

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

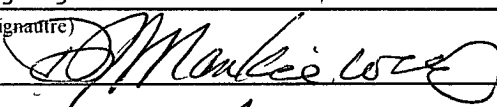
1a. Type of Work <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. NM 30351	
1b. Type of Well <input type="checkbox"/> Oil Well <input checked="" type="checkbox"/> Gas Well <input type="checkbox"/> Other <input type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		6. If Indian, Allottee or Tribe Name	
2. Name of Operator Energen Resources Corporation		7. Unit or CA Agreement Name and No.	
3a. Address 2198 Bloomfield Hwy Farmington, NM 87401		8. Lease Name and Well No. Carracas 21 A #1	
3b. Phone No. (include area code) 505.325.6800		9. API Well No. 30-039-30167	
4. Location of Well (Report location clearly and in accordance with any State requirements)* At surface 700' fsl, 2045' fel At proposed prod zone 760' fnl, 760' fel		10. Field and Pool, or Exploratory Basin Fruitland Coal	
14. Distance in miles and direction from nearest town or post office* Approximately 5.5 miles southeast of Arboles, CO		11. Sec., T., R., M., or Blk. and Survey or Area (O) S21, T32N, R5W	
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drg. unit line, if any) 700'	16. No. of Acres in lease 1280	17. Spacing Unit dedicated to this well 320 E/2	
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 50'	19. Proposed Depth 6598' (MD)	20. BLM/BIA Bond No. on file NM 2707	
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 7065' GL	22. Approximate date work will start* 6/15/2007	23. Estimated duration 25 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 1/19/07
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Title Drilling Engineer		
Approved by (Signature) 	Name (Printed/Typed) J. M. Moore	Date 8/22/08
Title AFFM	Office FFD	

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)

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

NOTIFY AZTEC OCD 24 HRS.
PRIOR TO CASING & CEMENT

NMOCD

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

Hold C104

Directional Survey
and "As Drilled" plat

A COMPLETE C-144 MUST BE SUBMITTED TO AND APPROVED BY THE NMOCD FOR: A PIT, CLOSED LOOP SYSTEM, BELOW GRADE TANK, OR PROPOSED ALTERNATIVE METHOD, PURSUANT TO NMOCD PART 19.15.17, PRIOR TO THE USE OR CONSTRUCTION OF THE ABOVE APPLICATIONS.

and appeal pursuant to 43 CFR 3165.4

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RECEIVED

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

SUNDRY NOTICES AND REPORTS ON WELLS

AUG 20 2008

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

Bureau of Land Management
Farmington Field Office

SUBMIT IN TRIPLICATE - Other instructions on page 2

1. Type of Well

☐ Oil Well ☒ Gas Well ☐ Other

2. Name of Operator

Energen Resources Corporation

3a. Address

2010 Afton Place, Farmington, NM 87401

3b. Phone No. (include area code)

(505) 325-6800

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

700' FSL, 2045' FEL Sec.21, T32N, R05W
(O) SW/SE

5. Lease Serial No.

NM 30351

6. If Indian, Allottee or Tribe Name

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

8. Well Name and No.

Carracas 21A # 1

9. API Well No.

30-039-30167

10. Field and Pool, or Exploratory Area

Basin Fruitland Coal

11. County or Parish, State

Rio Arriba 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

☐ Acidize☐ Alter Casing☐ Casing Repair☒ Change Plans☐ Convert to Injection☐ Deepen☐ Fracture Treat☐ New Construction☐ Plug and Abandon☐ Plug Back☐ Production (Start/Resume)☐ Reclamation☐ Recombine☐ Temporarily Abandon☐ Water Disposal☐ Water Shut-Off☐ Well Integrity☐ Other

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 recomple 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 recomple 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 would like to move the surface location for the Carracas 21A #1 in order to avoid an arc site.

* Change surface location from 700' FSL, 2045' FEL to 690' FSL, 2020' FEL. A revised plat is attached.

RCVD AUG 25 '08

OIL CONS. DIV.

DIST. 3

14. I hereby certify that the foregoing is true and correct

Name (Printed/Typed)

Vicki Donaghey

Title

Regulatory Analyst

Signature

Date

08/20/08

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by

Title

AFM

Date

8/22/08

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 those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Office

FFO

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.

AMOC

RECEIVED

DISTRICT I
1626 N. French Dr., Hobbs, N.M. 88240

State of New Mexico
Energy, Minerals & Natural Resources Department

Form C-102
AUG 20 2008 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

Submit to Appropriate District Office
Bureau of Land Management
State Lease - 4 Copies
Farmington Field Office Fee Lease - 3 Copies

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number	² Pool Code 71629	³ Pool Name FRUITLAND COAL
⁴ Property Code 35660	⁵ Property Name CARRACAS 21A	⁶ Well Number 1
⁷ OGRID No. 1162228	⁸ Operator Name ENERGEN RESOURCES CORPORATION	⁹ Elevation 7065'

¹⁰ Surface Location

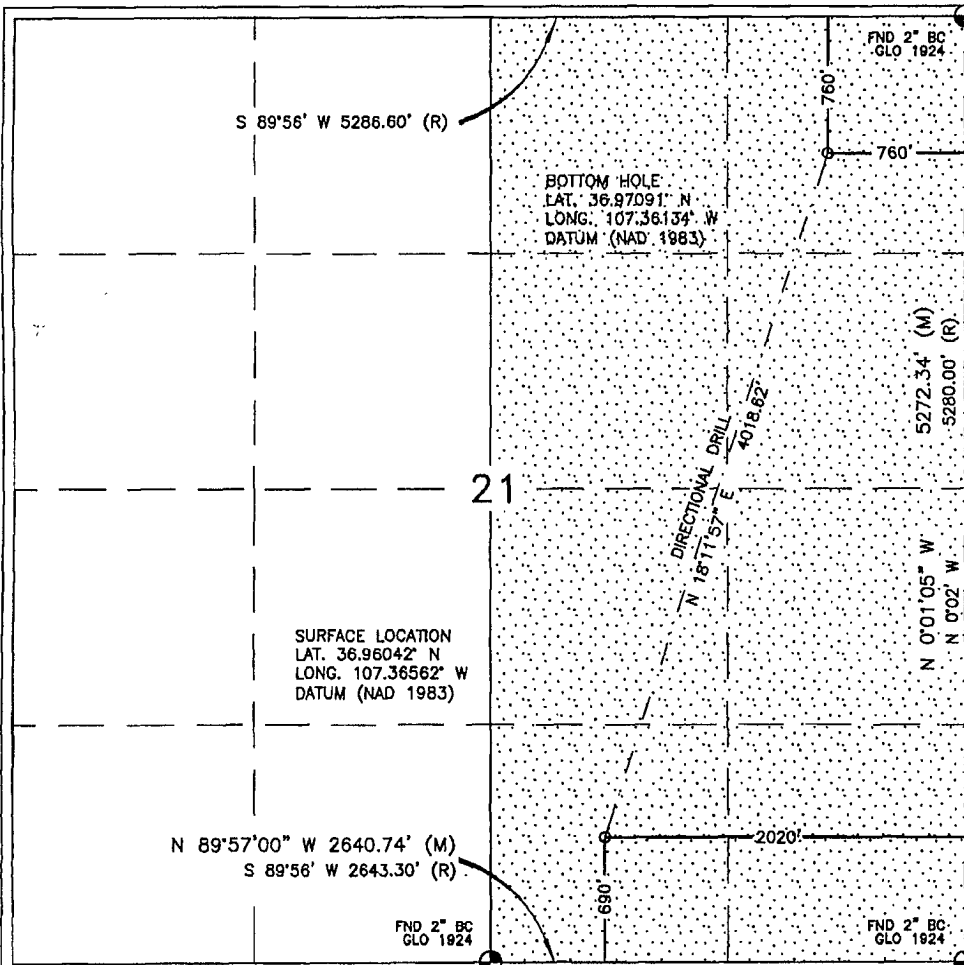
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
0	21	32N	5W		690'	SOUTH	2020'	EAST	RIO ARRIBA

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	21	32N	5W		760'	NORTH	760'	EAST	RIO ARRIBA
¹² Dedicated Acres 319.51 Acres - (E/2)			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

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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.

Signature: *Vicki Donaghey* Date: 8-20-08

Printed Name: Vicki Donaghey

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.

APRIL 24, 2008

Date of Survey

Signature and Seal of Professional Surveyor: *David R. Russell*

DAVID R. RUSSELL
NEW MEXICO
REGISTERED PROFESSIONAL LAND SURVEYOR
10201

NMOCD

Operations Plan
January 19, 2007

Carracas 21 A #1

General Information

Location	700' fsl, 2045' fel at surface 760' fnl, 760' fel at bottom nene S21, T32N, R5W Rio Arriba County, New Mexico
Elevations	7065' GL
Total Depth	6598' (MD), 3553' (TVD)
Formation Objective	Basin Fruitland Coal

Formation Tops

San Jose	Surface
Nacimiento	1560' (TVD)
Ojo Alamo Ss	2936' (TVD), 3140' (MD)
Kirtland Sh	3071' (TVD), 3349' (MD)
Fruitland Fm	3221' (TVD), 3616' (MD)
Top Coal	3541' (TVD), 4626' (MD)
Bottom Coal	3565' (TVD)
Total Depth	3553' (TVD), 6598' (MD)

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 8.9 ppg to 9.5 ppg.

Projected KOP is 1265' TVD with 2.51°/100' doglegs.

The 6 ¼" 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.

Blowout Control Specifications:

A 2000 psi minimum double ram or annulus BOP stack will be used following nipple up of casing head. During air drilling operations, a Shaffer Type 50 or equivalent rotating head will be installed on top of the stack. 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: None

Mud logs: From 3221' (TVD), 3240' (MD) to TD.

Surveys: Surface to KOP every 500' and a minimum of every 250' for directional.

Tubulars

Casing, Tubing, & Casing Equipment:

String	Interval	Wellbore	Casing	Csg Wt	Grade
Surface	0'-200'	12 1/4"	9 5/8"	32.3 ppf	H-40 ST&C
Intermediate	0'-3553' (TVD) 4800' (MD)	8 3/4"	7"	23.0 ppf	J-55 LT&C
Production	3541'-3553' (TVD) 4770'-6598' (MD)	6 1/4"	4 1/2"	11.6 ppf	J-55 LT&C
Tubing	0'-4600' (MD)		2 3/8"	4.7 ppf	J-55

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 and rigid centralizers to optimize standoff. Two turbolating centralizers at the base of the Ojo Alamo are recommended.

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

Wellhead

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

Cementing

Surface Casing: 125 sks Std (class B) with 2.0 % CaCl₂ and 1/4 #/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 600 psi for 30 min.

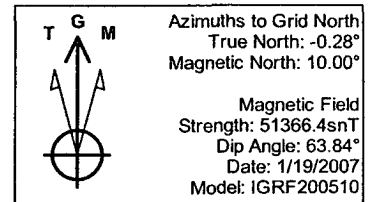
Intermediate Casing: Before cementing, circulate hole at least 1 1/2 hole volumes of mud and reduce funnel viscosity to minimum to aide in hole cleanout. Depending on wellbore conditions, cement may consist of 670 sks 65/35 with 6.0 % Bentonite, 2.0 % CaCl₂, 10 #/sk Gilsonite, and 1/2 #/sk Flocele (12.3 ppg, 1.93 ft³/sk) and a tail of 125 sks Sks with 1/4 #/sk Flocele (15.6 ppg, 1.18 ft³/sk). (1440 ft³ of slurry, 100 % excess to circulate to surface). Test casing to 1200 psi for 30 min.

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. This gas is dedicated.



Project: Carson Nat'l Forest-S21, T32N, R5W
Site: Middle Mesa
Well: Carracas 21 A #1
Wellbore: Preliminary Design
Plan: Plan #1 (Carracas 21 A #1/Preliminary Design)

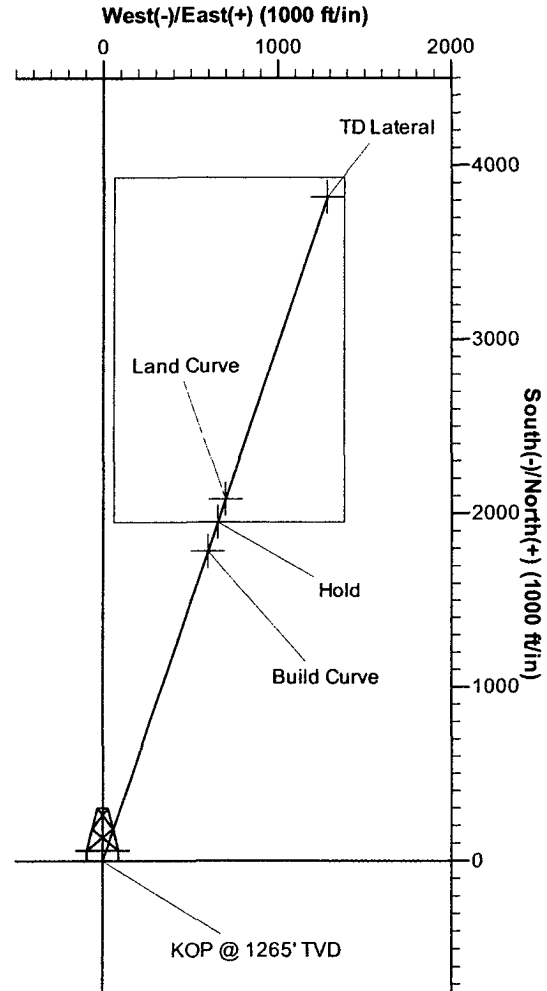
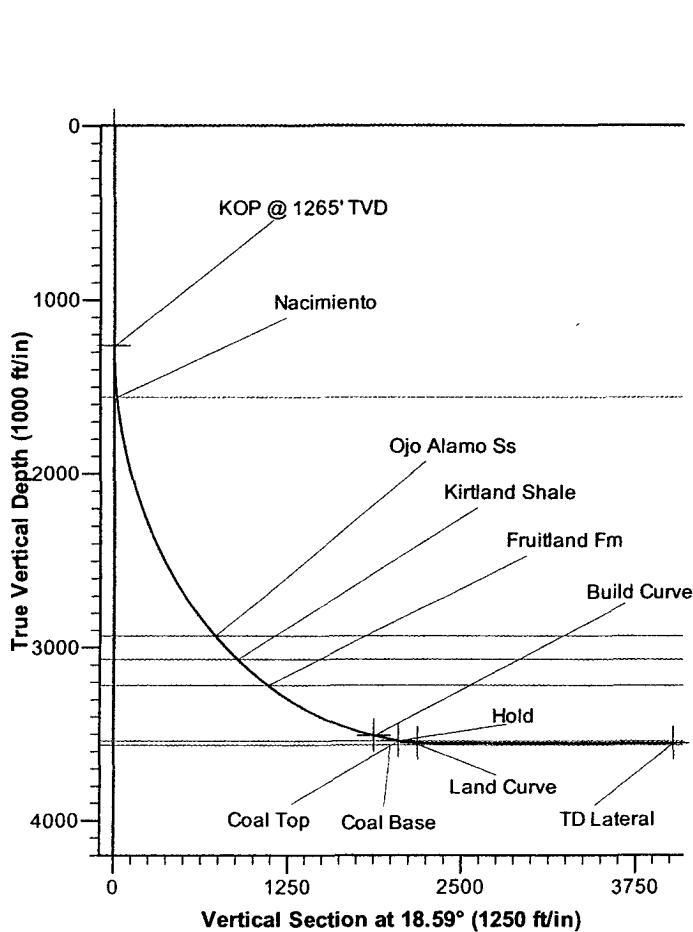


PROJECT DETAILS: Carson Nat'l Forest-S21, T32N, R5W	
Geodetic System:	US State Plane 1983
Datum:	North American Datum 1983
Ellipsoid:	GRS 1980
Zone:	New Mexico Western Zone
System Datum:	Mean Sea Level

SURFACE LOCATION	
Easting:	2859706.77
Northing:	2169265.55

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	1265.0	0.00	0.00	1265.0	0.0	0.0	0.00	0.00	0.0	KOP @ 1265' TVD
3	4448.0	80.00	18.59	3510.0	1785.5	600.5	2.51	18.59	1883.8	Build Curve
4	4626.5	80.00	18.59	3541.0	1952.1	656.6	0.00	0.00	2059.6	Hold
5	4764.3	90.00	18.59	3553.0	2082.1	700.3	7.26	0.00	2196.7	Land Curve
6	6597.6	90.00	18.59	3553.0	3819.7	1284.7	0.00	0.00	4030.0	TD Lateral



Energen

Energen Resources - Design



Company: Energen Resources
Project: Carson Nat'l Forest-S21, T32N, R5W
Site: Middle Mesa
Well: Carracas 21 A #1
Wellbore: Preliminary Design
Design: Plan #1

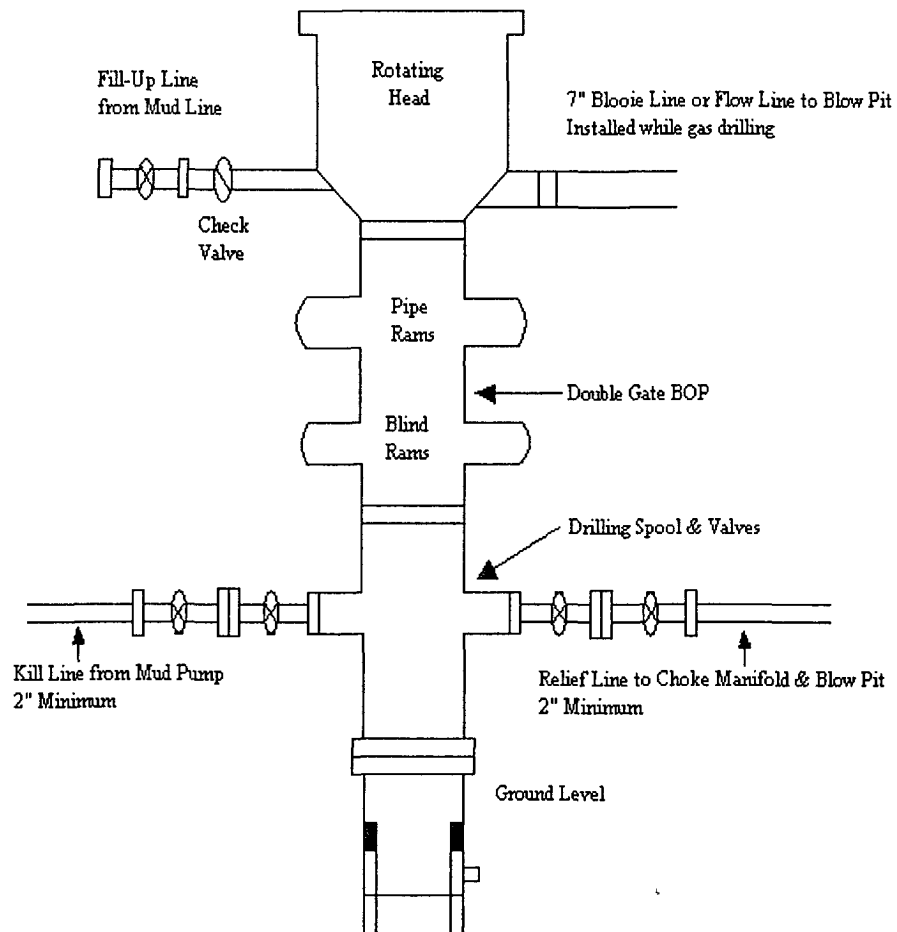
Local Co-ordinate Reference: Well Carracas 21 A #1
TVD Reference: KB @ 7080.0ft (Drilling Rig)
MD Reference: KB @ 7080.0ft (Drilling Rig)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 2003.16 Single User Db

Planned Survey

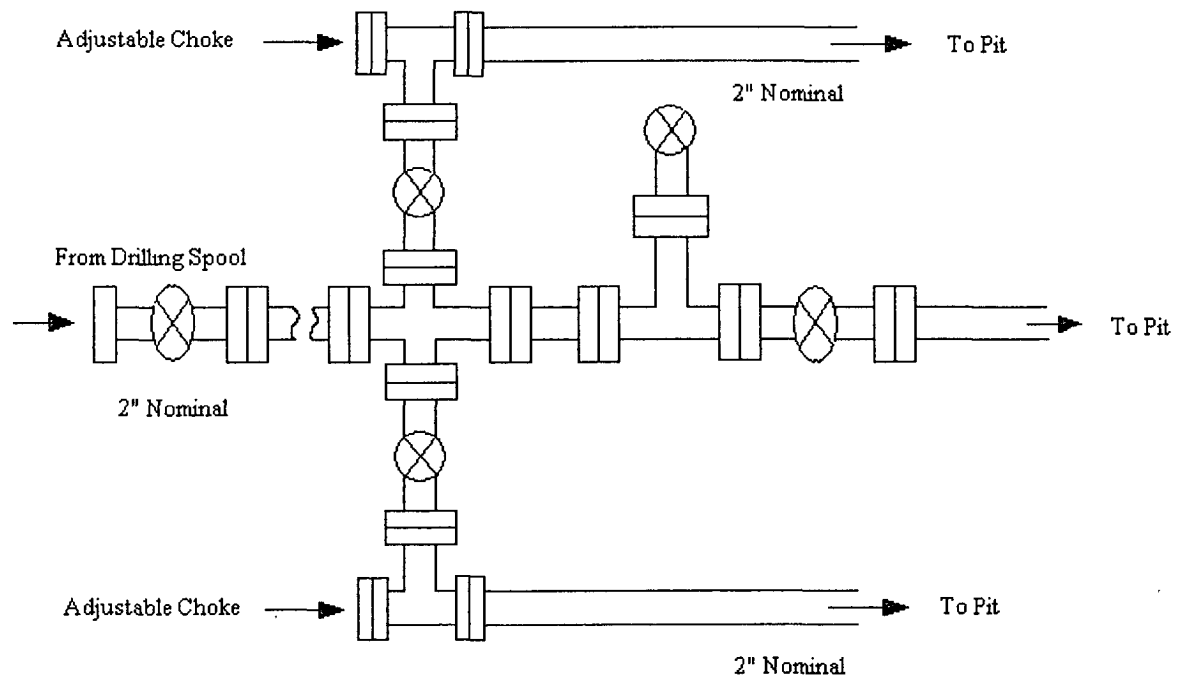
MD (ft)	TVD (ft)	Inc (°)	Azi (°)	Build ("/100ft)	V. Sec (ft)	Northing (ft)	Easting (ft)
4,448.0	3,510.0	80.00	18.59	2.51	1,883.8	2,171,051.06	2,860,307.31
Build Curve							
4,500.0	3,519.0	80.00	18.59	0.00	1,935.0	2,171,099.61	2,860,323.64
4,600.0	3,536.4	80.00	18.59	0.00	2,033.5	2,171,192.95	2,860,355.04
4,626.5	3,541.0	80.00	18.59	-0.02	2,059.6	2,171,217.69	2,860,363.36
Coal Top - Hold							
4,650.0	3,544.7	81.70	18.59	7.26	2,082.8	2,171,239.68	2,860,370.75
4,700.0	3,550.4	85.33	18.59	7.26	2,132.5	2,171,286.76	2,860,386.59
4,750.0	3,552.9	88.96	18.59	7.26	2,182.4	2,171,334.08	2,860,402.51
4,764.3	3,553.0	90.00	18.59	7.26	2,196.7	2,171,347.63	2,860,407.06
Land Curve							
4,800.0	3,553.0	90.00	18.59	0.00	2,232.4	2,171,381.47	2,860,418.45
4,900.0	3,553.0	90.00	18.59	0.00	2,332.4	2,171,476.26	2,860,450.32
5,000.0	3,553.0	90.00	18.59	0.00	2,432.4	2,171,571.04	2,860,482.20
5,100.0	3,553.0	90.00	18.59	0.00	2,532.4	2,171,665.82	2,860,514.08
5,200.0	3,553.0	90.00	18.59	0.00	2,632.4	2,171,760.60	2,860,545.96
5,300.0	3,553.0	90.00	18.59	0.00	2,732.4	2,171,855.39	2,860,577.84
5,400.0	3,553.0	90.00	18.59	0.00	2,832.4	2,171,950.17	2,860,609.72
5,500.0	3,553.0	90.00	18.59	0.00	2,932.4	2,172,044.95	2,860,641.60
5,600.0	3,553.0	90.00	18.59	0.00	3,032.4	2,172,139.73	2,860,673.48
5,700.0	3,553.0	90.00	18.59	0.00	3,132.4	2,172,234.51	2,860,705.36
5,800.0	3,553.0	90.00	18.59	0.00	3,232.4	2,172,329.30	2,860,737.24
5,900.0	3,553.0	90.00	18.59	0.00	3,332.4	2,172,424.08	2,860,769.12
6,000.0	3,553.0	90.00	18.59	0.00	3,432.4	2,172,518.86	2,860,801.00
6,100.0	3,553.0	90.00	18.59	0.00	3,532.4	2,172,613.64	2,860,832.88
6,200.0	3,553.0	90.00	18.59	0.00	3,632.4	2,172,708.43	2,860,864.76
6,300.0	3,553.0	90.00	18.59	0.00	3,732.4	2,172,803.21	2,860,896.64
6,400.0	3,553.0	90.00	18.59	0.00	3,832.4	2,172,897.99	2,860,928.52
6,500.0	3,553.0	90.00	18.59	0.00	3,932.4	2,172,992.77	2,860,960.39
6,597.6	3,553.0	90.00	18.59	0.00	4,030.0	2,173,085.28	2,860,991.51
TD Lateral							

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