

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

**RECEIVED**

APR 02 2010

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

**APPLICATION FOR PERMIT TO DRILL OR REENTER**

*Bureau of Land Management*


**Farmington Field Office**

1a. Type of Work <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. USA SF 078899-A	
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. WESTERN #200S	
3b. Phone No. (include area code) (505)325-6800		9. API Well No. 30-045-35733	
4. Location of Well (Report location clearly and in accordance with any State requirements)* At surface 1048'FSL 977'FEL At proposed prod. zone		10. Field and Pool, or Exploratory Basin Basin Fruitland Coal	
14. Distance in miles and direction from nearest town or post office* 10 miles south of Farmington, NM		11. Sec., T., R., M., or Blk. and Survey or Area P - Sec.8, T26N, R11W NMPM	
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drg. unit line, if any) 977'	16. No. of Acres in lease 1200.00 220	17. Spacing Unit dedicated to this well 320 E/2	
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 2000'	19. Proposed Depth 1745'	20. BLM/BIA Bond No. on file	
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 6228' GL	22. Approximate date work will start* JUNE 2010	23. Estimated duration 15 days	

24. Attachments

RCVD MAR 23 '11

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  |  <b>H<sub>2</sub>S POTENTIAL EXIST</b> | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). | <b>OIL CONS. DIV.</b> |
| 2. A Drilling Plan.  |   | 5. Operator certification.  | <b>DIST. 3</b>        |
| 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              |                       |

25. Signature <i>Stephen Byers</i>	Name (Printed/Typed) STEPHEN BYERS	Date 04/02/2010
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Title Drilling Engineer		
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Approved by (Signature) <i>D. Manickavel</i>	Name (Printed/Typed)	Date 3/17/11
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Title AFM	Office FFO	
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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)

**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**

APR 06 2011  
NMOCD *AV*

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".

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

DISTRICT II  
1301 W. Grand Avenue, Artesia, NM 88210

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

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

State of New Mexico  
Energy, Minerals & Natural Resources  
OIL CONSERVATION DIVISION  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Form C-102  
Revised October 12, 2005

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

APR 02 2010

Bureau of Land Management  
Farmington Field Office

AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

<sup>1</sup> API Number <b>30-045-35133</b>		<sup>2</sup> Pool Code 71629	<sup>3</sup> Pool Name FC
<sup>4</sup> Property Code <b>385410</b>	<sup>5</sup> Property Name WESTERN		<sup>6</sup> Well Number 200s
<sup>7</sup> OGRID No. 162928	<sup>8</sup> Operator Name ENERGEN RESOURCES		<sup>9</sup> Elevation 6228

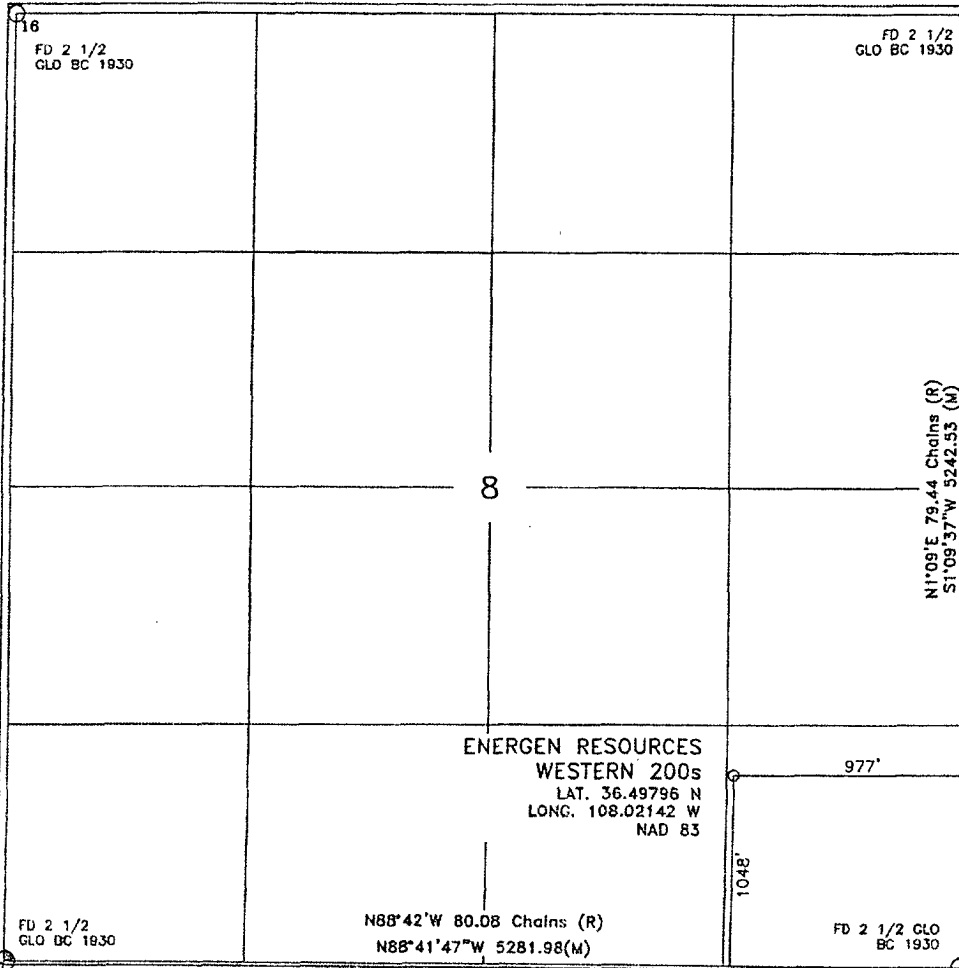
<sup>10</sup> Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	8	26-N	11-W		1048'	SOUTH	977'	EAST	SAN JUAN

<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
<sup>12</sup> Dedicated Acres <b>320 E/2</b>		<sup>13</sup> Joint or Infill		<sup>14</sup> Consolidation Code		<sup>15</sup> Order No.			

No allowable will be assigned to this completion until all interest have been consolidated or a non-standard unit has been approved by the division.



<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 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 of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

*Stephen Byers* 4-2-10  
Signature Date  
**Stephen Byers**  
Printed Name

<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.

8/12/09  
Date of Survey  
Signature and Seal of Professional Surveyor:  
*William E. Mahnke II*  
**WILLIAM E. MAHNKE II**  
Certificate Number: 8466

4/12/2010



**OPERATIONS PLAN**

**WELL NAME**.....Western #200S  
**JOB TYPE**.....Vertical Fruitland Coal  
**DEPT**.....Drilling and Completions  
**PREPARED BY**.....Stephen Byers

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APR 12 2010

**GENERAL INFORMATION**

Surface Location	1048 FSL 977 FEL	Bureau of Land Management
S-T-R	(P) Sec.8-T26N-R11W	Farmington Field Office
County, State	San Juan, New Mexico	
Elevations	6228' GL	
Total Depth	1745' +/- (MD)	
Formation Objective	Basin Fruitland Coal	

**FORMATION TOPS**

Ojo Alamo Ss	475'
Kirtland Sh	630'
Fruitland Fm	1245'
Top Coal	1320'
Base Coal	1545'
Pictured Cliffs	1545'
<b>Total Depth</b>	<b>1745'</b>

**DRILLING**

The 12 1/4" wellbore will be drilled with a fresh water mud system.  
The 7 7/8" 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 8.3 ppg to 8.9 ppg.

**Blowout Control Specifications:**

A 2000 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: 7-7/8" wellbore induction/gamma ray and density logs.  
Mudlogs: none  
Surveys: Surface and/or every 500' to TD.

4/12/2010



**CASING, TUBING & CASING EQUIPMENT**

String	Start Depth	End Depth	Wellbore	Size	Wt	Grade
Surface	0	150	12-1/4"	8-5/8"	24.0 lb/ft	J-55 ST&C
Production	0	1745	7-7/8"	5-1/2"	15.5 lb/ft	J-55 LT&C
Tubing	0	1745		2 3/8"	4.7 lb/ft	J-55

**Casing Equipment:**

**Surface Casing:** Depending on wellbore conditions, a Texas Pattern Guide Shoe on first joint with and insert float valve on top. Run standard bow spring centralizers as follows: every other joint from TD to surface.

**Production 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 centralizers to optimize standoff. Turbolizers are to be placed in the base of the Ojo Alamo formation.

**CEMENTING**

**Surface Casing:** 105 sks Std (class B) with 2.0 % CaCl<sub>2</sub> and ¼ #/sk Flocele (15.6 ppg, 1.18 ft<sup>3</sup>/sk ~~62~~<sup>124</sup> 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.

**Production 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 132 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 of Class G cement with 5.0 #/sk Gilsonite, and ¼ #/sk Flocele (15.4ppg, 1.18 ft<sup>3</sup>/sk). (433 ft<sup>3</sup> of slurry to circulate to surface, 60% excess). WOC 12hours. **Test casing to 1500 psi for 30 min.**

**Pump a 10 bbls water, 20 bbls gelled water, 5 bbls water spacer ahead of cement**

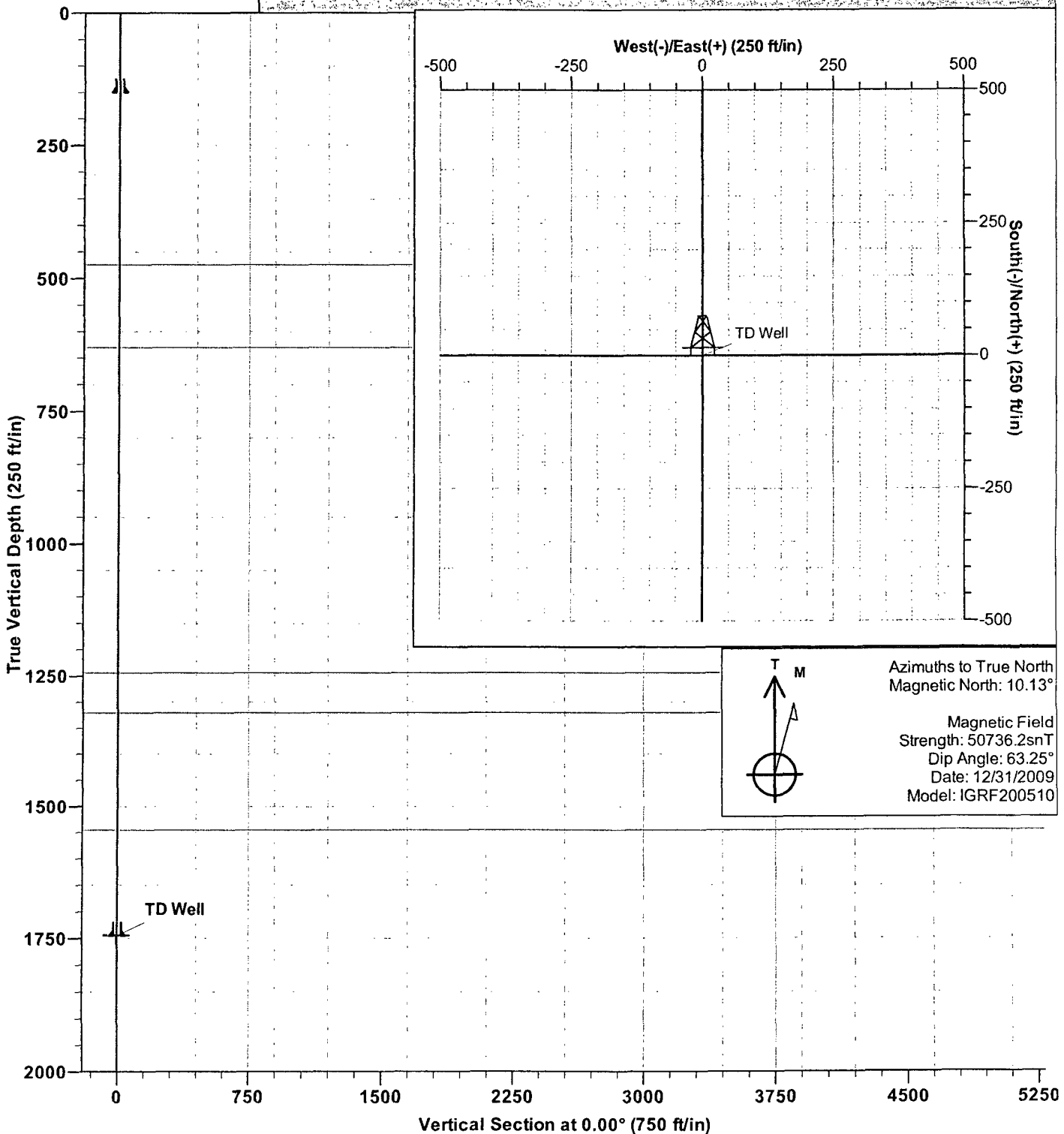
**Cement volumes are subject to change if caliper logs are run and dictate otherwise.**

**OTHER INFORMATION**

- 1) This well will be cased and the Basin Fruitland Coal 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) 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. Anticipated pressure is 300 psi.
- 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	1745.0	0.00	0.00	1745.0	0.0	0.0	0.00	0.00	0.0	TD Well



# Energen

## Survey Report

**Company:** Energen Resources  
**Project:** West Basin Sec. 8-T26N-R11W  
**Site:** NAPI  
**Well:** Western #200S  
**Wellbore:** UPE Coal  
**Design:** Plan #1

**Local Co-ordinate Reference:** Well Western #200S  
**TVD Reference:** KB @ 6240.0ft (KB)  
**MD Reference:** KB @ 6240.0ft (KB)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature  
**Database:** EDM 2003.16 Single User Db

<b>Project</b>	West Basin Sec. 8-T26N-R11W		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	New Mexico Central Zone		

<b>Site</b>	NAPI				
<b>Site Position:</b>		<b>Northing:</b>	2,005,318.38 ft	<b>Latitude:</b>	36° 29' 52.656 N
<b>From:</b>	Lat/Long	<b>Easting:</b>	1,119,750.97 ft	<b>Longitude:</b>	108° 1' 17.112 W
<b>Position Uncertainty:</b>	0.0 ft	<b>Slot Radius:</b>	"	<b>Grid Convergence:</b>	-1.05 °

<b>Well:</b>	Western #200S					
<b>Well Position</b>	<b>+N-S</b>	0.0 ft	<b>Northing:</b>	2,005,318.38 ft	<b>Latitude:</b>	36° 29' 52.656 N
	<b>+E-W</b>	0.0 ft	<b>Easting:</b>	1,119,750.97 ft	<b>Longitude:</b>	108° 1' 17.112 W
<b>Position Uncertainty</b>		0.0 ft	<b>Wellhead Elevation:</b>	6,228.0 ft	<b>Ground Level:</b>	6,228.0 ft

<b>Wellbore</b>	UPE Coal				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination</b>	<b>Dip Angle</b>	<b>Field Strength</b>
	IGRF200510	12/31/2009	(°)	(°)	(nT)
			10.14	63.25	50,736

<b>Design</b>	Plan #1				
<b>Audit Notes:</b>					
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.0	
<b>Vertical Section:</b>	<b>Depth From (TVD)</b>	<b>+N-S</b>	<b>+E-W</b>	<b>Direction</b>	
	(ft)	(ft)	(ft)	(°)	
	0.0	0.0	0.0	0.00	

<b>Survey Tool Program</b>	Date 4/1/2010				
<b>From</b>	<b>To</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
(ft)	(ft)				
0.0	1,745.0	Plan #1 (UPE Coal)	MWD	MWD - Standard	

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N-S (ft)	+E-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00	
475.0	0.00	0.00	475.0	0.0	0.0	0.0	0.00	0.00	0.00	
Ojo Alamo SS										
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00	
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00	
630.0	0.00	0.00	630.0	0.0	0.0	0.0	0.00	0.00	0.00	
Kirtland Sh										
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00	
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00	

# Energen Survey Report

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**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature  
**Database:** EDM 2003.16 Single User Db

### Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,245.0	0.00	0.00	1,245.0	0.0	0.0	0.0	0.00	0.00	0.00
Fruitland Fm									
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,320.0	0.00	0.00	1,320.0	0.0	0.0	0.0	0.00	0.00	0.00
Top Target Coal									
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,545.0	0.00	0.00	1,545.0	0.0	0.0	0.0	0.00	0.00	0.00
Base Target Coal - Pictured Cliffs SS									
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,745.0	0.00	0.00	1,745.0	0.0	0.0	0.0	0.00	0.00	0.00

TD Well

### 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
TD Well - plan hits target - Point	0.00	0.00	1,745.0	0.0	0.0	2,005,318.38	1,119,750.97	36° 29' 52.656 N	108° 1' 17.112 W

### Casing Points

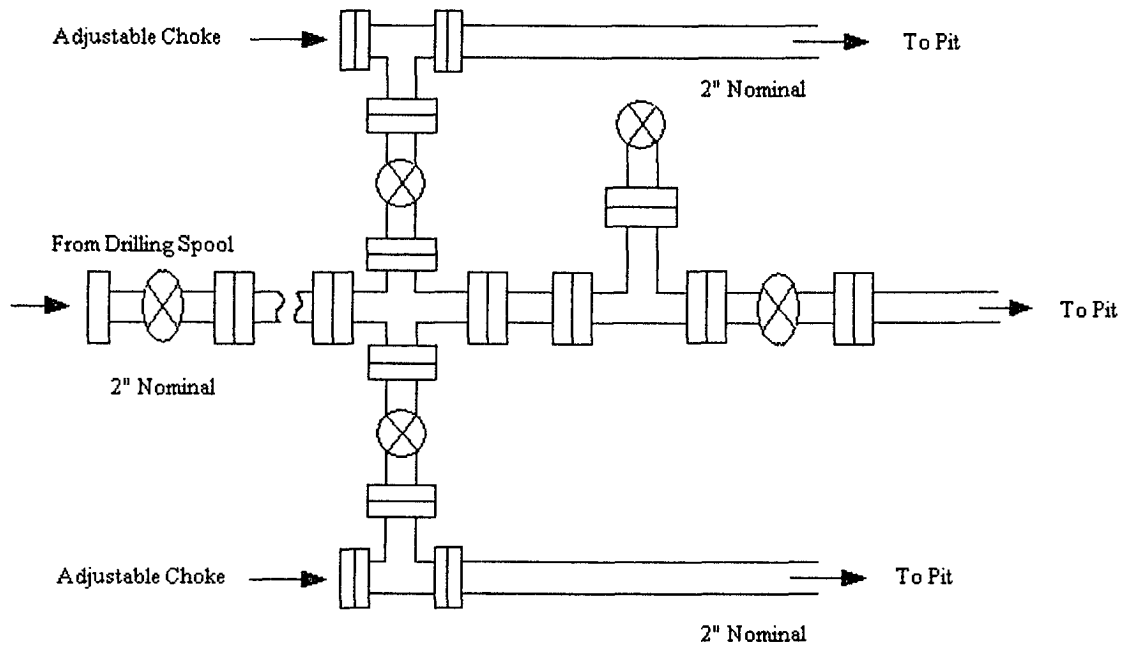
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
150.0	150.0	Surface	8-5/8	12-1/4
1,745.0	1,745.0	Production	5-1/2	7-7/8

### Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,545.0	1,545.0	Base Target Coal		0.00	
475.0	475.0	Ojo Alamo SS		0.00	
1,245.0	1,245.0	Fruitland Fm		0.00	
630.0	630.0	Kirtland Sh		0.00	
1,545.0	1,545.0	Pictured Cliffs SS		0.00	
1,320.0	1,320.0	Top Target Coal		0.00	

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

**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

