ATS-13-982

Form 3160-3
(March 2012)

OCD Hobbs
HOBBS OCD

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

JUN 06 2016

RECEIVED

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

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: ☑ DRILL ☐ REENTER	5. Lease Serial No. NMNM 129262
1b. Type of Well: ☑ Oil Well ☐ Gas Well ☐ Other ☑ Single Zone ☐ Multiple Zone	6. If Indian, Allotee 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 004H (40257)
3b. Phone No. *(include area code)* 432-687-1155	9. API Well No. 30-025-43288
4. Location of Well *(Report location clearly and in accordance with any State requirements.*)* At surface (O) SWSE 200FSL 2290 FEL At proposed prod. zone (B) NWNE 330 FNL 2240 FEL	10. Field and Pool, or Exploratory TRISTE DRAW;BONE SPRINGS 96603
	11. Sec., T. R. M. or Blk. and Survey or Area O, Sec 35, T23S, R32E Mer NMP
14. Distance in miles and direction from nearest town or post office* APPROX 35 MILES FROM JAL, NM	12. County or Parish LEA / 13. State NM
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 200'	16. No. of acres in lease 320 / 17. Spacing Unit dedicated to this well 80/160
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 50'	19. Proposed Depth 13,989 MD 9,442 TVD / 20. BLM/BIA Bond No. on file NM2707
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3630.6 GL	22. Approximate date work will start* 09/05/2014 / 23. Estimated duration 35 days

UNORTHODOX LOCATION

24. Attachments

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.
2. A Drilling Plan.
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).
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 BLM.

25. Signature Brenda Rathjen	Name *(Printed/Typed)* Brenda F. Rathjen	Date 04/25/2014

Title
REGULATORY aNALYST Brenda.rathjen@energen.com 432-688-3323

Approved by *(Signature)* James A. Amos	Name *(Printed/Typed)*	Date MAY 31 2016
Title FIELD MANAGER	Office CARLSBAD FIELD 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.

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

KZ 06/07/16

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 #004H
Surface Location: 200' FSL & 2290' FEL
Section 35-23S-32E, 32° 15' 15.983"/-103° 38' 39.384"
Bottom Hole Location: 330' FNL & 2240' FEL
Section 35-23S-32E, 32° 16' 03.004"/-103° 38' 38.836"
Lea Co., NM

1. The elevation of the unprepared ground is 3630.6 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 9,442' TVD/13,989' MD.
4. Estimated top of important geological markers:

Formation	*TVD*	*Subsea*
Rustler	1116	2540
Base of Salt	4756	-1100
Delaware Mountain Group/Lamar	4926	-1270
Bell Canyon	4976	-1320
Cherry Canyon	5797	-2141
Brushy Canyon	7097	-3441
Bone Spring Lime	8746	-5090
Avalon	8866	-5210
Avalon Limestone Sequence	9006	-5350
Lower Avalon	9336	-5680
PROJECTED LANDING POINT	9442	-5786

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

FORMATION	DEPTH (TVD)(ft)	Water/HydroCarbon
Rustler	1,116	Water
Base of Salt	4,756	NA
Delaware Mountain Group	4926	NA
Bell Canyon	4976	Oil/Gas
Cherry Canyon	5797	Oil/Gas
Brushy Canyon	7097	Oil/Gas
Bone Springs	8746	NA
Avalon	8866	Oil/Gas
Avalon Limestone Sequence	9006	NA
Lower Avalon	9336	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 (Attch C-2)	5-1/2"	0-13,989'	0-9,442'	~~RYS-110~~ P-110	20.00	CDC HTQ	11,100	12,640	641

Per Brenda R.
5/10/16

7. Cementing Program:

   a. 17-1/2" hole x 13-3/8" casing at 1,280' 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 3RD 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 3RD JOINT TO SURFACE.

   c. 8-3/4" hole x 5-1/2" casing at 13,989'. 4650' (200' tie back minimum) 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. If DV tool is desired - submit sundry.

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 13-5/8" 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~~ 3000 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.

   must test BOP to 3,000psi

   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.

9. Mud Program:

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' - 13,989'	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_2S 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

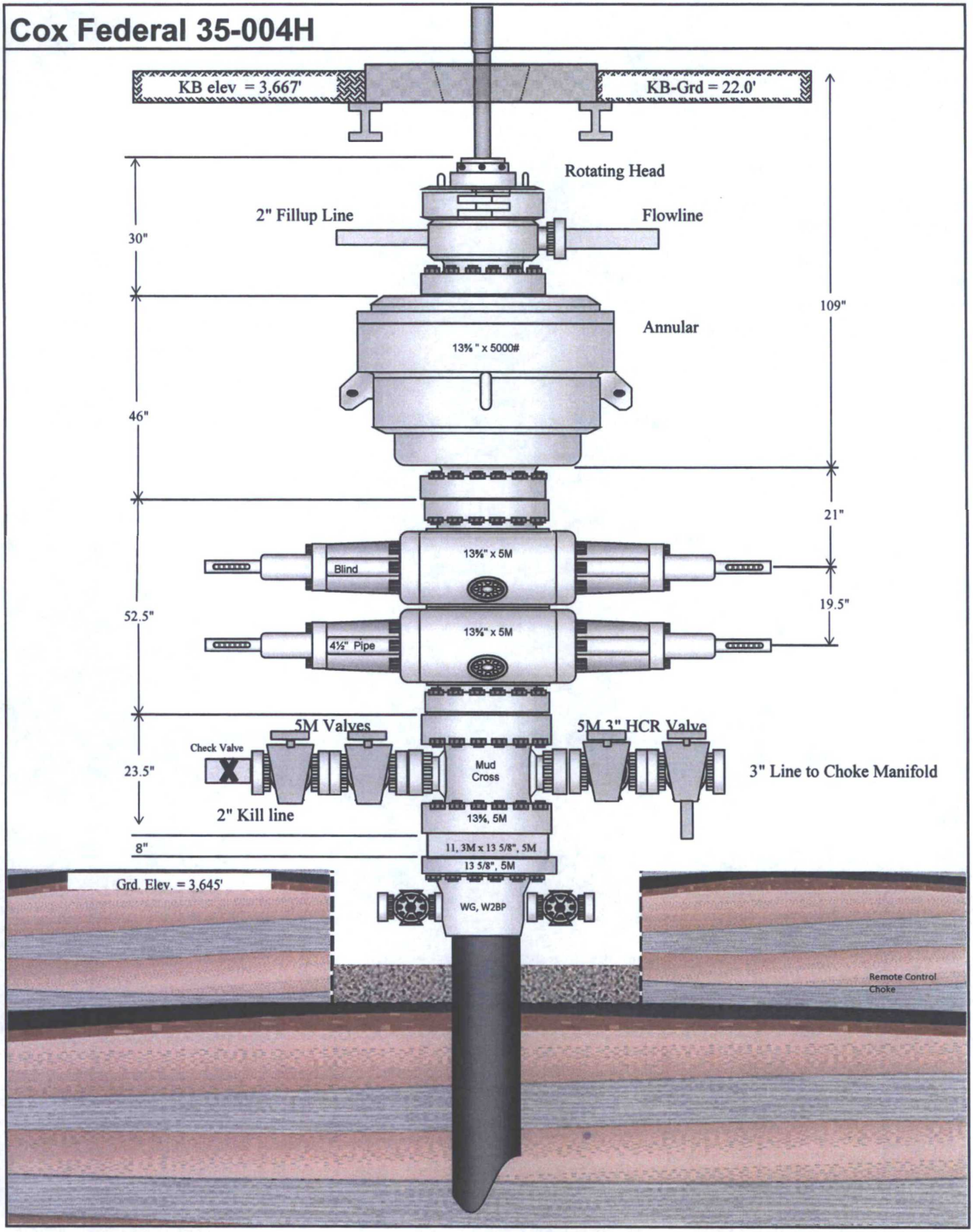
10. Testing, Logging and Coring Program:

See COA

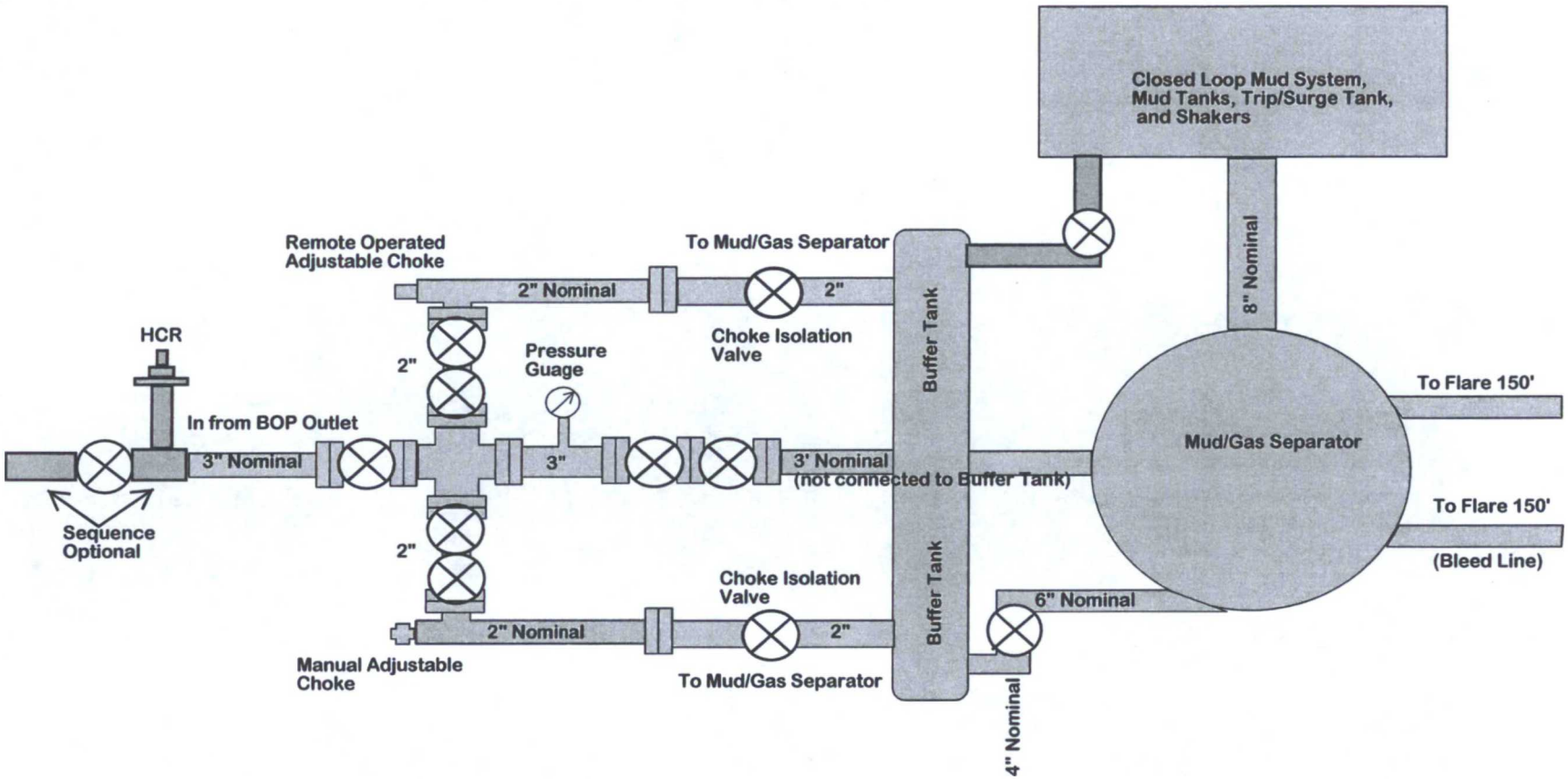
a. Testing Program: No drillstem tests are anticipated
b. Electric Logging Program: TBD
c. LWD Program: TBD
d. Coring Program: None.

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

Cox Federal 35-004H



Drilling Operations
Choke Manifold System
5M Service



Closed Loop System Drill Pit

Design & Closure Plan

Cox 35 Federal #004H

SHL: 200 FSL & 2290 FEL

BHL: 330 FNL & 2240 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 35-004H