OCD Hobbs 17-784

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Form 3160-3
(March 2012)

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

**APPLICATION FOR PERMIT TO DRILL OR REENTER**

| | |
|---|---|
| 1a. Type of work: ☑ DRILL ☐ REENTER | 5. Lease Serial No. NMNM26394 |
| | 6. If Indian, Allotee or Tribe Name |
| | 7. If Unit or CA Agreement, Name and No. |
| 1b. Type of Well: ☐ Oil Well ☑ Gas Well ☐ Other ☑ Single Zone ☐ Multiple Zone | 8. Lease Name and Well No. (319775) VACA DRAW 20-17 FEDERAL 9H |
| 2. Name of Operator CIMAREX ENERGY COMPANY (215099) | 9. API Well No. 30-025-44360 |
| 3a. Address 202 S. Cheyenne Ave., Ste 1000 Tulsa OK 74 / 3b. Phone No. (include area code) (432)620-1936 | 10. Field and Pool, or Exploratory 98250 WOLFCAMP / WILDCAT WOLFCAMP |
| 4. Location of Well (Report location clearly and in accordance with any State requirements.*) At surface SESW / 330 FSL / 1990 FWL / LAT 32.109742 / LONG -103.596422 At proposed prod. zone NENW / 330 FNL / 2261 FWL / LAT 32.136947 / LONG -103.595536 | 11. Sec., T. R. M. or Blk. and Survey or Area SEC 20 / T25S / R33E / NMP |
| 14. Distance in miles and direction from nearest town or post office* 24 miles | 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) 330 feet | 16. No. of acres in lease 2560 | 17. Spacing Unit dedicated to this well 640 |
| 18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 20 feet | 19. Proposed Depth 12750 feet / 22493 feet | 20. BLM/BIA Bond No. on file FED: NMB001188 |
| 21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3417 feet | 22. Approximate date work will start* 12/01/2017 | 23. Estimated duration 30 days |

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 (Electronic Submission) | Name (Printed/Typed) Aricka Easterling / Ph: (918)560-7060 | Date 05/09/2017 |
| Title Regulatory Analyst | | |
| Approved by (Signature) (Electronic Submission) | Name (Printed/Typed) Bobby Ballard / Ph: (575)234-2235 | Date 12/20/2017 |
| Title Natural Resource Specialist | Office CARLSBAD | |

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.

(Continued on page 2)

*(Instructions on page 2)

APPROVED WITH CONDITIONS

Approval Date: 12/20/2017

KZ 01/10/18 NSL

NSL Order required from Santa Fe

Double lined

AFMSS

U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

# Operator Certification Data Report

01/02/2018

## Operator Certification

*I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have full knowledge of state and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.*

**NAME:** Aricka Easterling **Signed on:** 05/09/2017

**Title:** Regulatory Analyst

**Street Address:** 202 S. Cheyenne Ave, Ste 1000

**City:** Tulsa **State:** OK **Zip:** 74103

**Phone:** (918)560-7060

**Email address:** aeasterling@cimarex.com

## Field Representative

**Representative Name:**

**Street Address:**

**City:** **State:** **Zip:**

**Phone:**

**Email address:**

EXHIBIT NO. 1

Date of Issue:
8/21/2017

**Bureau of Land Management, Carlsbad Field Office**
620 E. Greene Street Carlsbad, NM 88220

Cultural and Archaeological Resources

BLM Report No.
17-0295

# NOTICE OF STIPULATIONS

17-0334

**Historic properties in the vicinity of this project are protected by federal law. In order to ensure that they are not damaged or destroyed by construction activities, the project proponent and construction supervisors shall ensure that the following stipulations are implemented.**

| | |
|---|---|
| **Project Name:** | **Vaca Draw 20-17** |
| | ***1). A 3-day preconstruction call-in notification.*** Contact BLM Inspection and Enforcement at |
| **Required** | ***2. Professional archaeological monitoring***. Contact your BLM project archaeologist at (575) 234-5917 for assistance. |
| **A.** ☒ | These stipulations must be given to your monitor at least **5 days** prior to the start of construction. |
| **B.** ☒ | No construction, including vegetation removal or other site prep may begin prior to the arrival of the monitor. |
| | ***3. Cultural site barrier fencing.*** (Your monitor will assist you). |
| **A.** ☐ | **A temporary site protection barrier(s)** shall be erected prior to all ground-disturbing activities. The minimum barrier(s) shall consist of upright wooden survey lath spaced no more than ten (10) feet apart and marked with blue ribbon flagging or blue paint. There shall be no construction activities or vehicular traffic past the barrier(s) at any time. |
| **B.** ☐ | **A permanent, 4-strand barbed wire fence** strung on standard "T-posts" shall be erected prior to all ground-disturbing activities. No construction activities or vehicle traffic are allowed past the fence. |
| **Required** | ***4. The archaeological monitor shall:*** |
| **A.** ☐ | |
| **B.** ☒ | Observe all ground-disturbing activities within 100 feet of cultural sites LA 128148 and LA 128149. |
| **C.** ☐ | Ensure that the proposed |
| **D.** ☒ | Ensure the proposed reroute for LA 128149 is adhered to. |
| **E.** ☒ | Submit a brief monitoring report within 30 days of completion of monitoring. |
| | If subsurface cultural resources are encountered during the monitoring, all activities shall cease and a BLM-CFO archaeologist shall be notified immediately. |
| **Other:** | **IF THE CONTRACT ARCHAEOLOGIST DOES NOT KNOW WHERE THE SITE(S) ARE LOCATED AT PLEASE COME BY THE CARLSBAD BLM AND MAPS AND OTHER DATA WILL BE PROVIDED UPON REQUEST TO THE CONTRACT ARCHAEOLOGIST** |

**Site Protection and Employee Education: It is the responsibility of the project proponent and his construction supervisor to inform all employees and subcontractors that cultural and archaeological sites are to be avoided by all personnel, vehicles, and equipment; and that it is illegal to collect, damage, or disturb cultural resources on Public Lands.**

For assistance contact: Bruce Boeke (575) 234-5917

AFMSS

U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

# Application Data Report

01/02/2018

**APD ID:** 10400013698 **Submission Date:** 05/09/2017

**Operator Name:** CIMAREX ENERGY COMPANY

**Well Name:** VACA DRAW 20-17 FEDERAL **Well Number:** 9H

**Well Type:** CONVENTIONAL GAS WELL **Well Work Type:** Drill

Highlighted data reflects the most recent changes

Show Final Text

## Section 1 - General

**APD ID:** 10400013698 **Tie to previous NOS?** 10400007829 **Submission Date:** 05/09/2017

**BLM Office:** CARLSBAD **User:** Aricka Easterling **Title:** Regulatory Analyst

**Federal/Indian APD:** FED **Is the first lease penetrated for production Federal or Indian?** FED

**Lease number:** NMNM26394 **Lease Acres:** 2560

**Surface access agreement in place?** **Allotted?** **Reservation:**

**Agreement in place?** NO **Federal or Indian agreement:**

**Agreement number:**

**Agreement name:**

**Keep application confidential?** YES

**Permitting Agent?** NO **APD Operator:** CIMAREX ENERGY COMPANY

**Operator letter of designation:**

## Operator Info

**Operator Organization Name:** CIMAREX ENERGY COMPANY

**Operator Address:** 202 S. Cheyenne Ave., Ste 1000 **Zip:** 74103

**Operator PO Box:**

**Operator City:** Tulsa **State:** OK

**Operator Phone:** (432)620-1936

**Operator Internet Address:** tstathem@cimarex.com

## Section 2 - Well Information

**Well in Master Development Plan?** NO **Mater Development Plan name:**

**Well in Master SUPO?** NO **Master SUPO name:**

**Well in Master Drilling Plan?** NO **Master Drilling Plan name:**

**Well Name:** VACA DRAW 20-17 FEDERAL **Well Number:** 9H **Well API Number:**

**Field/Pool or Exploratory?** Field and Pool **Field Name:** WOLFCAMP **Pool Name:** WILDCAT WOLFCAMP

**Is the proposed well in an area containing other mineral resources?** USEABLE WATER,NATURAL GAS,OIL

**Operator Name:** CIMAREX ENERGY COMPANY

**Well Name:** VACA DRAW 20-17 FEDERAL **Well Number:** 9H

**Describe other minerals:**

**Is the proposed well in a Helium production area?** N **Use Existing Well Pad?** NO **New surface disturbance?**

**Type of Well Pad:** MULTIPLE WELL **Multiple Well Pad Name:** VACA DRAW SUPER PAD **Number:** 2

**Well Class:** HORIZONTAL **Number of Legs:** 1

**Well Work Type:** Drill

**Well Type:** CONVENTIONAL GAS WELL

**Describe Well Type:**

**Well sub-Type:** EXPLORATORY (WILDCAT)

**Describe sub-type:**

**Distance to town:** 24 Miles **Distance to nearest well:** 20 FT **Distance to lease line:** 330 FT

**Reservoir well spacing assigned acres Measurement:** 640 Acres

**Well plat:** Vaca_Draw_20_17_Fed_9H_C_102_Plat_05-05-2017.pdf

**Well work start Date:** 12/01/2017 **Duration:** 30 DAYS

## Section 3 - Well Location Table

**Survey Type:** RECTANGULAR

**Describe Survey Type:**

**Datum:** NAD83 **Vertical Datum:** NAVD88

**Survey number:**

| | NS-Foot | NS Indicator | EW-Foot | EW Indicator | Twsp | Range | Section | Aliquot/Lot/Tract | Latitude | Longitude | County | State | Meridian | Lease Type | Lease Number | Elevation | MD | TVD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SHL Leg #1 | 330 | FSL | 1990 | FWL | 25S | 33E | 20 | Aliquot SESW | 32.109742 | -103.596422 | LEA | NEW MEXICO | NEW MEXICO | F | NMNM 26394 | 3417 | 0 | 0 |
| KOP Leg #1 | 330 | FSL | 1990 | FWL | 25S | 33E | 20 | Aliquot SESW | 32.109742 | -103.596422 | LEA | NEW MEXICO | NEW MEXICO | F | NMNM 26394 | -8832 | 12249 | 12249 |
| PPP Leg #1 | 330 | FSL | 1990 | FWL | 25S | 33E | 20 | Aliquot SESW | 32.109742 | -103.596422 | LEA | NEW MEXICO | NEW MEXICO | F | NMNM 26394 | -8804 | 12221 | 12221 |

**APD ID:** 10400013698 **Submission Date:** 05/09/2017

**Operator Name:** CIMAREX ENERGY COMPANY

**Well Name:** VACA DRAW 20-17 FEDERAL **Well Number:** 9H

**Well Type:** CONVENTIONAL GAS WELL **Well Work Type:** Drill

Highlighted data reflects the most recent changes

Show Final Text

## Section 1 - Geologic Formations

| Formation ID | Formation Name | Elevation | True Vertical Depth | Measured Depth | Lithologies | Mineral Resources | Producing Formation |
|---|---|---|---|---|---|---|---|
| 1 | RUSTLER | 3418 | 984 | 984 | | USEABLE WATER | No |
| 2 | SALADO | 2290 | 1128 | 1128 | | NONE | No |
| 3 | CASTILE | -1269 | 4687 | 4687 | | NONE | No |
| 4 | BELL CANYON | -1538 | 4956 | 4956 | | NONE | No |
| 5 | CHERRY CANYON | -2556 | 5974 | 5974 | | NATURAL GAS,OIL | No |
| 6 | BRUSHY CANYON | -4066 | 7484 | 7484 | | NATURAL GAS,OIL | No |
| 7 | BONE SPRING | -5622 | 9040 | 9040 | | NATURAL GAS,OIL | No |
| 8 | BONE SPRING 2ND | -7155 | 10573 | 10573 | | NATURAL GAS,OIL | No |
| 9 | BONE SPRING 3RD | -8308 | 11726 | 11726 | | NATURAL GAS,OIL | No |
| 10 | WOLFCAMP | -8778 | 12196 | 12196 | | NATURAL GAS,OIL | Yes |

## Section 2 - Blowout Prevention

**Pressure Rating (PSI):** 10M **Rating Depth:** 12249

**Equipment:** A BOP consisting of three rams, including one blind ram and two pipe rams and one annular preventer. An accumulator that meets the requirements in Onshore Order #2 for the pressure rating of the BOP stack. A rotating head may be installed as needed. A Kelly clock will be installed and maintained in operable condition and a drill string safety valve in the open position will be available on the rig floor.
**Requesting Variance?** YES

**Variance request:** Co-flex line between the BOP and choke manifold. Certification for proposed co-flex hose is attached. The hose is not required by the manufacturer to be anchored. In the event the specific hose is not available, one of equal or higher rating will be used. Variance to include Hammer Union connections on lines downstream of the buffer tank only.
**Testing Procedure:** A multi-bowl wellhead system will be utilized. After running the 10-3/4" surface casing, a 13 5/8" BOP/BOPE system with a minimum working pressure of 10000 psi will be installed on the wellhead system and will be pressure tested to 250 psi low followed by a 10000 psi test. Annular will be tested to 50% of working pressure. The pressure test will be repeated at least every 30 days, as per Onshore Order No. 2. The multi-bowl wellhead will be installed by vendor's representative. A copy of the installation instructions has been sent to the BLM field office. The wellhead will be

a third-party welder while being monitored by the wellhead vendor representative. All BOP equipment will be tested utilizing a conventional test plug. Not a cup or J-packer type. A solid steel body pack-off will be utilized after running and cementing the intermediate casing. After installation the pack-off and lower flange will be pressure tested to 10000 psi. The surface casing string will be tested as per Onshore Order No. 2 to at least 0.22 psi/ft or 1500 psi, whichever is greater. The casing string utilizing steel body pack-off will be tested to 70% of casing burst. If well conditions dictate conventional slips will be set and BOPE will be tested to appropriate pressures based on permitted pressure requirements.

**Choke Diagram Attachment:**

Vaca_Draw_20_17_Fed_9H_Choke_10M_20171012110102.pdf

**BOP Diagram Attachment:**

Vaca_Draw_20_17_Fed_9H_BOP_10M_20171012110115.pdf

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**Pressure Rating (PSI):** 5M **Rating Depth:** 1034

**Equipment:** Exhibit "E-1". A BOP consisting of three rams, including one blind ram and two pipe rams and one annular preventer. An accumulator that meets the requirements in Onshore Order #2 for the pressure rating of the BOP stack. A rotating head may be installed as needed. A Kelly clock will be installed and maintained in operable condition and a drill string safety valve in the open position will be available on the rig floor.
**Requesting Variance?** YES

**Variance request:** Co-flex line between the BOP and choke manifold. Certification for proposed co-flex hose is attached (Please see Exhibit F, F-1, F-2, F-3). The hose is not required by the manufacturer to be anchored. In the event the specific hose is not available, one of equal or higher rating will be used. Variance to include Hammer Union connections on lines downstream of the buffer tank only.
**Testing Procedure:** A multi-bowl wellhead system will be utilized. After running the 10-3/4" surface casing, a 13 5/8" BOP/BOPE system with a minimum working pressure of 10000 psi will be installed on the wellhead system and will be pressure tested to 250 psi low followed by a 10000 psi test. Annular will be tested to 50% of working pressure. The pressure test will be repeated at least every 30 days, as per Onshore Order No. 2. The multi-bowl wellhead will be installed by vendor's representative. A copy of the installation instructions has been sent to the BLM field office. The wellhead will be installed by a third-party welder while being monitored by the wellhead vendor representative. All BOP equipment will be tested utilizing a conventional test plug. Not a cup or J-packer type. A solid steel body pack-off will be utilized after running and cementing the intermediate casing. After installation the pack-off and lower flange will be pressure tested to 10000 psi. The surface casing string will be tested as per Onshore Order No. 2 to at least 0.22 psi/ft or 1500 psi, whichever is greater. The casing string utilizing steel body pack-off will be tested to 70% of casing burst. If well conditions dictate conventional slips will be set and BOPE will be tested to appropriate pressures based on permitted pressure requirements.

**Choke Diagram Attachment:**

Vaca_Draw_20_17_Fed_9H_Choke_5M_20171012105946.pdf

**BOP Diagram Attachment:**

Vaca_Draw_20_17_Fed_9H_BOP_5M_20171012105955.pdf

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**Operator Name:** CIMAREX ENERGY COMPANY

**Well Name:** VACA DRAW 20-17 FEDERAL **Well Number:** 9H

## Section 3 - Casing

| Casing ID | String Type | Hole Size | Csg Size | Condition | Standard | Tapered String | Top Set MD | Bottom Set MD | Top Set TVD | Bottom Set TVD | Top Set MSL | Bottom Set MSL | Calculated casing length MD | Grade | Weight | Joint Type | Collapse SF | Burst SF | Joint SF Type | Joint SF | Body SF Type | Body SF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | SURFACE | 14.75 | 10.75 | NEW | API | N | 0 | 1034 | 0 | 1034 | 0 | 1034 | 1034 | J-55 | 40.5 | BUTT | 3.34 | 6.62 | BUOY | 15.02 | BUOY | 15.02 |
| 2 | PRODUCTION | 6.75 | 5.5 | NEW | API | N | 0 | 12249 | 0 | 12249 | 0 | 12249 | 12249 | L-80 | 23 | LTC | 1.4 | 1.24 | BUOY | 2.13 | BUOY | 2.13 |
| 3 | INTERMEDIATE | 9.875 | 7.625 | NEW | API | N | 0 | 12874 | 0 | 12874 | 0 | 12874 | 12874 | L-80 | 29.7 | BUTT | 2.41 | 1.16 | BUOY | 1.76 | BUOY | 1.76 |
| 4 | PRODUCTION | 6.75 | 5.0 | NEW | API | N | 12249 | 22493 | 12249 | 22493 | 12249 | 22493 | 10244 | P-110 | 18 | BUTT | 1.62 | 1.64 | BUOY | 64.32 | BUOY | 64.32 |

**Casing Attachments**

**Casing ID:** 1 **String Type:** SURFACE

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

**Casing Design Assumptions and Worksheet(s):**

Vaca_Draw_20_17_Fed_9H_Casing_Assumptions_20171012110251.pdf

**Operator Name:** CIMAREX ENERGY COMPANY

**Well Name:** VACA DRAW 20-17 FEDERAL **Well Number:** 9H

**Casing Attachments**

**Casing ID:** 2 **String Type:** PRODUCTION

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

**Casing Design Assumptions and Worksheet(s):**

Vaca_Draw_20_17_Fed_9H_Casing_Assumptions_20171012110641.pdf

**Casing ID:** 3 **String Type:** INTERMEDIATE

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

**Casing Design Assumptions and Worksheet(s):**

Vaca_Draw_20_17_Fed_9H_Casing_Assumptions_20171012110535.pdf

**Casing ID:** 4 **String Type:** PRODUCTION

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

**Casing Design Assumptions and Worksheet(s):**

Vaca_Draw_20_17_Fed_9H_Casing_Assumptions_20171012110733.pdf

## Section 4 - Cement

**Operator Name:** CIMAREX ENERGY COMPANY

**Well Name:** VACA DRAW 20-17 FEDERAL **Well Number:** 9H

| String Type | Lead/Tail | Stage Tool Depth | Top MD | Bottom MD | Quantity(sx) | Yield | Density | Cu Ft | Excess% | Cement type | Additives |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SURFACE | Lead | | 0 | 1034 | 402 | 1.72 | 13.5 | 690 | 50 | Class C | Bentonite |
| SURFACE | Tail | | 0 | 1034 | 107 | 1.34 | 14.8 | 143 | 25 | Class C | LCM |
| PRODUCTION | Lead | | 0 | 12249 | 724 | 1.3 | 14.2 | 941 | 10 | 50:50 (Poz:H) | Salt, Bentonite, Fluid Loss, Dispersant, SMS |
| INTERMEDIATE | Lead | | 0 | 12874 | 605 | 6.18 | 9.2 | 3735 | 50 | Class C | Extender, Salt, Strength Enhancement, LCM, Fluid Loss, Retarder |
| INTERMEDIATE | Tail | | 0 | 12874 | 207 | 1.3 | 14.2 | 268 | 25 | 50:50 (Poz:H) | Salt, Bentonite, Fluid Loss, Dispersant, SMS |
| PRODUCTION | Lead | | 12249 | 22493 | 724 | 1.3 | 14.2 | 941 | 10 | 50:50 (Poz:H) | Salt, Bentonite, Fluid Loss, Dispersant, SMS |

## Section 5 - Circulating Medium

**Mud System Type:** Closed

**Will an air or gas system be Used?** NO

**Description of the equipment for the circulating system in accordance with Onshore Order #2:**

**Diagram of the equipment for the circulating system in accordance with Onshore Order #2:**

**Describe what will be on location to control well or mitigate other conditions:** Sufficient mud materials will be kept on location at all times in order to combat lost circulation or unexpected kicks. In order to run DSTs, open hole logs, and casing, the viscosity and water loss may have to be adjusted in order to meet these needs.
**Describe the mud monitoring system utilized:** PVT/Pason/Visual Monitoring

## Circulating Medium Table

| Top Depth | Bottom Depth | Mud Type | Min Weight (lbs/gal) | Max Weight (lbs/gal) | Density (lbs/cu ft) | Gel Strength (lbs/100 sqft) | PH | Viscosity (CP) | Salinity (ppm) | Filtration (cc) | Additional Characteristics |
|---|---|---|---|---|---|---|---|---|---|---|---|

| Top Depth | Bottom Depth | Mud Type | Min Weight (lbs/gal) | Max Weight (lbs/gal) | Density (lbs/cu ft) | Gel Strength (lbs/100 sqft) | PH | Viscosity (CP) | Salinity (ppm) | Filtration (cc) | Additional Characteristics |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1034 | 12874 | OTHER : Brine Diesel Emulsion | 8.5 | 9 | | | | | | | |
| 12874 | 22493 | OIL-BASED MUD | 12 | 12.5 | | | | | | | |
| 0 | 1034 | SPUD MUD | 8.3 | 8.8 | | | | | | | |

## Section 6 - Test, Logging, Coring

**List of production tests including testing procedures, equipment and safety measures:**

No DST Planned

**List of open and cased hole logs run in the well:**

CNL,DS,GR

**Coring operation description for the well:**

N/A

## Section 7 - Pressure

**Anticipated Bottom Hole Pressure:** 8287 **Anticipated Surface Pressure:** 5482

**Anticipated Bottom Hole Temperature(F):** 195

**Anticipated abnormal pressures, temperatures, or potential geologic hazards?** YES

**Describe:**

Lost circulation may be encountered in the Delaware mountain group. Abnormal pressure as well as hole stability issues may be encountered in the Wolfcamp.

**Contingency Plans geoharzards description:**

Lost circulation material will be available, as well as additional drilling fluid along with the fluid volume in the drilling rig pit system. Drilling fluid can be mixed on location or mixed in vendor mud plant and trucked to location if needed. Sufficient barite will be available to maintain appropriate mud weight for the Wolfcamp interval.

**Contingency Plans geohazards attachment:**

**Hydrogen Sulfide drilling operations plan required?** YES

**Hydrogen sulfide drilling operations plan:**

Vaca_Draw_20_17_Fed_9H_H2S_Plan_05-05-2017.pdf

## Section 8 - Other Information

**Proposed horizontal/directional/multi-lateral plan submission:**

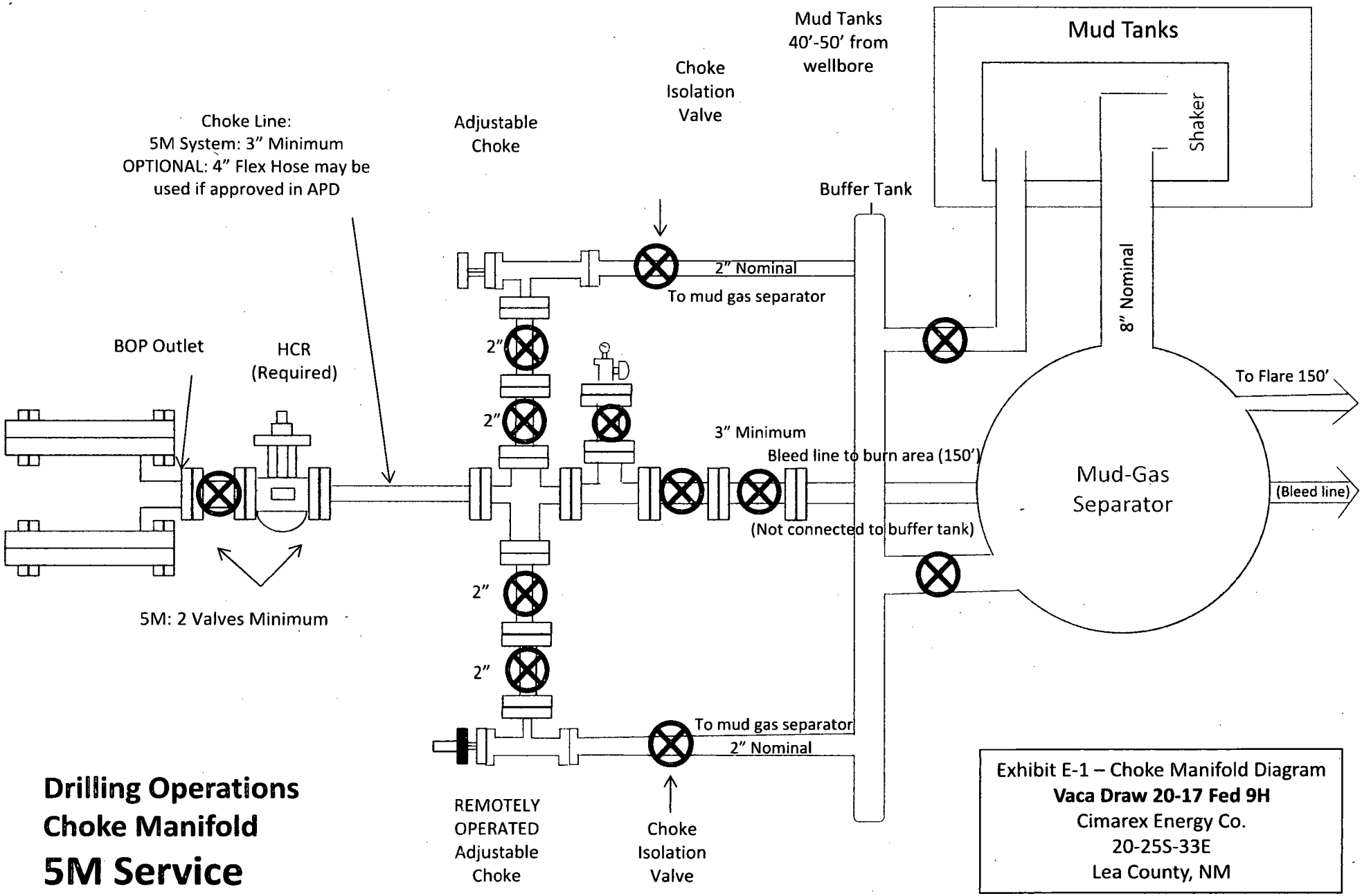
Vaca_Draw_20_17_Fed_9H_Directional_Plan_05-05-2017.pdf

**Other proposed operations facets description:**

**Other proposed operations facets attachment:**

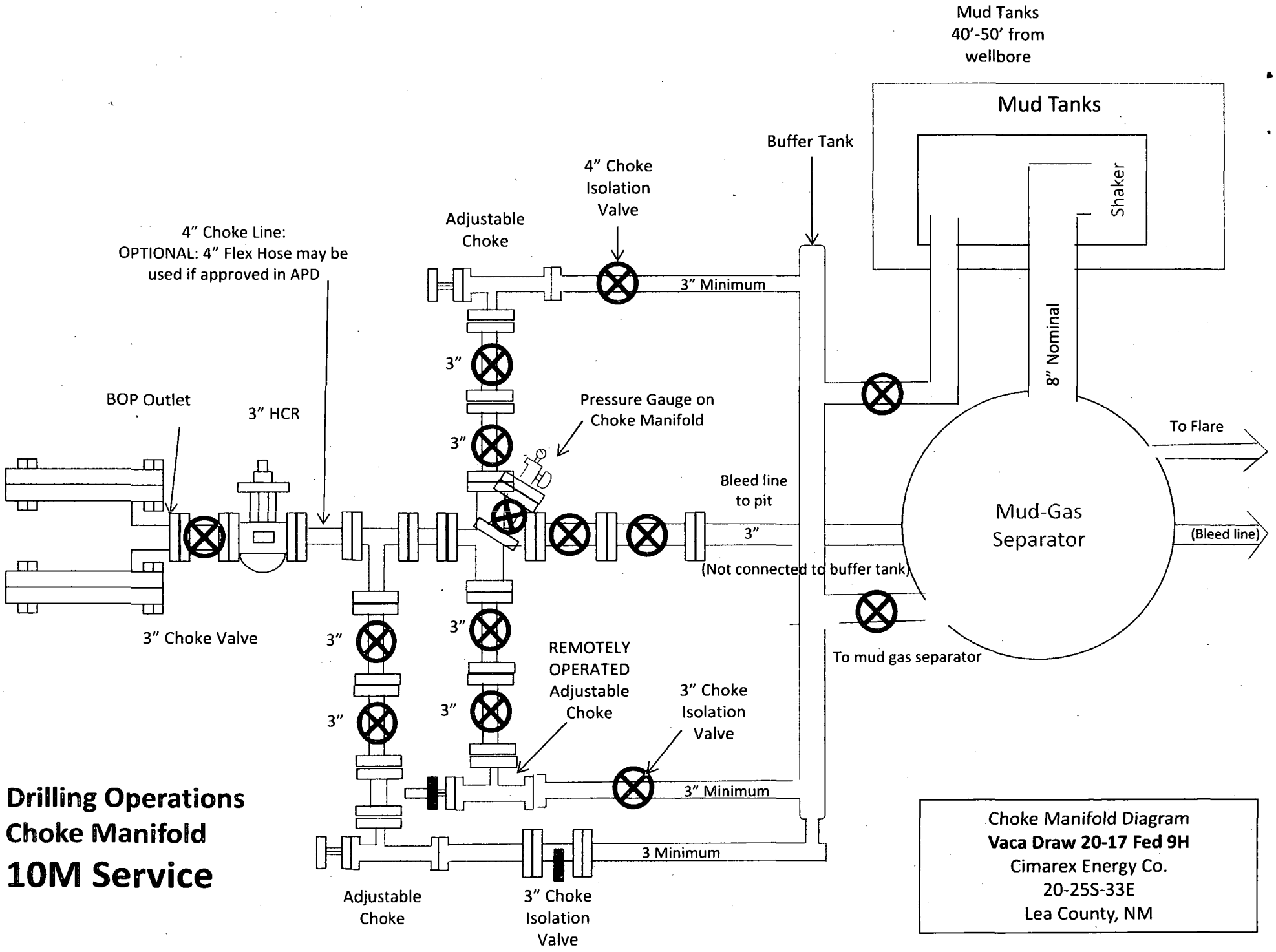
Vaca_Draw_20_17_Fed_9H_AntiCollision_05-09-2017.pdf
Vaca_Draw_20_17_Fed_9H_Drilling_Plan_20171012111205.pdf
Vaca_Draw_20_17_Fed_9H_Flex_Hose_20171012111208.pdf

**Other Variance attachment:**




**Drilling Operations**
**Choke Manifold**
**5M Service**

Exhibit E-1 – Choke Manifold Diagram
**Vaca Draw 20-17 Fed 9H**
Cimarex Energy Co.
20-25S-33E
Lea County, NM




**Drilling Operations**
**Choke Manifold**
**10M Service**

Choke Manifold Diagram
**Vaca Draw 20-17 Fed 9H**
Cimarex Energy Co.
20-25S-33E
Lea County, NM

# Drilling below 7" Casing

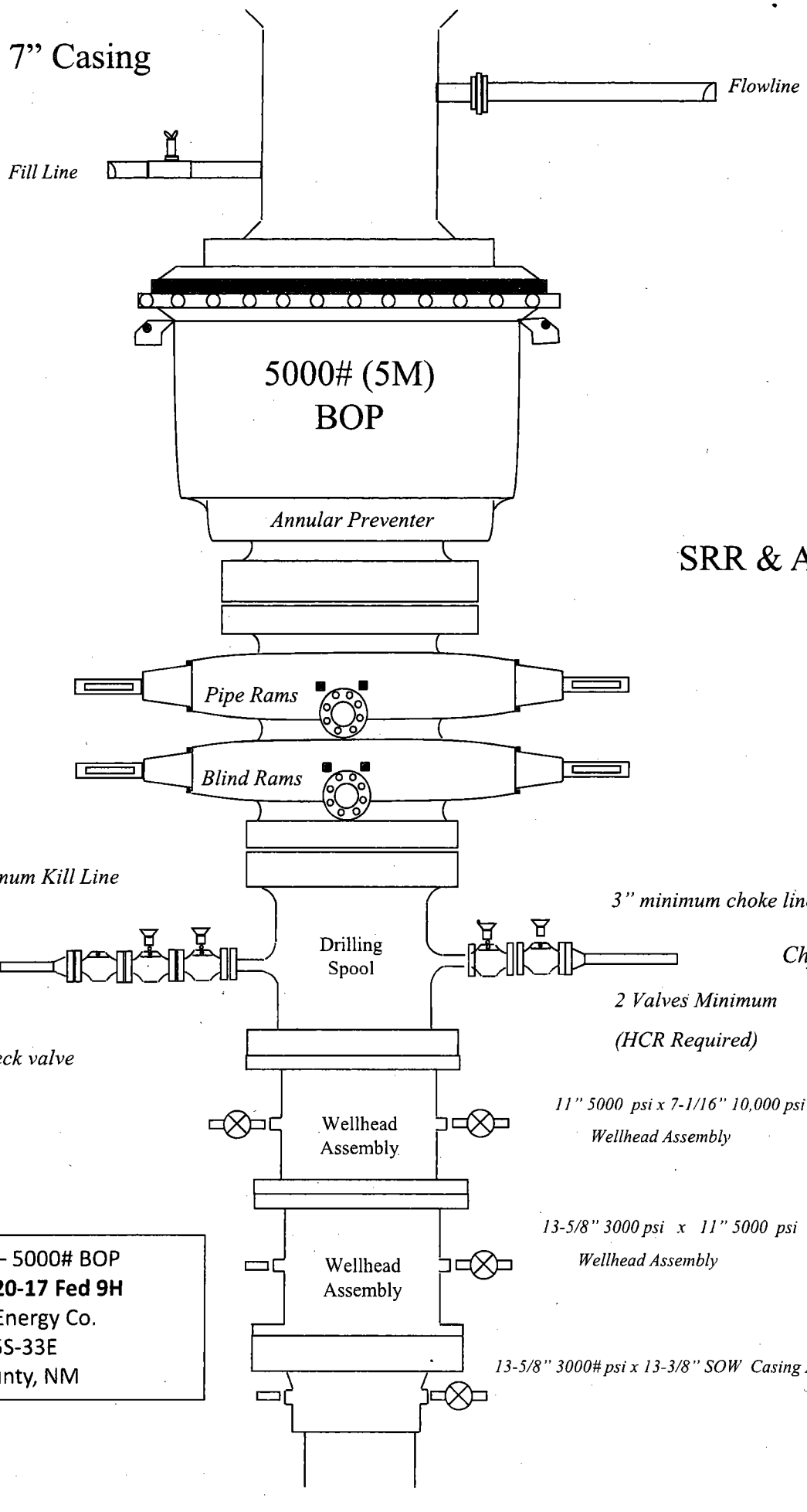
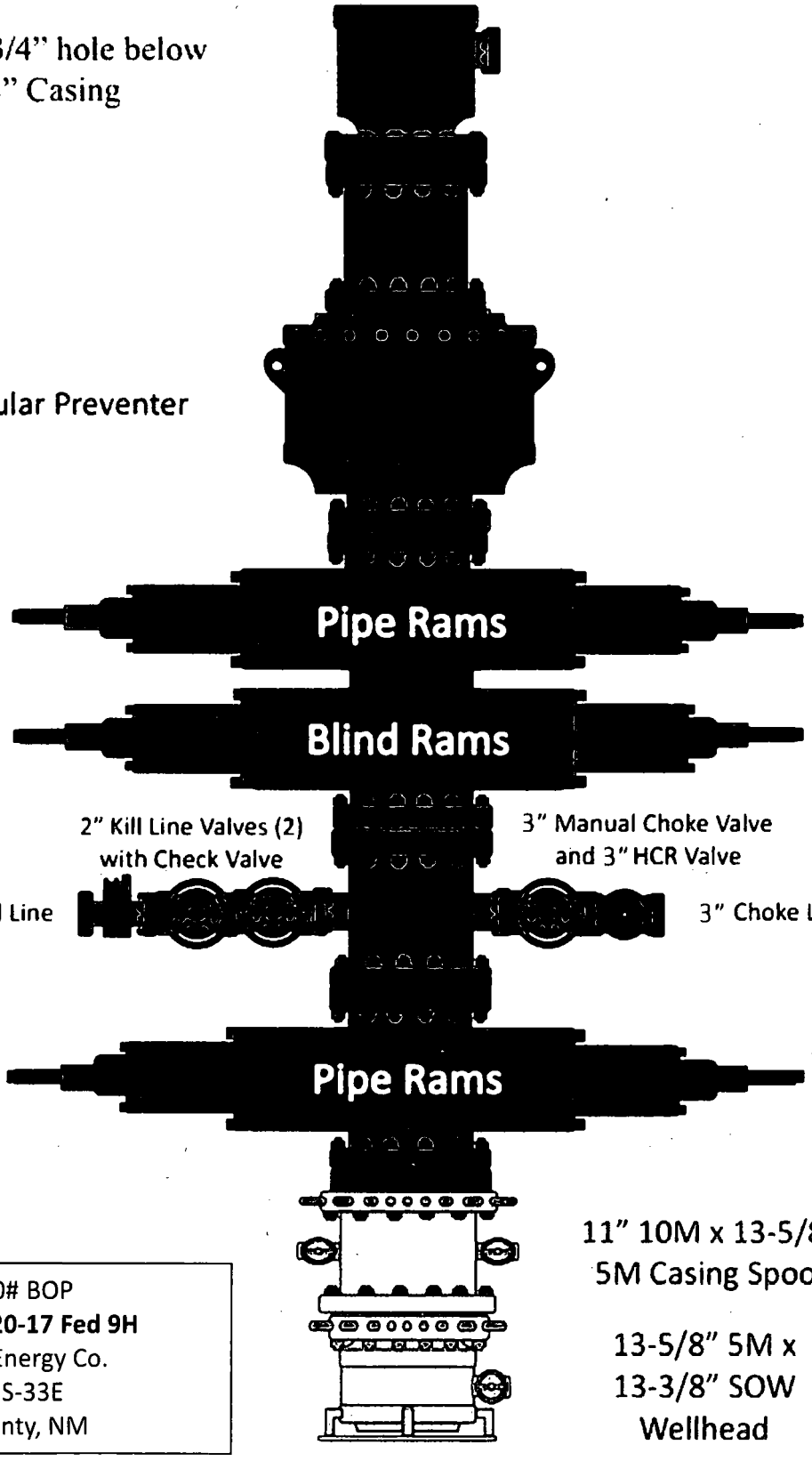



Exhibit E-1 – 5000# BOP
**Vaca Draw 20-17 Fed 9H**
Cimarex Energy Co.
20-25S-33E
Lea County, NM

Drilling 8-3/4" hole below
9-5/8" Casing




10,000# BOP
**Vaca Draw 20-17 Fed 9H**
Cimarex Energy Co.
20-25S-33E
Lea County, NM

# Vaca Draw 20-17 Fed 9H

Casing Assumptions

Cimarex Energy Co.

20-25S-33E

Lea Cty, NM

## Casing Program

| Hole Size | Casing Depth From | Casing Depth To | Casing Size | Weight (lb/ft) | Grade | Conn. | SF Collapse | SF Burst | SF Tension |
|---|---|---|---|---|---|---|---|---|---|
| 14 3/4 | 0 | 1034 | 10-3/4" | 40.50 | J-55 | BT&C | 3.34 | 6.62 | 15.02 |
| 9 7/8 | 0 | 12874 | 7-5/8" | 29.70 | L-80 | BT&C | 2.41 | 1.16 | 1.76 |
| 6 3/4 | 0 | 12249 | 5-1/2" | 23.00 | L-80 | LT&C | 1.40 | 1.24 | 2.13 |
| 6 3/4 | 12249 | 22493 | 5" | 18.00 | P-110 | BT&C | 1.62 | 1.64 | 64.32 |
| | | | | BLM Minimum Safety Factor | | | 1.125 | 1 | 1.6 Dry<br>1.8 Wet |

TVD was used on all calculations.

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

| Offset Trajectory | Separation | | | Allow | Sep. | Controlling | Reference Trajectory | | Risk Level | | | Alert | Status |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Ct-Ct (ft) | MAS (ft) | EOU (ft) | Dev. (ft) | Fact. | Rule | MD (ft) | TVD (ft) | Alert | Minor | Major | | |
| Cimarex Vaca Draw 20-17 Federal #4H Rev0 RM 13Apr17 (Non-Def Plan) | | | | | | | | | | | | | Fail Minor |
| | 72.13 | 32.81 | 69.58 | 39.32 | 1455.33 | MAS = 10.00 (m) | 0.00 | 0.00 | | | | Surface | |
| | 72.13 | 32.81 | 65.04 | 39.32 | 15.16 | MAS = 10.00 (m) | 24.00 | 24.00 | | | | WRP | |
| | 72.13 | 32.81 | 55.70 | 39.32 | 5.00 | MAS = 10.00 (m) | 3160.00 | 3160.00 | OSF<5.00 | | | Enter Alert | |
| | 72.13 | 72.15 | 23.20 | -0.02 | 1.50 | OSF1.50 | 10390.00 | 10390.00 | | OSF<1.50 | | Enter Minor | |
| | **72.13** | 82.00 | 16.63 | -9.87 | 1.31 | OSF1.50 | 11850.00 | 11850.00 | | | | MinPt-CtCt | |
| | 72.14 | 82.07 | **16.60** | **-9.93** | **1.31** | OSF1.50 | 11860.00 | 11860.00 | | | | MinPts | |
| | 82.93 | 82.97 | 26.78 | -0.04 | 1.50 | OSF1.50 | 12010.00 | 12010.00 | | OSF>1.50 | | Exit Minor | |
| | 277.70 | 85.25 | 220.03 | 192.45 | 4.99 | OSF1.50 | 12450.00 | 12444.13 | OSF>5.00 | | | Exit Alert | |
| | 388.23 | 118.37 | 308.48 | 269.86 | 4.99 | OSF1.50 | 14410.00 | 12750.00 | OSF<5.00 | | | Enter Alert | |
| | 380.68 | 380.81 | 125.98 | -0.13 | 1.50 | OSF1.50 | 21400.00 | 12750.00 | | OSF<1.50 | | Enter Minor | |
| | **379.50** | 424.90 | **95.40** | **-45.40** | **1.34** | OSF1.50 | 22493.17 | 12750.00 | | | | MinPts | |

## 1. Geological Formations

TVD of target 12,750
MD at TD 22,493

Pilot Hole TD N/A
Deepest expected fresh water

| Formation | Depth (TVD) from KB | Water/Mineral Bearing/Target Zone | Hazards |
|---|---|---|---|
| Rustler | 984 | N/A | |
| Salado | 1128 | N/A | |
| Castille | 4687 | N/A | |
| Bell Canyon | 4956 | N/A | |
| Cherry Canyon | 5974 | Hydrocarbons | |
| Brushy Canyon | 7484 | Hydrocarbons | |
| Bone Spring | 9040 | Hydrocarbons | |
| 2nd Bone Spring Sand | 10573 | Hydrocarbons | |
| 3rd Bone Spring Sand | 11726 | Hydrocarbons | |
| Wolfcamp | 12196 | Hydrocarbons | |
| Wolfcamp A1 Shale | 12361 | Hydrocarbons | |

## 2. Casing Program

| Hole Size | Casing Depth From | Casing Depth To | Casing Size | Weight (lb/ft) | Grade | Conn. | SF Collapse | SF Burst | SF Tension |
|---|---|---|---|---|---|---|---|---|---|
| 14 3/4 | 0 | 1034 | 10-3/4" | 40.50 | J-55 | BT&C | 3.34 | 6.62 | 15.02 |
| 9 7/8 | 0 | 12874 | 7-5/8" | 29.70 | L-80 | BT&C | 2.41 | 1.16 | 1.76 |
| 6 3/4 | 0 | 12249 | 5-1/2" | 23.00 | L-80 | LT&C | 1.40 | 1.24 | 2.13 |
| 6 3/4 | 12249 | 22493 | 5" | 18.00 | P-110 | BT&C | 1.62 | 1.64 | 64.32 |
| | | | | BLM Minimum Safety Factor | | | 1.125 | 1 | 1.6 Dry<br>1.8 Wet |

TVD was used on all calculations.
All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

| | Y or N |
|---|---|
| Is casing new? If used, attach certification as required in Onshore Order #1 | Y |
| Does casing meet API specifications? If no, attach casing specification sheet. | Y |
| Is premium or uncommon casing planned? If yes attach casing specification sheet. | N |
| Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria). | Y |
| Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing? | Y |
| Is well located within Capitan Reef? | N |
| If yes, does production casing cement tie back a minimum of 50' above the Reef? | N |
| Is well within the designated 4 string boundary. | N |
| Is well located in SOPA but not in R-111-P? | N |
| If yes, are the first 2 strings cemented to surface and 3rd string cement tied back 500' into previous casing? | N |
| Is well located in R-111-P and SOPA? | N |
| If yes, are the first three strings cemented to surface? | N |
| Is 2nd string set 100' to 600' below the base of salt? | N |
| Is well located in high Cave/Karst? | N |
| If yes, are there two strings cemented to surface? | N |
| (For 2 string wells) If yes, is there a contingency casing if lost circulation occurs? | N |
| Is well located in critical Cave/Karst? | N |
| If yes, are there three strings cemented to surface? | N |

### 3. Cementing Program

| Casing | # Sks | Wt. lb/gal | Yld ft3/sack | H2O gal/sk | 500# Comp. Strength (hours) | Slurry Description |
|---|---|---|---|---|---|---|
| **Surface** | 402 | 13.50 | 1.72 | 9.15 | 15.5 | Lead: Class C + Bentonite |
| | 107 | 14.80 | 1.34 | 6.32 | 9.5 | Tail: Class C + LCM |
| | | | | | | |
| **Intermediate** | 605 | 9.20 | 6.18 | 28.80 | | Lead: Class C + Extender + Salt + Strength Enhancement + LCM + Fluid Loss + Retarder |
| | 207 | 14.20 | 1.30 | 5.86 | 14:30 | Tail: 50:50 (Poz:H) + Salt + Bentonite + Fluid Loss + Dispersant + SMS |
| | | | | | | |
| **Production** | 724 | 14.20 | 1.30 | 5.86 | 14:30 | Tail: 50:50 (Poz:H) + Salt + Bentonite + Fluid Loss + Dispersant + SMS |
| | | | | | | |

| Casing String | TOC | % Excess |
|---|---|---|
| Surface | 0 | 45 |
| Intermediate | 0 | 48 |
| Production | 12674 | 9 |

## 4. Pressure Control Equipment

| | |
|---|---|
| | A variance is requested for the use of a diverter on the surface casing. See attached for schematic. |

| BOP installed and tested before drilling which hole? | Size | Min Required WP | Type | | Tested To |
|---|---|---|---|---|---|
| 9 7/8 | 13 5/8 | 5M | Annular | X | 50% of working pressure |
| | | | Blind Ram | | 5M |
| | | | Pipe Ram | X | |
| | | | Double Ram | X | |
| | | | Other | | |
| 6 3/4 | 13 5/8 | 10M | Annular | X | 50% of working pressure |
| | | | Blind Ram | | 10M |
| | | | Pipe Ram | X | |
| | | | Double Ram | X | |
| | | | Other | | |

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics.

| | | |
|---|---|---|
| X | Formation integrity test will be performed per Onshore Order #2.<br>On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i. | |
| X | A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart. | |
| | N | Are anchors required by manufacturer? |

## 5. Mud Program

| Depth | Type | Weight (ppg) | Viscosity | Water Loss |
|---|---|---|---|---|
| 0' to 1034' | FW Spud Mud | 8.30 - 8.80 | 30-32 | N/C |
| 1034' to 12874' | Brine Diesel Emulsion | 8.50 - 9.00 | 30-35 | N/C |
| 12874' to 22493' | Oil Based Mud | 12.00 - 12.50 | 50-70 | N/C |

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.

The Brine Emulsion is completely saturated brine fluid that ties diesel into itself to lower the weight of the fluid. The drilling fluid is completely salt saturated.

| | |
|---|---|
| What will be used to monitor the loss or gain of fluid? | PVT/Pason/Visual Monitoring |

## 6. Logging and Testing Procedures

| | Logging, Coring and Testing |
|---|---|
| X | Will run GR/CNL fromTD to surface (horizontal well – vertical portion of hole). Stated logs run will be in the Completion Report and submitted to the BLM. |
| | No logs are planned based on well control or offset log information. |
| | Drill stem test? |
| | Coring? |

| Additional Logs Planned | Interval |
|---|---|

## 7. Drilling Conditions

| Condition | |
|---|---|
| BH Pressure at deepest TVD | 8287 psi |
| Abnormal Temperature | No |

| | |
|---|---|
| | Hydrogen Sulfide (H2S) monitors will be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM. |
| X | H2S is present |
| X | H2S plan is attached |

## 8. Other Facets of Operation

## 9. Wellhead

A multi-bowl wellhead system will be utilized.

After running the 10-3/4" surface casing, a 13 5/8" BOP/BOPE system with a minimum working pressure of 10000 psi will be installed on the wellhead system and will be pressure tested to 250 psi low followed by a 10000 psi test. Annular will be tested to 50% of working pressure. The pressure test will be repeated at least every 30 days, as per Onshore Order No. 2.

The multi-bowl wellhead will be installed by vendor's representative. A copy of the installation instructions has been sent to the BLM field office.

The wellhead will be installed by a third-party welder while being monitored by the wellhead vendor representative.

All BOP equipment will be tested utilizing a conventional test plug. Not a cup or J-packer type.

A solid steel body pack-off will be utilized after running and cementing the intermediate casing. After installation the pack-off and lower flange will be pressure tested to 10000 psi.

The surface casing string will be tested as per Onshore Order No. 2 to at least 0.22 psi/ft or 1500 psi, whichever is greater.

The casing string utilizing steel body pack-off will be tested to 70% of casing burst.

If well conditions dictate conventional slips will be set and BOPE will be tested to appropriate pressures based on permitted pressure requirements.

Exhibit F – Co-Flex Hose

**Vaca Draw 20-17 Fed 9H**

Cimarex Energy Co.

20-25S-33E

Lea County, NM

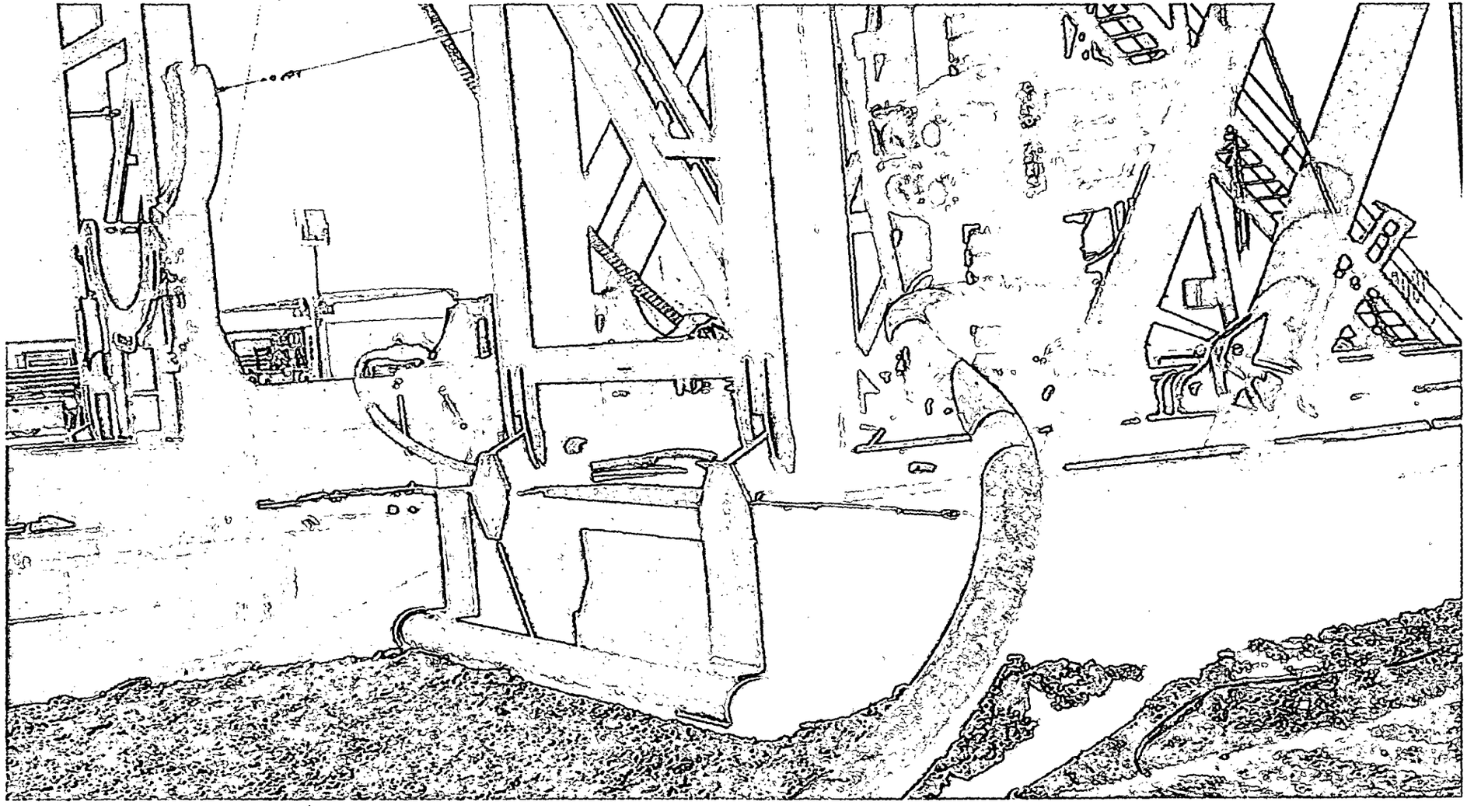


Exhibit F-1 – Co-Flex Hose Hydrostatic Test
**Vaca Draw 20-17 Fed 9H**
Cimarex Energy Co.
20-25S-33E
Lea County, NM

Midwest Hose
& Specialty, Inc.

# INTERNAL HYDROSTATIC TEST REPORT

| Customer: | P.O. Number: |
|---|---|
| Oderco Inc | odyd-271 |

## HOSE SPECIFICATIONS

| Type: | Hose Length: |
|---|---|
| Stainless Steel Armor Choke & Kill Hose | 45'ft. |

| I.D. | O.D. |
|---|---|
| 4 INCHES | 9 INCHES |

| WORKING PRESSURE | TEST PRESSURE | BURST PRESSURE |
|---|---|---|
| 10,000 PSI | 15,000 PSI | 0 PSI |

## COUPLINGS

| Stem Part No. | Ferrule No. |
|---|---|
| OKC<br>OKC | OKC<br>OKC |
| Type of Coupling: | |
| Swage-It | |

## PROCEDURE

*Hose assembly pressure tested with water at ambient temperature.*

| TIME HELD AT TEST PRESSURE | ACTUAL BURST PRESSURE: |
|---|---|
| 15 MIN. | 0 PSI |

| Hose Assembly Serial Number: | Hose Serial Number: |
|---|---|
| 79793 | OKC |

Comments:

| Date: | Tested: | Approved: |
|---|---|---|
| 3/8/2011 | | |

Midwest Hose & Specialty, Inc.

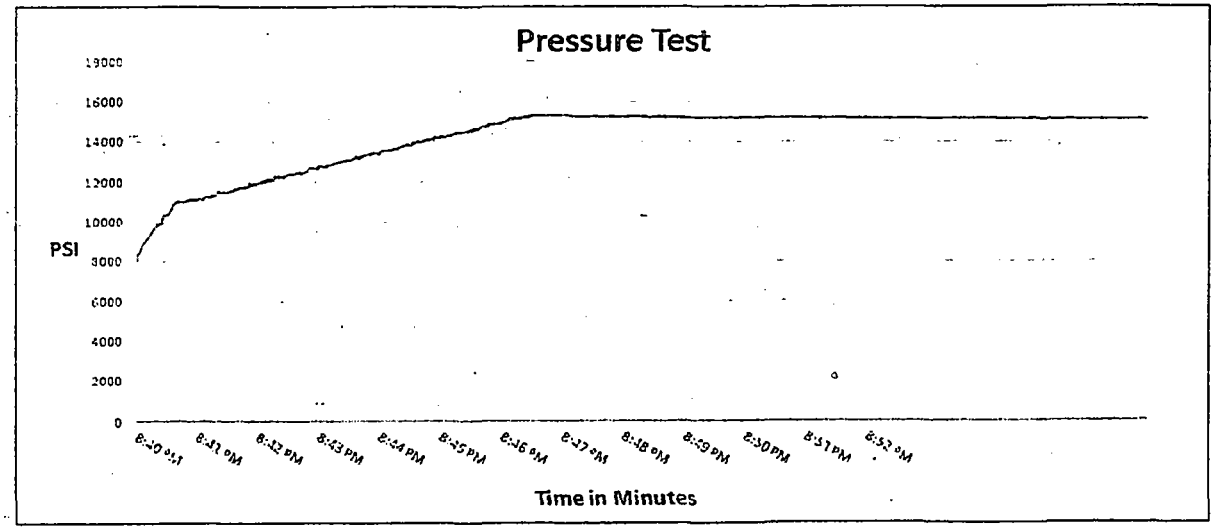
# Internal Hydrostatic Test Graph

March 3, 2011

**Customer:** Houston

**Pick Ticket #:** 94260

| Hose Specifications | | | |
|---|---|---|---|
| **Hose Type** | **Length** | **Type of Fitting** | **Coupling Method** |
| C & K | 45' | 4 1/16 10K | Swage |
| **I.D.** | **O.D.** | **Die Size** | **Final O.D.** |
| 4" | 6.09" | 6.38" | 6.25" |
| **Working Pressure** | **Burst Pressure** | **Hose Serial #** | **Hose Assembly Serial #** |
| 10000 PSI | Standard Safety Multiplier Applies | 5544 | 79793 |




| Test Pressure | Time Held at Test Pressure | Actual Burst Pressure | Peak Pressure |
|---|---|---|---|
| 15000 PSI | 11 Minutes | | 15483 PSI |

**Comments:** Hose assembly pressure tested with water at ambient temperature.

**Tested By:** *Zac Mcconnell*

**Approved By:** *Kim Thomas*

Exhibit F-1 – Co-Flex Hose Hydrostatic Test
**Vaca Draw 20-17 Fed 9H**
Cimarex Energy Co.
20-25S-33E
Lea County, NM

Exhibit F-2 – Co-Flex Hose
**Vaca Draw 20-17 Fed 9H**
Cimarex Energy Co.
20-25S-33E
Lea County, NM

Midwest Hose
& Specialty, Inc.

## Certificate of Conformity

| Customer: | PO |
|---|---|
| DEM | ODYD-271 |

**SPECIFICATIONS**

| Sales Order | Dated: |
|---|---|
| 79793 | 3/8/2011 |

We hereby cerify that the material supplied for the referenced purchase order to be true according to the requirements of the purchase order and current industry standards

Supplier:
Midwest Hose & Specialty, Inc.
10640 Tanner Road
Houston, Texas 77041

**Comments:**

| Approved: | Date: |
|---|---|
| Daniel Garcia | 3/8/2011 |

Midwest Hose & Specialty, Inc.

Exhibit F -3– Co-Flex Hose
**Vaca Draw 20-17 Fed 9H**
Cimarex Energy Co.
20-25S-33E
Lea County, NM

# Specification Sheet
# Choke & Kill Hose

The Midwest Hose & Specialty Choke & Kill hose is manufactured with only premium componets.The reinforcement cables, inner liner and cover are made of the highest quality material to handle the tough drilling applications of today's industry. The end connections are available with API flanges, API male threads, hubs, hammer unions or other special fittings upon request. Hose assembly is manufactured to API 7K. This assembly is wrapped with fire resistant vermculite coated fiberglass insulation, rated at 2000 degrees with stainless steel armor cover.

| | |
|---|---|
| **Working Pressure:** | 5,000 or 10,000 psi working pressure |
| **Test Pressure:** | 10,000 or 15,000 psi test pressure |
| **Reinforcement:** | Multiple steel cables |
| **Cover:** | Stainless Steel Armor |
| **Inner Tube:** | Petroleum resistant, Abrasion resistant |
| **End Fitting:** | API flanges, API male threads, threaded or butt weld hammer unions, unibolt and other special connections |
| **Maximum Length:** | 110 Feet |
| **ID:** | 2-1/2", 3", 3-1/2", 4" |
| **Operating Temperature:** | -22 deg F to +180 deg F (-30 deg C to +82 deg C) |

P.O. Box 96558 – 1421 S.E. 29th St. Oklahoma City, OK 73143 * (405) 670-6718 * Fax: (405) 670-6816

**APD ID:** 10400013698 **Submission Date:** 05/09/2017

**Operator Name:** CIMAREX ENERGY COMPANY

**Well Name:** VACA DRAW 20-17 FEDERAL **Well Number:** 9H

**Well Type:** CONVENTIONAL GAS WELL **Well Work Type:** Drill

Highlighted data reflects the most recent changes

Show Final Text

## Section 1 - Existing Roads

**Will existing roads be used?** NO

## Section 2 - New or Reconstructed Access Roads

**Will new roads be needed?** YES

**New Road Map:**

Vaca_Draw_20_17_Fed_9H_Access_Road_ROW_05-04-2017.pdf

**New road type:** COLLECTOR

**Length:** 785 Feet **Width (ft.):** 30

**Max slope (%):** 2 **Max grade (%):** 6

**Army Corp of Engineers (ACOE) permit required?** NO

**ACOE Permit Number(s):**

**New road travel width:** 15

**New road access erosion control:** The side slopes of any drainage channels or swales that are crossed will be re-contoured to original grade and compacted and mulched as necessary to avoid erosion. Where steeper slopes cannot be avoided, water bars or silt fence will be constructed, mulch/rip-rap applied, or other measures employed as necessary to control erosion. Hay bales, straw waddles or silt fence may also be installed to control erosion as needed. All disturbed areas will be seeded with a mix appropriate for the area unless specified otherwise by the landowner.

**New road access plan or profile prepared?** NO

**New road access plan attachment:**

**Access road engineering design?** NO

**Access road engineering design attachment:**

**Access surfacing type:** GRAVEL

**Access topsoil source:** ONSITE

**Access surfacing type description:**

**Access onsite topsoil source depth:** 6

**Offsite topsoil source description:**

**Onsite topsoil removal process:** Push off and stockpile alongside the location.

**Access other construction information:** The operator will prevent and abate fugitive dust as needed, whether created by vehicular traffic, equipment operations or other events.
**Access miscellaneous information:**

**Number of access turnouts:** **Access turnout map:**

## Drainage Control

**New road drainage crossing:** CULVERT,LOW WATER,OTHER

**Drainage Control comments:** To control and prevent potentially contaminated precipitation from leaving the pad site, a perimeter berm and settlement pond will be installed. Contaminated water will be removed from pond, stored in waste tanks, and disposed of at a state approved facility. Standing water or puddles will not be allowed. Drainage ditches would be established and maintained on the pad and along access roads to divert water away from operations. Natural drainage areas disturbed during construction would be re-contoured to near original condition prior to construction. Erosion Control Best Management Practices would be used where necessary and consist of seeding, fiber rolls, water bars, silt fences, and temporary diversion dikes. Areas disturbed during construction that are no longer needed for operations would be obliterated, re-contoured to near original condition prior to construction. Erosion Control Best Management Practices would be used where necessary and consist of seeding, fiber rolls, water bars, silt fences, and temporary diversion dikes. Areas disturbed during construction that are no longer needed for operations would be obliterated, re-contoured, and reclaimed to near original condition to re-establish natural drainage.
**Road Drainage Control Structures (DCS) description:** N/A

**Road Drainage Control Structures (DCS) attachment:**

## Access Additional Attachments

**Additional Attachment(s):**

## Section 3 - Location of Existing Wells

**Existing Wells Map?** YES

**Attach Well map:**

Vaca_Draw_20_17_Fed_9H_Mile_radius_and_Existing_wells_05-04-2017.pdf

**Existing Wells description:**

## Section 4 - Location of Existing and/or Proposed Production Facilities

**Submit or defer a Proposed Production Facilities plan?** SUBMIT

**Production Facilities description:**

**Production Facilities map:**

Vaca_Draw_20_17_Fed_Battery_Layout_05-04-2017.pdf

## Section 5 - Location and Types of Water Supply

### Water Source Table

**Water source use type:** INTERMEDIATE/PRODUCTION CASING, SURFACE CASING
**Water source type:** MUNICIPAL
**Describe type:**
**Source latitude:**
**Source longitude:**
**Source datum:**
**Water source permit type:** WATER RIGHT
**Permit Number:**
**Source land ownership:** STATE
**Water source transport method:** PIPELINE,TRUCKING
**Source transportation land ownership:** STATE
**Water source volume (barrels):** 5000
**Source volume (acre-feet):** 0.6444655
**Source volume (gal):** 210000

**Water source and transportation map:**

Vaca_Draw_20_17_Fed_9H_Drlg_water_route_20170908121605.pdf

**Water source comments:**

**New water well?** NO

### New Water Well Info

**Well latitude:** **Well Longitude:** **Well datum:**
**Well target aquifer:**
**Est. depth to top of aquifer(ft):** **Est thickness of aquifer:**
**Aquifer comments:**
**Aquifer documentation:**

**Well depth (ft):** **Well casing type:**
**Well casing outside diameter (in.):** **Well casing inside diameter (in.):**
**New water well casing?** **Used casing source:**
**Drilling method:** **Drill material:**
**Grout material:** **Grout depth:**
**Casing length (ft.):** **Casing top depth (ft.):**
**Well Production type:** **Completion Method:**

**Water well additional information:**

**State appropriation permit:**

**Additional information attachment:**

## Section 6 - Construction Materials

**Construction Materials description:** The drilling and testing operations will be conducted on a watered and compacted native soil grade. Soft spots will be covered with scoria, free of large rocks (3" diameter). Upon completion as a commercial producer the location will be covered with scoria, free of large rocks (3" dia.) from an existing privately owned gravel pit. Caliche will be sued form a pit located in Sec 3-26S-33E, per the Surface Use Agreement we are required to use this pit.
**Construction Materials source location attachment:**

## Section 7 - Methods for Handling Waste

**Waste type:** DRILLING

**Waste content description:** Drilling Fluids, drill cuttings, water and other waste produced from the well during drilling operations.
**Amount of waste:** 15000 barrels

**Waste disposal frequency :** Weekly

**Safe containment description:** n/a

**Safe containmant attachment:**

**Waste disposal type:** HAUL TO COMMERCIAL FACILITY **Disposal location ownership:** COMMERCIAL
**Disposal type description:**

**Disposal location description:** Haul to R360 commercial Disposal

**Waste type:** GARBAGE

**Waste content description:** Garbage and trash produced during drilling and completion operations

**Amount of waste:** 32500 pounds

**Waste disposal frequency :** Weekly

**Safe containment description:** n/a

**Safe containmant attachment:**

**Waste disposal type:** HAUL TO COMMERCIAL FACILITY **Disposal location ownership:** COMMERCIAL
**Disposal type description:**

**Disposal location description:** Windmill Spraying Service hauls trash to Lea County Landfill

## Reserve Pit

**Reserve Pit being used?** NO

**Temporary disposal of produced water into reserve pit?**

**Reserve pit length (ft.)** **Reserve pit width (ft.)**

**Reserve pit depth (ft.)** **Reserve pit volume (cu. yd.)**

**Is at least 50% of the reserve pit in cut?**

**Reserve pit liner**

**Reserve pit liner specifications and installation description**

## Cuttings Area

**Cuttings Area being used?** NO

**Are you storing cuttings on location?** NO

**Description of cuttings location**

**Cuttings area length (ft.)** **Cuttings area width (ft.)**

**Cuttings area depth (ft.)** **Cuttings area volume (cu. yd.)**

**Is at least 50% of the cuttings area in cut?**

**WCuttings area liner**

**Cuttings area liner specifications and installation description**

## Section 8 - Ancillary Facilities

**Are you requesting any Ancillary Facilities?:** NO

**Ancillary Facilities attachment:**

**Comments:**

## Section 9 - Well Site Layout

**Well Site Layout Diagram:**

Vaca_Draw_20_17_Fed_9H_Wellsite_Layout_05-09-2017.pdf

**Comments:**

**Operator Name:** CIMAREX ENERGY COMPANY

**Well Name:** VACA DRAW 20-17 FEDERAL **Well Number:** 9H

## Section 10 - Plans for Surface Reclamation

**Type of disturbance:** New Surface Disturbance **Multiple Well Pad Name:** VACA DRAW SUPER PAD

**Multiple Well Pad Number:** 2

**Recontouring attachment:**

Vaca_Draw_20_17_Fed_9H_Interim_Reclaim_05-04-2017.pdf

**Drainage/Erosion control construction:** To control and prevent potentially contaminated precipitation from leaving the pad site, a perimeter berm and settlement pond will be installed. Contaminated water will be removed from pond, stored in waste tanks, and disposed of at a state approved facility. Standing water or puddles will not be allowed. Drainage ditches would be established and maintained on the pad and along access roads to divert water away from operations. Natural drainage areas disturbed during construction would be re-contoured to near original condition prior to construction. Erosion Control Best Management Practices would be used where necessary and consist of seeding, fiber rolls, water bars, silt fences, and temporary diversion dikes. Areas disturbed during construction that are no longer needed for operations would be obliterated, re-contoured to near original condition prior to construction. Erosion Control Best Management Practices would be used where necessary and consist of seeding, fiber rolls, water bars, silt fences, and temporary diversion dikes. Areas disturbed during construction that are no longer needed for operations would be obliterated, re-contoured, and reclaimed to near original condition to re-establish natural drainage.

**Drainage/Erosion control reclamation:** All disturbed and re-contoured areas would be reseeded according to specifications. Approved seed mixtures would be certified weed free and consist of grasses, forbs, or shrubs similar to the surrounding area. Compacted soil areas may need to be obliterated and reclaimed to near natural conditions by re-contouring all slopes to facilitate and re-establish natural drainage.

**Wellpad long term disturbance (acres):** 6.903

**Wellpad short term disturbance (acres):** 6.903

**Access road long term disturbance (acres):** 0.758

**Access road short term disturbance (acres):** 0.758

**Pipeline long term disturbance (acres):** 39.751377

**Pipeline short term disturbance (acres):** 0.4275482

**Other long term disturbance (acres):** 4.367

**Other short term disturbance (acres):** 0

**Total long term disturbance:** 51.779377

**Total short term disturbance:** 8.088549

**Reconstruction method:** After well plugging, all disturbed areas would be returned to the original contour or a contour that blends with the surrounding landform including roads unless the surface owner requests that they be left intact. In consultation with the surface owners it will be determined if any gravel or similar materials used to reinforce an area are to be removed, buried, or left in place during final reclamation. Salvaged topsoil, if any, would be re-spread evenly over the surfaces to be re-vegetated. As necessary, the soil surface would be prepared to provide a seedbed for re-establishment of desirable vegetation. Site preparation may include gouging, scarifying, dozer track-walking, mulching, or fertilizing. Reclamation, Re-vegetation, and Drainage: All disturbed and re-contoured areas would be reseeded using techniques outlined under Phase I and II of this plan or as specified by the land owner. Approved seed mixtures would be certified weed free and consist of grasses, forbs, or shrubs similar to the surrounding area. Compacted soil areas may need to be obliterated and reclaimed to near natural conditions by re-contouring all slopes to facilitate and re-establish natural drainage.
**Topsoil redistribution:** Salvaged topsoil, if any, would be re-spread evenly over the surfaces to be re-vegetated.

**Soil treatment:** As necessary, the soil surface would be prepared to provide a seedbed for re-establishment of desirable vegetation. Site preparation may include gouging, scarifying, dozer track-walking, mulching or fertilizing.
**Existing Vegetation at the well pad:**

**Existing Vegetation at the well pad attachment:**

**Existing Vegetation Community at the road:**

**Existing Vegetation Community at the road attachment:**

**Existing Vegetation Community at the pipeline:**

**Existing Vegetation Community at the pipeline attachment:**

**Existing Vegetation Community at other disturbances:**

**Existing Vegetation Community at other disturbances attachment:**

**Non native seed used?** NO

**Non native seed description:**

**Seedling transplant description:**

**Will seedlings be transplanted for this project?** NO

**Seedling transplant description attachment:**

**Will seed be harvested for use in site reclamation?** NO

**Seed harvest description:**

**Seed harvest description attachment:**

## Seed Management

### Seed Table

**Seed type:** **Seed source:**

**Seed name:**

**Source name:** **Source address:**

**Source phone:**

**Seed cultivar:**

**Seed use location:**

**PLS pounds per acre:** **Proposed seeding season:**

### Seed Summary

**Total pounds/Acre:**

| Seed Type | Pounds/Acre |
|---|---|

**Seed reclamation attachment:**

## Operator Contact/Responsible Official Contact Info

**First Name:** **Last Name:**

**Phone:** **Email:**

**Seedbed prep:**

**Seed BMP:**

**Seed method:**

**Existing invasive species?** NO

**Existing invasive species treatment description:**

**Existing invasive species treatment attachment:**

**Weed treatment plan description:** N/A

**Weed treatment plan attachment:**

**Monitoring plan description:** N/A

**Monitoring plan attachment:**

**Success standards:** N/A

**Pit closure description:** N/A

**Pit closure attachment:**

## Section 11 - Surface Ownership

**Disturbance type:** WELL PAD

**Describe:**

**Surface Owner:** BUREAU OF LAND MANAGEMENT

**Other surface owner description:**

**BIA Local Office:**

**BOR Local Office:**

**COE Local Office:**

**DOD Local Office:**

**NPS Local Office:**

**State Local Office:**

**Military Local Office:**

**USFWS Local Office:**

**Other Local Office:**

**USFS Region:**

**USFS Forest/Grassland:** **USFS Ranger District:**

## Section 12 - Other Information

**Right of Way needed?** YES **Use APD as ROW?** YES

**ROW Type(s):** 281001 ROW - ROADS,285003 ROW – POWER TRANS,288100 ROW – O&G Pipeline,288101 ROW – O&G Facility Sites,288103 ROW – Salt Water Disposal Pipeline/Facility,288104 ROW – Salt Water Disposal Apln/Fac-FLPMA,289001 ROW- O&G Well Pad,FLPMA (Powerline),Other

### ROW Applications

**SUPO Additional Information:**

**Use a previously conducted onsite?** YES

**Previous Onsite information:** Onsite with BLM (Jeff Robertson) and Cimarex (Barry Hunt) on December 8, 2016. 500' X 560' pad (From #2H 190' north, 180' west, 370' south, 320' east). Top soil East. Interim reclamation: All sides. Access road from NW corner of pad, west, to the NE corner of the west pad. Vaca Draw 20-17 Federal off-site battery-Center: 1055 FSL & 1052 FWL, Section 20, T. 25 S., R. 33 E. (450' north/south X 400' east/west pad). Top soil west. Access road from SE corner, south to tie-in at proposed east/west road of Vaca Draw 20-17 Federal East half pad to west half pad.

### Other SUPO Attachment

Vaca_Draw_20_17_Fed_9H_Public_Access_05-04-2017.pdf
Vaca_Draw_20_17_Fed_9H_Mile_radius_and_Existing_wells_05-04-2017.pdf
Vaca_Draw_20_17_Fed_Battery_Gas_Sales_ROW_05-04-2017.pdf
Vaca_Draw_20_17_Fed_9H_Gas_lift_Flow_line_ROW_05-04-2017.pdf
Vaca_Draw_20_17_Fed_9H_SUPO_05-04-2017.pdf
Vaca_Draw_20_17_Fed_9H_Road_Description_05-04-2017.pdf
Vaca_Draw_20_17_Fed_9H_Temp_water_route_05-04-2017.pdf
Vaca_Draw_20_17_Fed_Battery_Powerline_ROW_05-04-2017.pdf
Vaca_Draw_20_17_Fed_Battery_Road_ROW_05-04-2017.pdf
Vaca_Draw_20_17_Fed_Battery_SWD_ROW_05-04-2017.pdf

## Section 1 - General

**Would you like to address long-term produced water disposal?** NO

## Section 2 - Lined Pits

**Would you like to utilize Lined Pit PWD options?** NO

**Produced Water Disposal (PWD) Location:**

**PWD surface owner:**

**PWD disturbance (acres):**

**Lined pit PWD on or off channel:**

**Lined pit PWD discharge volume (bbl/day):**

**Lined pit specifications:**

**Pit liner description:**

**Pit liner manufacturers information:**

**Precipitated solids disposal:**

**Decribe precipitated solids disposal:**

**Precipitated solids disposal permit:**

**Lined pit precipitated solids disposal schedule:**

**Lined pit precipitated solids disposal schedule attachment:**

**Lined pit reclamation description:**

**Lined pit reclamation attachment:**

**Leak detection system description:**

**Leak detection system attachment:**

**Lined pit Monitor description:**

**Lined pit Monitor attachment:**

**Lined pit: do you have a reclamation bond for the pit?**

**Is the reclamation bond a rider under the BLM bond?**

**Lined pit bond number:**

**Lined pit bond amount:**

**Additional bond information attachment:**

| CIMAREX ENERGY CO.-VACA DRAW 20-17 FEDERAL TANK BATTERY | | | |
|---|---|---|---|
| SECTION CORNER | DESCRIPTION | LATITUDE (NAD 83) | LONGITUDE (NAD 83) |
| NW COR. SEC. 21, T25S, R33E | 2" IRON PIPE W/ BRASS CAP, 1913 | N 32°07'24.02" | W 103°35'08.74" |
| N 1/4 COR. SEC. 21, T25S, R33E | 1" IRON PIPE W/ BRASS CAP, 1918 | N 32°07'23.96" | W 103°34'38.17" |
| NE COR. SEC. 21, T25S, R33E | 2" IRON PIPE W/ BRASS CAP, 1918 | N 32°07'23.89" | W 103°34'07.63" |
| E 1/4 COR. SEC. 21, T25S, R33E | 1" IRON PIPE W/ BRASS CAP, 1918 | N 32°06'57.76" | W 103°34'07.64" |
| W 1/4 COR. SEC. 21, T25S, R33E | 1" IRON PIPE W/ BRASS CAP, 1913 | N 32°06'57.88" | W 103°35'08.76" |
| SW COR. SEC. 21, T25S, R33E | 2" IRON PIPE W/ BRASS CAP | N 32°06'31.76" | W 103°35'08.77" |
| S 1/4 COR. SEC. 21, T25S, R33E | 1" IRON PIPE W/ BRASS CAP | N 32°06'31.68" | W 103°34'38.21" |
| SE COR. SEC. 21, T25S, R33E | 2" IRON PIPE W/ BRASS CAP | N 32°06'31.63" | W 103°34'07.65" |

| CIMAREX ENERGY CO.-VACA DRAW 20-17 FEDERAL TANK BATTERY LATERAL "B" | | | |
|---|---|---|---|
| NUMBER | STATION | LATITUDE (NAD 83) | LONGITUDE (NAD 83) |
| BEGIN | 57+61.80 | N 32°06'31.65" | W 103°34'20.94" |
| 1 | 62+35.51 | N 32°06'36.34" | W 103°34'20.93" |
| END | 65+08.75 | N 32°06'36.24" | W 103°34'17.76" |

CERTIFICATE
THIS IS TO CERTIFY THAT THIS EASEMENT PLAT AND THE ACTUAL SURVEY ON THE GROUND UPON WHICH IT IS BASED WERE PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION; THAT I AM RESPONSIBLE FOR THIS SURVEY; THAT THIS SURVEY MEETS THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO; AND THAT IT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

STATE OF NEW MEXICO
23782
PROFESSIONAL SURVEYOR
04-05-17

FILE: 61386-M2 *Sheet 2 of 2*
REV: 1 04-03-17 S.F. (COMBINED OPTIONAL SWD ROUTES)

NOTES:

**CIMAREX ENERGY CO.**

**VACA DRAW 20-17 FEDERAL BATTERY**
**SECTION 21, T25S, R33E, N.M.P.M.**
**LEA COUNTY, NEW MEXICO**

| SURVEYED BY | C.J., D.J. | 01-24-17 | SCALE |
|---|---|---|---|
| DRAWN BY | B.D.H. | 02-04-17 | N/A |
| SWD FLOW LINE R-O-W | | | |

UELS, LLC
Corporate Office * 85 South 200 East
Vernal, UT 84078 * (435) 789-1017

## Section 3 - Unlined Pits

**Would you like to utilize Unlined Pit PWD options?** NO

**Produced Water Disposal (PWD) Location:**

**PWD surface owner:** **PWD disturbance (acres):**

**Unlined pit PWD on or off channel:**

**Unlined pit PWD discharge volume (bbl/day):**

**Unlined pit specifications:**

**Precipitated solids disposal:**

**Decribe precipitated solids disposal:**

**Precipitated solids disposal permit:**

**Unlined pit precipitated solids disposal schedule:**

**Unlined pit precipitated solids disposal schedule attachment:**

**Unlined pit reclamation description:**

**Unlined pit reclamation attachment:**

**Unlined pit Monitor description:**

**Unlined pit Monitor attachment:**

**Do you propose to put the produced water to beneficial use?**

**Beneficial use user confirmation:**

**Estimated depth of the shallowest aquifer (feet):**

**Does the produced water have an annual average Total Dissolved Solids (TDS) concentration equal to or less than that of the existing water to be protected?**

**TDS lab results:**

**Geologic and hydrologic evidence:**

**State authorization:**

**Unlined Produced Water Pit Estimated percolation:**

**Unlined pit: do you have a reclamation bond for the pit?**

**Is the reclamation bond a rider under the BLM bond?**

**Unlined pit bond number:**

**Unlined pit bond amount:**

**Additional bond information attachment:**

## Section 4 - Injection

**Would you like to utilize Injection PWD options?** NO

**Produced Water Disposal (PWD) Location:**

**PWD surface owner:** **PWD disturbance (acres):**

**Injection PWD discharge volume (bbl/day):**

**Injection well mineral owner:**

**Injection well type:**

**Injection well number:** **Injection well name:**

**Assigned injection well API number?** **Injection well API number:**

**Injection well new surface disturbance (acres):**

**Minerals protection information:**

**Mineral protection attachment:**

**Underground Injection Control (UIC) Permit?**

**UIC Permit attachment:**

## Section 5 - Surface Discharge

**Would you like to utilize Surface Discharge PWD options?** NO

**Produced Water Disposal (PWD) Location:**

**PWD surface owner:** **PWD disturbance (acres):**

**Surface discharge PWD discharge volume (bbl/day):**

**Surface Discharge NPDES Permit?**

**Surface Discharge NPDES Permit attachment:**

**Surface Discharge site facilities information:**

**Surface discharge site facilities map:**

## Section 6 - Other

**Would you like to utilize Other PWD options?** NO

**Produced Water Disposal (PWD) Location:**

**PWD surface owner:** **PWD disturbance (acres):**

**Other PWD discharge volume (bbl/day):**

**Other PWD type description:**

**Other PWD type attachment:**

**Have other regulatory requirements been met?**

**Other regulatory requirements attachment:**

AFMSS

U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

# Bond Info Data Report

01/02/2018

## Bond Information

**Federal/Indian APD:** FED

**BLM Bond number:** NMB001188

**BIA Bond number:**

**Do you have a reclamation bond?** NO

**Is the reclamation bond a rider under the BLM bond?**

**Is the reclamation bond BLM or Forest Service?**

**BLM reclamation bond number:**

**Forest Service reclamation bond number:**

**Forest Service reclamation bond attachment:**

**Reclamation bond number:**

**Reclamation bond amount:**

**Reclamation bond rider amount:**

**Additional reclamation bond information attachment:**

**Operator Name:** CIMAREX ENERGY COMPANY

**Well Name:** VACA DRAW 20-17 FEDERAL **Well Number:** 9H

| | NS-Foot | NS Indicator | EW-Foot | EW Indicator | Twsp | Range | Section | Aliquot/Lot/Tract | Latitude | Longitude | County | State | Meridian | Lease Type | Lease Number | Elevation | MD | TVD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EXIT Leg #1 | 330 | FNL | 2261 | FWL | 25S | 33E | 17 | Aliquot NENW | 32.136947 | -103.595536 | LEA | NEW MEXICO | NEW MEXICO | F | NMNM 26394 | -9333 | 22493 | 12750 |
| BHL Leg #1 | 330 | FNL | 2261 | FWL | 25S | 33E | 17 | Aliquot NENW | 32.136947 | -103.595536 | LEA | NEW MEXICO | NEW MEXICO | F | NMNM 26394 | -9333 | 22493 | 12750 |