

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

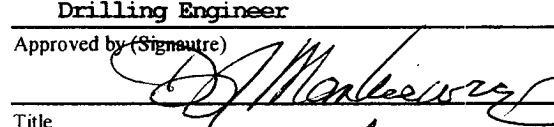
1a. Type of Work <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. <b>NM 30014</b>
1b. Type of Well <input type="checkbox"/> Oil Well <input checked="" type="checkbox"/> Gas Well <input type="checkbox"/> Other <input type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		6. If Indian, Allottee or Tribe Name <b>19</b>
2. Name of Operator <b>Energex Resources Corporation</b>		7. Unit or CA Agreement Name and No.
3a. Address <b>2198 Bloomfield Hwy Farmington, NM 87401</b>	3b. Phone No. (include area code) <b>505.325.6800</b>	8. Lease Name and Well No. <b>Carracas 28 B #2</b>
4. Location of Well (Report location clearly and in accordance with any State requirements)* At surface <b>1730' fnl, 780' fwl</b> At proposed prod. zone <b>1300' fnl, 1980' fel 'b'</b>		9. API Well No. <b>30-039-30168</b>
14. Distance in miles and direction from nearest town or post office* <b>Approximately 10.5 miles east southeast of Arboles, CO</b>		10. Field and Pool, or Exploratory <b>Basin Fruitland Coal</b>
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drg. unit line, if any) <b>780'</b>		11. Sec., T., R., M., or Blk. and Survey or Area <b>(E) S29, T32N, R4W</b>
16. No. of Acres in lease <b>2480</b>		12. County or Parish <b>Rio Arriba</b>
17. Spacing Unit dedicated to this well <b>320 E/2</b>		13. State <b>NM</b>
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. <b>50'</b>		20. BLM/BIA Bond No. on file <b>NM 2707</b>
19. Proposed Depth <b>6208' (MD)</b>		21. Estimated duration <b>25 days</b>
21. Elevations (Show whether DF, KDB, RT, GL, etc.) <b>7241' GL</b>		22. Approximate date work will start* <b>6/15/2007</b>

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) <b>Nathan Smith</b>	Date <b>1/19/07</b>
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Approved by (Signature) 	Name (Printed/Typed) <b>AFM</b>	Date <b>4/9/07</b>
Title <b>Drilling Engineer</b>	Office <b>PFO</b>	

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.

*Min. BoPE test pressure: 750#*

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)

NOTIFY AZTEC OCD 24 HRS.  
PRIOR TO CASING & CEMENT

RCVD APR 12 '07  
OIL CONS. DIV.

DIST. 3

*2015 OCT 04 FOR directional survey*

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".

NMOC

4/16/07

District I  
PO Box 1980, Hobbs, NM 88241-1980

District II  
PO Drawer DD, Artesia, NM 88211-0719

District III  
1000 Rio Brazos Rd., Aztec, NM 87410

District IV  
PO Box 2088, Santa Fe, NM 87504-2088

State of New Mexico  
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION  
PO Box 2088  
Santa Fe, NM 87504-2088

Form C-102  
Revised February 21, 1994  
Instructions on back  
Submit to Appropriate District Office  
State Lease - 4 Copies  
Fee Lease - 3 Copies

2007 JAN 19 PM 2:19

☐ AMENDED REPORT

RCVD APR12'07

RECEIVED

WELL LOCATION AND ACREAGE DEDICATION PLAT OIL CONS. DIV.

*API Number <b>30-039-30168</b>	*Pool Code 71629	*Pool Name BASIN FRUITLAND COAL
*Property Code <b>35665</b>	*Property Name CARRACAS 28B	*Well Number 2
*GRID No 162928	*Operator Name ENERGEN RESOURCES CORPORATION	*Elevation 7241

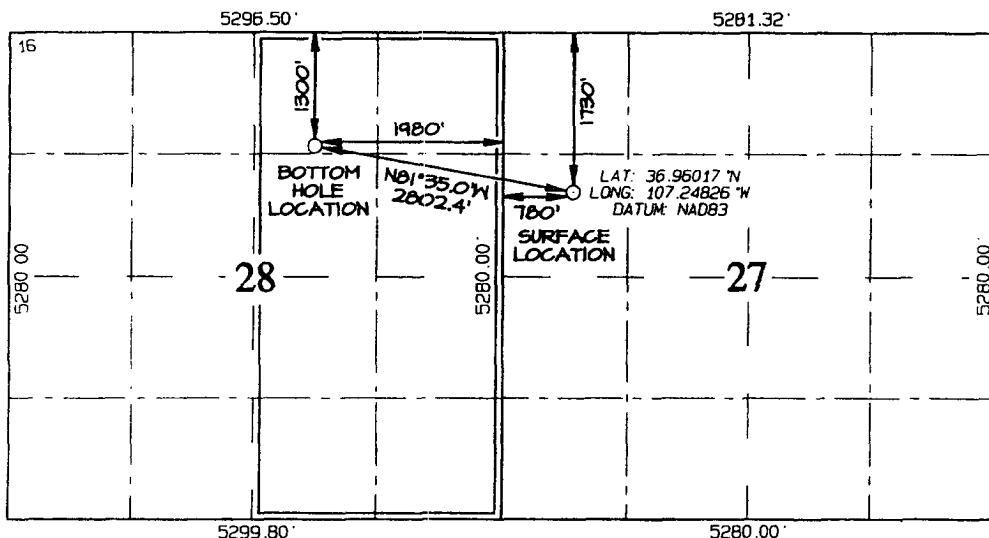
10 Surface Location

UL or lot no	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
E	27	32N	4W		1730	NORTH	780	WEST	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
B	28	32N	4W		1300	NORTH	1980	EAST	RIO ARriba
12 Dedicated Acres 320.0 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



17 OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief

*Nathan Smith*

Signature

*Nathan Smith*

Printed Name

*Drilling Engineer*

Title

*1/19/07*

Date

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

Date of Survey: AUGUST 16, 2006

Signature and Seal of Professional Surveyor



*JASON C. EDWARDS*

Certificate Number 15269

Submit 3 Copies To Appropriate District  
Office  
District I  
1625 N. French Dr., Hobbs, NM 87240  
District II  
1301 W. Grand Ave., Artesia, NM 88210  
District III  
1000 Rio Brazos Rd., Aztec, NM 87410  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
Energy, Minerals and Natural Resources

Form C-103  
May 27, 2004

OIL CONSERVATION DIVISION  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

WELL API NO. <u>30-039-30168</u> NMN 30014
5. Indicate Type of Lease STATE <input type="checkbox"/> FEE <input type="checkbox"/>
6. State Oil & Gas Lease No.
7. Lease Name or Unit Agreement Name: Carracas 28B
8. Well Number # 2
9. OGRID Number 162928
10. Pool name or Wildcat Basin Fruitland Coal

SUNDRY NOTICES AND REPORTS ON WELLS

(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)

1. Type of Well: Oil Well <input type="checkbox"/> Gas Well <input checked="" type="checkbox"/> Other	7. Lease Name or Unit Agreement Name: Carracas 28B
2. Name of Operator Energen Resources Corporation	8. Well Number # 2
3. Address of Operator 2198 Bloomfield Highway, Farmington, NM 87401	9. OGRID Number 162928
4. Well Location Unit Letter <u>E</u> : <u>1730</u> feet from the <u>North</u> line and <u>780</u> feet from the <u>West</u> line Section <u>28</u> Township <u>32N</u> Range <u>04W</u> NMPM County <u>Rio Arriba</u>	10. Pool name or Wildcat Basin Fruitland Coal
11. Elevation (Show whether DR, RKB, RT, GR, etc.) 7241' GL	
Pit or Below-grade Tank Application <input checked="" type="checkbox"/> or Closure <input type="checkbox"/> Pit type <u>Drill</u> Depth to Groundwater <u>&gt;100'</u> Distance from nearest fresh water well <u>&gt;1000'</u> Distance from nearest surface water <u>&gt;250'</u> Pit Liner Thickness: <u>12</u> mil Below-Grade Tank: Volume _____ bbls; Construction Material _____	

12. Check Appropriate Box to Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:

PERFORM REMEDIAL WORK ☐ PLUG AND ABANDON ☐  
TEMPORARILY ABANDON ☐ CHANGE PLANS ☐  
PULL OR ALTER CASING ☐ MULTIPLE COMPLETION ☐  
OTHER: Build drilling pit ☒

SUBSEQUENT REPORT OF:

REMEDIAL WORK ☐ ALTERING CASING ☐  
COMMENCE DRILLING OPNS. ☐ PLUG AND ABANDONMENT ☐  
CASING TEST AND CEMENT JOB ☐  
OTHER: ☐

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 1103. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

Energen Resources plans to build a lined pit according to "OCD Pit and Below-grade Tank Guidelines", as issued on November 1, 2004. Energen anticipates the submittal of a C-144 for closure of this pit in accordance with BLM and "OCD Pit and Below-grade Tank Guidelines".

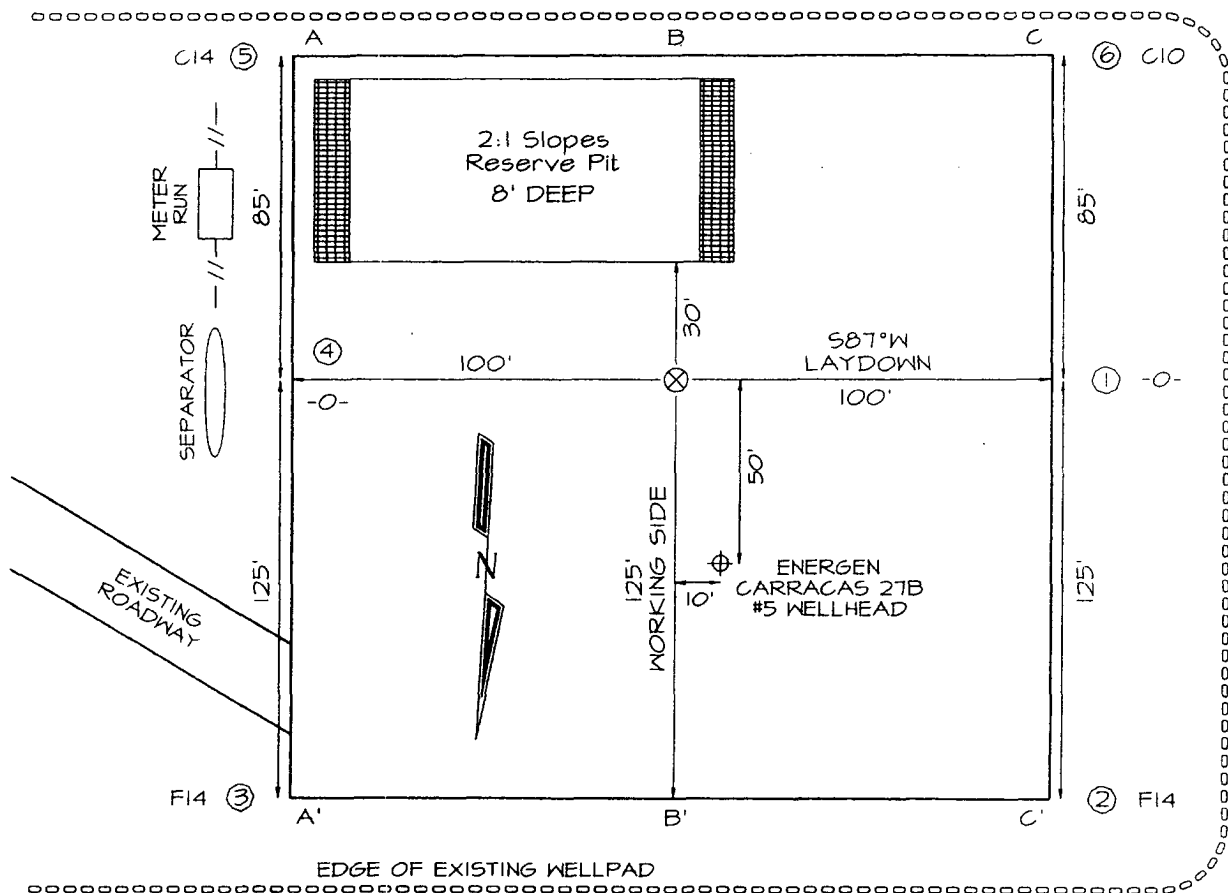
I hereby certify that the information above is true and complete to the best of my knowledge and belief. I further certify that any pit or below-grade tank has been/will be constructed or closed according to NMOCD guidelines ☒ , a general permit ☐ or an (attached) alternative OCD-approved plan ☐

SIGNATURE Vicki Donaghey TITLE Regulatory Analyst DATE 01/19/07  
Type or print name Vicki Donaghey E-mail address: vdonaghe@energen.com  
Telephone No. 505.325.6800

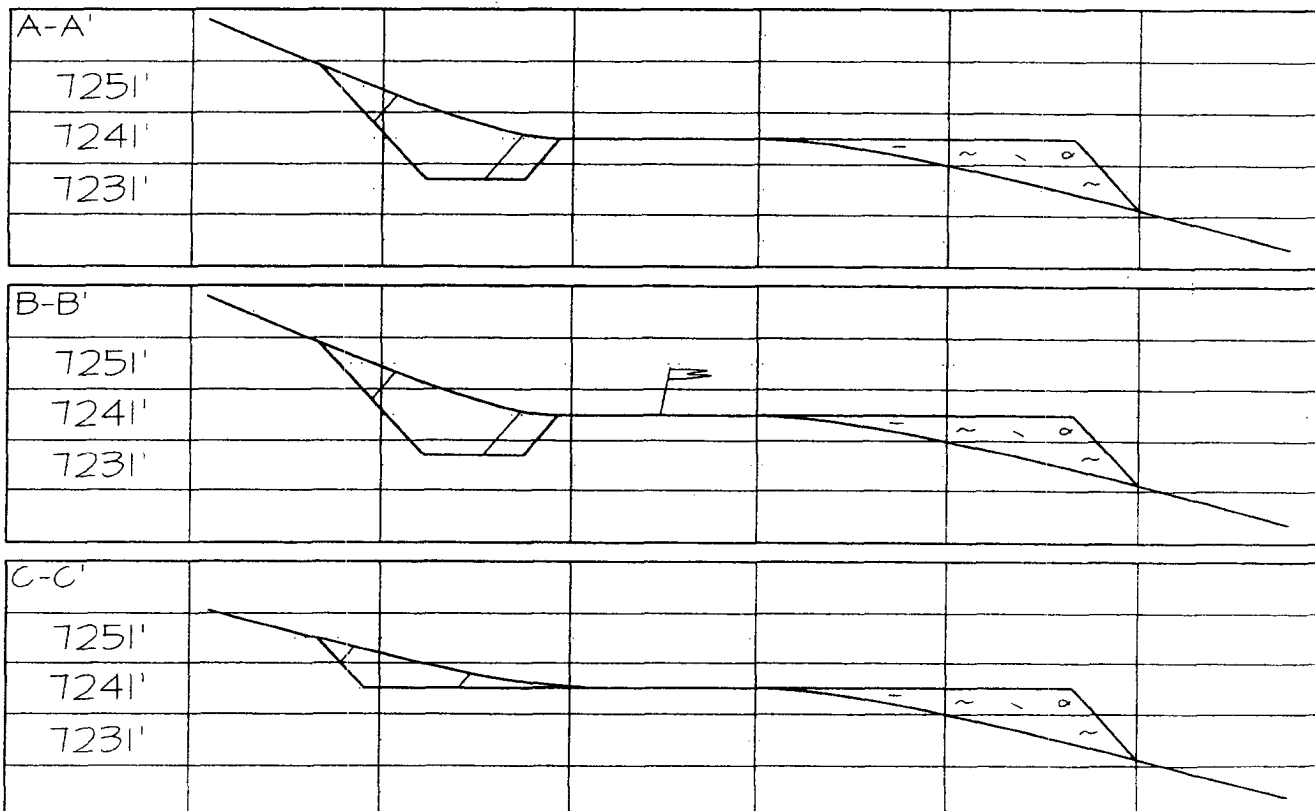
For State Use Only

APPROVED BY [Signature] TITLE DEPUTY OIL & GAS INSPECTOR, DIST. #3 DATE APR 16 2007  
Conditions of Approval, if any:

**ENERGEN RESOURCES CORPORATION CARRACAS 28B #2**  
**1730' FNL & 780' FWL, SECTION 27, T32N, R4W, NMPM**  
**RIO ARriba COUNTY, NEW MEXICO GROUND ELEVATION: 7241'**



**LATITUDE: 36.96017° N**  
**LONGITUDE: 107.24826° W**  
DATUM: NAD1983



Note: Contractor should call One-Call for location of any marked or unmarked buried pipelines or cables on well pad and/or access road at least two (2) working days prior to construction

## Operations Plan

January 18, 2007

### **Carracas 28 B #2**

#### **General Information**

Location	1730' fnl, 780' fwl at surface 1300' fsl, 1980' fel at bottom nwne S28, T32N, R4W Rio Arriba County, New Mexico
Elevations	7241' GL
Total Depth	6208' (MD), 4095' (TVD)
Formation Objective	Basin Fruitland Coal

#### **Formation Tops**

San Jose	Surface
Nacimiento	2305' (TVD)
Ojo Alamo Ss	3453' (TVD), 3519' (MD)
Kirtland Sh	3630' (TVD), 3753' (MD)
Fruitland Fm	3685' (TVD), 3833' (MD)
Top Coal	4088' (TVD), 4871' (MD)
Bottom Coal	4103' (TVD)
Total Depth	4095' (TVD), 6208' (MD)

#### **Drilling**

The 12 1/4" wellbore will be drilled with a fresh water mud system.

The 8 3/4" 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 2525' TVD with 3.68°/100' doglegs.**

The 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.

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 3685' (TVD), 3833' (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'-4095' (TVD) 4980' (MD)	8 3/4"	7"	23.0 ppf	J-55 LT&C
Production	4088'-4103' (TVD) 4950'-6208' (MD)	6 1/4"	4 1/2"	11.6 ppf	J-55 LT&C
Tubing	0'-4700' (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 % CaCl<sub>2</sub> and 1/4 #/sk Flocele (15.6 ppg, 1.18 ft<sup>3</sup>/sk 148 ft<sup>3</sup> of slurry, 100% excess to circulate to surface). WOC 12 hours. Pressure test surface casing to 600 psi for 30 min.

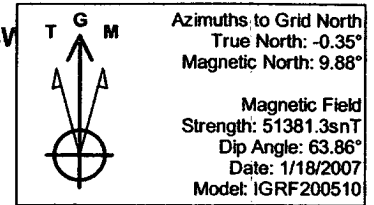
Intermediate Casing: Before cementing, circulate hole at least 1 1/2 hole volumes of mud and reduce funnel viscosity to minimum to aide in hole cleanout. Depending on wellbore conditions, cement may consist of 700 sks 65/35 with 6.0 % Bentonite, 2.0 % CaCl<sub>2</sub>, 10 #/sk Gilsonite, and 1/2 #/sk Flocele (12.3 ppg, 1.96 ft<sup>3</sup>/sk) and a tail of 125 sks Sks with 1/4 #/sk Flocele (15.6 ppg, 1.18 ft<sup>3</sup>/sk). (1498 ft<sup>3</sup> 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 National Forest-S28, T32N, R4W  
**Site:** Carracas Mesa  
**Well:** Carracas 28 B #2  
**Wellbore:** Preliminary Design  
**Plan:** Plan #1 (Carracas 28 B #2/Preliminary Design)



**PROJECT DETAILS: Carson National Forest-S28, T32N, R4W**

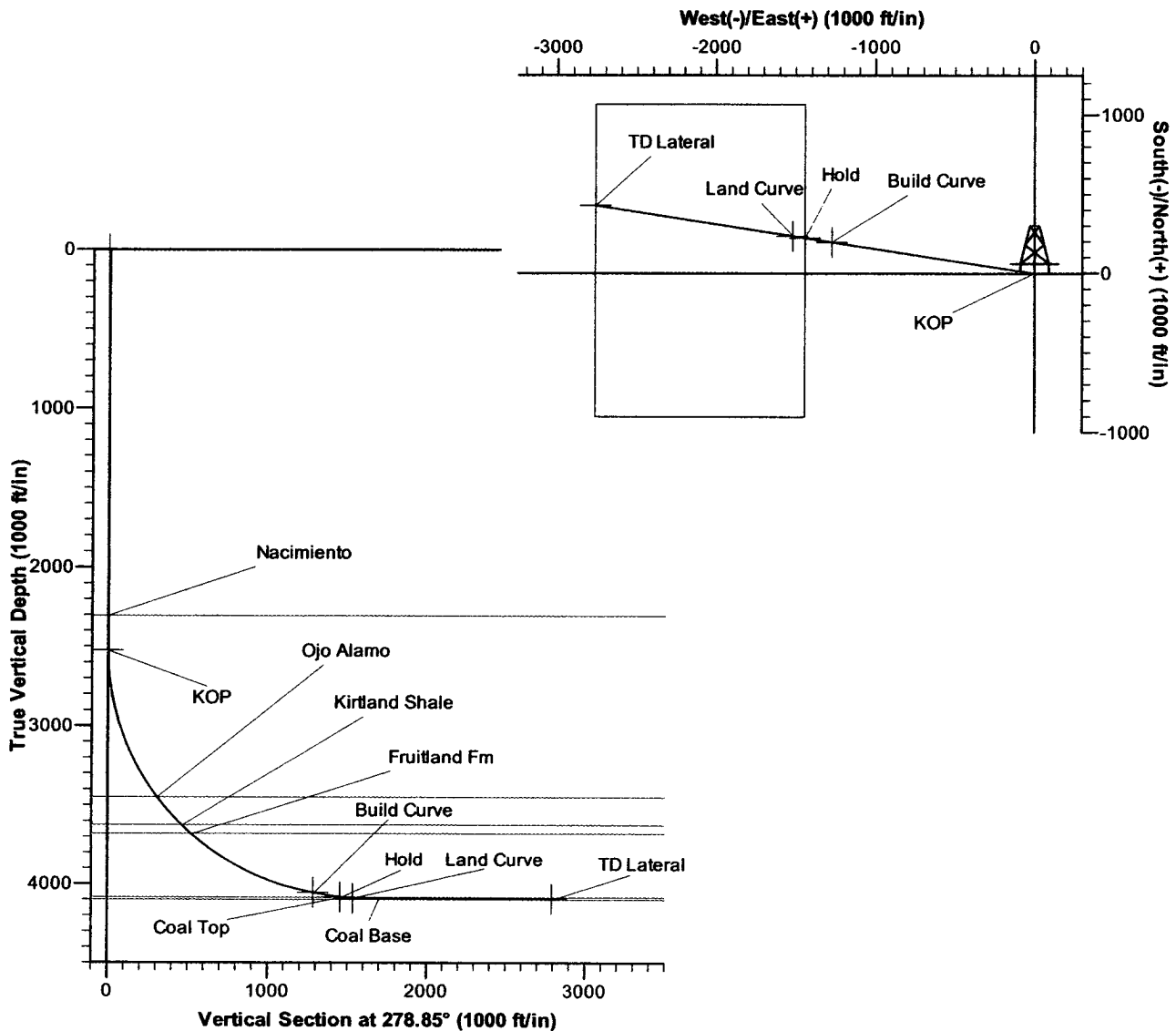
**Geodetic System:** US State Plane 1983  
**Datum:** North American Datum 1983  
**Ellipsoid:** GRS 1980  
**Zone:** New Mexico Western Zone  
**System Datum:** Mean Sea Level

**SURFACE LOCATION**

**Easting:** 2894027.74  
**Northing:** 2169356.82

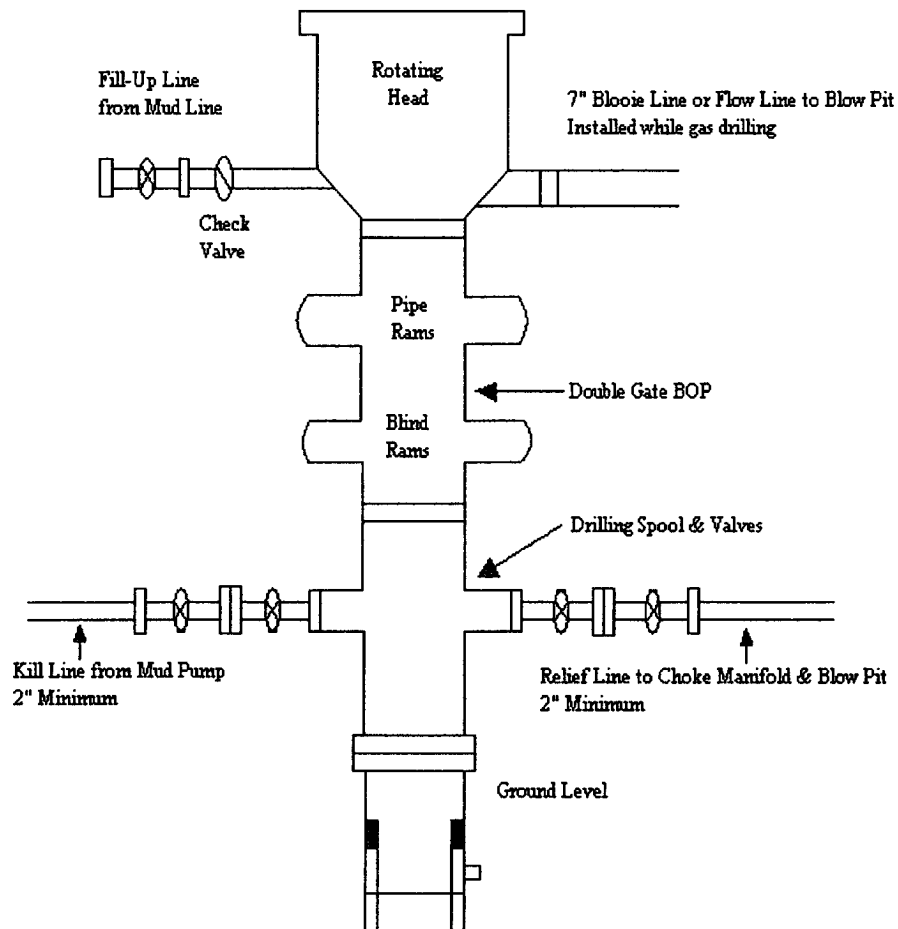
**SECTION DETAILS**

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	2525.0	0.00	0.00	2525.0	0.0	0.0	0.00	0.00	0.0	KOP
3	4698.5	80.00	278.85	4058.0	197.9	-1271.0	3.68	278.85	1286.3	Build Curve
4	4871.3	80.01	278.85	4088.0	224.1	-1439.2	0.01	0.00	1456.5	Hold
5	4951.7	89.99	278.85	4095.0	236.4	-1518.2	12.41	0.00	1536.5	Land Curve
6	6208.2	90.01	278.85	4095.0	429.7	-2759.7	0.00	0.00	2793.0	TD Lateral



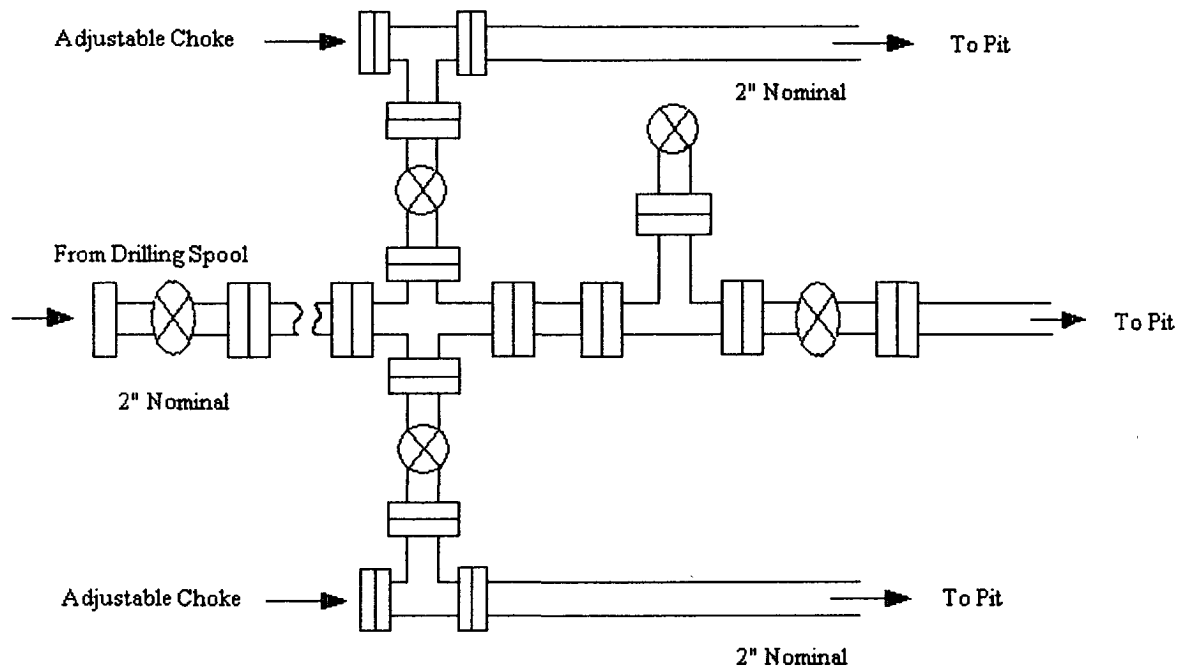
## Energen Resources Corporation

### Typical BOP Configuration for Gas Drilling





**Energen Resources Corporation**  
Typical 2000 psi Choke Manifold Configuration



Choke manifold installed from surface to TD