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JUL 26 2010

Form 3160-3  
(April 2004)

HOBBSOCD

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

1a. Type of work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. NMLC 0 032096B	
1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <input type="checkbox"/> Single Zone <input checked="" type="checkbox"/> Multiple Zone		6. If Indian, Allottee or Tribe Name N/A	
2. Name of Operator Apache Corporation		7. If Unit or CA Agreement, Name and No. EBDU NM 112723X	
3a. Address 6120 S. Yale, Ste 1500, Tulsa, OK 74136		8. Lease Name and Well No EBDU #103	
3b. Phone No. (include area code) 918-491-4900		9. API Well No. 30-025-39843	
4. Location of Well (Report location clearly and in accordance with any State requirements *) At surface 330' FSL 240' FWL SEC 13 T21S R37E UL M At proposed prod zone Same		10. Field and Pool, or Exploratory North Eunice, LTD	
11. Sec, T R M. or Blk and Survey or Area SEC 13 T21S R37E UL M		12. County or Parish Lea	
13. State NM		14. Distance in miles and direction from nearest town or post office* Approx. 3.0 mi NE of Eunice, NM	
15. Distance from proposed* location to nearest property or lease line, ft (Also to nearest drig unit line, if any) 240'	16. No. of acres in lease 1920	17. Spacing Unit dedicated to this well 20 acres	
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft 725' +/-	19. Proposed Depth 7200'	20. BLM/BIA Bond No on file CO-1463 Nation Wide	
21. Elevations (Show whether DF, KDB, RT, GL, etc) 3415' GL	22. Approximate date work will start* 08/09/2010	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   | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).    |
| 2. A Drilling Plan.   | 5. Operator certification  |
| 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). | 6. Such other site specific information and/or plans as may be required by the authorized officer. |

25. Signature <i>Samuel Shoun</i>	Name (Printed/Typed) SAMUEL SHOUN	Date 4/26/2010
Title Drilling Engineer		

Approved by (Signature) <i>Geannette A. Martinez</i>	Name (Printed/Typed)	Date
Title Sr 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 USC Section 1001 and Title 43 USC 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)

PETROLEUM ENGINEER

Approval Subject to General Requirements  
& Special Stipulations Attached

Capitan Controlled Water Basin

JUL 28 2010

SEE ATTACHED FOR  
CONDITIONS OF APPROVAL

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State of New Mexico

DISTRICT I

1625 N. FRENCH DR., HOBBS, NM 88240

Energy, Minerals and Natural Resources Department

JUL 26 2010

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DISTRICT II

1301 W. GRAND AVENUE, ARTESIA, NM 88210

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

DISTRICT III

1000 Rio Brazos Rd., Aztec, NM 87410

DISTRICT IV

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

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number <b>30-025-39843</b>	Pool Code <b>22900</b>	Pool Name <b>Eunice Blinebry-Tebb-Drinkard, North</b>
Property Code <b>35023</b>	Property Name <b>EAST BLINEBRY DRINKARD UNIT</b>	
OGRID No. <b>873</b>	Operator Name <b>APACHE CORPORATION</b>	Well Number <b>103</b>
		Elevation <b>3415'</b>

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	13	21-S	37-E		330	SOUTH	240	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 <b>40</b>	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

<p>GEODETIC COORDINATES NAD 27 NME</p> <p>Y=537719.2 N X=872979.8 E</p> <p>LAT.=32.472491° N LONG.=103.123947° W</p> <p>LAT.=32°28'20.97" N LONG.=103°07'26.21" W</p> <p>DETAIL</p> <p>SEE DETAIL</p>	<p>OPERATOR CERTIFICATION</p> <p>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.</p> <p><i>Samuel Shoun</i> 4/26/2010 Signature Date</p> <p>SAMUEL SHOUN Printed Name</p>
	<p>SURVEYOR CERTIFICATION</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>GARY G EIDSON FEBRUARY 15, 2010</p> <p>Date Surveyed</p> <p>Signature &amp; Seal of Professional Surveyor</p> <p><i>Gary G Eidson</i> 2/25/10 10.11.0225</p>
	<p>Certificate No. GARY EIDSON 12841 RONALD J. EIDSON 3239</p>

**East Blinebry Drinkard Unit 103**  
**DRILLING PLAN**

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JUL 26 2010

**HOBBSOCD**

**Surface Location**

330' FSL, 240' FWL

SW 1/4 of Section 13, Township 21 South, Range 37 East, UL 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:**

<u>FORMATION</u>	<u>DEPTH</u>
Quaternary alluvials	Surface
Rustler	1342'
Yates	2641'
Seven Rivers	2878'
Queen	3453'
Grayburg	3741'
San Andres	4004'
Glorieta	5214'
Blinebry	5657'
Tubb	6115'
Drinkard	6445'
ABO	6720'
TD	7200'

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 @ 5657' Tubb @ 6115' Drinkard @ 6720'
Gas	Seven Rivers @ 2878'
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:**

<u>HOLE SIZE</u>	<u>CASING SIZE OD / ID</u>	<u>GRADE</u>	<u>WEIGHT PER FOOT</u>	<u>DEPTH LENGTH</u>	<u>SACKS CEMENT</u>	<u>ESTIMATED TOC - REMARKS</u>
12 1/4"	8 5/8" 8.097"	J55 STC	24#	1,410'	690	TOC – Surface Float collar at 1,367 8.9 ppg Water-based Mud; 89 ° F Est. Static Temp; 83 ° F Est. Circ. Temp.
		Safety Factors	Clps.- 2.10 Brst - 4.52 Ten.J- 7.21			
7 7/8"	5 1/2" 4.892"	J-55 LTC	17#	1000-7,200'	1235	Included with above.
		L-80	17#	1000		TOC-Surface Float collar @ 7,157 Brine mud 10.1 ppg 111° F est Static Temp 100° F est Circ Temp
		<b>17 #J-55</b>				
		LTC	Clps.-1.30			
		Safety	Brst.-1.41			
		Factors	Ten.J-2.34			
		<b>17 #L-80*</b>				
		LTC	Clps.- 11.98			
		Safety	Brst.- 3.12			
		Factors	Ten.J- 2.76			

All casing will be new and API approved. \* L-80 Run on top for possible completion pressures.

4. **Proposed Cement Program:**

<u>CASING</u>	<u>LEAD SLURRY</u>	<u>TAIL SLURRY</u>	<u>DISPLACEMENT</u>
8 5/8"	490 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 <u>Estimated Pumping Time – 70 BC (HH:MM) 5:00</u>	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 <u>Estimated Pumping Time – 70 BC (HH:MM)-3:15</u>	98 bbls Fresh Water @ 8.33 ppg

8 5/8" Casing: Volume Calculations:

1,410 ft	x	0.4127 cf/ft	with 100% excess =	1163.8 cf
43 ft	x	0.3576 cf/ft	with 0% excess =	15.4cf (inside pipe)
TOTAL SLURRY VOLUME =				1179.2 cf
				= 210.0 bbls
Plan =				220.0 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"	925 sacks (35:65) Poz: Class	310 sacks (50:50) Poz :Class C	167 bbls 2% Kcl

C Cement + 5% bwow	Cement + 5% bwow Sodium	Water @ 8.43 ppg
Sodium Chloride + 0.13	Chloride + 0.13 lb/sk Cello	
lbs/sack Cello Flake + 3 lbs/sk	Flake +3 lbs/sk LCM-1 + 2%	
LCM-1 + 6% bwoc Bentonite	bwoc Bentonite + 0.2%bwoc	
+ 0.5% bwoc BA-10A + 0.5%	Sodium Metasilicate + 0.45%	
bwoc FL-52A	bwoc FL-52A	
Slurry Weight (ppg) 12.8	Slurry Weight (ppg) 14.2	
Slurry Yield (cf/sack) 1.90	Slurry Yield (cf/sack) 1.30	
Mix Water (gps) 9.83;	Mix Water (gps) 5.59;	
1,710 cuft or 304.5 bbls	390 cuft or 69.5 bbls	
<u>Estimated Pumping Time</u>	<u>Estimated Pumping Time –</u>	
70 BC (HH:MM) 4:34	70 BC (HH:MM)-3:41	

<u>5 1/2" Casing: Volume Calculations:</u>				
1,410 ft	x	0.1926 cf/ft	with 0% excess	= 271.6 cf
4,290 ft	x	0.1733 cf/ft	with 100% excess	= 1486.9 cf
1,500 ft	x	0.1733 cf/ft	with 40% excess	= 363.9 cf
43 ft	x	0.1305 cf/ft	with 0% excess	= 5.6 cf(inside pipe)
TOTAL SLURRY VOLUME				= 2074 cf
				= 369.4 bbls
				Plan = 380 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:**

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 3<sup>rd</sup> 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.

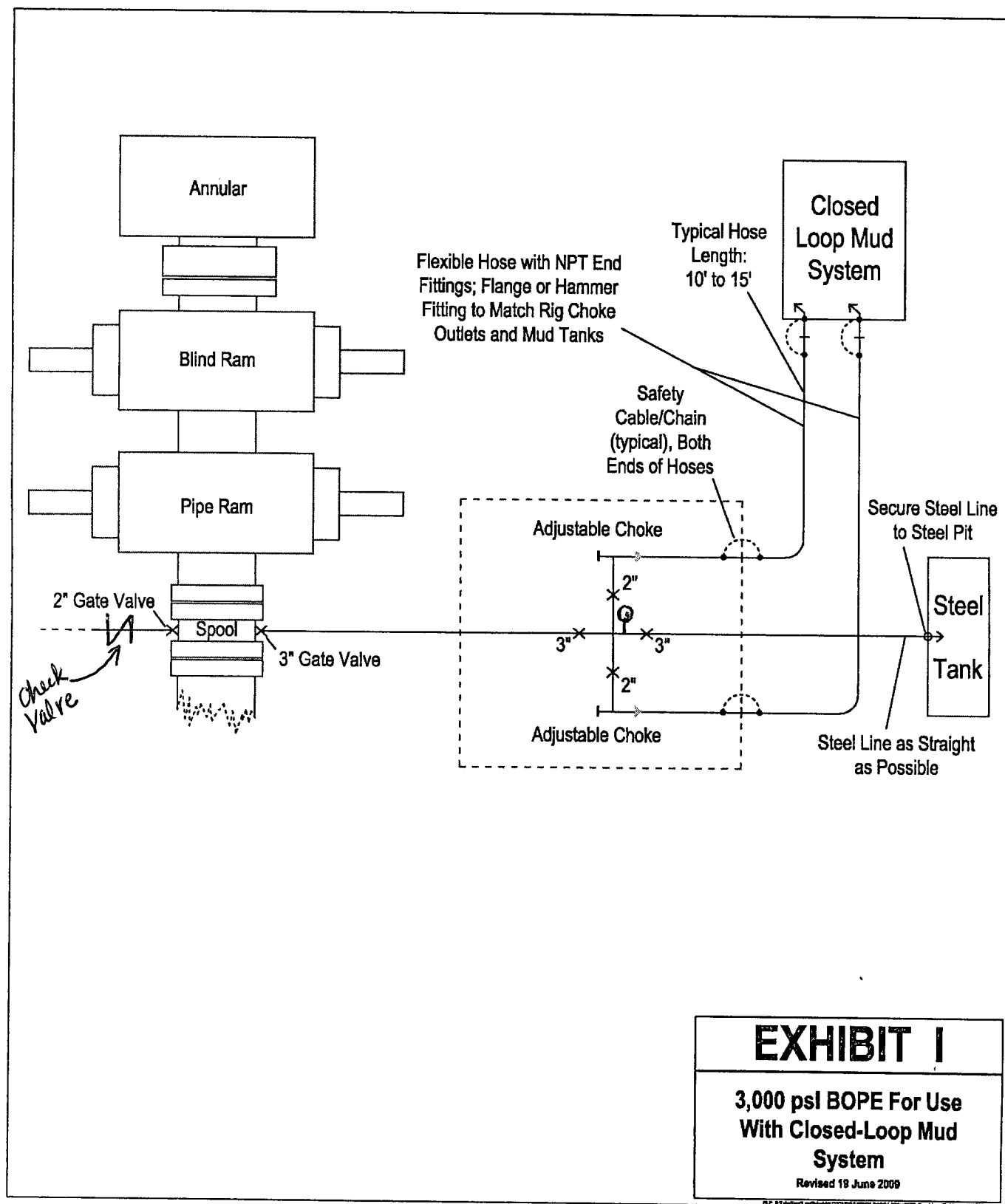
**Bottom Hole Pressure Calculations**

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

For the EBDU #103 the maximum anticipated bottom hole pressure is  $7200 \times 0.44 \text{ psi/ft} = \underline{3168 \text{ psi}}$ .

The maximum anticipated surface pressure for the EBDU #103 assuming a partially evacuated hole is  $7,200' \times 0.22 \text{ psi/ft} = \underline{1584 \text{ psi}}$ .

# Exhibit I



6. **Proposed Mud Program**

<u>DEPTH</u>	<u>MUD PROPERTIES</u>	<u>REMARKS</u>
0 – 1,410'	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.
1,410' – 7,000'	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.
7,000' – TD	Weight: 10.0 – 10.4 ppg Viscosity: 34 – 36 sec/qt  pH: 9-10 Filtrate: 15-20 cm/30 min	From 7,000' 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. 4 1/2" x 3000 psi Kelly valve
- b. H<sub>2</sub>S 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-1410'  
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 3,168 psi, estimated BHT is 111°F.

See COA — No H<sub>2</sub>S is anticipated. See Public Protection Plan for Hydrogen Sulfide (H<sub>2</sub>S) 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

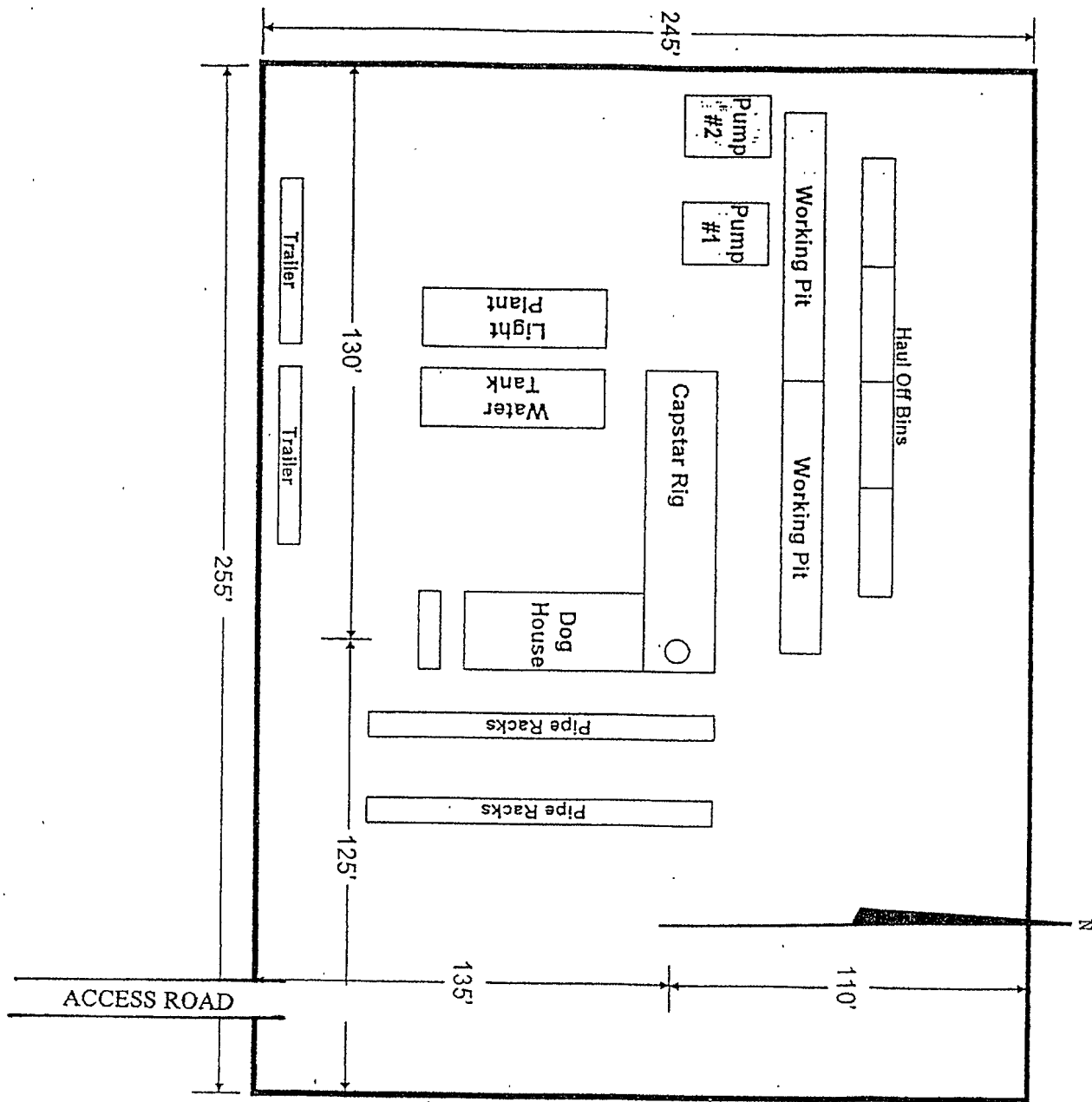
Project (Operations Engineer):

Darrin Steed  
Apache Corporation  
6120 South Yale Avenue  
Suite 1500  
Tulsa, Oklahoma 74136  
(918) 491-4842

Drilling Operations (Operations Engineer):

Samuel Shoun  
Apache Corporation  
6120 South Yale Avenue  
Suite 1500  
Tulsa, Oklahoma 74136  
(918) 491-4865





RIG LAY OUT PLAT  
APACHE CORPORATION

EXHIBIT 'E'