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JUN 27 2008

Bureau of Land Management
Farmington Field Office

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

5. Lease Serial No. ~~NMM 68141~~ NMNM54973

1a. Type of Work ☒ DRILL ☐ REENTER

6. If Indian, Allotee or Tribe Name

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

7. Unit or CA Agreement Name and No. NMNM-80045

2. Name of Operator
Energen Resources Corporation

8. Lease Name and Well No.
Quintana Mesa #100R

3a. Address
2010 Afton Place Farmington, New Mexico 87401

3b. Phone No. (include area code)
(505) 325-6800

9. API Well No.
30-039-30552

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

At surface 1955 fnl, 1120 fwl section 33

10. Field and Pool, or Exploratory
Basin Fruitland Coal

At proposed prod. zone 760 fnl, 1000 fwl section 28

11. Sec., T., R., M., or Blk. and Survey or Area
(E) S33, T32N, R5W

14. Distance in miles and direction from nearest town or post office*
Approx. 6.6 miles south southeast of Arboles, CO.

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
760'	160	320.00 cw ~~360.00~~ - 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**
105'	8761' (MD)	NM2707
21. Elevations (Show whether DF, KDB, RT, GL, etc.	**22. Approximate date work will start***	**23. Estimated duration**
6820' GL	7/15/08	30 days

RCVD AUG 26 '08
OIL CONS. DIV.
DIST. 3

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	6/12/08

Title
Drilling Engineer

Approved by (Signautre)	Name (*Printed/Typed*)	Date
/s/ Mankiewicz		8/25/08
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 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)

Hold C104 for Directional Survey and "As Drilled" plat

NOTIFY AZTEC OCD 24 HRS. PRIOR TO CASING & CEMENT

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.

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

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

NMOCD to HOLD C104 FOR Change of Status for BHC

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

SEP 04 2008

RCVD AUG 28 '08
OIL CONS. DIV.
DIST. 3

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., Aztec, N.M. 87410

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

State of New Mexico
Energy, Minerals & Natural Resources Department

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

Form C-102
Revised October 12, 2005

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
30-039-30552	71629	BASIN FRUITLAND COAL

[4] Property Code	[5] Property Name	[6] Well Number
22034	QUINTANA MESA	100 R

[7] OGRID No.	[8] Operator Name	[9] Elevation
162928	ENERGEN RESOURCES CORPORATION	6820'

[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
E	33	32N	5W		1955'	NORTH	1120'	WEST	RIO ARRIBA

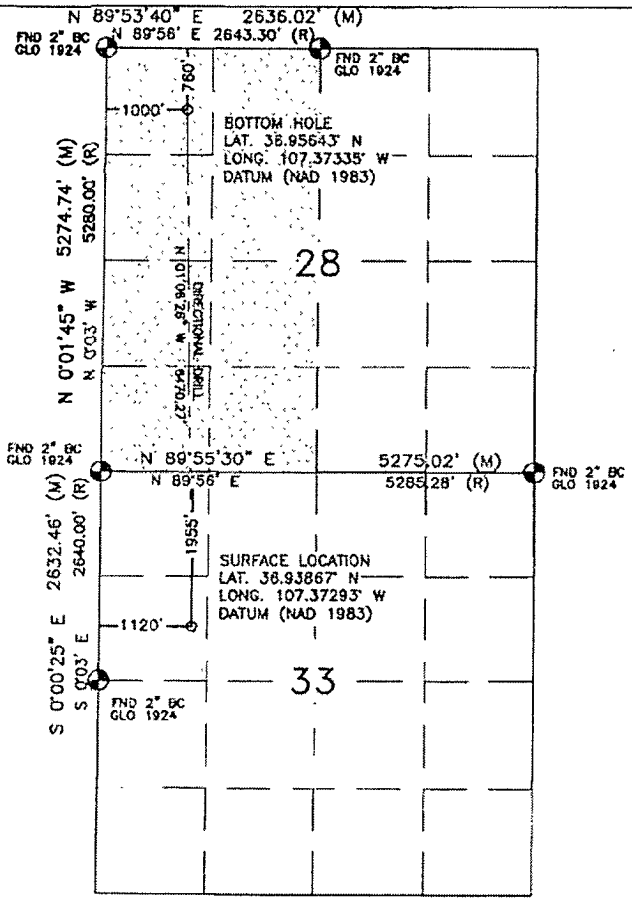
[11] Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	28	32N	5W		760'	NORTH	1000'	WEST	RIO ARRIBA

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
320.00 AC. – W/2			

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, 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.

RCVD AUG 28 '08
OIL CONS. DIV.
DIST. 3

Signature — Date: 8/28/08

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.

APRIL 17, 2008
Date of Survey

Signature and Seal of Professional Surveyor:
David R Russell

DAVID RUSSELL
Certificate Number 10201

Operations Plan
June 12, 2008

Quintana Mesa #100R

General Information

Location	1955 fnl, 1120 fwl at surface, S33 760 fnl, 1000 fwl at bottom, S28 nwsw 28, T32N, R5W Rio Arriba County, New Mexico
Elevations	6820' GL
Total Depth	8761' (MD), 3527' (TVD)
Formation Objective	Basin Fruitland Coal

Formation Tops

San Jose	Surface
Nacimiento	1565' (TVD), 1581' (MD)
Ojo Alamo Ss	2865' (TVD), 3182' (MD)
Kirtland Sh	2975' (TVD), 3362' (MD)
Fruitland Fm	3145' (TVD), 3678' (MD)
Top Coal Interval	3505' (TVD), 4911' (MD)
Base Coal Interval	3527' (TVD)
Total Depth	**3527' (TVD), 8761' (MD)**

Drilling

Surface Wellbore: wellbore will be drilled with spud mud.
Intermediate Wellbore: wellbore will be drilled with a Low Solids Non-Dispersed mud with densities expected to range from 8.8 ppg to 9.2 ppg. Primary weighting and viscosifing additives used will be barite and bentonite.
Production Wellbore: 6 ¼" wellbore will be drilled with produced Fruitland Coal water and brine ($CaCl_2$ or NaCl) water as needed for wellbore control.
Projected KOP is: 650' TVD with 2.00°/100' doglegs. Anticipated BHP is 1200 psi.
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.

Logging Program:

Open hole logs: None
Mud logs: 3000' TVD, 3405' MD to TD
Surveys: Surface to KOP every 500' and a minimum of every 200' for directional.

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	0'-5150' (MD) 0-3515' (TVD)	8 ¾"	7"	26.0 ppf	J-55 LT&C
Prod Liner	3505'-3527' (TVD) 5100'-8761' (MD)	6 ¼"	4 ½"	11.6 ppf	J-55 LT&C
Tubing	0'-5050'(MD)		2 3/8"	4.7 ppf	J-55

Casing Equipment:

Surface Casing: Texas Pattern Guide Shoe on bottom of first joint and an insert float valve on top of first joint. Casing centralization with 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.

Liner: Bull nose guide shoe on bottom of first joint. H-Latch drop off liner hanger tool.

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 Type V with 2.0 % $CaCl_2$ and ¼ #/sk Flocele (15.6 ppg, 1.18 ft^3/sk 206.5 ft^3 of slurry to circulate to surface). WOC 12 hours. Pressure test surface casing to 750 psi for 30 min. Nipple up BOP after WOC. Test BOP to 250 psi low, 1500 psi high for 15 min each. Test choke manifold to 1500 psi for 30 min.

Intermediate Casing: Depending on wellbore conditions, cement may consist of 725 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 150 sks Class G with ¼ #/sk Flocele (15.6 ppg, 1.18 ft^3/sk). (1576 ft^3 of slurry to circulate to surface). Other additves will be used as necessary. WOC 12 hours. Test casing to 1200 psi for 30 min. Test BOP to 250 psi low, 1500 psi high for 15 min each. Test choke manifold to 1500 psi for 30 min.

Production Liner: NO CEMENT, Open Hole Completion

****Cement volumes subject to change if caliper logs are ran****

Other Information

1) This well will be an open hole completion lined with an uncemented pre-drilled liner. The Otero portion of the Lewis Shale will be fracture stimulated.
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: NW Sec 28, T32N, R6W
Site: Eul Canyon
Well: Quintana Mesa #100R
Wellbore: Preliminary Plan
Plan: Plan #1 (Quintana Mesa #100R/Preliminary Plan)

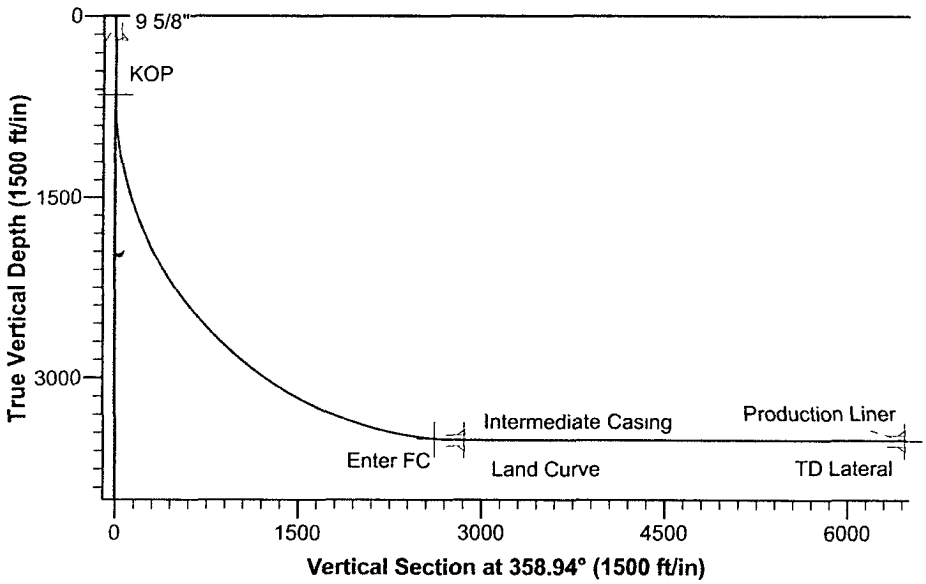
PROJECT DETAILS: NW Sec 28, T32N, R6W	
Geodetic System:	US State Plane 1983
Datum:	North American Datum 1983
Ellipsoid:	GRS 1980
Zone:	New Mexico Central Zone
System Datum:	Mean Sea Level

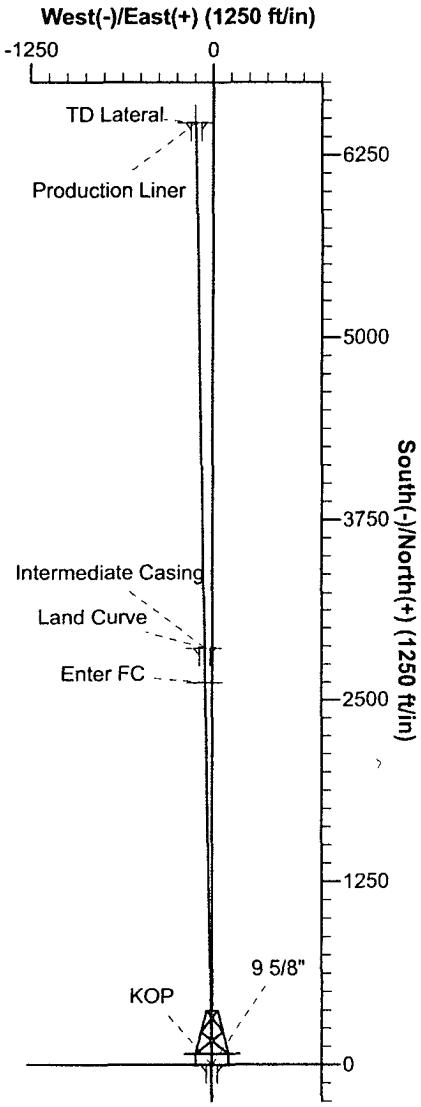
Azimuths to True North
Magnetic North: 10.11°

Magnetic Field
Strength: 51221.2snT
Dip Angle: 63.79°
Date: 6/11/2008
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	650.0	0.00	0.00	650.0	0.0	0.0	0.00	0.00	0.0	KOP
3	4910.9	85.21	358.94	3505.0	2625.4	-48.6	2.00	358.94	2625.8	Enter FC
4	5150.3	90.00	358.95	3515.0	2864.5	-53.0	2.00	0.15	2865.0	Land Curve
5	8761.4	90.00	358.92	3515.0	6475.0	-120.0	0.00	-86.89	6476.1	TD Lateral





Energen

Planned Wellpath

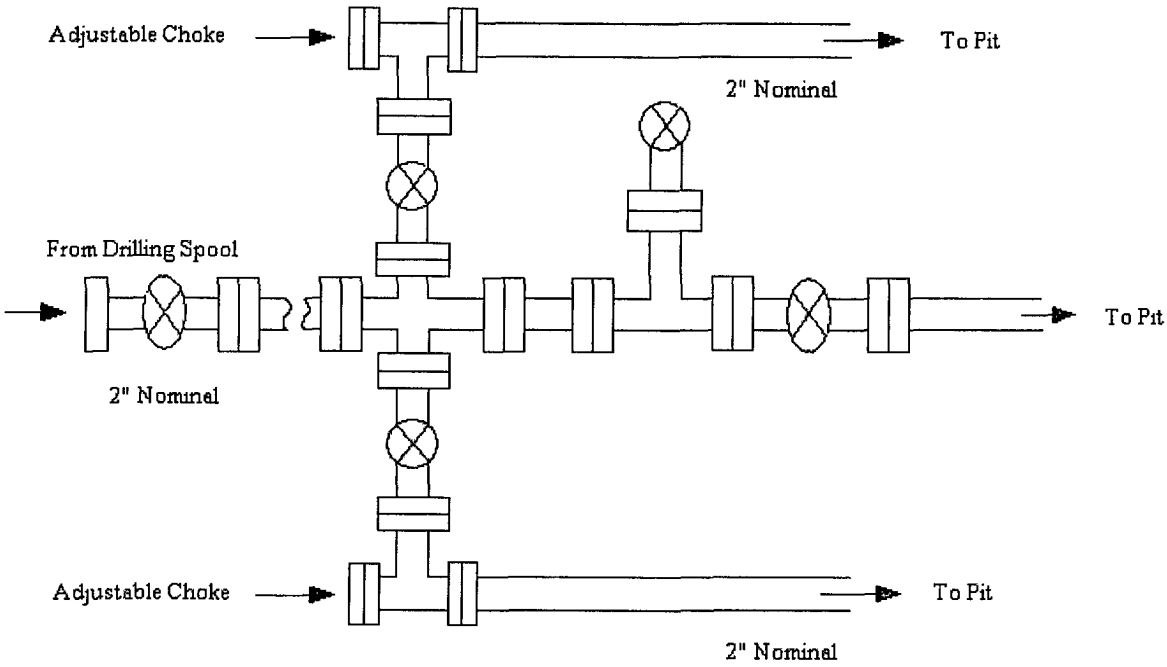
Company:	SJ BR	**Local Co-ordinate Reference:**	Well Quintana Mesa #100R
Project:	NW Sec 28, T32N, R6W	**TVD Reference:**	KB @ 6835.0ft (Drilling Rig)
Site:	Eul Canyon	**MD Reference:**	KB @ 6835.0ft (Drilling Rig)
Well:	Quintana Mesa #100R	**North Reference:**	True
Wellbore:	Preliminary Plan	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #1	**Database:**	EDM 2003.16 Single User Db

Planned Survey

MD (ft)	TVD (ft)	Inc (°)	Azi (°)	Build (°/100ft)	V. Sec (ft)	N/S (ft)	E/W (ft)
1,000.0	999.1	7.00	358.94	2.00	21.4	21.3	-0.4
1,100.0	1,098.2	9.00	358.94	2.00	35.3	35.3	-0.7
1,200.0	1,196.6	11.00	358.94	2.00	52.6	52.6	-1.0
1,300.0	1,294.4	13.00	358.94	2.00	73.4	73.4	-1.4
1,400.0	1,391.5	15.00	358.94	2.00	97.6	97.6	-1.8
1,500.0	1,487.6	17.00	358.94	2.00	125.2	125.1	-2.3
1,600.0	1,582.7	19.00	358.94	2.00	156.1	156.0	-2.9
1,700.0	1,676.7	21.00	358.94	2.00	190.3	190.2	-3 5
1,800.0	1,769.4	23.00	358.94	2.00	227.7	227.7	-4.2
1,900.0	1,860.7	25.00	358 94	2.00	268.4	268.3	-5.0
2,000.0	1,950 6	27.00	358.94	2.00	312.2	312 2	-5.8
2,100.0	2,038.9	29.00	358.94	2.00	359.2	359.1	-6.6
2,200.0	2,125 5	31.00	358.94	2.00	409.2	409.1	-7.6
2,300.0	2,210.3	33.00	358.94	2.00	462.1	462.1	-8.6
2,400.0	2,293.2	35.00	358.94	2.00	518.1	518.0	-9.6
2,500.0	2,374 1	37.00	358.94	2.00	576.8	576.7	-10 7
2,600.0	2,452.9	39.00	358.94	2.00	638.4	638.3	-11.8
2,700.0	2,529.5	41.00	358.94	2.00	702.7	702.5	-13.0
2,800.0	2,603.8	43.00	358.94	2.00	769.6	769.4	-14.2
2,900.0	2,675.7	45.00	358.94	2.00	839.0	838.9	-15.5
3,000.0	2,745.2	47.00	358.94	2.00	910.9	910.8	-16.9
3,100.0	2,812.1	49.00	358.94	2.00	985.3	985.1	-18.2
3,200.0	2,876.4	51 00	358.94	2.00	1,061.9	1,061.7	-19.7
3,300.0	2,938.0	53.00	358.94	2.00	1,140.6	1,140.4	-21.1
3,400.0	2,996.8	55.00	358.94	2.00	1,221.5	1,221 3	-22.6
3,500.0	3,052.7	57.00	358.94	2.00	1,304.4	1,304.2	-24.1
3,600.0	3,105.7	59.00	358.94	2.00	1,389.2	1,389.0	-25.7
3,700.0	3,155.7	61.00	358.94	2.00	1,475.8	1,475.6	-27.3
3,800.0	3,202.6	63.00	358.94	2.00	1,564.1	1,563.8	-28.9
3,900.0	3,246.5	65.00	358.94	2.00	1,654.0	1,653.7	-30.6
4,000.0	3,287.1	67.00	358.94	2.00	1,745.3	1,745 0	-32.3
4,100.0	3,324.6	68.99	358.94	2.00	1,838.0	1,837.7	-34.0
4,200.0	3,358.8	70.99	358.94	2.00	1,932.0	1,931.7	-35.8
4,300.0	3,389.7	72.99	358.94	2.00	2,027.1	2,026.8	-37.5
4,400.0	3,417.3	74.99	358.94	2.00	2,123.2	2,122.9	-39.3
4,500.0	3,441.5	76.99	358.94	2.00	2,220.2	2,219.9	-41.1
4,600.0	3,462.3	78.99	358.94	2.00	2,318.0	2,317.7	-42.9
4,700.0	3,479.7	80.99	358.94	2.00	2,416.5	2,416.1	-44.7
4,800.0	3,493.6	82.99	358.94	2.00	2,515.5	2,515.1	-46.6
4,900.0	3,504.1	84.99	358.94	2.00	2,615.0	2,614 5	-48.4
4,910.9	3,505 0	85.21	358.94	2.00	2,625.8	2,625.4	-48.6
Enter FC							
5,000.0	3,511.1	86.99	358.94	2.00	2,714.7	2,714 3	-50.2
5,100.0	3,514.6	88.99	358.95	2.00	2,814.7	2,814.2	-52.1

Energen Resources Corporation

Typical 2000 psi Choke Manifold Configuration



Choke manifold installed from surface to TD