

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENTFORM APPROVED  
OMB NO. 1004-0137  
Expires March 31, 2007


## APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of Work <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. <b>SF 078390-A</b>
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 type="checkbox"/> Multiple Zone		6. If Indian, Allottee or Tribe Name
2. Name of Operator <b>Energen Resources Corporation</b>		7. Unit or CA Agreement Name and No.
3a. Address <b>2198 Bloomfield Hwy Farmington, NM 87401</b>		8. Lease Name and Well No. <b>Hardie D #3S</b>
3b. Phone No. (include area code) <b>505.325.6800</b>		9. API Well No. <b>30-045-33946</b>
4. Location of Well (Report location clearly and in accordance with any State requirements)* At surface <b>1655' fnl, 1965' fw1</b> At proposed prod. zone		10. Field and Pool, or Exploratory <b>Basin Fruitland Coal</b>
14. Distance in miles and direction from nearest town or post office* <b>Approximately 10.4 miles southeast of Blanco</b>		11. Sec., T., R., M., or Blk. and Survey or Area <b>(F) S14, T28N, R8W</b>
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drg. unit line, if any) <b>1655'</b>	16. No. of Acres in lease <b>614.72</b>	17. Spacing Unit dedicated to this well <b>320 W/2</b>
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. <b>250'</b>	19. Proposed Depth <b>2890'</b>	20. BLM/BIA Bond No. on file
21. Elevations (Show whether DF, KDB, RT, GL, etc.) <b>6229' GL</b>	22. Approximate date work will start* <b>11/25/06</b>	23. Estimated duration <b>14</b>

## 24. Attachments

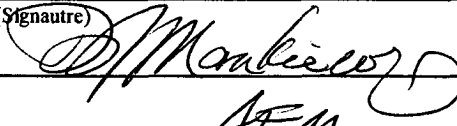
The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, shall be attached to this form:

- |                                                                                                                                                 |                                                                                                    |
|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| 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) <b>Nathan Smith</b>	Date <b>9/25/06</b>
-----------------------------------------------------------------------------------------------------	---------------------------------------------	------------------------

Title

Drilling Engineer

Approved by (Signature) 	Name (Printed/Typed) <b>AFM</b>	Date <b>10/27/06</b>
Title <b>AFM</b>	Office <b>FFO</b>	

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)

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

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

NMOC

DISTRICT I  
1825 N. French Dr., Hobbs, N.M. 88240

DISTRICT II  
811 South First, Artesia, N.M. 88210

DISTRICT III  
1000 Rio Brazos Rd., Aztec, N.M. 87410

DISTRICT IV  
2040 South Pacheco, Santa Fe, NM 87505

State of New Mexico  
Energy, Minerals & Natural Resources Department

Form C-102  
Revised August 15, 2000

Submit to Appropriate District Office  
State Lease - 4 Copies  
Fee Lease - 3 Copies

OIL CONSERVATION DIVISION

2040 South Pacheco  
Santa Fe, NM 87505

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

*API Number 30-045-33946	*Pool Code 71629	*Pool Name RECEIVED FRIUTLAND COAL
*Property Code 21244	*Property Name CITY OF TARRANTON NM HARDIE D	*Well Number 3 S
*OGRID No. 162928	*Operator Name ENERGEN RESOURCES CORPORATION	*Elevation 6229'

<sup>10</sup> Surface Location

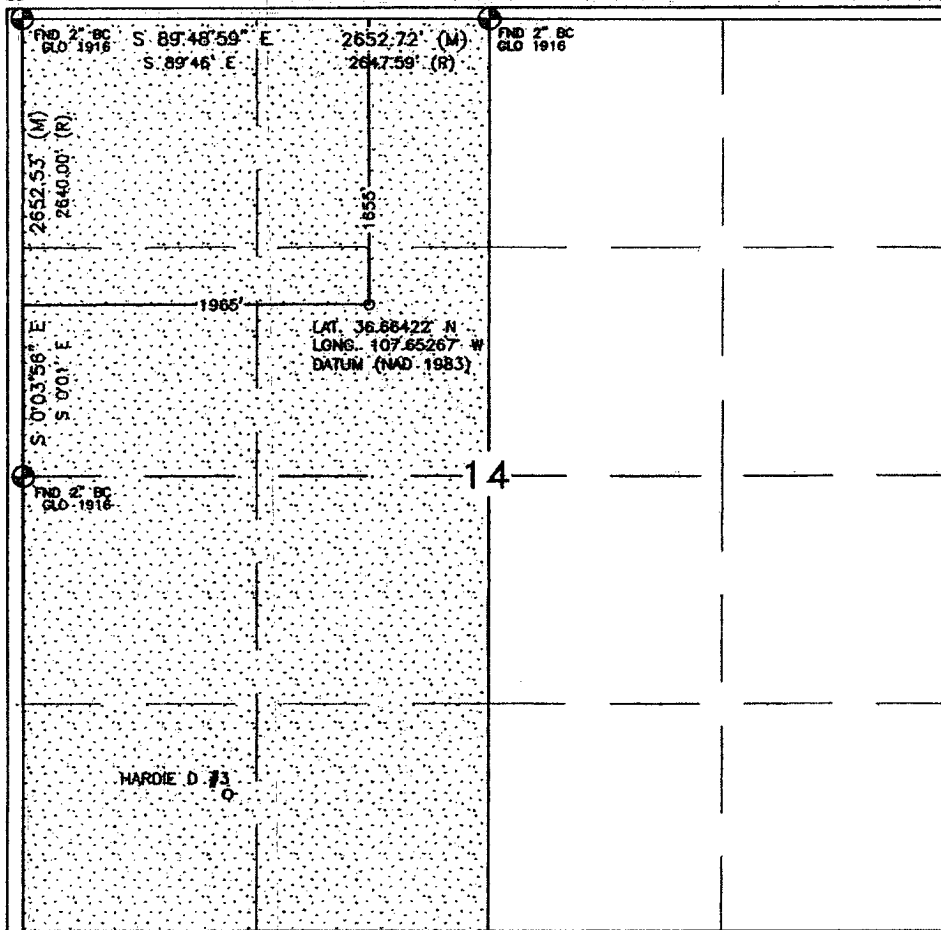
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
F	14	28N	8W		1655'	NORTH	1965'	WEST	SAN JUAN

<sup>11</sup> 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
<sup>12</sup> Dedicated Acres 320 -321.18 Acres - (W/2)					<sup>13</sup> Joint or Infill		<sup>14</sup> Consolidation Code		<sup>15</sup> 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

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<sup>17</sup> OPERATOR CERTIFICATION

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

*Nathan Smith*  
Signature  
Nathan Smith  
Printed Name  
Drilling Engineer  
Title  
9/27/06  
Date

<sup>18</sup> SURVEYOR CERTIFICATION

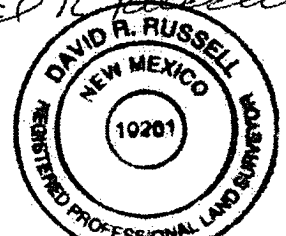
I hereby certify that the well location shown on this plat  
was plotted from field notes of actual surveys made by  
me or under my supervision, and that the same is true  
and correct to the best of my belief.

JUNE 22, 2006

Date of Survey

Signature and Seal of Professional Surveyor:

*David R. Russell*



DAVID RUSSELL

Certificate Number

10201

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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

Form C-103  
May 27, 2004

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

WELL API NO. <u>30-045-33946</u>
5. Indicate Type of Lease STATE <input type="checkbox"/> FEE <input type="checkbox"/>
6. State Oil & Gas Lease No.
7. Lease Name or Unit Agreement Name: <u>Hardie D</u>
8. Well Number <u># 3S</u>
9. OGRID Number <u>162928</u>
10. Pool name or Wildcat <u>Basin Fruitland Coal</u>

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 <input type="checkbox"/> Gas Well <input checked="" type="checkbox"/> Other	11. Elevation (Show whether DR, RKB, RT, GR, etc.) <u>6229' GL</u>
2. Name of Operator <u>Energen Resources Corporation</u>	
3. Address of Operator <u>2198 Bloomfield Highway, Farmington, NM 87401</u>	
4. Well Location Unit Letter <u>F</u> : <u>1655'</u> feet from the <u>North</u> line and <u>1965'</u> feet from the <u>West</u> line Section <u>14</u> Township <u>28N</u> Range <u>08W</u> NMPM County <u>San Juan</u>	
Pit or Below-grade Tank Application <input checked="" type="checkbox"/> or Closure <input type="checkbox"/> Pit type <u>Drill</u> Depth to Groundwater <u>&gt;100'</u> Distance from nearest fresh water well <u>&gt;1000'</u> Distance from nearest surface water <u>&gt;250'</u> Pit Liner Thickness: <u>12</u> 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 COMPLETION ☐  
OTHER: Build drilling pit ☒

SUBSEQUENT REPORT OF:

- REMEDIAL WORK ☐ ALTERING CASING ☐  
COMMENCE DRILLING OPNS. ☐ PLUG AND ABANDONMENT ☐  
CASING TEST AND 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.

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".

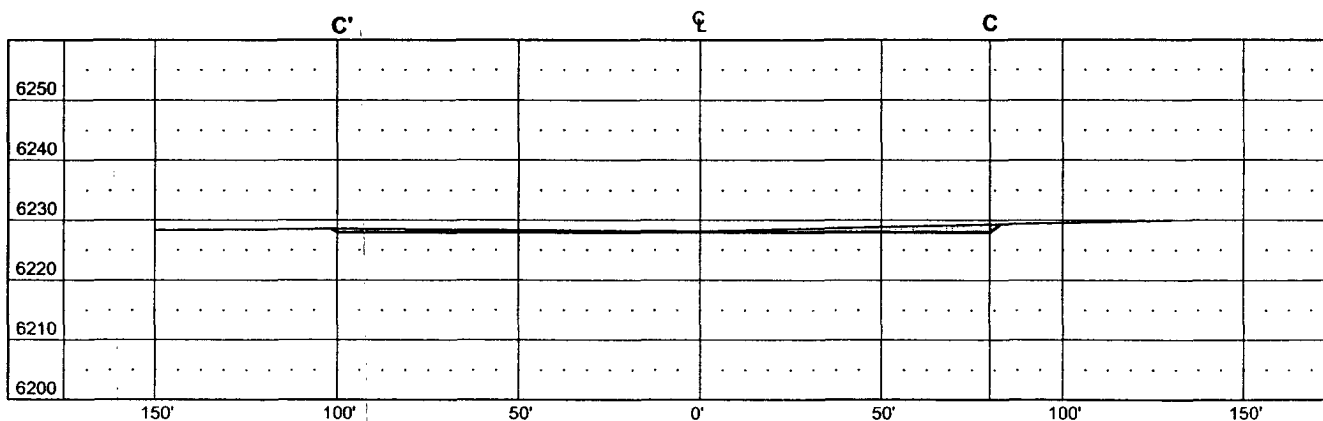
I hereby certify that the information above is true and complete to the best of my knowledge and belief. I further certify that any pit or below-grade tank has been/will be constructed or closed according to NMOCD guidelines ☒ , a general permit ☐ or an (attached) alternative OCD-approved plan ☐

SIGNATURE Vicki Donaghey TITLE Regulatory Analyst DATE 09/26/06  
Type or print name Vicki Donaghey E-mail address: vdonaghe@energen.com  
Telephone No. 505.325.6800

For State Use Only

APPROVED BY [Signature] TITLE DEPUTY OIL & GAS INSPECTOR, DIST. 8 DATE OCT 30 2006  
Conditions of Approval, if any:

HARDIE D # 3S  
1655' FNL & 1965' FWL  
LOCATED IN THE SE/4 NW/4 OF SECTION 14,  
T28N, R8W, N.M.P.M.,  
SAN JUAN COUNTY, NEW MEXICO  
GROUND ELEVATION: 6229', NAVD 88  
FINISHED PAD ELEVATION: 6228.0', NAVD 88

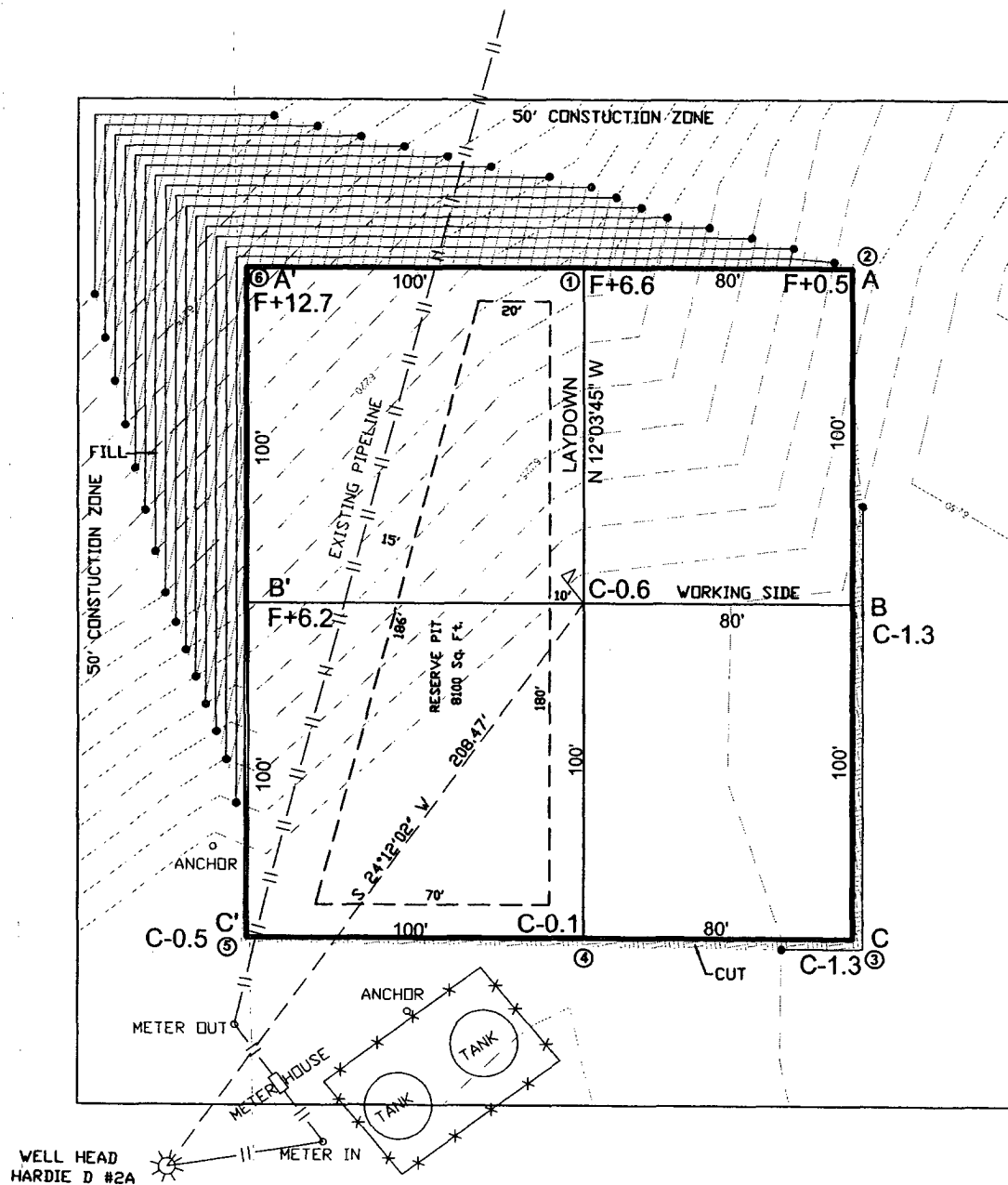
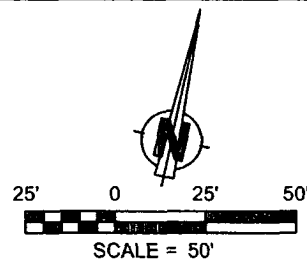


**Russell Surveying**  
1409 W. Aztec Blvd. #5  
Aztec, New Mexico 87410  
(505) 334-8637

LATITUDE: 36.66422°N  
LONGITUDE: 107.65267°W  
DATUM: NAD 83

## ENERGEN RESOURCES CORPORATION

HARDIE D # 3S  
1655' FNL & 1965' FWL  
LOCATED IN THE SE/4 NW/4 OF SECTION 14,  
T28N, R8W, N.M.P.M.,  
SAN JUAN COUNTY, NEW MEXICO  
GROUND ELEVATION: 6229', NAVD 88  
FINISHED PAD ELEVATION: 6228.0', NAVD 88



1 FOOT CONTOUR INTERVAL SHOWN  
SCALE: 1" = 50'  
JOB No.: ERG116  
DATE: 06/22/06



**Russell Surveying**  
1409 W. Aztec Blvd. #5  
Aztec, New Mexico 87410  
(505) 334-8637

## **Operations Plan**

September 25, 2006

### **Hardie D 3S**

#### **General Information**

Location	1655' fnl, 1965' fwl senw S14, T28N, R8W San Juan County, New Mexico
Elevations	6229' GL
Total Depth	2936' (MD)
Formation Objective	Basin Fruitland Coal

#### **Formation Tops**

San Jose	Surface
Nacimiento	691'
Ojo Alamo Ss	1761'
Kirtland Sh	1936'
Fruitland Fm	2446'
Top Coal	2591'
Bottom Coal	2736'
Pictured Cliffs Ss	2736'
<b>Total Depth</b>	<b>2936'</b>

#### **Drilling**

The 12 1/4" 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 8.3 ppg to 8.9 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

Surveys: Surface and/or every 500' to TD.

## Tubulars

### Casing, Tubing, & Casing Equipment:

String	Interval	Wellbore	Casing	Csg Wt	Grade
Surface	0'-300'	12 1/4"	8 5/8"	24.0 ppf	J-55 ST&C
Production	300'-2936'	7 7/8"	5 1/2"	15.5 ppf	J-55 LT&C
Tubing	0'-2850'		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 1/2" Larkin casing head. 5 1/2" 2000 x 2" tubing head.

## Cementing

Surface Casing: 225 sks Type V with 2.0 % CaCl<sub>2</sub> and 1/4 #/sk Flocele (15.4 ppg, 1.23 ft<sup>3</sup>/sk 277 ft<sup>3</sup> 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 1/2 hole volumes of mud and reduce funnel viscosity to minimum to aide in hole cleanout. Depending on wellbore conditions, cement may consist of 440 sks 65/35 with 6.0 % Bentonite, 2.0 % CaCl<sub>2</sub>, 10 #/sk Gilsonite, and 1/2 #/sk Flocele (12.3 ppg, 1.94 ft<sup>3</sup>/sk) and a tail of 145 sks of Type V cement with 1.0 % CaCl<sub>2</sub> and 1/4 #/sk Flocele (15.4ppg, 1.23 ft<sup>3</sup>/sk). (1032 ft<sup>3</sup> of slurry, 100 % excess to circulate to surface).

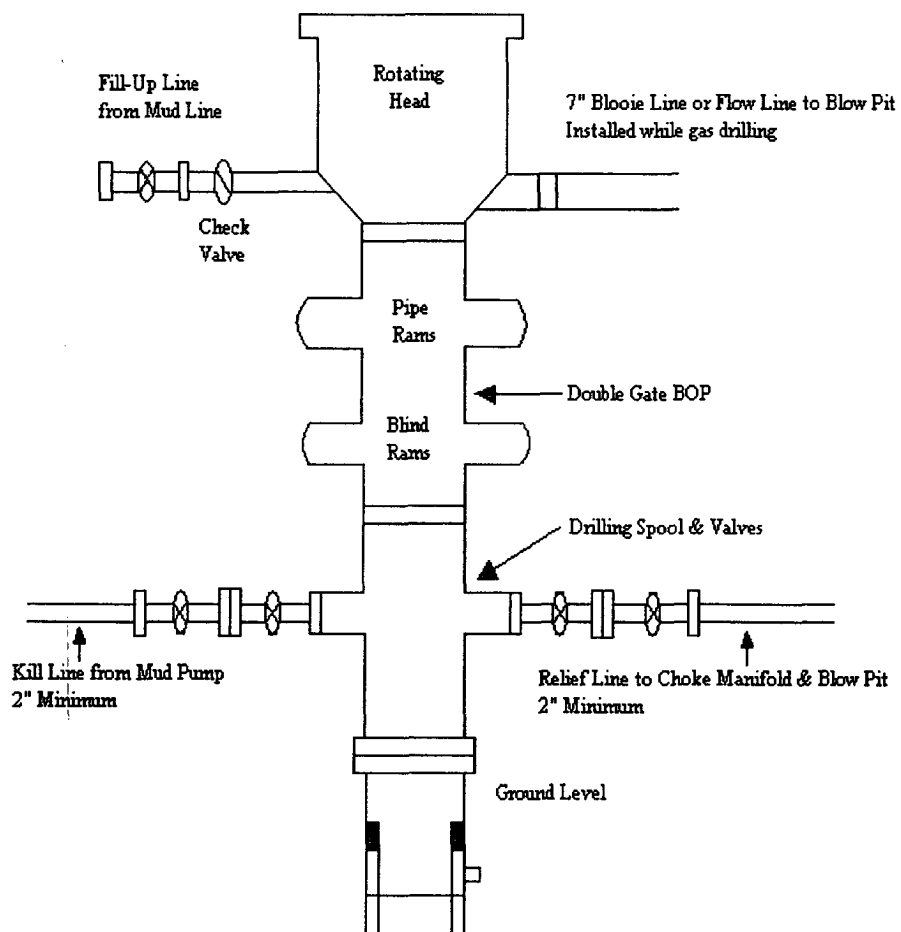
**Pump 30 bbls of gelled water based spacer ahead of cement to aide in hole cleaning.**

## Other Information

- 1) This well will be cased and the Basin Fruitland Coal fracture stimulated.
- 2) If lost circulation is encountered, sufficient LCM will be added to the mud system to maintain well control. The production 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

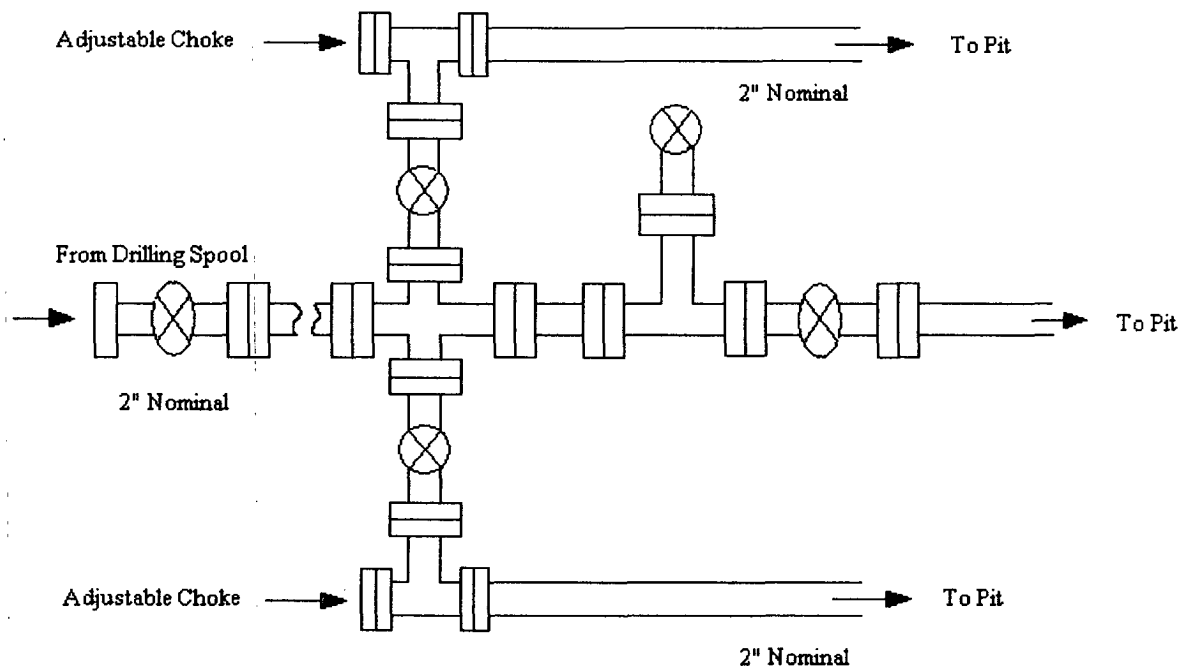
### Typical BOP Configuration for Gas Drilling





## Energen Resources Corporation

### Typical 2000 psi Choke Manifold Configuration



Choke manifold installed from surface to TD