


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

| | | |
|--|--|---|
| 1a. Type of Work <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER | | 5. Lease Serial No. NM 28277 |
| 1b. Type of Well <input type="checkbox"/> Oil Well <input checked="" type="checkbox"/> Gas Well <input type="checkbox"/> Other <input checked="" 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 2198 Bloomfield Highway Farmington, New Mexico 87401 | 3b. Phone No. (include area code) (505) 325-6800 | 8. Lease Name and Well No. Carracas 20B #1 |
| 4. Location of Well (Report location clearly and in accordance with any State requirements)* At surface 1115' fnl, 1400' fw1 (C) S20 T32N R4W At proposed prod. zone 760' fnl, 760' fel (A) S20 T32N R4W | | 9. API Well No. 30-039-29895 |
| 14. Distance in miles and direction from nearest town or post office* 8.25 miles southeast 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) 1115' | 16. No. of Acres in lease 2525.47 | 11. Sec., T., R., M., or Blk. and Survey or Area C Sec. 20, T32N, R4W, N.M.P.M. |
| 18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 75' | 19. Proposed Depth 4200' (TVD), 7135' (MD) | 12. County or Parish Rio Arriba |
| 21. Elevations (Show whether DF, KDB, RT, GL, etc.) 7391' GL | 22. Approximate date work will start* 8/1/06 | 13. State NM |
| 17. Spacing Unit dedicated to this well N/2 | | 20. BLM/BIA Bond No. on file RCVD APR10'07 OIL CONS. DIV. |
| 23. Estimated duration 30 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 5/4/06 |
| Title Drilling Engineer | | |
| Approved by (Signature) Original Signed: Stephen Mason | Name (Printed/Typed) | Date JUN 21 2006 |
| Title | Office | |

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)

HOLD C104 FOR **directional survey**
2. Change in Status to Carracas 20B #3 (after survey review)

NOTIFY AZTECO GCD 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".

NMOC

4/11/07

District I
PO Box 1980, Hobbs, NM 88241-1980

District II
PO Drawer DD, Artesia, NM 88211-0719

District III
1000 Rio Brazos Rd., Aztec, NM 87410

District IV
PO Box 2088, Santa Fe, NM 87504-2088

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

Form C-102
Revised February 21, 1994
Instructions on back
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

RCVD APR10'07

OIL CONS. DIV.
DIST. 3

| | | | |
|------------------------------------|---|---------------------|------------------------------------|
| *API Number 30-039-29895 | | *Pool Code 71629 | *Pool Name BASIN FRUITLAND COAL |
| *Property Code 35659 | *Property Name CARRACAS 20B | | *Well Number 20B 1 |
| *GRID No. 162928 | *Operator Name ENERGEN RESOURCES CORPORATION | | *Elevation 7391' |

¹⁰ Surface Location

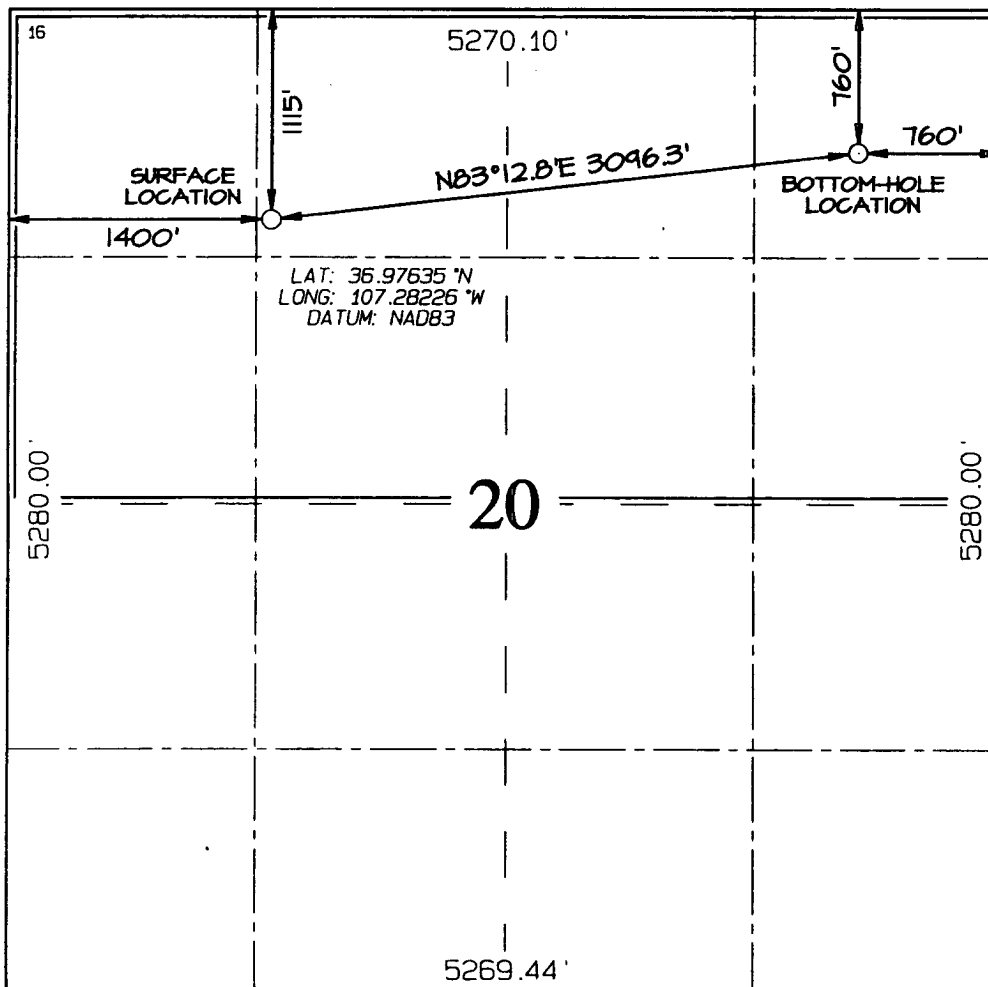
| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---------------|---------|----------|-------|---------|---------------|------------------|---------------|----------------|------------|
| C | 20 | 32N | 4W | | 1115 | NORTH | 1400 | 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 |
|---------------|---------|----------|-------|---------|---------------|------------------|---------------|----------------|------------|
| A | 20 | 32N | 4W | | 760 | NORTH | 760 | EAST | RIO ARriba |

| | | | |
|--|-------------------------------|----------------------------------|-------------------------|
| ¹² Dedicated Acres 320.0 Acres - (N/2) | 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



¹⁷ OPERATOR CERTIFICATION

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

Nathan Smith
Signature

Nathan Smith
Printed Name

Drilling Engineer
Title

5/4/06
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

Survey Date: FEBRUARY 23, 2006

Signature and Seal of Professional Surveyor



JASON C. EDWARDS
Certificate Number 15269

Submit 3 Copies To Appropriate District
Office
District I
1625 N. French Dr., Hobbs, NM 87240
District II
1301 W. Grand Ave., Artesia, NM 88210
District III
1000 Rio Brazos Rd., Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources

Form C-103
May 27, 2004

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

WELL API NO.

5. Indicate Type of Lease

STATE ☐ FEE ☐

6. State Oil & Gas Lease No.

7. Lease Name or Unit Agreement Name:
Carracas 20B

8. Well Number

1

9. OGRID Number

162928

10. Pool name or Wildcat
Basin Fruitland Coal

SUNDRY NOTICES AND REPORTS ON WELLS

(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)

1. Type of Well:

Oil Well ☐ Gas Well ☒ Other

2. Name of Operator

Energen Resources Corporation

3. Address of Operator

2198 Bloomfield Highway, Farmington, NM 87401

4. Well Location

Unit Letter C : 1115 feet from the North line and 1400 feet from the West line

Section 20 Township 32N Range 04W NMPM County Rio Arriba

11. Elevation (Show whether DR, RKB, RT, GR, etc.)
7391' GL

Pit or Below-grade Tank Application ☒ or Closure ☐

Pit type Drill Depth to Groundwater >100' Distance from nearest fresh water well >1000' Distance from nearest surface water >250'

Pit Liner Thickness: 12 mil Below-Grade Tank: Volume _____ bbls; Construction Material _____

12. Check Appropriate Box to Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:

PERFORM REMEDIAL WORK ☐ PLUG AND ABANDON ☐

TEMPORARILY ABANDON ☐ CHANGE PLANS ☐

PULL OR ALTER CASING ☐ MULTIPLE COMPLETION ☐

OTHER: Build drilling pit ☒

SUBSEQUENT REPORT OF:

REMEDIAL WORK ☐ ALTERING CASING ☐

COMMENCE DRILLING OPNS. ☐ PLUG AND ABANDONMENT ☐

CASING TEST AND CEMENT JOB ☐

OTHER: ☐

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 1103. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

Energen Resources plans to build a lined pit according to "OCD Pit and Below-grade Tank Guidelines", as issued on November 1, 2004. Energen anticipates the submittal of a C-144 for closure of this pit in accordance with BLM and "OCD Pit and Below-grade Tank Guidelines".

I hereby certify that the information above is true and complete to the best of my knowledge and belief. I further certify that any pit or below-grade tank has been/will be constructed or closed according to NMOCD guidelines ☒ , a general permit ☐ or an (attached) alternative OCD-approved plan ☐

SIGNATURE Nathan Smith TITLE Drilling Engineer DATE 05/04/06

E-mail address: nsmith@energen.com
Telephone No. 505.325.6800

Type or print name Nathan Smith

For State Use Only

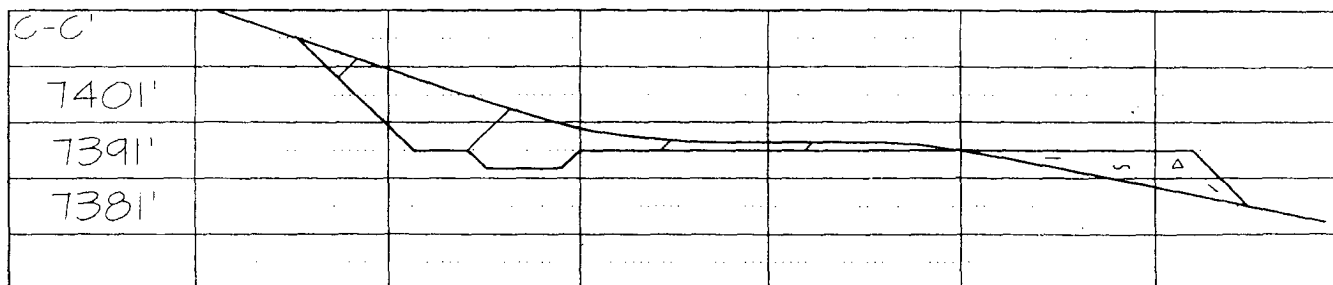
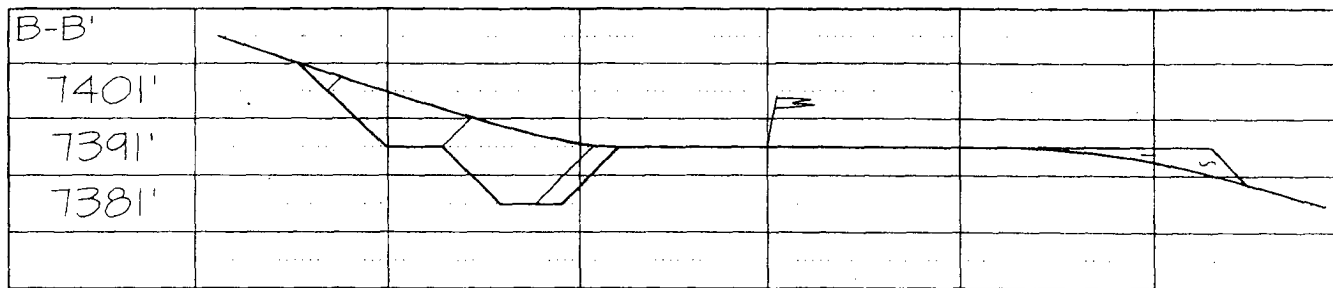
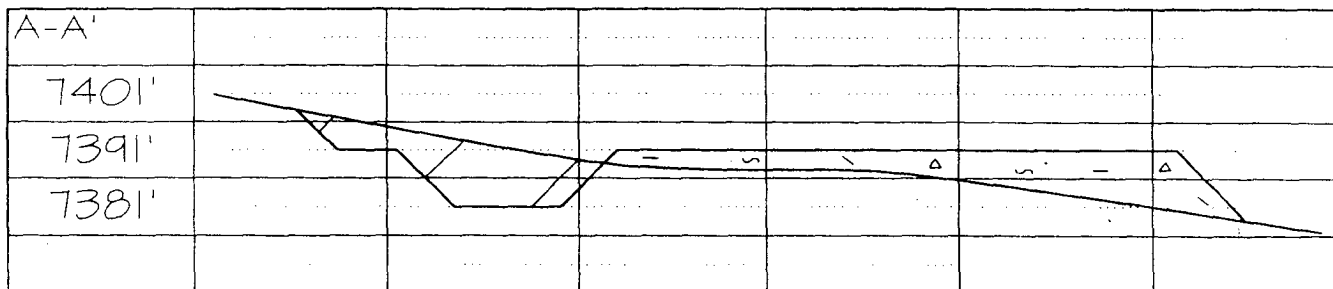
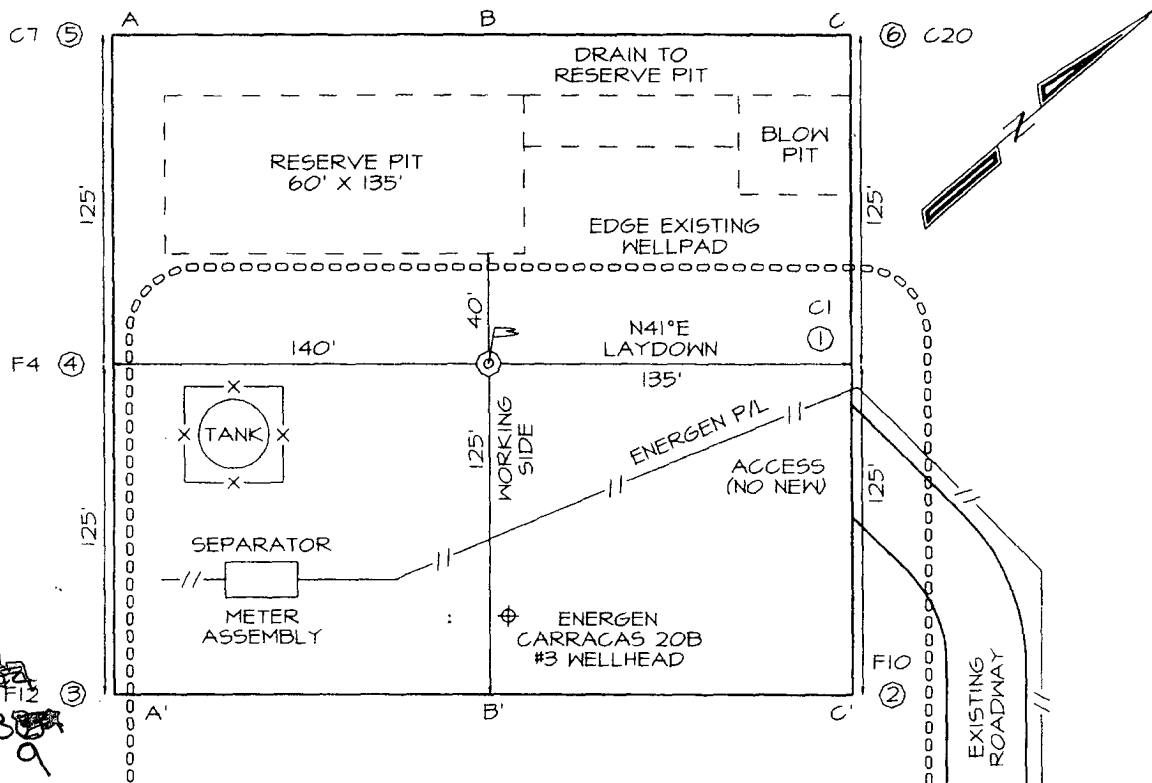
APPROVED BY [Signature] TITLE DEPUTY OIL & GAS INSPECTOR, DIST. 4 DATE APR 11 2007

Conditions of Approval, if any:

ENERGEN RESOURCES CORPORATION CARRACAS 20B #1
1115' FNL 1400' FWL, SECTION 20, T32N, R10W, NMPM
RIO ARriba COUNTY, NEW MEXICO GROUND ELEVATION: 7391'

LATITUDE: 36.97635° N
 LONGITUDE: 107.28226° W
 DATUM: NAD1983

36.97635
 107.28226
 9



Operations Plan

May 4, 2006

Carracas 20B #1

General Information

| | |
|---------------------|---|
| Location | 1115' fnl, 1400' fwl at surface 760' fnl, 760' fel at bottom nenw S20, T32N, R5W Rio Arriba County, New Mexico |
| Elevations | 7391' GL |
| Total Depth | 7135' (MD), 4200' (TVD) |
| Formation Objective | Basin Fruitland Coal |

Formation Tops

| | |
|--------------------|--------------------------------|
| San Jose | Surface |
| Nacimiento | 2386' (TVD) |
| Ojo Alamo Ss | 3491' (TVD) |
| Kirtland Sh | 3646' (TVD) |
| Fruitland Fm | 3996' (TVD), 4050' (MD)** |
| Top Coal | 4181' (TVD), 4385' (MD)** |
| Bottom Coal | 4205' (TVD) |
| Total Depth | 4200' (TVD), 7135' (MD) |
| Pictured Cliffs Ss | 4210' (TVD) |

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 3723' TVD with 12°/100' doglegs. Build may change depending on well pumping method.

The 6 ¼" wellbore will be drilled with a fresh water or brine water system depending on reservoir characteristics.

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: Gamma Ray and from 3984' (TVD), 4000' (MD) to 4200' (TVD), 4575' (MD). Gamma Ray from 4200' (TVD), 4575' (MD) to total depth.

Mud logs: From 3800' (TVD), 3800' (MD) to TD

Surveys: Surface and a minimum of every 250' for directional or 500' up to kickoff point

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'-4200' (TVD) 4575' (MD) | 8 3/4" | 7" | 23.0 ppf | J-55 LT&C |
| Production | 4181'-4200' (TVD) 4545'-7135' (MD) | 6 1/4" | 4 1/2" | 11.6 ppf | J-55 LT&C |
| Tubing | 0'-4540' | | 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 625 sks 65/35 Std (class B) 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 Sts (class B) with 1/4 #/sk Flocele (15.6 ppg, 1.18 ft³/sk). (1380 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.

PATHFINDER

Energen Resources Corporation
2198 Bloomfield Hwy
Farmington, NM 87401

Calculation Method: Minimum Curvature
Error System: Systematic Ellipse
Scan Method: Closest Approach 3D
Error Surface: Elliptical Conic
Warning Method: Error Ratio

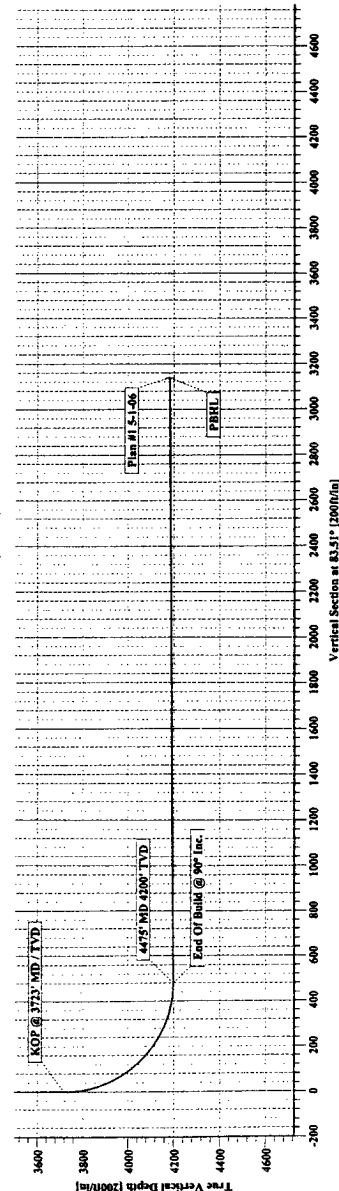
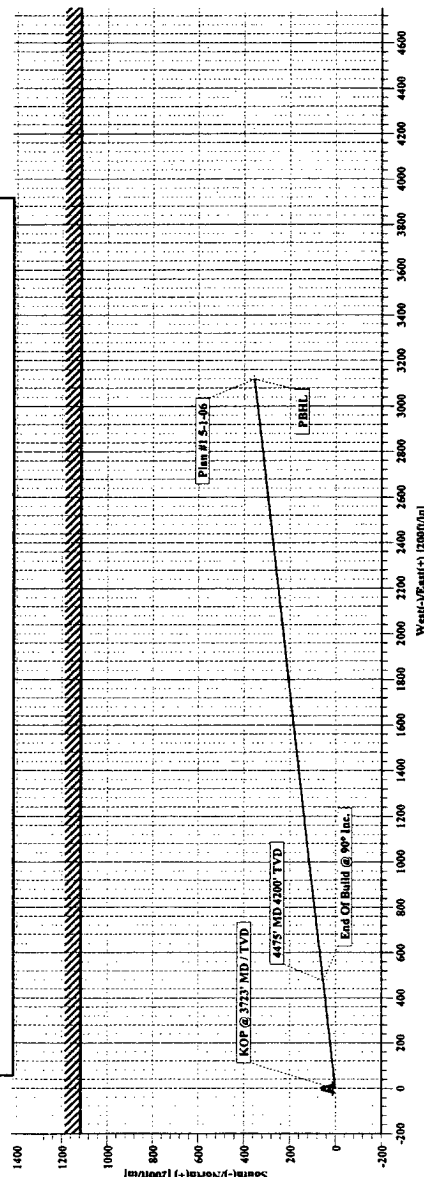
Site: Carracas 20B-1

Well: Carracas 20 B-1

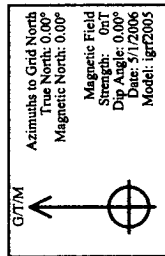
Wellpath: Original Hole

Plan: Plan #1 5-1-06

| SECTION DETAILS | | | | | | | | | | |
|-----------------|---------|-------|-------|---------|--------|---------|-------|-------|---------|--------|
| Sec | MD | Inc | Azi | TVD | +N/S | +E/W | DLeg | TFace | VSec | Target |
| 1 | 0.00 | 0.00 | 83.51 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 2 | 3722.61 | 0.00 | 83.51 | 3722.61 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 3 | 4475.49 | 90.35 | 83.51 | 4200.06 | 54.30 | 477.27 | 12.00 | 83.51 | 480.35 | PBHL |
| 4 | 7135.32 | 90.35 | 83.51 | 4184.00 | 355.00 | 3120.00 | 0.00 | 0.00 | 3140.13 | PBHL |



| ANNOTATIONS | |
|-------------|---------------------------------|
| No. | MD Annotation |
| 1 | 3723.00 KOP @ 3723' MD / TVD |
| 2 | 4200.06 End of Build @ 90° Inc. |
| 3 | 4200.06 4475.00 MD 4200' TVD |



| WELLPATH DETAILS | | | | |
|------------------|-------------|----------------|-------------------|------|
| | | Original Hole | | |
| Rig: | Ref. Datum: | Mean Sea Level | 0.00R | |
| V. Section Angle | Origin +N/S | Origin +E/W | Starting From TVD | 0.00 |
| 83.51° | 0.00 | 0.00 | 0.00 | 0.00 |

SITE DETAILS

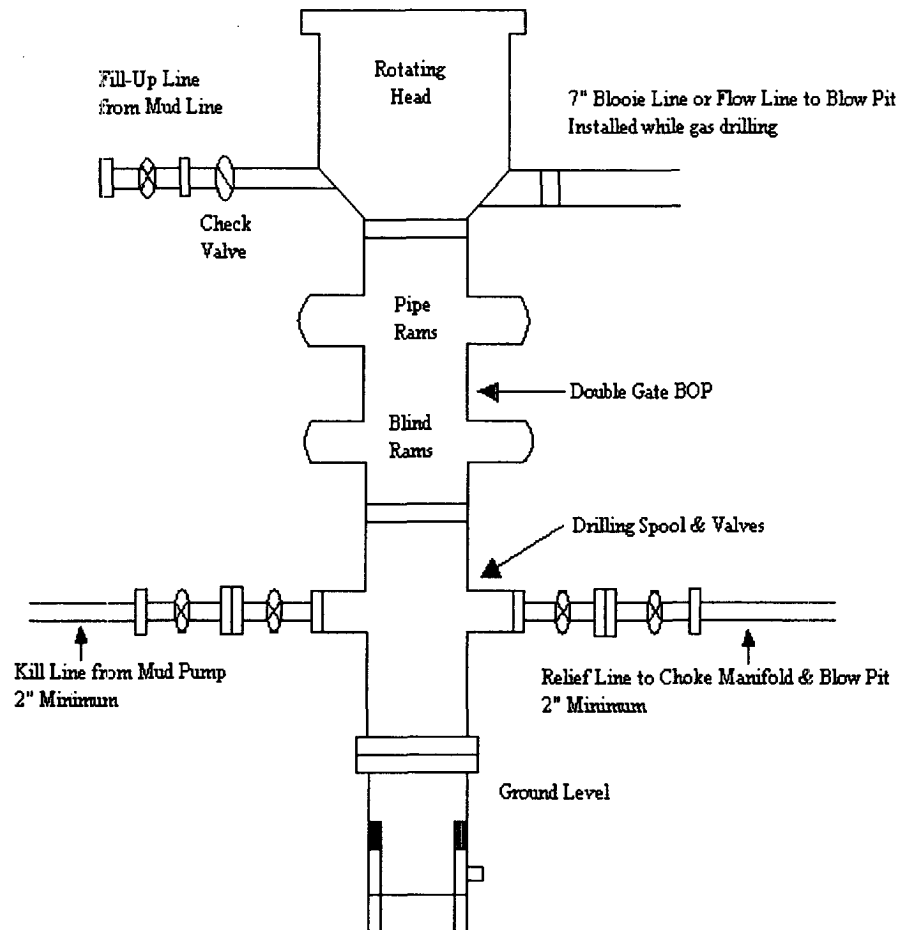
Carracas 20B-1
Eddy County, New Mexico
760' FNL 760'FEL Section 20; T32N; R4W

Ground Level: 7391.00
Positional Uncertainty: 0.00
Convergence: 0.00

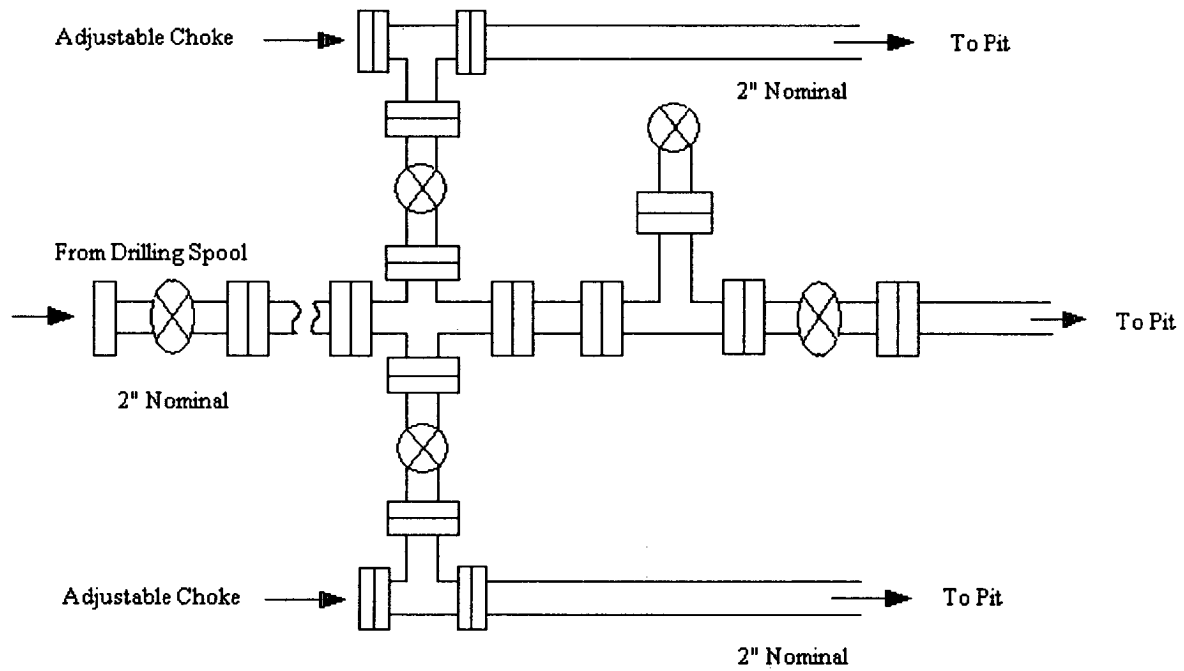
| WELLPATH DETAILS | | | | |
|------------------|--------------|----------------|-------|-------------------|
| Original Hole | | Mean Sea Level | | |
| Rig: | | | | 0.00R |
| Ref. Datum: | | | | Starting From TYD |
| V. Section Angle | Origin +N/-S | Origin | +E/-W | |
| 83.51° | 0.00 | 0.00 | 0.00 | 0.00 |

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