

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

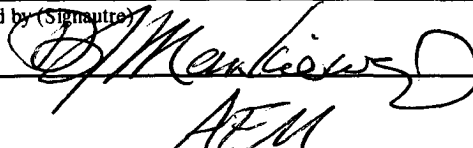
1a. Type of Work <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. SF 080917
1b. Type of Well <input type="checkbox"/> Oil Well <input checked="" type="checkbox"/> Gas Well <input type="checkbox"/> Other <input type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		6. If Indian, Allottee or Tribe Name
2. Name of Operator Energen Resources Corporation		7. Unit or CA Agreement Name and No.
3a. Address 2198 Bloomfield Highway Farmington, New Mexico 87401		8. Lease Name and Well No. Hart Canyon 3 #2S
3b. Phone No. (include area code) (505) 325-6800		9. API Well No. 30-045-33112
4. Location of Well (Report location clearly and in accordance with any State equipment requirements) At surface 1710' fsl, 1120' fwl At proposed prod. zone 1900' fsl, 660' fel		10. Field and Pool, or Exploratory Basin Fruitland Coal
11. Sec., T., R., M., or Blk. and Survey or Area L S03, T30N, R10W		12. County or Parish San Juan
13. State NM		
14. Distance in miles and direction from nearest town or post office* Approximately 6.62 miles east of Aztec		
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drg. unit line, if any) 660'	16. No. of Acres in lease 2538.18	17. Spacing Unit dedicated to this well 328.29 S 1/2
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. Approx. 500'	19. Proposed Depth 3192' +/- (TVD) 2974' +/- (MD)	20. BLM/BIA Bond No. on file
21. Elevations (Show whether DF, KDB, RT, GL, etc.) GL 6340'	22. Approximate date work will start* 06/15/05	23. Estimated duration 14 days

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) Nathan Smith	Date 5/12/05
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Title Drilling Engineer		
Approved by (Signature) 	Name (Printed/Typed) AFM	Date 6-23-05
Title AFM		

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)

HOLD THIS FOR Directional Survey

NMOCD

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".

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

¹ API Number 30-045-33112		² Pool Code	³ Pool Name UP FRUITLAND COAL
⁴ Property Code 300466	⁵ Property Name HART CANYON 3		⁶ Well Number 2S
⁷ OGRID No. 162928	⁸ Operator Name ENERGEN RESOURCES CORPORATION		⁹ Elevation 6340'

¹⁰ Surface Location

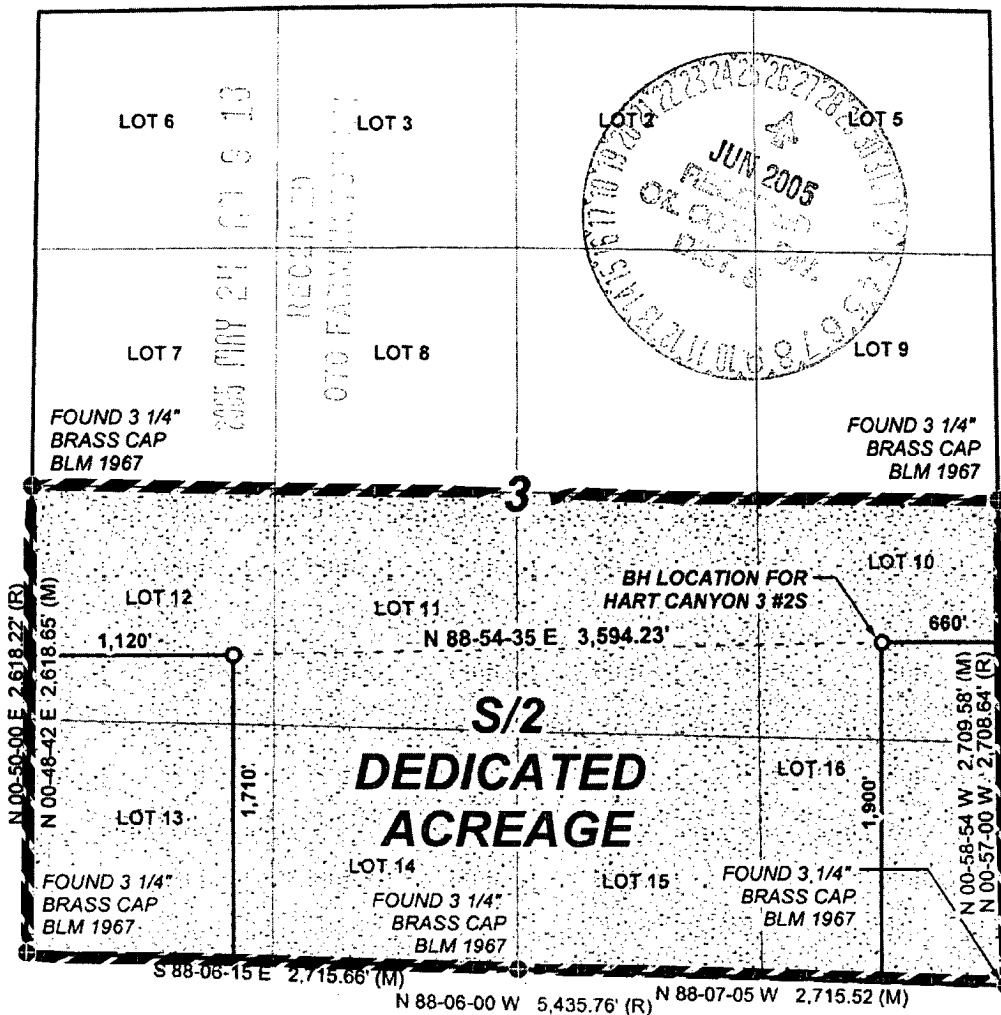
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
L	3	30N	10W		1710	SOUTH	1120	WEST	SAN JUAN

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
I	3	30N	10W		1900	SOUTH	660	EAST	SAN JUAN

¹² Dedicated Acres	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
328.29			

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.	
<i>Nathan Smith</i>	
Signature	
Nathan Smith	
Printed Name	
Drilling Engineer	
Title and E-mail Address	
5/12/05	
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.	
5/10/05	
Date of Survey	
Signature and Seal of Professional Surveyor:	
NM #9679	
Certificate Number	

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.
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 3
8. Well Number 2S
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 <input type="checkbox"/> Gas Well <input checked="" type="checkbox"/> Other
2. Name of Operator Energen Resources Corporation
3. Address of Operator 2198 Bloomfield Highway, Farmington, NM 87401
4. Well Location Unit Letter <u>L</u> : <u>1710'</u> feet from the <u>South</u> line and <u>660</u> feet from the <u>East</u> line Section <u>03</u> Township <u>30N</u> Range <u>10W</u> NMPM County <u>San Juan</u>
11. Elevation (Show whether DR, RKB, RT, GR, etc.) 6340' GL
Pit or Below-grade Tank Application <input checked="" type="checkbox"/> or Closure <input type="checkbox"/> Pit type <u>Drill</u> Depth to Groundwater <u>>100'</u> Distance from nearest fresh water well <u>>1000'</u> Distance from nearest surface water <u>>200'</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 ☐

SUBSEQUENT REPORT OF:

REMEDIAL WORK ☐ ALTERING CASING ☐
COMMENCE DRILLING OPNS. ☐ PLUG AND ABANDONMENT ☐
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 Nathan Smith TITLE Drilling Engineer DATE 05/13/05

Type or print name Nathan Smith

E-mail address: nsmith@energen.com
Telephone No. 505.325.6800

For State Use Only

APPROVED BY [Signature] TITLE DEPUTY OIL & GAS INSPECTOR, DIST. 30 DATE JUN 27 2005

Conditions of Approval, if any:

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

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE - Other instructions on reverse side

1. Type of Well
☐ Oil Well ☒ Gas Well ☐ Other2. Name of Operator
Energen Resources Corporation3a. Address
2198 Bloomfield Highway, Farmington, NM 874013b. Phone No. (include area code)
505.325.68004. Location of Well (Footage, Sec., T., R., M., or Survey Description)
S3, T30N, R10W 1710' FSL, 1120' FWL NWSW

5. Lease Serial No.

SF 080917

6. If Indian, Allottee or Tribe Name

7. If Unit or CA/Agreement, Name and/or No.

8. Well Name and No.

Hart Canyon 3 #2S

9. API Well No.

30045 33112

10. Field and Pool, or Exploratory Area
Basin Fruitland Coal

11. County or Parish, State

San Juan NM

12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION

- ☒
- Notice of Intent
-
- ☐
- Subsequent Report
-
- ☐
- Final Abandonment Notice

TYPE OF ACTION

- | | | | |
|--|---|--|---|
| <input type="checkbox"/> Acidize | <input type="checkbox"/> Deepen | <input type="checkbox"/> Production (Start/Resume) | <input type="checkbox"/> Water Shut-Off |
| <input type="checkbox"/> Alter Casing | <input type="checkbox"/> Fracture Treat | <input type="checkbox"/> Reclamation | <input type="checkbox"/> Well Integrity |
| <input type="checkbox"/> Casing Repair | <input type="checkbox"/> New Construction | <input type="checkbox"/> Recomplete | <input type="checkbox"/> Other _____ |
| <input checked="" type="checkbox"/> Change Plans | <input type="checkbox"/> Plug and Abandon | <input type="checkbox"/> Temporarily Abandon | |
| <input type="checkbox"/> Convert to Injection | <input type="checkbox"/> Plug Back | <input type="checkbox"/> Water Disposal | |

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the final site is ready for final inspection.)

Energen Resources plans to make the following changes to the Hart Canyon 3 #2S well:

- * Change the intermeditate wellbore from a 45 deg deviation to a 66 deg deviation as indicated in the attached directional drilling plan with a new setting depth of 4593' (MD).
- * Change the lower production liner top and setting depth to 4060' - 5815' (MD), TVD remaining the same.
- * Change the upper production liner top and setting depth to 3770' - 5790' (MD), TVD remaining the same.
- * Change the intermediate cement volumes to 575 sks of lead followed by 225 sks of tail (1406 cu.ft.).

14. I hereby certify that the foregoing is true and correct
-
- Name (Printed/Typed)

Nathan Smith

Title

Drilling Engineer

Date 6/15/05

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by

Title

AFH

Office

FFO

Date

6-23-05

Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to these rights in the subject lease which would entitle the applicant to conduct operations thereon.

Title 18 U.S.C. Section 1001, and Title 43 U.S.C. Section 1212, 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.

NMOC

Operations Plan

Revised June 15, 2005

Hart Canyon 3 #2S

General Information

Location	1710' fsl, 1120' fel at surface 1900' fsl, 0660' fwl at bottom nwsW S03, T30N, R10W San Juan County, New Mexico
Elevations	6340' GL
Total Depth	4593' +/- (MD); 3192' +/- (TVD)
Formation Objective	Basin Fruitland Coal

Formation Tops

Nacimiento	Surface
Ojo Alamo Ss	1676' (TVD)
Kirtland Sh	1786' (TVD)
Fruitland Fm	2658' (TVD), 3236' (MD)
Top Coal	2832' (TVD), 3700' (MD)
Target Coal Top (1)	2878' (TVD), 3808' (MD)
Target Coal Base (1)	2896' (TVD), 3831' (MD)
Target Coal Top (2)	2998' (TVD), 4104' (MD)
Target Coal Base (2)	3010' (TVD), 4120' (MD)
Bottom Coal	3010' (TVD), 4120' (MD)
Pictured Cliffs Ss	3016' (TVD), 4174' (MD)
Total Depth	3192' (TVD), 4593' (MD)

****Note – measured depths are calculated from data points on the directional survey****

Drilling

The 12 ¼" wellbore will be drilled with a fresh water mud system.

The 8 ¾" 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. Kick off point is 1950 ft (TVD).

The 6 ¼" wellbore will be drilled with a fresh water system or KCl brine as wellbore and formation pressures dictate.

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: Gamma Ray MWD and mud logs.

Coring: None

Natural Gauges: Surface and as needed for directional surveys

Tubulars

Casing, Tubing, & Casing Equipment:

String	Interval	Wellbore	Casing	Csg Wt	Grade
Surface	0'-300	12 1/4"	9 5/8"	32.3 ppf	H-40 ST&C
Intermediate	300'-4593' (MD)				
	3192' (TVD)	8 3/4"	7"	23.0 ppf	J-55 LT&C
Production	3770'-5790' (MD)	6 1/4"	4 1/2"	11.6 ppf	J-55 LT&C
	2813'-2887' (TVD)				
	4060'-5815' (MD)	6 1/4"	4 1/2"	11.6 ppf	J-55 LT&C
	2931'-3004' (TVD)				
Tubing	0'-3180' (TVD)		2 3/8"	4.7 ppf	J-55
	4550' (MD)				

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.

Intermediate 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

11" 3000 x 9 5/8" casing head. 11" 3000 x 7 1/16" Christmas Tree..

Cementing

Surface Casing: 160 sks Std (class B) with 2.0 % CaCl₂ and 1/4 #/sk Flocele (15.6 ppg, 1.18 ft³/sk 188 ft³ of slurry, 100% excess to circulate to surface). WOC 12 hours. Pressure test surface casing to 1000 psi for 30 min.

Intermediate 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 575 sks 65/35 with 6.0 % Bentonite, 2.0 % CaCl₂, 10 #/sk Gilsonite, and 1/2 #/sk Flocele (12.3 ppg, 1.96 ft³/sk) and a tail of 225 sks of Standard (Class B) cement with 0.30 % Halad-344, 5.0 #/sk Gilsonite, and 1/4 #/sk Flocele (15.2ppg, 1.24 ft³/sk). (1406 ft³ of slurry, 100 % excess to circulate to surface).

Production: Open Hole Completion – NO CEMENT



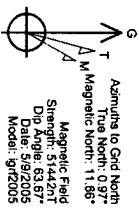
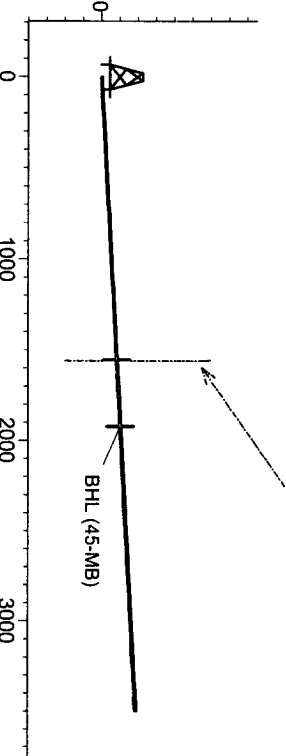
HART CANYON WELL NO. 2
45° MOTHERBORE/UPPERFLOWER
RIO ARriba COUNTY, NM
Plan #1 revised

ENERGEN

TARGET DETAILS					
Name	TVD	+N/-S	+E/-W	Northing	Easting
ENTRY POINT (45)	2826.0	84.8	1560.0	2128407.4223	25939.3661
BHL (45-MB)	3192.0	104.6	1925.5	2128427.2626	26304.8670

HARD LINE
2680' FWL 2600' FEL
SECTION 3, T30N-R10W

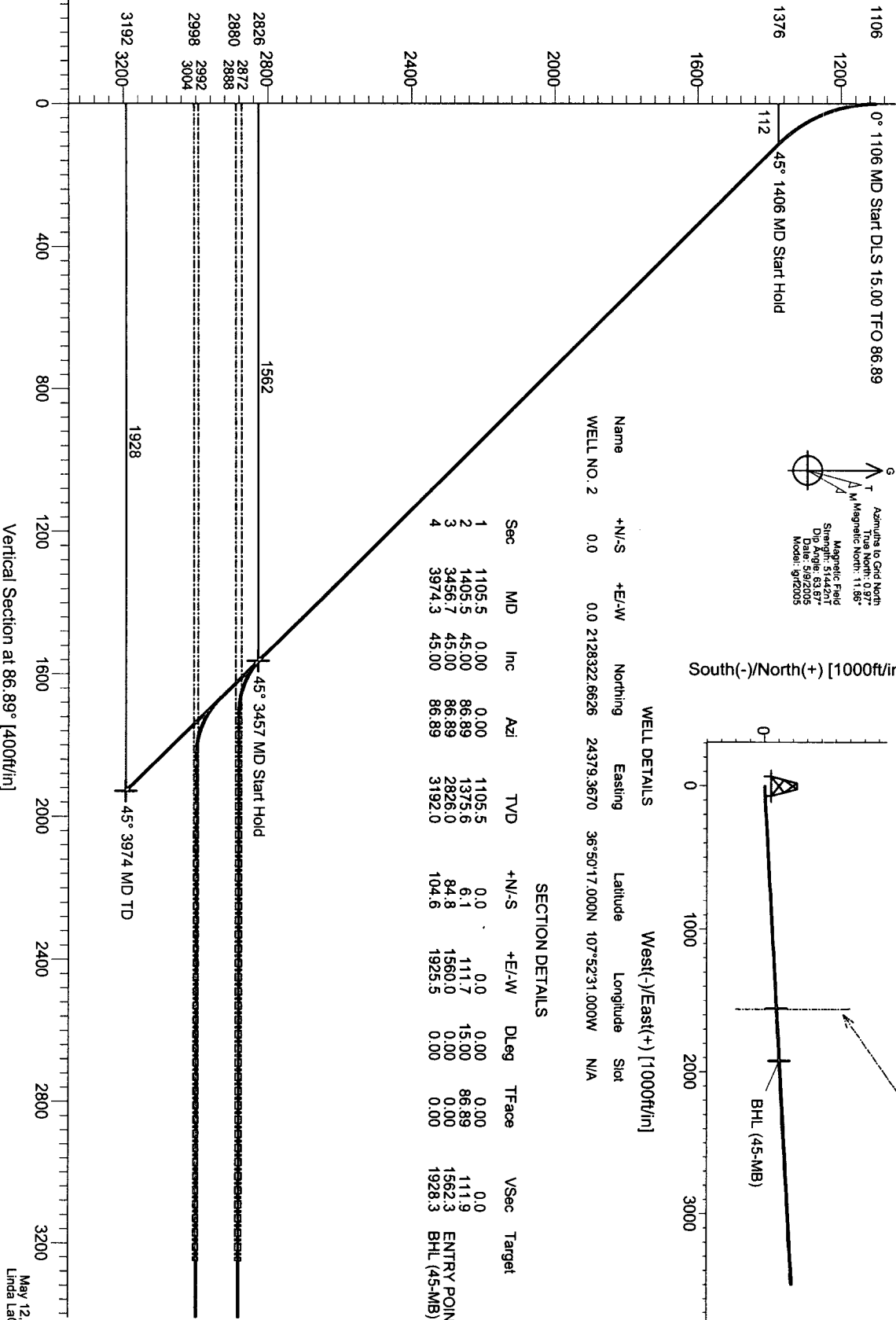
South(-)/North(+) [1000ft/in]



WELL DETAILS					
Name	+N/-S	+E/-W	Northing	Easting	Latitude
WELL NO. 2	0.0	0.0	2128322.6626	24379.3670	36°50'17.000N 107°52'31.000W

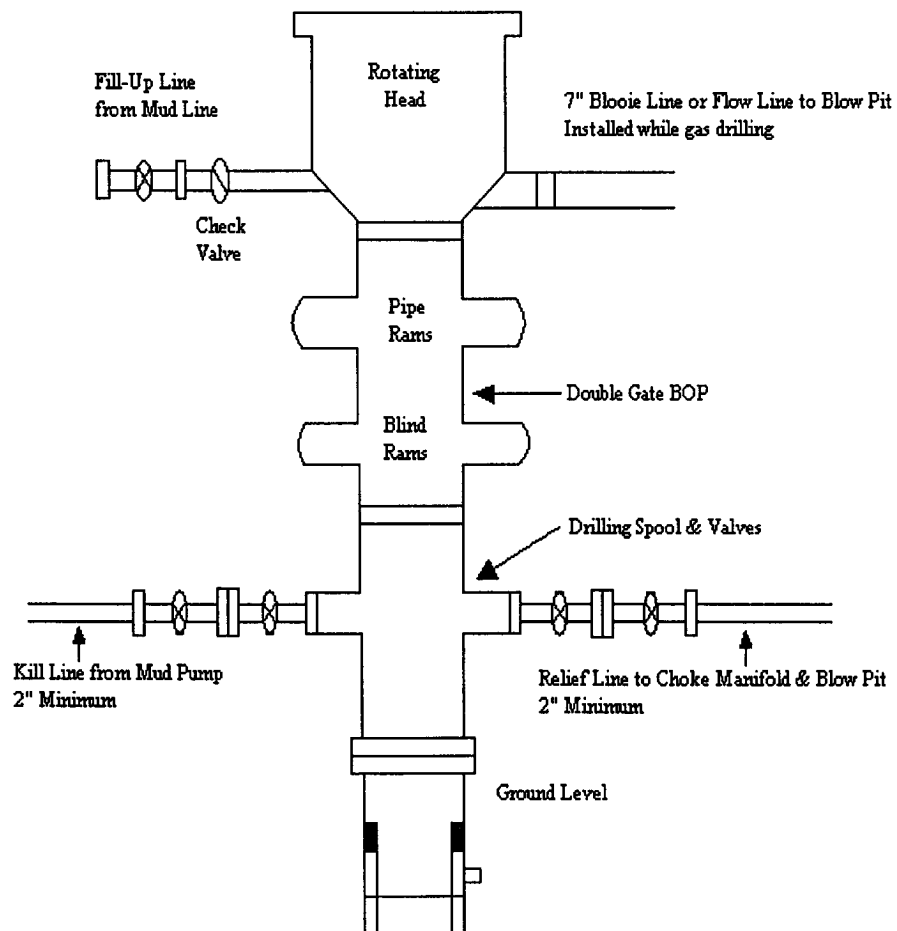
SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	1105.5	0.00	0.00	1105.5	0.0	0.0	0.00	0.00	0.0	
2	1405.5	45.00	86.89	1375.6	6.1	111.7	15.00	86.89	111.9	ENTRY POINT (45)
3	3456.7	45.00	86.89	2826.0	84.8	1560.0	0.00	0.00	1562.3	
4	3974.3	45.00	86.89	3192.0	104.6	1925.5	0.00	0.00	1928.3	BHL (45-MB)



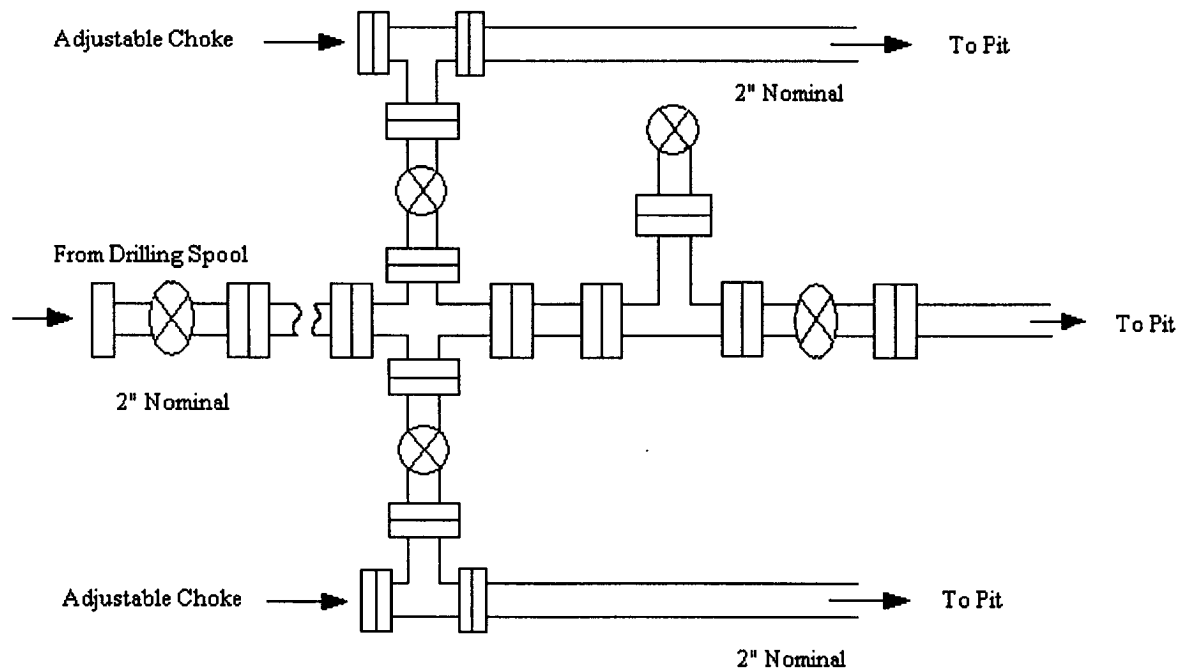
Energen Resources Corporation

Typical BOP Configuration for Gas Drilling



Energen Resources Corporation

Typical 2000 psi Choke Manifold Configuration



Choke manifold installed from surface to TD