

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENTFORM 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		2006 DEC 11 PM 3 53		5. Lease Serial No. NM 29760 59704
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		RECEIVED		6 If Indian, Allottee or Tribe Name
2 Name of Operator Energen Resources Corporation		070 FARMINGTON NM		7. Unit or CA Agreement Name and No.
3a. Address 2198 Bloomfield Hwy Farmington, NM 87401		3b Phone No. (include area code) 505.325.6800		8. Lease Name and Well No. Carracas Canyon Unit 11 A #13
4 Location of Well (Report location clearly and in accordance with any State requirements)* At surface 1625' fsl, 1260' fel At proposed prod zone 1000' fsl, 100' fwl				9. API Well No. 30-039-30141
14 Distance in miles and direction from nearest town or post office* Approximately 5 miles east southeast of Arboles, CO				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) 100'		16. No. of Acres in lease 1440.81		11. Sec., T., R., M., or Blk. and Survey or Area (I) S11, T32N, R5W
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft 50'		19. Proposed Depth 7445' (MD)		12 County or Parish Rio Arriba
21 Elevations (Show whether DF, KDB, RT, GL, etc.) 7513' GL		22. Approximate date work will start* 6/15/2007		13. State NM
		17. Spacing Unit dedicated to this well 320 S/2		
		20 BLM/BIA Bond No. on file NM 2707		
		23 Estimated duration 25 days		

## 24. Attachments

RCVD APR 2 '08

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. |
- OIL CONS. DIV.  
DIST. 3

25 Signature 	Name (Printed/Typed) Nathan Smith	Date 12/11/06
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Title

Drilling Engineer

Approved by (Signature) 	Name (Printed/Typed) AEM	Date 4/1/08
Title AEM	Office FFO	

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)

Hold C104  
for Directional Survey  
and "As Drilled" platNOTIFY AZTEC OCD 24 HRS.  
PRIOR TO CASING & CEMENTDRILLING OPERATIONS AUTHORIZED ARE  
SUBJECT TO COMPLIANCE WITH ATTACHED  
"GENERAL REQUIREMENTS".

APR 04 2008

AV

NMOCD

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

DISTRICT I  
1825 N. French Dr., Hobbs, N.M. 88240

State of New Mexico  
Energy, Minerals & Natural Resources Department

Form C-102  
Revised August 15, 2000

DISTRICT II  
811 South First, Artesia, N.M. 88210

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

DISTRICT IV  
2040 South Pacheco, Santa Fe, NM 87505

OIL CONSERVATION DIVISION

2040 South Pacheco  
Santa Fe, NM 87505

Submit to Appropriate District Office  
State Lease - 4 Copies  
Fee Lease - 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

<sup>1</sup> API Number 30-039-30141	<sup>2</sup> Pool Code 71629	<sup>3</sup> Pool Name Basin UP FRUITLAND COAL
<sup>4</sup> Property Code 37089	<sup>5</sup> Property Name CARRACAS CANYON UNIT 11A	<sup>6</sup> Well Number 11A-13
<sup>7</sup> GRID No. 162928	<sup>8</sup> Operator Name ENERGEN RESOURCES CORPORATION	<sup>9</sup> Elevation 7513'

<sup>10</sup> Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
I	11	32N	5W		1625'	SOUTH	1260'	EAST	RIO ARRIBA

<sup>11</sup> 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
M	11	32N	5W		1000'	SOUTH	100'	WEST	RIO ARRIBA

<sup>12</sup> Dedicated Acres 32.0 310.25 Acres - (S/2)	<sup>13</sup> Joint or Infill	<sup>14</sup> Consolidation Code	<sup>15</sup> 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

16	17 OPERATOR CERTIFICATION
<p>COLORADO</p> <p>NEW MEXICO</p> <p>4 3 2 1</p> <p>821.72' (R) 1320' (R) 1320' (R) 616.44' (R)</p> <p>1/16 E 1/4 E 1/16 E</p> <p>FND 2" BC GLO 1924</p> <p>11 1/4 E</p> <p>FND 2" BC GLO 1924</p> <p>2640' (R) 2638.88' (M)</p> <p>1260'</p> <p>1000'</p> <p>N 0°01' W 2640' (R) N 0°08'18" W 2633.10' (M)</p> <p>100'</p> <p>1/16 E</p> <p>DIRECTIONAL DRILL</p> <p>3971.95'</p> <p>S 81°06'27" W</p> <p>BH LOCATION</p> <p>1625'</p> <p>NORTH N 0°03'36" E</p> <p>FND 2" BC GLO 1924</p> <p>N 89°52' W 5289.90' (R) N 89°49'17" W 5278.15' (M)</p> <p>FND 2" BC GLO 1924</p> <p>SURFACE LOCATION LAT. 36°59'31"N LONG. 107°19'37"W DATUM (NAD 1983)</p>	<p>I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief</p> <p><i>Nathan Smith</i> Signature Nathan Smith Printed Name Drilling Engineer Title 12/11/06 Date</p> <p>18 SURVEYOR CERTIFICATION</p> <p>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.</p> <p>OCTOBER 18, 2005 Date of Survey</p> <p>Signature and Seal of Professional Surveyor: <i>David R. Russell</i> DAVID R. RUSSELL Certificate Number 10201</p>

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

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

WELL API NO. <b>30039-30141</b>
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: <b>Carracas Canyon Unit 11A</b>
8. Well Number <b>#13</b>
9. OGRID Number <b>162928</b>
10. Pool name or Wildcat <b>Basin Fruitland Coal</b>

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: <b>Carracas Canyon Unit 11A</b>
2. Name of Operator <b>Energen Resources Corporation</b>	8. Well Number <b>#13</b>
3. Address of Operator <b>2198 Bloomfield Hwy Farmington, NM 87401</b>	9. OGRID Number <b>162928</b>
4. Well Location Unit Letter <b>I</b> : <b>1625</b> feet from the <b>South</b> line and <b>1260</b> feet from the <b>East</b> line Section <b>11</b> Township <b>32N</b> Range <b>5W</b> NMPM County <b>Rio Arriba</b>	10. Pool name or Wildcat <b>Basin Fruitland Coal</b>
11. Elevation (Show whether DR, RKB, RT, GR, etc.) <b>7513' GL</b>	
Pit or Below-grade Tank Application <input checked="" type="checkbox"/> or Closure <input type="checkbox"/>	
Pit type <b>Drill</b> Depth to Groundwater <b>&gt;200'</b> Distance from nearest fresh water well <b>&gt;1000'</b> Distance from nearest surface water <b>&gt;250'</b>	
Pit Liner Thickness: <b>12</b> 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 a 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' issued on November 1, 2004 and also plans to submit a C-144 form for the closure of such 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 *Nathan Smith* TITLE Drilling Engineer DATE 12/11/2006

Type or print name Nathan Smith E-mail address: nsmith@energen.com Telephone No. 505.326.6800

For State Use Only

APPROVED BY *[Signature]* TITLE Deputy Oil & Gas Inspector, District #3 DATE APR 04 2008  
Conditions of Approval, if any:

## Operations Plan

December 11, 2006

### **Carracas 11 A #13**

#### **General Information**

Location	1625' fsl, 1260' fel at surface 1000' fsl, 100' fwl at bottom swsw S11, T32N, R5W Rio Arriba County, New Mexico
Elevations	7513' GL
Total Depth	7445' (MD), 4151' (TVD)
Formation Objective	Basin Fruitland Coal

#### **Formation Tops**

San Jose	Surface
Nacimiento	2108' (TVD)
Ojo Alamo Ss	3489' (TVD), 3550' (MD)
Kirtland Sh	3629' (TVD), 3762' (MD)
Fruitland Fm	3768' (TVD), 3934' (MD)
Top Coal	4120' (TVD), 4885' (MD)
Bottom Coal	4151' (TVD)
<b>Total Depth</b>	<b>4151' (TVD), 7445' (MD)</b>

#### **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 2600' TVD with 3.79°/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 3808' (TVD), 4000' (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'-4135' (TVD) 5100' (MD)	8 3/4"	7"	23.0 ppf	J-55 LT&C
Production	4120'-4151' (TVD) 5070'-7445' (MD)	6 1/4"	4 1/2"	11.6 ppf	J-55 LT&C
Tubing	0'-5030' (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.

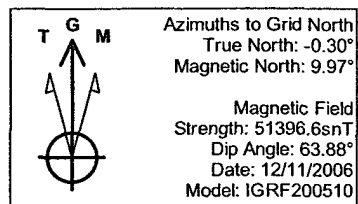
Intermediate Casing: Before cementing, circulate hole at least 1 1/2 hole volumes of mud and reduce funnel viscosity to minimum to aide in hole cleanout. Depending on wellbore conditions, cement may consist of 715 sks 65/35 with 6.0 % Bentonite, 2.0 % CaCl<sub>2</sub>, 10 #/sk Gilsonite, and 1/2 #/sk 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). (1527 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  
**Site:** Carracas Mesa; S11, T32N, R5W  
**Well:** Carracas Canyon Unit 11 A #13  
**Wellbore:** Preliminary Plan  
**Plan:** Plan #1 (Carracas Canyon Unit 11 A #13/Preliminary Plan)

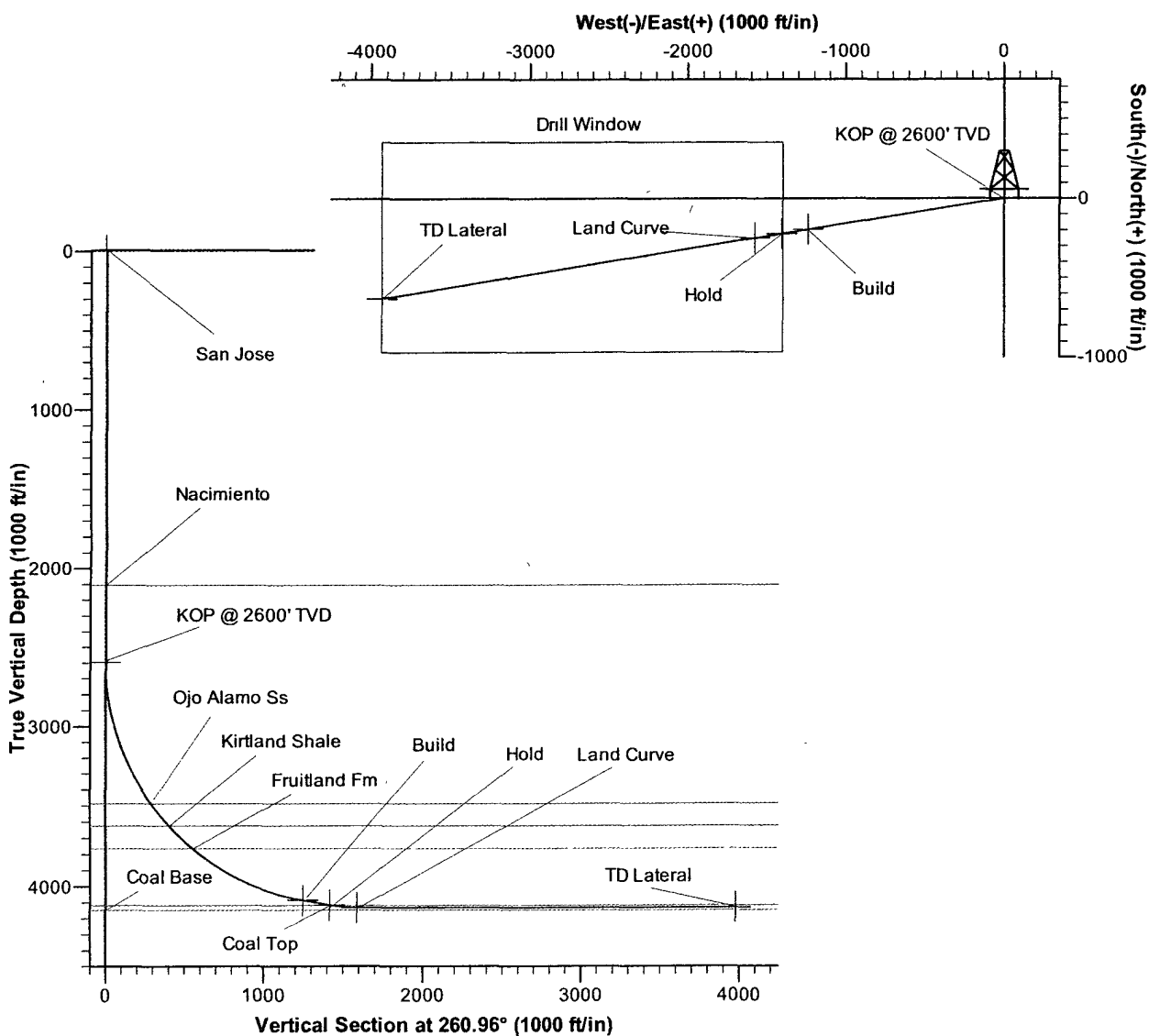


PROJECT DETAILS: Carson National Forest; S11, T32N, R5W	
Geodetic System:	US State Plane 1983
Datum:	North American Datum 1983
Ellipsoid:	GRS 1980
Zone:	New Mexico Western Zone
System Datum:	Mean Sea Level

SURFACE LOCATION	
Easting:	2870977.47
Northing:	2180793.33

#### SECTION DETAILS

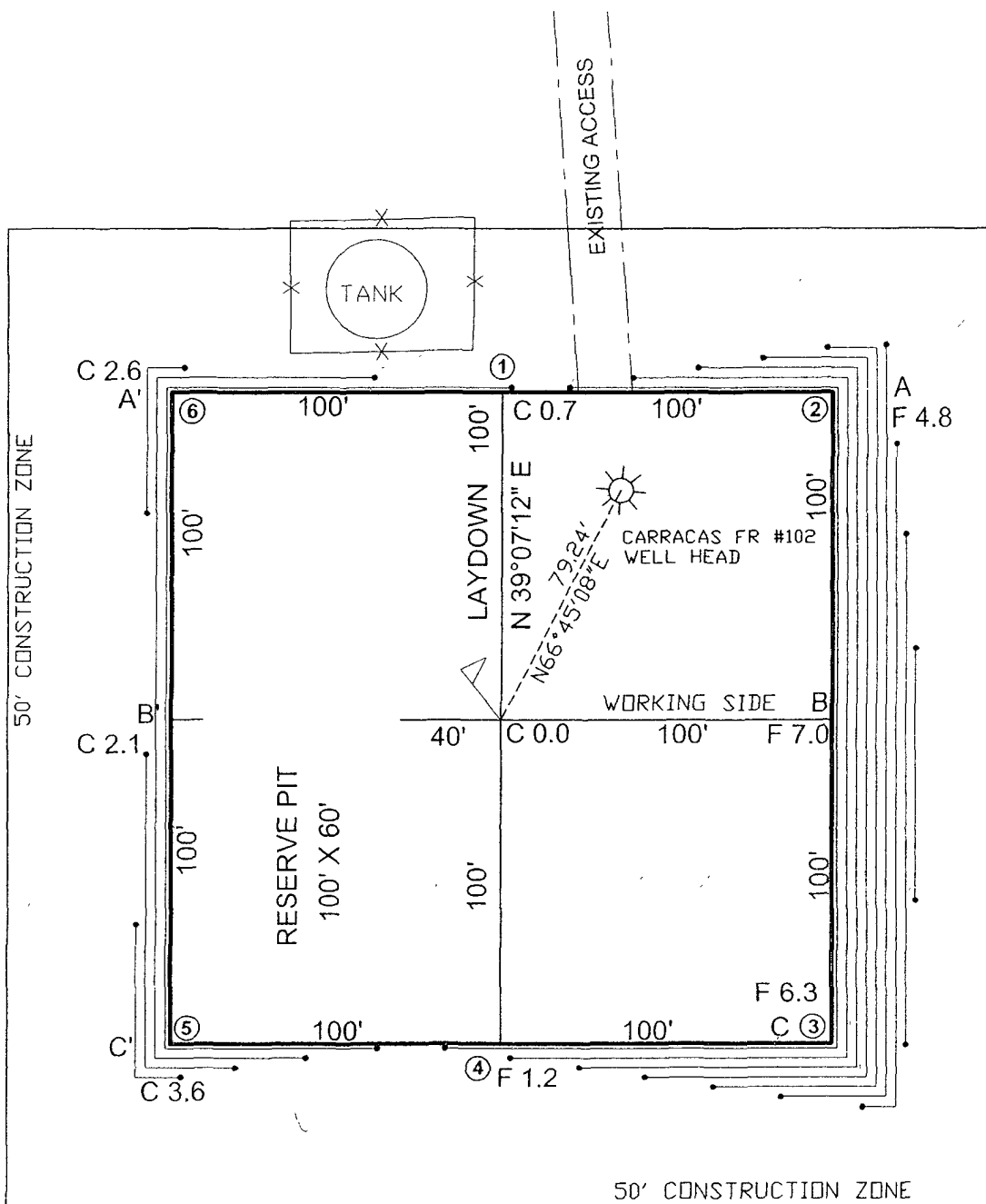
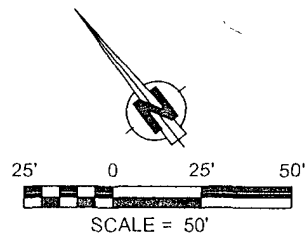
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	2600.0	0.00	0.00	2600.0	0.0	0.0	0.00	0.00	0.0	KOP @ 2600' TVD
3	4712.5	80.00	260.96	4090.0	-196.4	-1234.7	3.79	260.96	1250.2	Build
4	4885.3	80.01	260.92	4120.0	-223.2	-1402.8	0.02	-72.00	1420.4	Hold
5	5057.6	89.99	261.02	4135.0	-250.1	-1572.1	5.79	0.58	1591.9	Land Curve
6	7445.0	90.01	260.90	4135.0	-625.2	-3929.8	0.01	-78.08	3979.2	TD Lateral



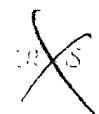
LATITUDE: 36°59'31" N  
LONGITUDE: 107°19'37" W  
DATUM: NAD 83

# ENERGEN RESOURCES CORPORATION

CARRACAS CANYON 11A #13  
1625' FNL & 1260' FEL  
LOCATED IN THE NE/4 SE/4 OF  
SECTION 11, T32N, R5W, N.M.P.M.,  
RIO ARriba COUNTY, NEW MEXICO  
GROUND ELEVATION: 7513', NAVD 88  
FINISHED PAD ELEVATION: 7513.4', NAVD 88



1 FOOT CONTOUR INTERVAL SHOWN  
SCALE: 1" = 50'  
JOB No.: ERG075  
DATE: 10/04/06

 **Russell Surveying**  
1409 W. Aztec Blvd. #5  
Aztec, New Mexico 87410  
(505) 334-8637

# ENERGEN RESOURCES CORPORATION

CARRACAS CANYON 11A #13

1625' FNL & 1260' FEL

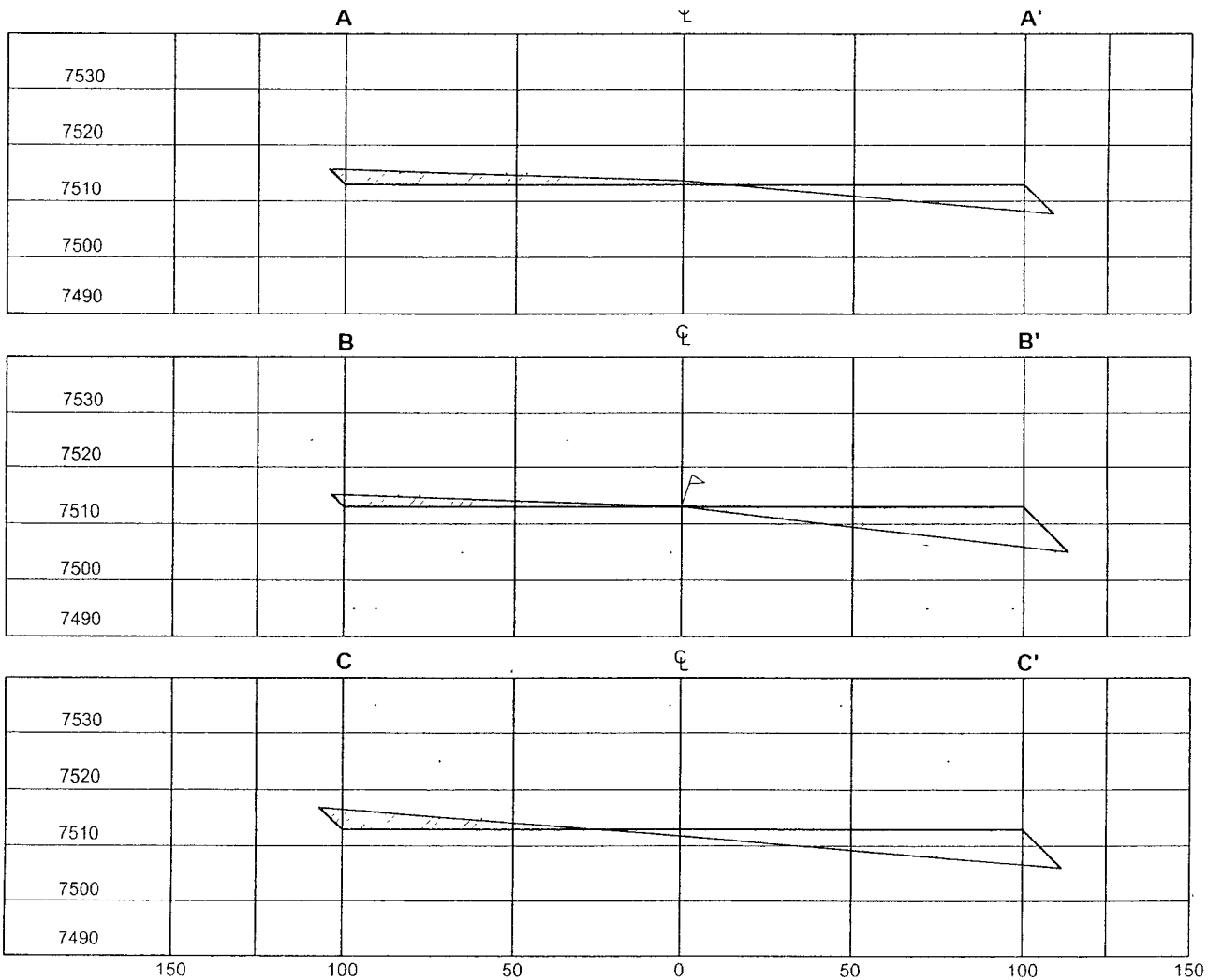
LOCATED IN THE NE/4 SE/4 OF

SECTION 11, T32N, R5W, N.M.P.M.,

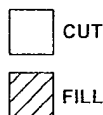
RIO ARriba COUNTY, NEW MEXICO

GROUND ELEVATION: 7513', NAVD 88

FINISHED PAD ELEVATION: 7513.4', NAVD 88



VERT. SCALE: 1" = 30'  
 HORZ. SCALE: 1" = 50'  
 JOB No.: ERG075  
 DATE: 10/04/06

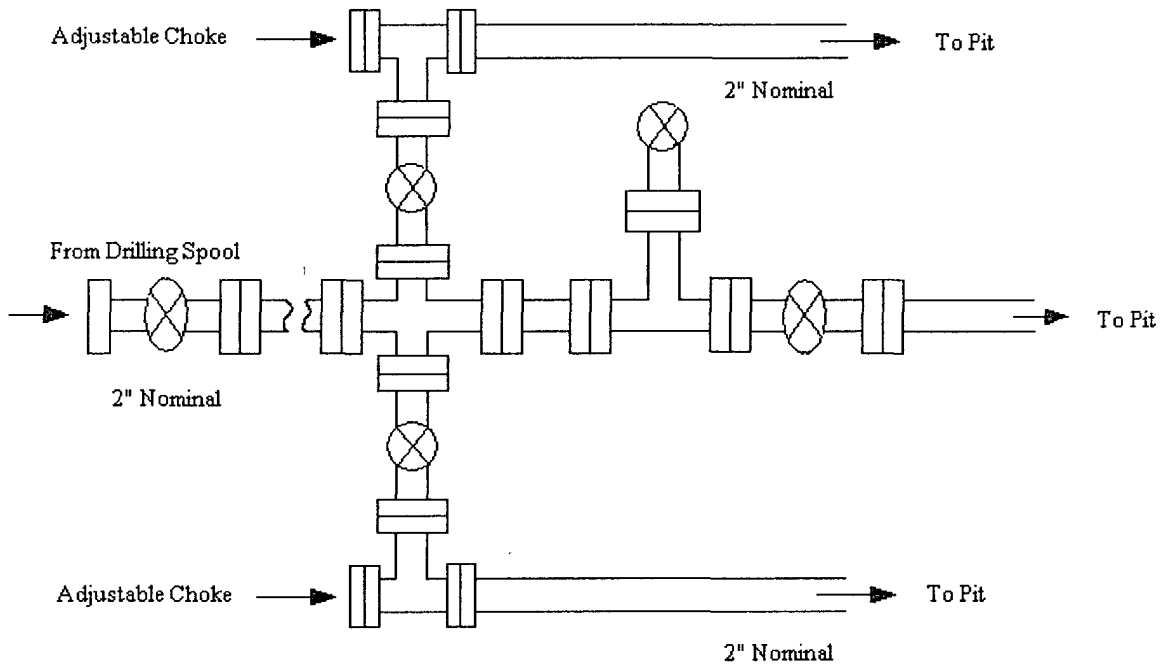


**Russell Surveying**  
 1409 W. Aztec Blvd. #5  
 Aztec, New Mexico 87410  
 (505) 334-8637



# 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

