formations to the BLM.**
2. Floor controls are required for 3M or Greater systems. These 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 is located, this does not include the dog house or stairway area.

### **B. CASING – Re-entry**

All CIT are to be performed per Onshore Oil and Gas Order 2.III.B.1.h.

1. The 13-3/8 inch surface casing is set at 820 feet with cement circulated to surface.
2. The 8-5/8 inch intermediate casing is set at 4043 feet with TOC at 471 feet by temperature survey. There are plugs at 3993 feet, 3050 feet, 2134 feet, 770 feet and from 50 feet to surface. A CBL shall be run from 3000 feet to surface by the operator to verify TOC after drilling out the plugs to +/- 3993 feet. If the cement is not to surface, remedial cementing will have to be done to bring the cement to surface due to being in Secretary's Potash. A CIT to 1500 psi shall be performed after drilling thru the plugs, running the CBL and performing the remedial cement if needed.

3. The 5-1/2 inch production casing is set at 12187 feet with TOC reported at 7180 feet by CBL. The 5-1/2 inch was subsequently cut & pulled at 7180 feet when the well was P&A. The 5-1/2 inch will be tied-into and cemented with Class H to approximately 3550 feet TOC. A CIT to 2000 psi shall be performed after drilling thru the plug at +/- 7105 feet and tying into the existing 5-1/2 inch casing. A CBL shall be run from 9000 feet to 3000 feet by the operator to verify TOC. This will also add to information that will be required when the well is plugged.
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. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **intermediate** casing shoe shall be **3000 (3M)** psi.
3. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
  - a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips or where the float does not hold, the minimum wait time before cut-off is eight hours after bumping the plug or when the cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. BOP/BOPE testing can begin after the above conditions are satisfied.
  - b. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (18 hours) or potash (24 hours) prior to initiating the test.
  - c. The results of the test shall be reported to the appropriate BLM office.

- d. All tests are required to be recorded on a calibrated test chart. **A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.**
- e. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug.

#### **D. WASTE MATERIAL AND FLUIDS**

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

**RGH 100610**

## **II. 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

### **B. PIPELINES (not applied for in APD)**

### **C. ELECTRIC LINES (not applied for in APD)**

## **III. 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.

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation 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 that is free of contaminants 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.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

Upon completion of interim reclamation, the operator shall submit a Sundry Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

## **X. FINAL ABANDONMENT & RECLAMATION**

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

In order to improve the probability of maintaining a stable lesser prairie-chicken population low profile plugged and abandoned well markers will be installed. The well marker will be approximately 2 inches above ground level and contain the following information: operator name, lease name, and well number and location, including unit

letter, section, township, and range. The previous listed information will be welded, stamped, or otherwise permanently engraved into the metal of the marker.

## 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:

<u>Species</u>	<u>lb/acre</u>
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