Form 3160-3
(December 1990)

N. M. ... OPER. OGRID NO. 21602
P. O. ... PROPERTY NO. 17928
HOBBS ... POOL CODE 15200
EFF. DATE 8/18/97
API NO. 30-025-34104

...LICATE*
...ons on
...)

Form approved.
Budget Bureau No. 1004-0136
Expires: December 31, 1991

UNIT...
DEPARTMENT...
BUREAU OF...

APPLICATION FOR PE...

1997 JUL 14 A 9:11

... LAND MGMT.
... RESOURCE AREA

1a. TYPE OF WORK: DRILL [X] DEEPEN [ ]

b. TYPE OF WELL: OIL WELL [X] GAS WELL [ ] OTHER; SINGLE ZONE [ ] MULTIPLE ZONE [ ]

2. NAME OF OPERATOR: Stevens & Tull, Inc.

3. ADDRESS AND TELEPHONE NO.: P.O. Box 11005, Midland, TX 79702 915/699-1410

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)
At surface: 467' FSL and 660' FEL
At proposed prod. zone: 467' FSL and 660' FEL Unit P

5. LEASE DESIGNATION AND SERIAL NO.: NM 97164

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: N/A

7. UNIT AGREEMENT NAME: N/A

8. FARM OR LEASE NAME, WELL NO.: Federal 24 - 4

9. API WELL NO.:

10. FIELD AND POOL, OR WILDCAT: DK Abo

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: Sec 24, T20S, R38E

12. COUNTY OR PARISH: Lea

13. STATE: NM

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*: 9 miles South of Hobbs

15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any): 467

16. NO. OF ACRES IN LEASE: 200

17. NO. OF ACRES ASSIGNED TO THIS WELL: 40

18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.:

19. PROPOSED DEPTH: 8000

20. ROTARY OR CABLE TOOLS: Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.): 3567' GR

22. APPROX. DATE WORK WILL START*:

23. PROPOSED CASING AND CEMENTING PROGRAM

LEA COUNTY CONTROLLED WATER BASIN

SIZE OF HOLE	GRADE, SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
12 1/4	8 5/8 - J55	24	1600	815 sx - circulate
7 7/8	5 1/2 - N80	17	8000	Stage 1 - 615 sx "H" - 5000'
				Stage 2 - 670 sx "c" circulate

WITNESS

1. Drill 12 1/4" hole to approximately 1600' or hard formation with fresh water

2. Set 8 5/8" casing with 16 centralizers spaced every 100'. Cement with 615 sx "c" plus 4% gel plus 2% $CaCl_2$ - tail with 200 sx "c" plus 2% $CaCl_2$ - circulate cement to surface - WOC 12 hours before drilling out.

3. Drill 7 7/8" hole to approximately 8000' with Brine and mud. Run open hole logs.

4. Set 5 1/2" - 17# N80 plus J55 casing to 8000'. Cement Stage #1 with 220 sx 35:65:6 Poz "H" plus 5% salt plus 1/4#/sx celloflake plus 395 sx "H" plus 1/4#/sx celloflake open DV tool at 5000' and cement stage #2 - 670 sx "c" plus 3% salt plus fluid loss chemicals - circulate cement to surface

APPROVAL SUBJECT TO
GENERAL REQUIREMENTS AND
SPECIAL STIPULATIONS
ATTACHED

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24.

SIGNED [signature] TITLE Consulting Engineer DATE 7/10/97

(This space for Federal or State office use)

PERMIT NO. ______ APPROVAL DATE ______

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:

APPROVED BY [signature] TITLE ... MINERALS DATE 8/13/97

*See Instructions On Reverse Side

RECEIVED JUN 3 0 1997

DISTRICT I
P.O. Box 1980, Hobbs, NM 88241-1980

DISTRICT II
P.O. Drawer DD, Artesia, NM 88211-0719

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

DISTRICT IV
P.O. Box 2088, Santa Fe, NM 87504-2088

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-102
Revised February 10, 1994
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

OIL CONSERVATION DIVISION
P.O. Box 2088
Santa Fe, New Mexico 87504-2088

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-025-34104	15200	DK Abo

Property Code	Property Name	Well Number
17928	FEDERAL "24"	4

OGRID No.	Operator Name	Elevation
021602	STEVENS & TULL	3567

Surface Location

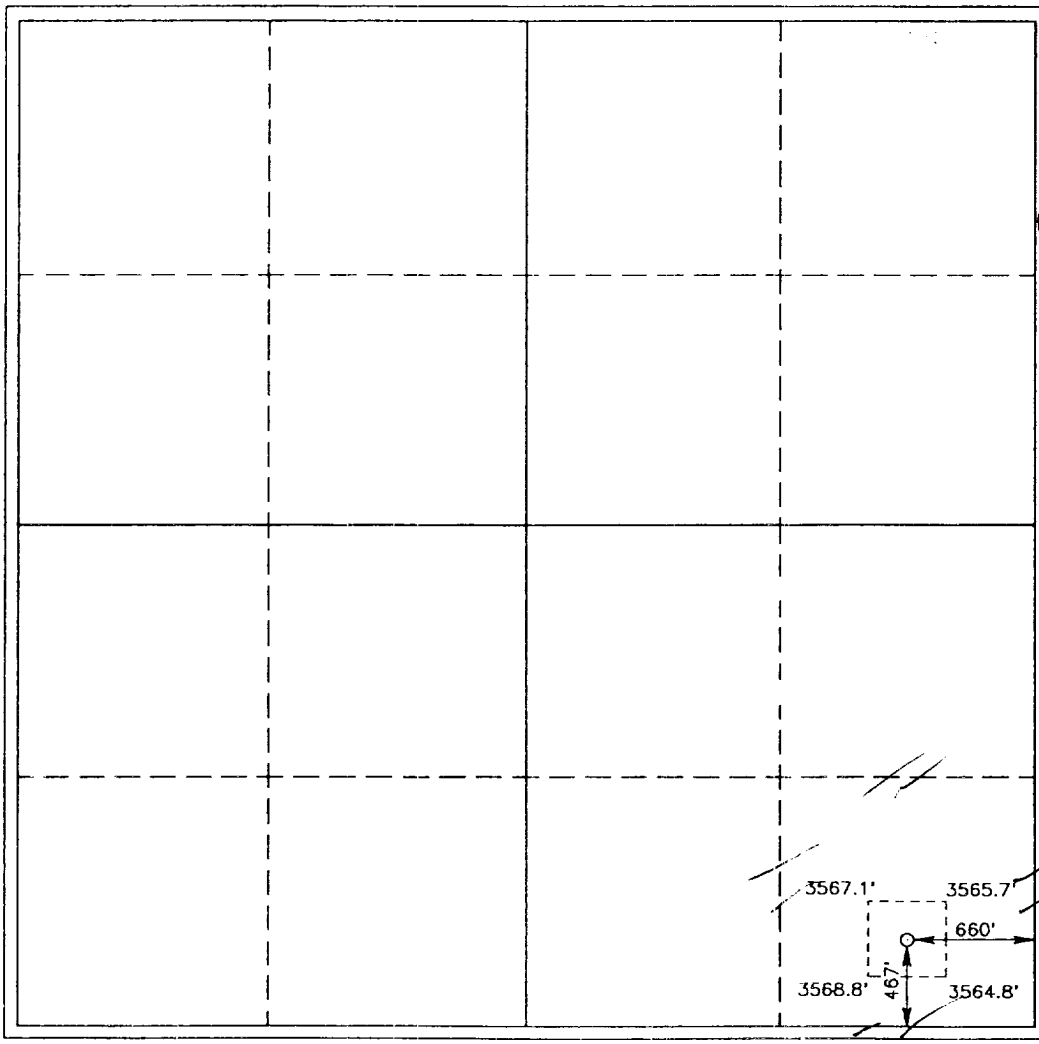
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	24	20 S	38 E		467	SOUTH	660	EAST	LEA

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	I		

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



OPERATOR CERTIFICATION

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

Signature

Michael G. Mooney
Printed Name

Consulting Engineer
Title

July 10, 1997
Date

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 supervison, and that the same is true and correct to the best of my belief.

JUNE 16, 1997
Date Surveyed JLP

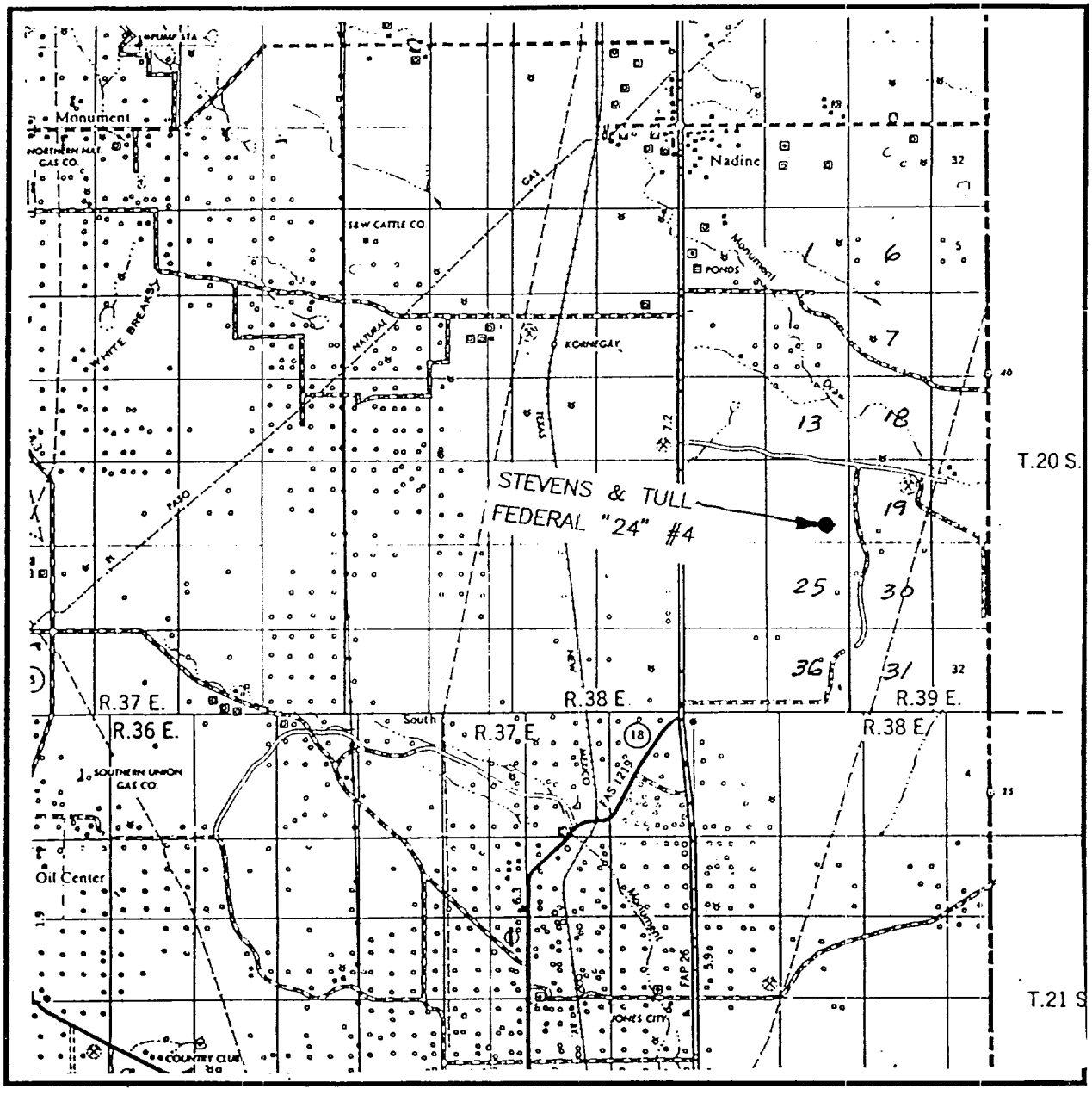
Signature & Seal of Professional Surveyor

Ronald J. Eidson 6-26-97

W.O. Num. 97-11-0998

Certificate No. JOHN W. WEST, 676
RONALD J. EIDSON, 3239
GARY G. EIDSON, 12641

VICINITY MAP



SCALE: 1" = 2 MILES

SEC. 24 TWP. 20-S RGE. 38-E

SURVEY N.M.P.M.

COUNTY LEA

DESCRIPTION 467' FSL & 660' FEL

ELEVATION 3567'

OPERATOR STEVENS & TULL

LEASE FEDERAL "24"

JOHN WEST ENGINEERING
HOBBS, NEW MEXICO
(505) 393-3117

JULY 8, 1997
APPLICATION FOR PERMIT TO DRILL
STEVENS & TULL, INC.
FEDERAL "24" NO. 4

467' from the south line. 660' from the east line. Section 24, T-20-S, R-38-E, Lea County, New Mexico.

The following items and attachments compliment Stevens & Tull, Inc.'s permit to drill the Federal "24" No. 3.

1) The geologic surface formation is of Quaternary Age.

2) Estimated tops of geologic markers are as follows: Yates - 3000', Seven Rivers - 3160', San Andres - 4300', Blinebry - 6030', Tubb - 6600', Drinkard - 6860', ABO - 7150'.

3) The estimated depths at which water is expected are between 150' and 500'. The estimated depths which oil or gas is expected is between 2900' thru 7800'. Yates - Gas, Seven Rivers - Gas, San Andres - Oil, Blinebry - Oil, Tubb - Oil, Drinkard - Oil, ABO - Oil. Fresh water zones will be protected with independent casing and cement.

4) Red beds and fresh water will be protected with 8 5/8"-24#-J-55, LT&C casing run to a good shoe setting depth at approximately 1600' with centralizers and adequate cement to circulate to the surface. The Oil Sands will be protected with 5 1/2"-17#, J-55 and N80 LT&C casing run to a total depth of the well and cemented with adequate amounts to circulate to surface.

5) Pressure control, see the attached sketch.

6) Mud program, see the Horizon Mud Company recommendation attached.

7) There is no planned auxiliary equipment.

8) Open hole logs will be run from total depth to surface. No cores or DTS's are planned.

9) No abnormal temperatures or pressures are expected. No lost circulation is expected.

10) The anticipated starting date is September 1, 1997.

DRILLING, CASING AND CEMENTING PROGRAM

1) Drill 12 1/4" hole to approximately 1600' or to firm formation with fresh mud, with a viscosity of 32 seconds per quart and no control over water loss. Maintain pump pressure less than 800 psi to prevent excessive hole enlargement.

2) Circulate hole clean with 2 hole volumes of mud.

3) Run 8 5/8" casing with a centralizer on the first collar and one on each third collar from the bottom. Use a Texas patterned guide shoe with an aluminum baffle float. Land the casing with the collar eighteen inches below the surface.

4) Cement the casing in place with 615 sacks Class "C" + 4% gel + 2% Calcium Chloride and 1/4# per sack cellophane, plus 200 sacks class "c" with 2% Calcium Chloride and 1/4# per sack cellophane. Displace the cement to the float. Shut in.

5) Wait on cement 12 hours before drilling out. Test pressure control equipment to 1000 psi for 30 minutes before drilling through the casing shoe.

6) Drill 7 7/8" hole with brine at native conditions to a depth of 6900'.

7) At 6900' depth maintain the mud viscosity at 32 seconds per quart and reduce water loss to less than 10 cc per 30 seconds.

8) Drill to TD of 8000'. Estimated BHP = 2500 psi.

9) Circulate hole for 4 hours with mud at designed conditions.

10) Pull out of the hole, lay down drill string.

11) Run 5 1/2" casing with guide shoe, float collar, latchdown wiper plug baffle and 20 centralizers, one on each collar from the first collar up. Install a DV tool at 5000'.

12) Cement Stage 1 with 220 sx 35:65:6 POZ "H" plus 5% salt plus 1/4#/sx celloflake plus 395 sx "H" plus 1/4#/sx celloflake. Open DV tool at 5000' and cement Stage 2 with 670 sx "c" plus 3% salt plus fluid loss chemicals - circulate cement to surface - displace plug with 2% KCL water, release pressure and leave shut in.

HORIZON
MUD COMPANY

PROPOSED MUD PROGRAM

CASING DESIGN

8 5/8" Surface Casing at 1,600'

7 7/8" Open Hole to 8,000'

RECOMMENDED MUD PROPERTIES

DEPTH	MUD WEIGHT	VISCOSITY	FLUID LOSS
Spud	8.4- 8.6	32-34	No Control
500'	8.6- 8.8	32-34	No Control
1,000'	8.8- 9.2	32-34	No Control
1,300'	9.0- 9.4	32-34	No Control
1,600'	9.0- 9.4	32-34	No Control
Set 8 5/8" Surface Casing at 1,600'. Drill out with Brine Water.			
2,000'	9.6-10.0	28-29	No Control
3,000'	10.0-10.1	28-29	No Control
4,000'	10.0-10.1	28-29	No Control
5,000'	10.0-10.1	28-29	No Control
6,000'	10.0-10.1	28-29	No Control
6,900'	10.1-10.2	30-32	<10
7,400'	10.1-10.2	30-32	<10
7,700'	10.1-10.2	30-32	<10
8,000'	10.1-10.3	32-34	<10

RECOMMENDED MUD PROGRAM BY CASING INTERVAL

Surface Hole 0-1,650'

Spud with a **Gel/Lime** slurry, mixing one **Lime** per ten **Gel** for a 32-34 viscosity. Once the shallow poorly-consolidated surface formations have been drilled, allow the native solids to maintain a viscosity of 32-34 sec./qt. It is important that a stable viscosity be maintained with constant additions of fresh water at the flowline.

Hole conditions will dictate the need for any additional viscosity at total depth to insure good conditions for casing operations.

HORIZON
MUD COMPANY

Open Hole 1,650'-8,500'

Drill out from under the surface casing with brinewater and circulate through the reserve pit to minimize solids build-up. A flocculant (**MF-55**) can be used to aid in dropping solids, providing a clear fluid and maximum penetration rates.

We recommend maintaining an 9.0-9.5 pH with **Lime** before mud-up and **Caustic** after mud-up..

It is always possible in this general area to encounter lost circulation in the **San Andres** and **Glorieta** formations. Utilize Paper to control seepage loss. Should complete loss of returns occur while drilling, we recommend pulling a few stands off bottom to avoid differential sticking and spotting a 100-200 barrel pill containing fibrous-type LCM. Spot the pill from above at a reduced pump rate before returning to bottom to commence drilling.

Run periodic sweeps (every 100-200') with **Paper** while drilling with water.

We recommend that the surface pit system have a minimum of **400-500 barrels** volume and a **Double-Screen Shale Shaker** for solids control. This will avoid costly dilution to maintain a clean fluid. It may also be possible to circulate through the reserve pit for solids control.

Clear water should be sufficient to drill to a depth of approximately **6,800'**. At this point, we recommend returning to the working pits and mudding up by **6,900'** with a **Starch/MF-55/DC8** system to achieve the following properties:

Mud Weight	**10.1-10.2**
Viscosity	**30-32**
Water Loss	**<10**

This should provide good samples for proper evaluation.

MF-55 is a non-ionic polymer that helps tie-up the water phase of the fluid. This has proven effective at minimizing invasion of the formation. **MF-55** is also a flocculant and will aid in dropping solids.

We recommend using DC8 surfactant as a mud additive to provide the following benefits:

1. **minimize the usage of Mud Products**

2. **help drop solids providing a cleaner mud, lower mud weight and a thinner filter cake**

3. **improve clean-up of the pay zone should whole mud losses be encountered**

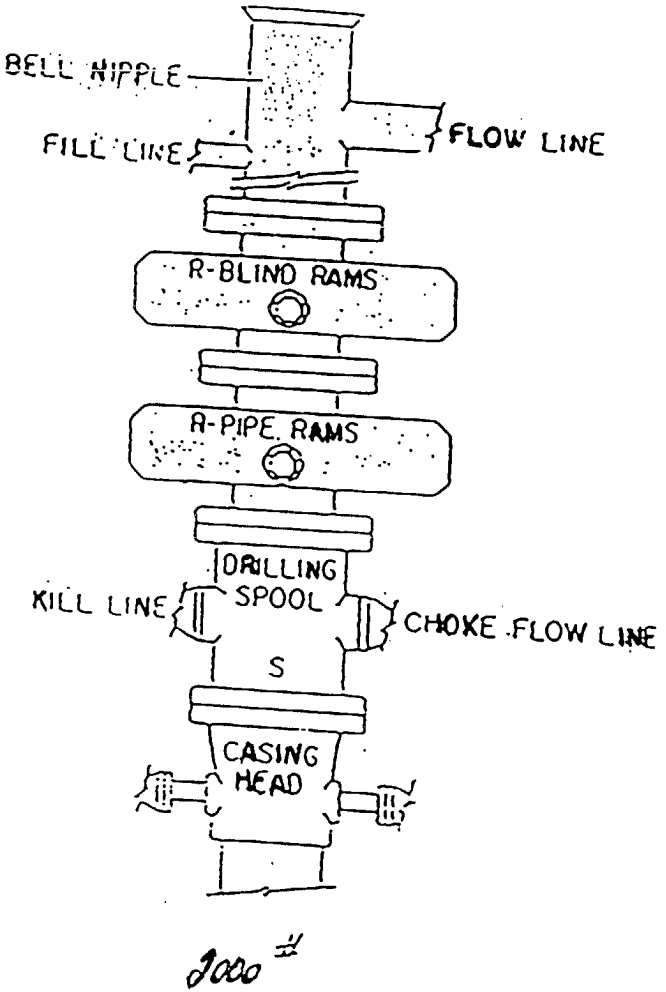
HORIZON
MUD COMPANY

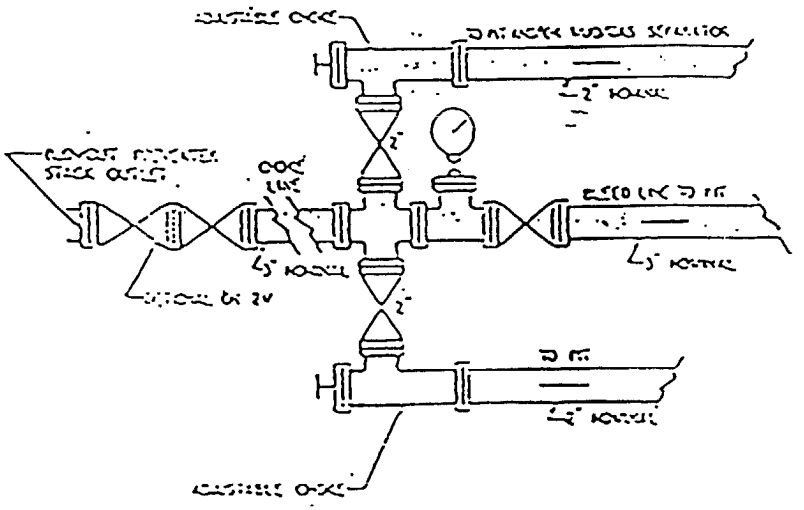
While using **Starch** for viscosity or fluid loss control, it is important that the pH of the fluid remain below 10.0 to avoid burning the **Starch.**

Utilize fibrous-type LCM to control seepage after mud-up and follow the same procedure described earlier should total loss of returns occur.

We recommend increasing the viscosity to **32-34 secs.** just prior to total depth for additional hole cleaning.

This fluid, adjusted as shown in the **"Recommended Mud Properties"** section, or as hole conditions dictate, should provide good hole conditions for logging and casing operations.





PROPOSED BOP' CONFIGUREMENT