

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB NO. 1004-0137
Expires March 31, 2007

RECEIVED
FEB 11 2008
Bureau of Land Management
Farmington Field Office

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of Work <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. NM30015
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	3b. Phone No. (include area code) (505) 325-6800	8. Lease Name and Well No. Carracas 18 B #1
4. Location of Well (Report location clearly and in accordance with any State requirements)* At surface 570 fsl, 1705 fel At proposed prod zone 760 fml, 760 fel		9. API Well No. 30-039-30483
14. Distance in miles and direction from nearest town or post office* Approx. 9 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) 570'		11. Sec., T., R., M., or Blk. and Survey or Area (O) Sec 18, T32N, R4W
16. No. of Acres in lease 2482.20		12. County or Parish Rio Arriba
17. Spacing Unit dedicated to this well 320 E/2 - 299.72 acres		13. State NM
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 75'		20. BLM/BIA Bond No. on file
19. Proposed Depth 7027' (MD)		
21. Elevations (Show whether DF, KDB, RT, GL, etc) 7329' GL	22. Approximate date work will start* 9/25/08	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. | 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 shall be filed with the appropriate Forest Service Office) | 6. Such other site specific information and/or plans as may be required by the authorized officer. |

25. Signature 	Name (Printed/Typed) Nathan Smith	Date 1/30/08
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Approved by (Signature) 	Name (Printed/Typed) AF-11	Date 10/21/08
Title Drilling Engineer	Office FFD	

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)

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

**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

Hold C104
for Directional Survey
and "As Drilled" plat

NMOCD OCT 24 2008

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, 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

Form C-102
Revised October 12, 2005

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

RCVD AUG 25 '08

☐ AMENDED REPORT

OIL CONS. DIV.
DIST. 3

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-039-30483		² Pool Code 71629	³ Pool Name Basin Fruitland Coal
⁴ Property Code 35658	⁵ Property Name CARRACAS 18 B		⁶ Well Number 1
⁷ GRID No. 162928	⁸ Operator Name ENERGEN RESOURCES CORPORATION		⁹ Elevation 7329'

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
0	18	32N	4W		570'	SOUTH	1705'	EAST	RIO ARRIBA

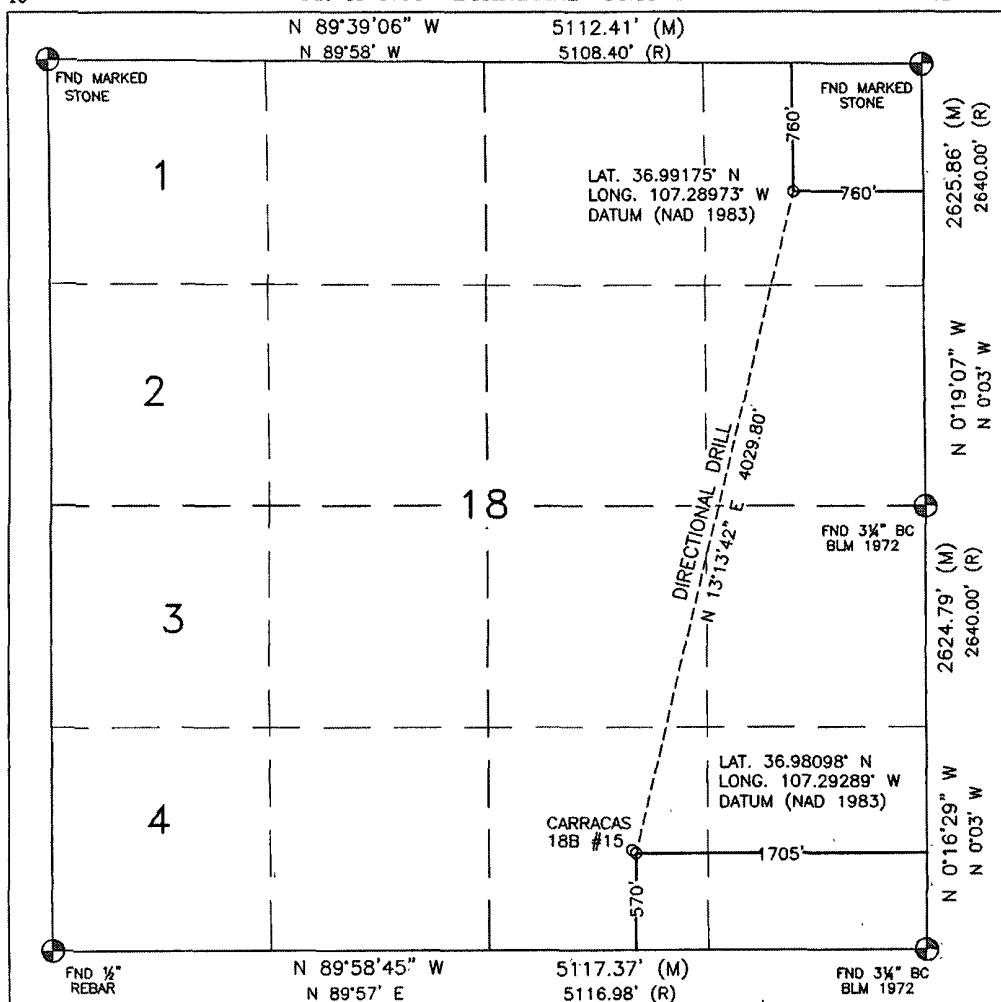
¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	18	32N	4W		760'	NORTH	760'	EAST	RIO ARRIBA

¹² Dedicated Acres	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.

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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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 8/22/08
Signature Date

Nathan Smith
Printed Name

¹⁸ SURVEYOR CERTIFICATION

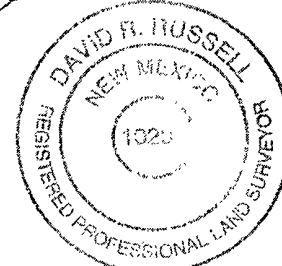
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

AUGUST 23, 2007

Date of Survey

Signature and Seal of Professional Surveyor:

David R. Russell



DAVID RUSSELL

Certificate Number 10201

Operations Plan

January 30, 2008

Carracas18 B #1

General Information

Location	570' fsl, 1705' fel at surface 760' fnl, 760' fel at bottom T32N, R4W Rio Arriba County, New Mexico
Elevations	7329' GL
Total Depth	7027' (MD), 3918' (TVD)
Formation Objective	Basin Fruitland Coal

Formation Tops

San Jose	Surface
Nacimiento	2109' (TVD), 2110' (MD)
Ojo Alamo Ss	3398' (TVD), 3618' (MD)
Kirtland Sh	3523' (TVD), 3823' (MD)
Fruitland Fm	3622' (TVD), 4007' (MD)
Top Coal	3894' (TVD), 4893' (MD)
Bottom Coal	3918' (TVD)
Total Depth	3918' (TVD), 7027' (MD)

Drilling

The 12 1/4" wellbore will be drilled with a fresh water mud system.

The 8 3/4" 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 1782' TVD with 2.70°/100' doglegs.

The 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.

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 3622' (TVD), 4007' (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'-3906' (TVD) 5175' (MD)	8 3/4"	7"	23.0 ppf	J-55 LT&C
Production	3894'-3918' (TVD) 5125'-7027' (MD)	6 1/4"	4 1/2"	11.6 ppf	J-55 LT&C
Tubing	0'-5100' (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 730 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). (1556ft³ of slurry, 100 % excess to circulate to surface). Test casing to 1200 psi for 30 min.

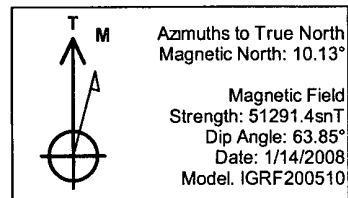
Other Information

- 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.

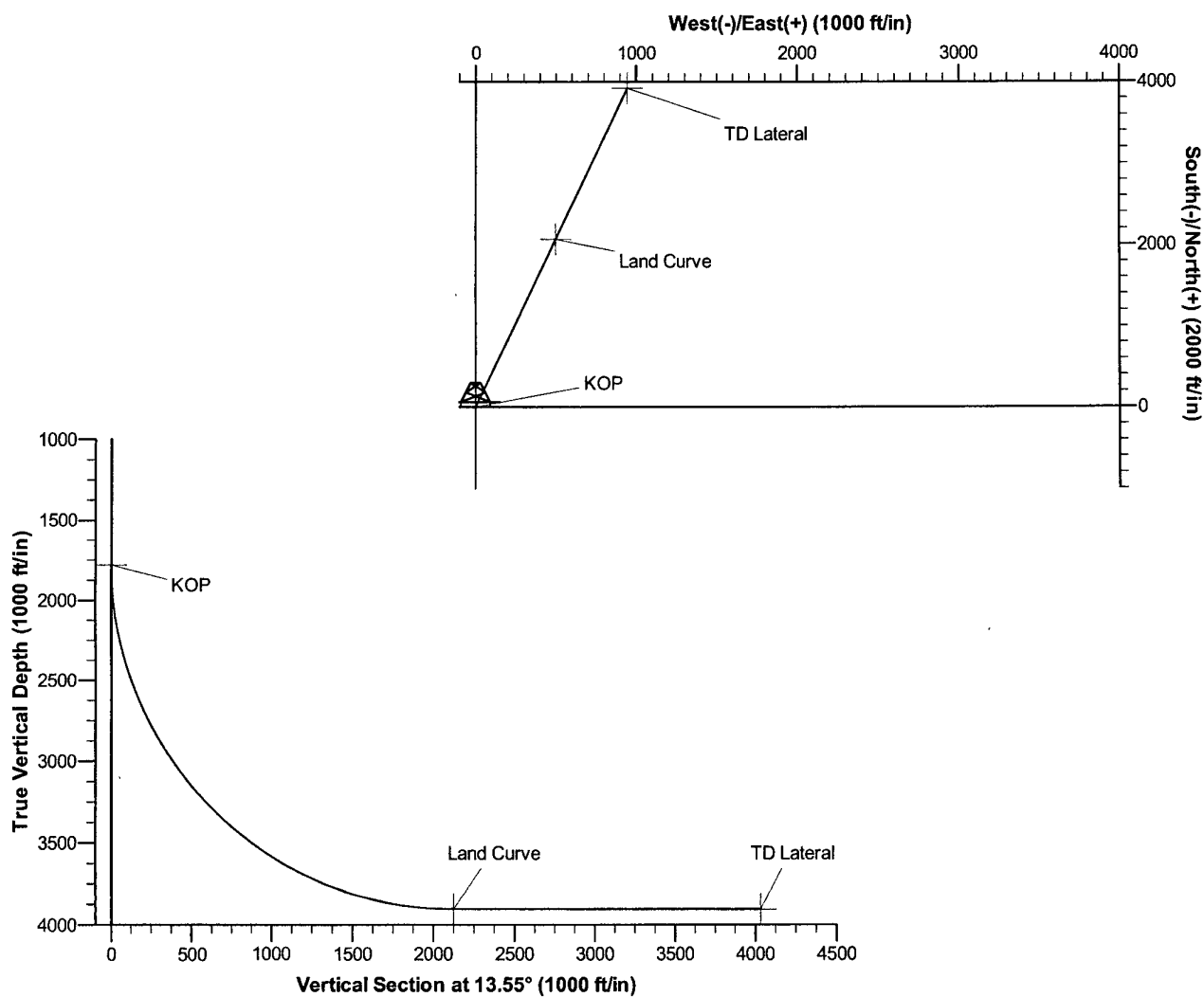


Project: Carson Natl Forest - S18, T32N, 4W
Site: Carracas Mesa
Well: Carracas 18 B #1
Wellbore: Horizontal Completion
Plan: Preliminary Plan (Carracas 18 B #1/Horizontal Completion)

PROJECT DETAILS: Carson Natl Forest - S18, T32N, 4W										
Geodetic System: US State Plane 1983										
Datum: North American Datum 1983										
Ellipsoid: GRS 1980										
Zone: New Mexico Central Zone										
System Datum: Mean Sea Level										



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	1781.7	0.00	0.00	1781.7	0.0	0.0	0.00	0.00	0.0	KOP
3	5118.6	90.00	13.55	3906.0	2065.2	497.7	2.70	13.55	2124.3	Land Curve
4	7027.2	90.00	13.55	3906.0	3920.7	944.9	0.00	0.00	4033.0	TD Lateral



Energen

Plan Design

Company:	Energen Resources	Local Co-ordinate Reference:	Well Carracas 18 B #1
Project:	Carson Natl Forest - S18, T32N, 4W	TVD Reference:	KB @ 7346.0ft (Drilling Rig)
Site:	Carracas Mesa	MD Reference:	KB @ 7346.0ft (Drilling Rig)
Well:	Carracas 18 B #1	North Reference:	True
Wellbore:	Horizontal Completion	Survey Calculation Method:	Minimum Curvature
Design:	Preliminary Plan	Database:	EDM 2003.16 Single User Db

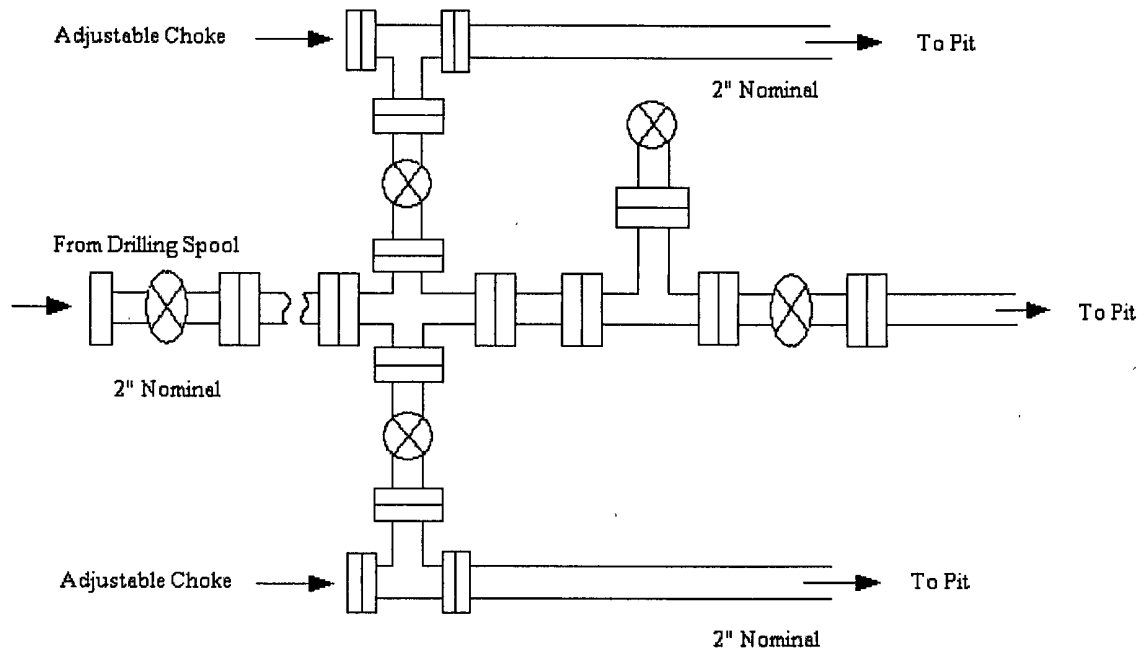
Targets									
Target Name	hit/miss target	Dip Angle (°)	Dip Dir (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (m)	Easting (m)	Latitude Longitude
KOP	- plan hits target - Point	0.00	0.00	1,781.7	0.0	0.0	663,867.84	407,155.36	36° 58' 51.528 N 107° 17' 34.404 W
Land Curve	- plan hits target - Point	0.00	0.00	3,906.0	2,065.2	497.7	664,495.62	407,313.94	36° 59' 11.947 N 107° 17' 28.270 W
TD Lateral	- plan hits target - Point	0.00	0.00	3,906.0	3,920.7	944.9	665,059.65	407,456.43	36° 59' 30.293 N 107° 17' 22.757 W

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,007.5	3,622.0	Fruitland		0.00		
	3,918.0	Bottom Main Coal		0.00		
4,892.6	3,894.0	Top Main Coal		0.00		
2,110.3	2,109.0	Nacimiento		0.00		
3,822.9	3,523.0	Kirtland		0.00		
3,618.5	3,398.0	Ojo Alamo		0.00		

Checked By: _____	Approved By: _____	Date: _____
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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

