

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENTFORM APPROVED  
OMB NO. 1004-0137  
Expires March 31, 2007

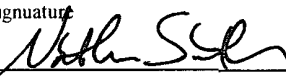
## APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of Work <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. NM 76832	
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 49	
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 10 A #5	
3b. Phone No (include area code) 505.325.6800		9. API Well No. 30-039-30135	
4. Location of Well (Report location clearly and in accordance with any State requirements)* At surface 755' fnl, 620' fel At proposed prod. zone 1000' fnl, 760' fw1		10. Field and Pool, or Exploratory Basin Fruitland Coal	
14. Distance in miles and direction from nearest town or post office* Approximately 4.5 miles east southeast of Arboles, CO		11. Sec., T., R., M., or Blk. and Survey or Area (H) S10, T32N, R5W	
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drg unit line, if any) 620'		12. County or Parish Rio Arriba	
16. No. of Acres in lease 471.76		13. State NM	
17. Spacing Unit dedicated to this well 236.72 N/2			
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 50'		20. BLM/BIA Bond No. on file NMA2707	
21. Elevations (Show whether DF, KDB, RT, GL, etc) 7585' GL		22. Approximate date work will start* 5/1/2007	
		23. Estimated duration 25 days	

## 24. Attachments

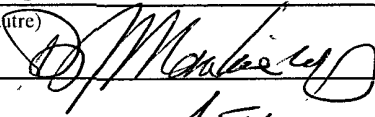
The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, shall be attached to this form:

- |  |  |
|--|--|
| 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 12/07/06
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Title

Drilling Engineer

Approved by (Signature) 	Name (Printed/Typed) AFM	Date 8/27/07
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Title

Office

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. ROPE 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 0404 FOR directional survey ✓

DIST. 3  
RCVD AUG 27 07  
OIL CONS. DIV.  
DIST. 3NOTIFY AZTEC OCD 24 HRS.  
PRIOR TO CASING & CEMENTDRILLING OPERATIONS AUTHORIZED ARE  
SUBJECT TO COMPLIANCE WITH ATTACHED  
"GENERAL REQUIREMENTS".8-31-07  
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 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

RECEIVED

Submit to Appropriate District Office

State Lease - 4 Copies  
Fee Lease - 3 Copies

PCIND AUG 27 1977

RCVD AUG 27 '07

☐ AMENDED REPORT

DE LOIS, INC.

## WELL LOCATION AND ACREAGE DEDICATION PLAT

<sup>1</sup> API Number 30-039-30135	<sup>2</sup> Pool Code 71629	<sup>3</sup> Pool Name BASIN FRUITLAND COAL	DIST. 3
<sup>4</sup> Property Code 35650	<sup>5</sup> Property Name CARRACAS 10A		<sup>6</sup> Well Number 5
<sup>7</sup> GRID No. 162928	<sup>8</sup> Operator Name ENERGEN RESOURCES CORPORATION		<sup>9</sup> Elevation 7585'

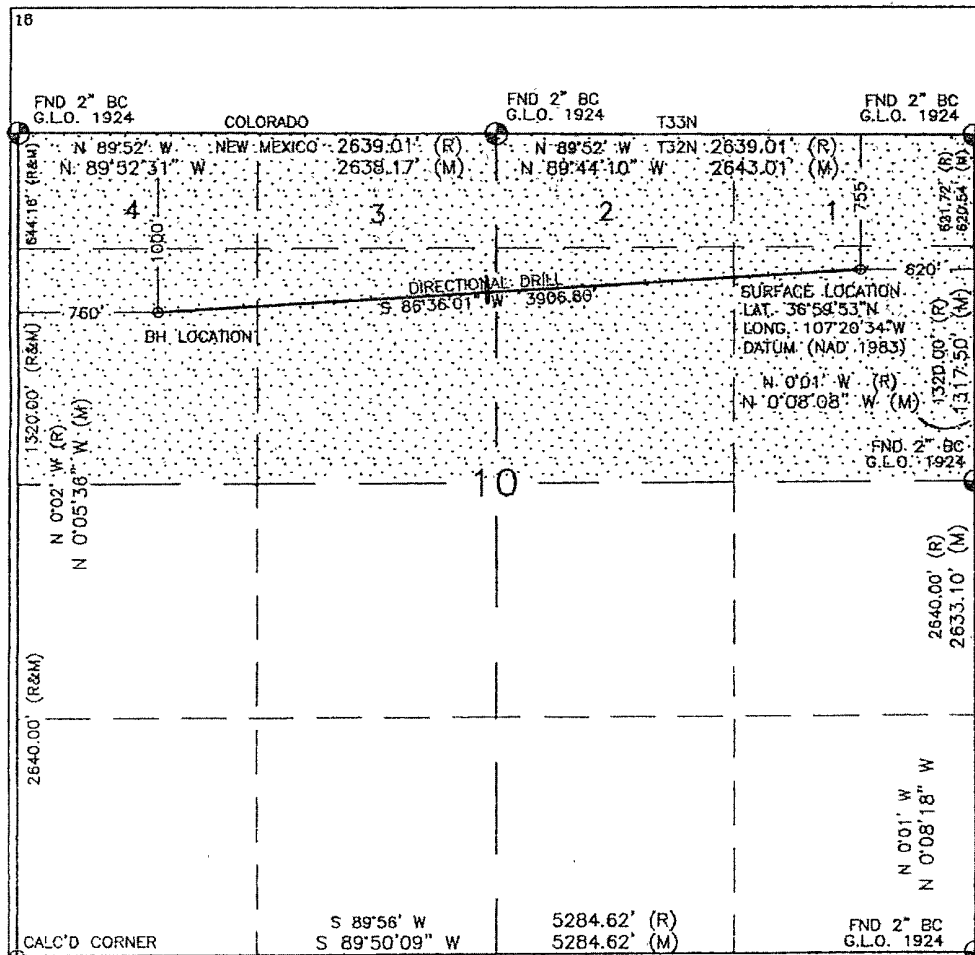
<sup>10</sup> Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
H	10	32N	5W		755'	NORTH	620'	EAST	RIO ARRIBA

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

UL or lot no. E	Section 10	Township 32N	Range 5W	Lot Idn	Feet from the 1000'	North/South line NORTH	Feet from the 760'	East/West line WEST	County RIO ARRIBA
<sup>13</sup> Dedicated Acres 236.63 Acres - (N/2) 22			<sup>12</sup> Joint or Infill		<sup>14</sup> Consolidation Code		<sup>15</sup> 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.

Nate Smith  
Signature

Nathan Smith  
Printed Name  
Drilling Engineer

Title \_\_\_\_\_  
Date 12/07/06

## 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.

NOVEMBER 08, 2005

Date of Survey \_\_\_\_\_  
Signature and Seal of Professional Surveyor: \_\_\_\_\_

DAVID R. 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

Form C-103  
May 27, 2004

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

WELL API NO.

5. Indicate Type of Lease

STATE ☐ FEE ☐

6. State Oil & Gas Lease No.

7. Lease Name or Unit Agreement Name:  
Carracas 10 A

8. Well Number  
#5

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 ☐ Gas Well ☒ Other

2. Name of Operator  
Energen Resources Corporation

3. Address of Operator  
2198 Bloomfield Hwy Farmington, NM 87401

4. Well Location  
Unit Letter H : 755 feet from the North line and 620 feet from the East line  
Section 10 Township 32N Range 5W NMPM County Rio Arriba

11. Elevation (Show whether DR, RKB, RT, GR, etc.)  
7585' GL

Pit or Below-grade Tank Application ☒ or Closure ☐

Pit type Drill Depth to Groundwater >150' Distance from nearest fresh water well 1000' Distance from nearest surface water >250'

Pit Liner Thickness: 12 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 12/8/06

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, District #3 DATE AUG 31 2007

Conditions of Approval, if any:

## Operations Plan

December 7, 2006

### **Carracas 10 A #5**

#### **General Information**

Location	755' fnl, 620' fel at surface 1000' fnl, 760' fwl at bottom swnw S10, T32N, R5W Rio Arriba County, New Mexico
Elevations	7585' GL
Total Depth	7095' (MD), 4102' (TVD)
Formation Objective	Basin Fruitland Coal

#### **Formation Tops**

San Jose	Surface
Nacimiento	2141' (TVD)
Ojo Alamo Ss	3524' (TVD), 3524' (MD)
Kirtland Sh	3631' (TVD), 3633' (MD)
Fruitland Fm	3671' (TVD), 3675' (MD)
Top Coal	4081' (TVD), 4482' (MD)
Bottom Coal	4102' (TVD)
<b>Total Depth</b>	<b>4103' (TVD), 6858' (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 2050' TVD with 2.88°/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 3702' (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'-4090' (TVD) 5400' (MD)	8 3/4"	7"	23.0 ppf	J-55 LT&C
Production	4081'-4102' (TVD) 5370'-7095' (MD)	6 1/4"	4 1/2"	11.6 ppf	J-55 LT&C
Tubing	0'-5350' (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 760 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). (1614 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; NW S10, T32N, R5W

**Site:** Carracas Mesa

**Well:** Carracas 10 A #5

**Wellbore:** Preliminary Plan

**Plan:** Plan #1 (Carracas 10 A #5/Preliminary Plan)



Azimuths to Grid North  
True North: -0.29°  
Magnetic North: 10.00°

Magnetic Field  
Strength: 51399.3snT  
Dip Angle: 63.87°  
Date: 11/22/2006  
Model: IGRF200510

**PROJECT DETAILS:** Carson National Forest; NW S10, T32N, R5W

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

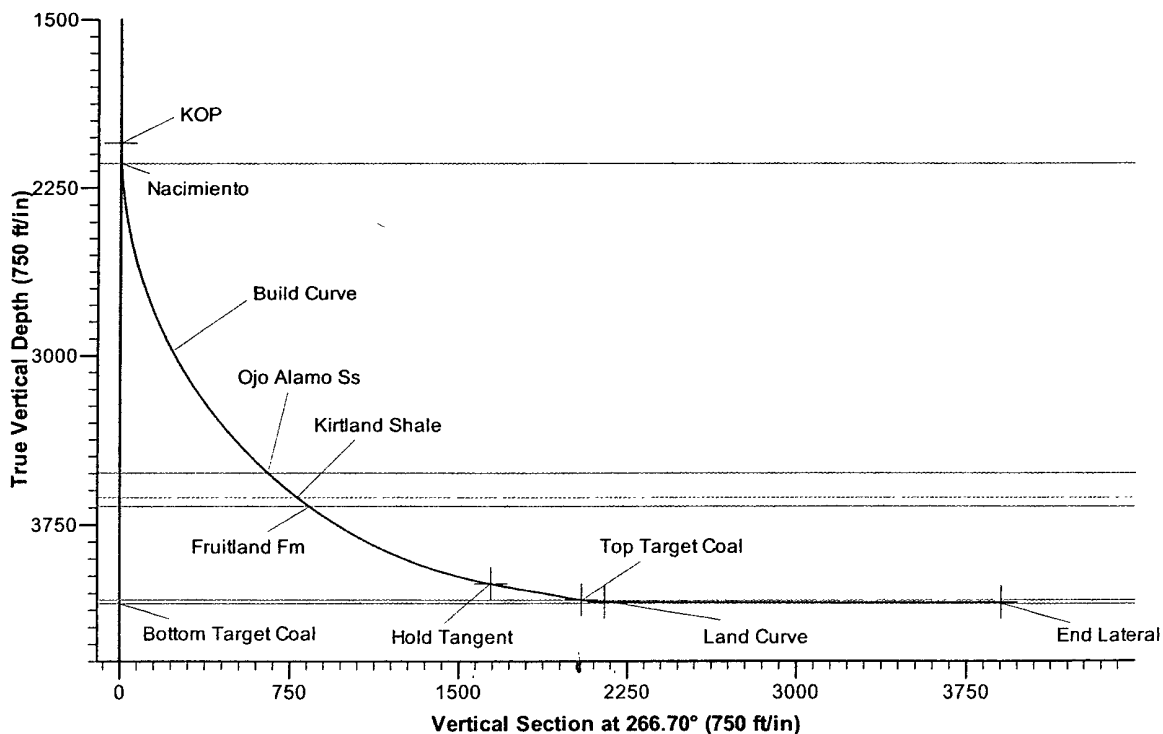
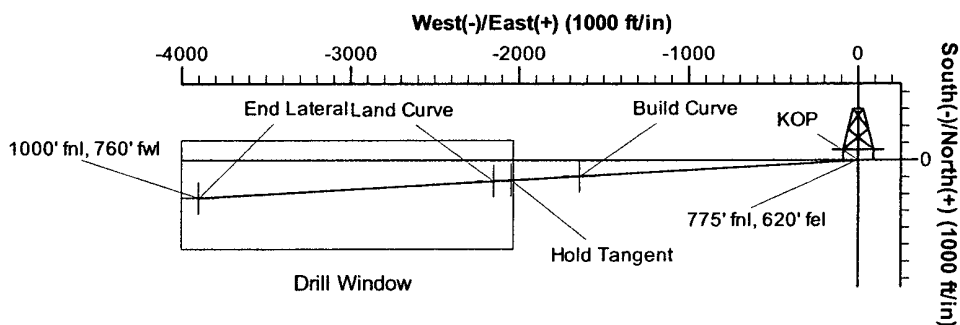
System Datum: Mean Sea Level

**SURFACE LOCATION**

Easting: 2866351.91  
Northing: 2181072.51

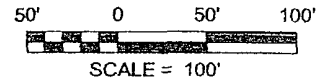
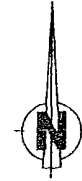
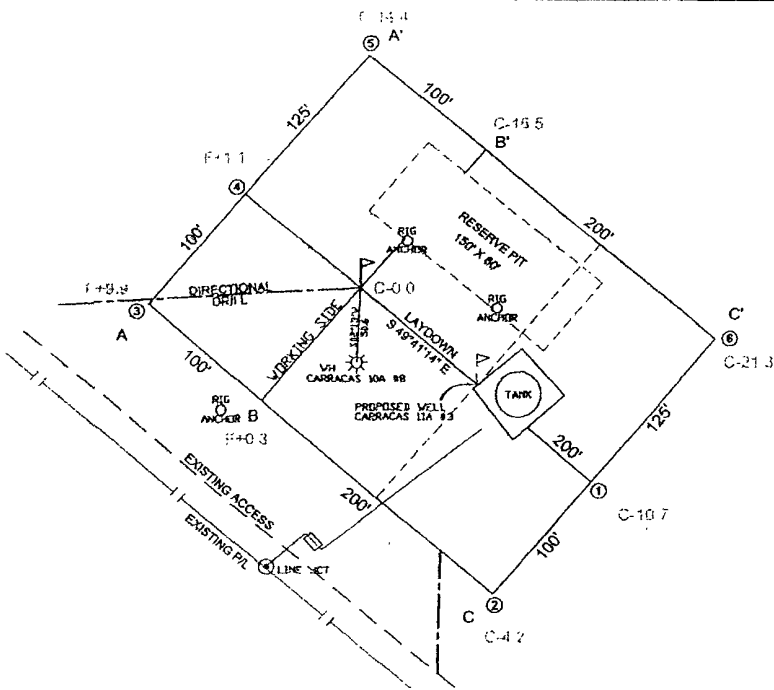
### SECTION DETAILS

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	2050.0	0.00	0.00	2050.0	0.0	0.0	0.00	0.00	0.0	KOP
3	4828.9	80.00	266.70	4010.0	-94.7	-1641.9	2.88	266.70	1644.6	Build Curve
4	5237.8	80.00	266.70	4081.0	-117.9	-2043.9	0.00	0.00	2047.3	Hold Tangent
5	5341.2	90.00	266.73	4090.0	-123.8	-2146.6	9.67	0.19	2150.2	Land Curve
6	7095.0	90.00	266.67	4090.0	-224.7	-3897.5	0.00	-88.52	3904.0	End Lateral

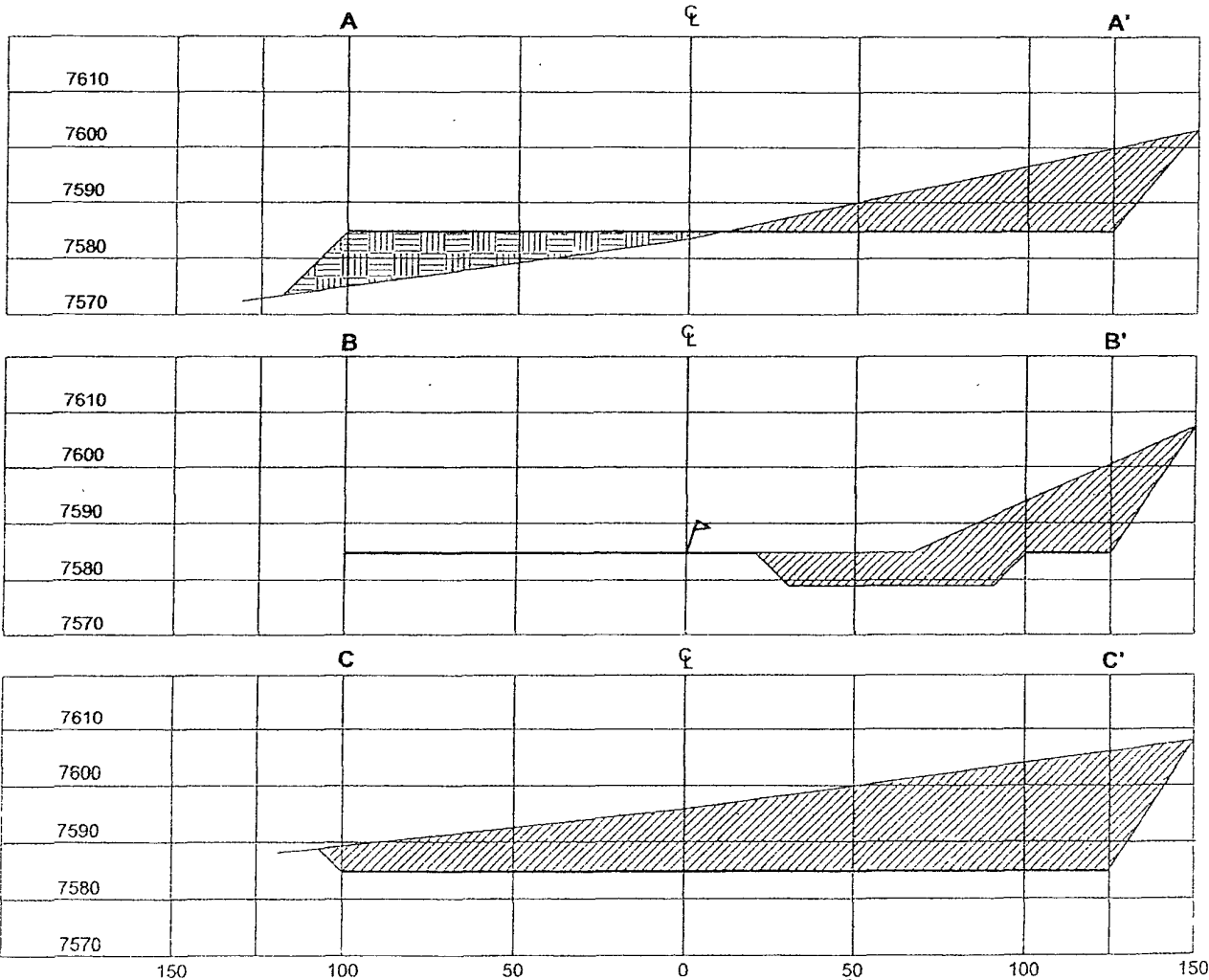


# ENERGEN RESOURCES CORPORATION

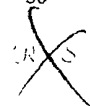
CARRACAS 10A #5  
755' FNL & 620' FEL  
LOCATED IN THE SE/4 NE/4 OF SEC. 10,  
T32N, R5W, N.M.P.M.,  
RIO ARriba COUNTY, NEW MEXICO  
ELEVATION: 7585', NAVD 88



LATITUDE: 36°59'53"N  
LONGITUDE: 107°20'34"W  
DATUM: NAD 83

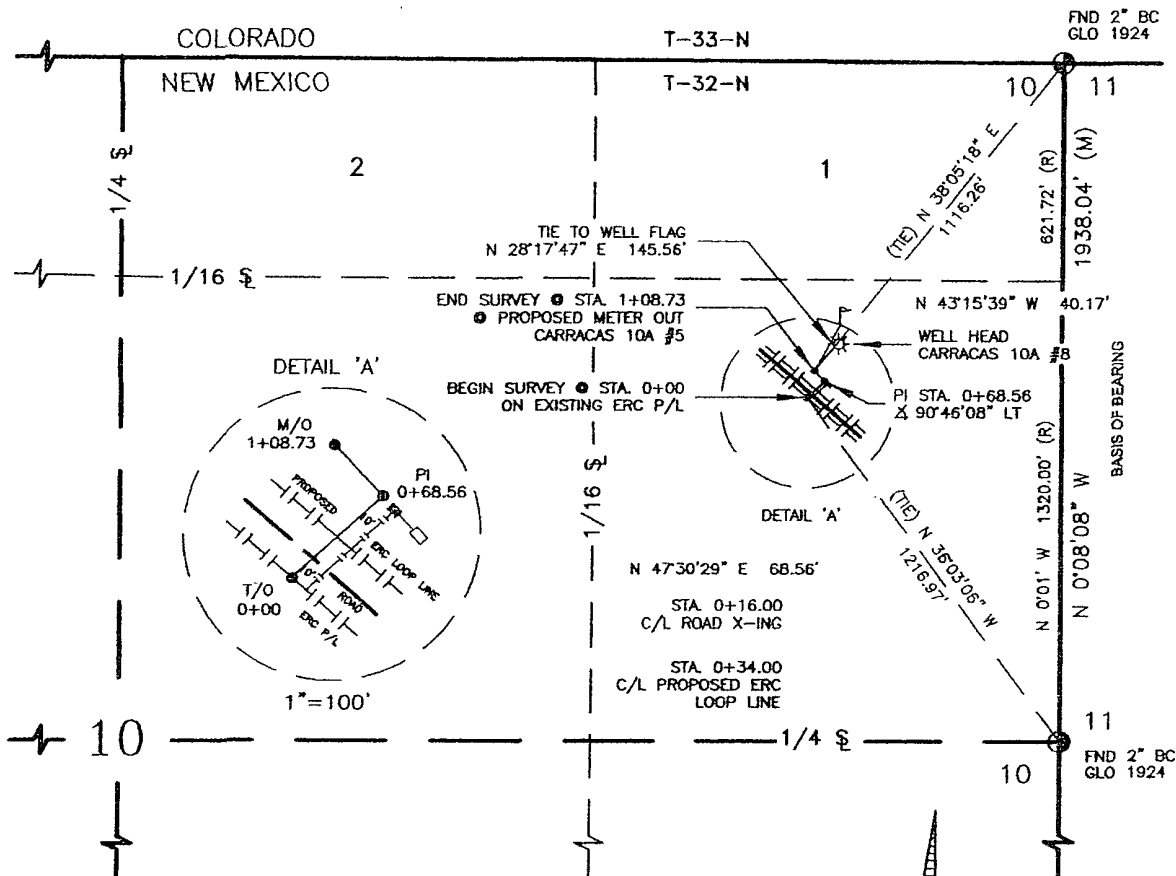


HORIZ. SCALE: 1"=50'  
VERT. SCALE: 1"=30'



**Russell Surveying**  
1409 W. Aztec Blvd. #5  
Aztec, New Mexico 87410

A PROPOSED PIPELINE SURVEY  
FOR  
**ENERGEN RESOURCES CORPORATION**  
**CARRACAS 10A #5**  
LOCATED IN THE  
NE/4 SECTION 10, T-32-N, R-5-W, N.M.P.M.  
RIO ARriba COUNTY, NEW MEXICO



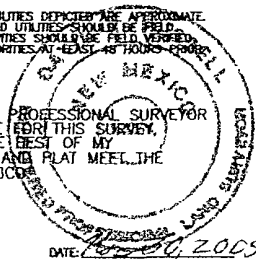
**NOTES.**

1.) BASIS OF BEARING: BETWEEN FOUND MONUMENTS AT THE EAST QUARTER CORNER AND THE NORTHWEST CORNER OF SECTION 10, TOWNSHIP 32 NORTH, RANGE 5 WEST, N.M.P.M. RIO ARriba COUNTY, NEW MEXICO.  
LINE BEARS: N 0°01'00" W A DISTANCE OF 1938.04 FEET AS MEASURED BY G.P.S.

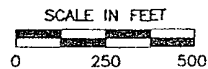
2.) LOCATION OF UNDERGROUND UTILITIES DEPICTED ARE APPROXIMATE. PRIOR TO EXCAVATION UNDERGROUND UTILITIES SHOULD BE FIELD VERIFIED. ALL CONSTRUCTION ACTIVITIES SHOULD BE FIELD VERIFIED WITH NEW MEXICO ONE-CALL AUTHORITIES AT LEAST 48 HOURS PRIOR TO CONSTRUCTION.

I, DAVID R. RUSSELL, A NEW MEXICO REGISTERED PROFESSIONAL SURVEYOR CERTIFY THAT I CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO.

*David R. Russell*  
DAVID R. RUSSELL, PLS  
NEW MEXICO L.S. #10201



~ SURFACE OWNERSHIP ~
CARSON NATIONAL FOREST
0+00 TO 1+08.73
108.73 FT/ 6.59 RODS
DATE OF SURVEY 11/11/05 / RLRS



**Russell Surveying, Inc.**  
Specializing in Oil field Surveying  
1409 W. Aztec Blvd. #5, Aztec, N.M. 87410  
Phone (505) 334-8637 Fax (505) 333-2945  
REGISTERED LAND SURVEYOR  
NEW MEXICO LS #10201