

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RECEIVED

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

NOV 12 2009

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 29341	
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 2010 Afton Place Farmington, New Mexico 87401		8. Lease Name and Well No. Carracas 15 A #4 H	
3b. Phone No. (include area code) (505)325-6800		9. API Well No. 30-039-30846	
4. Location of Well (Report location clearly and in accordance with any State requirements)* At surface 1030 FNL, 580 FEL NENE At proposed prod. zone 1000 FNL, 110 FWL NWNW		10. Field and Pool, or Exploratory Basin Fruitland Coal	
14. Distance in miles and direction from nearest town or post office* Approx. 9 miles SE of Arboles, CO.		11. Sec., T., R., M., or Blk. and Survey or Area (A) Sec 15, T32N, R5W	
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drg. unit line, if any) 580'	16. No. of Acres in lease 2080.0	17. Spacing Unit dedicated to this well N/2 - 320.00 Rio Arriba 319.97 acres	
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 75'	19. Proposed Depth 8209' (MD)	20. BLM/BIA Bond No. on file NM2707	
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 7532' GL	22. Approximate date work will start* 4/1/10	23. Estimated duration 25 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

RCVD FEB 2 '10

OIL CONS. DIV.

DIST. 3

25. Signature 	Name (Printed/Typed) JASON KINCAID	Date 11/4/09
Title Drilling Engineer		
Approved by (Signature) 	Name (Printed/Typed) AFM	Date 2/11/2010
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.

(Continued on page 2)

*(Instructions on page 2)

Hold C104
for Directional Survey
and "As Drilled" platBLM'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

FEB 12 2010

NMCCD

NOTIFY AFTER 24 HRS.
PRIOR TO CASING & CEMENT

DISTRICT I
1625 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
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

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

¹ API Number 30-039-30846	² Pool Code 71629	³ Pool Name BASIN FRUITLAND COAL
⁴ Property Code 35654	⁵ Property Name CARRACAS 15A	⁶ Well Number 4 H
⁷ GRID No. 162928	⁸ Operator Name ENERGEN RESOURCES CORPORATION	⁹ Elevation 7532'

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		1030'	NORTH	580'	EAST	RIO ARRIBA

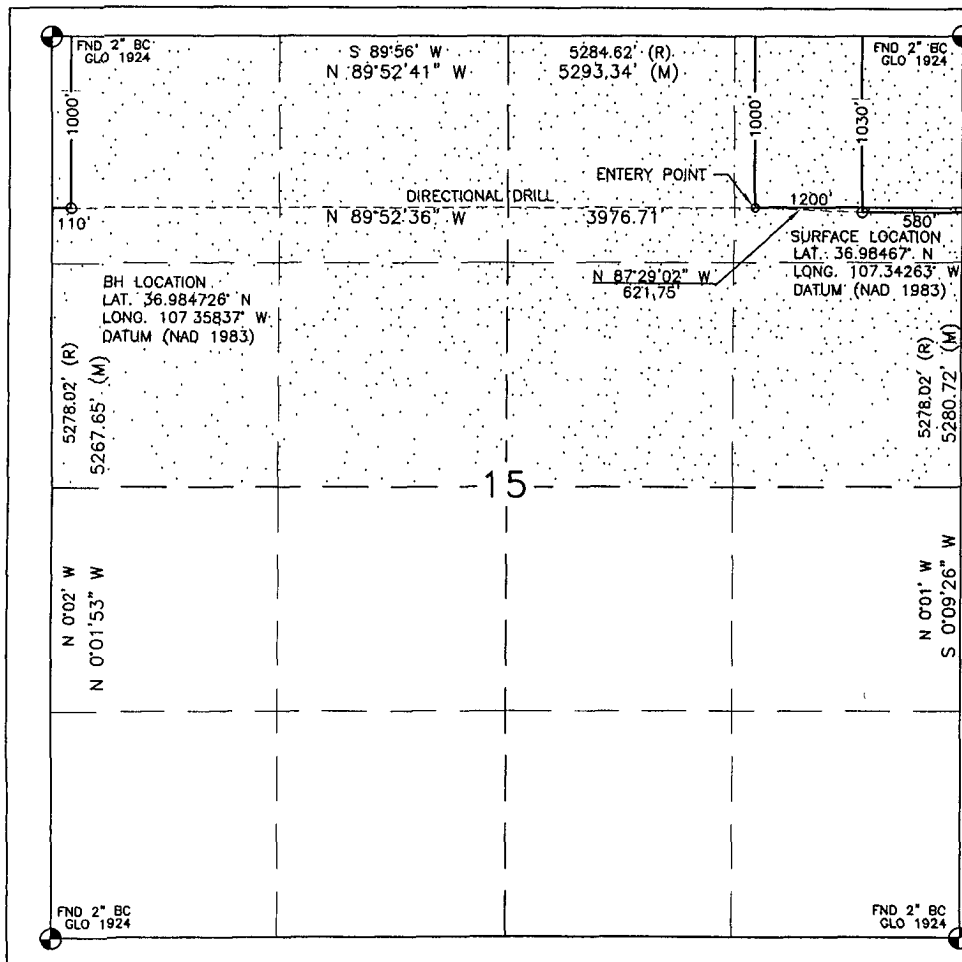
¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	15	32N	5W		1000'	NORTH	110'	WEST	RIO ARRIBA

¹² Dedicated Acres 320.00 319.97 Acres - (N/2)	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No. R-13119
---	-------------------------------	----------------------------------	---

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.

Jason K. Kead 11-4-09
Signature Date
Jason K. Kead 11-4-09
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 S. Russell
DAVID S. RUSSELL
REGISTERED PROFESSIONAL LAND SURVEYOR
1920

DAVID RUSSELL
Certificate Number 10201

11/4/2009



OPERATIONS PLAN

WELL NAME.....Carracas 15A #4
JOB TYPE.....Horizontal OPE FTC
DEPT.....Drilling and Completions
PREPARED BY.....Jason Kincaid

GENERAL INFORMATION

Surface Location	1030 FNL 580 FEL
S-T-R	(A) Sec.15, T32N, R05W
Bottom Hole Location	1000 FNL 110 FWL
S-T-R	(D) Sec.15, T32N, R05W
County, State	Rio Arriba, New Mexico
Elevations	7532' GL
Total Depth	8209' +/- (MD); 4009' (TVD)
Formation Objective	Basin Fruitland Coal

FORMATION TOPS

San Jose	Surface
Nacimiento	2060' (TVD)
Ojo Alamo Ss	3309' (TVD)
Kirtland Sh	3439' (TVD)
Fruitland Fm	3920' (TVD) 4122'MD
Top Target Coal	3997' (TVD) 4380'MD
Base Target Coal	4021' (TVD)
Total Depth	4009' (TVD), 8209' (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 3100' TVD with 6.30°/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: 3860' TVD, 4000' MD to TD

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

11/4/2009

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	0	4527	8-3/4"	7"	23 lb/ft	J-55 LT&C
TVD	0	4009				
Prod. Liner	4427	8209	6-1/4"	4-1/2"	11.6 lb/ft	J-55 LT&C
TVD	4007	4009				
Tubing	0	4400	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 615 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). (1360 ft³ of slurry, 100% excess to circulate to surface). WOC 12 hours. Test casing to 1200 psi for 30 min.

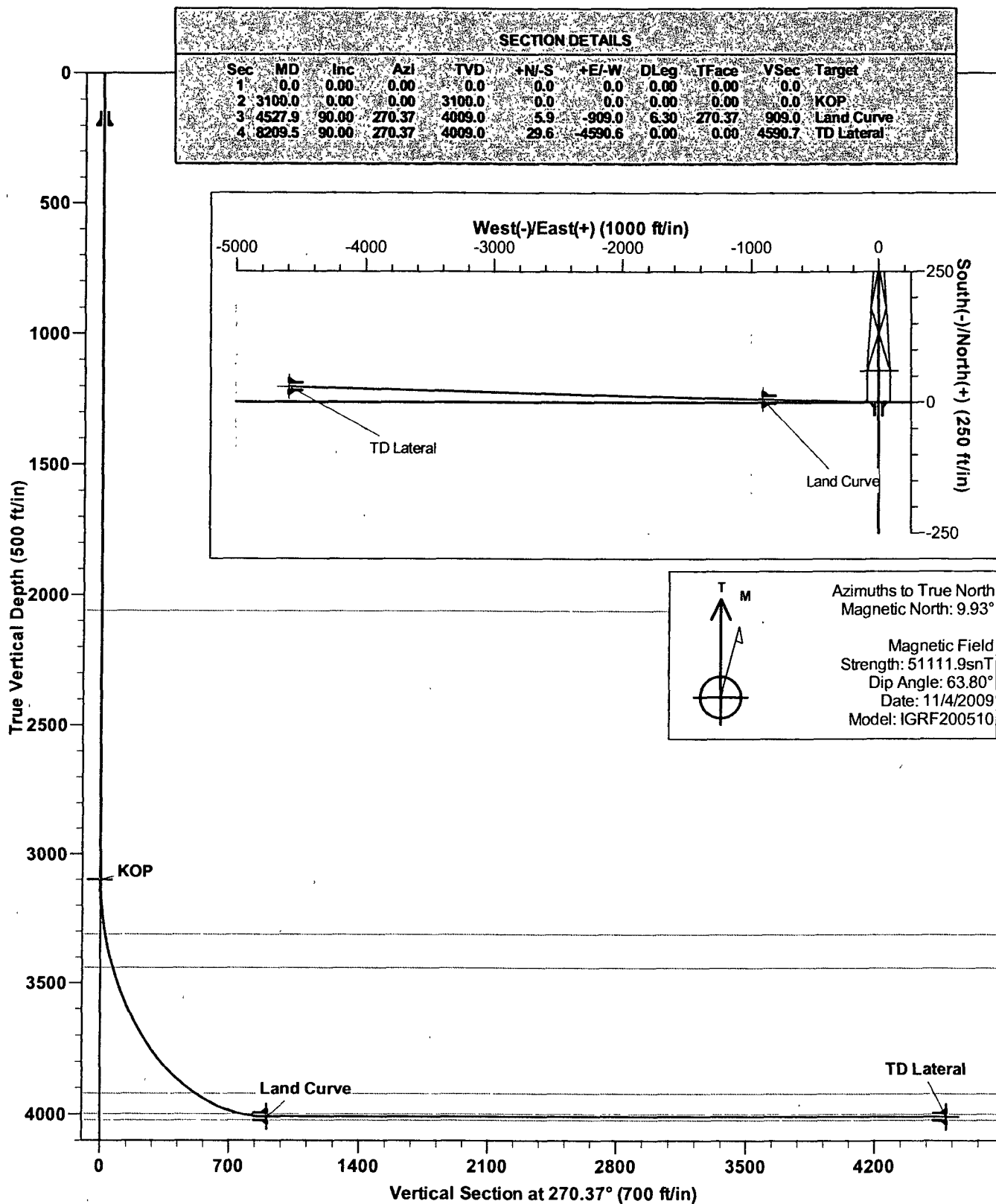
Production Liner: NO CEMENT, Open Hole Completion

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.



Company: Energen Resources Corp.
Project: Carson National Forest Sec.15-T32N-R05W
Site: Carracas Mesa
Well: Carracas 15A #4
Wellbore: Horizontal OPE FTC
Design: Plan #1

Local Co-ordinate Reference: Well Carracas 15A #4
TVD Reference: KB @ 7547.0ft (Drilling Rig)
MD Reference: KB @ 7547.0ft (Drilling Rig)
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)
7,500.0	4,008.8	90.01	270.37	0.00	25.2	-3,881.1	3,881.1
7,600.0	4,008.8	90.01	270.37	0.00	25.8	-3,981.1	3,981.1
7,700.0	4,008.8	90.01	270.37	0.00	26.5	-4,081.1	4,081.1
7,800.0	4,008.8	90.01	270.37	0.00	27.1	-4,181.1	4,181.1
7,900.0	4,008.8	90.01	270.37	0.00	27.8	-4,281.1	4,281.1
8,000.0	4,008.7	90.01	270.37	0.00	28.4	-4,381.1	4,381.1
8,100.0	4,008.7	90.01	270.37	0.00	29.1	-4,481.1	4,481.1
8,209.5	4,009.0	90.00	270.37	-0.01	29.6	-4,590.6	4,590.7

TD Lateral

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
Land Curve - plan hits target - Point	0.00	0.00	4,009.0	5.9	-909.0	2,179,562.42	1,320,386.84	36° 59' 4.870 N	107° 20' 44.671 W
KOP - plan hits target - Point	0.00	0.00	3,100.0	0.0	0.0	2,179,546.09	1,321,295.71	36° 59' 4.812 N	107° 20' 33.468 W
TD Lateral - plan hits target - Point	0.00	0.00	4,009.0	29.6	-4,590.6	2,179,628.36	1,316,705.76	36° 59' 5.101 N	107° 21' 30.046 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
4,527.0	4,009.0	Intermediate	7	8-3/4
8,209.0	4,008.7	Liner	4-1/2	6-1/4

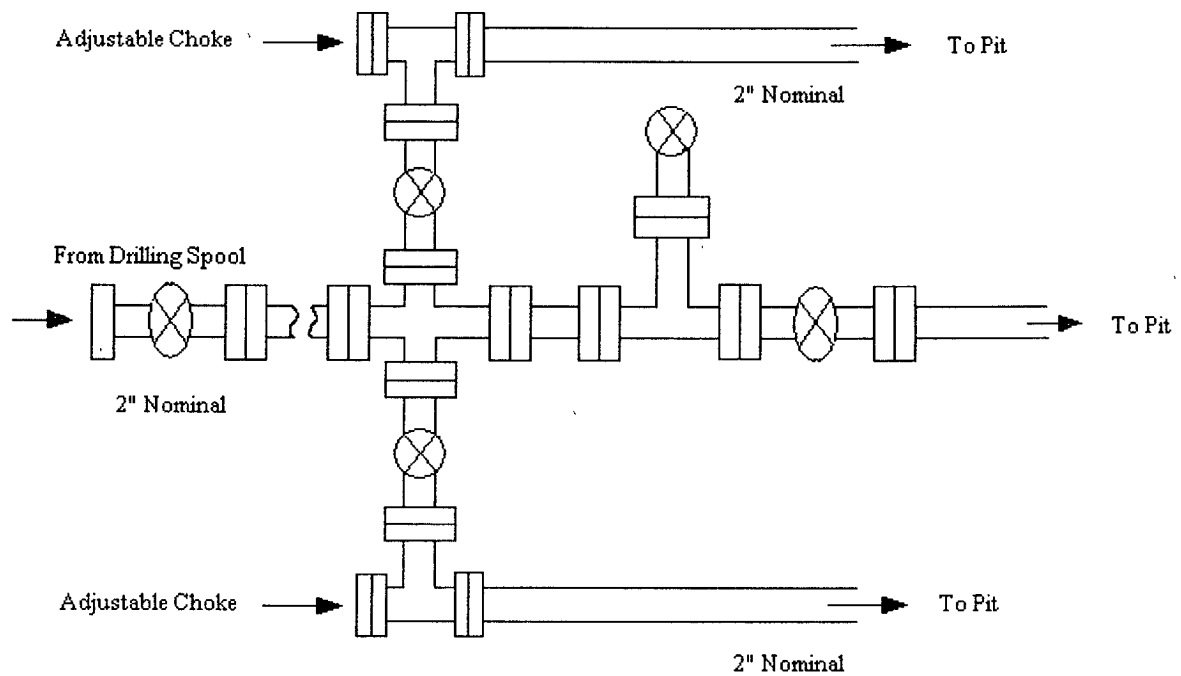
Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,060.0	2,060.0	Nacimiento		0.00	
	4,021.0	Base Target Coal		0.00	
3,310.9	3,309.0	Ojo Alamo		0.00	
3,447.4	3,439.0	Kirtland		0.00	
4,380.0	3,997.0	Top Target Coal		0.00	
4,122.3	3,920.0	Fruitland		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

