Form 3160-3
(June 2015)

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.

6. If Indian, Allotee or Tribe Name

1a. Type of work: ☐ DRILL ☐ REENTER

1b. Type of Well: ☐ Oil Well ☐ Gas Well ☐ Other

1c. Type of Completion: ☐ Hydraulic Fracturing ☐ Single Zone ☐ Multiple Zone

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

8. Lease Name and Well No.

[326046]

2. Name of Operator

[372165]

9. API Well No. **30-025-49737**

3a. Address

3b. Phone No. *(include area code)*

10. Field and Pool, or Exploratory **[5695]**

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*

At surface

At proposed prod. zone

11. Sec., T. R. M. or Blk. and Survey or Area

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

12. County or Parish

13. State

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)	16. No of acres in lease	17. Spacing Unit dedicated to this well
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.	19. Proposed Depth	20. BLM/BIA Bond No. in file
21. Elevations (Show whether DF, KDB, RT, GL, etc.)	22. Approximate date work will start*	23. Estimated duration

24. Attachments

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

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

25. Signature	Name *(Printed/Typed)*	Date
Title		
Approved by *(Signature)*	Name *(Printed/Typed)*	Date
Title	Office	

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

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

NGMP Rec 02/01/2021

KZ
02/01/2022

SL

APPROVED WITH CONDITIONS

Approval Date: 08/13/2021

(Continued on page 2)

*(Instructions on page 2)

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

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

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
30-025-49737	5695	Bilbrey Basin; Bone Spring

[4] Property Code	[5] Property Name	[6] Well Number
326046	CHEDDAR FED COM	#502H

[7] OGRID No.	[8] Operator Name	[9] Elevation
372165	CENTENNIAL RESOURCE PRODUCTION, LLC	3664.8'

[10] Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	5	22S	32E		453	SOUTH	470	WEST	LEA

[11] Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	32	21S	32E		100	NORTH	1254	WEST	LEA

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
319.68			

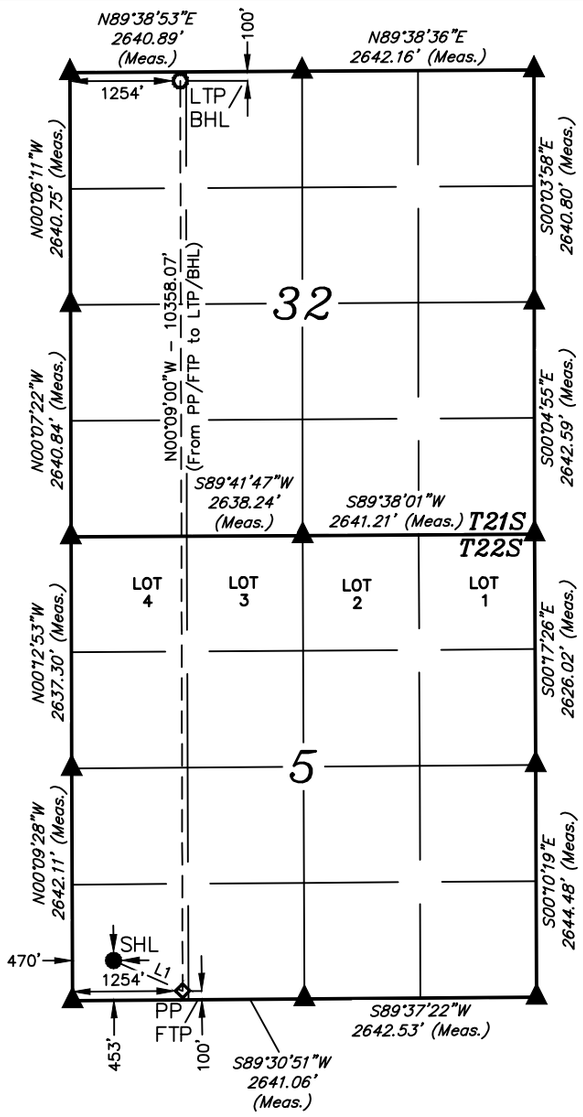
No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.

[16]

NAD 83 (SURFACE HOLE LOCATION)
LATITUDE = 32°24'52.54" (32.414593°)
LONGITUDE = 103°42'13.89" (103.703859°)
STATE PLANE NAD 83 (N.M. EAST)
Y: 515132.33' X: 735585.69'
UTM, NAD 83 (ZONE 13)
Y: 11768778.29' X: 2040277.56'

NAD 83 (PP/FTP)
LATITUDE = 32°24'49.10" (32.413638°)
LONGITUDE = 103°42'04.74" (103.701317°)
STATE PLANE NAD 83 (N.M. EAST)
Y: 514789.18' X: 736371.93'
UTM, NAD 83 (ZONE 13)
Y: 11768440.11' X: 2041065.78'

NAD 83 (LTP/BHL)
LATITUDE = 32°26'31.57" (32.442103°)
LONGITUDE = 103°42'04.85" (103.701348°)
STATE PLANE NAD 83 (N.M. EAST)
Y: 525145.11' X: 736301.21'
UTM, NAD 83 (ZONE 13)
Y: 11778793.65' X: 2040930.46'



LINE TABLE		
LINE	DIRECTION	LENGTH
L1	S66°10'49"E	858.01'

● = SURFACE HOLE LOCATION
◇ = PP/FTP
○ = LTP/BHL
▲ = SECTION CORNER LOCATED

2000' 1000' 0' 2000'

SCALE

DRAWN BY: J.N. 09-11-18

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

[17] OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

12/12/19
Signature Date

Kanicia Schlichting
Printed Name

kanicia.schlichting@cdevinc.com
E-mail Address

[18] SURVEYOR CERTIFICATION

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

September 11, 2018
Date of Survey

Signature and Seal of Professional Surveyor:

PAUL BUCHELE
NEW MEXICO
23782
09-11-18
PROFESSIONAL SURVEYOR

Certificate Number:

District I
1625 N. French Dr., Hobbs, NM 88240
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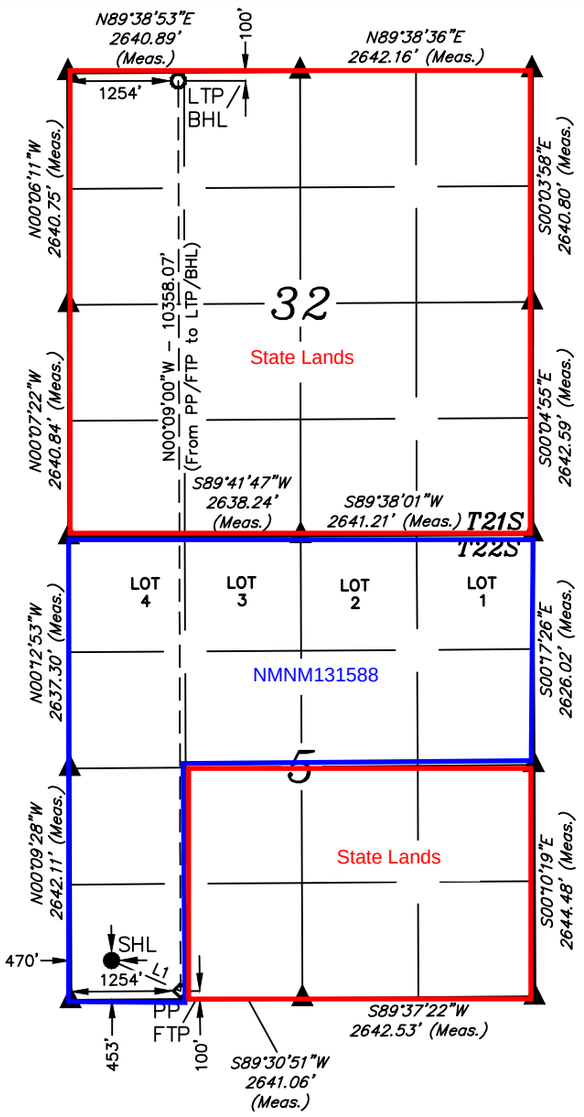

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12/12/19
Signature Date

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Printed Name

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September 11, 2018
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Signature and Seal of Professional Surveyor:

PAUL BUCHELE
NEW MEXICO
23782
PROFESSIONAL SURVEYOR
09-11-18

Certificate Number:

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**Centennial Resources**
LEASE NO.:	**NMNM131588**
LOCATION:	Section 5, T.22 S., R.32 E., NMPM
COUNTY:	Lea County, New Mexico

WELL NAME & NO.:	**Cheddar Fed Com 502H**
SURFACE HOLE FOOTAGE:	453'/S & 470'/W
BOTTOM HOLE FOOTAGE	100'/N & 1254'/W

COA

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

A. HYDROGEN SULFIDE

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

B. CASING

1. The **13-3/8** inch surface casing shall be set at approximately **750** feet (a minimum of 25 feet (Lea County) into the Rustler Anhydrite and above the salt) and cemented to the surface.

    a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
    b. Wait on cement (WOC) time for a primary cement job will be a minimum of

Approval Date: 08/13/2021

24 hours in the Potash Area or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)

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

Intermediate casing must be kept 1/3rd fluid filled to meet BLM minimum collapse requirement.

2. The minimum required fill of cement behind the **9-5/8** inch intermediate casing is:
   - Cement to surface. If cement does not circulate see B.1.a, c-d above.

Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.

❖ In Secretary Potash 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 **500 feet** into previous casing string. Operator shall provide method of verification.

C. PRESSURE CONTROL

1. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).

2. Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M)** psi.
a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
c. Manufacturer representative shall install the test plug for the initial BOP test.
d. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
e. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.

D. SPECIAL REQUIREMENT (S)

Communitization Agreement

- The operator will submit a Communitization Agreement to the Santa Fe Office, 301 Dinosaur Trail Santa Fe, New Mexico 87508, at least 90 days before the anticipated date of first production from a well subject to a spacing order issued by the New Mexico Oil Conservation Division. The Communitization Agreement will include the signatures of all working interest owners in all Federal and Indian leases subject to the Communitization Agreement (i.e., operating rights owners and lessees of record), or certification that the operator has obtained the written signatures of all such owners and will make those signatures available to the BLM immediately upon request.
- If the operator does not comply with this condition of approval, the BLM may take enforcement actions that include, but are not limited to, those specified in 43 CFR 3163.1.
- In addition, the well sign shall include the surface and bottom hole lease numbers. When the Communitization Agreement number is known, it shall also be on the sign.

GENERAL REQUIREMENTS

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

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

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

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

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.

   a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).

b. When the operator proposes to set surface casing with Spudder Rig
   - Notify the BLM when moving in and removing the Spudder Rig.
   - Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
   - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.

2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.

3. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.

2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log. The casing intergrity 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 intergrity test can be done (prior to the cement setting up) immediately after bumping the plug.

4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.

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

6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.

7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.
8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

B. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.

2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.

3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.

4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:

    a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.

b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
c. Manufacturer representative shall install the test plug for the initial BOP test.
d. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.
e. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.

5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.

a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

b. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time, except the casing pressure test can be initiated immediately after bumping the plug (only applies to single stage cement jobs).

c. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (8 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).

d. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall

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

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

f. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.

g. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.

h. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

C. DRILLING MUD

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

D. WASTE MATERIAL AND FLUIDS

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

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.
ZS071421

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

Application Data Report
08/23/2021

APD ID: 10400052340 **Submission Date:** 12/13/2019

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: CHEDDAR FEDERAL COM **Well Number:** 502H

Well Type: OIL WELL **Well Work Type:** Drill

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - General

APD ID: 10400052340 **Tie to previous NOS?** N **Submission Date:** 12/13/2019

BLM Office: Carlsbad **User:** Kanicia Schlichting **Title:** Sr. Regulatory Analyst

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

Lease number: NMNM131588 **Lease Acres:**

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

Agreement in place? YES **Federal or Indian agreement:** FEDERAL

Agreement number: NMNM138602

Agreement name:

Keep application confidential? Y

Permitting Agent? NO **APD Operator:** CENTENNIAL RESOURCE PRODUCTION LLC

Operator letter of designation:

Operator Info

Operator Organization Name: CENTENNIAL RESOURCE PRODUCTION LLC

Operator Address: 1001 17th Street, Suite 1800

Zip: 80202

Operator PO Box:

Operator City: Denver **State:** CO

Operator Phone: (720)499-1400

Operator Internet Address:

Section 2 - Well Information

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

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

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

Well Name: CHEDDAR FEDERAL COM **Well Number:** 502H **Well API Number:**

Field/Pool or Exploratory? Field and Pool **Field Name:** 2ND BONESPRING SAND **Pool Name:** RED HILLS; BONE SPRING, NORTH

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

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: CHEDDAR FEDERAL COM **Well Number:** 502H

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

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

Type of Well Pad: MULTIPLE WELL **Multiple Well Pad Name:** CHEDDAR DRILL ISLAND **Number:** 1

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: 43 Miles **Distance to nearest well:** 30 FT **Distance to lease line:** 453 FT

Reservoir well spacing assigned acres Measurement: 320 Acres

Well plat: CHEDDAR_FEDERAL_COM_502H_C102_20191212131219.pdf

CHEDDAR_FEDERAL_COM_502H_C102_lease_20191212131219.pdf

Well work start Date: 02/01/2021 **Duration:** 45 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83 **Vertical Datum:** NAVD88

Survey number: 23782 **Reference Datum:** GROUND LEVEL

Wellbore	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD	Will this well produce from this lease?
SHL Leg #1	453	FSL	470	FWL	22S	32E	5	Aliquot SWSW	32.414593	-103.703859	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 131588	3665	0	0	Y
KOP Leg #1	453	FSL	470	FWL	22S	32E	5	Aliquot SWSW	32.414593	-103.703859	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 131588	-6362	10075	10027	Y

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: CHEDDAR FEDERAL COM **Well Number:** 502H

Wellbore	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD	Will this well produce from this lease?
PPP Leg #1-1	100	FSL	1254	FWL	22S	32E	5	Aliquot SWSW	32.413638	-103.701317	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 131588	-6935	10974	10600	Y
EXIT Leg #1	100	FNL	1254	FWL	21S	32E	32	Aliquot NWNW	32.442103	-103.701348	LEA	NEW MEXICO	NEW MEXICO	S	STATE	-6935	20704	10600	Y
BHL Leg #1	100	FNL	1254	FWL	21S	32E	32	Aliquot NWNW	32.442103	-103.701348	LEA	NEW MEXICO	NEW MEXICO	S	STATE	-6935	20704	10600	Y

AFMSS

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

Drilling Plan Data Report

08/23/2021

APD ID: 10400052340 **Submission Date:** 12/13/2019

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: CHEDDAR FEDERAL COM **Well Number:** 502H

Well Type: OIL WELL **Well Work Type:** Drill

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
608154	RUSTLER	3665	624	624	SANDSTONE	NONE	N
608156	CAPITAN REEF	-957	4622	4622	OTHER : Carbonate	USEABLE WATER	N
608157	BELL CANYON	-1065	4730	4730	SANDSTONE	NATURAL GAS, OIL	N
608158	CHERRY CANYON	-1862	5527	5527	SANDSTONE	NATURAL GAS, OIL	N
608161	BRUSHY CANYON	-3192	6857	6857	SANDSTONE	NATURAL GAS, OIL	N
608162	BONE SPRING LIME	-4919	8584	8584	OTHER : Carbonate	NATURAL GAS, OIL	N
608164	AVALON SAND	-5071	8736	8736	SHALE	CO2, NATURAL GAS, OIL	N
608159	BONE SPRING 1ST	-5958	9623	9623	SANDSTONE	NATURAL GAS, OIL	N
608160	BONE SPRING 2ND	-6222	9887	9887	OTHER, SHALE : Carbonate	NATURAL GAS, OIL	Y

Section 2 - Blowout Prevention

Pressure Rating (PSI): 10M **Rating Depth:** 10600

Equipment: The BOP and related equipment will meet or exceed the requirements of a 5M-psi system as set forth in On Shore Order No. 2. See attached BOP Schematic. A. Casinghead: 13 5/8” – 5,000 psi SOW x 13” – 5,000 psi WP Intermediate Spool: 13” – 5,000 psi WP x 11” – 5,000 psi WP Tubinghead: 11” – 5,000 psi WP x 7 1/16" – 15,000 psi WP B. Minimum Specified Pressure Control Equipment • Annular preventer • One Pipe ram, One blind ram • Drilling spool, or blowout preventer with 2 side outlets. Choke side will be a 3-inch minimum diameter, kill line shall be at least 2-inch diameter • 3 inch diameter choke line • 2 – 3 inch choke line valves • 2 inch kill line • 2 chokes with 1 remotely controlled from rig floor (see Figure 2) • 2 – 2 inch kill line valves and a check valve • Upper kelly cock valve with handle available • When the expected pressures approach working pressure of the system, 1 remote kill line tested to stack pressure (which shall run to the outer edge of the substructure and be unobstructed) • Lower kelly cock valve with handle available • Safety valve(s) and subs to fit all drill string connections in use • Inside BOP or float sub available • Pressure gauge on choke manifold • All BOPE connections subjected to well pressure shall be flanged, welded, or clamped • Fill-up line above the uppermost preventer. C. Auxiliary Equipment • Audio and visual mud monitoring equipment shall be placed to detect volume changes indicating loss or gain of circulating fluid volume. (OOS 1, III.C.2) • Gas Buster will be used below intermediate casing setting depth. • Upper and lower kelly cocks with handles, safety valve and subs to fit all drill string connections and a pressure gauge installed on choke manifold.

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: CHEDDAR FEDERAL COM **Well Number:** 502H

Requesting Variance? YES

Variance request: Centennial is requesting to use a flex hose on the choke manifold. Please see section 8 for hose specs attachment. We would also like to request a variance to use a 5M Annular Preventer. Please see attached multi-bowl procedure.
Testing Procedure: The BOP test shall be performed before drilling out of the surface casing shoe and will occur at a minimum: a. when initially installed b. whenever any seal subject to test pressure is broken c. following related repairs d. at 30 day intervals e. checked daily as to mechanical operating conditions. The ram type preventer(s) will be tested using a test plug to 250 psi (low) and 5,000 psi (high) (casinghead WP) with a test plug upon its installation onto the 13" surface casing. If a test plug is not used, the ram type preventer(s) shall be tested to 70% of the minimum internal yield pressure of the casing. The annular type preventer(s) shall be tested to 50% of its working pressure. Pressure will be maintained for at least 10 minutes or until provisions of the test are met, whichever is longer. • A Sundry Notice (Form 3160 5), along with a copy of the BOP test report, shall be submitted to the local BLM office within 5 working days following the test. • If the bleed line is connected into the buffer tank (header), all BOP equipment including the buffer tank and associated valves will be rated at the required BOP pressure. • The BLM office will be provided with a minimum of four (4) hours' notice of BOP testing to allow witnessing. The BOP Configuration, choke manifold layout, and accumulator system, will be in compliance with Onshore Order 2 for a 5,000 psi system. A remote accumulator will be used. Pressures, capacities, and specific placement and use of the manual and/or hydraulic controls, accumulator controls, bleed lines, etc., will be identified at the time of the BLM 'witnessed BOP test. Any remote controls will be capable of both opening and closing all preventers and shall be readily accessible.
Choke Diagram Attachment:

HP650_10M_Choke_Manifold_20190329140051.pdf

BOP Diagram Attachment:

CRD__Well_Control_Plan_v2_20181107133139.pdf

HP650_BOP_Schematic_CoFlex_Choke_10K_2019_1_29_20190325122316.pdf

Section 3 - Casing

Casing ID	String Type	Hole Size	Csg Size	Condition	Standard	Tapered String	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Calculated casing length MD	Grade	Weight	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
1	CONDUCTOR	26	20.0	NEW	API	N	0	120	0	120	3665	3545	120	H-40	94	OTHER - Weld						
2	SURFACE	17.5	13.375	NEW	API	N	0	750	0	750	3665	2915	750	J-55	54.5	OTHER - BTC	3.05	7.38	DRY	20.87	DRY	20.87
3	INTERMEDIATE	12.25	9.625	NEW	API	N	0	4610	0	4600	3665	-935	4610	J-55	40	LT&C	1.52	1.65	DRY	2.83	DRY	3.42
4	PRODUCTION	8.75	5.5	NEW	API	N	0	10075	0	10027	3665	-6362	10075	P-110	20	OTHER - TMK UP DQX	2.13	2.43	DRY	3.2	DRY	3.2
5	PRODUCTION	8.5	5.5	NEW	API	N	10075	20704	10027	10630	-6362	-6965	10629	P-110	20	OTHER - TMK UP DQX	2.02	2.3	DRY	55.93	DRY	55.93

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: CHEDDAR FEDERAL COM **Well Number:** 502H

Casing Attachments

Casing ID: 1 **String Type:** CONDUCTOR

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

CASING_ASSUMPTIONS_WORKSHEET_20181031160011.pdf

Casing ID: 2 **String Type:** SURFACE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

CASING_ASSUMPTIONS_WORKSHEET_20181031160036.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

TMK_UP_DQX_5.5_x_20_P110_HC_20181031161313.pdf

Casing Design Assumptions and Worksheet(s):

CASING_ASSUMPTIONS_WORKSHEET_20181107142525.pdf

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: CHEDDAR FEDERAL COM **Well Number:** 502H

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

TMK_UP_DQX_5_x_18_P110_HC_20181031161259.pdf

Casing Design Assumptions and Worksheet(s):

CASING_ASSUMPTIONS_WORKSHEET_20181107142600.pdf

Technical_Data_Sheet_TMK_UP_DQX_5.5_x_20_P110_CY_20191212111404.pdf

Casing ID: 5 **String Type:** PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

CASING_ASSUMPTIONS_WORKSHEET_20181107142618.pdf

Technical_Data_Sheet_TMK_UP_DQX_5.5_x_20_P110_CY_20191212111456.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
PRODUCTION	Lead		0	0	0	0	0	0		0	0
CONDUCTOR	Lead		0	120	121	1.49	12.9	181		Grout	Bentonite 4% BWOC, Cellophane 0.25 pps CACL2 2% BWOC

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: CHEDDAR FEDERAL COM **Well Number:** 502H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	1300	1038	1.74	13.5	1806	100	Class C Premium	Premium Gel Bentonite 4%, C-45 Econolite 0.25%, Phenoseal 0.25#/sk, CaCl 1%, Defoamer C-41P 0.75%
SURFACE	Tail		1300	1800	518	1.34	14.8	695	100	Class C Premium	C-45 Econolite 0.10%, CaCl 1.0%
INTERMEDIATE	Lead		0	4110	1000	3.44	10.7	3441	150	TXI Lightweight	Salt 1.77/sk, C-45 Econolite 2.25%, STE 6.00%, Citric Acid 0.18%, C-19 0.10%, CSA-1000 0.20%, C-530P 0.30%, CTB-15 LCM 7#/sk, Gyp Seal 8#/sk
INTERMEDIATE	Tail		4110	4610	141	1.33	14.8	188	20	Class C Premium	C-45 Econolite 0.10%, Citric acid 0.05%, C503P 0.25%
PRODUCTION	Lead		0	10075	984	3.41	10.6	3357	30	TXI Lightweight	Salt 8.98#/sk, STE 6.00%, Citric acid 0.20%, CSA-1000 0.23%, C47B 0.10%, C-503P 0.30%
PRODUCTION	Tail		10075	20704	2455	1.24	14.2	3044	25	50:25:25 Class H: Poz: CPO18	Citric acid 0.03%, CSA-1000 0.05%, C47B 0.25%, C-503P 0.30%

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 quantities of mud materials will be on the well site at all times for the purpose of assuring well control and maintaining wellbore integrity. Surface interval will employ fresh water mud. The intermediate hole will utilize a diesel emulsified brine fluid to inhibit salt washout and prevent severe fluid losses. The production hole will employ oil base fluid to inhibit formation reactivity and of the appropriate density to maintain well control.

Describe the mud monitoring system utilized: Centrifuge separation system. Open tank monitoring with EDR will be used for drilling fluids and return volumes. Open tank monitoring will be used for cement and cuttings return volumes. Mud properties will be monitored at least every 24 hours using industry accepted mud check practices.

Circulating Medium Table

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: CHEDDAR FEDERAL COM **Well Number:** 502H

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	20704	OTHER : Brine/OBM	8.8	10							
1800	4610	OTHER : Brine	9	10							
0	1800	OTHER : FW	8.6	9.5							

Section 6 - Test, Logging, Coring

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

Will utilize MWD/LWD (Gamma ray logging) from intermediate hole to TD of the well.

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

DIRECTIONAL SURVEY,GAMMA RAY LOG,

Coring operation description for the well:

Will not be coring this well.

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 5512 **Anticipated Surface Pressure:** 3180

Anticipated Bottom Hole Temperature(F): 170

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

Describe:

Contingency Plans geoharzards description:

Contingency Plans geohazards attachment:

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations plan:

H2S_Plan_Chedder_Fed_Com_502H_20191212134850.pdf

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: CHEDDAR FEDERAL COM **Well Number:** 502H

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

Chedder_FC_502H_Planning_Report_20191212134909.pdf

Other proposed operations facets description:

We are planning to use spudder rig to preset surface casing.
Gas Caputre Plan is attached. geoprog attached.

Other proposed operations facets attachment:

CRD_Batch_Setting_Procedures_20191212112515.pdf

Gas_Capture_Plan_Cheddar_301H_20191213123417.docx

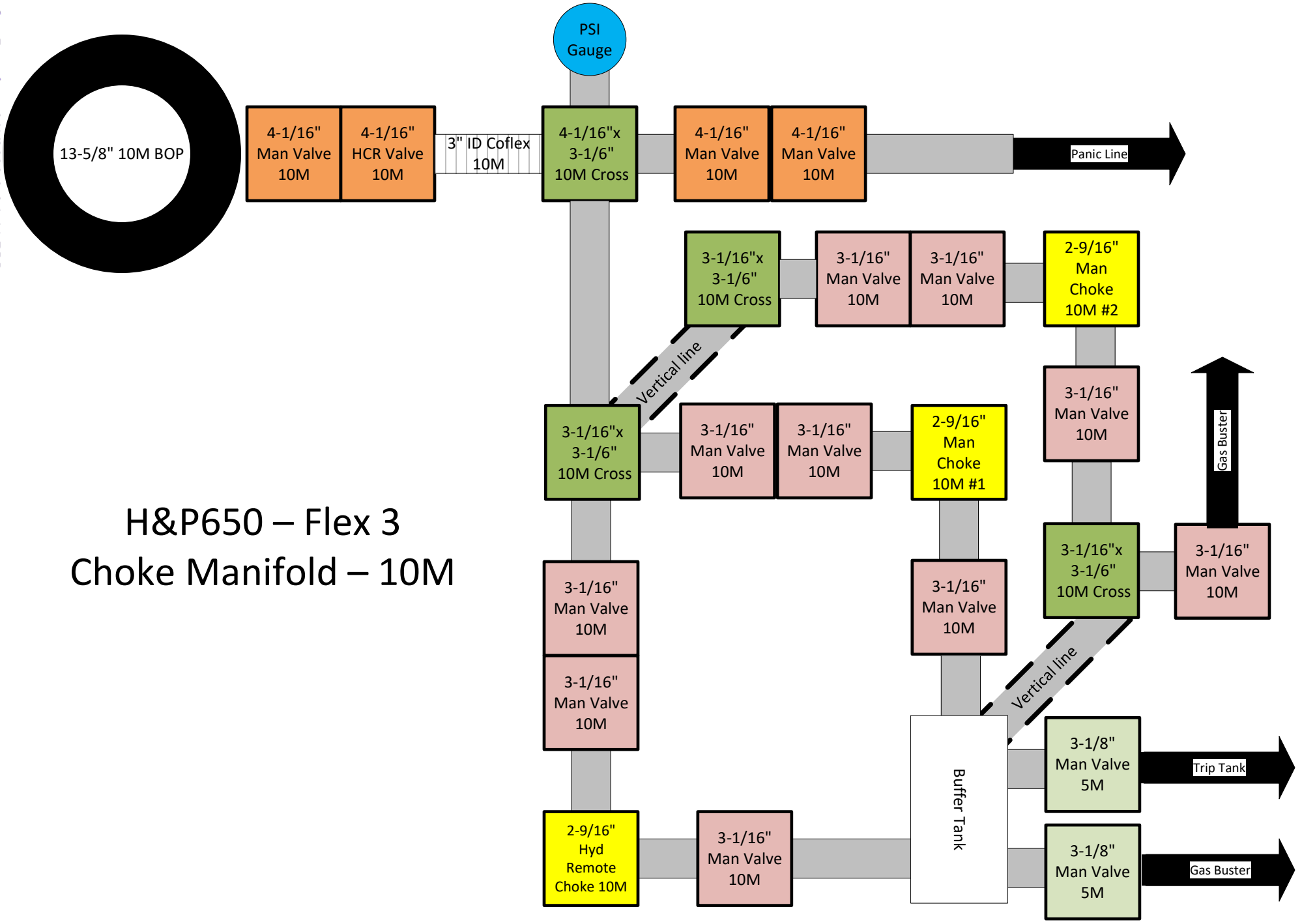
CDEV_Multi_Bowl_Procedure_Cheddar_Fed_Com_502H_20191213123507.pdf

GEOPROG_Cheddar_Federal_Com_502H_PRELIM_20200828125252.pdf

Other Variance attachment:

H_P_650_Flex_Hose_Specs_Continental_Hose_SN_67255_20191212112427.pdf

H&P650 – Flex 3
Choke Manifold – 10M



Centennial Resource Development - Well Control Plan

A. Component and Preventer Compatibility Table

Component	OD (inches)	Preventer	RWP
Drillpipe	4	Upper VBR: 3.5 – 5.5 Lower VBR: 3.5 – 5.5	10M
Heavyweight Drillpipe	4	Upper VBR: 3.5 – 5.5 Lower VBR: 3.5 – 5.5	10M
Drill collars and MWD tools	4 ¾	Upper VBR: 3.5 – 5.5 Lower VBR: 3.5 – 5.5	10M
Mud Motor	4 ¾	Upper VBR: 3.5 – 5.5 Lower VBR: 3.5 – 5.5	10M
Production Casing	5.5 & 5	Upper VBR: 3.5 – 5.5 Lower VBR: 3.5 – 5.5	10M
All	0 – 13 5/8	Annular	5M
Open-hole	-	Blind rams	10M

VBR = Variable Bore Rams

RWP = Rated Working Pressure

MWD = Measurement While Drilling (directional tools)

B. Well Control Procedures

I. General Procedures While Drilling:

1. Sound alarm (alert crew).
2. Space out drill-string.
3. Shut down pumps and stop rotary.
4. Open HCR
5. Shut-in well – utilizing upper VBRs.
6. Close choke
7. Confirm shut-in.
8. Notify rig manager and Centennial company representative.
9. Call Centennial drilling engineer
10. Read and record
    - I. Shut-in drillpipe pressure (SIDPP) and shut-in casing pressure (SCIP).
    - II. Pit gain
    - III. Time
11. Regroup, identify forward plan

II. General Procedure While Tripping

1. Sound alarm (alert crew).
2. Stab full opening safety valve and close
3. Space out drillstring.
4. Open HCR
5. Shut-in well – utilizing upper VBRs
6. Close choke
7. Confirm shut-in.
8. Notify rig manager and Centennial company representative.
9. Call Centennial drilling engineer
10. Read and record:
    I. SIDPP AND SICP
    II. Pit gain
    III. Time
11. Regroup and identify forward plan.

III. General Procedure While Running Casing

1. Sound alarm (alert crew)
2. Stab full opening safety valve and close
3. Space out string.
4. Open HCR
5. Shut-in well – utilizing upper VBRs.
6. Close choke
7. Confirm shut-in.
8. Notify rig manager and Centennial company representative.
9. Call Centennial drilling engineer
10. Read and record:
    I. SIDPP AND SICP
    II. Pit gain
    III. Time
11. Regroup and identify forward plan.

IV. General Procedure With No Pipe In Hole (Open Hole)

1. Sound alarm (alert crew)
2. Open HCR
3. Shut-in with blind rams
4. Close choke
5. Confirm shut-in
6. Notify rig manager and Centennial company representative.
7. Call Centennial drilling engineer
8. Read and record:
    I. SIDPP AND SICP
    II. Pit gain
    III. Time
9. Regroup and identify forward plan.

V. General Procedures While Pulling BHA Thru BOP Stack

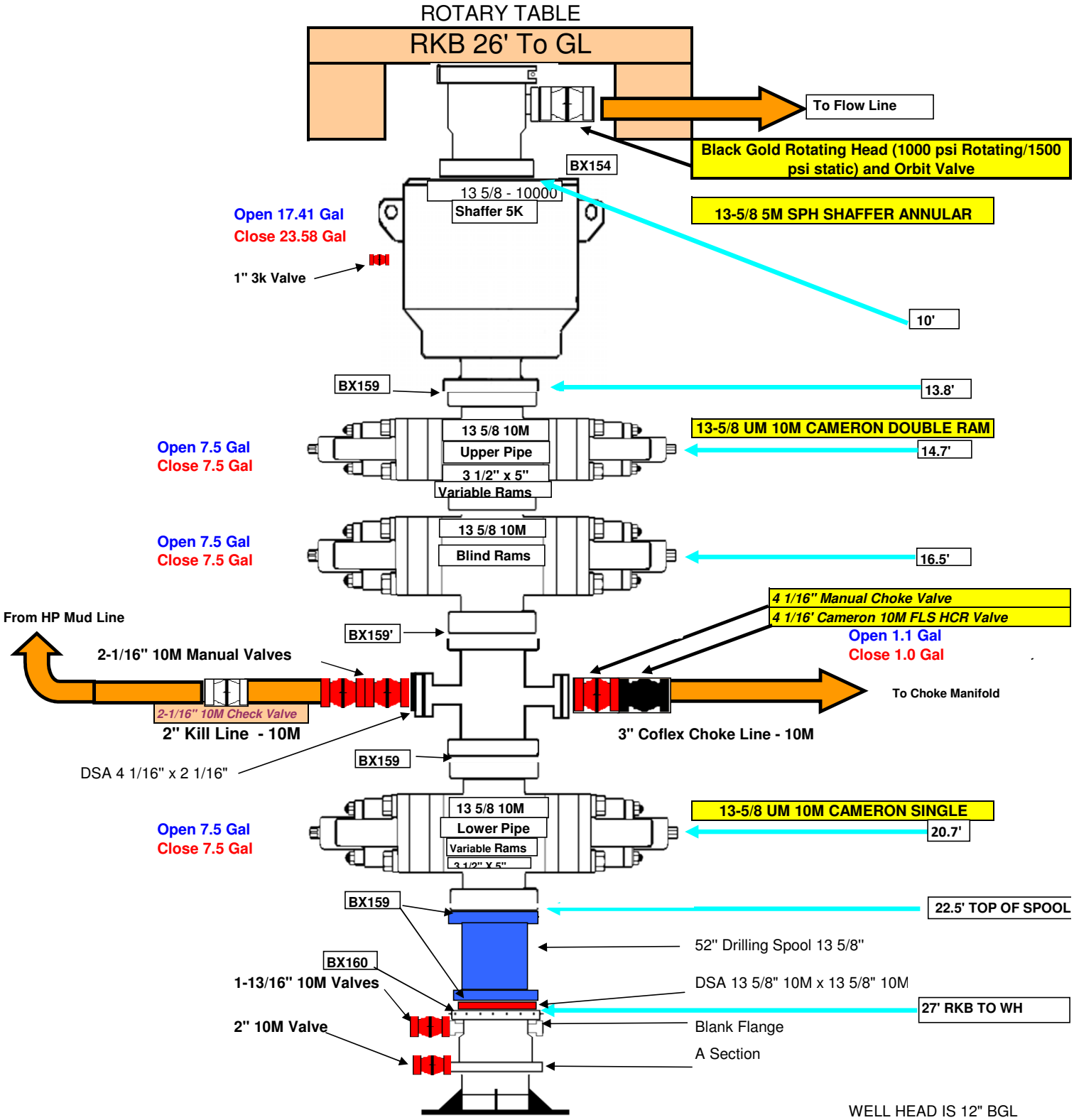
1. **Prior to pulling last joint of drillpipe thru stack**:
   - I. Perform flow check, if flowing
     - a. Sound alarm, alert crew
     - b. Stab full opening safety valve and close
     - c. Space out drillstring with tool joint just beneath the upper pipe ram.
     - d. Open HCR
     - e. Shut-in utilizing upper VBRs
     - f. Close choke
     - g. Confirm shut-in
     - h. Notify rig manager and Centennial company representative.
     - i. Call Centennial drilling engineer
     - j. Read and record:
       - i. SIDPP and SICP
       - ii. Pit gain
       - iii. Time
   - II. Regroup and identify forward plan

2. **With BHA in the BOP stack and compatible ram preventer and pipe combo immediately available**:
   - a. Sound alarm, alert crew
   - b. Stab full opening safety valve and close
   - c. Space out drillstring with tool joint just beneath the upper pipe ram.
   - d. Open HCR
   - e. Shut-in utilizing upper VBRs
   - f. Close choke
   - g. Confirm shut-in
   - h. Notify rig manager and Centennial company representative.
   - i. Call Centennial drilling engineer
   - j. Read and record:
     - i. SIDPP and SICP
     - ii. Pit gain
     - iii. Time
   - II. Regroup and identify forward plan

3. **With BHA in the BOP stack and no compatible ram preventer and pipe combo immediately availiable**:
    I. Sound alarm, alert crew.
    II. If possible to pick up high enough, pull string clear of the stack and follow Open Hole (III) scenario.
    III. If impossible to pick up high enough to pull the string clear of the stack:
        a. Stab crossover, make up one joint/stand of drill pipe and full opening safety valve and close.
        b. Space out drillstring with tool joint just beneath the upper pipe ram.
        c. Open HCR
        d. Shut-in utilizing upper VBRs.
        e. Close choke
        f. Confirm shut-in
        g. Notify rig manager and Centennial company representative.
        h. Call Centennial drilling engineer
        i. Read and record:
            i. SIDPP and SICP
            ii. Pit gain
            iii. Time
    IV. Regroup and identify forward plan.

** **If annular is used to shut-in well and pressure builds to OR is expected to get to 50% of RWP, confirm space-out and swap to upper VBRs for shut-in.**

H&P 650

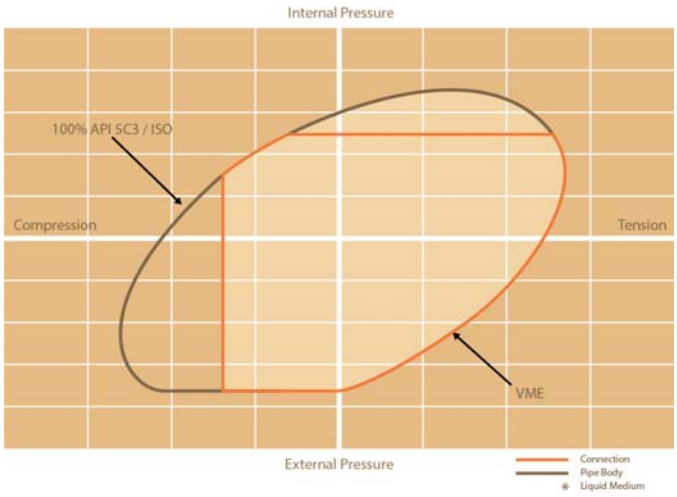

ROTARY TABLE
RKB 26' To GL
To Flow Line
Black Gold Rotating Head (1000 psi Rotating/1500 psi static) and Orbit Valve
BX154
13 5/8 - 10000
Shaffer 5K
13-5/8 5M SPH SHAFFER ANNULAR
Open 17.41 Gal
Close 23.58 Gal
1" 3k Valve
10'
BX159
13.8'
13 5/8 10M
Upper Pipe
3 1/2" x 5"
Variable Rams
13-5/8 UM 10M CAMERON DOUBLE RAM
14.7'
Open 7.5 Gal
Close 7.5 Gal
13 5/8 10M
Blind Rams
Open 7.5 Gal
Close 7.5 Gal
16.5'
4 1/16" Manual Choke Valve
4 1/16' Cameron 10M FLS HCR Valve
Open 1.1 Gal
Close 1.0 Gal
From HP Mud Line
BX159'
2-1/16" 10M Manual Valves
To Choke Manifold
2-1/16" 10M Check Valve
2" Kill Line - 10M
3" Coflex Choke Line - 10M
DSA 4 1/16" x 2 1/16"
BX159
13 5/8 10M
Lower Pipe
Variable Rams
3 1/2" X 5"
13-5/8 UM 10M CAMERON SINGLE
20.7'
Open 7.5 Gal
Close 7.5 Gal
BX159
22.5' TOP OF SPOOL
52" Drilling Spool 13 5/8"
BX160
1-13/16" 10M Valves
DSA 13 5/8" 10M x 13 5/8" 10M
27' RKB TO WH
2" 10M Valve
Blank Flange
A Section
WELL HEAD IS 12" BGL

TECHNICAL DATA SHEET TMK UP DQX 5.5 X 20 P110 HC

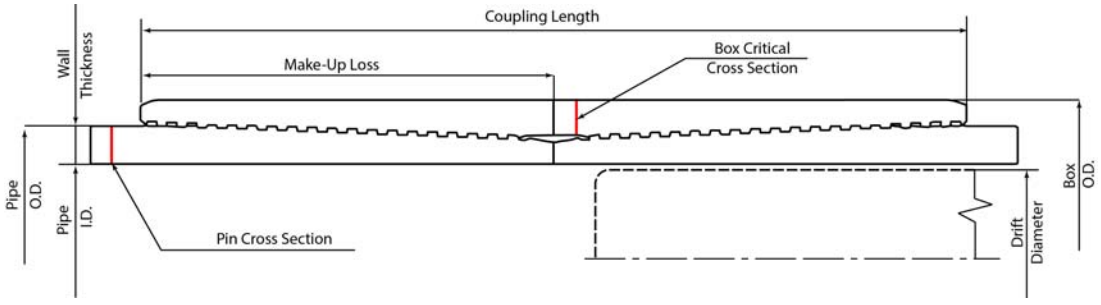
TUBULAR PARAMETERS	
Nominal OD, (inch)	5.500
Wall Thickness, (inch)	0.361
Pipe Grade	P110 HC
Coupling	Regular
Coupling Grade	P110 HC
Drift	Standard

PIPE BODY PROPERTIES	
PE Weight, (lbs/ft)	19.81
Nominal Weight, (lbs/ft)	20.00
Nominal ID, (inch)	4.778
Drift Diameter, (inch)	4.653
Nominal Pipe Body Area, (sq inch)	5.828
Yield Strength in Tension, (klbs)	641
Min. Internal Yield Pressure, (psi)	12 640
Collapse Pressure, (psi)	12 780

CONNECTION PARAMETERS	
Connection OD (inch)	6.05
Connection ID, (inch)	4.778
Make-Up Loss, (inch)	4.122
Connection Critical Area, (sq inch)	5.828
Yield Strength in Tension, (klbs)	641
Yeld Strength in Compression, (klbs)	641
Tension Efficiency	100%
Compression Efficiency	100%
Min. Internal Yield Pressure, (psi)	12 640
Collapse Pressure, (psi)	12 780
Uniaxial Bending (deg/100ft)	91.7



MAKE-UP TORQUES	
Yield Torque, (ft-lb)	20 600
Minimum Make-Up Torque, (ft-lb)	11 600
Optimum Make-Up Torque, (ft-lb)	12 900
Maximum Make-Up Torque, (ft-lb)	14 100



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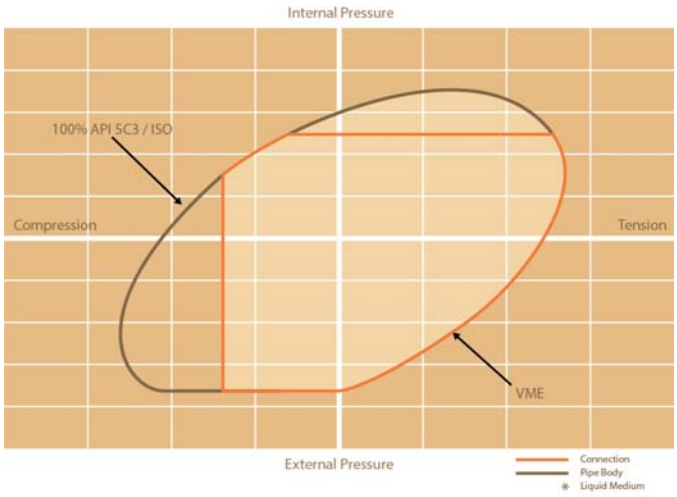
Print date: 03/02/2018 20:57

TECHNICAL DATA SHEET TMK UP DQX 5 X 18 P110 HC

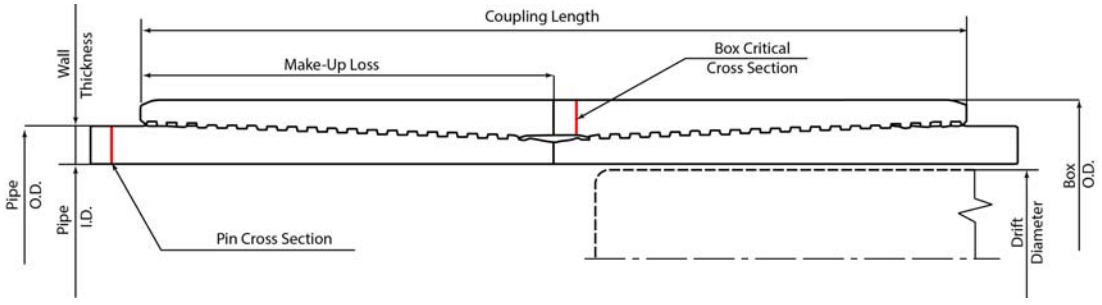
TUBULAR PARAMETERS	
Nominal OD, (inch)	5.000
Wall Thickness, (inch)	0.362
Pipe Grade	P110 HC
Coupling	Regular
Coupling Grade	P110 HC
Drift	Standard

PIPE BODY PROPERTIES	
PE Weight, (lbs/ft)	17.93
Nominal Weight, (lbs/ft)	18.00
Nominal ID, (inch)	4.276
Drift Diameter, (inch)	4.151
Nominal Pipe Body Area, (sq inch)	5.275
Yield Strength in Tension, (klbs)	580
Min. Internal Yield Pressure, (psi)	13 940
Collapse Pressure, (psi)	14 820

CONNECTION PARAMETERS	
Connection OD (inch)	5.56
Connection ID, (inch)	4.276
Make-Up Loss, (inch)	4.097
Connection Critical Area, (sq inch)	5.275
Yield Strength in Tension, (klbs)	580
Yeld Strength in Compression, (klbs)	580
Tension Efficiency	100%
Compression Efficiency	100%
Min. Internal Yield Pressure, (psi)	13 940
Collapse Pressure, (psi)	14 820
Uniaxial Bending (deg/100ft)	100.9



MAKE-UP TORQUES	
Yield Torque, (ft-lb)	17 500
Minimum Make-Up Torque, (ft-lb)	9 800
Optimum Make-Up Torque, (ft-lb)	10 900
Maximum Make-Up Torque, (ft-lb)	11 900



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CASING ASSUMPTIONS WORKSHEET:

Centralizer Program:

Surface: - 3 welded bow spring centralizers, one on each of the bottom 3 joints, plus one on the shoe joint (4 minimum)
- No Cement baskets will be run

Production: - 1 welded bow spring centralizer on a stop ring 6' above float shoe
- 1 centralizer every other joint to the top of the tail cement
- 1 centralizer every 4 joints to 500' below the top of the lead cement
- The actual number and placement of centralizers will be determined from hole deviation and potential production zones. Centralizers will be run for maximum practical standoff and through all potential productive zones.

- All casing strings below the conductor shall be tested, prior to drilling out the casing shoe, to 0.22 psi/ft of casing string length or 1500 psi, whichever is greater, but not to exceed 70% of the internal yield pressure of the casing. If pressure declines more than 10 percent in 30 minutes, corrective action will be taken.

  No freshly hard banded pipe will be rotated in the surface casing

  - CENTENNIAL RESOURCE DEVELOPOMENT will not employ an air-drill rig for the surface casing. The casing shoe will be tested by drilling 5'-10' out from under the shoe and pressure testing to the maximum expected mud weight equivalent as shown in the mud program listed in the drilling plan.

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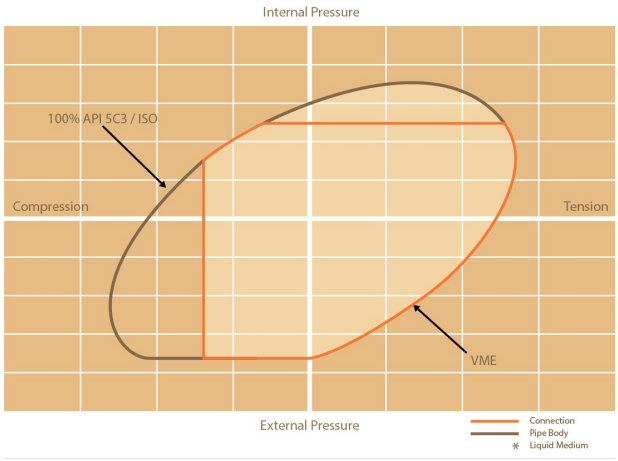
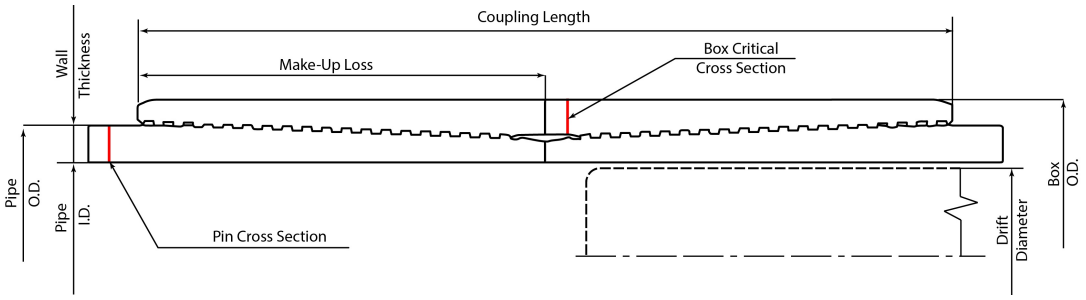
Wall Thickness, (inch)	0.361
Pipe Grade	P110 CY
Coupling	Regular
Coupling Grade	P110 CY
Drift	Standard

CONNECTION PARAMETERS	
Connection OD (inch)	6.05
Connection ID, (inch)	4.778
Make-Up Loss, (inch)	4.122
Connection Critical Area, (sq inch)	5.828
Yield Strength in Tension, (klbs)	641
Yeld Strength in Compression, (klbs)	641
Tension Efficiency	100%
Compression Efficiency	100%
Min. Internal Yield Pressure, (psi)	12 640
Collapse Pressure, (psi)	11 110
Uniaxial Bending (deg/100ft)	92.0

MAKE-UP TORQUES	
Yield Torque, (ft-lb)	20 600
Minimum Make-Up Torque, (ft-lb)	11 600
Optimum Make-Up Torque, (ft-lb)	12 900
Maximum Make-Up Torque, (ft-lb)	14 100
Operating Torque, (ft-lb)	17 500

PIPE BODY PROPERTIES	
PE Weight, (lbs/ft)	19.81
Nominal Weight, (lbs/ft)	20.00
Nominal ID, (inch)	4.778
Drift Diameter, (inch)	4.653
Nominal Pipe Body Area, (sq inch)	5.828
Yield Strength in Tension, (klbs)	641
Min. Internal Yield Pressure, (psi)	12 640
Collapse Pressure, (psi)	11 110





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CASING ASSUMPTIONS WORKSHEET:

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Coupling Grade	P110 CY
Drift	Standard

CONNECTION PARAMETERS	
Connection OD (inch)	6.05
Connection ID, (inch)	4.778
Make-Up Loss, (inch)	4.122
Connection Critical Area, (sq inch)	5.828
Yield Strength in Tension, (klbs)	641
Yeld Strength in Compression, (klbs)	641
Tension Efficiency	100%
Compression Efficiency	100%
Min. Internal Yield Pressure, (psi)	12 640
Collapse Pressure, (psi)	11 110
Uniaxial Bending (deg/100ft)	92.0

MAKE-UP TORQUES	
Yield Torque, (ft-lb)	20 600
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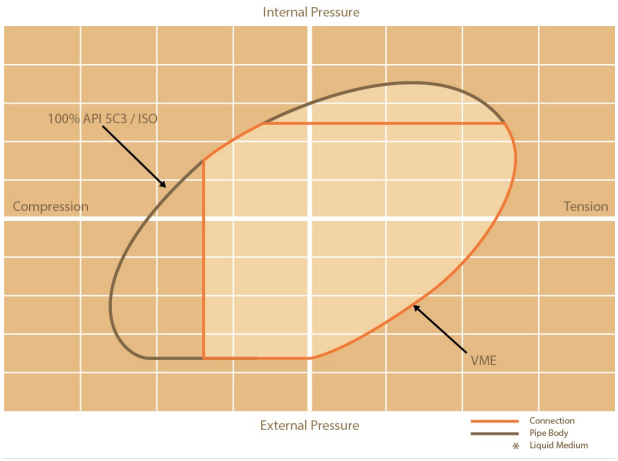

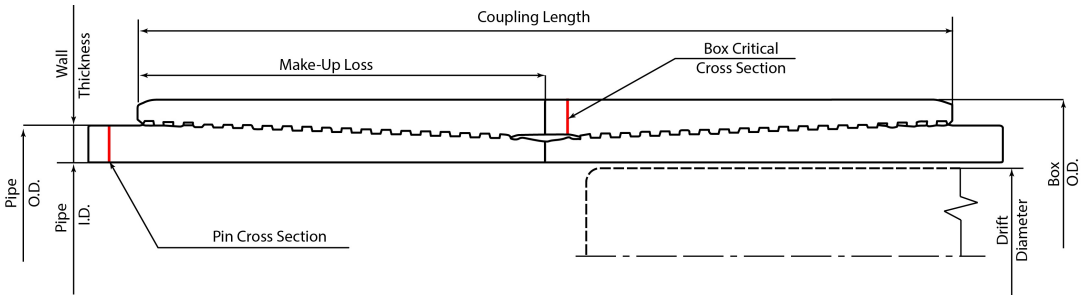

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CENTENNIAL
RESOURCE DEVELOPMENT, INC

HYDROGEN SULFIDE CONTINGENCY PLAN

Chedder Fed Com 502H

Section 5

T 22S R 32E

Lea County, NM

Initial Date: 3/4/18

Revision Date:

Table of Contents

INTRODUCTION

This plan specifies precautionary measures, safety equipment, emergency procedures, responsibilities, duties, and the compliance status pertaining to the production operations of Hydrogen Sulfide producing wells on:

Centennial Resource Development, Inc.

This plan will be in full effect prior to and continuing with all drilling operations for all wells producing potential Hydrogen Sulfide on the

Chedder Fed Com 502H

This plan was developed in response to the potential hazards involved when producing formations that may contain Hydrogen Sulfide (H_2S) It has been written in compliance with current New Mexico Oil Conservation Division Rule 118 and Bureau of Land Management 43 CFR 3160 Onshore Order No. 6.

All personnel shall receive proper H2S training in accordance with Onshore Order III.C.3.a

This plan shall require the full cooperation and efforts of all individuals participating in the production of potential H_2S wells.

Each individual is required to know their assigned responsibilities and duties in regard to normal production operations and emergency procedures.

Each person should thoroughly understand and be able to use all safety related equipment on the production facility.

Each person should become familiar with the location of all safety equipment and become involved in ensuring that all equipment is properly stored, easily accessible, and routinely maintained.

An ongoing training program will remain in effect with regular training, equipment inspections, and annual certifications for all personnel.

Centennial Resource Development, Inc. shall make every reasonable effort to provide all possible safeguards to protect all personnel, both on this location and in the immediate vicinity, from the harmful effects of H_2S exposure, if a release to the atmosphere should occur.

DIRECTIONS TO LOCATION

Chedder Fed Com 502H

Section 5

T 22S R 32E

Lea County, NM

PROCEED IN A NORTHEASTLY, THEN EASTERLY DIRECTION FROM CARLSBAD, NEW MEXICO ALONG U.S. HIGHWAY 62 APPROXIMATELY 31.1 MILES TO THE JUNCTION OF THIS ROAD AND CAMPBELL ROAD TO THE SOUTH; TURN RIGHT AND PROCEED IN A SOUTHERLY, THEN SOUTHEASTERLY, THEN SOUTHERLY DIRECTION APPROXIMATELY 9.0 MILES TO THE JUNCTION OF THIS ROAD AND AN EXISTING ROAD TO THE EAST; TURN LEFT AND PROCEED IN AN EASTERLY, THEN NORTHERLY, THEN EASTERLY DIRECTION APPROXIMATELY 1.6 MILES TO THE JUNCTION OF THIS ROAD AND AN EXISTING ROAD TO THE SOUTH; TURN RIGHT AND PROCEED IN A SOUTHERLY DIRECTION APPROXIMATELY 1.3 MILES TO THE BEGINNING OF THE PROPOSED ACCESS ROAD TO THE SOUTHWEST; FOLLOW ROAD FLAGS IN AN SOUTHWESTERLY, THEN SOUTHERLY, THEN EASTERLY DIRECTION APPROXIMATELY 1,101' TO THE PROPOSED LOCATION.

TOTAL DISTANCE FROM CARLSBAD, NEW MEXICO TO THE PROPOSED WELL LOCATION IS APPROXIMATELY 43.2 MILES.TOTAL DISTANCE FROM JAL, NEW MEXICO TO THE PROPOSED WELL LOCATION IS APPROXIMATELY 29.0 MILES.

SAFE BRIEFING AREAS

Two areas will be designated as "SAFE BRIEFING AREAS".

The Primary Safe Briefing Area

If the Primary Safe Briefing Area cannot be used due to wind conditions; the designated secondary safe briefing area will be used.

These two areas are so designated for accessibility reasons related to self-contained safe breathing air device locations, evacuation muster point utility, and for ease of overall communication, organizational support, as well as the all-important prevailing wind directions. Drawings of the facility denoting these locations are included on Page 15.

If H_2S is detected in concentrations equal to or in excess of 15 PPM, all personnel not assigned emergency duties are to assemble in the appropriate "SAFE BRIEFING AREA" for instructions.

Wind Direction Indicators: A windsock, shall be positioned, allowing the wind direction to be observed from anywhere on the charted facility location.

Warning-DANGER SIGNS for Approaching Traffic: All signs shall also be illuminated under conditions of poor visibility.

DANGER
POISONOUS GAS
HYDROGEN SULFIDE
DO NOT APPROACH IF AMBER LIGHTS ARE FLASHING

An amber strobe light system will be activated for H_2S concentrations of 10 PPM or greater and an audible alarm will sound when H_2S exceeds 15 ppm, and. This condition will exist until the all clear is given.

DRILL SITE LOCATION:

1. The drilling rig should be situated on location such that the prevailing winds blow across the rig toward the reserve pit or at right angles to a line from the rig to the reserve pit.
2. The entrance to the location should be designated so that it can be barricaded if Hydrogen Sulfide emergency conditions arise. An auxiliary exit (or entrance) should be available in case of a catastrophe; a shift in wind direction would not preclude escape from the location. Appropriate warning signs and flags should be placed at all location entrances.
3. Once H2S safety procedures are established on location, no beards or facial hair, which will interfere with face seal or mask, will be allowed on location.
4. A minimum of two BRIEFING AREAS will be established, no less than 250 feet from the wellhead and in such location that at least one area will be up-wind from the well at all times. Upon recognition of an emergency situation, all personnel should assemble at the designated briefing areas for instructions.
5. A safety equipment trailer will be station at one of the briefing areas.
6. Windsocks will be installed and wind streamers (6 to 8 feet above ground level) placed at the location entrance. Windsocks shall be illuminated for nighttime operations. Personnel should develop wind direction consciousness.
7. The mud-logging trailer will be located so as to minimize the danger from the gas that breaks out of the drilling fluid.
8. Shale shaker mud tanks will be located so as to minimize the danger from gas that breaks out of the drilling fluid.
9. Electric power plant(s) will be located as far from the well bore as practical so that it may be used under conditions where it otherwise would have to be shut down.
10. When approaching depth where Hydrogen Sulfide may be encountered, appropriate warning signs will be posted on all access roads to the location and at the foot of all stairways to the derrick floor.
11. Appropriate smoking areas will be designated, and smoking will be prohibited elsewhere.

The table below lists various poisonous gases and the concentrations at which they become dangerous.

TOXICITY OF VARIOUS GASES

TOXICITY OF GASES (Taken from API RP-49 September 1974 – Re-issued August 1978)					
Common Name	**Chemical Formula**	**Gravity (Air = 1)**	**Threshold 1 Limit**	**Hazardous 2 Limit**	**Lethal 3 Limit**
Hydrogen Sulfide	H_2S	1.18	10 ppm	250 ppm/1hr	600 ppm
Sulfur Dioxide	SO_2	2.21	20 ppm	---	1000 ppm
Carbon Monoxide	CO	0.97	50 ppm	400 ppm/1hr	1000 ppm
Carbon Dioxide	CO_2	1.52	5000 ppm	5%	10%
Methane	CH_4	0.55	90000 ppm	Combustible Above 5% in Air	

1. Threshold concentration at which it is believed that all workers may repeatedly be exposed day after day, without adverse effect
2. Hazardous concentration that may cause death
3. Lethal concentration that will cause death with short-term exposure

Properties of Gases

The produced gas will probably be a mixture of Carbon Dioxide, Hydrogen Sulfide, and Methane.

Carbon Dioxide

Carbon Dioxide (CO_2) is usually considered inert and is commonly used to extinguish fires.

It is heavier than air (1.52 times) and it will concentrate in low areas of still air.

Humans cannot breathe air containing more than 10% CO_2 without losing consciousness. Air containing 5% CO_2 will cause disorientation in a few minutes.

Continued exposures to CO_2 after being affected will cause convulsions, coma, and respiratory failure.

The threshold limit of CO_2 is 5000 ppm.

Short-term exposure to 50,000 PPM (5%) is reasonable. This gas is colorless and odorless and can be tolerated in relatively high concentrations.

Hydrogen Sulfide

Hydrogen Sulfide (H_2S) itself is a colorless, transparent gas and is flammable. It is heavier than air and, hence, may accumulate in low places.

Although the slightest presence of H_2S in the air is normally detectable by its characteristic "rotten egg" odor, it is dangerous to rely on the odor as a means of detecting excessive concentrations because the sense of smell is rapidly lost, allowing lethal concentrations to be accumulated without warning. The following table indicates the poisonous nature of Hydrogen Sulfide.

HYDROGEN SULFIDE TOXICITY			
Concentration			Effects
$\%H_2S$	PPM	GR/100 SCF 1	
0.001	10	0.65	Safe for 8 hours without respirator. Obvious and unpleasant odor.
0.002	20	1.30	Burning in eyes and irritation of respiratory tract after on hour.
0.01	100	6.48	Kills smell in 3 to 15 minutes; may sting eyes and throat.
0.02	200	12.96	Kills smell shortly; stings eyes and throat.
0.05	500	32.96	Dizziness; breathing ceases in a few minutes; need prompt artificial respiration.
0.07	700	45.92	Unconscious quickly; death will result if not rescued promptly
0.10	1000	64.80	DEATH!
Note: 1 grain per 100 cubic feet			

Sulfur Dioxide

Sulfur Dioxide is a colorless, transparent gas and is non-flammable.

Sulfur Dioxide (SO_2) is produced during the burning of H_2S. Although SO_2 is heavier than air, it will be picked up by a breeze and carried downwind at elevated temperatures. Since Sulfur Dioxide is extremely irritating to the eyes and mucous membranes of the upper respiratory tract, it has exceptionally good warning powers in this respect. The following table indicates the toxic nature of the gas.

SULFUR DIOXIDE TOXICITY		
Concentration		Effects
$\%SO_2$	PPM	
0.0005	3 to 5	Pungent odor-normally a person can detect SO_2 in this range.
0.0012	12	Throat irritation, coughing, and constriction of the chest tearing and smarting of eyes.
0.15	150	So irritating that it can only be endured for a few minutes.
0.05	500	Causes a sense of suffocation, even with first breath.

H_2S REQUIRED EQUIPMENT LIST

RESPIRATORY SAFETY SYSTEMS

- Working cascade system available on rig floor and pit system & 750' of air line hose
- Four (4) breathing air manifolds
- Four (4) 30-minute rescue packs
- Five (5) work/Escape units
- Five (5) escape units
- One (1) filler hose for the work/escape/rescue units

DETECTION AND ALARM SYSTEM

- 4 channel H2S monitor
- 4 wireless H2S monitors
- H2S alarm system (Audible/Red strobe)
- Personal gas monitor for each person on location
- Gas sample tubes

WELL CONTROL EQUIPMENT

- Flare line with remote ignitor and backup flare gun, placed 150' from wellhead
- Choke manifold with remotely operated choke
- Mud gas separator

VISUAL WARNING SYSTEMS

- One color code condition sign will be placed at each entrance reflecting possible conditions at the site
- A colored condition flag will be on display, reflecting current condition at the site at the time
- At least 4 wind socks placed on location, visible at all angles and locations

MUD PROGRAM

- Mud will contain sufficient weight and additives to control and minimize H2S

METALLURGY

- All drill strings, casing, tubing, wellhead, BOP, spools, kill lines, choke manifold and lines, and valves shall be suitable for anticipated H2S volume and pressure

COMMUNICATION

- Cell phones, intercoms, and satellite phones will be available on location

ADDITIONAL SAFETY RELATED ITEMS

- Stretcher
- 2 OSHA full body harness
- 20# class ABC fire extinguisher

DETERMINATION OF RADIUS OF EXPOSURE

Potentially hazardous volume means a volume of gas of such H2S concentration and flow rate that it may result in radius of exposure-calculated ambient concentrations of 100 ppm H2S at any occupied residence, school, church, park, school bus stop, place of business or other area where the public could reasonably be expected to frequent, or 500 ppm H2S at any Federal, State, County or municipal road or highway.

Currently there are no residence located within the ROE

Radius of exposure means the calculation resulting from using the Pasquill -Gifford derived equation, or by such other method(s) that may be approved by the authorized officer.
Advanced Fire and Safety has provided the Pasquill-Gifford formula in excel format for simple calculations.

NEW MEXICO OIL & GAS CONSERVATION DIVISION 118

Chedder Fed Com 502H

H2S Concentration- 250 PPM

Maximum Escape Volume- 5000 MCF/Day

100 PPM Radius of Exposure - 116
(Formula= 1.589 x (250/1000000) x (5000 x 1000) x .6258

500 PPM Radius of Exposure (Block 16)- 53
Formula= .4546 x (250/1000000) x (5000 x 1000) x .6258

EMERGENCY CONTACT LIST

911 is available in the area			
NAME	**POSITION**	**COMPANY**	**NUMBER**
Centennial Contacts			
Jeremy Ray	Drilling Engineer	CDEV	303-263-7872
Ricky Mills/John Helm	Superintendent	CDEV	432-305-1068
Mike Ponder/Wayne Miller	Field Superintendent	CDEV	432-287-3003
Brett Thompson	Drilling Manager	CDEV	720-656-7027
Reggie Phillips	HSE Manager	CDEV	432-638-3380
H&P 650 Drilling Office	Drilling Supervisor	CDEV	432-538-3343
Local Emergency Response			
Fire Department			575-395-2511
Jal Community Hospital			505-395-2511
State Police			505-827-9000
Lea County Sheriff			575-396-3611
Safety Contractor			
Advanced Safety	Office	Advanced Safety	833-296-3913
Joe Gadway	Permian Supervisor	Advanced Safety	318-446-3716
Clint Hudson	Operations Manager	Advanced Safety	337-552-8330
Well Control Company			
Wild Well Control			866-404-9564
Contractors			
Tommy E Lee	Pump Trucks		432-813-7140
Paul Smith	Drilling Fluids	Momentum	307-258-6254
Compass Coordinators	Cement	Compass	432-561-5970

CENTENNIAL
RESOURCE DEVELOPMENT, INC

Project: CHEDDER FEDERAL
Site: CHEDDAR
Wells: CHEDDAR FED COM 301H, 401H, 502H
Design: APD PLAN
RKB: 3664.7

PROJECT DETAILS: LEA COUNTY

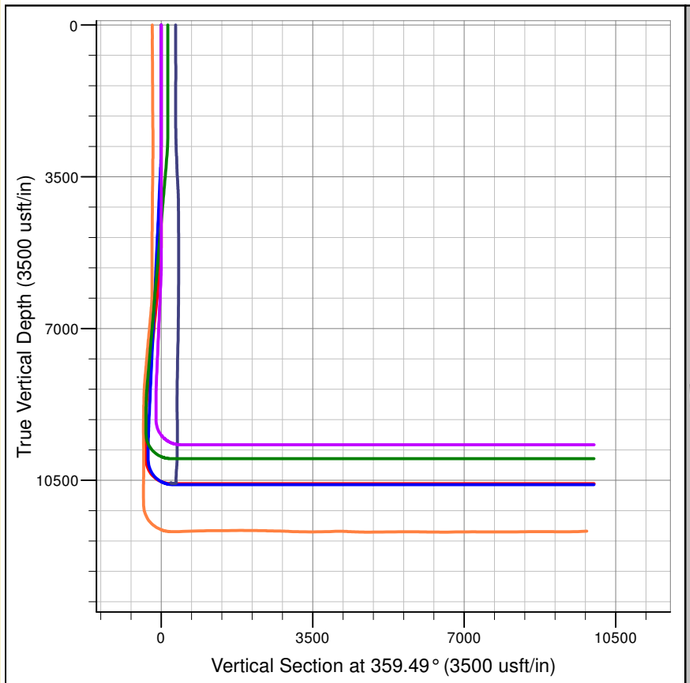
Geodetic System: Universal Transverse Mercator (US Survey Feet)
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: Zone 13N (108 W to 102 W)

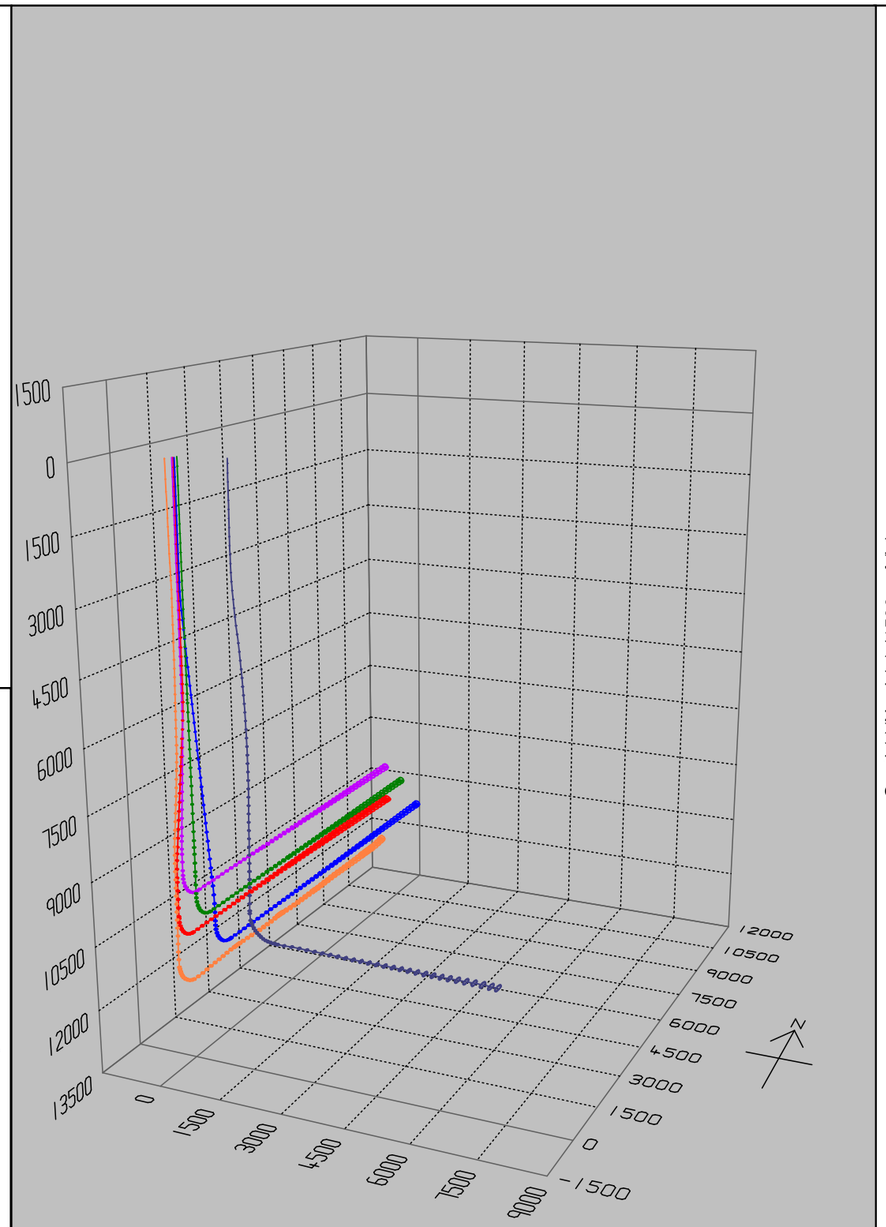
System Datum: Mean Sea Level

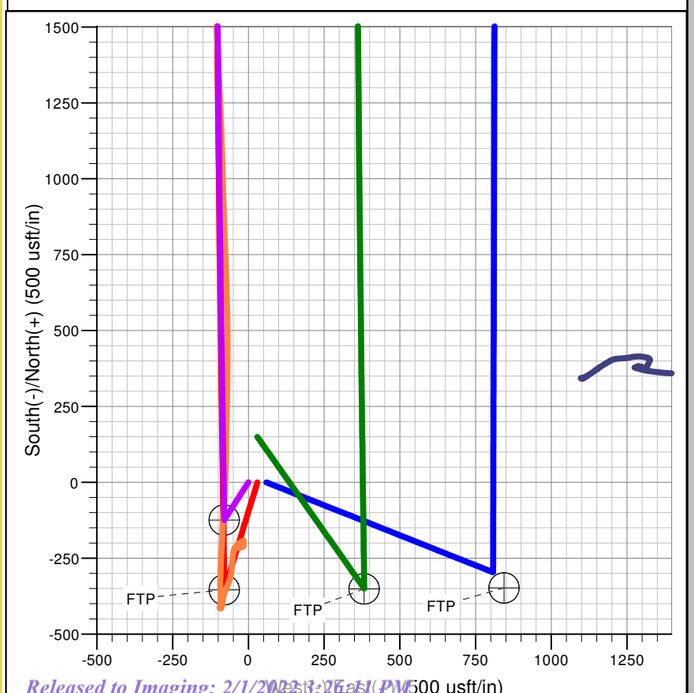
T M

Azimuths to True North
Magnetic North: 7.82°

Magnetic Field
Strength: 48891.4snT
Dip Angle: 60.40°
Date: 11/6/2018
Model: IGRF200510







NEW MEXICO

LEA
CHEDDAR
CHEDDAR FED COM 502H

CHEDDAR FED COM 502H

Plan: PWP0

Survey Report - Geographic

04 March, 2019

LGC

Survey Report - Geographic

Company:	NEW MEXICO	**Local Co-ordinate Reference:**	Well CHEDDAR FED COM 502H
Project:	LEA	**TVD Reference:**	RKB=3665+25 @ 3690.0usft
Site:	CHEDDAR	**MD Reference:**	RKB=3665+25 @ 3690.0usft
Well:	CHEDDAR FED COM 502H	**North Reference:**	True
Wellbore:	CHEDDAR FED COM 502H	**Survey Calculation Method:**	Minimum Curvature
Design:	PWP0	**Database:**	Centennial EDM SQL Server

Project LEA

Map System:	Universal Transverse Mercator (US Survey Fee	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Zone 13N (108 W to 102 W)		

Site CHEDDAR

Site Position:		**Northing:**	0.00 usft	**Latitude:**	0° 0' 0.000 N
From:	Map	**Easting:**	97,504,799.39 usft	**Longitude:**	152° 28' 52.124 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.00 °

Well CHEDDAR FED COM 502H

Well Position	**+N/-S**	0.0 usft	**Northing:**	11,768,778.29 usft	**Latitude:**	32° 24' 52.536 N
	+E/-W	0.0 usft	**Easting:**	2,040,277.56 usft	**Longitude:**	103° 42' 13.891 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	usft	**Ground Level:**	3,665.0 usft

Wellbore CHEDDAR FED COM 502H

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	12/31/2009	7.82	60.40	48,891.43140410

Design PWP0

Audit Notes:

Version:		**Phase:**	PROTOTYPE	**Tie On Depth:**	0.0

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	0.00

Survey Tool Program **Date** 3/4/2019

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	20,704.4	PWP0 (CHEDDAR FED COM 502H)	MWD+IFR1+MS	OWSG MWD + IFR1 + Multi-Station Correction

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.0	0.00	0.00	0.0	0.0	0.0	11,768,778.29	2,040,277.56	32° 24' 52.536 N	103° 42' 13.891 W
100.0	0.00	0.00	100.0	0.0	0.0	11,768,778.29	2,040,277.56	32° 24' 52.536 N	103° 42' 13.891 W
200.0	0.00	0.00	200.0	0.0	0.0	11,768,778.29	2,040,277.56	32° 24' 52.536 N	103° 42' 13.891 W
300.0	0.00	0.00	300.0	0.0	0.0	11,768,778.29	2,040,277.56	32° 24' 52.536 N	103° 42' 13.891 W
400.0	0.00	0.00	400.0	0.0	0.0	11,768,778.29	2,040,277.56	32° 24' 52.536 N	103° 42' 13.891 W
500.0	0.00	0.00	500.0	0.0	0.0	11,768,778.29	2,040,277.56	32° 24' 52.536 N	103° 42' 13.891 W
600.0	0.00	0.00	600.0	0.0	0.0	11,768,778.29	2,040,277.56	32° 24' 52.536 N	103° 42' 13.891 W
700.0	0.00	0.00	700.0	0.0	0.0	11,768,778.29	2,040,277.56	32° 24' 52.536 N	103° 42' 13.891 W
800.0	0.00	0.00	800.0	0.0	0.0	11,768,778.29	2,040,277.56	32° 24' 52.536 N	103° 42' 13.891 W
900.0	0.00	0.00	900.0	0.0	0.0	11,768,778.29	2,040,277.56	32° 24' 52.536 N	103° 42' 13.891 W
1,000.0	0.00	0.00	1,000.0	0.0	0.0	11,768,778.29	2,040,277.56	32° 24' 52.536 N	103° 42' 13.891 W
1,100.0	0.00	0.00	1,100.0	0.0	0.0	11,768,778.29	2,040,277.56	32° 24' 52.536 N	103° 42' 13.891 W

LGC

Survey Report - Geographic

Company:	NEW MEXICO	**Local Co-ordinate Reference:**	Well CHEDDAR FED COM 502H
Project:	LEA	**TVD Reference:**	RKB=3665+25 @ 3690.0usft
Site:	CHEDDAR	**MD Reference:**	RKB=3665+25 @ 3690.0usft
Well:	CHEDDAR FED COM 502H	**North Reference:**	True
Wellbore:	CHEDDAR FED COM 502H	**Survey Calculation Method:**	Minimum Curvature
Design:	PWP0	**Database:**	Centennial EDM SQL Server

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
1,200.0	0.00	0.00	1,200.0	0.0	0.0	11,768,778.29	2,040,277.56	32° 24' 52.536 N	103° 42' 13.891 W
1,300.0	0.00	0.00	1,300.0	0.0	0.0	11,768,778.29	2,040,277.56	32° 24' 52.536 N	103° 42' 13.891 W
1,400.0	0.00	0.00	1,400.0	0.0	0.0	11,768,778.29	2,040,277.56	32° 24' 52.536 N	103° 42' 13.891 W
1,500.0	0.00	0.00	1,500.0	0.0	0.0	11,768,778.29	2,040,277.56	32° 24' 52.536 N	103° 42' 13.891 W
1,600.0	0.00	0.00	1,600.0	0.0	0.0	11,768,778.29	2,040,277.56	32° 24' 52.536 N	103° 42' 13.891 W
1,700.0	0.00	0.00	1,700.0	0.0	0.0	11,768,778.29	2,040,277.56	32° 24' 52.536 N	103° 42' 13.891 W
1,800.0	0.00	0.00	1,800.0	0.0	0.0	11,768,778.29	2,040,277.56	32° 24' 52.536 N	103° 42' 13.891 W
1,900.0	0.00	0.00	1,900.0	0.0	0.0	11,768,778.29	2,040,277.56	32° 24' 52.536 N	103° 42' 13.891 W
2,000.0	0.00	0.00	2,000.0	0.0	0.0	11,768,778.29	2,040,277.56	32° 24' 52.536 N	103° 42' 13.891 W
2,100.0	0.00	0.00	2,100.0	0.0	0.0	11,768,778.29	2,040,277.56	32° 24' 52.536 N	103° 42' 13.891 W
2,200.0	0.00	0.00	2,200.0	0.0	0.0	11,768,778.29	2,040,277.56	32° 24' 52.536 N	103° 42' 13.891 W
2,300.0	0.00	0.00	2,300.0	0.0	0.0	11,768,778.29	2,040,277.56	32° 24' 52.536 N	103° 42' 13.891 W
2,400.0	0.00	0.00	2,400.0	0.0	0.0	11,768,778.29	2,040,277.56	32° 24' 52.536 N	103° 42' 13.891 W
2,500.0	0.00	0.00	2,500.0	0.0	0.0	11,768,778.29	2,040,277.56	32° 24' 52.536 N	103° 42' 13.891 W
2,600.0	0.00	0.00	2,600.0	0.0	0.0	11,768,778.29	2,040,277.56	32° 24' 52.536 N	103° 42' 13.891 W
2,700.0	1.00	111.60	2,700.0	-0.3	0.8	11,768,777.98	2,040,278.37	32° 24' 52.533 N	103° 42' 13.881 W
2,800.0	2.00	111.60	2,800.0	-1.3	3.2	11,768,777.05	2,040,280.82	32° 24' 52.524 N	103° 42' 13.853 W
2,900.0	3.00	111.60	2,899.9	-2.9	7.3	11,768,775.49	2,040,284.89	32° 24' 52.508 N	103° 42' 13.806 W
3,000.0	4.00	111.60	2,999.7	-5.1	13.0	11,768,773.31	2,040,290.59	32° 24' 52.486 N	103° 42' 13.739 W
3,100.0	5.00	111.60	3,099.4	-8.0	20.3	11,768,770.51	2,040,297.92	32° 24' 52.457 N	103° 42' 13.654 W
3,200.0	6.00	111.60	3,198.9	-11.6	29.2	11,768,767.09	2,040,306.88	32° 24' 52.422 N	103° 42' 13.550 W
3,300.0	7.00	111.60	3,298.3	-15.7	39.7	11,768,763.05	2,040,317.45	32° 24' 52.381 N	103° 42' 13.428 W
3,400.0	7.00	111.60	3,397.5	-20.2	51.0	11,768,758.71	2,040,328.84	32° 24' 52.336 N	103° 42' 13.295 W
3,500.0	7.00	111.60	3,496.8	-24.7	62.4	11,768,754.36	2,040,340.22	32° 24' 52.292 N	103° 42' 13.163 W
3,600.0	7.00	111.60	3,596.0	-29.2	73.7	11,768,750.01	2,040,351.61	32° 24' 52.248 N	103° 42' 13.031 W
3,700.0	7.00	111.60	3,695.3	-33.7	85.0	11,768,745.66	2,040,362.99	32° 24' 52.203 N	103° 42' 12.899 W
3,800.0	7.00	111.60	3,794.5	-38.2	96.4	11,768,741.31	2,040,374.38	32° 24' 52.159 N	103° 42' 12.767 W
3,900.0	7.00	111.60	3,893.8	-42.6	107.7	11,768,736.96	2,040,385.76	32° 24' 52.114 N	103° 42' 12.634 W
4,000.0	7.00	111.60	3,993.0	-47.1	119.0	11,768,732.61	2,040,397.14	32° 24' 52.070 N	103° 42' 12.502 W
4,100.0	7.00	111.60	4,092.3	-51.6	130.4	11,768,728.27	2,040,408.53	32° 24' 52.026 N	103° 42' 12.370 W
4,200.0	7.00	111.60	4,191.6	-56.1	141.7	11,768,723.92	2,040,419.91	32° 24' 51.981 N	103° 42' 12.238 W
4,300.0	7.00	111.60	4,290.8	-60.6	153.0	11,768,719.57	2,040,431.30	32° 24' 51.937 N	103° 42' 12.106 W
4,400.0	7.00	111.60	4,390.1	-65.1	164.4	11,768,715.22	2,040,442.68	32° 24' 51.892 N	103° 42' 11.973 W
4,500.0	7.00	111.60	4,489.3	-69.6	175.7	11,768,710.87	2,040,454.07	32° 24' 51.848 N	103° 42' 11.841 W
4,600.0	7.00	111.60	4,588.6	-74.0	187.0	11,768,706.52	2,040,465.45	32° 24' 51.804 N	103° 42' 11.709 W
4,700.0	7.00	111.60	4,687.8	-78.5	198.3	11,768,702.17	2,040,476.84	32° 24' 51.759 N	103° 42' 11.577 W
4,800.0	7.00	111.60	4,787.1	-83.0	209.7	11,768,697.83	2,040,488.22	32° 24' 51.715 N	103° 42' 11.444 W
4,900.0	7.00	111.60	4,886.3	-87.5	221.0	11,768,693.48	2,040,499.61	32° 24' 51.670 N	103° 42' 11.312 W
5,000.0	7.00	111.60	4,985.6	-92.0	232.3	11,768,689.13	2,040,510.99	32° 24' 51.626 N	103° 42' 11.180 W
5,100.0	7.00	111.60	5,084.8	-96.5	243.7	11,768,684.78	2,040,522.38	32° 24' 51.582 N	103° 42' 11.048 W
5,200.0	7.00	111.60	5,184.1	-101.0	255.0	11,768,680.43	2,040,533.76	32° 24' 51.537 N	103° 42' 10.916 W
5,300.0	7.00	111.60	5,283.4	-105.4	266.3	11,768,676.08	2,040,545.15	32° 24' 51.493 N	103° 42' 10.783 W
5,400.0	7.00	111.60	5,382.6	-109.9	277.7	11,768,671.73	2,040,556.53	32° 24' 51.448 N	103° 42' 10.651 W
5,500.0	7.00	111.60	5,481.9	-114.4	289.0	11,768,667.39	2,040,567.92	32° 24' 51.404 N	103° 42' 10.519 W
5,600.0	7.00	111.60	5,581.1	-118.9	300.3	11,768,663.04	2,040,579.30	32° 24' 51.360 N	103° 42' 10.387 W
5,700.0	7.00	111.60	5,680.4	-123.4	311.7	11,768,658.69	2,040,590.68	32° 24' 51.315 N	103° 42' 10.255 W
5,800.0	7.00	111.60	5,779.6	-127.9	323.0	11,768,654.34	2,040,602.07	32° 24' 51.271 N	103° 42' 10.122 W
5,900.0	7.00	111.60	5,878.9	-132.4	334.3	11,768,649.99	2,040,613.45	32° 24' 51.226 N	103° 42' 9.990 W
6,000.0	7.00	111.60	5,978.1	-136.9	345.6	11,768,645.64	2,040,624.84	32° 24' 51.182 N	103° 42' 9.858 W
6,100.0	7.00	111.60	6,077.4	-141.3	357.0	11,768,641.29	2,040,636.22	32° 24' 51.138 N	103° 42' 9.726 W
6,200.0	7.00	111.60	6,176.6	-145.8	368.3	11,768,636.95	2,040,647.61	32° 24' 51.093 N	103° 42' 9.594 W
6,300.0	7.00	111.60	6,275.9	-150.3	379.6	11,768,632.60	2,040,658.99	32° 24' 51.049 N	103° 42' 9.461 W
6,400.0	7.00	111.60	6,375.2	-154.8	391.0	11,768,628.25	2,040,670.38	32° 24' 51.004 N	103° 42' 9.329 W
6,500.0	7.00	111.60	6,474.4	-159.3	402.3	11,768,623.90	2,040,681.76	32° 24' 50.960 N	103° 42' 9.197 W
6,600.0	7.00	111.60	6,573.7	-163.8	413.6	11,768,619.55	2,040,693.15	32° 24' 50.916 N	103° 42' 9.065 W

LGC

Survey Report - Geographic

Company:	NEW MEXICO	**Local Co-ordinate Reference:**	Well CHEDDAR FED COM 502H
Project:	LEA	**TVD Reference:**	RKB=3665+25 @ 3690.0usft
Site:	CHEDDAR	**MD Reference:**	RKB=3665+25 @ 3690.0usft
Well:	CHEDDAR FED COM 502H	**North Reference:**	True
Wellbore:	CHEDDAR FED COM 502H	**Survey Calculation Method:**	Minimum Curvature
Design:	PWP0	**Database:**	Centennial EDM SQL Server

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
6,700.0	7.00	111.60	6,672.9	-168.3	425.0	11,768,615.20	2,040,704.53	32° 24' 50.871 N	103° 42' 8.933 W
6,800.0	7.00	111.60	6,772.2	-172.7	436.3	11,768,610.85	2,040,715.92	32° 24' 50.827 N	103° 42' 8.800 W
6,900.0	7.00	111.60	6,871.4	-177.2	447.6	11,768,606.51	2,040,727.30	32° 24' 50.782 N	103° 42' 8.668 W
7,000.0	7.00	111.60	6,970.7	-181.7	459.0	11,768,602.16	2,040,738.69	32° 24' 50.738 N	103° 42' 8.536 W
7,100.0	7.00	111.60	7,069.9	-186.2	470.3	11,768,597.81	2,040,750.07	32° 24' 50.694 N	103° 42' 8.404 W
7,200.0	7.00	111.60	7,169.2	-190.7	481.6	11,768,593.46	2,040,761.46	32° 24' 50.649 N	103° 42' 8.272 W
7,300.0	7.00	111.60	7,268.4	-195.2	493.0	11,768,589.11	2,040,772.84	32° 24' 50.605 N	103° 42' 8.139 W
7,400.0	7.00	111.60	7,367.7	-199.7	504.3	11,768,584.76	2,040,784.22	32° 24' 50.560 N	103° 42' 8.007 W
7,500.0	7.00	111.60	7,467.0	-204.1	515.6	11,768,580.42	2,040,795.61	32° 24' 50.516 N	103° 42' 7.875 W
7,600.0	7.00	111.60	7,566.2	-208.6	526.9	11,768,576.07	2,040,806.99	32° 24' 50.472 N	103° 42' 7.743 W
7,700.0	7.00	111.60	7,665.5	-213.1	538.3	11,768,571.72	2,040,818.38	32° 24' 50.427 N	103° 42' 7.610 W
7,800.0	7.00	111.60	7,764.7	-217.6	549.6	11,768,567.37	2,040,829.76	32° 24' 50.383 N	103° 42' 7.478 W
7,900.0	7.00	111.60	7,864.0	-222.1	560.9	11,768,563.02	2,040,841.15	32° 24' 50.338 N	103° 42' 7.346 W
8,000.0	7.00	111.60	7,963.2	-226.6	572.3	11,768,558.67	2,040,852.53	32° 24' 50.294 N	103° 42' 7.214 W
8,100.0	7.00	111.60	8,062.5	-231.1	583.6	11,768,554.32	2,040,863.92	32° 24' 50.250 N	103° 42' 7.082 W
8,200.0	7.00	111.60	8,161.7	-235.6	594.9	11,768,549.98	2,040,875.30	32° 24' 50.205 N	103° 42' 6.949 W
8,300.0	7.00	111.60	8,261.0	-240.0	606.3	11,768,545.63	2,040,886.69	32° 24' 50.161 N	103° 42' 6.817 W
8,400.0	7.00	111.60	8,360.2	-244.5	617.6	11,768,541.28	2,040,898.07	32° 24' 50.116 N	103° 42' 6.685 W
8,500.0	7.00	111.60	8,459.5	-249.0	628.9	11,768,536.93	2,040,909.46	32° 24' 50.072 N	103° 42' 6.553 W
8,600.0	7.00	111.60	8,558.8	-253.5	640.3	11,768,532.58	2,040,920.84	32° 24' 50.028 N	103° 42' 6.421 W
8,700.0	7.00	111.60	8,658.0	-258.0	651.6	11,768,528.23	2,040,932.23	32° 24' 49.983 N	103° 42' 6.288 W
8,800.0	7.00	111.60	8,757.3	-262.5	662.9	11,768,523.88	2,040,943.61	32° 24' 49.939 N	103° 42' 6.156 W
8,900.0	7.00	111.60	8,856.5	-267.0	674.3	11,768,519.54	2,040,955.00	32° 24' 49.894 N	103° 42' 6.024 W
9,000.0	7.00	111.60	8,955.8	-271.4	685.6	11,768,515.19	2,040,966.38	32° 24' 49.850 N	103° 42' 5.892 W
9,100.0	7.00	111.60	9,055.0	-275.9	696.9	11,768,510.84	2,040,977.76	32° 24' 49.805 N	103° 42' 5.760 W
9,200.0	7.00	111.60	9,154.3	-280.4	708.2	11,768,506.49	2,040,989.15	32° 24' 49.761 N	103° 42' 5.627 W
9,300.0	6.00	111.60	9,253.6	-284.6	718.8	11,768,502.45	2,040,999.72	32° 24' 49.720 N	103° 42' 5.505 W
9,400.0	5.00	111.60	9,353.2	-288.1	727.7	11,768,499.03	2,041,008.68	32° 24' 49.685 N	103° 42' 5.401 W
9,500.0	4.00	111.60	9,452.9	-291.0	735.0	11,768,496.23	2,041,016.01	32° 24' 49.656 N	103° 42' 5.316 W
9,600.0	3.00	111.60	9,552.7	-293.2	740.7	11,768,494.05	2,041,021.71	32° 24' 49.634 N	103° 42' 5.249 W
9,700.0	2.00	111.60	9,652.6	-294.9	744.7	11,768,492.50	2,041,025.78	32° 24' 49.618 N	103° 42' 5.202 W
9,800.0	1.00	111.60	9,752.5	-295.8	747.1	11,768,491.56	2,041,028.23	32° 24' 49.609 N	103° 42' 5.174 W
9,900.0	0.00	0.00	9,852.5	-296.1	748.0	11,768,491.25	2,041,029.05	32° 24' 49.605 N	103° 42' 5.164 W
10,000.0	0.00	0.00	9,952.5	-296.1	748.0	11,768,491.25	2,041,029.05	32° 24' 49.605 N	103° 42' 5.164 W
10,074.5	0.00	0.00	10,027.0	-296.1	748.0	11,768,491.25	2,041,029.05	32° 24' 49.605 N	103° 42' 5.164 W
10,100.0	2.55	0.15	10,052.5	-295.6	748.0	11,768,491.82	2,041,029.04	32° 24' 49.611 N	103° 42' 5.164 W
10,200.0	12.55	0.15	10,151.5	-282.4	748.0	11,768,504.94	2,041,028.92	32° 24' 49.741 N	103° 42' 5.164 W
10,300.0	22.55	0.15	10,246.8	-252.3	748.1	11,768,535.05	2,041,028.63	32° 24' 50.039 N	103° 42' 5.163 W
10,400.0	32.55	0.15	10,335.3	-206.1	748.2	11,768,581.25	2,041,028.19	32° 24' 50.496 N	103° 42' 5.161 W
10,500.0	42.55	0.15	10,414.5	-145.3	748.3	11,768,642.11	2,041,027.61	32° 24' 51.099 N	103° 42' 5.159 W
10,600.0	52.55	0.15	10,481.9	-71.6	748.5	11,768,715.80	2,041,026.91	32° 24' 51.828 N	103° 42' 5.157 W
10,700.0	62.55	0.15	10,535.5	12.7	748.8	11,768,800.08	2,041,026.11	32° 24' 52.662 N	103° 42' 5.155 W
10,800.0	72.55	0.15	10,573.6	105.0	749.0	11,768,892.38	2,041,025.23	32° 24' 53.576 N	103° 42' 5.152 W
10,900.0	82.55	0.15	10,595.2	202.5	749.3	11,768,989.90	2,041,024.30	32° 24' 54.541 N	103° 42' 5.149 W
10,974.5	90.00	0.15	10,600.0	276.8	749.5	11,769,064.18	2,041,023.60	32° 24' 55.276 N	103° 42' 5.146 W
11,000.0	90.00	0.15	10,600.0	302.3	749.5	11,769,089.68	2,041,023.35	32° 24' 55.528 N	103° 42' 5.146 W
11,035.9	90.00	0.15	10,600.0	338.2	749.6	11,769,125.57	2,041,023.01	32° 24' 55.884 N	103° 42' 5.145 W
11,100.0	90.00	0.15	10,600.0	402.3	749.8	11,769,189.68	2,041,022.40	32° 24' 56.518 N	103° 42' 5.143 W
11,200.0	90.00	0.15	10,600.0	502.3	750.0	11,769,289.67	2,041,021.45	32° 24' 57.508 N	103° 42' 5.140 W
11,300.0	90.00	0.15	10,600.0	602.3	750.3	11,769,389.67	2,041,020.50	32° 24' 58.497 N	103° 42' 5.136 W
11,400.0	90.00	0.15	10,600.0	702.3	750.6	11,769,489.66	2,041,019.55	32° 24' 59.487 N	103° 42' 5.133 W
11,500.0	90.00	0.15	10,600.0	802.3	750.8	11,769,589.66	2,041,018.60	32° 25' 0.477 N	103° 42' 5.130 W
11,600.0	90.00	0.15	10,600.0	902.3	751.1	11,769,689.65	2,041,017.65	32° 25' 1.467 N	103° 42' 5.127 W
11,700.0	90.00	0.15	10,600.0	1,002.3	751.4	11,769,789.65	2,041,016.69	32° 25' 2.456 N	103° 42' 5.124 W
11,800.0	90.00	0.15	10,600.0	1,102.3	751.6	11,769,889.65	2,041,015.74	32° 25' 3.446 N	103° 42' 5.121 W

LGC

Survey Report - Geographic

Company:	NEW MEXICO	**Local Co-ordinate Reference:**	Well CHEDDAR FED COM 502H
Project:	LEA	**TVD Reference:**	RKB=3665+25 @ 3690.0usft
Site:	CHEDDAR	**MD Reference:**	RKB=3665+25 @ 3690.0usft
Well:	CHEDDAR FED COM 502H	**North Reference:**	True
Wellbore:	CHEDDAR FED COM 502H	**Survey Calculation Method:**	Minimum Curvature
Design:	PWP0	**Database:**	Centennial EDM SQL Server

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
11,900.0	90.00	0.15	10,600.0	1,202.3	751.9	11,769,989.64	2,041,014.79	32° 25' 4.436 N	103° 42' 5.118 W
12,000.0	90.00	0.15	10,600.0	1,302.3	752.1	11,770,089.64	2,041,013.84	32° 25' 5.425 N	103° 42' 5.115 W
12,100.0	90.00	0.15	10,600.0	1,402.3	752.4	11,770,189.63	2,041,012.89	32° 25' 6.415 N	103° 42' 5.112 W
12,200.0	90.00	0.15	10,600.0	1,502.3	752.7	11,770,289.63	2,041,011.94	32° 25' 7.405 N	103° 42' 5.109 W
12,300.0	90.00	0.15	10,600.0	1,602.3	752.9	11,770,389.62	2,041,010.99	32° 25' 8.394 N	103° 42' 5.106 W
12,400.0	90.00	0.15	10,600.0	1,702.3	753.2	11,770,489.62	2,041,010.04	32° 25' 9.384 N	103° 42' 5.103 W
12,500.0	90.00	0.15	10,600.0	1,802.3	753.4	11,770,589.61	2,041,009.09	32° 25' 10.374 N	103° 42' 5.099 W
12,600.0	90.00	0.15	10,600.0	1,902.3	753.7	11,770,689.61	2,041,008.13	32° 25' 11.364 N	103° 42' 5.096 W
12,700.0	90.00	0.15	10,600.0	2,002.3	754.0	11,770,789.60	2,041,007.18	32° 25' 12.353 N	103° 42' 5.093 W
12,800.0	90.00	0.15	10,600.0	2,102.3	754.2	11,770,889.60	2,041,006.23	32° 25' 13.343 N	103° 42' 5.090 W
12,900.0	90.00	0.15	10,600.0	2,202.3	754.5	11,770,989.60	2,041,005.28	32° 25' 14.333 N	103° 42' 5.087 W
13,000.0	90.00	0.15	10,600.0	2,302.3	754.8	11,771,089.59	2,041,004.33	32° 25' 15.322 N	103° 42' 5.084 W
13,100.0	90.00	0.15	10,600.0	2,402.3	755.0	11,771,189.59	2,041,003.38	32° 25' 16.312 N	103° 42' 5.081 W
13,200.0	90.00	0.15	10,600.0	2,502.3	755.3	11,771,289.58	2,041,002.43	32° 25' 17.302 N	103° 42' 5.078 W
13,300.0	90.00	0.15	10,600.0	2,602.3	755.5	11,771,389.58	2,041,001.48	32° 25' 18.291 N	103° 42' 5.075 W
13,400.0	90.00	0.15	10,600.0	2,702.3	755.8	11,771,489.57	2,041,000.53	32° 25' 19.281 N	103° 42' 5.072 W
13,500.0	90.00	0.15	10,600.0	2,802.3	756.1	11,771,589.57	2,040,999.58	32° 25' 20.271 N	103° 42' 5.069 W
13,600.0	90.00	0.15	10,600.0	2,902.3	756.3	11,771,689.56	2,040,998.62	32° 25' 21.261 N	103° 42' 5.066 W
13,700.0	90.00	0.15	10,600.0	3,002.3	756.6	11,771,789.56	2,040,997.67	32° 25' 22.250 N	103° 42' 5.062 W
13,800.0	90.00	0.15	10,600.0	3,102.3	756.8	11,771,889.55	2,040,996.72	32° 25' 23.240 N	103° 42' 5.059 W
13,900.0	90.00	0.15	10,600.0	3,202.3	757.1	11,771,989.55	2,040,995.77	32° 25' 24.230 N	103° 42' 5.056 W
14,000.0	90.00	0.15	10,600.0	3,302.3	757.4	11,772,089.55	2,040,994.82	32° 25' 25.219 N	103° 42' 5.053 W
14,100.0	90.00	0.15	10,600.0	3,402.3	757.6	11,772,189.54	2,040,993.87	32° 25' 26.209 N	103° 42' 5.050 W
14,200.0	90.00	0.15	10,600.0	3,502.3	757.9	11,772,289.54	2,040,992.92	32° 25' 27.199 N	103° 42' 5.047 W
14,300.0	90.00	0.15	10,600.0	3,602.3	758.2	11,772,389.53	2,040,991.97	32° 25' 28.188 N	103° 42' 5.044 W
14,400.0	90.00	0.15	10,600.0	3,702.3	758.4	11,772,489.53	2,040,991.02	32° 25' 29.178 N	103° 42' 5.041 W
14,500.0	90.00	0.15	10,600.0	3,802.3	758.7	11,772,589.52	2,040,990.06	32° 25' 30.168 N	103° 42' 5.038 W
14,600.0	90.00	0.15	10,600.0	3,902.3	758.9	11,772,689.52	2,040,989.11	32° 25' 31.157 N	103° 42' 5.035 W
14,700.0	90.00	0.15	10,600.0	4,002.3	759.2	11,772,789.51	2,040,988.16	32° 25' 32.147 N	103° 42' 5.032 W
14,800.0	90.00	0.15	10,600.0	4,102.3	759.5	11,772,889.51	2,040,987.21	32° 25' 33.137 N	103° 42' 5.029 W
14,900.0	90.00	0.15	10,600.0	4,202.3	759.7	11,772,989.51	2,040,986.26	32° 25' 34.127 N	103° 42' 5.025 W
15,000.0	90.00	0.15	10,600.0	4,302.3	760.0	11,773,089.50	2,040,985.31	32° 25' 35.116 N	103° 42' 5.022 W
15,100.0	90.00	0.15	10,600.0	4,402.3	760.3	11,773,189.50	2,040,984.36	32° 25' 36.106 N	103° 42' 5.019 W
15,200.0	90.00	0.15	10,600.0	4,502.3	760.5	11,773,289.49	2,040,983.41	32° 25' 37.096 N	103° 42' 5.016 W
15,300.0	90.00	0.15	10,600.0	4,602.3	760.8	11,773,389.49	2,040,982.46	32° 25' 38.085 N	103° 42' 5.013 W
15,400.0	90.00	0.15	10,600.0	4,702.3	761.0	11,773,489.48	2,040,981.51	32° 25' 39.075 N	103° 42' 5.010 W
15,500.0	90.00	0.15	10,600.0	4,802.3	761.3	11,773,589.48	2,040,980.55	32° 25' 40.065 N	103° 42' 5.007 W
15,600.0	90.00	0.15	10,600.0	4,902.3	761.6	11,773,689.47	2,040,979.60	32° 25' 41.054 N	103° 42' 5.004 W
15,700.0	90.00	0.15	10,600.0	5,002.3	761.8	11,773,789.47	2,040,978.65	32° 25' 42.044 N	103° 42' 5.001 W
15,800.0	90.00	0.15	10,600.0	5,102.3	762.1	11,773,889.46	2,040,977.70	32° 25' 43.034 N	103° 42' 4.998 W
15,900.0	90.00	0.15	10,600.0	5,202.3	762.3	11,773,989.46	2,040,976.75	32° 25' 44.024 N	103° 42' 4.995 W
16,000.0	90.00	0.15	10,600.0	5,302.3	762.6	11,774,089.46	2,040,975.80	32° 25' 45.013 N	103° 42' 4.992 W
16,100.0	90.00	0.15	10,600.0	5,402.3	762.9	11,774,189.45	2,040,974.85	32° 25' 46.003 N	103° 42' 4.988 W
16,200.0	90.00	0.15	10,600.0	5,502.3	763.1	11,774,289.45	2,040,973.90	32° 25' 46.993 N	103° 42' 4.985 W
16,300.0	90.00	0.15	10,600.0	5,602.3	763.4	11,774,389.44	2,040,972.95	32° 25' 47.982 N	103° 42' 4.982 W
16,400.0	90.00	0.15	10,600.0	5,702.3	763.7	11,774,489.44	2,040,971.99	32° 25' 48.972 N	103° 42' 4.979 W
16,500.0	90.00	0.15	10,600.0	5,802.3	763.9	11,774,589.43	2,040,971.04	32° 25' 49.962 N	103° 42' 4.976 W
16,600.0	90.00	0.15	10,600.0	5,902.3	764.2	11,774,689.43	2,040,970.09	32° 25' 50.951 N	103° 42' 4.973 W
16,700.0	90.00	0.15	10,600.0	6,002.3	764.4	11,774,789.42	2,040,969.14	32° 25' 51.941 N	103° 42' 4.970 W
16,800.0	90.00	0.15	10,600.0	6,102.3	764.7	11,774,889.42	2,040,968.19	32° 25' 52.931 N	103° 42' 4.967 W
16,900.0	90.00	0.15	10,600.0	6,202.3	765.0	11,774,989.41	2,040,967.24	32° 25' 53.920 N	103° 42' 4.964 W
17,000.0	90.00	0.15	10,600.0	6,302.3	765.2	11,775,089.41	2,040,966.29	32° 25' 54.910 N	103° 42' 4.961 W
17,100.0	90.00	0.15	10,600.0	6,402.3	765.5	11,775,189.41	2,040,965.34	32° 25' 55.900 N	103° 42' 4.958 W
17,200.0	90.00	0.15	10,600.0	6,502.3	765.7	11,775,289.40	2,040,964.39	32° 25' 56.890 N	103° 42' 4.954 W
17,300.0	90.00	0.15	10,600.0	6,602.3	766.0	11,775,389.40	2,040,963.43	32° 25' 57.879 N	103° 42' 4.951 W

LGC

Survey Report - Geographic

Company:	NEW MEXICO	**Local Co-ordinate Reference:**	Well CHEDDAR FED COM 502H
Project:	LEA	**TVD Reference:**	RKB=3665+25 @ 3690.0usft
Site:	CHEDDAR	**MD Reference:**	RKB=3665+25 @ 3690.0usft
Well:	CHEDDAR FED COM 502H	**North Reference:**	True
Wellbore:	CHEDDAR FED COM 502H	**Survey Calculation Method:**	Minimum Curvature
Design:	PWP0	**Database:**	Centennial EDM SQL Server

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
17,400.0	90.00	0.15	10,600.0	6,702.3	766.3	11,775,489.39	2,040,962.48	32° 25' 58.869 N	103° 42' 4.948 W
17,500.0	90.00	0.15	10,600.0	6,802.3	766.5	11,775,589.39	2,040,961.53	32° 25' 59.859 N	103° 42' 4.945 W
17,600.0	90.00	0.15	10,600.0	6,902.3	766.8	11,775,689.38	2,040,960.58	32° 26' 0.848 N	103° 42' 4.942 W
17,700.0	90.00	0.15	10,600.0	7,002.3	767.1	11,775,789.38	2,040,959.63	32° 26' 1.838 N	103° 42' 4.939 W
17,800.0	90.00	0.15	10,600.0	7,102.3	767.3	11,775,889.37	2,040,958.68	32° 26' 2.828 N	103° 42' 4.936 W
17,900.0	90.00	0.15	10,600.0	7,202.3	767.6	11,775,989.37	2,040,957.73	32° 26' 3.817 N	103° 42' 4.933 W
18,000.0	90.00	0.15	10,600.0	7,302.3	767.8	11,776,089.37	2,040,956.78	32° 26' 4.807 N	103° 42' 4.930 W
18,100.0	90.00	0.15	10,600.0	7,402.3	768.1	11,776,189.36	2,040,955.83	32° 26' 5.797 N	103° 42' 4.927 W
18,200.0	90.00	0.15	10,600.0	7,502.3	768.4	11,776,289.36	2,040,954.88	32° 26' 6.786 N	103° 42' 4.924 W
18,300.0	90.00	0.15	10,600.0	7,602.3	768.6	11,776,389.35	2,040,953.92	32° 26' 7.776 N	103° 42' 4.921 W
18,400.0	90.00	0.15	10,600.0	7,702.3	768.9	11,776,489.35	2,040,952.97	32° 26' 8.766 N	103° 42' 4.917 W
18,500.0	90.00	0.15	10,600.0	7,802.3	769.2	11,776,589.34	2,040,952.02	32° 26' 9.756 N	103° 42' 4.914 W
18,600.0	90.00	0.15	10,600.0	7,902.3	769.4	11,776,689.34	2,040,951.07	32° 26' 10.745 N	103° 42' 4.911 W
18,700.0	90.00	0.15	10,600.0	8,002.3	769.7	11,776,789.33	2,040,950.12	32° 26' 11.735 N	103° 42' 4.908 W
18,800.0	90.00	0.15	10,600.0	8,102.3	769.9	11,776,889.33	2,040,949.17	32° 26' 12.725 N	103° 42' 4.905 W
18,900.0	90.00	0.15	10,600.0	8,202.3	770.2	11,776,989.32	2,040,948.22	32° 26' 13.714 N	103° 42' 4.902 W
19,000.0	90.00	0.15	10,600.0	8,302.3	770.5	11,777,089.32	2,040,947.27	32° 26' 14.704 N	103° 42' 4.899 W
19,100.0	90.00	0.15	10,600.0	8,402.3	770.7	11,777,189.32	2,040,946.32	32° 26' 15.694 N	103° 42' 4.896 W
19,200.0	90.00	0.15	10,600.0	8,502.3	771.0	11,777,289.31	2,040,945.36	32° 26' 16.683 N	103° 42' 4.893 W
19,300.0	90.00	0.15	10,600.0	8,602.3	771.2	11,777,389.31	2,040,944.41	32° 26' 17.673 N	103° 42' 4.890 W
19,400.0	90.00	0.15	10,600.0	8,702.3	771.5	11,777,489.30	2,040,943.46	32° 26' 18.663 N	103° 42' 4.887 W
19,500.0	90.00	0.15	10,600.0	8,802.3	771.8	11,777,589.30	2,040,942.51	32° 26' 19.652 N	103° 42' 4.883 W
19,600.0	90.00	0.15	10,600.0	8,902.3	772.0	11,777,689.29	2,040,941.56	32° 26' 20.642 N	103° 42' 4.880 W
19,700.0	90.00	0.15	10,600.0	9,002.3	772.3	11,777,789.29	2,040,940.61	32° 26' 21.632 N	103° 42' 4.877 W
19,800.0	90.00	0.15	10,600.0	9,102.3	772.6	11,777,889.28	2,040,939.66	32° 26' 22.622 N	103° 42' 4.874 W
19,900.0	90.00	0.15	10,600.0	9,202.3	772.8	11,777,989.28	2,040,938.71	32° 26' 23.611 N	103° 42' 4.871 W
20,000.0	90.00	0.15	10,600.0	9,302.3	773.1	11,778,089.27	2,040,937.76	32° 26' 24.601 N	103° 42' 4.868 W
20,100.0	90.00	0.15	10,600.0	9,402.3	773.3	11,778,189.27	2,040,936.81	32° 26' 25.591 N	103° 42' 4.865 W
20,200.0	90.00	0.15	10,600.0	9,502.3	773.6	11,778,289.27	2,040,935.85	32° 26' 26.580 N	103° 42' 4.862 W
20,300.0	90.00	0.15	10,600.0	9,602.3	773.9	11,778,389.26	2,040,934.90	32° 26' 27.570 N	103° 42' 4.859 W
20,400.0	90.00	0.15	10,600.0	9,702.3	774.1	11,778,489.26	2,040,933.95	32° 26' 28.560 N	103° 42' 4.856 W
20,500.0	90.00	0.15	10,600.0	9,802.3	774.4	11,778,589.25	2,040,933.00	32° 26' 29.549 N	103° 42' 4.853 W
20,600.0	90.00	0.15	10,600.0	9,902.3	774.7	11,778,689.25	2,040,932.05	32° 26' 30.539 N	103° 42' 4.849 W
20,700.0	90.00	0.15	10,600.0	10,002.3	774.9	11,778,789.24	2,040,931.10	32° 26' 31.529 N	103° 42' 4.846 W
20,704.4	90.00	0.15	10,600.0	10,006.7	774.3	11,778,793.65	2,040,930.46	32° 26' 31.573 N	103° 42' 4.853 W

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
FTP - CHEDDAR FEI	0.00	0.00	10,600.0	-347.7	784.1	11,768,440.11	2,041,065.78	32° 24' 49.095 N	103° 42' 4.743 W
- plan misses target center by 276.9usft at 10500.0usft MD (10414.5 TVD, -145.3 N, 748.3 E)									
- Circle (radius 50.0)									
LTP/BHL - CHEDDAF	0.00	0.00	10,600.0	10,006.7	774.3	11,778,793.65	2,040,930.46	32° 26' 31.573 N	103° 42' 4.853 W
- plan hits target center									
- Point									

Checked By: _____ Approved By: _____ Date: _____

Centennial Resource Development
New Mexico Multi-Well Pad Drilling
Batch Setting Procedures

➢ Avalon and Bone Springs Formations

13-3/8" Surface Casing - CRD intends to preset 13-3/8" casing to a depth approved in the APD. 17-1/2" Surface Holes will be batch drilled by a Surface Preset rig. Appropriate notifications will be made prior to spudding the well, running and cementing casing and prior to skidding to the rig to the next well on pad.

1. Drill 17-1/2" Surface hole to Approved Depth with Surface Preset Rig and perform wellbore cleanup cycles. Trip out and rack back drilling BHA.
2. Run and land 13-3/8" 54.5# J55 BTC casing to depth approved in APD.
3. Cement 13-3/8" casing with cement to surface and floats holding.
4. Cut / Dress 20" Conductor and 13-3/8" casing as needed, weld on Cameron Multi-bowl system with baseplate supported by 20" conductor (see Illustration 1-1 Below). Weld performed per Cameron weld procedure.
5. Test Weld to 70% of 13-3/8" casing collapse or ~ 790psi.
6. Install nightcap with Pressure Gauge on wellhead. Nightcap is shown on final wellhead Stack up Illustration #2-2 page 3.
7. Skid Rig to adjacent well to drill Surface hole.
8. Surface casing test will be performed by the Big Rig in order to allow ample time for Cement to develop 500psi compressive strength. Casing test to 0.22 psi/ft or 1500 psi whichever is greater - not to exceed 70% casing burst.

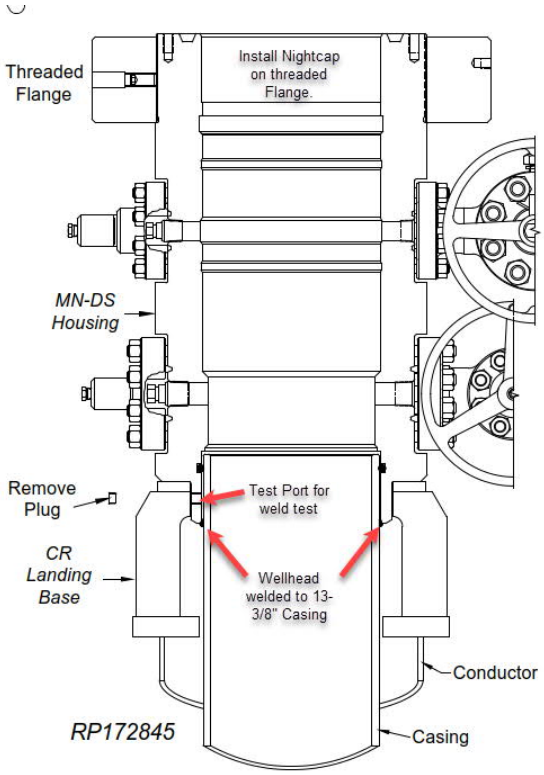


Illustration 1-1

- Intermediate and Production Casing – For all subsequent Intermediate and Production Casing Strings, the Big Rig will remove the nightcap and install and test BOPE. Prior to drill out the 13-3/8" Casing will be tested to 0.22psi/ft or 1500psi whichever is greater. The well will be drilled below 13-3/8" to its intended final TD in the Avalon or Bonesprings formations. Batch drilling will not be executed for casing strings below the 13-3/8". Appropriate notifications will be made prior Testing BOPE, and prior to running/cementing all casing strings. The

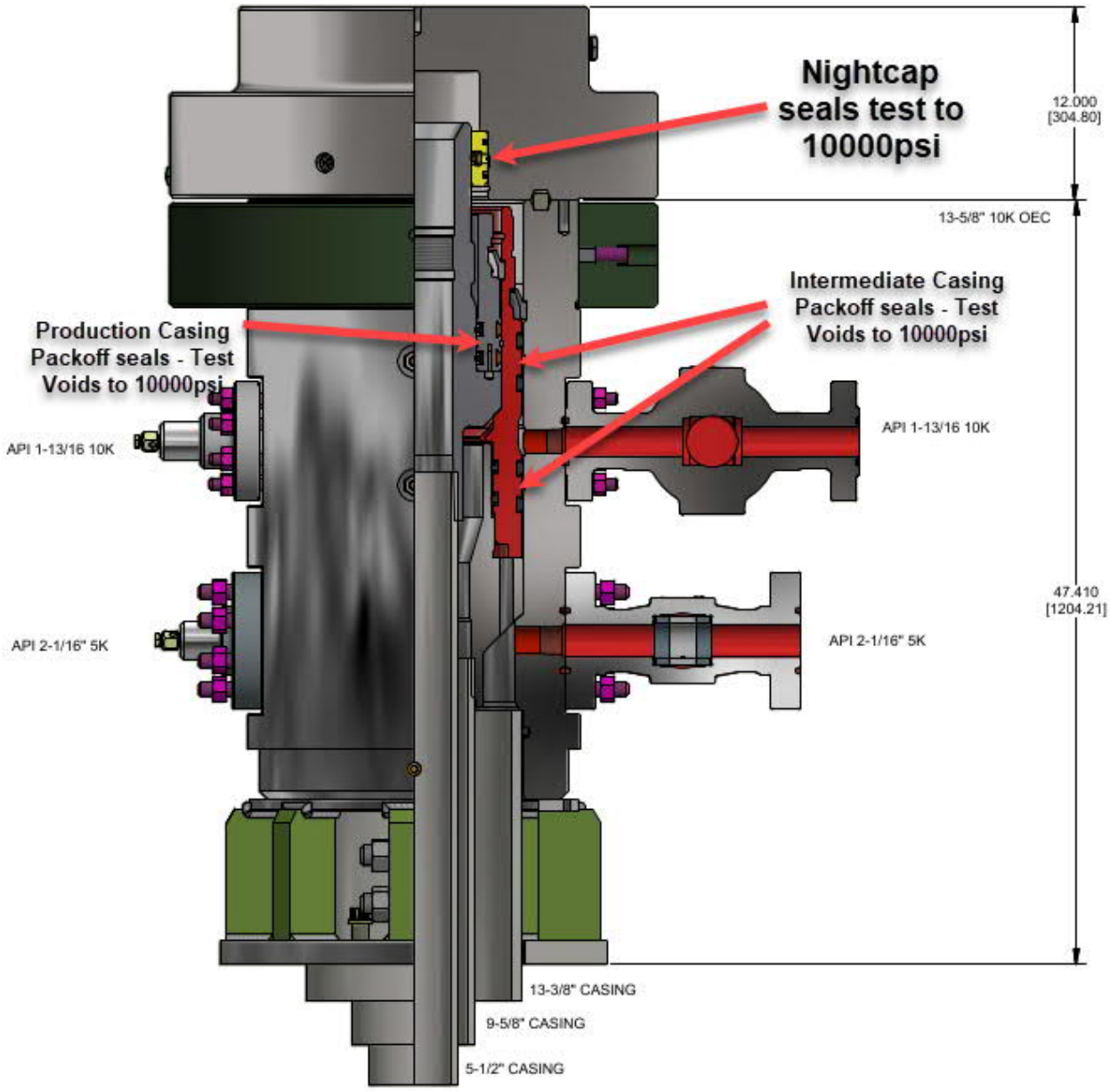
➢ Wolfcamp Formations

13-3/8" Surface Casing - CRD intends to preset 13-3/8" casing to a depth approved in the APD. Surface Holes will be batch set by a Surface Preset rig. Appropriate notifications will be made prior to spudding the well, running and cementing casing and prior to skidding to the rig to the next well on pad.

1. Drill 17-1/2" Surface hole to Approved Depth with Surface Preset Rig and perform wellbore cleanup cycles. Trip out and rack back drilling BHA.
2. Run and land 13-3/8" 54.5# J55 BTC casing to depth approved in APD.
3. Cement 13-3/8" casing with cement to surface and floats holding.
4. Cut / Dress 20" Conductor and 13-3/8" casing as needed, weld on Cameron Multi-bowl system with baseplate supported by 20" conductor (see Illustration 1-1). Weld performed per Cameron weld procedure.
5. Test Weld to 70% of 13-3/8" casing collapse or ~ 790psi.
6. Install nightcap with Pressure Gauge on wellhead. Nightcap is shown on final wellhead Stack up Illustration #2-2 on page 3.
7. Subsequent casing test will be performed by the Big Rig in order to allow ample time for Cement to develop 500psi compressive strength. Casing test to 0.22 psi/ft or 1500 psi whichever is greater - not to exceed 70% casing burst.

Intermediate Casing – CRD intends to Batch set all intermediate casing strings to a depth approved in the APD, typically set 100' above KOP in the 3rd Bonesprings Carbonate. For the last intermediate section drilled on pad, the associated production interval will immediately follow. Appropriate notifications will be made prior Testing BOPE, and prior to running/cementing all casing strings.

1. Big Rig will remove the nightcap and install and test BOPE.
2. Test Surface casing per COA WOC timing (.22 psi/ft or 1500 psi whichever is greater) - not to exceed 70% casing burst. Cement must have achieved 500psi compressive strength prior to test.
3. Install wear bushing then drill out 13-3/8" shoe-track plus 20' and conduct FIT to minimum of the MW equivalent anticipated to control the formation pressure to the next casing point.
4. Drill Intermediate hole to approved casing point. Trip out of hole with BHA to run Casing.
5. Remove wear bushing then run and land Intermediate Casing with mandrel hanger in wellhead.
6. Cement casing to surface with floats holding.
7. Washout stack then run wash tool in wellhead and wash hanger and pack-off setting area.
8. Install pack-off and test void to 10000 psi for 15 minutes. Nightcap shown on final wellhead stack up illustration 2-2 on page 3.
9. Test casing per COA WOC timing (.22 psi/ft or 1500 psi whichever is greater) - not to exceed 70% casing burst. Cement must have achieved 500psi compressive strength prior to test.
10. Install nightcap – skid rig to adjacent well to drill Intermediate hole.



WITH CAP

Illustration 2-2

Production Casing – CRD intends to Batch set all Production casings, except for the last intermediate hole. In this case the production interval will immediately follow the intermediate section on that well. Appropriate notifications will be made prior Testing BOPE, and prior to running/cementing all casing strings.

1. Big Rig will remove the nightcap and install and test BOPE.
2. Install wear bushing then drill Intermediate shoe-track plus 20' and conduct FIT to minimum MW equivalent to control the formation pressure to TD of well.
3. Drill Vertical hole to KOP – Trip out for Curve BHA.
4. Drill Curve, landing in production interval – Trip for Lateral BHA.

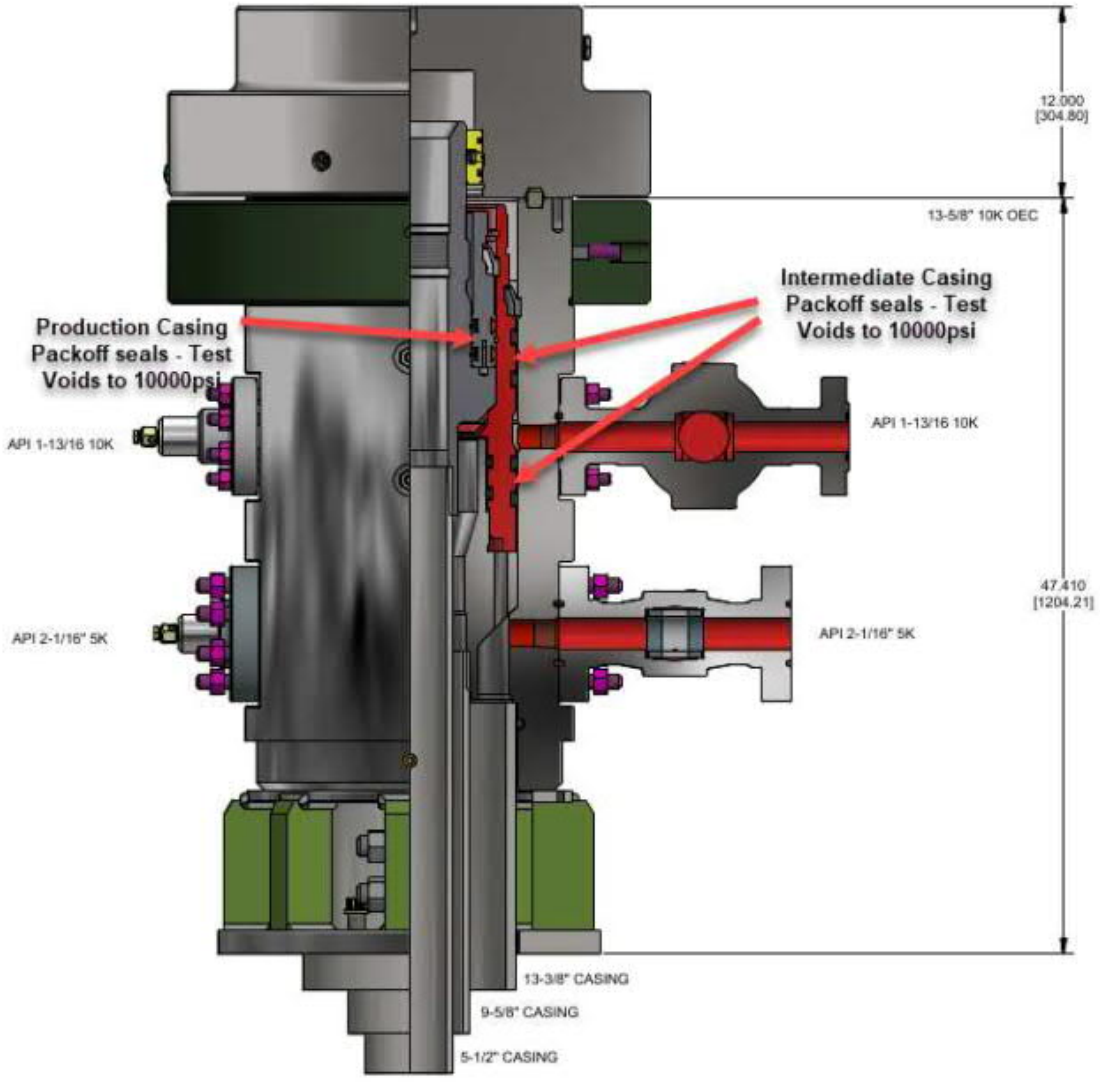
5. Drill Lateral / Production hole to Permitted BHL, perform cleanup cycles and trip out to run 5-1/2" Production Casing.
6. Remove wear bushing then run 5-1/2" production casing to TD landing casing mandrel in wellhead.
7. Cement 5-1/2" Production string to surface with floats holding.
8. Run in with wash tool and wash wellhead area – install pack-off and test void to 10000psi for 15 minutes.
9. Install BPV in 5-1/2" mandrel hanger – Nipple down BOPE and install nightcap.
10. Test nightcap void to 10000psi for 30 minutes per illustration 2-2 page 3.
11. Skid rig to adjacent well on pad to drill production hole.

Cheddar Fed Com 502H

Centennial Drilling Plan for 3-Casing String Bone Springs Formation

13-3/8" x 9-5/8" x 5-1/2" Casing Design

1. Drill 17-1/2" surface hole to Total Depth with Spudder Rig and perform wellbore cleanup cycles.
2. Run and land 13-3/8" casing to Depth.
3. Cement 13-3/8" casing – cement to surface.
4. Cut / Dress Conductor and 13-3/8" casing as needed, weld on Multi-bowl system with baseplate supported by 20" conductor.
5. Test Weld to 70% of 13-3/8" casing collapse. Place nightcap with Pressure Gauge on wellhead and test seals to 70% of Casing Collapse.
6. Bleed Pressure if necessary and remove nightcap. Nipple up and test BOPE with test plug per Onshore Order 2.
7. Test casing per COA WOC timing (.22 psi/ft or 1500 psi whichever is greater) - not to exceed 70% casing burst. Cement must have achieved 500psi compressive strength prior to test.
8. Install wear bushing then drill out 13-3/8" shoe-track plus 20' and conduct FIT to minimum of the MW equivalent anticipated to control the formation pressure to the next casing point.
9. Drill 12-1/4" Intermediate hole to 9-5/8" casing point. (Base Capitan Reef).
10. Remove wear bushing then run and land 9-5/8" Intermediate Casing with mandrel hanger in wellhead.
11. Cement 9-5/8 casing – cement to surface.
12. Washout stack then run wash tool in wellhead and wash hanger and pack-off setting area.
13. Install pack-off and test to 5000 psi for 15 minutes.
    a. Test casing per COA WOC timing (.22 psi/ft or 1500 psi whichever is greater) - not to exceed 70% casing burst. Cement must have achieved 500psi compressive strength prior to test.
14. Install wear bushing then drill out 9-5/8" shoe-track plus 20' and conduct FIT to minimum MW equivalent to control the formation pressure to TD of well.
15. Drill 8-3/4" Vertical hole to KOP – Trip out for Curve BHA.
16. Drill 8-3/4" Curve, landing in production interval – Trip for Lateral BHA.
17. Drill 8-1/2" Lateral to Permitted BHL, perform cleanup cycles and trip out to run 5-1/2" Production Casing.
18. Remove wear bushing then run 5-1/2" production casing to TD landing casing mandrel in wellhead.
19. Cement 5-1/2" Production string to surface.
20. Run in with wash tool and wash wellhead area – install pack-off and test to 5000psi for 15 minutes.
21. Install BPV in 5-1/2" mandrel hanger – Nipple down BOPE and install nightcap.
22. Test nightcap void to 5000psi for 30 minutes.


12.000
[304.80]
13-5/8" 10K OEC
Intermediate Casing
Packoff seals - Test
Voids to 10000psi
Production Casing
Packoff seals - Test
Voids to 10000psi
API 1-13/16 10K
API 1-13/16 10K
47.410
[1204.21]
API 2-1/16" 5K
API 2-1/16" 5K
13-3/8" CASING
9-5/8" CASING
5-1/2" CASING

WITH CAP

GEOLOGIC PROG

CENTENNIAL RESOURCE DEVELOPMENT, LLC

			WELL NAME	Cheddar Federal Com 502H			8/28/2020	
			AREA	Burratta		API		
			HZ TARGET	SBSG Sand		WI %		
			LAT LENGTH	10,000		AFE#		
			TRRC PERMIT			COUNTY	Lea	
	TWNP	RNG	SECTION	FOOTAGE		COMMENT		
SHL	22S	32E	5	453' FSL, 470' FWL		On lease. Drill S to N.		
FTP/PP	22S	32E	5	100' FSL, 1254' FWL				
LTP	21S	32E	32	100' FNL, 1254' FWL				
BHL	21S	32E	32	100' FNL, 1254' FWL				
			GROUND LEVEL	3,665'	RIG KB	26'	KB ELEV	3,691'
GEOLOGIST	Isabel Harper		isabel.harper@cdevinc.com			(303) 589-8841		
LOGGING	No open hole logging. MWD GR from drill out of surface casing to TD.							
MUDLOGGING	Standard mud logging and mud gas detection. Mud loggers on from drill out of surface casing to TD.							

FORMATION	TVD	SSTVD	THICKNESS	FINAL MD	FINAL TVD	DELTA
Rustler	743'	2,948'	3,900'			
Salado	916'	2,775'	3,811'			
BX BLM (Fletcher Anhydrite)	3,393'	298'	2,131'			
Lamar	4,643'	-952'	84'			
Bell Canyon	4,727'	-1,036'	797'			
Cherry Canyon	5,524'	-1,833'	230'			
Manzanita Lime	5,754'	-2,063'	1,100'			
Brushy Canyon	6,854'	-3,163'	1,727'			
Bone Spring Lime	8,581'	-4,890'	152'			
Avalon	8,733'	-5,042'	887'			
FBSG Sand	9,620'	-5,929'	264'			
SBSG Shale	9,884'	-6,193'	405'			
SBSG Sand	10,289'	-6,598'	454'			
TBSG Carb	10,743'	-7,052'	529'			
TBSG Sand	11,272'	-7,581'				
Target Top at 0'VS	10,602'	-6,911'	69'			
Target Base at 0' VS	10,671'	-6,980'				
HZ TARGET AT 0' VS	10,641'	-6,950'				

TARGET: KBTVD = 10,641' at VS, INC = 90.0 deg
Target Window +10/-10'

COMMENT:

GEOLOGIC PROG

OFFSET TYPE WELLS

CENTENNIAL RESOURCE DEVELOPMENT, LLC

	DRILLING WELL	Cheddar Federal Com 502H			8/28/2020	
	HZ TARGET	SBSG Sand		AREA	Burratta	
	PRIMARY TYPE LOG				SECONDARY TYPE LOG	
	CHEDDAR 3BS FEDERAL 001H				FEDERAL 8 1	
	30-025-44692				30-025-32709	
LOCATION	22S/32E/5; 244' FSL/370' FWL				22S/32E/8; 1980' FNL/1980' FEL	
DISTANCE	180' S of SHL				3250' SE of SHL	
DIRECTION SURVEY	Y				N	
KB ELEV	3,694'				3,748'	
FORMATION	TVD	SSTVD	DELTA		TVD	SSTVD	DELTA
Rustler	746'	2,948'			722'	3,026'	
Salado	919'	2,775'			894'	2,854'	
Lamar	4,646'	-952'			4,701'	-953'	
Bell Canyon	4,730'	-1,036'	797'		4,768'	-1,020'	836'
Cherry Canyon	5,527'	-1,833'	230'		5,604'	-1,856'	235'
Manzanita Lime	5,757'	-2,063'	1,100'		5,839'	-2,091'	1,105'
Brushy Canyon	6,857'	-3,163'	1,727'		6,944'	-3,196'	1,701'
Bone Spring Lime	8,584'	-4,890'	152'		8,645'	-4,897'	192'
Avalon	8,736'	-5,042'	887'		8,837'	-5,089'	914'
FBSG Sand	9,623'	-5,929'	264'		9,751'	-6,003'	255'
SBSG Shale	9,887'	-6,193'	405'		10,006'	-6,258'	324'
SBSG Sand	10,292'	-6,598'	454'		10,330'	-6,582'	488'
TBSG Carb	10,746'	-7,052'	529'		10,818'	-7,070'	591'
TBSG Sand	11,275'	-7,581'			11,409'	-7,661'	423'
WFMP					11,832'	-8,084'	
Casing Details							
13 3/8	728'			13 3/8	818'		
9 5/8	4,501'			9 5/8	4,560'		
5 1/2	21,661'			7	12,555'		
Reservoir Top	10,605'	-6,911'	69'		10,686'	-6,938'	60'
Reservoir Base	10,674'	-6,980'			10,746'	-6,998'	

Comments

GEOLOGIC PROG

OFFSET TYPE WELLS

CENTENNIAL RESOURCE DEVELOPMENT, LLC	DRILLING WELL	Cheddar Federal Com 502H		8/28/2020
	HZ TARGET	SBSG Sand	AREA	Burratta
	PRIMARY TYPE LOG		SECONDARY TYPE LOG	
	CHEDDAR 3BS FEDERAL 001H		FEDERAL 8 1	
	30-025-44692		30-025-32709	
LOCATION	22S/32E/5; 244' FSL/370' FWL		22S/32E/8; 1980' FNL/1980' FEL	
DISTANCE	180' S of SHL		3250' SE of SHL	
DIRECTION SURVEY	Y		N	
KB ELEV	3,694'		3,748'	

LOCATION & STRUCTURE MAP

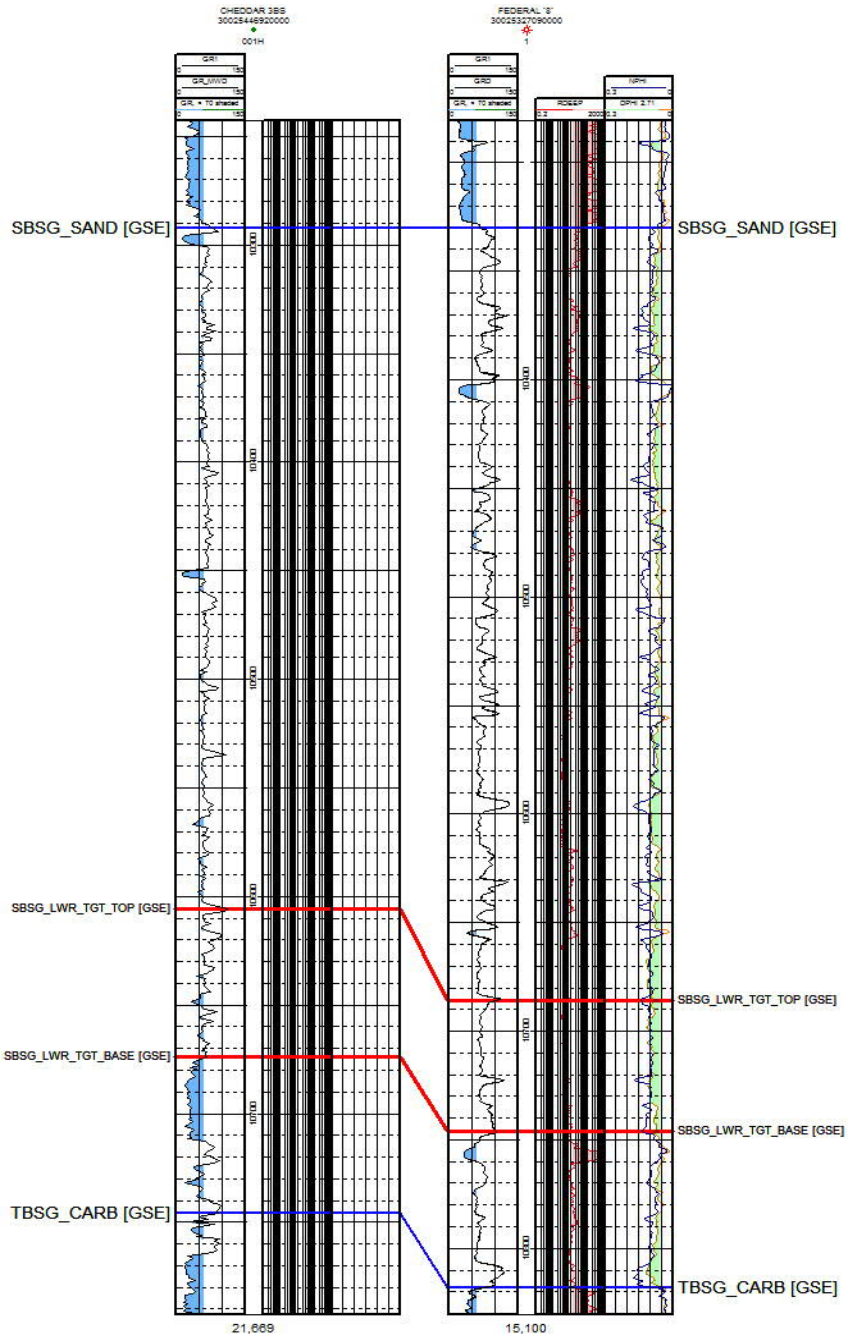
WFMP SS Structure Map

GEOLOGIC PROG

OFFSET TYPE SECTION

CENTENNIAL RESOURCE DEVELOPMENT, LLC	DRILLING WELL	Cheddar Federal Com 502H		8/28/2020
	HZ TARGET	SBSG Sand	AREA	SBSG Sand
	PRIMARY TYPE LOG		SECONDARY TYPE LOG	
	CHEDDAR 3BS FEDERAL 001H		FEDERAL 8 1	
	30-025-44692		30-025-32709	
LOCATION	22S/32E/5; 244' FSL/370' FWL		22S/32E/8; 1980' FNL/1980' FEL	
DISTANCE	180' S of SHL		3250' SE of SHL	
DIRECTION SURVEY	Y		N	
KB ELEV	3,694'		3,748'	

Type Log and Targer Zone



GEOLOGIC PROG

MUD LOG DISTRIBUTION DETAILS

CENTENNIAL RESOURCE DEVELOPMENT, LLC	WELL NAME	Cheddar Federal Com 502H		8/28/2020
	AREA	Burratta	API	
	HZ TARGET	SBSG Sand	WI %	
	LAT LENGTH	10000	AFE#	
	TRRC PERMIT		COUNTY	Lea

GEOLOGIST	Isabel Harper	isabel.harper@cdevinc.com	(303) 589-8841

Mud Logging Company		
TBD		
TBD	TBD	TBD
Contact 2	email	phone
Contact 3	email	phone

Daily distribution data requirements and protocol

geodata@cdevinc.com; joe.woodske@cdevinc.com; drilling@cdevinc.com; dawn.billesbach@cdevinc.com, Andrew.welshhans@cdevinc.com; nick.daniele@cdevinc.com;Isabel.Harper@cdevinc.com

Daily email distribution list

Final distribution data requirements

Final distribution list

Contact Information	Reports	Hard Copies	Digital data	Cuttings
Centennial Resource Development, c/o Joe Woodske, 1001 17th street, Suite 1800,	email final set	2 copies of 5" MD Vertical, 2 copies of 5" Horizontal and	email final set	
SCAL, Inc., 2613 South County Road 1257, Midland, TX 79706				No Dried Samples to be Collected
MWD Only: Centennial Resource Development, c/o Sarah Ferreyros, 1001 17th street, Suite	email final set	2 copies of the 5" MD vertical logs 2 copies of the 5"	email final set	

Project Geologist:	Isabel Harper	Production:	Brandon Morin
Operations Geologist:	Joe Woodske	Surface Land:	Bailey Joplim
Drilling:	Ronny Hise	Mineral Land:	Gavin Smith

Continental
ContiTech

CONTITECH RUBBER Industrial Kft.	No:QC-DB- 210/ 2014
	Page: 9 / 113

QUALITY CONTROL INSPECTION AND TEST CERTIFICATE					CERT. N°:	504	
PURCHASER:	ContiTech Oil & Marine Corp.				P.O. N°:	4500409659	
CONTITECH RUBBER order N°:	538236		HOSE TYPE:	3" ID	Choke and Kill Hose		
HOSE SERIAL N°:	67255		NOMINAL / ACTUAL LENGTH:		10,67 m / 10,77 m		
W.P. 68,9 MPa	10000 psi		T.P. 103,4 MPa	15000 psi	Duration:	60	min.

Pressure test with water at
ambient temperature

See attachment. (1 page)

↑ 10 mm = 10 Min.
→ 10 mm = 20 MPa

COUPLINGS Type	Serial N°		Quality	Heat N°
3" coupling with	9251	9254	AISI 4130	A0579N
4 1/16" 10K API b.w. Flange end			AISI 4130	035608

Not Designed For Well Testing **API Spec 16 C**

Temperature rate:"B"

All metal parts are flawless

WE CERTIFY THAT THE ABOVE HOSE HAS BEEN MANUFACTURED IN ACCORDANCE WITH THE TERMS OF THE ORDER INSPECTED AND PRESSURE TESTED AS ABOVE WITH SATISFACTORY RESULT.

STATEMENT OF CONFORMITY: We hereby certify that the above items/equipment supplied by us are in conformity with the terms, conditions and specifications of the above Purchaser Order and that these items/equipment were fabricated inspected and tested in accordance with the referenced standards, codes and specifications and meet the relevant acceptance criteria and design requirements.

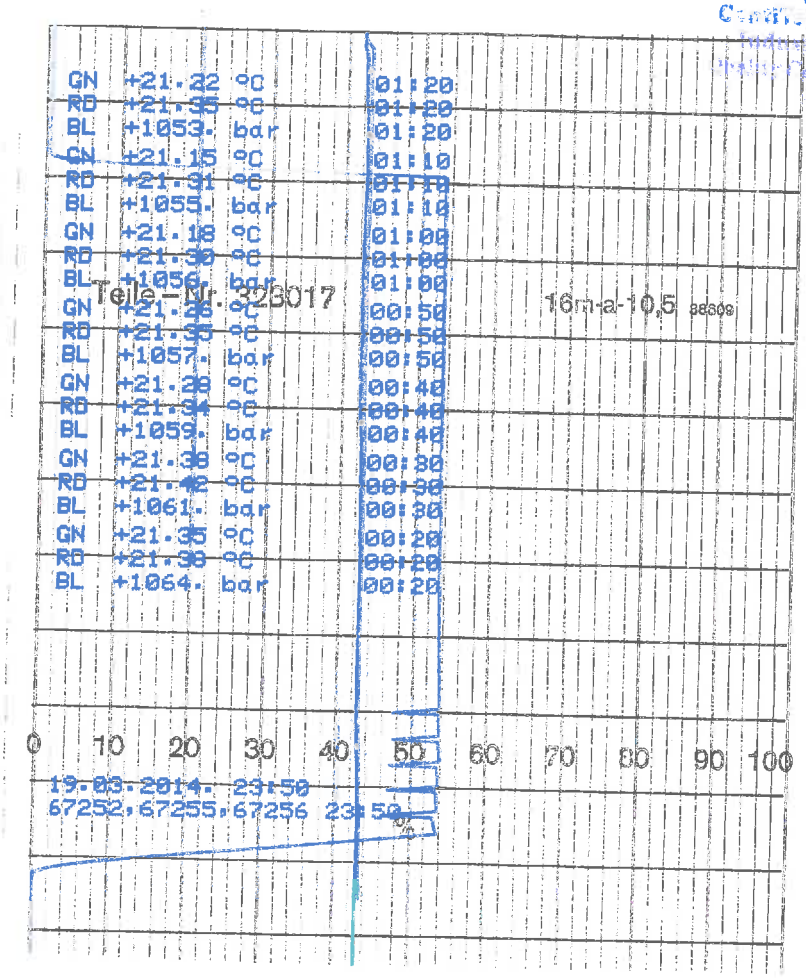
COUNTRY OF ORIGIN HUNGARY/EU

Date:	Inspector	Quality Control
20. March 2014.		ContiTech Rubber Industrial Kft. Quality Control Dept.

ATTACHMENT OF QUALITY CONTROL INSPECTION AND TEST CERTIFICATE No: 501, 504, 505

Page: 1 / 1

Rubber
Industrial Kft.
Quality Control Dept.



Hose Data Sheet

CRI Order No.	538236
Customer	ContiTech Oil & Marine Corp.
Customer Order No	4500409659
Item No.	1
Hose Type	Flexible Hose
Standard	**API SPEC 16 C**
Inside dia in inches	3
Length	35 ft
Type of coupling one end	FLANGE 4.1/16" 10K API SPEC 6A TYPE 6BX FLANGE C/W BX155 R.GR.SOUR
Type of coupling other end	FLANGE 4.1/16" 10K API SPEC 6A TYPE 6BX FLANGE C/W BX155 R.GR.SOUR
H2S service NACE MR0175	Yes
Working Pressure	10 000 psi
Design Pressure	10 000 psi
Test Pressure	15 000 psi
Safety Factor	2,25
Marking	USUAL PHOENIX
Cover	NOT FIRE RESISTANT
Outside protection	St.steel outer wrap
Internal stripwound tube	No
Lining	OIL + GAS RESISTANT SOUR
Safety clamp	No
Lifting collar	No
Element C	No
Safety chain	No
Safety wire rope	No
Max.design temperature [°C]	100
Min.design temperature [°C]	-20
Min. Bend Radius operating [m]	0,90
Min. Bend Radius storage [m]	0,90
Electrical continuity	The Hose is electrically continuous
Type of packing	WOODEN CRATE ISPM-15

AFMSS

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

PWD Data Report

08/23/2021

APD ID: 10400052340 **Submission Date:** 12/13/2019

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: CHEDDAR FEDERAL COM **Well Number:** 502H

Well Type: OIL WELL **Well Work Type:** Drill

Section 1 - General

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

Section 2 - Lined Pits

Would you like to utilize Lined Pit PWD options? N

Produced Water Disposal (PWD) Location:

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

Lined pit PWD on or off channel:

Lined pit PWD discharge volume (bbl/day):

Lined pit specifications:

Pit liner description:

Pit liner manufacturers information:

Precipitated solids disposal:

Decribe precipitated solids disposal:

Precipitated solids disposal permit:

Lined pit precipitated solids disposal schedule:

Lined pit precipitated solids disposal schedule attachment:

Lined pit reclamation description:

Lined pit reclamation attachment:

Leak detection system description:

Leak detection system attachment:

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: CHEDDAR FEDERAL COM **Well Number:** 502H

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? N

Produced Water Disposal (PWD) Location:

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

Unlined pit PWD on or off channel:

Unlined pit PWD discharge volume (bbl/day):

Unlined pit specifications:

Precipitated solids disposal:

Decribe precipitated solids disposal:

Precipitated solids disposal permit:

Unlined pit precipitated solids disposal schedule:

Unlined pit precipitated solids disposal schedule attachment:

Unlined pit reclamation description:

Unlined pit reclamation attachment:

Unlined pit Monitor description:

Unlined pit Monitor attachment:

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

Beneficial use user confirmation:

Estimated depth of the shallowest aquifer (feet):

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

TDS lab results:

Geologic and hydrologic evidence:

State authorization:

Unlined Produced Water Pit Estimated percolation:

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

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: CHEDDAR FEDERAL COM **Well Number:** 502H

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? N

Produced Water Disposal (PWD) Location:

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

Injection PWD discharge volume (bbl/day):

Injection well mineral owner:

Injection well type:

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

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

Injection well new surface disturbance (acres):

Minerals protection information:

Mineral protection attachment:

Underground Injection Control (UIC) Permit?

UIC Permit attachment:

Section 5 - Surface Discharge

Would you like to utilize Surface Discharge PWD options? N

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? N

Produced Water Disposal (PWD) Location:

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

Other PWD discharge volume (bbl/day):

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: CHEDDAR FEDERAL COM **Well Number:** 502H

Other PWD type description:

Other PWD type attachment:

Have other regulatory requirements been met?

Other regulatory requirements attachment:

AFMSS

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

Bond Info Data Report

08/23/2021

APD ID: 10400052340 **Submission Date:** 12/13/2019

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: CHEDDAR FEDERAL COM **Well Number:** 502H

Well Type: OIL WELL **Well Work Type:** Drill

Highlighted data reflects the most recent changes

Show Final Text

Bond Information

Federal/Indian APD: FED

BLM Bond number: NMB001841

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:

State of New Mexico
Energy, Minerals and Natural Resources Department

Submit Electronically
Via E-permitting

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

NATURAL GAS MANAGEMENT PLAN

This Natural Gas Management Plan must be submitted with each Application for Permit to Drill (APD) for a new or recompleted well.

Section 1 – Plan Description

Effective May 25, 2021

I. Operator: Centennial Resource Prod, LLC **OGRID:** 372165 **Date:** 12 / 13 / 21

II. Type: ■ Original ☐ Amendment due to ☐ 19.15.27.9.D(6)(a) NMAC ☐ 19.15.27.9.D(6)(b) NMAC ☐ Other.

If Other, please describe: _____

III. Well(s): Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	API	ULSTR	Footages	Anticipated Oil BBL/D	Anticipated Gas MCF/D	Anticipated Produced Water BBL/D
Cheddar Fed Com 502H	30-025-49737	M-5-22S-32E	453 FSL& 470 FWL	1270 BBL/D	1295 MCF/D	5860 BBL/D

IV. Central Delivery Point Name: Cheddar 3BS Fed Com 1H CDP [See 19.15.27.9(D)(1) NMAC]

V. Anticipated Schedule: Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	API	Spud Date	TD Reached Date	Completion Commencement Date	Initial Flow Back Date	First Production Date
Cheddar Fed Com 502H	30-025-49737	02/24/2022	03/05/2022	04/23/2022	05/05/2022	05/05/2022

VI. Separation Equipment: ■ Attach a complete description of how Operator will size separation equipment to optimize gas capture.

VII. Operational Practices: ■ Attach a complete description of the actions Operator will take to comply with the requirements of Subsection A through F of 19.15.27.8 NMAC.

VIII. Best Management Practices: ■ Attach a complete description of Operator's best management practices to minimize venting during active and planned maintenance.

Section 2 – Enhanced Plan
EFFECTIVE APRIL 1, 2022

Beginning April 1, 2022, an operator that is not in compliance with its statewide natural gas capture requirement for the applicable reporting area must complete this section.

■ Operator certifies that it is not required to complete this section because Operator is in compliance with its statewide natural gas capture requirement for the applicable reporting area.

IX. Anticipated Natural Gas Production:

Well	API	Anticipated Average Natural Gas Rate MCF/D	Anticipated Volume of Natural Gas for the First Year MCF

X. Natural Gas Gathering System (NGGS):

Operator	System	ULSTR of Tie-in	Anticipated Gathering Start Date	Available Maximum Daily Capacity of System Segment Tie-in

XI. Map. ☐ Attach an accurate and legible map depicting the location of the well(s), the anticipated pipeline route(s) connecting the production operations to the existing or planned interconnect of the natural gas gathering system(s), and the maximum daily capacity of the segment or portion of the natural gas gathering system(s) to which the well(s) will be connected.

XII. Line Capacity. The natural gas gathering system ☐ will ☐ will not have capacity to gather 100% of the anticipated natural gas production volume from the well prior to the date of first production.

XIII. Line Pressure. Operator ☐ does ☐ does not anticipate that its existing well(s) connected to the same segment, or portion, of the natural gas gathering system(s) described above will continue to meet anticipated increases in line pressure caused by the new well(s).

☐ Attach Operator's plan to manage production in response to the increased line pressure.

XIV. Confidentiality: ☐ Operator asserts confidentiality pursuant to Section 71-2-8 NMSA 1978 for the information provided in Section 2 as provided in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and attaches a full description of the specific information for which confidentiality is asserted and the basis for such assertion.

Section 3 - Certifications

Effective May 25, 2021

Operator certifies that, after reasonable inquiry and based on the available information at the time of submittal:

■ Operator will be able to connect the well(s) to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system; or

☐ Operator will not be able to connect to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system. ***If Operator checks this box, Operator will select one of the following:***

Well Shut-In. ☐ Operator will shut-in and not produce the well until it submits the certification required by Paragraph (4) of Subsection D of 19.15.27.9 NMAC; or

Venting and Flaring Plan. ☐ Operator has attached a venting and flaring plan that evaluates and selects one or more of the potential alternative beneficial uses for the natural gas until a natural gas gathering system is available, including:

- **(a)** power generation on lease;
- **(b)** power generation for grid;
- **(c)** compression on lease;
- **(d)** liquids removal on lease;
- **(e)** reinjection for underground storage;
- **(f)** reinjection for temporary storage;
- **(g)** reinjection for enhanced oil recovery;
- **(h)** fuel cell production; and
- **(i)** other alternative beneficial uses approved by the division.

Section 4 - Notices

1. If, at any time after Operator submits this Natural Gas Management Plan and before the well is spud:

(a) Operator becomes aware that the natural gas gathering system it planned to connect the well(s) to has become unavailable or will not have capacity to transport one hundred percent of the production from the well(s), no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised venting and flaring plan containing the information specified in Paragraph (5) of Subsection D of 19.15.27.9 NMAC; or

(b) Operator becomes aware that it has, cumulatively for the year, become out of compliance with its baseline natural gas capture rate or natural gas capture requirement, no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised Natural Gas Management Plan for each well it plans to spud during the next 90 days containing the information specified in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and shall file an update for each Natural Gas Management Plan until Operator is back in compliance with its baseline natural gas capture rate or natural gas capture requirement.

2. OCD may deny or conditionally approve an APD if Operator does not make a certification, fails to submit an adequate venting and flaring plan which includes alternative beneficial uses for the anticipated volume of natural gas produced, or if OCD determines that Operator will not have adequate natural gas takeaway capacity at the time a well will be spud.

I certify that, after reasonable inquiry, the statements in and attached to this Natural Gas Management Plan are true and correct to the best of my knowledge and acknowledge that a false statement may be subject to civil and criminal penalties under the Oil and Gas Act.

Signature: Stewart MacCallum	1/31/2022
Printed Name: Stewart MacCallum	
Title: Director of Marketing	
E-mail Address: Stewart.MacCallum@cdevinc.com	
Date:	
Phone: (720) 499-1458	

OIL CONSERVATION DIVISION (Only applicable when submitted as a standalone form)
Approved By:
Title:
Approval Date:
Conditions of Approval:

Centennial Resource Production, LLC (372165)

Natural Gas Management Plan Descriptions

VI. Separation Equipment:

Centennial utilizes a production forecast from our Reservoir Engineering team to appropriately size each permanent, 3-phase separator and heater treater utilized for production operations. Our goal is to maintain 5 minutes of retention time in the test vessel and 20 minutes in the heater treater at peak production rates. The gas produced is routed from the separator to the gas sales line.

VII. Operational Practices:

Drilling

During Centennial's drilling operations it is uncommon for venting or flaring to occur. If flaring is needed due to safety concerns, gas will be routed to a flare and volumes will be estimated.

Flowback

During completion/recompletion flowback operations, after separation flowback begins and as soon as it is technically feasible, Centennial routes gas though a permanent separator and the controlled facility where the gas is either sold or flared through a high-pressure flare if needed.

Production

Per 19.15.27.8.D, Centennial's facilities are designed to minimize waste. Our produced gas will only be vented or flared in an emergency or malfunction situation, except as allowed for normal operations noted in 19.15.27.8.D(2) & (4). All gas that is flared is metered. All gas that may be vented will be estimated.

Performance Standards

Centennial utilizes a production forecast from our Reservoir Engineering team to appropriately size each permanent, 3-phase separator and heater treater utilized for production operations.

All of Centennial's permanent storage tanks associated with production operations which are routed to a flare or control device are equipped with an automatic gauging system.

All of Centennial's flare stacks, both currently installed and for future installation, are:

1) Appropriately sized and designed to ensure proper combustion efficiency.
2) Equipped with an automatic ignitor or continuous pilot.
3) Anchored and located at least 100 feet from the well and storage tanks.

Centennial's field operations and HSE teams have implemented an AVO inspection schedule that adheres to the requirements of 19.15.27.8.E(5).

All of our operations and facilities are designed to minimize waste. We routinely employ the following methods and practices:

- Closed-loop systems
- Enclosed and properly sized tanks

- Vapor recovery units to maximize recovery of low-pressure gas streams and potential unauthorized emissions
- Low-emitting or electric engines whenever practical
- Combustors and flare stacks in the event of a malfunction or emergency
- Routine facility inspections to identify leaking components, functioning control devices, such as flares and combustors, and repair / replacement of malfunctioning components where applicable

Measurement or estimation

Centennial measures or estimates the volumes of natural gas vented, flared and/or beneficially used for all of our drilling, completing and producing wells. We utilize accepted industry standards and methodology which can be independently verified. Annual GOR testing is completed on our wells and will be submitted as required by the OCD. None of our equipment is designed to allow diversion around metering elements except during inspection, maintenance and repair operations.

VIII. Best Management Practices:

Centennial utilizes the following BMPs to minimize venting during active and planned maintenance activities:

- Use a closed-loop process wherever possible during planned maintenance activities, such as blowdowns, liquid removal, and work over operations.
- Employ low-emitting or electric engines for equipment, such as compressors
- Adhere to a strict preventative maintenance program which includes routine facility inspections, identification of component malfunctions, and repairing or replacing components such as hatches, seals, valves, etc. where applicable
- Utilize vapor recovery units (VRU's) to maximize recovery of volumes of low-pressure gas streams and potential unauthorized emissions
- Route low pressure gas and emissions streams to a combustion device to prevent venting where necessary

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS

Operator: CENTENNIAL RESOURCE PRODUCTION, LLC 1001 17th Street, Suite 1800 Denver, CO 80202	OGRID: 372165
	Action Number: 77038
	Action Type: [C-101] BLM - Federal/Indian Land Lease (Form 3160-3)

CONDITIONS

Created By	Condition	Condition Date
pkautz	Will require a File As Drilled C-102 and a Directional Survey with the C-104	2/1/2022
pkautz	Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string	2/1/2022
pkautz	Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system	2/1/2022
pkautz	Cement is required to circulate on both surface and intermediate1 strings of casing	2/1/2022