

Form 3160-3  
(June 2015)

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

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

1a. Type of work: <input type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No.
1b. Type of Well: <input type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other		6. If Indian, Allottee or Tribe Name
1c. Type of Completion: <input type="checkbox"/> Hydraulic Fracturing <input type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		7. If Unit or CA Agreement, Name and No.
2. Name of Operator <b>[372165]</b>		8. Lease Name and Well No. <b>[318029]</b>
3a. Address	3b. Phone No. (include area code)	9. API Well No. <b>30-025-50269</b>
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface At proposed prod. zone		10. Field and Pool, or Exploratory <b>[96434]</b>
14. Distance in miles and direction from nearest town or post office*		11. Sec., T. R. M. or Blk. and Survey or Area
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)		12. County or Parish
16. No of acres in lease		13. State
17. Spacing Unit dedicated to this well		
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.		19. Proposed Depth
20. BLM/BIA Bond No. in file		
21. Elevations (Show whether DF, KDB, RT, GL, etc.)	22. Approximate date work will start*	23. Estimated duration
24. Attachments		

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

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

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

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

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

**NGMP Rec 05/25/2022**

**KZ**  
**06/23/2022**



**SL**

(Continued on page 2)

\*(Instructions on page 2)

## PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

<b>OPERATOR'S NAME:</b>	<b>Centennial Resources</b>
<b>LEASE NO.:</b>	<b>NMNM126972</b>
<b>LOCATION:</b>	Section 27, T.24 S., R.34 E., NMPM
<b>COUNTY:</b>	Lea County, New Mexico

<b>WELL NAME &amp; NO.:</b>	Solomon Fed Com 304H
<b>SURFACE HOLE FOOTAGE:</b>	2339'/N & 1965'/E
<b>BOTTOM HOLE FOOTAGE:</b>	100'/N & 2183'/E

COA

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

### A. HYDROGEN SULFIDE

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

### B. CASING

1. The **13-3/8** inch surface casing shall be set at approximately **1200** feet (a minimum of **25 feet (Lea County)** into the Rustler Anhydrite and above the salt) and cemented to the surface.
  - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
  - b. Wait on cement (WOC) time for a primary cement job will be a minimum of **8**

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

**Intermediate casing must be kept 1/3<sup>rd</sup> 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.**

3. The minimum required fill of cement behind the **5-1/2** inch production casing is:
  - Cement should tie-back at least **200 feet** into previous casing string. Operator shall provide method of verification.

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

#### A. CASING

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

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

**B. PRESSURE CONTROL**

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

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

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

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

#### C. DRILLING MUD

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

#### D. WASTE MATERIAL AND FLUIDS

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

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

**ZS121621**



# Operator Certification Data Report

05/24/2022

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

## Operator

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

**NAME:**

**Signed on:** 03/04/2021

**Title:**

**Street Address:**

**City:**

**State:**

**Zip:**

**Phone:**

**Email address:**

## Field

**Representative Name:**

**Street Address:**

**City:**

**State:**

**Zip:**

**Phone:**

**Email address:**



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

# Application Data

05/24/2022

APD ID: 10400069956

Submission Date: 03/04/2021

Highlighted data reflects the most recent changes  
[Show Final Text](#)

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: SOLOMON FEDERAL COM

Well Number: 304H

Well Type: OIL WELL

Well Work Type: Drill

## Section 1 - General

APD ID: 10400069956

Tie to previous NOS? N

Submission Date: 03/04/2021

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: NMNM126972

Lease Acres:

Surface access agreement in place?

Allotted?

Reservation:

Agreement in place? NO

Federal or Indian agreement:

Agreement number:

Agreement name:

Keep application confidential? Y

Permitting Agent? NO

APD Operator: CENTENNIAL RESOURCE PRODUCTION LLC

Operator letter of

## 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: SOLOMON FEDERAL COM

Well Number: 304H

Well API Number:

Field/Pool or Exploratory? Field and Pool

Field Name: 1st BONE SPRING Pool Name: RED HILLS BONE SPRING, NORTH

**Operator Name:** CENTENNIAL RESOURCE PRODUCTION LLC

**Well Name:** SOLOMON FEDERAL COM

**Well Number:** 304H

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

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

**Type of Well Pad:** MULTIPLE WELL

**Multiple Well Pad Name:**

**Number:** 304

Solomon Federal

**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:** 20 Miles

**Distance to nearest well:** 30 FT

**Distance to lease line:** 1965 FT

**Reservoir well spacing assigned acres Measurement:** 240 Acres

**Well plat:** Solomon\_Fed\_Com\_304H\_C102\_20210303135111.pdf

20201021090518\_Solomon\_Federal\_Com\_304H\_Plan\_Plat\_File\_20210303135112.pdf

**Well work start Date:** 02/01/2022

**Duration:** 25 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
SHL Leg #1	2339	FNL	1965	FEL	24S	34E	27	Aliquot SWNE	32.189353	-103.455632	LEA	NEW MEXI CO	NEW MEXI CO	F	NMNM 126972	3461	0	0	Y
KOP Leg #1	2339	FNL	1965	FEL	24S	34E	27	Aliquot SWNE	32.189353	-103.455632	LEA	NEW MEXI CO	NEW MEXI CO	F	NMNM 126972	-6397	9866	9858	Y

**Operator Name:** CENTENNIAL RESOURCE PRODUCTION LLC

**Well Name:** SOLOMON FEDERAL COM

**Well Number:** 304H

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
PPP Leg #1-1	2548	FNL	2183	FEL	24S	34E	27	Aliquot SWNE	32.18878	-103.456335	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 126972	-6970	10765	10431	Y
EXIT Leg #1	100	FNL	2183	FEL	24S	34E	22	Aliquot NWNE	32.21001	-103.456334	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 126972	-6970	17916	10431	Y
BHL Leg #1	100	FNL	2183	FEL	24S	34E	22	Aliquot NWNE	32.21001	-103.456334	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 126972	-6970	17916	10431	Y



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

# Drilling Plan Data Report

05/24/2022

APD ID: 10400069956

Submission Date: 03/04/2021

Highlighted data  
reflects the most  
recent changes

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: SOLOMON FEDERAL COM

Well Number: 304H

Well Type: OIL WELL

Well Work Type: Drill

[Show Final Text](#)

## Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical	Measured Depth	Lithologies	Mineral Resources	Producing Formatio
1624873	RUSTLER	3524	1098	1098	SANDSTONE	NONE	N
1624883	SALADO	1809	1715	1715	SALT	NONE	N
1624884	LAMAR	-1814	5338	5338	ANHYDRITE	NONE	N
1624874	BELL CANYON	-1869	5393	5393	SANDSTONE	NATURAL GAS, OIL	N
1624875	CHERRY CANYON	-2784	6308	6308	SANDSTONE	NATURAL GAS, OIL	N
1624876	BRUSHY CANYON	-4282	7806	7806	SANDSTONE	NATURAL GAS, OIL	N
1624877	BONE SPRING LIME	-5693	9217	9217	OTHER : Carbonate	NATURAL GAS, OIL	N
1624878	AVALON	-5721	9245	9245	SHALE	CO <sub>2</sub> , NATURAL GAS, OIL	N
1624879	BONE SPRING 1ST	-6736	10260	10260	SANDSTONE	NATURAL GAS, OIL	N
1624880	BONE SPRING 2ND	-6936	10460	10460	OTHER, SHALE : Carbonate	NATURAL GAS, OIL	Y

## Section 2 - Blowout Prevention

Pressure Rating (PSI): 5M

Rating Depth: 10431

**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

**Operator Name:** CENTENNIAL RESOURCE PRODUCTION LLC

**Well Name:** SOLOMON FEDERAL COM

**Well Number:** 304H

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.

**Requesting Variance?** YES

**Variance request:** Centennial Resource Production, LLC hereby requests to use a flex hose on the choke manifold for this well. 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:**

10M\_Choke\_Manifold\_20210304100550.pdf

**BOP Diagram Attachment:**

BOP\_Schematic\_CoFlex\_Choke\_5K\_2019\_1\_29\_20210304100603.pdf

CDEV\_Well\_Control\_Plan\_Bonesprings\_20210304100626.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	3461	3341	120	H-40	94	OTHER - WELD						
2	SURFACE	17.5	13.375	NEW	API	N	0	1200	0	1200	3461	2261	1200	J-55	54.5	OTHER - BTC	1.91	26.2	DRY	13.04	DRY	13.04
3	INTERMEDIATE	12.25	9.625	NEW	API	N	0	5350	0	5348	3461	-1887	5350	J-55	40	LT&C	1.31	8.51	DRY	2.43	DRY	2.95
4	PRODUCTION	8.75	5.5	NEW	API	N	0	10765	0	10431	3461	-6970	10765	OTHER	23	OTHER - VAAC	2.05	13.94	DRY	2.67	DRY	2.67
5	PRODUCTION	8.5	5.5	NEW	API	N	10765	17916	10431	10431	-6970	-6970	7151	OTHER	23	OTHER - VAAC	2.05	13.94	DRY	2.67	DRY	2.67

**Operator Name:** CENTENNIAL RESOURCE PRODUCTION LLC

**Well Name:** SOLOMON FEDERAL COM

**Well Number:** 304H

**Casing Attachments**

---

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

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

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

---

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

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

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

CASING\_ASSUMPTIONS\_WORKSHEET\_20200226070116.pdf

---

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

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

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

CASING\_ASSUMPTIONS\_WORKSHEET\_20200225145837.pdf

---

**Operator Name:** CENTENNIAL RESOURCE PRODUCTION LLC

**Well Name:** SOLOMON FEDERAL COM

**Well Number:** 304H

**Casing Attachments**

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

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

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

CASING\_ASSUMPTIONS\_WORKSHEET\_20200225150125.pdf

5.5in\_x\_23ppf\_T95\_VAroughneck\_20210304101603.pdf

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

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

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

CASING\_ASSUMPTIONS\_WORKSHEET\_20200225150415.pdf

5.5in\_x\_23ppf\_T95\_VAroughneck\_20210304101833.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 #sx, CaCl2 2% BWOC
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**Operator Name:** CENTENNIAL RESOURCE PRODUCTION LLC

**Well Name:** SOLOMON FEDERAL COM

**Well Number:** 304H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	700	559	1.74	13.5	972	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		700	1200	518	1.34	14.8	695	100	Class C Premium	C-45 Econolite 0.10%, CaCl 1.0%
INTERMEDIATE	Lead		0	4850	1147	3.44	10.7	3946	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		4850	5350	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	9866	967	3.41	10.6	3296	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		9866	17916	1880	1.24	14.2	2332	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:** SOLOMON FEDERAL COM

**Well Number:** 304H

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	1200	OTHER : FW	8.6	9.5							
1200	5350	OTHER : Brine	9	10							
5350	1791 6	OIL-BASED MUD	8.8	10							

### 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:**

GAMMA RAY LOG,DIRECTIONAL SURVEY,

**Coring operation description for the well:**

N/A

### Section 7 - Pressure

**Anticipated Bottom Hole Pressure:** 5424

**Anticipated Surface Pressure:** 3129

**Anticipated Bottom Hole Temperature(F):** 165

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

**Describe:**

**Contingency Plans geohazards description:**

**Contingency Plans geohazards**

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

**Hydrogen sulfide drilling operations**

H2S\_Contingency\_Plan\_Solomon\_Federal\_Com\_105H\_106H\_\_304H\_\_404H\_20210304104042.pdf

**Operator Name:** CENTENNIAL RESOURCE PRODUCTION LLC

**Well Name:** SOLOMON FEDERAL COM

**Well Number:** 304H

## Section 8 - Other Information

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

SOLOMON\_FED\_COM\_304H\_\_AC\_REPORT\_20210304104142.pdf

SOLOMON\_FED\_COM\_304H\_\_DIRECTIONAL\_REPORT\_20210304104142.pdf

### Other proposed operations facets description:

GCP attached. Geoprog and WBD is attached.

### Other proposed operations facets attachment:

CRD\_Batch\_Setting\_Procedures\_20200228113732.pdf

Solomon\_Fed\_Com\_304H\_WBD\_\_Proposed\_\_20210304104259.pdf

CDEV\_Multi\_Bowl\_Procedure\_Solomon\_Fed\_Com\_304H\_20210304104259.pdf

GEOPROG\_Solomon\_Fed\_Com\_304H\_PRELIM\_20210304104259.pdf

Gas\_Capture\_Plan\_Solomon\_304H\_20210304154525.pdf

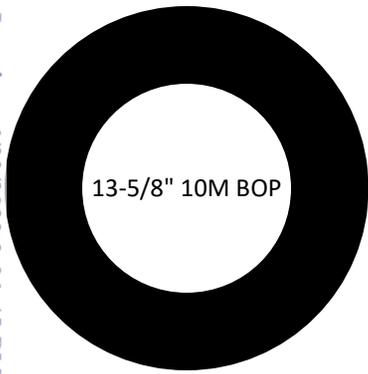
### Other Variance attachment:

H\_P\_Flex\_Hose\_Specs\_Continental\_Hose\_SN\_67255\_20200228112930.pdf

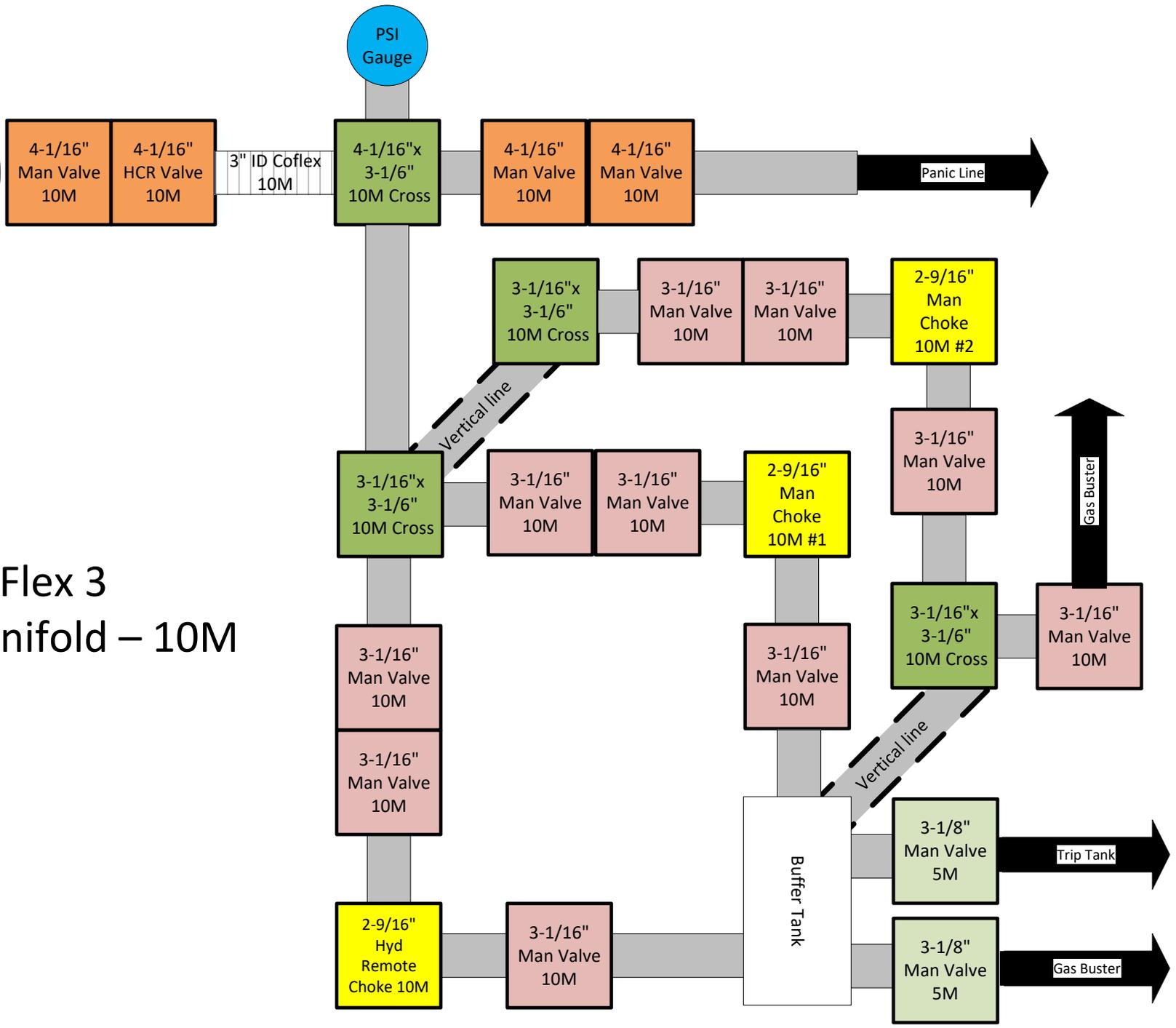
Flex\_Hose\_Variance\_Request\_20211029124644.pdf

Solomon\_Federal\_Com\_304H\_Offline\_Cementing\_Procedure\_20211029124808.pdf

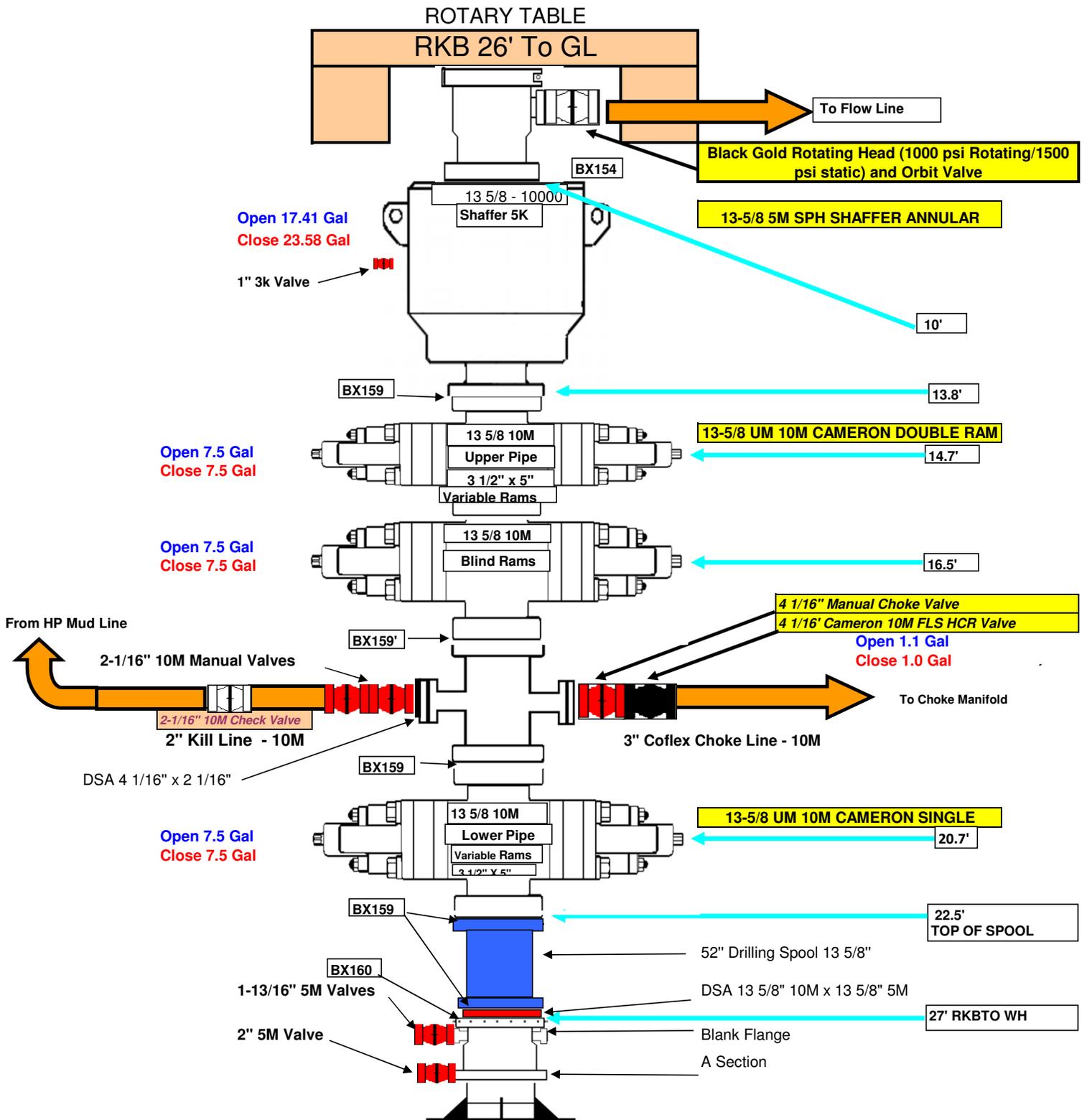
CDEV\_Well\_Control\_Plan\_Bonesprings\_20211029125013.pdf



# H&P – Flex 3 Choke Manifold – 10M



# H&P Rig



## Centennial Resource Development - Well Control Plan

### A. Component and Preventer Compatibility Table

Component	OD (inches)	Preventer	RWP
Drillpipe	5	Upper VBR: 3.5 – 5.5 Lower VBR: 3.5 – 5.5	10M
Heavyweight Drillpipe	5	Upper VBR: 3.5 – 5.5 Lower VBR: 3.5 – 5.5	10M
Drill collars and MWD tools	6 ¾	Annular	5M
Mud Motor	6 ¾	Annular	5M
Production Casing	5-1/2	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 available:**

- 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.**

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 DEVELOPMENT 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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## TECHNICAL DATA SHEET

Connection: **VAroughneckAC**

Grade: **T95-1**

Size: **5 1/2 in X 23.00 lb/ft**

Drift: **standard**

Bevel: **standard**

Material:

	<u>US Customary</u>	<u>Metric</u>
Yield Strength Min.	95,000 psi	655 Mpa
Yield Strength Max.	110,000 psi	758 Mpa
Tensile Strength Min.	105,000 psi	724 Mpa

### Pipe:

	<u>US Customary</u>	<u>Metric</u>		<u>US Customary</u>	<u>Metric</u>
Nominal OD:	5.500 in	139.70 mm	Wall Thickness:	0.415 in	10.54 mm
Nominal ID:	4.670 in	118.62 mm	Standard Drift:	4.545 in	115.44 mm
Nominal Weight:	23.00 lb/ft	34.38 kg/m	Pipe Body Yield Strength:	630 klb	2,800 kN
Pipe Cross Section:	6.630 in <sup>2</sup>	4,277.41 mm <sup>2</sup>			

### Connection:

	<u>US Customary</u>	<u>Metric</u>		
OD:	6.300 in	160.02 mm	Threads per inch:	5 Threads
ID:	4.669 in	118.60 mm		
Length:	8.976 in	228.00 mm		

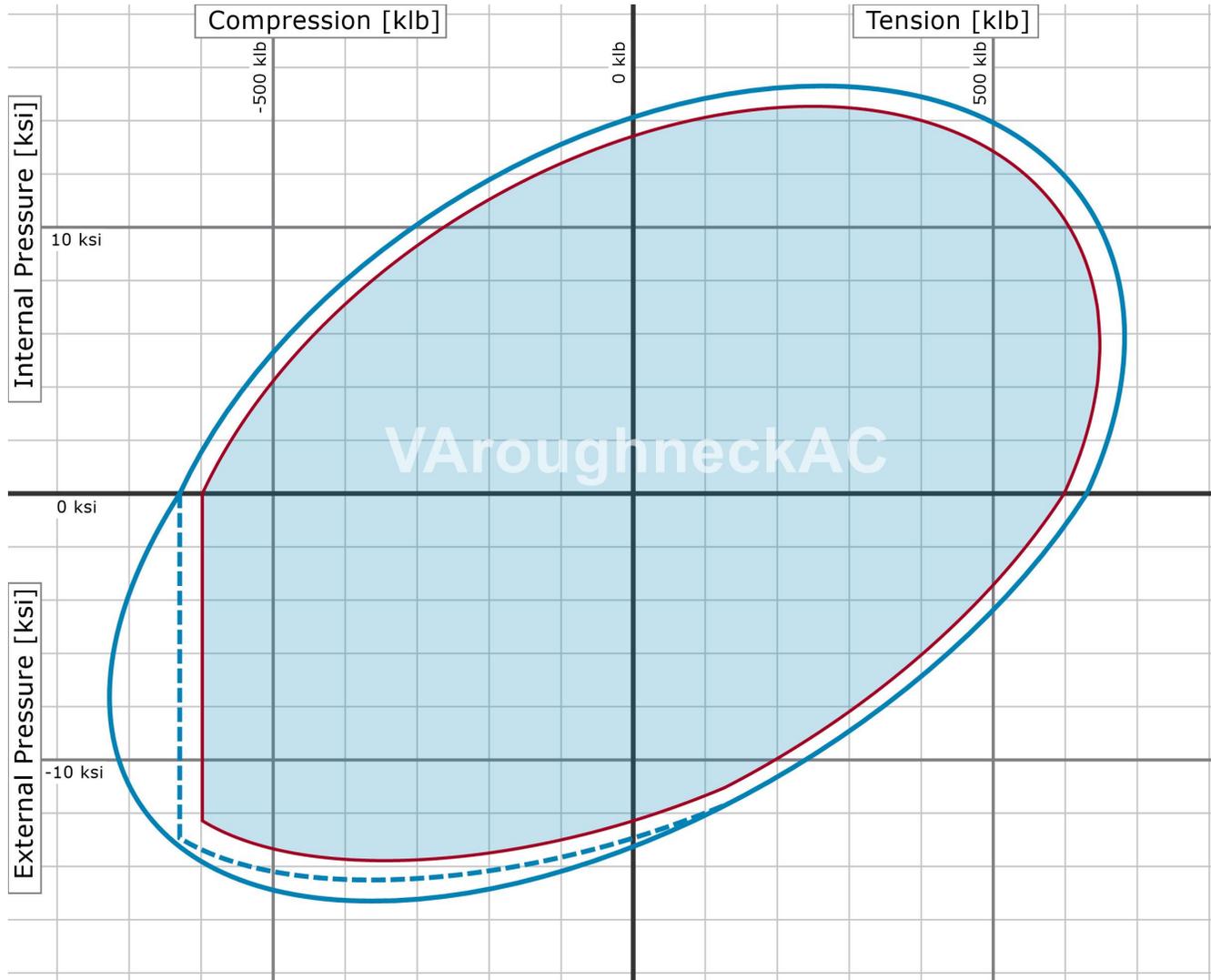
### Connection Performance (Uniaxial Load):

	<u>US Customary</u>	<u>Metric</u>		<u>US Customary</u>	<u>Metric</u>
Joint Strength:	630 klb	2,800 kN	Tension Efficiency:	> 100.0 %	
Collapse Resistance:	12,940 psi	89.20 Mpa	Displacement:	1.242 gal/ft	15.43 l/m
Internal Yield Pressure:	12,550 psi	86.50 Mpa	Production:	0.890 gal/ft	11.05 l/m
Load on Coupling Face:	542 klb	2,410 kN			

### Field Make Up (Friction Factor = 1.0):

	<u>US Customary</u>	<u>Metric</u>		<u>US Customary</u>	<u>Metric</u>
Minimum Torque:	16,150 ft.lb	21,890 Nm	Make-Up Loss:	4.370 in	111.00 mm
Optimum Torque:	17,940 ft.lb	24,320 Nm	Yield Torque:	22,420 ft.lb	30,400 Nm
Maximum Torque:	19,730 ft.lb	26,750 Nm			
Min. Torque on Shoulder:	%				

## LOAD ENVELOPE



### Recommended Field of Application

- Pipe Body Envelope
- - - Pipe Body Collapse

#### Efficiency (% Pipe Body) under Uniaxial Loads

Tension:	100.0 %
Compression:	100.0 %
Internal Pressure:	100.0 %
External Pressure:	100.0 %

#### Sealability Rating (% Efficiency) under Combined Loads

Tension:	100.0 %
Compression:	100.0 %
Internal Pressure:	100.0 %
External Pressure:	100.0 %

#### Test Conditions

Test Medium:	Fluid
Von Mises Envelope:	95.0 %
Bending:	20.00 °/100ft

The graph is calculated under consideration of the requirements of EN ISO 13679 and API 5C3. The combined loads are calculated without the consideration of wall thickness tolerances and differ from the values in the data sheet, which are calculated with tolerances determined by API. Any printout is NOT SUBJECT TO REGULAR REVISION. The generated performance envelope shall solely be used as a tool to facilitate the comparison of performance properties under combined loads, of different grades, sizes and connections of voestalpine Tubulars products. Field-specific safety/design factors as well as other loads are not considered. Thus the results shall by no means be used to replace the own string design engineering or to justify any warranty/guaranty cases.

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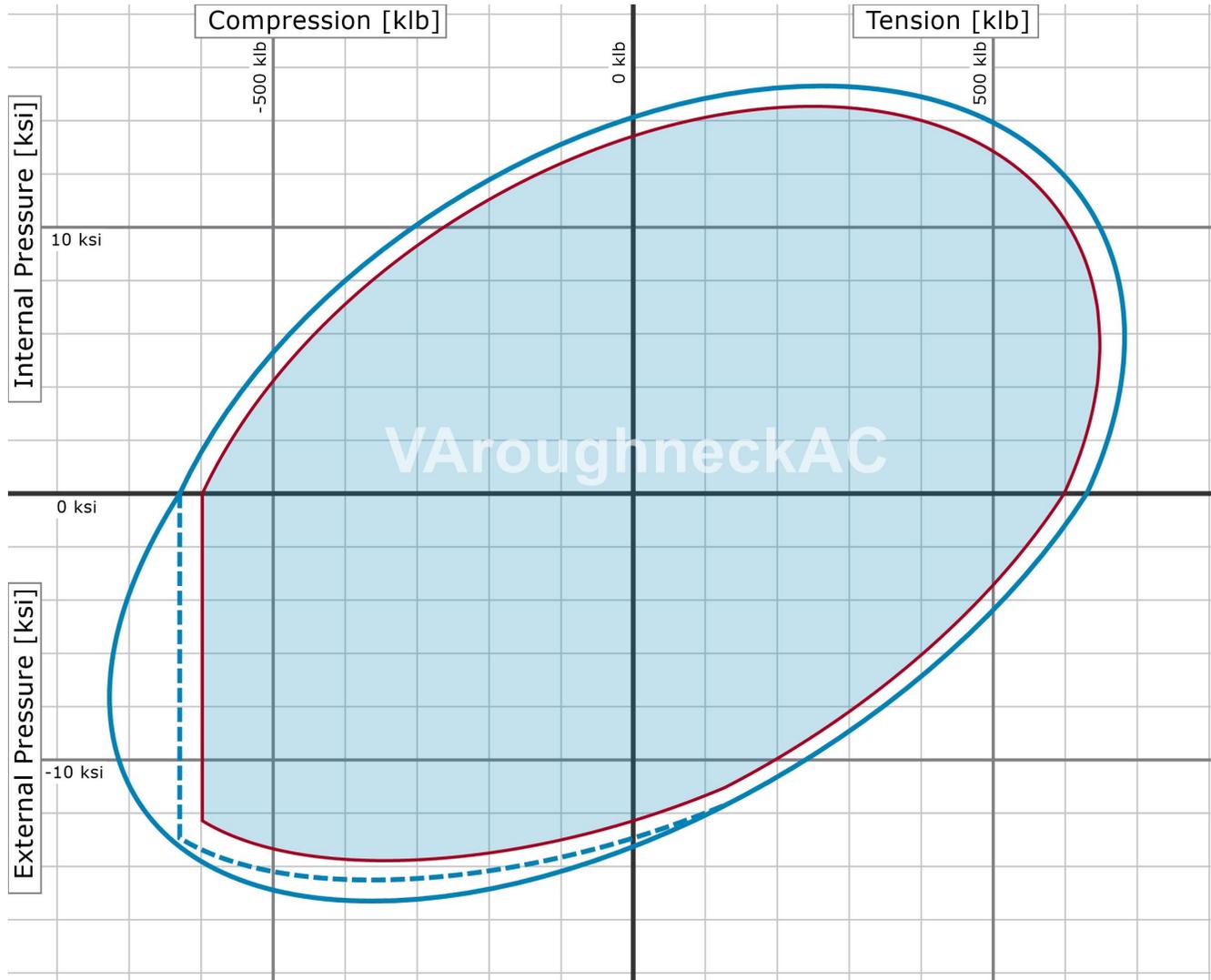
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Min. Torque on Shoulder:	%				

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Internal Pressure:	100.0 %
External Pressure:	100.0 %

#### Test Conditions

Test Medium:	Fluid
Von Mises Envelope:	95.0 %
Bending:	20.00 °/100ft

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                      - 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 DEVELOPMENT 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.



## ***H<sub>2</sub>S CONTINGENCY PLAN***

***FOR***

***CENTENNIAL RESOURCE PRODUCTION, LLC.  
Solomon Federal 105H, 106H, 304H, 404H***

***Lea County, New Mexico***

**02-19-2021**

**This plan is subject to updating**

Centennial Resource Production, LLC.	H <sub>2</sub> S Contingency Plan Solomon Federal 105H, 106H, 304H, 404H	Lea County, New Mexico
--------------------------------------	--	------------------------

## Table of Contents

- Section 1.0 – Introduction ..... 3**
  - I. Purpose
  - II. Scope & Applicability
- Section 2.0 - Plan Implementation.....3**
  - I. Activation Requirements
  - II. Emergency Evacuation
  - III. Emergency Response Activities
- Section 3.0 - Potential Hazardous Conditions.....4**
- Section 4.0 - Notification of H<sub>2</sub>S Release Event.....6**
  - I. Local & State Law Enforcement
  - II. General Public
  - III. New Mexico Oil Conservation Division
  - IV. New Mexico Environment Department
  - V. Bureau of Land Management
- Section 5.0 - Emergency Contact List.....7**
  - I. Centennial Management Personnel
  - II. Lea County Sheriff
  - III. New Mexico State Highway Patrol
  - IV. Fire / EMS
  - V. Lea County Hospital
  - VI. Emergency Response Contractors
  - VII. New Mexico Oil Conservation Division
  - VIII. New Mexico Environment Department
  - IX. Bureau of Land Management
  - X. Other Agencies
- Section 6.0 – Drilling Location Information.....9-12**
  - I. Site Safety Information
  - II. Directions to Location
  - III. Plat of Location including GPS Coordinates
  - IV. Routes of Ingress & Egress (MAP)
  - V. ROE Map
  - VI. Residences in ROE
  - VII. Public Roads in ROE
- Section 7.0 – Hazard Communication.....13-15**
  - I. Physical Characteristics of Hydrogen Sulfide Gas
  - II. Human Health Hazards / Toxicological Information
  - III. Environmental Hazards
- Section 8.0 - Regulatory Information.....15-17**
  - I. OSHA Information
  - II. New Mexico Oil Conservation Division & Bureau of Land Management
- Section 9.0 - Training Requirements.....17**
- Section 10.0 - Personal Protective Equipment.....18**
- Appendices**
  - I. Appendix A – H<sub>2</sub>S SDS
  - II. Appendix B – SO<sub>2</sub> SDS

Centennial Resource Production, LLC.	H <sub>2</sub> S Contingency Plan Solomon Federal 105H, 106H, 304H, 404H	Lea County, New Mexico
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## **Section 1.0 – Introduction**

### **I. Purpose**

The purpose of this contingency plan (Plan) is to provide Centennial Resource Production, LLC. (Centennial) with an organized plan of action for alerting and protecting Centennial employees, the general public, and any potential first responders prior to any intentional release or immediately following the accidental / unintentional release of a potentially hazardous volume / concentration of Hydrogen Sulfide Gas (H<sub>2</sub>S).

### **II. Scope & Applicability**

This Plan applies to all planned, unplanned, uncontrolled and/or unauthorized releases of hazardous concentrations of H<sub>2</sub>S or any associated hazardous byproducts of combustion, occurring at any Centennial owned or operated facilities including but not limited to: wells, flowlines, pipelines, tank batteries, production facilities, SWD facilities, compressor stations, gas processing plants, drilling / completions / workover operations, and any other applicable company owned property.

## **Section 2.0 - Plan Implementation**

### **I. Activation Requirements**

In accordance with the requirements of Bureau of Land Management Onshore Order #6 and NMAC 19.15.11, this Plan shall be activated in advance of any authorized, planned, unplanned, uncontrolled, or unauthorized release of a hazardous volume / concentration of H<sub>2</sub>S gas, or SO<sub>2</sub>, which could potentially adversely impact the workers, general public or the environment.

### **II. Emergency Evacuation**

In the event of an unplanned, uncontrolled, or unauthorized release of a hazardous volume / concentration of H<sub>2</sub>S gas, the first priority is to ensure the safety of the workers and general public. Upon discovery and subsequent determination of an applicable release, which cannot be quickly mitigated, immediately by using 911, notify local authorities to begin the process of alerting the general public, evacuate any residents within the Radius of Exposure (ROE), and limit any general public or employee access to any areas within the ROE of the affected facility.

### **III. Emergency Response Activities**

The purpose of emergency response actions is to take steps to quickly mitigate / stop the ongoing release of the hazardous source of H<sub>2</sub>S. Upon discovery of any hazardous release, immediately notify Centennial management to activate the Emergency Response Team (ERT). Once Centennial supervision arrives and assesses the situation, a work plan identifying the proper procedures shall be developed to stop the release.

Centennial Resource Production, LLC.	H <sub>2</sub> S Contingency Plan Solomon Federal 105H, 106H, 304H, 404H	Lea County, New Mexico
--------------------------------------	--	------------------------

**Section 3.0 - Potential Hazardous Conditions & Response Actions**

During a planned or unplanned release of H<sub>2</sub>S, there are several hazardous conditions that are presented both to employees, the general public, and emergency responders. These specific hazardous conditions are identified in the tables below.

<b>H2S OPERATING CONDITIONS – RESPONSE ACTIONS TO CONSIDER</b>		✓
<b>H<sub>2</sub>S CONDITION 1: POTENTIAL DANGER TO LIFE AND HEALTH → WARNING SIGN GREEN</b>		
<b>H<sub>2</sub>S concentration &lt;10 ppm</b> detected by location monitors		<input type="checkbox"/>
<b>General Actions During Condition 1</b>		<input type="checkbox"/>
Notify Site Supervisor / Centennial Person-in-Charge (PIC) of any observed increase in ambient H <sub>2</sub> S concentrations		<input type="checkbox"/>
All personnel check safety equipment is in adequate working order & store in accessible location		<input type="checkbox"/>
Sensitize crews with safety meetings.		<input type="checkbox"/>
Limit visitors and non-essential personnel on location		<input type="checkbox"/>
Continuously monitor H <sub>2</sub> S concentrations and check calibration of sensors		<input type="checkbox"/>
Ensure H <sub>2</sub> S scavenger is on location.		<input type="checkbox"/>
<b>H<sub>2</sub>S CONDITION 2: MODERATE DANGER TO LIFE AND HEALTH → WARNING SIGN YELLOW</b>		
<b>H<sub>2</sub>S concentration &gt;10 ppm and &lt; 30 ppm</b> in atmosphere detected by location monitors:		<input type="checkbox"/>
<b>General Actions During Condition 2</b>		<input type="checkbox"/>
Sound H <sub>2</sub> S alarm and/or display yellow flag.		<input type="checkbox"/>
Account for on-site personnel		<input type="checkbox"/>
Upon sounding of an area or personal H <sub>2</sub> S monitor alarm when 10 ppm is reached, proceed to a safe briefing area upwind of the location immediately (see <b>MA-4, Figure 5-1</b> ).		<input type="checkbox"/>
Don proper respiratory protection.		<input type="checkbox"/>
Alert other affected personnel		<input type="checkbox"/>
<b>If trained and safe to do so</b> undertake measures to control source H <sub>2</sub> S discharge and eliminate possible ignition sources. Initiate Emergency Shutdown procedures as deemed necessary to correct or control the specific situation.		<input type="checkbox"/>
Account for on-site personnel at safe briefing area.		<input type="checkbox"/>
Stay in safe briefing area if not working to correct the situation.		<input type="checkbox"/>
Keep Site Supervisor / Centennial PIC informed. Notify applicable government agencies ( <b>Appendix A</b> ) If off-site impact; notify any neighbors within Radius of Exposure ( <b>ROE</b> ), <b>Fig 5.11</b>		<input type="checkbox"/>
Continuously monitor H <sub>2</sub> S until readings below 10 ppm.		<input type="checkbox"/>
Evacuated area shall not be re-entered except by trained and authorized personnel utilizing appropriate respiratory protection; or until “all clear” sounded by Centennial PIC / Site Supervisor.		

Centennial Resource Production, LLC.	H <sub>2</sub> S Contingency Plan Solomon Federal 105H, 106H, 304H, 404H	Lea County, New Mexico
--------------------------------------	--	------------------------

<b>H<sub>2</sub>S CONDITION 3: EXTREME DANGER TO LIFE AND HEALTH → WARNING SIGN RED</b>	
> 30 ppm H <sub>2</sub> S concentration in air detected by location monitors: Extreme danger to life	<input type="checkbox"/>
<b>General Actions During Condition 3</b>	<input type="checkbox"/>
Sound H <sub>2</sub> S alarm and/or display red flag.	<input type="checkbox"/>
Account for on-site personnel	<input type="checkbox"/>
Move away from H <sub>2</sub> S source and get out of the affected area.	<input type="checkbox"/>
Proceed to designated safe briefing area; alert other affected personnel.	<input type="checkbox"/>
Account for personnel at safe briefing area.	<input type="checkbox"/>
If trained and safe to do so undertake measures to control source H <sub>2</sub> S discharge and eliminate possible ignition sources. Initiate Emergency Shutdown procedures as deemed necessary to correct or control the specific situation.	<input type="checkbox"/>
Notify vehicles or situation and divert all traffic away from location.	<input type="checkbox"/>
Centennial Person-in-Charge will make appropriate community notifications.	<input type="checkbox"/>
Red warning flag must be on display until the situation has been corrected and the Centennial Person-in-Charge determines it is safe to resume operations under <b>Condition 1</b> .	<input type="checkbox"/>
Notify management of the condition and action taken. If H <sub>2</sub> S concentration is increasing and steps to correct the situation are not successful – or at any time if well control is questionable – alert all responsible parties for possible activation of the H <sub>2</sub> S Contingency Plan. If well control at the surface is lost, determine if situation warrants igniting the well.	<input type="checkbox"/>
If uncontrolled flow at the surface occurs, the Centennial PIC, with approval, if possible, from those coordinating the emergency ( <b>as specified in the site-specific H<sub>2</sub>S Contingency Plan</b> ) are responsible for determining if the situation warrants igniting the flow of the uncontrolled well. This decision should be made only as a last resort and in a situation where it is obvious that human life is in danger and there is no hope of controlling the flow under prevailing conditions.	<input type="checkbox"/>
If the flow is ignited, burning H <sub>2</sub> S will be converted to sulfur dioxide (SO <sub>2</sub> ), which is also highly toxic. Do not assume that area is safe after the flow is ignited. If the well is ignited, evacuation of the area is mandatory, because SO <sub>2</sub> will remain in low-lying places under no-wind conditions.	<input type="checkbox"/>
Keep Site Supervisor / Centennial PIC informed. Notify applicable government agencies and local law enforcement ( <b>Appendix A</b> ) If off-site impact; notify any neighbors within the Radius of Exposure ( <b>ROE</b> ), see example in <b>Figure 5-11</b> .	<input type="checkbox"/>
Continuously monitor H <sub>2</sub> S until readings fall below 10 ppm.	<input type="checkbox"/>
Evacuated area shall not be re-entered except by trained and authorized personnel utilizing appropriate respiratory protection; or until “all clear” sounded by Centennial PIC / Site Supervisor.	<input type="checkbox"/>
<b>IF ABOVE ACTIONS CANNOT BE ACCOMPLISHED IN TIME TO PREVENT EXPOSURE TO THE PUBLIC</b>	
Alert public (directly or through appropriate government agencies) who may be subject to potentially harmful exposure levels.	<input type="checkbox"/>

Centennial Resource Production, LLC.	H <sub>2</sub> S Contingency Plan Solomon Federal 105H, 106H, 304H, 404H	Lea County, New Mexico
--------------------------------------	--	------------------------

Make recommendations to public officials regarding blocking unauthorized access to the unsafe area and assist as appropriate.	<input type="checkbox"/>
Make recommendations to public officials regarding evacuating the public and assist as appropriate.	<input type="checkbox"/>
Monitor ambient air in the area of exposure (after following abatement measures) to determine when it is safe for re-entry.	<input type="checkbox"/>

**Section 4.0 - Notification of H<sub>2</sub>S Release Event**

**I. Local & State Law Enforcement**

Prior to the planned / controlled release of a hazardous concentration of H<sub>2</sub>S gas or any associated byproducts of the combustion of H<sub>2</sub>S gas, notify local law enforcement agencies regarding the contents of this plan.

In the event of the discovery of an unplanned/uncontrolled release of a hazardous concentration of H<sub>2</sub>S gas or any associated byproducts of combustion, immediately notify local and/or state law enforcement agencies of the situation and ask for their assistance.

**II. General Public**

In the event of a planned or unplanned release of a hazardous concentration of H<sub>2</sub>S gas or any associated byproducts of combustion, notify local law enforcement agencies and ask for their assistance in alerting the general public and limiting access to any public roads that may be impacted by such a release.

**III. New Mexico Oil Conservation Division**

The Centennial HSE Department will make any applicable notification to the New Mexico OCD regarding any release of a hazardous concentration of H<sub>2</sub>S Gas or any associated byproducts of combustion.

**IV. New Mexico Environment Department**

The Centennial HSE Department will make any applicable notifications to the NMED regarding any release of a hazardous concentration of H<sub>2</sub>S gas or any associated byproducts of combustion.

**V. Bureau of Land Management**

The Centennial Regulatory Department will make any applicable notifications to the BLM regarding any release of a hazardous concentration of H<sub>2</sub>S gas or any associated byproducts of combustion.

Centennial Resource Production, LLC.	H <sub>2</sub> S Contingency Plan Solomon Federal 105H, 106H, 304H, 404H	Lea County, New Mexico
--------------------------------------	--	------------------------

**Section 5.0 - Emergency Contact List**

<b>EMERGENCY CONTACT LIST</b>				
<b>CENTENNIAL RESOURCE PRODUCTION, LLC.</b>				
<b>POSITION</b>	<b>NAME</b>	<b>OFFICE</b>	<b>CELL</b>	<b>ALT PHONE</b>
<b>Operations</b>				
Operations Superintendent	Cory Lewis	432.305.1009	432.557.4274	
Operations Assistant Superintendent	Josh Graham	432.940.3191	432.940.3191	
Drilling Superintendent	Jason Fitzgerald	432.315.0146	318-347-3916	
Production Foreman	Manual Mata	432.664.0278	575.408.0216	
Drilling Engineer	Ronny Hise	432.315.0144	432.770.4786	
Production Engineer	Brandon Morin	432.315.0140	432.231.7671	
Vice President Operations	Clayton Smith	720.499.1416	361.215.2494	
<b>HSE &amp; Regulatory</b>				
HSE Manager	Derrick Melton	720-499-2294	432-296-8720	
Regulatory Manager	Heidi Kaczor	720.499.1422	303.204.8877	
Air Quality	Montgomery Floyd	432-315-0123	432-425-8321	
Environmental	Jamon Hohensee	432-315-0132	432-241-4283	
HSE Consultant	Adam Hicks		903-426-4556	
<b>Local, State, &amp; Federal Agencies</b>				
Lea County Sheriff		575-396-3611		911
New Mexico State Highway Patrol		505-757-2297		911
Eunice Fire / EMS		575-394-3258		911
Lea County Hospital		575-492-5000		
Standard Safety – Safety Contractor	John Blake	(432) 653-0393	(432) 813-7745	
New Mexico Oil Conservation Division – District 1 Office – Hobbs, NM.		575-393-6161		
New Mexico Environment Department – District III Office – Hobbs, NM		575-397-6910		
New Mexico Oil Conservation Division – Hobbs, NM	24 Hour Emergency	575-393-6161		
Bureau of Land Management – Carlsbad, NM		575-234-5972		
U.S. Fish & Wildlife		502-248-6911		

**Section 6.0 – Drilling Location Information****I. Site Safety Information****1. Safe Briefing Area**

- a. There shall be two areas that will be designated as "SAFE BRIEFING AREAS". If H<sub>2</sub>S is detected in concentrations equal to or in excess of 10 ppm all personnel not assigned emergency duties are to assemble in the designated Safe Briefing area for instructions. These two areas shall be positioned in accessible locations to facilitate the availability of self-contained breathing air devices. The briefing areas shall be positioned no less than 250' from the wellhead and in such locations that at least one briefing area will be up-wind from the well at all times.

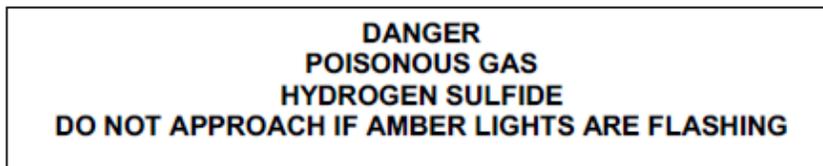
**2. Wind Indicators**

- a. 4 Windsocks will be installed at strategic points on the facility.

Centennial Resource Production, LLC.	H <sub>2</sub> S Contingency Plan Solomon Federal 105H, 106H, 304H, 404H	Lea County, New Mexico
--------------------------------------	--	------------------------

3. Danger Signs

- a. A warning sign indicating the possible well conditions will be displayed at the location entrance.



4. H<sub>2</sub>S Detectors and Alarms

- a. Continuous monitoring type H<sub>2</sub>S detectors, capable of sensing a minimum of 5ppm H<sub>2</sub>S in air will be located centrally located at the tanks, heater treater, and combustor. Continuous monitoring type SO<sub>2</sub> detector will also be located at the combustor. The automatic H<sub>2</sub>S alarm/flashing light will be located at the site entrance and in front of tank battery.

5. Safety Trailer

- a. A safety trailer equipped with an emergency cascade breathing air system with 2 ea. Work/escape packs, a stretcher, 2 OSHA approved full body harnesses, and a 20# Class ABC fire extinguisher shall be available at the site in close proximity to the safe briefing area. The cascade system shall be able to be deployed to the drill floor when needed to provide safe breathing air to the workers as needed.

6. Well Control Equipment

- a. The location shall have a flare line to a remote automatic ignitor and back up flare gun, placed 150' from the wellhead.  
b. The location shall be equipped with a remotely operated choke system and a mud gas separator.

7. Mud Program

- a. Company shall have a mud program that contains sufficient weight and additives to control H<sub>2</sub>S.

8. Metallurgy

- a. All drill strings, casing, tubing, wellhead, BOP, spools, kill lines, choke manifold and lines, and valves shall be suitable for anticipated H<sub>2</sub>S volume and pressure.

9. Communication

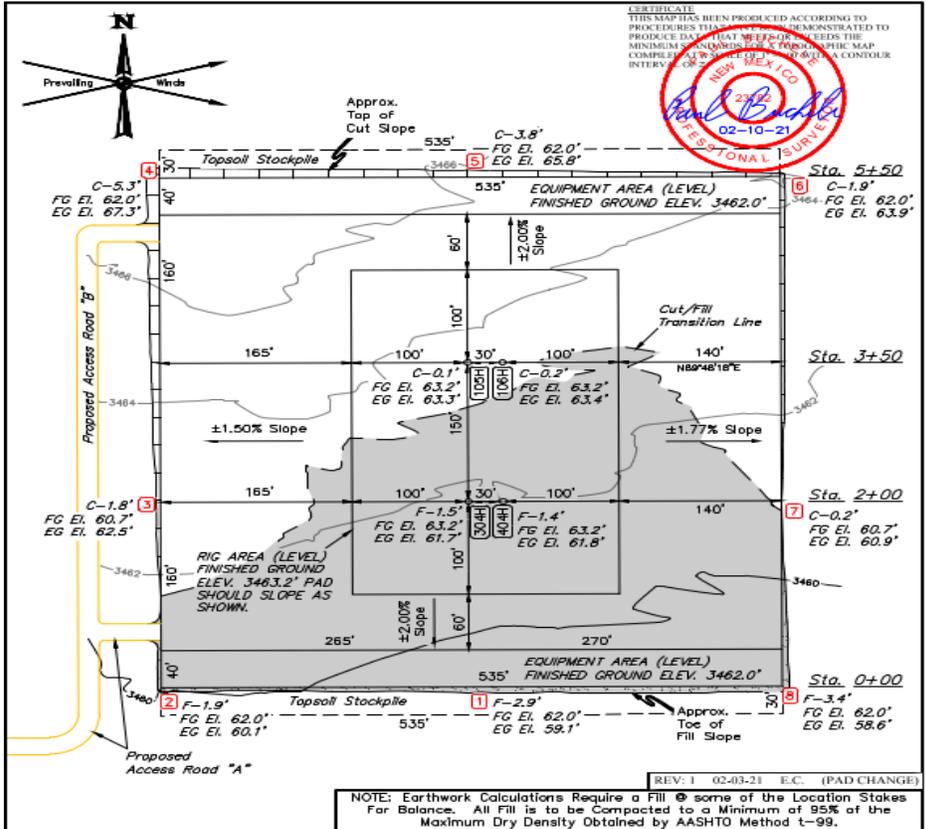
- a. The location shall be equipped with a means of effective communication such as a cell phones, intercoms, satellite phones or landlines.

**II. Directions to Location**

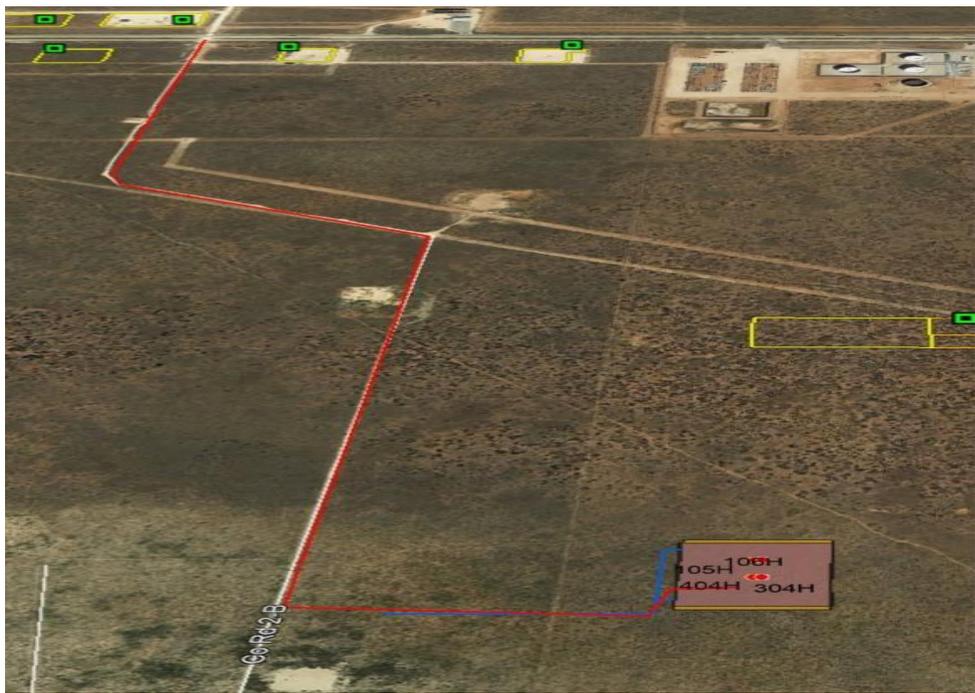
From the intersection of highway 18 and highway 128 in Jal, New Mexico, proceed in a northwesterly, then westerly direction along highway 128 approximately 18 miles to the junction of this road and NM County Road 2B to the south; turn left and proceed in a southerly direction approximately 2.0 miles to the lease road for the Solomon Pad. Turn left and proceed to location.

Centennial Resource Production, LLC.	H <sub>2</sub> S Contingency Plan Solomon Federal 105H, 106H, 304H, 404H	Lea County, New Mexico
--------------------------------------	--	------------------------

1. Plat of Location



2. Routes of Ingress & Egress (MAP)



Centennial Resource Production, LLC.	H <sub>2</sub> S Contingency Plan Solomon Federal 105H, 106H, 304H, 404H	Lea County, New Mexico
--------------------------------------	--	------------------------

3. Residences in proximity to the 3000' Radius of Exposure (ROE) (MAP)

**Map of 3000' ROE Perimeter**



There are no residences or public gathering places with the 3000' ROE

**100 PPM, 300 PPM, & 500 PPM Max ROE under worst case scenario**

Enter H <sub>2</sub> S in PPM	<input type="text" value="1500"/>
Enter Gas flow in mcf/day (maximum worst case conditions)	<input type="text" value="2500"/>
500 ppm radius of exposure (public road)	<b><u>105</u></b> feet
300 ppm radius of exposure	<b><u>146</u></b> feet
100 ppm radius of exposure (public area)	<b><u>230</u></b> feet

- Location GPS Coordinates **Lat: 32.189353, Long: -103.455632**

4. Public Roads in proximity of the Radius of Exposure (ROE)

There are no public roads that would be within the 500 PPM ROE. The closest public road is New Mexico Highway 128, which is 1.45 miles from the location. County Road 2B is 1645' from this location.

Centennial Resource Production, LLC.	H <sub>2</sub> S Contingency Plan Solomon Federal 105H, 106H, 304H, 404H	Lea County, New Mexico
--------------------------------------	--	------------------------

## Section 7.0 – Hazard Communication

### I. Physical Characteristics of Hydrogen Sulfide Gas

Hydrogen sulfide (H<sub>2</sub>S) is a colorless, poisonous gas that is soluble in water. It can be present in crude oils, condensates, natural gas and wastewater streams.

H<sub>2</sub>S is heavier than air with a vapor density of 1.189 (air = 1.0); however, H<sub>2</sub>S is most often mixed with other gases. These mixtures of H<sub>2</sub>S and other gases can be heavier or lighter than air. If the H<sub>2</sub>S-containing mixture is heavier, it can collect in low areas such as ditches, ravines, firewalls, and pits; in storage tanks; and in areas of poor ventilation. Please see physical properties in **Table 7.0**.

With H<sub>2</sub>S the sense of smell is rapidly lost allowing lethal concentrations to be accumulated without warning. The toxicity of hydrogen sulfide at varying concentrations is indicated in the **Table 7.1**.

**Warning:** Do not use the mouth-to-mouth method if a victim ingested or inhaled hydrogen sulfide. Give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

**Table 7.0. Physical Properties of H<sub>2</sub>S**

Properties of H <sub>2</sub> S	Description
Vapor Density > 1 = 1.189 Air = 1	<ul style="list-style-type: none"> <li>▪ H<sub>2</sub>S gas is slightly heavier than air, which can cause it to settle in low places and build in concentration.</li> <li>▪ Produced as a mixture with other gases associated with oil and gas production.</li> </ul>
Flammable Range 4.3%-46% 43000 ppm – 460000 ppm	<ul style="list-style-type: none"> <li>▪ H<sub>2</sub>S can be extremely flammable / explosive when these concentrations are reached by volume in air.</li> </ul>

Although H<sub>2</sub>S is primarily a respiratory hazard, it is also flammable and forms an explosive mixture at concentrations of 4.3%–46.0% (40,000ppm – 460,000 ppm) by volume in air.

#### H<sub>2</sub>S can be encountered when:

- Venting and draining equipment.
- Opening equipment (separators, pumps, and tanks).
- Opening piping connections (“line breaking”).
- Gauging and sampling storage tanks.
- Entering confined spaces.
- Working around wastewater pits, skimmers, and treatment facilities.

### II. Human Health Hazards - Toxicological Information

Centennial Resource Production, LLC.	H <sub>2</sub> S Contingency Plan Solomon Federal 105H, 106H, 304H, 404H	Lea County, New Mexico
--------------------------------------	--	------------------------

**Table 7.1. Hazards & Toxicity**

Concentration (ppm)	Symptoms/Effects
0.00011-0.00033 ppm	Typical background concentrations
0.01-1.5 ppm	Odor threshold (when rotten egg smell is first noticeable to some). Odor becomes more offensive at 3-5 ppm. Above 30 ppm, odor described as sweet or sickeningly sweet.
2-5 ppm	Prolonged exposure may cause nausea, tearing of the eyes, headaches or loss of sleep. Airway problems (bronchial constriction) in some asthma patients.
20 ppm	Possible fatigue, loss of appetite, headache, irritability, poor memory, dizziness.
50-100 ppm	Slight conjunctivitis ("gas eye") and respiratory tract irritation after 1 hour. May cause digestive upset and loss of appetite.
100 ppm	Coughing, eye irritation, loss of smell after 2-15 minutes (olfactory fatigue). Altered breathing, drowsiness after 15-30 minutes. Throat irritation after 1 hour. Gradual increase in severity of symptoms over several hours. Death may occur after 48 hours.
100-150 ppm	Loss of smell (olfactory fatigue or paralysis).
200-300 ppm	Marked conjunctivitis and respiratory tract irritation after 1 hour. Pulmonary edema may occur from prolonged exposure.
500-700 ppm	Staggering, collapse in 5 minutes. Serious damage to the eyes in 30 minutes. Death after 30-60 minutes.
700-1000 ppm	Rapid unconsciousness, "knockdown" or immediate collapse within 1 to 2 breaths, breathing stops, death within minutes.
1000-2000 ppm	Nearly instant death

### III. Environmental Hazards

H<sub>2</sub>S and its associated byproducts from combustion presents a serious environmental hazard. Sulphur Dioxide SO<sub>2</sub> is produced as a constituent of flaring H<sub>2</sub>S Gas and can present hazards associated, which are

Centennial Resource Production, LLC.	H <sub>2</sub> S Contingency Plan Solomon Federal 105H, 106H, 304H, 404H	Lea County, New Mexico
--------------------------------------	--	------------------------

similar to H<sub>2</sub>S. Although SO<sub>2</sub> 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. Please see the attached SDS in Appendix B for reference.

SULFUR DIOXIDE TOXICITY		
Concentration		Effects
%SO <sub>2</sub>	PPM	
0.0005	3 to 5	Pungent odor-normally a person can detect SO <sub>2</sub> 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.

**Section 8.0 - Regulatory Information**

I. OSHA & NIOSH Information

II. **Table 8.0. OSHA & NIOSH H<sub>2</sub>S Information**

PEL, IDLH, TLV	Description
NIOSH PEL 10 PPM	<ul style="list-style-type: none"> <li>PEL is the Permissible Exposure Limit that an employee may be exposed up to 8 hr / day.</li> </ul>
OSHA General Industry Ceiling PEL – 20 PPM	<ul style="list-style-type: none"> <li>The maximum exposure limit, which cannot be exceeded for any length of time.</li> </ul>
IDLH 100 PPM	<ul style="list-style-type: none"> <li>Immediately Dangerous to Life and Health</li> </ul>
Centennial PEL 10 PPM	<ul style="list-style-type: none"> <li>Centennial Policy Regarding H<sub>2</sub>S for employee safety</li> </ul>

III. New Mexico OCD & BLM – H<sub>2</sub>S Concentration Threshold Requirements

New Mexico NMAC 19.15.11 and Onshore Order #6 identify two Radii of Exposure (ROE) that identify potential danger to the public and require additional compliance measures. Centennial is required to install safety devices, establish safety procedures and develop a written H<sub>2</sub>S contingency plan for sites where the H<sub>2</sub>S concentrations are as follows.

**Table 8.1. Calculating H<sub>2</sub>S Radius of Exposure**

H <sub>2</sub> S Radius of Exposure	Description	Control and Equipment Requirements
100 ppm	Distance from a release to where the H <sub>2</sub> S concentration in the air will dilute below 100ppm	ROE > 50-ft and includes any part of a “public area” (residence, school, business, etc., or any area that can be expected to be populated). ROE > 3,000-ft

Centennial Resource Production, LLC.	H <sub>2</sub> S Contingency Plan Solomon Federal 105H, 106H, 304H, 404H	Lea County, New Mexico
--------------------------------------	--	------------------------

500 ppm	Distance from a release to where the H <sub>2</sub> S concentration in the air will dilute below 500ppm	ROE > 50-ft and includes any part of a public road (public roads are tax supported roads or any road used for public access or use)
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**Calculating H<sub>2</sub>S Radius of Exposure**

The ROE of an H<sub>2</sub>S release is calculated to determine if a potentially hazardous volume of H<sub>2</sub>S gas at 100 or 500 parts per million (ppm) is within a regulated distance requiring further action. If information about the concentration of H<sub>2</sub>S and the potential gas release volume is known, the location of the Muster Areas will be set, and safety measures will be implemented based on the calculated radius of exposure (ROE). NMAC 19.15.11 – Hydrogen Sulfide Safety defines the ROE as the radius constructed with the gas’s point of escape as its center and its length calculated by the following Pasquill-Gifford equations:

To determine the extent of the **100 ppm ROE**:

$$x = [(1.589) (\text{mole fraction H}_2\text{S})(Q)]^{(.6258)}$$

To determine the extent of the **500 ppm ROE**:

$$x = [(0.4546) (\text{mole fraction H}_2\text{S})(Q)]^{(.6258)}$$

**Table 8.2. Calculating H<sub>2</sub>S Radius of Exposure**

ROE Variable	Description
X =	ROE in feet
Q =	<b>Max volume of gas released determined to be released in cubic feet per day (ft<sup>3</sup>/d)</b> normalized to standard temperature and pressure, 60°F and 14.65 psia
<i>Mole fraction H<sub>2</sub>S</i> =	Mole fraction of H <sub>2</sub> S in the gaseous mixture released.

The volume used as the escape rate in determining the ROE is specified in the rule as follows:

- The maximum daily volume rate of gas containing H<sub>2</sub>S handled by that system element for which the ROE is calculated.
- For existing gas wells, the current adjusted open-flow rate, or the operator's estimate of the well's capacity to flow against zero back-pressure at the wellhead.

**New Mexico Oil Conservation Division & BLM Site Requirements under NMAC 19.15.11 & Onshore Order #6**

- Two cleared areas will be designated as Safe Briefing Areas. During an emergency, personnel will assemble in one of these areas for instructions from the Centennial Person-in-Charge. Prevailing wind direction should be considered in locating the briefing areas 200’ or more on either side of the well head. One area should offset the other at an angle of 45° to 90° with respect to prevailing wind direction to allow for wind shifts during the work period.
- In the event of either an intentional or accidental releases of hydrogen sulfide, safeguards to protect the general public from the harmful effects of hydrogen sulfide must be in place for operations. A summary of the provisions in each of three H<sub>2</sub>S ROE cases is included in **Table 8.3**.
  - **CASE 1** -100 ppm ROE < 50’

Centennial Resource Production, LLC.	H <sub>2</sub> S Contingency Plan Solomon Federal 105H, 106H, 304H, 404H	Lea County, New Mexico
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- **CASE 2** - 100 ppm ROE is 50’ or greater, but < 3000’ and does not penetrate public area.
- **CASE 3** -100 ppm ROE is 50’ or greater and penetrates a public area or 500 ppm ROE includes a public road. Also if 100 ppm ROE > 3000’ regardless of public area.

**Table 8.3. NMAC 19.15.11 Compliance Requirements Drilling & Production**

NMAC 19.15.11 & BLM COMPLIANCE REQUIREMENTS – DRILLING & PRODUCTION			
PROVISION	CASE 1	CASE 2	CASE 3
H <sub>2</sub> S Concentration Test	X	X	X
H-9	X	X	X
Training	X	X	X
District Office Notification	X	X	X
Drill Stem Tests Restricted	X*	X*	X
BOP Test	X*	X*	X
Materials		X	X
Warning and Marker		X	X
Security		X	X
Contingency Plan			X
Control and Equipment Safety			X
Monitors		X**	X**
Mud (ph Control or Scavenger)			X*
Wind Indicators		X**	X
Protective Breathing Equipment		X**	X
Choke Manifold, Secondary Remote Control, and Mud-Gas Separator			X
Flare Stacks			X*

**Section 9.0 - Training Requirements**

**Training**

The following elements are considered a minimum level of training for personnel assigned to operations who may encounter H<sub>2</sub>S as part of routine or maintenance work.

- The hazards, characteristics, and properties of hydrogen sulfide (H<sub>2</sub>S) and (SO<sub>2</sub>).
- Sources of H<sub>2</sub>S and SO<sub>2</sub>.
- Proper use of H<sub>2</sub>S and SO<sub>2</sub> detection methods used at the workplace.
- Recognition of, and proper response to, the warning signals initiated by H<sub>2</sub>S and SO<sub>2</sub> detection systems in use at the workplace.
- Symptoms of H<sub>2</sub>S exposure; symptoms of SO<sub>2</sub> exposure
- Rescue techniques and first aid to victims of H<sub>2</sub>S and SO<sub>2</sub> exposure.
- Proper use and maintenance of breathing equipment for working in H<sub>2</sub>S and SO<sub>2</sub> atmospheres, as appropriate theory and hands-on practice, with demonstrated proficiency (29 CFR Part 1910.134).
- Workplace practices and relevant maintenance procedures that have been established to protect personnel from the hazards of H<sub>2</sub>S and SO<sub>2</sub>.
- Wind direction awareness and routes of egress.

Centennial Resource Production, LLC.	H <sub>2</sub> S Contingency Plan Solomon Federal 105H, 106H, 304H, 404H	Lea County, New Mexico
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- Confined space and enclosed facility entry procedures (if applicable).
- Emergency response procedures that have been developed for the facility or operations.
- Locations and use of safety equipment.
- Locations of safe briefing areas.

***Refresher training will be conducted annually.***

### ***Section 10.0 - Personal Protective Equipment***

#### **I. Personal H<sub>2</sub>S Monitors**

All personnel engaged in planned or unplanned work activity to mitigate the release of a hazardous concentration of H<sub>2</sub>S shall have on their person a personal H<sub>2</sub>S monitor.

#### **II. Fixed H<sub>2</sub>S Detection and Alarms**

- 4 channel H<sub>2</sub>S monitor
- 4 wireless H<sub>2</sub>S monitors
- H<sub>2</sub>S alarm system (Audible/Red strobe)
- Personal gas monitor for each person on location
- Gas sample tubes

#### **III. Flame Resistant Clothing**

All personnel engaged in planned or unplanned work activity associated with this Plan shall have on the appropriate level of FRC clothing.

#### **IV. Respiratory Protection**

The following respiratory protection equipment shall be available at each drilling location.

- 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/Escapes units
- Five (5) escape units
- One (1) filler hose for the work/escape/rescue units

Supplied air (airline or SCBA) respiratory protection against hydrogen sulfide exposure is required in the following situations:

- When routine or maintenance work tasks involve exposure to H<sub>2</sub>S concentrations of 10 ppm or greater.
- When a fixed location area monitor alarms, and re-entry to the work area is required to complete a job.
- When confined spaces are to be entered without knowledge of H<sub>2</sub>S levels present, or if initial measurements are to be taken of H<sub>2</sub>S levels.
- During rescue of employees suspected of H<sub>2</sub>S overexposure.
- For specific tasks identified with significant exposure potential and outlined in local program guidelines.
- All respiratory equipment for hydrogen sulfide must be of the supplied-air type, equipped with pressure-demand regulators and operated in the pressure-demand mode only. This is the only type of respiratory protection recommended for hydrogen sulfide application. Equipment should be approved by NIOSH/MSHA or other recognized national authority as required. If airline units are used, a five-minute egress bottle should also be carried.

Centennial Resource Production, LLC.	H <sub>2</sub> S Contingency Plan Solomon Federal 105H, 106H, 304H, 404H	Lea County, New Mexico
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- Gas masks or other air-purifying respirators MUST NEVER BE USED FOR HYDROGEN SULFIDE due to the poor warning properties of the gas.
- Use of respiratory protection should be accompanied by a written respiratory protection program.

# **NEW MEXICO**

**LEA**

**SOLOMON FEDERAL**

**SOLOMON FED COM 304H**

**SOLOMON FED COM 304H**

**Plan: PWP0**

## **Standard Survey Report**

**27 October, 2020**

### Centennial Resource Development

#### Survey Report

<b>Company:</b>	NEW MEXICO	<b>Local Co-ordinate Reference:</b>	Well SOLOMON FED COM 304H
<b>Project:</b>	LEA	<b>TVD Reference:</b>	RKB=3461.7+26 @ 3487.7usft
<b>Site:</b>	SOLOMON FEDERAL	<b>MD Reference:</b>	RKB=3461.7+26 @ 3487.7usft
<b>Well:</b>	SOLOMON FED COM 304H	<b>North Reference:</b>	True
<b>Wellbore:</b>	SOLOMON FED COM 304H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	PWP0	<b>Database:</b>	Compass

<b>Project</b>	LEA		
<b>Map System:</b>	Universal Transverse Mercator (US Survey Feet)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Zone 13N (108 W to 102 W)		

<b>Site</b>	SOLOMON FEDERAL				
<b>Site Position:</b>		<b>Northing:</b>	0.00 usft	<b>Latitude:</b>	0° 0' 0.000 N
<b>From:</b>	Map	<b>Easting:</b>	0.00 usft	<b>Longitude:</b>	109° 29' 19.478 W
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b>	0.00 °

<b>Well</b>	SOLOMON FED COM 304H					
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b>	11,687,869.32 usft	<b>Latitude:</b>	32° 11' 21.670 N
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b>	2,118,043.81 usft	<b>Longitude:</b>	103° 27' 20.270 W
<b>Position Uncertainty</b>		0.0 usft	<b>Wellhead Elevation:</b>	usft	<b>Ground Level:</b>	3,461.7 usft

<b>Wellbore</b>	SOLOMON FED COM 304H				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF200510	12/31/2009	7.69	60.23	48,784.49582931

<b>Design</b>	PWP0				
<b>Audit Notes:</b>					
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.0	
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>	
	0.0	0.0	0.0	358.34	

<b>Survey Tool Program</b>	<b>Date</b>	10/27/2020			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
0.0	17,916.4	PWP0 (SOLOMON FED COM 304H)	MWD+IFR1+MS	OWSG_Rev2_ MWD + IFR1 + Multi-Station Correction	

<b>Planned Survey</b>										
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Vertical Section (usft)</b>	<b>Dogleg Rate (°/100usft)</b>	<b>Build Rate (°/100usft)</b>	<b>Turn Rate (°/100usft)</b>	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00	
2,300.0	3.00	226.10	2,299.9	-5.4	-5.7	-5.3	1.00	1.00	0.00	
7,750.0	3.00	226.10	7,742.4	-203.2	-211.2	-197.0	0.00	0.00	0.00	
8,050.0	0.00	0.00	8,042.3	-208.7	-216.8	-202.3	1.00	-1.00	0.00	
9,866.0	0.00	0.00	9,858.3	-208.7	-216.8	-202.3	0.00	0.00	0.00	
10,765.7	90.00	0.46	10,431.0	364.1	-212.2	370.0	10.00	10.00	0.00	
14,574.3	90.00	359.78	10,431.0	4,172.6	-204.4	4,176.8	0.02	0.00	-0.02	
17,916.4	90.00	359.78	10,431.0	7,514.7	-217.4	7,517.9	0.00	0.00	0.00	

### Centennial Resource Development

#### Survey Report

<b>Company:</b>	NEW MEXICO	<b>Local Co-ordinate Reference:</b>	Well SOLOMON FED COM 304H
<b>Project:</b>	LEA	<b>TVD Reference:</b>	RKB=3461.7+26 @ 3487.7usft
<b>Site:</b>	SOLOMON FEDERAL	<b>MD Reference:</b>	RKB=3461.7+26 @ 3487.7usft
<b>Well:</b>	SOLOMON FED COM 304H	<b>North Reference:</b>	True
<b>Wellbore:</b>	SOLOMON FED COM 304H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	PWP0	<b>Database:</b>	Compass

<b>Project</b>	LEA		
<b>Map System:</b>	Universal Transverse Mercator (US Survey Feet)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Zone 13N (108 W to 102 W)		

<b>Site</b>	SOLOMON FEDERAL				
<b>Site Position:</b>		<b>Northing:</b>	0.00 usft	<b>Latitude:</b>	0° 0' 0.000 N
<b>From:</b>	Map	<b>Easting:</b>	0.00 usft	<b>Longitude:</b>	109° 29' 19.478 W
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b>	0.00 °

<b>Well</b>	SOLOMON FED COM 304H					
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b>	11,687,869.32 usft	<b>Latitude:</b>	32° 11' 21.670 N
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b>	2,118,043.81 usft	<b>Longitude:</b>	103° 27' 20.270 W
<b>Position Uncertainty</b>		0.0 usft	<b>Wellhead Elevation:</b>	usft	<b>Ground Level:</b>	3,461.7 usft

<b>Wellbore</b>	SOLOMON FED COM 304H				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF200510	12/31/2009	7.69	60.23	48,784.49582931

<b>Design</b>	PWP0				
<b>Audit Notes:</b>					
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.0	
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>	
	0.0	0.0	0.0	358.34	

<b>Survey Tool Program</b>	<b>Date</b>	10/27/2020			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
0.0	17,916.4	PWP0 (SOLOMON FED COM 304H)	MWD+IFR1+MS	OWSG_Rev2_ MWD + IFR1 + Multi-Station Correction	

<b>Planned Survey</b>										
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Vertical Section (usft)</b>	<b>Dogleg Rate (°/100usft)</b>	<b>Build Rate (°/100usft)</b>	<b>Turn Rate (°/100usft)</b>	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00	
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00	
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00	
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00	
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00	

### Centennial Resource Development

#### Survey Report

<b>Company:</b>	NEW MEXICO	<b>Local Co-ordinate Reference:</b>	Well SOLOMON FED COM 304H
<b>Project:</b>	LEA	<b>TVD Reference:</b>	RKB=3461.7+26 @ 3487.7usft
<b>Site:</b>	SOLOMON FEDERAL	<b>MD Reference:</b>	RKB=3461.7+26 @ 3487.7usft
<b>Well:</b>	SOLOMON FED COM 304H	<b>North Reference:</b>	True
<b>Wellbore:</b>	SOLOMON FED COM 304H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	PWP0	<b>Database:</b>	Compass

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00	
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00	
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00	
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00	
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00	
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00	
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00	
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00	
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00	
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00	
2,100.0	1.00	226.10	2,100.0	-0.6	-0.6	-0.6	1.00	1.00	0.00	
2,200.0	2.00	226.10	2,200.0	-2.4	-2.5	-2.3	1.00	1.00	0.00	
2,300.0	3.00	226.10	2,299.9	-5.4	-5.7	-5.3	1.00	1.00	0.00	
2,400.0	3.00	226.10	2,399.7	-9.1	-9.4	-8.8	0.00	0.00	0.00	
2,500.0	3.00	226.10	2,499.6	-12.7	-13.2	-12.3	0.00	0.00	0.00	
2,600.0	3.00	226.10	2,599.5	-16.3	-17.0	-15.8	0.00	0.00	0.00	
2,700.0	3.00	226.10	2,699.3	-20.0	-20.7	-19.4	0.00	0.00	0.00	
2,800.0	3.00	226.10	2,799.2	-23.6	-24.5	-22.9	0.00	0.00	0.00	
2,900.0	3.00	226.10	2,899.0	-27.2	-28.3	-26.4	0.00	0.00	0.00	
3,000.0	3.00	226.10	2,998.9	-30.8	-32.1	-29.9	0.00	0.00	0.00	
3,100.0	3.00	226.10	3,098.8	-34.5	-35.8	-33.4	0.00	0.00	0.00	
3,200.0	3.00	226.10	3,198.6	-38.1	-39.6	-36.9	0.00	0.00	0.00	
3,300.0	3.00	226.10	3,298.5	-41.7	-43.4	-40.5	0.00	0.00	0.00	
3,400.0	3.00	226.10	3,398.4	-45.4	-47.1	-44.0	0.00	0.00	0.00	
3,500.0	3.00	226.10	3,498.2	-49.0	-50.9	-47.5	0.00	0.00	0.00	
3,600.0	3.00	226.10	3,598.1	-52.6	-54.7	-51.0	0.00	0.00	0.00	
3,700.0	3.00	226.10	3,697.9	-56.3	-58.5	-54.5	0.00	0.00	0.00	
3,800.0	3.00	226.10	3,797.8	-59.9	-62.2	-58.1	0.00	0.00	0.00	
3,900.0	3.00	226.10	3,897.7	-63.5	-66.0	-61.6	0.00	0.00	0.00	
4,000.0	3.00	226.10	3,997.5	-67.1	-69.8	-65.1	0.00	0.00	0.00	
4,100.0	3.00	226.10	4,097.4	-70.8	-73.5	-68.6	0.00	0.00	0.00	
4,200.0	3.00	226.10	4,197.3	-74.4	-77.3	-72.1	0.00	0.00	0.00	
4,300.0	3.00	226.10	4,297.1	-78.0	-81.1	-75.6	0.00	0.00	0.00	
4,400.0	3.00	226.10	4,397.0	-81.7	-84.9	-79.2	0.00	0.00	0.00	
4,500.0	3.00	226.10	4,496.8	-85.3	-88.6	-82.7	0.00	0.00	0.00	
4,600.0	3.00	226.10	4,596.7	-88.9	-92.4	-86.2	0.00	0.00	0.00	
4,700.0	3.00	226.10	4,696.6	-92.5	-96.2	-89.7	0.00	0.00	0.00	
4,800.0	3.00	226.10	4,796.4	-96.2	-99.9	-93.2	0.00	0.00	0.00	
4,900.0	3.00	226.10	4,896.3	-99.8	-103.7	-96.8	0.00	0.00	0.00	
5,000.0	3.00	226.10	4,996.2	-103.4	-107.5	-100.3	0.00	0.00	0.00	
5,100.0	3.00	226.10	5,096.0	-107.1	-111.2	-103.8	0.00	0.00	0.00	
5,200.0	3.00	226.10	5,195.9	-110.7	-115.0	-107.3	0.00	0.00	0.00	
5,300.0	3.00	226.10	5,295.8	-114.3	-118.8	-110.8	0.00	0.00	0.00	

### Centennial Resource Development

#### Survey Report

<b>Company:</b>	NEW MEXICO	<b>Local Co-ordinate Reference:</b>	Well SOLOMON FED COM 304H
<b>Project:</b>	LEA	<b>TVD Reference:</b>	RKB=3461.7+26 @ 3487.7usft
<b>Site:</b>	SOLOMON FEDERAL	<b>MD Reference:</b>	RKB=3461.7+26 @ 3487.7usft
<b>Well:</b>	SOLOMON FED COM 304H	<b>North Reference:</b>	True
<b>Wellbore:</b>	SOLOMON FED COM 304H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	PWP0	<b>Database:</b>	Compass

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
5,400.0	3.00	226.10	5,395.6	-117.9	-122.6	-114.4	0.00	0.00	0.00	
5,500.0	3.00	226.10	5,495.5	-121.6	-126.3	-117.9	0.00	0.00	0.00	
5,600.0	3.00	226.10	5,595.3	-125.2	-130.1	-121.4	0.00	0.00	0.00	
5,700.0	3.00	226.10	5,695.2	-128.8	-133.9	-124.9	0.00	0.00	0.00	
5,800.0	3.00	226.10	5,795.1	-132.5	-137.6	-128.4	0.00	0.00	0.00	
5,900.0	3.00	226.10	5,894.9	-136.1	-141.4	-131.9	0.00	0.00	0.00	
6,000.0	3.00	226.10	5,994.8	-139.7	-145.2	-135.5	0.00	0.00	0.00	
6,100.0	3.00	226.10	6,094.7	-143.3	-149.0	-139.0	0.00	0.00	0.00	
6,200.0	3.00	226.10	6,194.5	-147.0	-152.7	-142.5	0.00	0.00	0.00	
6,300.0	3.00	226.10	6,294.4	-150.6	-156.5	-146.0	0.00	0.00	0.00	
6,400.0	3.00	226.10	6,394.2	-154.2	-160.3	-149.5	0.00	0.00	0.00	
6,500.0	3.00	226.10	6,494.1	-157.9	-164.0	-153.1	0.00	0.00	0.00	
6,600.0	3.00	226.10	6,594.0	-161.5	-167.8	-156.6	0.00	0.00	0.00	
6,700.0	3.00	226.10	6,693.8	-165.1	-171.6	-160.1	0.00	0.00	0.00	
6,800.0	3.00	226.10	6,793.7	-168.7	-175.4	-163.6	0.00	0.00	0.00	
6,900.0	3.00	226.10	6,893.6	-172.4	-179.1	-167.1	0.00	0.00	0.00	
7,000.0	3.00	226.10	6,993.4	-176.0	-182.9	-170.6	0.00	0.00	0.00	
7,100.0	3.00	226.10	7,093.3	-179.6	-186.7	-174.2	0.00	0.00	0.00	
7,200.0	3.00	226.10	7,193.1	-183.3	-190.4	-177.7	0.00	0.00	0.00	
7,300.0	3.00	226.10	7,293.0	-186.9	-194.2	-181.2	0.00	0.00	0.00	
7,400.0	3.00	226.10	7,392.9	-190.5	-198.0	-184.7	0.00	0.00	0.00	
7,500.0	3.00	226.10	7,492.7	-194.2	-201.8	-188.2	0.00	0.00	0.00	
7,600.0	3.00	226.10	7,592.6	-197.8	-205.5	-191.8	0.00	0.00	0.00	
7,700.0	3.00	226.10	7,692.5	-201.4	-209.3	-195.3	0.00	0.00	0.00	
7,750.0	3.00	226.10	7,742.4	-203.2	-211.2	-197.0	0.00	0.00	0.00	
7,800.0	2.50	226.10	7,792.3	-204.9	-212.9	-198.6	1.00	-1.00	0.00	
7,900.0	1.50	226.10	7,892.3	-207.3	-215.4	-201.0	1.00	-1.00	0.00	
8,000.0	0.50	226.10	7,992.3	-208.5	-216.7	-202.2	1.00	-1.00	0.00	
8,050.0	0.00	0.00	8,042.3	-208.7	-216.8	-202.3	1.00	-1.00	0.00	
8,100.0	0.00	0.00	8,092.3	-208.7	-216.8	-202.3	0.00	0.00	0.00	
8,200.0	0.00	0.00	8,192.3	-208.7	-216.8	-202.3	0.00	0.00	0.00	
8,300.0	0.00	0.00	8,292.3	-208.7	-216.8	-202.3	0.00	0.00	0.00	
8,400.0	0.00	0.00	8,392.3	-208.7	-216.8	-202.3	0.00	0.00	0.00	
8,500.0	0.00	0.00	8,492.3	-208.7	-216.8	-202.3	0.00	0.00	0.00	
8,600.0	0.00	0.00	8,592.3	-208.7	-216.8	-202.3	0.00	0.00	0.00	
8,700.0	0.00	0.00	8,692.3	-208.7	-216.8	-202.3	0.00	0.00	0.00	
8,800.0	0.00	0.00	8,792.3	-208.7	-216.8	-202.3	0.00	0.00	0.00	
8,900.0	0.00	0.00	8,892.3	-208.7	-216.8	-202.3	0.00	0.00	0.00	
9,000.0	0.00	0.00	8,992.3	-208.7	-216.8	-202.3	0.00	0.00	0.00	
9,100.0	0.00	0.00	9,092.3	-208.7	-216.8	-202.3	0.00	0.00	0.00	
9,200.0	0.00	0.00	9,192.3	-208.7	-216.8	-202.3	0.00	0.00	0.00	
9,300.0	0.00	0.00	9,292.3	-208.7	-216.8	-202.3	0.00	0.00	0.00	
9,400.0	0.00	0.00	9,392.3	-208.7	-216.8	-202.3	0.00	0.00	0.00	

### Centennial Resource Development

#### Survey Report

<b>Company:</b>	NEW MEXICO	<b>Local Co-ordinate Reference:</b>	Well SOLOMON FED COM 304H
<b>Project:</b>	LEA	<b>TVD Reference:</b>	RKB=3461.7+26 @ 3487.7usft
<b>Site:</b>	SOLOMON FEDERAL	<b>MD Reference:</b>	RKB=3461.7+26 @ 3487.7usft
<b>Well:</b>	SOLOMON FED COM 304H	<b>North Reference:</b>	True
<b>Wellbore:</b>	SOLOMON FED COM 304H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	PWP0	<b>Database:</b>	Compass

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
9,500.0	0.00	0.00	9,492.3	-208.7	-216.8	-202.3	0.00	0.00	0.00	
9,600.0	0.00	0.00	9,592.3	-208.7	-216.8	-202.3	0.00	0.00	0.00	
9,700.0	0.00	0.00	9,692.3	-208.7	-216.8	-202.3	0.00	0.00	0.00	
9,800.0	0.00	0.00	9,792.3	-208.7	-216.8	-202.3	0.00	0.00	0.00	
9,866.0	0.00	0.00	9,858.3	-208.7	-216.8	-202.3	0.00	0.00	0.00	
9,900.0	3.40	0.46	9,892.2	-207.7	-216.8	-201.3	10.00	10.00	0.00	
10,000.0	13.41	0.46	9,991.0	-193.1	-216.7	-186.7	10.00	10.00	0.00	
10,100.0	23.41	0.46	10,085.8	-161.5	-216.5	-155.2	10.00	10.00	0.00	
10,200.0	33.41	0.46	10,173.6	-114.0	-216.1	-107.7	10.00	10.00	0.00	
10,300.0	43.42	0.46	10,251.9	-52.0	-215.6	-45.7	10.00	10.00	0.00	
10,400.0	53.42	0.46	10,318.2	22.7	-215.0	28.9	10.00	10.00	0.00	
10,500.0	63.42	0.46	10,370.5	107.8	-214.3	114.0	10.00	10.00	0.00	
10,600.0	73.43	0.46	10,407.2	200.7	-213.6	206.8	10.00	10.00	0.00	
10,700.0	83.43	0.46	10,427.2	298.5	-212.8	304.6	10.00	10.00	0.00	
10,765.7	90.00	0.46	10,431.0	364.1	-212.2	370.0	10.00	10.00	0.00	
10,800.0	90.00	0.45	10,431.0	398.4	-212.0	404.4	0.02	0.00	-0.02	
10,900.0	90.00	0.44	10,431.0	498.4	-211.2	504.3	0.02	0.00	-0.02	
11,000.0	90.00	0.42	10,431.0	598.4	-210.4	604.2	0.02	0.00	-0.02	
11,100.0	90.00	0.40	10,431.0	698.4	-209.7	704.2	0.02	0.00	-0.02	
11,200.0	90.00	0.38	10,431.0	798.4	-209.0	804.1	0.02	0.00	-0.02	
11,300.0	90.00	0.36	10,431.0	898.4	-208.4	904.0	0.02	0.00	-0.02	
11,400.0	90.00	0.35	10,431.0	998.4	-207.8	1,004.0	0.02	0.00	-0.02	
11,500.0	90.00	0.33	10,431.0	1,098.4	-207.2	1,103.9	0.02	0.00	-0.02	
11,600.0	90.00	0.31	10,431.0	1,198.4	-206.6	1,203.8	0.02	0.00	-0.02	
11,700.0	90.00	0.29	10,431.0	1,298.4	-206.1	1,303.8	0.02	0.00	-0.02	
11,800.0	90.00	0.27	10,431.0	1,398.4	-205.6	1,403.7	0.02	0.00	-0.02	
11,900.0	90.00	0.26	10,431.0	1,498.4	-205.1	1,503.7	0.02	0.00	-0.02	
12,000.0	90.00	0.24	10,431.0	1,598.4	-204.7	1,603.6	0.02	0.00	-0.02	
12,100.0	90.00	0.22	10,431.0	1,698.4	-204.3	1,703.6	0.02	0.00	-0.02	
12,200.0	90.00	0.20	10,431.0	1,798.4	-203.9	1,803.5	0.02	0.00	-0.02	
12,300.0	90.00	0.18	10,431.0	1,898.4	-203.6	1,903.5	0.02	0.00	-0.02	
12,400.0	90.00	0.17	10,431.0	1,998.4	-203.3	2,003.4	0.02	0.00	-0.02	
12,500.0	90.00	0.15	10,431.0	2,098.4	-203.0	2,103.4	0.02	0.00	-0.02	
12,600.0	90.00	0.13	10,431.0	2,198.4	-202.8	2,203.3	0.02	0.00	-0.02	
12,700.0	90.00	0.11	10,431.0	2,298.4	-202.6	2,303.3	0.02	0.00	-0.02	
12,800.0	90.00	0.10	10,431.0	2,398.4	-202.4	2,403.2	0.02	0.00	-0.02	
12,900.0	90.00	0.08	10,431.0	2,498.4	-202.2	2,503.2	0.02	0.00	-0.02	
13,000.0	90.00	0.06	10,431.0	2,598.4	-202.1	2,603.1	0.02	0.00	-0.02	
13,100.0	90.00	0.04	10,431.0	2,698.4	-202.0	2,703.1	0.02	0.00	-0.02	
13,200.0	90.00	0.02	10,431.0	2,798.4	-202.0	2,803.0	0.02	0.00	-0.02	
13,300.0	90.00	0.01	10,431.0	2,898.4	-201.9	2,903.0	0.02	0.00	-0.02	
13,400.0	90.00	359.99	10,431.0	2,998.4	-202.0	3,003.0	0.02	0.00	-0.02	
13,500.0	90.00	359.97	10,431.0	3,098.4	-202.0	3,102.9	0.02	0.00	-0.02	

### Centennial Resource Development

#### Survey Report

<b>Company:</b>	NEW MEXICO	<b>Local Co-ordinate Reference:</b>	Well SOLOMON FED COM 304H
<b>Project:</b>	LEA	<b>TVD Reference:</b>	RKB=3461.7+26 @ 3487.7usft
<b>Site:</b>	SOLOMON FEDERAL	<b>MD Reference:</b>	RKB=3461.7+26 @ 3487.7usft
<b>Well:</b>	SOLOMON FED COM 304H	<b>North Reference:</b>	True
<b>Wellbore:</b>	SOLOMON FED COM 304H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	PWP0	<b>Database:</b>	Compass

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
13,600.0	90.00	359.95	10,431.0	3,198.4	-202.1	3,202.9	0.02	0.00	-0.02	
13,700.0	90.00	359.93	10,431.0	3,298.4	-202.2	3,302.8	0.02	0.00	-0.02	
13,800.0	90.00	359.92	10,431.0	3,398.4	-202.3	3,402.8	0.02	0.00	-0.02	
13,900.0	90.00	359.90	10,431.0	3,498.4	-202.4	3,502.8	0.02	0.00	-0.02	
14,000.0	90.00	359.88	10,431.0	3,598.4	-202.6	3,602.7	0.02	0.00	-0.02	
14,100.0	90.00	359.86	10,431.0	3,698.4	-202.9	3,702.7	0.02	0.00	-0.02	
14,200.0	90.00	359.84	10,431.0	3,798.4	-203.1	3,802.6	0.02	0.00	-0.02	
14,300.0	90.00	359.83	10,431.0	3,898.4	-203.4	3,902.6	0.02	0.00	-0.02	
14,400.0	90.00	359.81	10,431.0	3,998.4	-203.7	4,002.6	0.02	0.00	-0.02	
14,500.0	90.00	359.79	10,431.0	4,098.4	-204.1	4,102.5	0.02	0.00	-0.02	
14,574.3	90.00	359.78	10,431.0	4,172.6	-204.4	4,176.8	0.02	0.00	-0.02	
14,600.0	90.00	359.78	10,431.0	4,198.4	-204.5	4,202.5	0.00	0.00	0.00	
14,700.0	90.00	359.78	10,431.0	4,298.4	-204.9	4,302.5	0.00	0.00	0.00	
14,800.0	90.00	359.78	10,431.0	4,398.4	-205.2	4,402.5	0.00	0.00	0.00	
14,900.0	90.00	359.78	10,431.0	4,498.4	-205.6	4,502.4	0.00	0.00	0.00	
15,000.0	90.00	359.78	10,431.0	4,598.4	-206.0	4,602.4	0.00	0.00	0.00	
15,100.0	90.00	359.78	10,431.0	4,698.4	-206.4	4,702.4	0.00	0.00	0.00	
15,200.0	90.00	359.78	10,431.0	4,798.4	-206.8	4,802.3	0.00	0.00	0.00	
15,300.0	90.00	359.78	10,431.0	4,898.4	-207.2	4,902.3	0.00	0.00	0.00	
15,400.0	90.00	359.78	10,431.0	4,998.4	-207.6	5,002.3	0.00	0.00	0.00	
15,500.0	90.00	359.78	10,431.0	5,098.4	-208.0	5,102.2	0.00	0.00	0.00	
15,600.0	90.00	359.78	10,431.0	5,198.4	-208.4	5,202.2	0.00	0.00	0.00	
15,700.0	90.00	359.78	10,431.0	5,298.4	-208.7	5,302.2	0.00	0.00	0.00	
15,800.0	90.00	359.78	10,431.0	5,398.4	-209.1	5,402.1	0.00	0.00	0.00	
15,900.0	90.00	359.78	10,431.0	5,498.4	-209.5	5,502.1	0.00	0.00	0.00	
16,000.0	90.00	359.78	10,431.0	5,598.4	-209.9	5,602.1	0.00	0.00	0.00	
16,100.0	90.00	359.78	10,431.0	5,698.4	-210.3	5,702.0	0.00	0.00	0.00	
16,200.0	90.00	359.78	10,431.0	5,798.3	-210.7	5,802.0	0.00	0.00	0.00	
16,300.0	90.00	359.78	10,431.0	5,898.3	-211.1	5,902.0	0.00	0.00	0.00	
16,400.0	90.00	359.78	10,431.0	5,998.3	-211.5	6,002.0	0.00	0.00	0.00	
16,500.0	90.00	359.78	10,431.0	6,098.3	-211.9	6,101.9	0.00	0.00	0.00	
16,600.0	90.00	359.78	10,431.0	6,198.3	-212.2	6,201.9	0.00	0.00	0.00	
16,700.0	90.00	359.78	10,431.0	6,298.3	-212.6	6,301.9	0.00	0.00	0.00	
16,800.0	90.00	359.78	10,431.0	6,398.3	-213.0	6,401.8	0.00	0.00	0.00	
16,900.0	90.00	359.78	10,431.0	6,498.3	-213.4	6,501.8	0.00	0.00	0.00	
17,000.0	90.00	359.78	10,431.0	6,598.3	-213.8	6,601.8	0.00	0.00	0.00	
17,100.0	90.00	359.78	10,431.0	6,698.3	-214.2	6,701.7	0.00	0.00	0.00	
17,200.0	90.00	359.78	10,431.0	6,798.3	-214.6	6,801.7	0.00	0.00	0.00	
17,300.0	90.00	359.78	10,431.0	6,898.3	-215.0	6,901.7	0.00	0.00	0.00	
17,400.0	90.00	359.78	10,431.0	6,998.3	-215.4	7,001.6	0.00	0.00	0.00	
17,500.0	90.00	359.78	10,431.0	7,098.3	-215.7	7,101.6	0.00	0.00	0.00	
17,600.0	90.00	359.78	10,431.0	7,198.3	-216.1	7,201.6	0.00	0.00	0.00	
17,700.0	90.00	359.78	10,431.0	7,298.3	-216.5	7,301.5	0.00	0.00	0.00	
17,800.0	90.00	359.78	10,431.0	7,398.3	-216.9	7,401.5	0.00	0.00	0.00	

### Centennial Resource Development

#### Survey Report

<b>Company:</b>	NEW MEXICO	<b>Local Co-ordinate Reference:</b>	Well SOLOMON FED COM 304H
<b>Project:</b>	LEA	<b>TVD Reference:</b>	RKB=3461.7+26 @ 3487.7usft
<b>Site:</b>	SOLOMON FEDERAL	<b>MD Reference:</b>	RKB=3461.7+26 @ 3487.7usft
<b>Well:</b>	SOLOMON FED COM 304H	<b>North Reference:</b>	True
<b>Wellbore:</b>	SOLOMON FED COM 304H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	PWP0	<b>Database:</b>	Compass

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
17,900.0	90.00	359.78	10,431.0	7,498.3	-217.3	7,501.5	0.00	0.00	0.00	
17,916.4	90.00	359.78	10,431.0	7,514.7	-217.4	7,517.9	0.00	0.00	0.00	

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
FTP - SOLOMON FED C - hit/miss target - Shape	0.00	0.00	10,431.0	-208.2	-218.3	11,687,658.06	2,117,828.57	32° 11' 19.610 N	103° 27' 22.810 W	
- plan misses target center by 237.5usft at 10302.0usft MD (10253.4 TVD, -50.6 N, -215.6 E)										
- Circle (radius 50.0)										
LTP/BHL - SOLOMON F - plan hits target center - Circle (radius 50.0)	0.00	0.00	10,431.0	7,514.7	-217.4	11,695,380.15	2,117,718.54	32° 12' 36.040 N	103° 27' 22.800 W	

Checked By: _____	Approved By: _____	Date: _____
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# **NEW MEXICO**

**LEA**

**SOLOMON FEDERAL**

**SOLOMON FED COM 304H**

**SOLOMON FED COM 304H**

**PWP0**

## **Anticollision Summary Report**

**27 October, 2020**

### Centennial Resource Development Anticollision Summary Report

<b>Company:</b>	NEW MEXICO	<b>Local Co-ordinate Reference:</b>	Well SOLOMON FED COM 304H
<b>Project:</b>	LEA	<b>TVD Reference:</b>	RKB=3461.7+26 @ 3487.7usft
<b>Reference Site:</b>	SOLOMON FEDERAL	<b>MD Reference:</b>	RKB=3461.7+26 @ 3487.7usft
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	SOLOMON FED COM 304H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	SOLOMON FED COM 304H	<b>Database:</b>	Compass
<b>Reference Design:</b>	PWP0	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	PWP0		
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
<b>Interpolation Method:</b>	Stations	<b>Error Model:</b>	ISCWSA
<b>Depth Range:</b>	Unlimited	<b>Scan Method:</b>	Closest Approach 3D
<b>Results Limited by:</b>	Maximum centre distance of 1,000.0usft	<b>Error Surface:</b>	Pedal Curve
<b>Warning Levels Evaluated at:</b>	2.00 Sigma	<b>Casing Method:</b>	Not applied

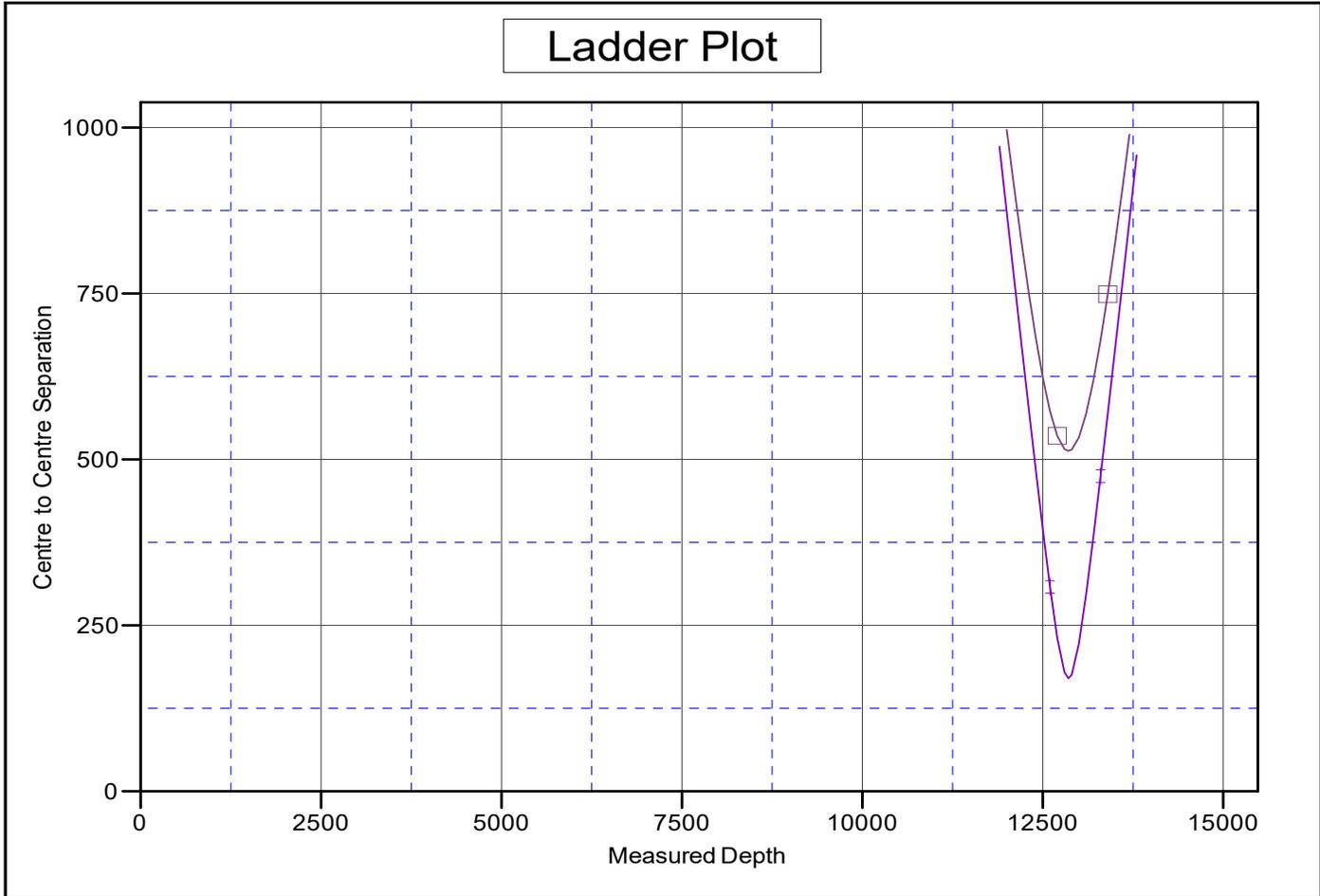
<b>Survey Tool Program</b>	<b>Date</b>	10/27/2020		
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.0	17,916.4	PWP0 (SOLOMON FED COM 304H)	MWD+IFR1+MS	OWSG_Rev2_ MWD + IFR1 + Multi-Station Correction

Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
<b>SOLOMON FEDERAL</b>						
<b>Offset Well - Wellbore - Design</b>						
SOLOMON FEDERAL COM 709H - SOLOMON FEDERA	12,856.6	10,511.2	170.2	95.5	2.278	CC, ES, SF
SOLOMON FEDERAL COM 710H - SOLOMON FEDERA	12,854.3	10,484.9	512.9	439.5	6.991	CC, ES, SF

### Centennial Resource Development Anticollision Summary Report

<b>Company:</b>	NEW MEXICO	<b>Local Co-ordinate Reference:</b>	Well SOLOMON FED COM 304H
<b>Project:</b>	LEA	<b>TVD Reference:</b>	RKB=3461.7+26 @ 3487.7usft
<b>Reference Site:</b>	SOLOMON FEDERAL	<b>MD Reference:</b>	RKB=3461.7+26 @ 3487.7usft
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	SOLOMON FED COM 304H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	SOLOMON FED COM 304H	<b>Database:</b>	Compass
<b>Reference Design:</b>	PWPO	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to RKB=3461.7+26 @ 3487.7usft	Coordinates are relative to: SOLOMON FED COM 304H
Offset Depths are relative to Offset Datum	Coordinate System is Universal Transverse Mercator (US Survey Feet), Zone 13N
Central Meridian is 105° 0' 0.000 W	Grid Convergence at Surface is: 0.82°



#### LEGEND

—■— SOLOMON FEDERAL.COM 709H.SOLOMON FEDERAL.COM 709H.ACTUAL.WELL.PATH.V0
 
—■— SOLOMON FEDERAL.COM 710H.SOLOMON FEDERAL.COM 710H.ACTUAL.WELL.PATH.V0

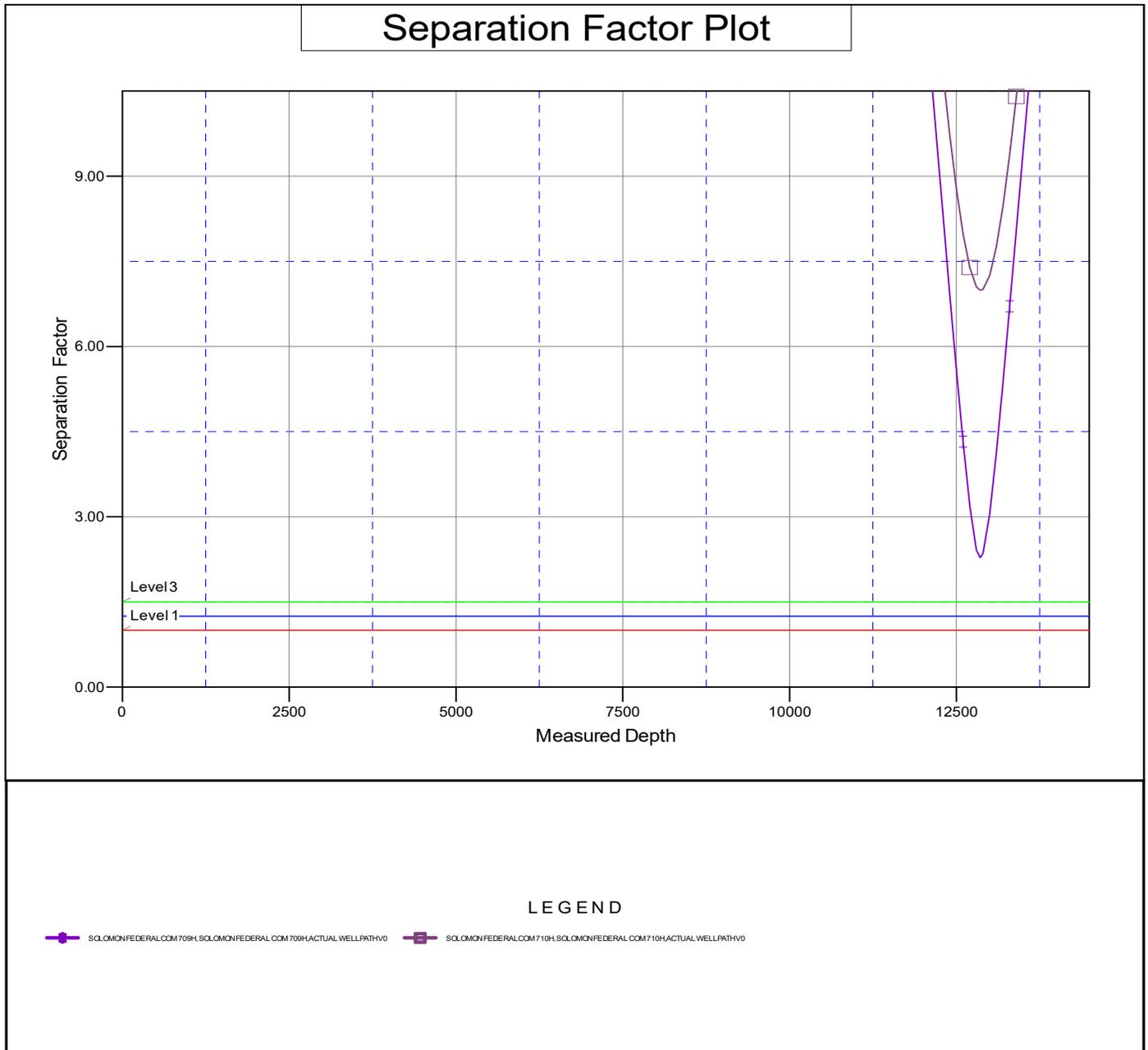
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

## Centennial Resource Development Anticollision Summary Report

<b>Company:</b>	NEW MEXICO	<b>Local Co-ordinate Reference:</b>	Well SOLOMON FED COM 304H
<b>Project:</b>	LEA	<b>TVD Reference:</b>	RKB=3461.7+26 @ 3487.7usft
<b>Reference Site:</b>	SOLOMON FEDERAL	<b>MD Reference:</b>	RKB=3461.7+26 @ 3487.7usft
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	SOLOMON FED COM 304H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	SOLOMON FED COM 304H	<b>Database:</b>	Compass
<b>Reference Design:</b>	PWPO	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to RKB=3461.7+26 @ 3487.7usft  
 Offset Depths are relative to Offset Datum  
 Central Meridian is 105° 0' 0.000 W

Coordinates are relative to: SOLOMON FED COM 304H  
 Coordinate System is Universal Transverse Mercator (US Survey Feet), Zone 13N  
 Grid Convergence at Surface is: 0.82°



CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

## 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.

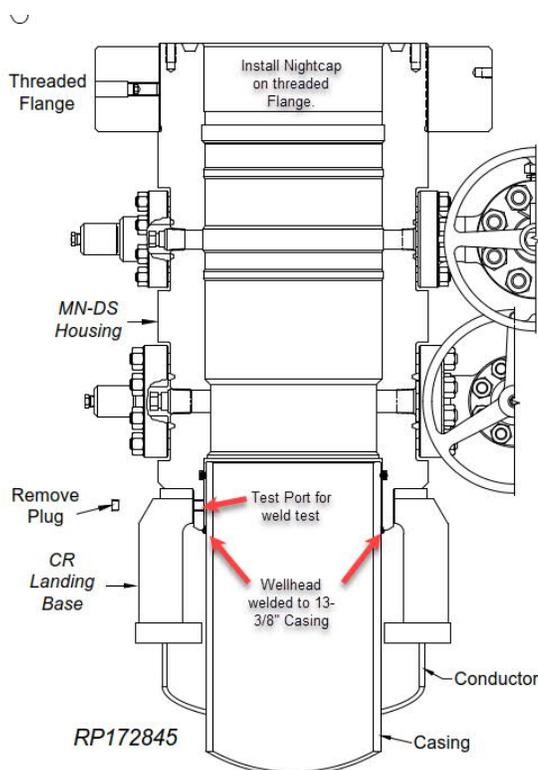


Illustration 1-1

- 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

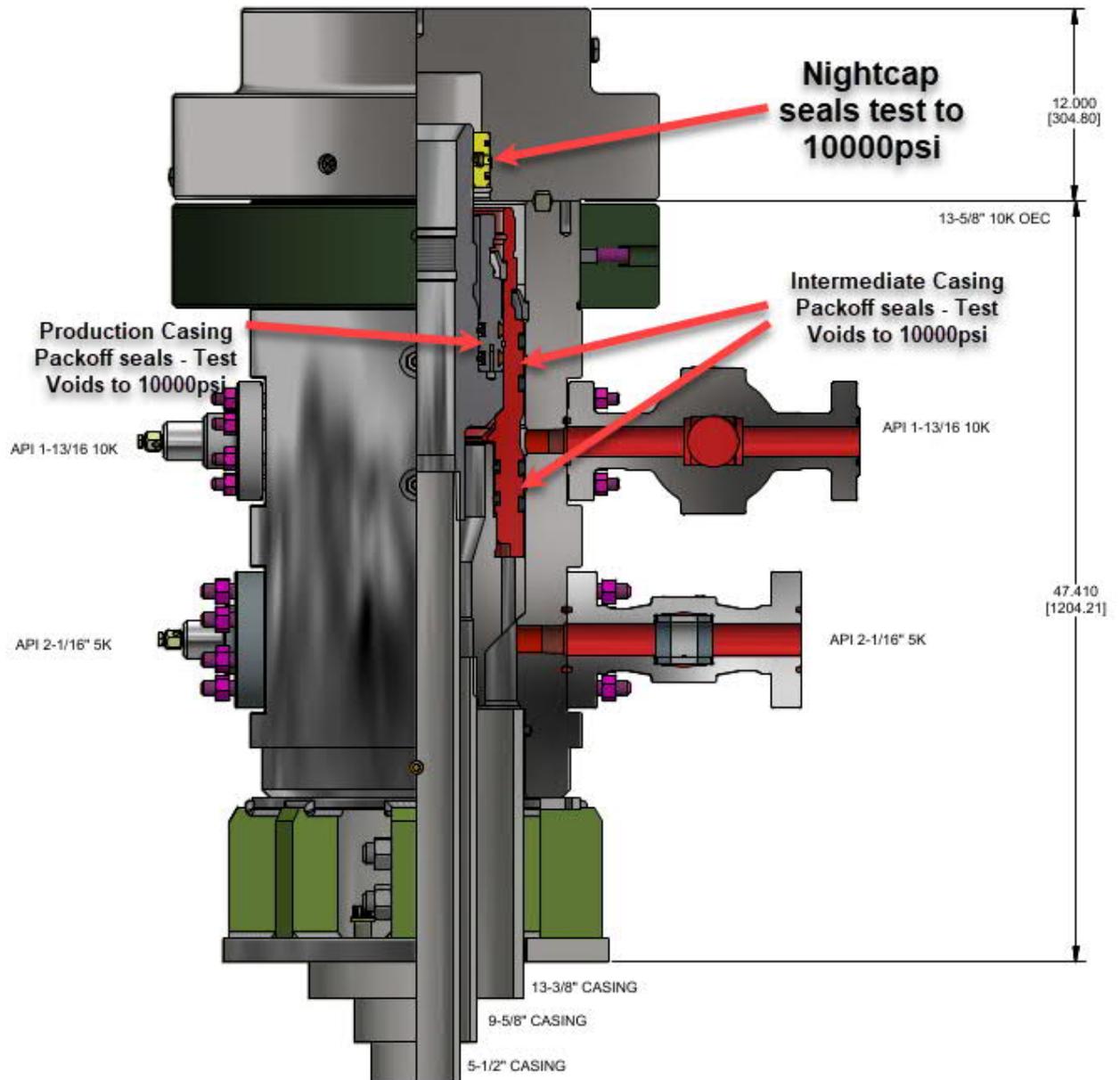
## ➤ Wolfcamp Formations

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 3<sup>rd</sup> 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.

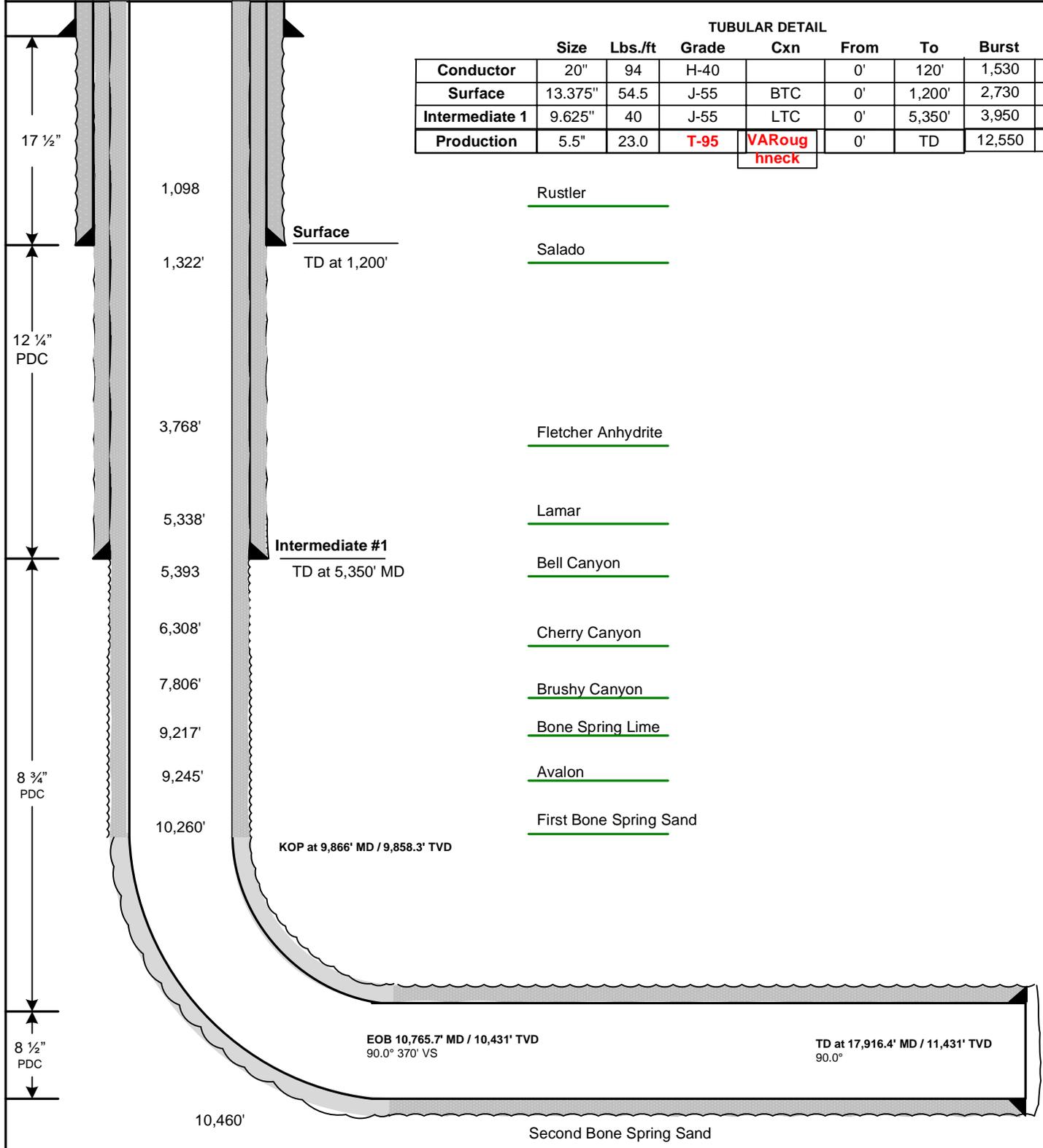
CENTENNIAL

WBD

Well : Solomon Fed Com 304H  
 Area : Solomon FM tgt: 1<sup>st</sup> BSS  
 County : Lea State : NM  
 Location : Lot G Section 27, T24S, R34E; 2,339' FNL & 1,965' FEL  
 BHL : Lot B, Section 22, T24S, R34E; 100' FNL & 2,183' FEL  
 KB Elev : 3,492.2' MSL KB : 26.5' AGL GL Elev : 3,461.7' MSL



TUBULAR DETAIL									
	Size	Lbs./ft	Grade	Cxn	From	To	Burst	Clips	
Conductor	20"	94	H-40		0'	120'	1,530	520	
Surface	13.375"	54.5	J-55	BTC	0'	1,200'	2,730	1,130	
Intermediate 1	9.625"	40	J-55	LTC	0'	5,350'	3,950	2,570	
Production	5.5"	23.0	T-95	VARoughneck	0'	TD	12,550	12,940	

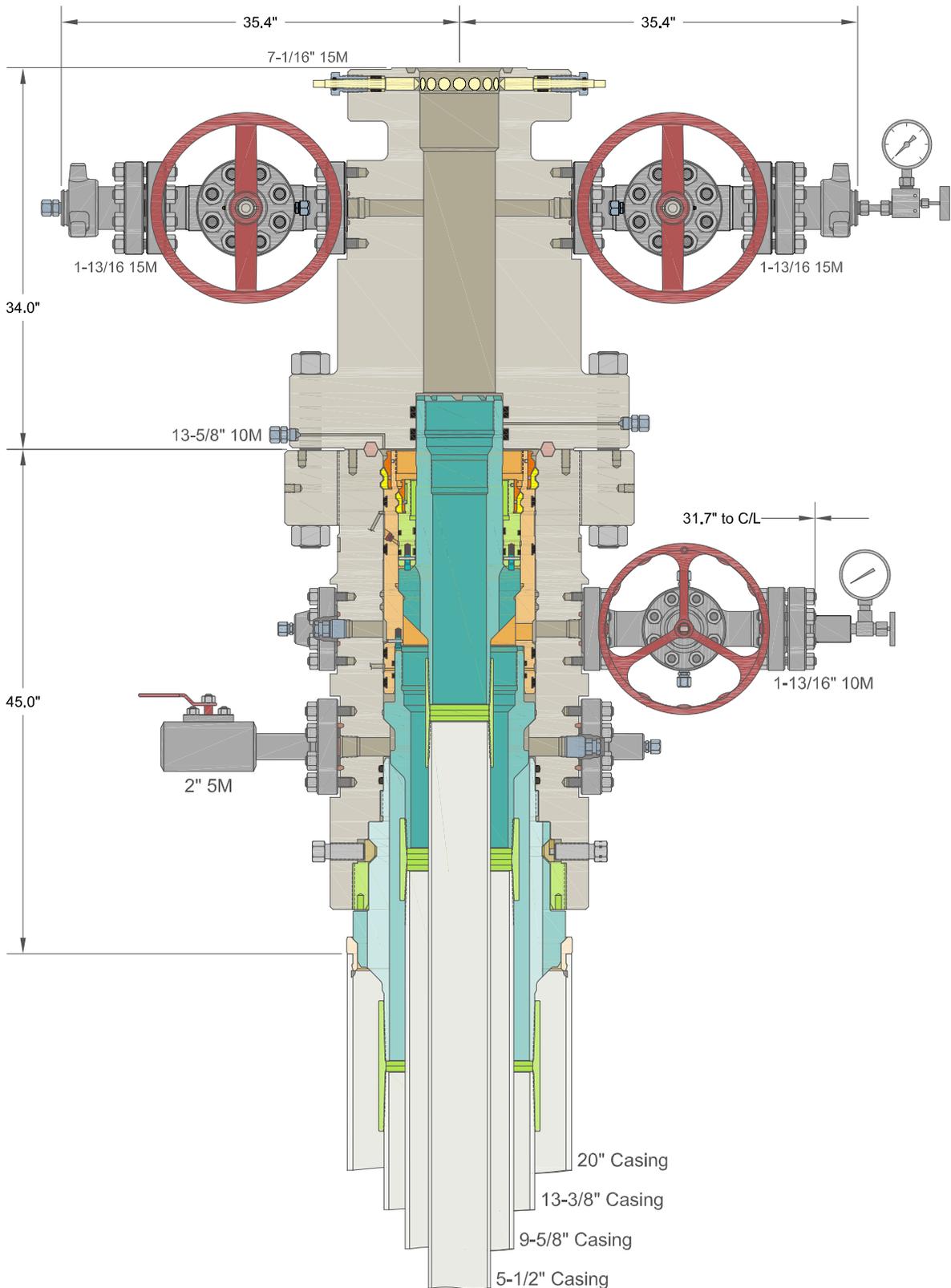


## Solomon Fed Com 304H

### 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.



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ALL DIMENSIONS APPROXIMATE

# CACTUS WELLHEAD LLC

CENTENNIAL RESOURCE DEVELOPMENT  
LEE CO, NM

20" x 13-3/8" x 9-5/8" x 5-1/2" 10M MBU-3T-CFL-R-DBLO System  
With 13-5/8" 10M x 7-1/16" 15M CTH-DBLHPS Tubing Head,  
20" Landing Ring & Pin Down Mandrel Casing Hangers

DRAWN	DLE	10JUN20
APPRV		
DRAWING NO.	HBE0000338	

### GEOLOGIC PROG

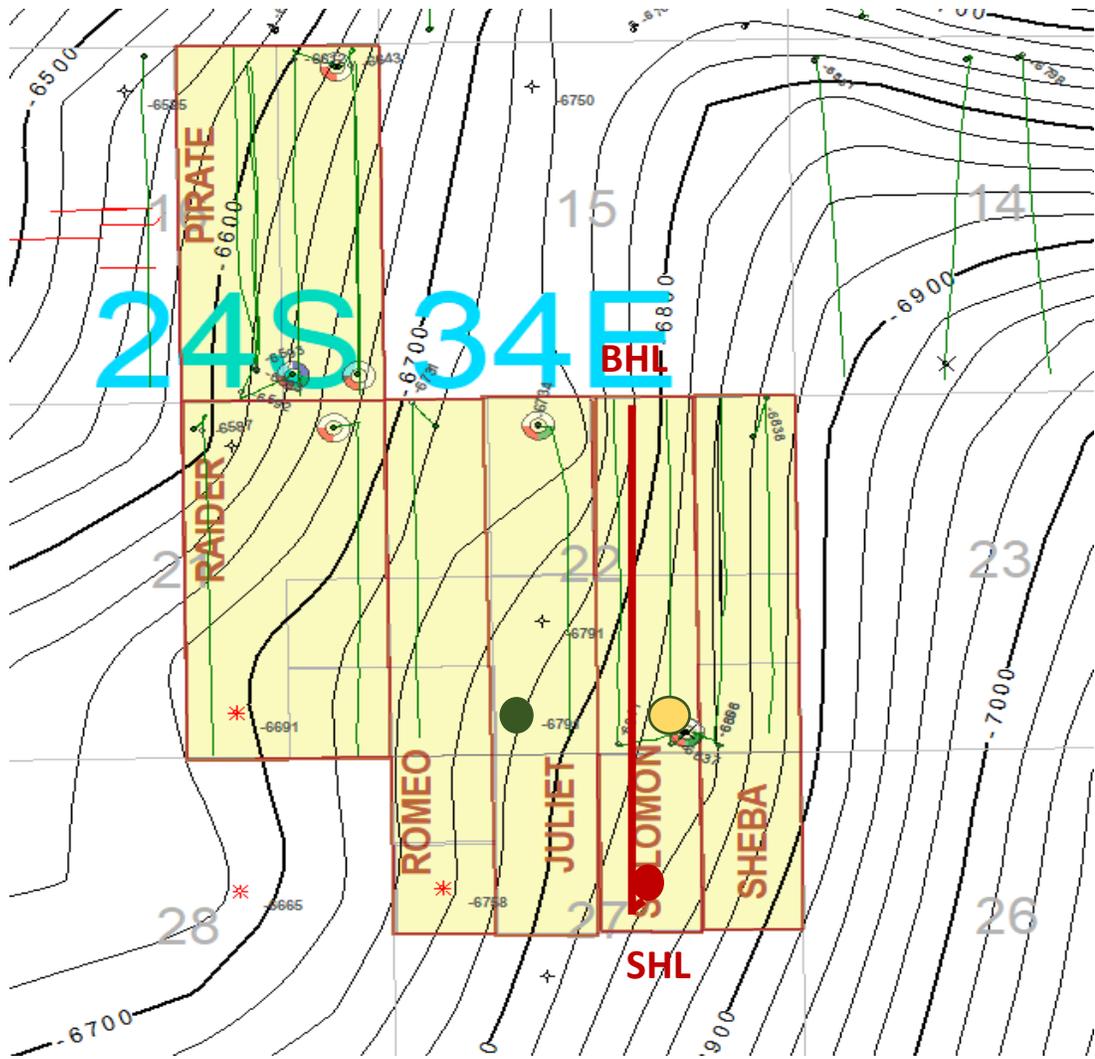
			<b>WELL NAME</b>		Solomon Fed Com 304H		10/23/2020		
			<b>AREA</b>		Solomon		<b>API</b>		
			<b>HZ TARGET</b>		FBSG Sand		<b>WI %</b>		
			<b>LAT LENGTH</b>		7,700		<b>AFE#</b>		
			<b>TRRC PERMIT</b>				<b>COUNTY</b>		Lea
	<b>TWNP</b>	<b>RNG</b>	<b>SECTION</b>	<b>FOOTAGE</b>		<b>COMMENT</b>			
<b>SHL</b>	24S	34E	27	2339' FNL 1965' FEL		On lease. Drill S to N.			
<b>FTP/PP</b>	24S	34E	27	2548' FNL 2183' FEL					
<b>LTP</b>	24S	34E	22	100' FNL 2183' FEL					
<b>BHL</b>	24S	34E	22	100' FNL 2183' FEL					
			<b>GROUND LEVEL</b>	3,462'	<b>RIG KB</b>	26'	<b>KB ELEV</b>	3,488'	
<b>GEOLOGIST</b>	Isabel Harper		<a href="mailto:isabel.harper@cdevinc.com">isabel.harper@cdevinc.com</a>			(303) 589-8841			
<b>LOGGING</b>		No open hole logging. MWD GR from drill out of surface casing to TD.							
<b>MUDLOGGING</b>		Standard mud logging and mud gas detection. Mud loggers on from drill out of surface casing to TD.							
<b>FORMATION</b>		<b>TVD</b>	<b>SSTVD</b>	<b>THICKNESS</b>	<b>FINAL MD</b>	<b>FINAL TVD</b>	<b>DELTA</b>		
Rustler		1,098'	2,390'	617'					
Salado		1,715'	1,773'	2,053'					
BX BLM (Fletcher Anhydrite)		3,768'	-280'	1,570'					
Lamar		5,338'	-1,850'	55'					
Bell Canyon		5,393'	-1,905'	915'					
Cherry Canyon		6,308'	-2,820'	211'					
Manzanita Lime		6,519'	-3,031'	1,287'					
Brushy Canyon		7,806'	-4,318'	1,411'					
Bone Spring Lime		9,217'	-5,729'	28'					
Avalon		9,245'	-5,757'	1,015'					
First Bone Spring Sand		10,260'	-6,772'	200'					
Second Bone Spring Shale		10,460'	-6,972'	821'					
Third Bone Spring Carb		11,281'	-7,793'	537'					
Third Bone Spring Sand		11,818'	-8,330'	402'					
Wolfcamp		12,220'	-8,732'						
Target Top at 0' VS		10,411'	-6923	47'					
Target Base at 0' VS		10,458'	-6970						
HZ TARGET AT 0' VS		10,431'	-6,943'						
<b>TARGET:</b> KBTVD = 10431' at VS, INC = 90.0 deg Target Window +10/-10'									
<b>COMMENT:</b>									



### GEOLOGIC PROG

OFFSET TYPE WELLS				
	DRILLING WELL	Solomon Fed Com 304H		
	HZ TARGET	FBSG Sand	AREA	
	PRIMARY TYPE LOG		SECONDARY TYPE LOG	
	Madera 'B' 8706 JV-P Com 1 30-025-30179		Solomon Fed Com 710H 30-025-45376	
LOCATION	24S 34E Sec22/660' FSL 1650' FW		24S 34E Sec22/ 300' FSL 1475' FE	
DISTANCE	3470' NW of expected FTP		2690' N of expected FTP	
DIRECTION SURVEY	No		Yes	
KB ELEV	3,531'		3,520'	

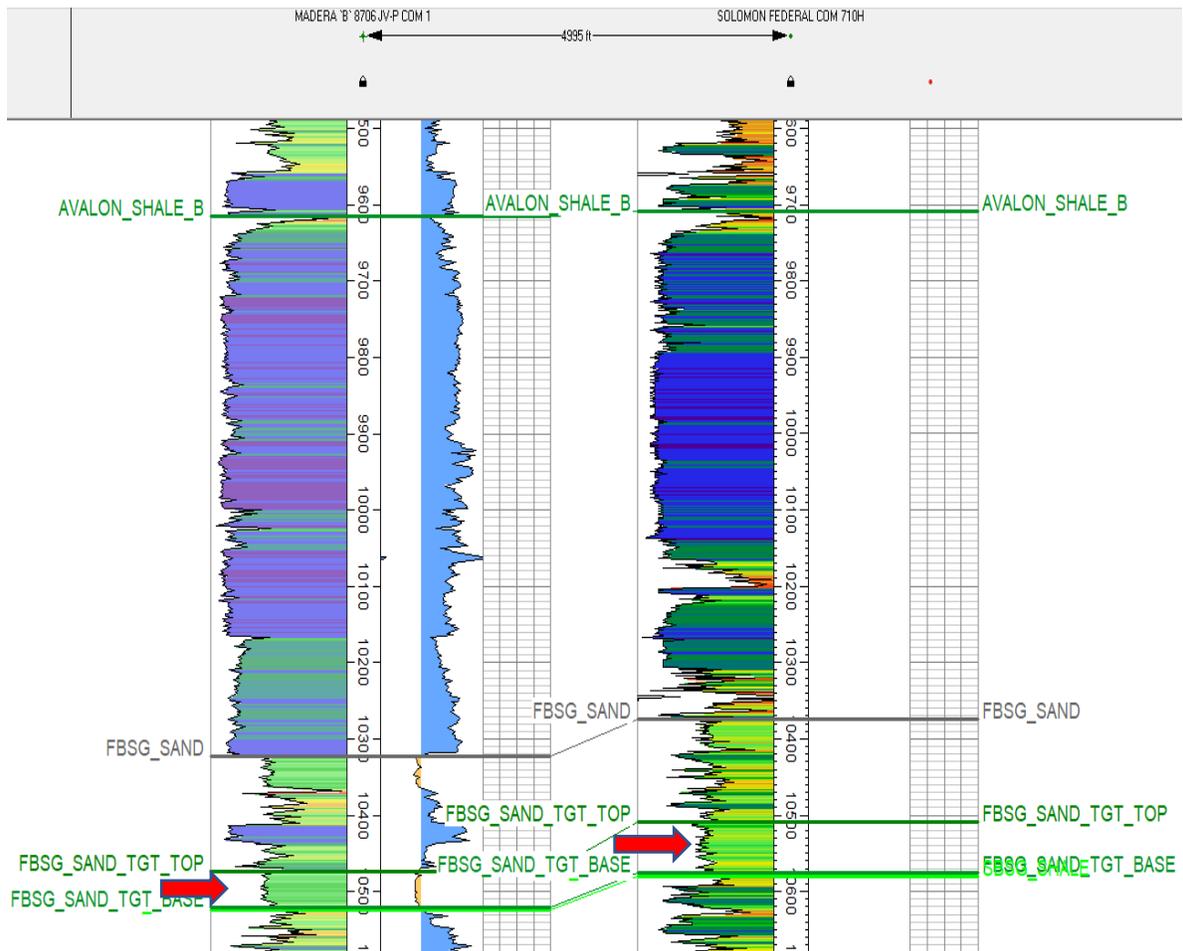
LOCATION & FBSG SAND STRUCTURE MAP



# GEOLOGIC PROG

OFFSET TYPE SECTION			
	DRILLING WELL	Solomon Fed Com 304H	
	HZ TARGET	FBSG Sand	AREA
	PRIMARY TYPE LOG	SECONDARY TYPE LOG	
	Madera 'B' 8706 JV-P Com 1 30-025-30179	Solomon Fed Com 710H 30-025-45376	
LOCATION	24S 34E Sec22/660' FSL 1650' FW		24S 34E Sec22/ 300' FSL 1475' FEL
DISTANCE	3470' NW of expected FTP		2690' N of expected FTP
DIRECTION SURVEY	No		Yes
KB ELEV	3,531'		3,520'

## Type Log and Target Zone



# GEOLOGIC PROG

<b>GEOPHYSICAL DATA</b>
<b>POTENTIAL GEOHAZARDS</b>
<b>SEISMIC DISPLAYS</b>

## GEOLOGIC PROG

MUD LOG DISTRIBUTION DETAILS				
 <p><b>CENTENNIAL</b> RESOURCE DEVELOPMENT, LLC</p>	<b>WELL NAME</b>	Solomon Fed Com 304H		10/23/2020
	<b>AREA</b>	Solomon	<b>API</b>	
	<b>HZ TARGET</b>	FBSG Sand	<b>WI %</b>	
	<b>LAT LENGTH</b>	7700	<b>AFE#</b>	
	<b>TRRC PERMIT</b>		<b>COUNTY</b>	Lea
<b>GEOLOGIST</b>	Isabel Harper	isabel.harper@cdevinc.com		(303) 589-8841
<b>Mud Logging Company</b>				
None				
TBD	<a href="#">TBD</a>		TBD	
Contact 2	email		phone	
Contact 3	email		phone	
<b>Daily distribution data requirements and protocol</b>				
geodata@cdevinc.com; joe.woodske@cdevinc.com; drilling@cdevinc.com; dawn.billesbach@cdevinc.com, Andrew.welshhans@cdevinc.com; liam.kaltenback@cdevinc.com; nick.daniele@cdevinc.com; Isabel.Harper@cdevinc.com				
<b>Daily email distribution list</b>				
<b>Final distribution data requirements</b>				
<b>Final distribution list</b>				
<b>Contact Information</b>	<b>Reports</b>	<b>Hard Copies</b>	<b>Digital data</b>	<b>Cuttings</b>
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				<b>No Dried Samples to be Collected</b>
<b>MWD Only:</b> 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	
<b>Project Geologist:</b>	Isabel Harper		<b>Production:</b>	Brandon Morin
<b>Operations Geologist:</b>	Joe Woodske		<b>Surface Land:</b>	Bailey Joplim
<b>Drilling:</b>	Ronny Hise		<b>Mineral Land:</b>	Gavin Smith

District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
811 S. First St., Artesia, NM 88210  
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505

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

Submit Original  
to Appropriate  
District Office

**GAS CAPTURE PLAN**

Date: 3/04/2021

Original Operator & OGRID No.: Centennial Resource Production, LLC #372165  
 Amended - Reason for Amendment: \_\_\_\_\_

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

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

**Well(s)/Production Facility – Juliet Federal Pad Facility**

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

Well Name	API	Well Location (ULSTR)	Footages	Expected MCF/D	Flared or Vented	Comments
Solomon Federal Com 304H	Pending	G-27-24S-34E	2339 FNL & 1965 FEL	1231 MCF/D	Neither	New Well

**Gathering System and Pipeline Notification**

Well(s) will be connected to a production facility after flowback operations are complete, if gas transporter system is in place. The gas produced from production facility is dedicated to Lucid Energy and will be connected to Lucid's low/high pressure gathering system located in Lea County, New Mexico. It will require 0' of new pipeline to connect the facility to low/high pressure gathering system. Centennial Resource Production, LLC provides (periodically) to Lucid a drilling, completion and estimated first production date for wells that are scheduled to be drilled in the foreseeable future. In addition, Centennial Resource Production, LLC and Lucid Energy have periodic conference calls to discuss changes to drilling and completion schedules. Gas from these wells will be processed at Lucid's Red Hills Processing Plant located in Sec. 13, Twn. 24S, Rng. 33E, Lea County, New Mexico. The actual flow of the gas will be based on compression operating parameters and gathering system pressures.

**Flowback Strategy**

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

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

**Alternatives to Reduce Flaring**

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

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



ContiTech

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

<b>QUALITY CONTROL INSPECTION AND TEST CERTIFICATE</b>		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  <p style="text-align: center;">See attachment. ( 1 page )</p>			
↑ 10 mm = 10 Min. → 10 mm = 20 MPa			
COUPLINGS Type	Serial N°	Quality	Heat N°
3" coupling with 4 1/16" 10K API b.w. Flange end	9251	AISI 4130	A0579N
	9254	AISI 4130	035608
<b>Not Designed For Well Testing</b>		<b>API Spec 16 C</b>	
		<b>Temperature rate:"B"</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. 	





CONTITECH RUBBER  
Industrial Kft.

No:QC-DB- 210/ 2014

Page: 15 / 113

ContiTech

## Hose Data Sheet

CRI Order No.	538236
Customer	ContiTech Oil & Marine Corp.
Customer Order No	4500409659
Item No.	1
Hose Type	Flexible Hose
<b>Standard</b>	<b>API SPEC 16 C</b>
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

Centennial Resource Production, LLC hereby requests to use a flex hose on H&P choke manifold for the Solomon Federal Com 304H well. The Flex Hose specifications are listed on the following pages.

## **Solomon Federal Com 304H**

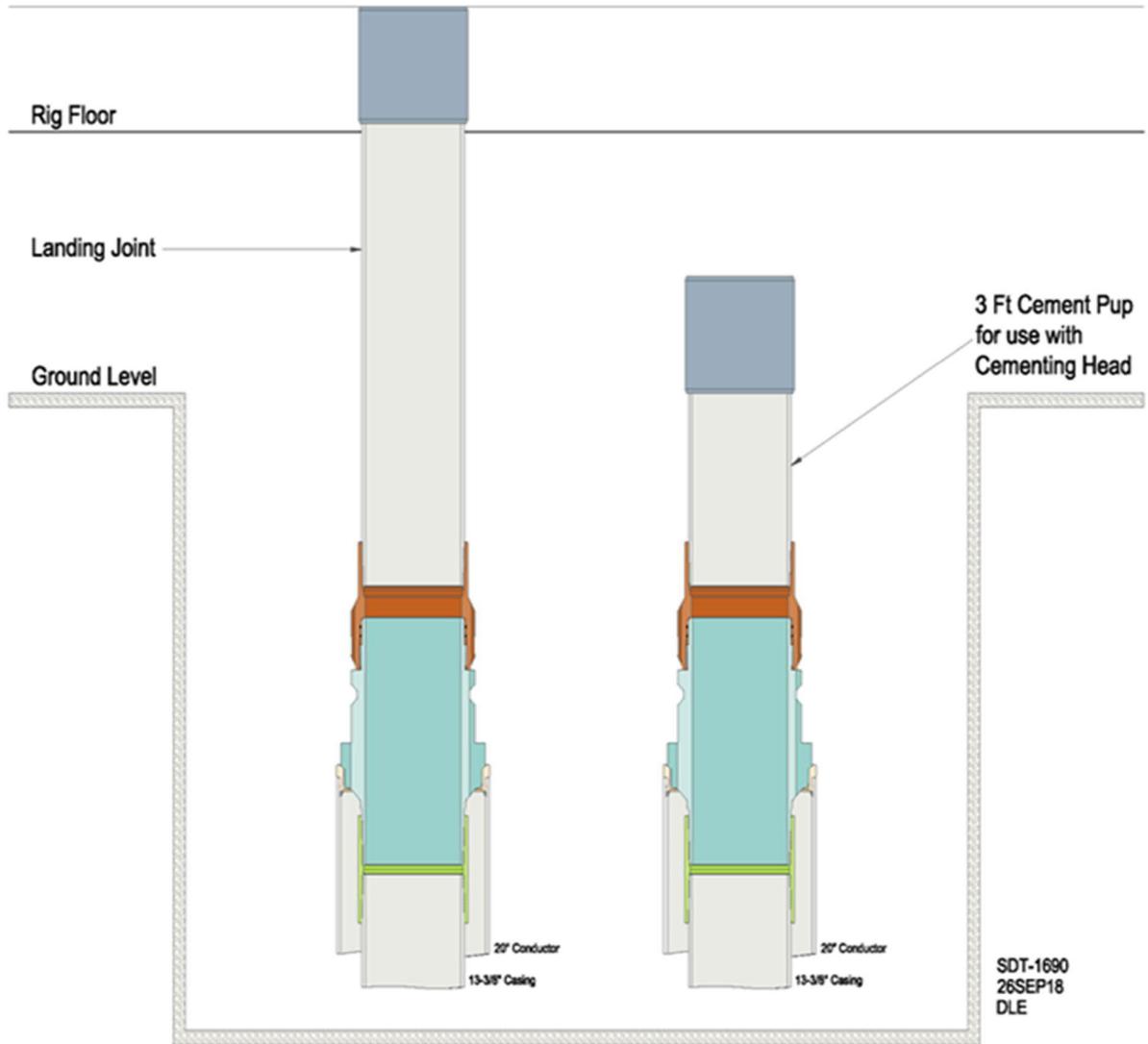
### Centennial Offline Cementing Procedure

#### 13-3/8" & 9-5/8" Casing

1. Drill hole to Total Depth with Rig and perform wellbore cleanup cycles.
2. Run and casing to Depth.
3. Land casing with mandrel
4. Circulate 1.5 csg capacity.
5. Flow test – Confirm well is static.
6. Set Annular packoff and pressure test. Test to 5k.
7. Nipple down BOP and install cap flange.
8. Skid rig to next well on pad
9. Remove cap flange (confirm well is static before removal)
  - a. If well is not static use the casing outlet valves to kill well
  - b. Drillers method will be used in well control event
  - c. High pressure return line will be rigged up to lower casing valve and run to choke manifold to control annular pressure
  - d. Kill mud will be circulated once influx is circulated out of hole
  - e. Confirm well is static and remove cap flange to start offline cement operations
10. Install offline cement tool.
11. Rig up cementers.
12. Circulate bottoms up with cement truck
13. Commence planned cement job, take returns through the annulus wellhead valve
14. After plug is bumped confirm floats hold and well is static
15. Rig down cementers and equipment
16. Install night cap with pressure gauge to monitor.
17. Will only offline surface and intermediate casing.

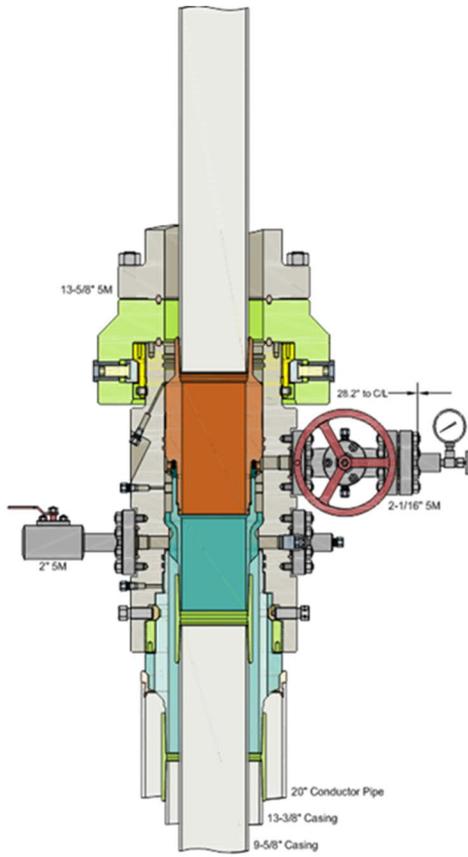
13 3/8" Surface job

# CFL Off-Line Cementing Tool

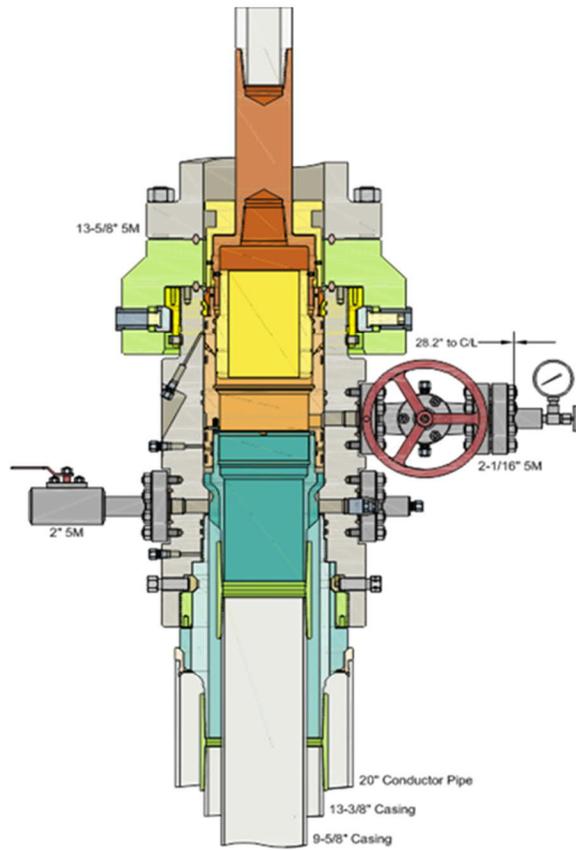




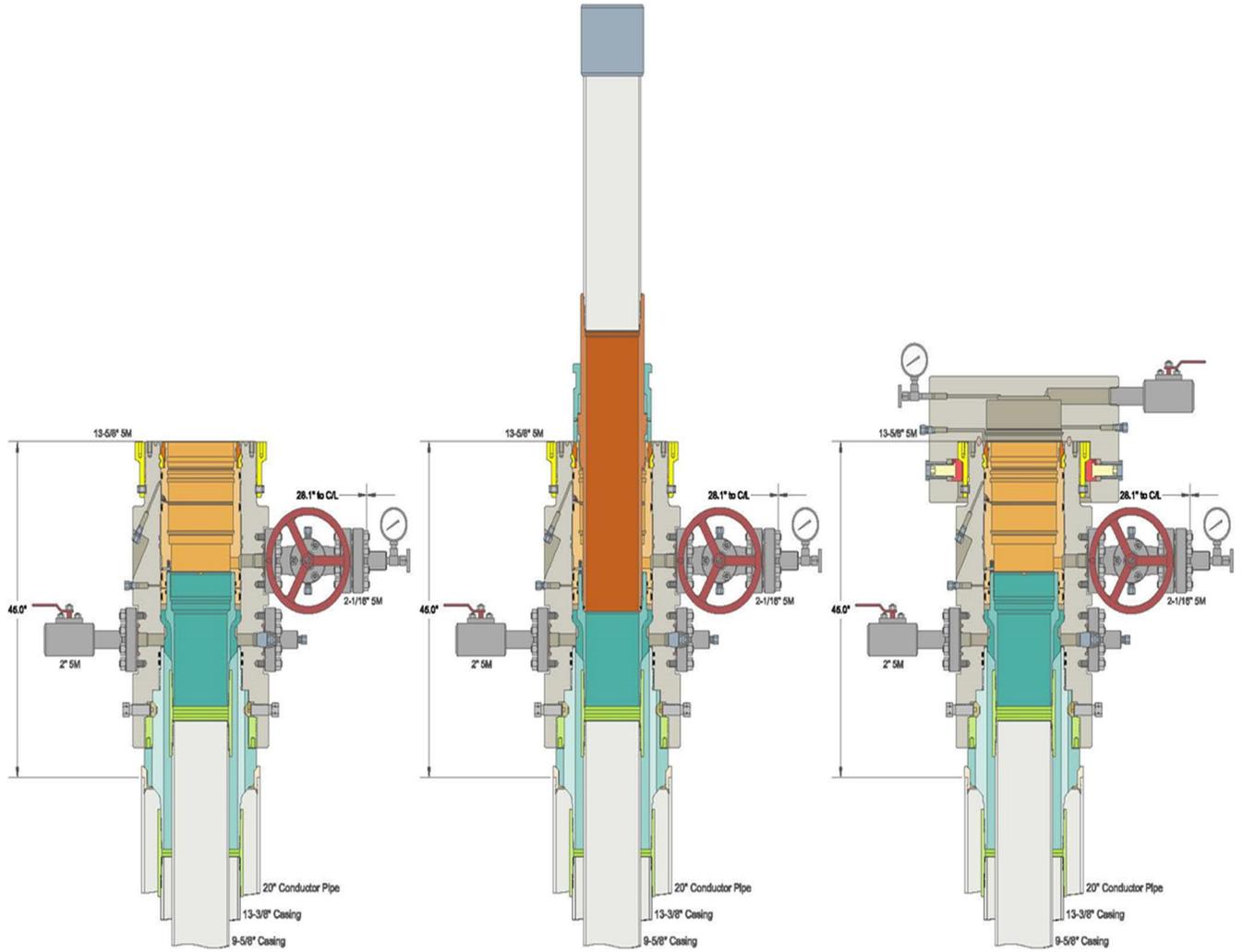
9 5/8" Intermediate Job



Run 9-5/8" Casing  
Land Casing on 9-5/8" Mandrel Hanger  
Cement 9-5/8" Casing  
Retrieve Running Tool



Run 13-5/8" Packoff  
Test Upper and Lower Seals  
Engage Lockring  
Retrieve Running Tool



## Centennial Resource Development - Well Control Plan

### A. Component and Preventer Compatibility Table

Component	OD (inches)	Preventer	RWP
Drillpipe	5	Upper VBR: 3.5 – 5.5 Lower VBR: 3.5 – 5.5	10M
Heavyweight Drillpipe	5	Upper VBR: 3.5 – 5.5 Lower VBR: 3.5 – 5.5	10M
Drill collars and MWD tools	6 ¾	Annular	5M
Mud Motor	6 ¾	Annular	5M
Production Casing	5-1/2	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 available:**

- 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.**



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

# SUPO Data Report

05/24/2022

APD ID: 10400069956

Submission Date: 03/04/2021

Highlighted data reflects the most recent changes

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: SOLOMON FEDERAL COM

Well Number: 304H

[Show Final Text](#)

Well Type: OIL WELL

Well Work Type: Drill

## Section 1 - Existing Roads

Will existing roads be used? YES

Existing Road Map:

SOLOMAN\_FEDERAL\_COM\_304H\_\_\_Existing\_Roads\_Plats\_20210304125858.pdf

Existing Road Purpose: ACCESS

Row(s) Exist? YES

**ROW ID(s)**

ID:

Do the existing roads need to be improved? YES

**Existing Road Improvement Description:** - The operator will improve or maintain existing road in a condition the same as or better than before operations begin. The operator will repair pot holes, clear ditches, repair the crown, etc. All existing structures on the entire access route such as cattle guards, other range improvement projects, culverts, etc. will be properly repaired or replaced if they are damaged or have deteriorated beyond practical use. We will prevent and abate fugitive dust as needed, whether created by vehicular traffic, equipment operations, or wind events. BLM written approval will be acquired before application of surfactants, binding agents, or the dust suppression chemicals on roadways.

Existing Road Improvement Attachment:

## Section 2 - New or Reconstructed Access Roads

Will new roads be needed? YES

New Road Map:

SOLOMAN\_FEDERAL\_COM\_304H\_\_\_New\_Roads\_Plat\_20210304131025.pdf

New road type: COLLECTOR

Length: 1599 Feet

Width (ft.): 65

Max slope (%): 2

Max grade (%): 3

Army Corp of Engineers (ACOE) permit required? N

ACOE Permit Number(s):

New road travel width: 20

**New road access erosion control:** Drainage and erosion will be constantly monitored to prevent compromising the road integrity and to protect the surrounding native topography.

**Operator Name:** CENTENNIAL RESOURCE PRODUCTION LLC

**Well Name:** SOLOMON FEDERAL COM

**Well Number:** 304H

**New road access plan or profile prepared?** Y

**New road access plan**

SOLOMAN\_FEDERAL\_COM\_304H\_\_\_New\_Roads\_Plat\_20210304131835.pdf

**Access road engineering design?** N

**Access road engineering design**

**Turnout?** N

**Access surfacing type:** OTHER

**Access topsoil source:** BOTH

**Access surfacing type description:** Caliche

**Access onsite topsoil source depth:** 4

**Offsite topsoil source description:** - - Caliche will be hauled from the existing Basin pit located in the SW/4 SE/4, Sec 16, T23S, R34E). Pit has been identified for use in the attached exhibit.

**Onsite topsoil removal process:** Native soils will be used in the initial construction of the well pad;; Pad will be compacted using fresh water, dust control measures will be implemented as needed; Topsoil will be stored along the East edge of the pad site

**Access other construction information:**

**Access miscellaneous information:**

**Number of access turnouts:**

**Access turnout map:**

**Drainage Control**

**New road drainage crossing:** CULVERT

**Drainage Control comments:** Will be monitored and repaired as necessary

**Road Drainage Control Structures (DCS) description:** Drainage and erosion will be constantly monitored to prevent compromising the well site integrity, and to protect the surrounding native topography

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

**Access Additional Attachments**

**Section 3 - Location of Existing Wells**

**Existing Wells Map?** YES

**Attach Well map:**

SOLOMAN\_FEDERAL\_COM\_304H\_\_\_Existing\_Well\_Map\_20210304132019.pdf

**Operator Name:** CENTENNIAL RESOURCE PRODUCTION LLC

**Well Name:** SOLOMON FEDERAL COM

**Well Number:** 304H

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

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

**Production Facilities description:** Facility Area 535 x 40

**Production Facilities map:**

SOLOMAN\_FEDERAL\_COM\_304H\_\_Location\_Layout\_\_Rig\_Layout\_20210304132303.pdf

Solomon\_304H\_Flow\_Diagram\_PDF\_20210304132510.pdf

**Section 5 - Location and Types of Water Supply**

**Water Source Table**

**Water source type:** OTHER

**Describe type:** Private

**Water source use type:** STIMULATION

**Source latitude:**

**Source longitude:**

**Source datum:**

**Water source permit type:** PRIVATE CONTRACT

**Water source transport method:** PIPELINE

**Source land ownership:** PRIVATE

**Source transportation land ownership:** PRIVATE

**Water source volume (barrels):** 450000

**Source volume (acre-feet):** 58.00189335

**Source volume (gal):** 18900000

**Water source and transportation**

Solomon\_Fed\_304H\_Water\_Caliche\_Routes\_20210304132705.pdf

**Water source comments:** - Existing freshwater pit in Sec 16-T24S-R34E will be utilized for fresh water and source location for recycled water is tbd. - Fresh water will be obtained from a private water source. - Temporary expanding water surface line will be used to transport water for drilling and completion operations from the pipeline to the Solomon location along existing road a total of approx. 13,777 from the well location to the existing frac pond in Sec 16-T23S-R34E. o Fresh water line will run parallel to the existing road, then north within an existing pipeline right of way. o No BLM ROW will be required for the water transfer line.

**New water well?** N

**New Water Well Info**

**Well latitude:**

**Well Longitude:**

**Well datum:**

<b>Operator Name:</b> CENTENNIAL RESOURCE PRODUCTION LLC	
<b>Well Name:</b> SOLOMON FEDERAL COM	<b>Well Number:</b> 304H

**Well target aquifer:**

**Est. depth to top of aquifer(ft):**

**Est thickness of aquifer:**

**Aquifer comments:**

**Aquifer documentation:**

**Well depth (ft):**

**Well casing type:**

**Well casing outside diameter (in.):**

**Well casing inside diameter (in.):**

**New water well casing?**

**Used casing source:**

**Drilling method:**

**Drill material:**

**Grout material:**

**Grout depth:**

**Casing length (ft.):**

**Casing top depth (ft.):**

**Well Production type:**

**Completion Method:**

**Water well additional information:**

**State appropriation permit:**

**Additional information attachment:**

**Section 6 - Construction Materials**

**Using any construction materials:** YES

**Construction Materials description:** - Caliche will be hauled from the existing Basin pit located in the SW/4 SE/4, Sec 16, T23S, R34E}. Pit has been identified for use in the attached exhibit.

**Construction Materials source location**

Solomon\_Fed\_304H\_Water\_Caliche\_Routes\_20210304132950.pdf

**Section 7 - Methods for Handling**

**Waste type:** DRILLING

**Waste content description:** Fresh water based drilling fluid

**Amount of waste:** 1500 barrels

**Waste disposal frequency :** Weekly

**Safe containment description:** Steel tanks with plastic-lined containment berms

**Safe containmant attachment:**

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

**Disposal type description:**

**Disposal location description:** NMOCD approved disposal facility, Any public disposal (SWD).

**Operator Name:** CENTENNIAL RESOURCE PRODUCTION LLC

**Well Name:** SOLOMON FEDERAL COM

**Well Number:** 304H

**Waste type:** DRILLING

**Waste content description:** Brine water based drilling fluid

**Amount of waste:** 1500 barrels

**Waste disposal frequency :** Monthly

**Safe containment description:** steel tanks with plastic-lined containment berms

**Safe containmant attachment:**

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

**Disposal type description:**

**Disposal location description:** state approved disposal facility (Sundance services or R360 Environmental)

**Waste type:** DRILLING

**Waste content description:** drill cuttings (12261 cubic feet/well)

**Amount of waste:** 12261 gallons

**Waste disposal frequency :** One Time Only

**Safe containment description:** Drill cuttings will be properly disposed of into steel tanks and taken to an NMOCD approved disposal facility

**Safe containmant attachment:**

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

**Disposal type description:**

**Disposal location description:** NMOCD approved disposal facility (Sundance or R360 Environmental)

**Waste type:** SEWAGE

**Waste content description:** Grey water/human waste

**Amount of waste:** 5000 gallons

**Waste disposal frequency :** Weekly

**Safe containment description:** Approved waste storage tanks with containment

**Safe containmant attachment:**

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

**Disposal type description:**

**Disposal location description:** Using water fleet to process sewage; the disposal fluid will go to any public disposal, state approved disposal facility

**Waste type:** GARBAGE

**Waste content description:** General trash/garbage

**Amount of waste:** 5000 pounds

**Waste disposal frequency :** Weekly

**Operator Name:** CENTENNIAL RESOURCE PRODUCTION LLC

**Well Name:** SOLOMON FEDERAL COM

**Well Number:** 304H

**Safe containment description:** Enclosed trash trailer (Lea County Landfill, outside of Eunice)

**Safe containmant attachment:**

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

**Disposal type description:** Commercial

**Disposal location description:** state approved disposal facility

### Reserve Pit

**Reserve Pit being used?** NO

**Temporary disposal of produced water into reserve pit?** NO

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

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

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

**Reserve pit liner**

**Reserve pit liner specifications and installation description**

### Cuttings Area

**Cuttings Area being used?** NO

**Are you storing cuttings on location?** Y

**Description of cuttings location** Drill cuttings will be properly disposed of into a steel tank and taken to an NMOCD approved disposal facility.

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

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

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

**WCuttings area liner**

**Cuttings area liner specifications and installation description**

### Section 8 - Ancillary

**Are you requesting any Ancillary Facilities?:** N

**Ancillary Facilities**

**Comments:**

**Operator Name:** CENTENNIAL RESOURCE PRODUCTION LLC

**Well Name:** SOLOMON FEDERAL COM

**Well Number:** 304H

**Section 9 - Well Site**

**Well Site Layout Diagram:**

SOLOMAN\_FEDERAL\_COM\_304H\_\_\_Location\_Layout\_\_\_Rig\_Layout\_20210304133241.pdf

**Comments:**

**Section 10 - Plans for Surface**

**Type of disturbance:** New Surface Disturbance

**Multiple Well Pad Name:** Solomon Federal

**Multiple Well Pad Number:** 304

**Recontouring**

SOLOMAN\_FEDERAL\_COM\_304H\_\_\_Reclamation\_\_\_Arch\_Plat\_20210304134836.pdf

**Drainage/Erosion control construction:** Drainage and erosion will be constantly monitored to prevent compromising the well site integrity, and to protect the surrounding native topography.

**Drainage/Erosion control reclamation:** Upon reclamation, well site will be returned to its native contour. Water breaks will be added if needed, to prevent unnatural erosion and loss of vegetation.

<b>Well pad proposed disturbance (acres):</b> 7.607	<b>Well pad interim reclamation (acres):</b> 4.447	<b>Well pad long term disturbance (acres):</b> 3.16
<b>Road proposed disturbance (acres):</b> 2.386	<b>Road interim reclamation (acres):</b> 0	<b>Road long term disturbance (acres):</b> 2.386
<b>Powerline proposed disturbance (acres):</b> 0	<b>Powerline interim reclamation (acres):</b> 0	<b>Powerline long term disturbance (acres):</b> 0
<b>Pipeline proposed disturbance (acres):</b> 0	<b>Pipeline interim reclamation (acres):</b> 0	<b>Pipeline long term disturbance (acres):</b> 0
<b>Other proposed disturbance (acres):</b> 0	<b>Other interim reclamation (acres):</b> 0	<b>Other long term disturbance (acres):</b> 0
<b>Total proposed disturbance:</b> 9.993	<b>Total interim reclamation:</b> 4.447	<b>Total long term disturbance:</b> 5.546

**Disturbance Comments:**

**Reconstruction method:** Come back in with heavy equipment, remove caliche in the reclamation area, and replace with native topsoil. Reconstruction of pad will occur once all wells on location have been drilled and completed.

**Topsoil redistribution:** Surface disturbance will be limited to well site surveyed dimensions. Topsoil will be stored along the East edge of the pad site.

**Soil treatment:** Native soils will be used in the initial construction of the well pad. Pad will be compacted using fresh water, dust control measures will be implemented as needed.

**Existing Vegetation at the well pad:** Mesquite, shrubs, and grass (needle-grass, burro grass, dropseed). Surface disturbance will be limited to well site surveyed dimensions. Topsoil will be stored along the East edge of the pad site.

**Existing Vegetation at the well pad**

**Existing Vegetation Community at the road:** Mesquite, shrubs, and grass (needle-grass, burro grass, dropseed). Will be windrowed to the edge of the disturbance and be utilized as a barrier from water run-off.

**Existing Vegetation Community at the road**

<b>Operator Name:</b> CENTENNIAL RESOURCE PRODUCTION LLC	
<b>Well Name:</b> SOLOMON FEDERAL COM	<b>Well Number:</b> 304H

**Existing Vegetation Community at the pipeline:** Mesquite, shrubs, and grass (needle-grass, burro grass, dropseed).

**Existing Vegetation Community at the pipeline**

**Existing Vegetation Community at other disturbances:** Mesquite, shrubs, and grass (needle-grass, burro grass, dropseed).

**Existing Vegetation Community at other disturbances**

**Non native seed used?** N

**Non native seed description:**

**Seedling transplant description:**

**Will seedlings be transplanted for this project?** N

**Seedling transplant description**

**Will seed be harvested for use in site reclamation?** N

**Seed harvest description:**

**Seed harvest description attachment:**

[Seed](#)

[Seed Table](#)

Seed Summary	
Seed Type	Pounds/Acre

**Total pounds/Acre:**

**Seed reclamation**

[Operator Contact/Responsible Official](#)

**First Name:** Jamon

**Last Name:** Hohensee

**Phone:** (432)241-4283

**Email:** jamon.hohensee@cdevinc.com

**Seedbed prep:** Prepare a 3-5 inch deep seedbed. with the top 3-4 inches consisting of topsoil.

**Seed BMP:** Seeding will be done in the proper season, and monitored for the re-establishment of native vegetation.

**Seed method:** Broadcast

**Existing invasive species?** N

**Existing invasive species treatment description:**

**Existing invasive species treatment**

**Operator Name:** CENTENNIAL RESOURCE PRODUCTION LLC  
**Well Name:** SOLOMON FEDERAL COM **Well Number:** 304H

**Weed treatment plan description:** Spray for noxious weeds and bare ground as needed.

**Weed treatment plan**

**Monitoring plan description:** All disturbed areas will be closely monitored for any primary or secondary noxious weeds. Should any be found, chemical spraying in accordance with state regulations will be implemented.

**Monitoring plan**

**Success standards:** No primary or secondary noxious weeds will be allowed. Vegetation will be returned to its native standard.

**Pit closure description:** No open pits will be constructed.

**Pit closure attachment:**

**Section 11 - Surface**

**Disturbance type:** WELL PAD

**Describe:**

**Surface Owner:** PRIVATE OWNERSHIP

**Other surface owner description:**

**BIA Local Office:**

**BOR Local Office:**

**COE Local Office:**

**DOD Local Office:**

**NPS Local Office:**

**State Local Office:**

**Military Local Office:**

**USFWS Local Office:**

**Other Local Office:**

**USFS Region:**

**USFS Forest/Grassland:**

**USFS Ranger District:**

**Disturbance type:** NEW ACCESS ROAD

**Describe:**

**Surface Owner:** PRIVATE OWNERSHIP

**Other surface owner description:**

**BIA Local Office:**

**Operator Name:** CENTENNIAL RESOURCE PRODUCTION LLC

**Well Name:** SOLOMON FEDERAL COM

**Well Number:** 304H

**BOR Local Office:**

**COE Local Office:**

**DOD Local Office:**

**NPS Local Office:**

**State Local Office:**

**Military Local Office:**

**USFWS Local Office:**

**Other Local Office:**

**USFS Region:**

**USFS Forest/Grassland:**

**USFS Ranger District:**

**Fee Owner:** Quail Ranch, LLC

**Phone:** (432)688-6631

**Surface use plan certification:** NO

**Surface use plan certification document:**

**Surface access agreement or bond:** AGREEMENT

**Surface Access Agreement Need description:** Lea, NM County Clerk Book: 2144, Page 514

**Surface Access Bond BLM or Forest Service:**

**BLM Surface Access Bond number:**

**USFS Surface access bond number:**

**Fee Owner Address:** One Concho Center, 600 W. Illinois Ave.

**Email:** sspillers@concho.com

**Section 12 - Other**

**Right of Way needed?** N

**Use APD as ROW?**

**ROW Type(s):**

**ROW**

**SUPO Additional Information:**

**Operator Name:** CENTENNIAL RESOURCE PRODUCTION LLC

**Well Name:** SOLOMON FEDERAL COM

**Well Number:** 304H

**Use a previously conducted onsite?** N

**Previous Onsite information:**

**Other SUPO**

Solomon\_Fed\_Com\_304H\_SUPO\_\_20210304135731.pdf



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

# PWD Data Report

05/24/2022

**APD ID:** 10400069956

**Submission Date:** 03/04/2021

**Operator Name:** CENTENNIAL RESOURCE PRODUCTION LLC

**Well Name:** SOLOMON FEDERAL COM

**Well Number:** 304H

**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

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**

**Pit liner description:**

**Pit liner manufacturers**

**Precipitated solids disposal:**

**Decribe precipitated solids disposal:**

**Precipitated solids disposal**

**Lined pit precipitated solids disposal schedule:**

**Lined pit precipitated solids disposal schedule**

**Lined pit reclamation description:**

**Lined pit reclamation**

**Leak detection system description:**

**Leak detection system**

**Operator Name:** CENTENNIAL RESOURCE PRODUCTION LLC

**Well Name:** SOLOMON FEDERAL COM

**Well Number:** 304H

**Lined pit Monitor description:**

Lined pit Monitor

**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**

**Section 3 - Unlined**

**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**

**Precipitated solids disposal:**

**Describe precipitated solids disposal:**

**Precipitated solids disposal**

**Unlined pit precipitated solids disposal schedule:**

**Unlined pit precipitated solids disposal schedule**

**Unlined pit reclamation description:**

**Unlined pit reclamation**

**Unlined pit Monitor description:**

**Unlined pit Monitor**

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

**Beneficial use user**

**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**

**State**

**Unlined Produced Water Pit Estimated**

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

**Operator Name:** CENTENNIAL RESOURCE PRODUCTION LLC

**Well Name:** SOLOMON FEDERAL COM

**Well Number:** 304H

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

**Unlined pit bond number:**

**Unlined pit bond amount:**

**Additional bond information**

**Section 4 -**

**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**

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

**UIC Permit**

**Section 5 - Surface**

**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 -**

**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:** SOLOMON FEDERAL COM

**Well Number:** 304H

**Other PWD type description:**

**Other PWD type**

**Have other regulatory requirements been met?**

**Other regulatory requirements**



# Bond Info Data

05/24/2022

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

**APD ID:** 10400069956

**Submission Date:** 03/04/2021

Highlighted data reflects the most recent changes  
[Show Final Text](#)

**Operator Name:** CENTENNIAL RESOURCE PRODUCTION LLC

**Well Name:** SOLOMON FEDERAL COM

**Well Number:** 304H

**Well Type:** OIL WELL

**Well Work Type:** Drill

## Bond

**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**

**Reclamation bond number:**

**Reclamation bond amount:**

**Reclamation bond rider amount:**

**Additional reclamation bond information**



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:** 05 / 18 / 22

**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
Solomon Federal Com 304H	<b>30-025-50269</b>	G-27-24S-34E	2339FNL&1965FEL	3600 BBL/D	4320 MCF/D	18000 BBL/D

**IV. Central Delivery Point Name:** SOLOMON 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
Solomon Federal Com 304H	<b>30-025-50269</b>	11/18/2022	11/26/2022	12/8/2022	12/31/2022	12/31/2022

**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.

Page 8

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: <i>Stewart MacCallum</i>
Printed Name: <b>Stewart MacCallum</b>
Title: <b>Director of Marketing</b>
E-mail Address: <b>Stewart.MacCallum@cdevinc.com</b>
Date: <b>05/18/2022</b>
Phone: <b>(720) 499-1458</b>
<b>OIL CONSERVATION DIVISION</b> <b>(Only applicable when submitted as a standalone form)</b>
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 through 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

Centennial Resource Production, LLC (372165)

- 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

Action 110061

**CONDITIONS**

Operator: CENTENNIAL RESOURCE PRODUCTION, LLC 1001 17th Street, Suite 1800 Denver, CO 80202	OGRID: 372165
	Action Number: 110061
	Action Type: [C-101] BLM - Federal/Indian Land Lease (Form 3160-3)

**CONDITIONS**

Created By	Condition	Condition Date
pkautz	Will require a administrative order for non-standard location prior to placing the well on production	6/23/2022
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	6/23/2022
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	6/23/2022
pkautz	Cement is required to circulate on both surface and intermediate1 strings of casing	6/23/2022