

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

RECEIVED

FORM APPROVED  
OMB NO. 1004-0137  
Expires July 31, 2010

OCT 21 2009

## APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of Work <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. USA NMNM 29342	
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	
2. Name of Operator Energen Resources Corporation		7. Unit or CA Agreement Name and No.	
3a. Address 2010 Afton Place Farmington, New Mexico 87401		8. Lease Name and Well No. Carracas 12 A #2 <b>h</b>	
3b. Phone No. (include area code) (505) 325-6800		9. APL Well No. 3003930826	
4. Location of Well (Report location clearly and in accordance with any State requirements)* At surface 1939 FSL, 497 FEL At proposed prod. zone 760 FNL, 760 FWL		10. Field and Pool, or Exploratory Basin Fruitland Coal	
14. Distance in miles and direction from nearest town or post office* Approx 36.5 miles NE of Gobernador, NM		11. Sec., T., R., M., or Blk. and Survey or Area (I) Sec. 12, T32N, 5W NMMPM	
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drg. unit line, if any) 497'		12. County or Parish Rio Arriba	
16. No. of Acres in lease 1350.36		13. State NM	
17. Spacing Unit dedicated to this well 232.21 <del>320.00</del> acres 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	
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 7437' GL		22. Approximate date work will start* April 1, 2010	
		23. Estimated duration 25	

## 24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, must 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 must be filed with the appropriate Forest Service Office). | 6. Such other site specific information and/or plans as may be required by the BLM              |

RCVD FEB 2 '10

OIL CONS. DIV.

DIST. 3

25. Signature 	Name (Printed/Typed) Jason Kincaid	Date 10/14/2009
Title DRILLING ENGINEER		
Approved by (Signature) 	Name (Printed/Typed)	Date 1/27/2010
Title AFM		
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.

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.

(Continued on page 2)

\*(Instructions on page 2)

Hold C104  
for Directional Survey  
and "As Drilled" plat

DRILLING OPERATIONS AUTHORIZED ARE  
SUBJECT TO COMPLIANCE WITH ATTACHED  
"GENERAL REQUIREMENTS".

BLM'S APPROVAL OR ACCEPTANCE OF THIS  
ACTION DOES NOT RELIEVE THE LESSEE AND  
OPERATOR FROM OBTAINING ANY OTHER  
AUTHORIZATION REQUIRED FOR OPERATIONS  
ON FEDERAL AND INDIAN LANDS

FEB 12 2010

NMOCD

NOTIFY AZTEC OCD 24 HRS.  
PRIOR TO CASING & CEMENT

This action is subject to technical and  
procedural review pursuant to 43 CFR 3165.9  
and 43 CFR 3165.4

DISTRICT I  
1625 N. French Dr., Hobbs, N.M. 88240

DISTRICT II  
1301 W. Grand Avenue, Artesia, N.M. 88210

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

DISTRICT IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
Energy, Minerals & Natural Resources Department

Form C-102  
Revised October 12, 2005

RECEIVED

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

OIL CONSERVATION DIVISION

1220 South St. Francis Dr.  
Santa Fe, NM 87505

OCT 21 2009

Bureau of Land Management

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

*API Number 30-039-308210	*Pool Code 71629	*Pool Name Basin Fruitland, Coa 1
*Property Code 38024	*Property Name CARRACAS 12A	*Well Number 2 H
*OGRID No. 162928	*Operator Name ENERGEN RESOURCES CORPORATION	*Elevation 7437'

<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
1	12	32N	5W	6	1939'	SOUTH	497'	EAST	RIO ARRIBA

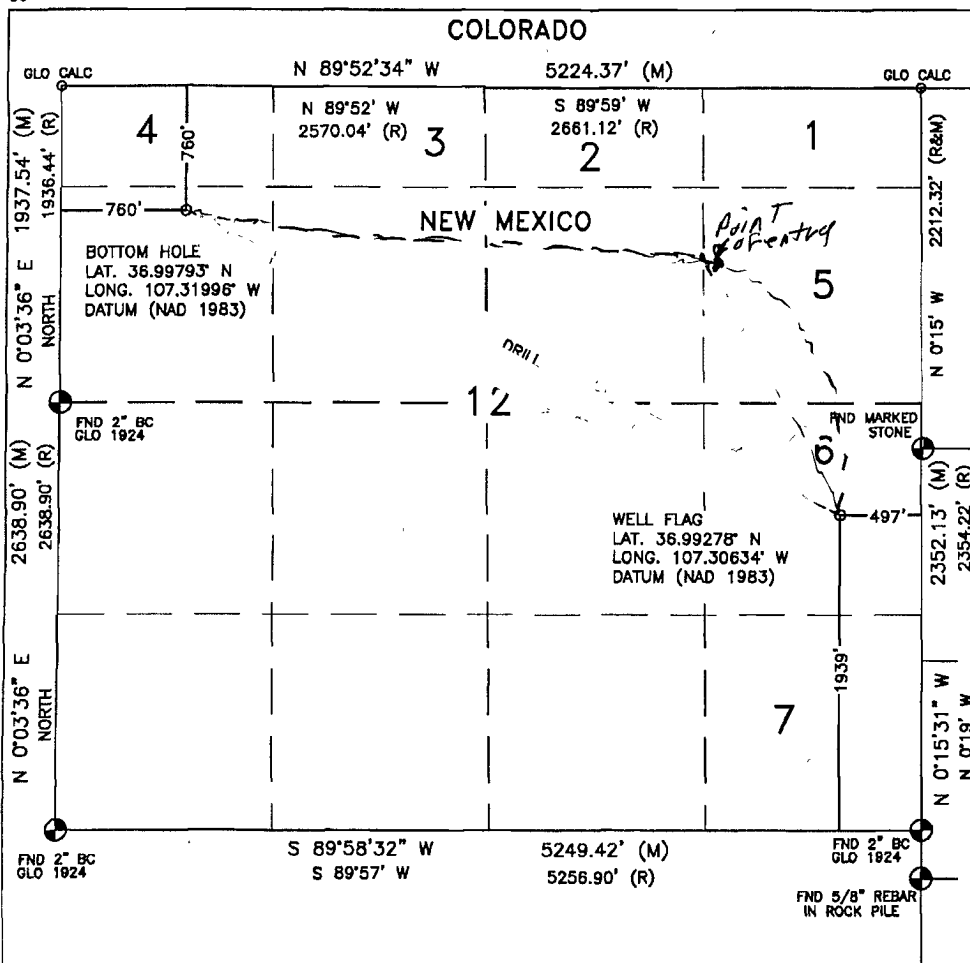
<sup>11</sup> Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
E	12	32N	5W		760'	NORTH	760'	WEST	RIO ARRIBA

*Dedicated Acres 232.21 320 N/A	*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

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<sup>17</sup> OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or undivided mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner or a compulsory pooling order heretofore entered by the division.

Signature: [Signature] Date: 10-14-09  
Printed Name: Josue Kincaid

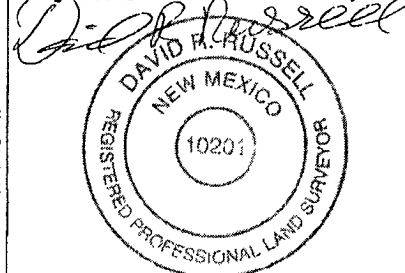
<sup>18</sup> SURVEYOR CERTIFICATION

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.

OCTOBER 2, 2008

Date of Survey

Signature and Seal of Professional Surveyor:



DAVID RUSSELL

Certificate Number

10201



### OPERATIONS PLAN

**WELL NAME**.....Carracas 12A #2  
**JOB TYPE**.....Horizontal OPE FTC  
**DEPT**.....Drilling and Completions  
**PREPARED BY**.....Jason Kincaid

### GENERAL INFORMATION

Surface Location	1939 FSL 497 FEL
S-T-R	(I) Sec.12, T32N, R05W
Bottom Hole Location	760 FNL 760 FWL
S-T-R	(E) Sec.12, T32N, R05W
County, State	Rio Arriba, New Mexico
Elevations	7437' GL
Total Depth	8566' +/- (MD); 4208' (TVD)
Formation Objective	Basin Fruitland Coal

### FORMATION TOPS

San Jose	Surface
Nacimiento	2252' (TVD)
Ojo Alamo Ss	3452' (TVD)
Kirtland Sh	3599' (TVD)
Fruitland Fm	4057' (TVD) 4815'MD
Top Target Coal	4192' (TVD) 5494'MD
Base Target Coal	4225' (TVD)
<b>Total Depth</b>	<b>4208' (TVD), 8566' (MD)</b>

### DRILLING

**Surface:** 12-1/4" wellbore will be drilled with a fresh water mud system (spud mud).

**Intermediate:** 8-3/4" wellbore will be drilled with a LSND mud system. Weighting materials will be drill cuttings and if needed barite. Mud density is expected to range from 8.4 ppg to 9.0 ppg.

**Production:** 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.

**Projected KOP is 3000' TVD with 6.41°/100' doglegs.**

#### **Blowout Control Specifications:**

A 3000 psi minimum double ram or annulus BOP stack will be used following nipple up of casing head. 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. **Pressure test BOP to 250 psi for 15 min and 2000 psi for 15 min.**

#### **Logging Program:**

Open hole logs: None

Mudlogs: 3992' TVD, 4800' MD to TD

Surveys: Surface to KOP every 500' and a minimum of every 200' for directional.

## CASING, TUBING & CASING EQUIPMENT

String	Start Depth	End Depth	Wellbore	Size	Wt	Grade
Surface	0	200	12-1/4"	9-5/8"	32.3 lb/ft	H-40 ST&C
Intermediate TVD	0 0	5801 4208	8-3/4"	7"	23 lb/ft	J-55 LT&C
Prod. Liner TVD	5700 4206	8566 4208	6-1/4"	4-1/2"	11.6 lb/ft	J-55 LT&C
Tubing	0	5600	none	2-3/8"	4.7 lb/ft	J-55

**Surface Casing:** Texas Pattern Guide Shoe on bottom of first joint and an insert float valve on top of first joint. Casing centralization with a minimum of 3 standard bow spring centralizers to achieve optimal standoff.

**Intermediate Casing:** Self fill float shoe with self fill float collar on bottom and top of first joint. Casing centralization with double bow spring and centralizers to optimize standoff.

**Production Liner:** Bull nose guide shoe on bottom of first joint, H-Latch liner drop off tool on top of last joint.

## WELLHEAD

11" 3000 x 9 5/8" weld/slip on casing head. 9 5/8" x 7" x 2 3/8" 3000 psi Flanged Wellhead .

## CEMENTING

**Surface Casing:** 125 sks Type V with 2.0 % CaCl<sub>2</sub> and ¼ #/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:** Depending on wellbore conditions, cement may consist of 810 sks 65/35 with 6.0 % Bentonite, 2.0 % CaCl<sub>2</sub>, 10 #/sk Gilsonite, and ½ #/sk Flocele (12.3 ppg, 1.93 ft<sup>3</sup>/sk) and a tail of 150 sks Class G with ¼ #/sk Flocele (15.6 ppg, 1.18 ft<sup>3</sup>/sk). (1743 ft<sup>3</sup> of slurry, 100% excess to circulate to surface). WOC 12 hours. Test casing to 1200 psi for 30 min.

**Production Liner:** NO CEMENT, Open Hole Completion

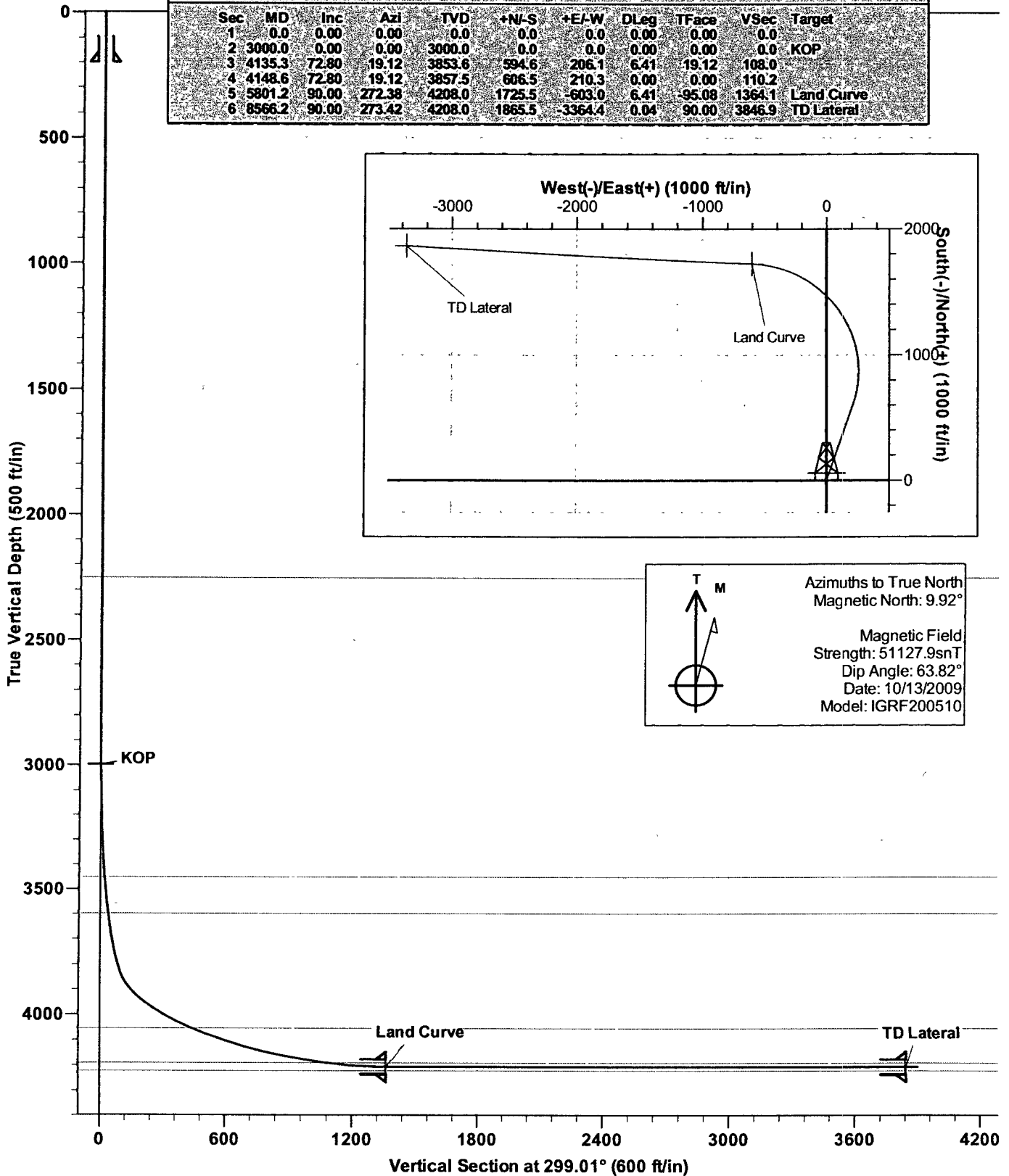
**Set slips with full string weight**

If cement does not circulate, run temperature survey in 8 hrs. to determine TOC.

## 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.
- 5) This gas is dedicated.

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	3000.0	0.00	0.00	3000.0	0.0	0.0	0.00	0.00	0.0	KOP
3	4135.3	72.80	19.12	3853.6	594.6	206.1	6.41	19.12	108.0	
4	4148.6	72.80	19.12	3857.5	606.5	210.3	0.00	0.00	110.2	
5	5801.2	90.00	272.38	4208.0	1725.5	-603.0	6.41	-95.08	1364.1	Land Curve
6	8566.2	90.00	273.42	4208.0	1865.5	-3364.4	0.04	90.00	3846.9	TD Lateral



**Company:** Energen Resources  
**Project:** Carson National Forest Sec.12-T32N-R05W  
**Site:** Carracas Mesa  
**Well:** Carracas 12A #2  
**Wellbore:** Horizontal OPE FTC  
**Design:** Preliminary Plan #1

**Local Co-ordinate Reference:** Well Carracas 12A #2  
**TVD Reference:** KB @ 7452.0ft (Drilling Rig)  
**MD Reference:** KB @ 7452.0ft (Drilling Rig)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature  
**Database:** EDM 2003.16 Single User Db

Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
KOP - plan hits target - Point	0.00	0.00	3,000.0	0.0	0.0	2,182,379.18	1,331,927.92	36° 59' 34.008 N	107° 18' 22.824 W
Land Curve - plan hits target - Point	0.00	0.00	4,208.0	1,725.5	-603.0	2,184,111.21	1,331,344.10	36° 59' 51.068 N	107° 18' 30.257 W
TD Lateral - plan hits target - Point	0.00	0.00	4,208.0	1,865.5	-3,364.4	2,184,281.84	1,328,584.45	36° 59' 52.450 N	107° 19' 4.296 W

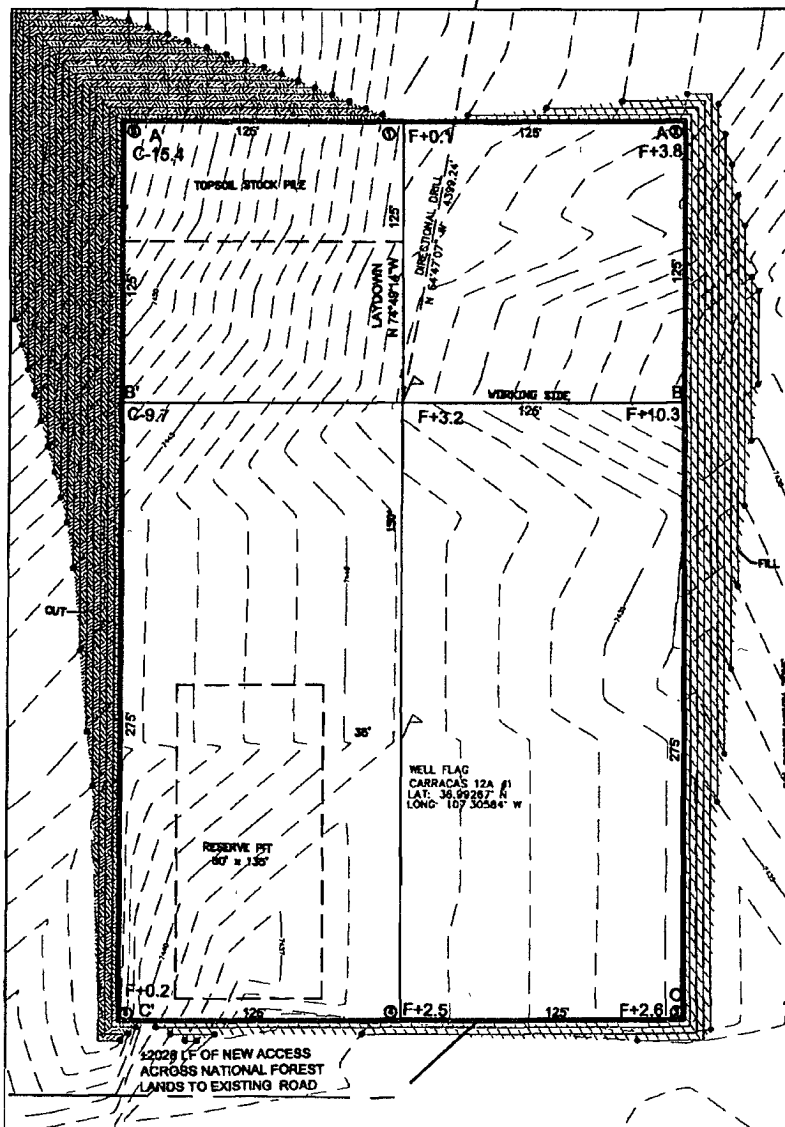
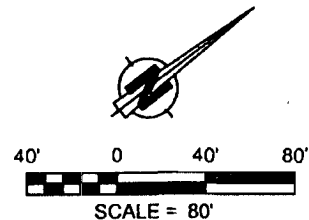
Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,473.9	3,452.0	Ojo Alamo		0.00		
2,252.0	2,252.0	Nacimiento		0.00		
5,494.9	4,192.0	Top Target Coal		0.00		
	4,225.0	Base Target Coal		0.00		
4,815.4	4,057.0	Fruitland		0.00		
3,656.5	3,599.0	Kirtland		0.00		

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_

LATITUDE: 36.99278°N  
LONGITUDE: 107.30634°W  
DATUM: NAD 83

## ENERGEN RESOURCES CORPORATION

CARRACAS 12A #2  
1939' FSL & 497' FEL  
LOCATED IN THE NE/4 SE/4 OF SECTION 12,  
T32N, R5W, N.M.P.M.,  
RIO ARriba COUNTY, NEW MEXICO  
GROUND ELEVATION: 7437', NAVD 88  
FINISHED PAD ELEVATION: 7440.3', NAVD 88



1 FOOT CONTOUR INTERVAL SHOWN  
SCALE: 1" = 80'  
JOB No.: ERG203\_REV2  
DATE: 11/04/08

**Russell Surveying**  
1409 W. Aztec Blvd. #2  
Aztec, New Mexico 87410  
(505) 334-8637

# ENERGEN RESOURCES CORPORATION

CARRACAS 12A #2

1939' FSL & 497' FEL

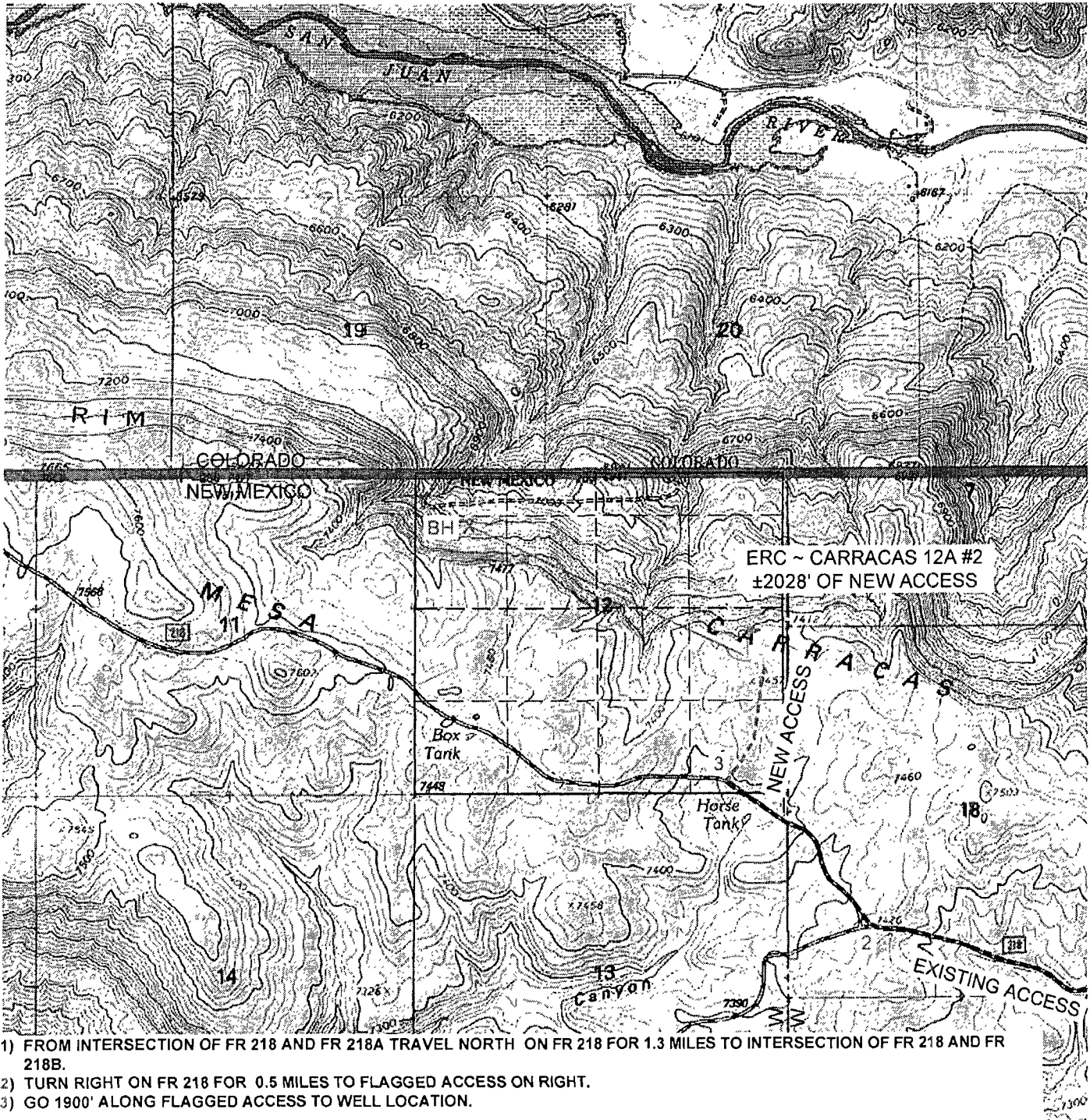
LOCATED IN THE NE/4 SE/4 OF SECTION 12,

T32N, R5W, N.M.P.M.,

RIO ARriba COUNTY, NEW MEXICO

GROUND ELEVATION: 7437', NAVD 88

±2028' OF NEW ACCESS ACROSS NATIONAL  
FOREST LANDS



- 1) FROM INTERSECTION OF FR 218 AND FR 218A TRAVEL NORTH ON FR 218 FOR 1.3 MILES TO INTERSECTION OF FR 218 AND FR 218B.
- 2) TURN RIGHT ON FR 218 FOR 0.5 MILES TO FLAGGED ACCESS ON RIGHT.
- 3) GO 1900' ALONG FLAGGED ACCESS TO WELL LOCATION.

WELL FLAG LOCATED AT LAT. 36.99278°N, LONG. 107.30634°W (NAD 83).

U.S.G.S. QUAD: BANCOS MESA

SCALE: 1" = 2000' (1:24,000)

JOB No.: ERG203\_REV2

DATE: 11/04/08

NEW OR RECONSTRUCTED ROADS MUST MEET  
SMA DESIGN STANDARDS  
INSTALL CULVERTS AS NEEDED



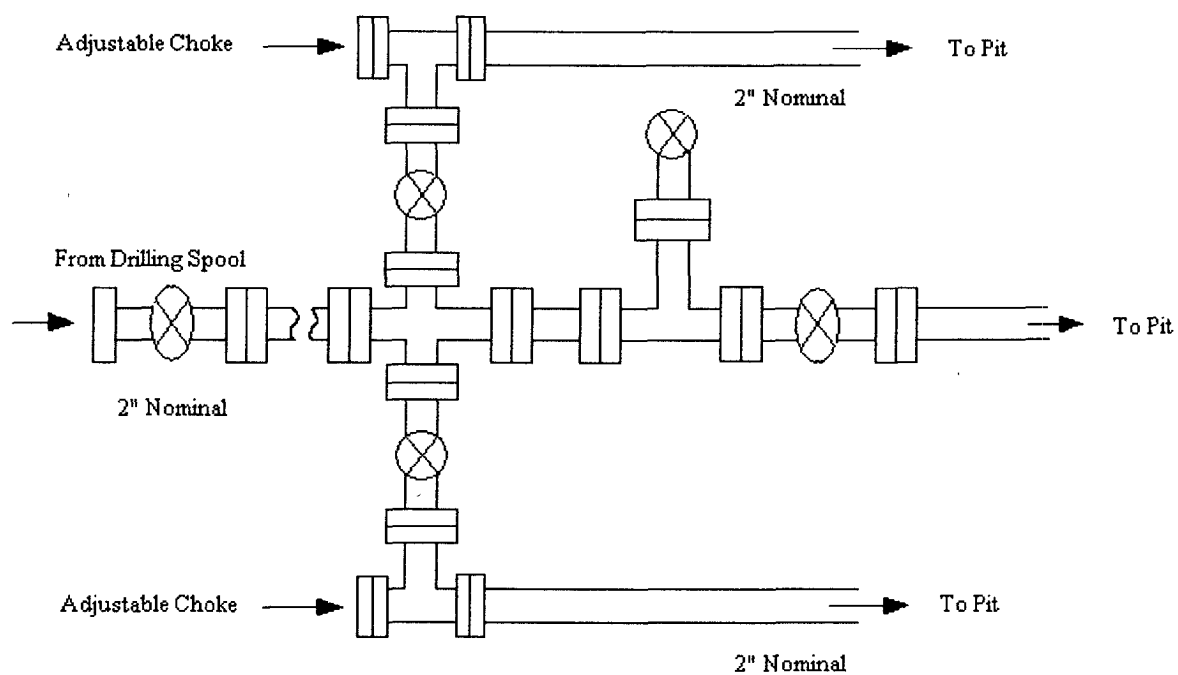
Russell Surveying

1409 W. Aztec Blvd. #2

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

