

A75-10-544

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OCD-HOBBS

JUL 16 2010

Form 3160-3
(April 2004)

HOBBSOCD

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Split Estate

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. NMNM 017252
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
3a. Address 6120 S. Yale Ste 1500, Tulsa, OK 74136	3b. Phone No. (include area code) 918-491-4900	8. Lease Name and Well No USA-Howse #2 <38243>
4. Location of Well (Report location clearly and in accordance with any State requirements *) At surface 1650' FSL 990' FEL Sec 12 T20S R38E UL I At proposed prod zone Same		9. API Well No. 3D-025-39839
14. Distance in miles and direction from nearest town or post office* 3.5 mi S of Hobbs, NM		10. Field and Pool, or Exploratory Norm - House Drinkard House Tabb House Binebry S.
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 779.42	11. Sec., T. R. M. or BLM and Survey or BLM Sec 12, T20S R38E UL I
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft 550' +/-	19. Proposed Depth 7300'	12. County or Parish Lea
21. Elevations (Show whether DF, KDB, RT, GL, etc) 3566' GL	22. Approximate date work will start* 10/23/2010	13. State NM
23. Estimated duration 8 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 	Name (Printed/Typed) SAMUEL SHOUN	Date MAY 6 2010
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Title
DRILLING ENGINEER

Approved by (Signature) /s/ Don Peterson	Name (Printed/Typed)	Date JUL 15 2010
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 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)

Lea County Controlled Water Basin

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

Approval Subject to General Requirements & Special Stipulations Attached

SEE ATTACHED FOR
CONDITIONS OF APPROVAL
KZ
PETROLEUM ENGINEER
JUL 21 2010

DISTRICT I
1625 N. FRENCH DR., HOBBBS, NM 87220

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

DISTRICT III
1000 RIO BRAZOS RD., AZTEC, NM 87410

DISTRICT IV
11885 S. ST. FRANCIS DR., SANTA FE, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION
11885 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
Pool Lease - 3 Copies

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number 30-025-39839	Pool Code 33225	Pool Name HOUSE 1 BUNEBRY, SOUTH
Property Code 38243	Property Name USA - HOWSE	Well Number 2
OGRID No. 873	Operator Name APACHE CORPORATION	Elevation 3566'

Surface Location

UT, or lot No.	Section	Township	Range	Lot Id.	Feet from the	North/South line	Feet from the	East/West line	County
1	12	20-S	38-E		1650	SOUTH	990	FAST	LEA

Bottom Hole Location If Different From Surface

UT, or lot No.	Section	Township	Range	Lot Id.	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

<p>GEODETIC COORDINATES NAD 27 NME SURFACE LOCATION</p> <p>Y=578680.3 N X=881033.2 E</p> <p>LAT = 32°58'08" N LONG = 103°09'29" W</p> <p>LAT = 32°35'05.31" N LONG = 103°05'46.67" W</p>	<p>3584.7'</p> <p>600'</p> <p>3567.8'</p> <p>990'</p> <p>3585.5'</p> <p>3565.6'</p> <p>659.1'</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>Sam Shoun</i> 7/19/2010 Signature Date</p> <p>SAM 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>JANUARY 5, 2010 Date Surveyed</p> <p><i>Ronald J. Bidson</i> Signature & Seal of Professional Surveyor</p> <p>Certificate No. GARY G. EIDSON 12641 RONALD J. BIDSON 3239</p>
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DISTRICT I
1625 N. FRENCH DR., HOUBBS, NM 87240

DISTRICT II
1301 W. GRAND AVENUE, ARTESIA, NM 87210

DISTRICT III
1000 RIO BRAZOS RD., AZTEC, NM 87410

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION
11885 SOUTH ST. FRANCIS DR.
Santa Fe, New Mexico 87505

Form C-102

Revised October 12, 2005
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Fee Lease - 3 Copies

DISTRICT IV
11885 S. ST. FRANCIS DR., SANTA FE, NM 87505

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number 30-025-39839	Pool Code 78760	Pool Name HOUSE TURB
Property Code 38243	Property Name USA - HOWSE	Well Number 2
GORID No. 873	Operator Name APACHE CORPORATION	Elevation 3566'

Surface Location

Utr. or lot No	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
1	12	20--S	38-E		1650	SOUTH	990	FAST	LEA

Bottom Hole Location If Different From Surface

Utr. 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

<p>GEODETIC COORDINATES NAD 27 NME SURFACE LOCATION</p> <p>Y=578680.3 N X=881033.2 E</p> <p>LAT.=32°58'40.8" N LONG.=103.096298" W</p> <p>LAT.=32°35'05.31" N LONG.=103°05'46.67" W</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>Sam Shoun</i> 7/19/2010 Signature Date</p> <p>SAM 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>JANUARY 5, 2010 Date Surveyed</p> <p><i>Ronald J. Bidson</i> Signature & Seal of Professional Surveyor</p> <p>Certificate No. GARY C. BIDSON 12611 RONALD J. BIDSON 3239</p>
---	--

DISTRICT I
1625 N. FRENCH DR., HOHUS, NM 87340

DISTRICT II
1501 W. GRAND AVENUE, ARTISTA, NM 87010

DISTRICT III
1000 RIO BRAZOS RD., AZTEC, NM 87410

DISTRICT IV
11885 S. ST. FRANCIS DR., SANTA FE, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION
11885 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

Pool Lease - 3 Copies

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number 30.025-39839		Pool Code 33250	Pool Name HOUSE: DRINKARD
Property Code 38243	Property Name USA - HOWSE		Well Number 2
COORD No 873	Operator Name APACHE CORPORATION		Elevation 3566'

Surface Location

UL or lot No 1	Section 12	Township 20-S	Range 38-E	Lot Idn	Feet from the 1650	North/South line SOUTH	Feet from the 990	East/West line EAST	County LEA
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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

<p>GEODETIC COORDINATES NAD 27 NMC SURFACE LOCATION</p> <p>Y=578680.3 N X=881033.2 E</p> <p>LAT = 32°58'48.8" N LONG = 103°09'29.8" W</p> <p>LAT = 32°35'05.31" N LONG = 103°05'46.67" W</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>Signature <u>Sam Shoun</u> Date <u>7/19/2010</u></p> <p>Printed Name <u>SAM SHOUN</u></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>Date Surveyed <u>JANUARY 5, 2010</u></p> <p>Signature & Seal of Professional Surveyor <u>Ronald J. Eidson</u></p> <p>Certificate No. <u>GARY C. EIDSON 12641</u> <u>RONALD J. BIDSON 3239</u></p>

USA-Howse #2
DRILLING PLAN

Surface Location
1650' FSL, 990' FEL
SE 1/4 of Section 12, Township 20 South, Range 38 East, UL I
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	1596'
Yates	2921'
Seven Rivers	3141'
Queen	3711'
San Andres	4321'
Glorieta	5626'
Blaine	6066'
Tubb	6891'
Drinkard	6891'
Abo	7116'
TD	7300'

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

<u>SUBSTANCE</u>	<u>DEPTH</u>
Oil	Blaine @ 6066' Tubb @ 6566' Drinkard @ 6891'
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:**

<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#	1,650'	740	TOC – Surface Float collar at 1,507 8.9 ppg Water-based Mud; 89 ° F Est. Static Temp; 83 ° F Est. Circ. Temp.
7 7/8"	5 1/2" 4.892"	J-55 LTC L-80 17 #J-55 LTC Safety Factors 17 #L-80* LTC Safety Factors	Clps.- 1.79 Brst – 3.86 Ten.J- 6.16 Clps.-1.28 Brst.-1.39 Ten.J-1.99 Clps.- 11.98 Brst.- 3.08 Ten.J- 2.40	1000-7,300' 1000	1235	Included with above. TOC-Surface Float collar @ 7,257 Brine mud 10.1 ppg 111° F est Static Temp 100° F est Circ Temp

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"	520 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 –</u> <u>70 BC (HH:MM) 5:00</u>	220 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 –</u> <u>70 BC (HH:MM)-3:15</u>	98 bbls Fresh Water @ 8.33 ppg

8 5/8" Casing: Volume Calculations:

1,650 ft	x	0.4127 cf/ft	with 100% excess =	1361.9 cf
43 ft	x	0.3576 cf/ft	with 0% excess =	15.4cf (inside pipe)
TOTAL SLURRY VOLUME =				1377.3 cf
				= 245.3 bbls
Plan =				250.0 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 C Cement + 5% bwow	310 sacks (50:50) Poz :Class C Cement + 5% bwow Sodium	167 bbls 2% Kcl 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>				
1,650 ft	x	0.1926 cf/ft	with 0% excess	= 317.8 cf
4,150 ft	x	0.1733 cf/ft	with 100% excess	= 1438.4 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				= 2125.7 cf
				= 378.6 bbls
Plan				= 385 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 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.

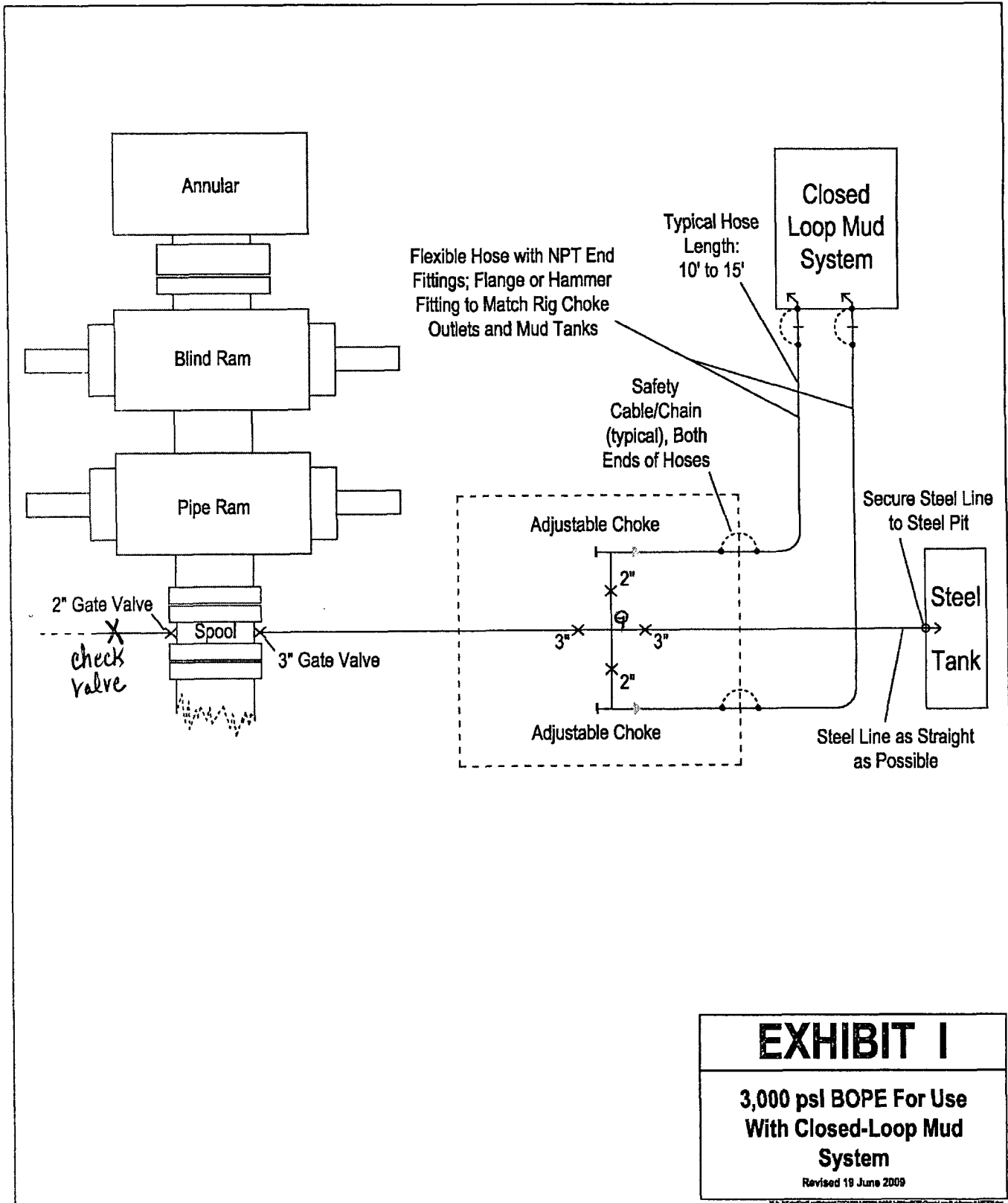
Bottom Hole Pressure Calculations

The maximum anticipated bottom hole pressure is calculated by 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 USA-Howse #2 the maximum anticipated bottom hole pressure is $7300 \times 0.44 \text{ psi/ft} = \underline{3212 \text{ psi}}$.

The maximum anticipated surface pressure for the USA-Howse #2 assuming a partially evacuated hole is $7,300' \times 0.22 \text{ psi/ft} = \underline{1606 \text{ psi}}$.

Exhibit I



6. **Proposed Mud Program**

<u>DEPTH</u>	<u>MUD PROPERTIES</u>	<u>REMARKS</u>
0 – 1,650'	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.
1,650' – 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:**

- 4 1/2" x 3000 psi Kelly valve
- H₂S 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:

The following logs may be run:

CNL, Litho Density, GR, CAL, Dual Laterolog/MSFL, Sonic from TD-1650'
CNL, GR from TD-Surface

Mudlogging Program:

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

See
CEN

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 3,212 psi, estimated BHT is 111°F. No H₂S is anticipated. See Public Protection Plan for Hydrogen Sulfide (H₂S) 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):

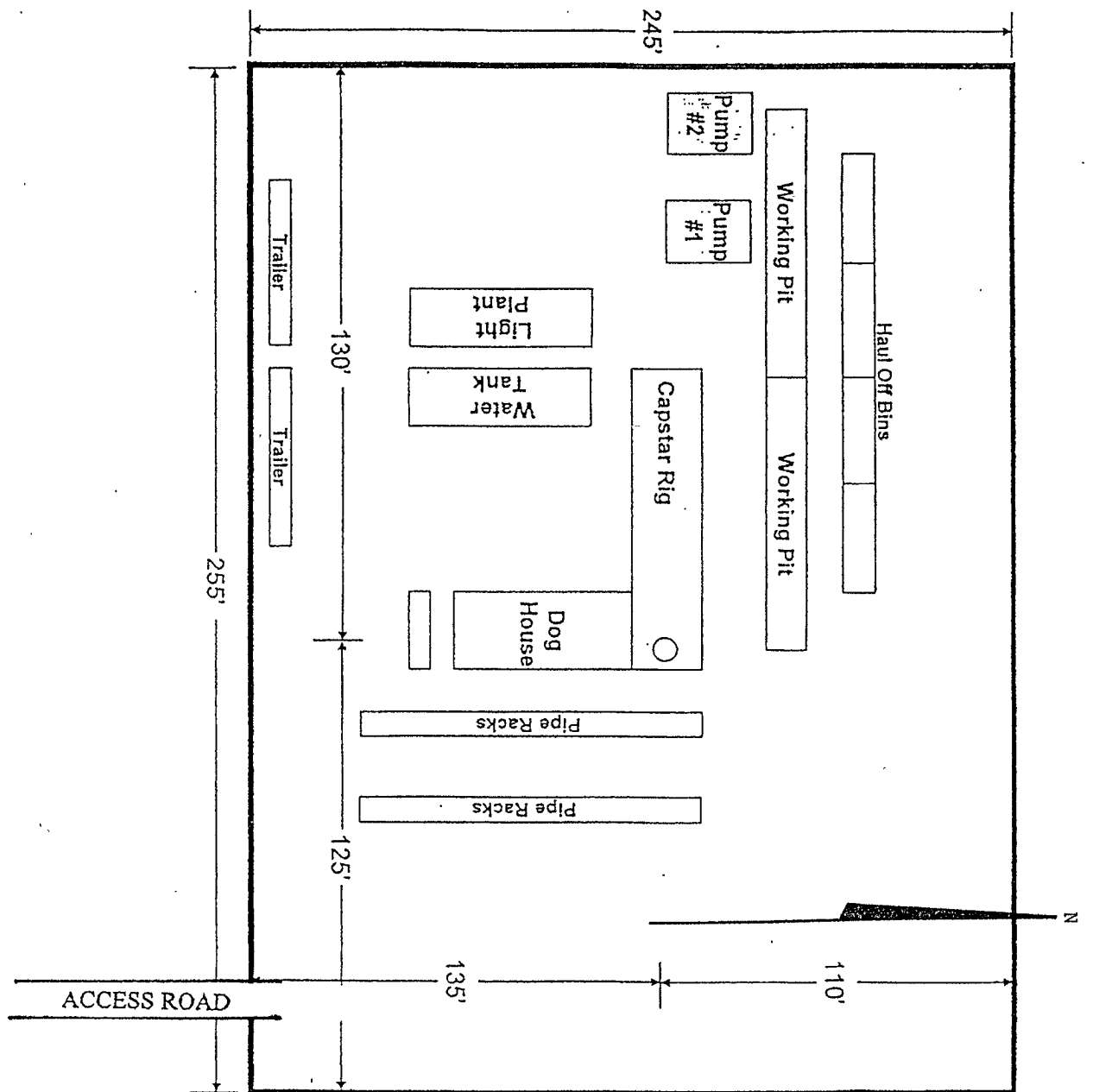
Ross Murphy
Apache Corporation
6120 South Yale Avenue
Suite 1500
Tulsa, Oklahoma 74136
(918) 491-4834

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'