

HOBBS OGD

ATS-14-816

FORM APPROVED  
OMB No. 1004-0137  
Expires October 31, 2014

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

JUN 06 2016

RECEIVED

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. NMNM 129262	
1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input 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 (162928) ✓		7. If Unit or CA Agreement, Name and No.	
3a. Address 3300 N. A St. Bldg 4 Ste 100 Midland TX 79705		8. Lease Name and Well No. COX 35 FEDERAL 003H (lse 40257) ✓	
3b. Phone No. (include area code) 432-687-1155		9. API Well No. 32-025-43289	
4. Location of Well (Report location clearly and in accordance with any State requirements.)* At surface (P) SESE 200FSL 450 FEL At proposed prod. zone (A) NENE 330 FNL 400 FEL		10. Field and Pool, or Exploratory TRISTE DRAW; BONE SPRINGS 96603	
14. Distance in miles and direction from nearest town or post office* APPROX 35 MILES FROM JAL, NM		11. Sec., T. R. M. or Blk. and Survey or Area P, Sec 35, T23S, R32E Mer NMP	
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 200'		12. County or Parish LEA	
16. No. of acres in lease 320		13. State NM	
17. Spacing Unit dedicated to this well 80' 160		14. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 50'	
18. Proposed Depth 14,835 MD 9,482 TVD		20. BLM/BIA Bond No. on file NM2707	
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3649 GL		22. Approximate date work will start* 07/15/2014	
		23. Estimated duration 35 days	

UNORTHODOX LOCATION

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.   | 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 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>Brenda Rathjen</i>	Name (Printed/Typed) Brenda F. Rathjen	Date 04/25/2014
Title REGULATORY ANALYST - Brenda.rathjen@energen.com 432-688-3323		
Approved by (Signature) <b>James A. Amos</b>	Name (Printed/Typed)	Date <b>JUN 1 - 2016</b>
Title <b>FIELD MANAGER</b>	Office <b>CARLSBAD FIELD OFFICE</b>	

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.

APPROVAL FOR TWO YEARS

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)

Carlsbad Controlled Water Basin

*Ka 06/02/16*

See attached NMOCD  
Conditions of Approval

SEE ATTACHED FOR  
CONDITIONS OF APPROVAL

Approval Subject to General Requirements  
& Special Stipulations Attached

Drilling Plan  
Energen Resources Corporation  
Revised 3/26/2014

**Cox 35 Federal #003H**

Surface Location: 200' FSL & 450' FEL  
Section 35-23S-32E, 32° 15' 16.058"/-103° 38' 17.956"  
Bottom Hole Location: 330' FNL & 400' FEL  
Section 35-23S-32E, 32° 16' 03.077"/-103° 38' 17.406"  
Lea Co., NM

1. The elevation of the unprepared ground is 3649.0 feet above sea level.
2. The geological name of the surface formation is Quaternary Eolian and Piedmont deposits
3. A rotary rig will be utilized to drill the well to a Proposed Total Depth of 9,482' TVD/14,835' MD.
4. Estimated top of important geological markers:

Formation	TVD	Subsea
Rustler	1176	2500
Base of Salt	4801	-1125
Delaware Mountain Group/Lamar	4971	-1295
Bell Canyon	5021	-1345
Cherry Canyon	5842	-2166
Brushy Canyon	7142	-3466
Bone Spring Lime	8786	-5110
Avalon	8906	-5230
Avalon Limestone Sequence	9046	-5370
Lower Avalon	9376	-5700
<b>Avalon Landing Point</b>	<b>9482</b>	<b>-5806</b>

5. Estimated depth at which anticipated water, oil, gas or other mineral bearing formations are expected to be encountered:

<u>FORMATION</u>	<u>DEPTH (TVD)(ft)</u>	<u>Water/HydroCarbon</u>
Rustler	1,176	Water
Base of Salt	4,801	NA
Delaware Mountain Group	4971	NA
Bell Canyon	5021	Oil/Gas
Cherry Canyon	5842	Oil/Gas
Brushy Canyon	7142	Oil/Gas
Bone Springs	8786	NA
Avalon	8906	Oil/Gas
Avalon Limestone Sequence	9046	NA
Lower Avalon	9376	Oil/Gas

6. All proposed casing is new and the program is as follows:

Casing	Size	Depth		Grade	Weight	Connection	PSI		x1000 lbs
		MD	TVD				Collapse	Burst	Tension
Surface	13-3/8"	0-1,280'	0-1,280'	J-55	54.50	BTC	2730	1130	909
Intermediate	9-5/8"	0-4,850'	0-4,850'	J-55	40.00	BTC	3950	2570	714
Production (Atch C-2)	5-1/2"	0-14,835'	0-9,482'	P-116 RYS-110	20.00	CDC HTQ	11,100	12,640	641

Self  
COA

14,028.9  
per directional plan  
Per Brenda Rothjen  
05/10/16

7. Cementing Program:

- a. 17-1/2" hole x 13-3/8" casing at 1,200' will have cement circulated to surface with 540 sx of Econocem - HLC with 1 lbm/sk Kol-Seal at 12.8 ppg (1.81 cf/sk) followed by 250 sx HalCem - C with 1 lbm/sk Kol-Seal at 14.8 ppg (1.33 cf/sk). Note: CEMENT MUST BE CIRCULATED TO SURFACE. STANDARD BOW SPRING CENTRALIZERS SHALL BE PLACED ON THE FIRST 3 (BOTTOM 3) JOINTS OF CASING (1 PER JOINT) AND 1 EVERY 3<sup>RD</sup> JOINT TO SURFACE.
- b. 12-1/4" hole x 9-5/8" casing at 4,850'. A fluid caliper will be run to determine the exact cement volume required. Cement will be circulated to surface with 890 sx of Econo-Cem - C with 2lbm/sk Kol-Seal, 0.25 lbm/sk D-AIR 5000 at 11.9 ppg (2.45 cf/sk) followed by 220 sx of HalCem-C with 1 lbm/sk Kol-Seal at 14.8 ppg (1.33 cf/sk). ONE CENTRALIZER PER JOINT FOR THE FIRST 3 JOINTS, THEN EVERY 3<sup>RD</sup> JOINT TO SURFACE.
- c. 8-3/4" hole x 5-1/2" casing at 14,835'. A fluid caliper will be run to determine the exact cement volume required to have TOC at 4,680'. 3100 sx of VersaCem-H with 0.4% Halad(R)-344, 0.3% Super CBL, 0.4% HR-800 at 14.4 ppg (1.25 cf/sk). DV tool will be utilized at 10,000' if losses are encountered. CENTRALIZERS TO BE USED AT DISCRETION IN LATERAL TO ACHIEVE 70% STAND OFF. CENTRALIZERS TO BE USED TO TIE BACK DEPTH OF 4,680' TO ACHIEVE 70% STAND OFF.

8. Pressure Control Equipment

- a. 12-1/4" hole section: The blowout preventer equipment (BOP) will consist of a 5,000 psi system double ram type preventer, a bag type (Hydril) preventer and rotating head. Both units will be hydraulically operated and the ram type preventer will be equipped with blind rams on top and corresponding pipe rams based on hole section being drilled. A 13-3/8" 5M x SOW will be installed on the 13-3/8" surface casing and utilized until the 9-5/8" casing is set. The BOP and associated equipment will be tested to rated pressure, before drilling out the 13-3/8" casing shoe the casing will be tested to 2,000 psi. A 2" kill line and 3" choke line will be incorporated in the drilling spool below the ram-type BOP. Other accessory BOP equipment will include a Kelly cock, floor safety valve, choke lines and choke manifold having 5,000 psi WP rating.
- b. 8-3/4" hole section: The blowout preventer equipment (BOP) will consist of a 5,000 psi system double ram type preventer, a bag type (Hydril) preventer and rotating head. Both units will be hydraulically operated and the ram type preventer will be equipped with blind rams on top and corresponding pipe rams based on hole section being drilled. A 13-3/8" 5M x 11" 10M wellhead will be installed. The BOP and associated equipment will be tested to rated pressure, before drilling out the 9-5/8" casing shoe the casing will be tested to 2,000 psi. A 2" kill line and 3" choke line will be incorporated in the drilling spool below the ram-type BOP. Other accessory BOP equipment will include an Upper and Lower Kelly cock, floor safety valve, choke lines and choke manifold having 5,000 psi WP rating. All equipment used will meet standards for a Hydrogen Sulfide environment.
- c. Pipe rams will be operated and checked each 24 hour period and each time the drill pipe is out of the hole. These functional tests will be documented on the daily drilling logs.

must test  
to 3,000 psi  
before drilling  
production  
hole.

1290'  
4,680' (200' tie back minimum)  
if DV tool is desired submit survey.

9. Mud Program:

521  
COA

0' - 1,280'	Bentonite/Lime mud. Paper for losses and seepage. 8.5 to 9.0 ppg, 32 to 34 vis, PV 3 to 5, YP 5 to 7, WL NC
1,280' - 4,850'	Brine. As needed LCM for losses and seepage. 10.0 to 10.2 ppg, pH 10, 28 to 29 vis, PV 1, YP 1, WL NC
4,850' - 14,835'	Cut Brine. As needed LCM for losses and seepage. 9.0 to 9.5 ppg, pH 10, 28 to 36 vis, PV 4-6, YP 4-6, WL 12-15

**\*\*During drilling operations, all necessary products will be sufficiently stored on location for abnormal situations. The characteristics, use, testing of drilling mud and the implementation of related drilling procedures shall be designed to prevent the loss of well control. Sufficient quantities of mud materials shall be maintained or readily accessible for the purpose of assuring well control.**

**\*\*A pH of 10 or above in the fresh water base mud system shall be maintained to control the effects H<sub>2</sub>S has on metallurgy of equipment used.**

Operating and Maintenance

Energen Resources Corporation will be using all above ground steel pits for fluid and cuttings while drilling. If any tank develops a leak we will have immediate visual discovery, we would then transfer the fluid to another tank then remove any contaminated soil and dispose of it in the cuttings bins for transportation. All leaks should be kept to less than 5 barrels. Rig crews will monitor the tanks at all times. A trip/surge tank will be used to monitor returns for circulation losses/gains.

Equipment:

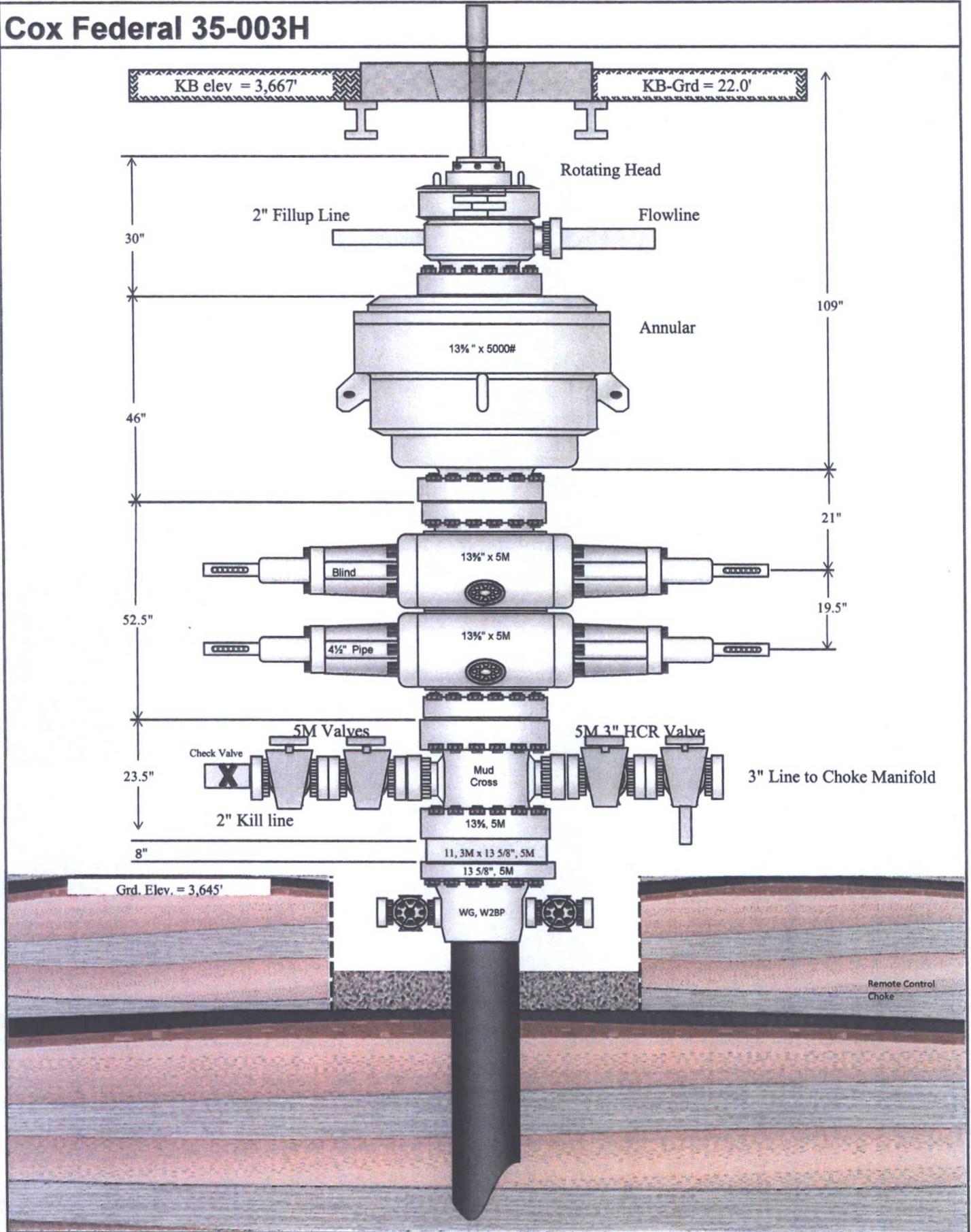
- 2-Mongoose Shale Shakers
- 2-3400 High Speed Centrifuges with stands and pumps
- 3-Roll off bins with Tracks
- 2-500 bbl Open top Frac tanks
- 1-Mud/Gas Separator and Degasser
- 1-Trip/Surge Tank
- Electronic or Visual monitoring system to indicate lost returns

10. Testing, Logging and Coring Program:

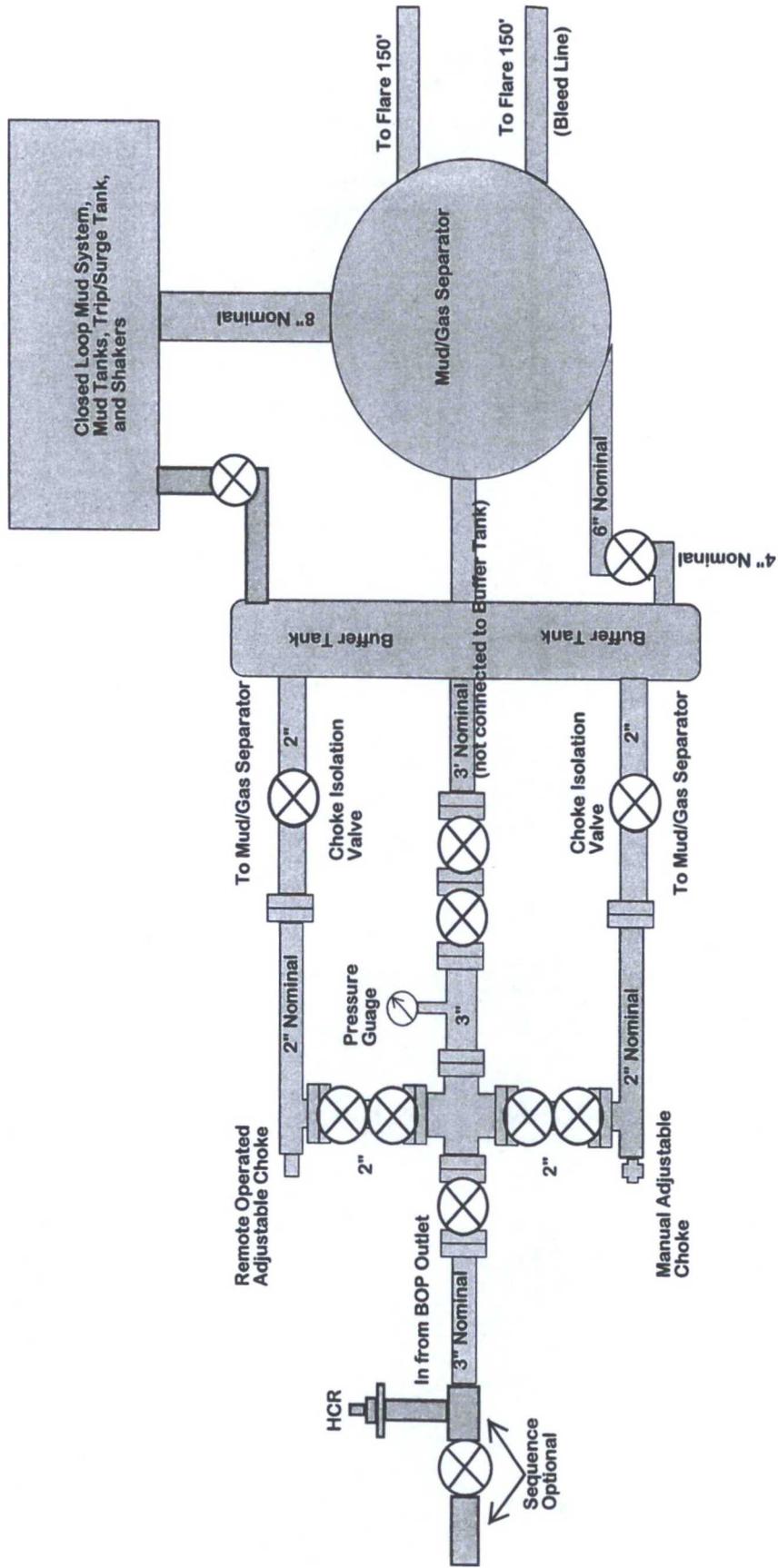
- 521  
COA
- a. Testing Program: No drillstem tests are anticipated
  - b. Electric Logging Program: TBD
  - c. LWD Program: TBD
  - d. Coring Program: None.

- 11. Bottom Hole Pressure expected to be 5,430 psi
- 12. Bottom Hole Temperature expected to be 160 deg F.

# Cox Federal 35-003H



# Drilling Operations Choke Manifold System 5M Service



# **Closed Loop System Drill Pit**

## **Design & Closure Plan**

Cox 35 Federal #003H

SHL: 200 FSL & 450 FEL

BHL: 330 FNL & 400 FEL

SECTION 35-T23S-R32E

Lea County, New Mexico

### Operating and Maintenance

Energen Resources Corporation will be using all above ground steel pits (Closed Loop System) for fluid and cuttings while drilling. If any tank develops a leak we will have immediate visual discovery, we would then transfer the fluid to another tank then remove any contaminated soil and dispose of it in the cuttings bins for transportation. All leaks should be kept to less than 5 barrels. Rig crews will monitor the tanks at all times.

### Equipment

2-Mongoose Shale Shakers

2-3400 High Speed Centrifuges with stands and pumps

3-Roll off bins with Tracks

2-500 bbl Open top Frac tanks

### Closure Plan

During drilling operations all liquids, drilling fluids and cuttings will be hauled off via R360 (Formally Controlled Recovery Inc.) Permit R-9166 or any other approved facility.

# Anticipated Rig Layout

Cox Federal 35-003H

