

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

REGEN D

DEC 23 2009

FORM APPROVED
OMB NO. 1004-0137
Expires July 31, 2010

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of Work ☒ DRILL ☐ REENTER		5. Lease Serial No. USA NMNM 30585	
1b. Type of Well ☐ Oil Well ☒ Gas Well ☐ Other ☐ Single Zone ☐ Multiple Zone		6. If Indian, Allottee or Tribe Name	
2. Name of Operator Energen Resources Corporation		7. Unit or CA Agreement Name and No. N/A	
3a. Address 2010 Afton Place Farmington, New Mexico 87401		8. Lease Name and Well No. Carracas 24B #2 H	
3b. Phone No. (include area code) (505) 325-6800		9. API Well No. 30-039-30894	
4. Location of Well (Report location clearly and in accordance with any State requirements)* At surface 1775' FNL, 900' FEL 23-32N-4W At proposed prod. zone 1800' FNL, 760' FEL 24-32N-4W		10. Field and Pool, or Exploratory Basin Fruitland Coal	
14. Distance in miles and direction from nearest town or post office* 9 miles from Arboles		11. Sec., T., R., M., or Bk. and Survey or Area Sec. 23 T 32N R 4W	
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drg. unit line, if any) 900'		12. County or Parish Rio Arriba	
16. No. of Acres in lease 2080		13. State NM	
17. Spacing Unit dedicated to this well 320 N/2			
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 63'		20. BLM/BIA Bond No. on file	
19. Proposed Depth 8493' MD			
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 6774' GL		22. Approximate date work will start* 04/01/2010	
		23. Estimated duration 30 days	

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

24. Attachments

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

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

- Well plat certified by a registered surveyor.
- A Drilling Plan.
- A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office).
- Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
- Operator certification.
- Such other site specific information and/or plans as may be required by the BLM

25. Signature <i>Stephen Byers</i>	Name (Printed/Typed) Stephen Byers	Date 11/10/2009
Title Drilling Engineer		
Approved by (Signature) <i>[Signature]</i>	Name (Printed/Typed) OIL CONS. DIV. DIST. 3	Date 3/23/10
Title Acting AFM Minerals	Office	

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.

(Continued on page 2)

MAR 31 2010

Hold C104

for Directional Survey
and "As Drilled" platHOLD C104 FOR CH in status to
Carracas 24B #1NOTIFY AZTEC OCD 24 HRS.
PRIOR TO CASING & CEMENTBLM'S APPROVAL OR ACCEPTANCE OF THIS
ACTION DOES NOT RELIEVE THE LESSEE AND
OPERATOR FROM OBTAINING ANY OTHER
AUTHORIZATION REQUIRED FOR OPERATIONS
ON FEDERAL AND INDIAN LANDS

DISTRICT I
1625 N. French Dr., Hobbs, N.M. 88240

DISTRICT II
1301 W. Grand Avenue, Artesia, N.M. 88210

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

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

State of New Mexico
Energy, Minerals & Natural Resources Department

RECEIVED

Form C-102
Revised October 12, 2005

OIL CONSERVATION DIVISION

1220 South St. Francis Dr.
Santa Fe, NM 87505

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

Bureau of Land Management
Farmington Field Office

AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

*API Number 30-039-30894	*Pool Code 71629	*Pool Name BASIN FRUITLAND COAL
*Property Code 35645	*Property Name CARRACAS 24B	*Well Number 2 H
*OGRID No. 162928	*Operator Name ENERGEN RESOURCES CORPORATION	*Elevation 6774'

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
H	23	32N	4W		1775'	NORTH	900'	EAST	RIO ARRIBA

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
H	24	32N	4W		1800'	NORTH	760'	EAST	RIO ARRIBA

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

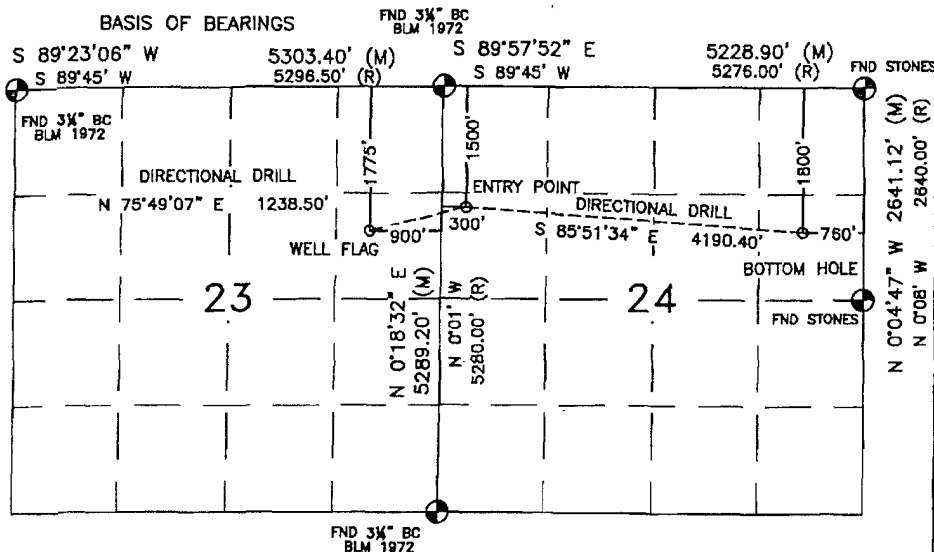
NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

16

WELL FLAG
LAT. 36.97459° N
LONG. 107.21792° W
DATUM (NAD 1983)

ENTRY POINT
LAT. 36.97543° N
LONG. 107.21382° W
DATUM (NAD 1983)

BOTTOM HOLE
LAT. 36.97459° N
LONG. 107.19952° W
DATUM (NAD 1983)



¹⁷ OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner or a compulsory pooling order heretofore entered by the division.

Stephen Byers 11-10-09
Signature Date

Stephen Byers
Printed Name

¹⁸ SURVEYOR CERTIFICATION

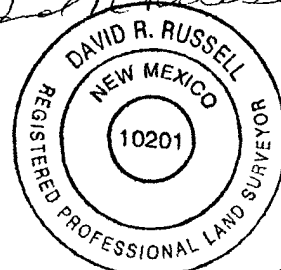
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

AUGUST 13, 2009

Date of Survey

Signature and Seal of Professional Surveyor:

David Russell



DAVID RUSSELL

Certificate Number

10201



OPERATIONS PLAN

WELL NAME.....Carracas 24B #2 H
JOB TYPE.....Horizontal OPE FTC
DEPT.....Drilling and Completions
PREPARED BY.....Stephen Byers

GENERAL INFORMATION

Surface Location	1775 FNL 900 FEL
S-T-R	(H) Sec. 23, T32N, R04W
Bottom Hole Location	1800 FNL 760 FEL
S-T-R	(H) Sec. 24, T32N, R04W
County, State	Rio Arriba, New Mexico
Elevations	6774' GL
Total Depth	8493' +/- (MD); 3536' (TVD)
Formation Objective	Basin Fruitland Coal

FORMATION TOPS

San Jose	Surface
Nacimiento	1727' (TVD)
Ojo Alamo Ss	2976' (TVD)
Kirtland Sh	3055' (TVD)
Fruitland Fm	3410' (TVD) 3643'MD
Top Target Coal	3529' (TVD) 4155'MD
Base Target Coal	3544' (TVD)
Total Depth	3536' (TVD), 8493' (MD)

DRILLING

Surface: 12-1/4" wellbore will be drilled with a fresh water mud system (spud mud).

Intermediate: 8-3/4" wellbore will be drilled with a LSND mud system. Weighting materials will be drill cuttings and if needed barite. Mud density is expected to range from 8.4 ppg to 9.0 ppg.

Production: 6-1/4" wellbore will be drilled with a fresh water or brine water system depending on reservoir characteristics. Anticipated BHP can be as high as 1100 psi.

Projected KOP is 2500' TVD with 5.73°/100' doglegs.

Blowout Control Specifications:

A 3000 psi minimum double ram or annulus BOP stack 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. **Pressure test BOP to 250 psi for 15 min and 2000 psi for 15 min.**

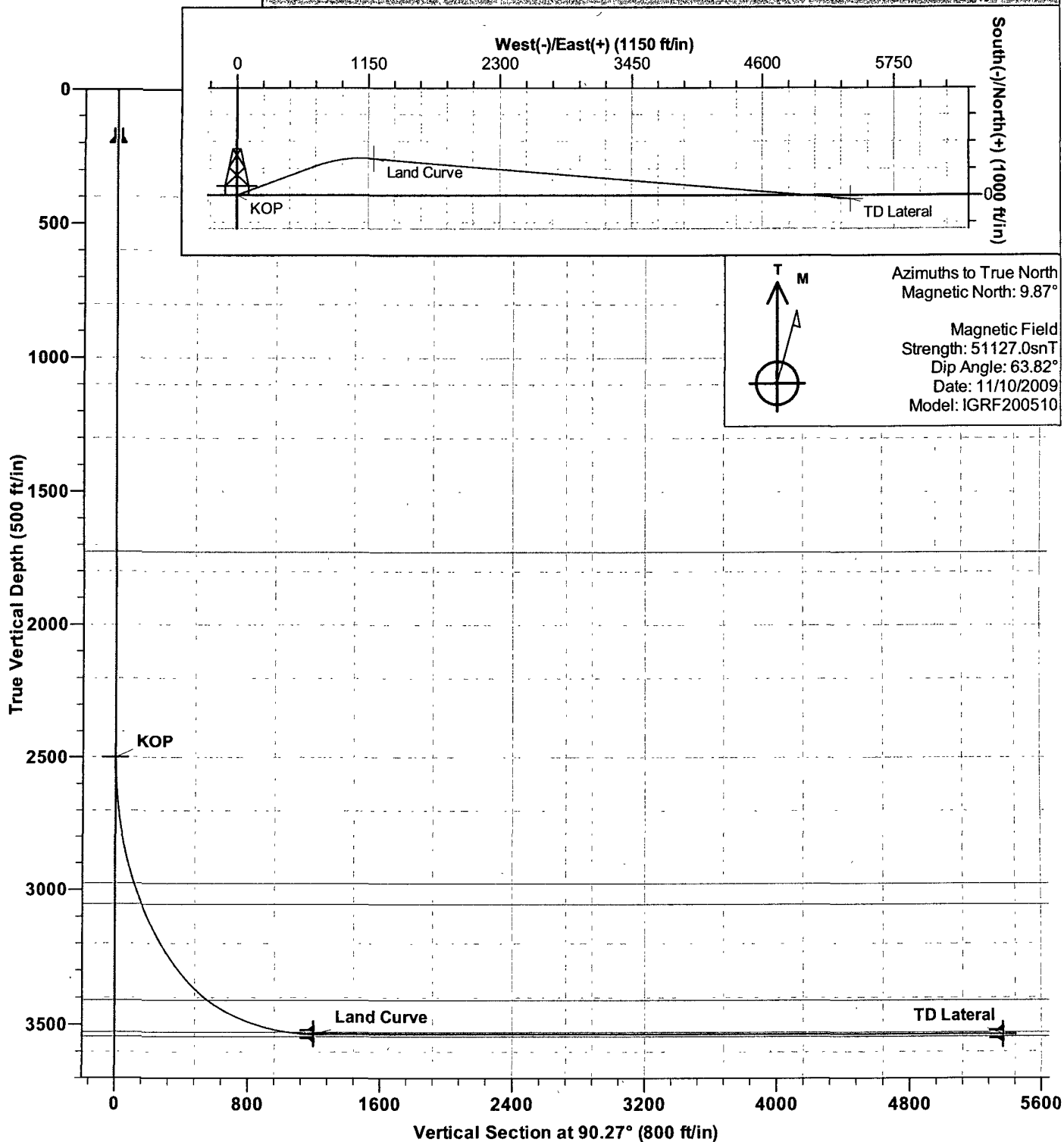
Logging Program:

Open hole logs: None

Mudlogs: 3329' TVD, 3955' MD to TD

Surveys: Surface to KOP every 500' and a minimum of every 200' for directional.

SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	2500.0	0.00	0.00	2500.0	0.0	0.0	0.00	0.00	0.0	KOP
3	3780.2	73.39	72.45	3457.7	215.2	680.5	5.73	72.45	679.5	
4	3784.3	73.39	72.45	3458.9	216.4	684.4	0.00	0.00	683.3	
5	4313.9	90.00	94.12	3536.0	275.0	1200.0	5.11	54.27	1198.7	Land Curve
6	8493.6	90.00	94.11	3536.0	-25.0	5368.9	0.00	0.00	5369.0	TD Lateral



Energen DIRECTIONAL PLAN

Company: Energen Resources
Project: Carson National Forest Sec. 23-T32N-R04W
Site: Carracas Mesa
Well: Carracas 24B #2
Wellbore: Horizontal OPE FTC
Design: Preliminary Plan #1

Local Co-ordinate Reference: Well Carracas 24B #2
TVD Reference: KB @ 6789.0ft (KB)
MD Reference: KB @ 6789.0ft (KB)
North Reference: True
Survey Calculation Method: Minimum Curvature
Database: EDM 2003.16 Single User Db

Planned Survey

MD (ft)	TVD (ft)	Inc (°)	Azi (°)	Build (°/100ft)	N/S (ft)	E/W (ft)	V. Sec (ft)
3,650.0	3,412.5	65.93	72.45	5.73	178.4	564.3	563.4
3,700.0	3,431.7	68.80	72.45	5.73	192.4	608.3	607.3
3,750.0	3,448.6	71.66	72.45	5.73	206.5	653.1	652.1
3,780.2	3,457.7	73.39	72.45	5.73	215.2	680.5	679.5
3,784.3	3,458.9	73.39	72.45	0.00	216.4	684.4	683.3
3,800.0	3,463.3	73.86	73.13	2.99	220.9	698.7	697.7
3,900.0	3,488.6	76.90	77.37	3.04	245.5	792.3	791.1
4,000.0	3,508.6	80.00	81.52	3.10	263.4	888.5	887.3
4,100.0	3,523.2	83.16	85.58	3.16	274.5	986.8	985.5
4,155.7	3,529.0	84.93	87.82	3.18	277.7	1,042.1	1,040.8
Top Target Coal							
4,200.0	3,532.4	86.35	89.59	3.20	278.7	1,086.3	1,085.0
4,300.0	3,535.9	89.55	93.57	3.21	275.9	1,186.1	1,184.8
4,313.9	3,536.0	90.00	94.12	3.21	275.0	1,200.0	1,198.7
Land Curve							
4,400.0	3,536.0	90.00	94.12	0.00	268.8	1,285.9	1,284.6
4,500.0	3,536.0	90.00	94.12	0.00	261.6	1,385.6	1,384.4
4,600.0	3,536.0	90.00	94.12	0.00	254.4	1,485.4	1,484.2
4,700.0	3,536.0	90.00	94.12	0.00	247.3	1,585.1	1,583.9
4,800.0	3,536.0	90.00	94.12	0.00	240.1	1,684.8	1,683.7
4,900.0	3,536.0	90.00	94.12	0.00	232.9	1,784.6	1,783.5
5,000.0	3,536.0	90.00	94.12	0.00	225.7	1,884.3	1,883.3
5,100.0	3,536.0	90.00	94.12	0.00	218.5	1,984.1	1,983.0
5,200.0	3,536.0	90.00	94.12	0.00	211.3	2,083.8	2,082.8
5,300.0	3,536.0	90.00	94.12	0.00	204.2	2,183.5	2,182.6
5,400.0	3,536.0	90.00	94.12	0.00	197.0	2,283.3	2,282.3
5,500.0	3,536.0	90.00	94.12	0.00	189.8	2,383.0	2,382.1
5,600.0	3,536.0	90.00	94.12	0.00	182.6	2,482.8	2,481.9
5,700.0	3,536.0	90.00	94.12	0.00	175.4	2,582.5	2,581.7
5,800.0	3,536.0	90.00	94.12	0.00	168.2	2,682.3	2,681.4
5,900.0	3,536.0	90.00	94.12	0.00	161.0	2,782.0	2,781.2
6,000.0	3,536.0	90.00	94.12	0.00	153.9	2,881.7	2,881.0
6,100.0	3,535.9	90.00	94.12	0.00	146.7	2,981.5	2,980.8
6,200.0	3,535.9	90.00	94.12	0.00	139.5	3,081.2	3,080.5
6,300.0	3,535.9	90.00	94.12	0.00	132.3	3,181.0	3,180.3
6,400.0	3,535.9	90.00	94.12	0.00	125.1	3,280.7	3,280.1
6,500.0	3,535.9	90.00	94.12	0.00	117.9	3,380.4	3,379.9
6,600.0	3,535.9	90.00	94.12	0.00	110.8	3,480.2	3,479.6
6,700.0	3,535.9	90.00	94.12	0.00	103.6	3,579.9	3,579.4
6,800.0	3,535.9	90.00	94.12	0.00	96.4	3,679.7	3,679.2
6,900.0	3,535.9	90.00	94.12	0.00	89.2	3,779.4	3,779.0
7,000.0	3,535.9	90.01	94.12	0.00	82.0	3,879.2	3,878.7
7,100.0	3,535.9	90.01	94.12	0.00	74.8	3,978.9	3,978.5
7,200.0	3,535.9	90.01	94.12	0.00	67.6	4,078.6	4,078.3
7,300.0	3,535.9	90.01	94.12	0.00	60.5	4,178.4	4,178.1

Energen

DIRECTIONAL PLAN

Company: Energen Resources
Project: Carson National Forest Sec. 23-T32N-R04W
Site: Carracas Mesa
Well: Carracas 24B #2
Wellbore: Horizontal OPE FTC
Design: Preliminary Plan #1

Local Co-ordinate Reference: Well Carracas 24B #2
TVD Reference: KB @ 6789.0ft (KB)
MD Reference: KB @ 6789.0ft (KB)
North Reference: True
Survey Calculation Method: Minimum Curvature
Database: EDM 2003.16 Single User Db

Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
- Shape									
Land Curve	0.00	0.00	3,536.0	275.0	1,200.0	2,175,744.92	1,358,885.83	36° 58' 31.243 N	107° 12' 49.724 W
- plan hits target									
- Point									
KOP	0.00	0.00	2,500.0	0.0	0.0	2,175,482.13	1,357,683.10	36° 58' 28.524 N	107° 13' 4.512 W
- plan hits target									
- Point									
TD Lateral	0.00	0.00	3,536.0	-25.0	5,368.9	2,175,402.57	1,363,051.47	36° 58' 28.272 N	107° 11' 58.349 W
- plan hits target									
- Point									

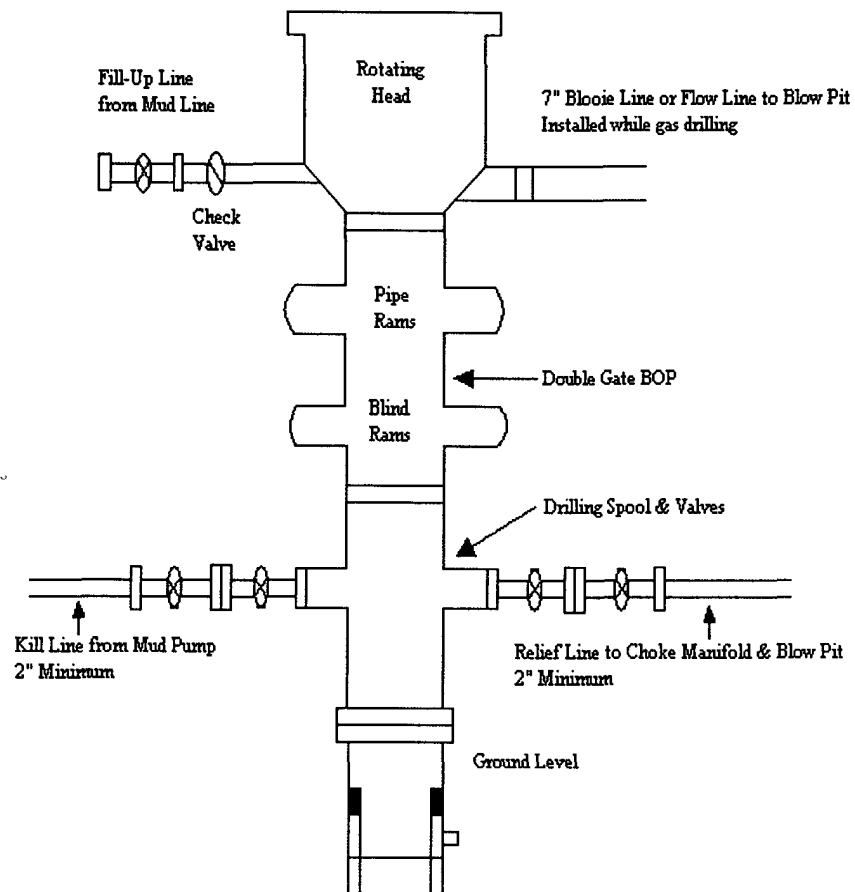
Casing Points				
Measured Depth	Vertical Depth	Name	Casing Diameter	Hole Diameter
(ft)	(ft)		(")	(")
200.0	200.0	Surface	9-5/8	12-1/4
4,313.0	3,536.0	Intermediate	7	8-3/4
8,493.0	3,535.7	Liner	4-1/2	6-1/4

Formations					
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction
(ft)	(ft)			(°)	(°)
3,643.9	3,410.0	Fruitland Fm		0.00	
4,155.7	3,529.0	Top Target Coal		0.00	
3,088.4	3,055.0	Kirtland Sh		0.00	
1,727.0	1,727.0	Nacimiento		0.00	
2,996.1	2,976.0	Ojo Alamo SS		0.00	
	3,544.0	Base Target Coal		0.00	

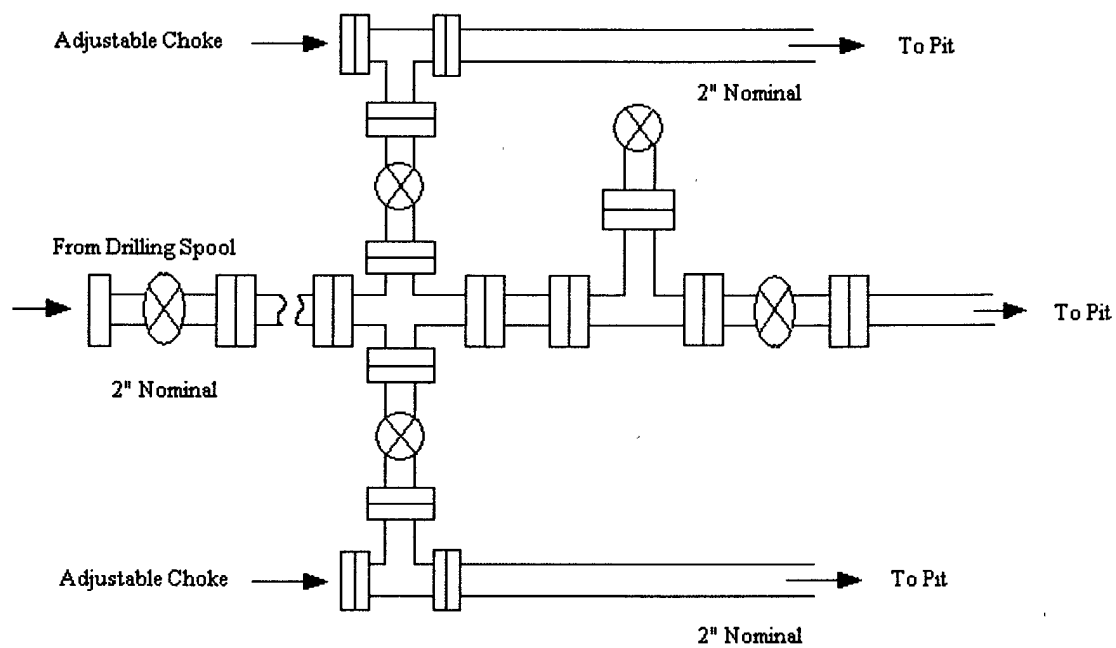
Checked By: _____ Approved By: _____ Date: _____

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