

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

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

5. Lease Serial No.
NMNM113944

6. If Indian, Allottee or Tribe Name

7. If Unit or CA Agreement, Name and No.

8. Lease Name and Well No.
COTTONWOOD 28-33 FED COM 2 6H ⁸³

9. API Well No.
30-015-44649

10. Field and Pool, or Exploratory
WELCH / BONE SPRING (OIL)

11. Sec., T. R. M. or Blk. and Survey or Area
SEC 21 / T26S / R26E / NMP

1a. Type of work: DRILL REENTER

1b. Type of Well: Oil Well Gas Well Other Single Zone Multiple Zone

2. Name of Operator
CHISHOLM ENERGY OPERATING LLC

3a. Address
801 Cherry St., Suite 1200 Unit 20 Fort Worth

3b. Phone No. (include area code)
(817)469-1104

4. Location of Well (Report location clearly and in accordance with any State requirements.)
At surface LOT P / 100 FSL / 1005 FEL / LAT 32.0207576 / LONG -104.2925184
At proposed prod. zone LOT 1 / 330 FSL / 1450 FEL / LAT 32.0009938 / LONG -104.2937953

14. Distance in miles and direction from nearest town or post office*
12 miles

12. County or Parish
EDDY

13. State
NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)
100 feet

16. No. of acres in lease
1581.51

17. Spacing Unit dedicated to this well
223.97

18. Distance from proposed location* to nearest well, drilling, completed, 60 feet applied for, on this lease, ft.

19. Proposed Depth
7165 feet / 14254 feet

20. BLM/BIA Bond No. on file
FED: NMB001468

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
3384 feet

22. Approximate date work will start*
-03/15/2018

23. Estimated duration
30 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No.1, must be attached to this form:

- | | |
|--|---|
| 1. Well plat certified by a registered surveyor. | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan. | 5. Operator certification |
| 3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office). | 6. Such other site specific information and/or plans as may be required by the BLM. |

25. Signature (Electronic Submission)	Name (Printed/Typed) Jennifer Elrod / Ph: (817)953-3728	Date 09/15/2017
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Title
Senior Regulatory Technician

Approved by (Signature) (Electronic Submission)	Name (Printed/Typed) Cody Layton / Ph: (575)234-5959	Date 01/29/2018
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Title
Supervisor Multiple Resources

Office
CARLSBAD

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

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

(Continued on page 2)

*(Instructions on page 2)

APPROVED WITH CONDITIONS
Approval Date: 01/29/2018

NM OIL CONSERVATION
ARTESIA DISTRICT
FEB 01 2018

RECEIVED

RW 2-2-2018

320688



**Carlsbad Field
OCD Artesia**

U.S. Department of the Interior
Bureau of Land Management

Application for Permit to Drill

APD Package Report

Date Printed: 01/29/2018 03:54 PM

APD ID: 10400021459	Well Status: AAPD
APD Received Date: 09/15/2017 08:31 AM	Well Name: COTTONWOOD 28-33 FED C
Operator: CHISHOLM ENERGY OPERATING I	Well Number: 6H

APD Package Report Contents

- Form 3160-3
- Operator Certification Report
- Application Report
- Application Attachments
 - Well Plat: 1 file(s)
- Drilling Plan Report
- Drilling Plan Attachments
 - Blowout Prevention Choke Diagram Attachment: 1 file(s)
 - Blowout Prevention BOP Diagram Attachment: 1 file(s)
 - Casing Design Assumptions and Worksheet(s): 3 file(s)
 - Proposed horizontal/directional/multi-lateral plan submission: 1 file(s)
- SUPO Report
- SUPO Attachments
 - Existing Road Map: 1 file(s)
 - Attach Well map: 1 file(s)
 - Water source and transportation map: 1 file(s)
 - Well Site Layout Diagram: 1 file(s)
 - Other SUPO Attachment: 2 file(s)
- PWD Report
- PWD Attachments
 - None
- Bond Report
- Bond Attachments
 - None

**NM OIL CONSERVATION
ARTESIA DISTRICT**

FEB 01 2018

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**PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL**

OPERATOR'S NAME:	CHISHOLM ENERGY OPERATING LLC
LEASE NO.:	NMNM113944
WELL NAME & NO.:	COTTONWOOD 28-33 FED COM 2BS-6H
SURFACE HOLE FOOTAGE:	100'/S & 1005'/E
BOTTOM HOLE FOOTAGE:	330'/S & 1450'/E
LOCATION:	Section 21, T.26 S, R. 26 E., 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 checked="" type="radio"/> Multibowl	<input type="radio"/> Both
Other	<input type="checkbox"/> 4 String Area	<input type="checkbox"/> Capitan Reef	<input type="checkbox"/> WIPP

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 420 feet (a minimum of 25 feet 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)

Review and Appeal Rights

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

- 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 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 **5-1/2** inch production casing is:
- Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification. **Additional cement may be required. Excess calculates to 2%.**

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. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M)** psi.

GENERAL REQUIREMENTS

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

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

Eddy County

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

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
 - a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after

installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).

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

A. CASING

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

details regarding lead cement slurry requirements. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.

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

B. PRESSURE CONTROL

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

4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:
 - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
 - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
 - c. Manufacturer representative shall install the test plug for the initial BOP test.
 - d. 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.

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. The results of the test shall be reported to the appropriate BLM office.
 - 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.

Lead

50% Poz+50% Class H+10% Gel+0.6% SMS+0.5% O-TX20+5% SALT+0.75-GAL/100-SX CF-4IL

Volume (sx)	325	169 (bbls)
Density (ppg)	11.30	
Weight (cf/sx)	2.92	
Water (gps)	17.51	
Volume of Cement (ft)	4350	
Loss (%)	15%	

Approval Date: 01/29/2015

**PECOS DISTRICT
SURFACE USE
CONDITIONS OF APPROVAL**

Operator: Chisholm Energy Operating LLC
Wells: COTTONWOOD 28-33 FED 2BS 5H
COTTONWOOD 28-33 FED 2BS 6H
COTTONWOOD 28-33 FED COM 2BS 7H

Cave and Karst Conditions of Approval for APDs

** Depending on location, additional Drilling, Casing, and Cementing procedures may be required by engineering to protect critical karst groundwater recharge areas.

Cave/Karst Surface Mitigation

The following stipulations will be applied to minimize impacts during construction, drilling and production.

Construction:

In the advent that any underground voids are opened up during construction activities, construction activities will be halted and the BLM will be notified immediately.

No Blasting:

No blasting will be utilized for pad construction. The pad will be constructed and leveled by adding the necessary fill and caliche.

Pad Berming:

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. (Any access road crossing the berm cannot be lower than the berm height.)

Tank Battery Liners and Berms:

Tank battery locations and all facilities will be lined and bermed. A 20 mil permanent liner will be installed with 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 or 24 hour production.

Leak Detection System:

A method of detecting leaks is required. The method could incorporate gauges to measure loss, situating values and lines so they can be visually inspected, or installing electronic sensors to alarm when a leak is present. Leak detection plan will be submitted to BLM for approval.

Automatic Shut-off Systems:

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.

Cave/Karst Subsurface Mitigation

The following stipulations will be applied to protect cave/karst and ground water concerns:

Rotary Drilling with Fresh Water:

Fresh water will be used as a circulating medium in zones where caves or karst features are expected. SEE ALSO: Drilling COAs for this well.

Directional Drilling:

Kick off for directional drilling will occur at least 100 feet below the bottom of the cave occurrence zone. SEE ALSO: Drilling COAs for this well.

Lost Circulation:

ALL lost circulation zones from the surface to the base of the cave occurrence zone will be logged and reported in the drilling report.

Regardless of the type of drilling machinery used, if a void of four feet or more and circulation losses greater than 70 percent occur simultaneously while drilling in any cave-bearing zone, the BLM will be notified immediately by the operator. The BLM will assess the situation and work with the operator on corrective actions to resolve the problem.

Abandonment Cementing:

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.

Pressure Testing:

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

PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Nearburg Producing Co
LEASE NO.:	NM113944
WELL NAME & NO.:	4H-Cottonwood 29 32 Federal Com
SURFACE HOLE FOOTAGE:	150'/N & 1320'/E
BOTTOM HOLE FOOTAGE:	330'/S & 660'/E, sec. 32
LOCATION:	Section 29, T. 26 S., R.26 E., NMPM
COUNTY:	Eddy County, New Mexico

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**
 - Avian Power line Protection
 - Cave/Karst
 - Watershed
- Communitization Agreement
- Construction**
 - Notification
 - Topsoil
 - Closed Loop System
 - Federal Mineral Material Pits
 - Well Pads
 - Roads
- Road Section Diagram**
- Drilling**
 - Cement Requirements
 - Critical Cave/Karst
 - Logging Requirements
 - Waste Material and Fluids
- 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 and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator 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 shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

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.

V. SPECIAL REQUIREMENT(S)

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 power line structures placed on this right-of-way, should they be necessary to ensure the safety of large perching birds. The holder without liability or expense shall make such modifications and/or additions to the United States.

Range

1. Where entry is granted across a fence line, the fence must be braced and tied off on both sides of the passageway with H-braces prior to cutting. The operator shall notify the grazing allotment holder prior to crossing the fence or installing a cattleguard.
2. Surface flowlines shall be buried under all intersecting routes and roads. All buried crossings will be filled, compacted and reclaimed when the pipelines are removed.
3. When crossing a fence, surface flowlines will be laid under the bottom wire.
4. The company or contractors shall have in their immediate possession a copy of the approved APD while building well locations or installing pipelines and powerlines.

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:

1. In the event that any underground voids are encountered during construction activities, construction activities will be halted and the BLM will be notified immediately.
2. No Blasting is allowed to prevent geologic structure instabilities.
3. Pads shall be bermed to minimize effects of any spilled contaminates.
4. Pad 29-32 East will be fenced on the north side to ensure construction equipment does not impact karst resources near the pad.
5. Pad 29-32 West will be fenced. This fence will continue along the north side of the road/powerline/pipeline route for 500 feet east of the pad to ensure equipment does not impact karst resources near the pad. 2. Fencing will be required on the south side of the road/powerline/pipeline for 100 feet east and 100 feet west of the karst feature located at 564623.223, 3542894.286 in order to prevent impacts to a karst feature south of the road/powerline/pipeline. Fencing will be required on the north and south side of the road/powerline/pipeline for 100 feet east and 100 feet

west of the karst feature located near 564811.739, 3542908.838 to prevent impacts to karst features located north and south of the road/powerline/pipeline.

6. A monitor will be required during construction of the access road.
7. The total utility corridor width shall be 50 feet wide for the road, pipelines and powerline.
8. The road will be the northern most feature in the corridor, with the buried and surface pipelines adjacent to the road. The powerline shall be the southern most feature in the utility corridor.
9. To prevent any spills from leaving the pads, a two foot berm shall be built inside the fence on each pad.
10. Straw wattles shall be placed completely around the disturbed areas of all pads and along all fences to reduce erosion in this sensitive karst area.
11. Drainage turnouts shall have straw wattles installed.
12. Drainage turnouts along the access road shall not lead to sinkholes.

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.

1. Closed Mud System Using Steel Tanks with All Fluids and Cuttings Hauled Off.
2. Rotary drilling with fresh water where cave or karst features are expected to prevent contamination of freshwater aquifers.
3. Directional Drilling allowed after at least 100 feet below the cave occurrence zone to prevent additional impacts resulting from directional drilling.
4. Lost Circulation zones logged and reported in the drilling report so BLM can assess the situation and work with the operator on corrective actions.
5. 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 terrain, the following Conditions of Approval will apply to this APD:

1. Tank battery liners and berms to minimize the impact resulting from leaks.
2. Leak detection system to provide an early alert to operators when a leak has occurred.
3. Automatic shut off, check valves, or similar systems will be installed for pipelines and tanks to minimize the effects of line failures used in production or drilling.

Residual and Cumulative Mitigation

1. Annual pressure monitoring will be performed by the operator. If the test results indicate a casing failure has occurred, remedial action will be undertaken to correct the problem to the BLM's approval.

Plugging and Abandonment Mitigation

Abandonment Cementing:

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.

Watershed

1. The proposed routes for both the powerline and surface flowlines will not be bladed.
2. Containment berms will be constructed around both tank battery production facilities designed to hold fluids. The containment berms will be constructed with compacted material capable of holding 1½ time the capacity of the largest tank.
3. Topsoil will be stockpiled on the pads to enhance future reclamation.
4. A closed loop drilling system will be used.
5. To prevent any spills from leaving the pads, a two foot berm shall be built inside the fence on each pad.
6. Straw wattles shall be placed completely around the disturbed areas of all pads and along all fences to reduce erosion in this sensitive karst area.
7. Drainage turnouts shall have straw wattles installed.
8. Drainage turnouts along the access road shall not lead to sinkholes.

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.

VI. CONSTRUCTION

A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the 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 .

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.

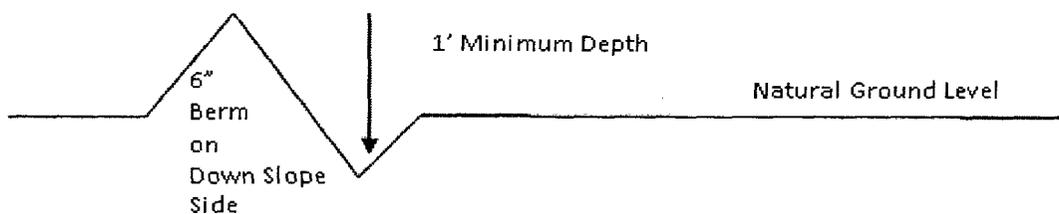
Turnouts

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, leadoff 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 %);

Cattleguards

An appropriately sized cattleguard sufficient to carry out the project shall be installed and maintained at fence/road crossings. Any existing cattleguards 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 cattleguards 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.

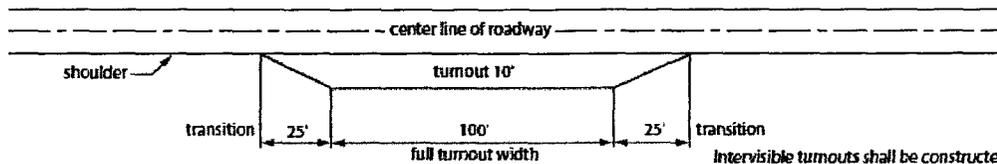
Public Access

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

Construction Steps

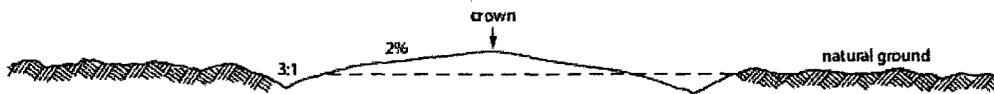
1. Salvage topsoil
2. Construct road

3. Redistribute topsoil
4. Revegetate slopes

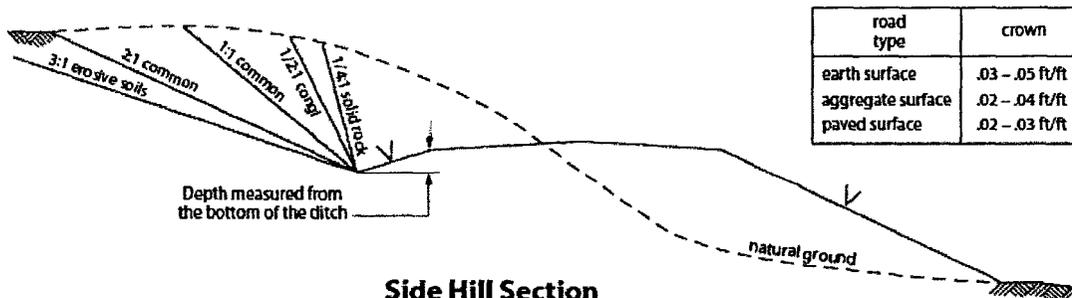


Typical Turnout Plan

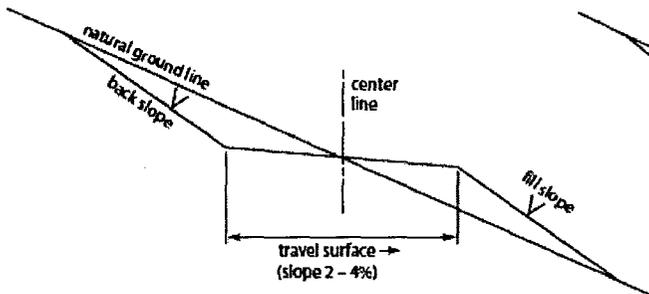
Intervisible turnouts shall be constructed on all single lane roads on all blind curves with additional turnouts as needed to keep spacing below 1000 feet.



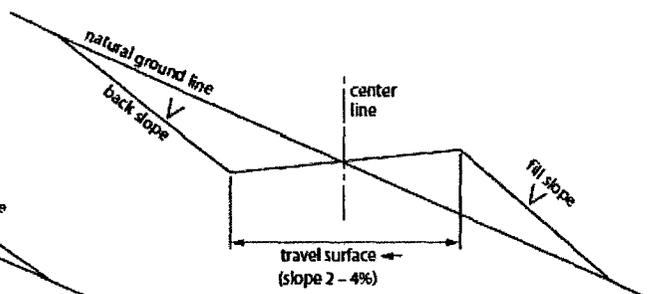
Level Ground Section



Side Hill Section



Typical Outsloped Section



Typical Insloped Section

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

VII. VII.

DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

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

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

Eddy County

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

1. **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.**
2. 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. **If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a “Major” violation.**
3. 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 is located, this does not include the dog house or stairway area.
4. **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.**

B. CASING

Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size. 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.).

Centralizers required on surface casing per Onshore Order 2.III.B.1.f.

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.

No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

Possibility of water flows in the Salado and Castile.

Possibility of lost circulation in the Salado, Castile and Delaware.

HIGH CAVE/KARST

A MINIMUM OF TWO CASING STRINGS CEMENTED TO SURFACE IS REQUIRED IN HIGH CAVE/KARST AREAS. THE CEMENT MUST BE IN A SOLID SHEATH. THEREFORE, ONE INCH OPERATIONS ARE NOT SUFFICIENT TO PROTECT CAVE KARST RESOURCES. A CASING DESIGN THAT HAS A ONE INCH JOB PERFORMED DOES NOT COUNT AS A SOLID SHEATH. ON A THREE STRING DESIGN; IF THE PRIMARY CEMENT JOB ON THE SURFACE CASING DOES NOT CIRCULATE, THEN THE NEXT TWO CASING STRINGS MUST BE CEMENTED TO SURFACE.

1. The 13-3/8 inch surface casing shall be set at approximately 420 feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface. **If salt is encountered, set casing at least 25 feet above the salt.**
 - 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 is to include the lead cement slurry.**
 - 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 is: **(Ensure casing is set in the base of the Castille or the Lamar at approximately 1600')**

- 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.**

Pilot hole plugging approved. A plug is required at the bottom and must be tagged. The second plug must be set across the top of the Wolfcamp formation and must be tagged. Contact BLM at least 4 hours prior to tag.

3. The minimum required fill of cement behind the 5-1/2 inch production casing is:

- a. First stage to DV tool: ____

- Cement to circulate. If cement does not circulate, contact the appropriate BLM office before proceeding with second stage cement job. Operator should have plans as to how they will achieve circulation on the next stage.

- b. Second stage above DV tool:

- Cement to surface. If cement does not circulate, contact the appropriate BLM office. **Excess calculates to negative 13% - Additional cement will be required.**

4. 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.

C. 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. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be psi.
3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the 9-5/8 intermediate casing shoe shall be psi.

5M 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. The appropriate BLM office shall be notified a minimum of 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. 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 (18 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).
 - c. 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.
 - d. The results of the test shall be reported to the appropriate BLM office.
 - e. 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.**
 - f. 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.

D. DRILL STEM TEST

If drill stem tests are performed, Onshore Order 2.III.D shall be followed.

E. 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.

CRW 032816

VIII. 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 enclosure 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 Enclosures

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 enclosure 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

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 20 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 of 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 24 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 and/or paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the authorized officer. 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 cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the authorized officer after consulting with the holder.

16. 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.

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

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.

- seed mixture 1 seed mixture 3
 seed mixture 2 seed mixture 4
 seed mixture 2/LPC 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 and/or paleontological resources (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the Authorized Officer. 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 proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

17. 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.

18. 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.

C. ELECTRIC LINES

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 and/or paleontological resource (historic or prehistoric site or object)

discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the Authorized Officer. 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 proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

11. Special Stipulations:

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

IX. 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).

X. 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).

Seed Mixture 4, for Gypsum Sites

The 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 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>)	1.0
DWS Four-wing saltbush (<i>Atriplex canescens</i>)	5.0

DWS: DeWinged Seed

*Pounds of pure live seed:

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



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

Operator Certification Data Report

01/29/2018

Operator Certification

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

NAME: Jennifer Elrod

Signed on: 09/07/2017

Title: Senior Regulatory Technician

Street Address: 801 CHERRY STREET, SUITE 1200-UNIT 20

City: Fort Worth

State: TX

Zip: 76102

Phone: (817)953-3728

Email address: jelrod@chisholmenergy.com

Field Representative

Representative Name: JENNIFER ELROD

Street Address: 801 CHERRY ST. SUITE 1200-UNIT 20

City: FORT WORTH

State: TX

Zip: 76102

Phone: (817)953-3728

Email address: jelrod@chisholmenergy.com



APD ID: 10400021459

Submission Date: 09/15/2017

Highlighted data reflects the most recent changes

Operator Name: CHISHOLM ENERGY OPERATING LLC

Well Name: COTTONWOOD 28-33 FED COM 2BS

Well Number: 6H

[Show Final Text](#)

Well Type: OIL WELL

Well Work Type: Drill

Section 1 - General

APD ID: 10400021459

Tie to previous NOS? 10400015650

Submission Date: 09/15/2017

BLM Office: CARLSBAD

User: Jennifer Elrod

Title: Senior Regulatory Technician

Federal/Indian APD: FED

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

Lease number: NMNM113944

Lease Acres: 1581.51

Surface access agreement in place?

Allotted?

Reservation:

Agreement in place? NO

Federal or Indian agreement:

Agreement number:

Agreement name:

Keep application confidential? NO

Permitting Agent? YES

APD Operator: CHISHOLM ENERGY OPERATING LLC

Operator letter of designation:

Operator Info

Operator Organization Name: CHISHOLM ENERGY OPERATING LLC

Operator Address: 801 Cherry St., Suite 1200 Unit 20

Zip: 76102

Operator PO Box:

Operator City: Fort Worth

State: TX

Operator Phone: (817)469-1104

Operator Internet Address:

Section 2 - Well Information

Well in Master Development Plan? NO

Mater Development Plan name:

Well in Master SUPO? EXISTING

Master SUPO name: Cottonwood SUPO #1

Well in Master Drilling Plan? EXISTING

Master Drilling Plan name: Cottonwood Drilling Plan 2BS

Well Name: COTTONWOOD 28-33 FED COM 2BS

Well Number: 6H

Well API Number:

Field/Pool or Exploratory? Field and Pool

Field Name: WELCH

Pool Name: BONE SPRING (OIL)

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

Operator Name: CHISHOLM ENERGY OPERATING LLC

Well Name: COTTONWOOD 28-33 FED COM 2BS

Well Number: 6H

Describe other minerals:

Is the proposed well in a Helium production area? N Use Existing Well Pad? YES New surface disturbance? N

Type of Well Pad: MULTIPLE WELL

Multiple Well Pad Name:
COTTONWOOD 28-33 FED
COM 2BS

Number: 5H&6H

Well Class: HORIZONTAL

Number of Legs: 1

Well Work Type: Drill

Well Type: OIL WELL

Describe Well Type:

Well sub-Type: INFILL

Describe sub-type:

Distance to town: 12 Miles

Distance to nearest well: 60 FT

Distance to lease line: 100 FT

Reservoir well spacing assigned acres Measurement: 223.97 Acres

Well plat: COTTONWOOD_28_33_FED_2BS_6H_REVISD_C102_SHL_LP_BHL_11302017_20180108142745.p
df

Well work start Date: 03/15/2018

Duration: 30 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83

Vertical Datum: NAVD88

Survey number: 7977

	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD
SHL Leg #1	100	FSL	100 5	FEL	26S	26E	21	Lot P	32.02075 76	- 104.2925 184	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 113944	338 4	0	0
KOP Leg #1	100	FSL	970	FEL	26S	26E	21	Lot P	32.02075 76	- 104.2925 184	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 113944	- 311 5	649 9	649 9
PPP Leg #1	330	FNL	145 0	FEL	26S	26E	28	Lot A	32.01957 58	- 104.2939 447	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 113944	- 378 1	754 2	716 5

Operator Name: CHISHOLM ENERGY OPERATING LLC

Well Name: COTTONWOOD 28-33 FED COM 2BS

Well Number: 6H

	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD
EXIT Leg #1	330	FSL	145 0	FEL	26S	26E	33	Lot 1	32.00099 38	- 104.2937 953	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 121472	- 378 1	142 54	716 5
BHL Leg #1	330	FSL	145 0	FEL	26S	26E	33	Lot 1	32.00099 38	- 104.2937 953	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 121472	- 378 1	142 54	716 5

Operator Name: CHISHOLM ENERGY OPERATING LLC

Well Name: COTTONWOOD 28-33 FED COM 2BS

Well Number: 6H

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	API	N	0	420	0	420	-3781	-4201	420	J-55	54.5	STC	3.85	9	BUOY	18.45	BUOY	31
2	INTERMEDIATE	12.25	9.625	NEW	API	N	0	1600	0	1600	-3781	-5381	1600	J-55	36	LTC	3.57	4.15	BUOY	9.32	BUOY	11.6
3	PRODUCTION	8.75	5.5	NEW	API	N	0	14254	0	7165	-3781	-10916	14254	P-110	17	BUTT	2.11	3.01	BUOY	5.46	BUOY	5.24

Casing Attachments

Casing ID: 1 String Type: SURFACE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Casing_Calculator_20170905101611.pdf

Operator Name: CHISHOLM ENERGY OPERATING LLC

Well Name: COTTONWOOD 28-33 FED COM 2BS

Well Number: 6H

Casing Attachments

Casing ID: 2 String Type: INTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Casing_Calculator_20170905101603.pdf

Casing ID: 3 String Type: PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Casing_Calculator_20170905101544.pdf

Section 4 - Cement

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	420	484	1.32	14.8	730	150	Class C Premium Plus	6.31 gal/sk of Mix Water. No other additives

INTERMEDIATE	Lead		0	1280	328	2.52	12	804.9	150	Class C Premium Plus	Sodium Metasilicate, Sodium Chloride, Defoamer Powder
INTERMEDIATE	Tail		1280	1600	100	1.33	14.8	100.2	0	Class C Premium Plus	Calcium Chloride

Operator Name: CHISHOLM ENERGY OPERATING LLC

Well Name: COTTONWOOD 28-33 FED COM 2BS

Well Number: 6H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
PRODUCTION	Lead		0	6100	446	3.87	10.5	1727	15	Featherweight Blend2	Bentonite, Compressive Strength Enhancer, Silica Fume Alternative, Fluid Loss Additive, Defoamer, Sodium Metasilicate, Retarder
PRODUCTION	Tail		6100	14254	2060	1.15	15.8	2369	15	Class H Premium	Fluid Loss Additive, Suspension Agent, Retarder, Defoamer, Dispersant

Section 5 - Circulating Medium

Mud System Type: Closed

Will an air or gas system be Used? NO

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

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

Describe what will be on location to control well or mitigate other conditions: Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times

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

Circulating Medium Table

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
0	420	WATER-BASED MUD	8.4	8.6							
420	1600	SALT SATURATED	9.8	10.1							
1600	7165	OTHER : Cut Brine	8.6	9.2							

Operator Name: CHISHOLM ENERGY OPERATING LLC

Well Name: COTTONWOOD 28-33 FED COM 2BS

Well Number: 6H

Section 6 - Test, Logging, Coring

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

N/A

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

CBL,DS,GR,MWD,MICROLO

Coring operation description for the well:

N/A

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 3583

Anticipated Surface Pressure: 2006.7

Anticipated Bottom Hole Temperature(F): 160

Anticipated abnormal pressures, temperatures, or potential geologic hazards? NO

Describe:

Contingency Plans geohazards description:

Contingency Plans geohazards attachment:

Hydrogen Sulfide drilling operations plan required? NO

Hydrogen sulfide drilling operations plan:

Section 8 - Other Information

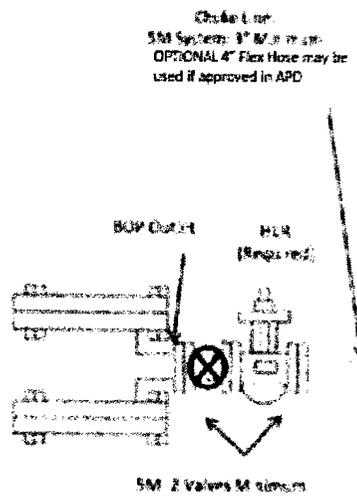
Proposed horizontal/directional/multi-lateral plan submission:

Cottonwood_28_33_Fed_Com_2BS_6H___Permitting_Directional_Plan_20170905114455.pdf

Other proposed operations facets description:

Other proposed operations facets attachment:

Other Variance attachment:



**Drilling Operations
 Choke Manifold
 SM Service**

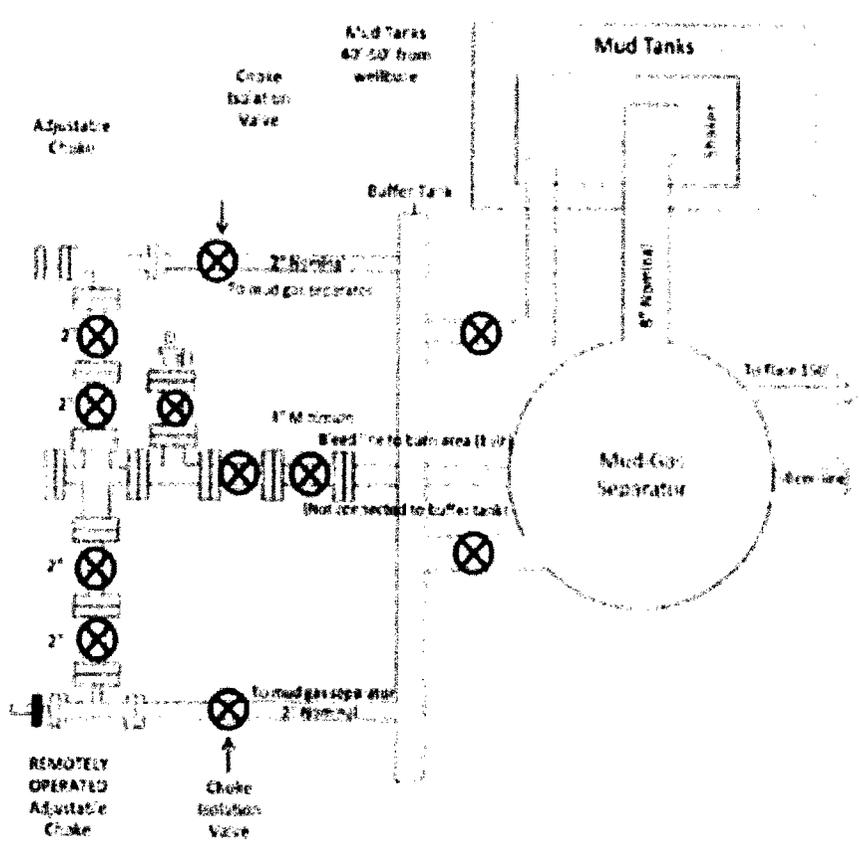
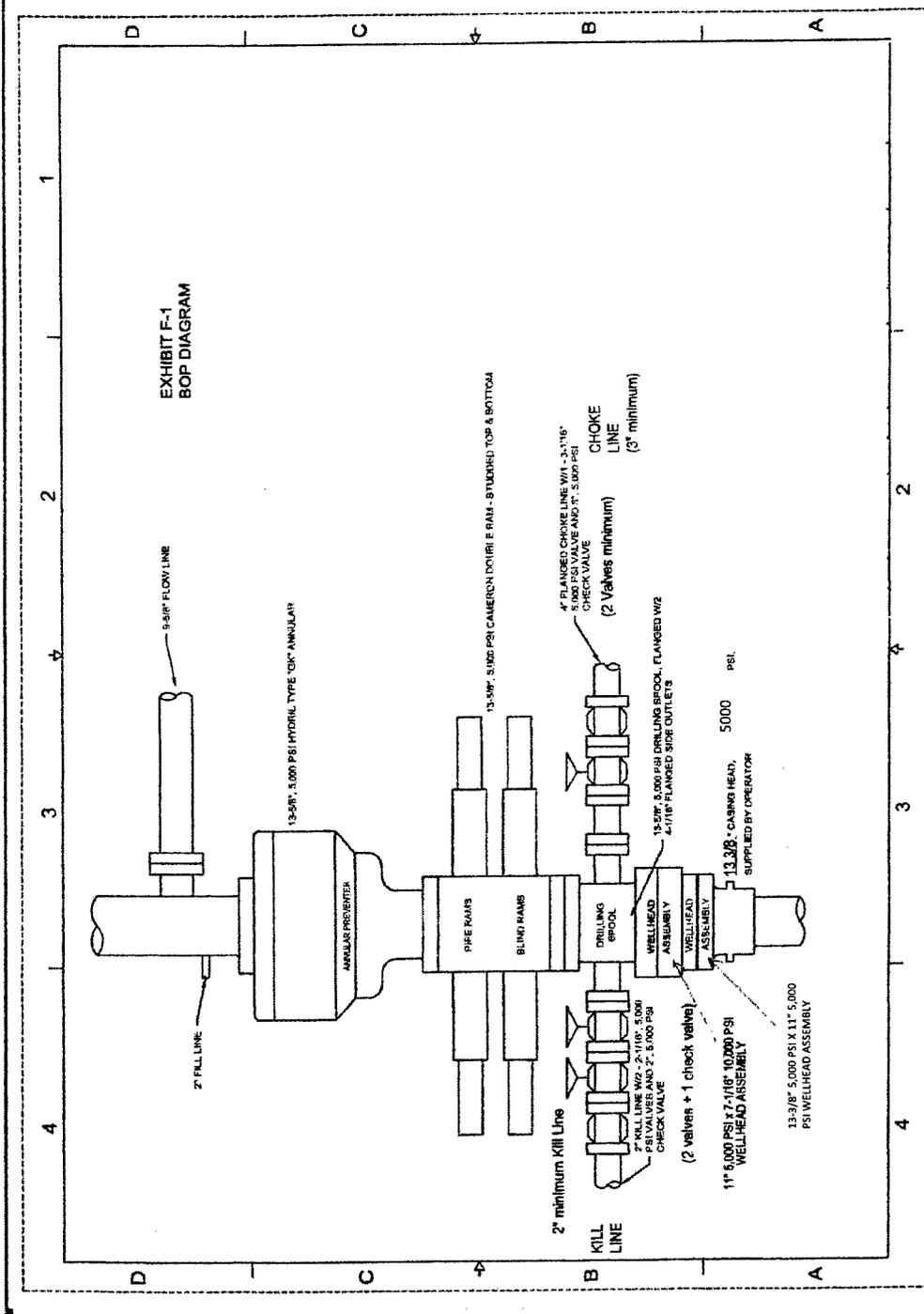


EXHIBIT F-1
BOP DIAGRAM



Casing Program: Cottonwood 1BS/2BS/3BS/UWC (13 3/8" x 9 5/8" x 5 1/2")

Open Hole Size (Inches)	Casing Depth; From (ft)	Casing Setting Depth (ft) MD	Casing Setting Depth (ft) TVD	Casing Size (inches)	Casing Weight (lb/ft)	Casing Grade	Thread	Condition	Anticipated Mud Weight (ppg)	Burst (psi)	Burst SF (1.125)	Collapse (psi)	Collapse SF (1.125)	Pipe Body Tension (klbs)	Joint Tension (klbs)	Air Weight (lbs)	Bouyant Weight (lbs)	Pipe Body Tension SF (1.8)	Joint Tension SF (1.8)	
Surface																				
17.5"	0'	420'	420'	13 3/8"	48.0	H-40	STC	New	8.8	1730	9.00	740	3.85	541,000	322,000	20,160	17,449	31.00	18.45	
Intermediate																				
12.25"	0'	1,600'	1,600'	9 5/8"	36	J-55	LTC	New	10.2	3520	4.15	2020	3.57	564,000	453,000	57,600	48,622	11.60	9.32	
Production																				
8.75"	0'	14,254'	7,165'	5 1/2"	17	P-110	BTC	New	9.5	10640	3.01	7480	2.11	546,000	568,000	121,805	104,122	5.24	5.46	

Casing Design Criteria and Casing Loading Assumptions:

Surface	<p>Tension A 1.8 design factor with effects of buoyancy with a fluid equal to a mud weight of: 8.8 ppg</p> <p>Collapse A 1.125 design factor with full internal evacuation and collapse force equal to a mud gradient of: 8.8 ppg</p> <p>Burst A 1.125 design factor with full external evacuation and burst force equal to a mud gradient of: 8.8 ppg</p>
Intermediate	<p>Tension A 1.8 design factor with effects of buoyancy with a fluid equal to a mud weight of: 10.2 ppg</p> <p>Collapse A 1.125 design factor with 1/3 TVD internal evacuation and collapse force equal to a mud gradient of: 10.2 ppg</p> <p>Burst A 1.125 design factor with full external evacuation and burst force equal to a mud gradient of: 10.2 ppg</p>
Production	<p>Tension A 1.8 design factor with effects of buoyancy with a fluid equal to a mud weight of: 9.5 ppg</p> <p>Collapse A 1.125 design factor with full internal evacuation and collapse force equal to a mud gradient of: 9.5 ppg</p> <p>Burst A 1.125 design factor with full external evacuation and burst force equal to a mud gradient of: 9.5 ppg</p>

Casing Program: Cottonwood 1BS/2BS/3BS/UWC (13 3/8" x 9 5/8" x 5 1/2")

Open Hole Size (inches)	Casing Depth; From (ft)	Casing Setting Depth (ft) MD	Casing Setting Depth (ft) TVD	Casing Weight (lb/ft)	Casing Grade	Thread	Condition	Anticipated Mud Weight (ppg)	Burst (psi)	Burst SF (1.125)	Collapse (psi)	Collapse SF (1.125)	Pipe Body Tension (klbs)	Joint Tension (klbs)	Air Weight (lbs)	Bouyant Weight (lbs)	Pipe Body Tension SF (1.8)	Joint Tension SF (1.8)		
Surface	17.5"	0'	420'	420'	13 3/8"	48.0	H-40	STC	New	8.8	1730	9.00	740	3.85	541,000	322,000	20,160	17,449	31.00	18.45
Intermediate	12.25"	0'	1,600'	1,600'	9 5/8"	36	J-55	LTC	New	10.2	3520	4.15	2020	3.57	564,000	453,000	57,600	48,622	11.60	9.32
Production	8.75"	0'	14,254'	7,165'	5 1/2"	17	P-110	BTC	New	9.5	10640	3.01	7480	2.11	546,000	568,000	121,805	104,122	5.24	5.46

Casing Design Criteria and Casing Loading Assumptions:

Surface

- Tension A 1.8 design factor with effects of buoyancy with a fluid equal to a mud weight of: 8.8 ppg
- Collapse A 1.125 design factor with full internal evacuation and collapse force equal to a mud gradient of: 8.8 ppg
- Burst A 1.125 design factor with full external evacuation and burst force equal to a mud gradient of: 8.8 ppg

Intermediate

- Tension A 1.8 design factor with effects of buoyancy with a fluid equal to a mud weight of: 10.2 ppg
- Collapse A 1.125 design factor with 1/3 TVD internal evacuation and collapse force equal to a mud gradient of: 10.2 ppg
- Burst A 1.125 design factor with full external evacuation and burst force equal to a mud gradient of: 10.2 ppg

Production

- Tension A 1.8 design factor with effects of buoyancy with a fluid equal to a mud weight of: 9.5 ppg
- Collapse A 1.125 design factor with full internal evacuation and collapse force equal to a mud gradient of: 9.5 ppg
- Burst A 1.125 design factor with full external evacuation and burst force equal to a mud gradient of: 9.5 ppg

Casing Program: Cottonwood 1BS/2BS/3BS/UJWC (13 3/8" x 9 5/8" x 5 1/2")

Open Hole Size (Inches)	Casing Depth; From (ft)	Casing Setting Depth (ft) MD	Casing Setting Depth (ft) TVD	Casing Size (inches)	Casing Weight (lb/ft)	Casing Grade	Thread	Condition	Anticipated Mud Weight (ppg)	Burst (psi)	Burst SF (1.125)	Collapse (psi)	Collapse SF (1.125)	Pipe Body Tension (klbs)	Joint Tension (klbs)	Air Weight (lbs)	Bouyant Weight (lbs)	Pipe Body Tension SF (1.8)	Joint Tension SF (1.8)	
Surface																				
17.5"	0'	420'	420'	13 3/8"	48.0	H-40	STC	New	8.8	1730	9.00	740	3.85	541,000	322,000	20,160	17,449	31.00	18.45	
Intermediate																				
12.25"	0'	1,600'	1,600'	9 5/8"	36	J-55	LTC	New	10.2	3520	4.15	2020	3.57	564,000	453,000	57,600	48,622	11.60	9.32	
Production																				
8.75"	0'	14,254'	7,165'	5 1/2"	17	P-110	BTC	New	9.5	10640	3.01	7480	2.11	546,000	568,000	121,805	104,122	5.24	5.46	

Casing Design Criteria and Casing Loading Assumptions:

Surface	<p>Tension A 1.8 design factor with effects of buoyancy with a fluid equal to a mud weight of: 8.8 ppg</p> <p>Collapse A 1.125 design factor with full internal evacuation and collapse force equal to a mud gradient of: 8.8 ppg</p> <p>Burst A 1.125 design factor with full external evacuation and burst force equal to a mud gradient of: 8.8 ppg</p>
Intermediate	<p>Tension A 1.8 design factor with effects of buoyancy with a fluid equal to a mud weight of: 10.2 ppg</p> <p>Collapse A 1.125 design factor with 1/3 TVD internal evacuation and collapse force equal to a mud gradient of: 10.2 ppg</p> <p>Burst A 1.125 design factor with full external evacuation and burst force equal to a mud gradient of: 10.2 ppg</p>
Production	<p>Tension A 1.8 design factor with effects of buoyancy with a fluid equal to a mud weight of: 9.5 ppg</p> <p>Collapse A 1.125 design factor with full internal evacuation and collapse force equal to a mud gradient of: 9.5 ppg</p> <p>Burst A 1.125 design factor with full external evacuation and burst force equal to a mud gradient of: 9.5 ppg</p>

Chisholm Energy Holdings, LLC
 Project: Eddy County, NM (NAD83)
 Site: Sec 21, T 26 S, R 26 E
 Well: Cottonwood 28-33 Fed Com 2BS 6H
 Wellbore: Wellbore #1
 Plan: Plan#1 (Cottonwood 28-33 Fed Com 2BS 6H/Wellbore #1)
 Nabors M55

WELL DETAILS: Cottonwood 28-33 Fed Com 2BS 6H
 Ground Elevation: 3384.00
 RKB Elevation: KB=22' @ 3406.00ft (Nabors M55)
 Rig Name: Nabors M55

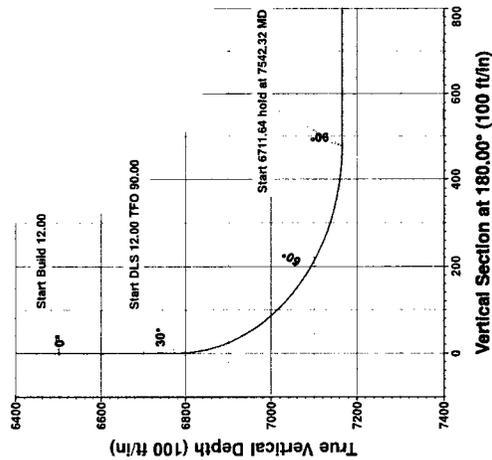
Northing 371291.6000 Easting 554021.8000
 Longitude -104.292405

PROJECT DETAILS: Eddy County, NM (NAD83)
 Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: New Mexico Eastern Zone
 System Datum: Mean Sea Level
 Local North: Grid

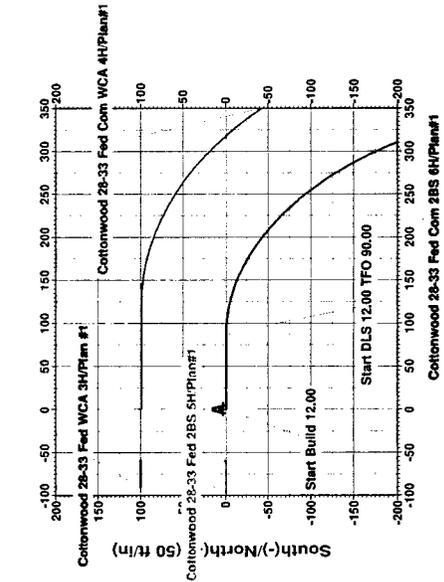


Planned Section Details

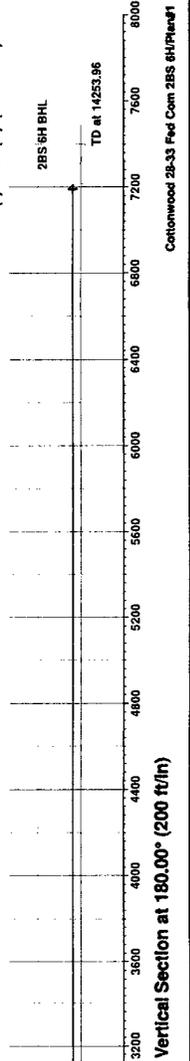
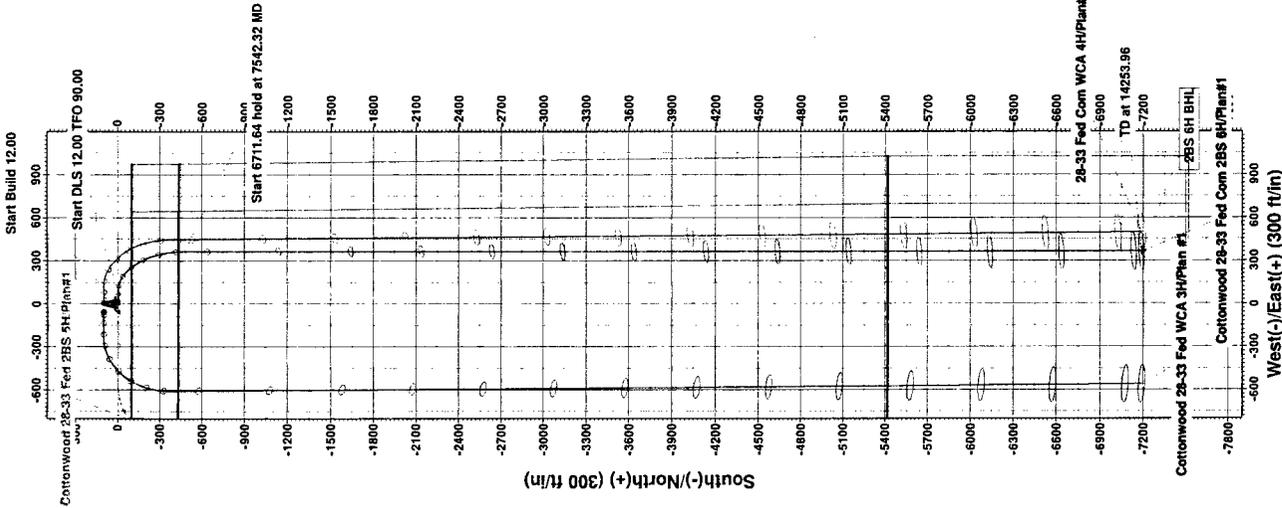
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Start Build 12.00
6499.81	0.00	0.00	6499.81	0.00	0.00	0.00	0.00	0.00	Start DLS 12.00 TFO 90.00
6792.31	35.10	90.00	6774.36	0.00	86.83	12.00	90.00	0.00	Start 6711.64 hold at 7542.32 MD
7542.32	90.00	180.00	7165.00	-477.48	361.36	12.00	90.00	477.48	TD at 14253.96
14253.96	90.00	180.00	7165.00	-7189.11	361.10	0.00	0.00	7189.11	



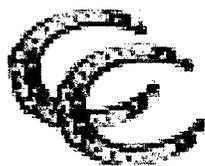
Vertical Section at 180.00° (100 ft/in)



90.00 Deg INC
 7165.00 TVD at 0 VS



Vertical Section at 180.00° (200 ft/in)



**CHISHOLM
ENERGY**

Chisholm Energy Holdings, LLC

Eddy County, NM (NAD83)

Sec 21, T 26 S, R 26 E

Cottonwood 28-33 Fed Com 2BS 6H

Wellbore #1

Plan: Plan#1

Standard Survey Report

01 September, 2017





Company:	Chisholm Energy Holdings, LLC	Local Co-ordinate Reference:	Well Cottonwood 28-33 Fed Com 2BS 6H
Project:	Eddy County, NM (NAD83)	TVD Reference:	KB=22' @ 3406.00ft (Nabors M55)
Site:	Sec 21, T 26 S, R 26 E	MD Reference:	KB=22' @ 3406.00ft (Nabors M55)
Well:	Cottonwood 28-33 Fed Com 2BS 6H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Plan#1	Database:	EDM 5000.1 Multi User Db

Project	Eddy County, NM (NAD83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Sec 21, T 26 S, R 26 E		
Site Position:	Northing:	371,391.7000 usft	Latitude: 32.021029
From: Map	Easting:	553,962.2000 usft	Longitude: -104.292598
Position Uncertainty:	0.00 ft	Slot Radius: 13-3/16 "	Grid Convergence: 0.02 °

Well	Cottonwood 28-33 Fed Com 2BS 6H		
Well Position	+N/-S	0.00 ft	Northing: 371,291.6000 usft
	+E/-W	0.00 ft	Easting: 554,021.8000 usft
Position Uncertainty	0.00 ft	Wellhead Elevation:	0.00 ft
		Latitude:	32.020754
		Longitude:	-104.292406
		Ground Level:	3,384.00 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	9/1/2017	7.47	59.65	47,901

Design	Plan#1				
Audit Notes:					
Version:	Phase:	PLAN	Tie On Depth:	0.00	
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	180.00
	0.00	0.00	0.00		

Survey Tool Program	Date	9/1/2017			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.00	14,253.95	Plan#1 (Wellbore #1)	MWD	MWD - Standard	

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00	
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00	
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00	
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00	



Integrity Directional Services, LLC

Survey Report



Company: Chisholm Energy Holdings, LLC	Local Co-ordinate Reference: Well Cottonwood 28-33 Fed Com 2BS 6H
Project: Eddy County, NM (NAD83)	TVD Reference: KB=22' @ 3406.00ft (Nabors M55)
Site: Sec 21, T 26 S, R 26 E	MD Reference: KB=22' @ 3406.00ft (Nabors M55)
Well: Cottonwood 28-33 Fed Com 2BS 6H	North Reference: Grid
Wellbore: Wellbore #1	Survey Calculation Method: Minimum Curvature
Design: Plan#1	Database: EDM 5000.1 Multi User Db

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,900.00	0.00	0.00	0.00	0.00	0.00	0.00
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,200.00	0.00	0.00	0.00	0.00	0.00	0.00
5,300.00	0.00	0.00	5,300.00	0.00	0.00	0.00	0.00	0.00	0.00



CHISHOLM ENERGY

Integrity Directional Services, LLC
Survey Report

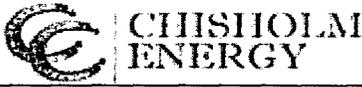


Company: Chisholm Energy Holdings, LLC
Project: Eddy County, NM (NAD83)
Site: Sec 21, T 26 S, R 26 E
Well: Cottonwood 28-33 Fed Com 2BS 6H
Wellbore: Wellbore #1
Design: Plan#1

Local Co-ordinate Reference: Well Cottonwood 28-33 Fed Com 2BS 6H
TVD Reference: KB=22' @ 3406.00ft (Nabors M55)
MD Reference: KB=22' @ 3406.00ft (Nabors M55)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Multi User Db

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,400.00	0.00	0.00	5,400.00	0.00	0.00	0.00	0.00	0.00	0.00
5,500.00	0.00	0.00	5,500.00	0.00	0.00	0.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,600.00	0.00	0.00	0.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,700.00	0.00	0.00	0.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,800.00	0.00	0.00	0.00	0.00	0.00	0.00
5,900.00	0.00	0.00	5,900.00	0.00	0.00	0.00	0.00	0.00	0.00
6,000.00	0.00	0.00	6,000.00	0.00	0.00	0.00	0.00	0.00	0.00
6,100.00	0.00	0.00	6,100.00	0.00	0.00	0.00	0.00	0.00	0.00
6,200.00	0.00	0.00	6,200.00	0.00	0.00	0.00	0.00	0.00	0.00
6,300.00	0.00	0.00	6,300.00	0.00	0.00	0.00	0.00	0.00	0.00
6,400.00	0.00	0.00	6,400.00	0.00	0.00	0.00	0.00	0.00	0.00
6,499.81	0.00	0.00	6,499.81	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 12.00									
6,500.00	0.00	90.00	6,500.00	0.00	0.00	0.00	0.00	0.00	0.00
6,600.00	12.02	90.00	6,599.27	0.00	10.47	0.00	12.02	12.02	0.00
6,700.00	24.02	90.00	6,694.19	0.00	41.36	0.00	12.00	12.00	0.00
6,792.31	35.10	90.00	6,774.36	0.00	86.83	0.00	12.00	12.00	0.00
Start DLS 12.00 TFO 90.00									
6,800.00	35.11	91.60	6,780.65	-0.06	91.25	0.06	12.00	0.14	20.87
6,900.00	37.11	111.75	6,861.72	-12.09	148.23	12.09	12.00	2.00	20.15
7,000.00	42.10	128.94	6,938.97	-44.46	202.52	44.46	12.00	4.99	17.19
7,100.00	49.15	142.58	7,009.03	-95.76	251.75	95.76	12.00	7.05	13.64
7,200.00	57.48	153.38	7,068.83	-163.73	293.78	163.73	12.00	8.33	10.80
7,300.00	66.57	162.27	7,115.76	-245.42	326.76	245.42	12.00	9.09	8.89
7,400.00	76.10	169.98	7,147.78	-337.25	349.26	337.25	12.00	9.53	7.71
7,500.00	85.85	177.08	7,163.47	-435.21	360.28	435.21	12.00	9.75	7.09
7,542.32	90.00	180.00	7,165.00	-477.48	361.36	477.48	12.00	9.81	6.91
Start 6711.64 hold at 7542.32 MD									
7,600.00	90.00	180.00	7,165.00	-535.15	361.36	535.15	0.00	0.00	0.00
7,700.00	90.00	180.00	7,165.00	-635.15	361.35	635.15	0.00	0.00	0.00
7,800.00	90.00	180.00	7,165.00	-735.15	361.35	735.15	0.00	0.00	0.00
7,900.00	90.00	180.00	7,165.00	-835.15	361.35	835.15	0.00	0.00	0.00
8,000.00	90.00	180.00	7,165.00	-935.15	361.34	935.15	0.00	0.00	0.00
8,100.00	90.00	180.00	7,165.00	-1,035.15	361.34	1,035.15	0.00	0.00	0.00
8,200.00	90.00	180.00	7,165.00	-1,135.15	361.33	1,135.15	0.00	0.00	0.00
8,300.00	90.00	180.00	7,165.00	-1,235.15	361.33	1,235.15	0.00	0.00	0.00
8,400.00	90.00	180.00	7,165.00	-1,335.15	361.33	1,335.15	0.00	0.00	0.00
8,500.00	90.00	180.00	7,165.00	-1,435.15	361.32	1,435.15	0.00	0.00	0.00
8,600.00	90.00	180.00	7,165.00	-1,535.15	361.32	1,535.15	0.00	0.00	0.00
8,700.00	90.00	180.00	7,165.00	-1,635.15	361.32	1,635.15	0.00	0.00	0.00
8,800.00	90.00	180.00	7,165.00	-1,735.15	361.31	1,735.15	0.00	0.00	0.00
8,900.00	90.00	180.00	7,165.00	-1,835.15	361.31	1,835.15	0.00	0.00	0.00
9,000.00	90.00	180.00	7,165.00	-1,935.15	361.30	1,935.15	0.00	0.00	0.00
9,100.00	90.00	180.00	7,165.00	-2,035.15	361.30	2,035.15	0.00	0.00	0.00



Integrity Directional Services, LLC
Survey Report



Company: Chisholm Energy Holdings, LLC	Local Co-ordinate Reference: Well Cottonwood 28-33 Fed Com 2BS 6H
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Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,200.00	90.00	180.00	7,165.00	-2,135.15	361.30	2,135.15	0.00	0.00	0.00
9,300.00	90.00	180.00	7,165.00	-2,235.15	361.29	2,235.15	0.00	0.00	0.00
9,400.00	90.00	180.00	7,165.00	-2,335.15	361.29	2,335.15	0.00	0.00	0.00
9,500.00	90.00	180.00	7,165.00	-2,435.15	361.28	2,435.15	0.00	0.00	0.00
9,600.00	90.00	180.00	7,165.00	-2,535.15	361.28	2,535.15	0.00	0.00	0.00
9,700.00	90.00	180.00	7,165.00	-2,635.15	361.28	2,635.15	0.00	0.00	0.00
9,800.00	90.00	180.00	7,165.00	-2,735.15	361.27	2,735.15	0.00	0.00	0.00
9,900.00	90.00	180.00	7,165.00	-2,835.15	361.27	2,835.15	0.00	0.00	0.00
10,000.00	90.00	180.00	7,165.00	-2,935.15	361.27	2,935.15	0.00	0.00	0.00
10,100.00	90.00	180.00	7,165.00	-3,035.15	361.26	3,035.15	0.00	0.00	0.00
10,200.00	90.00	180.00	7,165.00	-3,135.15	361.26	3,135.15	0.00	0.00	0.00
10,300.00	90.00	180.00	7,165.00	-3,235.15	361.25	3,235.15	0.00	0.00	0.00
10,400.00	90.00	180.00	7,165.00	-3,335.15	361.25	3,335.15	0.00	0.00	0.00
10,500.00	90.00	180.00	7,165.00	-3,435.15	361.25	3,435.15	0.00	0.00	0.00
10,600.00	90.00	180.00	7,165.00	-3,535.15	361.24	3,535.15	0.00	0.00	0.00
10,700.00	90.00	180.00	7,165.00	-3,635.15	361.24	3,635.15	0.00	0.00	0.00
10,800.00	90.00	180.00	7,165.00	-3,735.15	361.23	3,735.15	0.00	0.00	0.00
10,900.00	90.00	180.00	7,165.00	-3,835.15	361.23	3,835.15	0.00	0.00	0.00
11,000.00	90.00	180.00	7,165.00	-3,935.15	361.23	3,935.15	0.00	0.00	0.00
11,100.00	90.00	180.00	7,165.00	-4,035.15	361.22	4,035.15	0.00	0.00	0.00
11,200.00	90.00	180.00	7,165.00	-4,135.15	361.22	4,135.15	0.00	0.00	0.00
11,300.00	90.00	180.00	7,165.00	-4,235.15	361.21	4,235.15	0.00	0.00	0.00
11,400.00	90.00	180.00	7,165.00	-4,335.15	361.21	4,335.15	0.00	0.00	0.00
11,500.00	90.00	180.00	7,165.00	-4,435.15	361.21	4,435.15	0.00	0.00	0.00
11,600.00	90.00	180.00	7,165.00	-4,535.15	361.20	4,535.15	0.00	0.00	0.00
11,700.00	90.00	180.00	7,165.00	-4,635.15	361.20	4,635.15	0.00	0.00	0.00
11,800.00	90.00	180.00	7,165.00	-4,735.15	361.20	4,735.15	0.00	0.00	0.00
11,900.00	90.00	180.00	7,165.00	-4,835.15	361.19	4,835.15	0.00	0.00	0.00
12,000.00	90.00	180.00	7,165.00	-4,935.15	361.19	4,935.15	0.00	0.00	0.00
12,100.00	90.00	180.00	7,165.00	-5,035.15	361.18	5,035.15	0.00	0.00	0.00
12,200.00	90.00	180.00	7,165.00	-5,135.15	361.18	5,135.15	0.00	0.00	0.00
12,300.00	90.00	180.00	7,165.00	-5,235.15	361.18	5,235.15	0.00	0.00	0.00
12,400.00	90.00	180.00	7,165.00	-5,335.15	361.17	5,335.15	0.00	0.00	0.00
12,500.00	90.00	180.00	7,165.00	-5,435.15	361.17	5,435.15	0.00	0.00	0.00
12,600.00	90.00	180.00	7,165.00	-5,535.15	361.16	5,535.15	0.00	0.00	0.00
12,700.00	90.00	180.00	7,165.00	-5,635.15	361.16	5,635.15	0.00	0.00	0.00
12,800.00	90.00	180.00	7,165.00	-5,735.15	361.16	5,735.15	0.00	0.00	0.00
12,900.00	90.00	180.00	7,165.00	-5,835.15	361.15	5,835.15	0.00	0.00	0.00
13,000.00	90.00	180.00	7,165.00	-5,935.15	361.15	5,935.15	0.00	0.00	0.00
13,100.00	90.00	180.00	7,165.00	-6,035.15	361.15	6,035.15	0.00	0.00	0.00
13,200.00	90.00	180.00	7,165.00	-6,135.15	361.14	6,135.15	0.00	0.00	0.00
13,300.00	90.00	180.00	7,165.00	-6,235.15	361.14	6,235.15	0.00	0.00	0.00
13,400.00	90.00	180.00	7,165.00	-6,335.15	361.13	6,335.15	0.00	0.00	0.00



Company:	Chisholm Energy Holdings, LLC	Local Co-ordinate Reference:	Well Cottonwood 28-33 Fed Com 2BS 6H
Project:	Eddy County, NM (NAD83)	TVD Reference:	KB=22' @ 3406.00ft (Nabors M55)
Site:	Sec 21, T 26 S, R 26 E	MD Reference:	KB=22' @ 3406.00ft (Nabors M55)
Well:	Cottonwood 28-33 Fed Com 2BS 6H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Plan#1	Database:	EDM 5000.1 Multi User Db

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
13,500.00	90.00	180.00	7,165.00	-6,435.15	361.13	6,435.15	0.00	0.00	0.00
13,600.00	90.00	180.00	7,165.00	-6,535.15	361.13	6,535.15	0.00	0.00	0.00
13,700.00	90.00	180.00	7,165.00	-6,635.15	361.12	6,635.15	0.00	0.00	0.00
13,800.00	90.00	180.00	7,165.00	-6,735.15	361.12	6,735.15	0.00	0.00	0.00
13,900.00	90.00	180.00	7,165.00	-6,835.15	361.11	6,835.15	0.00	0.00	0.00
14,000.00	90.00	180.00	7,165.00	-6,935.15	361.11	6,935.15	0.00	0.00	0.00
14,100.00	90.00	180.00	7,165.00	-7,035.15	361.11	7,035.15	0.00	0.00	0.00
14,200.00	90.00	180.00	7,165.00	-7,135.15	361.10	7,135.15	0.00	0.00	0.00
14,253.96	90.00	180.00	7,165.00	-7,189.11	361.10	7,189.11	0.00	0.00	0.00

TD at 14253.96 - 2BS 6H BHL

Design Targets

Target Name

- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
2BS 6H BHL	0.00	0.01	7,165.00	-7,189.11	361.10	364,102.5000	554,382.9000	32.000991	-104.291250
- plan hits target center									
- Point									

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
6500	6500	0	0	Start Build 12.00
6792	6774	0	-87	Start DLS 12.00 TFO 90.00
7542	7165	-477	361	Start 6711.64 hold at 7542.32 MD
14,254	7165	-7189	361	TD at 14253.96

Checked By: _____ Approved By: _____ Date: _____



APD ID: 10400021459

Submission Date: 09/15/2017

Highlighted data reflects the most recent changes

Operator Name: CHISHOLM ENERGY OPERATING LLC

Well Name: COTTONWOOD 28-33 FED COM 2BS

Well Number: 6H

[Show Final Text](#)

Well Type: OIL WELL

Well Work Type: Drill

Section 1 - Existing Roads

Will existing roads be used? YES

Existing Road Map:

COTTONWOOD_28_33_FED_COM_2BS_6H_EXISTING_ROADS_20170905123758.pdf

Existing Road Purpose: ACCESS,FLUID TRANSPORT

Row(s) Exist? YES

ROW ID(s)

ID: 134601

Do the existing roads need to be improved? NO

Existing Road Improvement Description:

Existing Road Improvement Attachment:

Section 2 - New or Reconstructed Access Roads

Will new roads be needed? NO

Section 3 - Location of Existing Wells

Existing Wells Map? YES

Attach Well map:

COTTONWOOD_28_33_FED_COM_2BS_6H_MILE_RADIUS_MAP_20170905124126.pdf

Operator Name: CHISHOLM ENERGY OPERATING LLC

Well Name: COTTONWOOD 28-33 FED COM 2BS

Well Number: 6H

Existing Wells description:

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

Submit or defer a Proposed Production Facilities plan? DEFER

Estimated Production Facilities description: If the well is productive, the anticipated facility will consist of a tank battery constructed in accordance with API standards, a flow line will be installed in accordance to the API standards and laid to a 3 phase separator, lines will then be laid from the separator to the tank battery.

Section 5 - Location and Types of Water Supply

Water Source Table

Water source use type: INTERMEDIATE/PRODUCTION CASING, STIMULATION, SURFACE CASING

Water source type: GW WELL

Describe type:

Source latitude:

Source longitude:

Source datum:

Water source permit type: WATER WELL

Source land ownership: PRIVATE

Water source transport method: PIPELINE

Source transportation land ownership: PRIVATE

Water source volume (barrels): 140000

Source volume (acre-feet): 18.045033

Source volume (gal): 5880000

Water source and transportation map:

COTTONWOOD_28_33_FED_COM_2BS_6H_LOCATION_MAP_20170905125756.pdf

Water source comments: Water will be utilized from a private owner via pipeline to location

New water well? NO

New Water Well Info

Well latitude:

Well Longitude:

Well datum:

Well target aquifer:

Est. depth to top of aquifer(ft):

Est thickness of aquifer:

Aquifer comments:

Aquifer documentation:

Well depth (ft):

Well casing type:

Operator Name: CHISHOLM ENERGY OPERATING LLC

Well Name: COTTONWOOD 28-33 FED COM 2BS

Well Number: 6H

Well casing outside diameter (in.):

Well casing inside diameter (in.):

New water well casing?

Used casing source:

Drilling method:

Drill material:

Grout material:

Grout depth:

Casing length (ft.):

Casing top depth (ft.):

Well Production type:

Completion Method:

Water well additional information:

State appropriation permit:

Additional information attachment:

Section 6 - Construction Materials

Construction Materials description:

Construction Materials source location attachment:

Section 7 - Methods for Handling Waste

Waste type: DRILLING

Waste content description: Drilling Fluids

Amount of waste: 6000 barrels

Waste disposal frequency : Daily

Safe containment description: Steel tanks

Safe containmant attachment:

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

Disposal type description:

Disposal location description: Trucked to approved disposal facility. Estimated 6000 bbls total

Waste type: FLOWBACK

Waste content description: Flowback Water

Amount of waste: 25000 barrels

Waste disposal frequency : Daily

Safe containment description: Steel frac tanks

Safe containmant attachment:

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

Disposal type description:

Disposal location description: Haul to approved SWD facility.

Operator Name: CHISHOLM ENERGY OPERATING LLC

Well Name: COTTONWOOD 28-33 FED COM 2BS

Well Number: 6H

Waste type: DRILLING

Waste content description: Cuttings

Amount of waste: 2000 barrels

Waste disposal frequency : Daily

Safe containment description: Steel bins, roll-offs

Safe containmant attachment:

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

Disposal type description:

Disposal location description: Truck to an approved disposal facility

Waste type: GARBAGE

Waste content description: Trash and debris

Amount of waste: 200 pounds

Waste disposal frequency : Weekly

Safe containment description: Roll-off bin with netted top

Safe containmant attachment:

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

Disposal type description:

Disposal location description: Truck to commercial waste facility

Waste type: SEWAGE

Waste content description: Human Waste

Amount of waste: 2000 gallons

Waste disposal frequency : Weekly

Safe containment description: Waste will be properly contained and disposed of at a state approve disposal facility

Safe containmant attachment:

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

Disposal type description:

Disposal location description: Haul to a commercial disposal facility

Reserve Pit

Reserve Pit being used? NO

Temporary disposal of produced water into reserve pit?

Operator Name: CHISHOLM ENERGY OPERATING LLC

Well Name: COTTONWOOD 28-33 FED COM 2BS

Well Number: 6H

Reserve pit length (ft.)

Reserve pit width (ft.)

Reserve pit depth (ft.)

Reserve pit volume (cu. yd.)

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

Reserve pit liner

Reserve pit liner specifications and installation description

Cuttings Area

Cuttings Area being used? NO

Are you storing cuttings on location? NO

Description of cuttings location

Cuttings area length (ft.)

Cuttings area width (ft.)

Cuttings area depth (ft.)

Cuttings area volume (cu. yd.)

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

WCuttings area liner

Cuttings area liner specifications and installation description

Section 8 - Ancillary Facilities

Are you requesting any Ancillary Facilities?: NO

Ancillary Facilities attachment:

Comments:

Section 9 - Well Site Layout

Well Site Layout Diagram:

Well_Site_Layout_20170905124608.jpg

Comments:

Operator Name: CHISHOLM ENERGY OPERATING LLC

Well Name: COTTONWOOD 28-33 FED COM 2BS

Well Number: 6H

Section 10 - Plans for Surface Reclamation

Type of disturbance: No New Surface Disturbance **Multiple Well Pad Name:** COTTONWOOD 28-33 FED COM 2BS

Multiple Well Pad Number: 5H&6H

Recontouring attachment:

Drainage/Erosion control construction: Drainage systems, if any, will be reshaped to original configuration with provisions made to alleviate erosion.

Drainage/Erosion control reclamation: Any portion of the site that is not needed for future operations will be reclaimed to the original state as much as feasible.

Wellpad long term disturbance (acres): 3.1

Wellpad short term disturbance (acres): 3.1

Access road long term disturbance (acres): 4.22

Access road short term disturbance (acres): 4.22

Pipeline long term disturbance (acres): 0

Pipeline short term disturbance (acres): 0

Other long term disturbance (acres): 0

Other short term disturbance (acres): 0

Total long term disturbance: 7.32

Total short term disturbance: 7.32

Reconstruction method: The operator plans to drill additional wells on the well pad. Therefore, no interim reclamation is planned at this time. Any portion of the site that is not needed for future operation and production operations will be re-contoured to the original state as much as possible.

Topsoil redistribution: After the area has been shaped and contoured, topsoil from the stockpile will be placed over the disturbed area to the extent possible.

Soil treatment: NO treatment necessary.

Existing Vegetation at the well pad: Mesquite, shinnery oak

Existing Vegetation at the well pad attachment:

Existing Vegetation Community at the road: Mesquite, shinnery oak

Existing Vegetation Community at the road attachment:

Existing Vegetation Community at the pipeline: Mesquite, shinnery oak

Existing Vegetation Community at the pipeline attachment:

Existing Vegetation Community at other disturbances: None.

Existing Vegetation Community at other disturbances attachment:

Non native seed used? NO

Non native seed description:

Seedling transplant description:

Will seedlings be transplanted for this project? NO

Operator Name: CHISHOLM ENERGY OPERATING LLC

Well Name: COTTONWOOD 28-33 FED COM 2BS

Well Number: 6H

Seedling transplant description attachment:

Will seed be harvested for use in site reclamation? NO

Seed harvest description:

Seed harvest description attachment:

Seed Management

Seed Table

Seed type: PERENNIAL GRASS

Seed source: COMMERCIAL

Seed name: LPC-Seed Mix 2

Source name:

Source address:

Source phone:

Seed cultivar:

Seed use location: WELL PAD,WELL PAD

PLS pounds per acre: 5

Proposed seeding season: SPRING

Seed Summary

Total pounds/Acre: 5

Seed Type	Pounds/Acre
PERENNIAL GRASS	5

Seed reclamation attachment:

Operator Contact/Responsible Official Contact Info

First Name: Jennifer

Last Name: Elrod

Phone: (817)953-3728

Email: jelrod@chisholmenergy.com

Seedbed prep: Rip and add topsoil

Seed BMP:

Seed method:

Existing invasive species? NO

Existing invasive species treatment description:

Existing invasive species treatment attachment:

Weed treatment plan description: All areas will be monitored and weeds will be treated.

Weed treatment plan attachment:

Monitoring plan description: Monitor after final reclaim

Monitoring plan attachment:

Operator Name: CHISHOLM ENERGY OPERATING LLC

Well Name: COTTONWOOD 28-33 FED COM 2BS

Well Number: 6H

Success standards: N/A

Pit closure description: No pit utilized

Pit closure attachment:

Section 11 - Surface Ownership

Disturbance type: WELL PAD

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland:

USFS Ranger District:

Disturbance type: EXISTING ACCESS ROAD

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Operator Name: CHISHOLM ENERGY OPERATING LLC

Well Name: COTTONWOOD 28-33 FED COM 2BS

Well Number: 6H

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland:

USFS Ranger District:

Disturbance type: PIPELINE

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland:

USFS Ranger District:

Section 12 - Other Information

Right of Way needed? NO

Use APD as ROW?

ROW Type(s):

ROW Applications

Operator Name: CHISHOLM ENERGY OPERATING LLC

Well Name: COTTONWOOD 28-33 FED COM 2BS

Well Number: 6H

SUPO Additional Information:

Use a previously conducted onsite? YES

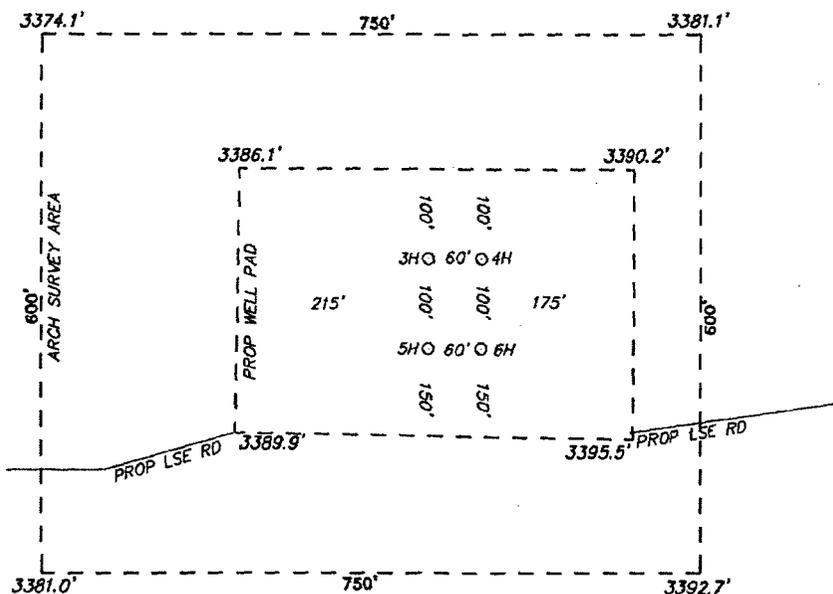
Previous Onsite information: Previous onsite was conducted for the Cottonwood 28-33 Federal 3H & 4H. There will be no new disturbance. Per the BLM, the previous onsite done at this location is sufficient for the new APD.

Other SUPO Attachment

COTTONWOOD_28_33_FED_2BS_6H_REVISIED_PAD_PLAT_11302017_20180108142635.pdf

Pages_from_COTTONWOOD_28_33_FED_2BS_6H_REVISIED_Plat2_11302017_2_20180108142636.pdf

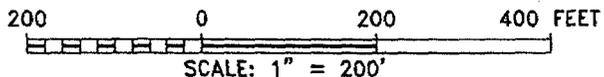
SECTION 21, TOWNSHIP 26 SOUTH, RANGE 26 EAST, N.M.P.M.,
 EDDY COUNTY, NEW MEXICO.



CHISHOLM ENERGY OPERATING, LLC
 COTTONWOOD 28-33 FED COM 2BS 5H
 ELEV. - 3384'

Lat - N 32.02075411'
 Long - W 104.28240528'
 NMSPC- N 371291.6
 E 554021.8
 (NAD-83)

WHITES CITY, NM IS ±12 MILES TO THE NORTHWEST OF LOCATION.



Directions to Location:

FROM THE JUNCTION OF CREOSOTE RD AND WHITES CITY RD, FOLLOW WHITES CITY RD 4 MILES AND TURN RIGHT (SOUTH) ONTO LEASE RD 3.75 MILES TO PROPOSED LEASE ROAD DUE WEST.

CHISHOLM ENERGY OPERATING, LLC

REF: COTTONWOOD 28-33 FED COM 2BS 6H / WELL PAD TOPO

THE COTTONWOOD 28-33 FED. COM 6H LOCATED 100' FROM THE SOUTH LINE AND 970' FROM THE EAST LINE OF SECTION 21, TOWNSHIP 26 SOUTH, RANGE 26 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO.



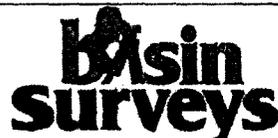
P.O. Box 1786 (575) 393-7316 - Office
 1120 N. West County Rd. (575) 392-2206 - Fax
 Hobbs, New Mexico 88241 basin-surveys.com



COTTONWOOD 28-33 FED COM 2BS 6H

Located 100' FSL and 970' FEL

Section 21, Township 26 South, Range 26 East,
N.M.P.M., Eddy County, New Mexico.



focused on excellence
in the oilfield

P.O. Box 1786
1120 N. West County Rd.
Hobbs, New Mexico 88241
(575) 393-7316 - Office
(575) 392-2206 - Fax
basinsurveys.com

0' 1000' 2000' 3000' 4000'

SCALE: 1" = 2000'

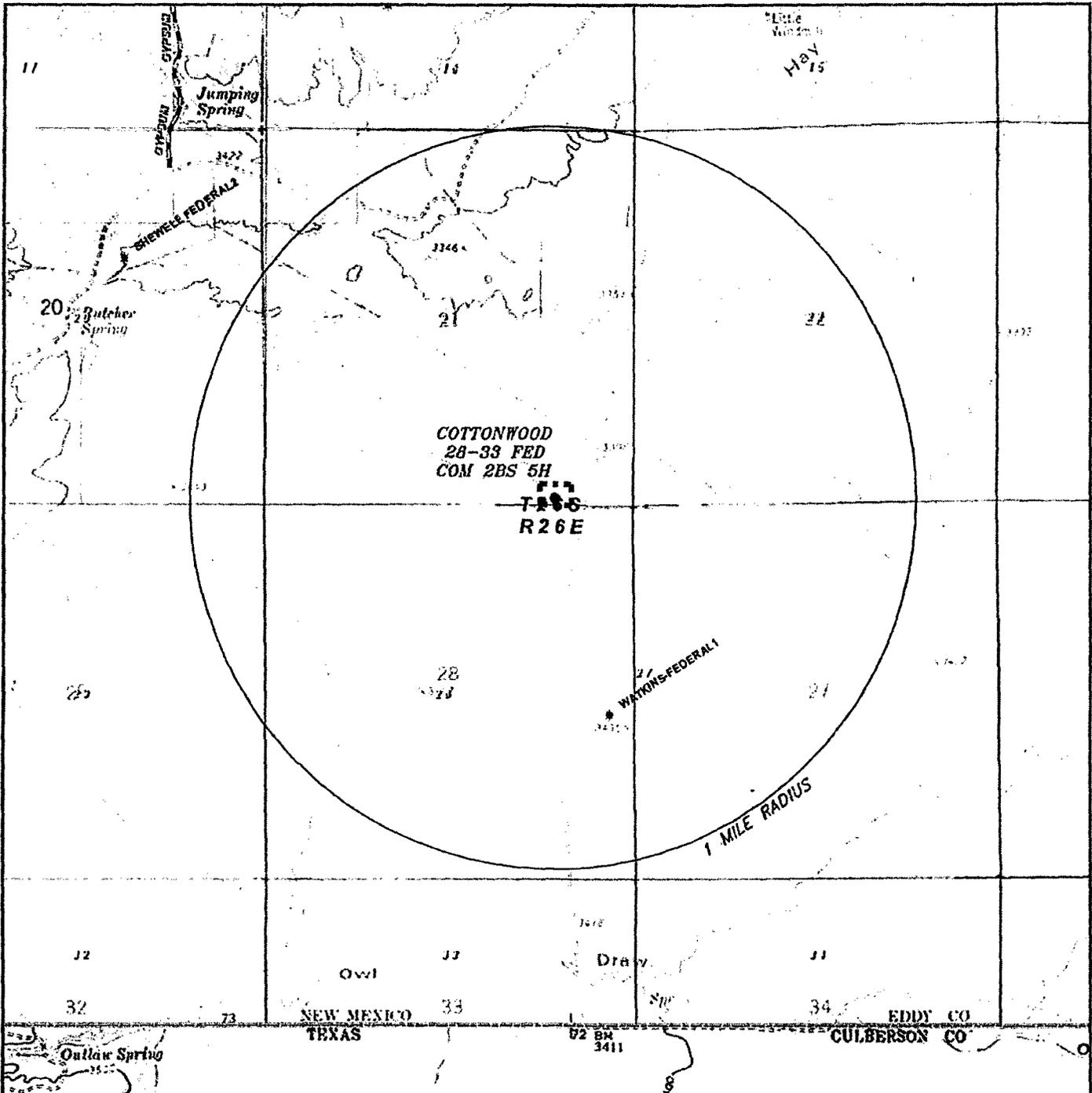
W.O. Number: KJG 33122

Survey Date: 03-14-2017

YELLOW TINT - USA LAND
BLUE TINT - STATE LAND
NATURAL COLOR - FEE LAND

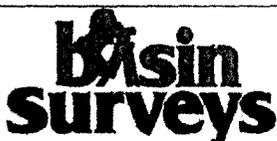


**CHISHOLM
ENERGY
OPERATING, LLC**



COTTONWOOD 28-33 FED COM 2BS 6H

Located 100' FSL and 970' FEL
 Section 21, Township 26 South, Range 26 East,
 N.M.P.M., Eddy County, New Mexico.



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0' 1000' 2000' 3000' 4000'

SCALE: 1" = 2000'

W.O. Number: KJG 33122

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YELLOW TINT - USA LAND
 BLUE TINT - STATE LAND
 NATURAL COLOR - FEE LAND

**CHISHOLM
 ENERGY
 OPERATING, LLC**

V-door East

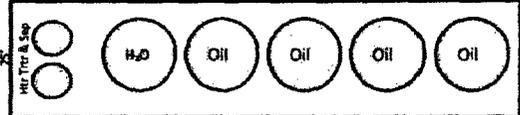
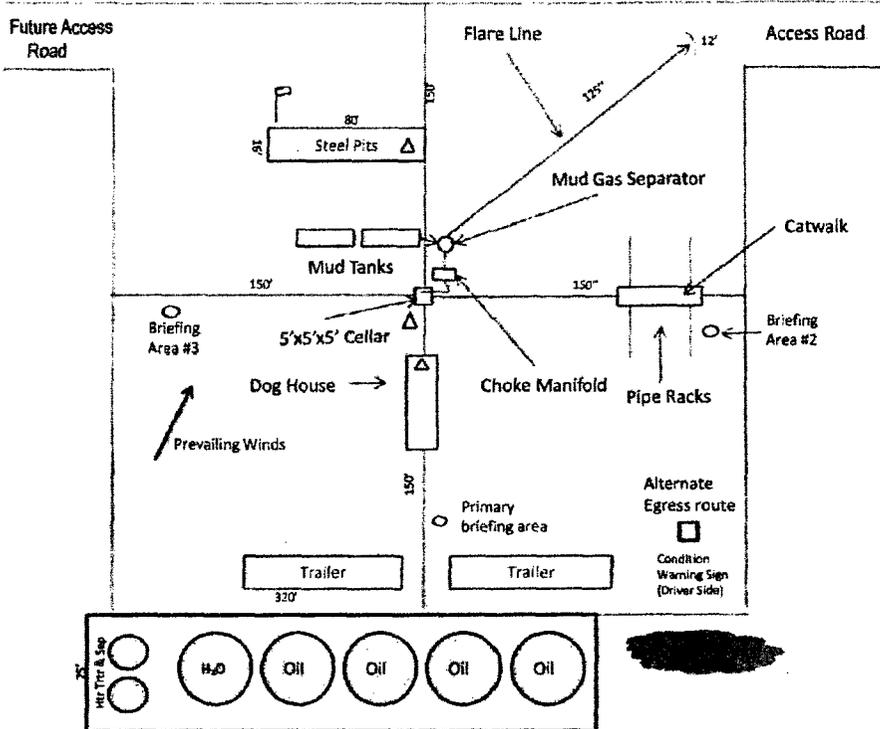
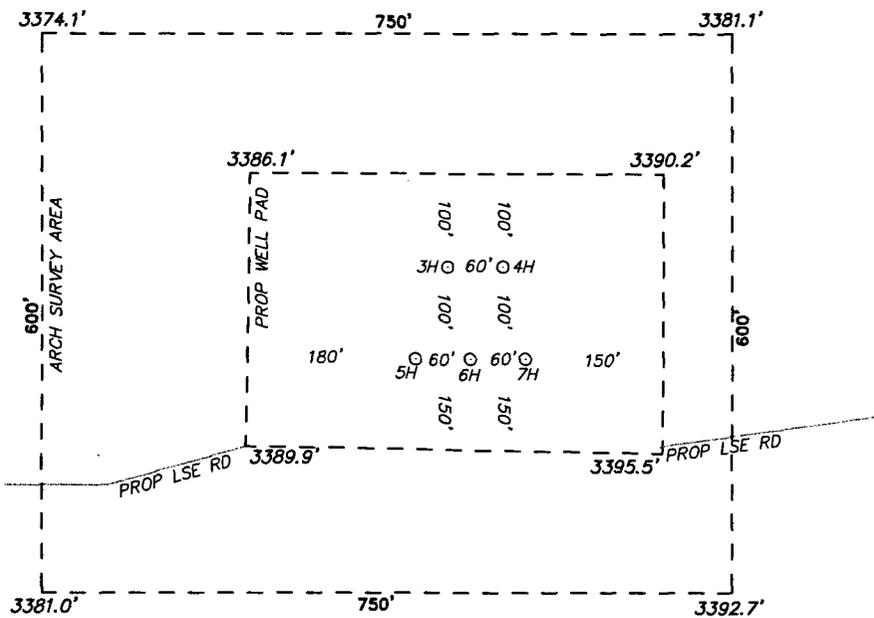


Exhibit G - Rig Diagram

- Wind Direction Indicators (wind sock or streamers)
- H2S Monitors (alarms at bell nipple and shale shaker)
- Briefing Areas



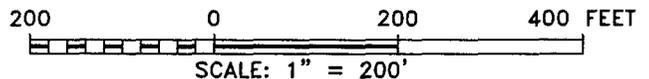
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 EDDY COUNTY, NEW MEXICO.



CHISHOLM ENERGY OPERATING, LLC
 COTTONWOOD 28-33 FED COM 2BS 5H
 ELEV. - 3384'

Lat - N 32.02075764°
 Long - W 104.29251837°
 NMSPCE- N 371292.9
 E 553986.8
 (NAD-83)

WHITES CITY, NM IS ±12 MILES TO THE NORTHWEST OF LOCATION.



Directions to Location:

FROM THE JUNCTION OF CREOSOTE RD AND WHITES CITY RD, FOLLOW WHITES CITY RD 4 MILES AND TURN RIGHT (SOUTH) ONTO LEASE RD 3.75 MILES TO PROPOSED LEASE ROAD DUE WEST.



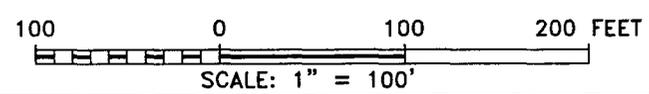
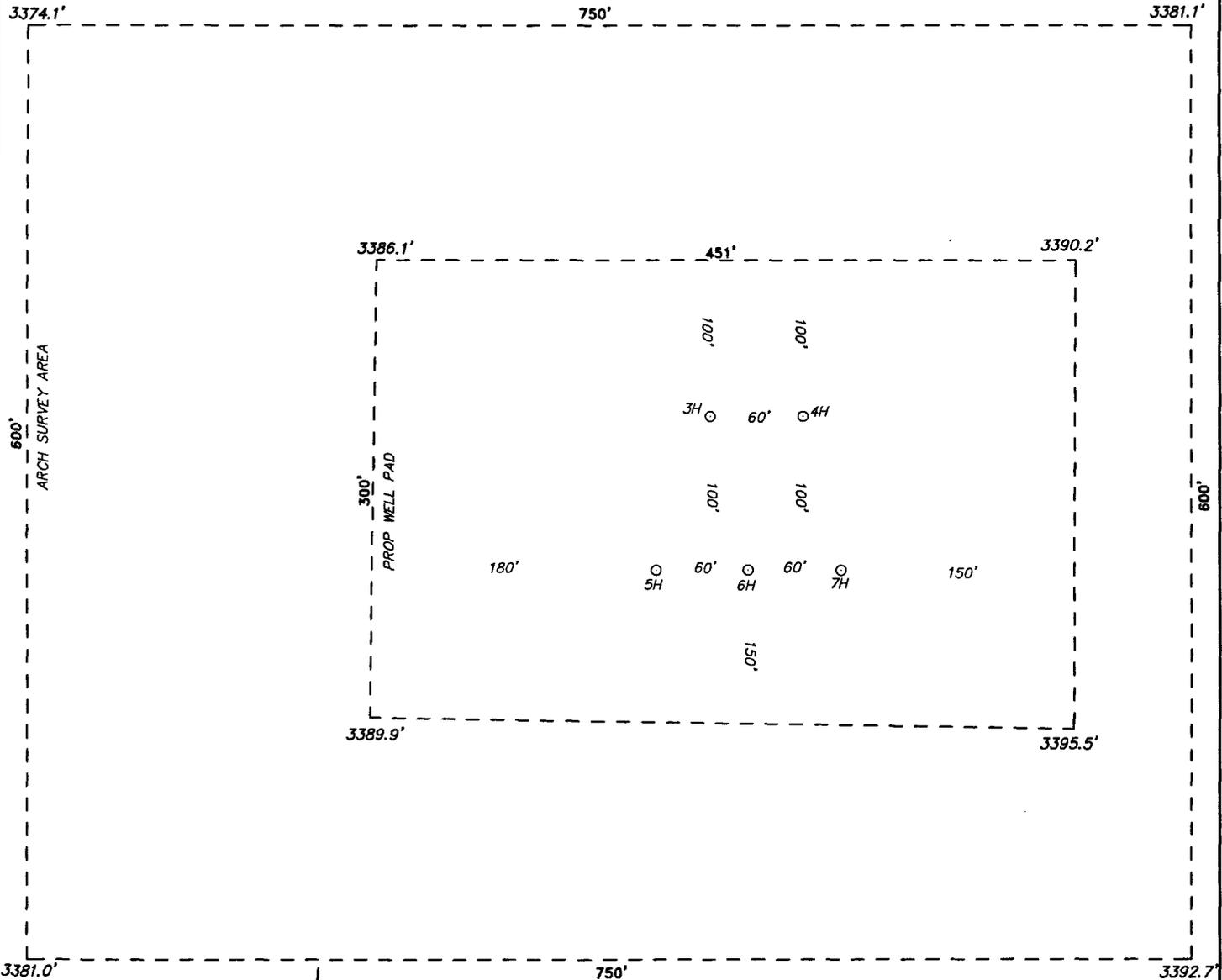
P.O. Box 1786 (575) 393-7316 - Office
 1120 N. West County Rd. (575) 392-2206 - Fax
 Hobbs, New Mexico 88241 basinsurveys.com

CHISHOLM ENERGY OPERATING, LLC

REF: COTTONWOOD 28-33 FED COM 2BS 6H / WELL PAD TOPO

THE COTTONWOOD 28-33 FED. COM 6H LOCATED 100' FROM
 THE SOUTH LINE AND 1005' FROM THE EAST LINE OF
 SECTION 21, TOWNSHIP 26 SOUTH, RANGE 26 EAST,
 N.M.P.M., EDDY COUNTY, NEW MEXICO.

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Section 1 - General

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

Section 2 - Lined Pits

Would you like to utilize Lined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Lined pit PWD on or off channel:

Lined pit PWD discharge volume (bbl/day):

Lined pit specifications:

Pit liner description:

Pit liner manufacturers information:

Precipitated solids disposal:

Describe precipitated solids disposal:

Precipitated solids disposal permit:

Lined pit precipitated solids disposal schedule:

Lined pit precipitated solids disposal schedule attachment:

Lined pit reclamation description:

Lined pit reclamation attachment:

Leak detection system description:

Leak detection system attachment:

Lined pit Monitor description:

Lined pit Monitor attachment:

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

Is the reclamation bond a rider under the BLM bond?

Lined pit bond number:

Lined pit bond amount:

Additional bond information attachment:

Section 3 - Unlined Pits

Would you like to utilize Unlined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Unlined pit PWD on or off channel:

Unlined pit PWD discharge volume (bbl/day):

Unlined pit specifications:

Precipitated solids disposal:

Describe precipitated solids disposal:

Precipitated solids disposal permit:

Unlined pit precipitated solids disposal schedule:

Unlined pit precipitated solids disposal schedule attachment:

Unlined pit reclamation description:

Unlined pit reclamation attachment:

Unlined pit Monitor description:

Unlined pit Monitor attachment:

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

Beneficial use user confirmation:

Estimated depth of the shallowest aquifer (feet):

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

TDS lab results:

Geologic and hydrologic evidence:

State authorization:

Unlined Produced Water Pit Estimated percolation:

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

Is the reclamation bond a rider under the BLM bond?

Unlined pit bond number:

Unlined pit bond amount:

Additional bond information attachment:

Section 4 - Injection

Would you like to utilize Injection PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Injection PWD discharge volume (bbl/day):

Injection well mineral owner:

Injection well type:

Injection well number:

Assigned injection well API number?

Injection well new surface disturbance (acres):

Minerals protection information:

Mineral protection attachment:

Underground Injection Control (UIC) Permit?

UIC Permit attachment:

Injection well name:

Injection well API number:

Section 5 - Surface Discharge

Would you like to utilize Surface Discharge PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Surface discharge PWD discharge volume (bbl/day):

Surface Discharge NPDES Permit?

Surface Discharge NPDES Permit attachment:

Surface Discharge site facilities information:

Surface discharge site facilities map:

Section 6 - Other

Would you like to utilize Other PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Other PWD discharge volume (bbl/day):

Other PWD type description:

Other PWD type attachment:

Have other regulatory requirements been met?

Other regulatory requirements attachment:



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

Bond Info Data Report

01/29/2018

Bond Information

Federal/Indian APD: FED

BLM Bond number: NMB001468

BIA Bond number:

Do you have a reclamation bond? NO

Is the reclamation bond a rider under the BLM bond?

Is the reclamation bond BLM or Forest Service?

BLM reclamation bond number:

Forest Service reclamation bond number:

Forest Service reclamation bond attachment:

Reclamation bond number:

Reclamation bond amount:

Reclamation bond rider amount:

Additional reclamation bond information attachment: