

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

RECEIVED

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of Work <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. USA NMNM 29760-30351	
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. NMNM-783846	
3a. Address 2010 Afton Place Farmington, New Mexico 87401		8. Lease Name and Well No. Carracas Unit #119	
3b. Phone No. (include area code) (505)325-6800		9. API Well No. 3003930844	
4. Location of Well (Report location clearly and in accordance with any State requirements)* At surface 1045 FNL, 480 FEL Sec.15, T.32N., R.5W. At proposed prod. zone 200 FNL, 400 FNL Sec.14, T.32N., R.5W.		10. Field and Pool, or Exploratory Basin Fruitland Coal	
11. Sec., T., R., M., or Blk. and Survey or Area (A) Sec 15, T32N, R5W		12. County or Parish Rio Arriba	
13. State NM		14. Distance in miles and direction from nearest town or post office* Approx. 9 miles SE of Arboles, CO.	
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drg. unit line, if any) 480'		16. No. of Acres in lease 1440.8	
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. 75'	
19. Proposed Depth 9160' (MD)		20. BLM/BIA Bond No. on file NM 2707	
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 7533' GL		22. Approximate date work will start* 4/1/2010	
23. Estimated duration 25 days		24. Attachments	

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, must 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 must 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 BLM

RCVD FEB 24 '10

OIL CONS. DIV.

DIST. 3

25. Signature <i>Stephen Byers</i>	Name (Printed/Typed) STEPHEN BYERS	Date 11/5/09
Title Drilling Engineer		
Approved by (Signature) <i>[Signature]</i>	Name (Printed/Typed)	Date 2/23/2010
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 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)

*(Instructions on page 2)

BLM'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

MAR 03 2010

NOTIFY AZTEC OCD 24 HRS. PRIOR TO CASING & CEMENT

HOLD C104 FOR change in status TO Carracas Unit FR #103

Hold C104

for Directional Survey and "As Drilled" plat

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

State of New Mexico
Energy, Minerals & Natural Resources Department

Form C-102
Revised October 12, 2005

DISTRICT II
1501 W. Grand Avenue, Artesia, N.M. 88210

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

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

OIL CONSERVATION DIVISION

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

RECEIVED

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

NOV 12 2009

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

*API Number 30-039-30844	*Pool Code 71629	*Pool Name BASIN FRUITLAND COAL
*Property Code 32932	*Property Name CARRACAS UNIT FR	*Well Number 119
*OGRID No. 162928	*Operator Name ENERGEN RESOURCES CORPORATION	*Elevation 7533'

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
A	15	32N	5W		1045'	NORTH	480'	EAST	RIO ARRIBA

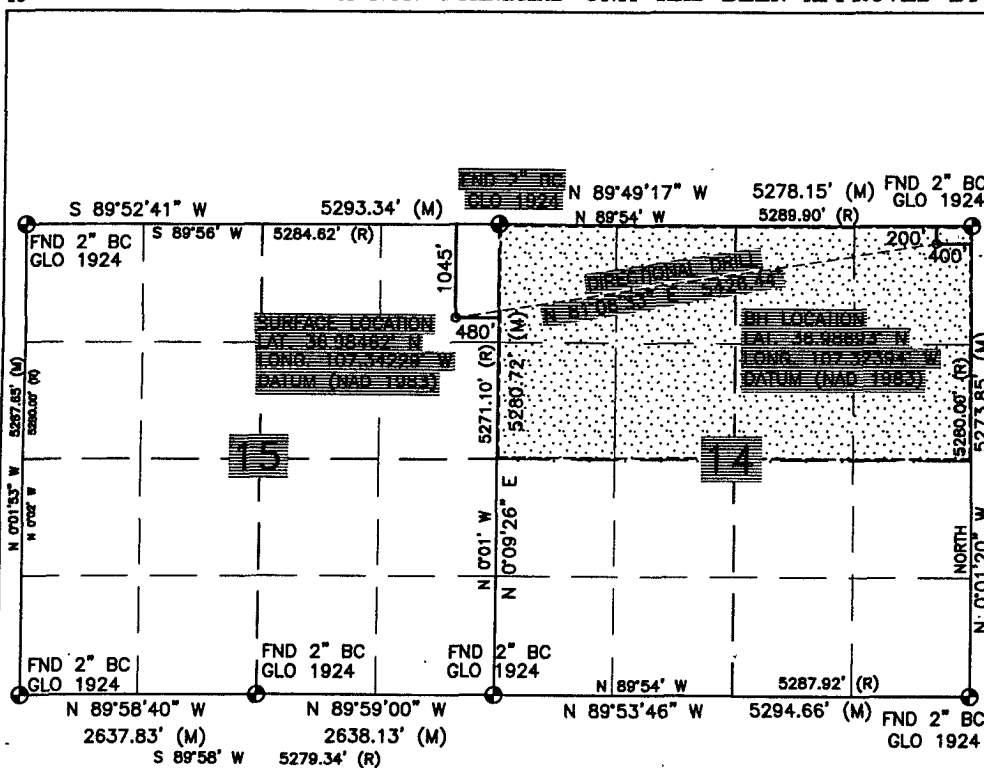
11 Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	14	32N	5W		200'	NORTH	400'	EAST	RIO ARRIBA

*Dedicated Acres 320.00 Acres - (N/2) Sec. 14	*Joint or Infill	*Consolidation Code	*Order No. R-13119
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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

16



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 11-5-09
Signature Date

Stephen Byers
Printed Name

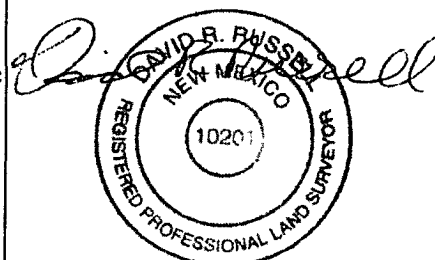
18 SURVEYOR CERTIFICATION

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.

JUNE 23, 2008

Date of Survey

Signature and Seal of Professional Surveyor:



DAVID RUSSELL

Certificate Number

10201

TL salyers

11/5/2009



OPERATIONS PLAN

WELL NAME.....Carracas Unit #119
JOB TYPE.....Horizontal OPE FTC
DEPT.....Drilling and Completions
PREPARED BY.....Stephen Byers

GENERAL INFORMATION

Surface Location	1045 FNL 480 FEL
S-T-R	(A) Sec. 15, T32N, R05W
Bottom Hole Location	200 FNL 400 FEL
S-T-R	(A) Sec. 14, T32N, R05W
County, State	Rio Arriba, New Mexico
Elevations	7533' GL
Total Depth	9160' +/- (MD); 4040' (TVD)
Formation Objective	Basin Fruitland Coal

FORMATION TOPS

San Jose	Surface
Nacimiento	2091' (TVD)
Ojo Alamo Ss	3340' (TVD)
Kirtland Sh	3470' (TVD)
Fruitland Fm	3951' (TVD) 4081' MD
Top Target Coal	4028' (TVD) 4307' MD
Base Target Coal	4052' (TVD)
Total Depth	4040' (TVD), 9160' (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 3300' TVD with 8.26°/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: 3828' TVD, 4107' MD to TD

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

11/5/2009

CASING, TUBING & CASING EQUIPMENT

String	Start Depth	End Depth	Wellbore	Size	Wt	Grade
Surface	0	200	12-1/4"	9-5/8"	32.3 lb/ft	H-40 ST&C
Intermediate TVD	0 0	4436 4040	8-3/4"	7"	23 lb/ft	J-55 LT&C
Prod. Liner TVD	4336 4038	9160 4040	6-1/4"	4-1/2"	11.6 lb/ft	J-55 LT&C
Tubing	0	4136	none	2-3/8"	4.7 lb/ft	J-55

Surface Casing: Texas Pattern Guide Shoe on bottom of first joint and an insert float valve on top of first joint. Casing centralization with a minimum of 3 standard bow spring centralizers to achieve optimal standoff.

Intermediate Casing: Self fill float shoe with self fill float collar on bottom and top of first joint. Casing centralization with double bow spring and centralizers to optimize standoff.

Production Liner: Bull nose guide shoe on bottom of first joint, H-Latch liner drop off tool on top of last joint.

WELLHEAD

11" 3000 x 9 5/8" weld/slip on casing head. 9 5/8" x 7"x 2 3/8" 3000 psi Flanged Wellhead .

CEMENTING

Surface Casing: 125 sks Type V with 2.0 % CaCl₂ and ¼ #/sk Flocele (15.6 ppg, 1.18 ft³/sk 148 ft³ of slurry, 100% excess to circulate to surface). WOC 12 hours. Pressure test surface casing to 750 psi for 30 min.

Intermediate Casing: Depending on wellbore conditions, cement may consist of 507 sks 65/35 with 6.0 % Bentonite, 2.0 % CaCl₂, 10 #/sk Gilsonite, and ½ #/sk Flocele (12.3 ppg, 1.93 ft³/sk) and a tail of 150 sks Class G with ¼ #/sk Flocele (15.6 ppg, 1.18 ft³/sk). (1,383 ft³ of slurry, 100% excess to circulate to surface). WOC 12 hours. Test casing to 1200 psi for 30 min.

Production Liner: NO CEMENT, Open Hole Completion

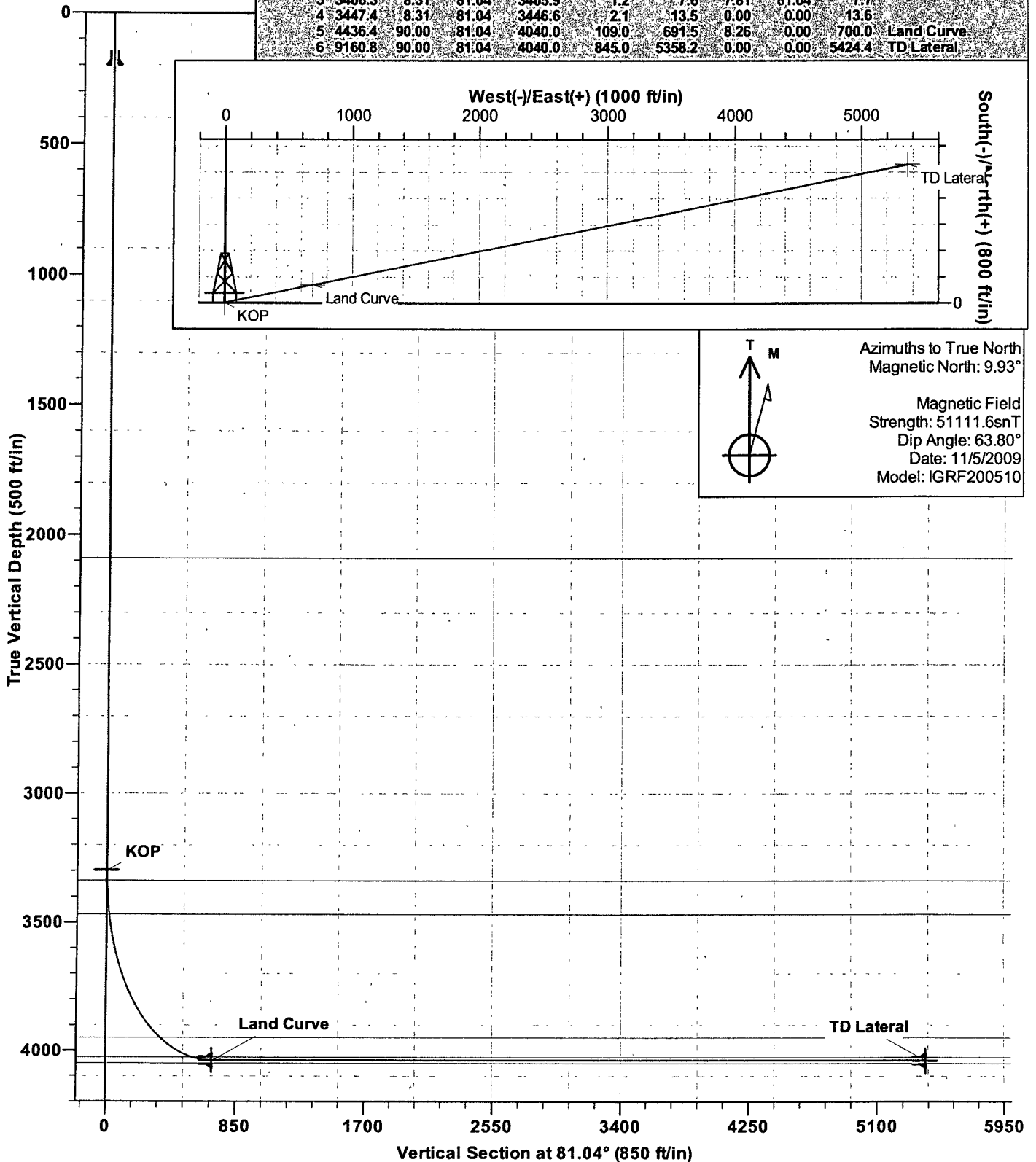
Set slips with full string weight

If cement does not circulate, run temperature survey in 8 hrs. to determine TOC.

OTHER INFORMATION

- 1) This well will be an open hole completion lined with an uncemented pre-drilled liner.
- 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.

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	3300.0	0.00	0.00	3300.0	0.0	0.0	0.00	0.00	0.0	KOP
3	3406.3	8.31	81.04	3405.9	1.2	7.6	7.81	81.04	7.7	
4	3447.4	8.31	81.04	3446.6	2.1	13.5	0.00	0.00	13.6	
5	4436.4	90.00	81.04	4040.0	109.0	691.5	8.26	0.00	700.0	Land Curve
6	9160.8	90.00	81.04	4040.0	845.0	5358.2	0.00	0.00	5424.4	TD Lateral



Energen DIRECTIONAL PLAN

Company: Energen Resources
Project: Carson National Forest Sec. 15-T32N-R05W
Site: Carracas Mesa
Well: Carracas Unit #119
Wellbore: Horizontal OPE FTC
Design: Preliminary Plan #1

Local Co-ordinate Reference: Well Carracas Unit #119
TVD Reference: KB @ 7548.0ft (KB)
MD Reference: KB @ 7548.0ft (KB)
North Reference: True
Survey Calculation Method: Minimum Curvature
Database: EDM 2003.16 Single User Db

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
TD Lateral - plan hits target - Point	0.00	0.00	4,040.0	845.0	5,358.2	2,180,310.24	1,326,762.30	36° 59' 12.982 N	107° 19' 26.204 W
KOP - plan hits target - Point	0.00	0.00	3,300.0	0.0	0.0	2,179,526.75	1,321,394.81	36° 59' 4.632 N	107° 20' 32.244 W
Land Curve - plan hits target - Point	0.00	0.00	4,040.0	109.0	691.5	2,179,627.83	1,322,087.48	36° 59' 5.710 N	107° 20' 23.722 W

Casing Points

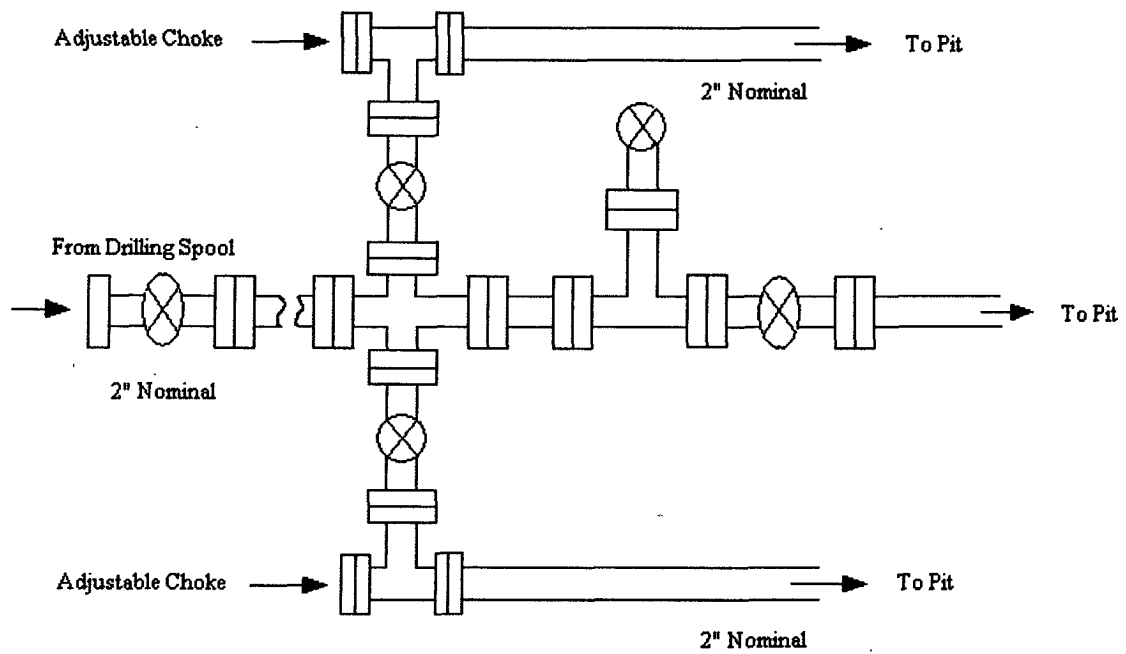
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
200.0	200.0	Surface	9-5/8	12-1/4
4,436.0	4,040.0	Intermediate	7	8-3/4
9,160.0	4,039.8	Liner	4-1/2	6-1/4

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,081.1	3,951.0	Fruitland Fm		0.00	
2,091.0	2,091.0	Nacimiento		0.00	
3,471.1	3,470.0	Kirtland Sh		0.00	
3,340.0	3,340.0	Ojo Alamo SS		0.00	
4,307.2	4,028.0	Top Target Coal		0.00	
	4,052.0	Base Target Coal		0.00	

Checked By: _____ Approved By: _____ Date: _____

Energen Resources Corporation
Typical 2000 psi Choke Manifold Configuration



Choke manifold installed from surface to TD

Energen Resources Corporation

Typical BOP Configuration for Gas Drilling

