Form 3160-3
(April 2004)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

## APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.
NM 0606

1a. Type of Work ☒ DRILL ☐ REENTER

6. If Indian, Allotee or Tribe Name

1b. Type of Well ☐ Oil Well ☒ Gas Well ☐ Other ☐ Single Zone ☐ Multiple Zone

7. Unit or CA Agreement Name and No.

2. Name of Operator
Energen Resources Corporation

8. Lease Name and Well No.
Hart Canyon 27 #1S

3a. Address
2198 Bloomfield Highway Farmington, New Mexico 87401

3b. Phone No. (include area code)
(505) 325-6800

9. API Well No.
30-045-33077

4. Location of Well (*Report location clearly and in accordance with any State equirements*)*
At surface 800' fnl, 1275' fwl

10. Field and Pool, or Exploratory
Basin Fruitland Coal

At proposed prod. zone

11. Sec., T., R., M., or Blk. and Survey or Area
D S27, T31N, R10W

14. Distance in miles and direction from nearest town or post office*
Approximately 7.5 miles north east of Aztec.

12. County or Parish
San Juan

13. State
NM

| 15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drg. unit line, if any) | 16. No. of Acres in lease | 17. Spacing Unit dedicated to this well |
|---|---|---|
| 800' | 1760 | 320.04 N 1/2 |
| 18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. | 19. Proposed Depth | 20. BLM/BIA Bond No. on file |
| Approx. 300' | 3089' | |
| 21. Elevations (Show whether DF, KDB, RT, GL, etc. | 22. Approximate date work will start* | 23. Estimated duration |
| GL 6152' | 06/15/05 | 14 days |

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JUL 2005
OIL CONS. DIV.
DIST. 3

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.
2. A Drilling Plan
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).
4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification.
6. Such other site specific information and/or plans as may be required by the authorized officer.

| 25. Signature | Name (*Printed/Typed*) | Date |
|---|---|---|
| Nathan Smith | Nathan Smith | 4/15/05 |

Title
Drilling Engineer

| Approved by (Signature) | Name (*Printed/Typed*) | Date |
|---|---|---|
| | | 6-29-05 |
| 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 knowlingly 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)*

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070 FARMINGTON NM

NMOCD

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, 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 & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102
Revised June 10, 2003
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

☐ AMENDED REPORT

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# WELL LOCATION AND ACREAGE DEDICATION PLAT

| [1] API Number | [2] Pool Code | [3] Pool Name |
|---|---|---|
| 30-045-33027 | 71629 | UP FRUITLAND COAL |

| [4] Property Code | [5] Property Name | [6] Well Number |
|---|---|---|
| 300469 | HART CANYON ~~31-10~~ 27 | 1S |

| [7] OGRID No. | [8] Operator Name | [9] Elevation |
|---|---|---|
| 162928 | ENERGEN RESOURCES CORPORATION | 6152' |

## [10] Surface Location

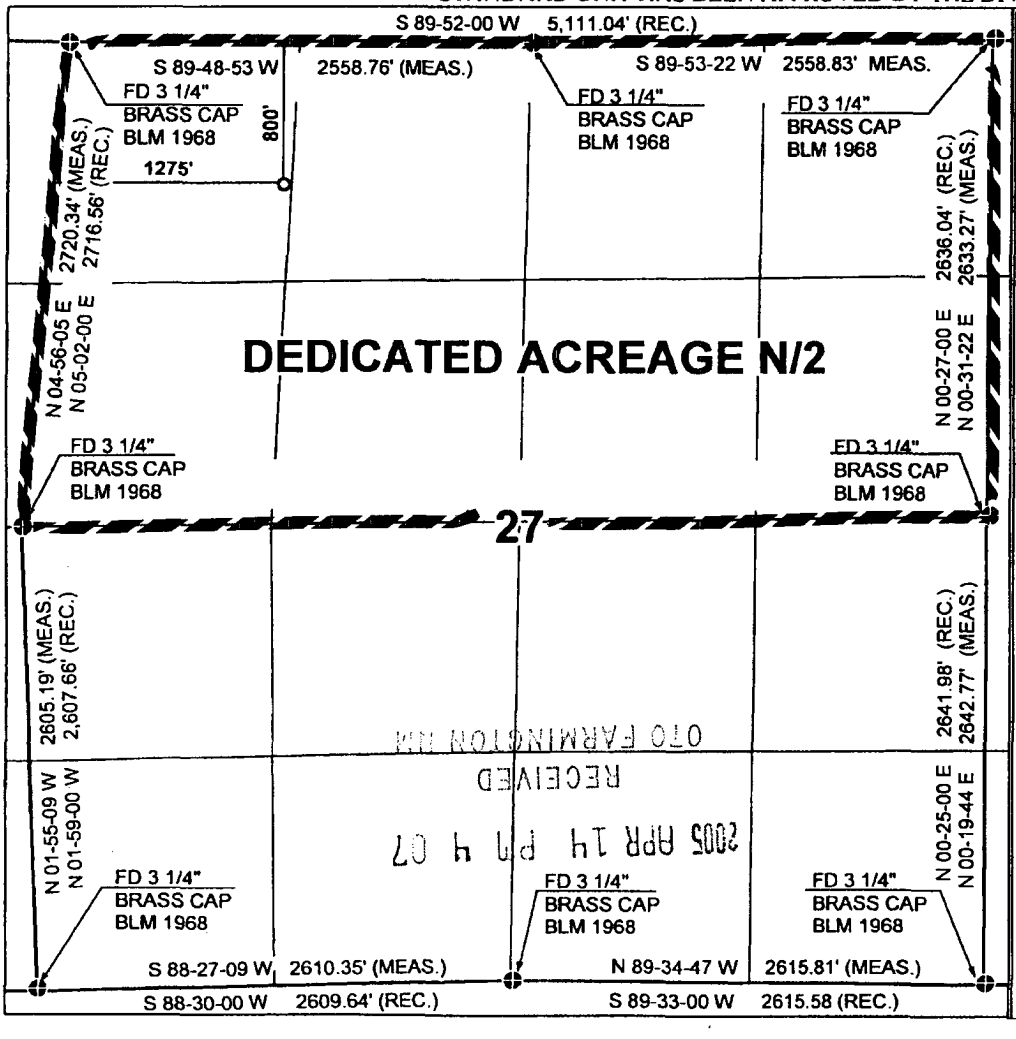
| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---|---|---|---|---|---|---|---|---|---|
| D | 27 | 31N | 10W | | 800 | NORTH | 1275 | WEST | SAN JUAN |

## [11] 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 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |

| [12] Dedicated Acres | [13] Joint or Infill | [14] Consolidation Code | [15] Order No. |
|---|---|---|---|
| 320.04 | | | |

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




## [17] OPERATOR CERTIFICATION

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

Signature

Nathan Smith
Printed Name

Drilling Engineer
Title and E-mail Address

4/15/05
Date

## [18] 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 supervision, and that the same is true and correct to the best of my belief.*

9-24-04
Date of Survey

Signature and Seal of Professional Surveyor

NM #14827
Certificate Number

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Submit 3 Copies To Appropriate District Office
District I
1625 N. French Dr., Hobbs, NM 87240
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

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

Form C-103
May 27, 2004

WELL API NO.

5. Indicate Type of Lease STATE ☐ FEE ☐

6. State Oil & Gas Lease No. NM 0606

## 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.)

7. Lease Name or Unit Agreement Name: Hart Canyon 27

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

8. Well Number 1S

2. Name of Operator: Energen Resources Corporation

9. OGRID Number 162928

3. Address of Operator: 2198 Bloomfield Highway, Farmington, NM 87401

10. Pool name or Wildcat: Basin Fruitland Coal

4. Well Location

Unit Letter D : 800' feet from the North line and 1275' feet from the West line

Section 27 Township 31N Range 10W NMPM County San Juan

11. Elevation *(Show whether DR, RKB, RT, GR, etc.)* 6152' GL

Pit or Below-grade Tank Application ☒ or Closure ☐

Pit type Drill Depth to Groundwater >100' Distance from nearest fresh water well >1000' Distance from nearest surface water >200'

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: | | | | SUBSEQUENT REPORT OF: | | | |
|---|---|---|---|---|---|---|---|
| PERFORM REMEDIAL WORK | ☐ | PLUG AND ABANDON | ☐ | REMEDIAL WORK | ☐ | ALTERING CASING | ☐ |
| TEMPORARILY ABANDON | ☐ | CHANGE PLANS | ☐ | COMMENCE DRILLING OPNS. | ☐ | PLUG AND ABANDONMENT | ☐ |
| PULL OR ALTER CASING | ☐ | MULTIPLE COMPLETION | ☐ | CASING TEST AND CEMENT JOB | ☐ | | |
| OTHER: Build drilling pit | ☒ | | | 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.

Energen Resources plans to build a lined pit according to "OCD Pit and Below-grade Tank Guidelines", as issued on November 1,2004. Energen anticipates the submittal of a C-144 for closure of this pit in accordance with BLM and "OCD pit and Below-grade Tank Guidelines".

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 or closed according to NMOCD guidelines ☒, a general permit ☐ or an (attached) alternative OCD-approved plan ☐

SIGNATURE _____ TITLE Drilling Engineer DATE 04/14/05

Type or print name Nathan Smith E-mail address: nsmith@energen.com Telephone No. 505.325.6800

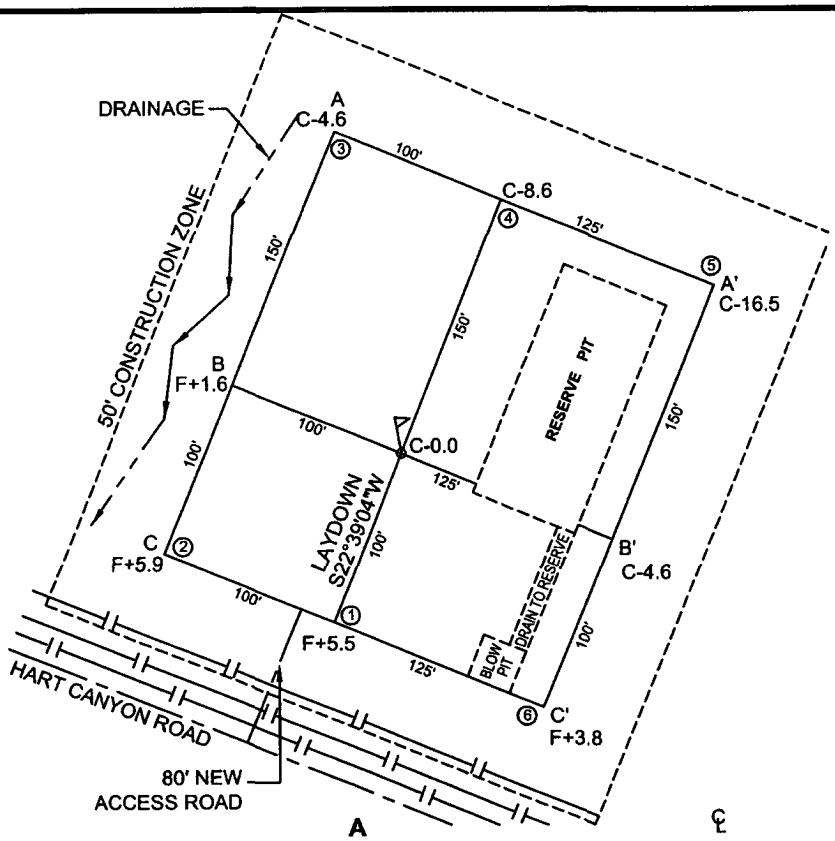
**For State Use Only**

APPROVED BY _____ TITLE DEPUTY OIL & GAS INSPECTOR, DIST. #3 DATE JUL - 1 2005

Conditions of Approval, if any:

# ENERGEN RESOURCES CORPORATION

HART CANYON 31-10 27 #1S
800' FNL & 1275' FWL
LOCATED IN THE NW/4 OF SECTION 27,
T31N, R10W, N.M.P.M.,
SAN JUAN COUNTY, NEW MEXICO
ELEVATION: 6152', NAVD 88

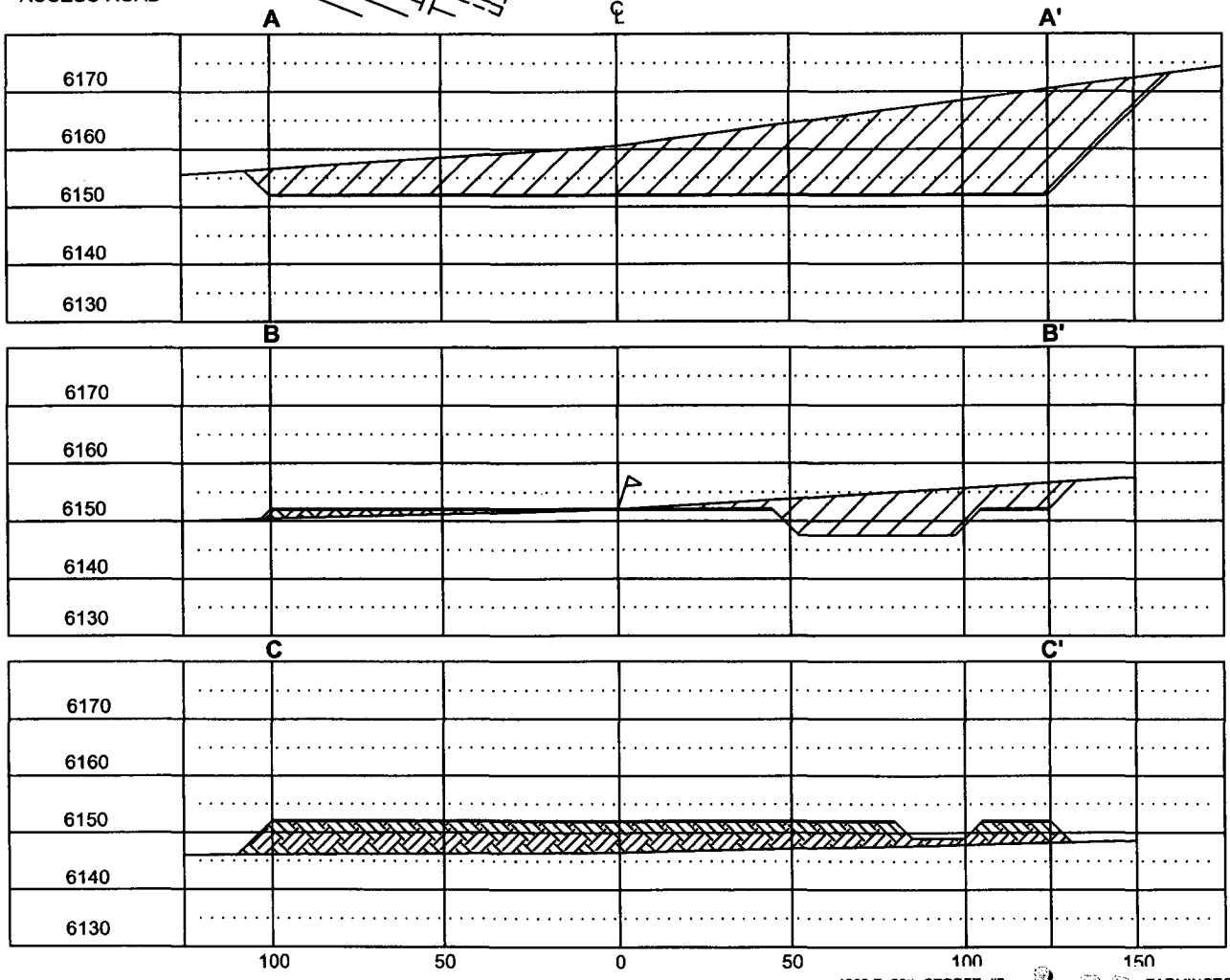






Scale: 1"=100'

LATITUDE: 36°52'28"N
LONGITUDE: 107°52'27"W
DATUM: NAD 83




HORIZ. SCALE: 1"=50'
VERT. SCALE: 1"=30'

1909 E. 20th STREET, #7 FARMINGTON, NM 87401
Geographic Solutions
PHONE: (505) 325-6841 FAX: (505) 325-6842

# Operations Plan

April 13, 2005

## Hart Canyon 31-10-27 #1S

### General Information

| | |
|---|---|
| Location | 0800' fnl, 1275' fwl<br>nwnw S27, T31N, R10W<br>San Juan County, New Mexico |
| Elevations | 6152' GL |
| Total Depth | 3089' (MD) |
| Formation Objective | Basin Fruitland Coal |

### Formation Tops

| | |
|---|---|
| Nacimiento | Surface |
| Ojo Alamo Ss | 1329' |
| Kirtland Sh | 1434' |
| Fruitland Fm | 2499' |
| Top Coal Interval | 2654' |
| Bottom Coal Interval | 2889' |
| Pictured Cliffs Ss | 2894' |
| **Total Depth** | **3089'** |

### Drilling

The 12 ¼" wellbore will be drilled with a fresh water mud system.
The 7 7/8" wellbore will be drilled with a low solids fresh water/polymer mud system. Weighting materials will be drill cuttings and if needed barite. Mud density is expected to range from 8.9 ppg to 9.5 ppg.
Blowout Control Specifications:

A 2000 psi minimum double ram or annulus BOP stack (figure 1) will be used following nipple up of casing head. A 2" nominal, 2000 psi minimum choke manifold will also be used. An upper Kelly Cock valve handle and drill string valve should be available to fit each drill string and be available on the rig floor during drilling operations.

Logging Program:

Open hole logs: Induction/Gamma Ray and Density logs.
Coring: None
Natural Gauges: Surface and/or every 500' to TD.

## Tubulars

Casing, Tubing, & Casing Equipment:

| String | Interval | Wellbore | Casing | Csg Wt | Grade |
|---|---|---|---|---|---|
| Surface | 0'-300' | 12 ¼" | 8 5/8" | 24.0 ppf | J-55 ST&C |
| Production | 0-3089' | 7 7/8" | 5 ½" | 15.5 ppf | J-55 LT&C |
| Tubing | 0'-3050' | | 2 3/8" | 4.7 ppf | J-55 |

Casing Equipment:

Surface Casing: Depending on wellbore conditions, a Texas Pattern Guide Shoe on bottom. Casing centralization with standard bow spring centralizers to achieve optimal standoff.

Production Casing: Depending on wellbore conditions, a Cement nose guide shoe with self fill insert float collar on top of bottom joint and casing centralization with standard bow spring centralizers to optimize standoff. Two turbolating centralizers at the base of the Ojo Alamo are recommended.

## Wellhead

8 5/8" 2000 x 5 ½" Larkin casing head. 5 ½" 2000 x 2" tubing head.

## Cementing

Surface Casing: 225 sks Std (class B) with 2.0 % $CaCl_2$ and ¼ #/sk Flocele (15.6 ppg, 1.18 $ft^3$/sk 267 $ft^3$ of slurry, 100% excess to circulate to surface). WOC 12 hours. Pressure test surface casing to 1000 psi for 30 min.

Production Casing: Before cementing, circulate hole at least 1 ½ hole volumes of mud and reduce funnel viscosity to minimum to aide in hole cleanout. Depending on wellbore conditions, cement may consist of 455 sks 65/35 Std (class B) with 6.0 % Bentonite, 2.0 % $CaCl_2$, 10 #/sk Gilsonite, and ½ #/sk Flocele (12.3 ppg, 1.96 $ft^3$/sk) and a tail of 150 sks Std (class B) with 5.0 #/sk Gilsonite and ¼ #/sk Flocele (15.2 ppg, 1.24 $ft^3$/sk). (1077.8 $ft^3$ of slurry, 100 % excess to circulate to surface).

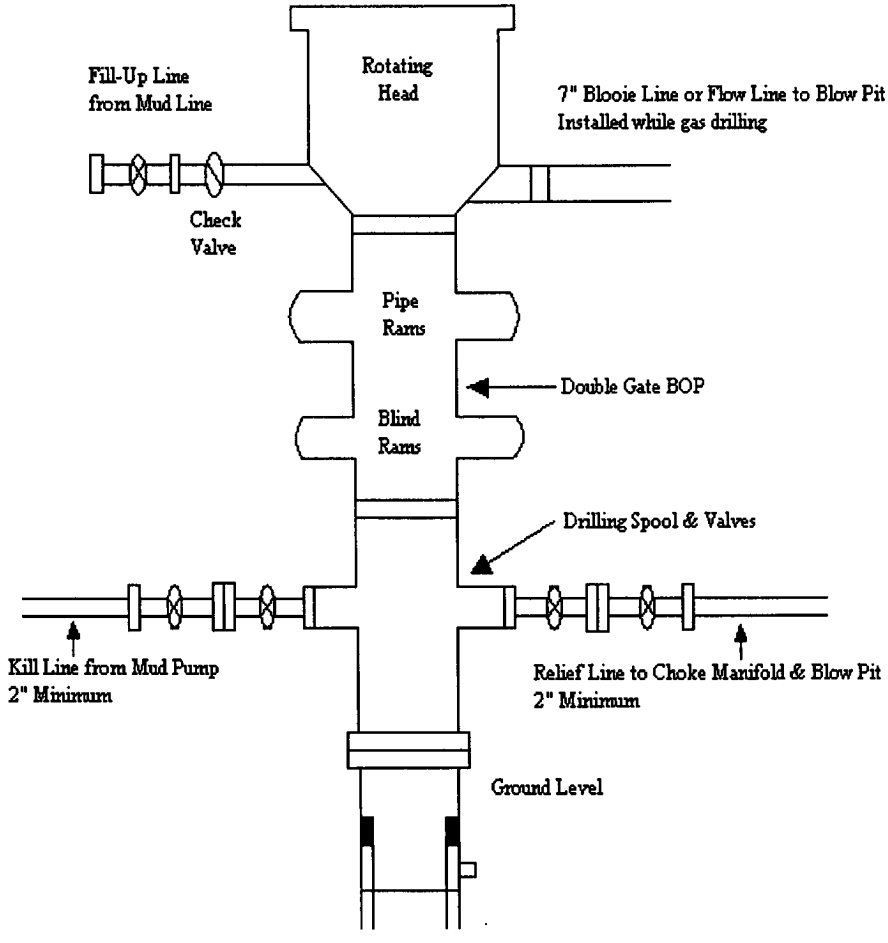
*****Use 30 sks Poz Spacer/Scavenger ahead of lead cement consisting of: San Juan Flyash, 15.0 % Bentonite, 0.15 % HR-5*****

## Other Information

1) This well will be fracture stimulated.
2) If lost circulation is encountered, sufficient LCM will be added to the mud system to maintain well control. The intermediate string may need to be cemented in multiple stages with a slurry design deviated from that listed above.
3) If high reservoir pressures or water flows are encountered slurry design may need to be deviated to from those listed above to satisfy wellbore and formation conditions.
4) No abnormal temperatures or pressures are anticipated.
5) This gas is dedicated.

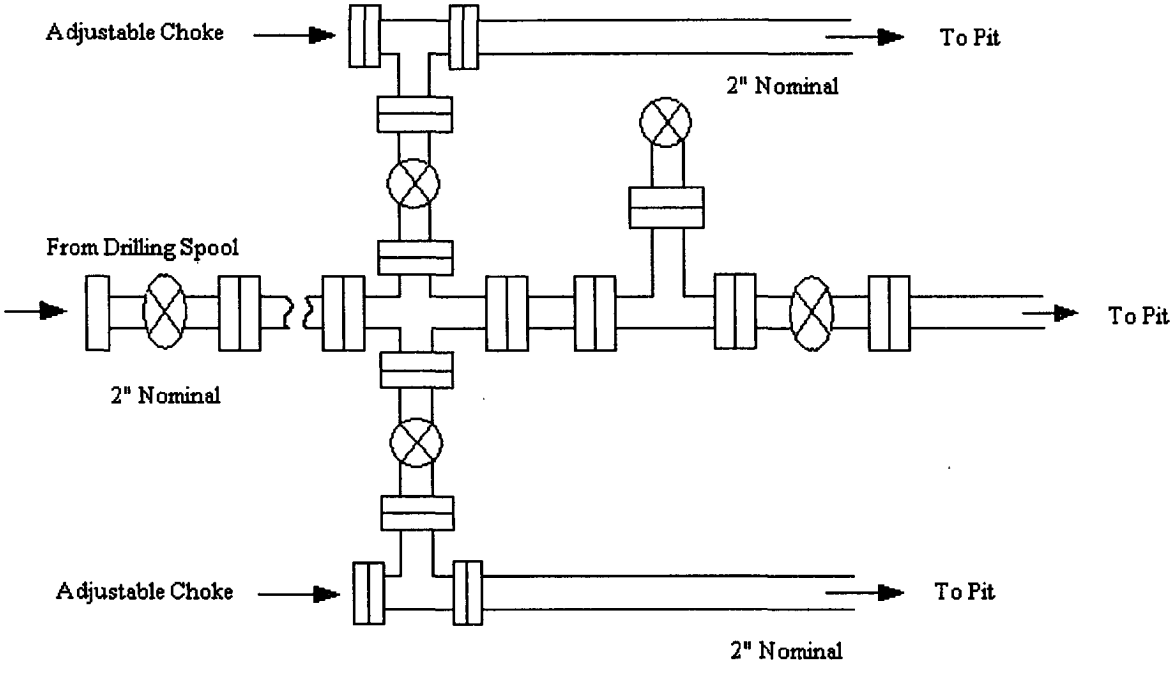
## Energen Resources Corporation

Typical BOP Configuration for Gas Drilling



# Energen Resources Corporation

Typical 2000 psi Choke Manifold Configuration




Choke manifold installed from surface to TD