

Form 100-3  
(April 2004)

RECEIVED

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

OIL COM. DIV.

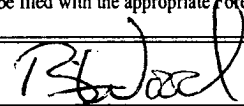

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT  
APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. NMSF-078095 A
1b. Type of Well: <input type="checkbox"/> Oil Well <input checked="" 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 QUESTAR EXPLORATION AND PRODUCTION COMPANY		7. If Unit or CA Agreement, Name and No. N/A
3a. Address 1050 17TH ST., SUITE 500 DENVER, CO 80265	3b. Phone No. (include area code) (303) 672-6970	8. Lease Name and Well No. HORTON 1 D
4. Location of Well (Report location clearly and in accordance with any State requirements.) At surface <del>1400</del> FSL & <del>1305</del> FEL 1418 1267 At proposed prod. zone SAME		9. API Well No. 30-045-33065
14. Distance in miles and direction from nearest town or post office* 6 AIR MILES NORTH OF AZTEC		10. Field and Pool, or Exploratory BLANCO MESA V., BASIN DAK.
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 1,325'		11. Sec., T. R. M. or Blk. and Survey or Area I 7-31N-11W NMPM
16. No. of acres in lease 320		12. County or Parish SAN JUAN
17. Spacing Unit dedicated to this well MESA VERDE: E2 & DAKOTA: E2		13. State NM
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 811' (Horton 6)		19. Proposed Depth 7,815'
20. BLM/BIA Bond No. on file BLM NATIONWIDE ESB000024		21. Elevations (Show whether DF, KDB, RT, GL, etc.) 6,230' GL
22. Approximate date work will start* 07/10/2005		23. Estimated duration 4 WEEKS

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, shall be attached to this form:

- Well plat certified by a registered surveyor.
- A Drilling Plan.
- A Surface Use Plan (if the location is on National Forest System Lands, the SUPO shall be filed with the appropriate Forest Service Office).
- Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
- Operator certification
- Such other site specific information and/or plans as may be required by the authorized officer.

25. Signature 	Name (Printed/Typed) BRIAN WOOD	Date 05/01/2005
Title CONSULTANT		
PHONE: (505) 466-8120 FAX: (505) 466-9682		
Approved by (Signature) 	Name (Printed/Typed)	Date 6-17-05
Title AFM	Office FFO	

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.

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)

cc: T Lovseth, D Nelsen, J Seiler

DRILLING OPERATIONS AUTHORIZED ARE  
SUBJECT TO COMPLIANCE WITH ATTACHED  
"GENERAL REQUIREMENTS".

This action is subject to technical and  
procedural review pursuant to 43 CFR 3165.3  
and appeal pursuant to 43 CFR 3165.4

NMOCD

## Form C - 102

☒ AMENDED REPORT  
WELL MOVED

APA Number 30-045-33065		Pool Code 72319 & 71599	Pool Name BLANCO MESA VERDE & BASIN DAKA
Property Code <del>5619</del> 32167	Property Name HORTON		Well Number 1 D
OGRIID No. 23846	Operator Name QUESTAR EXPLORATION & PRODUCTION		Elevation 6230'

Surface Location									County
UL or Lot	Sec.	Twp.	Rge.	Lot lch.	Feet from >	North/South	Feet from >	East/West	
1	7	31 N	11 W		1418'	SOUTH	1267'	EAST	

UL or Lot	Sec.	Twp.	Rge.	Lot ldn.	Feet from >	North/South	Feet from >	East/West	County SAN JUAN
Dedication 320	Joint ?		Consolidation .		Order No.				

N 88°45' W 2628' \*\*

N 0°06' W 2643' \*\*

• from BLM/GLO  
 \*\* calculated  
 \*\*\* assumed

JUN 2008  
 BLM  
 NAD 27  
 36.909845° N  
 108.026277° W  
 104.4°

I - B

41'

1267'

1418'

2622'

N 88°57' W 5236' \*

N 0°30' W 2583' \*

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

Printed Name **BRIAN WOOD**

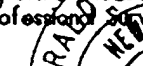
Title	CONSULTANT
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Date **JUNE 11, 2005**

I hereby certify that the well location 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.

REV: 05/31/05

Signature of G. S. Hudleston  
Professional Surveyor



GERARD S. HUDLESTON  
NEW MEXICO  
REGISTERED PROFESSIONAL LAND SURVEYOR  
6844

Submit 3 Copies To Appropriate District Office  
District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
1301 W. Grand Ave., 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

Form C-103  
May 27, 2004

OIL CONSERVATION DIVISION  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

WELL API NO.	30-045-
5. Indicate Type of Lease STATE <input type="checkbox"/> FEE <input type="checkbox"/>	
6. State Oil & Gas Lease No. NMSF-078095A	
7. Lease Name or Unit Agreement Name HORTON	
8. Well Number	1 D
9. OGRID Number	23846
10. Pool name or Wildcat BLANCO MESA VERDE & BASIN DAKOTA	

SUNDRY NOTICES AND REPORTS ON WELLS  
(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)

1. Type of Well: Oil Well ☐ Gas Well ☒ Other

2. Name of Operator

QUESTAR EXPLORATION AND PRODUCTION COMPANY

3. Address of Operator 1050 17TH ST., SUITE 500, DENVER, CO 80265

4. Well Location

Unit Letter J : 1400 feet from the SOUTH line and 1325 feet from the EAST line  
Section 7 Township 31N Range 11W NMPM County SAN JUAN

11. Elevation (Show whether DR, RKB, RT, GR, etc.)  
6,231' GL

Pit or Below-grade Tank Application ☒ or Closure ☐

Pit type DRILLING Depth to Groundwater >250' Distance from nearest fresh water well >5,000' Distance from nearest surface water ~120'

Pit Liner Thickness: 12 mil Below-Grade Tank: Volume          bbls Construction Material         

12. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:

PERFORM REMEDIAL WORK ☐ PLUG AND ABANDON ☐  
TEMPORARILY ABANDON ☐ CHANGE PLANS ☐  
PULL OR ALTER CASING ☐ MULTIPLE COMPL ☐

OTHER: DRILLING PIT

SUBSEQUENT REPORT OF:

REMEDIAL WORK ☐ ALTERING CASING ☐  
COMMENCE DRILLING OPNS. ☐ P AND A ☐  
CASING/CEMENT JOB ☐

OTHER: ☐

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 1103. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

I hereby certify that the information above is true and complete to the best of my knowledge and belief. I further certify that any pit or below-grade tank has been/will be constructed & closed according to NMOC guidelines ☒ a general permit ☐ or an (attached) alternative OCD-approved plan ☐.

SIGNATURE Brian Wood TITLE CONSULTANT DATE 5-1-05

Type or print name BRIAN WOOD

For State Use Only

E-mail address: brian@permitswest.com Telephone No. 466-8120

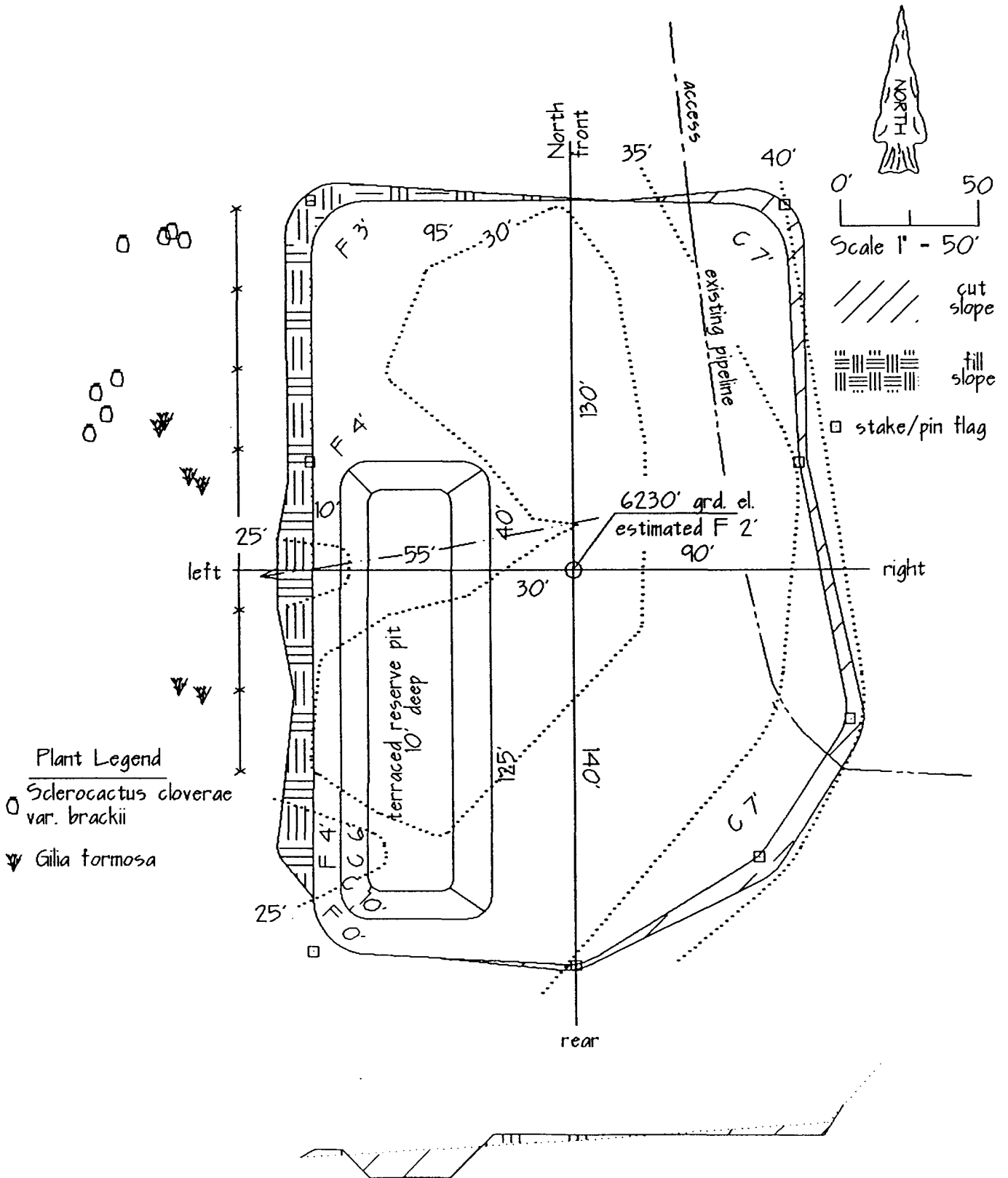
DEPUTY OIL & GAS INSPECTOR, DIST. 80

APPROVED BY: [Signature] TITLE          DATE         

Conditions of Approval (if any):

JUN 20 2005

Horton 1 D  
well pad & section



Questar Exploration and Production Company  
Horton 1 D  
1400' FSL & 1325' FEL  
Sec. 7, T. 31 N., R. 11 W.  
San Juan County, New Mexico

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#### 4. CASING & CEMENT

Design factors are:

Collapse = 1.125

Burst = 1.00

Tension = 1.80

Area Fracture Gradient = 0.75 psi/foot

Maximum anticipated mud weight = 9.0 pounds per gallon

Maximum anticipated surface treating pressure = 1,500 psi

Hole Size	O. D.	#/ft	Grade	Thread	Age	Collapse	Burst	Tensile	Depth
12-1/4"	9-5/8"	36	J-55	S T & C	New	2,020	3,520	394,000	0' - 320'
8-3/4"	7"	23	K-55	L T & C	New	3,270	4,360	<del>309,000</del> 341,000	0' - 3700'
6-1/4"	4-1/2"	10.5	K-55	L T & C	New	4,010	4,790	146,000	3400' - 6815'
6-1/4"	4-1/2"	11.6	K-55	L T & C	New	4,960	5,350	170,000	6815' - TD

Surface casing will be cemented to the surface with  $\approx 130$  sacks Class G + 2%  $\text{CaCl}_2$  + 1/4 pound per sack Cello Flake. Weight = 15.8 pounds per gallon. Yield = 1.17 cubic feet per sack. Excess >50%. At least 4 centralizers will be installed. Have  $\approx 50$  sacks Class G cement with 3%  $\text{CaCl}_2$  to top off if needed.

Production casing: will be cemented to the surface. Lead with  $\approx 315$  sacks Class G + additives (weight = 11.7 pounds per gallon & yield = 2.61 cubic feet per sack). Tail with  $\approx 215$  sacks 50/50 Class G/Poz + additives (weight = 13.5 pounds per gallon & yield = 1.40 cubic feet per sack). Excess: >100%. At least 10 centralizers will be installed.

Production liner will be cemented to  $\approx 3,400'$  (i. e., 300' of overlap with intermediate casing.). Lead with  $\approx 230$  sacks light weight + additives (weight = 11.4 pounds per gallon & yield = 2.16 cubic feet per sack). Tail with  $\approx 100$  sacks 50/50 Class G/Poz + additives (weight = 13.5 pounds per gallon & yield = 1.41 cubic feet per sack. Excess: >20%. At least 10 centralizers will be installed.

Questar Exploration and Production Company  
Horton 1 D  
1400' FSL & 1325' FEL  
Sec. 7, T. 31 N., R. 11 W.  
San Juan County, New Mexico

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## 5. MUD PROGRAM

Fresh water LSND with gel and polymer sweeps will be used from surface to  $\approx 3,700$  feet. Mud weight <sup>above</sup> ~~below~~  $\approx 3,700'$  will be  $< 9.0$  pounds per gallon. Weight will be increased as needed to maintain hole stability and control any gas influx into the intermediate hole.

The hole will be drilled with air below intermediate casing to TD. If the hole gets wet in this section then a light mud up will be required.

Sufficient mud materials to stabilize well bore (for either well control or lost circulation scenarios) will be maintained at the pad. No chrome based additives will be used.

## 6. CORES, TESTS, & LOGS

No cores, drill stem tests, or mud logs are planned. A Triple Combination (mud) log suite will be used from the base of the intermediate casing to the base of the surface casing. A Triple Combination (air) log suite will be used from TD to the intermediate casing.

## 7. DOWN HOLE CONDITIONS

Maximum shut-in surface pressure will be  $\approx 1,500$  psi. BOP system is sufficient to control pressure. No abnormal temperatures (bottom hole =  $180^\circ$  F) or hydrogen sulfide are expected. Moderate lost circulation may occur in the Fruitland, Pictured Cliffs, and Mesa Verde. Hole deviation is probable below  $\approx 3,000'$ . Square drill collar and/or air hammers will be used while air drilling.

Questar Exploration and Production Company  
Horton 1 D  
1400' FSL & 1325' FEL  
Sec. 7, T. 31 N., R. 11 W.  
San Juan County, New Mexico

PAGE 1

## Drilling Program

### 1. FORMATION TOPS

<u>Name</u>	<u>GL Depth</u>	<u>KB Depth</u>	<u>Elevation</u>
Nacimiento	000'	15'	+6,231'
Ojo Alamo Sandstone	1,080'	1,095'	+5,151'
Kirtland Shale	1,155'	1,170'	+5,076'
Fruitland Coal	2,425'	2,440'	+3,806'
Pictured Cliffs Sandstone	2,885'	2,900'	+3,346'
Lewis Shale	3,065'	3,080'	+3,166'
Mesa Verde Group			
Cliff House Sandstone	4,455'	4,470'	+1,776'
Menefee Shale	4,685'	4,700'	+1,546'
Point Lookout Sandstone	5,085'	5,100'	+1,146'
Mancos Shale	5,505'	5,520'	+726'
Dakota Sandstone	7,285'	7,300'	-1,054'
Total Depth (TD)	7,815'	7,830'	-1,584'

### 2. NOTABLE ZONES

<u>Gas Zones</u>	<u>Water Zones</u>	<u>Coal Zone</u>
Fruitland	Ojo Alamo	Fruitland
Pictured Cliffs	Fruitland	
Mesa Verde Group		
Dakota		

Casing will be set to protect water, oil, gas, or other mineral bearing zones. Fresh water will be recorded by depth, cased, and cemented. Surface casing will be cemented to the surface. Intermediate string will be cemented from ≈350' below the Pictured Cliffs to the surface. Production liner will be cemented from TD to the top of the liner hanger.

Questar Exploration and Production Company  
Horton 1 D  
1400' FSL & 1325' FEL  
Sec. 7, T. 31 N., R. 11 W.  
San Juan County, New Mexico

PAGE 2

Oil and gas shows will be tested and evaluated for commercial potential as determined by the company geologist. Goal is the Mesa Verde.

### 3. PRESSURE CONTROL

The drilling contract has not yet been awarded; thus the exact type of BOP to be used is not now known. Diagrams of a typical 2,000 psi BOP stack and manifold are on PAGE 3.

Call BLM at (505) 599-8900 >24 hours before testing. BOP system will be installed and pressure tested before drilling the surface casing shoe. It will be retested if a pressure seal is broken or if 30 days have elapsed since the last successful test of the equipment. Test pressures are ...

Pipe rams	2,000 psi (high)	250 psi (low)
Choke manifold & lines	2,000 psi (high)	250 psi (low)
Surface & intermediate casing	1,500 psi (high)	250 psi (low)

All ram type preventers will have hand wheels. Wheels will be operable and accessible. Auxiliary equipment will include:

- manually operated kelly cock (upper and lower)
- full opening manual safety valves in the full open position capable of fitting all drill stem connections

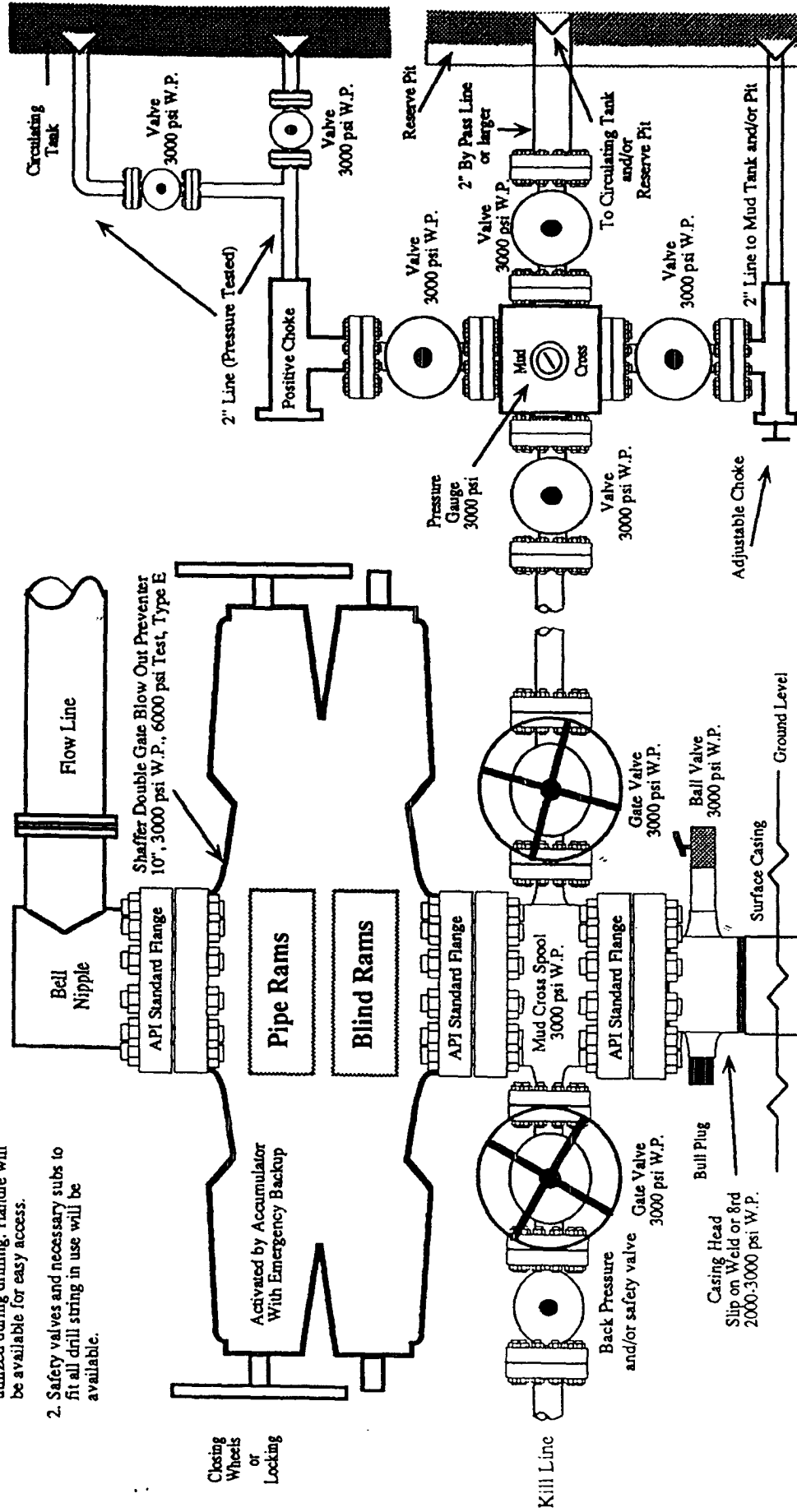
All BOP mechanical and pressure tests will be recorded on the driller's log. BOPs will be inspected and opened and closed at least daily to assure good mechanical working order. These inspections will also be recorded on the daily drilling report. Mud system will be visually monitored.



# 2,000 PSI BOP SYSTEM

Note: 1. An upper Kelly cock valve will be utilized during drilling. Handle will be available for easy access.

2. Safety valves and necessary subs to fit all drill string in use will be available.



Note: This equipment is designed to meet requirements for a 2-M rating standard per 43 CFR part 3160 (amended). Proper operation and testing of equipment will be carried out per standard. 2,000 psi equipment can be substituted in the drawing to meet minimum requirements per standard.