

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

N.M. OIL CONS. COMMISSION  
P.O. BOX 1980  
HOTELS NEW MEXICO  
SUBMIT IN TRIPLICATE  
(Other Instructions on reverse side)

Form approved.  
Bureau No. 1004-0136  
Expires August 31, 1985

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. TYPE OF WORK <b>DRILL</b> <input checked="" type="checkbox"/> <b>DEEPEN</b> <input type="checkbox"/> <b>PLUG BACK</b> <input type="checkbox"/>		5. LEASE DESIGNATION AND SERIAL NO. <b>NM-0766</b>
b. TYPE OF WELL OIL WELL <input checked="" type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <input type="checkbox"/> SINGLE ZONE <input checked="" type="checkbox"/> MULTIPLE ZONE <input type="checkbox"/>		6. IF INDIAN, ALLOTTEE OR TRIBE NAME ---
2. NAME OF OPERATOR <b>ARCO Oil and Gas Company</b>		7. UNIT AGREEMENT NAME <b>South Justis Unit</b>
3. ADDRESS OF OPERATOR <b>P.O. Box 1610, Midland, Texas 79702</b> Phone, 915-688-5672		8. FARM OR LEASE NAME <b>South Justis Unit 'F'</b>
4. LOCATION OF WELL (Report clearly and in accordance with any State requirements.) At surface <b>1650' FNL &amp; 2500' FWL (Unit Letter F)</b> At proposed Prod. zone <b>Approximately the same</b>		9. WELL NO. <b>160</b>
13. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE <b>4.0 miles east of Jal, New Mexico</b>		10. FIELD AND POOL, OR WILDCAT <b>Justis Blinebry Tubb Drinkard</b>
15. DISTANCE FROM PROPOSED LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. line, if any) <b>150'</b>	16. NO. OF ACRES IN LEASE <b>5360</b>	11. SEC., T., M., OR BLK. AND SURVEY OR AREA <b>13-T25S-R37E</b>
18. DISTANCE FROM PROPOSED LOCATION TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT. <b>150'</b>	19. PROPOSED DEPTH <b>6,200'</b>	12. COUNTY <b>Lea</b>
21. ELEVATIONS (Show whether GR or KB) <b>3088' GR</b>		13. STATE <b>NM</b>
<b>Capitan Controlled Water Basin</b>		17. NO. OF ACRES ASSIGNED TO THIS WELL <b>40</b>
22. APPROX. DATE WORK WILL START <b>Spud 1/94</b>		20. ROTARY OR CABLE TOOLS <b>Rotary</b>

23. PROPOSED CASING AND CEMENTING PROGRAM				
SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT <sup>ft<sup>3</sup></sup>
20"	13-3/8"	48.0#	40'	50 cu ft <b>CIRCULATE</b>
12-1/4"	8-5/8"	24.0#	1000'	825 cu ft <b>CIRCULATE</b>
7-7/8"	4-1/2"	10.5#	6200'	3,200 cu ft

Subject well is planned as a 6200' MD (6200' TVD) straight well. 3M psi BOPE will be used from 1000' to TD. Attachments are as follows:

1. Certified Location Plat
2. Drilling Plan with Attachments 1-3
3. Surface Use Plan with Attachments 3-9

Previously submitted by AOGC to BLM:

1. Archaeological Survey of The South Justis Waterflood Project
2. Preliminary Project Report South Justis Unit
3. Unit Agreement South Justis Unit

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, 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 preventor program, if any.

24. SIGNED Johnny Shields TITLE DRILLING TEAM LEADER DATE 10/5/93  
(This space for Federal or State Use)

PERMIT NO. \_\_\_\_\_ APPROVAL DATE \_\_\_\_\_  
APPROVED BY Timothy P. O'Brien TITLE Acting AREA MANAGER DATE NOV 15 1993

CONDITIONS OF APPROVAL, IF ANY: **UNORTHODOX**

LOCATION IS: **Subject to Like Approval By State**

Approval Subject to  
General Regulations and  
Special Regulations

\*See Instructions On Reverse Side

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

State of New Mexico  
Energy, Minerals and Natural Resources Department

Form C-102  
Revised 1-1-89

OIL CONSERVATION DIVISION

P.O. Box 2088  
Santa Fe, New Mexico 87504-2088

DISTRICT I  
P.O. Box 1980, Hobbs, NM 88240

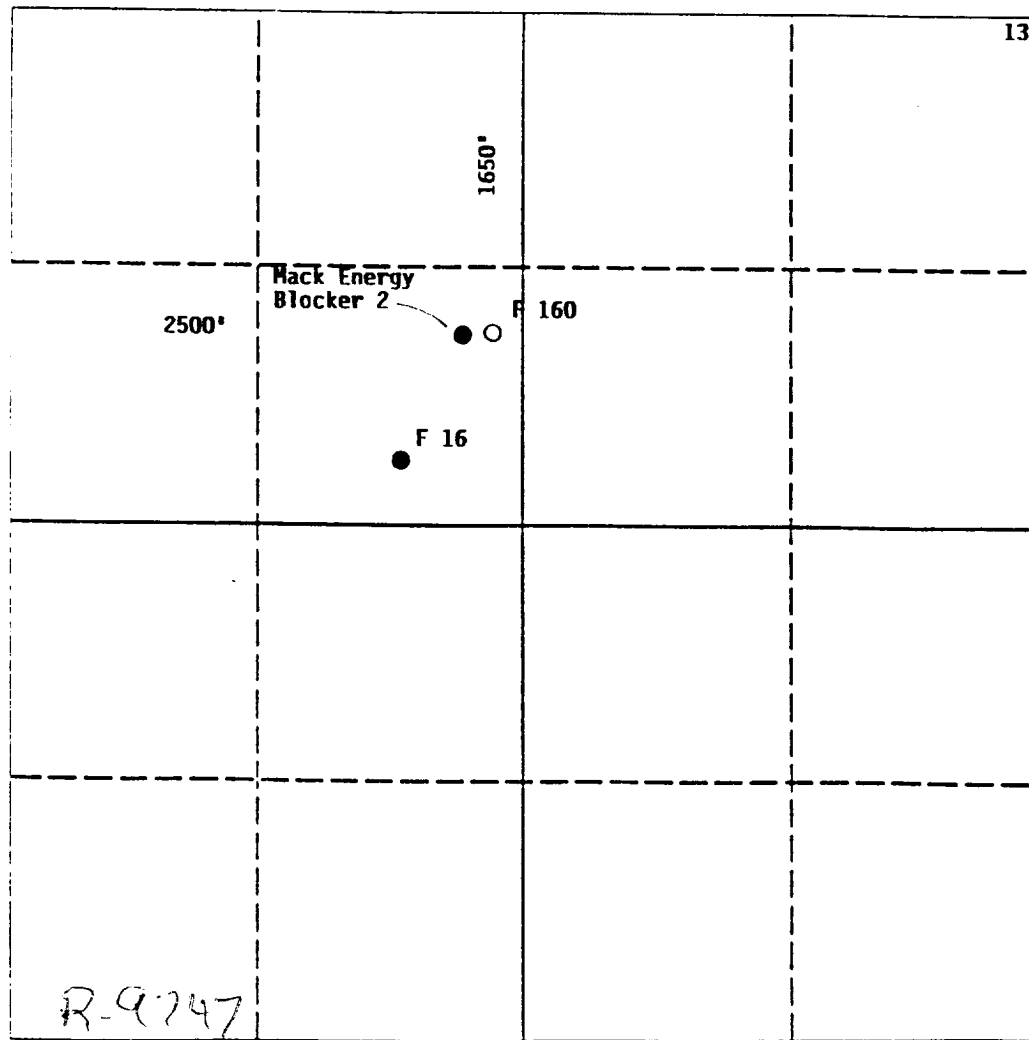
DISTRICT II  
P.O. Drawer DD, Artesia, NM 88210

DISTRICT III  
1000 Rio Brazos Rd., Aztec, NM 87410

WELL LOCATION AND ACREAGE DEDICATION PLAT

All Distances must be from the outer boundaries of the section

Operator		Lease		Well No.	
ARCO OIL AND GAS COMPANY		South Justis Unit "F"		160	
Unit Letter	Section	Township	Range	County	
F	13	25 S	37 E	NMPM	Lea
Actual Footage Location of Well:					
1650 feet from the North line and		2500 feet from the West line			
Ground level Elev. 3088'		Producing Formation Blinbry-Tubb-Drinkard		Pool Justis	
				Dedicated Acreage: 40 Acres	
<p>1. Outline the acreage dedicated to the subject well by colored pencil or hatchure marks on the plat below.</p> <p>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).</p> <p>3. If more than one lease of different ownership is dedicated to the well, have the interest of all owners been consolidated by communitization, unitization, force-pooling, etc.? <input type="checkbox"/> Yes <input type="checkbox"/> No If answer is "yes" type of consolidation _____</p> <p>If answer is "no" list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.)</p> <p>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 interest, has been approved by the Division.</p>					



**OPERATOR CERTIFICATION**

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

Signature: *Ken W. Gosnell*

Printed Name: Ken W. Gosnell

Position: Agent

Company: ARCO Oil & Gas Company

Date: 9-22-93

**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 knowledge and belief.

Date Surveyed: Sept. 8, 1993

Signature & Seal of Professional Surveyor: *Ken W. Gosnell*

Certificate No. 648

# DRILLING PLAN

Attach to BLM Form 3160-3  
ARCO Oil and Gas Company  
Well: South Justis Unit F-160  
1650' FNL & 2500' FWL  
Section 13-T25S-R37E  
Lea County, New Mexico

## 1. Surface Geological Formation

Ogallala Formation of late Tertiary age.

## 2. Estimated Tops of Geological Markers

<u>Formation</u>	<u>TVD</u>
Salt	1000'
Yates	2275'
Queen	2975'
Grayburg	3100'
San Andres	3550'
Glorietta	4625'
Blinbry	5000'
Tubb	5675'
Drinkard	5875'

## 3. Estimated Tops of Possible Water, Oil, Gas or Minerals:

Sands above 1000'	Water *
Yates	Gas**
Blinbry	Oil or Gas**
Tubb	Oil or Gas**
Drinkard	Oil or Gas**

\* Groundwater will be protected by 8-5/8" surface casing cemented to surface.

\*\* Productive horizons will be protected by 4-1/2" production casing cemented to surface.

## 4. Pressure Control Equipment

<u>Interval, TVD</u>	<u>Pressure Control Equipment</u>
0' - 1000'	No pressure control required
1000' - 6200'	11", 3M psi double ram preventer with 3M psi annular preventer.

Exhibits 1, 2, and 3 show the BOP stack arrangement, the choke manifold arrangements and the BOP specifications, respectively. The BOPE will be hydraulically tested per BLM requirements outlined by Onshore Oil and Gas Order No. 2. Pipe rams and blind rams will be functioned on each trip out of the hole. The annular preventer will be functioned once a week. All BOPE checks and tests will be witnessed by ARCO's representative and will be noted on the IADC daily drilling report. Accessories to BOPE will include an upper kelly cock, lower kelly cock, and floor safety valve all with pressure rating equivalent to the BOP stack.

## 5. H2S Contingency Plan

Exhibit "10" shows the H2S Contingency Plan as a guideline for all company and contractor personnel in the field who may be exposed to H2S. It explains the emergency procedure, the equipment requirement (i.e. H2S detector, rescue equipment, etc.) and the proper evacuation procedure.

## 6. Proposed Casing and Cementing Program

	<u>Hole Size</u>	<u>Interval, MD</u>	<u>Casing Size</u>	<u>Weight &amp; Grade</u>
Conductor	20"	0 - 40'	13-3/8"	48.0# H-40
Surface	12-1/4"	0 - 1000'	8-5/8"	24.0# J-55
Production	7-7/8"	0 - 6200'	4-1/2"	10.5# J-55

Cement Program: (Actual volumes will be based on caliper log when available)

Conductor - Cement to surface with redimix.

Surface - Cemented to surface with total of  $\pm 825$  cu ft as follows:

Lead Slurry -  $\pm 300$  sks Pacesetter Lite 65/35/6 C/Poz/Gel + 2% CaCl<sub>2</sub> + 1/4 pps Cello-Seal

Tail Slurry -  $\pm 200$  sks Class "C" + 2% CaCl<sub>2</sub> + 1/4 pps Cello-Seal

Production - Cement to surface with total of  $\pm 3200$  cu ft as follows:

Option 1: If no loss circulation occurs or loss is controlled.

Lead Slurry -  $\pm 1175$  sks Super C 44/20/20 C/Poz/CSE + 0.5% Thrifty Lite 1/4 pps Cello-Seal

Tail Slurry -  $\pm 300$  sks Cl "C" + 12 pps CSE + 1 pps WL-1P + 0.3% CF-2 + 1/4 pps Cello-Seal + 3 pps Hi-Seal

Option 2: If loss circulation is severe then a DV Tool will be set at  $\pm 3250'$

Stage 1 - Lead Slurry -  $\pm 400$  sks Pacesetter Lite 65/35/6 C/Poz/Gel 3% salt

Tail Slurry -  $\pm 300$  sks Cl "H" + 8 pps CSE + 0.6% CF-14 + 0.35% Thrifty Lite

Stage 2 - Lead Slurry -  $\pm 900$  sks Pacesetter Lite 65/35/6 C/Poz/Gel + 3% salt

Tail Slurry -  $\pm 100$  sks Cl "C" Neat

## 7. Mud Program

<u>Depth</u>	<u>Mud Type</u>	<u>Weight ppg</u>	<u>Funnel Viscosity</u>	<u>Water Loss</u>
0 - 1000'	Spud Mud	8.4 - 8.9	29-32	NC
1000' - 4850'	SBW	$\pm 10.0$	29-32	NC
4850' - 6200'	SWG	$\pm 10.0$	32-34	<15

## 8. Auxiliary Equipment

Upper Kelly Cock, Lower Kelly Cock, and Full Opening Stabbing Valve

9. **Testing, Coring and Logging Program**

A. Drill Stem Tests - None planned.

B. Coring - None planned.

C. Logging - No mud logging planned

D. Electric Logs

Open Hole

Interval: TD - 4500' with GR-CAL to surface casing on one run

GR-Spectralog/Compensated z-Densilog/Sidewall Epithermal Neutron/Caliper

GR/Dual Laterolog/Micro Laterolog/Caliper

Cased Hole

Temperature Survey (if cement not circulated on Production Csg)

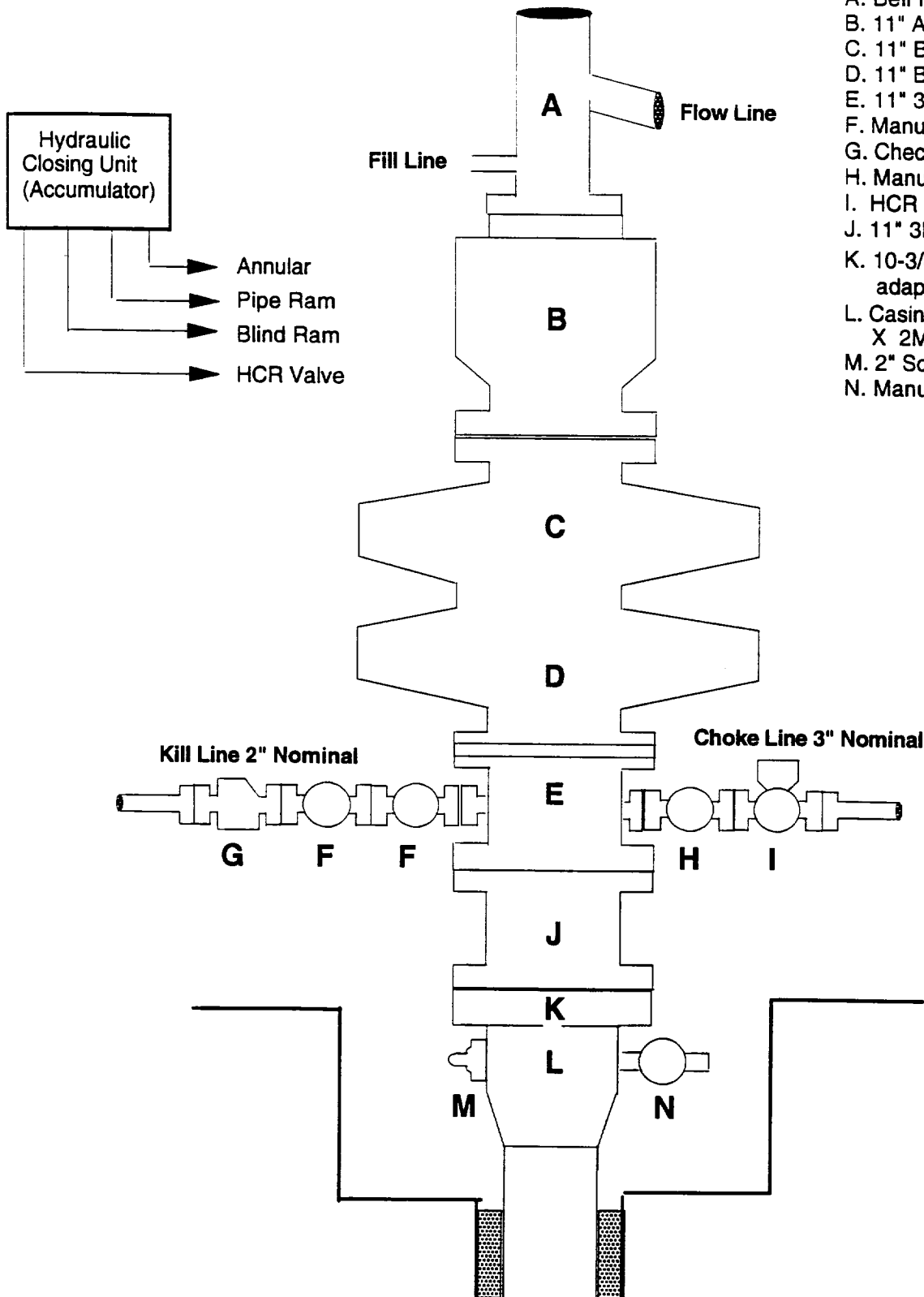
10. **Anticipated Abnormal Temperature, Pressure, or Hazards**

Possible lost circulation at  $\pm 975'$  in anhydrite section. Seepage and lost circulation is expected starting in the Queen Formation and continuing through the Glorietta (3000'-5000').

11. **Anticipated Starting Date and Duration of Operations**

Pending favorable weather and permit approval, construction work on this location is planned to begin in October, 1993. Construction work will require 4 days, move-in and rig up rotary tools, 1 day, drill and complete, 21 days. It is planned to spud the well in January, 1994.

**EXHIBIT 1  
BOP ARRANGEMENT  
ARCO OIL & GAS CO.  
SOUTH JUSTIS UNIT WELLS**



- A. Bell Nipple
- B. 11" Annular Preventer, 3M psi
- C. 11" BOP Pipe Rams, 3M psi
- D. 11" BOP Blind Rams, 3M psi
- E. 11" 3M psi Drilling Spool
- F. Manual Gate Valve 2-1/16"
- G. Check Valve 2-1/16"
- H. Manual Gate Valve 3-1/16"
- I. HCR Valve 3-1/16"
- J. 11" 3M psi Spacer Spool
- K. 10-3/4" Screw on X 11" 3M psi adaptor flange
- L. Casing Head 8-5/8" SOW X 2M psi Larkin-Type
- M. 2" Screw In Bull Plug
- N. Manual Ball Valve 2-1/16" 2M