

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RECEIVED

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

MAR 08 2010

APPLICATION FOR PERMIT TO DRILL OR REENTER


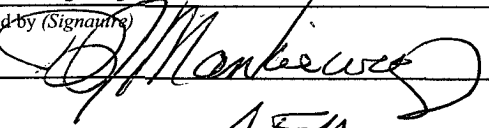
1a. Type of Work <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		Bureau of Land Management Farmington Field Office		5. Lease Serial No. USA NMM 30584
1b. Type of Well <input type="checkbox"/> Oil Well <input checked="" type="checkbox"/> Gas Well <input type="checkbox"/> Other <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		3b. Phone No. (include area code) (505) 325-6800		8. Lease Name and Well No. Carracas 13B #16 H
4. Location of Well (Report location clearly and in accordance with any State requirements)* At surface 611' FNL, 1059' FEL At proposed prod. zone 100' FNL, 800' FEL				9. AD Well No. 30-039-30950
14. Distance in miles and direction from nearest town or post office* 9 miles from Arboles				10. Field and Pool, or Exploratory Basin Fruitland Coal
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drg. unit line, if any) 611'		16. No. of Acres in lease 774.72		11. Sec., T., R., M. or Bk. and Survey or Area Sec. 13 T 32N R 4W BHL SHL
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 50'		19. Proposed Depth 8478' MD		12. County or Parish Rio Arriba
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 6961' GL		22. Approximate date work will start* 04/01/2010		13. State NM
		23. Estimated duration 30 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:

RCVD OCT 18 '10
OIL CONS. DIV.

- | | |
|--|---|
| 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 must be filed with the appropriate Forest Service Office). | 6. Such other site specific information and/or plans as may be required by the BLM |

25. Signature 	Name (Printed/Typed) Stephen Byers	Date 02/25/2010
Title Drilling Engineer		
Approved by (Signature) 	Name (Printed/Typed) J. Montez	Date 10/13/2010
Title AFN	Office FEO	

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)

SEE ATTACHED FOR
CONDITIONS OF APPROVALNOTIFY AZTEC OCD 24 HRS.
PRIOR TO CASING & CEMENT

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

Hold C104
for Directional Survey
and "As Drilled" plat

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

OCT 25 2010
NMOC

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

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

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

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

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

Bureau of Land Management

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-039-30950		Pool Code 71629	Pool Name BASIN FRUITLAND COAL
Property Code 35643	Property Name CARRACAS 13 B		Well Number 16
GRID No. 162928	Operator Name ENERGEN RESOURCES CORPORATION		Elevation 6961'

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	24	32N	4W		611'	NORTH	1059'	EAST	RIO ARriba

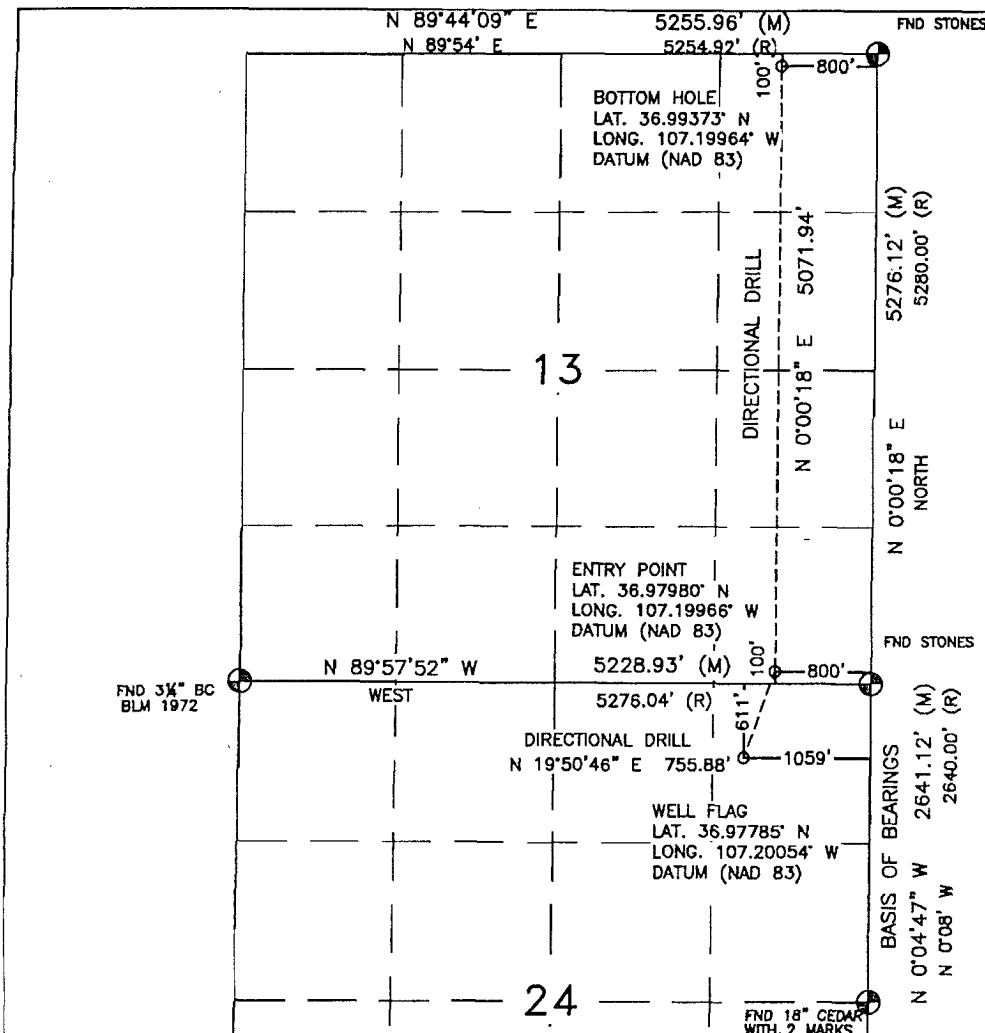
¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	13	32N	4W		100'	NORTH	800'	EAST	RIO ARriba

Dedicated Acres	Joint or Infill	Consolidation Code	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

18



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 3-1-10
Signature Date

Stephen Byers
Printed Name

18 SURVEYOR CERTIFICATION

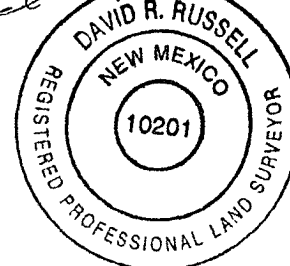
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

AUGUST 11, 2009

Date of Survey

Signature and Seal of Professional Surveyor:

David R. Russell



DAVID RUSSELL

Certificate Number

10201

2/25/2010



OPERATIONS PLAN

WELL NAME.....Carracas 13B #16
JOB TYPE.....Horizontal OPE FTC
DEPT.....Drilling and Completions
PREPARED BY.....Stephen Byers

GENERAL INFORMATION

Surface Location	611 FNL 1059 FEL
S-T-R	(A) Sec. 24, T32N, R04W
Bottom Hole Location	100 FNL 800 FEL
S-T-R	(A) Sec. 13, T32N, R04W
County, State	Rio Arriba, New Mexico
Elevations	6961' GL
Total Depth	8478' +/- (MD); 2853' (TVD)
Formation Objective	Basin Fruitland Coal

FORMATION TOPS

San Jose	Surface
Nacimienta	1071' (TVD)
Ojo Alamo Ss	2349' (TVD)
Kirtland Sh	2490' (TVD)
Fruitland Fm	2845' (TVD) 3192' MD
Top Target Coal	2846' (TVD) 3199' MD
Base Target Coal	2860' (TVD)
Total Depth	2853' (TVD), 8478' (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 1850' TVD with 7.91°/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: 2646' TVD, 2728' MD to TD

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

2/25/2010

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	3302	8-3/4"	7"	23 lb/ft	J-55 LT&C
TVD	0	2853				
Prod. Liner	3202	8478	6-1/4"	4-1/2"	11.6 lb/ft	J-55 LT&C
TVD	2851	2853				
Tubing	0	3100	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 331 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). (993 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 from those listed above to satisfy wellbore and formation conditions.
- 4) No abnormal temperatures or pressures are anticipated.
- 5) This gas is dedicated.

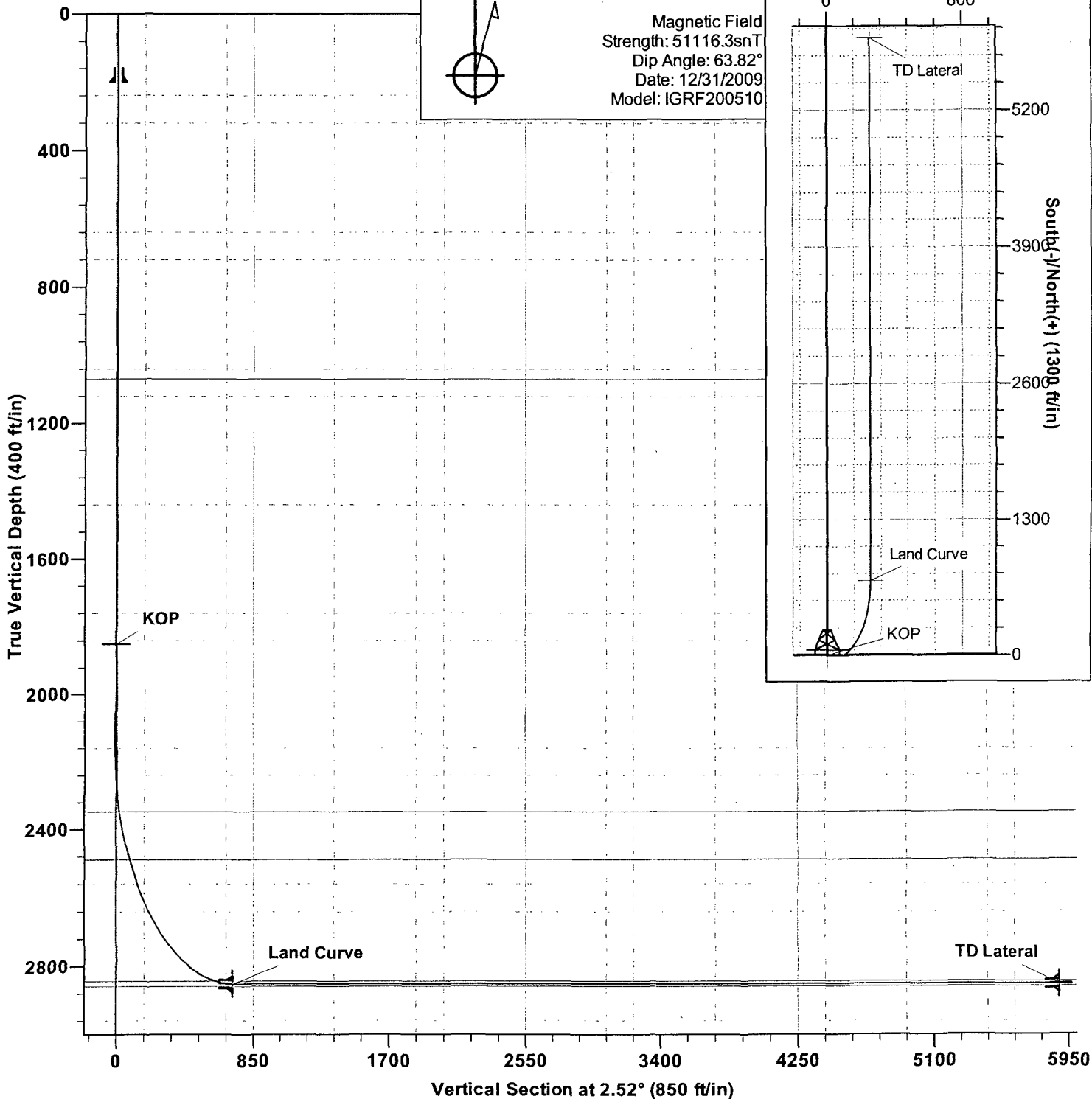
SECTION DETAILS

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	1850.0	0.00	0.00	1850.0	0.0	0.0	0.00	0.00	0.0	KOP
3	2100.7	17.13	106.56	2097.0	-10.6	35.7	6.83	106.56	-9.0	
4	2103.8	17.13	106.56	2099.9	-10.9	36.5	0.00	0.00	-9.2	
5	3302.6	90.00	0.00	2853.0	711.0	259.0	7.91	-105.86	721.7	Land Curve
6	8478.7	90.00	0.00	2853.0	5887.1	259.0	0.00	0.00	5892.8	TD Lateral



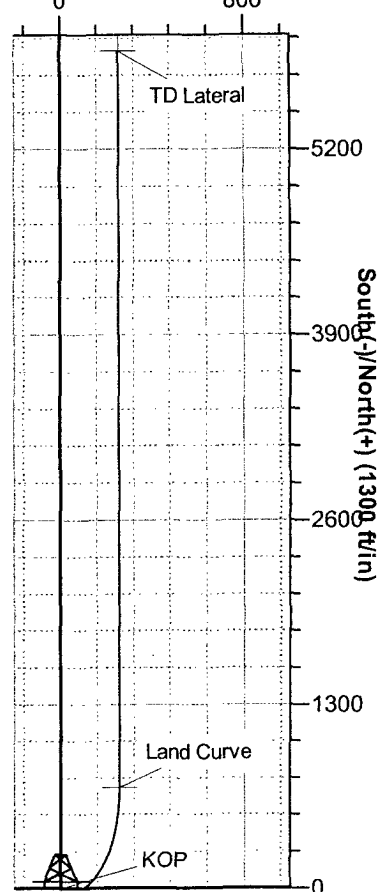
Azimuths to True North
Magnetic North: 9.84°

Magnetic Field
Strength: 51116.3snT
Dip Angle: 63.82°
Date: 12/31/2009
Model: IGRF200510



West(-)/East(+) (800 ft/in)

South(-)/North(+) (1300 ft/in)



Energen DIRECTIONAL PLAN

Company: Energen Resources
Project: Carson National Forest Sec 24-T32N-R4W
Site: Frijoles Canyon
Well: Carracas 13B #16
Wellbore: Horizontal OPE FTC
Design: Plan #1

Local Co-ordinate Reference: Well Carracas 13B #16
TVD Reference: KB @ 6976.0ft (KB)
MD Reference: KB @ 6976.0ft (KB)
North Reference: True
Survey Calculation Method: Minimum Curvature
Database: EDM 2003.16 Single User Db

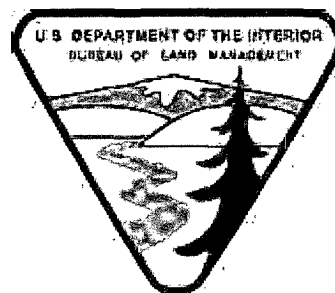
Planned Survey

MD (ft)	TVD (ft)	Inc (°)	Azi (°)	Build (°/100ft)	N/S (ft)	E/W (ft)	V. Sec (ft)
3,199.7	2,846.0	82.19	2.32	7.58	608.4	256.9	619.1
Top Target Coal							
3,200.0	2,846.0	82.22	2.31	7.58	608.7	256.9	619.5
3,250.0	2,851.2	86.01	1.18	7.58	658.4	258.5	669.2
3,302.6	2,853.0	90.00	0.00	7.58	711.0	259.0	721.7
Land Curve							
3,400.0	2,853.0	90.00	0.00	0.00	808.4	259.0	819.0
3,500.0	2,853.0	90.00	0.00	0.00	908.4	259.0	918.9
3,600.0	2,853.0	90.00	0.00	0.00	1,008.4	259.0	1,018.8
3,700.0	2,853.0	90.00	0.00	0.00	1,108.4	259.0	1,118.7
3,800.0	2,853.0	90.00	0.00	0.00	1,208.4	259.0	1,218.6
3,900.0	2,853.0	90.00	0.00	0.00	1,308.4	259.0	1,318.5
4,000.0	2,853.0	90.00	0.00	0.00	1,408.4	259.0	1,418.4
4,100.0	2,853.0	90.00	0.00	0.00	1,508.4	259.0	1,518.3
4,200.0	2,853.0	90.00	0.00	0.00	1,608.4	259.0	1,618.2
4,300.0	2,853.0	90.00	0.00	0.00	1,708.4	259.0	1,718.1
4,400.0	2,853.0	90.00	0.00	0.00	1,808.4	259.0	1,818.0
4,500.0	2,853.0	90.00	0.00	0.00	1,908.4	259.0	1,917.9
4,600.0	2,853.0	90.00	0.00	0.00	2,008.4	259.0	2,017.8
4,700.0	2,853.0	90.00	0.00	0.00	2,108.4	259.0	2,117.7
4,800.0	2,853.0	90.00	0.00	0.00	2,208.4	259.0	2,217.7
4,900.0	2,853.0	90.00	0.00	0.00	2,308.4	259.0	2,317.6
5,000.0	2,853.0	90.00	0.00	0.00	2,408.4	259.0	2,417.5
5,100.0	2,853.0	90.00	0.00	0.00	2,508.4	259.0	2,517.4
5,200.0	2,853.0	90.00	0.00	0.00	2,608.4	259.0	2,617.3
5,300.0	2,853.0	90.00	0.00	0.00	2,708.4	259.0	2,717.2
5,400.0	2,853.0	90.00	0.00	0.00	2,808.4	259.0	2,817.1
5,500.0	2,853.0	90.00	0.00	0.00	2,908.4	259.0	2,917.0
5,600.0	2,853.0	90.00	0.00	0.00	3,008.4	259.0	3,016.9
5,700.0	2,853.0	90.00	0.00	0.00	3,108.4	259.0	3,116.8
5,800.0	2,853.0	90.00	0.00	0.00	3,208.4	259.0	3,216.7
5,900.0	2,853.0	90.00	0.00	0.00	3,308.4	259.0	3,316.6
6,000.0	2,853.0	90.00	0.00	0.00	3,408.4	259.0	3,416.5
6,100.0	2,853.0	90.00	0.00	0.00	3,508.4	259.0	3,516.4
6,200.0	2,853.0	90.00	0.00	0.00	3,608.4	259.0	3,616.3
6,300.0	2,853.0	90.00	0.00	0.00	3,708.4	259.0	3,716.2
6,400.0	2,853.0	90.00	0.00	0.00	3,808.4	259.0	3,816.1
6,500.0	2,853.0	90.00	0.00	0.00	3,908.4	259.0	3,916.0
6,600.0	2,853.0	90.00	0.00	0.00	4,008.4	259.0	4,015.9
6,700.0	2,853.0	90.00	0.00	0.00	4,108.4	259.0	4,115.8
6,800.0	2,853.0	90.00	0.00	0.00	4,208.4	259.0	4,215.7
6,900.0	2,853.0	90.00	0.00	0.00	4,308.4	259.0	4,315.6
7,000.0	2,853.0	90.00	0.00	0.00	4,408.4	259.0	4,415.5
7,100.0	2,853.0	90.00	0.00	0.00	4,508.4	259.0	4,515.4
7,200.0	2,853.0	90.00	0.00	0.00	4,608.4	259.0	4,615.3

DRILLING CONDITIONS OF APPROVAL

Operator: Energen Resources
Lease No.: NMNM-30584
Well Name: Carracas 13B #16
Well Location: Sec.24, T32N, R4W; 611' FNL & 1059' FEL

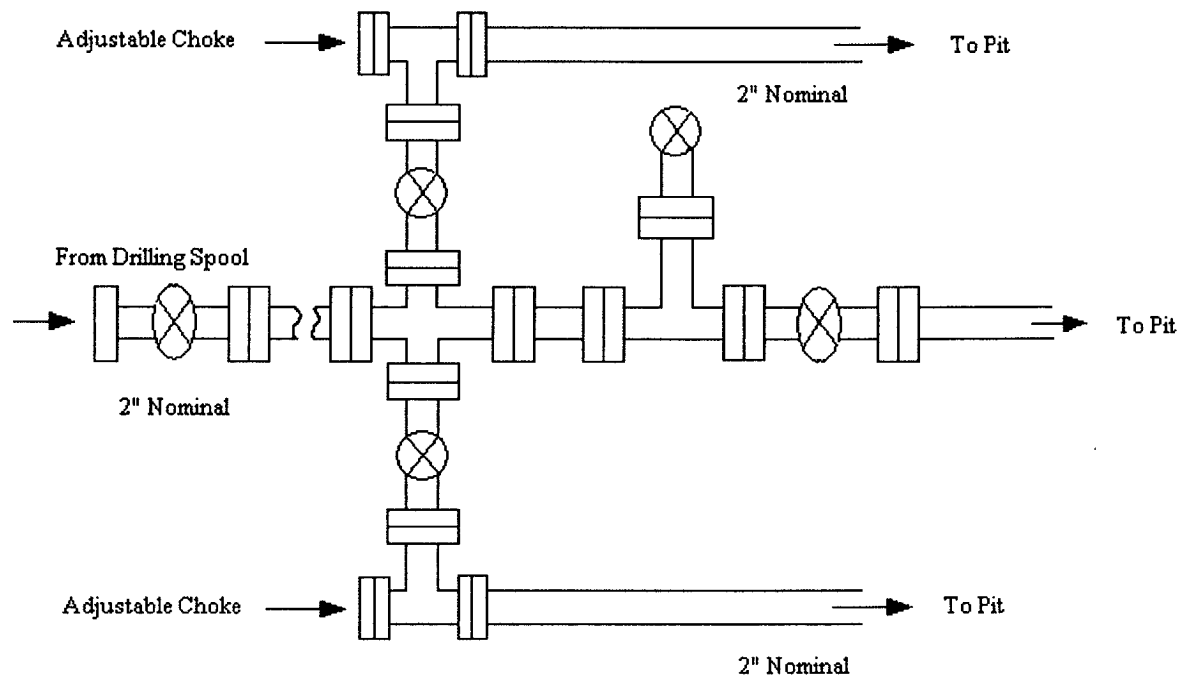
- 1) Pressure test the intermediate casing to a minimum of 1500 psi for 30 minutes



After hour contact: Troy Salyers 505-360-9815

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

