

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

## APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. TYPE OF WORK <b>DRILL</b> <input checked="" type="checkbox"/> <b>DEEPEN</b> <input type="checkbox"/>		1b. TYPE OF WELL <b>OIL WELL</b> <input type="checkbox"/> <b>GAS WELL</b> <input checked="" type="checkbox"/> <b>OTHER</b> <input type="checkbox"/> <b>SINGLE ZONE</b> <input checked="" type="checkbox"/> <b>MULTIPLE ZONE</b> <input type="checkbox"/>		5. LEASE DESIGNATION AND SERIAL NO. <b>USA-NM-0606</b>
2. NAME OF OPERATOR <b>Energen Resources Corporation</b>		3. ADDRESS OF OPERATOR <b>c/o Walsh Engineering 7415 E. Main St., Farmington, NM 87402 (505) 327-4892</b>		6. IF INDIAN, ALLOTTEE OR TRIBE NAME
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements. *) <b>At Surface 1650' FNL and 2000' FWL</b> <b>At proposed Prod. Zone</b>		10. FIELD AND POOL OR WILDCAT <b>Basin Fruitland Coal</b>		7. UNIT AGREEMENT NAME
14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE* <b>~ 6 miles NE of Aztec, NM</b>		15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drig. unit line, if any) <b>1650'</b>		8. FARM OR LEASE NAME, WELL NO. <b>Hart Canyon <del>3410</del> #28 1S</b>
16. NO. OF ACRES IN LEASE <b>2394.12</b>		17. NO. OF ACRES ASSIGNED TO THIS WELL <b>N/2 315.16</b>		9. API WELL NO. <b>30-045-32416</b>
18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR ON THIS LEASE, FT. <b>~800'</b>		19. PROPOSED DEPTH <b>3000'</b>		11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA <b>F Sec. 28, T31N, R10W</b>
21. ELEVATIONS (Show whether DF, RT, GR, etc.) <b>6074' GR</b>		22. APPROX. DATE WORK WILL START* <b>As soon as permitted</b>		12. COUNTY OR PARISH <b>San Juan County</b>
13. STATE <b>NM</b>				

23. PROPOSED CASING AND CEMENTING PROGRAM				
SIZE OF HOLE	SIZE OF CASING	WEIGHT/FOOT	SETTING DEPTH	QUANTITY OF CEMENT
12-1/4"	8-5/8"	24#	+/- 240'	~201 cu.ft. Class "B" w/ 1/4#CF & 2% C
7-7/8"	5-1/2"	15.5#	+/- 3000'	~818 cf Lightwt & ~222 cu.ft. Class "B"

Energen Resources Corporation proposes to drill a vertical well to develop the Fruitland Coal formation at the above described location in accordance with the attached drilling and surface use plans. The surface is under the jurisdiction of the Bureau of Land Management.

This location has been archaeologically surveyed by DCA (Division of Conservation Archaeology - Salmon Ruins). Copies of their report have been submitted directly to your office.

This APD also is serving as an application to obtain road and pipeline right-of-ways. This well will require approximately 200' of new access road (see Pipeline & Well Plats #3 & #4).

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, 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 John C. Thompson, Agent DATE 10/12/2004

(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 Acting AFM DATE 12-16-07

\*See Instructions On Reverse Side

Title 18 U.S.C. Section 1001, makes 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.

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  
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

WELL LOCATION AND ACREAGE DEDICATION PLAT

<sup>1</sup> API Number 30045-32616	<sup>2</sup> Pool Code 71629	<sup>3</sup> Pool Name Basin FRUITLAND COAL
<sup>4</sup> Property Code 300465	<sup>5</sup> Property Name HART CANYON-32616-28	<sup>6</sup> Well Number 1S
<sup>7</sup> OGRID No. 162928	<sup>8</sup> Operator Name ENERGEN RESOURCES CORPORATION	<sup>9</sup> Elevation 6073.63'

<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	28	31N	10W		1650	NORTH	2000	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 N/2 315.16	<sup>13</sup> Joint or Infill	<sup>14</sup> Consolidation Code	<sup>15</sup> Order No.
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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

S 89-27-51 W 2665.51' (MEAS.)		N 88-40-01 W 2558.26' (MEAS.)		<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.  Signature John C. Thompson Printed Name Engineer john@walsheng.net Title and E-mail Address 10/11/04 Date
S 89-29-00 W 2665.74' (REC.)		N 88-38-00 W 2560.14' (REC.)		
2633.32' (MEAS.) 2634.07' (REC.)		2716.56' (REC.) 2720.34' (MEAS.)		<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. 9/11/04 Date of Survey HOWARD DAGGETT Signature and Seal of Professional Surveyor NM #9679 Certificate Number
N 00-14-59 W N 00-12-00 W		N 05-02-00 E N 04-56-05 E		
2000'		1650'		
DEDICATED ACREAGE N/2				
FD 3 1/4" BRASS CAP BLM 1968		FD 3 1/4" BRASS CAP BLM 1968		
2678.17' (MEAS.) 2678.94' (REC.)		2,607.66' (REC.) 2605.19' (MEAS.)		
N 00-04-54 E N 00-01-00 E		N 01-59-00 W N 01-55-09 W		
FD 3 1/4" BRASS CAP BLM 1968		FD 3 1/4" BRASS CAP BLM 1968		
N 89-33-00 W 5064.84' (REC.) N 89-35-19 W 5066.37' (MEAS.)				

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District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505

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

WELL API NO.
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 Hart Canyon 31-10 28
8. Well Number No. 1S
9. OGRID Number 162928
10. Pool name or Wildcat Basin Fruitland Coal

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  
Energen Resources Corporation

3. Address of Operator  
c/o Walsh Engineering & Production, 7415 E. Main, Farmington, NM 87402

4. Well Location  
Unit Letter F : 1650 feet from the North line and 2000 feet from the West line  
Section 28 Township 31N Range 10 NMPM San Juan County

11. Elevation (Show whether DR, RKB, RT, GR, etc.)  
6074' GR

Pit or Below-grade Tank Application ☒ or Closure ☐

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

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: ☒

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.

Drilling Pit Permit Request

See APD for location of pit relative to wellhead. Note: location is on federal minerals and federal surface. Will close as per Energen Resources pit closure plan and NMOCD Guidelines in accordance with Rule 50.

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 John C. Thompson TITLE Engineer/Agent DATE 9/19/04

Type or print name  
For State Use Only

E-mail address: john@walsheng.net Telephone No. 327-4892

APPROVED BY: [Signature]  
Conditions of Approval (if any):

DEPUTY OIL & GAS INSPECTOR, DIST. 58  
TITLE

DEC 20 2004  
DATE

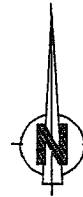
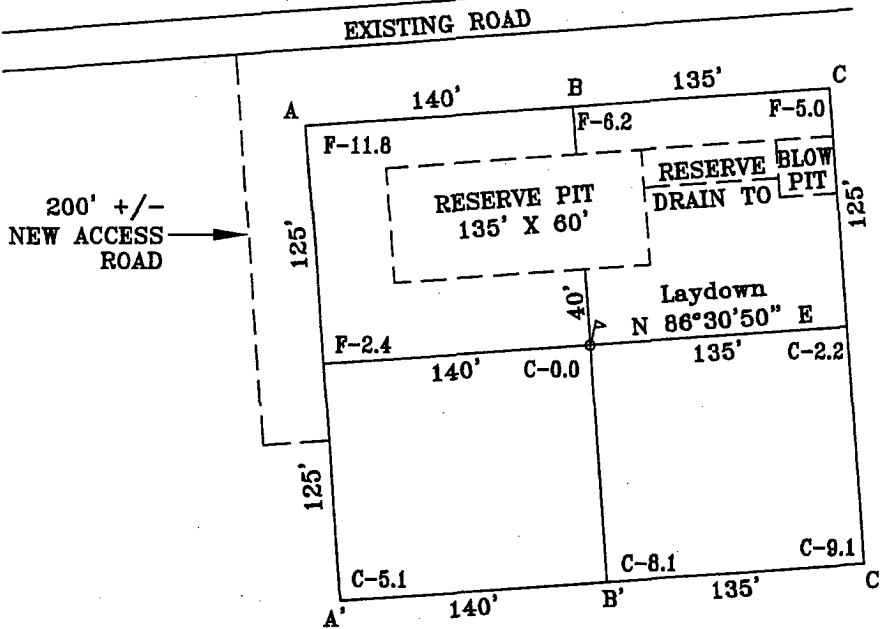
# ENERGEN RESOURCES CORPORATION

HART CANYON 31-10 #28 #1S

1650' FNL, 2000' FWL

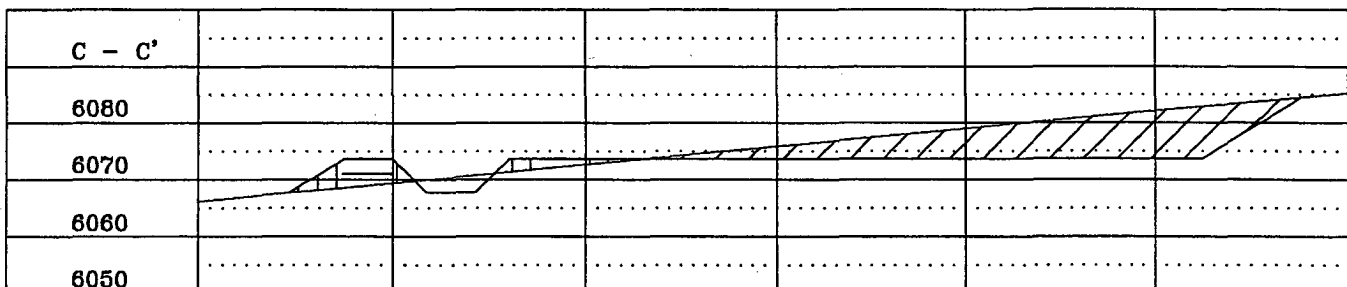
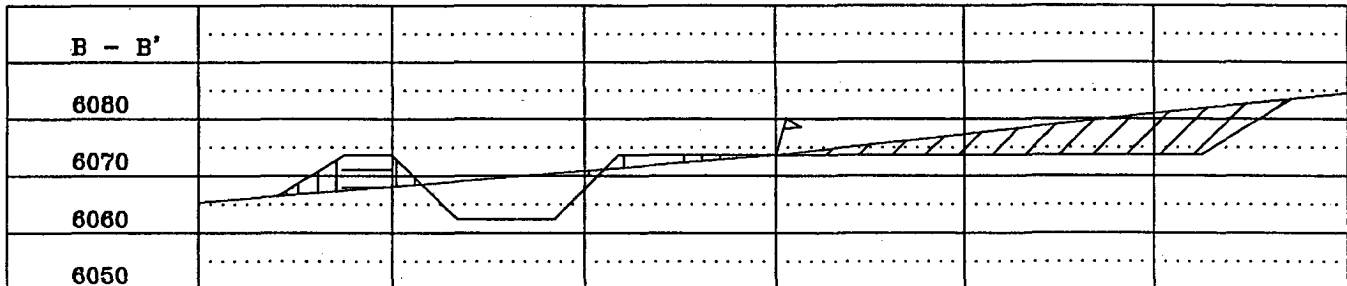
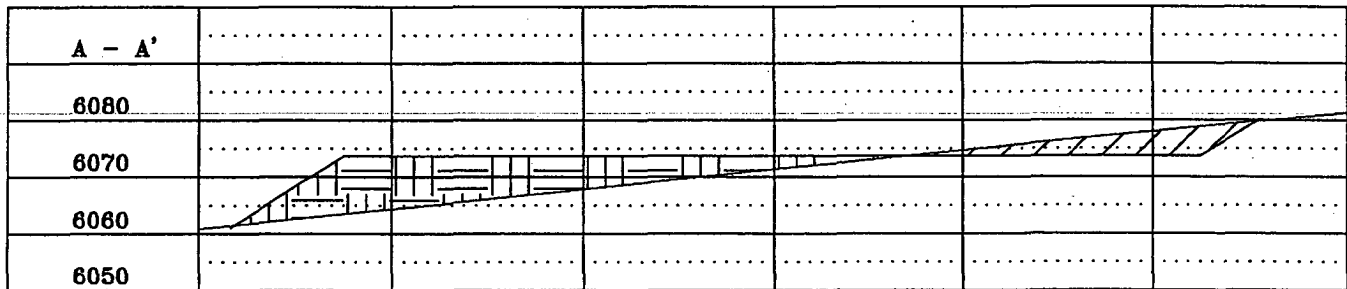
LOCATED IN THE SE/4 NW/4 OF  
SECTION 28, T31N, R10W, N.M.P.M.,  
SAN JUAN COUNTY, NEW MEXICO

ELEVATION: 6073.63', NAVD 88



LATITUDE: 36°52'23"N  
LONGITUDE: 107°52'28"W  
DATUM: NAD 83

Plat #2



# **Energen Resources Corporation**

## **Operations Plan**

### **Hart Canyon 31-10 28 No. 1S**

*(Note: The following may be adjusted on site based upon actual conditions)*

#### **1. Location**

Location	:	1650' fnl & 2600' fwl (se nw) Sec 28, T31N, R10W San Juan County, New Mexico
Elevations	:	6074' GL
Total Depth	:	3000' MD RKB
Well Objective	:	Basin Fruitland Formation

#### **2. Formation Tops**

<b><u>A. Formation</u></b>	<b><u>Depth-KB</u></b>
Nacimiento Fm.	Surface
Ojo Alamo Ss.	1295'
Kirtland Sh.	1395'
Fruitland Fm.	2460'
Top Coal	2590'
Base Coal	2800'
Pictured Cliffs Ss.	2805'
<b>Total Depth</b>	<b>3000'</b>

Estimated depths of anticipated water, oil, gas and other mineral bearing formations which are expected to be encountered:

Water and gas: 1295' – 2805'

B. Logging program: Induction/GR and Density logs at TD

#### **3. Hazards**

##### **Overpressuring/H2S**

No over pressured zones are expected in this well. No known H2S zones will be penetrated in this well. Maximum expected BHP: 600 psig.

##### **Lost Circulation**

Lost circulation is not expected to be a problem. However, in the event lost circulation zones are encountered or hole stability problems develop, lost circulation material (LCM) will be on location to be used with any mud systems that may be needed to address the lost circulation zones. Also, lost circulation material will be used in the production cement

in attempt to minimize any lost circulation zones/problems that may be encountered during cementing of the production string.

#### 4. Drilling

A. Contractor: L&B Speed Drill

B. Mud Program:

The surface hole will be drilled with a fresh water mud system.

The production hole will be drilled with a fresh water/polymer mud system. The weighting material will be drill solids or if conditions dictate, barite. The maximum weight expected is 8.5 ppg.

C. Minimum Blowout Control Specifications

Double ram type or annular type 2000 psi working pressure BOP with a rotating head will be utilized. See the attached Exhibits #1 & #2 for details on the BOP equipment. All ram type preventers and related equipment will be hydraulically tested at nipple-up and after any use under pressure to 1000 psi.

The blind rams will be hydraulically activated and checked for operational readiness each time pipe is pulled out of the hole. All checks of the BOP stack and equipment will be noted on the daily drilling report. The BOP equipment will include a kelly cock, floor safety valve, and choke manifold all rated to 2000 psi.

#### 4. Casing & Materials

A. Casing

	<u>String</u>	<u>Interval</u>	<u>Hole Size</u>	<u>Csg OD</u>	<u>Wt lb/ft</u>	<u>Grade</u>
➤	Surface	0'-240'	12-1/4"	8-5/8"	24.0	J-55
➤	Production	0'-3000'	7-7/8"	5-1/2"	15.5	J-55

B. Float equipment

I) Surface Casing: None

II) Production Casing: 5-1/2" cement guide shoe and self fill insert float collar.

Place float one joint above shoe. Five centralizers spaced every other joint above shoe and five turbolizers every fifth joint from the top of the well.

#### 5. Cementing

Surface Casing: 8-5/8" – Use 170 sx (201 cu.ft.) of Class "B" with 1/4#/sk celloflake and 2% CaCl<sub>2</sub>. (yield: 1.18 cu.ft./sk; slurry weight: 15.6 ppg). Use 100% excess to circulate cement to surface. WOC 12 hours. Pressure test surface casing to 600 psi for 30 min.

Production Casing: 5-1/2" – Before cementing circulate hole with at least 1-1/2 hole volumes of mud. Precede cement with 20 bbls of fresh water. Lead with 397 sx (818 cu.ft.) of Class "B" with 2% SMS (sodium metasilicate) and 1/4#/sk celloflake. (yield: 2.06 cu.ft./sk; slurry weight: 12.5 ppg). Tail with 188 sx (222 cu.ft.) of Class "B" with 1/4#/sk

cellolake (yield: 1.18 cu.ft./sk; slurry weight: 15.6 ppg). Total cement volume is 1040 cu.ft. (use 100% excess to circulate cement to surface).

## **6. Completion**

Well will be selectively perforated and hydraulically fractured to test for production. If productive the well will be produced thru 2-3/8" tubing.

## **7. Surface Facilities**

1. If well is productive, set separator, production tank (or water lines) and any related production equipment.
2. Set meter and tie well into pipeline.
3. Turn wellover to production department.
4. Rehabilitate as per the managing surface agency request.



John C. Thompson  
Engineer

# Energen Resources Corp.

## Well Control Equipment Schematic for 2M Service

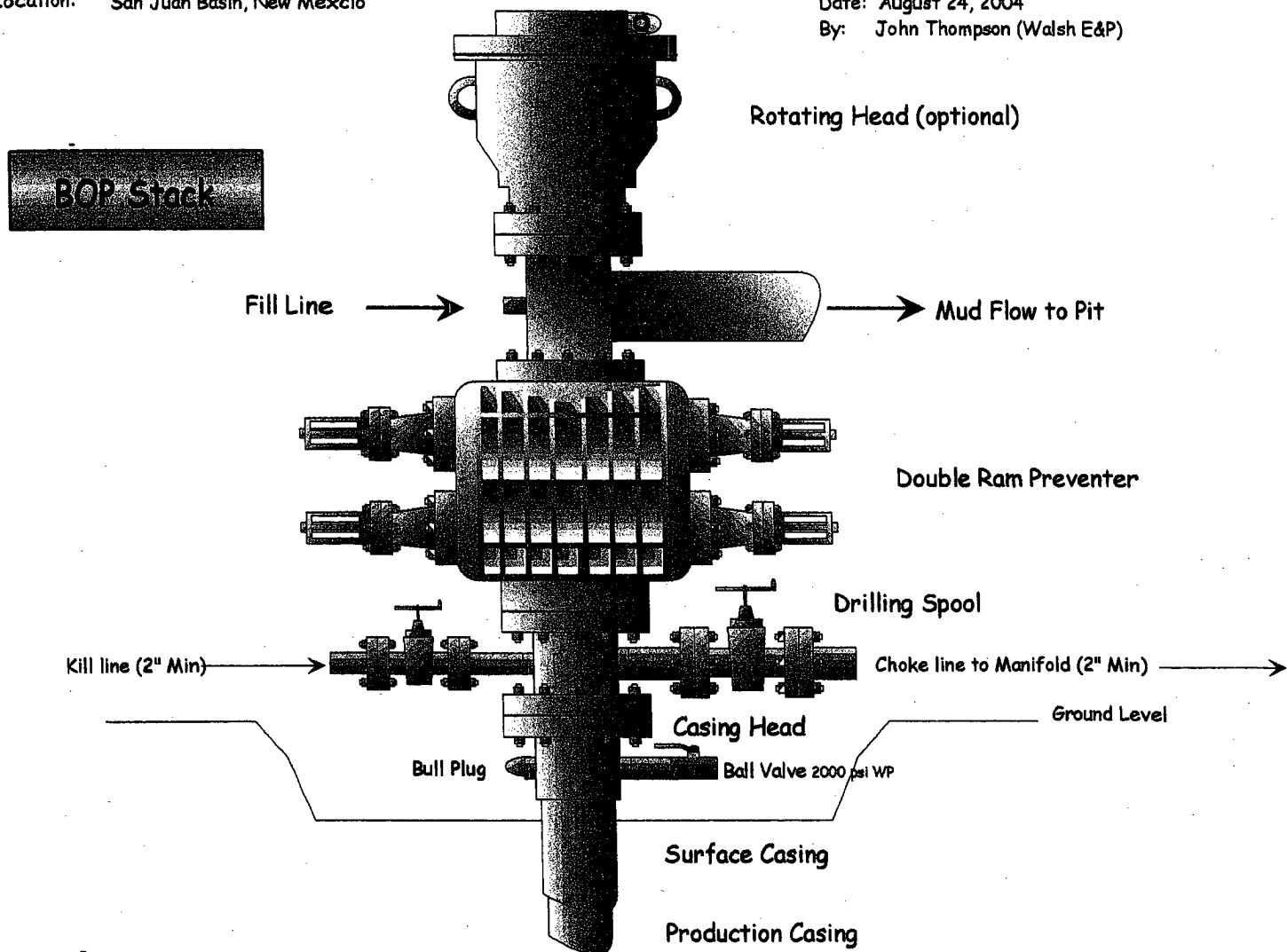
Attachment to Drilling Technical Program

### Exhibit #1 Typical BOP setup

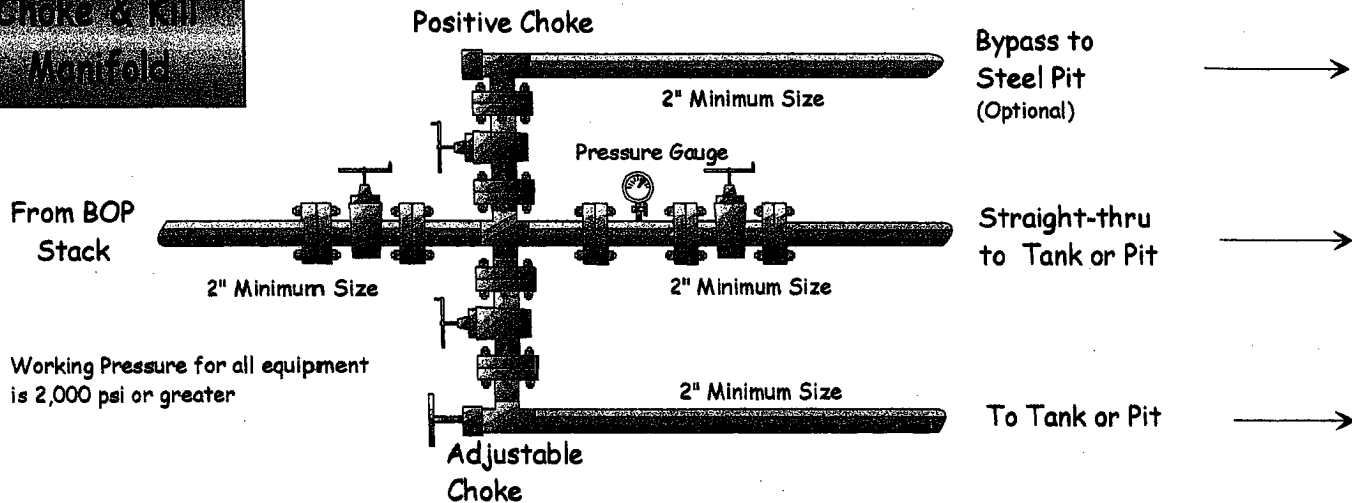
Location: San Juan Basin, New Mexico

Date: August 24, 2004

By: John Thompson (Walsh E&P)



### Choke & Kill Manifold





# Energen Resources Corp.

## Well Control Equipment Schematic for 1M Service

Attachment to APD Form 3160-3

Exhibit #2

Location: Typical set up for shallow FTC/PC  
Wells in San Juan County, New Mexico

Date: August, 2004  
Drawn By: John C. Thompson

