Form 3160-3
(April 2004)

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

2006 NOV 27 PM 4 12
RECEIVED
070 FARMINGTON NM

5. Lease Serial No.: Jicarilla Contract 117

1a. Type of Work: ☒ DRILL ☐ REENTER

6. If Indian, Allotee or Tribe Name: Jicarilla Apache

1b. Type of Well: ☐ Oil Well ☒ Gas Well ☐ Other ☐ Single Zone ☐ Multiple Zone

7. Unit or CA Agreement Name and No.:

2. Name of Operator: Energen Resources Corporation

8. Lease Name and Well No.: Jicarilla 117E #5C

3a. Address: 2198 Bloomfield Hwy Farmington, NM 87401

3b. Phone No. (include area code): 505.325.6800

9. API Well No.: 30-039-30121

4. Location of Well (*Report location clearly and in accordance with any State equirements*)*

At surface: 2060' fsl, 1950' fwl

Blanco

10. Field and Pool, or Exploratory: Mesa Verde

At proposed prod. zone

11. Sec., T., R., M., or Blk. and Survey or Area: (K) S28, T26N, R3W

14. Distance in miles and direction from nearest town or post office*: Approximatley 34 miles south southwest from Dulce, NM

12. County or Parish: Rio Arriba

13. State: NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drg. unit line, if any)	16. No. of Acres in lease	17. Spacing Unit dedicated to this well
1950'	2560.00	320 W/2

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.	19. Proposed Depth	20. BLM/BIA Bond No. on file
Approx 700'	6502'	

RCVD MAY18'07
OIL CONS. DIV.
DIST. 3

21. Elevations (Show whether DF, KDB, RT, GL, etc.	22. Approximate date work will start*	23. Estimated duration
7275' GL	10/15/07	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.

25. Signature	Name (*Printed/Typed*)	Date
	Nathan Smith	11/27/06

Title: Drilling Engineer

Approved by (Signature)	Name (*Printed/Typed*)	Date
		5/15/07

Title	Office
AFM	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: 500#

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowlingly 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)

File application for pit permit prior to constructing location

NOTIFY AZTEC OCD 24 HRS. PRIOR TO CASING & CEMENT

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".

NMOCD

4/18/07

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

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

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION
2040 South Pacheco
Santa Fe, NM 87505

Form C-102
Revised August 15, 2000

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

2006 NOV 27 PM 4 12 RECEIVED 070 FARMINGTON NM

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
30-039-30121	72319	Blanco MESA VERDE

[4] Property Code	[5] Property Name	[6] Well Number
21943	JICARILLA 117E	5C

[7] OGRID No.	[8] Operator Name	[9] Elevation
162928	ENERGEN RESOURCES CORPORATION	7275'

[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
K	28	26N	3W		2060'	SOUTH	1950'	WEST	RIO ARRIBA

[11] Bottom Hole Location If Different From Surface

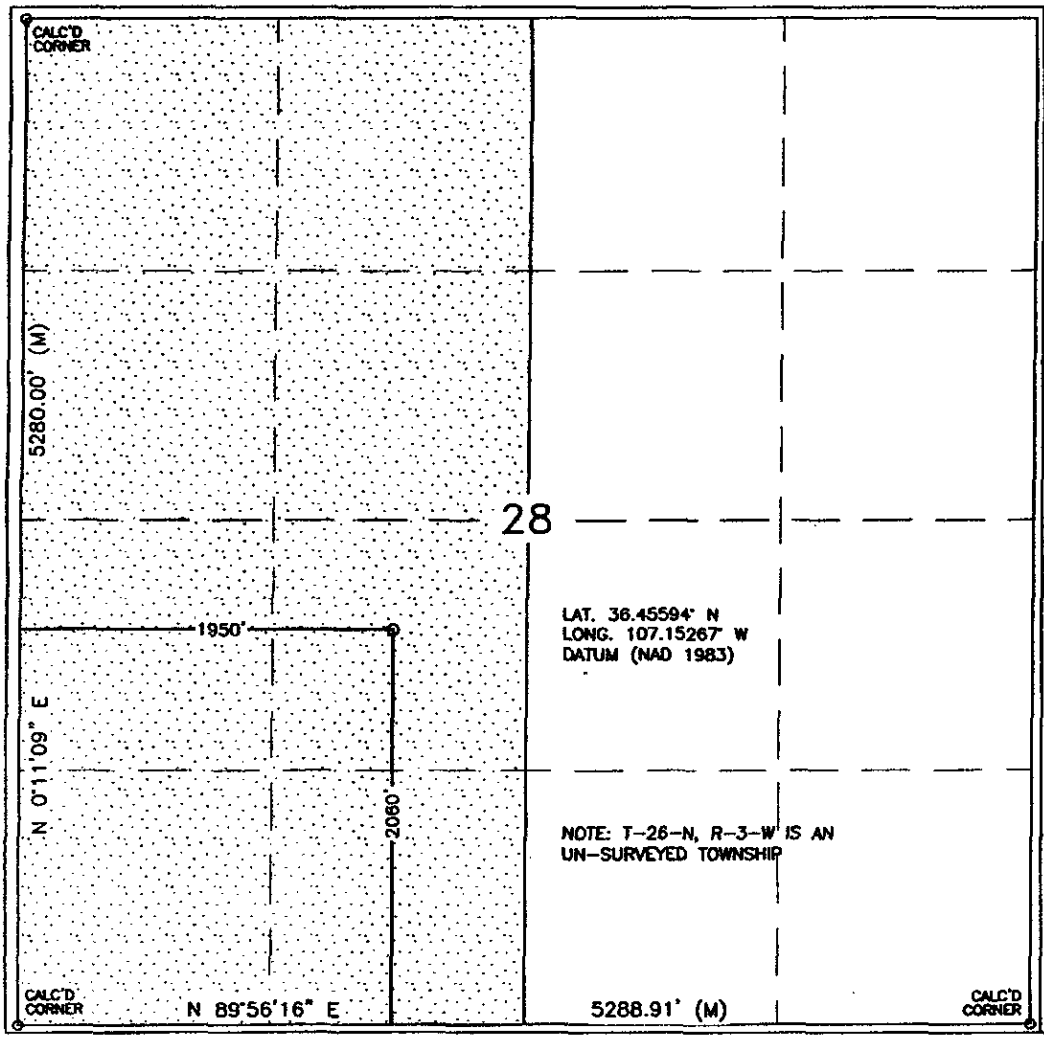
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

RCVD MAY 18'07

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
320 ~~56~~ Acres – (W/2)			OIL CONS. DIV. DIST. 3

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

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief

Signature

Nathan Smith
Printed Name

Drilling Engineer
Title

11/22/06
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.

AUGUST 29, 2006
Date of Survey

Signature and Seal of Professional Surveyor:

DAVID R. RUSSELL NEW MEXICO 10201 REGISTERED PROFESSIONAL LAND SURVEYOR

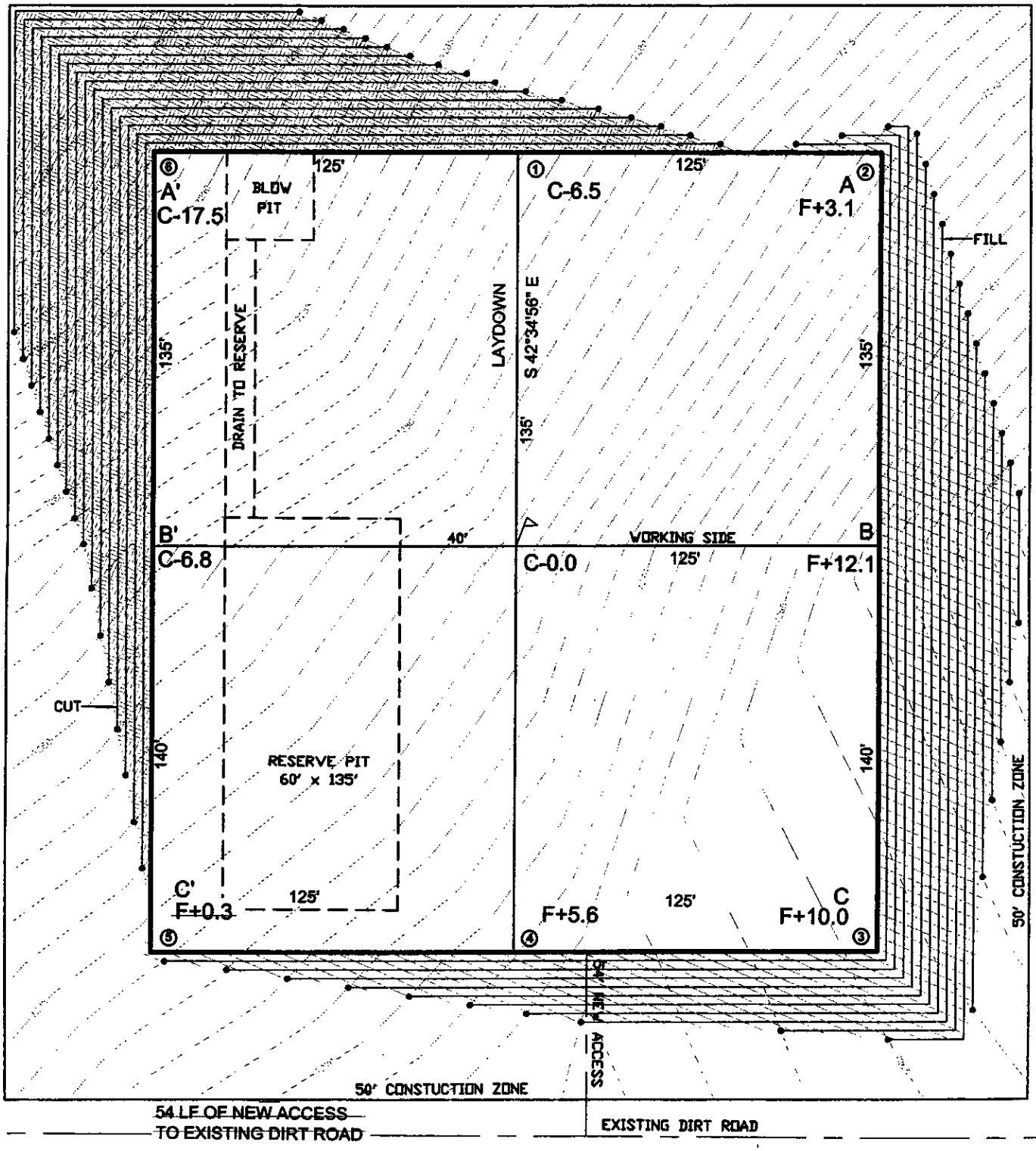
DAVID RUSSELL
Certificate Number 10201

LATITUDE: 36.45594°N
LONGITUDE: 107.15267°W
DATUM: NAD 83

ENERGEN RESOURCES CORPORATION

JICARILLA 117E #5C
2060' FSL & 1950' FWL
LOCATED IN THE NE/4 SW/4 OF
SECTION 28, T26N, R3W, N.M.P.M.,
RIO ARRIBA COUNTY, NEW MEXICO
GROUND ELEVATION: 7275', NAVD 88
FINISHED PAD ELEVATION: 7274.7', NAVD 88

25' 0 25' 50'
SCALE = 50'

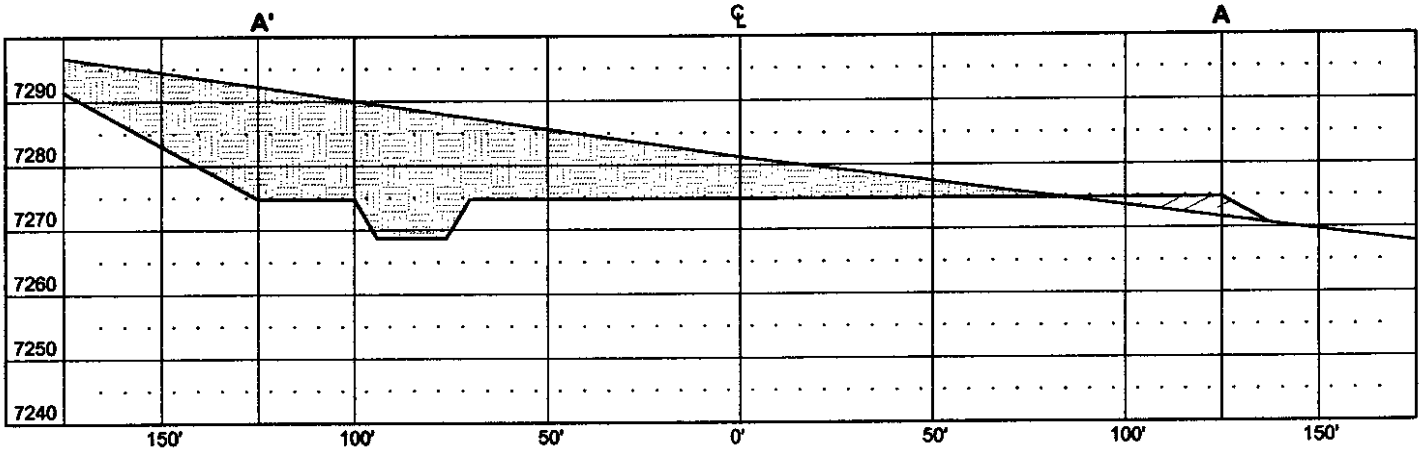


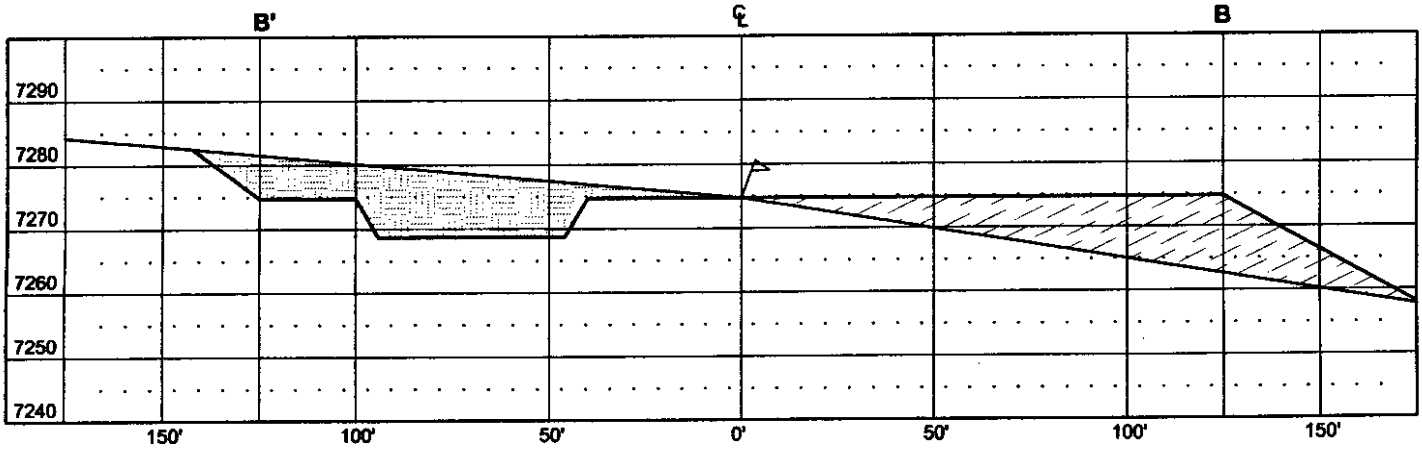
1 FOOT CONTOUR INTERVAL SHOWN
SCALE: 1" = 50'
JOB No.: ERG139
DATE: 09/08/06

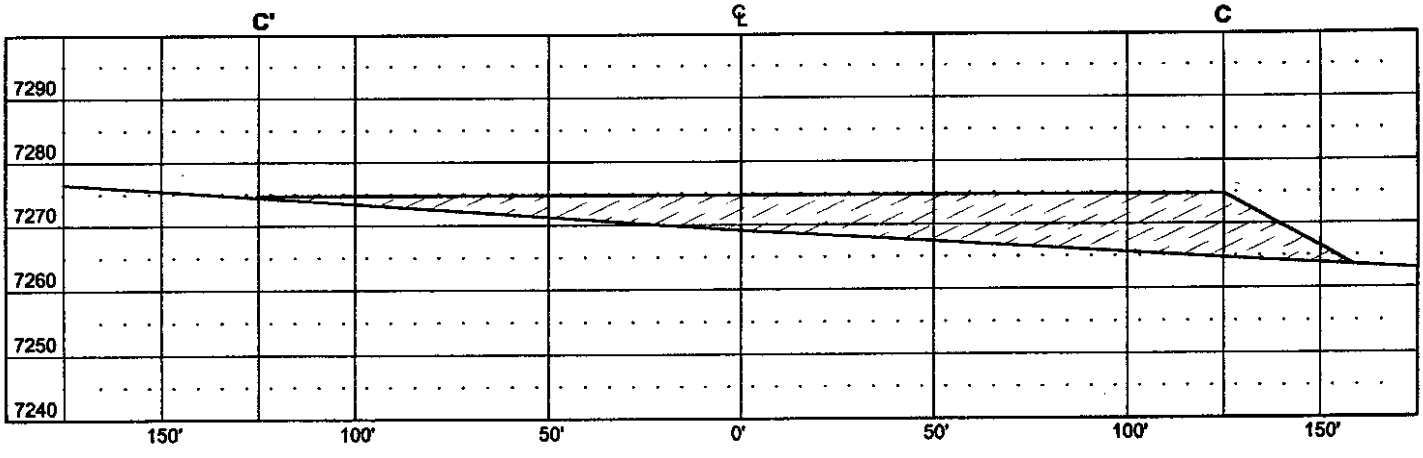
Russell Surveying
1409 W. Aztec Blvd. #5
Aztec, New Mexico 87410
(505) 334-8637

ENERGEN RESOURCES CORPORATION

JICARILLA 117E #5C
2060' FSL & 1950' FWL
LOCATED IN THE NE/4 SW/4 OF
SECTION 28, T26N, R3W, N.M.P.M.,
RIO ARRIBA COUNTY, NEW MEXICO
GROUND ELEVATION: 7275', NAVD 88
FINISHED PAD ELEVATION: 7274.7', NAVD 88







VERT. SCALE: 1" = 30'
HORZ. SCALE: 1" = 50'
JOB No.: ERG139
DATE: 09/08/06

CUT

FILL

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

Operations Plan

November 22, 2006

Jicarilla 117E #5C

General Information

Location	2060' fsl, 1950' fwl nesw S28, T26N, R03W Rio Arriba County, New Mexico
Elevations	7287' GL
Total Depth	6502' (MD)
Formation Objective	Blanco Mesa Verde

Formation Tops

San Jose	Surface	Lewis Shale	4097'
Nacimiento	2407'	[redacted]	
Ojo Alamo Ss	3587'	Huerfanito Bentonite	4347'
Kirtland Sh	3632'	Cliff House	5577'
Fruitland Fm	3702'	Menefee	5682'
Top Coal	3737'	Point Lookout Ss.	6052'
Bottom Coal	3892'	Mancos Shale	6312'
Pictured Cliffs	3897'	**Total Depth**	**6502'**

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 non-dispersed fresh water mud system. Weighting materials will be drill cuttings and/or Barite as needed. Mud density is expected to range from 8.3 ppg to 8.9 ppg. Air/mist from intermediate setting depth to TD.

Blowout Control Specifications:

A 2000 psi minimum double ram or annulus BOP stack (figure 1) 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: From Surface to Intermediate setting depth - None
From Intermediate setting depth to TD – Temp / HRI / CNT, LDT / GR

Mud Logs: None

Coring: None

Surveys: Surface and/or every 500' to TD

Tubulars

Casing, Tubing, & Casing Equipment:

String	Interval	Wellbore	Casing	Csg Wt	Grade
Surface	0'-200'	12 ¼"	9 5/8"	32.3 ppf	H-40 ST&C
Intermediate	200'-4237'	8 ¾"	7"	23.0 ppf	J-55 LT&C
Production	4137'-6502'	6 ¼"	4 ½"	11.6 ppf	J-55 LT&C
Tubing	0'-6450'		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 on bottom with self fill insert float collar on top of shoe joint and casing centralization with bow spring centralizers to optimize standoff. Two turbolating centralizers at the base of the Ojo Alamo are recommended.

Production Casing: Depending on wellbore conditions, a cement nose guide shoe on bottom with self fill insert float collar on top of shoe joint and casing centralization with standard bow spring centralizers to optimize standoff. If multistage cementing is required, DV tool will be placed based on formation characteristics.

Wellhead

11" 3000 x 9 5/8" Casing Head, 11" 3000 x 7 1/16" 3000 Christmas Tree.

Cementing

Surface Casing: 225 sks Std (class B) with 2.0 % $CaCl_2$ and ¼ #/sk Flocele (15.6 ppg, 1.18 ft^3/sk 247 ft^3 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 ½ hole volumes of mud and reduce funnel viscosity to minimum to aide in hole cleanout. Depending on wellbore conditions, cement may consist of 600 sks 65/35 with 6.0 % Bentonite, 2.0 % $CaCl_2$, 10 #/sk Gilsonite, and ½ #/sk Flocele (12.3 ppg, 1.96 ft^3/sk) and a tail of 100 sks of Class G cement with 5.0 #/sk Gilsonite, and ¼ #/sk Flocele (15.2ppg, 1.24 ft^3/sk). (1300 ft^3 of slurry, 100 % excess to circulate to surface). WOC 12 hours. Pressure test casing to 1200 psi for 30 min.

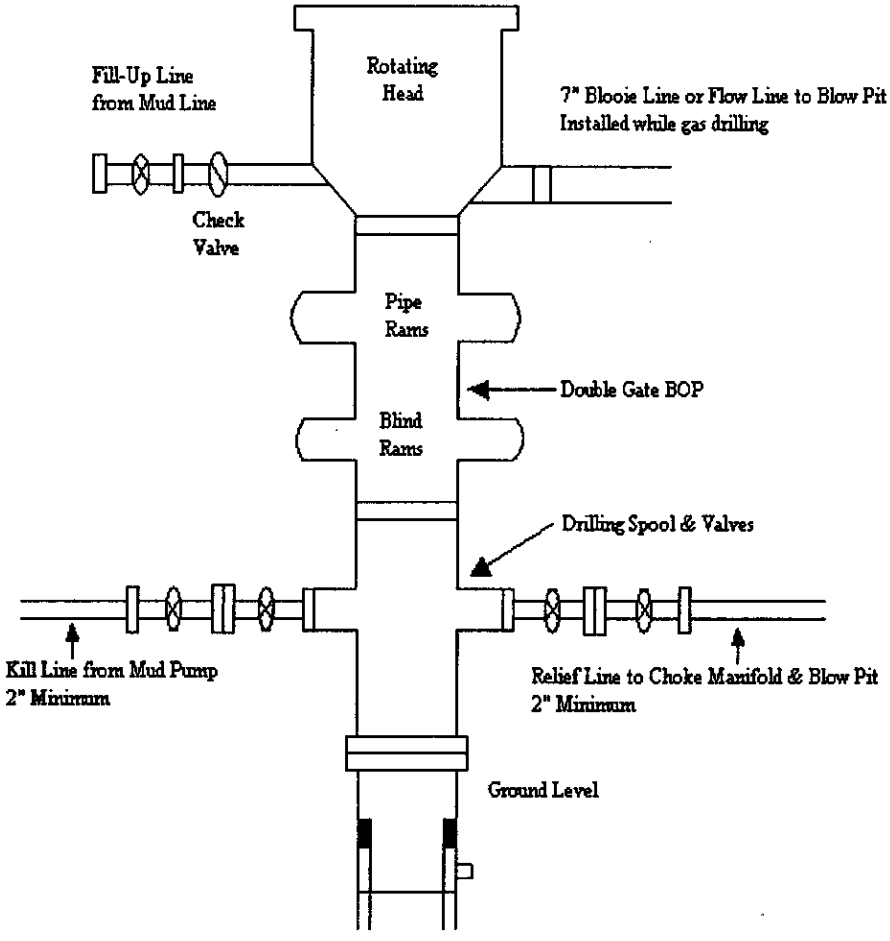
Production Liner: Depending on wellbore conditions, cement may consist of 400 sks 50/50 with 2.0 % Bentonite, 0.50% Halad-9, 0.10% CFR-3, 5 #/sk Gilsonite, and ¼ #/sk Flocele (13.5 ppg, 1.30 ft^3/sk). (520 ft^3 of slurry, 90 % excess open hole, no excess in liner lap to circulate off liner top). Use calipers on logs to figure cement volumes.

Other Information

1) This well will be cased and the Blanco Mesa Verde fracture stimulated.
2) If lost circulation is encountered, sufficient LCM will be added to the mud system to maintain well control. The production string may need to be cemented in multiple stages with a slurry design deviated from that listed above.
3) Mesa Verde pore pressure is anticipated to be 800 psi, the Pictured Cliffs is 600 psi and the Fruitland is 500 psi.
4) No abnormal temperatures or pressures are anticipated.
5) This gas is dedicated.

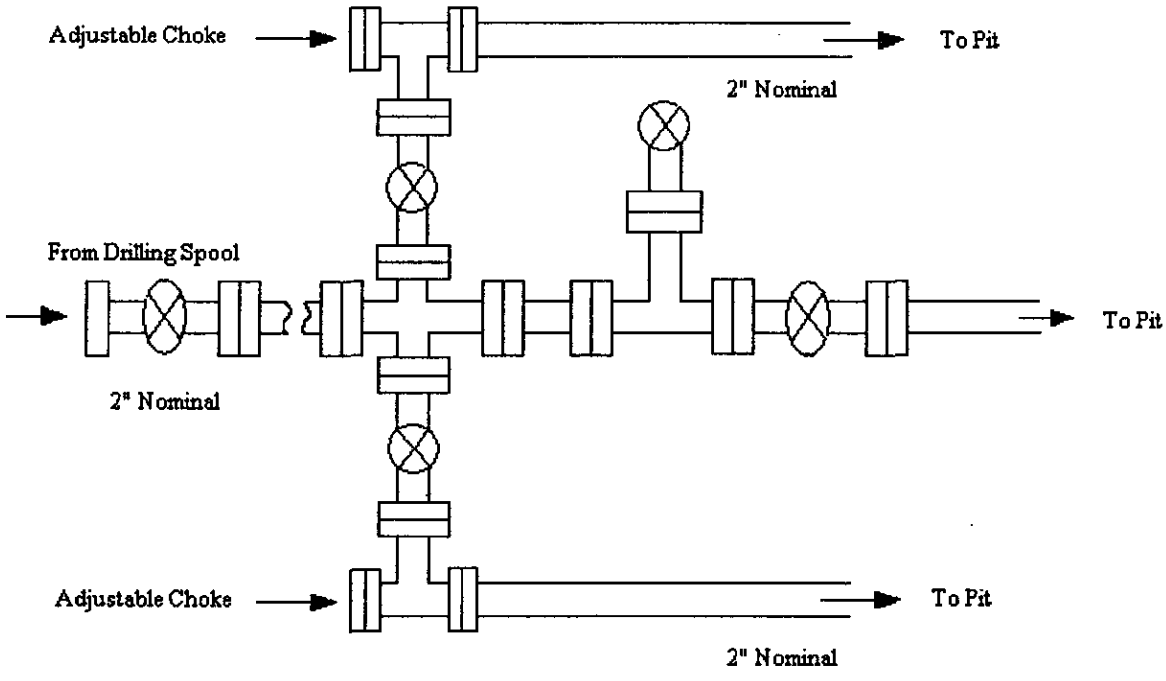
Energen Resources Corporation

Typical BOP Configuration for Gas Drilling



Energen Resources Corporation

Typical 2000 psi Choke Manifold Configuration



Choke manifold installed from surface to TD