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Form 3160-3  
(April 2004)

AUG - 4 2008

OCD-HOBBS

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UNITED STATES

DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

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

5. Lease Serial No.  
LC-032096A

6. If Indian, Allottee or Tribe Name  
-----

7. If Unit or CA Agreement, Name and No.  
-----

8. Lease Name and Well No.  
LOCKHART "A-27" # 26

9. API Well No.  
30-025-39115

10. Field and Pool, or Exploratory  
EUNICE-BLINBREY DRINKARD TUBB

11. Sec., T. R. M. or Blk. and Survey or Area  
SECTION 27 T21S-R37E

12. County or Parish  
LEA CO.

13. State  
NEW MEXICO

1a. Type of work: ☐ DRILL ☐ REENTER

1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone

2. Name of Operator  
APACHE CORPORATION (LANA WILLIAMS 918-491-4980)

3a. Address TWO WARREN PLACE SUITE 1500  
6120 SOUTH YALE, TULSA, OKLAHOMA 74136-4224 (PH-918-491-4980)

3b. Phone No. (include area code)

4. Location of Well (Report location clearly and in accordance with any State requirements.)

At surface 330' FEL & 1650' FNL SECTION 27 T21S-R37E LEA CO. NM

At proposed prod. zone SAME

Unit H

14. Distance in miles and direction from nearest town or post office\*

One half mile Northeast of Eunice New Mexico

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

640

17. Spacing Unit dedicated to this well

40

18. Distance from proposed location\*  
to nearest well, drilling, completed,  
applied for, on this lease, ft.

220'

19. Proposed Depth

6775'

20. BLM/BIA Bond No. on file

BLM-CO-1463 NATION WIDE

21. Elevations (Show whether DF, KDB, RT, GL, etc.)

3397' GL

22. Approximate date work will start\*  
WHEN APPROVED

23. Estimated duration  
18 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)

Date

Joe T. Janica

03/30/08

Title

Agent

Approved by (Signature)

/s/ James Stovall

Name (Printed Typed)

/s/ James Stovall

Date JUL 31 2008

Title

FIELD MANAGER

Office

CARLSBAD FIELD 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  
to make any false, fictitious or fraudulent statements or representations as to any matter within

Conditions of Approval Approval to drill & test all new zones  
separate, but cannot produce Downhole commingle until DHC  
is approved in Hobbs District office according to R-11363.

(Instructions on page 2)

CAPTAN CONTROLLED WATER BASIN

SEE ATTACHED FOR  
CONDITIONS OF APPROVAL

APPROVAL SUBJECT TO  
GENERAL REQUIREMENTS  
AND SPECIAL STIPULATIONS  
ATTACHED

## BASIN SURVEYS

	<p><b>SURFACE LOCATION</b>          Lat - N32°27'09.45"          Long - W103°08'36.23"          SPC- N.: 530466.763          E.: 908389.584          (NAD-83)</p>	<p><b>OPERATOR CERTIFICATION</b></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>Joe T. Janica</i>          Signature Date</p> <p>Joe T. Janica 08/04/08          Printed Name</p>
		<p><b>SURVEYOR CERTIFICATION</b></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>FEBRUARY 28, 2008          Date Surveyed</p> <p>GARY L. JONES          Signature &amp; Seal of Professional Surveyor</p> <p>7977          Certificate No.</p> <p>BASIN SURVEYS</p>

DISTRICT I  
1825 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

19190

Drinkard

☐ AMENDED REPORT

**WELL LOCATION AND ACREAGE DEDICATION PLAT**

API Number <b>30-025-39115</b>	Pool Code 19190	Pool Name DRINKARD
Property Code <b>35423</b>	Property Name LOCKHART A-27	Well Number 26
OGRID No. 873	Operator Name APACHE CORPORATION	Elevation 3397'

**Surface Location**

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
H	27	21 S	37 E		1650	NORTH	330	EAST	LEA

**Bottom Hole Location If Different From Surface**

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
Dedicated Acres 40		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

	<b>OPERATOR CERTIFICATION</b>  I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.   Signature Date Joe T. Janica 08/04/08 Printed Name	
	<b>SURVEYOR CERTIFICATION</b>  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.  FEBRUARY 28, 2008 Date Surveyed Signature & Seal of Professional Surveyor 	
	Certificate No. 19191 7977	
	BASIN SURVEYS	

SURFACE DAMAGE RELEASE

STATE OF NEW MEXICO §  
 COUNTY OF LEA § KNOW ALL MEN BY THESE PRESENTS:

THAT, **Richard Don Jones** whose address is P. O. Box 21 Eunice, New Mexico 88231 (hereinafter referred to as "OWNER"), is the current surface owner or Lessee on the hereinbelow described lands which are located in Lea County, New Mexico. For and in consideration of the sum of Twelve Thousand Five Hundred Dollars and 00/100's (\$12,500.00) for the location cost of the Subject Well(s) described below, paid by **Apache Corporation** of 6120 Yale St., #2 Warren Place, Suite 1500, Tulsa OK 74136 (hereinafter referred to as "OPERATOR"), the receipt and sufficiency of which are hereby acknowledged, OWNER does hereby RELEASE and DISCHARGE OPERATOR, its employees, agents, contractors, successors and assigns, from any and all claims, demands and causes of action for detriment, injuries, damages and losses of whatsoever nature that have been caused or will be caused to the surface of the Subject Property (provided that such future damages are of a typical nature caused by normal operations of the Subject Well) in any way arising from, incident to or in connection with the drilling or operation of the following wells (hereinafter called "Subject Well").

Lockhart A-27 # 26  
 1650' FNL & 330' FEL  
 Section 27-T21S-R37E  
 Lea County New Mexico

The above well is located in Section 27-T21S-R37E, Lea County, New Mexico.

The "Subject Property" shall mean the S/E1/4 of N/E1/4 of Section 27- T21S-R37E, Lea County, New Mexico.

**It is understood that this payment of \$12,500.00 is to include payment for all damages including but not limited to payment for flowline right-of-way, powerline right-of-way, road right-of-way construction, and injection line right-of-way.**

This Release is intended to cover all disruption of ranch operations due to surface disruption, including but not limited to, all crops, timber and grass damaged or destroyed in connection with the above described activities.

OPERATOR shall conduct all operations in a good and workman like manner and shall use all precautions to prevent any damages to said land over and above the damages contemplated herein. OPERATOR agrees to restore the surface as close as reasonably possible to its condition prior to commencement of drilling operations.

OWNER agrees to account to any other party (including the surface tenant) who may be entitled to receive any portion of the aforementioned sum, and to indemnify and hold harmless OPERATOR, its successors and assigns from any claim by any other party for damages to the above described lands and improvements, crops or other things situated thereon. OWNER agrees to keep all of the terms and conditions of this damage settlement confidential.

**OWNER, FOR ITSELF, ITS SUCCESSORS, ASSIGNS, EMPLOYEES, AGENTS, PRINCIPLES, SERVANTS, HEIRS, EXECUTORS, PERSONAL REPRESENTATIVES AND ADMINISTRATORS, HEREBY RELEASES AND FOREVER DISCHARGES APACHE AND ALL WORKING INTEREST OWNERS AND THEIR RESPECTIVE PARENT CORPORATIONS, SUBSIDIARY CORPORATIONS, ASSOCIATED AND AFFILIATED CORPORATIONS AND/OR ENTITIES, AND ALL OFFICERS, DIRECTORS, EMPLOYEES, AGENTS, PRINCIPALS, SERVANTS, SUCCESSORS, ASSIGNS, HEIRS, ATTORNEYS, EXECUTORS AND ADMINISTRATORS FROM EVERY CLAIM, DAMAGE, ATTORNEYS FEES, EXPENSES, COSTS, DEMANDS,**

**RIGHTS, AND/OR CAUSE OF ACTION OF ANY KIND FOR SURFACE DAMAGES  
RELATING TO THE DRILLING AND COMPLETION OF THE SUBJECT WELLS ON  
THE SUBJECT PROPERTY.**

This agreement shall be binding upon the parties hereto and their respective heirs,  
successors and assigns.

AGREED TO AND ACCEPTED this 22 day of July, 2008.

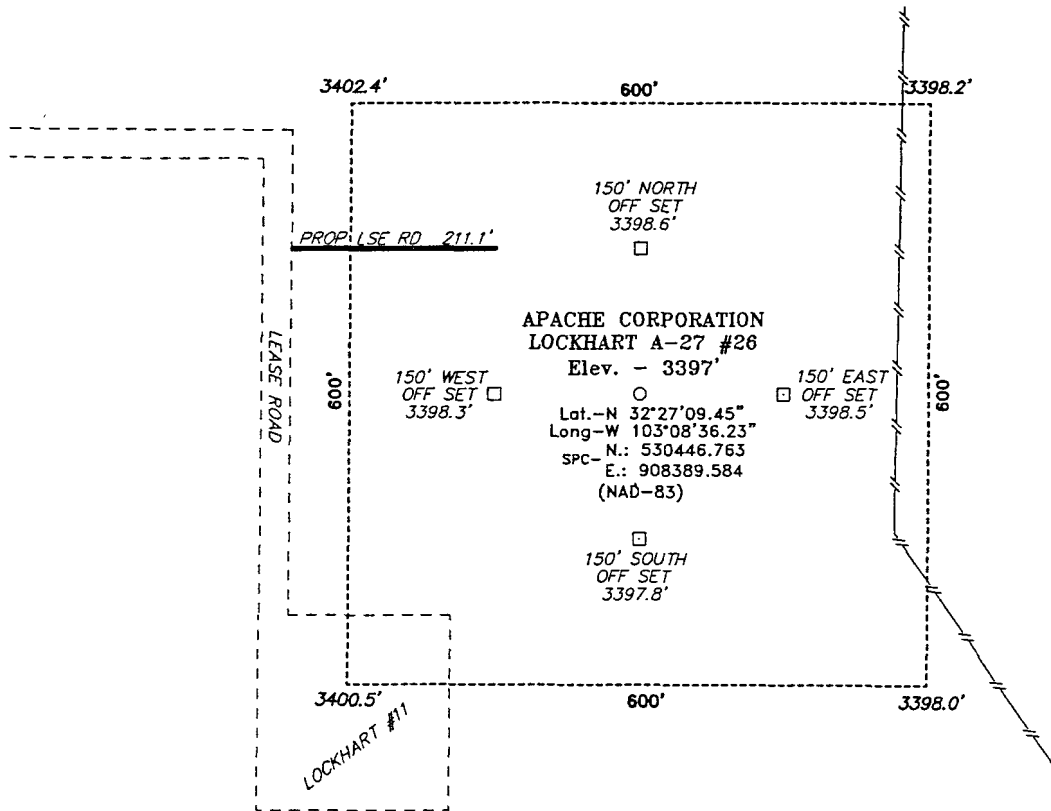
**APACHE CORPORATION**

By: Harold Swain

**RICHARD DON JONES**

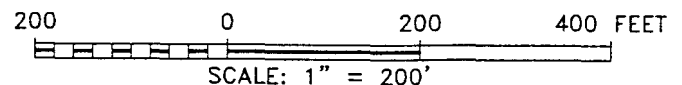
By: Richard D Jones

SECTION 27, TOWNSHIP 21 SOUTH, RANGE 37 EAST, N.M.P.M.,  
LEA COUNTY, NEW MEXICO.



Directions to Location:

FROM MILE MARKER 1 OF STATE HWY 207, GO SOUTH 0.2 MILES TO CONTINENTAL STREET, ON CONTINENTAL STREET GO EAST 0.8 MILES TO BEND TO SOUTH, GO SOUTH FOR 150' TO PROPOSED LEASE ROAD.



**APACHE CORPORATION**

REF: LOCKHART A-27 #26 / WELL PAD TOPO

THE LOCKHART A-27 #26 LOCATED 1650'

FROM THE NORTH LINE AND 330' FROM THE EAST LINE OF

SECTION 27, TOWNSHIP 21 SOUTH, RANGE 37 EAST,

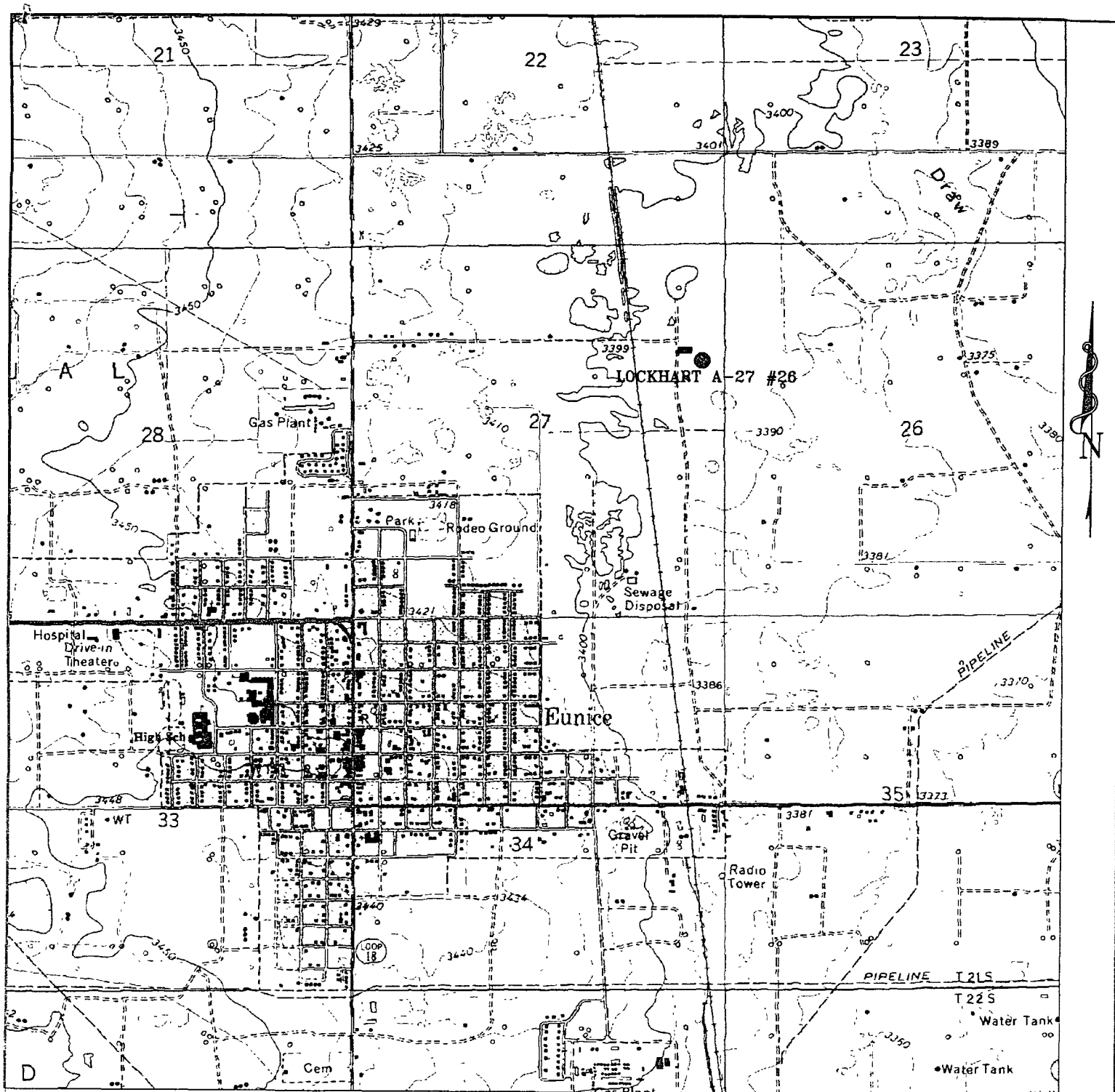
N.M.P.M., LEA COUNTY, NEW MEXICO.

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

W.O. Number: 19191 Drawn By: J. M. SMALL

Date: 02-28-2008 Disk: 19191W JMS

Survey Date: 02-28-2008 Sheet 1 of 1 Sheets



### LOCKHART A-27 #26

Located at 1650' FNL AND 330' FEL  
 Section 27, Township 21 South, Range 37 East,  
 N.M.P.M., Lea County, New Mexico.

**basin**  
**surveys**  
 focused on excellence  
 in the oilfield

P.O. Box 1736  
 1120 N. West County Rd.  
 Hobbs, New Mexico 88241  
 (505) 393-7316 - Office  
 (505) 392-3074 - Fax  
 basinsurveys.com

W O Number: 19191T

Survey Date: 02-28-2008

Scale: 1" = 2000'

Date: 02-28-2008

**APACHE**  
**CORP.**





# APPLICATION TO DRILL

APACHE CORPORATION  
 LOCKHART "A-27" # 26  
 UNIT "H" SECTION 27  
 T21S-R37E LEA CO. NM

In response to questions asked under Section II of Bulliten NTL-6, the following information on the above will be provided.

1. LOCATION: 1650' FNL & 330' FEL SECTION 27 T21S-R37E LEA CO. NM
2. ELEVATION ABOVE SEA LEVEL: 3397' GL
3. GEOLOGICAL NAME OF SURFACE FORMATION: Quaternary Aeolian Deposits.
4. DRILLING TOOLS AND ASSOCIATED EQUIPMENT: Conventional rotary drilling rig using drilling mud as a circulating medium for solids removal from hole.
5. PROPOSED DRILLING DEPTH: 6775'
6. ESTIMATED TOPS OF GEOLOGICAL FORMATIONS:
 

Rustler Anhydrite	1206'	San Andres	3890'
Yates	2544'	Glorieta	5081'
Seven Rivers	2771'	Blaine Marker	5512'
Queen	3339'	Tubb	6006'
Grayburg	3660'	Drinkard	6352'
		Abo	6632'
7. POSSIBLE MINERAL BEARING FORMATIONS:
 

Blaine Marker	Oil
Tubb	Oil
Drinkard	Oil
8. CASING PROGRAM:

HOLE SIZE	INTERVAL	OD OF CASING	WEIGHT	THREAD	COLLAR	GRADE	CONDITION
26"	0-40'	20"	NA	NA	NA	Conductor	New
12 1/2"	0-1300'	8 5/8"	24#	8-R	ST&C	J-55	New
7 7/8"	0-1000'	5 1/2"	17#	8-R	LT&C	L-80	New
7 7/8"	1000-6775'	5 1/2"	17#	8-R	LT&C	J-55	New
Design Factors: Collapse 1.125 Burst 1.0 Body Yield 1.5							Joint Strength
							Buttress 1.6
							8-R 1.8

SEE ATTACHED PAGES OF DRILLING PROGRAM FOR DETAIL INFORMATION.

# APPLICATION TO DRILL

APACHE CORPORATION  
 LOCKHART "A-27" # 26  
 UNIT "H" SECTION 27  
 T21S-R37E LEA CO. NM

## 9. CASING CEMENTING & SETTING DEPTHS:

20"	Conductor	Set 40' of 20' conductor pipe and cement to surface with Redi-mix.
8 5/8"	Surface	Run and set 1300'± of 8 5/8" 24# J-55 ST&C casing. Cement with 450 Sx. of 35/65 CLASS "C" POZ + 2% CaCl, + .25#/Sx. of Celo-flakes/Sx. + 66% Bentonite Gel, Yield 1.8, tail in with 200 Sx. of Class "C" cement + 2% CaCl, + .125# Celo-flakes/Sx. Yield 1.3 circulate cement to surface.
5 1/2"	Production	Run and set 5 1/2" casing as follows: 5775' of 5 1/2" 17# J-55 LT&C, 1000' of 5 1/2" 17# L-80 LT&C casing. Cement with 700 Sx. of 50/50 Class "C" POZ (Fly-ash) + 5% NaCl. + .125# Celo-flakes/Sx. + .5% FL-52A + 10% Bentonite, Yield 2.4, tail in with 400 Sx. of 50/50 Class "C" POZ (Fly Ash) + 5% NaCl, + .6% FL-25, + 2% Bentonite, Yield 1.0., circulate cement to surface.

10. PRESSURE CONTROL EQUIPMENT: Exhibit "E" shows a 900 series 3000 PSI working pressure B.O.P.. Consisting of an annular bag type preventor, middle blind rams, and bottom pipe rams. This B. O. P. will be tripped up on the 8 5/8" surface casing and tested to API specifications by a third party before drilling out from under the surface casing. The B. O. P. will be operated at least once in each 24 hour period and the blind rams will be operated when the drill pipe is out of the hole on trips. Full opening stabbing valve and upper kelly cock will be utilized. Exhibit "E" also shows a 3" <sup>5000</sup>~~3000~~ PSI choke manifold with dual adjustable chokes with a 3" blow down line. No abnormal pressures or abnormal temperatures are expected while drilling this well.

## 11. PROPOSED MUD CIRCULATING SYSTEM:

DEPTH	MUD WT.	VISC	FLUID LOSS	TYPE SYSTEM
40-1300'	8.6-9.2	28-34	NC	Fresh water Spud Mud add paper to control seepage, clean hole with high viscosity sweeps.
1300-6300'	10.0-10.2	28-32	NC	Drill out with Brine water using paper to control seepage, use lime for pH control(9.5-10)
6300-TD	10.0-10.2	36-42	8-10 cc or less	Brine water use caustic soda to pH control, (9.5-10) Use Starch (Yellow) to control waterloss, use high sweeps to clean hole.

Sufficient mud materials will be kept on location at all times in order to combat lost circulation, or unexpected kicks. In order to run open hole logs, DST's and casing, water loss and viscosity may have to be adjusted in order to meet these needs.

APPLICATION TO DRILL

APACHE CORPORATION  
LOCKHART "A-27" # 26  
UNIT "H" SECTION 27  
T21S-R37E LEA CO. NM

12. LOGGING, CORING, AND TESTING PROGRAM:

- A. Open hole logs: Dual Laterlog, CNL, LDT, MSFL, SONIC, Gamma Ray, Caliper from TD back to the 8 5/8" casing shoe.
- B. Run CNL, Gamma Ray from 8 5/8" casing shoe back to surface.
- C. Mud logger will be rigged up on the hole at 5000'± and remain on hole to TD.
- D. No cores or DST's are planned at this time.

13. POTENTIAL HAZARDS:

No abnormal pressures or temperatures are expected. There is no known presence of H<sup>2</sup>S in this area. If H<sup>2</sup>S is encountered the operator will comply with the provisions of Onshore Oil and Gas Order No. 6. No lost circulation is expected to occur. All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well. Estimated BHP 2200 PSI, and Estimated BHT 130°.

14. ANTICIPATED STARTING DATE AND DURATION OF OPERATION:

Road and location construction will begin after the BLM has approved the APD. Anticipated spud date will be as soon after BLM approval and as soon as a rig will be available. Move in operation and drilling is expected to take 18 days. If production casing is run then an additional 30 days will be needed to complete well and construct surface facilities and/or lay flowlines in order to place well on production.

15. OTHER FACETS OF OPERATIONS:

After running casing, cased hole Gamma Ray, Neutron Collar logs will be run from TD back to all possible productive zones. The Blaine-Tubb Dr. formations will be perforated and stimulated in order to establish production. The well will be swab tested and potentialized as an oil well.

**LOCKHART A-27 # 26**  
**DRILLING PROGRAM**

The geological surface formation is recent Permian with quaternary alluvium and other surficial deposits.

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**Estimated Tops of Geological Markers:**

<u>FORMATION</u>	<u>DEPTH</u>
Quaternary alluvials	Surface
✓ Rustler	1206'
✓ Yates	2544'
✓ Seven Rivers	2771'
✓ Queen	3339'
✓ Grayburg	3660'
✓ San Andres	3890'
✓ Glorieta	5081'
✓ Blinebry Marker	5512'
✓ Tubb	6006'
✓ Drinkard	6352'
✓ Abo	6632'
✓ TD	6775'

Estimated depths at which water, oil, gas, or other mineral-bearing formations are expected to be encountered:

<u>SUBSTANCE</u>	<u>DEPTH</u>
Oil	Blinebry Marker @ 5512' Tubb @ 6006' Drinkard @ 6352'
Gas	None anticipated
Fresh Water	None anticipated

All fresh water and prospectively valuable minerals (as described by BLM) encountered during drilling will be recorded by depth and adequately protected. All oil and gas shows within zones of correlative rights will be tested to determine commercial potential.

Proposed Casing Program:

<u>HOLE</u> <u>SIZE</u>	<u>CASING</u> <u>SIZE</u> OD / ID	<u>GRAD</u> <u>E</u>	<u>WEIGH</u> <u>T PER</u> <u>FOOT</u>	<u>DEPTH</u>	<u>SACKS</u> <u>CEMEN</u> <u>T</u>	<u>ESTIMATED TOC -</u> <u>REMARKS</u>
12 1/4"	8 5/8" 8.097"	J55 STC	24#	1300'	650	TOC - Surface 8.9 ppg Water-based Mud; 89 ° F Est. Static Temp; 83 ° F Est. Circ. Temp.
7 7/8"	5 1/2" 4.892"	L80 LTC	17#	0 – 1,000'	1,100	TOC – Surface Float Collar set @ 6855' / 10.10 ppg Brine Mud; 141 ° F Est. Static Temp; 117 ° F Est. Circ. Temp.
	5 1/2" 4.892"	J55 LTC	17#	1,000 – 6,775'		

Proposed Cement Program:

<u>CASING</u>	<u>LEAD SLURRY</u>	<u>TAIL SLURRY</u>	<u>DISPLACEMENT</u>
8 5/8"	450 sacks 35:65 Poz:Class C Cement + 2% bwoc Calcium Chloride + 0.25 lbs/sack Cello Flake + 6% bwoc Bentonite gel 846 Vol. Cu Ft 1.8 Vol. Factor Slurry Weight (ppg) 12.7 Slurry Yield (cf/sack) 1.88 Amount of Mix Water (gps) 10.7; <u>Estimated Pumping</u> <u>Time – 70 BC</u> <u>(HH:MM)-5:00;</u>	200 sacks Class C Cement + 2% bwoc Calcium Chloride + 0.125 lbs/sack Cello Flake + 56.3% Fresh Water 270 Vol. Cu Ft 1.3 Vol. Factor Slurry Weight (ppg) 14.8 Slurry Yield (cf/sack) 1.35 Amount of Mix Water (gps)6.35 Estimated Pumping Time – 70 BC (HH:MM)-3:15;	80.3 bbls Fresh Water @ 8.33 ppg

8 5/8" Casing: Volume Calculations:

1,300 ft	x	0.4127 cf/ft	with 100% excess	=	1,072.5 cf
40 ft	x	0.3576 cf/ft	with 0% excess	=	14.3 cf (inside pipe)
TOTAL SLURRY VOLUME				=	1,086.8 cf
				=	193.6 bbls

Spacer      20.0 bbls Water @ 8.33 ppg

<u>CASING</u>	<u>LEAD SLURRY</u>	<u>TAIL SLURRY</u>	<u>DISPLACEMENT</u>
5 1/2"	700 sacks (50:50) Poz (Fly Ash): Class C Cement + 5% bwow Sodium Chloride + 0.125 lbs/sack Cello Flake + 0.5% bwoc FL-52A + 10% bwoc Bentonite 1,715 Vol. Cu Ft 2.4 Vol. Factor Slurry Weight (ppg) 11.8 Slurry Yield (cf/sack) 2.45 Amount of Mix Water (gps) 14.07; <u>Estimated Pumping Time</u> <u>- 70 BC (HH:MM)-</u> <u>4:30;</u>	400 sacks (50:50) Poz (Fly Ash):Class C Cement + 5% bwow Sodium Chloride +0.6% bwoc FL-25 + 2% bwoc Bentonite 520 Vol. Cu Ft 1. Vol. Factor Slurry Weight (ppg) 14.2 Slurry Yield (cf/sack) 1.30 Amount of Mix Water (gps) 5.91; Estimated Pumping Time - 70 BC (HH:MM)-4:00;	156.5 bbls 2% Kcl Water @ 8.43 ppg

5 1/2" Casing: Volume Calculations:

1300 ft	x	0.1926 cf/ft	with 0% excess	=	250.2 cf
3759 ft	x	0.1733 cf/ft	with 120% excess	=	1,432.0 cf
1716 ft	x	0.1733 cf/ft	with 80% excess	=	534.9 cf
40 ft	x	0.1305 cf/ft	with 0% excess	=	5.2 cf(inside pipe)
TOTAL SLURRY VOLUME				=	2,222.4 cf
				=	395.8 bbls

All slurries will be tested prior to loading to confirm thickening times and a lab report furnished to Apache. Fluid loss will be tested and reported on slurries with fluid loss additives. Lab test report will be furnished prior to pumping cement.

## Proposed Mud Program

<u>DEPTH</u>	<u>MUD PROPERTIES</u>	<u>REMARKS</u>
0 – 1,300'	Weight: 8.6 – 9.2 ppg Viscosity: 28 – 34 sec/qt  pH: 9.0 – 9.5 Filtrate: NC	Spud with a Conventional Gel/Lime "Spud mud". Use gel and native solids to maintain a sufficient viscosity to keep the hole clean. Mix Paper one-two sacks every 100 feet drilled to minimize wall cake build up on water sands and to control seepage loss. Every 500' sweep the hole with 50 bbls of pre-mixed freshwater, gel and lime having a viscosity of 45-50 sec/qt.
1300' – 6300'	Weight: 10 10.0 – 10.2 ppg Viscosity: 28 – 32 sec/qt  pH: 9.5 -10 Filtrate: NC	Drill out from under the surface casing with Brine Water. Paper should be added at 2 bags after every 100' drilled to control seepage losses. Use Lime to maintain pH at 9-10. Mix one gallon of Anco Drill N at flowline every 250 feet drilled to promote solids settling
6300' – TD	Weight: 10.0 – 10.2 ppg Viscosity: 36 – 42 sec/qt  pH: 9.5 -10 Filtrate: 8-10 cm/30 min	From 6300' to Total Depth, it is recommended the system be restricted to the working pits. Adjust and maintain pH with Caustic Soda. Treat system with WT-22 @ 0.1 ppb. Mix Starch (yellow) to control API filtrate at 8-10 cc. Sweep hole with Anco Drill N every 100'.



#### Proposed Control Equipment:

Will install on the 8 5/8" surface casing a 9" x 3000 psi WP Double Ram BOP and will test using a 3<sup>rd</sup> party tester before drilling out of surface casing.

#### Auxiliary Equipment:

9" x 3000 psi double BOP/blind & pipe ram  
4 1/2" x 3000 psi Kelly valve  
9" x 3000 psi mud cross – H<sub>2</sub>S detector on production hole  
Gate-type safety valve 3" choke line from BOP to manifold  
2" adjustable chokes – 3" blowdown line

#### Logging Program:

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The following logs may be run:

CNL, LDT, GR, CAL, DLL, MSFL, NGT, Sonic from TD-1300'  
CNL, GR from TD-Surface

#### Mudlogging Program:

It is planned to utilize a mud logger catching samples from 5,000' to TD

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No abnormal pressures or temperatures are anticipated. In the event abnormal pressures are encountered, however, the proposed mud program will be modified to increase the mud-weight. The estimated maximum bottom hole pressure is 2,200 psi.

#### Bottom Hole Pressure Calculations

Since January 1, 2003, Apache has drilled 120 Blinebry, Tubb, Drinkard wells in the Eunice Area. Data gained from those wells have demonstrated that:

1. The environment of deposition of the reservoir carbonate facies was extremely variable. Compartmentalized reservoirs are expected. Every wellbore will contain some pay zones that are at, or near, original pressure and some that are drawn down to various extents.
2. Pressures obtained from wireline tests conducted in wells drilled in 2003 and 2004 were not as expected. Pay zones expected to be drawn down often were not and those expected to be at original pressure often were not.
3. Continuity of pay zones determined from log analysis and correlation of those pay zones is much less than 50%.

Apache estimated bottom hole pressure by multiplying the median depth of perforations in the Blinebry, Tubb, and Drinkard by 0.44, then subtracting a few hundred pounds based upon number of and cumulative production from nearby offsets.

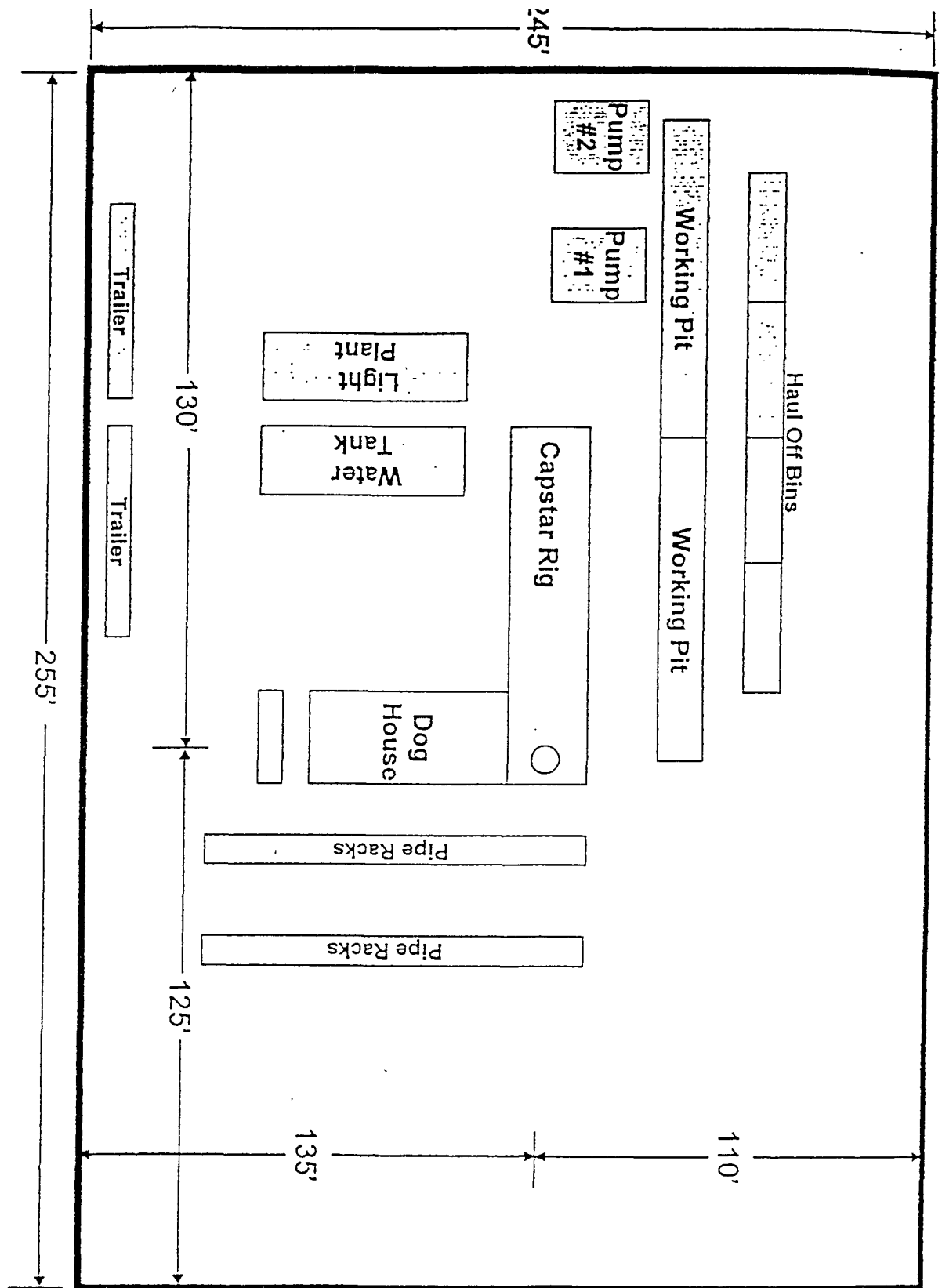


EXHIBIT "G"  
RIG LAY OUT PLAT

APACHE CORPORATION  
LOCKHART "A-27" # 26  
UNIT "H" SECTION 27  
T21S-R37E LEA CO. NM

3000psi -  
BOPE

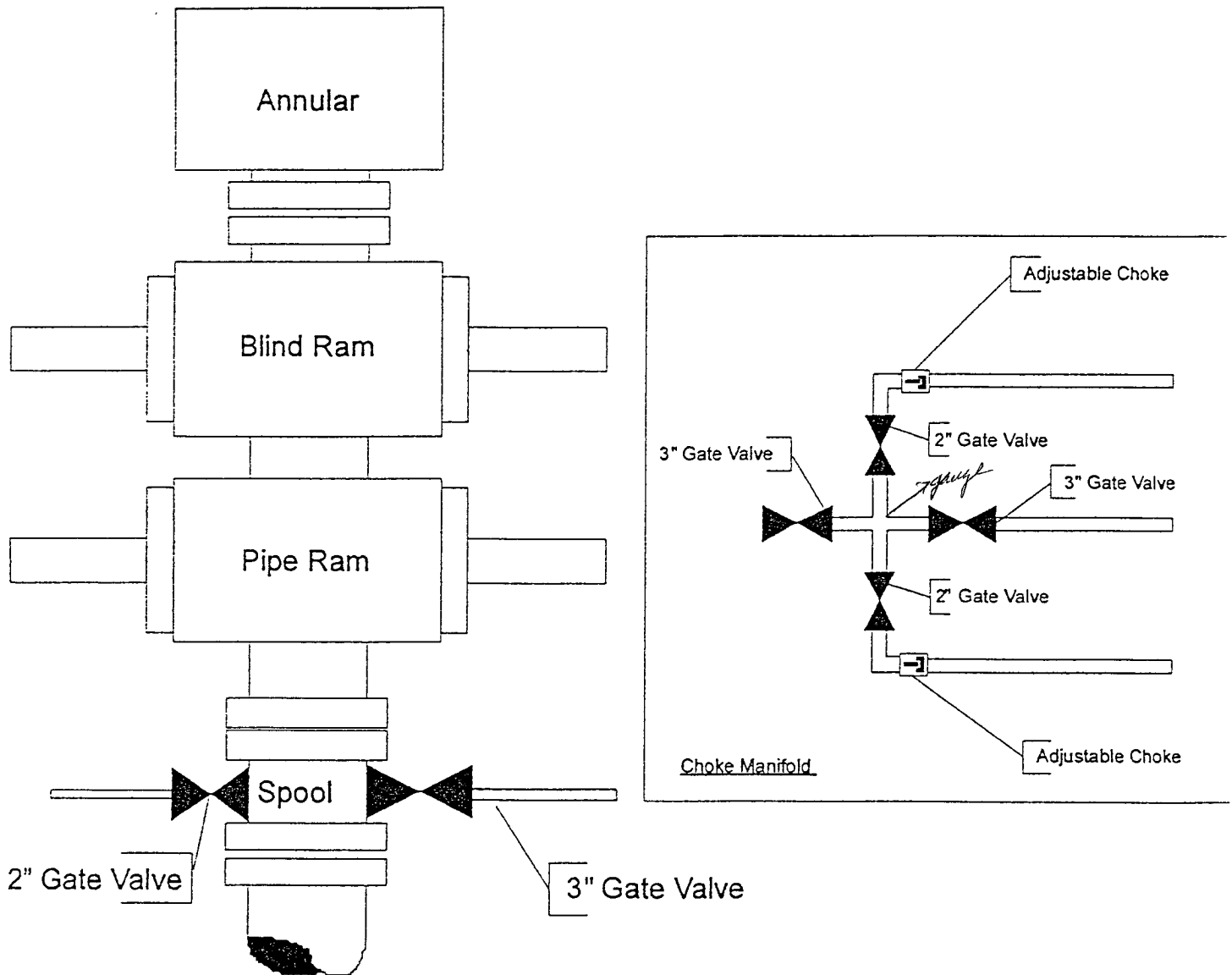


EXHIBIT "H"  
BOP & CHOKE MANIFOLD

APACHE CORPORATION  
LOCKHART "A-27" # 26  
UNIT "H" SECTION 27  
T21S-R37E LEA CO. NM



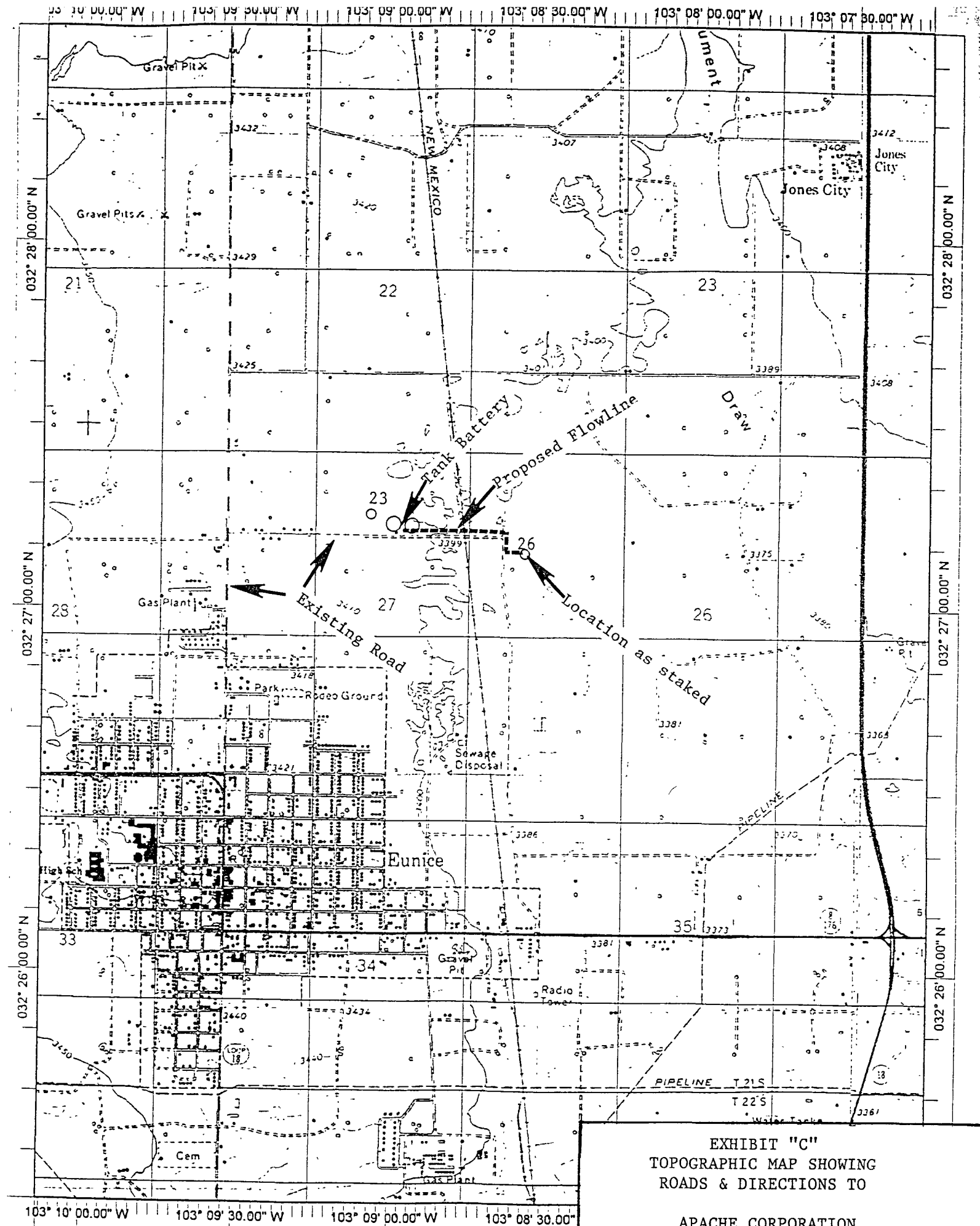
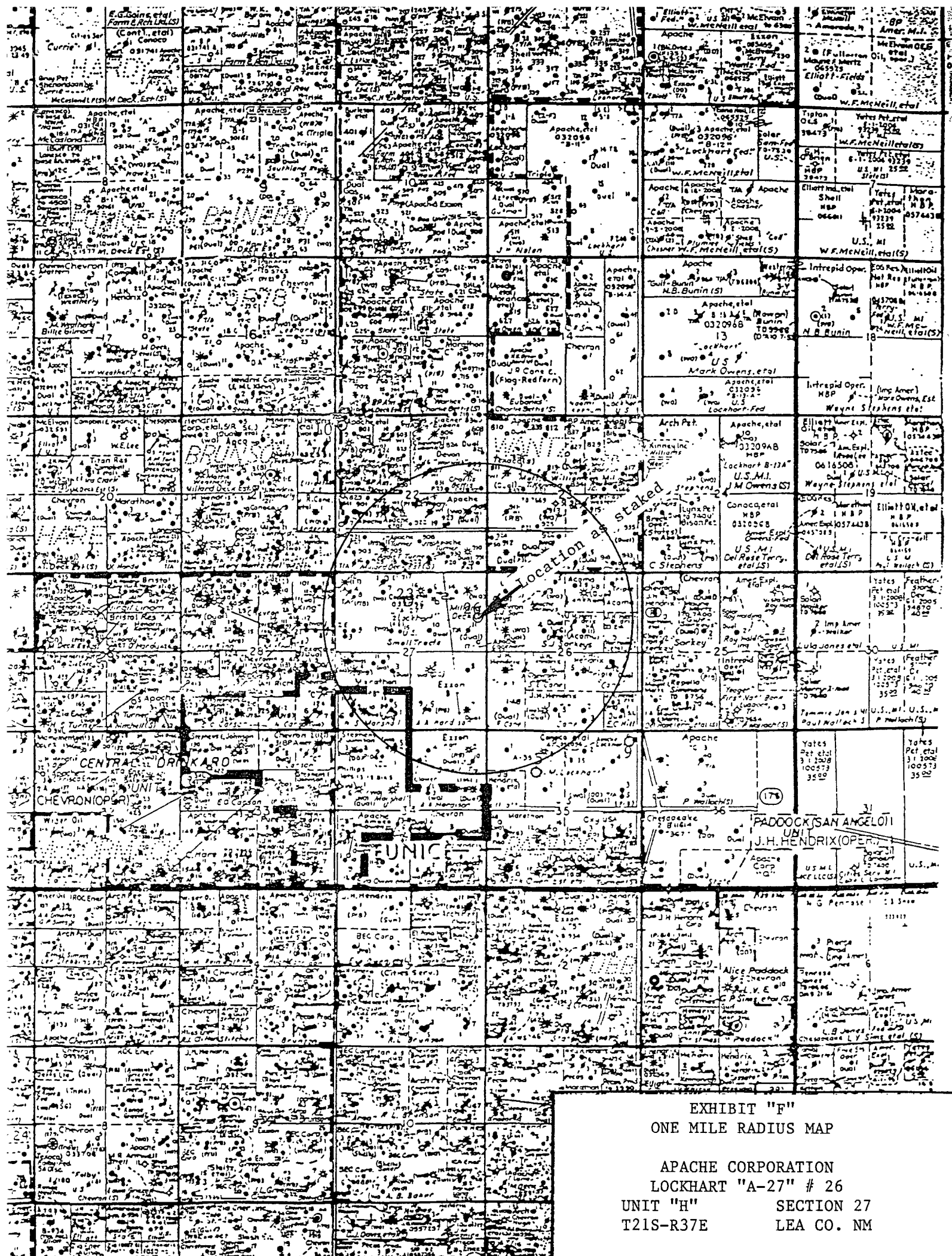


EXHIBIT "C"  
TOPOGRAPHIC MAP SHOWING  
ROADS & DIRECTIONS TO

APACHE CORPORATION  
LOCKHART "A-27" # 26  
UNIT "H" SECTION 27  
T21S-R37E LEA CO. NM



# PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Apache Corporation
LEASE NO.:	NMLC032096A
WELL NAME & NO.:	Lockhart A-27 No 26
SURFACE HOLE FOOTAGE:	330' FEL & 1650' FNL
BOTTOM HOLE FOOTAGE	
LOCATION:	Section 27, T. 21 S., R 37 E., NMPM
COUNTY:	Lea County, New Mexico

## TABLE OF CONTENTS

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

- ☐ **General Provisions**
- ☐ **Permit Expiration**
- ☐ **Archaeology, Paleontology, and Historical Sites**
- ☐ **Noxious Weeds**
- ☐ **Special Requirements**
- ☒ **Construction**
  - Notification
  - Topsoil
  - Reserve Pit – Closed-loop system
  - Federal Mineral Material Pits
  - Well Pads
  - Roads
- ☐ **Road Section Diagram**
- ☒ **Drilling**
- ☐ **Production (Post Drilling)**
  - Pipelines
- ☐ **Reserve Pit Closure/Interim Reclamation**
- ☐ **Final Abandonment/Reclamation**

## **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. CONSTRUCTION**

### **A. NOTIFICATION**

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Hobbs Field Station at (505) 393-3612 at least 3 working days prior to commencing construction of the access road and/or well pad.

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

### **B. TOPSOIL**

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

### **C. RESERVE PITS**

The operator has applied for a closed-loop system. The operator shall properly dispose of drilling contents at an authorized disposal site.

### **D. FEDERAL MINERAL MATERIALS PIT**

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

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

### **E. WELL PAD SURFACING**

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation.

The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

## **F. ON LEASE ACCESS ROADS**

### **Road Width**

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

### **Surfacing**

Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

### **Crowning**

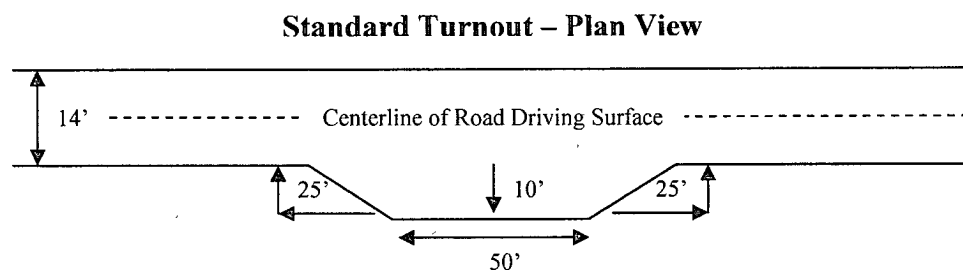
Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

### **Ditching**

Ditching shall be required on both sides of the road.

### **Turnouts**

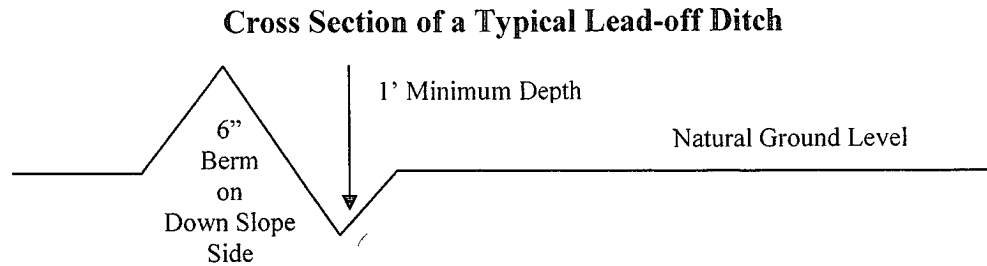
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall be constructed on all blind curves. Turnouts shall conform to the following diagram:



### **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.



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**

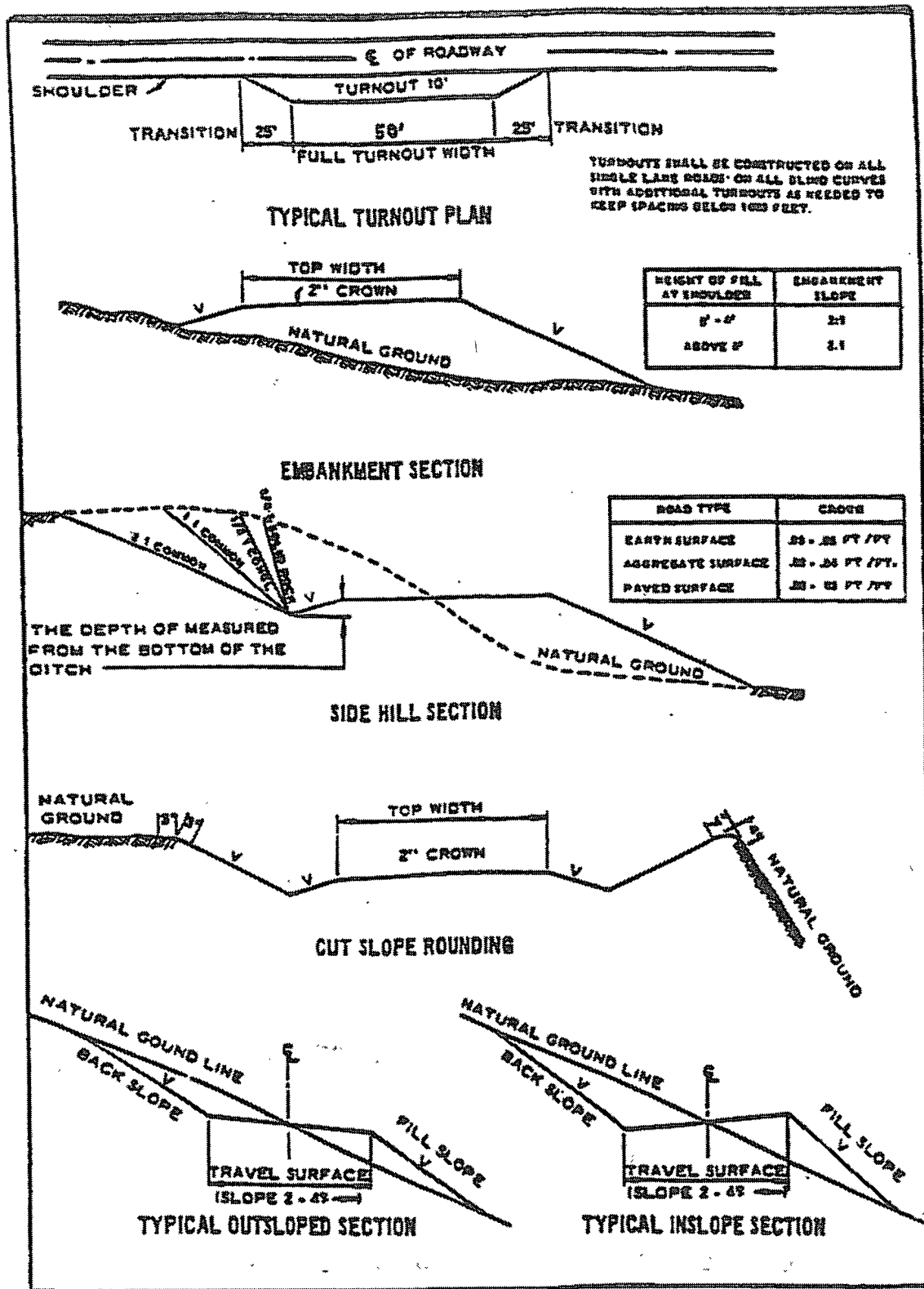
Where entry is required across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting.

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



## VI. DRILLING

### A. DRILLING OPERATIONS REQUIREMENTS

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

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

☒ **Lea County**

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

1. A Hydrogen Sulfide (H<sub>2</sub>S) Drilling Plan should be activated 500 feet prior to drilling into the **Blaine** formation. **Hydrogen Sulfide has been reported measuring 200-800 ppm in gas streams and 400-130,000 ppm in STVs. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.**
2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
3. 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 are located, this does not include the dog house or stairway area.

### B. CASING

**Changes to the approved APD casing and cement program require submitting a sundry and receiving approval prior to work.**

**Centralizers required on surface casing per Onshore Order 2.III.B.1.f.**

**Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing.**

**No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.**

1. The **8-5/8** inch surface casing shall be set **at approximately 1300 feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt)** and cemented to the surface.
  - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with a surface log readout will be used or a cement bond log shall be run to verify the top of the cement.
  - b. Wait on cement (WOC) time for a primary cement job will be a minimum 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement).
  - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
  - d. If cement falls back, a remedial cement job will be done prior to drilling out that string.
2. The minimum required fill of cement behind the **5-1/2** inch production casing is:
  - ☒ Cement to surface. If cement does not circulate, contact the appropriate BLM office.
3. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

#### **C. PRESSURE CONTROL**

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
2. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
  - a. The tests shall be done by an independent service company.
  - b. The results of the test shall be reported to the appropriate BLM office.

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

**D. DRILL STEM TEST**

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

**WWI 052208**



## **VII. 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**

#### **STANDARD STIPULATIONS FOR SURFACE INSTALLED PIPELINES**

**A copy of the APD and attachments, including stipulations, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.**

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. The holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.
2. The holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.
3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the

Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to activity of the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

4. The holder shall be liable for damage or injury to the United States to the extent provided by 43 CFR Sec. 2883.1-4. The holder shall be held to a standard of strict liability for damage or injury to the United States resulting from pipe rupture, fire, or spills caused or substantially aggravated by any of the following within the right-of-way or permit area:

- a. Activities of the holder including, but not limited to construction, operation, maintenance, and termination of the facility.
- b. Activities of other parties including, but not limited to:
  - (1) Land clearing.
  - (2) Earth-disturbing and earth-moving work.
  - (3) Blasting.
  - (4) Vandalism and sabotage.
- c. Acts of God.

The maximum limitation for such strict liability damages shall not exceed one million dollars (\$1,000,000) for any one event, and any liability in excess of such amount shall be determined by the ordinary rules of negligence of the jurisdiction in which the damage or injury occurred.

This section shall not impose strict liability for damage or injury resulting primarily from an act of war or from the negligent acts or omissions of the United States.

5. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil, salt water, or other pollutant should be discharged from the pipeline system, impacting Federal lands, the control and total removal, disposal, and cleaning up of such oil, salt water, or other pollutant, wherever found, shall be the responsibility of the holder, regardless of fault. Upon failure of the holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages resulting therefrom, on the Federal lands, the Authorized Officer may take such measures as he deems necessary to control and clean up the discharge and restore the area, including, where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the holder. Such action by the Authorized Officer shall not relieve the holder of any responsibility as provided herein.

6. All construction and maintenance activity will be confined to the authorized right-of-way width of 25 feet.
7. No blading or clearing of any vegetation will be allowed unless approved in writing by the Authorized Officer.
8. The holder shall install the pipeline on the surface in such a manner that will minimize suspension of the pipeline across low areas in the terrain. In hummocky or dune areas, the pipeline will be "snaked" around hummocks and dunes rather than suspended across these features.
9. The pipeline shall be buried with 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. The condition of the road, upon completion of construction, shall be returned to at least its former state with no bumps or dips remaining in the road surface.
10. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.
11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.
12. Excluding the pipe, all above-ground structures not subject to safety requirement shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be a color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2; designated by the Rocky Mountain Five State Interagency Committee.
13. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder's name, BLM serial number, and the product being transported. Signs will be maintained in a legible condition for the life of the pipeline.
14. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway.
15. Any cultural and/or paleontological resource (historic or prehistoric site or object)

discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the authorized officer. Holder 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 will be made by the authorized officer to determine appropriate cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the authorized officer after consulting with the holder.

(March 1989)

## **VIII. INTERIM RECLAMATION & RESERVE PIT CLOSURE**

### **A. INTERIM RECLAMATION**

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

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

Operators should work with BLM surface management specialists to devise the best strategies to reduce the size of the location. Any reductions should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

## Seed Mixture 2, for Sandy 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>
Sand dropseed ( <i>Sporobolus cryptandrus</i> )	1.0
Sand love grass ( <i>Eragrostis trichodes</i> )	1.0
Plains bristlegrass ( <i>Setaria macrostachya</i> )	2.0

\*Pounds of pure live seed:

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

## **X. FINAL ABANDONMENT & REHABILITATION REQUIREMENTS**

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

On private surface/federal mineral estate land the reclamation procedures on the road and well pad shall be accomplished in accordance with the private surface land owner agreement.