

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>SE-079483A</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>207 MAR 30 AM 10: 43</b>
2. Name of Operator <b>Energen Resources Corporation</b>		7. Unit or CA Agreement Name and No. <b>RECEIVED</b>
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>Carson #201S</b>
4. Location of Well (Report location clearly and in accordance with any State requirements)* At surface <b>1435' fsl, 835' fwl</b> At proposed prod zone <b>1880' fsl, 760' fel</b>		9. API Well No. <b>30-039-30239</b>
14. Distance in miles and direction from nearest town or post office* <b>Approximately 10.75 miles northeast of Gobernador</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>760'</b>	16. No. of Acres in lease <b>1178.3</b>	11. Sec., T, R, M., or Blk and Survey or Area <b>(K) S7, T30N, R4W</b>
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. <b>50'</b>	19. Proposed Depth <b>5532' (MD)</b>	12. County or Parish <b>Rio Arriba</b>
21. Elevations (Show whether DF, KDB, RT, GL, etc.) <b>6680' GL</b>	22. Approximate date work will start* <b>5/1/2007</b>	13. State <b>NM</b>
		17. Spacing Unit dedicated to this well <b>269.29 S/2</b>
		20. BLM/BIA Bond No on file <b>RCUD AUG 23 '07 OIL CONS. DIV.</b>
		23. Estimated duration <b>DIST. 3</b> <b>25 days</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>3/30/07</b>
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Title

**Drilling Engineer**

Approved by (Signature) 	Name (Printed/Typed) <b>AFM</b>	Date <b>8/21/07</b>
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Title

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)

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".

NOTIFY AZTEC OCD 24 HRS.  
PRIOR TO CASING & CEMENT

NMOC

b

DISTRICT IV  
2040 South Pacheco, Santa Fe, NM 87505

2040 South Pacheco  
Santa Fe, NM 87505

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

☐ AMENDED REPORT

2007 MAR 30 AM 10:43

## WELL LOCATION AND ACREAGE DEDICATION PLAT

*API Number 30-039-30239		*Pool Code 71629	*Pool Name Basin FRUITLAND COAL
*Property Code 21185	*Property Name CARSON		*Well Number 201 S
*OGRID No. 162928	*Operator Name ENERGEN RESOURCES CORPORATION		*Elevation 6680'

### <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
K	7	30N	4W		1435'	SOUTH	835'	WEST	RIO ARRIBA

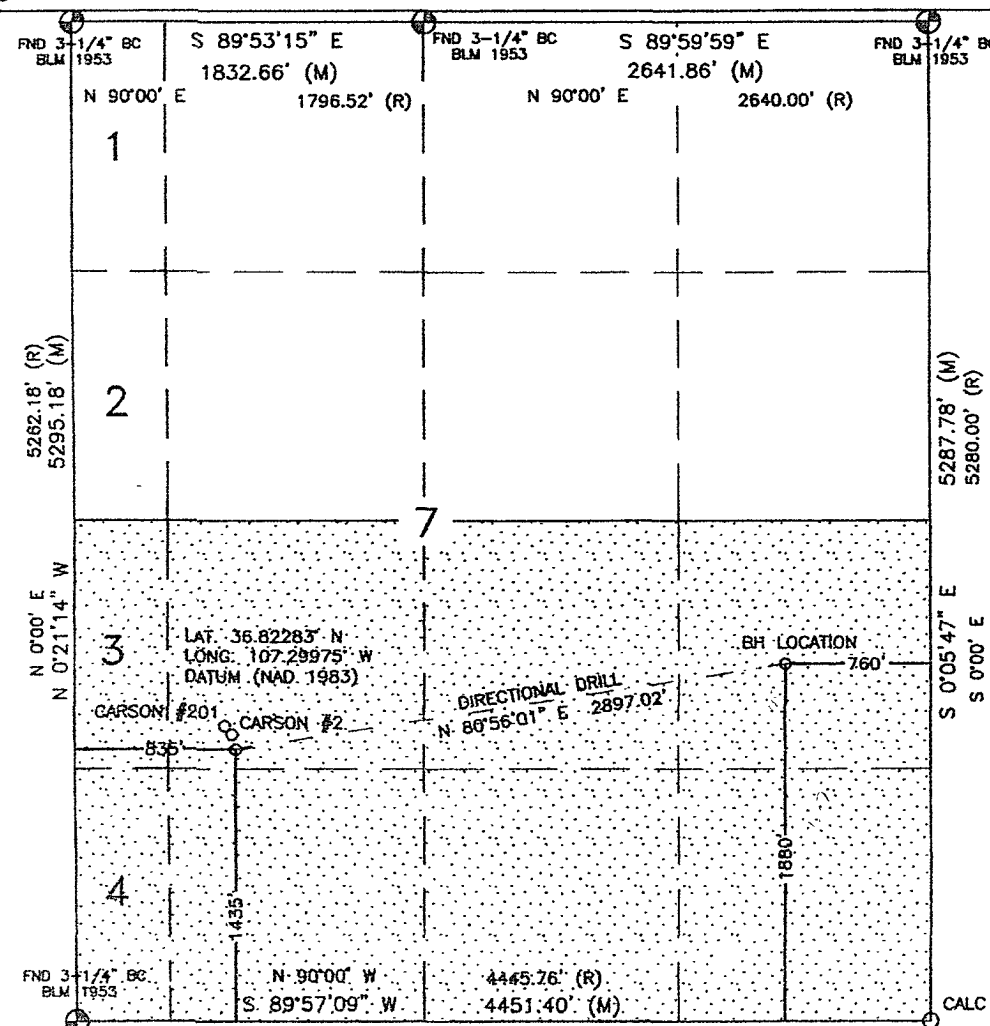
<sup>11</sup> Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
1	7	30N	4W		1880'	SOUTH	760'	EAST	RIO ARRIBA

12 Dedicated Acres 269.29 270.77 Acres - (S/2)	13 Joint or Infill	14 Consolidation Code	15 Order No.	RCVD AUG 23 '07 OIL CONS. DIV.
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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.

Nathan Stuh  
Signature

Nathan Smith  
Printed Name

Drilling Engineer

Title \_\_\_\_\_  
3/30/07  
Date \_\_\_\_\_

## 18 SURVEYOR CERTIFICATION

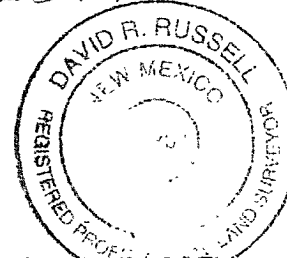
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

SEPTEMBER 18, 2006

Date of Survey

**Signature and Seal of Professional Surveyor:**

Wm R Russell



DAVID RUSSELL

**Certificate Number**

10201

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

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

Form C-103  
May 27, 2004

WELL API NO. <b>30-039-30239</b>
5. Indicate Type of Lease STATE <input type="checkbox"/> FEE <input type="checkbox"/>
6. State Oil & Gas Lease No. <b>SF-079483A</b>
7. Lease Name or Unit Agreement Name: <b>Carson</b>
8. Well Number <b>#201S</b>
9. OGRID Number <b>162928</b>
10. Pool name or Wildcat <b>Basin Fruitland Coal</b>
11. Elevation (Show whether DR, RKB, RT, GR, etc.) <b>6680' GL</b>
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 _____

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
2. Name of Operator <b>Energen Resources Corporation</b>
3. Address of Operator <b>2198 Bloomfield Hwy Farmington, NM 87401</b>
4. Well Location Unit Letter <u>K</u> : <u>1435</u> feet from the <u>South</u> line and <u>835</u> feet from the <u>West</u> line Section <u>7</u> Township <u>30N</u> Range <u>4W</u> NMPM County <u>Rio Arriba</u>
11. Elevation (Show whether DR, RKB, RT, GR, etc.) <b>6680' GL</b>
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 a drilling reserve 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 in accordance with 'OCD Pit and Below Grade Tank Guidelines' issued on November 1, 2004 and also plans to submit a C-144 for the closure of such pit in accordance with BIM 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 3/30/07

Type or print name Nathan Smith E-mail address:

Telephone No. 505.325.6800

For State Use Only

APPROVED BY [Signature] TITLE Deputy Oil & Gas Inspector, District #3 DATE AUG 29 2007

Conditions of Approval, if any:

## Operations Plan

March 30, 2007

### **Carson #201S**

#### **General Information**

Location	1435' fsl, 835' fwl at surface 1880' fsl, 760' fel at bottom nese S7, T30N, R4W Rio Arriba County, New Mexico
Elevations	6680' GL
Total Depth	5532' (MD), 3438' (TVD)
Formation Objective	Basin Fruitland Coal

#### **Formation Tops**

San Jose	Surface
Nacimiento	1515' (TVD)
Ojo Alamo Ss	2772' (TVD), 2869' (MD)
Kirtland Sh	2974' (TVD), 3152' (MD)
Fruitland Fm	3017' (TVD), 3219' (MD)
Top Coal	3408' (TVD), 4277' (MD)
Bottom Coal	3438' (TVD)
<b>Total Depth</b>	<b>3438' (TVD), 5532' (MD)</b>

#### **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 1640' TVD with a BUR of 3.25°/100'.**

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 1000 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 3017' (TVD), 3219' (MD) to TD. (Top of Fruitland Fm)

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'-3420' (TVD) 4550' (MD)	8 3/4"	7"	23.0 ppf	J-55 LT&C
Production	3408'-3438' (TVD) 4520'-5532' (MD)	6 1/4"	4 1/2"	11.6 ppf	J-55 LT&C
Tubing	0'-4350' (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 750 psi for 30 min.

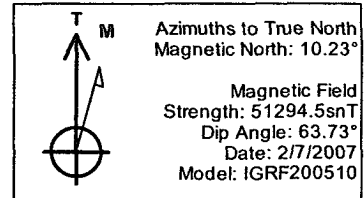
Intermediate Casing: Before cementing, circulate hole at least 1 1/2 hole volumes of mud and reduce funnel viscosity to minimum to aide in hole cleanout. Depending on wellbore conditions, cement may consist of 630 sks 65/35 with 6.0 % Bentonite, 2.0 % CaCl<sub>2</sub>, 10 #/sk Gilsonite, and 1/2 #/sk Flocele (12.3 ppg, 1.93 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). (1402 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.



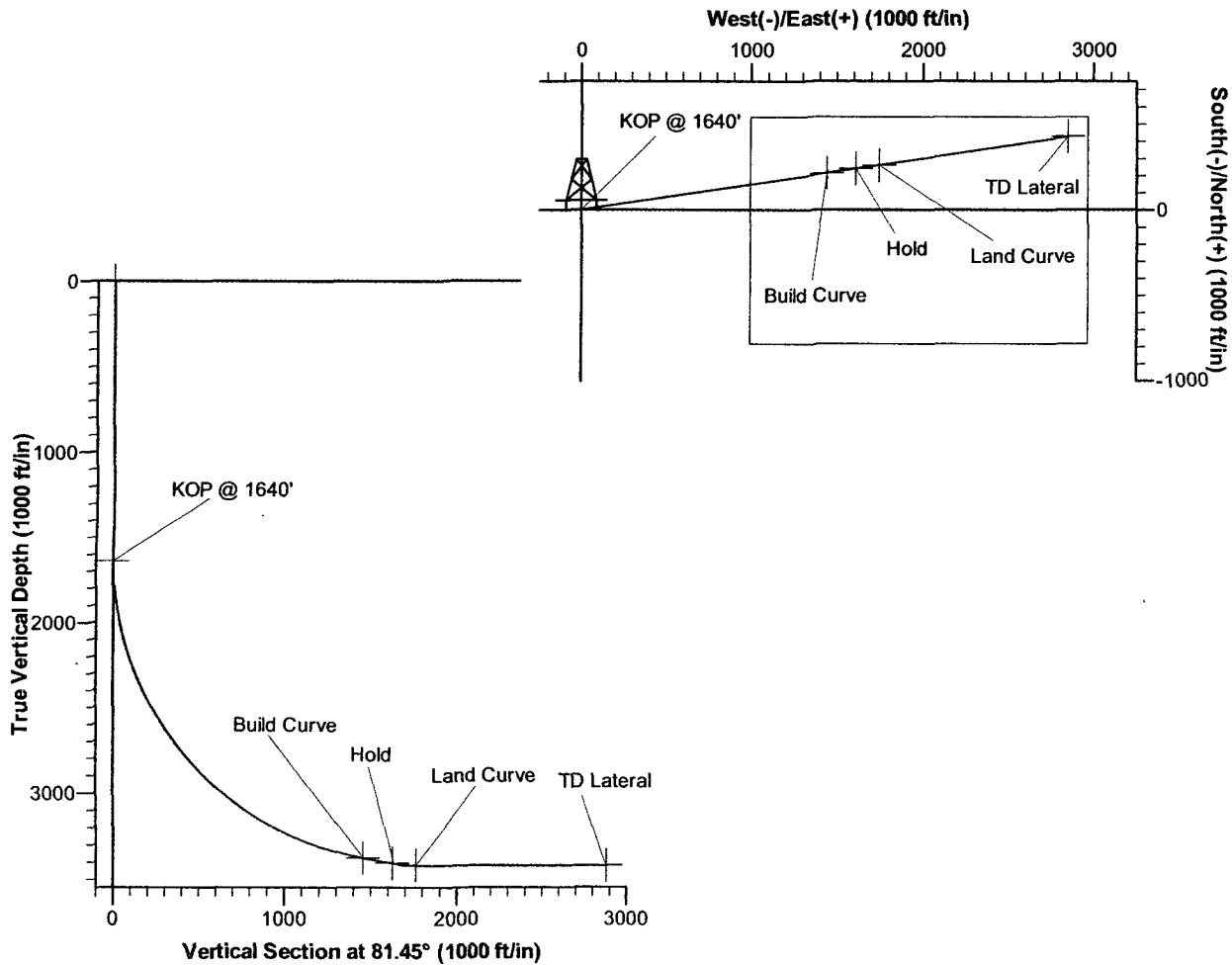
Project: SJ BR - S7, T30N, R4W  
Site: La Fragua Canyon  
Well: Carson #201S  
Wellbore: Preliminary Design  
Plan: Plan #1 (Carson #201S/Preliminary Design)



PROJECT DETAILS: SJ BR - S7, T30N, 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:	2879263.74
Northing:	2119267.61

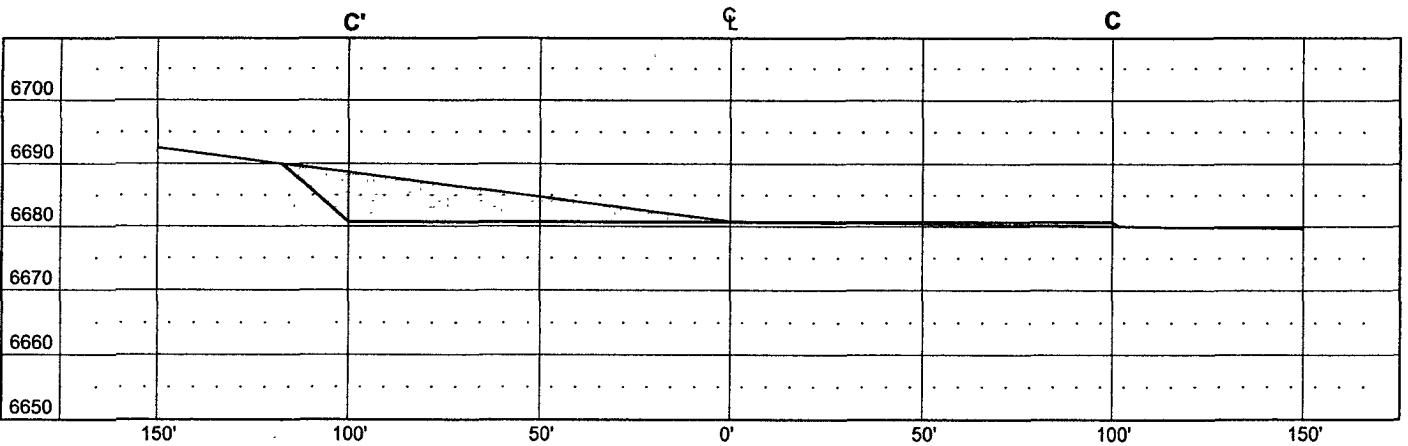
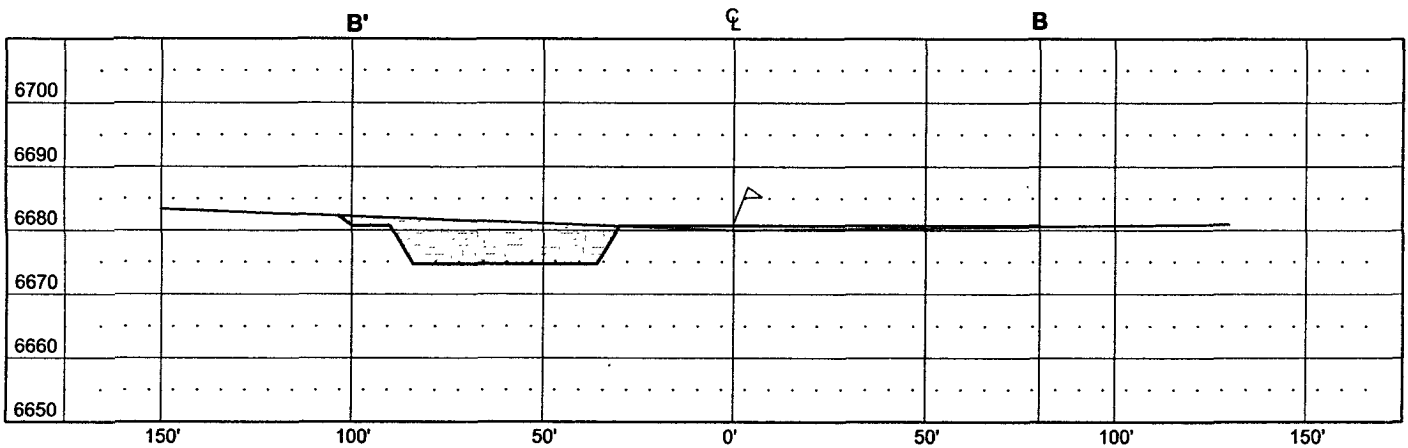
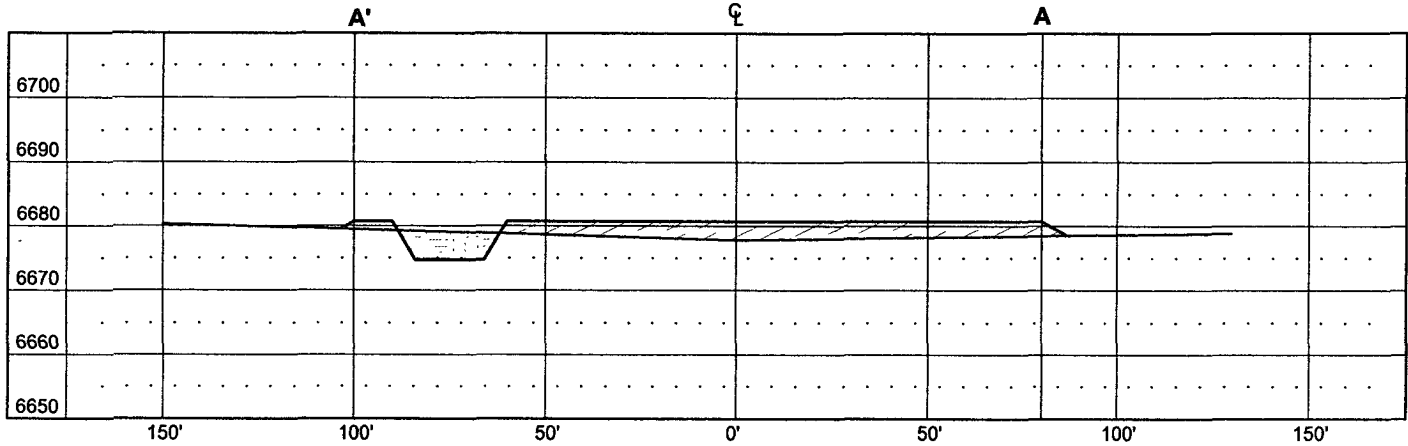
SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1640.0	0.00	0.00	1640.0	0.0	0.0	0.00	0.00	0.0	KOP @ 1640'
3	4104.2	80.00	81.45	3378.0	216.8	1442.2	3.25	81.45	1458.4	Build Curve
4	4276.9	79.99	81.45	3408.0	242.1	1610.4	0.00	0.00	1628.5	Hold
5	4414.8	90.01	81.45	3420.0	262.5	1746.1	7.26	0.00	1765.7	Land Curve
6	5532.8	89.99	81.45	3420.0	428.7	2851.7	0.00	-180.00	2883.7	TD Lateral



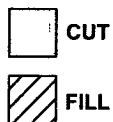


# ENERGEN RESOURCES CORPORATION

CARSON #201 S  
1435' FSL & 835' FWL  
LOCATED IN THE NE/4 SW/4 OF  
SECTION 7, T30N, R4W, N.M.P.M.,  
RIO ARriba COUNTY, NEW MEXICO  
GROUND ELEVATION: 6680', NAVD 88  
FINISHED PAD ELEVATION: 6680.7', NAVD 88



VERT. SCALE: 1" = 30'  
HORZ. SCALE: 1" = 50'  
JOB No.: ERG109  
DATE: 09/25/06; REV. 1

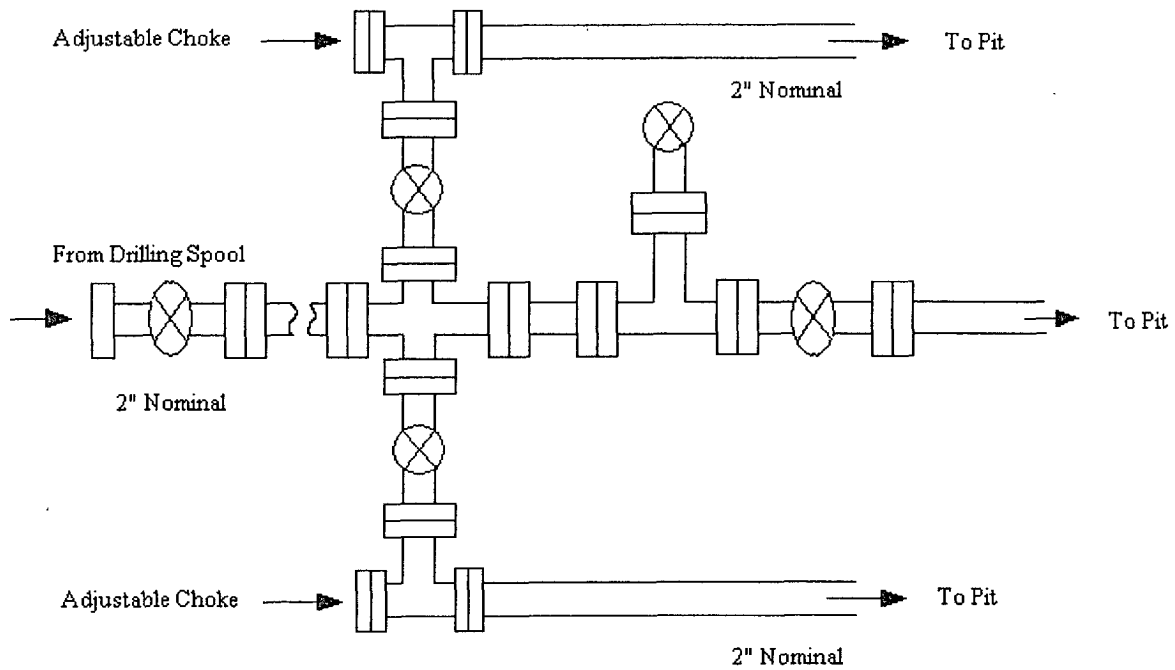


**Russell Surveying**  
1409 W. Aztec Blvd. #5  
Aztec, New Mexico 87410  
(505) 334-8637



## 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

^  
2M system

