

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
APPLICATION FOR PERMIT TO DRILL OR REENTER

FORM APPROVED
OMB No. 1004-0137
Expires: January 31, 2018

BOBBS OCD
DEC 11 2019
RECEIVED

1a. Type of work: ☒ DRILL ☐ REENTER		5. Lease Serial No. MNM0024368A
1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other		6. If Indian, Allottee or Tribe Name
1c. Type of Completion: ☐ Hydraulic Fracturing ☒ Single Zone ☐ Multiple Zone		7. If Unit or CA Agreement, Name and No.
2. Name of Operator CIMAREX ENERGY COMPANY OF COLORADO (162683)		8. Lease Name and Well No. RED HILLS UNIT 35H (300945)
3a. Address 600 N. Marienfeld St., Suite 600 Midland TX 79701	3b. Phone No. (include area code) (432)620-1936	9. API Well No. 30-025-46598
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface NWNW / 434 FNL / 450 FWL / LAT 32.093113 / LONG -103.584324 At proposed prod. zone SWSW / 100 FSL / 1033 FWL / LAT 32.065557 / LONG -103.582441		10. Field and Pool, or Exploratory RUSSELL / BONE SPRING WC (97994)
11. Sec., T. R. M. or Blk. and Survey or Area SEC 33 / T25S / R33E / NMP		
14. Distance in miles and direction from nearest town or post office* 23 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) 434 feet	16. No of acres in lease 160	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 9250 feet / 19134 feet	20. BLM/BIA Bond No. in file FED: NMB001187
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3379 feet	22. Approximate date work will start* 04/01/2019	23. Estimated duration 30 days
24. Attachments		

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, and the Hydraulic Fracturing rule per 43 CFR 3162.3-3 (as applicable)

- | | |
|--|---|
| 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 requested by the BLM. |

25. Signature (Electronic Submission)	Name (Printed/Typed) Aricka Easterling / Ph: (918)560-7060	Date 10/24/2018
Title Regulatory Analyst		
Approved by (Signature) (Electronic Submission)	Name (Printed/Typed) Christopher Walls / Ph: (575)234-2234	Date 12/08/2019
Title Petroleum Engineer		
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.

SCP Rec 12/11/19

KE
12/12/19

APPROVED WITH CONDITIONS
Approval Date: 12/08/2019

INSTRUCTIONS

GENERAL: This form is designed for submitting proposals to perform certain well operations, as indicated on Federal and Indian lands and leases for action by appropriate Federal agencies, pursuant to applicable Federal laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from local Federal offices.

ITEM I: If the proposal is to redrill to the same reservoir at a different subsurface location or to a new reservoir, use this form with appropriate notations. Consult applicable Federal regulations concerning subsequent work proposals or reports on the well.

ITEM 4: Locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local Federal offices for specific instructions.

ITEM 14: Needed only when location of well cannot readily be found by road from the land or lease description. A plat, or plats, separate or on the reverse side, showing the roads to, and the surveyed location of, the well, and any other required information, should be furnished when required by Federal agency offices.

ITEMS 15 AND 18: If well is to be, or has been directionally drilled, give distances for subsurface location of hole in any present or objective productive zone.

ITEM 22: Consult applicable Federal regulations, or appropriate officials, concerning approval of the proposal before operations are started.

ITEM 24: If the proposal will involve hydraulic fracturing operations, you must comply with 43 CFR 3162.3-3, including providing information about the protection of usable water. Operators should provide the best available information about all formations containing water and their depths. This information could include data and interpretation of resistivity logs run on nearby wells. Information may also be obtained from state or tribal regulatory agencies and from local BLM offices.

NOTICES

The Privacy Act of 1974 and regulation in 43 CFR 2.48(d) provide that you be furnished the following information in connection with information required by this application.

AUTHORITY: 30 U.S.C. 181 et seq., 25 U.S.C. 396; 43 CFR 3160

PRINCIPAL PURPOSES: The information will be used to: (1) process and evaluate your application for a permit to drill a new oil, gas, or service well or to reenter a plugged and abandoned well; and (2) document, for administrative use, information for the management, disposal and use of National Resource Lands and resources including (a) analyzing your proposal to discover and extract the Federal or Indian resources encountered; (b) reviewing procedures and equipment and the projected impact on the land involved; and (c) evaluating the effects of the proposed operation on the surface and subsurface water and other environmental impacts.

ROUTINE USE: Information from the record and/or the record will be transferred to appropriate Federal, State, and local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecution, in connection with congressional inquiries and for regulatory responsibilities.

EFFECT OF NOT PROVIDING INFORMATION: Filing of this application and disclosure of the information is mandatory only if you elect to initiate a drilling or reentry operation on an oil and gas lease.

The Paperwork Reduction Act of 1995 requires us to inform you that:

The BLM connects this information to an evaluation of the technical, safety, and environmental factors involved with drilling for oil and/or gas on Federal and Indian oil and gas leases. This information will be used to analyze and approve applications. Response to this request is mandatory only if the operator elects to initiate drilling or reentry operations on an oil and gas lease. The BLM would like you to know that you do not have to respond to this or any other Federal agency-sponsored information collection unless it displays a currently valid OMB control number.

BURDEN HOURS STATEMENT: Public reporting burden for this form is estimated to average 8 hours per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect of this form to U.S. Department of the Interior, Bureau of Land Management (1004-0137), Bureau Information Connection Clearance Officer (WO-630), 1849 C Street, N.W., Mail Stop 401 LS, Washington, D.C. 20240.

Additional Operator Remarks

Location of Well

I. SHL: NWNW / 434 FNL / 450 FWL / TWSP: 25S / RANGE: 33E / SECTION: 33 / LAT: 32.093113 / LONG: -103.584324 (TVD: 0 feet, MD: 0 feet)
PPP: NWSW / 2640 FSL / 1033 FWL / TWSP: 25S / RANGE: 33E / SECTION: 33 / LAT: 32.0870889 / LONG: -103.5823944 (TVD: 9250 feet, MD: 11300 feet)
PPP: SWSW / 1320 FSL / 1033 FWL / TWSP: 25S / RANGE: 33E / SECTION: 33 / LAT: 32.0835167 / LONG: -103.58222 (TVD: 9250 feet, MD: 12600 feet)
PPP: NWNW / 490 FNL / 1033 FWL / TWSP: 25S / RANGE: 33E / SECTION: 33 / LAT: 32.0929472 / LONG: -103.5823833 (TVD: 9017 feet, MD: 9085 feet)
BHL: SWSW / 100 FSL / 1033 FWL / TWSP: 26S / RANGE: 33E / SECTION: 4 / LAT: 32.065557 / LONG: -103.582441 (TVD: 9250 feet, MD: 19134 feet)

BLM Point of Contact

Name: Priscilla Perez

Title: Legal Instruments Examiner

Phone: 5752345934

Email: pperez@blm.gov

CONFIDENTIAL

Review and Appeal Rights

A person contesting a decision shall request a State Director review. This request must be filed within 20 working days of receipt of the Notice with the appropriate State Director (see 43 CFR 3165.3). The State Director review decision may be appealed to the Interior Board of Land Appeals, 801 North Quincy Street, Suite 300, Arlington, VA 22203 (see 43 CFR 3165.4). Contact the above listed Bureau of Land Management office for further information.

CONFIDENTIAL



Application for Permit to Drill

APD Package Report

Date Printed: 12/09/2019 08:34 AM

APD ID: 10400035074

Well Status: AAPD

APD Received Date: 10/24/2018 09:41 AM

Well Name: RED HILLS UNIT

Operator: CIMAREX ENERGY COMPANY OF

Well Number: 35H

APD Package Report Contents

- Form 3160-3
- Operator Certification Report
- Application Report
- Application Attachments
 - Well Plat: 1 file(s)
- Drilling Plan Report
- Drilling Plan Attachments
 - Blowout Prevention Choke Diagram Attachment: 2 file(s)
 - Blowout Prevention BOP Diagram Attachment: 2 file(s)
 - Casing Spec Documents: 1 file(s)
 - Casing Design Assumptions and Worksheet(s): 4 file(s)
 - Hydrogen sulfide drilling operations plan: 1 file(s)
 - Proposed horizontal/directional/multi-lateral plan submission: 2 file(s)
 - Other Facets: 3 file(s)
 - Other Variances: 2 file(s)
- SUPO Report
- SUPO Attachments
 - Existing Road Map: 1 file(s)
 - New Road Map: 1 file(s)
 - Attach Well map: 1 file(s)
 - Production Facilities map: 2 file(s)
 - Water source and transportation map: 1 file(s)
 - Well Site Layout Diagram: 1 file(s)
 - Recontouring attachment: 1 file(s)
 - Other SUPO Attachment: 7 file(s)
- PWD Report
- PWD Attachments
 - None

- Bond Report
- Bond Attachments
 - None

PECOS DISTRICT

DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	CIMAREX ENERGY COMPANY
LEASE NO.:	NMNM024368A
LOCATION:	Section. 33., T25S., R.33E., NMP
COUNTY:	LEA County, New Mexico

WELL NAME & NO.:	35H- RED HILLS UNIT
SURFACE HOLE FOOTAGE:	434'/N & 450'/W
BOTTOM HOLE FOOTAGE:	100'/S & 1033'/W

COA

H2S	☐ Yes	☒ No	
Potash	☒ None	☐ Secretary	☐ R-111-P
Cave/Karst Potential	☒ Low	☐ Medium	☐ High
Cave/Karst Potential	☐ Critical		
Variance	☐ None	☒ Flex Hose	☐ Other
Wellhead	☐ Conventional	☒ Multibowl	☐ Both
Other	☐ 4 String Area	☐ Capitan Reef	☐ WIPP
Other	☒ Fluid Filled	☐ Cement Squeeze	☐ Pilot Hole
Special Requirements	☐ Water Disposal	☐ COM	☒ Unit

A. HYDROGEN SULFIDE

Hydrogen Sulfide (H2S) monitors shall be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the Hydrogen Sulfide area shall meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, provide measured values and formations to the BLM.

B. CASING

1. The 13-3/8 inch surface casing shall be set at approximately **976 feet** (a minimum of **25 feet (Lea County)** into the Rustler Anhydrite and above the salt) and cemented to the surface.
 - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.

- b. Wait on cement (WOC) time for a primary cement job will be a minimum of **8 hours** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)
- c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
- d. If cement falls back, remedial cementing will be done prior to drilling out that string.

Intermediate casing must be kept fluid filled to meet BLM minimum collapse requirement.

- 2. The minimum required fill of cement behind the 9-5/8 inch intermediate casing is:
 - Cement to surface. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.**
- 3. The minimum required fill of cement behind the 5-1/2 inch production casing is:
 - Cement should tie-back at least **200 feet** into previous casing string. Operator shall provide method of verification. **Excess cement calculates to 12%, additional cement might be required.**

C. PRESSURE CONTROL

- 1. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).'
- 2. Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **2000 (2M) psi**. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the intermediate casing shoe shall be **3000 (3M) psi**.
 - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
 - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
 - c. Manufacturer representative shall install the test plug for the initial BOP test.
 - d. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.

- e. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.

D. SPECIAL REQUIREMENT (S)

Unit Wells

The well sign for a unit well shall include the unit number in addition to the surface and bottom hole lease numbers. This also applies to participating area numbers. If a participating area has not been established, the operator can use the general unit designation, but will replace the unit number with the participating area number when the sign is replaced.

Commercial Well Determination

A commercial well determination shall be submitted after production has been established for at least six months.

GENERAL REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

- a. Spudding well (minimum of 24 hours)
- b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
- c. BOPE tests (minimum of 4 hours)

☒ **Eddy County**

Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220,
(575) 361-2822

☒ **Lea County**

Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240, (575)
393-3612

- 1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
 - a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
 - b. When the operator proposes to set surface casing with Spudder Rig

- Notify the BLM when moving in and removing the Spudder Rig.
 - Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
 - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.
2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.
 3. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.
2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.

4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.
5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.
6. 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. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.
7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.
8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

B. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.
3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.
4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:
 - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.

- b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
 - c. Manufacturer representative shall install the test plug for the initial BOP test.
 - d. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.
 - e. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
- a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).
 - b. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time, except the casing pressure test can be initiated immediately after bumping the plug (only applies to single stage cement jobs).
 - c. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (8 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).
 - d. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall

have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.

- e. The results of the test shall be reported to the appropriate BLM office.
- f. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.
- g. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.
- h. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

C. DRILLING MUD

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the Wolfcamp formation, and shall be used until production casing is run and cemented.

D. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

JJP10202019



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

Operator Certification Data Report

12/09/2019

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: Amithy Crawford

Signed on: 10/24/2018

Title: Regulatory Analyst

Street Address:

City:

State:

Zip:

Phone: (432)620-1909

Email address: acrawford@cimarex.com

Field Representative

Representative Name:

Street Address:

City:

State:

Zip:

Phone:

Email address:



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

Application Data Report

12/09/2019

APD ID: 10400035074

Submission Date: 10/24/2018

Operator Name: CIMAREX ENERGY COMPANY OF COLORADO

Highlighted data
reflects the most
recent changes

Well Name: RED HILLS UNIT

Well Number: 35H

[Show Final Text](#)

Well Type: OIL WELL

Well Work Type: Drill

Section 1 - General

APD ID: 10400035074

Tie to previous NOS? Y

Submission Date: 10/24/2018

BLM Office: CARLSBAD

User: Amithy Crawford

Title: Regulatory Analyst

Federal/Indian APD: FED

Is the first lease penetrated for production Federal or Indian? FED

Lease number: NMNM0024368A

Lease Acres: 160

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 OF COLORADO

Operator letter of designation:

Operator Info

Operator Organization Name: CIMAREX ENERGY COMPANY OF COLORADO

Operator Address: 600 N. Marienfeld St., Suite 600

Zip: 79701

Operator PO Box:

Operator City: Midland

State: TX

Operator Phone: (432)620-1936

Operator Internet Address: tstathem@cimarex.com

Section 2 - Well Information

Well in Master Development Plan? NO

Master Development Plan name:

Well in Master SUPO? NO

Master SUPO name:

Well in Master Drilling Plan? NO

Master Drilling Plan name:

Well Name: RED HILLS UNIT

Well Number: 35H

Well API Number:

Field/Pool or Exploratory? Field and Pool

Field Name: RUSSELL

Pool Name: BONE SPRING
WC

Is the proposed well in an area containing other mineral resources? USEABLE WATER

Operator Name: CIMAREX ENERGY COMPANY OF COLORADO

Well Name: RED HILLS UNIT

Well Number: 35H

Is the proposed well in an area containing other mineral resources? USEABLE WATER

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: RED HILLS UNIT

Number: W2W2 PAD

Well Class: HORIZONTAL

Number of Legs: 1

Well Work Type: Drill

Well Type: OIL WELL

Describe Well Type:

Well sub-Type: EXPLORATORY (WILDCAT)

Describe sub-type:

Distance to town: 23 Miles

Distance to nearest well: 20 FT

Distance to lease line: 434 FT

Reservoir well spacing assigned acres Measurement: 640 Acres

Well plat: Red_Hills_Unit_35H_C102_Plat_20181024090214.pdf

Well work start Date: 04/01/2019

Duration: 30 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83

Vertical Datum: NAVD88

Survey number:

Reference Datum:

Wellbore	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	Will this well produce
SHL Leg #1	434	FNL	450	FWL	25S	33E	33	Aliquot NWN W	32.09311 3	- 103.5843 24	LEA	NEW MEXI CO	NEW MEXI CO	F	NMNM 002436 8A	337 9	0	0	
KOP Leg #1	423	FNL	103 3	FWL	25S	33E	33	Aliquot NWN W	32.09313 33	- 103.5823 833	LEA	NEW MEXI CO	NEW MEXI CO	F	NMNM 002436 8A	- 539 4	882 8	877 3	
PPP Leg	490	FNL	103 3	FWL	25S	33E	33	Aliquot NWN	32.09294 72	- 103.5823	LEA	NEW MEXI	NEW MEXI	F	NMNM 002436	- 563	908 5	901 7	

Operator Name: CIMAREX ENERGY COMPANY OF COLORADO

Well Name: RED HILLS UNIT

Well Number: 35H

Wellbore	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	Will this well produce
PPP Leg #1-2	132 0	FSL	103 3	FWL	25S	33E	33	Aliquot SWS W	32.08351 67	- 103.5822 2	LEA	NEW MEXI CO	NEW MEXI CO	F	NMNM 000579 2	- 587 1	126 00	925 0	
PPP Leg #1-3	264 0	FSL	103 3	FWL	25S	33E	33	Aliquot NWS W	32.08708 89	- 103.5823 944	LEA	NEW MEXI CO	NEW MEXI CO	F	NMNM 000579 2A	- 587 1	113 00	925 0	
EXIT Leg #1	0	FSL	103 3	FWL	25S	33E	33	Aliquot SWS W	32.07966 67	- 103.5824 111	LEA	NEW MEXI CO	NEW MEXI CO	F	NMNM 000579 2	- 587 1	140 00	925 0	
BHL Leg #1	100	FSL	103 3	FWL	26S	33E	4	Aliquot SWS W	32.06555 7	- 103.5824 41	LEA	NEW MEXI CO	NEW MEXI CO	F	NMNM 089425	- 587 1	191 34	925 0	



12/09/2019

highlighted each
effects the most
recent changes.

Show Final Text

Well Work Type: Drill

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
1	RUSTLER	3378	939	939		USEABLE WATER	N
2	TOP SALT	2118	1260	1260		NONE	N
3	CASTILE	40	3338	3338		NONE	N
4	BASE OF SALT	-1274	4652	4652		NONE	N
5	LAMAR	-1510	4888	4888		NONE	N
6	BELL CANYON	-1554	4932	4932		NATURAL GAS,OIL	N
7	CHERRY CANYON	-2639	6017	6017		NATURAL GAS,OIL	N
8	BRUSHY CANYON	-4112	7490	7490		NATURAL GAS,OIL	N
9	BONE SPRING	-5639	9017	9017		NATURAL GAS,OIL	Y
10	WOLFCAMP	-8832	12210	12210		NATURAL GAS,OIL	N

During the test, the flow was maintained at 1000 cc/min. The oil used was a 150W SAE 150 motor oil. The test was continued until the pressure in the annulus reached 3000 psi with the flow rate maintained at 1000 cc/min. The well was then shut in and the pressure in the annulus was allowed to fall to 1000 psi. The annulus was then bled off and the well was again pressurized to 3000 psi.

Operator Name: CIMAREX ENERGY COMPANY OF COLORADO

Well Name: RED HILLS UNIT

Well Number: 35H

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 3000 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 BOP will be tested to appropriate pressures based on permitted pressure requirements.

Choke Diagram Attachment:

Red_Hills_Unit_35H_Choke_2M3M_20181024092849.pdf

BOP Diagram Attachment:

Red_Hills_Unit_35H_BOP_2M_20181024092900.pdf

Pressure Rating (PSI): 3M

Rating Depth: 19134

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 13 3/8" surface casing, a 13 5/8" BOP/BOP-1 system with a minimum working pressure of 3000 psi will be installed on the wellhead system and will be pressure tested to 1500 psi low followed by a 3000 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 3000 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 BOP will be tested to appropriate pressures based on permitted pressure requirements.

Choke Diagram Attachment:

Red_Hills_Unit_35H_Choke_2M3M_20181024092921.pdf

BOP Diagram Attachment:

Red_Hills_Unit_35H_BOP_3M_20181024092933.pdf

Operator Name: CIMAREX ENERGY COMPANY OF COLORADO

Well Name: RED HILLS UNIT

Well Number: 35H

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	17.5	13.375	NEW	NON API	N	0	976	0	976	0	976	976	H-40	48	ST&C	1.66	3.87	BUOY	6.87	BUOY	6.87
2	INTERMEDIATE	12.25	9.625	NEW	API	N	0	4912	0	4912	0	4912	4912	J-55	40	LT&C	1.57	1.52	BUOY	2.65	BUOY	2.65
3	PRODUCTION	8.75	5.5	NEW	API	N	0	8829	0	8829	0	8829	8829	L-80	17	LT&C	1.52	1.87	BUOY	2.15	BUOY	2.15
4	PRODUCTION	8.75	5.5	NEW	API	N	8829	19134	8829	9250	8829	19134	10305	L-80	17	BUTT	1.45	1.79	BUOY	55.47	BUOY	55.47

Casing Attachments

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

Inspection Document:

Spec Document:

Red_Hills_Unit_35H_Surf_Casing_Spec_Sheet_20181024093008.pdf

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Red_Hills_Unit_35H_Casing_Assumptions_20181024093303.pdf

Operator Name: CIMAREX ENERGY COMPANY OF COLORADO

Well Name: RED HILLS UNIT

Well Number: 35H

Casing Attachments

Casing ID: 2 **String Type:** INTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Red_Hills_Unit_35H_Casing_Assumptions_20181024093253.pdf

Casing ID: 3 **String Type:** PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Red_Hills_Unit_35H_Casing_Assumptions_20181024093244.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Red_Hills_Unit_35H_Casing_Assumptions_20181024093232.pdf

Section 4 - Cement

Operator Name: CIMAREX ENERGY COMPANY OF COLORADO

Well Name: RED HILLS UNIT

Well Number: 35H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	976	410	1.72	13.5	764	50	Glass C	Bentonite
SURFACE	Tail		0	976	195	1.34	14.8	260	25	Glass C	LCM
INTERMEDIATE	Lead		0	4912	934	1.88	12.9	1755	50	85:65 (Poz:C)	Salt, Bentonite
INTERMEDIATE	Tail		0	4912	287	1.34	14.8	384	25	Glass C	LCM
PRODUCTION	Lead		0	8829	355	3.64	10.8	1289	25	Tuned Light	LCM
PRODUCTION	Tail		0	8829	2204	1.3	14.2	2864	25	50:50 (Poz:H)	Salt, Bentonite, Fluid Loss, Dispersant, SMS
PRODUCTION	Lead		8829	1918 4	355	3.64	10.8	1289	25	Tuned Light	LCM
PRODUCTION	Tail		8829	1918 4	2204	1.3	14.2	2864	25	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
0	976	SPUD MUD	8.2	8.2							

Operator Name: CIMAREX ENERGY COMPANY OF COLORADO

Well Name: RED HILLS UNIT

Well Number: 35H

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
976	4912	SALT SATURATED	9.7	10.2							
4912	1913 4	OTHER : FW/Cut Brine	8.5	9							

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: 4329

Anticipated Surface Pressure: 2294

Anticipated Bottom Hole Temperature(F): 163

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 geohazards 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:

Red_Hills_Unit_35H_H2S_Plan_20181024093706.pdf

Operator Name: CIMAREX ENERGY COMPANY OF COLORADO

Well Name: RED HILLS UNIT

Well Number: 35H

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

Red_Hills_Unit_35H_Directional_Plan_20181024093816.pdf

Red_Hills_Unit_35H_AC_Report_20181024093833.pdf

Other proposed operations facets description:

Other proposed operations facets attachment:

Red_Hills_Unit_35H_Drilling_Plan_20181024093847.pdf

Red_Hills_Unit_35H_Flex_Hose_20181024093858.pdf

Red_Hills_Unit_35H_Gas_Capture_Plan_20181024093900.pdf

Other Variance attachment:

Red_Hills_Unit_35H_Multibowl_Procedure_20181024093915.pdf

Red_Hills_Unit_35H_Multibowl_Wellhead_20181024093916.pdf

Hydrogen Sulfide Drilling Operations Plan
Red Hills Unit 35H
Cimarex Energy Co.
UL: D, Sec. 33, 25S, 33E
Lea Co., NM

- 1 All Company and Contract personnel admitted on location must be trained by a qualified H₂S safety instructor to the following:
 - A. Characteristics of H₂S
 - B. Physical effects and hazards
 - C. Principal and operation of H₂S detectors, warning system and briefing areas.
 - D. Evacuation procedure, routes and first aid.
 - E. Proper use of safety equipment & life support systems
 - F. Essential personnel meeting Medical Evaluation criteria will receive additional training on the proper use of 30 minute pressure demand air packs.
- H₂S Detection and Alarm Systems:
 - A. H₂S sensors/detectors to be located on the drilling rig floor, in the base of the sub structure/cellar area, on the mud pits in the shale shaker area. Additional H₂S detectors may be placed as deemed necessary.
 - B. An audio alarm system will be installed on the derrick floor and in the top doghouse.
- 3 Windsock and/or wind streamers:
 - A. Windsock at mudpit area should be high enough to be visible.
 - B. Windsock on the rig floor and / or top doghouse should be high enough to be visible.
- 4 Condition Flags and Signs
 - A. Warning sign on access road to location.
 - B. Flags to be displayed on sign at entrance to location. Green flag indicates normal safe condition. Yellow flag indicates potential pressure and danger. Red flag indicates danger (H₂S present in dangerous concentration). Only H₂S trained and certified personnel admitted to location.
- 5 Well control equipment:
 - A. See exhibit "E-1"
- 6 Communication:
 - A. While working under masks chalkboards will be used for communication.
 - B. Hand signals will be used where chalk board is inappropriate.
 - C. Two way radio will be used to communicate off location in case of emergency help is required. In most cases cellular telephones will be available at most drilling foreman's trailer or living quarters.
- 7 Drillstem Testing:

No DSTs or cores are planned at this time.
- 8 Drilling contractor supervisor will be required to be familiar with the effects H₂S has on tubular goods and other mechanical equipment.
- 9 If H₂S is encountered, mud system will be altered if necessary to maintain control of formation. A mud gas separator will be brought into service along with H₂S scavengers if necessary.

H₂S Contingency Plan
Red Hills Unit 35H
Cimarex Energy Co.
UL: D, Sec. 33, 25S, 33E
Lea Co., NM

Emergency Procedures

In the event of a release of gas containing H₂S, the first responder(s) must:

- « Isolate the area and prevent entry by other persons into the 100 ppm ROE.
- « Evacuate any public places encompassed by the 100 ppm ROE.
- « Be equipped with H₂S monitors and air packs in order to control the release.
- « Use the "buddy system" to ensure no injuries occur during the 432-620-1975
- « Take precautions to avoid personal injury during this operation.
- « Contact operator and/or local officials to aid in operation. See list of phone numbers attached.
- « Have received training in the:
 - Detection of H₂S, and
 - Measures for protection against the gas,
 - Equipment used for protection and emergency response.

Ignition of Gas Source

Should control of the well be considered lost and ignition considered, take care to protect against exposure to Sulfur Dioxide (SO₂). Intentional ignition must be coordinated with the NMOCD and local officials. Additionally, the NM State Police may become involved. NM State Police shall be the Incident Command on scene of any major release. Take care to protect downwind whenever there is an ignition of the gas.

Characteristics of H₂S and SO₂

Please see attached International Chemical Safety Cards.

Contacting Authorities

Cimarex Energy Co. of Colorado's personnel must liaise with local and state agencies to ensure a proper response to a major release. Additionally, the OCD must be notified of the release as soon as possible but no later than 4 hours. Agencies will ask for information such as type and volume of release, wind direction, location of release, etc. Be prepared with all information available including directions to site. The following call list of essential and potential responders has been prepared for use during a release. Cimarex Energy Co. of Colorado's response must be in coordination with the State of New Mexico's "Hazardous Materials Emergency Response Plan" (HMER).

H₂S Contingency Plan Emergency Contacts
Red Hills Unit 35H
Cimarex Energy Co.
UL: D, Sec. 33, 25S, 33E
Lea Co., NM

Company Office

Cimarex Energy Co. of Colorado	800-969-4789
Co. Office and After-Hours Menu	

Key Personnel

Name	Title	Office	Mobile
Larry Seigrist	Drilling Manager	432-620-1934	580-243-8485
Charlie Pritchard	Drilling Superintendent	432-620-1975	432-238-7084
Roy Shirley	Construction Superintendent		432-634-2136

Artesia

Ambulance	911
State Police	575-746-2703
City Police	575-746-2703
Sheriff's Office	575-746-9888
Fire Department	575-746-2701
Local Emergency Planning Committee	575-746-2122
New Mexico Oil Conservation Division	575-748-1283

Carlsbad

Ambulance	911
State Police	575-885-3137
City Police	575-885-2111
Sheriff's Office	575-887-7551
Fire Department	575-887-3798
Local Emergency Planning Committee	575-887-6544
US Bureau of Land Management	575-887-6544

Santa Fe

New Mexico Emergency Response Commission (Santa Fe)	505-476-9600
New Mexico Emergency Response Commission (Santa Fe) 24 Hrs	505-827-9126
New Mexico State Emergency Operations Center	505-476-9635

National

National Emergency Response Center (Washington, D.C.)	800-424-8802
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Medical

Flight for Life - 4000 24th St.; Lubbock, TX	806-743-9911
Aerocare - R3, Box 49F; Lubbock, TX	806-747-8923
Med Flight Air Amb - 2301 Yale Blvd S.E., #D3; Albuquerque, NM	505-842-4433
SB Air Med Service - 2505 Clark Carr Loop S.E.; Albuquerque, NM	505-842-4949

Other

Boots & Coots IWC	800-256-9688	or	281-931-8884
Cudd Pressure Control	432-699-0139	or	432-563-3356
Halliburton	575-746-2757		
B.J. Services	575-746-3569		

Cimarex Red Hills Unit #35H Rev1 RM 10Oct18 Proposal Geodetic Report

(Non-Def Plan)

Report Date: October 10, 2018 - 04:20 PM
Client: Cimarex Energy
Field: NM Lea County (NAD 83)
Structure / Slot: Cimarex Red Hills Unit #35H / New Slot
Well: Red Hills Unit #35H
Borehole: Red Hills Unit #35H
UWI / API#: Unknown / Unknown
Survey Name: Cimarex Red Hills Unit #35H Rev1 RM 10Oct18
Survey Date: October 10, 2018
Tort / AHD / DDI / ERD Ratio: 112.713 ° / 10633.818 ft / 6.394 / 1.150
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 5' 35.20629", W 103° 35' 3.56819"
Location Grid N/E Y/X: N 398416.800 ftUS, E 773289.250 ftUS
CRS Grid Convergence Angle: 0.3980 °
Grid Scale Factor: 0.99997071
Version / Patch: 2.10.740.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 179.705 ° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB
TVD Reference Elevation: 3404.900 ft above MSL
Seabed / Ground Elevation: 3378.900 ft above MSL
Magnetic Declination: 6.720 °
Total Gravity Field Strength: 998.4327mgn (9.80665 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 47818.847 nT
Magnetic Dip Angle: 59.736 °
Declination Date: October 10, 2018
Magnetic Declination Model: HDGM 2018
North Reference: Grid North
Grid Convergence Used: 0.3980 °
Total Corr Mag North->Grid North: 6.3222 °
Local Coord Referenced To: Well Head

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
SHL [434' FNL, 450' FWL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	398416.80	773289.25	N 32 5 35.21 W 103 35 3.57	
	100.00	0.00	88.90	100.00	0.00	0.00	0.00	0.00	398416.80	773289.25	N 32 5 35.21 W 103 35 3.57	
	200.00	0.00	88.90	200.00	0.00	0.00	0.00	0.00	398416.80	773289.25	N 32 5 35.21 W 103 35 3.57	
	300.00	0.00	88.90	300.00	0.00	0.00	0.00	0.00	398416.80	773289.25	N 32 5 35.21 W 103 35 3.57	
	400.00	0.00	88.90	400.00	0.00	0.00	0.00	0.00	398416.80	773289.25	N 32 5 35.21 W 103 35 3.57	
	500.00	0.00	88.90	500.00	0.00	0.00	0.00	0.00	398416.80	773289.25	N 32 5 35.21 W 103 35 3.57	
	600.00	0.00	88.90	600.00	0.00	0.00	0.00	0.00	398416.80	773289.25	N 32 5 35.21 W 103 35 3.57	
	700.00	0.00	88.90	700.00	0.00	0.00	0.00	0.00	398416.80	773289.25	N 32 5 35.21 W 103 35 3.57	
	800.00	0.00	88.90	800.00	0.00	0.00	0.00	0.00	398416.80	773289.25	N 32 5 35.21 W 103 35 3.57	
	900.00	0.00	88.90	900.00	0.00	0.00	0.00	0.00	398416.80	773289.25	N 32 5 35.21 W 103 35 3.57	
Rustler	926.00	0.00	88.90	926.00	0.00	0.00	0.00	0.00	398416.80	773289.25	N 32 5 35.21 W 103 35 3.57	
	1000.00	0.00	88.90	1000.00	0.00	0.00	0.00	0.00	398416.80	773289.25	N 32 5 35.21 W 103 35 3.57	
	1100.00	0.00	88.90	1100.00	0.00	0.00	0.00	0.00	398416.80	773289.25	N 32 5 35.21 W 103 35 3.57	
	1200.00	0.00	88.90	1200.00	0.00	0.00	0.00	0.00	398416.80	773289.25	N 32 5 35.21 W 103 35 3.57	
Top Salt	1260.00	0.00	88.90	1260.00	0.00	0.00	0.00	0.00	398416.80	773289.25	N 32 5 35.21 W 103 35 3.57	
	1300.00	0.00	88.90	1300.00	0.00	0.00	0.00	0.00	398416.80	773289.25	N 32 5 35.21 W 103 35 3.57	
	1400.00	0.00	88.90	1400.00	0.00	0.00	0.00	0.00	398416.80	773289.25	N 32 5 35.21 W 103 35 3.57	
	1500.00	0.00	88.90	1500.00	0.00	0.00	0.00	0.00	398416.80	773289.25	N 32 5 35.21 W 103 35 3.57	
	1600.00	0.00	88.90	1600.00	0.00	0.00	0.00	0.00	398416.80	773289.25	N 32 5 35.21 W 103 35 3.57	
	1700.00	0.00	88.90	1700.00	0.00	0.00	0.00	0.00	398416.80	773289.25	N 32 5 35.21 W 103 35 3.57	
	1800.00	0.00	88.90	1800.00	0.00	0.00	0.00	0.00	398416.80	773289.25	N 32 5 35.21 W 103 35 3.57	
	1900.00	0.00	88.90	1900.00	0.00	0.00	0.00	0.00	398416.80	773289.25	N 32 5 35.21 W 103 35 3.57	
	2000.00	0.00	88.90	2000.00	0.00	0.00	0.00	0.00	398416.80	773289.25	N 32 5 35.21 W 103 35 3.57	
	2100.00	0.00	88.90	2100.00	0.00	0.00	0.00	0.00	398416.80	773289.25	N 32 5 35.21 W 103 35 3.57	
	2200.00	0.00	88.90	2200.00	0.00	0.00	0.00	0.00	398416.80	773289.25	N 32 5 35.21 W 103 35 3.57	
	2300.00	0.00	88.90	2300.00	0.00	0.00	0.00	0.00	398416.80	773289.25	N 32 5 35.21 W 103 35 3.57	
	2400.00	0.00	88.90	2400.00	0.00	0.00	0.00	0.00	398416.80	773289.25	N 32 5 35.21 W 103 35 3.57	
	2500.00	0.00	88.90	2500.00	0.00	0.00	0.00	0.00	398416.80	773289.25	N 32 5 35.21 W 103 35 3.57	

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	2600.00	0.00	88.90	2600.00	0.00	0.00	0.00	0.00	398416.80	773289.25	N 32 5 35.21 W 103 35 3.57	
	2700.00	0.00	88.90	2700.00	0.00	0.00	0.00	0.00	398416.80	773289.25	N 32 5 35.21 W 103 35 3.57	
	2800.00	0.00	88.90	2800.00	0.00	0.00	0.00	0.00	398416.80	773289.25	N 32 5 35.21 W 103 35 3.57	
	2900.00	0.00	88.90	2900.00	0.00	0.00	0.00	0.00	398416.80	773289.25	N 32 5 35.21 W 103 35 3.57	
	3000.00	0.00	88.90	3000.00	0.00	0.00	0.00	0.00	398416.80	773289.25	N 32 5 35.21 W 103 35 3.57	
	3100.00	0.00	88.90	3100.00	0.00	0.00	0.00	0.00	398416.80	773289.25	N 32 5 35.21 W 103 35 3.57	
	3200.00	0.00	88.90	3200.00	0.00	0.00	0.00	0.00	398416.80	773289.25	N 32 5 35.21 W 103 35 3.57	
	3300.00	0.00	88.90	3300.00	0.00	0.00	0.00	0.00	398416.80	773289.25	N 32 5 35.21 W 103 35 3.57	
Castille	3338.00	0.00	88.90	3338.00	0.00	0.00	0.00	0.00	398416.80	773289.25	N 32 5 35.21 W 103 35 3.57	
	3400.00	0.00	88.90	3400.00	0.00	0.00	0.00	0.00	398416.80	773289.25	N 32 5 35.21 W 103 35 3.57	
	3500.00	0.00	88.90	3500.00	0.00	0.00	0.00	0.00	398416.80	773289.25	N 32 5 35.21 W 103 35 3.57	
	3600.00	0.00	88.90	3600.00	0.00	0.00	0.00	0.00	398416.80	773289.25	N 32 5 35.21 W 103 35 3.57	
	3700.00	0.00	88.90	3700.00	0.00	0.00	0.00	0.00	398416.80	773289.25	N 32 5 35.21 W 103 35 3.57	
	3800.00	0.00	88.90	3800.00	0.00	0.00	0.00	0.00	398416.80	773289.25	N 32 5 35.21 W 103 35 3.57	
	3900.00	0.00	88.90	3900.00	0.00	0.00	0.00	0.00	398416.80	773289.25	N 32 5 35.21 W 103 35 3.57	
Nudge 2°/100'	4000.00	0.00	88.90	4000.00	0.00	0.00	0.00	0.00	398416.80	773289.25	N 32 5 35.21 W 103 35 3.57	
DLS	4100.00	2.00	88.90	4099.98	-0.02	0.03	1.74	2.00	398416.83	773290.99	N 32 5 35.21 W 103 35 3.55	
	4200.00	4.00	88.90	4199.84	-0.10	0.13	6.98	2.00	398416.93	773296.23	N 32 5 35.21 W 103 35 3.49	
	4300.00	6.00	88.90	4299.45	-0.22	0.30	15.69	2.00	398417.10	773304.94	N 32 5 35.21 W 103 35 3.39	
	4400.00	8.00	88.90	4398.70	-0.39	0.54	27.87	2.00	398417.34	773317.12	N 32 5 35.21 W 103 35 3.24	
	4500.00	10.00	88.90	4497.47	-0.61	0.84	43.51	2.00	398417.64	773332.76	N 32 5 35.21 W 103 35 3.06	
Hold Nudge	4567.82	11.36	88.90	4564.10	-0.79	1.08	56.08	2.00	398417.88	773345.33	N 32 5 35.21 W 103 35 2.92	
	4600.00	11.36	88.90	4595.66	-0.88	1.20	62.41	0.00	398418.00	773351.66	N 32 5 35.21 W 103 35 2.84	
Base Salt	4657.47	11.36	88.90	4652.00	-1.04	1.42	73.73	0.00	398418.22	773362.98	N 32 5 35.22 W 103 35 2.71	
	4700.00	11.36	88.90	4693.70	-1.15	1.58	82.10	0.00	398418.38	773371.35	N 32 5 35.22 W 103 35 2.61	
	4800.00	11.36	88.90	4791.74	-1.43	1.95	101.79	0.00	398418.75	773391.04	N 32 5 35.22 W 103 35 2.38	
Lamar	4898.18	11.36	88.90	4888.00	-1.70	2.33	121.12	0.00	398419.13	773410.36	N 32 5 35.22 W 103 35 2.16	
	4900.00	11.36	88.90	4889.79	-1.71	2.33	121.48	0.00	398419.13	773410.72	N 32 5 35.22 W 103 35 2.16	
Bell Canyon	4943.06	11.36	88.90	4932.00	-1.83	2.50	129.95	0.00	398419.30	773419.20	N 32 5 35.22 W 103 35 2.06	
	5000.00	11.36	88.90	4987.83	-1.98	2.71	141.16	0.00	398419.51	773430.41	N 32 5 35.22 W 103 35 1.93	
	5100.00	11.36	88.90	5085.87	-2.26	3.09	160.85	0.00	398419.89	773450.10	N 32 5 35.23 W 103 35 1.70	
	5200.00	11.36	88.90	5183.91	-2.54	3.47	180.54	0.00	398420.27	773469.78	N 32 5 35.23 W 103 35 1.47	
	5300.00	11.36	88.90	5281.95	-2.81	3.84	200.23	0.00	398420.64	773489.47	N 32 5 35.23 W 103 35 1.24	
	5400.00	11.36	88.90	5380.00	-3.09	4.22	219.91	0.00	398421.02	773509.16	N 32 5 35.23 W 103 35 1.01	
	5500.00	11.36	88.90	5478.04	-3.37	4.60	239.60	0.00	398421.40	773528.84	N 32 5 35.24 W 103 35 0.78	
	5600.00	11.36	88.90	5576.08	-3.64	4.98	259.29	0.00	398421.78	773548.53	N 32 5 35.24 W 103 35 0.55	
	5700.00	11.36	88.90	5674.12	-3.92	5.36	278.97	0.00	398422.16	773568.22	N 32 5 35.24 W 103 35 0.33	
	5800.00	11.36	88.90	5772.17	-4.20	5.73	298.66	0.00	398422.53	773587.90	N 32 5 35.24 W 103 35 0.10	
	5900.00	11.36	88.90	5870.21	-4.47	6.11	318.35	0.00	398422.91	773607.59	N 32 5 35.24 W 103 34 59.87	
	6000.00	11.36	88.90	5968.25	-4.75	6.49	338.04	0.00	398423.29	773627.28	N 32 5 35.25 W 103 34 59.64	
Cherry Canyon	6049.72	11.36	88.90	6017.00	-4.89	6.68	347.83	0.00	398423.48	773637.06	N 32 5 35.25 W 103 34 59.52	
	6100.00	11.36	88.90	6066.29	-5.03	6.87	357.72	0.00	398423.67	773646.96	N 32 5 35.25 W 103 34 59.41	
	6200.00	11.36	88.90	6164.33	-5.30	7.25	377.41	0.00	398424.05	773666.65	N 32 5 35.25 W 103 34 59.18	
	6300.00	11.36	88.90	6262.38	-5.58	7.62	397.10	0.00	398424.42	773686.34	N 32 5 35.25 W 103 34 58.95	
	6400.00	11.36	88.90	6360.42	-5.86	8.00	416.79	0.00	398424.80	773706.02	N 32 5 35.26 W 103 34 58.72	
	6500.00	11.36	88.90	6458.46	-6.13	8.38	436.47	0.00	398425.18	773725.71	N 32 5 35.26 W 103 34 58.49	
	6600.00	11.36	88.90	6556.50	-6.41	8.76	456.16	0.00	398425.56	773745.40	N 32 5 35.26 W 103 34 58.27	
	6700.00	11.36	88.90	6654.54	-6.69	9.14	475.85	0.00	398425.94	773765.08	N 32 5 35.26 W 103 34 58.04	
	6800.00	11.36	88.90	6752.59	-6.96	9.51	495.54	0.00	398426.31	773784.77	N 32 5 35.27 W 103 34 57.81	
	6900.00	11.36	88.90	6850.63	-7.24	9.89	515.22	0.00	398426.69	773804.46	N 32 5 35.27 W 103 34 57.58	
	7000.00	11.36	88.90	6948.67	-7.52	10.27	534.91	0.00	398427.07	773824.14	N 32 5 35.27 W 103 34 57.35	
Drop to Vertical	7052.35	11.36	88.90	7000.00	-7.66	10.47	545.22	0.00	398427.27	773834.45	N 32 5 35.27 W 103 34 57.23	
2°/100' DLS	7100.00	10.40	88.90	7046.79	-7.79	10.64	554.21	2.00	398427.44	773843.44	N 32 5 35.27 W 103 34 57.13	
	7200.00	8.40	88.90	7145.44	-8.02	10.95	570.54	2.00	398427.75	773859.78	N 32 5 35.28 W 103 34 56.94	
	7300.00	6.40	88.90	7244.60	-8.20	11.20	583.43	2.00	398428.00	773872.66	N 32 5 35.28 W 103 34 56.79	
	7400.00	4.40	88.90	7344.15	-8.33	11.38	592.84	2.00	398428.18	773882.07	N 32 5 35.28 W 103 34 56.68	
	7500.00	2.40	88.90	7443.97	-8.41	11.50	598.77	2.00	398428.30	773888.01	N 32 5 35.28 W 103 34 56.61	

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (RUS)	Easting (RUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
Brushy Canyon	7546.06	1.48	88.90	7490.00	-8.44	11.53	600.34	2.00	398428.33	773889.57	N 32 5 35.28 W 103 34 56.59	
Hold Vertical	7600.00	0.40	88.90	7543.94	-8.45	11.54	601.22	2.00	398428.34	773890.45	N 32 5 35.28 W 103 34 56.58	
	7620.17	0.00	88.90	7564.10	-8.45	11.55	601.29	2.00	398428.35	773890.53	N 32 5 35.28 W 103 34 56.58	
	7700.00	0.00	88.90	7643.94	-8.45	11.55	601.29	0.00	398428.35	773890.53	N 32 5 35.28 W 103 34 56.58	
	7800.00	0.00	88.90	7743.94	-8.45	11.55	601.29	0.00	398428.35	773890.53	N 32 5 35.28 W 103 34 56.58	
	7900.00	0.00	88.90	7843.94	-8.45	11.55	601.29	0.00	398428.35	773890.53	N 32 5 35.28 W 103 34 56.58	
	8000.00	0.00	88.90	7943.94	-8.45	11.55	601.29	0.00	398428.35	773890.53	N 32 5 35.28 W 103 34 56.58	
	8100.00	0.00	88.90	8043.94	-8.45	11.55	601.29	0.00	398428.35	773890.53	N 32 5 35.28 W 103 34 56.58	
	8200.00	0.00	88.90	8143.94	-8.45	11.55	601.29	0.00	398428.35	773890.53	N 32 5 35.28 W 103 34 56.58	
	8300.00	0.00	88.90	8243.94	-8.45	11.55	601.29	0.00	398428.35	773890.53	N 32 5 35.28 W 103 34 56.58	
	8400.00	0.00	88.90	8343.94	-8.45	11.55	601.29	0.00	398428.35	773890.53	N 32 5 35.28 W 103 34 56.58	
	8500.00	0.00	88.90	8443.94	-8.45	11.55	601.29	0.00	398428.35	773890.53	N 32 5 35.28 W 103 34 56.58	
	8600.00	0.00	88.90	8543.94	-8.45	11.55	601.29	0.00	398428.35	773890.53	N 32 5 35.28 W 103 34 56.58	
	8700.00	0.00	88.90	8643.94	-8.45	11.55	601.29	0.00	398428.35	773890.53	N 32 5 35.28 W 103 34 56.58	
	8800.00	0.00	88.90	8743.94	-8.45	11.55	601.29	0.00	398428.35	773890.53	N 32 5 35.28 W 103 34 56.58	
KOP - Build 12"/100' DLS	8828.60	0.00	88.90	8772.54	-8.45	11.55	601.29	0.00	398428.35	773890.53	N 32 5 35.28 W 103 34 56.58	
Top Bone Spring	8900.00	8.57	179.70	8843.67	-3.12	6.22	601.32	12.00	398423.02	773890.55	N 32 5 35.23 W 103 34 56.58	
	9000.00	20.57	179.70	8940.28	21.99	-18.89	601.45	12.00	398397.91	773890.68	N 32 5 34.98 W 103 34 56.58	
	9085.25	30.80	179.70	9017.00	58.88	-55.78	601.64	12.00	398361.02	773890.87	N 32 5 34.61 W 103 34 56.58	
	9100.00	32.57	179.70	9029.56	66.63	-63.53	601.68	12.00	398353.27	773890.91	N 32 5 34.54 W 103 34 56.58	
	9200.00	44.57	179.70	9107.60	128.86	-125.76	602.00	12.00	398291.04	773891.23	N 32 5 33.92 W 103 34 56.58	
	9300.00	56.57	179.70	9171.00	205.96	-202.86	602.40	12.00	398213.95	773891.63	N 32 5 33.16 W 103 34 56.58	
Leonard Landing Point	9400.00	68.57	179.70	9216.98	294.55	-291.45	602.86	12.00	398125.36	773892.09	N 32 5 32.28 W 103 34 56.58	
	9500.00	80.57	179.70	9243.55	390.77	-387.67	603.35	12.00	398029.14	773892.58	N 32 5 31.33 W 103 34 56.59	
	9578.60	90.00	179.70	9250.00	469.02	-465.91	603.76	12.00	397950.90	773892.99	N 32 5 30.55 W 103 34 56.59	
	9600.00	90.00	179.70	9250.00	490.42	-487.31	603.87	0.00	397929.50	773893.10	N 32 5 30.34 W 103 34 56.59	
	9700.00	90.00	179.70	9250.00	590.42	-587.31	604.38	0.00	397829.51	773893.61	N 32 5 29.35 W 103 34 56.59	
	9800.00	90.00	179.70	9250.00	690.42	-687.31	604.90	0.00	397729.51	773894.13	N 32 5 28.36 W 103 34 56.59	
	9900.00	90.00	179.70	9250.00	790.42	-787.31	605.41	0.00	397629.52	773894.65	N 32 5 27.37 W 103 34 56.59	
	10000.00	90.00	179.70	9250.00	890.42	-887.31	605.93	0.00	397529.52	773895.16	N 32 5 26.38 W 103 34 56.60	
	10100.00	90.00	179.70	9250.00	990.42	-987.31	606.45	0.00	397429.52	773895.68	N 32 5 25.40 W 103 34 56.60	
	10200.00	90.00	179.70	9250.00	1090.42	-1087.31	606.96	0.00	397329.53	773896.19	N 32 5 24.41 W 103 34 56.60	
	10300.00	90.00	179.70	9250.00	1190.42	-1187.30	607.48	0.00	397229.53	773896.71	N 32 5 23.42 W 103 34 56.60	
	10400.00	90.00	179.70	9250.00	1290.42	-1287.30	607.99	0.00	397129.54	773897.22	N 32 5 22.43 W 103 34 56.61	
	10500.00	90.00	179.70	9250.00	1390.42	-1387.30	608.51	0.00	397029.54	773897.74	N 32 5 21.44 W 103 34 56.61	
	10600.00	90.00	179.70	9250.00	1490.42	-1487.30	609.03	0.00	396929.55	773898.26	N 32 5 20.45 W 103 34 56.61	
	10700.00	90.00	179.70	9250.00	1590.42	-1587.30	609.54	0.00	396829.55	773898.77	N 32 5 19.46 W 103 34 56.61	
	10800.00	90.00	179.70	9250.00	1690.42	-1687.30	610.06	0.00	396729.56	773899.29	N 32 5 18.47 W 103 34 56.61	
	10900.00	90.00	179.70	9250.00	1790.42	-1787.30	610.57	0.00	396629.56	773899.80	N 32 5 17.48 W 103 34 56.62	
	11000.00	90.00	179.70	9250.00	1890.42	-1887.29	611.09	0.00	396529.56	773900.32	N 32 5 16.49 W 103 34 56.62	
	11100.00	90.00	179.70	9250.00	1990.42	-1987.29	611.60	0.00	396429.57	773900.84	N 32 5 15.50 W 103 34 56.62	
	11200.00	90.00	179.70	9250.00	2090.42	-2087.29	612.12	0.00	396329.57	773901.35	N 32 5 14.51 W 103 34 56.62	
	11300.00	90.00	179.70	9250.00	2190.42	-2187.29	612.64	0.00	396229.58	773901.87	N 32 5 13.52 W 103 34 56.62	
	11400.00	90.00	179.70	9250.00	2290.42	-2287.29	613.15	0.00	396129.58	773902.38	N 32 5 12.53 W 103 34 56.63	
	11500.00	90.00	179.70	9250.00	2390.42	-2387.29	613.67	0.00	396029.59	773902.90	N 32 5 11.54 W 103 34 56.63	
	11600.00	90.00	179.70	9250.00	2490.42	-2487.29	614.18	0.00	395929.59	773903.41	N 32 5 10.55 W 103 34 56.63	
	11700.00	90.00	179.70	9250.00	2590.42	-2587.29	614.70	0.00	395829.60	773903.93	N 32 5 9.56 W 103 34 56.63	
	11800.00	90.00	179.70	9250.00	2690.42	-2687.28	615.21	0.00	395729.60	773904.45	N 32 5 8.57 W 103 34 56.63	
	11900.00	90.00	179.70	9250.00	2790.42	-2787.28	615.73	0.00	395629.60	773904.96	N 32 5 7.58 W 103 34 56.64	
	12000.00	90.00	179.70	9250.00	2890.42	-2887.28	616.25	0.00	395529.61	773905.48	N 32 5 6.59 W 103 34 56.64	
	12100.00	90.00	179.70	9250.00	2990.42	-2987.28	616.76	0.00	395429.61	773905.99	N 32 5 5.60 W 103 34 56.64	
	12200.00	90.00	179.70	9250.00	3090.42	-3087.28	617.28	0.00	395329.62	773906.51	N 32 5 4.61 W 103 34 56.64	
	12300.00	90.00	179.70	9250.00	3190.42	-3187.28	617.79	0.00	395229.62	773907.02	N 32 5 3.63 W 103 34 56.65	
	12400.00	90.00	179.70	9250.00	3290.42	-3287.28	618.31	0.00	395129.63	773907.54	N 32 5 2.64 W 103 34 56.65	
	12500.00	90.00	179.70	9250.00	3390.42	-3387.27	618.83	0.00	395029.63	773908.06	N 32 5 1.65 W 103 34 56.65	
	12600.00	90.00	179.70	9250.00	3490.42	-3487.27	619.34	0.00	394929.64	773908.57	N 32 5 0.66 W 103 34 56.65	

Comments	MD (ft)	Incl (°)	Azlm Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (RUS)	Eastings (RUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	12700.00	90.00	179.70	9250.00	3590.42	-3587.27	619.86	0.00	394829.64	773909.09	N 32 4 59.67 W	103 34 56.65
	12800.00	90.00	179.70	9250.00	3690.42	-3687.27	620.37	0.00	394729.64	773909.60	N 32 4 58.68 W	103 34 56.66
	12900.00	90.00	179.70	9250.00	3790.42	-3787.27	620.89	0.00	394629.65	773910.12	N 32 4 57.69 W	103 34 56.66
	13000.00	90.00	179.70	9250.00	3890.42	-3887.27	621.40	0.00	394529.65	773910.63	N 32 4 56.70 W	103 34 56.66
	13100.00	90.00	179.70	9250.00	3990.42	-3987.27	621.92	0.00	394429.66	773911.15	N 32 4 55.71 W	103 34 56.66
	13200.00	90.00	179.70	9250.00	4090.42	-4087.27	622.44	0.00	394329.66	773911.67	N 32 4 54.72 W	103 34 56.66
	13300.00	90.00	179.70	9250.00	4190.42	-4187.26	622.95	0.00	394229.67	773912.18	N 32 4 53.73 W	103 34 56.67
	13400.00	90.00	179.70	9250.00	4290.42	-4287.26	623.47	0.00	394129.67	773912.70	N 32 4 52.74 W	103 34 56.67
	13500.00	90.00	179.70	9250.00	4390.42	-4387.26	623.98	0.00	394029.68	773913.21	N 32 4 51.75 W	103 34 56.67
	13600.00	90.00	179.70	9250.00	4490.42	-4487.26	624.50	0.00	393929.68	773913.73	N 32 4 50.76 W	103 34 56.67
	13700.00	90.00	179.70	9250.00	4590.42	-4587.26	625.01	0.00	393829.68	773914.25	N 32 4 49.77 W	103 34 56.67
	13800.00	90.00	179.70	9250.00	4690.42	-4687.26	625.53	0.00	393729.69	773914.76	N 32 4 48.78 W	103 34 56.68
	13900.00	90.00	179.70	9250.00	4790.42	-4787.26	626.05	0.00	393629.69	773915.28	N 32 4 47.79 W	103 34 56.68
	14000.00	90.00	179.70	9250.00	4890.42	-4887.25	626.56	0.00	393529.70	773915.79	N 32 4 46.80 W	103 34 56.68
	14100.00	90.00	179.70	9250.00	4990.42	-4987.25	627.08	0.00	393429.70	773916.31	N 32 4 45.81 W	103 34 56.68
	14200.00	90.00	179.70	9250.00	5090.42	-5087.25	627.59	0.00	393329.71	773916.82	N 32 4 44.82 W	103 34 56.68
	14300.00	90.00	179.70	9250.00	5190.42	-5187.25	628.11	0.00	393229.71	773917.34	N 32 4 43.83 W	103 34 56.69
	14400.00	90.00	179.70	9250.00	5290.42	-5287.25	628.63	0.00	393129.72	773917.86	N 32 4 42.85 W	103 34 56.69
	14500.00	90.00	179.70	9250.00	5390.42	-5387.25	629.14	0.00	393029.72	773918.37	N 32 4 41.86 W	103 34 56.69
	14600.00	90.00	179.70	9250.00	5490.42	-5487.25	629.66	0.00	392929.72	773918.89	N 32 4 40.87 W	103 34 56.69
	14700.00	90.00	179.70	9250.00	5590.42	-5587.25	630.17	0.00	392829.73	773919.40	N 32 4 39.88 W	103 34 56.70
	14800.00	90.00	179.70	9250.00	5690.42	-5687.24	630.69	0.00	392729.73	773919.92	N 32 4 38.89 W	103 34 56.70
	14900.00	90.00	179.70	9250.00	5790.42	-5787.24	631.20	0.00	392629.74	773920.43	N 32 4 37.90 W	103 34 56.70
	15000.00	90.00	179.70	9250.00	5890.42	-5887.24	631.72	0.00	392529.74	773920.95	N 32 4 36.91 W	103 34 56.70
	15100.00	90.00	179.70	9250.00	5990.42	-5987.24	632.24	0.00	392429.75	773921.47	N 32 4 35.92 W	103 34 56.70
	15200.00	90.00	179.70	9250.00	6090.42	-6087.24	632.75	0.00	392329.75	773921.98	N 32 4 34.93 W	103 34 56.71
	15300.00	90.00	179.70	9250.00	6190.42	-6187.24	633.27	0.00	392229.76	773922.50	N 32 4 33.94 W	103 34 56.71
	15400.00	90.00	179.70	9250.00	6290.42	-6287.24	633.78	0.00	392129.76	773923.01	N 32 4 32.95 W	103 34 56.71
	15500.00	90.00	179.70	9250.00	6390.42	-6387.23	634.30	0.00	392029.76	773923.53	N 32 4 31.96 W	103 34 56.71
	15600.00	90.00	179.70	9250.00	6490.42	-6487.23	634.81	0.00	391929.77	773924.04	N 32 4 30.97 W	103 34 56.71
	15700.00	90.00	179.70	9250.00	6590.42	-6587.23	635.33	0.00	391829.77	773924.56	N 32 4 29.98 W	103 34 56.72
	15800.00	90.00	179.70	9250.00	6690.42	-6687.23	635.85	0.00	391729.78	773925.08	N 32 4 28.99 W	103 34 56.72
	15900.00	90.00	179.70	9250.00	6790.42	-6787.23	636.36	0.00	391629.78	773925.59	N 32 4 28.00 W	103 34 56.72
	16000.00	90.00	179.70	9250.00	6890.42	-6887.23	636.88	0.00	391529.79	773926.11	N 32 4 27.01 W	103 34 56.72
	16100.00	90.00	179.70	9250.00	6990.42	-6987.23	637.39	0.00	391429.79	773926.62	N 32 4 26.02 W	103 34 56.72
	16200.00	90.00	179.70	9250.00	7090.42	-7087.23	637.91	0.00	391329.80	773927.14	N 32 4 25.03 W	103 34 56.73
	16300.00	90.00	179.70	9250.00	7190.42	-7187.22	638.43	0.00	391229.80	773927.66	N 32 4 24.04 W	103 34 56.73
	16400.00	90.00	179.70	9250.00	7290.42	-7287.22	638.94	0.00	391129.81	773928.17	N 32 4 23.05 W	103 34 56.73
	16500.00	90.00	179.70	9250.00	7390.42	-7387.22	639.46	0.00	391029.81	773928.69	N 32 4 22.06 W	103 34 56.73
	16600.00	90.00	179.70	9250.00	7490.42	-7487.22	639.97	0.00	390929.81	773929.20	N 32 4 21.08 W	103 34 56.74
	16700.00	90.00	179.70	9250.00	7590.42	-7587.22	640.49	0.00	390829.82	773929.72	N 32 4 20.09 W	103 34 56.74
	16800.00	90.00	179.70	9250.00	7690.42	-7687.22	641.00	0.00	390729.82	773930.23	N 32 4 19.10 W	103 34 56.74
	16900.00	90.00	179.70	9250.00	7790.42	-7787.22	641.52	0.00	390629.83	773930.75	N 32 4 18.11 W	103 34 56.74
	17000.00	90.00	179.70	9250.00	7890.42	-7887.21	642.04	0.00	390529.83	773931.27	N 32 4 17.12 W	103 34 56.74
	17100.00	90.00	179.70	9250.00	7990.42	-7987.21	642.55	0.00	390429.84	773931.78	N 32 4 16.13 W	103 34 56.75
	17200.00	90.00	179.70	9250.00	8090.42	-8087.21	643.07	0.00	390329.84	773932.30	N 32 4 15.14 W	103 34 56.75
	17300.00	90.00	179.70	9250.00	8190.42	-8187.21	643.58	0.00	390229.85	773932.81	N 32 4 14.15 W	103 34 56.75
	17400.00	90.00	179.70	9250.00	8290.42	-8287.21	644.10	0.00	390129.85	773933.33	N 32 4 13.16 W	103 34 56.75
	17500.00	90.00	179.70	9250.00	8390.42	-8387.21	644.61	0.00	390029.85	773933.84	N 32 4 12.17 W	103 34 56.75
	17600.00	90.00	179.70	9250.00	8490.42	-8487.21	645.13	0.00	389929.86	773934.36	N 32 4 11.18 W	103 34 56.76
	17700.00	90.00	179.70	9250.00	8590.42	-8587.21	645.65	0.00	389829.86	773934.88	N 32 4 10.19 W	103 34 56.76
	17800.00	90.00	179.70	9250.00	8690.42	-8687.20	646.16	0.00	389729.87	773935.39	N 32 4 9.20 W	103 34 56.76
	17900.00	90.00	179.70	9250.00	8790.42	-8787.20	646.68	0.00	389629.87	773935.91	N 32 4 8.21 W	103 34 56.76
	18000.00	90.00	179.70	9250.00	8890.42	-8887.20	647.19	0.00	389529.88	773936.42	N 32 4 7.22 W	103 34 56.76
	18100.00	90.00	179.70	9250.00	8990.42	-8987.20	647.71	0.00	389429.88	773936.94	N 32 4 6.23 W	103 34 56.77
	18200.00	90.00	179.70	9250.00	9090.42	-9087.20	648.23	0.00	389329.89	773937.46	N 32 4 5.24 W	103 34 56.77
	18300.00	90.00	179.70	9250.00	9190.42	-9187.20	648.74	0.00	389229.89	773937.97	N 32 4 4.25 W	103 34 56.77
	18400.00	90.00	179.70	9250.00	9290.42	-9287.20	649.26	0.00	389129.89	773938.49	N 32 4 3.26 W	103 34 56.77
	18500.00	90.00	179.70	9250.00	9390.42	-9387.20	649.77	0.00	389029.90	773939.00	N 32 4 2.27 W	103 34 56.77

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	18600.00	90.00	179.70	9250.00	9490.42	-9487.19	650.29	0.00	388929.90	773939.52	N 32 4 1.28 W 103 34 56.78	
	18700.00	90.00	179.70	9250.00	9590.42	-9587.19	650.80	0.00	388829.91	773940.03	N 32 4 0.30 W 103 34 56.78	
	18800.00	90.00	179.70	9250.00	9690.42	-9687.19	651.32	0.00	388729.91	773940.55	N 32 3 59.31 W 103 34 56.78	
	18900.00	90.00	179.70	9250.00	9790.42	-9787.19	651.84	0.00	388629.92	773941.07	N 32 3 58.32 W 103 34 56.78	
	19000.00	90.00	179.70	9250.00	9890.42	-9887.19	652.35	0.00	388529.92	773941.58	N 32 3 57.33 W 103 34 56.79	
	19100.00	90.00	179.70	9250.00	9990.42	-9987.19	652.87	0.00	388429.93	773942.10	N 32 3 56.34 W 103 34 56.79	
Cimarex Red Hills Unit #35H - PBHL [100' FSL, 1033' FWL]	19133.55	90.00	179.70	9250.00	10023.96	-10020.73	653.04	0.00	388396.38	773942.27	N 32 3 56.00 W 103 34 56.79	

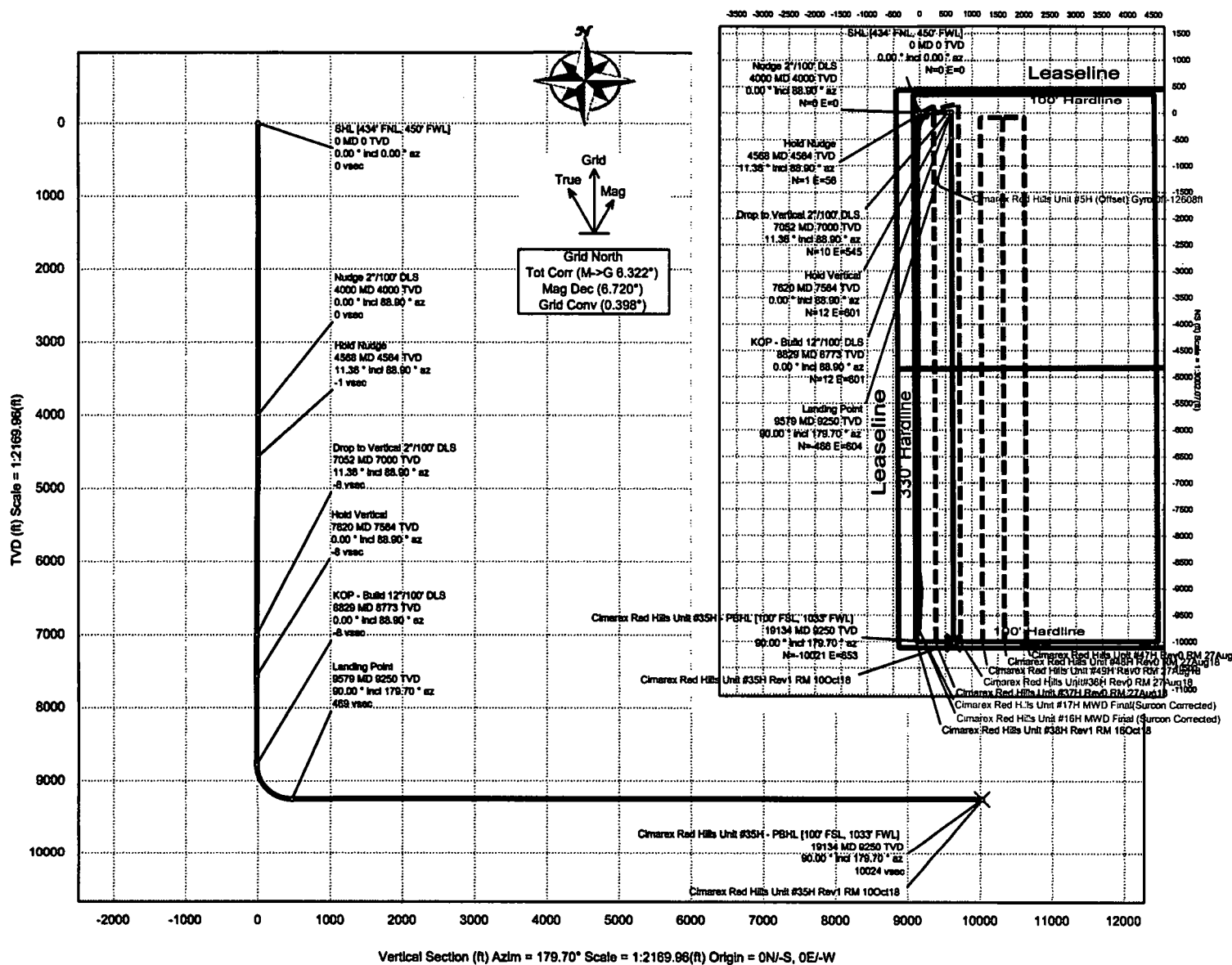
Survey Type: Non-Def Plan

Survey Error Model: ISCWSA Rev 0 *** 3-D 95.000% Confidence 2.7955 sigma
Survey Program:

Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Expected Max Inclination (deg)	Survey Tool Type	Borehole / Survey
	1	0.000	26.000	1/100.000	30.000	30.000		NAL_MWD_IFR1+MS-Depth Only	Red Hills Unit #35H / Cimarex Red Hills Unit #35H Rev1 RM 10Oct18
	1	26.000	19133.547	1/100.000	30.000	30.000		NAL_MWD_IFR1+MS	Red Hills Unit #35H / Cimarex Red Hills Unit #35H Rev1 RM

Borehole:	Well:	Field:	Structure:
Red Hills Unit #35H	Red Hills Unit #35H	NM Lea County (NAD 83)	Cimarex Red Hills Unit #35H

Gravity & Magnetic Parameters			Surface Location			Miscellaneous		
Model: MDM 2016	Dip: 63.739°	Date: 10-Oct-2018	Lat: N 32 8 28.21	Northing: 388418.82018	Grid Conv: 0.398°	Shot: New Shot	TVD Ref: RDB(3454.82 above RSL)	
MagDec: 6.72°	FE: 47818.4767	Gravity FE: 988.433mg (9.80665 Based)	Long: W 103 25 3.57	Easting: 773289.332015	Scale Fact: 0.98867671	Plan: Cimarex Red Hills Unit #35H Rev1 100 Oct18	EW (ft) Scale = 1:3002.07(ft)	



Critical Points

Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)	DLS
SHL (434' FNL, 450' FWL)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Nudge 2'100' DLS	4000.00	0.00	88.90	4000.00	0.00	0.00	0.00	0.00
Hold Nudge	4568.82	11.36	88.90	4564.10	-0.79	1.08	66.08	2.00
Drop to Vertical 2'100' DLS	7052.35	11.36	88.90	7000.00	-7.66	10.47	545.22	0.00
Hold Vertical	7620.17	0.00	88.90	7564.10	-6.45	11.55	601.29	2.00
KOP - Build 12'100' DLS	8829.60	0.00	88.90	8772.54	-6.45	11.55	601.29	0.00
Landing Point	9579.80	90.00	179.70	9250.00	469.02	-465.91	603.76	12.00
Cimarex Red Hills Unit #35H - PBHL (100' FSL, 1033' FWL)	19133.55	90.00	179.70	9250.00	10023.96	-10020.73	653.04	0.00

Cimarex Red Hills Unit #35H Rev1 RM 10Oct18 Anti-Collision Summary Report

Analysis Date-24hr Time: October 16, 2018 - 10:20
 Client: Cimarex Energy
 Field: NM Lea County (NAD 83)
 Structure: Cimarex Red Hills Unit #35H
 Slot: New Slot
 Well: Red Hills Unit #35H
 Borehole: Red Hills Unit #35H
 Scan MD Range: 0.00ft ~ 19133.55ft

Analysis Method: 3D Least Distance
 Reference Trajectory: Cimarex Red Hills Unit #35H Rev1 RM 10Oct18 (Def Plan)
 Depth Interval: Every 10.00 Measured Depth (ft)
 Rule Set: NAL Procedure: D&M AntiCollision Standard S002
 Min Pts: All local minima indicated.
 Version / Patch: 2.10.740.0
 Database \ Project: US1153APP452.dir.slb.com\drilling-NM Lea County 2.10

Trajectory Error Model: ISCWSA0 3-D 95.000% Confidence 2.7955 sigma, for subject well. For offset wells, error model version is specified with each well respectively.

Offset Trajectories Summary

Offset Selection Criteria

Wellhead distance scan: Not performed!
 Selection filters: Definitive Surveys - Definitive Plans - Definitive surveys exclude definitive plans
 - All Non-Def Surveys when no Def-Survey is set in a borehole - All Non-Def Plans when no Def-Plan is set in a borehole

Offset Trajectory	Separation			Allow Dev. (ft)	Sep. Fact.	Controlling Rule	Reference Trajectory		Risk Level			Alert	Status
	Ct-Ct (ft)	MAS (ft)	EOU (ft)				MD (ft)	TVD (ft)	Alert	Minor	Major		

Results highlighted: Sep-Factor separation <= 1.50 ft

Cimarex Red Hills Unit #35H
 Rev1 RM 10Oct18 (Def Plan)

Fail Major

20.00	16.50	17.50	3.50	N/A	MAS = 5.03 (m)	0.00	0.00	CtCt<=15m<15.00				Enter Alert
20.00	16.50	17.50	3.50	N/A	MAS = 5.03 (m)	26.00	26.00					WRP
17.15	17.44	4.69	-0.29	1.47	OSF1.50	1660.00	1660.00		OSF<1.50			Enter Minor
16.19	17.69	3.56	-1.50	1.35	OSF1.50	1690.00	1690.00			SfcRul<5.03		Enter Major
14.21	18.46	1.06	-4.26	1.10	OSF1.50	1780.00	1780.00					MinPt-CtCt
14.21	18.55	1.01	-4.34	1.09	OSF1.50	1790.00	1790.00					MinPts
14.28	18.64	1.02	-4.36	1.09	OSF1.50	1800.00	1800.00					MinPt-O-ADP
16.35	19.24	2.69	-2.89	1.24	OSF1.50	1870.00	1870.00			SfcRul>5.03		Exit Major
19.14	19.67	5.20	-0.53	1.45	OSF1.50	1920.00	1920.00		OSF>1.50			Exit Minor
80.33	25.92	62.22	54.41	4.98	OSF1.50	2620.00	2620.00	OSF>5.00				Exit Alert
176.55	36.94	151.09	139.61	7.58	OSF1.50	4020.00	4020.00					MINPT-O-EOU
176.60	37.00	151.09	139.59	7.57	OSF1.50	4030.00	4030.00					MinPt-O-ADP
177.71	37.51	151.87	140.20	7.51	OSF1.50	4110.00	4109.97					MinPt-O-SF
715.87	68.74	669.22	647.14	16.16	OSF1.50	8840.00	8783.93					MinPts
716.88	69.05	670.01	647.83	16.10	OSF1.50	8900.00	8843.67					MinPt-O-SF
985.18	297.33	786.13	687.86	5.00	OSF1.50	18440.00	9250.00	OSF<5.00				Enter Alert
985.19	318.98	771.70	666.21	4.66	OSF1.50	19133.55	9250.00					MinPts

Cimarex Red Hills Unit #35H
 Rev0 RM 27Aug18 (Non-Def Plan)

Warning Alert

40.03	32.52	37.53	7.51	N/A	MAS = 9.91 (m)	0.00	0.00	CtCt<=15m<15.00				Enter Alert
40.03	32.52	37.53	7.51	N/A	MAS = 9.91 (m)	26.00	26.00					WRP
40.03	32.52	28.50	7.51	4.16	MAS = 9.91 (m)	1500.00	1500.00					MinPts
40.08	32.52	28.44	7.56	4.11	MAS = 9.91 (m)	1520.00	1520.00					MINPT-O-EOU
40.74	32.52	28.83	8.22	4.06	MAS = 9.91 (m)	1570.00	1570.00					MinPt-O-SF
55.74	32.52	42.58	23.22	4.99	MAS = 9.91 (m)	1830.00	1830.00	OSF>5.00				Exit Alert

Offset Trajectory	Separation			Allow Dev. (ft)	Sep. Fact.	Controlling Rule	Reference Trajectory		Risk Level			Alert	Status
	Ct-Ct (ft)	MAS (ft)	EOU (ft)				MD (ft)	TVD (ft)	Alert	Minor	Major		
134.68	42.23	105.69	92.45	4.99		OSF1.50	5260.00	5242.74	OSF<5.00			Enter Alert	
108.61	44.70	77.98	63.91	3.77		OSF1.50	5660.00	5634.91				MinPt-CtCt	
108.65	44.82	77.93	63.83	3.76		OSF1.50	5680.00	5654.51				MinPts	
108.98	45.00	78.14	63.97	3.76		OSF1.50	5710.00	5683.93				MinPt-O-SF	
154.15	48.01	121.30	106.13	5.00		OSF1.50	6220.00	6183.94	OSF>5.00			Exit Alert	
346.82	65.07	302.61	281.75	8.25		OSF1.50	8830.00	8773.94				MINPT-O-EOU	
346.86	65.11	302.61	281.74	8.25		OSF1.50	8840.00	8783.93				MinPt-O-ADP	
347.36	65.26	303.02	282.10	8.24		OSF1.50	8870.00	8813.88				MinPt-O-SF	
765.62	231.67	610.34	533.95	4.99		OSF1.50	16240.00	9250.00	OSF<5.00			Enter Alert	
765.63	320.96	550.82	444.67	3.59		OSF1.50	19133.55	9250.00				MinPts	

Cimarex Red Hills Unit #36H
Rev0 RM 27Aug18 (Non-Def
Plan)

Warning Alert

59.99	32.81	57.49	27.18	N/A	MAS = 10.00 (m)	0.00	0.00					Surface	
59.98	32.81	57.48	27.18	N/A	MAS = 10.00 (m)	26.00	26.00					WRP	
59.98	32.81	48.46	27.18	6.37	MAS = 10.00 (m)	1500.00	1500.00					MinPts	
60.04	32.81	48.41	27.24	6.30	MAS = 10.00 (m)	1520.00	1520.00					MINPT-O-EOU	
61.57	32.81	49.54	28.77	6.19	MAS = 10.00 (m)	1600.00	1600.00					MinPt-O-SF	
213.97	63.31	170.94	150.67	5.22	OSF1.50	8828.60	8772.54					MinPt-CtCt	
213.98	63.31	170.94	150.67	5.22	OSF1.50	8830.00	8773.94					MinPts	
214.08	63.34	171.02	150.73	5.22	OSF1.50	8840.00	8783.93					MinPt-O-SF	
704.16	213.10	561.26	491.06	5.00	OSF1.50	15960.00	9250.00		OSF<5.00			Enter Alert	
704.15	310.51	496.31	393.64	3.42	OSF1.50	19133.55	9250.00					MinPts	

Cimarex Red Hills Unit #17H
MWD Final(Surcon Corrected)
(Def Survey)

Warning Alert

134.10	32.81	131.60	101.29	N/A	MAS = 10.00 (m)	0.00	0.00					Surface	
134.05	32.81	131.55	101.24	44578.80	MAS = 10.00 (m)	26.00	26.00					WRP	
120.14	32.81	110.04	87.34	15.47	MAS = 10.00 (m)	1660.00	1660.00					MinPts	
120.59	32.81	109.97	87.78	14.55	MAS = 10.00 (m)	1800.00	1800.00					MINPT-O-EOU	
85.37	32.81	66.26	52.56	5.00	MAS = 10.00 (m)	3720.00	3720.00		OSF<5.00			Enter Alert	
61.42	32.81	40.96	28.61	3.28	MAS = 10.00 (m)	4350.00	4349.13					MinPts	
61.42	32.81	40.96	28.61	3.28	MAS = 10.00 (m)	4360.00	4359.05					MinPt-O-SF	
93.01	32.81	72.35	60.20	4.98	MAS = 10.00 (m)	4650.00	4644.68		OSF>5.00			Exit Alert	
643.55	42.49	614.39	601.06	24.05	OSF1.50	8710.00	8653.94					MinPt-CtCt	
643.63	43.26	613.96	600.38	23.60	OSF1.50	8828.60	8772.54					MINPT-O-EOU	
642.90	43.31	613.20	599.59	23.54	OSF1.50	8900.00	8843.67					MinPt-O-SF	
636.43	42.05	607.56	594.38	24.04	OSF1.50	9130.00	9054.31					MinPts	
636.41	42.00	607.58	594.42	24.07	OSF1.50	9140.00	9062.32					MinPt-CtCt	
3177.62	118.30	3097.92	3059.31	41.13	OSF1.50	12860.00	9250.00					MinPt-CtCt	
3178.37	120.52	3097.19	3057.85	40.37	OSF1.50	12960.00	9250.00					MINPT-O-EOU	
3179.11	121.40	3097.34	3057.71	40.08	OSF1.50	13000.00	9250.00					MinPt-O-ADP	
3186.99	132.13	3098.08	3054.87	36.85	OSF1.50	13350.00	9250.00					MINPT-O-EOU	
3187.71	132.98	3098.23	3054.73	36.62	OSF1.50	13390.00	9250.00					MinPt-O-ADP	
3189.70	140.22	3095.39	3049.48	34.71	OSF1.50	13600.00	9250.00					MinPt-CtCt	
3190.47	151.24	3088.81	3039.23	32.15	OSF1.50	13970.00	9250.00					MinPt-CtCt	
3183.94	180.42	3062.83	3003.52	26.82	OSF1.50	14950.00	9250.00					MinPt-CtCt	
3183.43	187.59	3057.54	2995.85	25.78	OSF1.50	15190.00	9250.00					MinPt-CtCt	
3185.64	193.93	3055.52	2991.71	24.94	OSF1.50	15430.00	9250.00					MINPT-O-EOU	
3184.45	212.46	3041.98	2971.99	22.73	OSF1.50	16020.00	9250.00					MinPt-CtCt	
3185.26	214.99	3041.10	2970.28	22.47	OSF1.50	16130.00	9250.00					MINPT-O-EOU	
3187.66	218.74	3041.00	2968.92	22.09	OSF1.50	16260.00	9250.00					MINPT-O-EOU	
3189.39	220.75	3041.38	2968.63	21.90	OSF1.50	16340.00	9250.00					MinPt-O-ADP	
3202.16	242.41	3039.72	2959.75	20.01	OSF1.50	17020.00	9250.00					MinPt-CtCt	

Offset Trajectory	Separation			Allow Dev. (ft)	Sep. Fact.	Controlling Rule	Reference Trajectory		Risk Level			Alert	Status
	Ct-Ct (ft)	MAS (ft)	EOU (ft)				MD (ft)	TVD (ft)	Alert	Minor	Major		
3201.89	248.11	3035.65	2953.78	19.54		OSF1.50	17210.00	9250.00				MinPt-CtCt	
3200.94	257.40	3028.51	2943.54	18.82		OSF1.50	17520.00	9250.00				MinPt-CtCt	
3200.89	260.69	3026.26	2940.20	18.58		OSF1.50	17630.00	9250.00				MinPt-CtCt	
3200.65	275.11	3016.41	2925.54	17.60		OSF1.50	18110.00	9250.00				MinPt-CtCt	
3200.31	287.42	3007.86	2912.89	16.84		OSF1.50	18520.00	9250.00				MinPt-CtCt	
3200.38	296.71	3001.74	2903.67	16.30		OSF1.50	18830.00	9250.00				MinPt-CtCt	
3200.54	298.97	3000.40	2901.58	16.18		OSF1.50	18920.00	9250.00				MINPT-O-EQU	
3200.65	299.11	3000.41	2901.54	16.17		OSF1.50	18930.00	9250.00				MinPt-O-ADP	
3209.69	301.44	3007.90	2908.26	16.09		OSF1.50	19133.55	9250.00				MinPt-O-SF	

Cimarex Red Hills Unit #35H
MWD Final (Surcon Corrected)
(Def Survey)

Warning Alert

152.32	32.81	149.82	119.51	N/A	MAS = 10.00 (m)	0.00	0.00					Surface	
152.29	32.81	149.79	119.48	458675.89	MAS = 10.00 (m)	10.00	10.00					MinPts	
152.30	32.81	149.79	119.49	55646.32	MAS = 10.00 (m)	26.00	26.00					WRP	
152.90	32.81	149.51	120.09	169.65	MAS = 10.00 (m)	230.00	230.00					MINPT-O-EQU	
164.21	32.81	155.95	131.40	28.07	MAS = 10.00 (m)	1340.00	1340.00					MinPts	
164.33	32.81	154.29	131.52	21.46	MAS = 10.00 (m)	1740.00	1740.00					MinPts	
164.59	32.81	152.86	131.78	17.57	MAS = 10.00 (m)	2120.00	2120.00					MinPts	
164.53	32.81	151.89	131.72	15.98	MAS = 10.00 (m)	2330.00	2330.00					MinPts	
164.77	32.81	151.67	131.96	15.31	MAS = 10.00 (m)	2430.00	2430.00					MINPT-O-EQU	
166.20	32.81	151.36	133.38	13.26	MAS = 10.00 (m)	2830.00	2830.00					MinPts	
166.32	32.81	151.25	133.51	13.04	MAS = 10.00 (m)	2880.00	2880.00					MINPT-O-EQU	
166.07	32.81	146.63	133.28	9.66	MAS = 10.00 (m)	3870.00	3870.00					MinPts	
166.21	32.81	146.48	133.40	9.51	MAS = 10.00 (m)	3930.00	3930.00					MINPT-O-EQU	
93.28	32.81	72.45	60.47	4.97	MAS = 10.00 (m)	4750.00	4742.72		OSF<5.00			Enter Alert	
83.65	32.81	62.48	50.84	4.35	MAS = 10.00 (m)	4980.00	4968.22					MinPts	
83.74	32.81	62.55	50.93	4.35	MAS = 10.00 (m)	5000.00	4987.83					MinPt-O-SF	
96.86	32.81	75.34	64.05	4.96	MAS = 10.00 (m)	5250.00	5232.93		OSF>5.00			Exit Alert	
532.13	42.58	502.91	489.55	19.82	OSF1.50	8810.00	8753.94					MinPt-O-SF	
614.04	39.73	586.73	574.32	24.64	OSF1.50	9380.00	9209.29					MinPt-O-SF	
631.54	41.32	603.16	590.22	24.31	OSF1.50	9550.00	9249.14					MinPt-O-ADP	
632.81	43.77	602.79	589.04	22.91	OSF1.50	9790.00	9250.00					MINPT-O-EQU	
632.97	43.96	602.83	589.01	22.81	OSF1.50	9810.00	9250.00					MinPt-O-ADP	
650.83	51.85	615.43	598.98	19.71	OSF1.50	10370.00	9250.00					MinPt-CtCt	
651.73	55.48	613.80	596.24	18.38	OSF1.50	10560.00	9250.00					MinPt-CtCt	
637.14	81.19	582.18	555.94	12.10	OSF1.50	11630.00	9250.00					MinPt-CtCt	
636.96	91.57	575.08	545.39	10.68	OSF1.50	12010.00	9250.00					MinPt-CtCt	
636.78	99.32	569.73	537.45	9.83	OSF1.50	12290.00	9250.00					MinPt-CtCt	
637.56	101.90	568.79	535.66	9.58	OSF1.50	12390.00	9250.00					MINPT-O-EQU	
647.86	118.32	568.15	529.54	8.36	OSF1.50	12980.00	9250.00					MINPT-O-EQU	
641.86	136.47	550.05	505.40	7.16	OSF1.50	13600.00	9250.00					MinPt-CtCt	
644.05	146.52	545.53	497.52	6.68	OSF1.50	13960.00	9250.00					MINPT-O-EQU	
645.11	147.81	545.73	497.30	6.63	OSF1.50	14010.00	9250.00					MinPt-O-ADP	
649.98	174.60	532.74	475.38	5.64	OSF1.50	14900.00	9250.00					MinPt-CtCt	
651.20	177.77	531.86	473.43	5.55	OSF1.50	15020.00	9250.00					MINPT-O-EQU	
646.82	195.96	515.35	450.86	5.00	OSF1.50	15610.00	9250.00		OSF<5.00			Enter Alert	
643.93	200.40	509.50	443.54	4.86	OSF1.50	15770.00	9250.00					MinPt-CtCt	
644.25	201.60	509.02	442.65	4.83	OSF1.50	15820.00	9250.00					MINPT-O-EQU	
649.14	210.35	508.07	438.79	4.67	OSF1.50	16120.00	9250.00					MINPT-O-EQU	
650.23	211.66	508.29	438.57	4.65	OSF1.50	16170.00	9250.00					MinPt-O-ADP	
655.29	218.01	509.11	437.28	4.54	OSF1.50	16380.00	9250.00					MINPT-O-EQU	
656.11	219.06	509.24	437.08	4.53	OSF1.50	16420.00	9250.00					MinPt-O-ADP	
655.06	246.33	490.00	408.73	4.01	OSF1.50	17320.00	9250.00					MinPt-CtCt	

Offset Trajectory	Separation			Allow Dev. (ft)	Sep. Fact.	Controlling Rule	Reference Trajectory		Risk Level			Alert	Status
	Ct-Ct (ft)	MAS (ft)	EOU (ft)				MD (ft)	TVD (ft)	Alert	Minor	Major		
655.34	247.22	489.70	408.13	4.00		OSF1.50	17360.00	9250.00				MINPT-O-EOU	
655.72	247.64	489.79	408.08	4.00		OSF1.50	17380.00	9250.00				MinPt-O-ADP	
659.29	249.45	492.15	409.84	3.99		OSF1.50	17470.00	9250.00				MinPt-O-SF	
612.82	271.47	431.00	341.34	3.40		OSF1.50	18150.00	9250.00				MinPt-CtCt	
612.99	272.10	430.76	340.90	3.40		OSF1.50	18180.00	9250.00				MINPT-O-EOU	
613.15	272.30	430.78	340.85	3.40		OSF1.50	18190.00	9250.00				MinPt-O-ADP	
614.25	273.04	431.40	341.22	3.39		OSF1.50	18230.00	9250.00				MinPt-O-SF	
631.43	282.95	441.96	348.47	3.36		OSF1.50	18540.00	9250.00				MINPT-O-EOU	
631.62	283.24	441.96	348.38	3.36		OSF1.50	18550.00	9250.00				MinPt-O-ADP	
633.55	284.44	443.09	349.11	3.36		OSF1.50	18610.00	9250.00				MinPt-O-SF	
652.16	293.15	455.89	359.01	3.35		OSF1.50	18920.00	9250.00				MinPt-O-SF	
695.84	276.12	510.92	419.72	3.80		OSF1.50	19133.55	9250.00				TD	

Cimarex Red Hills Unit #43H
Rev0 RM 27/Aug18 (Non-Def Plan)

Warning Alert

1574.37	32.81	1571.87	1541.56	N/A	MAS = 10.00 (m)	0.00	0.00					Surface	
1574.29	32.81	1571.79	1541.49	218027.12	MAS = 10.00 (m)	10.00	10.00					MinPt-O-SF	
1574.28	32.81	1571.78	1541.47	N/A	MAS = 10.00 (m)	26.00	26.00					WRP	
557.02	60.34	515.52	496.68	14.68	OSF1.50	9140.00	9062.32					MinPts	
899.62	271.74	717.63	627.89	5.00	OSF1.50	17860.00	9250.00	OSF<5.00				Enter Alert	
899.62	311.35	691.22	588.27	4.36	OSF1.50	19133.55	9250.00					MinPts	

Cimarex Red Hills Unit #35H
(Offset) Gyro Off-12608ft (Def Survey)

Pass

1288.16	32.81	1285.66	1255.35	N/A	MAS = 10.00 (m)	0.00	0.00					Surface	
1288.08	32.81	1285.57	1255.27	193547.39	MAS = 10.00 (m)	10.00	10.00					MinPt-O-SF	
1288.07	32.81	1285.57	1255.26	N/A	MAS = 10.00 (m)	26.00	26.00					WRP	
1279.58	32.81	1265.21	1246.77	107.56	MAS = 10.00 (m)	2370.00	2370.00					MinPts	
1278.12	32.81	1258.63	1245.31	75.10	MAS = 10.00 (m)	3500.00	3500.00					MinPts	
1278.16	32.81	1258.55	1245.36	74.56	MAS = 10.00 (m)	3530.00	3530.00					MINPT-O-EOU	
1287.56	32.81	1266.19	1254.75	68.08	MAS = 10.00 (m)	4100.00	4099.98					MinPt-O-SF	
1289.10	32.81	1267.77	1256.29	68.34	MAS = 10.00 (m)	4280.00	4279.55					MinPt-O-SF	
1289.19	32.81	1267.85	1256.38	68.31	MAS = 10.00 (m)	4340.00	4339.20					MinPt-O-SF	
1286.64	32.81	1265.18	1253.83	67.74	MAS = 10.00 (m)	4730.00	4723.11					MinPt-O-SF	
1282.72	32.81	1260.67	1249.91	65.48	MAS = 10.00 (m)	5410.00	5389.80					MinPts	
1282.72	32.81	1260.57	1249.91	65.17	MAS = 10.00 (m)	5470.00	5448.63					MinPts	
1282.71	32.81	1260.47	1249.90	64.86	MAS = 10.00 (m)	5530.00	5507.45					MinPts	
1282.73	32.81	1260.40	1249.92	64.58	MAS = 10.00 (m)	5580.00	5556.47					MinPts	
1282.76	32.81	1260.31	1249.95	64.18	MAS = 10.00 (m)	5640.00	5615.30					MINPT-O-EOU	
1314.25	39.28	1287.23	1274.97	53.49	OSF1.50	7100.00	7046.79					MinPt-O-SF	
283.75	46.45	251.95	237.30	9.60	OSF1.50	10390.00	9250.00					MinPt-O-SF	
279.45	45.39	248.35	234.06	9.69	OSF1.50	10430.00	9250.00					MinPt-O-ADP	
279.26	45.11	248.35	234.15	9.74	OSF1.50	10440.00	9250.00					MinPts	
8697.57	46.27	8665.89	8651.30	297.97	OSF1.50	19133.55	9250.00					TD	

Cimarex Red Hills Unit #43H
Rev0 RM 27/Aug18 (Non-Def Plan)

Pass

1594.37	32.81	1591.87	1561.56	N/A	MAS = 10.00 (m)	0.00	0.00					Surface	
1594.29	32.81	1591.78	1561.48	199100.90	MAS = 10.00 (m)	10.00	10.00					MinPt-O-SF	
1594.28	32.81	1591.78	1561.47	N/A	MAS = 10.00 (m)	26.00	26.00					WRP	
990.13	74.69	939.20	915.44	20.77	OSF1.50	9150.00	9070.21					MinPts	
990.51	74.74	939.54	915.77	20.76	OSF1.50	9190.00	9100.40					MinPt-O-SF	
1206.04	305.79	1001.35	900.25	5.95	OSF1.50	19133.55	9250.00					MinPts	

Offset Trajectory	Separation			Allow Dev. (ft)	Sep. Fact.	Controlling Rule	Reference Trajectory		Risk Level			Alert	Status
	Ct-Ct (ft)	MAS (ft)	EOU (ft)				MD (ft)	TVD (ft)	Alert	Minor	Major		

Cimarex Red Hills Unit #35H
Rev0 RM 27Aug18 (Non-Def
Plan)

Pass

1614.32	32.81	1611.82	1581.51	N/A	MAS = 10.00 (m)	0.00	0.00	Surface
1614.24	32.81	1611.73	1581.43	196061.62	MAS = 10.00 (m)	10.00	10.00	MinPt-O-SF
1614.22	32.81	1611.72	1581.42	N/A	MAS = 10.00 (m)	26.00	26.00	WRP
1614.22	32.81	1602.69	1581.42	178.32	MAS = 10.00 (m)	1510.00	1510.00	MinPts
1614.28	32.81	1602.60	1581.47	175.58	MAS = 10.00 (m)	1540.00	1540.00	MINPT-O-EOU
1804.82	41.03	1776.63	1763.78	70.16	OSF1.50	5260.00	5242.74	MinPt-O-SF
1397.34	59.61	1356.58	1337.73	37.00	OSF1.50	9090.00	9021.07	MinPt-O-SF
1397.02	59.59	1356.27	1337.43	37.00	OSE1.50	9120.00	9046.18	MinPt-O-SF
1396.90	59.58	1356.15	1337.31	37.00	OSF1.50	9150.00	9070.21	MinPts
1565.81	305.81	1361.10	1260.00	7.73	OSE1.50	19133.55	9250.00	MinPts

1. Geological Formations

TVD of target 9,250

Pilot Hole TD N/A

MD at TD 19,134

Deepest expected fresh water

Formation	Depth (TVD) from KB	Water/Mineral Bearing/Target Zone	Hazards
Rustler	926	N/A	
Top Salt	1260	N/A	
Castille	3338	N/A	
Base Salt	4652	N/A	
Lamar	4888	N/A	
Bell Canyon	4932	N/A	
Cherry Canyon	6017	Hydrocarbons	
Brushy Canyon	7490	Hydrocarbons	
Top Bone Spring	9017	Hydrocarbons	
Bone Spring Target	9250	Hydrocarbons	
Wolfcamp	12210	Hydrocarbons	

2. Casing Program

Hole Size	Casing Depth From	Casing Depth To	Setting Depth TVD	Casing Size	Weight (lb/ft)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
17 1/2	0	976	976	13-3/8"	48.00	H-40/J-55 Hybrid	ST&C	1.66	3.87	6.87
12 1/4	0	4912	4912	9-5/8"	40.00	J-55	LT&C	1.57	1.52	2.65
8 3/4	0	8829	8829	5-1/2"	17.00	L-80	LT&C	1.52	1.87	2.15
8 3/4	8829	19134	9250	5-1/2"	17.00	L-80	BT&C	1.45	1.79	55.47
BLM Minimum Safety Factor								1.125	1	1.6 Dry 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

Cimarex Energy Co., Red Hills Unit 35H

	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
Is AC Report included?	N

3. Cementing Program

Casing	# Sks	Wt. lb/gal	Yld ft ³ /sack	H ₂ O gal/sk	500# Comp. Strength (hours)	Slurry Description
Surface	410	13.50	1.72	9.15	15.5	Lead: Class C + Bentonite
	195	14.80	1.34	6.32	9.5	Tail: Class C + LCM
Intermediate	934	12.90	1.88	9.65	12	Lead: 35:65 (Poz:C) + Salt + Bentonite
	287	14.80	1.34	6.32	9.5	Tail: Class C + LCM
Production	355	10.30	3.64	22.18		Lead: Tuned Light + LCM
	2204	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	42
Intermediate	0	49
Production	4712	14

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
12 1/4	13 5/8	2M	Annular	X	50% of working pressure
			Blind Ram		2M
			Pipe Ram		
			Double Ram	X	
			Other		
8 3/4	13 5/8	3M	Annular	X	50% of working pressure
			Blind Ram		3M
			Pipe Ram		
			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.

	Formation integrity test will be performed per Onshore Order #2. 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 976'	FW Spud Mud	8.30 - 8.80	30-32	N/C
976' to 4912'	Brine Water	9.70 - 10.20	30-32	N/C
4912' to 19134'	FW/Cut Brine	8.50 - 9.00	30-32	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.

What will be used to monitor the loss or gain of fluid?	PVT/Pason/Visual Monitoring
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6. Logging and Testing Procedures

Logging, Coring and Testing	
X	Will run GR/CNL from TD 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
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7. Drilling Conditions

Condition	
BH Pressure at deepest TVD	4329 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 13-3/8" surface casing, a 13 5/8" BOP/BOPE system with a minimum working pressure of 3000 psi will be installed on the wellhead system and will be pressure tested to 250 psi low followed by a 3000 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 3000 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.



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

PWD Data Report

12/09/2019

APD ID: 10400035074

Submission Date: 10/24/2018

Operator Name: CIMAREX ENERGY COMPANY OF COLORADO

Well Name: RED HILLS UNIT

Well Number: 35H

Well Type: OIL WELL

Well Work Type: Drill

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:

Describe 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:

Operator Name: CIMAREX ENERGY COMPANY OF COLORADO

Well Name: RED HILLS UNIT

Well Number: 35H

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:

Section 3 - Unlined Pits

Would you like to utilize Unlined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

PWD disturbance (acres):

PWD surface owner:

Unlined pit PWD on or off channel:

Unlined pit PWD discharge volume (bbl/day):

Unlined pit specifications:

Precipitated solids disposal:

Describe 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?

Operator Name: CIMAREX ENERGY COMPANY OF COLORADO

Well Name: RED HILLS UNIT

Well Number: 35H

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):

Operator Name: CIMAREX ENERGY COMPANY OF COLORADO

Well Name: RED HILLS UNIT

Well Number: 35H

Other PWD type description:

Other PWD type attachment:

Have other regulatory requirements been met?

Other regulatory requirements attachment:



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

Bond Info Data Report

12/09/2019

APD ID: 10400035074

Submission Date: 10/24/2018

Operator Name: CIMAREX ENERGY COMPANY OF COLORADO

Well Name: RED HILLS UNIT

Well Number: 35H

Well Type: OIL WELL

Well Work Type: Drill

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Bond Information

Federal/Indian APD: FED

BLM Bond number: NMB001187

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: