ATS-09-418

OCD Hobbs

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Form 3160-3
(April 2004)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No. NMNM002512

6. If Indian, Allotee or Tribe Name

1a. Type of work: ☑ DRILL ☐ REENTER

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

Split Estate

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

8. Lease Name and Well No. (24433) Hawk B-3 #33

2. Name of Operator Apache Corporation (873)

9. API Well No. 30-025-39510

3a. Address 6120 S. Yale, Ste. 1500, Tulsa, Ok 74136

3b. Phone No. (include area code) 918-491-4900

10. Field and Pool, or Exploratory Penrose Skelly 6B

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

At surface 3630' FNL 990' FWL Sec 3 T21S R37E Lot 12

At proposed prod. zone Same

11. Sec., T. R. M. or Blk. and Survey or Area Sec 3 T21S R37E Lot 12

14. Distance in miles and direction from nearest town or post office* 4 mile N of Eunice

12. County or Parish Lea

13. State NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 990'

16. No. of acres in lease 708.67'

17. Spacing Unit dedicated to this well 40 acres

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft 427' +/-

19. Proposed Depth 4500

20. BLM/BIA Bond No. on file BLM-CO-1463 Nation Wide

21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3466' GL

22. Approximate date work will start* 09/15/2009

23. Estimated duration 7 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) Curt Jones

Date 07/07/2009

Title Drilling Engineer

Approved by (Signature) /S/ DAVID D. EVANS

Name (Printed/Typed) /S/ DAVID D. EVANS

Date AUG 21 2009

Title for 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 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)

KZ

Capitan Controlled Water Basin

Approval Subject to General Requirements & Special Stipulations Attached

SEE ATTACHED FOR CONDITIONS OF APPROVAL

State of New Mexico
Energy, Minerals and Natural Resources Department

DISTRICT I
1625 N. FRENCH DR., HOBBS, NM 88240

DISTRICT II
1301 W. GRAND AVENUE, ARTESIA, NM 88210

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

DISTRICT IV
1220 S. ST. FRANCIS DR., SANTA FE, NM 87505

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OIL CONSERVATION DIVISION
1220 SOUTH ST. FRANCIS DR.
Santa Fe, New Mexico 87505

Form C-102
Revised October 12, 2005
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number	Pool Code	Pool Name
30-025-39510	50350	Penrose Skelly Grayburg

Property Code	Property Name	Well Number
24433	HAWK B-3	33

OGRID No.	Operator Name	Elevation
873	APACHE CORPORATION	3466'

Surface Location

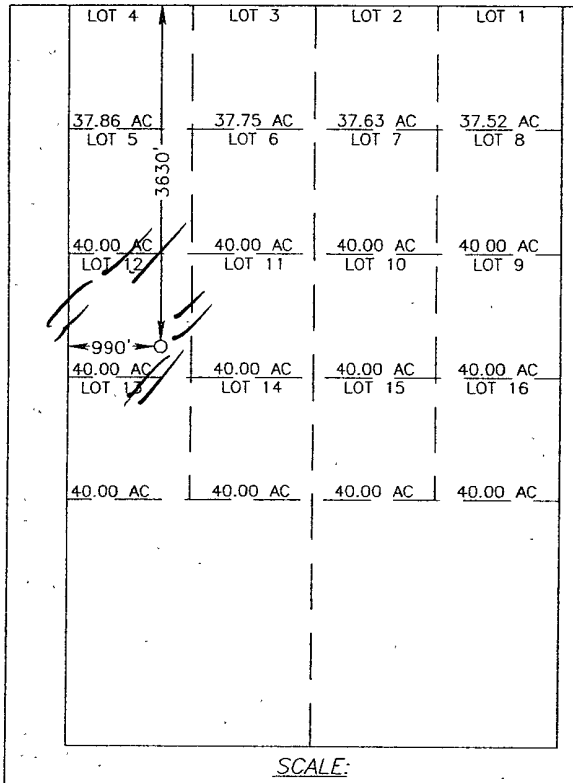
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
12	3	21-S	37-E		3630	NORTH	990	WEST	LEA

Bottom Hole Location If Different From Surface

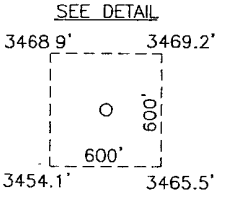
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
40			

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



SCALE:
1"=2000'



GEODETIC COORDINATES
NAD 27 NME

Y=552039.7 N
X=863002.4 E

LAT.=32.512155° N
LONG.=103.155781° W

LAT.=32°30'43.76" N
LONG.=103°09'20.81" W

OPERATOR CERTIFICATION

I hereby certify that the information 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 or has a right to drill this well at this location pursuant to a contract with an owner of such mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature 7-14-09 Date

Carl Jones
Printed Name

SURVEYOR CERTIFICATION

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

RONALD J. EIDSON
NEW MEXICO
3239
REGISTERED PROFESSIONAL SURVEYOR

Date Surveyed JUNE 02, 2009 AR

Signature & Seal of Professional Surveyor

Ronald J. Eidson 06/02/09

09.11.0490

Certificate No. GARY EIDSON 12641
RONALD J. EIDSON 3239

SURFACE USE AGREEMENT

TO WHOM IT MAY CONCERN:

This Surface Use Agreement, made and entered into by McCasland Ranches (Robert McCasland Owner) and Apache Corporation for the purpose of producing oil and gas on surface Owned or leased by McCasland Ranches concerning the following well.

Hawk B-3 # 33
3630' FNL & 990' FWL
Section 3-T21S-R37
Lea County New Mexico

This Surface Use Agreement will cover damages as a result of the construction and operation of each drill site location on oil and gas leases owned or operated by Apache Corporation which lie on surface property owned or leased by McCasland Ranches lying in Lea County, New Mexico. This agreement will cover present and future damages that have not been settled and mutually agreed upon by the two parties. The damages to be paid, present and future, to McCasland Ranches are as follows:

Construction of:	Electric Lines	
	along roadway	$10/rod
	across pasture	$15/rod
	Flow Lines	
	along roadway	$ 5/rod
	across pasture	$10/rod
	Roadways	$25/rod
	Locations	$6500/ Location
	Battery Site	$.05/sq. ft.

in addition, Apache Corporation agrees to:

Pay a road use fee of $500.00 (Five Hundred Dollars) per year per well, the first year payable immediately upon signing this agreement and each January 1 thereafter.

Buy all caliche used in the construction of drilling locations on the McCasland Ranches from McCasland Ranches, provided the caliche is located within 5 miles of the well location at a cost of $5.00 per cubic yard.

The above listed wells will be drilled with a closed loop drilling system and the drill cuttings and drilling fluids will be hauled off location to a New Mexico Oil and Gas Division approved disposal site.

Upon plugging and abandonment of a well, all caliche will be removed from pad and roadway, ground broke and tilled, and re-seeded with BLM seed mixture for that particular type of soil.

All roads built by Apache Corporation will also be reclaimed. All caliche will be removed from roadway, ground broke and tilled, and re-seeded with BLM seed mixture for that particular type of soil.

In the event Apache Corporation is the last producer using a road on the McCasland Ranch, Apache will be responsible for reclaiming the surface (i.e., all caliche removed, ground broke and tilled, and re-seeded and tilled, and re-seeded with BLM seed mixture for that particular type of soil).

In the event that Apache Corporation wishes to reenter or rework a well which has been plugged and abandoned, the entry road and location, if still in place, will be treated as property of McCasland Ranch, and access on road and location will be paid and treated as damages.

In the event a right-of-way is needed to gain access to acreage owned, leased, or operated by Apache Corporation, right-of-way will first be obtained from Robert McCasland or his designated agent.

This agreement shall be binding to Apache Corporation and Robert McCasland, their heirs, successors and assigns.

Executed and effective this 3rd day of July, 2009.

APACHE CORPORATION

Robert McCasland

Robert McCasland

Harold Swain

Harold Swain
Central Region Drilling Department

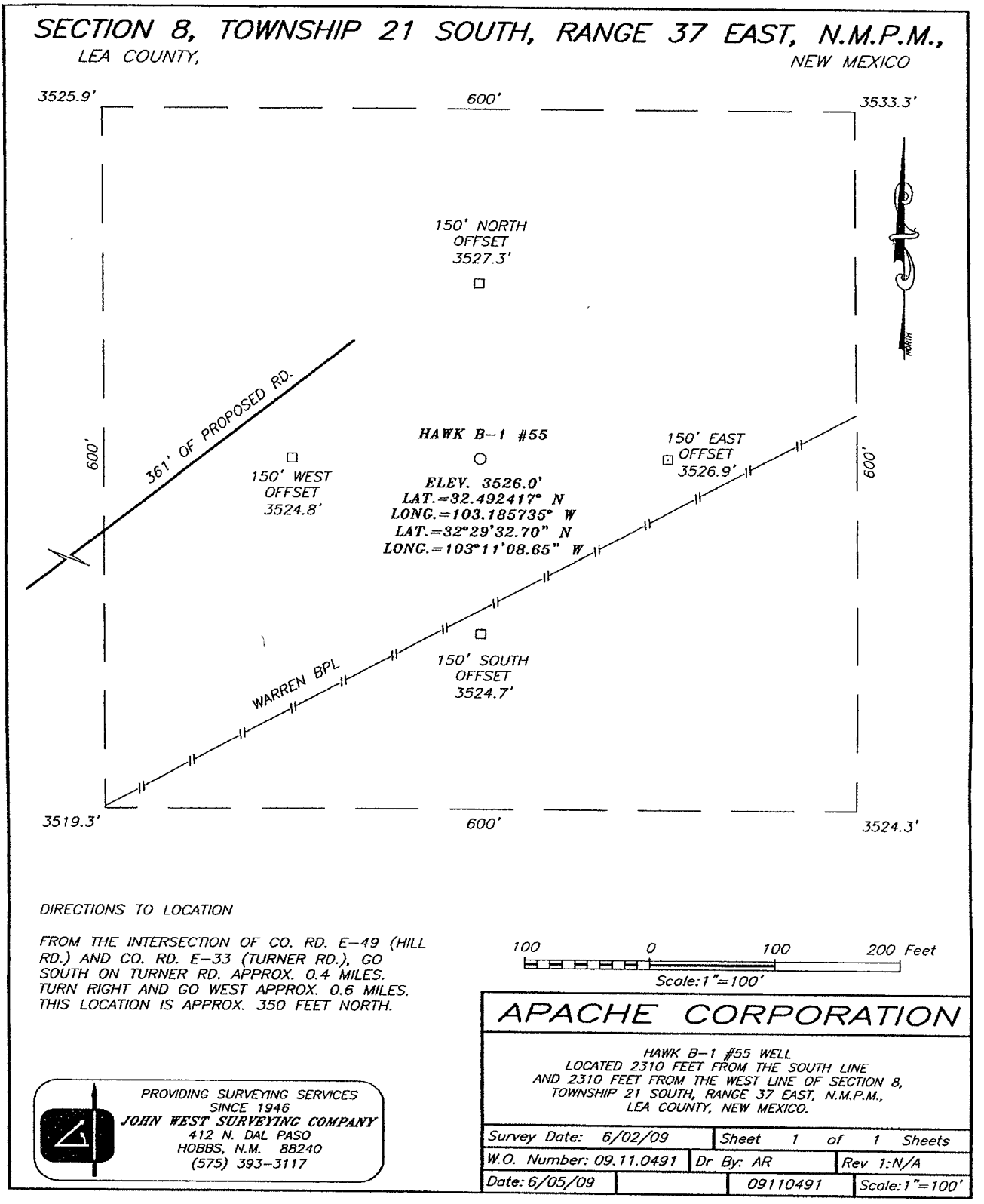
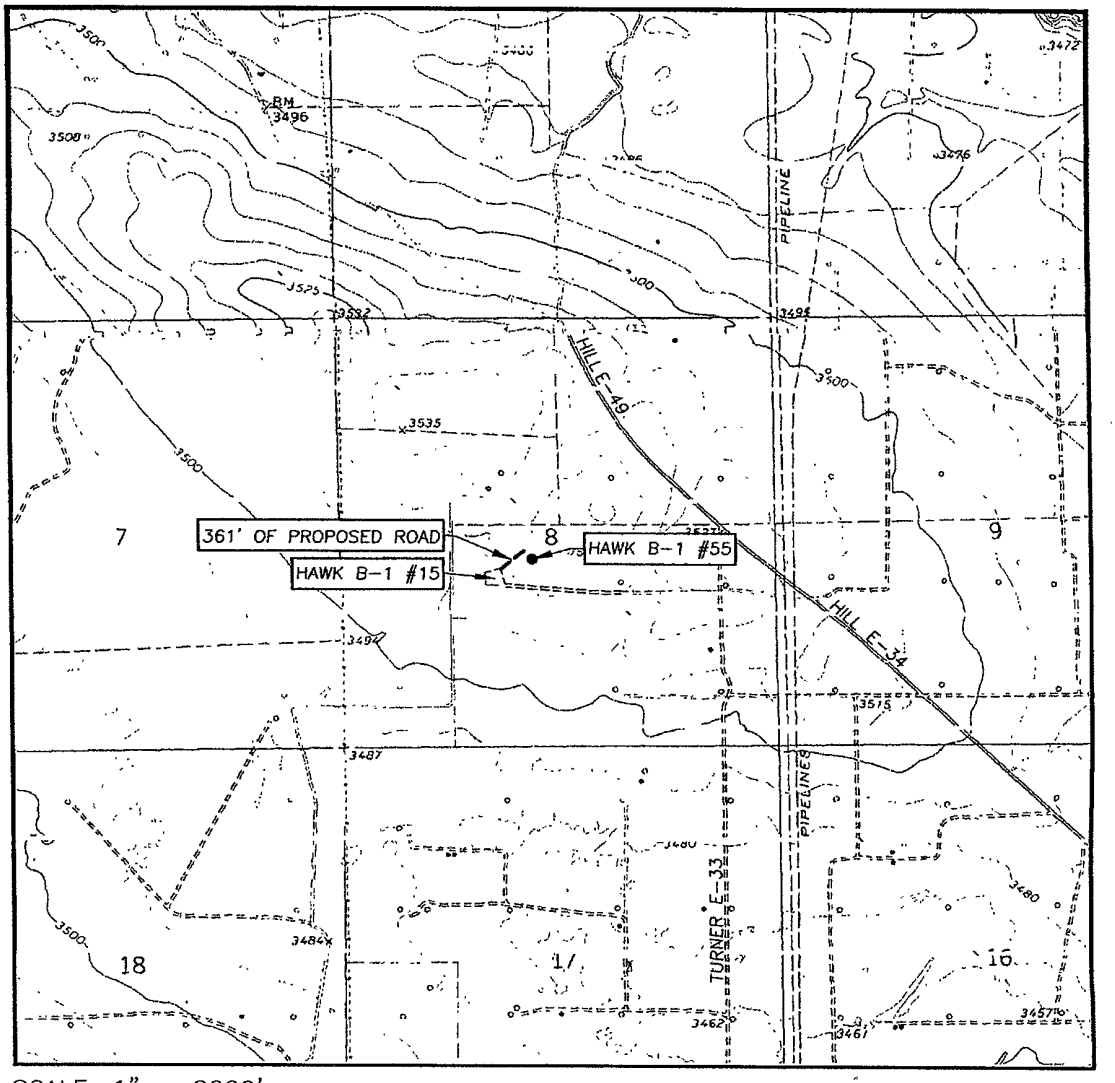

SECTION 8, TOWNSHIP 21 SOUTH, RANGE 37 EAST, N.M.P.M.,
LEA COUNTY,
NEW MEXICO
3525.9'
600'
3533.3'
150' NORTH
OFFSET
3527.3'
361' OF PROPOSED RD.
600'
HAWK B-1 #55
150' WEST
OFFSET
3524.8'
ELEV. 3526.0'
LAT.=32.492417° N
LONG.=103.185735° W
LAT.=32°29'32.70" N
LONG.=103°11'08.65" W
150' EAST
OFFSET
3526.9'
600'
WARREN BPL
150' SOUTH
OFFSET
3524.7'
3519.3'
600'
3524.3'
DIRECTIONS TO LOCATION
FROM THE INTERSECTION OF CO. RD. E-49 (HILL RD.) AND CO. RD. E-33 (TURNER RD.), GO SOUTH ON TURNER RD. APPROX. 0.4 MILES. TURN RIGHT AND GO WEST APPROX. 0.6 MILES. THIS LOCATION IS APPROX. 350 FEET NORTH.
100 0 100 200 Feet
Scale:1"=100'
APACHE CORPORATION
HAWK B-1 #55 WELL
LOCATED 2310 FEET FROM THE SOUTH LINE
AND 2310 FEET FROM THE WEST LINE OF SECTION 8,
TOWNSHIP 21 SOUTH, RANGE 37 EAST, N.M.P.M.,
LEA COUNTY, NEW MEXICO.
Survey Date: 6/02/09
Sheet 1 of 1 Sheets
W.O. Number: 09.11.0491
Dr By: AR
Rev 1:N/A
Date: 6/05/09
09110491
Scale:1"=100'
PROVIDING SURVEYING SERVICES
SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

EXHIBIT 'A'

LOCATION VERIFICATION MAP



SCALE: 1" = 2000'

CONTOUR INTERVAL:
EUNICE, N.M. – 10'

SEC. 8 TWP. 21-S RGE. 37-E

SURVEY N.M.P.M.

COUNTY LEA STATE NEW MEXICO

DESCRIPTION 2310' FSL & 2310' FWL

ELEVATION 3526'

OPERATOR APACHE CORPORATION

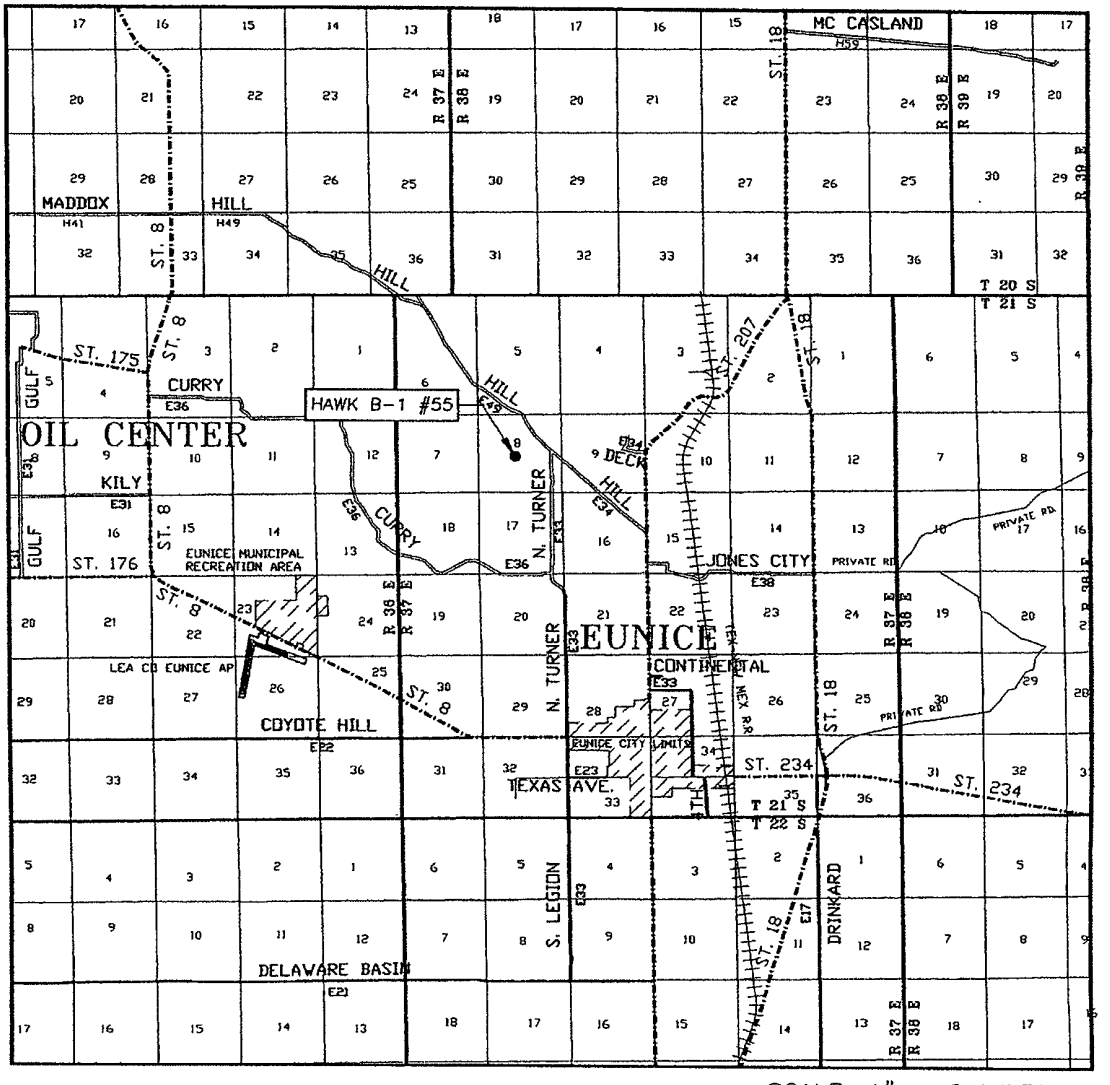
LEASE HAWK B-1

U.S.G.S. TOPOGRAPHIC MAP
EUNICE, N.M.

PROVIDING SURVEYING SERVICES
SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

EXHIBIT 'B'

VICINITY MAP



SCALE: 1" = 2 MILES

SEC. 8 TWP. 21-S RGE. 37-E

SURVEY N.M.P.M.

COUNTY LEA STATE NEW MEXICO

DESCRIPTION 2310' FSL & 2310' FWL

ELEVATION 3526'

OPERATOR APACHE CORPORATION

LEASE HAWK B-1

PROVIDING SURVEYING SERVICES
SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

EXHIBIT 'C'

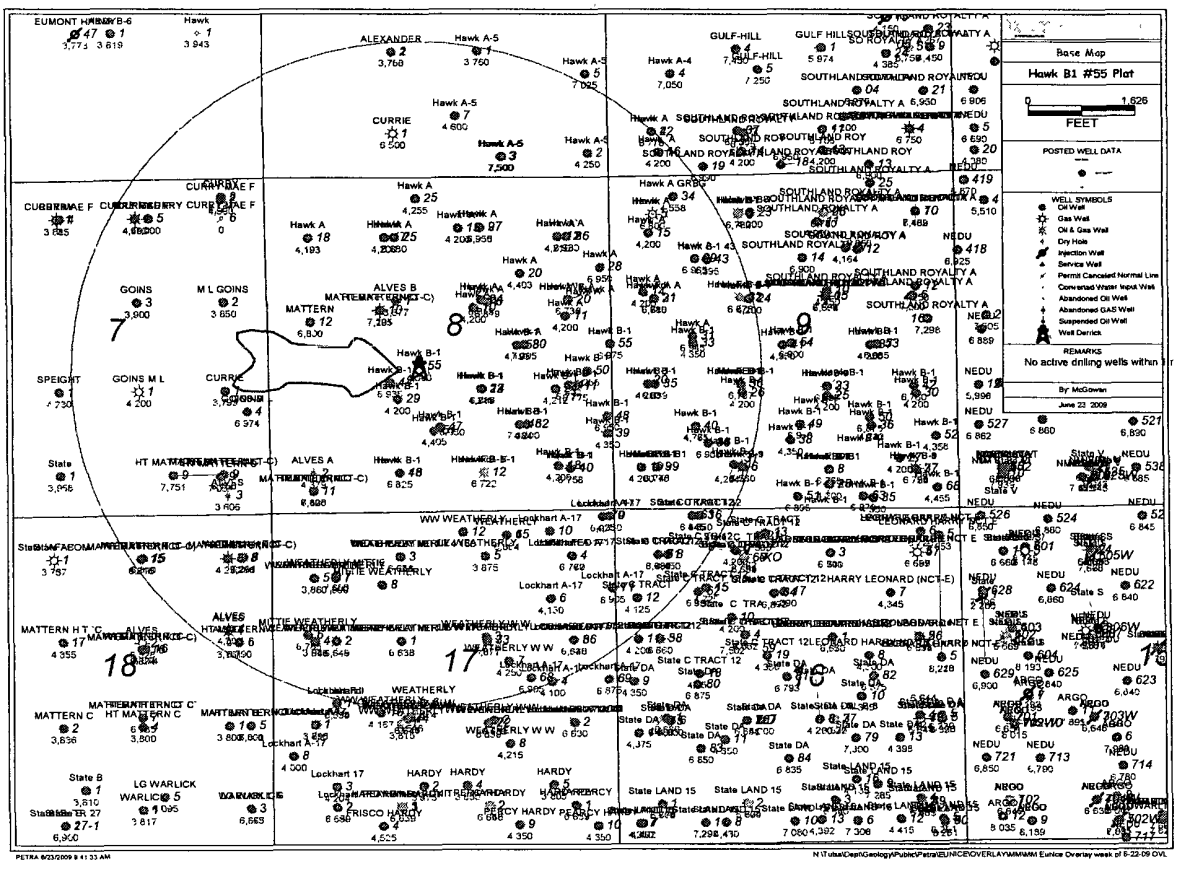
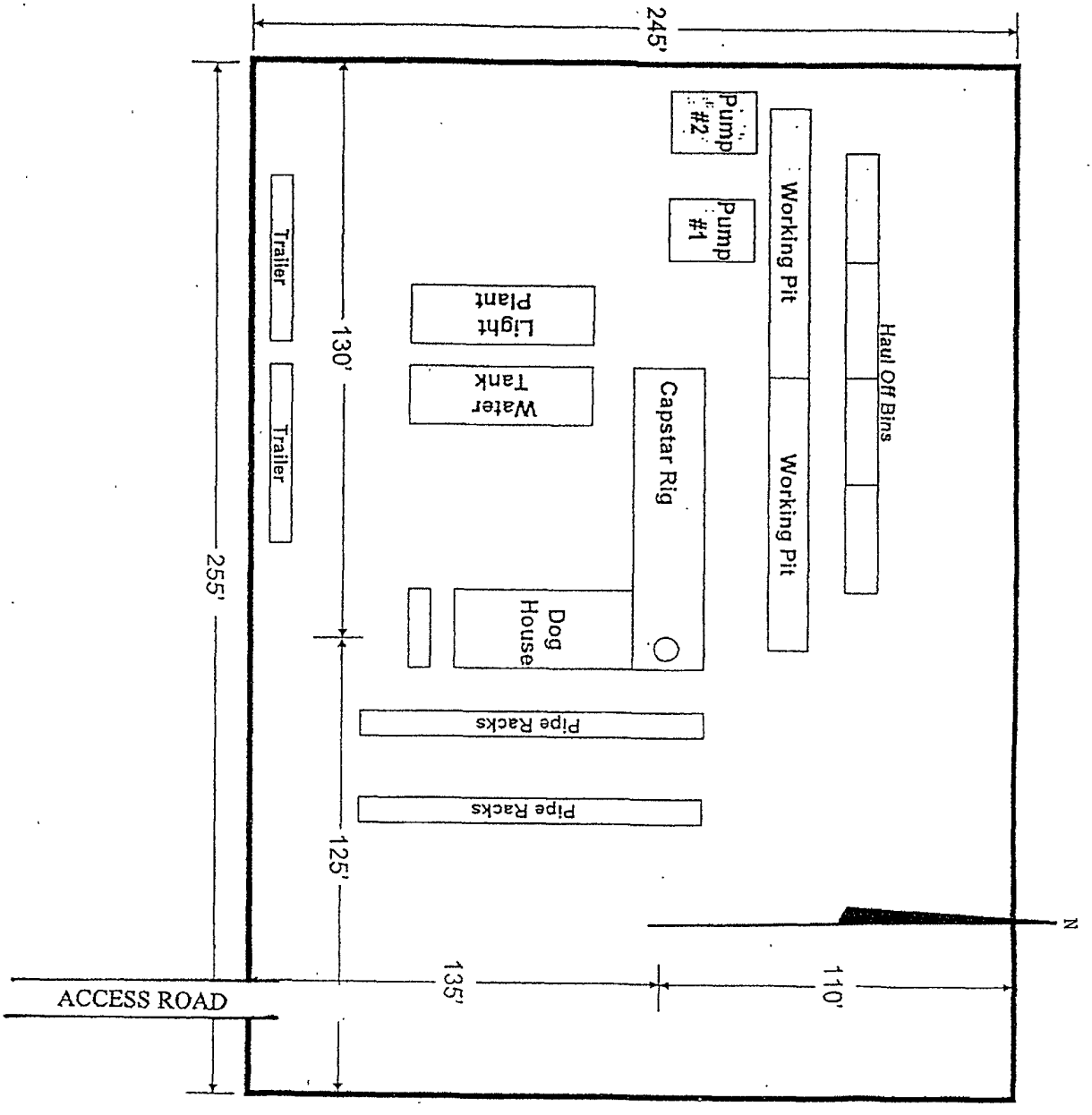

Base Map
Hawk B1 #55 Plat
0
1,626
FEET
POSTED WELL DATA
WELL SYMBOLS
Oil Well
Gas Well
Oil & Gas Well
Dry Hole
Injection Well
Service Well
Permit Canceled Normal Line
Converted Water Input Well
Abandoned Oil Well
Abandoned GAS Well
Suspended Oil Well
Well Derrick
REMARKS
No active drilling wells within 1
By McGowen
June 23 2009
ALEXANDER
CURRIE
GULF-HILL
GULF HILL SOUTHLAND ROYALTY A
SOUTHLAND ROYALTY A
Hawk A
Hawk A-5
Hawk A GRBG
Hawk B-1
GOINS
M L GOINS
MATTERN
ALVES B
SPEIGHT
GOINS M L
CURRIE
ALVES A
HT MATTERN (NCT-C)
WW WEATHERLY
MITTIE WEATHERLY
Lockhart A-17
HARRY LEONARD (NCT-E)
ALVES
MATTERN H T JC
MATTERN C
HT MATTERN C
WEATHERLY
Lockhart 17
HARDY
State B
LG WARLICK
WARLICK
State C TRACT 12
State DA
State LAND 15
NEDU
ARGO
7
8
9
17
18

EXHIBIT 'D'



RIG LAY OUT PLAT

APACHE CORPORATION

EXHIBIT 'E'

HAWK B-1 #55
DRILLING PLAN

Surface Location

2310' FSL, 2310' FWL
SW 1/4 of Section 8, Township 21 South, Range 37 East, UL K, N.M.P.M.
Lea County, New Mexico

DRILLING PROGRAM

1. **The geological surface formation** is recent Permian with quaternary alluvium and other superficial deposits.

2. **Estimated Tops of Geological Markers:**

FORMATION	DEPTH
Quaternary alluvials	Surface
Rustler	1317'
Yates	2713'
Seven Rivers	2928'
Queen	3467'
Grayburg	3744'
San Andres	4032'
TD	4500'

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

SUBSTANCE	DEPTH
Oil	Grayburg A @ 3744'
	Grayburg B @ 3873'
	Grayburg C @ 3971'
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.

3. **Proposed Casing Program:**

HOLE SIZE	CASING SIZE OD / ID	GRADE	WEIGHT PER FOOT	DEPTH LENGTH	SACKS CEMENT	ESTIMATED TOC - REMARKS
				See COA		
12 ¼"	8 5/8" 8.097"	J55 STC	24#	~~1,300~~ 1375'	700	TOC – Surface Float collar at 1257 8.9 ppg Water-based Mud; 89 ° F Est. Static Temp; 83 ° F Est. Circ. Temp.
		Safety Factors	Clps.- 2.22 Brst - 4.9 Ten.J- 7.82			
7 7/8"	5 ½" 4.892"	J-55 LTC	17#	4,500'	750	Included with above. TOC-Surface Float collar @ 4,457 Brine mud 10.1 ppg 123° F est Static Temp 104° F est Circ Temp
		Safety Factors	Clps.- 1.85 Brst.- 2.25 Ten.J- 3.23			

All casing will be new and API approved.

4. **Proposed Cement Program:**

CASING	LEAD SLURRY	TAIL SLURRY	DISPLACEMENT
8 5/8"	500 sacks 35:65 Poz C Cmt + 3% bwoc CaCl + 0.25 lbs/sack Cello Flake + 6% bwoc Bentonite Gel Slurry Weight 12.7 ppg Slurry yield 1.88 cf/sack Mix Water 10.7 gps 846 cuft or 150.7 bbls Estimated Pumping Time – 70 BC (HH:MM) 5:00	200 sacks Class C Cement + 2% bwoc Calcium Chloride + 0.125 lbs/sack Cello Flake Slurry Weight (ppg) 14.8 Slurry Yield (cf/sack) 1.35 Mix Water (gps)6.35 270 cuft or 48.1 bbls Estimated Pumping Time – 70 BC (HH:MM)-3:15	79.9 bbls Fresh Water @ 8.33 ppg

8 5/8" Casing: Volume Calculations:

1,300 ft	x	0.4127 cf/ft	with	100% excess	=	1037.8 cf
43 ft	x	0.3576 cf/ft	with	0% excess	=	15.4cf (inside pipe)
		TOTAL SLURRY VOLUME			=	187.5 cf
					=	187.5 bbls
				Plan	=	198.8 bbls

Spacer 20.0 bbls Water @ 8.33 ppg

CASING	LEAD SLURRY	TAIL SLURRY	DISPLACEMENT
5 ½"	500 sacks (50:50) Poz: Class C Cement + 5% bwow Sodium Chloride + 0.125 lbs/sack Cello Flake + 0.003 gps FL-6L + 10% bwoc	275 sacks (50:50) Poz :Class C Cement + 5% bwow Sodium Chloride + 0.003 gps FL-6L	103.4 bbls 2% Kcl Water @ 8.43 ppg

Bentonite	
Slurry Weight (ppg) 11.8	Slurry Weight (ppg) 14.2
Slurry Yield (cf/sack) 2.54	Slurry Yield (cf/sack) 1.35
Mix Water (gps) 14.72;	Mix Water (gps) 6.34;
1,270 cuft or 226.2 bbls	371 cuft or 66.1 bbls
Estimated Pumping Time – 70 BC (HH:MM)-4:00;	Estimated Pumping Time – 70 BC (HH:MM)-3:00

5 ½" Casing: Volume Calculations:

1,300 ft	x	0.1926 cf/ft	with	0% excess	=	250.3 cf
2,100 ft	x	0.1733 cf/ft	with	120% excess	=	800.6 cf
1,060 ft	x	0.1733 cf/ft	with	80% excess	=	330.7 cf
40 ft	x	0.1305 cf/ft	with	0% excess	=	5.2 cf(inside pipe)
	TOTAL SLURRY VOLUME				=	1,386.8 cf
					=	247 bbls
				Plan	=	292.3 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.

5. **Proposed Pressure Control Equipment:**

See COA

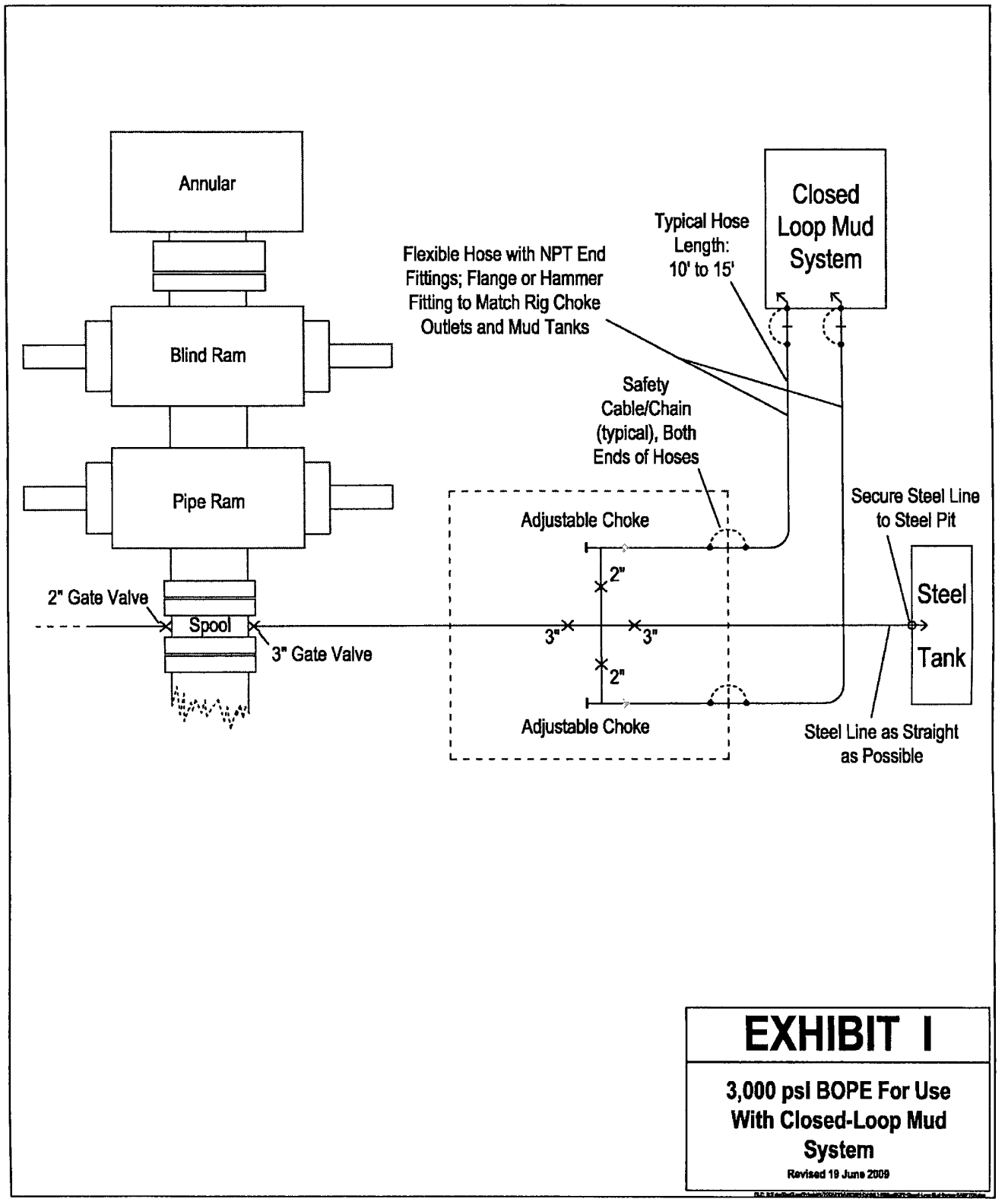
Will install on the 8 5/8" surface casing a 9" x 3000 psi WP Double Ram BOP with Annular, and will test using a 3rd party tester before drilling out of surface casing. **As maximum anticipated surface pressures do not exceed 2,000 psi, we will test the BOPE as a 2,000 psi system.** Bottom hole pressure calculations are included below. See Exhibit I, 3,000 psi BOPE attached.

Bottom Hole Pressure Calculations

The maximum anticipated bottom hole pressure is calculated y multiplying the depth of the well by 0.44. The maximum anticipated surface pressure is calculated assuming a partially evacuated hole with a pressure gradient of 0.22 psi/ft..

For the Hawk B-1 #55 the maximum anticipated bottom hole pressure is 4,500' x 0.44 psi/ft. = 1,980 psi.

The maximum anticipated surface pressure for the Hawk B-1 #55 assuming a partially evacuated hole is 4,500' x 0.22 psi/ft = 990 psi.


Annular
Blind Ram
Pipe Ram
2" Gate Valve
Spool
3" Gate Valve
Flexible Hose with NPT End Fittings; Flange or Hammer Fitting to Match Rig Choke Outlets and Mud Tanks
Typical Hose Length: 10' to 15'
Closed Loop Mud System
Safety Cable/Chain (typical), Both Ends of Hoses
Adjustable Choke
2"
3"
3"
2"
Adjustable Choke
Secure Steel Line to Steel Pit
Steel Tank
Steel Line as Straight as Possible
EXHIBIT I
3,000 psi BOPE For Use With Closed-Loop Mud System
Revised 19 June 2009

6. **Proposed Mud Program** See COA

DEPTH 1375'	MUD PROPERTIES	REMARKS
0 – 1,300'	Weight: 8.6 – 9.2 ppg Viscosity: 34 – 36 sec/qt pH: NC Filtrate: NC	Spud with a Conventional New Gel/Lime "Spud mud". Use NewGel 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. At TD of interval, mix in pre-mix pit, 100 barrels of system fluid, NewGel viscosity of 60 sec/100cc, add 0.25 ppb of Super Sweep.
1375' – 4,000'	Weight: 9.0 – 10.4 ppg Viscosity: 32 – 34 sec/qt pH: NC 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. Mix one gallon of New-55 at flowline every 250 feet drilled to promote solids settling. Sweep hole with 3-ppb of Super Sweep every 500 feet.
4,000' – TD	Weight: 10.0 – 10.4 ppg Viscosity: 34 – 36 sec/qt pH: 9-10 Filtrate: 15-20 cm/30 min	From 3,900' to Total Depth, it is recommended the system be restricted to the working pits. Adjust and maintain pH with Caustic Soda. Treat system with Newcide to prevent bacterial degradation of organic materials. Mix Starch (yellow) to control API filtrate at <15cc-20cc.

7. **Auxiliary Well Control and Monitoring Equipment:**

a. 41/2" x 3000 psi Kelly valve
b. H_2S detection equipment will be rigged up and functional and breathing apparatus will be on location before drilling out of 8 5/8" surface casing.

8. **Evaluation Program:**

Open Hole Logging: ← See COA

The following logs may be run:

CNL, Litho Density, GR, CAL, Dual Laterolog/MSFL, Sonic from TD-1400'
CNL, GR from TD-Surface

Mudlogging Program:

There are no plans to utilize a mud logging service on this well.

9. **Potential Hazards:**

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 1,980 psi., estimated BHT is 123°F. No H_2S is anticipated. See Public Protection Plan for Hydrogen Sulfide (H_2S) attached.

10. **Anticipated Starting Date:**

Road and location construction will begin after the BLM has approved the APD, the NMOCD has issued a drilling permit, and Apache Corporation management determines the well to be economically advantageous to drill. Drilling will begin when a rig becomes available following completion of the location construction and access roads.

Representative and Emergency Contacts

Senior Representative (Manager, Engineering & Production):
Ross Murphy
Apache Corporation
6120 South Yale Avenue
Suite 1500
Tulsa, Oklahoma 74136
(918) 491-4834

Project (Operations Engineer):
Jay Vashler
Apache Corporation
6120 South Yale Avenue
Suite 1500
Tulsa, Oklahoma 74136
(918) 491-4970

Drilling Operations (Operations Engineer):
Curt Jones
Apache Corporation
6120 South Yale Avenue
Suite 1500
Tulsa, Oklahoma 74136
(918) 491-4828

HYDROGEN SULFIDE DRILLING OPERATIONS PLAN
APACHE CORP. – PERMIAN BASIN **revised 4/9/2009**

This Hydrogen Sulfide Drilling Operations Plan shall be implemented prior to drilling out from under casing (surface or intermediate) set above potential H_2S bearing formations.

I. Hydrogen Sulfide Training

All personnel, whether regularly assigned, contracted, or employed on an unscheduled basis, will receive training from a qualified instructor in the following areas prior to commencing drilling operations on this well:

1. The hazards and characteristics of hydrogen sulfide (H_2S).
2. The proper use and maintenance of personal protective equipment and life support systems.
3. The proper use of H_2S detectors, alarms, warning systems, briefing areas, evacuation procedures, and prevailing winds.
4. The proper techniques for first aid and rescue procedures.

In addition, supervisory personnel will be trained in the following areas:

1. The effects of H_2S on metal components. If high tensile tubulars are to be used, personnel will be trained in their special maintenance requirements.
2. Corrective action and shut-in procedures when drilling or reworking a well and blowout prevention and well control procedures.
3. The contents and requirements of the H_2S Drilling Operations Plan and the Public Protection Plan.

All personnel entering a location posted with the potential of Hydrogen Sulfide shall be required to carry documentation that they have received the proper training. (Training certificate typically valid for 1 year after training)

II. Site Specific Information:

Upon installation of H2S Safety Equipment and Systems on a well, and prior to drilling out of casing above potential Hydrogen Sulfide bearing formations a briefing with all personnel on location shall be held. The briefing should include a review of H_2S Drilling Operations Plan and the Public Protection Plan. This briefing should include site specific elements such as;

- Identification of the briefing areas.
- Discussion of rig orientation and prevailing wind direction.

- Identification of access roads, including secondary egress.
- Confirmation that all personnel have current training.
- Formation tops of potential H2S bearing formations.

The H_2S Drilling Operations Plan and the Public Protection Plan shall be available at the well site.

III. H_2S Safety Equipment and Systems

1. Well Control Equipment that will be installed prior to drilling out of casing above potential Hydrogen Sulfide bearing formations:
   A. Choke manifold with a minimum of one adjustable choke.
   B At least one choke line must be directed away from the drilling unit and secured at the end. (For closed-loop operations this should be directed to containment bin at the back edge of the location.)
   C Blind rams and pipe rams to accommodate all pipe sizes
   D Annular preventor
   E Properly sized closing unit.

1.1 Well control equipment to be available to install as needed should H2S be encountered;
   .A Flare line with electronic igniter or continuous pilot.
   B Mud gas separator
   C Flare gun with flares.
   D One portable S02 monitor positioned near flare line.

2. Protective equipment for essential personnel:
   A. 30-minute air pack units located in the dog house and at briefing areas.

3. H_2S detection and monitoring equipment:
   A. Two portable H_2S monitors positioned on location for best coverage and response. These units have warning lights and audible sirens when H_2S levels of 20 ppm are reached.

4. Visual warning systems:
   A. Wind direction indicators.
   B. Caution/Danger signs shall be posted on roads providing direct access to location. Signs will be painted a high visibility yellow with black lettering of sufficient size to be readable at a reasonable distance from the immediate location. Bilingual signs will be used when appropriate.

5. Mud program:
   A. The mud program shall be designed to minimize the volume of H_2S circulated to the surface. Proper mud weight, safe drilling practices, and the use of H_2S scavengers will minimize hazards when penetrating H_2S-bearing zones.
   B. A mud-gas separator and an H_2S gas buster will be utilized as required if H2S is encountered.

6. Metallurgy:
   A. All drill strings, casings, tubing, wellhead, blowout preventers, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H_2S service.
   B. All elastomers used for packing and seals shall be H_2S trim.

7. Communication:
   A. Communications shall be available on the rig site and in company vehicles. Communications equipment may include one or more of the following; land lines, satellite phones, cellular telephone and 2-way radios.

PUBLIC PROTECTION PLAN FOR HYDROGEN SULFIDE (H_2S)
Assumed 100 ppm Radius of Exposure (ROE) = 3000'

100 ppm H_2S concentration shall trigger activation of this plan.

Emergency Procedures
In the event of a release of gas containing 100 ppm H_2S, the first responder(s) must;

- Isolate the area and prevent entry by other persons into the 100 ppm ROE.
- Evacuate any public places encompassed by the 100 ppm ROE.
- Be equipped with H_2S monitors and air packs in order to safely conduct efforts to control the release.
- Use the "buddy system" to ensure no injuries during the response operations.
- Take precautions to avoid personal injury during the operation.
- Contact operator and/or local officials to aid in operations. See list of phone numbers attached.
- Have received training in the
    a. Detection of H_2S
    b. Measures for protection against H_2S gas
    c. Equipment used for protection and emergency response to H_2S gas

Ignition of Gas Source
Should control of the well be considered lost and ignition considered, take care to protect against exposure to Sulfer Dioxide (SO_2). Intentional ignition must be coorditnated with the NMOCD and local officials. Additionally the New Mexico State Police may be involved. The New Mexico State Police shall be the Incident Command on scene of any major release. Take care to protect downwind whenever there is an ignition of gas.

Characteristics of H_2S and SO_2

Common Name	Chemical Formula	Specific Gravity	Threshold Limit	Hazardous Limit	Lethal Concentration
Hydrogen Sulfide	H_2S	1.189 Air = 1.0	10 ppm	100 ppm/hr	600 ppm
Sulfur Dioxide	SO_2	2.21 Air = 1.0	2 ppm	N/A	1000 ppm

Contacting Authorities
Apache Corporation's personnel must liaison with local and state agencies to ensure proper response to a major release. Additionally, the OCD must be notified of the release as soon as possible but no later than 4 hours after the release. Agencies will ask for information such as type and volume of release, wind direction, location of release, etc. Be prepared will all information available including directions to site. The following call list of essential and potential responders has been prepared for use during a release. Apache Corporation' response must be in coordination with the State of New Mexico's "Hazerdous Materials Emergency Response Plan" (HMER).

(Note: Apache Corporation's Central Region Well Control Emergency Response Team should have already been notified. See Central Region Well Control Emergency Response Plan with drilling prognosis)

PUBLIC PROTECTION PLAN FOR H_2S - EMERGENCY CONTACTS

LOCATION	ENTITIY	PHONE NUMBER
	Ambulance	911
Eunice, NM	Apache Corp	(575) 394-1503
Eunice, NM	Apache Corp	(575) 394-2743
Eunice, NM	Sheriff's Office	(575) 394-2020
Hobbs, NM	State Police	(575) 392-5588
Eunice, NM	Fire Department	(575) 394-3258
Hobbs, NM	Fire Department	(575) 397-9308
Hobbs, NM	Local Emergency Mgmt. Safety	(575) 397-9231
Hobbs, NM	NM Oil Conservation Division	(575) 393-6161
Carlsbad, NM	Bureau of Land Management	(575) 887-6544
Santa Fe, NM	NM Emergency Response Commission	(505) 476-9600 24 hr, (505) 827-9126
Washington, DC	Nat'l Emergency Response Center	(800) 424-8802
Other Services		
Well Control	GSM Engineering	(806) 358-6894
Snubbing	Cudd Pressure Control	(915) 699-0139
Pumping	BJ Services	(575) 392-5556

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	APACHE CORPORATION
LEASE NO.:	NM2512
WELL NAME & NO.:	HAWK B-3 #33
SURFACE HOLE FOOTAGE:	3630' FNL & 990' FWL
BOTTOM HOLE FOOTAGE	SAME
LOCATION:	Section 3, T. 21 S., R 37 E., NMPM
COUNTY:	LEA 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.

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 (575) 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 (575) 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.

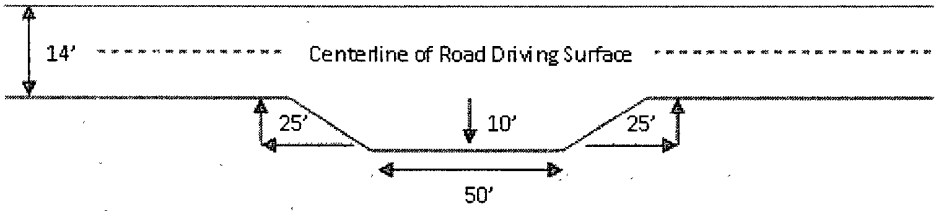
The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing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

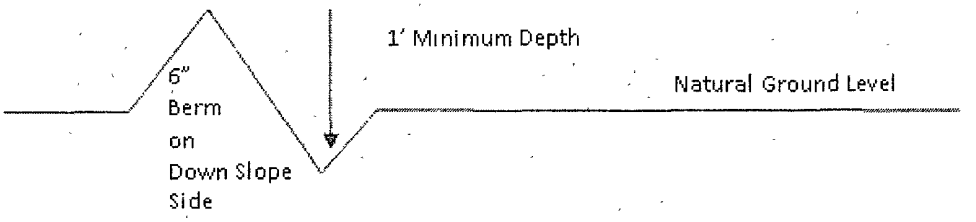
Standard Turnout – Plan View



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 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 foot road with 4% road slope: 400'/4% + 100' = 200' 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.

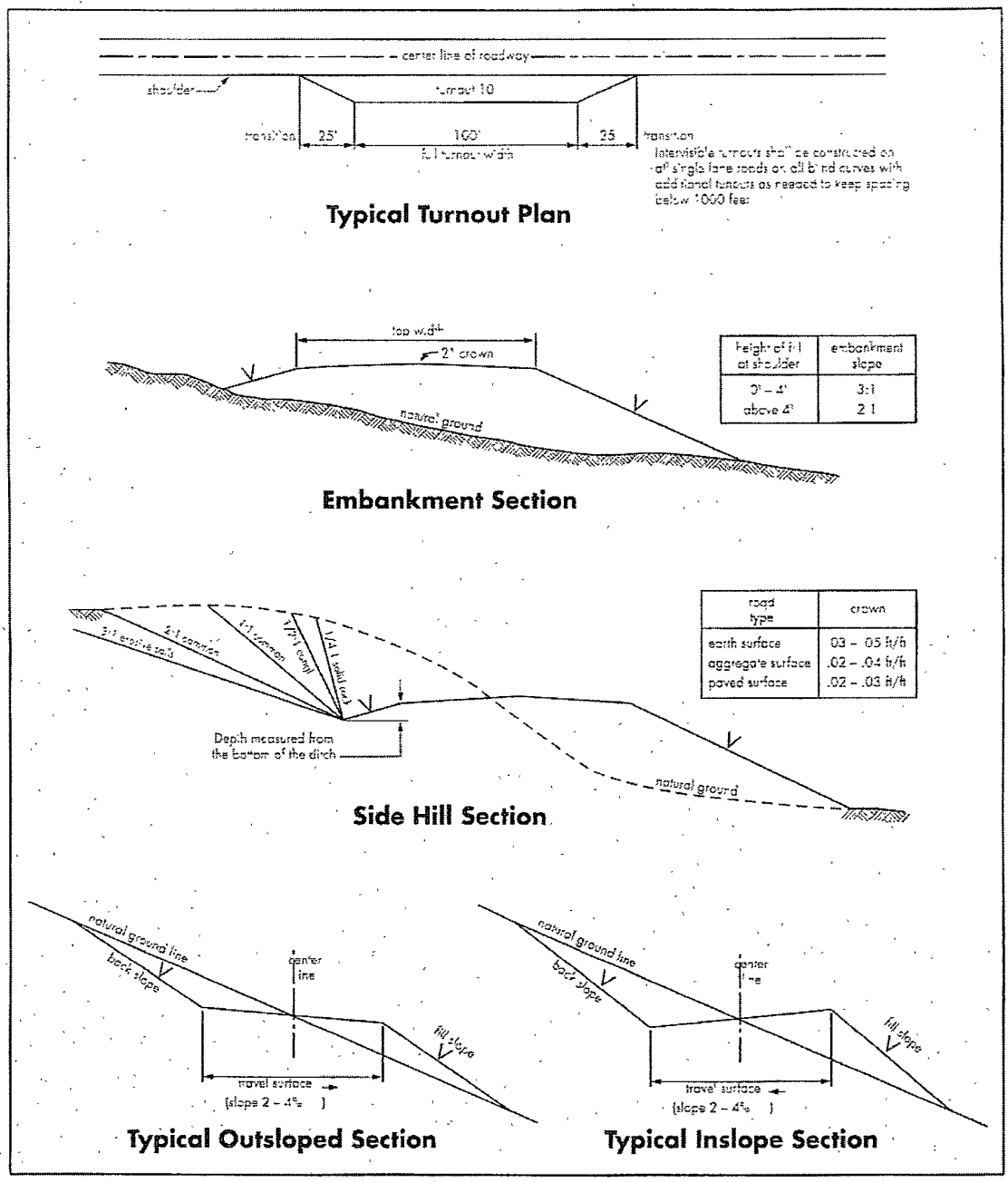
Fence Requirement

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. **Hydrogen Sulfide has been reported as a hazard in formations deeper than the proposed depth. 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. 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. **The record of the drilling rate along with the CAL/GR/N well log run from TD to surface will be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.**

B. CASING

Changes to the approved APD casing and cement program require submitting a sundry and receiving approval prior to work. Failure to obtain approval prior to work will result in an Incident of Non-Compliance being issued.

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

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 for all casing strings. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. See individual casing strings for details regarding lead cement slurry requirements.

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

Possible lost circulation in the San Andres formation.

1. The **8-5/8** inch surface casing shall be **set at approximately 1375 feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt)** and cemented to the surface. **Freshwater based mud to be used to setting depth.**

    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 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 is to include the lead cement slurry.

    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. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **2000 (2M)** psi. **Operator is installing a 3M system and testing as a 2M.**

3. 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.

RGH 081309

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

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 1, for Loamy 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 regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (small/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:

Species	lb/acre
Plains lovegrass (Eragrostis intermedia)	0.5
Sand dropseed (Sporobolus cryptandrus)	1.0
Sideoats grama (Bouteloua curtipendula)	5.0

*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.