


## APPLICATION FOR PERMIT TO DRILL OR REENTER


1a. Type of Work <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		6. If Indian, Allottee or Tribe Name 42	
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		7. Unit or CA Agreement Name and No. RECEIVED 070 FARMINGTON	
2. Name of Operator Energen Resources Corporation		8. Lease Name and Well No. Carracas 25A #2	
3a. Address 2198 Bloomfield Highway Farmington, New Mexico 87401		9. API Well No. 30-039-29884	
3b. Phone No. (include area code) (505) 325-6800		10. Field and Pool, or Exploratory Basin Fruitland Coal	
4. Location of Well (Report location clearly and in accordance with any State requirements)* At surface 805' fsl, 20' fwl - S30, T32N, R4W At proposed prod. zone 2500' fnl, 1880' fel - S25, T32N, R5W		11. Sec., T., R., M., or Blk. and Survey or Area S25, T32N, R04W B4 M S30, T32N, R04W SH	
14. Distance in miles and direction from nearest town or post office* Approximately 8.2 miles south & east of Arboles, CO		12. County or Parish Rio Arriba	
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drg. unit line, if any) 20'		13. State NM	
16. No. of Acres in lease 1760.00		17. Spacing Unit dedicated to this well 320 E 1/2	
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. Approx. 500'		19. Proposed Depth 5525' (MD)	
20. BLM/BIA Bond No. on file NM 2707		21. Estimated duration 30 days	
22. Elevations (Show whether DF, KDB, RT, GL, etc.) GL 7196'		23. Approximate date work will start* 07/01/06	

## 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.
2. A Drilling Plan
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).
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 authorized officer.

25. Signature 	Name (Printed/Typed) Nathan Smith	Date 4/20/05
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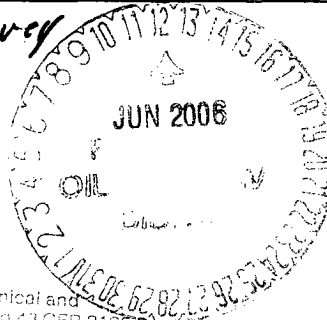
Drilling Engineer		
Approved by (Signature)	Name (Printed/Typed)	Date
		6/8/06
Title	Office	
Acting AFM		

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.

*\*(Instructions on page 2)*

HOLD C104 FOR directional survey



NRMOCD

U.S. AIR FORCE AIRCRAFTS AND AIRCRAFT  
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U.S. AIR FORCE AIRCRAFTS AND AIRCRAFT

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

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

District II  
PO Drawer 00, 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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

*API Number 30-039-29884	*Pool Code 71629	*Pool Name BASIN FRUITLAND COAL
*Property Code 32967	*Property Name CARRACAS 25A	*Well Number 2
*GRID No. 162928	*Operator Name ENERGEN RESOURCES CORPORATION	*Elevation 7196'

10 Surface Location

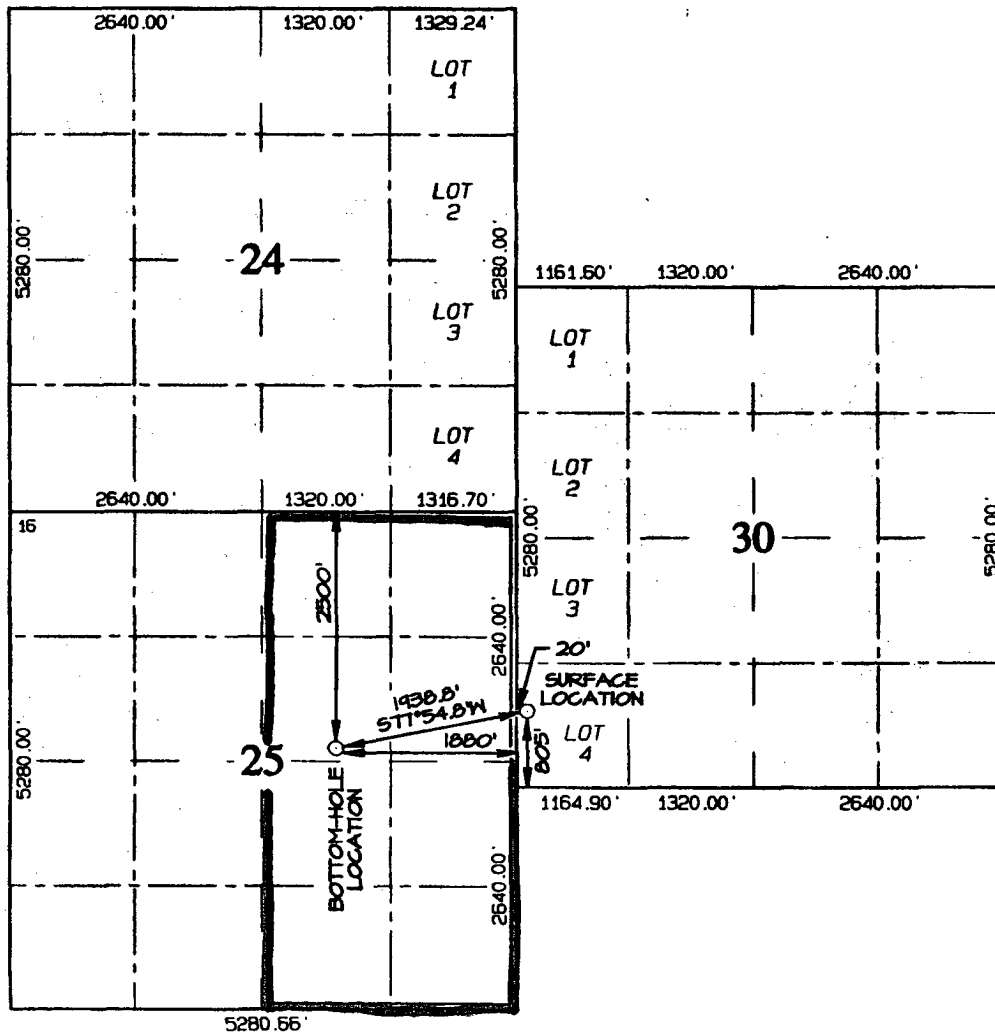
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	30	32N	4W		805	SOUTH	20	WEST	RIO ARriba

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
G	25	32N	5W		2500	NORTH	1880	EAST	RIO ARriba

*Dedicated Acres 320.0 Acres - (E/2)	*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



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

*4/20/06*

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.

Survey Date: SEPTEMBER 12, 2005

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>30-039-29884</u>
5. Indicate Type of Lease STATE <input type="checkbox"/> FEE <input type="checkbox"/>
6. State Oil & Gas Lease No.

**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: <u>Carracas 25A</u>
2. Name of Operator <u>Energen Resources Corporation</u>	8. Well Number <u>2</u>
3. Address of Operator <u>2198 Bloomfield Highway, Farmington, NM 87401</u>	9. OGRID Number <u>162928</u>
4. Well Location Unit Letter <u>M</u> : <u>805</u> feet from the <u>South</u> line and <u>20</u> feet from the <u>West</u> line Section <u>30</u> Township <u>32N</u> Range <u>04W</u> NMPM County <u>Rio Arriba</u>	10. Pool name or Wildcat <u>Basin Fruitland Coal</u>
11. Elevation (Show whether DR, RKB, RT, GR, etc.) <u>7196' GL</u>	

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 <input type="checkbox"/>	PLUG AND ABANDON <input type="checkbox"/>
TEMPORARILY ABANDON <input type="checkbox"/>	CHANGE PLANS <input type="checkbox"/>
PULL OR ALTER CASING <input type="checkbox"/>	MULTIPLE COMPLETION <input type="checkbox"/>
OTHER: <u>Build drilling pit</u> <input checked="" type="checkbox"/>	

SUBSEQUENT REPORT OF:

REMEDIAL WORK <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
COMMENCE DRILLING OPNS. <input type="checkbox"/>	PLUG AND ABANDONMENT <input type="checkbox"/>
CASING TEST AND CEMENT JOB <input type="checkbox"/>	
OTHER: <input type="checkbox"/>	

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 ELM 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 Nathan Smith TITLE Drilling Engineer DATE 04/20/06

Type or print name Nathan Smith

E-mail address: nsmith@energen.com  
Telephone No. 505.325.6800

For State Use Only

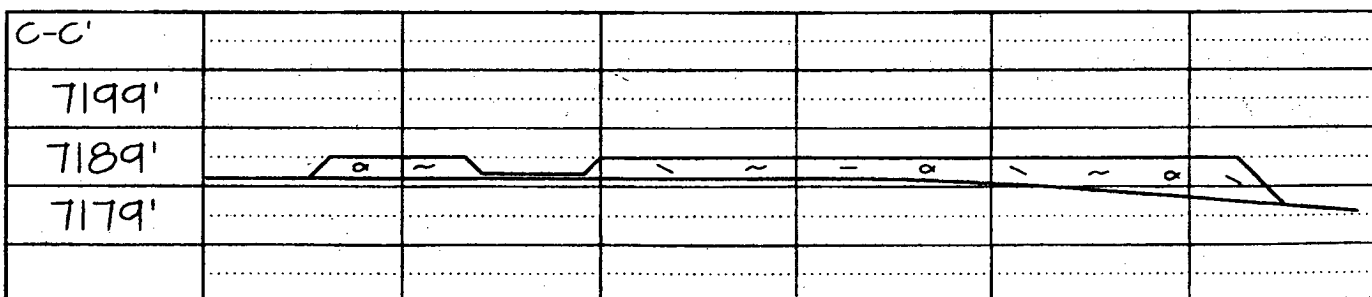
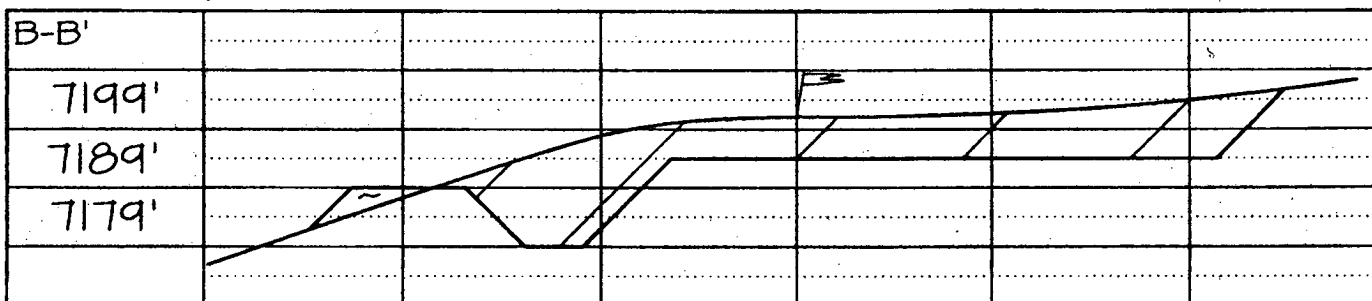
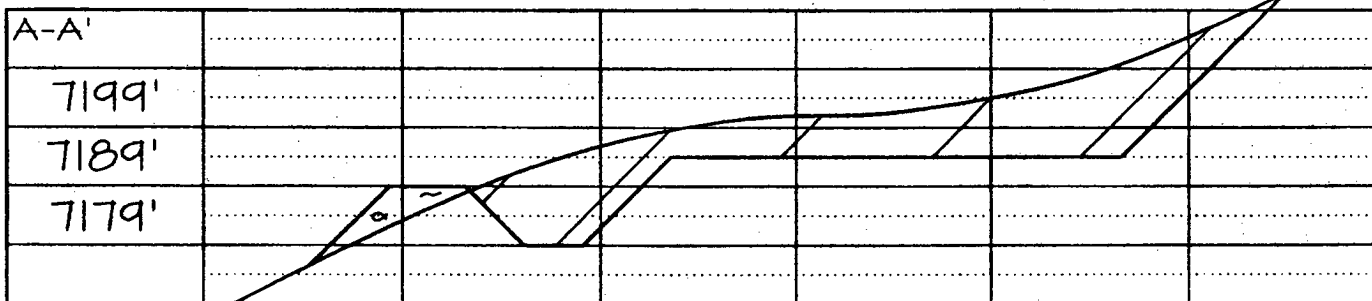
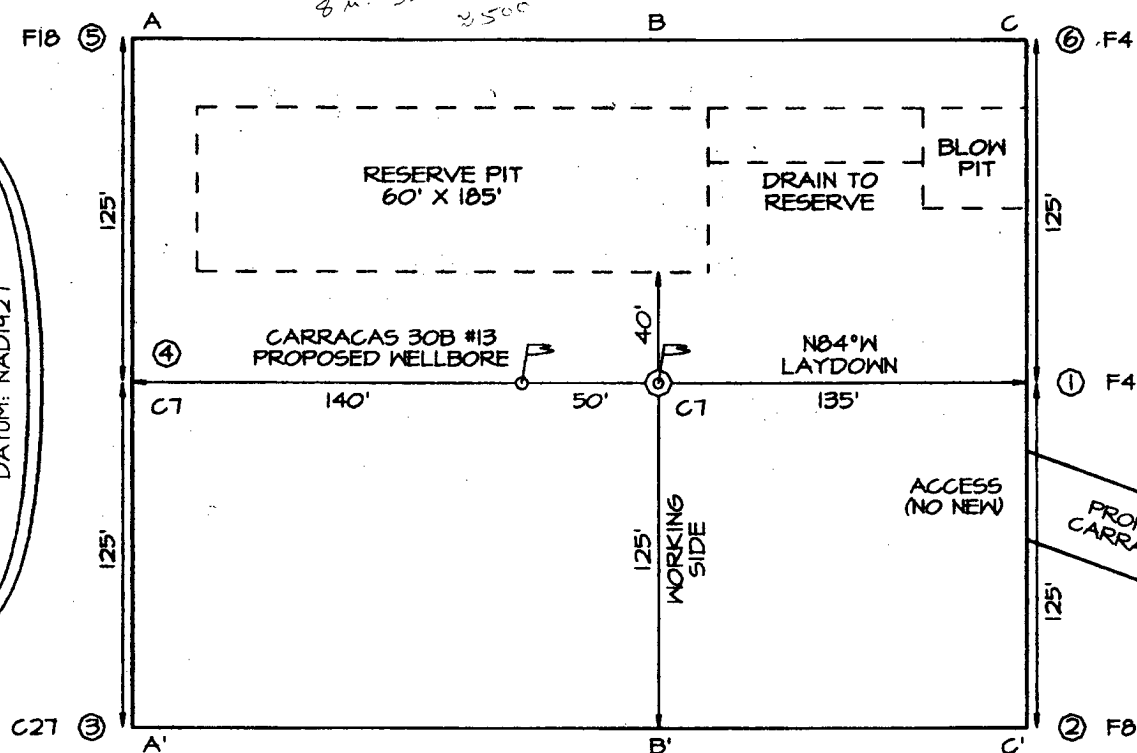
APPROVED BY [Signature] TITLE DEPUTY OIL & GAS INSPECTOR, DIST. IV DATE JUN 12 2006

Conditions of Approval, if any:

**ENERGEN RESOURCES CORPORATION CARRACAS 25A #2**  
**805' FSL & 20' FWL, SECTION 30, T32N, R4W, NMPM**  
**RIO ARriba COUNTY, NEW MEXICO ELEVATION: 7196'**

N36.95277°  
W 107.30388°

LATITUDE: 36°57'10"  
LONGITUDE: 107°18'14"  
DATUM: NAD1927



## Operations Plan

April 20, 2006

### **Carracas 25A #2**

#### **General Information**

Location	805' fsl, 20' fwl at surface 2500' fnl, 1880' fel at bottom swne S25, T32N, R5W Rio Arriba County, New Mexico
Elevations	7196' GL
Total Depth	5525' (MD), 3912' (TVD)
Formation Objective	Basin Fruitland Coal

#### **Formation Tops**

San Jose	Surface
Nacimiento	2215' (TVD)
Ojo Alamo Ss	3340' (TVD), 3340' (MD)
Kirtland Sh	3435' (TVD), 3440' (MD)
Fruitland Fm	3800' (TVD), 3940' (MD)
Top Coal	3895' (TVD), 4205' (MD)
Bottom Coal	3912' (TVD)
<b>Total Depth</b>	<b>3912' (TVD), 5525' (MD)</b>
Pictured Cliffs Ss	3985' (TVD)

#### **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.

**KOP is 3164' TVD with 7.75°/100' doglegs.**

The 6 ¼" wellbore will be drilled with a fresh water or brine water system depending on reservoir characteristics.

##### **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: Gamma Ray from 3940' (MD) to 4400' (MD).

Mud logs: From kick off point to TD.

Surveys: Surface and a minimum of every 250' for directional or 500' up to kickoff point.

## 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'-3912' (TVD) 4400' (MD)	8 3/4"	7"	23.0 ppf	J-55 LT&C
Production	3905'-3912' (TVD) 4370'-5525' (MD)	6 1/4"	4 1/2"	11.6 ppf	J-55 LT&C
Tubing	0'-4220'		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: Cement nose guide shoe on bottom of first joint. No centralizers.

## 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: 110 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 130 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 600 sks 65/35 Std (class B) 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 (class B) with 5 #/sk Gilsonite and 1/4 #/sk Flocele (15.4 ppg, 1.24 ft<sup>3</sup>/sk). (1331 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 with an uncemented 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. ABHP is 1200 psi.

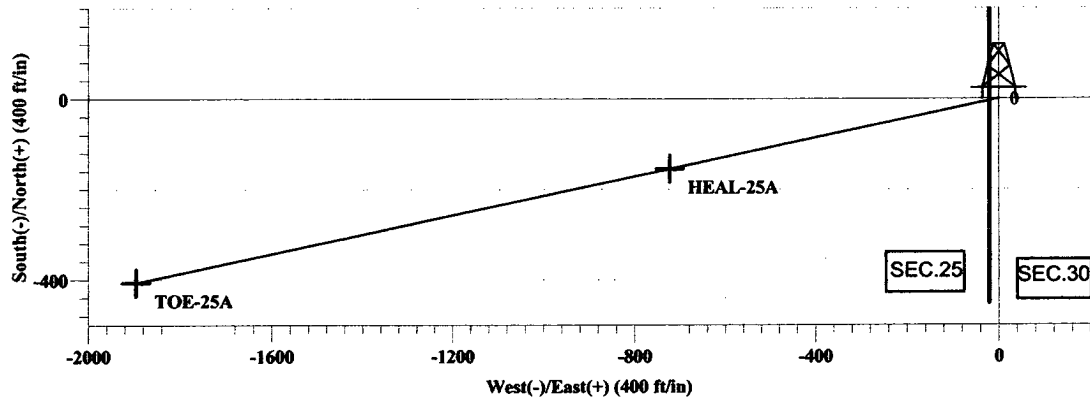
# ENERGEN RESOURCES CORP



**CARRACAS 25A #2**  
**SEC.30 T32N-R4W**  
**RIO ARriba Co. NM**

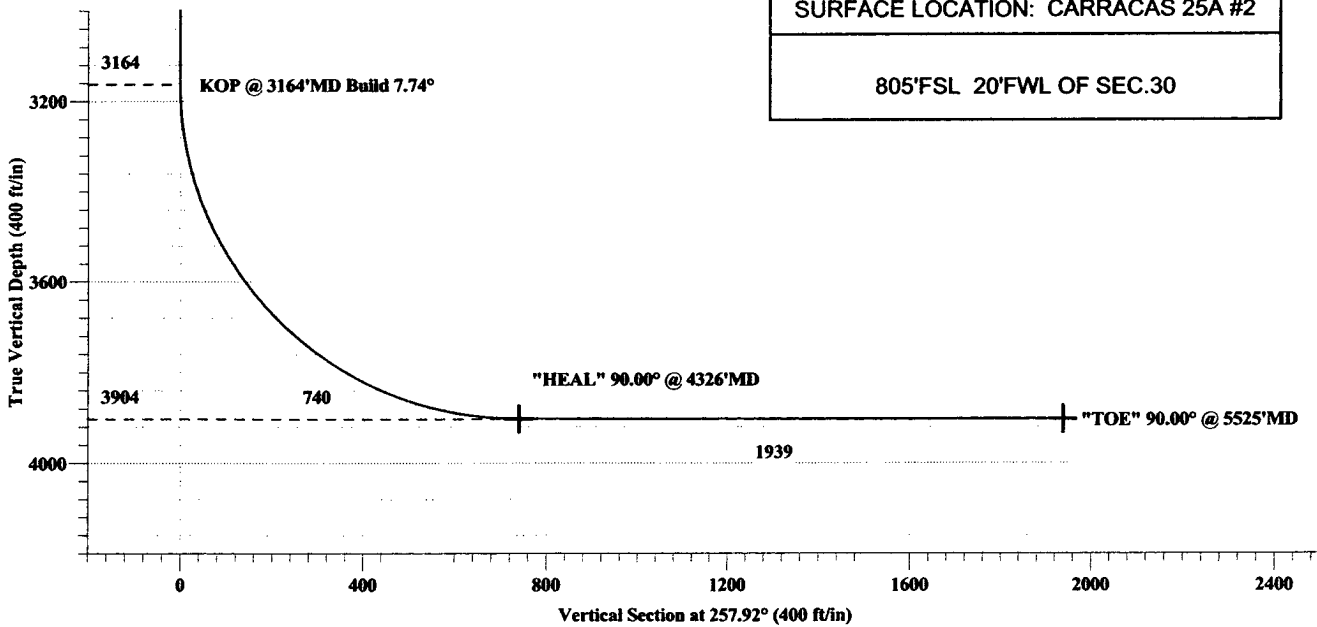
## WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
HEAL-25A	3904.0	-154.9	-723.6	Point
TOE-25A	3904.0	-405.7	-1895.9	Point



**SURFACE LOCATION: CARRACAS 25A #2**

**805'FSL 20'FWL OF SEC.30**



## SECTION DETAILS

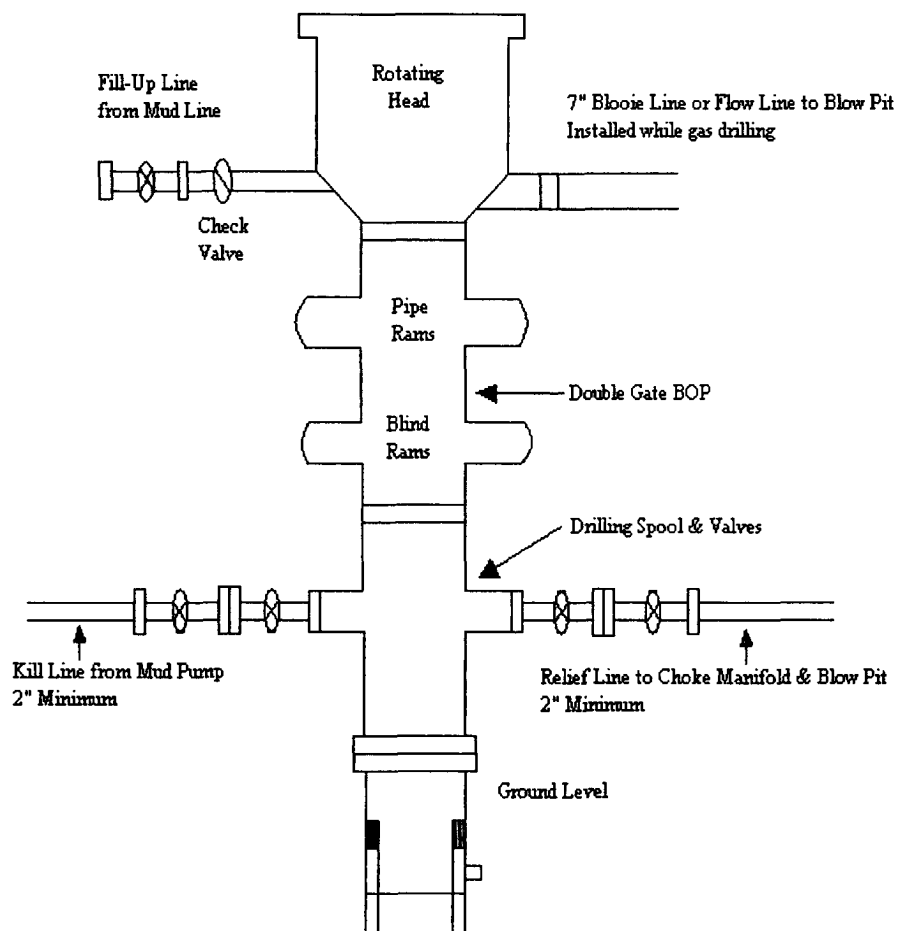
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	3164.0	0.00	0.00	3164.0	0.0	0.0	0.00	0.00	0.0	
3	4326.4	90.00	257.92	3904.0	-154.9	-723.6	7.74	257.92	740.0	HEAL-25A
4	5525.2	90.00	257.92	3904.0	-405.7	-1895.9	0.00	0.00	1938.8	TOE-25A

Plan: Plan #1 (CARRACAS 25A #2/Wellbore #1)

Created By: Frank C. Scardino Date: 4/19/2006

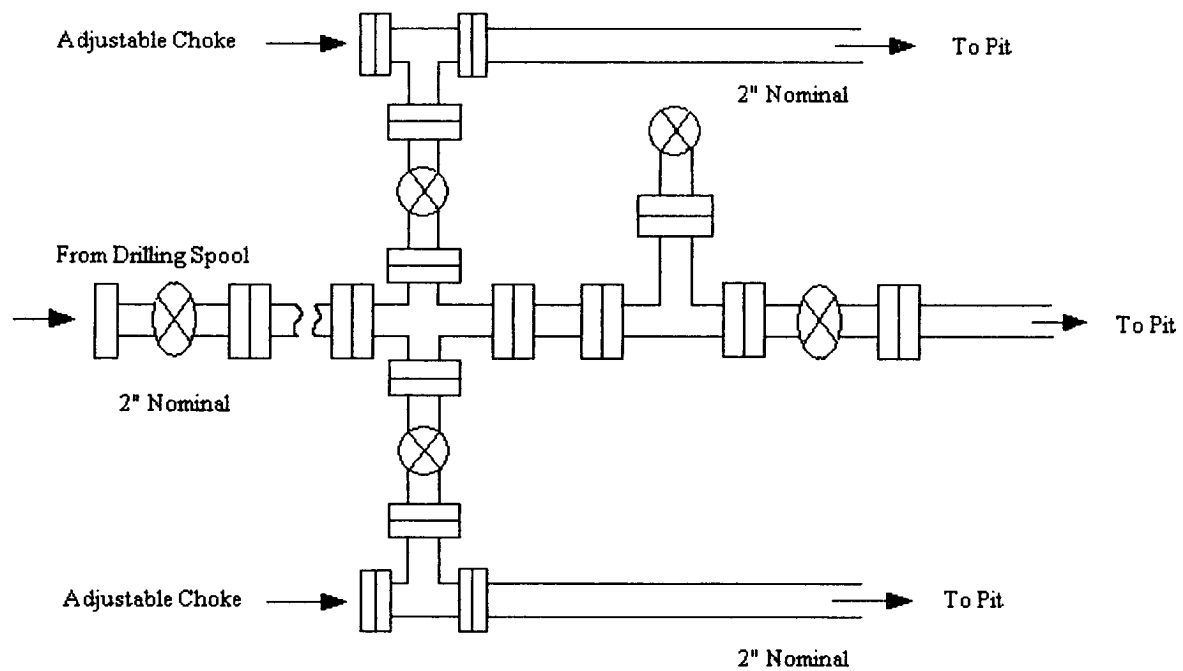
## Energen Resources Corporation

### Typical BOP Configuration for Gas Drilling





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



Choke manifold installed from surface to TD