

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 JAN 22 2008

1a. Type of Work <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. NMM 30014
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 ment
2. Name of Operator Energen Resources Corporation		7. Unit or CA Agreement Name and No. 30-039-30466
3a. Address 2010 Afton Place Farmington, New Mexico 87401	3b. Phone No. (include area code) (505) 325-6800	8. Lease Name and Well No. Carracas 21 B #16
4. Location of Well (Report location clearly and in accordance with any State requirements)* At surface 875 fsl, 905 fwl M At proposed prod. zone 1880 fsl, 760 fwl T		9. API Well No.
14. Distance in miles and direction from nearest town or post office* Approx. 10 miles SE 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) 875'	16. No. of Acres in lease 2480.00	11. Sec., T., R., M., or Blk. and Survey or Area (M) S21, T32N, R4W
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 50'	19. Proposed Depth 7258' (MD)	12. County or Parish Rio Arriba
21. Elevations (Show whether DF, KDB, RT, GL, etc) 7396' GL	22. Approximate date work will start* 5/15/08	13. State NM
20. BLM/BIA Bond No on file NM2707		17. Spacing Unit dedicated to this well S/2 - 320.00 acres
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.


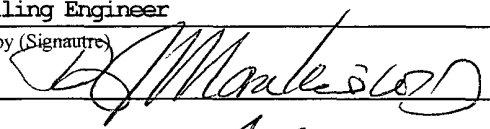
1. Well plat certified by a registered surveyor.
2. A Drilling Plan
3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO shall be filed with the appropriate Forest Service Office)

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.

RCVD JUN 30 '08

OIL CONS. DIV.

DIST. 3

25. Signature 	Name (Printed/Typed) Nathan Smith	Date 1/11/08
Title Drilling Engineer		
Approved by (Signature) 	Name (Printed/Typed) AFM	Date 6/26/08
Title AFM	Office FEO	

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)

A COMPLETE C-144 MUST BE SUBMITTED TO AND APPROVED BY THE NMOCD FOR: A PIT, CLOSED LOOP SYSTEM, BELOW GRADE TANK, OR PROPOSED ALTERNATIVE METHOD, PURSUANT TO NMOCD PART 19.15.17, PRIOR TO THE USE OR CONSTRUCTION OF THE ABOVE APPLICATIONS.

Hold C104

for Directional Survey
and "As Drilled" plat

NMOCD

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

NOTIFY AZTEC OCD 24 HRS.
PRIOR TO CASING & CEMENT

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

JUL 02 2008

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

STRICT I
325 N. French Dr., Hobbs, N.M. 88240

State of New Mexico
Energy, Minerals & Natural Resources Department

Form C-102
Revised October 12, 2005

STRICT II
101 W. Grand Avenue, Artesia, N.M. 88210

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

STRICT III
100 Rio Brazos Rd., Aztec, N.M. 87410

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

☐ AMENDED REPORT

STRICT IV
20 S. St. Francis Dr., Santa Fe, NM 87505

WELL LOCATION AND ACREAGE DEDICATION PLAT

*API Number 30639-30466		*Pool Code 71629	*Pool Name BASIN FRUITLAND COAL
*Property Code 35661	*Property Name CARRACAS 21B		*Well Number 16
*GRID No. 162928	*Operator Name ENERGEN RESOURCES CORPORATION		*Elevation 7396'

¹⁰ Surface Location

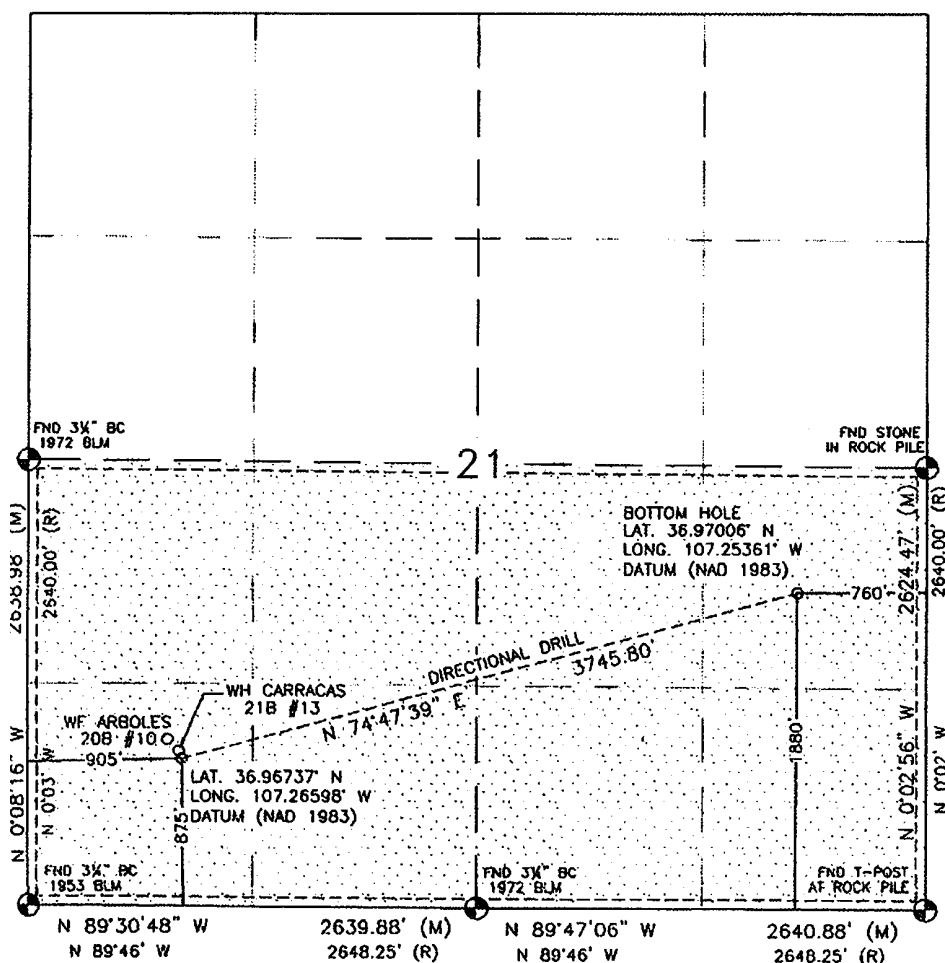
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	21	32N	4W		875'	SOUTH	905'	WEST	RIO ARriba

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
I	21	32N	4W		1880'	SOUTH	760'	EAST	RIO ARriba

*Dedicated Acres 320.00 Acres - S/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, and that this organization either owns a working interest or unleased 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.

Nathan Smith 7/15/08
Signature Date

Nathan Smith

Printed Name

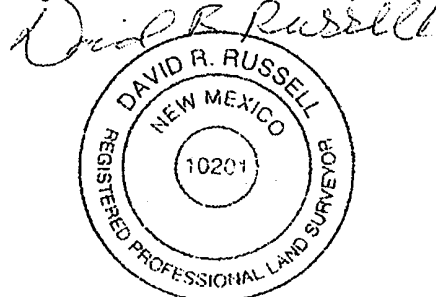
18 SURVEYOR CERTIFICATION

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.

JUNE 27, 2007

Date of Survey

Signature and Seal of Professional Surveyor:



DAVID RUSSELL

Certificate Number

10201

Operations Plan

January 11, 2008

Carracas 21 B #16

General Information

Location	875 fsl, 905 fwl at surface 1880 fsl, 760 fwl at bottom T32N, R4W Rio Arriba County, New Mexico
Elevations	7396' GL
Total Depth	7258' (MD), 4299' (TVD)
Formation Objective	Basin Fruitland Coal

Formation Tops

San Jose	Surface
Nacimiento	2321' (TVD)
Ojo Alamo Ss	3595' (TVD), 3683' (MD)
Kirtland Sh	3733' (TVD), 3867' (MD)
Fruitland Fm	3845' (TVD), 4030' (MD)
Top Coal	4276' (TVD), 5140' (MD)
Bottom Coal	4299' (TVD)
Total Depth	4299' (TVD), 7258' (MD)

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 2470' TVD with 3.16°/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 3845' (TVD), 4030' (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'-4285' (TVD) 5375' (MD)	8 3/4"	7"	23.0 ppf	J-55 LT&C
Production	4276'-4299' (TVD) 5325'-7258' (MD)	6 1/4"	4 1/2"	11.6 ppf	J-55 LT&C
Tubing	0'-5300' (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 % CaCl₂ and 1/4 #/sk Flocele (15.6 ppg, 1.18 ft³/sk 148 ft³ 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 775 sks 65/35 with 6.0 % Bentonite, 2.0 % CaCl₂, 10 #/sk Gilsonite, and 1/2 #/sk Flocele (12.3 ppg, 1.96 ft³/sk) and a tail of 125 sks Type V with 1/4 #/sk Flocele (15.6 ppg, 1.18 ft³/sk). (1643 ft³ 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 Nat'l Forest - SE S21, T32N, R4W
Site: Carracas Mesa
Well: Carracas 21 B #16
Wellbore: Preliminary Plan
Plan: Plan #1 (Carracas 21 B #16/Preliminary Plan)

PROJECT DETAILS: Carson Nat'l Forest - SE S21, T32N, R4W

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

System Datum: Mean Sea Level

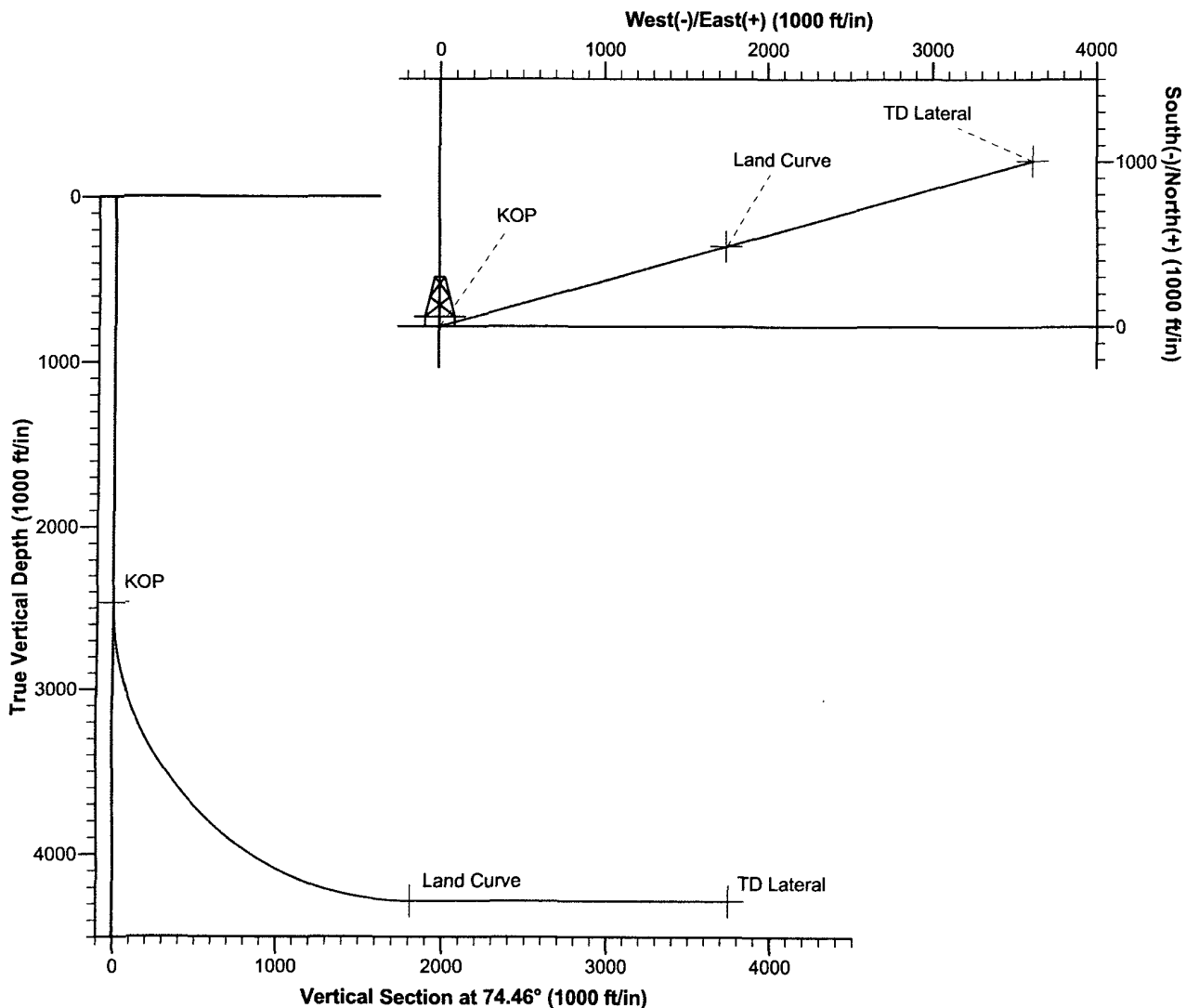


Azimuths to True North
Magnetic North: 10.12°

Magnetic Field
Strength: 51346.2snT
Dip Angle: 63.84°
Date: 1/10/2008
Model: IGRF200510

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	2470.0	0.00	0.00	2470.0	0.0	0.0	0.00	0.00	0.0	KOP
3	5322.2	90.04	74.48	4285.0	486.0	1750.0	3.16	74.48	1816.2	Land Curve
4	7258.1	89.96	74.42	4285.0	1005.0	3615.0	0.01	-142.04	3752.1	TD Lateral



Energen Planned Wellpath



Company:	Energen Resources	Local Co-ordinate Reference:	Well Carracas 21 B #16
Project:	Carson Nat'l Forest - SE S21, T32N, R4W	TVD Reference:	KB @ 7409.0ft (Drilling Rig)
Site:	Carracas Mesa	MD Reference:	KB @ 7409.0ft (Drilling Rig)
Well:	Carracas 21 B #16	North Reference:	True
Wellbore:	Preliminary Plan	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	EDM 2003.16 Single User Db

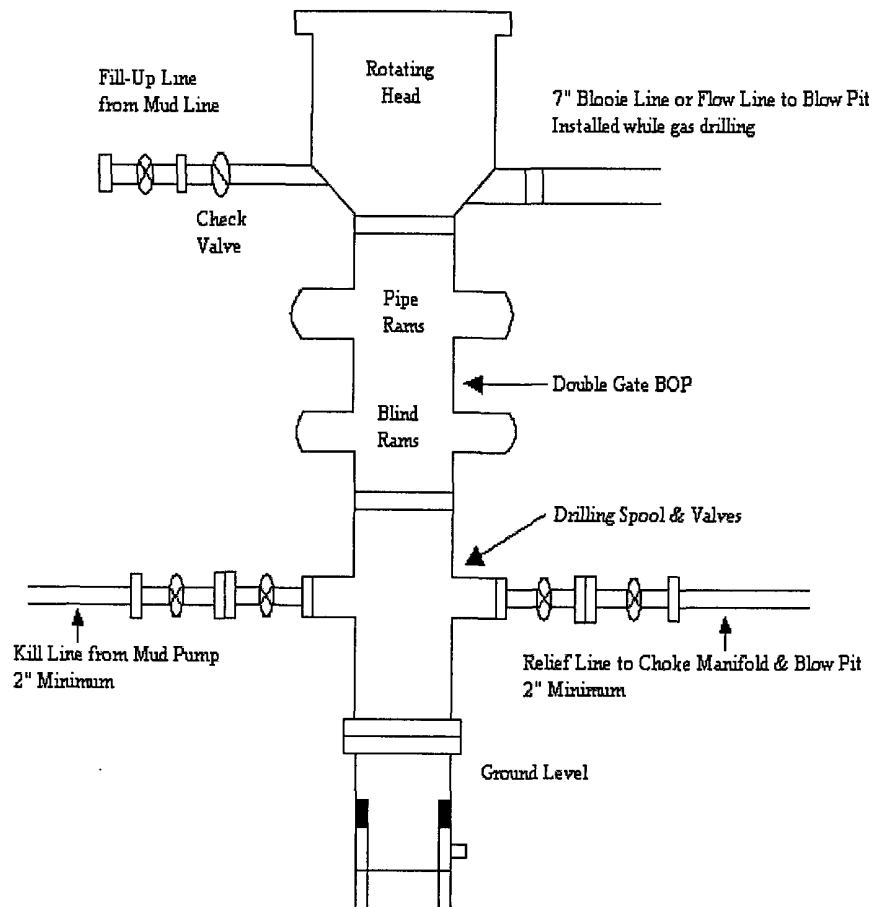
Targets										
Target Name	hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Shape		(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
TD Lateral		0.00	0.00	4,285.0	1,005.0	3,615.0	2,173,966.09	1,347,241.64	36° 58' 12.467 N	107° 15' 12.982 W
- plan hits target										
- Point										
KOP		0.00	0.00	2,470.0	0.0	0.0	2,172,999.70	1,343,616.13	36° 58' 2.532 N	107° 15' 57.528 W
- plan hits target										
- Point										
Land Curve		0.00	0.00	4,285.0	486.0	1,750.0	2,173,467.01	1,345,371.21	36° 58' 7.337 N	107° 15' 35.964 W
- plan hits target										
- Point										

Formations						
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction	
(ft)	(ft)			(°)	(°)	
2,321.0	2,321.0	Nacimiento		0.00		
	4,299.0	Coal Base		0.00		
5,140.2	4,276.0	Coal Top		0.00		
3,683.4	3,595.0	Ojo Alamo Ss		0.00		
0.0	0.0	San Jose		0.00		
3,866.9	3,733.0	Kirtland Shale		0.00		
4,030.2	3,845.0	Fruitland Fm		0.00		

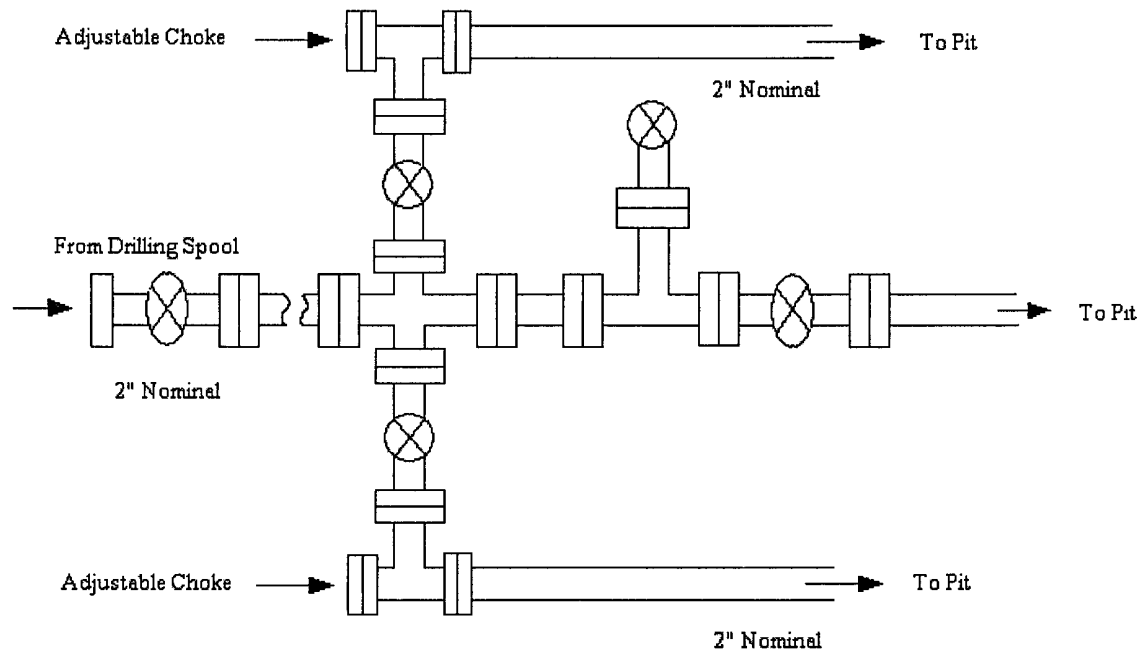
Checked By: _____	Approved By: _____	Date: _____
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Energen Resources Corporation

Typical BOP Configuration for Gas Drilling



Energen Resources Corporation
Typical 2000 psi Choke Manifold Configuration

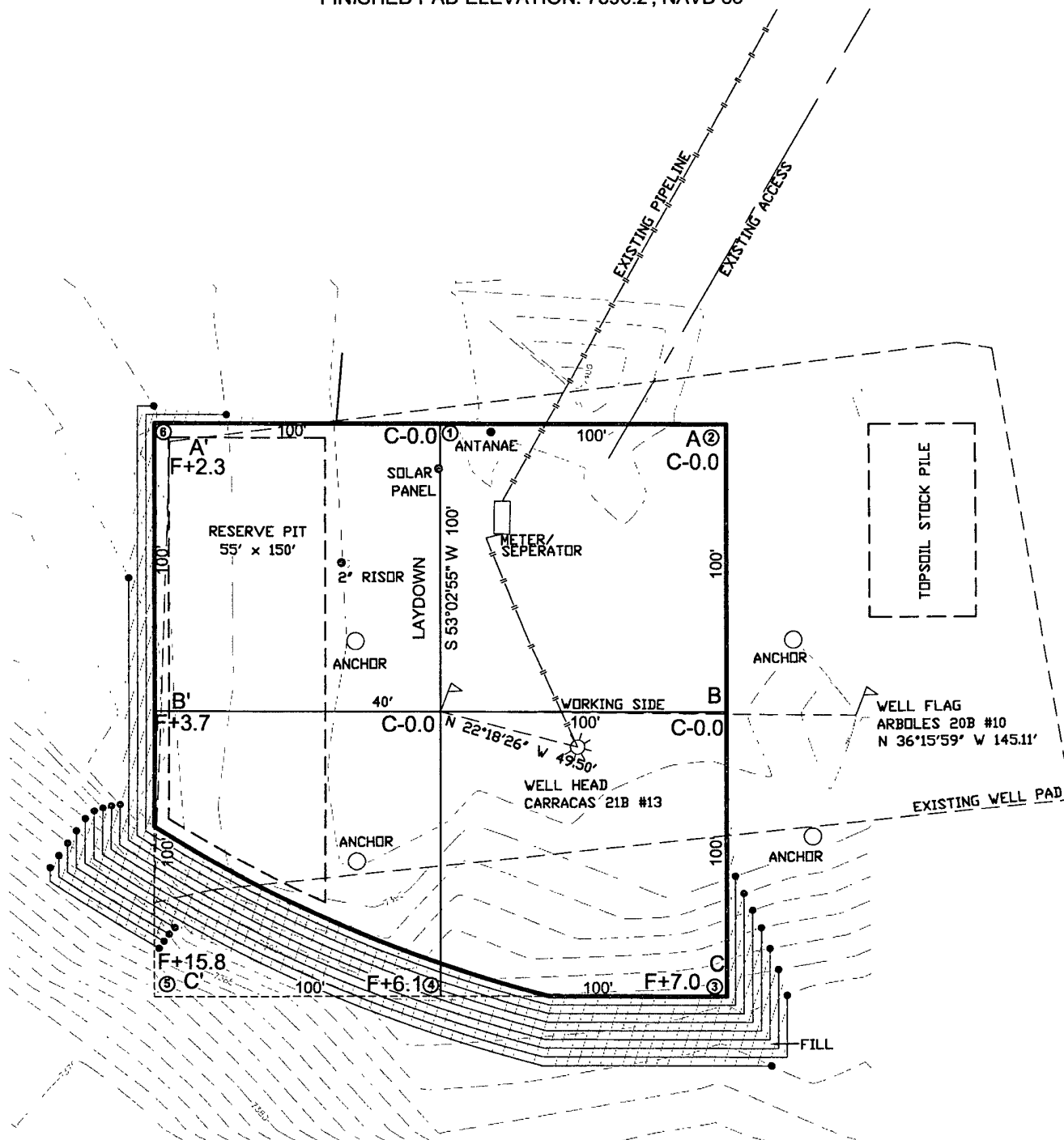
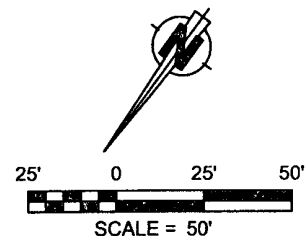


Choke manifold installed from surface to TD

LATITUDE: 36.96737°N
LONGITUDE: 107.26598°W
DATUM: NAD 83

ENERGEN RESOURCES CORPORATION

CARRACAS 21B #16
875' FSL & 905' FWL
LOCATED IN THE SW/4 SW/4 OF SECTION 21,
T32N, R4W, N.M.P.M.,
RIO ARRIBA, NEW MEXICO
GROUND ELEVATION: 7396', NAVD 88
FINISHED PAD ELEVATION: 7396.2', NAVD 88



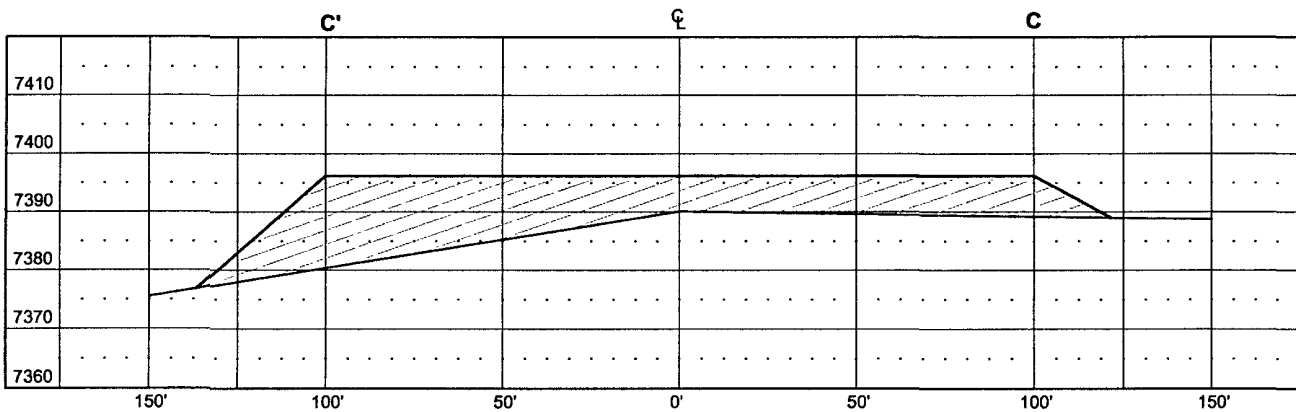
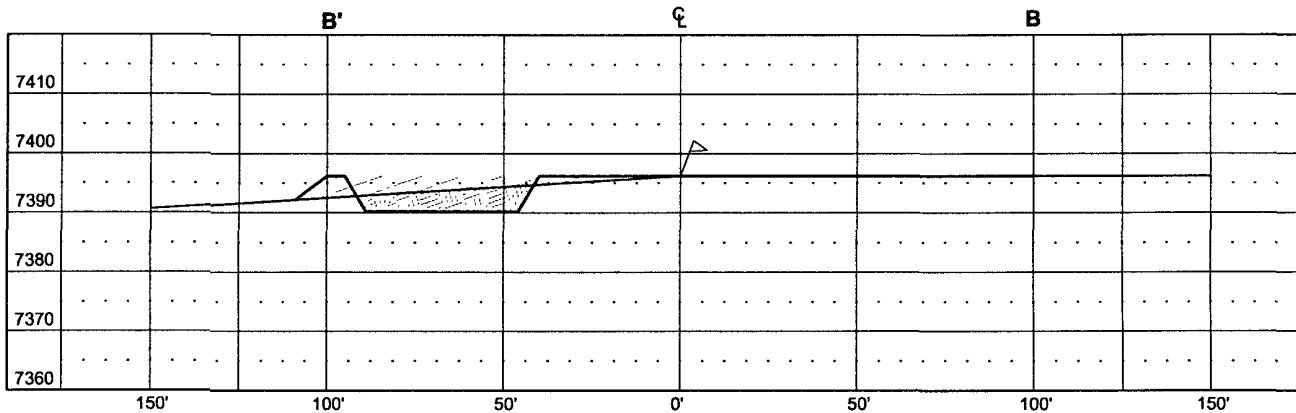
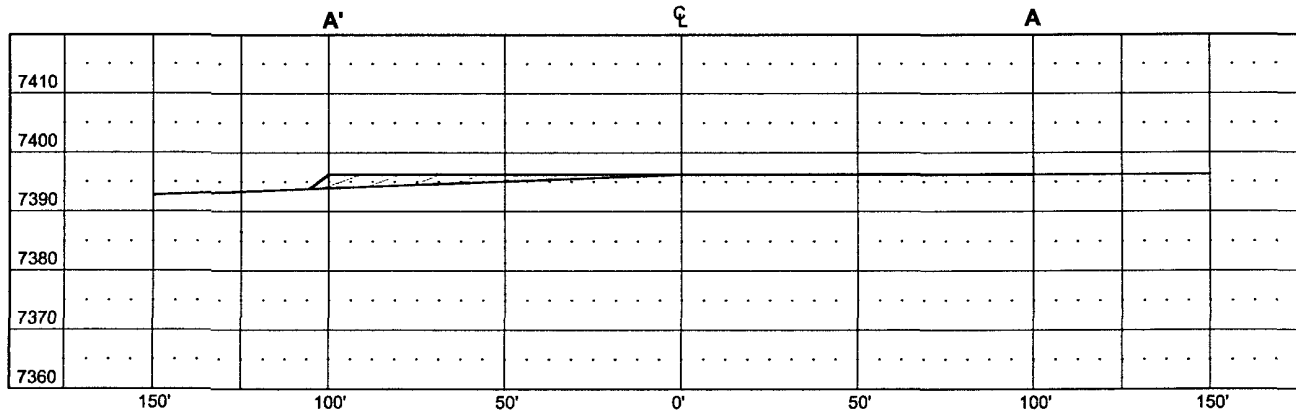
1 FOOT CONTOUR INTERVAL SHOWN
SCALE: 1" = 50'
JOB No.: ERG170
DATE: 07/19/07



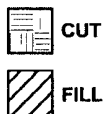
Russell Surveying
1409 W. Aztec Blvd. #2
Aztec, New Mexico 87410
(505) 334-8637

ENERGEN RESOURCES CORPORATION

CARRACAS 21B #16
 875' FSL & 905' FWL
 LOCATED IN THE SW/4 SW/4 OF SECTION 21,
 T32N, R4W, N.M.P.M.,
 RIO ARRIBA, NEW MEXICO
 GROUND ELEVATION: 7396', NAVD 88
 FINISHED PAD ELEVATION: 7396.2', NAVD 88



VERT. SCALE: 1" = 30'
 HORZ. SCALE: 1" = 50'
 JOB No.: ERG170
 DATE: 07/19/07



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