District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

HOBBS OCD
JUL 29 2013

State of New Mexico
Energy Minerals and Natural Resources
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-101
Revised August 1, 2011

Permit

RECEIVED

APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE

[1] Operator Name and Address	[2] OGRID Number
XTO ENERGY, INC. 200 N. LORAINE, SUITE 800, MIDLAND TX. 79701	005380
	[3] API Number 30-025-41301

[4] Property Code	[5] Property Name	[6] Well No.
300649	ARROWHEAD GRAYBURG UNIT	#414

[7] Surface Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
O	12	22S	36E		1270	S	2250	E	LEA

[8] Pool Information

ARROWHEAD; GRAYBURG	3040

Additional Well Information

[9] Work Type	[10] Well Type	[11] Cable/Rotary	[12] Lease Type	[13] Ground Level Elevation
N	0	R	S	3470'
[14] Multiple	**[15] Proposed Depth**	**[16] Formation**	**[17] Contractor**	**[18] Spud Date**
No	3860'	GRAYBURG	PIONEER #33	ASAP

Depth to Ground water 160'	Distance from nearest fresh water well 2 miles	Distance to nearest surface water 5 miles

[19] Proposed Casing and Cement Program

Type	Hole Size	Casing Size	Casing Weight/ft	Setting Depth	Sacks of Cement	Estimated TOC
	12 1/4"	9 5/8"	36#	1200	565	Surface
	8 3/4"	7"	23#	3650	525	Surface
	6 1/8"	Open Hole				

Casing/Cement Program: Additional Comments

See attached Drilling Plan, H2S Plan & BOP

Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
11"Double Ram 2FZ35-35	5,000#	3,000#	CAMERON

I hereby certify that the information given above is true and complete to the best of my knowledge and belief.
I further certify that the drilling pit will be constructed according to NMOCD guidelines ☐, a general permit ☐, or an (attached) alternative OCD-approved plan ☐. Closed Loop.

Printed name: Barry W. Hunt

Title: Permit Agent

E-mail Address: specialtpermitting@gmail.com

Date: 07/26/13 Phone (575) 361-4078

OIL CONSERVATION DIVISION

Approved By:

Title: Petroleum Engineer

Approved Date: 07/31/13 Expiration Date: 07/31/15

Conditions of Approval Attached

AUG 01 2013

XTO Energy, Inc.
ARROWHEAD GRAYBURG UNIT #414
1270 FSL &2250 FEL
SECTION 12, T. 22 S., R. 36 E.

Drilling Procedure

1. **FORMATION TOPS:** Ground Elevation –3470'

Formation	Subsea Depth	Well Depth
Rustler		1190'
Salt		1250'
Yates		2660'
Seven Rivers		2900'
Queen		3360'
Penrose		3470'
Grayburg*		3670'
GB2*		3710'
GB2A*		3740'
GB4*		3810'
GB5*		3860'

* Hydrocarbons @ Brushy Canyon

2. **CASING PROGRAM: (ALL NEW CASING)**

Hole Size	Depth	OD Csg.	Weight	Collar	Grade	New/Used	SF Burst	SF Collapse	SF Tension
12-1/4"	0' – 1200'	9-5/8"	36#	STC	J-55	New	2.59	1.90	4.01
8-3/4"	0' – 3650'	7"	23#	LTC	J-55	New	1.73	1.36	1.79
6-1/8"	3650' –3860'	Open Hole							

3. **MUD PROGRAM:**

INTERVAL	Hole Size	Mud Type	MW (ppg)	Viscosity (sec/qt)	Fluid Loss (cc)
0' to 1200'	12-1/4"	FW/Native	8.5 – 8.8	35-40	NC
1200' to 3650'	8-3/4"	Brine/ Gel Sweeps	9.8 – 10.2	30-32	NC
3650' to 3860'	6-1/8""	FW/Polymer Sweeps	8.6-8.8	29-32	NC-20

Remarks: Spud with fresh water/native mud. Use fibrous materials as needed to control seepage and lost circulation. Pump viscous sweeps as needed for hole cleaning. Use available solids control equipment to help keep mud weight down after mud up. **Rig up Pioneer Drilling (dual shakers), CLS' (dual centrifuges), and CRI's solids control bins to operate as a closed loop system.**

4. **PRESSURE CONTROL**

The blow out preventer equipment (BOP) for this well consists of a 11" 5M double ram BOP with choke manifold. Formation BHP is estimated at 1694 psi. Due to the pressure rating of the tubing flange (3M), the BOP will only be tested to 3000 psi. The 5M BOP, with a 11" bore, will be installed on the 9-5/8" surface casing and utilized continuously until total depth is reached. Testing will begin when moved on well and rigged up. All casing strings will be tested as per Onshore Order #2.

Pipe rams will be operated and checked each 24 hour period and each time the drill pipe is out of the hole. These functional tests will be documented on the daily drillers log.

5. **CEMENT PROGRAM: Halliburton**

A. **Surface Casing:** 9 – 5/8", 36#, NEW L-55, STC casing to be set at ± 1200'.

565 sx Class C + 2% CACL2 + 0.25% R-38. (14.80 ppg, yield 1.35 cu/ft/sx, 6.34 gal/sx).
100% excess.

Cement to surface.

If cement does not circulate, notify the OCD and prepare to run a TS to determine TOC. A 1" top job may be required.

B. **Intermediate Casing**: 7", 23#, NEW J-55, LTC casing to be set at ± 3650'.

Lead: 335 sx Class C 35/65 + 6% Bentonite + 0.3% C-15# Star – Seal + 0.25% R-38 + 2% Salt (BWOW). (12.8 ppg, yield 1.85 cu.ft/sx, 9.77 gal/sx,). 50% excess. TOC Surface.

Tail: 190 sx Class C 50/50 + 2% Bentonite + 0.3% C-16A + 0.25% C-35 + 0.25% R-38 + 5% Salt (BWOW). (14.40 ppg, yield 1.25 cu.ft/sx, 5.57 gal/sx,) 50% excess. TOC 2600'.

6. LOGGING PROGRAM:

A. Mud Logger: Suttles Mud Logging Unit (2 man) on @ 2000'.
Catch 30' samples from 2000' to 3860' (TD). Send 1 set of dry samples to Midland Sample Library.

B. Open Hole logs – RLLD, LLS & MSFL TD to 1200'.
CNL/FDC/GR TD to surface.

7. DRILLING HAZARDS:

A. Water Flows/Lost Circulation: Seepage and/or lost circulation could be encountered. LCM pills may be needed to slug the hole periodically.

8. ABNORMAL PRESSURES & TEMPERATURES

None anticipated. Max bottom hole pressure should not exceed 1698psi. BHT of 175 F is anticipated. Lost circulation could occur but is not expected to be a serious problem in this area and hole seepage will be compensated for by additions of small amounts of LCM in the drilling fluid.

9. SPECIAL INSTRUCTIONS:

A. Reports should be filled out on the XTO Drilling Report form, and the Casing/Cementing Detail Forms provided.

B. Deviation:
Surface Hole: Maximum of 1° and not more than 1° change per 100'.
Intermediate Hole: Maximum of 4° and not more than 1.5° change per 100'.
Production hole: Maximum of 6° and not more than 1.5° change per 100'.
Note: Maximum distance between surveys is 500'.

C. WOC a minimum of 24 hours before drilling out shoe joint on surface and intermediate casing strings. Use minimal WOB and RPM until drill collars are below the shoe joints.

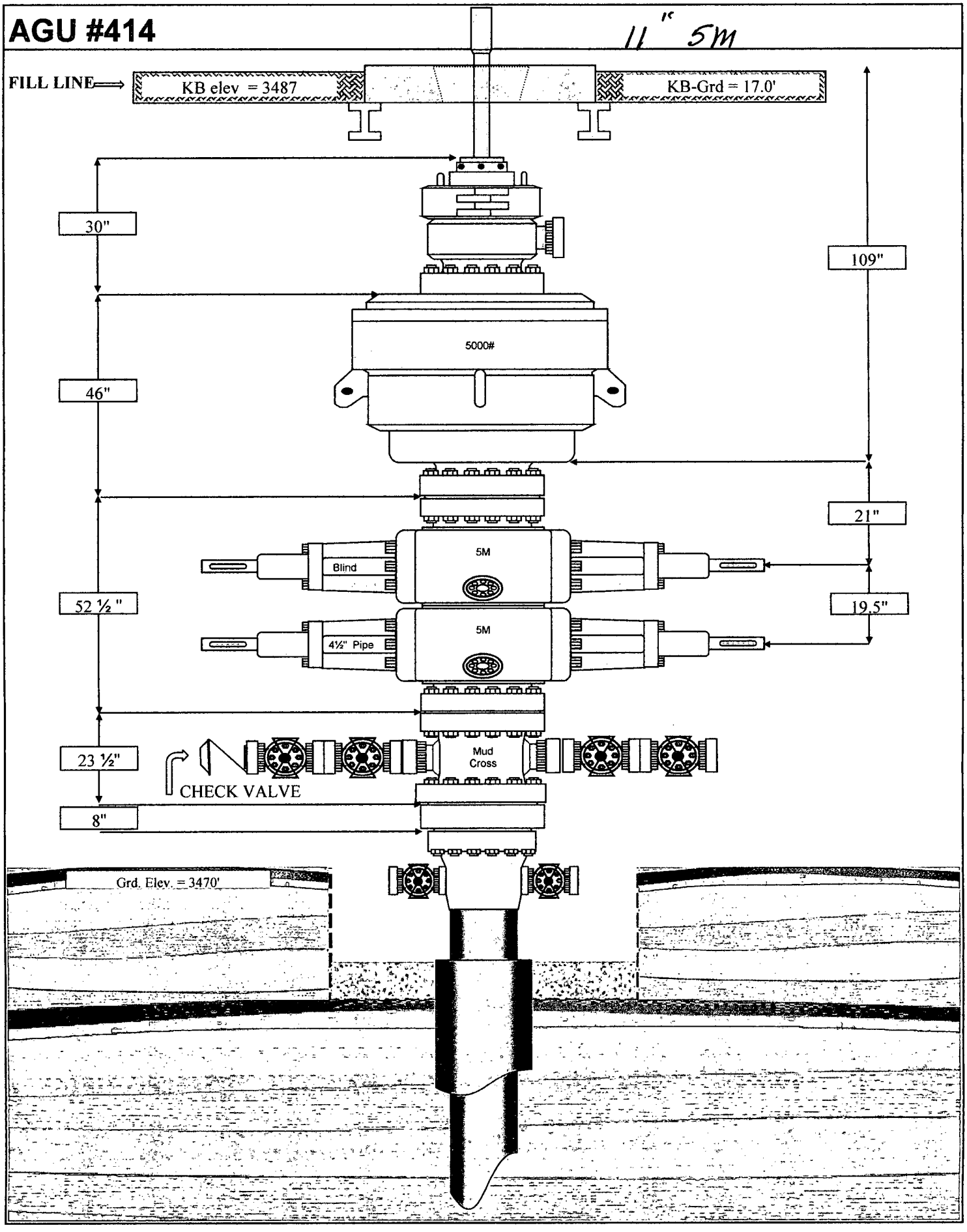
D. Check BOP blind rams each trip and pipe rams each day. Strap out of hole for logging and/or casing jobs.

E. A trash trailer will be provided on each location. Keep trash picked up and the location as clean as possible. All drilling line, oil filters, etc. should be hauled away at the Drilling Contractor's expense. At the conclusion of drilling operations, the contents of the trash trailer will be disposed of into a commercial sanitary landfill.

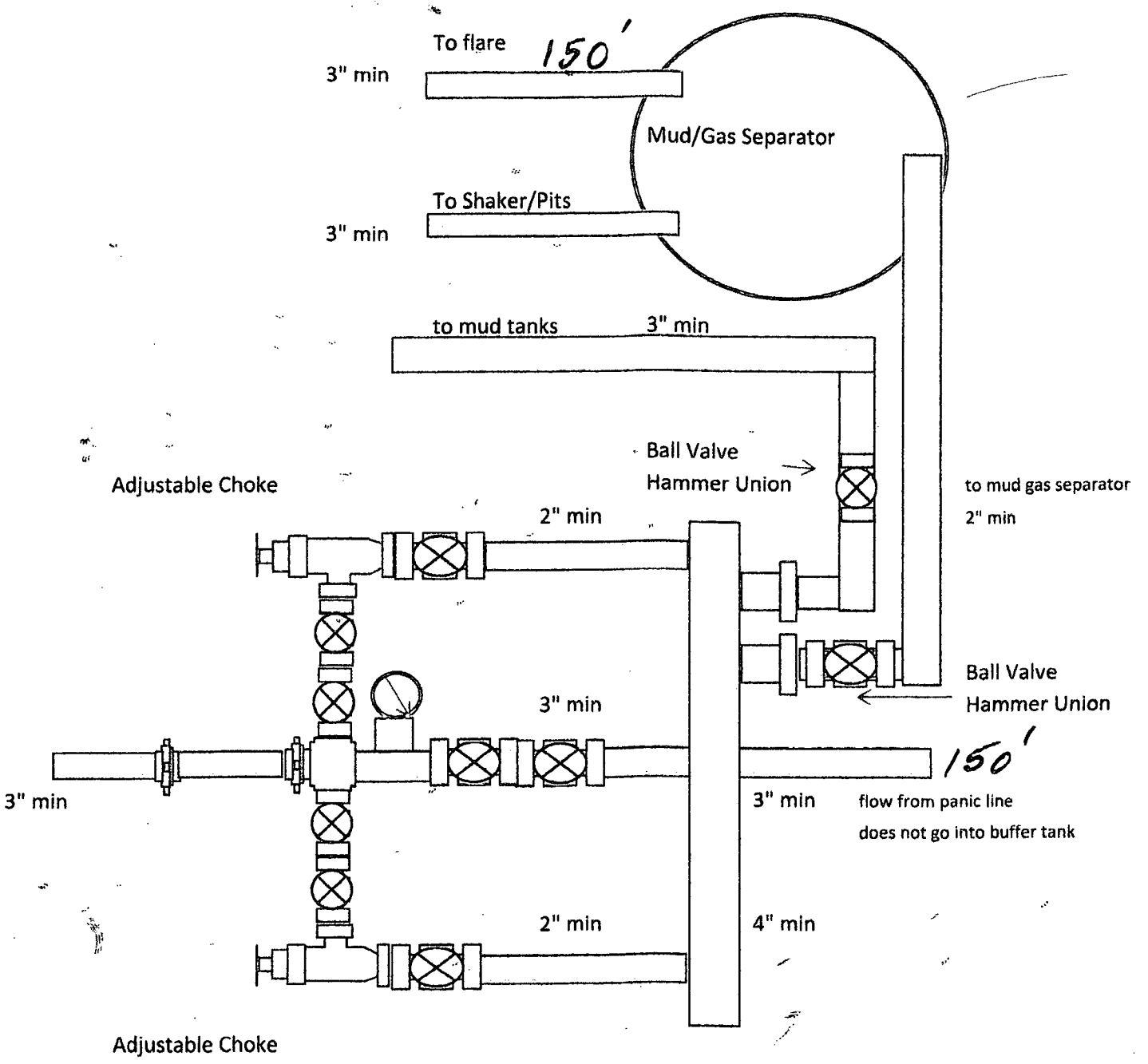
F. At the conclusion of the drilling operations, all re-usable drilling fluid should be moved to the next well in the drilling order.

AGU #414

11" 5M


FILL LINE
KB elev = 3487
KB-Grd = 17.0'
30"
46"
52 ½ "
23 ½"
8"
109"
21"
19.5"
5000#
5M
Blind
5M
4½" Pipe
Mud Cross
CHECK VALVE
Grd. Elev. = 3470'

5 M manifold


To flare
150'
3" min
Mud/Gas Separator
To Shaker/Pits
3" min
to mud tanks
3" min
Ball Valve
Hammer Union
Adjustable Choke
to mud gas separator
2" min
2" min
Ball Valve
Hammer Union
3" min
150'
3" min
3" min
flow from panic line
does not go into buffer tank
2" min
4" min
Adjustable Choke