

Form 3160-3
(June 2015)

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

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

1a. Type of work: <input type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No.
1b. Type of Well: <input type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other		6. If Indian, Allottee or Tribe Name
1c. Type of Completion: <input type="checkbox"/> Hydraulic Fracturing <input type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		7. If Unit or CA Agreement, Name and No.
2. Name of Operator		8. Lease Name and Well No.
3a. Address	3b. Phone No. (include area code)	9. API Well No. 30 015 47012
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface At proposed prod. zone		10. Field and Pool, or Exploratory
14. Distance in miles and direction from nearest town or post office*		11. Sec., T. R. M. or Blk. and Survey or Area
		12. County or Parish
		13. State
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)	16. No of acres in lease	17. Spacing Unit dedicated to this well
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.	19. Proposed Depth	20. BLM/BIA Bond No. in file
21. Elevations (Show whether DF, KDB, RT, GL, etc.)	22. Approximate date work will start*	23. Estimated duration
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	Name (Printed/Typed)	Date
Title		
Approved by (Signature)	Name (Printed/Typed)	Date
Title	Office	

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

Entered 04/09/2020 - KMS NMOCD



District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102
Revised August 1, 2011
Submit one copy to appropriate
District Office
 AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-015 47012		² Pool Code 98220		³ Pool Name Purple Sage Wolfcamp (Gas)	
⁴ Code 328106		⁵ Property Name RINGER 3-4 FEDERAL COM			⁶ Well Number 2H
⁷ OGRID No. 162683		⁸ Operator Name CIMAREX ENERGY CO. OF COLORADO			⁹ Elevation 3348.8'

¹⁰ Surface Location

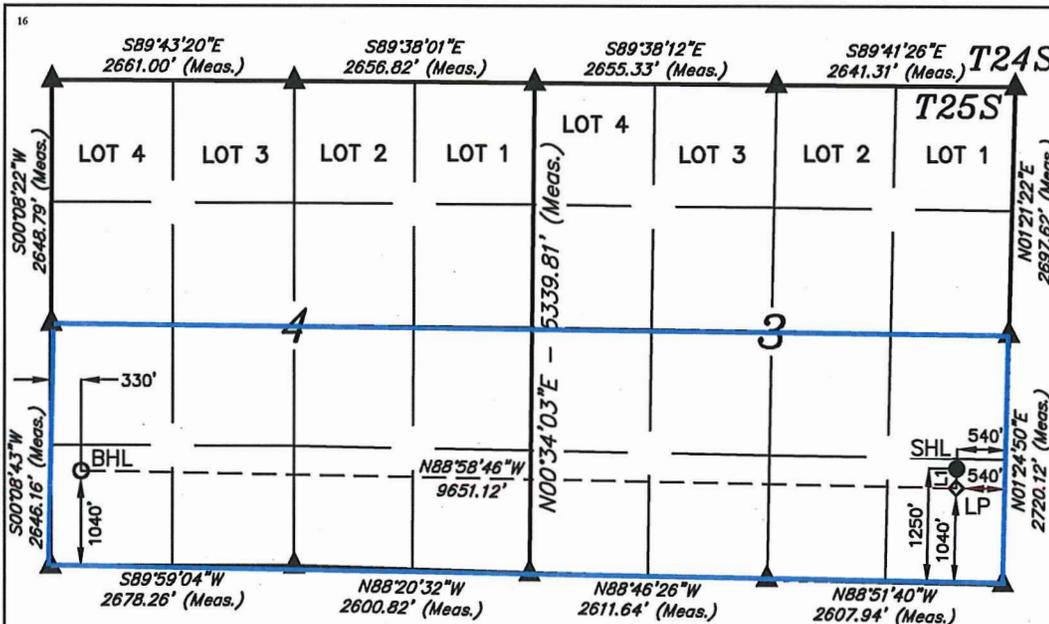
UL or lot no. P	Section 3	Township 25S	Range 26E	Lot Idn	Feet from the 1250	North/South line SOUTH	Feet from the 540	East/West line EAST	County EDDY
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¹¹ Bottom Hole Location If Different From Surface

UL or lot no. M	Section 4	Township 25S	Range 26E	Lot Idn	Feet from the 1040	North/South line SOUTH	Feet from the 330	East/West line WEST	County EDDY
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¹² Dedicated Acres 640	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
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No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



¹⁷ OPERATOR
CERTIFICATION
I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.
Signature: *Hope Knauls* Date: 7/17/2018
Printed Name: Hope Knauls
E-mail Address: hknauls@cimarex.com

¹⁸ SURVEYOR
CERTIFICATION
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.
February 23, 2018

Date of Survey
Signature and Seal of Professional Surveyor:



Certificate Number:



NOTE:
• Distances referenced on plat to section lines are perpendicular.
• Basis of Bearing is a Transverse Mercator Projection with a Central Meridian of W103°53'00"

LINE	DIRECTION	LENGTH
L1	S01°24'08"W	210.00'

DRAWN BY: R.J. 07-02-18
REV: 1 07-16-18 C.M.T. (BHL CHANGE)

- = SURFACE HOLE LOCATION
- ◇ = LANDING POINT
- = BOTTOM HOLE LOCATION
- ▲ = SECTION CORNER LOCATED

NAD 83 (SURFACE HOLE LOCATION) LATITUDE = 32°09'18.06" (32.155016°) LONGITUDE = 104°16'27.33" (104.274258°)	NAD 83 (BOTTOM HOLE LOCATION) LATITUDE = 32°09'17.32" (32.154811°) LONGITUDE = 104°18'19.61" (104.305448°)
NAD 27 (SURFACE HOLE LOCATION) LATITUDE = 32°09'17.63" (32.154896°) LONGITUDE = 104°16'25.53" (104.273759°)	NAD 27 (BOTTOM HOLE LOCATION) LATITUDE = 32°09'16.89" (32.154692°) LONGITUDE = 104°18'17.81" (104.304948°)
STATE PLANE NAD 83 (N.M. EAST) N: 420135.01' E: 559619.30'	STATE PLANE NAD 83 (N.M. EAST) N: 420056.62' E: 549967.14'
STATE PLANE NAD 27 (N.M. EAST) N: 420077.70' E: 518436.58'	STATE PLANE NAD 27 (N.M. EAST) N: 419999.51' E: 508784.50'

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1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Submit Original
to Appropriate
District Office

GAS CAPTURE PLAN

Date: 7/17/18

Original Operator & OGRID No.: Cimarex Energy Co. of Colorado- 162683
 Amended - Reason for Amendment: _____

This Gas Capture Plan outlines actions to be taken by the Operator to reduce well/production facility flaring/venting for new completion (new drill, recomple to new zone, re-frac) activity.

Note: Form C-129 must be submitted and approved prior to exceeding 60 days allowed by Rule (Subsection A of 19.15.18.12 NMAC).

Well(s)/Production Facility – Name of facility

The well(s) that will be located at the production facility are shown in the table below.

Well Name	API	Well Location (ULSTR)	Footages	Expected MCF/D	Flared or Vented	Comments
Ringer 3-4 Federal Com #2H	Pending	3-25S-26E	1250 FSL & 540 FEL	3000		

Gathering System and Pipeline Notification

Well(s) will be connected to a production facility after flowback operations are complete, if gas transporter system is in place. The gas produced from production facility is dedicated to Gas Transporter and will be connected to Gas Transporter low/high pressure gathering system located in Culberson County, Texas. It will require 1.5 miles of pipeline to connect the facility to low/high pressure gathering system. Operator provides (periodically) to Gas Transporter a drilling, completion and estimated first production date for wells that are scheduled to be drilled in the foreseeable future. In addition, Operator and Gas Transporter have periodic conference calls to discuss changes to drilling and completion schedules. Gas from these wells will be processed at Cimarex Triple Crown System: Mark West Hidalgo/ Argo Plant located in Sec 30, Blk 60 T-2, of T&P Svy Culberson Co., Texas. The actual flow of the gas will be based on compression operating parameters and gathering system pressures.

Flowback Strategy

After the fracture treatment/completion operations, well(s) will be produced to temporary production tanks and gas will be flared or vented. During flowback, the fluids and sand content will be monitored. When the produced fluids contain minimal sand, the wells will be turned to production facilities. Gas sales should start as soon as the wells start flowing through the production facilities, unless there are operational issues on Gas Transporter system at that time. Based on current information, it is Operator's belief the system can take this gas upon completion of the well(s).

Safety requirements during cleanout operations from the use of underbalanced air cleanout systems may necessitate that sand and non-pipeline quality gas be vented and/or flared rather than sold on a temporary basis.

Alternatives to Reduce Flaring

Below are alternatives considered from a conceptual standpoint to reduce the amount of gas flared.

- Power Generation – On lease
 - Only a portion of gas is consumed operating the generator, remainder of gas will be flared
- Compressed Natural Gas – On lease
 - Gas flared would be minimal, but might be uneconomical to operate when gas volume declines
- NGL Removal – On lease
 - Plants are expensive, residue gas is still flared, and uneconomical to operate when gas volume declines

PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	CIMAREX ENERGY COMPANY OF COLORADO
LEASE NO.:	NMNM019836
WELL NAME & NO.:	2H-RINGER 3 4 FEERAL COM
SURFACE HOLE FOOTAGE:	1250'/S & 540'/E
BOTTOM HOLE FOOTAGE:	1040'/S & 330'/W
LOCATION:	SECTION 03, T25S, R26E, NMPM
COUNTY:	Eddy County, New Mexico

COA

H2S	<input type="radio"/> Yes	<input checked="" type="radio"/> No	
Potash	<input checked="" type="radio"/> None	<input type="radio"/> Secretary	<input type="radio"/> R-111-P
Cave/Karst Potential	<input type="radio"/> Low	<input type="radio"/> Medium	<input checked="" type="radio"/> High
Variance	<input type="radio"/> None	<input checked="" type="radio"/> Flex Hose	<input type="radio"/> Other
Wellhead	<input type="radio"/> Conventional	<input type="radio"/> Multibowl	<input checked="" type="radio"/> Both
Other	<input type="checkbox"/> 4 String Area	<input type="checkbox"/> Capitan Reef	<input type="checkbox"/> WIPP
Other	<input type="checkbox"/> Fluid Filled	<input type="checkbox"/> Cement Squeeze	<input type="checkbox"/> Pilot Hole
Special Requirements	<input type="checkbox"/> Water Disposal	<input checked="" type="checkbox"/> COM	<input type="checkbox"/> 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 **450 feet** (a minimum of **70 feet (Eddy 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.
2. The minimum required fill of cement behind the **9-5/8** inch intermediate casing shall be set at approximately **1910 feet** 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.
 - ❖ In High Cave/Karst Areas if cement does not circulate to surface on the first two casing strings, the cement on the 3rd casing string must come to surface.
 3. The minimum required fill of cement behind the **7** inch production 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.
Cement excess is less than 25%, more cement might be required.
(-3%)
 4. The minimum required fill of cement behind the **4-1/2** inch production liner is:
 - Cement should tie-back **100 feet** into the previous casing. Operator shall provide method of verification.
Cement excess is less than 25%, more cement might be required.
(8%)

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.

Option 1:

- a. 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.

- b. 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.

Option 2:

1. 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 **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)

Communitization Agreement

- The operator will submit a Communitization Agreement to the Carlsbad Field Office, 620 E Greene St. Carlsbad, New Mexico 88220, at least 90 days before the anticipated date of first production from a well subject to a spacing order issued by the New Mexico Oil Conservation Division. The Communitization Agreement will include the signatures of all working interest owners in all Federal and Indian leases subject to the Communitization Agreement (i.e., operating rights owners and lessees of record), or certification that the operator has obtained the written signatures of all such owners and will make those signatures available to the BLM immediately upon request.
- If the operator does not comply with this condition of approval, the BLM may take enforcement actions that include, but are not limited to, those specified in 43 CFR 3163.1.
- In addition, the well sign shall include the surface and bottom hole lease numbers. When the Communitization Agreement number is known, it shall also be on the sign.

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)

Chaves and Roosevelt Counties
Call the Roswell Field Office, 2909 West Second St., Roswell NM 88201.
During office hours call (575) 627-0272.
After office hours call (575)

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: 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.

**PECOS DISTRICT
SURFACE USE
CONDITIONS OF APPROVAL**

OPERATOR'S NAME: LEASE NO.: COUNTY:	Cimarex Energy Company NMNM019836 Eddy
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Wells:

Ringer Federal Com 1H:

Surface Hole Location: 1230' FSL & 540' FEL, Section 3, T. 25 S., R. 26 E.

Bottom Hole Location: 380' FSL & 330' FWL, Section 4, T. 25 S., R. 26 E.

Ringer Federal Com 2H:

Surface Hole Location: 1250' FSL & 540' FEL, Section 3, T. 25 S., R. 26 E.

Bottom Hole Location: 1040' FSL & 330' FWL, Section 4, T. 25 S., R. 26 E.

TABLE OF CONTENTS

Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

- General Provisions**
- Permit Expiration**
- Archaeology, Paleontology, and Historical Sites**
- Noxious Weeds**
- Special Requirements**
 - Watershed
 - Cave/Karst
 - Range
 - Special Status Plant Species
 - Texas Hornhell Mussel
 - VRM IV
- Construction**
 - Notification
 - Topsoil
 - Closed Loop System
 - Federal Mineral Material Pits
 - Well Pads
 - Roads
- Road Section Diagram**
- Production (Post Drilling)**
 - Well Structures & Facilities
 - Pipelines
 - Electric Lines
- Interim Reclamation**
- Final Abandonment & Reclamation**

I. GENERAL PROVISIONS

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

II. PERMIT EXPIRATION

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

Any cultural resource (historic or prehistoric site or object) discovered by the holder, or any person working on the holder's behalf, on public or Federal land shall be immediately reported to the Authorized Officer. The holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to the proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

OR

If the entire project is covered under the Permian Basin Programmatic Agreement (cultural resources only):

The proponent has contributed funds commensurate to the undertaking into an account for offsite mitigation. Participation in the PA serves as mitigation for the effects of this project on cultural resources. If any human skeletal remains, funerary objects, sacred objects, or objects of cultural patrimony are discovered at any time during construction, all construction activities shall halt and the BLM will be notified as soon as possible within 24 hours. Work shall not resume until a Notice to Proceed is issued by the BLM. See information below discussing NAGPRA.

If the proposed project is split between a Class III inventory and a Permian Basin Programmatic Agreement contribution, the portion of the project covered under Class III inventory should default to the first paragraph stipulations.

The holder is hereby obligated to comply with procedures established in the Native American Graves Protection and Repatriation Act (NAGPRA) to protect such cultural items as human remains, associated funerary objects, sacred objects, and objects of cultural patrimony discovered inadvertently during the course of project implementation. In the event that any of the cultural items listed above are discovered during the course of project work, the proponent shall immediately halt the disturbance and contact the BLM within 24 hours for instructions. The proponent or initiator of any project shall be held responsible for protecting, evaluating, reporting, excavating, treating, and disposing of these cultural items according to the procedures established by the BLM in consultation with Indian Tribes."

Any paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on the holder's behalf, on public or Federal land shall be immediately reported to the Authorized Officer. The holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to the proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

IV. NOXIOUS WEEDS

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

SPECIAL REQUIREMENT(S)

Watershed:

The entire well pad(s) will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad. The compacted berm shall be constructed at a minimum of 12 inches with impermeable mineral material (e.g. caliche). Topsoil shall not be used to construct the berm. No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad. The integrity of the berm shall be maintained around the surfaced pad throughout the life of the well and around the downsized pad after interim reclamation has been completed. Any water erosion that may occur due to the construction of the well pad during the life of the well will be quickly corrected and proper measures will be taken to prevent future erosion. Stockpiling of topsoil is required. The top soil shall be stockpiled in an appropriate location to prevent loss of soil due to water or wind erosion and not used for berming or erosion control. If fluid collects within the bermed area, the fluid must be vacuumed into a safe container and disposed of properly at a state approved facility.

TANK BATTERY:

Tank battery locations will be lined and bermed. A 20 mil permanent liner will be installed with a 4 oz. felt backing to prevent tears or punctures. Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank or 24 hour production, whichever is greater. Automatic shut off, check valves, or similar systems will be installed for tanks to minimize the effects of catastrophic line failures used in production or drilling.

BURIED/SURFACE LINE(S):

When crossing ephemeral drainages the pipeline(s) will be buried to a minimum depth of 48 inches from the top of pipe to ground level. Erosion control methods such as gabions and/or rock aprons should be placed on both up and downstream sides of the pipeline crossing. In addition, curled (weed free) wood/straw fiber wattles/logs and/or silt fences should be placed on the downstream side for sediment control during construction and maintained until soils and vegetation have stabilized. Water bars should be placed within the ROW to divert and dissipate surface runoff. A pipeline access road is not permitted to cross these ephemeral drainages. Traffic should be diverted to a preexisting route. Additional seeding may be required in floodplains and drainages to restore energy dissipating vegetation.

Prior to pipeline installation/construction a leak detection plan will be developed. The method(s) could incorporate gauges to detect pressure drops, siting valves and lines so they can be visually inspected periodically or installing electronic sensors to alarm when a leak is present.

The leak detection plan will incorporate an automatic shut off system that will be installed for proposed pipelines to minimize the effects of an undesirable event.

ELECTRIC LINE(S):

Any water erosion that may occur due to the construction of overhead electric line and during the life of the power line will be quickly corrected and proper measures will be taken to prevent future erosion. A power pole shall not be placed in drainages, playas, wetlands, riparian areas, or floodplains and must span across the features at a distance away that would not promote further erosion.

TEMPORARY USE FRESH WATER FRAC LINE(S):

Once the temporary use exceeds the timeline of 180 days and/or with a 90 day extension status; further analysis will be required if the applicant pursues to turn the temporary ROW into a permanent ROW.

Cave/Karst:

Construction Mitigation

In order to mitigate the impacts from construction activities on cave and karst resources, the following Conditions of Approval will apply to this APD or project:

General Construction:

- No blasting
- The BLM, Carlsbad Field Office, will be informed immediately if any subsurface drainage channels, cave passages, or voids are penetrated during construction, and no additional construction shall occur until clearance has been issued by the Authorized Officer.
- All linear surface disturbance activities will avoid sinkholes and other karst features to lessen the possibility of encountering near surface voids during construction, minimize changes to runoff, and prevent untimely leaks and spills from entering the karst drainage system.
- All spills or leaks will be reported to the BLM immediately for their immediate and proper treatment.

Pad Construction:

- The pad will be constructed and leveled by adding the necessary fill and caliche – no blasting.
- The entire perimeter of the well pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad.
- The compacted berm shall be constructed at a minimum of 12 inches high with impermeable mineral material (e.g., caliche).
- No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad.
- The topsoil stockpile shall be located outside the bermed well pad.
- Topsoil, either from the well pad or surrounding area, shall not be used to construct the berm.
- No storm drains, tubing or openings shall be placed in the berm.
- If fluid collects within the bermed area, the fluid must be vacuumed into a safe container and disposed of properly at a state approved facility.
- The integrity of the berm shall be maintained around the surfaced pad throughout the life of the well and around the downsized pad after interim reclamation has been completed.
- Any access road entering the well pad shall be constructed so that the integrity of the berm height surrounding the well pad is not compromised (i.e. an access road crossing the berm cannot be lower than the berm height).

- Following a rain event, all fluids will be vacuumed off of the pad and hauled off-site and disposed at a proper disposal facility.

Road Construction:

- Turnout ditches and drainage leadoffs will not be constructed in such a manner as to alter the natural flow of water into or out of cave or karst features.
- Special restoration stipulations or realignment may be required if subsurface features are discovered during construction.

Buried Pipeline/Cable Construction:

- Rerouting of the buried line(s) may be required if a subsurface void is encountered during construction to minimize the potential subsidence/collapse of the feature(s) as well as the possibility of leaks/spills entering the karst drainage system.

Powerline Construction:

- Smaller powerlines will be routed around sinkholes and other karst features to avoid or lessen the possibility of encountering near surface voids and to minimize changes to runoff or possible leaks and spills from entering karst systems.
- Larger powerlines will adjust their pole spacing to avoid cave and karst features.
- Special restoration stipulations or realignment may be required if subsurface voids are encountered.

Surface Flowlines Installation:

- Flowlines will be routed around sinkholes and other karst features to minimize the possibility of leaks/spills from entering the karst drainage system.

Drilling Mitigation

Federal regulations and standard Conditions of Approval applied to all APDs require that adequate measures are taken to prevent contamination to the environment. Due to the extreme sensitivity of the cave and karst resources in this project area, the following additional Conditions of Approval will be added to this APD.

To prevent cave and karst resource contamination the following will be required:

- Closed loop system using steel tanks - all fluids and cuttings will be hauled off-site and disposed of properly at an authorized site
- Rotary drilling with fresh water where cave or karst features are expected to prevent contamination of freshwater aquifers.
- Directional drilling is only allowed at depths greater than 100 feet below the cave occurrence zone to prevent additional impacts resulting from directional drilling.
- Lost circulation zones will be logged and reported in the drilling report so BLM can assess the situation and work with the operator on corrective actions.
- Additional drilling, casing, and cementing procedures to protect cave zones and fresh water aquifers. See drilling COAs.

Production Mitigation

In order to mitigate the impacts from production activities and due to the nature of karst terrane, the following Conditions of Approval will apply to this APD:

- Tank battery locations and facilities will be bermed and lined with a 20 mil thick permanent liner that has a 4 oz. felt backing, or equivalent, to prevent tears or punctures. Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank.
- Development and implementation of a leak detection system to provide an early alert to operators when a leak has occurred.

- Automatic shut off, check valves, or similar systems will be installed for pipelines and tanks to minimize the effects of catastrophic line failures used in production or drilling.

Residual and Cumulative Mitigation

The operator will perform annual pressure monitoring on all casing annuli and reported in a sundry notice. If the test results indicated a casing failure has occurred, remedial action will be taken to correct the problem to the BLM's approval.

Plugging and Abandonment Mitigation

Upon well abandonment in high cave karst areas additional plugging conditions of approval may be required. The BLM will assess the situation and work with the operator to ensure proper plugging of the wellbore.

Range:

Cattleguards

Where a permanent cattlegaurd is approved, an appropriately sized cattleguard(s) sufficient to carry out the project shall be installed and maintained at fence crossing(s). Any existing cattleguard(s) on the access road shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattleguard(s) that are in place and are utilized during lease operations. A gate shall be constructed on one side of the cattleguard and fastened securely to H-braces.

Fence Requirement

Where entry granted across a fence line, the fence must be braced and tied off on both sides of the passageway prior to cutting. Once the work is completed, the fence will be restored to its prior condition, or better. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fence(s).

Special Status Plant Species Occupied Habitat Stipulations:

No blading or mowing is authorized within the ROW, otherwise agreed to in writing by the Authorized Officer, in coordination with a BLM biologist. Approval of such practices would be conditioned on design features to avoid adverse impacts to special status plant species, especially special status plant species known occupied habitats.

The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies. These policies require treatment design that avoids adverse impacts to special status plant species, especially special status plant species known occupied habitats.

The operator is required to salvage gypsum milkvetch plants and any ripe seeds from PLSS SW ¼ SW ¼, S2, T25S, R26E, UTM NAD83 ZONE 13N 568644E 3557618.848N (and any other specimen incidentally found within the project footprint) prior to initiating construction. The operator would reestablish salvaged plants and any salvaged seeds in protected, adjacent suitable habitat within an appropriate timeframe, using sound available methods. Methods selected must be approved by a BLM Authorized Officer. The operator will report documentation of salvage efforts, methods and outcomes to a BLM botany specialist and a BLM wildlife biologist within one month of salvage and replanting completion.

Prior to initiating project construction activities, a barricade for the protection of gypsum milkvetch occupied habitat will be installed according the following standards:

Barricade Type

- Temporary Fencing
- Permanent Fencing
- Natural Obstacles
- Other: _____

Barricade Specifications

An enclosure barricade composed of approximately 5-foot tall T-posts supporting mesh or flagged wire construction fencing at a minimum distance of no less than 10 feet from the special status species at Location A (specified below), and any additional adjacent observed special status plant species individuals. Construction fencing at locations B through N (specified below) that effectively barricades SSPS individuals from vehicle and equipment trampling. An alternate design, agreed to in writing by the Authorized Officer, for enclosure barricades or construction fencing at locations A through N that effectively barricades SSPS individuals from vehicle and equipment trampling, may be substituted by the operator.

Location A

PLSS: SW ¼ SW ¼, S2, T25S, R26E
Approximate Center Point (A): UTM NAD83 ZONE 13N 568644E 3557618.848N

Location B

PLSS: SW ¼ SW ¼, S2, T25S, R26E
Approximate Start Point (B): UTM NAD83 ZONE 13N 568751E 3557566N
Approximate End Point (B): UTM NAD83 ZONE 13N 568731E 3557575N

Location C

PLSS: SW ¼ SW ¼, S2, T25S, R26E
Approximate Start Point (C): UTM NAD83 ZONE 13N 568661E 3557609N
Approximate End Point (C): UTM NAD83 ZONE 13N 568616E 3557630N

Location D

PLSS: SW ¼ SW ¼, S2, T25S, R26E
Approximate Start Point (D): UTM NAD83 ZONE 13N 568673E 3557613N
Approximate End Point (D): UTM NAD83 ZONE 13N 568631E 3557633N

Location E

PLSS: SW ¼ SW ¼, S2, T25S, R26E
Approximate Start Point (E): UTM NAD83 ZONE 13N 568575E 3557650N
Approximate End Point (E): UTM NAD83 ZONE 13N 568631E 3557633N

Location F

PLSS: SE ¼ SE ¼, S3, T25S, R26E
Approximate Start Point (F): UTM NAD83 ZONE 13N 568588E 3557653N
Approximate End Point (F): UTM NAD83 ZONE 13N 568550E 3557672N

Location G

PLSS: SE ¼ SE ¼, S3, T25S, R26E
Approximate Start Point (G): UTM NAD83 ZONE 13N 568545E 3557686N
Approximate End Point (G): UTM NAD83 ZONE 13N 568545E 3557729N

Location H

PLSS: SW ¼ SW ¼, S2, T25S, R26E
Approximate Start Point (H): UTM NAD83 ZONE 13N 568619E 3557750N
Approximate End Point (H): UTM NAD83 ZONE 13N 568655E 3557756N

Location I

PLSS: SW ¼ SW ¼, S2, T25S, R26E

Approximate Start Point (I): UTM NAD83 ZONE 13N 568657E 3557765N

Approximate End Point (I): UTM NAD83 ZONE 13N 568692E 3557767N

Location J

PLSS: SE ¼ SE ¼, S3, T25S, R26E

Approximate Start Point (J): UTM NAD83 ZONE 13N 568377E 3557821N

Approximate End Point (J): UTM NAD83 ZONE 13N 568385E 3557854N

Location K

PLSS: NE ¼ SE ¼, S3, T25S, R26E

Approximate Start Point (J): UTM NAD83 ZONE 13N 568413E 3557903N

Approximate End Point (J): UTM NAD83 ZONE 13N 568441E 3557903N

Location L

PLSS: SE ¼ SE ¼, S3, T25S, R26E

Approximate Start Point (J): UTM NAD83 ZONE 13N 568445E 3557761N

Approximate End Point (J): UTM NAD83 ZONE 13N 568417E 3557767N

Location M

PLSS: SE ¼ SE ¼, S3, T25S, R26E

Approximate Start Point (J): UTM NAD83 ZONE 13N 568417E 3557767N

Approximate End Point (J): UTM NAD83 ZONE 13N 568417E 3557728N

Location N

PLSS: SE ¼ SE ¼, S3, T25S, R26E

Approximate Start Point (J): UTM NAD83 ZONE 13N 568332E 3557678N

Approximate End Point (J): UTM NAD83 ZONE 13N 568308E 3557661N

Biomonitor Required During Plant and Seed Salvage? Yes No

Biomonitor to coordinate with BLM biologist prior? Yes No

Coordination Type: Review and approval of salvage methods and post-salvage maintenance and monitoring standards.

Biomonitor Required During Barrier Installation? Yes No

Biomonitor to coordinate with BLM biologist prior? Yes No

Coordination Type: Shapefile of known SSPS occurrences in project vicinity

Biomonitor Required During Project Construction? Yes No

Activities requiring biomonitoring: Construction within 100 meters of SSPS occurrences.

Biomonitor to coordinate with BLM biologist prior? Yes No N/A

Coordination Type: Shapefile of known occurrences in project vicinity

Upon conclusion of project construction activities, disturbed surfaces within 165 feet (50 meters) will be covered with a certified weed free mulch. Mulch product specifications must be approved by the Authorized Officer in writing before the mulch is applied. Mulch will be applied according to the following standards:

Type: Straw

Depth: 2 inches (2.5 centimeters)

Location (Mulch1):

PLSS: SE ¼ SE ¼, S3, T25S, R26E; SW ¼ SW ¼, S2, T25S, R26E

Approximate Start Point (Mulch1): UTM NAD83 ZONE 13N 568386 E 3557789 N

Approximate End Point (Mulch1): UTM NAD83 ZONE 13N 568784 E 3557741 N

Location (Mulch2):

PLSS: S ½, SE ¼, S3, T25S, R26E

Approximate Start Point (Mulch2): UTM NAD83 ZONE 13N 568394 E 3557789 N

Approximate End Point (Mulch2): UTM NAD83 ZONE 13N 568135 E 3557525 N

Location (Mulch3):

PLSS: SE ¼ SE ¼, S3, T25S, R26E

Approximate Start Point (Mulch3): UTM NAD83 ZONE 13N 568540 E 3557672 N

Approximate End Point (Mulch3): UTM NAD83 ZONE 13N 568531 E 3557672 N

Location (Mulch4):

PLSS: SE ¼ SE ¼, S3, T25S, R26E; SW ¼ SW ¼, S2, T25S, R26E

Approximate Start Point (Mulch4): UTM NAD83 ZONE 13N 568483 E 3557778 N

Approximate End Point (Mulch4): UTM NAD83 ZONE 13N 568412 E 3557695 N

Location (Mulch5):

PLSS: E ½, SE ¼, S3, T25S, R26E

Location Description (Mulch5): Disturbed areas around the perimeter of the RINGER 3-4 FEDERAL COM-1H well pad, including the topsoil pile.

Texas Hornshell Mussel:

Oil and Gas Zones C and D - CCA Boundary requirements.

- Implement erosion control measures in accordance with the Reasonable and Prudent Practices for Stabilization ("RAPPS")
- Comply with SPCC requirements in accordance with 40 CFR Part 112;
- Comply with the United States Army Corp of Engineers (USACE) Nationwide 12 General Permit, where applicable;
- Utilize technologies (like underground borings for pipelines), where feasible;
- Educate personnel, agents, contractors, and subcontractors about the requirements of conservation measures, COAs, Stips and provide direction in accordance with the Permit.

VRM IV:

Above-ground structures including meter housing that are not subject to safety requirements are painted a flat non-reflective paint color, Shale Green from the BLM Standard Environmental Color Chart (CC-001: June 2008).

V. CONSTRUCTION

A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5909 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

B. TOPSOIL

The operator shall strip the top portion of the soil (root zone) from the entire well pad area and stockpile the topsoil along the edge of the well pad as depicted in the APD. The root zone is typically six (6) inches in depth. All the stockpiled topsoil will be redistributed over the interim reclamation areas. Topsoil shall not be used for berming the pad or facilities. For final reclamation, the topsoil shall be spread over the entire pad area for seeding preparation.

Other subsoil (below six inches) stockpiles must be completely segregated from the topsoil stockpile. Large rocks or subsoil clods (not evident in the surrounding terrain) must be buried within the approved area for interim and final reclamation.

C. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

D. FEDERAL MINERAL MATERIALS PIT

Payment shall be made to the BLM prior to removal of any federal mineral materials. Call the Carlsbad Field Office at (575) 234-5972.

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation. The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

F. EXCLOSURE FENCING (CELLARS & PITS)

Exclosure Fencing

The operator will install and maintain exclosure fencing for all open well cellars to prevent access to public, livestock, and large forms of wildlife before and after drilling operations until the pit is free of fluids and the operator initiates backfilling. (For examples of exclosure fencing design, refer to BLM's Oil and Gas Gold Book, Exclosure Fence Illustrations, Figure 1, Page 18.)

G. ON LEASE ACCESS ROADS

Road Width

The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed twenty-five (25) feet.

Surfacing

Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

Crowning

Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

Ditching

Ditching shall be required on both sides of the road.

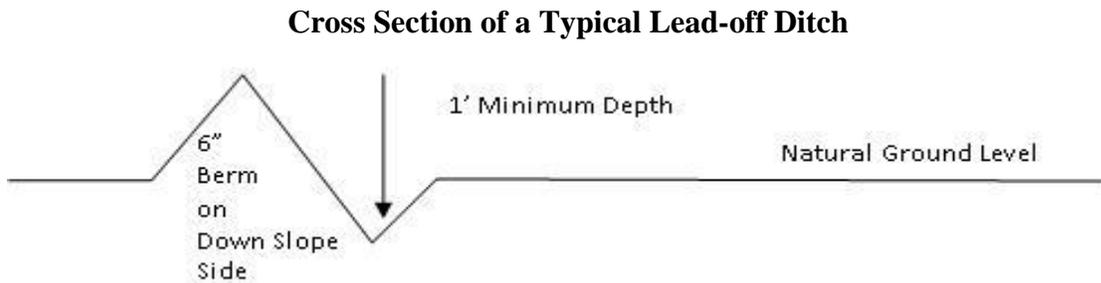
Turnouts

Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

Drainage

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outsloping and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

Formula for Spacing Interval of Lead-off Ditches

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

$$400 \text{ foot road with } 4\% \text{ road slope: } \frac{400'}{4\%} + 100' = 200' \text{ lead-off ditch interval}$$

Cattle guards

An appropriately sized cattle guard sufficient to carry out the project shall be installed and maintained at fence/road crossings. Any existing cattle guards on the access road route shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattle guards that are in place and are utilized during lease operations.

Fence Requirement

Where entry is granted across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

Public Access

Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.

Construction Steps

1. Salvage topsoil
2. Construct road

3. Redistribute topsoil
4. Revegetate slopes

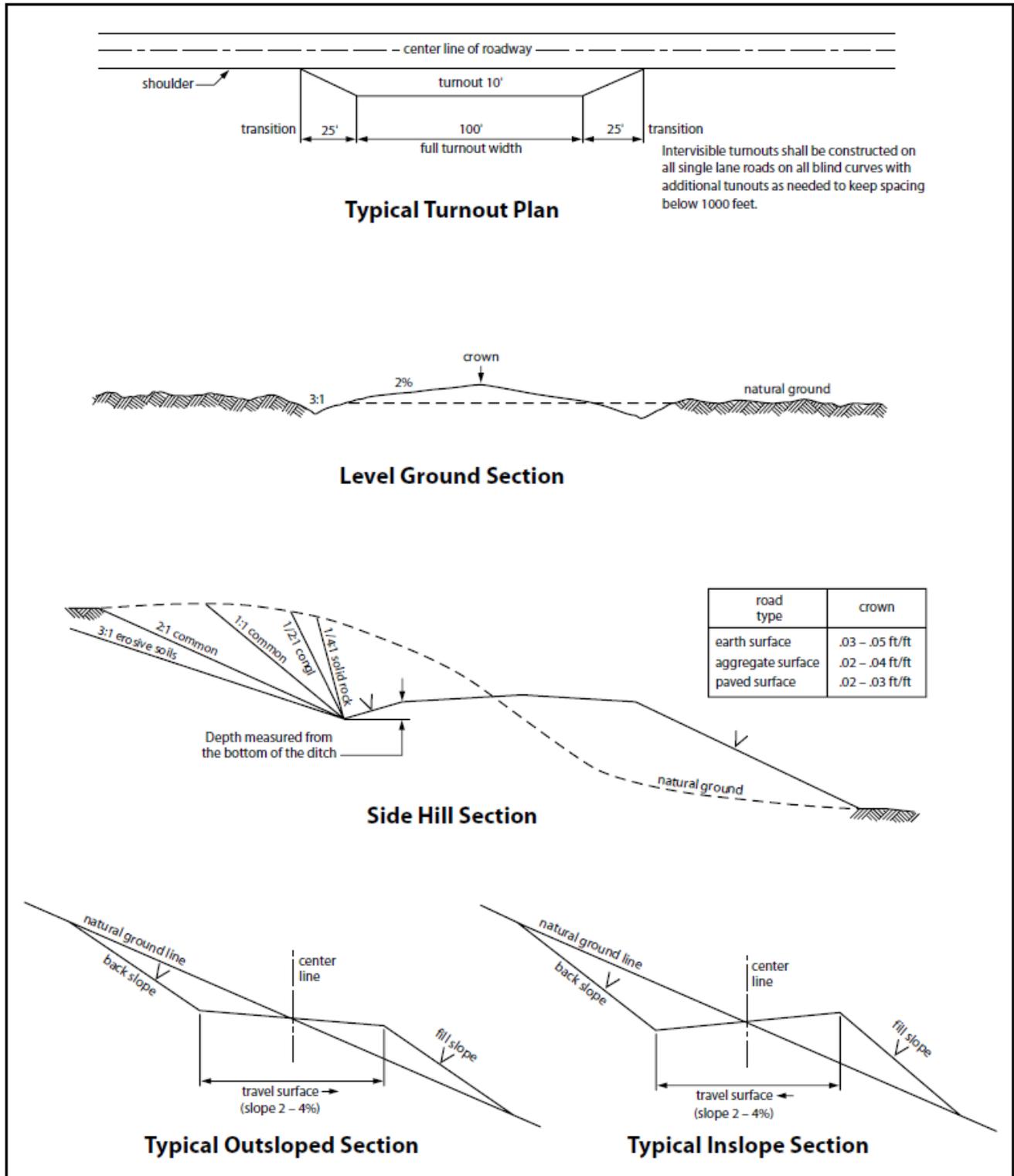


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

VI. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

Placement of Production Facilities

Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

Exclosure Netting (Open-top Tanks)

Immediately following active drilling or completion operations, the operator will take actions necessary to prevent wildlife and livestock access, including avian wildlife, to all open-topped tanks that contain or have the potential to contain salinity sufficient to cause harm to wildlife or livestock, hydrocarbons, or Resource Conservation and Recovery Act of 1976-exempt hazardous substances. At a minimum, the operator will net, screen, or cover open-topped tanks to exclude wildlife and livestock and prevent mortality. If the operator uses netting, the operator will cover and secure the open portion of the tank to prevent wildlife entry. The operator will net, screen, or cover the tanks until the operator removes the tanks from the location or the tanks no longer contain substances that could be harmful to wildlife or livestock. Use a maximum netting mesh size of 1 ½ inches. The netting must not be in contact with fluids and must not have holes or gaps.

Chemical and Fuel Secondary Containment and Exclosure Screening

The operator will prevent all hazardous, poisonous, flammable, and toxic substances from coming into contact with soil and water. At a minimum, the operator will install and maintain an impervious secondary containment system for any tank or barrel containing hazardous, poisonous, flammable, or toxic substances sufficient to contain the contents of the tank or barrel and any drips, leaks, and anticipated precipitation. The operator will dispose of fluids within the containment system that do not meet applicable state or U. S. Environmental Protection Agency livestock water standards in accordance with state law; the operator must not drain the fluids to the soil or ground. The operator will design, construct, and maintain all secondary containment systems to prevent wildlife and livestock exposure to harmful substances. At a minimum, the operator will install effective wildlife and livestock exclosure systems such as fencing, netting, expanded metal mesh, lids, and grate covers. Use a maximum netting mesh size of 1 ½ inches.

Open-Vent Exhaust Stack Exclosures

The operator will construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. (*Recommended exclosure structures on open-vent exhaust stacks are in the shape of a cone.*) Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, in-line units, and compressor mufflers.

Containment Structures

Proposed production facilities such as storage tanks and other vessels will have a secondary containment structure that is constructed to hold the capacity of 1.5 times the largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

Painting Requirement

All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color, **Shale Green** from the BLM Standard Environmental Color Chart (CC-001: June 2008).

B. PIPELINES

- The BLM, Carlsbad Field Office, will be informed immediately if any subsurface drainage

- channels, passages, or voids are intersected by trenching, and no pipe will be laid in the trench at that point until clearance has been issued by the Authorized Officer.
- If a void is encountered alignments may be rerouted to avoid the karst feature and lessen; the potential of subsidence or collapse of karst features, buildup of toxic or combustible gas, or other possible impacts to cave and karst resources from the buried pipeline.
 - Special restoration stipulations or realignment may be required at such intersections, if any.
 - A leak detection plan **will be submitted to the BLM Carlsbad Field Office for approval** prior to pipeline installation. The method could incorporate gauges to detect pressure drops, siting values and lines so they can be visually inspected periodically or installing electronic sensors to alarm when a leak is present. The leak detection plan will incorporate an automatic shut off system that will be installed for proposed pipelines to minimize the effects of an undesirable event.
 - Regular monitoring is required to quickly identify leaks for their immediate and proper treatment.
 - All spills or leaks will be reported to the BLM immediately for their immediate and proper treatment.

CONDITIONS OF APPROVAL FOR TEMPORARY FRESHWATER PIPELINES

Subject to the terms and conditions which are shown below, is hereby approved:

- Surface pipelines 6.5 inch to 16 inch OD may be in place for no more than 180 days, not including installation. In accordance with your request, this 180 day period is requested to begin 07/01/2020.
 - Surface pipeline will be in operation for no more than 180 days; a maximum of seven (7) days authorized for installation of the lay flat poly line prior to operation.
 - Surface pipelines larger than 6.5 inch to-16-inch OD may be in place for no more than 180 days from date of authorization; 5/1/2018, unless a SF-299 is submitted within 30 days of this decision expiring requesting a long term buried fresh water pipeline, and processing of the SF-299 is not yet complete at the end of 30 days, in which case the line(s) may be left in place until a decision is made on the SF-299.
 - All lines will be removed when no longer in use.
 - Width of authorized use is 15-feet.
- No blading and/or earthwork will be allowed in order to place the pipeline except burying the line under crossings.
 - The pipeline will be buried under all intersecting routes, including BLM-designated trails and access roads into caliche pits, rancher watering stations, etc. All such buried crossings will be removed when the pipeline is removed, unless otherwise approved by the Authorized Officer. Pipelines larger than 6.5-inch OD may utilize other crossing methodologies (but any fill placed over pipeline must be brought in from off-site).
 - Pipeline crossings of fences should be avoided where possible. If a crossing is necessary, contact fence owner [usually the grazing permittee] prior to installation, and install by threading pipeline under the lowest wire of the fence; pipeline should never cross on top of any fence wires.
 - The pipeline shall stay within 10 feet maximum of existing disturbance (e.g. lease road, pipeline right-of-way etc.); placement should be within 5 feet whenever possible.

- Placement of pumps or other high-maintenance equipment shall be installed along maintained lease roads.
- Gas or diesel pumps, generators, or compressors shall be placed on visquen matting [or 20 mil plastic] and in a containment structure capable of containing all potentially released fuels. Containments must be protected against wildlife deaths in accordance with oilfield best management practices.
- Due to potential damage to natural resources, no work is allowed during inclement weather.
- Pipeline will be marked with your company's name and contact number, at beginning and ending points, at all public-road crossings, and at intervals not exceeding every 0.6 mile, unless otherwise approved by the Authorized Officer.
- Should unforeseen damage occur to resources, BLM will require reclamation of the impacted land.
- No water may be released into the environment without BLM consent.
- Placement of surface pipelines along or under public roadways may require permits from the road authority.
- This authorization is limited to lands under BLM jurisdiction. If your proposed pipeline crosses lands under private ownership or under other agency jurisdiction, you are responsible for obtaining all necessary permits and approvals from those parties.

BURIED PIPELINE STIPULATIONS

A copy of the application (Grant, APD, or Sundry Notice) and attachments, including conditions of approval, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. The Holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.
2. The Holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 *et seq.* (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.

3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C.6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

4. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil or other pollutant should be discharged from the pipeline system, impacting Federal lands, the control and total removal, disposal, and cleaning up of such oil or other pollutant, wherever found, shall be the responsibility of holder, regardless of fault. Upon failure of holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages resulting therefrom, on the Federal lands, the Authorized Officer may take such measures as he deems necessary to control and clean up the discharge and restore the area, including where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the holder. Such action by the Authorized Officer shall not relieve holder of any responsibility as provided herein.

5. All construction and maintenance activity will be confined to the authorized right-of-way.

6. The pipeline will be buried with a minimum cover of 36 inches between the top of the pipe and ground level.

7. The maximum allowable disturbance for construction in this right-of-way will be 30 feet:

- Blading of vegetation within the right-of-way will be allowed: maximum width of blading operations will not exceed 20 feet. The trench is included in this area. (*Blading is defined as the complete removal of brush and ground vegetation.*)
- Clearing of brush species within the right-of-way will be allowed: maximum width of clearing operations will not exceed 30 feet. The trench and bladed area are included in this area. (*Clearing is defined as the removal of brush while leaving ground vegetation (grasses, weeds, etc.) intact. Clearing is best accomplished by holding the blade 4 to 6 inches above the ground surface.*)
- The remaining area of the right-of-way (if any) shall only be disturbed by compressing the vegetation. (*Compressing can be caused by vehicle tires, placement of equipment, etc.*)

8. The holder shall stockpile an adequate amount of topsoil where blading is allowed. The topsoil to be stripped is approximately 6 inches in depth. The topsoil will be segregated from other spoil piles from trench construction. The topsoil will be evenly distributed over the bladed area for the preparation of seeding.

9. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the

owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

10. Vegetation, soil, and rocks left as a result of construction or maintenance activity will be randomly scattered on this right-of-way and will not be left in rows, piles, or berms, unless otherwise approved by the Authorized Officer. The entire right-of-way shall be recontoured to match the surrounding landscape. The backfilled soil shall be compacted and a 6 inch berm will be left over the ditch line to allow for settling back to grade.

11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.

12. The holder will reseed all disturbed areas. Seeding will be done according to the attached seeding requirements, using the following seed mix.

- | | |
|--|--|
| <input checked="" type="checkbox"/> seed mixture 1 | <input type="checkbox"/> seed mixture 3 |
| <input type="checkbox"/> seed mixture 2 | <input checked="" type="checkbox"/> seed mixture 4 |
| <input type="checkbox"/> seed mixture 2/LPC | <input type="checkbox"/> Aplomado Falcon Mixture |

13. All above-ground structures not subject to safety requirements shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2.

14. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder's name, BLM serial number, and the product being transported. All signs and information thereon will be posted in a permanent, conspicuous manner, and will be maintained in a legible condition for the life of the pipeline.

15. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder before maintenance begins. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway. As determined necessary during the life of the pipeline, the Authorized Officer may ask the holder to construct temporary deterrence structures.

16. Any cultural resource (historic or prehistoric site or object) discovered by the holder, or any person working on the holder's behalf, on public or Federal land shall be immediately reported to the Authorized Officer. The holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to the proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

OR

If the entire project is covered under the Permian Basin Programmatic Agreement (cultural resources only):

The proponent has contributed funds commensurate to the undertaking into an account for offsite mitigation. Participation in the PA serves as mitigation for the effects of this project on cultural resources. If any human skeletal remains, funerary objects, sacred objects, or objects of cultural patrimony are discovered at any time during construction, all construction activities shall halt and the BLM will be notified as soon as possible within 24 hours. Work shall not resume until a Notice to Proceed is issued by the BLM. See Stipulation 17 for more information.

If the proposed project is split between a Class III inventory and a Permian Basin Programmatic Agreement contribution, the portion of the project covered under Class III inventory should default to the first paragraph stipulations.

17. The holder is hereby obligated to comply with procedures established in the Native American Graves Protection and Repatriation Act (NAGPRA) to protect such cultural items as human remains, associated funerary objects, sacred objects, and objects of cultural patrimony discovered inadvertently during the course of project implementation. In the event that any of the cultural items listed above are discovered during the course of project work, the proponent shall immediately halt the disturbance and contact the BLM within 24 hours for instructions. The proponent or initiator of any project shall be held responsible for protecting, evaluating, reporting, excavating, treating, and disposing of these cultural items according to the procedures established by the BLM in consultation with Indian Tribes."

18. Any paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on the holder's behalf, on public or Federal land shall be immediately reported to the Authorized Officer. The holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to the proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

19. The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes associated roads, pipeline corridor and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

20. Escape Ramps - The operator will construct and maintain pipeline/utility trenches [that are not otherwise fenced, screened, or netted] to prevent livestock, wildlife, and humans from becoming entrapped. At a minimum, the operator will construct and maintain escape ramps, ladders, or other methods of avian and terrestrial wildlife escape in the trenches according to the following criteria:

- a. Any trench left open for eight (8) hours or less is not required to have escape ramps; however, before the trench is backfilled, the contractor/operator shall inspect the trench for wildlife, remove all trapped wildlife, and release them at least 100 yards from the trench.
- b. For trenches left open for eight (8) hours or more, earthen escape ramps (built at no more than a 30 degree slope and spaced no more than 500 feet apart) shall be placed in the trench.

21. Special Stipulations:

Karst:

- The BLM, Carlsbad Field Office, will be informed immediately if any subsurface drainage channels, passages, or voids are intersected by trenching, and no pipe will be laid in the trench at that point until clearance has been issued by the Authorized Officer.
- If a void is encountered alignments may be rerouted to avoid the karst feature and lessen; the potential of subsidence or collapse of karst features, buildup of toxic or combustible gas, or other possible impacts to cave and karst resources from the buried pipeline.
- Special restoration stipulations or realignment may be required at such intersections, if any.
- A leak detection plan **will be submitted to the BLM Carlsbad Field Office for approval** prior to pipeline installation. The method could incorporate gauges to detect pressure drops, siting values and lines so they can be visually inspected periodically or installing electronic sensors to alarm when a leak is present. The leak detection plan will incorporate an automatic shut off system that will be installed for proposed pipelines to minimize the effects of an undesirable event.
- Regular monitoring is required to quickly identify leaks for their immediate and proper treatment.
- All spills or leaks will be reported to the BLM immediately for their immediate and proper treatment.

STANDARD STIPULATIONS FOR SURFACE INSTALLED PIPELINES

A copy of the Grant and attachments, including stipulations, survey plat(s) and/or map(s), shall be on location during construction. BLM personnel may request to review a copy of your permit during construction to ensure compliance with all stipulations.

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. Holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.
2. Holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, Holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC § 2601 *et seq.* (1982) with regard to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant (see 40 CFR, Part 702-799 and in particular, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193). Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the Authorized Officer concurrent with the filing of the reports to the involved Federal agency or State government.

3. Holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. § 9601, *et seq.* or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, *et seq.*) on the Right-of-Way (unless the release or threatened release is wholly unrelated to activity of the Right-of-Way Holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way Holder on the Right-of-Way. This provision applies without regard to whether a release is caused by Holder, its agent, or unrelated third parties.

4. Holder shall be liable for damage or injury to the United States to the extent provided by 43 CFR Sec. 2883.1-4. Holder shall be held to a standard of strict liability for damage or injury to the United States resulting from pipe rupture, fire, or spills caused or substantially aggravated by any of the following within the right-of-way or permit area:

- a. Activities of Holder including, but not limited to: construction, operation, maintenance, and termination of the facility;
- b. Activities of other parties including, but not limited to:
 - (1) Land clearing
 - (2) Earth-disturbing and earth-moving work
 - (3) Blasting
 - (4) Vandalism and sabotage;

c. Acts of God.

The maximum limitation for such strict liability damages shall not exceed one million dollars (\$1,000,000) for any one event, and any liability in excess of such amount shall be determined by the ordinary rules of negligence of the jurisdiction in which the damage or injury occurred.

This section shall not impose strict liability for damage or injury resulting primarily from an act of war or from the negligent acts or omissions of the United States.

5. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil, salt water, or other pollutant should be discharged from the pipeline system, impacting Federal lands, the control and total removal, disposal, and cleaning up of such oil, salt water, or other pollutant, wherever found, shall be the responsibility of Holder, regardless of fault. Upon failure of Holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages resulting therefrom, on the Federal lands, the Authorized Officer may take such measures as he/she deems necessary to control and clean up the discharge and restore the area, including, where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of Holder. Such action by the Authorized Officer shall not relieve Holder of any responsibility as provided herein.

6. All construction and maintenance activity shall be confined to the authorized right-of-way width of **30** feet. If the pipeline route follows an existing road or buried pipeline right-of-way, the surface pipeline shall be installed no farther than 10 feet from the edge of the road or buried pipeline right-of-way. If existing surface pipelines prevent this distance, the proposed surface pipeline shall be installed immediately adjacent to the outer surface pipeline. All construction and maintenance activity shall be confined to existing roads or right-of-ways.

7. No blading or clearing of any vegetation shall be allowed unless approved in writing by the Authorized Officer.

8. Holder shall install the pipeline on the surface in such a manner that will minimize suspension of the pipeline across low areas in the terrain. In hummocky or dune areas, the pipeline shall be "snaked" around hummocks and dunes rather than suspended across these

features.

9. The pipeline shall be buried with a minimum of 6 inches under all roads, "two-tracks," and trails. Burial of the pipe will continue for 20 feet on each side of each crossing. The condition of the road, upon completion of construction, shall be returned to at least its former state with no bumps or dips remaining in the road surface.

10. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.

12. Excluding the pipe, all above-ground structures not subject to safety requirement shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be a color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2; designated by the Rocky Mountain Five State Interagency Committee.

13. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder's name, BLM serial number, and the product being transported. Signs will be maintained in a legible condition for the life of the pipeline.

14. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway.

15. Any cultural resource (historic or prehistoric site or object) discovered by the holder, or any person working on the holder's behalf, on public or Federal land shall be immediately reported to the Authorized Officer. The holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to the proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

OR

If the entire project is covered under the Permian Basin Programmatic Agreement (cultural resources only):

The proponent has contributed funds commensurate to the undertaking into an account for offsite mitigation. Participation in the PA serves as mitigation for the effects of this project on cultural resources. If any human skeletal remains, funerary objects, sacred objects, or objects of cultural patrimony are discovered at any time during construction, all construction activities shall halt and the BLM will be notified as soon as possible within 24 hours. Work shall not resume until a Notice to Proceed is issued by the BLM. See Stipulation 16 for more information.

If the proposed project is split between a Class III inventory and a Permian Basin Programmatic Agreement contribution, the portion of the project covered under Class III inventory should default

to the first paragraph stipulations.

16. The holder is hereby obligated to comply with procedures established in the Native American Graves Protection and Repatriation Act (NAGPRA) to protect such cultural items as human remains, associated funerary objects, sacred objects, and objects of cultural patrimony discovered inadvertently during the course of project implementation. In the event that any of the cultural items listed above are discovered during the course of project work, the proponent shall immediately halt the disturbance and contact the BLM within 24 hours for instructions. The proponent or initiator of any project shall be held responsible for protecting, evaluating, reporting, excavating, treating, and disposing of these cultural items according to the procedures established by the BLM in consultation with Indian Tribes."

17. Any paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on the holder's behalf, on public or Federal land shall be immediately reported to the Authorized Officer. The holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to the proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

18. The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, powerline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

19. Surface pipelines shall be less than or equal to 4 inches and a working pressure below 125 psi.

C. ELECTRIC LINES

- Smaller powerlines will be routed around sinkholes and other karst features to avoid or lessen the possibility of encountering near surface voids and to minimize changes to runoff or possible leaks and spills from entering karst systems. Larger powerlines will adjust their pole spacing to avoid cave and karst features.
- The BLM, Carlsbad Field Office, will be informed immediately if any subsurface drainage channels, cave passages, or voids are penetrated during construction.
- No further construction will be done until clearance has been issued by the Authorized Officer.
- Special restoration stipulations or realignment may be required.

STANDARD STIPULATIONS FOR OVERHEAD ELECTRIC DISTRIBUTION LINES

A copy of the grant and attachments, including stipulations, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. The holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.
2. The holder shall comply with all applicable Federal laws and regulations existing or hereafter

enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.

3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.
4. There will be no clearing or blading of the right-of-way unless otherwise agreed to in writing by the Authorized Officer.
5. Power lines shall be constructed and designed in accordance to standards outlined in "Suggested Practices for Avian Protection on Power lines: The State of the Art in 2006" Edison Electric Institute, APLIC, and the California Energy Commission 2006 . The holder shall assume the burden and expense of proving that pole designs not shown in the above publication deter raptor perching, roosting, and nesting. Such proof shall be provided by a raptor expert approved by the Authorized Officer. The BLM reserves the right to require modification or additions to all powerline structures placed on this right-of-way, should they be necessary to ensure the safety of large perching birds. Such modifications and/or additions shall be made by the holder without liability or expense to the United States.

Raptor deterrence will consist of but not limited to the following: triangle perch discouragers shall be placed on each side of the cross arms and a nonconductive perching deterrence shall be placed on all vertical poles that extend past the cross arms.
6. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting the fence. No permanent gates will be allowed unless approved by the Authorized Officer.
7. The BLM serial number assigned to this authorization shall be posted in a permanent, conspicuous manner where the power line crosses roads and at all serviced facilities. Numbers will be at least two inches high and will be affixed to the pole nearest the road crossing and at the facilities served.
8. Upon cancellation, relinquishment, or expiration of this grant, the holder shall comply with those abandonment procedures as prescribed by the Authorized Officer.
9. All surface structures (poles, lines, transformers, etc.) shall be removed within 180 days of abandonment, relinquishment, or termination of use of the serviced facility or facilities or within 180 days of abandonment, relinquishment, cancellation, or expiration of this grant, whichever

comes first. This will not apply where the power line extends service to an active, adjoining facility or facilities.

10. Any cultural resource (historic or prehistoric site or object) discovered by the holder, or any person working on the holder's behalf, on public or Federal land shall be immediately reported to the Authorized Officer. The holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to the proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

OR

If the entire project is covered under the Permian Basin Programmatic Agreement (cultural resources only):

The proponent has contributed funds commensurate to the undertaking into an account for offsite mitigation. Participation in the PA serves as mitigation for the effects of this project on cultural resources. If any human skeletal remains, funerary objects, sacred objects, or objects of cultural patrimony are discovered at any time during construction, all construction activities shall halt and the BLM will be notified as soon as possible within 24 hours. Work shall not resume until a Notice to Proceed is issued by the BLM. See Stipulation 11 for more information.

If the proposed project is split between a Class III inventory and a Permian Basin Programmatic Agreement contribution, the portion of the project covered under Class III inventory should default to the first paragraph stipulations.

11. The holder is hereby obligated to comply with procedures established in the Native American Graves Protection and Repatriation Act (NAGPRA) to protect such cultural items as human remains, associated funerary objects, sacred objects, and objects of cultural patrimony discovered inadvertently during the course of project implementation. In the event that any of the cultural items listed above are discovered during the course of project work, the proponent shall immediately halt the disturbance and contact the BLM within 24 hours for instructions. The proponent or initiator of any project shall be held responsible for protecting, evaluating, reporting, excavating, treating, and disposing of these cultural items according to the procedures established by the BLM in consultation with Indian Tribes."

12. Any paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on the holder's behalf, on public or Federal land shall be immediately reported to the Authorized Officer. The holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to the proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

13. Special Stipulations:

For reclamation remove poles, lines, transformer, etc. and dispose of properly.
Fill in any holes from the poles removed.

VII. INTERIM RECLAMATION

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche that is free of contaminants may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

Upon completion of interim reclamation, the operator shall submit a Sundry Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

VIII. FINAL ABANDONMENT & RECLAMATION

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

Ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well.

Seed Mixture 1 for Loamy Sites

Holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed shall be tested and the viability testing of seed will be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed shall be either certified or registered seed. The seed container shall be tagged in accordance with State law(s) and available for inspection by the Authorized Officer.

Seed shall be planted using a drill equipped with a depth regulator to ensure proper depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture shall be evenly and uniformly planted over the disturbed area (small/heavier seeds have a tendency to drop the bottom of the drill and are planted first). Holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed shall be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre shall be doubled. The seeding shall be repeated until a satisfactory stand is established as determined by the Authorized Officer. Evaluation of growth may not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

Species

	<u>lb/acre</u>
Plains lovegrass (Eragrostis intermedia)	0.5
Sand dropseed (Sporobolus cryptandrus)	1.0
Sideoats grama (Bouteloua curtipendula)	5.0
Plains bristlegrass (Setaria macrostachya)	2.0

*Pounds of pure live seed:

Pounds of seed x percent purity x percent germination = pounds pure live seed

Mixture 4, for Gypsum Sites

The holder shall seed all the disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

<u>Species</u>	<u>lb/acre</u>
Alkali Sacaton (<i>Sporobolus airoides</i>)	1.5
DWS~ Four-wing saltbush (<i>Atriplex canescens</i>)	8.0

~DWS: DeWinged Seed

*Pounds of pure live seed:

Pounds of seed x percent purity x percent germination = pounds pure live seed

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:** 09/26/2018**Title:** Regulatory Analyst**Street Address:** 600 N MARIENFELD STE 600**City:** MIDLAND**State:** TX**Zip:** 79701**Phone:** (432)620-1909**Email address:** acrawford@cimarex.com**Field Representative****Representative Name:****Street Address:****City:****State:****Zip:****Phone:****Email address:**

APD ID: 10400032118

Submission Date: 09/26/2018

Highlighted data reflects the most recent changes

Operator Name: CIMAREX ENERGY COMPANY OF COLORADO

Well Name: RINGER 3-4 FEDERAL COM

Well Number: 2H

[Show Final Text](#)

Well Type: CONVENTIONAL GAS WELL

Well Work Type: Drill

Section 1 - General

APD ID: 10400032118

Tie to previous NOS? Y

Submission Date: 09/26/2018

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: NMNM019836

Lease Acres: 359.86

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: RINGER 3-4 FEDERAL COM

Well Number: 2H

Well API Number:

Field/Pool or Exploratory? Field and Pool

Field Name: JENNINGS; BONE SPRING, WEST

Pool Name: PURPLE SAGE WOLFCAMP GAS

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

Operator Name: CIMAREX ENERGY COMPANY OF COLORADO

Well Name: RINGER 3-4 FEDERAL COM

Well Number: 2H

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:

Number: S2S2 PAD

Well Class: HORIZONTAL

RINGER 3-4 FED COM

Number of Legs: 1

Well Work Type: Drill

Well Type: CONVENTIONAL GAS WELL

Describe Well Type:

Well sub-Type: EXPLORATORY (WILDCAT)

Describe sub-type:

Distance to town: 18 Miles

Distance to nearest well: 20 FT

Distance to lease line: 540 FT

Reservoir well spacing assigned acres Measurement: 640 Acres

Well plat: Ringer_3_4_Fed_Com_2H_C102_20180926131300.pdf

Well work start Date: 04/01/2018

Duration: 30 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83

Vertical Datum: NAVD88

Survey number: 23782

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 from this lease?
SHL Leg #1	1250	FSL	540	FEL	25S	26E	3	Aliquot SESE	32.155016	-104.274258	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 019836	3348	0	0	
KOP Leg #1	1076	FSL	548	FEL	25S	26E	3	Aliquot SESE	32.1545361	-104.2742583	EDD Y	NEW MEXI CO	FIRS T PRIN	F	NMNM 019836	-4749	8102	8097	
PPP Leg #1-1	1134	FSL	1300	FEL	25S	26E	4	Aliquot SWSE	32.1547028	-104.2930667	EDD Y	NEW MEXI CO	FIRS T PRIN	F	FEE	-5215	14200	8563	

Operator Name: CIMAREX ENERGY COMPANY OF COLORADO

Well Name: RINGER 3-4 FEDERAL COM

Well Number: 2H

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 from this lease?
PPP Leg #1-2	112	FSL	0	FEL	25S	26E	4	Aliquot SESE	32.1546667	-104.2888667	EDD Y	NEW MEXICO	FIRST PRIN	F	NMNM 040660	-5226	12900	8574	
PPP Leg #1-3	110	FSL	1320	FWL	25S	26E	3	Aliquot SWSE	32.1545556	-104.2762667	EDD Y	NEW MEXICO	FIRST PRIN	F	FEE	-5237	11600	8585	
PPP Leg #1-4	108	FSL	1162	FEL	25S	26E	3	Aliquot SWSE	32.1545556	-104.2762667	EDD Y	NEW MEXICO	FIRST PRIN	F	NMNM 015296	-5255	9000	8603	
EXIT Leg #1	116	FSL	1320	FWL	25S	26E	4	Aliquot SWSW	32.1547778	-104.3014667	EDD Y	NEW MEXICO	FIRST PRIN	F	FEE	-5191	16800	8539	
BHL Leg #1	104	FSL	330	FWL	25S	26E	4	Aliquot SWSW	32.154811	-104.305448	EDD Y	NEW MEXICO	NEW MEXICO	F	NMNM 0554766	-5181	18032	8529	

APD ID: 10400032118

Submission Date: 09/26/2018

Highlighted data reflects the most recent changes

Operator Name: CIMAREX ENERGY COMPANY OF COLORADO

Well Name: RINGER 3-4 FEDERAL COM

Well Number: 2H

[Show Final Text](#)

Well Type: CONVENTIONAL GAS WELL

Well Work Type: Drill

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
295532	TOP SALT	3348	1031	1031		USEABLE WATER	N
295533	BASE OF SALT	-1719	1719	1719		USEABLE WATER	N
295534	BELL CANYON	-1930	1930	1930		NATURAL GAS, OIL	N
295535	CHERRY CANYON	-2889	2889	2889		NATURAL GAS, OIL	N
295536	BRUSHY CANYON	-4039	4039	4039		NATURAL GAS, OIL	N
295537	BONE SPRING	-5368	5368	5368		NATURAL GAS, OIL	N
295538	BONE SPRING 1ST	-6391	6391	6391		NATURAL GAS, OIL	N
295539	BONE SPRING 2ND	-6893	6893	6893		NATURAL GAS, OIL	N
295540	BONE SPRING 3RD	-8187	8187	8187		NATURAL GAS, OIL	N
295541	WOLFCAMP	-8515	8515	8515		NATURAL GAS, OIL	Y

Section 2 - Blowout Prevention

Pressure Rating (PSI): 2M

Rating Depth: 1910

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/BOPE system with a minimum working pressure of 5000 psi will be installed on the wellhead system and will be pressure tested to 250 psi low followed by a 5000 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

Operator Name: CIMAREX ENERGY COMPANY OF COLORADO

Well Name: RINGER 3-4 FEDERAL COM

Well Number: 2H

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 5000 psi. A solid steel body pack-off will be utilized after running and cementing the production casing. After installation the pack-off and lower flange will be pressure tested to 5000 psi. The surface casing string will be tested as per Onshore Order No. 2 to at least 0.22 psi/ft or 1500 psi, whichever is greater. The casing string utilizing steel body pack-off will be tested to 70% of casing burst. If well conditions dictate conventional slips will be set and BOPE will be tested to appropriate pressures based on permitted pressure requirements.

Choke Diagram Attachment:

Ringer_3_4_Fed_Com_2H_BOP_2M_20180904143113.pdf

BOP Diagram Attachment:

Ringer_3_4_Fed_Com_2H_Choke_2M3M_20180904143316.pdf

Pressure Rating (PSI): 3M

Rating Depth: 9115

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/BOPE system with a minimum working pressure of 5000 psi will be installed on the wellhead system and will be pressure tested to 250 psi low followed by a 5000 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 5000 psi. A solid steel body pack-off will be utilized after running and cementing the production casing. After installation the pack-off and lower flange will be pressure tested to 5000 psi. The surface casing string will be tested as per Onshore Order No. 2 to at least 0.22 psi/ft or 1500 psi, whichever is greater. The casing string utilizing steel body pack-off will be tested to 70% of casing burst. If well conditions dictate conventional slips will be set and BOPE will be tested to appropriate pressures based on permitted pressure requirements.

Choke Diagram Attachment:

Ringer_3_4_Fed_Com_2H_Choke_2M3M_20180904143606.pdf

BOP Diagram Attachment:

Ringer_3_4_Fed_Com_2H_BOP_3M_20180904143511.pdf

Operator Name: CIMAREX ENERGY COMPANY OF COLORADO

Well Name: RINGER 3-4 FEDERAL COM

Well Number: 2H

Pressure Rating (PSI): 5M

Rating Depth: 18032

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/BOPE system with a minimum working pressure of 5000 psi will be installed on the wellhead system and will be pressure tested to 250 psi low followed by a 5000 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 5000 psi. A solid steel body pack-off will be utilized after running and cementing the production casing. After installation the pack-off and lower flange will be pressure tested to 5000 psi. The surface casing string will be tested as per Onshore Order No. 2 to at least 0.22 psi/ft or 1500 psi, whichever is greater. The casing string utilizing steel body pack-off will be tested to 70% of casing burst. If well conditions dictate conventional slips will be set and BOPE will be tested to appropriate pressures based on permitted pressure requirements.

Choke Diagram Attachment:

Ringer_3_4_Fed_Com_2H_Choke_5M_20180904144024.pdf

BOP Diagram Attachment:

Ringer_3_4_Fed_Com_2H_BOP_5M_20180904144042.pdf

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	460	0	460	0	460	460	H-40	48	ST&C	3.52	8.22	BUOY	14.58	BUOY	14.58
2	INTERMEDIATE	12.25	9.625	NEW	API	N	0	1910	0	1910		1910	1910	J-55	36	LT&C	1.99	3.47	BUOY	6.59	BUOY	6.59
3	PRODUCTION	8.75	7.0	NEW	API	N	0	8102	0	8102	0	8102	8102	L-80	26	LT&C	1.43	1.91	BUOY	2.3	BUOY	2.3
4	PRODUCTION	8.75	7.0	NEW	API	N	8102	9115	8102	8529	8102	9115	1013	N-80	26	BUTT	1.36	1.81	BUOY	54.4	BUOY	54.4

Operator Name: CIMAREX ENERGY COMPANY OF COLORADO

Well Name: RINGER 3-4 FEDERAL COM

Well Number: 2H

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
5	COMPLETION SYSTEM	6	4.5	NEW	API	N	8102	18032	8102	18032	8102	18032	9930	P-110	11.6	BUTT	1.63	2.3	BUOY	74.0 ⁹	BUOY	74.0 ⁹

Casing Attachments

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

Inspection Document:

Spec Document:

Ringer_3_4_Fed_Com_2H_Spec_Sheet_20180910104824.pdf

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Ringer_3_4_Fed_Com_2H_Casing_Assumptions_20180910105130.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Ringer_3_4_Fed_Com_2H_Casing_Assumptions_20180910113749.pdf

Operator Name: CIMAREX ENERGY COMPANY OF COLORADO

Well Name: RINGER 3-4 FEDERAL COM

Well Number: 2H

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Ringer_3_4_Fed_Com_2H_Casing_Assumptions_20180910113802.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Ringer_3_4_Fed_Com_2H_Casing_Assumptions_20180910114107.pdf

Casing ID: 5 **String Type:** COMPLETION SYSTEM

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Ringer_3_4_Fed_Com_2H_Casing_Assumptions_20180910114325.pdf

Section 4 - Cement

Operator Name: CIMAREX ENERGY COMPANY OF COLORADO

Well Name: RINGER 3-4 FEDERAL COM

Well Number: 2H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	460	124	1.34	14.8	166	50	Class C	LCM
SURFACE	Tail		0	460	195	1.34	14.8	260	25	Class C	LCM
INTERMEDIATE	Lead		0	1910	360	1.88	12.9	675	50	35:65 (Poz:C)	Salt, Bentonite
INTERMEDIATE	Tail		0	1910	112	1.34	14.8	149	25	Class C	LCM
PRODUCTION	Lead		0	8102	329	3.64	10.3	1197	25	Tuned Light	LCM
PRODUCTION	Tail		0	8102	130	1.3	14.2	168	10	50:50 (Poz H)	Satl, Bentonite, Fluid loss, Dispersant, SMS
PRODUCTION	Lead		8102	9115	329	3.64	10.3	1197	25	Tuned Light	LCM
PRODUCTION	Tail		8102	9115	130	1.3	14.2	168	10	50:50 (Poz:H)	Salt, Bentinote, Fluid Loss, Dispersant, SMS
COMPLETION SYSTEM	Lead		8102	1803 2	648	1.3	14.2	842	10	50:50 (Poz:H)	Salt, Bentonite, Fluid Loss, Dispersant, SMS

Section 5 - Circulating Medium

Mud System Type: Closed

Will an air or gas system be Used? NO

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

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

Describe what will be on location to control well or mitigate other conditions: Spud mud for Surface casing, Salt Saturated for Intermediate, Other- FW/Cut brine for Production Casing, Oil-based mud for completion system

Describe the mud monitoring system utilized: PVT/Pason/Visual Monitoring

Circulating Medium Table

Operator Name: CIMAREX ENERGY COMPANY OF COLORADO

Well Name: RINGER 3-4 FEDERAL COM

Well Number: 2H

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	460	SPUD MUD	8.3	8.8							
1910	9115	OTHER : FW/Cut Brine	8.5	9							
460	1910	SALT SATURATED	9.7	10.2							
9115	1803 2	OIL-BASED MUD	10	10.5							

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: 4656

Anticipated Surface Pressure: 2775

Anticipated Bottom Hole Temperature(F): 157

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:

Operator Name: CIMAREX ENERGY COMPANY OF COLORADO

Well Name: RINGER 3-4 FEDERAL COM

Well Number: 2H

Ringer_3_4_Fed_Com_2H_H2S_Plan_20180910125231.pdf

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

Ringer_3_4_Fed_Com_2H_Directional_Plan_20180904151306.pdf

Ringer_3_4_Federal_Com_2H_AC_Report_20180925074552.pdf

Other proposed operations facets description:

Other proposed operations facets attachment:

Ringer_3_4_Fed_Com_2H_Flex_Hose_20180904151432.pdf

Ringer_3_4_Fed_Com_2H_Gas_Capture_Plan_20180904151451.pdf

Ringer_3_4_Fed_Com_2H_Multibowl_20180904151535.pdf

Ringer_3_4_Fed_Com_2H_Driling_Plan_20180910125155.pdf

Ringer_3_4_Fed_Com_2H_Multibowl_Procedure_20180926105643.pdf

Other Variance attachment:

[Print](#)



Ringer 3-4 Fed Com 2H Surface Casing Spec Sheet

OCTG Performance Data

Casing Performance

Availability: ERW

Pipe Body Geometry

Outside Diameter:	13.375 in	Inside Diameter:	12.715 in
Wall Thickness:	0.330 in	Cross Section Area:	13.524 sq in
Nominal Weight:	48.00 lb/ft	Drift Diameter:	12.559 in
Plain End Weight:	46.02 lb/ft	Alternate Drift Diameter:	-

Pipe Body Performance

Grade:	H40	Collapse Strength (ERW):	740 psi
Pipe Body Yield Strength:	541000 lbf	Collapse Strength (SMLS):	-

SC Connection

Connection Geometry

	Optimum	Minimum	Maximum
Make Up Torque:	3220 lb·ft	2420 lb·ft	4030 lb·ft
Coupling Outside Diameter:	14.375 in		

Connection Performance

Grade:	H40	Minimum Internal Yield Pressure:	1730 psi
Joint Strength:	322000 lbf		

LC Connection

Connection Geometry

	Optimum	Minimum	Maximum
Make Up Torque:	-	-	-
Coupling Outside Diameter:	14.375 in		

Connection Performance

Grade:	H40	Minimum Internal Yield Pressure:	-
Joint Strength:	-		

BC Connection

Connection Geometry

	Optimum	Minimum	Maximum
Make Up Torque:	-	-	-
Coupling Outside Diameter:	14.375 in		

Connection Performance

Grade:	H40	Minimum Internal Yield Pressure:	-
Joint Strength:	-		

PE Connection

Connection Geometry

	Optimum	Minimum	Maximum
Make Up Torque:	-	-	-
Coupling Outside Diameter:	14.375 in		

Connection Performance

Grade:	H40	Minimum Internal Yield Pressure:	1730 psi
Joint Strength:	-		

Ringer 3-4 Federal Com 2H

Casing Assumptions

2. Casing Program

Hole Size	Casing Depth From	Casing Depth To	Casing Size	Weight (lb/ft)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
17 1/2	0	460	13-3/8"	48.00	H-40/J-55 Hybrid	ST&C	3.52	8.22	14.58
12 1/4	0	1910	9-5/8"	36.00	J-55	LT&C	1.99	3.47	6.59
8 3/4	0	8102	7"	26.00	L-80	LT&C	1.43	1.91	2.30
8 3/4	8102	9115	7"	26.00	N-80	BT&C	1.36	1.81	54.40
6	8102	18032	4-1/2"	11.60	P-110	BT&C	1.63	2.30	74.09
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

Ringer 3-4 Federal Com 2H

Casing Assumptions

2. Casing Program

Hole Size	Casing Depth From	Casing Depth To	Casing Size	Weight (lb/ft)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
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8 3/4	0	8102	7"	26.00	L-80	LT&C	1.43	1.91	2.30
8 3/4	8102	9115	7"	26.00	N-80	BT&C	1.36	1.81	54.40
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Ringer 3-4 Federal Com 2H

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Ringer 3-4 Federal Com 2H

Casing Assumptions

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Ringer 3-4 Federal Com 2H

Casing Assumptions

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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

Ringer 3-4 Federal Com 2H

Cimarex Energy Co.

UL: P, Sec. 3, 25S, 26E

Eddy 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 play 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 r 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
Ringer 3-4 Federal Com 1H
Cimarex Energy Co.
UL: P, Sec. 3, 25S, 26E
Eddy 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

Ringer 3-4 Federal Com 1H

Cimarex Energy Co.

UL: P, Sec. 3, 25S, 26E

Eddy Co., NM

<u>Company Office</u>			
Cimarex Energy Co. of Colorado		800-969-4789	
Co. Office and After-Hours Menu			
<u>Key Personnel</u>			
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
<u>Artesia</u>			
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	
<u>Carlsbad</u>			
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	
<u>Santa Fe</u>			
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	
<u>National</u>			
National Emergency Response Center (Washington, D.C.)		800-424-8802	
<u>Medical</u>			
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	
<u>Other</u>			
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 Ringer 3-4 Federal Com 2H Rev1 RM 17July18 Proposal Geodetic Report

(Non-Def Plan)



Report Date: July 18, 2018 - 08:57 AM
Client: Cimarex Energy
Field: NM Eddy County (NAD 83)
Structure / Slot: Cimarex Ringer 3-4 Federal Com 2H / New Slot
Well: Ringer 3-4 Federal Com 2H
Borehole: Ringer 3-4 Federal Com 2H
UWI / API#: Unknown / Unknown
Survey Name: Cimarex Ringer 3-4 Federal Com 2H Rev1 RM 17July18
Survey Date: July 05, 2018
Tort / AHD / DDI / ERD Ratio: 98.469 ° / 9827.626 ft / 6.307 / 1.142
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 9' 18.05662", W 104° 16' 27.32848"
Location Grid N/E Y/X: N 420135.010 ftUS, E 559619.300 ftUS
CRS Grid Convergence Angle: 0.0314 °
Grid Scale Factor: 0.99990947
Version / Patch: 2.10.740.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 270.568 ° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB
TVD Reference Elevation: 3374.800 ft above MSL
Seabed / Ground Elevation: 3348.800 ft above MSL
Magnetic Declination: 7.393 °
Total Gravity Field Strength: 998.4358mgn (9.80665 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 47882.059 nT
Magnetic Dip Angle: 59.826 °
Declination Date: July 18, 2018
Magnetic Declination Model: HDGM 2018
North Reference: Grid North
Grid Convergence Used: 0.0314 °
Total Corr Mag North->Grid North: 7.3614 °
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 [1250' FSL, 540' FEL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	420135.01	559619.30	N 32 9 18.06 W 104 16 27.33	
	100.00	0.00	180.00	100.00	0.00	0.00	0.00	0.00	420135.01	559619.30	N 32 9 18.06 W 104 16 27.33	
	200.00	0.00	180.00	200.00	0.00	0.00	0.00	0.00	420135.01	559619.30	N 32 9 18.06 W 104 16 27.33	
	300.00	0.00	180.00	300.00	0.00	0.00	0.00	0.00	420135.01	559619.30	N 32 9 18.06 W 104 16 27.33	
	400.00	0.00	180.00	400.00	0.00	0.00	0.00	0.00	420135.01	559619.30	N 32 9 18.06 W 104 16 27.33	
	500.00	0.00	180.00	500.00	0.00	0.00	0.00	0.00	420135.01	559619.30	N 32 9 18.06 W 104 16 27.33	
	600.00	0.00	180.00	600.00	0.00	0.00	0.00	0.00	420135.01	559619.30	N 32 9 18.06 W 104 16 27.33	
	700.00	0.00	180.00	700.00	0.00	0.00	0.00	0.00	420135.01	559619.30	N 32 9 18.06 W 104 16 27.33	
	800.00	0.00	180.00	800.00	0.00	0.00	0.00	0.00	420135.01	559619.30	N 32 9 18.06 W 104 16 27.33	
	900.00	0.00	180.00	900.00	0.00	0.00	0.00	0.00	420135.01	559619.30	N 32 9 18.06 W 104 16 27.33	
	1000.00	0.00	180.00	1000.00	0.00	0.00	0.00	0.00	420135.01	559619.30	N 32 9 18.06 W 104 16 27.33	
Salado (Top Salt)	1031.00	0.00	180.00	1031.00	0.00	0.00	0.00	0.00	420135.01	559619.30	N 32 9 18.06 W 104 16 27.33	
	1100.00	0.00	180.00	1100.00	0.00	0.00	0.00	0.00	420135.01	559619.30	N 32 9 18.06 W 104 16 27.33	
	1200.00	0.00	180.00	1200.00	0.00	0.00	0.00	0.00	420135.01	559619.30	N 32 9 18.06 W 104 16 27.33	
	1300.00	0.00	180.00	1300.00	0.00	0.00	0.00	0.00	420135.01	559619.30	N 32 9 18.06 W 104 16 27.33	
	1400.00	0.00	180.00	1400.00	0.00	0.00	0.00	0.00	420135.01	559619.30	N 32 9 18.06 W 104 16 27.33	
	1500.00	0.00	180.00	1500.00	0.00	0.00	0.00	0.00	420135.01	559619.30	N 32 9 18.06 W 104 16 27.33	
	1600.00	0.00	180.00	1600.00	0.00	0.00	0.00	0.00	420135.01	559619.30	N 32 9 18.06 W 104 16 27.33	
	1700.00	0.00	180.00	1700.00	0.00	0.00	0.00	0.00	420135.01	559619.30	N 32 9 18.06 W 104 16 27.33	
Castille (Base Salt)	1719.00	0.00	180.00	1719.00	0.00	0.00	0.00	0.00	420135.01	559619.30	N 32 9 18.06 W 104 16 27.33	
	1800.00	0.00	180.00	1800.00	0.00	0.00	0.00	0.00	420135.01	559619.30	N 32 9 18.06 W 104 16 27.33	
	1900.00	0.00	180.00	1900.00	0.00	0.00	0.00	0.00	420135.01	559619.30	N 32 9 18.06 W 104 16 27.33	
Bell Canyon (Top Delaware)	1930.00	0.00	180.00	1930.00	0.00	0.00	0.00	0.00	420135.01	559619.30	N 32 9 18.06 W 104 16 27.33	
	2000.00	0.00	180.00	2000.00	0.00	0.00	0.00	0.00	420135.01	559619.30	N 32 9 18.06 W 104 16 27.33	
	2100.00	0.00	180.00	2100.00	0.00	0.00	0.00	0.00	420135.01	559619.30	N 32 9 18.06 W 104 16 27.33	

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 ° ' ")
	2200.00	0.00	180.00	2200.00	0.00	0.00	0.00	0.00	420135.01	559619.30	N 32 9 18.06 W 104 16 27.33	
	2300.00	0.00	180.00	2300.00	0.00	0.00	0.00	0.00	420135.01	559619.30	N 32 9 18.06 W 104 16 27.33	
	2400.00	0.00	180.00	2400.00	0.00	0.00	0.00	0.00	420135.01	559619.30	N 32 9 18.06 W 104 16 27.33	
Nudge 2°/100' DLS	2500.00	0.00	180.00	2500.00	0.00	0.00	0.00	0.00	420135.01	559619.30	N 32 9 18.06 W 104 16 27.33	
	2600.00	2.00	180.00	2599.98	-0.02	-1.75	0.00	2.00	420133.27	559619.30	N 32 9 18.04 W 104 16 27.33	
Hold Nudge	2699.20	3.98	180.00	2699.04	-0.07	-6.92	0.00	2.00	420128.09	559619.30	N 32 9 17.99 W 104 16 27.33	
	2700.00	3.98	180.00	2699.84	-0.07	-6.98	0.00	0.00	420128.03	559619.30	N 32 9 17.99 W 104 16 27.33	
	2800.00	3.98	180.00	2799.60	-0.14	-13.93	0.00	0.00	420121.09	559619.30	N 32 9 17.92 W 104 16 27.33	
Cherry Canyon	2889.62	3.98	180.00	2889.00	-0.20	-20.15	0.00	0.00	420114.86	559619.30	N 32 9 17.86 W 104 16 27.33	
	2900.00	3.98	180.00	2899.35	-0.21	-20.87	0.00	0.00	420114.14	559619.30	N 32 9 17.85 W 104 16 27.33	
	3000.00	3.98	180.00	2999.11	-0.28	-27.82	0.00	0.00	420107.19	559619.30	N 32 9 17.78 W 104 16 27.33	
	3100.00	3.98	180.00	3098.87	-0.34	-34.77	0.00	0.00	420100.24	559619.30	N 32 9 17.71 W 104 16 27.33	
	3200.00	3.98	180.00	3198.63	-0.41	-41.72	0.00	0.00	420093.30	559619.30	N 32 9 17.64 W 104 16 27.33	
	3300.00	3.98	180.00	3298.39	-0.48	-48.67	0.00	0.00	420086.35	559619.30	N 32 9 17.58 W 104 16 27.33	
	3400.00	3.98	180.00	3398.15	-0.55	-55.61	0.00	0.00	420079.40	559619.30	N 32 9 17.51 W 104 16 27.33	
	3500.00	3.98	180.00	3497.90	-0.62	-62.56	0.00	0.00	420072.46	559619.30	N 32 9 17.44 W 104 16 27.33	
	3600.00	3.98	180.00	3597.66	-0.69	-69.51	0.00	0.00	420065.51	559619.30	N 32 9 17.37 W 104 16 27.33	
	3700.00	3.98	180.00	3697.42	-0.76	-76.46	0.00	0.00	420058.56	559619.30	N 32 9 17.30 W 104 16 27.33	
	3800.00	3.98	180.00	3797.18	-0.83	-83.40	0.00	0.00	420051.61	559619.30	N 32 9 17.23 W 104 16 27.33	
	3900.00	3.98	180.00	3896.94	-0.90	-90.35	0.00	0.00	420044.67	559619.30	N 32 9 17.16 W 104 16 27.33	
	4000.00	3.98	180.00	3996.70	-0.96	-97.30	0.00	0.00	420037.72	559619.30	N 32 9 17.09 W 104 16 27.33	
Brushy Canyon	4042.41	3.98	180.00	4039.00	-0.99	-100.25	0.00	0.00	420034.77	559619.30	N 32 9 17.06 W 104 16 27.33	
	4100.00	3.98	180.00	4096.45	-1.03	-104.25	0.00	0.00	420030.77	559619.30	N 32 9 17.03 W 104 16 27.33	
	4200.00	3.98	180.00	4196.21	-1.10	-111.20	0.00	0.00	420023.83	559619.30	N 32 9 16.96 W 104 16 27.33	
	4300.00	3.98	180.00	4295.97	-1.17	-118.14	0.00	0.00	420016.88	559619.30	N 32 9 16.89 W 104 16 27.33	
	4400.00	3.98	180.00	4395.73	-1.24	-125.09	0.00	0.00	420009.93	559619.30	N 32 9 16.82 W 104 16 27.33	
	4500.00	3.98	180.00	4495.49	-1.31	-132.04	0.00	0.00	420002.98	559619.30	N 32 9 16.75 W 104 16 27.33	
	4600.00	3.98	180.00	4595.25	-1.38	-138.99	0.00	0.00	419996.04	559619.30	N 32 9 16.68 W 104 16 27.33	
	4700.00	3.98	180.00	4695.00	-1.45	-145.93	0.00	0.00	419989.09	559619.30	N 32 9 16.61 W 104 16 27.33	
	4800.00	3.98	180.00	4794.76	-1.52	-152.88	0.00	0.00	419982.14	559619.30	N 32 9 16.54 W 104 16 27.33	
	4900.00	3.98	180.00	4894.52	-1.58	-159.83	0.00	0.00	419975.20	559619.30	N 32 9 16.48 W 104 16 27.33	
	5000.00	3.98	180.00	4994.28	-1.65	-166.78	0.00	0.00	419968.25	559619.30	N 32 9 16.41 W 104 16 27.33	
Drop to Vertical 2°/100' DLS	5005.73	3.98	180.00	5000.00	-1.66	-167.18	0.00	0.00	419967.85	559619.30	N 32 9 16.40 W 104 16 27.33	
	5100.00	2.10	180.00	5094.13	-1.71	-172.18	0.00	2.00	419962.85	559619.30	N 32 9 16.35 W 104 16 27.33	
	5200.00	0.10	180.00	5194.11	-1.73	-174.09	0.00	2.00	419960.93	559619.30	N 32 9 16.33 W 104 16 27.33	
Hold Vertical	5204.93	0.00	180.00	5199.04	-1.73	-174.10	0.00	2.00	419960.93	559619.30	N 32 9 16.33 W 104 16 27.33	
	5300.00	0.00	180.00	5294.11	-1.73	-174.10	0.00	0.00	419960.93	559619.30	N 32 9 16.33 W 104 16 27.33	
Top Bone Spring	5373.89	0.00	180.00	5368.00	-1.73	-174.10	0.00	0.00	419960.93	559619.30	N 32 9 16.33 W 104 16 27.33	
	5400.00	0.00	180.00	5394.11	-1.73	-174.10	0.00	0.00	419960.93	559619.30	N 32 9 16.33 W 104 16 27.33	
	5500.00	0.00	180.00	5494.11	-1.73	-174.10	0.00	0.00	419960.93	559619.30	N 32 9 16.33 W 104 16 27.33	
	5600.00	0.00	180.00	5594.11	-1.73	-174.10	0.00	0.00	419960.93	559619.30	N 32 9 16.33 W 104 16 27.33	
	5700.00	0.00	180.00	5694.11	-1.73	-174.10	0.00	0.00	419960.93	559619.30	N 32 9 16.33 W 104 16 27.33	
	5800.00	0.00	180.00	5794.11	-1.73	-174.10	0.00	0.00	419960.93	559619.30	N 32 9 16.33 W 104 16 27.33	
	5900.00	0.00	180.00	5894.11	-1.73	-174.10	0.00	0.00	419960.93	559619.30	N 32 9 16.33 W 104 16 27.33	
	6000.00	0.00	180.00	5994.11	-1.73	-174.10	0.00	0.00	419960.93	559619.30	N 32 9 16.33 W 104 16 27.33	
	6100.00	0.00	180.00	6094.11	-1.73	-174.10	0.00	0.00	419960.93	559619.30	N 32 9 16.33 W 104 16 27.33	
	6200.00	0.00	180.00	6194.11	-1.73	-174.10	0.00	0.00	419960.93	559619.30	N 32 9 16.33 W 104 16 27.33	
	6300.00	0.00	180.00	6294.11	-1.73	-174.10	0.00	0.00	419960.93	559619.30	N 32 9 16.33 W 104 16 27.33	
Top 1st BSPG SS	6396.89	0.00	180.00	6391.00	-1.73	-174.10	0.00	0.00	419960.93	559619.30	N 32 9 16.33 W 104 16 27.33	
	6400.00	0.00	180.00	6394.11	-1.73	-174.10	0.00	0.00	419960.93	559619.30	N 32 9 16.33 W 104 16 27.33	
	6500.00	0.00	180.00	6494.11	-1.73	-174.10	0.00	0.00	419960.93	559619.30	N 32 9 16.33 W 104 16 27.33	
	6600.00	0.00	180.00	6594.11	-1.73	-174.10	0.00	0.00	419960.93	559619.30	N 32 9 16.33 W 104 16 27.33	
	6700.00	0.00	180.00	6694.11	-1.73	-174.10	0.00	0.00	419960.93	559619.30	N 32 9 16.33 W 104 16 27.33	
	6800.00	0.00	180.00	6794.11	-1.73	-174.10	0.00	0.00	419960.93	559619.30	N 32 9 16.33 W 104 16 27.33	

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 ° ' ")
Top 2nd BSPG SS	6868.89	0.00	180.00	6863.00	-1.73	-174.10	0.00	0.00	419960.93	559619.30	N 32 9 16.33	W 104 16 27.33
	6900.00	0.00	180.00	6894.11	-1.73	-174.10	0.00	0.00	419960.93	559619.30	N 32 9 16.33	W 104 16 27.33
	7000.00	0.00	180.00	6994.11	-1.73	-174.10	0.00	0.00	419960.93	559619.30	N 32 9 16.33	W 104 16 27.33
	7100.00	0.00	180.00	7094.11	-1.73	-174.10	0.00	0.00	419960.93	559619.30	N 32 9 16.33	W 104 16 27.33
	7200.00	0.00	180.00	7194.11	-1.73	-174.10	0.00	0.00	419960.93	559619.30	N 32 9 16.33	W 104 16 27.33
	7300.00	0.00	180.00	7294.11	-1.73	-174.10	0.00	0.00	419960.93	559619.30	N 32 9 16.33	W 104 16 27.33
	7400.00	0.00	180.00	7394.11	-1.73	-174.10	0.00	0.00	419960.93	559619.30	N 32 9 16.33	W 104 16 27.33
	7500.00	0.00	180.00	7494.11	-1.73	-174.10	0.00	0.00	419960.93	559619.30	N 32 9 16.33	W 104 16 27.33
	7600.00	0.00	180.00	7594.11	-1.73	-174.10	0.00	0.00	419960.93	559619.30	N 32 9 16.33	W 104 16 27.33
	7700.00	0.00	180.00	7694.11	-1.73	-174.10	0.00	0.00	419960.93	559619.30	N 32 9 16.33	W 104 16 27.33
	7800.00	0.00	180.00	7794.11	-1.73	-174.10	0.00	0.00	419960.93	559619.30	N 32 9 16.33	W 104 16 27.33
	7900.00	0.00	180.00	7894.11	-1.73	-174.10	0.00	0.00	419960.93	559619.30	N 32 9 16.33	W 104 16 27.33
	8000.00	0.00	180.00	7994.11	-1.73	-174.10	0.00	0.00	419960.93	559619.30	N 32 9 16.33	W 104 16 27.33
	8100.00	0.00	180.00	8094.11	-1.73	-174.10	0.00	0.00	419960.93	559619.30	N 32 9 16.33	W 104 16 27.33
KOP - Build 12°/100' DLS	8102.95	0.00	180.00	8097.05	-1.73	-174.10	0.00	0.00	419960.93	559619.30	N 32 9 16.33	W 104 16 27.33
Top 3rd BSPG SS	8193.44	10.86	270.57	8187.00	6.82	-174.01	-8.55	12.00	419961.01	559610.75	N 32 9 16.33	W 104 16 27.43
	8200.00	11.65	270.57	8193.44	8.10	-174.00	-9.83	12.00	419961.02	559609.47	N 32 9 16.33	W 104 16 27.44
	8300.00	23.65	270.57	8288.56	38.36	-173.70	-40.09	12.00	419961.32	559579.22	N 32 9 16.34	W 104 16 27.80
	8400.00	35.65	270.57	8375.31	87.74	-173.21	-89.46	12.00	419961.81	559529.85	N 32 9 16.34	W 104 16 28.37
	8500.00	47.65	270.57	8449.90	154.07	-172.55	-155.79	12.00	419962.47	559463.53	N 32 9 16.35	W 104 16 29.14
	8600.00	59.65	270.57	8509.07	234.46	-171.76	-236.17	12.00	419963.27	559383.15	N 32 9 16.36	W 104 16 30.08
Top Wolfcamp	8612.00	61.09	270.57	8515.00	244.89	-171.65	-246.60	12.00	419963.37	559372.72	N 32 9 16.36	W 104 16 30.20
	8700.00	71.65	270.57	8550.23	325.39	-170.86	-327.10	12.00	419964.17	559292.23	N 32 9 16.37	W 104 16 31.13
Build 4°/100' DLS	8727.95	75.00	270.57	8558.25	352.16	-170.59	-353.87	12.00	419964.44	559265.46	N 32 9 16.37	W 104 16 31.45
	8800.00	77.88	270.57	8575.14	422.20	-169.90	-423.91	4.00	419965.13	559195.43	N 32 9 16.38	W 104 16 32.26
Wolfcamp 'Y' SS	8895.09	81.69	270.57	8592.00	515.76	-168.97	-517.47	4.00	419966.06	559101.88	N 32 9 16.39	W 104 16 33.35
	8900.00	81.88	270.57	8592.70	520.63	-168.92	-522.33	4.00	419966.11	559097.02	N 32 9 16.39	W 104 16 33.41
	9000.00	85.88	270.57	8603.36	620.04	-167.93	-621.73	4.00	419967.09	558997.63	N 32 9 16.40	W 104 16 34.56
	9100.00	89.88	270.57	8607.05	719.95	-166.94	-721.64	4.00	419968.08	558897.73	N 32 9 16.41	W 104 16 35.72
Landing Point	9115.48	90.50	270.57	8607.00	735.42	-166.79	-737.11	4.00	419968.23	558882.26	N 32 9 16.41	W 104 16 35.90
	9200.00	90.50	270.57	8606.26	819.94	-165.95	-821.63	0.00	419969.07	558797.75	N 32 9 16.42	W 104 16 36.89
	9300.00	90.50	270.57	8605.39	919.94	-164.96	-921.62	0.00	419970.06	558697.77	N 32 9 16.43	W 104 16 38.05
	9400.00	90.50	270.57	8604.51	1019.94	-163.97	-1021.61	0.00	419971.05	558597.78	N 32 9 16.44	W 104 16 39.21
	9500.00	90.50	270.57	8603.64	1119.93	-162.98	-1121.60	0.00	419972.05	558497.80	N 32 9 16.45	W 104 16 40.38
	9600.00	90.50	270.57	8602.76	1219.93	-161.99	-1221.59	0.00	419973.04	558397.82	N 32 9 16.46	W 104 16 41.54
	9700.00	90.50	270.57	8601.89	1319.92	-161.00	-1321.59	0.00	419974.03	558297.84	N 32 9 16.47	W 104 16 42.70
	9800.00	90.50	270.57	8601.01	1419.92	-160.01	-1421.58	0.00	419975.02	558197.86	N 32 9 16.48	W 104 16 43.87
	9900.00	90.50	270.57	8600.14	1519.92	-159.01	-1521.57	0.00	419976.01	558097.87	N 32 9 16.49	W 104 16 45.03
	10000.00	90.50	270.57	8599.26	1619.91	-158.02	-1621.56	0.00	419977.00	557997.89	N 32 9 16.50	W 104 16 46.19
	10100.00	90.50	270.57	8598.39	1719.91	-157.03	-1721.55	0.00	419977.99	557897.91	N 32 9 16.51	W 104 16 47.35
	10200.00	90.50	270.57	8597.51	1819.91	-156.04	-1821.54	0.00	419978.98	557797.93	N 32 9 16.52	W 104 16 48.52
	10300.00	90.50	270.57	8596.64	1919.90	-155.05	-1921.53	0.00	419979.98	557697.95	N 32 9 16.53	W 104 16 49.68
	10400.00	90.50	270.57	8595.76	2019.90	-154.06	-2021.52	0.00	419980.97	557597.96	N 32 9 16.54	W 104 16 50.84
	10500.00	90.50	270.57	8594.89	2119.89	-153.07	-2121.52	0.00	419981.96	557497.98	N 32 9 16.55	W 104 16 52.01
	10600.00	90.50	270.57	8594.01	2219.89	-152.07	-2221.51	0.00	419982.95	557398.00	N 32 9 16.56	W 104 16 53.17
	10700.00	90.50	270.57	8593.14	2319.89	-151.08	-2321.50	0.00	419983.94	557298.02	N 32 9 16.57	W 104 16 54.33
	10800.00	90.50	270.57	8592.26	2419.88	-150.09	-2421.49	0.00	419984.93	557198.04	N 32 9 16.58	W 104 16 55.50
Wolfcamp 'Y' SS	10830.23	90.50	270.57	8592.00	2450.11	-149.79	-2451.71	0.00	419985.23	557167.81	N 32 9 16.59	W 104 16 55.85
	10900.00	90.50	270.57	8591.39	2519.88	-149.10	-2521.48	0.00	419985.92	557098.05	N 32 9 16.59	W 104 16 56.66
	11000.00	90.50	270.57	8590.51	2619.87	-148.11	-2621.47	0.00	419986.91	556998.07	N 32 9 16.60	W 104 16 57.82
	11100.00	90.50	270.57	8589.64	2719.87	-147.12	-2721.46	0.00	419987.91	556898.09	N 32 9 16.61	W 104 16 58.99
	11200.00	90.50	270.57	8588.77	2819.87	-146.13	-2821.45	0.00	419988.90	556798.11	N 32 9 16.62	W 104 17 0.15
	11300.00	90.50	270.57	8587.89	2919.86	-145.14	-2921.45	0.00	419989.89	556698.13	N 32 9 16.64	W 104 17 1.31

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 ° ' ")
	11400.00	90.50	270.57	8587.02	3019.86	-144.14	-3021.44	0.00	419990.88	556598.14	N 32 9 16.65 W 104 17 2.47	
	11500.00	90.50	270.57	8586.14	3119.86	-143.15	-3121.43	0.00	419991.87	556498.16	N 32 9 16.66 W 104 17 3.64	
	11600.00	90.50	270.57	8585.27	3219.85	-142.16	-3221.42	0.00	419992.86	556398.18	N 32 9 16.67 W 104 17 4.80	
	11700.00	90.50	270.57	8584.39	3319.85	-141.17	-3321.41	0.00	419993.85	556298.20	N 32 9 16.68 W 104 17 5.96	
	11800.00	90.50	270.57	8583.52	3419.84	-140.18	-3421.40	0.00	419994.84	556198.21	N 32 9 16.69 W 104 17 7.13	
	11900.00	90.50	270.57	8582.64	3519.84	-139.19	-3521.39	0.00	419995.84	556098.23	N 32 9 16.70 W 104 17 8.29	
	12000.00	90.50	270.57	8581.77	3619.84	-138.20	-3621.38	0.00	419996.83	555998.25	N 32 9 16.71 W 104 17 9.45	
	12100.00	90.50	270.57	8580.89	3719.83	-137.20	-3721.38	0.00	419997.82	555898.27	N 32 9 16.72 W 104 17 10.62	
	12200.00	90.50	270.57	8580.02	3819.83	-136.21	-3821.37	0.00	419998.81	555798.29	N 32 9 16.73 W 104 17 11.78	
	12300.00	90.50	270.57	8579.14	3919.82	-135.22	-3921.36	0.00	419999.80	555698.30	N 32 9 16.74 W 104 17 12.94	
	12400.00	90.50	270.57	8578.27	4019.82	-134.23	-4021.35	0.00	420000.79	555598.32	N 32 9 16.75 W 104 17 14.11	
	12500.00	90.50	270.57	8577.39	4119.82	-133.24	-4121.34	0.00	420001.78	555498.34	N 32 9 16.76 W 104 17 15.27	
	12600.00	90.50	270.57	8576.52	4219.81	-132.25	-4221.33	0.00	420002.77	555398.36	N 32 9 16.77 W 104 17 16.43	
	12700.00	90.50	270.57	8575.64	4319.81	-131.26	-4321.32	0.00	420003.77	555298.38	N 32 9 16.78 W 104 17 17.59	
	12800.00	90.50	270.57	8574.77	4419.81	-130.27	-4421.31	0.00	420004.76	555198.39	N 32 9 16.79 W 104 17 18.76	
	12900.00	90.50	270.57	8573.89	4519.80	-129.27	-4521.31	0.00	420005.75	555098.41	N 32 9 16.80 W 104 17 19.92	
	13000.00	90.50	270.57	8573.02	4619.80	-128.28	-4621.30	0.00	420006.74	554998.43	N 32 9 16.81 W 104 17 21.08	
	13100.00	90.50	270.57	8572.14	4719.79	-127.29	-4721.29	0.00	420007.73	554898.45	N 32 9 16.82 W 104 17 22.25	
	13200.00	90.50	270.57	8571.27	4819.79	-126.30	-4821.28	0.00	420008.72	554798.47	N 32 9 16.83 W 104 17 23.41	
	13300.00	90.50	270.57	8570.40	4919.79	-125.31	-4921.27	0.00	420009.71	554698.48	N 32 9 16.84 W 104 17 24.57	
	13400.00	90.50	270.57	8569.52	5019.78	-124.32	-5021.26	0.00	420010.70	554598.50	N 32 9 16.85 W 104 17 25.74	
	13500.00	90.50	270.57	8568.65	5119.78	-123.33	-5121.25	0.00	420011.70	554498.52	N 32 9 16.86 W 104 17 26.90	
	13600.00	90.50	270.57	8567.77	5219.77	-122.33	-5221.24	0.00	420012.69	554398.54	N 32 9 16.87 W 104 17 28.06	
	13700.00	90.50	270.57	8566.90	5319.77	-121.34	-5321.24	0.00	420013.68	554298.56	N 32 9 16.88 W 104 17 29.23	
	13800.00	90.50	270.57	8566.02	5419.77	-120.35	-5421.23	0.00	420014.67	554198.57	N 32 9 16.89 W 104 17 30.39	
	13900.00	90.50	270.57	8565.15	5519.76	-119.36	-5521.22	0.00	420015.66	554098.59	N 32 9 16.90 W 104 17 31.55	
	14000.00	90.50	270.57	8564.27	5619.76	-118.37	-5621.21	0.00	420016.65	553998.61	N 32 9 16.91 W 104 17 32.71	
	14100.00	90.50	270.57	8563.40	5719.76	-117.38	-5721.20	0.00	420017.64	553898.63	N 32 9 16.92 W 104 17 33.88	
	14200.00	90.50	270.57	8562.52	5819.75	-116.39	-5821.19	0.00	420018.63	553798.65	N 32 9 16.93 W 104 17 35.04	
	14300.00	90.50	270.57	8561.65	5919.75	-115.40	-5921.18	0.00	420019.63	553698.66	N 32 9 16.94 W 104 17 36.20	
	14400.00	90.50	270.57	8560.77	6019.74	-114.40	-6021.17	0.00	420020.62	553598.68	N 32 9 16.95 W 104 17 37.37	
	14500.00	90.50	270.57	8559.90	6119.74	-113.41	-6121.17	0.00	420021.61	553498.70	N 32 9 16.96 W 104 17 38.53	
	14600.00	90.50	270.57	8559.02	6219.74	-112.42	-6221.16	0.00	420022.60	553398.72	N 32 9 16.97 W 104 17 39.69	
	14700.00	90.50	270.57	8558.15	6319.73	-111.43	-6321.15	0.00	420023.59	553298.74	N 32 9 16.98 W 104 17 40.86	
	14800.00	90.50	270.57	8557.27	6419.73	-110.44	-6421.14	0.00	420024.58	553198.75	N 32 9 16.99 W 104 17 42.02	
	14900.00	90.50	270.57	8556.40	6519.73	-109.45	-6521.13	0.00	420025.57	553098.77	N 32 9 17.00 W 104 17 43.18	
	15000.00	90.50	270.57	8555.52	6619.72	-108.46	-6621.12	0.00	420026.56	552998.79	N 32 9 17.01 W 104 17 44.35	
	15100.00	90.50	270.57	8554.65	6719.72	-107.46	-6721.11	0.00	420027.56	552898.81	N 32 9 17.02 W 104 17 45.51	
	15200.00	90.50	270.57	8553.77	6819.71	-106.47	-6821.10	0.00	420028.55	552798.83	N 32 9 17.03 W 104 17 46.67	
	15300.00	90.50	270.57	8552.90	6919.71	-105.48	-6921.10	0.00	420029.54	552698.84	N 32 9 17.04 W 104 17 47.83	
	15400.00	90.50	270.57	8552.03	7019.71	-104.49	-7021.09	0.00	420030.53	552598.86	N 32 9 17.05 W 104 17 49.00	
	15500.00	90.50	270.57	8551.15	7119.70	-103.50	-7121.08	0.00	420031.52	552498.88	N 32 9 17.06 W 104 17 50.16	
	15600.00	90.50	270.57	8550.28	7219.70	-102.51	-7221.07	0.00	420032.51	552398.90	N 32 9 17.07 W 104 17 51.32	
	15700.00	90.50	270.57	8549.40	7319.69	-101.52	-7321.06	0.00	420033.50	552298.92	N 32 9 17.08 W 104 17 52.49	
	15800.00	90.50	270.57	8548.53	7419.69	-100.53	-7421.05	0.00	420034.49	552198.93	N 32 9 17.09 W 104 17 53.65	
	15900.00	90.50	270.57	8547.65	7519.69	-99.53	-7521.04	0.00	420035.48	552098.95	N 32 9 17.10 W 104 17 54.81	
	16000.00	90.50	270.57	8546.78	7619.68	-98.54	-7621.03	0.00	420036.48	551998.97	N 32 9 17.11 W 104 17 55.98	
	16100.00	90.50	270.57	8545.90	7719.68	-97.55	-7721.03	0.00	420037.47	551898.99	N 32 9 17.12 W 104 17 57.14	
	16200.00	90.50	270.57	8545.03	7819.68	-96.56	-7821.02	0.00	420038.46	551799.01	N 32 9 17.13 W 104 17 58.30	
	16300.00	90.50	270.57	8544.15	7919.67	-95.57	-7921.01	0.00	420039.45	551699.02	N 32 9 17.14 W 104 17 59.47	
	16400.00	90.50	270.57	8543.28	8019.67	-94.58	-8021.00	0.00	420040.44	551599.04	N 32 9 17.15 W 104 18 0.63	
	16500.00	90.50	270.57	8542.40	8119.66	-93.59	-8120.99	0.00	420041.43	551499.06	N 32 9 17.16 W 104 18 1.79	
	16600.00	90.50	270.57	8541.53	8219.66	-92.59	-8220.98	0.00	420042.42	551399.08	N 32 9 17.17 W 104 18 2.95	
	16700.00	90.50	270.57	8540.65	8319.66	-91.60	-8320.97	0.00	420043.41	551299.10	N 32 9 17.19 W 104 18 4.12	
	16800.00	90.50	270.57	8539.78	8419.65	-90.61	-8420.96	0.00	420044.41	551199.11	N 32 9 17.20 W 104 18 5.28	
	16900.00	90.50	270.57	8538.90	8519.65	-89.62	-8520.96	0.00	420045.40	551099.13	N 32 9 17.21 W 104 18 6.44	
	17000.00	90.50	270.57	8538.03	8619.64	-88.63	-8620.95	0.00	420046.39	550999.15	N 32 9 17.22 W 104 18 7.61	
	17100.00	90.50	270.57	8537.15	8719.64	-87.64	-8720.94	0.00	420047.38	550899.17	N 32 9 17.23 W 104 18 8.77	
	17200.00	90.50	270.57	8536.28	8819.64	-86.65	-8820.93	0.00	420048.37	550799.19	N 32 9 17.24 W 104 18 9.93	

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 ° ' ")
	17300.00	90.50	270.57	8535.40	8919.63	-85.66	-8920.92	0.00	420049.36	550699.20	N 32 9 17.25 W 104 18 11.10	
	17400.00	90.50	270.57	8534.53	9019.63	-84.66	-9020.91	0.00	420050.35	550599.22	N 32 9 17.26 W 104 18 12.26	
	17500.00	90.50	270.57	8533.66	9119.63	-83.67	-9120.90	0.00	420051.34	550499.24	N 32 9 17.27 W 104 18 13.42	
	17600.00	90.50	270.57	8532.78	9219.62	-82.68	-9220.89	0.00	420052.34	550399.26	N 32 9 17.28 W 104 18 14.59	
	17700.00	90.50	270.57	8531.91	9319.62	-81.69	-9320.89	0.00	420053.33	550299.28	N 32 9 17.29 W 104 18 15.75	
	17800.00	90.50	270.57	8531.03	9419.61	-80.70	-9420.88	0.00	420054.32	550199.29	N 32 9 17.30 W 104 18 16.91	
	17900.00	90.50	270.57	8530.16	9519.61	-79.71	-9520.87	0.00	420055.31	550099.31	N 32 9 17.31 W 104 18 18.07	
	18000.00	90.50	270.57	8529.28	9619.61	-78.72	-9620.86	0.00	420056.30	549999.33	N 32 9 17.32 W 104 18 19.24	
Cimarex Ringer 3-4 Federal Com 2H - PBHL [1040' FSL, 330' FWL]	18032.20	90.50	270.57	8529.00	9651.80	-78.40	-9653.05	0.00	420056.62	549967.14	N 32 9 17.32 W 104 18 19.61	

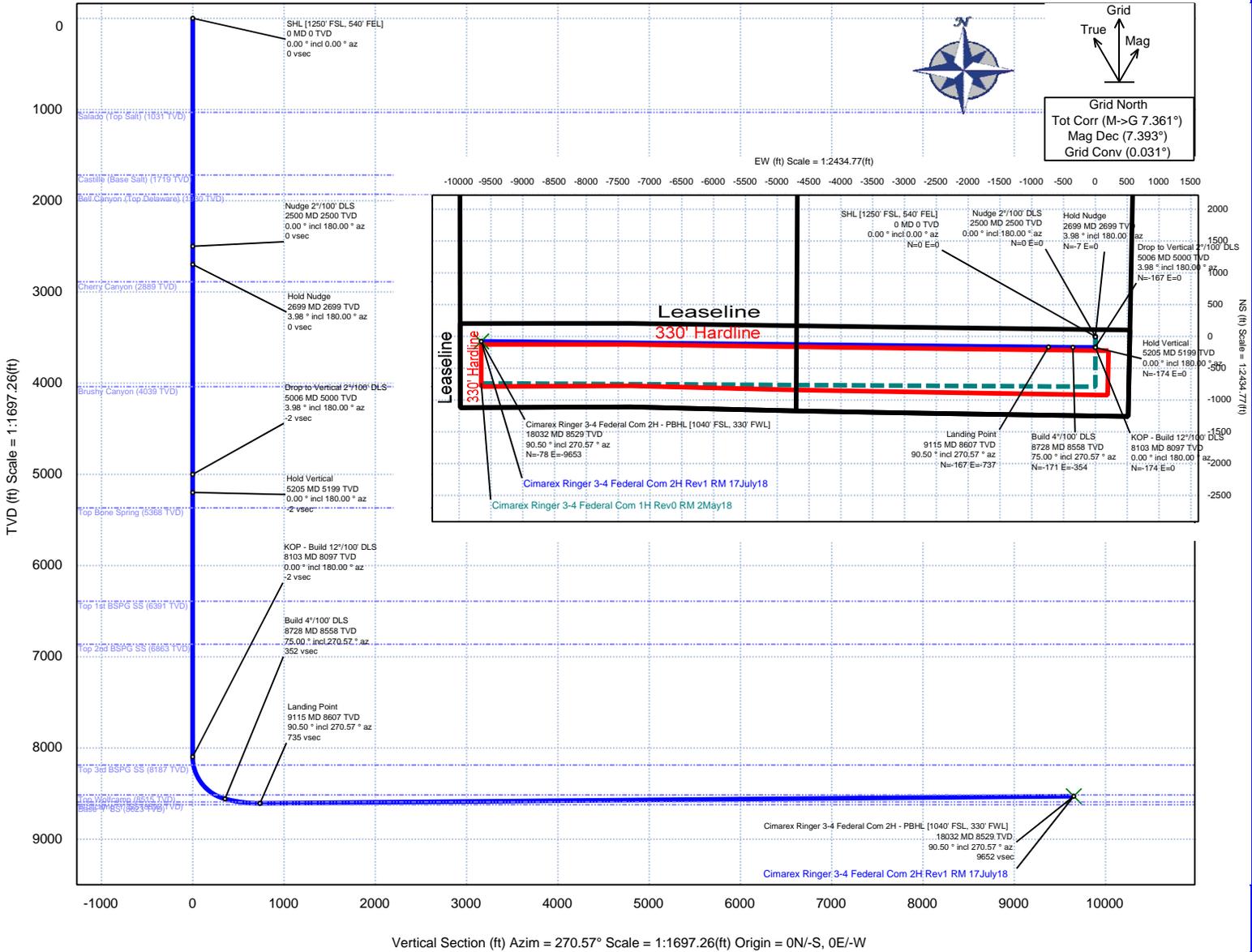
Survey Type: Non-Def Plan

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	Ringer 3-4 Federal Com 2H / Cimarex Ringer 3-4 Federal Com 2H Rev1 RM 17July18
	1	26.000	18032.196	1/100.000	30.000	30.000		NAL_MWD_IFR1+MS	Ringer 3-4 Federal Com 2H / Cimarex Ringer 3-4 Federal Com

Borehole: Ringer 3-4 Federal Com 2H	Well: Ringer 3-4 Federal Com 2H	Field: NM Eddy County (NAD 83)	Structure: Cimarex Ringer 3-4 Federal Com 2H
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Gravity & Magnetic Parameters				Surface Location NAD83 New Mexico State Plane, Eastern Zone, US Feet				Miscellaneous			
Model: HDGM 2018	Dip: 59.826°	Date: 18-Jul-2018	Gravity FS: 998.436mgn (8.80665 Based)	Lat: N 32 9 18.06	Northing: 420135.01ftUS	Grid Conv: 0.0314°	Scale Fact: 0.9990947	Slot: New Slot	TVD Ref: RKB(3374.8ft above MSL)	Plan: Cimarex Ringer 3-4 Federal Com 2H Rev1 RM 17July18	



Critical Points								
Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)	DLS
SHL [1250' FSL, 540' FEL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Salado (Top Salt)	1031.00	0.00	180.00	1031.00	0.00	0.00	0.00	0.00
Castille (Base Salt)	1719.00	0.00	180.00	1719.00	0.00	0.00	0.00	0.00
Bell Canyon (Top Delaware)	1930.00	0.00	180.00	1930.00	0.00	0.00	0.00	0.00
Nudge 2°/100' DLS	2500.00	0.00	180.00	2500.00	0.00	0.00	0.00	0.00
Hold Nudge	2699.20	3.98	180.00	2699.04	-0.07	-6.92	0.00	2.00
Cherry Canyon	2889.62	3.98	180.00	2889.00	-0.20	-20.15	0.00	0.00
Brushy Canyon	4042.41	3.98	180.00	4039.00	-0.99	-100.25	0.00	0.00
Drop to Vertical 2°/100' DLS	5005.73	3.98	180.00	5000.00	-1.66	-167.18	0.00	0.00
Hold Vertical	5204.93	0.00	180.00	5199.04	-1.73	-174.10	0.00	2.00
Top Bone Spring	5373.89	0.00	180.00	5368.00	-1.73	-174.10	0.00	0.00
Top 1st BSPG SS	6396.89	0.00	180.00	6391.00	-1.73	-174.10	0.00	0.00
Top 2nd BSPG SS	6868.89	0.00	180.00	6863.00	-1.73	-174.10	0.00	0.00
KOP - Build 12°/100' DLS	8102.95	0.00	180.00	8097.05	-1.73	-174.10	0.00	0.00
Top 3rd BSPG SS	8193.44	10.86	270.57	8187.00	6.82	-174.01	-8.55	12.00
Top Wolfcamp	8612.00	61.09	270.57	8515.00	244.89	-171.65	-246.60	12.00
Build 4°/100' DLS	8727.95	75.00	270.57	8558.25	352.16	-170.59	-353.87	12.00
Wolfcamp Y SS	8895.09	81.69	270.57	8592.00	515.76	-168.97	-517.47	4.00
Landing Point	9115.48	90.50	270.57	8607.00	735.42	-166.79	-737.11	4.00
Wolfcamp Y SS	10830.23	90.50	270.57	8592.00	2450.11	-149.79	-2451.71	0.00
Cimarex Ringer 3-4 Federal Com 2H - PBHL [1040' FSL, 330' FWL]	18032.20	90.50	270.57	8529.00	9651.80	-78.40	-9653.05	0.00
Base Y SS	NaN			8623.00				

Cimarex Ringer 3-4 Federal Com 2H Rev1 RM 17July18 Anti-Collision Summary Report

Analysis Date-24hr Time: July 18, 2018 - 08:58
Client: Cimarex Energy
Field: NM Eddy County (NAD 83)
Structure: Cimarex Ringer 3-4 Federal Com 2H
Slot: New Slot
Well: Ringer 3-4 Federal Com 2H
Borehole: Ringer 3-4 Federal Com 2H
Scan MD Range: 0.00ft ~ 18032.20ft

Analysis Method: 3D Least Distance
Reference Trajectory: Cimarex Ringer 3-4 Federal Com 2H Rev1 RM 17July18 (Non-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 Eddy 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: Restricted within 59042.69 ft
 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 Ringer 3-4 Federal Com 1H Rev0 RM 2May18 (Non-Def Plan)

Warning Alert

20.01	16.50	17.51	3.50	N/A	MAS = 5.03 (m)	0.00	0.00	CtCt<=15m<15.00	Enter Alert
20.01	16.50	17.50	3.50	4146.85	MAS = 5.03 (m)	26.00	26.00		WRP
20.01	16.50	8.53	3.50	1.95	MAS = 5.03 (m)	1490.00	1490.00		MinPts
20.03	16.50	8.47	3.53	1.93	MAS = 5.03 (m)	1510.00	1510.00		MINPT-O-EOU
20.09	16.50	8.50	3.58	1.93	MAS = 5.03 (m)	1520.00	1520.00		MinPt-O-SF
49.25	16.85	37.19	32.41	4.89	OSF1.50	1910.00	1910.00	OSF>5.00	Exit Alert
331.42	20.54	316.90	310.89	27.36	OSF1.50	5190.00	5184.11		MinPt-O-SF
333.46	20.65	318.86	312.81	27.35	OSF1.50	5204.93	5199.04		MinPt-O-SF
593.77	36.23	568.79	557.55	26.30	OSF1.50	7080.00	7074.11		MinPt-O-SF
616.67	35.75	592.00	580.92	27.71	OSF1.50	7450.00	7444.11		MinPts
616.67	35.13	592.42	581.54	28.23	OSF1.50	8102.95	8097.05		MinPts
616.71	35.23	592.39	581.48	28.15	OSF1.50	8200.00	8193.44		MinPts
636.24	192.98	506.76	443.26	4.99	OSF1.50	12750.00	8575.21	OSF<5.00	Enter Alert
659.91	420.69	378.62	239.22	2.36	OSF1.50	18032.20	8529.00		MinPts

1. Geological Formations

TVD of target 8,529
MD at TD 18,032

Pilot Hole TD N/A
Deepest expected fresh water

Formation	Depth (TVD) from KB	Water/Mineral Bearing/Target Zone	Hazards
Salado (Top Salt)	1031	N/A	
Castille (Base Salt)	1719	N/A	
Bell Canyon (Top Delaware)	1930	Hydrocarbons	
Cherry Canyon	2889	Hydrocarbons	
Brushy Canyon	4039	Hydrocarbons	
Top Bonespring	5368	N/A	
Top 1st BSPG SS	6391	N/A	
Top 2nd BSPG SS	6893	N/A	
Top 3rd BSPG SS	8187	N/A	
Top Wolfcamp	8515	N/A	
Wolfcamp Target	8607	N/A	

2. Casing Program

Hole Size	Casing Depth From	Casing Depth To	Casing Size	Weight (lb/ft)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
17 1/2	0	460	13-3/8"	48.00	H-40/J-55 Hybrid	ST&C	3.52	8.22	14.58
12 1/4	0	1910	9-5/8"	36.00	J-55	LT&C	1.99	3.47	6.59
8 3/4	0	8102	7"	26.00	L-80	LT&C	1.43	1.91	2.30
8 3/4	8102	9115	7"	26.00	N-80	BT&C	1.36	1.81	54.40
6	8102	18032	4-1/2"	11.60	P-110	BT&C	1.63	2.30	74.09
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., Ringer 3-4 Fed Com 2H

	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.	N
Is premium or uncommon casing planned? If yes attach casing specification sheet.	Y
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	# Sk	Wt. lb/gal	Yld ft3/sack	H2O gal/sk	500# Comp. Strength (hours)	Slurry Description
Surface	124	14.80	1.34	6.32	9.5	Lead: Class C + LCM
	195	14.80	1.34	6.32	9.5	Tail: Class C + LCM
Intermediate	360	12.90	1.88	9.65	12	Lead: 35:65 (Poz:C) + Salt + Bentonite
	112	14.80	1.34	6.32	9.5	Tail: Class C + LCM
Production	329	10.30	3.64	22.18		Lead: Tuned Light + LCM
	130	14.20	1.30	5.86	14:30	Tail: 50:50 (Poz:H) + Salt + Bentonite + Fluid Loss + Dispersant + SMS
Completion System	648	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	34
Intermediate	0	50
Production	1710	23
Completion System	9115	10

4. Pressure Control Equipment

	A variance is requested for the use of a diverter on the surface casing. See attached for schematic.
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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	X	
			Pipe Ram	X	
			Double Ram		
			Other		
8 3/4	13 5/8	3M	Annular	X	50% of working pressure
			Blind Ram		
			Pipe Ram		
			Double Ram		
			Other		
6	13 5/8	5M	Annular	X	50% of working pressure
			Blind Ram		
			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.

X	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 460'	FW Spud Mud	8.30 - 8.80	30-32	N/C
460' to 1910'	Brine Water	9.70 - 10.20	30-32	N/C
1910' to 9115'	FW/Cut Brine	8.50 - 9.00	30-32	N/C
9115' to 18032'	Oil Based Mud	10.00 - 10.50	50-70	N/C

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

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

7. Drilling Conditions

Condition	
BH Pressure at deepest TVD	4656 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 5000 psi will be installed on the wellhead system and will be pressure tested to 250 psi low followed by a 5000 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 5000 psi.

A solid steel body pack-off will be utilized after running and cementing the production casing. After installation the pack-off and lower flange will be pressure tested to 5000 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.

