Form 3160-3
(June 2015)

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.

6. If Indian, Allotee or Tribe Name

1a. Type of work: ☐ DRILL ☐ REENTER

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

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

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

8. Lease Name and Well No.

[326979]

2. Name of Operator Permian Resources Operating, LLC 372165

9. API Well No. **30-025-51576**

3a. Address	3b. Phone No. *(include area code)*	10. Field and Pool, or Exploratory **[5695]**

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

At surface

At proposed prod. zone

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

14. Distance in miles and direction from nearest town or post office*	12. County or Parish	13. State

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

24. Attachments

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

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

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

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

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

NGMP Rec 06/07/2023

KZ
06/09/2023

SL

APPROVED WITH CONDITIONS

Approval Date: 05/23/2023

(Continued on page 2)

*(Instructions on page 2)

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

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

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
30-025-51576	5695	Bilbrey Basin; Bone Spring

[4] Property Code	[5] Property Name	[6] Well Number
326979	MOZZARELLA FEDERAL COM	653H

[7] OGRID No.	[8] Operator Name	[9] Elevation
372165	Permian Resources Operating, LLC	3698.7'

[10] Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
C	8	22S	32E		804	NORTH	2239	WEST	LEA

[11] Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
B	32	21S	32E		100	NORTH	1716	EAST	LEA

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
639.34			

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

[16]

NOTE:
- Distances referenced on plat to section lines are perpendicular.
- Basis of Bearing is a Transverse Mercator Projection with a Central Meridian of W103°53'00" (NAD 83)

NAD 83 (SHL/PP)
LATITUDE = 32°24'40.22" (32.411171°)
LONGITUDE = 103°41'53.24" (103.698123°)
STATE PLANE NAD 83 (N.M. EAST)
Y: 513897.78' X: 737363.08'
UTM, NAD 83 (ZONE 13)
Y: 11767555.06' X: 2042062.31'

NAD 83 (FIRST TAKE POINT)
LATITUDE = 32°24'49.23" (32.413676°)
LONGITUDE = 103°41'37.76" (103.693822°)
STATE PLANE NAD 83 (N.M. EAST)
Y: 514816.78' X: 738684.87'
UTM, NAD 83 (ZONE 13)
Y: 11768482.13' X: 2043378.12'

NAD 83 (LPP #1)
LATITUDE = 32°25'14.38" (32.420662°)
LONGITUDE = 103°41'37.79" (103.693830°)
STATE PLANE NAD 83 (N.M. EAST)
Y: 517358.34' X: 738667.38'
UTM, NAD 83 (ZONE 13)
Y: 11771023.11' X: 2043344.78'

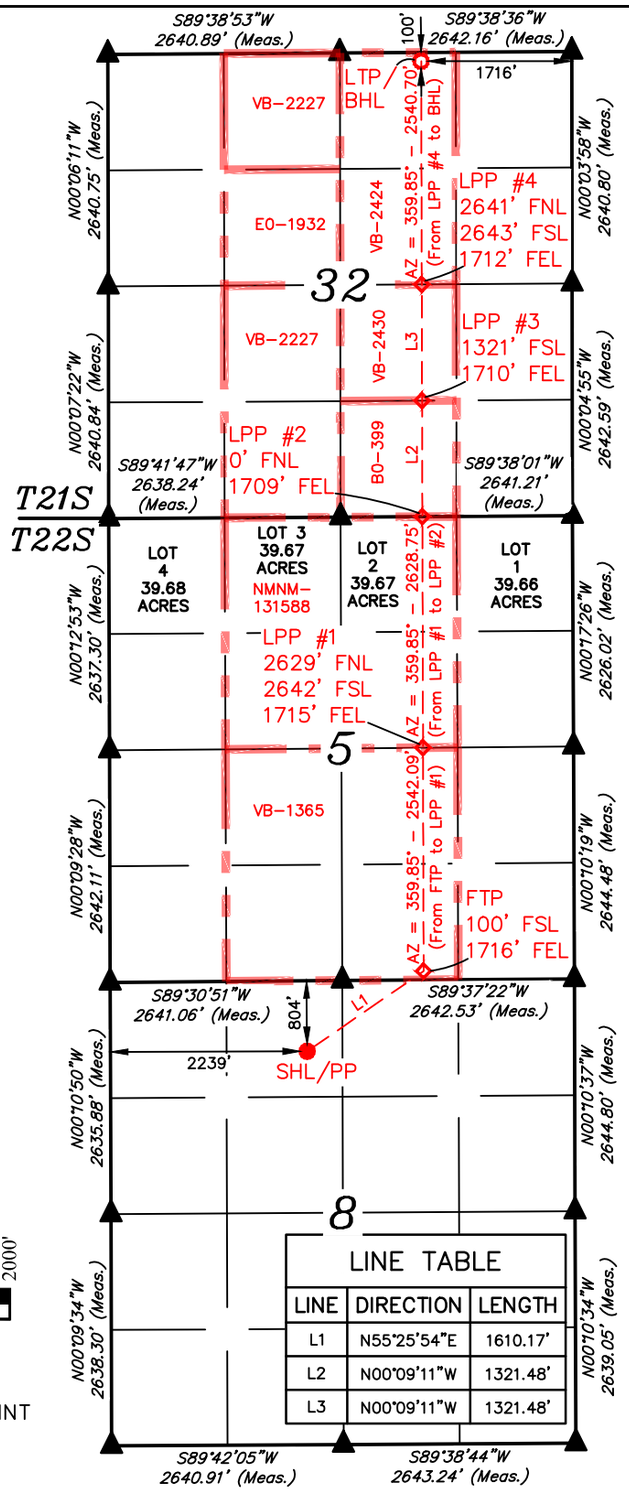
NAD 83 (LPP #2)
LATITUDE = 32°25'40.39" (32.427886°)
LONGITUDE = 103°41'37.81" (103.693837°)
STATE PLANE NAD 83 (N.M. EAST)
Y: 519986.56' X: 738649.29'
UTM, NAD 83 (ZONE 13)
Y: 11773650.72' X: 2043310.30'

NAD 83 (LPP #3)
LATITUDE = 32°25'53.46" (32.431518°)
LONGITUDE = 103°41'37.83" (103.693841°)
STATE PLANE NAD 83 (N.M. EAST)
Y: 521307.76' X: 738640.20'
UTM, NAD 83 (ZONE 13)
Y: 11774971.62' X: 2043292.96'

NAD 83 (LPP #4)
LATITUDE = 32°26'06.54" (32.435149°)
LONGITUDE = 103°41'37.84" (103.693845°)
STATE PLANE NAD 83 (N.M. EAST)
Y: 522628.96' X: 738631.10'
UTM, NAD 83 (ZONE 13)
Y: 11776292.52' X: 2043275.62'

NAD 83 (LTP/BHL)
LATITUDE = 32°26'31.67" (32.442132°)
LONGITUDE = 103°41'37.87" (103.693852°)
STATE PLANE NAD 83 (N.M. EAST)
Y: 525169.14' X: 738613.61'
UTM, NAD 83 (ZONE 13)
Y: 11778832.10' X: 2043242.28'

● = SURFACE HOLE LOCATION/PENETRATION POINT
◇ = FIRST TAKE POINT/LEASE PENETRATION POINT
○ = LAST TAKE POINT/ BOTTOM HOLE LOCATION
▲ = SECTION CORNER LOCATED



LINE TABLE		
LINE	DIRECTION	LENGTH
L1	N55°25'54"E	1610.17'
L2	N00°09'11"W	1321.48'
L3	N00°09'11"W	1321.48'

DRAWN BY: D.M.C. 05-03-22
REV: 1 Z.T. 07-28-22 (ADD LPP'S)

[17] OPERATOR CERTIFICATION

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

Signature 8/26/22 Date

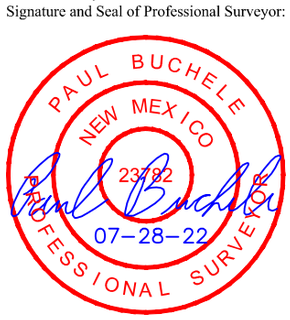
Meghan Twele
Printed Name

meghan.twele@cdevinc.com
E-mail Address

[18] SURVEYOR CERTIFICATION

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

SEPTEMBER 20, 2019
Date of Survey
Signature and Seal of Professional Surveyor:



Certificate Number:

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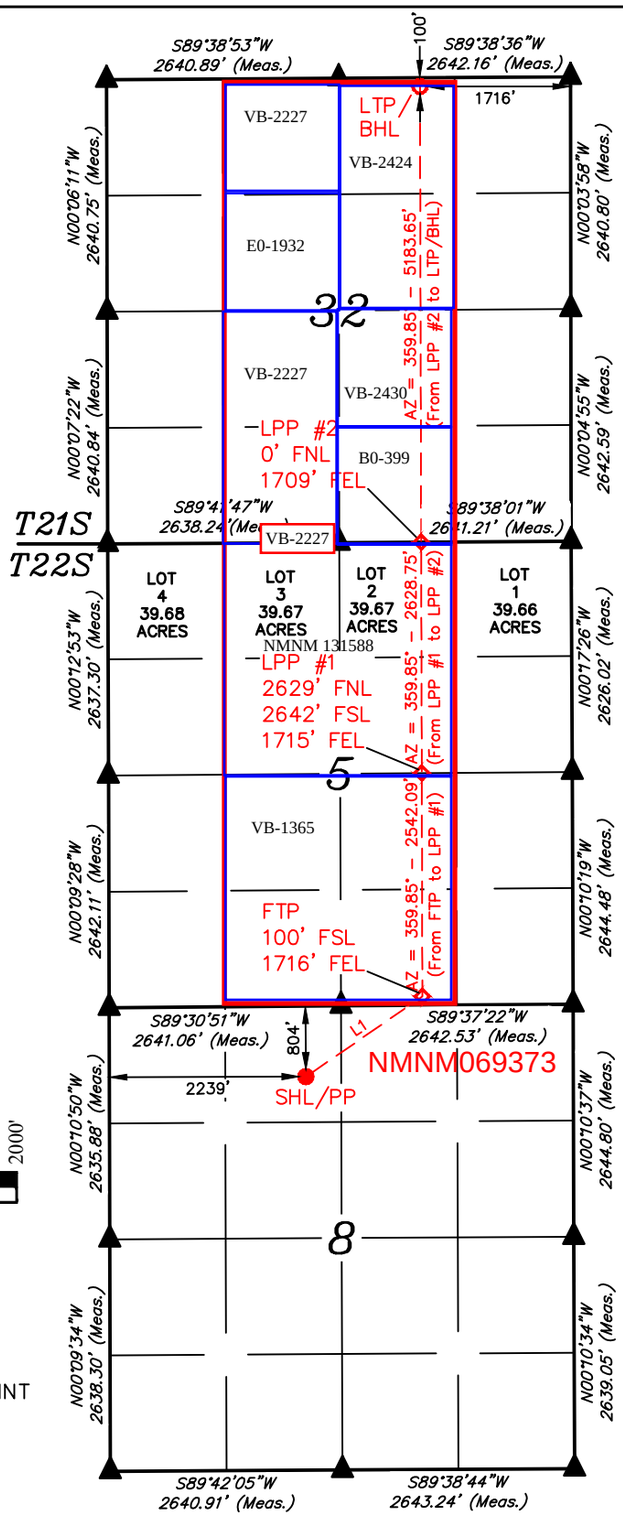

2000' 1000' 0' 2000'

SCALE

DRAWN BY: D.M.C. 05-03-22

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8/26/22
Signature Date

Meghan Twele
Printed Name

meghan.twele@cdevinc.com
E-mail Address

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

SEPTEMBER 20, 2019
Date of Survey

Signature and Seal of Professional Surveyor:

PAUL BUCHELE NEW MEXICO 23782 PROFESSIONAL SURVEYOR 05-03-22

Certificate Number:

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: Permian Resoures Operating, LLC **OGRID:** 372165 **Date:** 06/05/2023

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
Mozzarella Fed Com 653H	30-025-51576	C-8-22S-35E	804FNL&2239FWL	857 BBL/D	875 MCF/D	3131 BBL/D

IV. Central Delivery Point Name: Mozzarella 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
Mozzarella Fed Com 653H	30-025-51576	7/9/2023	9/17/2023	10/8/2023	10/30/2023	11/19/2023

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
Mozzarella Fed Com 653H		733 mcf	235,315 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
Targa	Lucid-Targa	C-8-22S-32E	11/19/23	30 mmscfd

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:	Jackson Taylor
Printed Name:	Jackson Taylor
Title:	Director of Midstream & Marketing
E-mail Address:	Jackson.Taylor@permianres.com
Date:	
Phone:	(432) 400-1048

OIL CONSERVATION DIVISION
(Only applicable when submitted as a standalone form)

Approved By:	
Title:	
Approval Date:	
Conditions of Approval:	

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

Flowback

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

Production

Per 19.15.27.8.D, Permian'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

Permian 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 Permian'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 Permian'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.

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

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

- Closed-loop systems
- Enclosed and properly sized tanks

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

Measurement or estimation

Permian 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:

Permian 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

Enhanced Natural Gas Management Plan

Operator's Plan to Manage Production in Response to Increased Line Pressure

Permian Resources Operating, LLC (Permian) anticipates that its existing wells connected to the same portion of the natural gas gathering system will continue to meet anticipated increases in line pressure caused by the new wells. Permian will actively monitor line pressure throughout the field and will make necessary adjustments to existing production separators' pressures to send gas to sales. Permian also plans to implement automated alarms on all flare meters to alert of flaring events as they occur. The alarms will send notifications to field operations and engineering staff via text message and email at every occurrence of flaring. In addition, Permian plans to implement automated alarms on all flare meters to alert of any continuous flaring event that has continued for at least 4 hours. The alarms will send notifications to field operations and engineering management. Permian personnel will promptly respond to these alarms, communicate with midstream partners, and take the appropriate action to reduce flaring caused by high line pressure from new well production.

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**Centennial**
LEASE NO.:	**NMNM131588**
LOCATION:	Section 8, T.22 S., R.32 E., NMPM
COUNTY:	Lea County, New Mexico

WELL NAME & NO.:	Mozzarella Fed Com 653H
SURFACE HOLE FOOTAGE:	804'/N & 2239'/W
BOTTOM HOLE FOOTAGE	100'/N & 1716'/E

COA

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

A. HYDROGEN SULFIDE

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

B. CASING

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

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

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

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

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

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

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

❖ In Secretary Potash Areas if cement does not circulate to surface on the first two casing strings, the cement on the 3rd casing string must come to surface.

3. The minimum required fill of cement behind the **5-1/2** inch production casing is:
   - Cement should tie-back at least **500 feet** into previous casing string. Operator shall provide method of verification.

C. PRESSURE CONTROL

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

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

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

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

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

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

A. CASING

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

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

3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. The casing intergrity test can be done (prior to the cement setting up) immediately after bumping the plug.

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

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

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

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

B. PRESSURE CONTROL

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

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

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

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

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

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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.
ZS021422

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Operator Certification Data Report

05/23/2023

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: MEGHAN TWELE **Signed on:** 09/01/2022

Title: Sr Regulatory Analyst

Street Address: 1001 17TH STREET SUITE 1800

City: DENVER **State:** CO **Zip:** 80202

Phone: (720)499-1531

Email address: MEGHAN.TWELE@CDEVINC.COM

Field

Representative Name:

Street Address:

City: **State:** **Zip:**

Phone:

Email address:

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

Application Data
05/23/2023

APD ID: 10400087721 **Submission Date:** 09/01/2022

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: MOZZARELLA FEDERAL COM **Well Number:** 653H

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

Highlighted data reflects the most recent changes
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Section 1 - General

APD ID: 10400087721 **Tie to previous NOS?** N **Submission Date:** 09/01/2022

BLM Office: Carlsbad **User:** MEGHAN TWELE **Title:** Sr Regulatory Analyst

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

Lease number: NMNM131588 **Lease Acres:**

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

Agreement in place? 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: MOZZARELLA FEDERAL COM **Well Number:** 653H **Well API Number:**

Field/Pool or Exploratory? Field and Pool **Field Name:** 2nd Bone Spring Carb **Pool Name:** BILBREY BASIN; BONE SPRING

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: MOZZARELLA FEDERAL COM **Well Number:** 653H

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?** Y **New surface disturbance?** N

Type of Well Pad: MULTIPLE WELL **Multiple Well Pad Name:** MOZZARELLA FED 8 NENW **Number:** 1

Well Class: HORIZONTAL **Number of Legs:** 1

Well Work Type: Drill

Well Type: OIL WELL

Describe Well Type:

Well sub-Type: INFILL

Describe sub-type:

Distance to town: 44 Miles **Distance to nearest well:** 30 FT **Distance to lease line:** 100 FT

Reservoir well spacing assigned acres Measurement: 639.34 Acres

Well plat: Mozzarella_Fed_Com_653H_C_102_SBMT_20220826144718.pdf

Mozzarella_Fed_Com_653H_C_102_LEASE_PLAT_SBMT_20220831182404.pdf

Well work start Date: 03/01/2023 **Duration:** 45 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83 **Vertical Datum:** NAVD88

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

Wellbore	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD	Will this well produce from this
SHL Leg #1	804	FNL	2239	FWL	22S	32E	8	Aliquot NENW	32.411171	-103.698123	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 69373	3699	0	0	N
KOP Leg #1	804	FNL	2239	FWL	22S	32E	8	Aliquot NENW	32.411171	-103.698123	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 69373	-5889	9776	9588	N

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: MOZZARELLA FEDERAL COM **Well Number:** 653H

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	100	FSL	1716	FEL	22S	32E	5	Aliquot SWSE	32.413676	-103.693822	LEA	NEW MEXICO	NEW MEXICO	S	STATE	-5889	9776	9588	Y
PPP Leg #1-2	2629	FNL	1715	FEL	22S	32E	5	Aliquot SWNE	32.420662	-103.69883	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 131588	-6367	13467	10066	Y
PPP Leg #1-3	0	FNL	1709	FEL	21S	32E	32	Aliquot NWNE	32.427886	-103.693837	LEA	NEW MEXICO	NEW MEXICO	S	STATE	-6367	16096	10066	Y
PPP Leg #1-4	1321	FSL	1710	FEL	21S	32E	32	Aliquot SWSE	32.431518	-103.693841	LEA	NEW MEXICO	NEW MEXICO	S	STATE	-7063	17417	10762	Y
PPP Leg #1-5	2641	FNL	1712	FEL	21S	32E	32	Aliquot NWSE	32.435149	-103.693845	LEA	NEW MEXICO	NEW MEXICO	S	STATE	-6367	20060	10066	Y
EXIT Leg #1	100	FNL	1716	FEL	21S	32E	32	Aliquot NWNE	32.442132	-103.693852	LEA	NEW MEXICO	NEW MEXICO	S	STATE	-6367	20500	10066	Y
BHL Leg #1	100	FNL	1716	FEL	21S	32E	32	Aliquot NWNE	32.442132	-103.693852	LEA	NEW MEXICO	NEW MEXICO	S	STATE	-6367	20500	10066	Y

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

Drilling Plan Data Report

05/23/2023

APD ID: 10400087721 **Submission Date:** 09/01/2022

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: MOZZARELLA FEDERAL COM **Well Number:** 653H

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

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Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical	Measured Depth	Lithologies	Mineral Resources	Producing Formatio
9101802	RUSTLER	3468	692	692	SANDSTONE	NONE	N
9101803	SALADO	2419	1049	1049	ANHYDRITE, SALT	USEABLE WATER	N
9101813	LAMAR	-1189	4657	4657	ANHYDRITE, SALT	NONE	N
9101804	BELL CANYON	-1286	4754	4754	SANDSTONE	NATURAL GAS, OIL	N
9101806	CHERRY CANYON	-2122	5590	5590	SANDSTONE	NATURAL GAS, OIL	N
9101807	MANZANITA	-2308	5776	5776	SANDSTONE	NATURAL GAS, OIL	N
9101808	BRUSHY CANYON	-3435	6903	6903	SANDSTONE	NATURAL GAS, OIL	N
9101809	BONE SPRING LIME	-5185	8653	8653	LIMESTONE, SANDSTONE	NATURAL GAS, OIL	N
9101810	AVALON SAND	-5339	8807	8807	SHALE	CO2, NATURAL GAS, OIL	N
9101812	BONE SPRING 2ND	-6833	10301	10301	OTHER, SHALE : Carbonate	NATURAL GAS, OIL	Y

Section 2 - Blowout Prevention

Pressure Rating (PSI): 5M **Rating Depth:** 10066

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: MOZZARELLA FEDERAL COM **Well Number:** 653H

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: Flex hose, well control and offline cement variances, see attachments in section 8.

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 3500 psi. 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 and a multi-bowl system will be used, please see attachment in section 8 for multi-bowl procedure. 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:

BOP_Schematic_CoFlex_Choke_5K_1_20220826144949.pdf

BOP Diagram Attachment:

CDEV_Well_Control_Plan_Bonesprings_20201125120432.pdf

10M_Choke_Manifold_1_20230119134201.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	3699	3579	120	H-40	94	OTHER - weld						
2	SURFACE	17.5	13.375	NEW	API	N	0	750	0	750	3699	2949	750	J-55	54.5	OTHER - BTC	3.05	7.38	DRY	20.87	DRY	20.87
3	INTERMEDIATE	12.25	9.625	NEW	API	N	0	4700	0	4750	3468	-1051	4700	J-55	40	LT&C	1.47	1.6	DRY	2.74	DRY	3.32
4	PRODUCTION	8.75	5.5	NEW	API	N	0	9776	0	9588	3468	-5889	9776	P-110	20	OTHER - TCBC-HT	2.23	2.54	DRY	3.34	DRY	3.34
5	PRODUCTION	8.5	5.5	NEW	API	N	9776	20500	9588	10066	-5889	-6367	10724	P-110	20	OTHER - TCBC-HT	2.12	2.42	DRY	67.05	DRY	67.05

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: MOZZARELLA FEDERAL COM **Well Number:** 653H

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_1_20220826145258.pdf

Casing ID: 3 **String** INTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

CASING_ASSUMPTIONS_WORKSHEET_1_20220826145546.pdf

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: MOZZARELLA FEDERAL COM **Well Number:** 653H

Casing Attachments

Casing ID: 4 **String** PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

CASING_ASSUMPTIONS_WORKSHEET_1_20220826145350.pdf

Technical_Data_Sheet_HIS_TCBC_HT_5.5_20__P110RY_20230222181208.pdf

Casing ID: 5 **String** PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

CASING_ASSUMPTIONS_WORKSHEET_1_20220826145452.pdf

Technical_Data_Sheet_HIS_TCBC_HT_5.5_20__P110RY_20230222181253.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	0
CONDUCTOR	Lead		0	120	121	1.49	12.9	181	0	Grout	Bentonite 4% BWOC, Cellophane #/sx, CaCl2 2% BWOC.

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: MOZZARELLA FEDERAL COM **Well Number:** 653H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	250	250	1.8	13.5	347	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		250	750	445	1.34	14.8	695	100	Class C Premium	C-45 Econolite 0.10%, CaCl 1.0%
INTERMEDIATE	Lead		0	4200	665	3.42	10.7	2705	100	TX 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		4200	4700	210	1.34	14.8	188	20	Class C Premium	C-45 Econolite 0.10%, Citric acid 0.05%, C503P 0.25%
PRODUCTION	Lead		0	9776	956	3.41	10.6	3620	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		9776	20500	2476	1.24	14.2	3071	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: MOZZARELLA FEDERAL COM **Well Number:** 653H

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	750	OTHER : Freshwater	8.6	9.5							
750	4700	SALT SATURATED	9	10							
0	20500	OTHER : Brine/OBM	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:

DIRECTIONAL SURVEY,GAMMA RAY LOG,

Coring operation description for the well:

N/A

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 5234 **Anticipated Surface Pressure:** 2866

Anticipated Bottom Hole Temperature(F): 170

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

Describe:

Contingency Plans geoharzards description:

Contingency Plans geohazards

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations

H2S_Contingency_Plan_Mozzarella_Fed_Com_653H_20220826150059.pdf

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: MOZZARELLA FEDERAL COM **Well Number:** 653H

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

Mozzarella_Fed_Com_653H___PWP0_Plot_20230222180847.pdf

Mozzarella_Fed_Com_653H___PWP0_20230222180850.pdf

Other proposed operations facets description:

Other proposed operations facets attachment:

Mozzarella_Fed_Com_653H_Batch_Setting___June_2022_20220826150541.pdf

CDEV_Multi_Bowl_Procedure_Mozzarella_Fed_Com_653H_20220831182010.pdf

Mozzarella_Fed_Com_653H_WBD__Proposed__20230222180921.pdf

Mozzarella_Fed_Com_653H_Updated_Geoprog_20230222180927.pdf

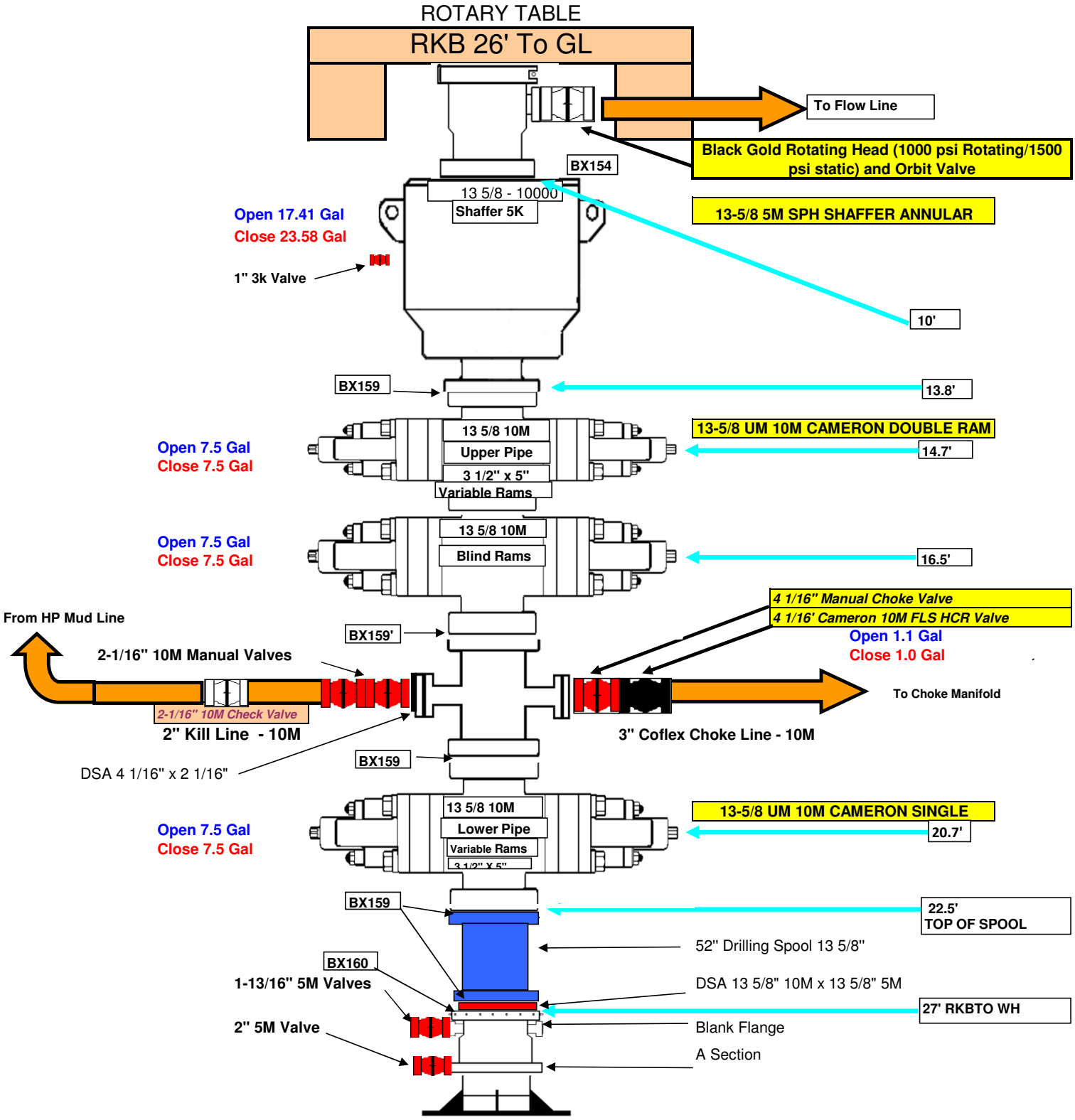
Other Variance attachment:

CDEV_Well_Control_Plan_Bonesprings_20210930130833.pdf

Mozzarella_Fed_Com_653H_Offline_Cementing_Procedure___June_2022_20220826150647.pdf

Flex_Hose_Variance_Request___Mozzarella_Fed_Com_653H_20220826150701.pdf

H&P Rig


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

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

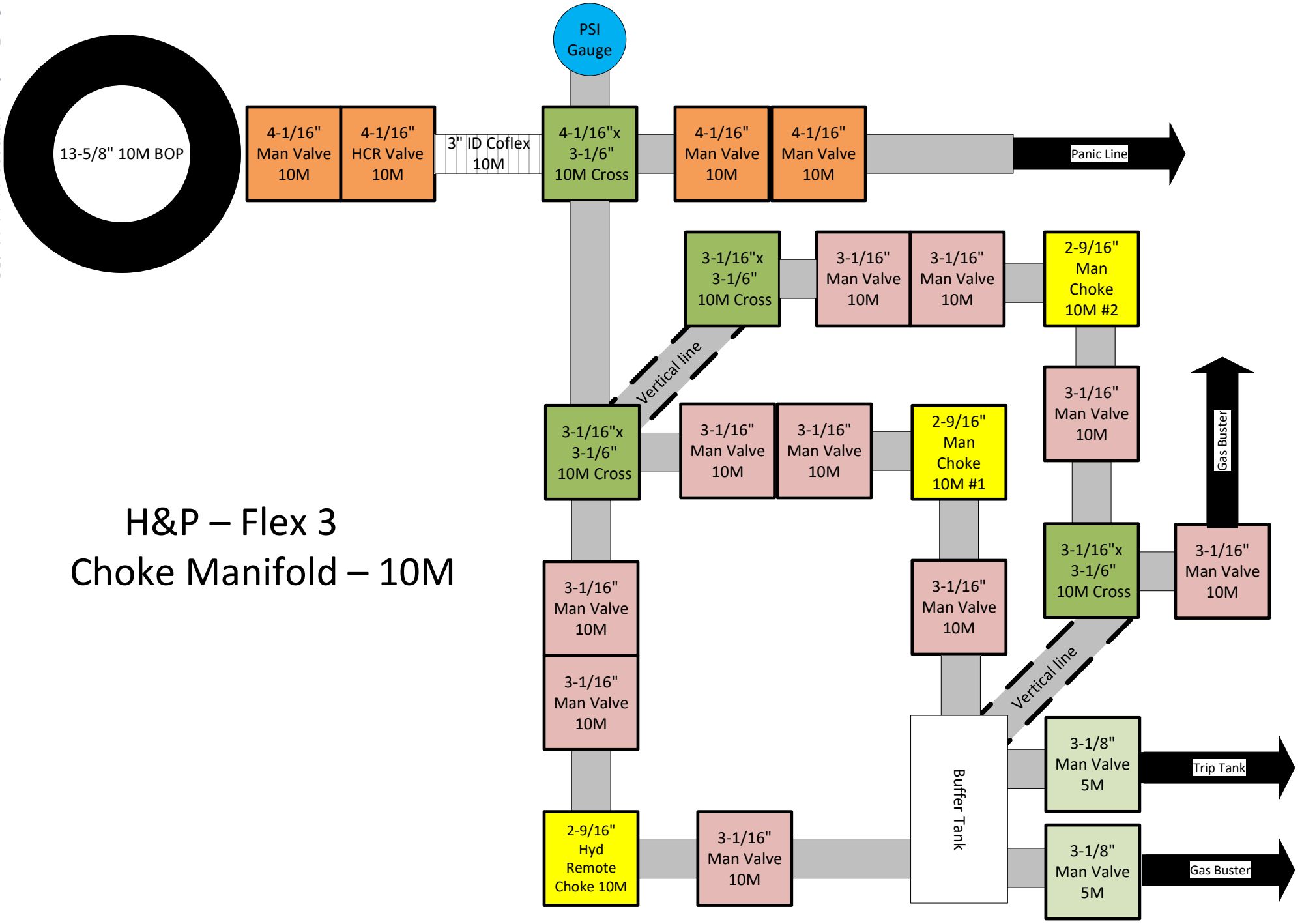
1. **Prior to pulling last joint of drillpipe thru stack**:
   - I. Perform flow check, if flowing
     - a. Sound alarm, alert crew
     - b. Stab full opening safety valve and close
     - c. Space out drillstring with tool joint just beneath the upper pipe ram.
     - d. Open HCR
     - e. Shut-in 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 availiable**:
    I. Sound alarm, alert crew.
    II. If possible to pick up high enough, pull string clear of the stack and follow Open Hole (III) scenario.
    III. If impossible to pick up high enough to pull the string clear of the stack:
        a. Stab crossover, make up one joint/stand of drill pipe and full opening safety valve and close.
        b. Space out drillstring with tool joint just beneath the upper pipe ram.
        c. Open HCR
        d. Shut-in utilizing upper VBRs.
        e. Close choke
        f. Confirm shut-in
        g. Notify rig manager and Centennial company representative.
        h. Call Centennial drilling engineer
        i. Read and record:
            i. SIDPP and SICP
            ii. Pit gain
            iii. Time
    IV. Regroup and identify forward plan.

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

H&P – Flex 3
Choke Manifold – 10M



CASING ASSUMPTIONS WORKSHEET:

Centralizer Program:

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

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

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

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

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

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HOUSTON INTERNATIONAL SPECIALTY, INC
PREMIUM CONNECTIONS

Size	5.5
Grade	P110 RY
Weight	20

TCBC-HT

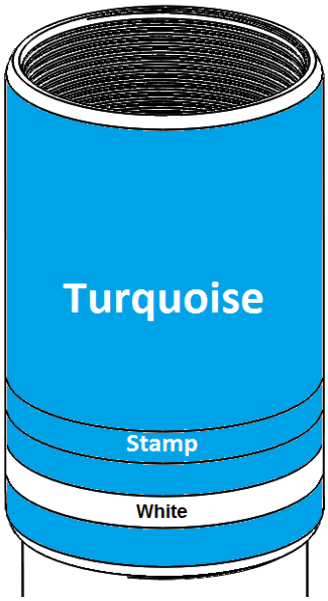
SeAH Steel

	Coupling and Pipe Dimensions (in)					
	Outer Diameter	Inner Diameter	Coupling Length	Make-up Loss	Wall Thickness	Drift Diameter
Coupling	6.300	5.383	8.250	4.125	0.361	4.653
Pipe		4.778				
Pin		4.778				

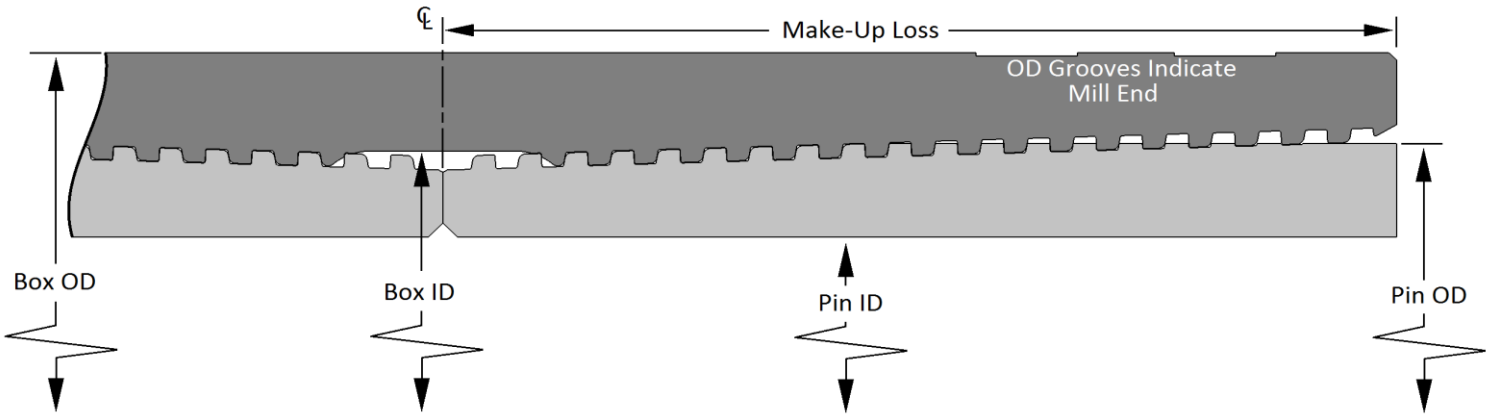
Torque Values (ft-lbs)				
Field End Make-Up			Max. Working Torque [1.]	Yield Torque
Minimum	Optimum [2.]	Maximum		
10,000	13,500	18,500	22,250	25,200

Yield Stress (x1000 lbs.)	
Tensile	Compressive
100%	100%

Maximum Pressure (psi)	
Internal	External
100%	100%



[1.] Max. Working Torque value is not to be exceeded during operation.
[2.] If Optimum Torque does not meet the Base of Triangle Stamp, M/U to the Base of Triangle.



*Data are for information purposes only. Though HIS has made efforts to ensure accuracy, HIS makes no warranty for loss or damage due to its use.

Rev 0

19996 Hickory Twig Way Spring, TX 77388
Phone: (281) 602-7550
Fax: (281) 602-7557

SeAH

5.5" 20# .361" P-110 Restricted Yield (RY)

Dimensions (Nominal)

Outside Diameter	5.500	in.
Wall	0.361	in.
Inside Diameter	4.778	in.
Drift	4.653	in.
Weight, T&C	20.000	lbs/ft
Weight, PE	19.830	lbs/ft

Performance Properties (Minimum)

Minimum Yield Strength	110000	psi
Maximum Yield Strength	125000	psi
Collapse, PE	11100	psi
Internal Yield Pressure		
PE	12630	psi
LTC	12360	psi
BTC	12360	psi
Yield Strength, Pipe Body	641	1000 lbs
Joint Strength		
LTC	548	1000 lbs
BTC	667	1000 lbs

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Tensile	Compressive
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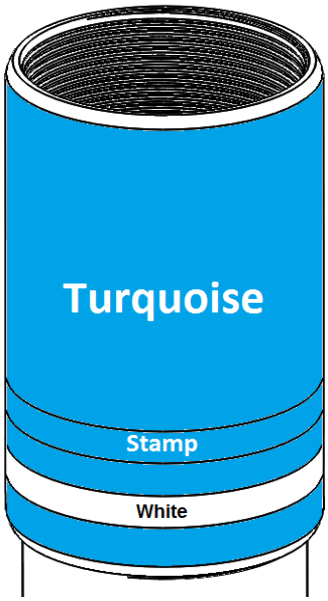

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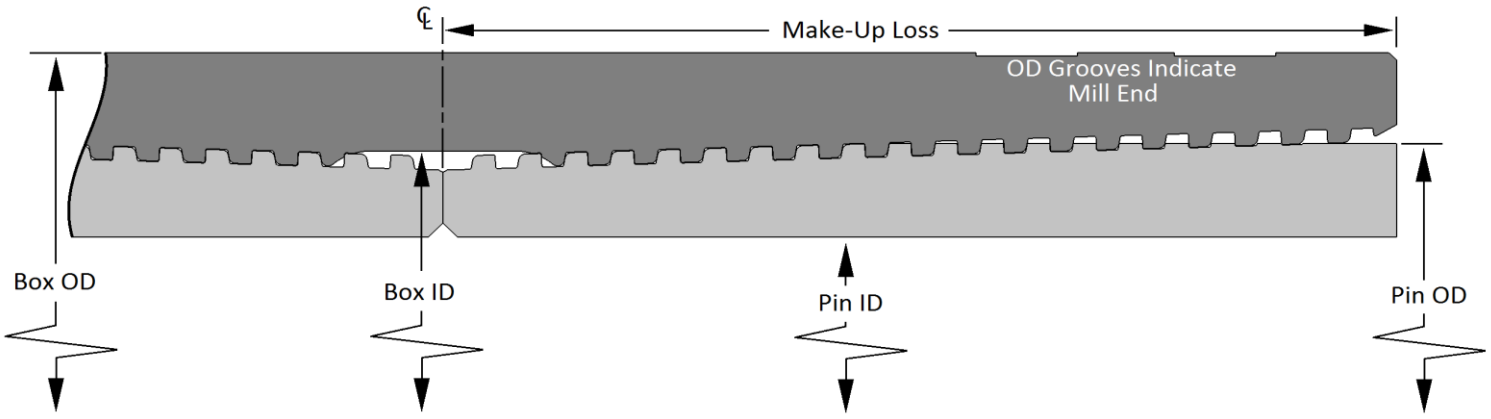

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H_2S CONTINGENCY PLAN

FOR

CENTENNIAL RESOURCE PRODUCTION, LLC.

Mozzarella Fed Com 653H

Lea County, New Mexico

04-22-2021
This plan is subject to updating

Table of Contents

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 (H2S).

II. Scope & Applicability

This Plan applies to all planned, unplanned, uncontrolled and/or unauthorized releases of hazardous concentrations of H_2S 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_2S gas, or SO^2, 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_2S 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_2S. 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.

Section 3.0 - Potential Hazardous Conditions & Response Actions

During a planned or unplanned release of H_2S, 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.

H2S OPERATING CONDITIONS – RESPONSE ACTIONS TO CONSIDER	✓
H_2S CONDITION 1: POTENTIAL DANGER TO LIFE AND HEALTH –> WARNING SIGN GREEN	
H_2S concentration <10 ppm detected by location monitors	❑
General Actions During Condition 1	❑
Notify Site Supervisor / Centennial Person-in-Charge (PIC) of any observed increase in ambient H_2S concentrations	❑
All personnel check safety equipment is in adequate working order & store in accessible location	❑
Sensitize crews with safety meetings.	❑
Limit visitors and non-essential personnel on location	❑
Continuously monitor H_2S concentrations and check calibration of sensors	❑
Ensure H_2S scavenger is on location.	❑
H_2S CONDITION 2: MODERATE DANGER TO LIFE AND HEALTH → WARNING SIGN YELLOW	
H_2S concentration >10 ppm and < 30 ppm in atmosphere detected by location monitors:	❑
General Actions During Condition 2	❑
Sound H_2S alarm and/or display yellow flag.	❑
Account for on-site personnel	❑
Upon sounding of an area or personal H_2S monitor alarm when 10 ppm is reached, proceed to a safe briefing area upwind of the location immediately (see **MA-4**, **Figure 5-1**).	❑
Don proper respiratory protection.	❑
Alert other affected personnel	❑
If trained and safe to do so undertake measures to control source H2S discharge and eliminate possible ignition sources. Initiate Emergency Shutdown procedures as deemed necessary to correct or control the specific situation.	❑
Account for on-site personnel at safe briefing area.	❑
Stay in safe briefing area if not working to correct the situation.	❑
Keep Site Supervisor / Centennial PIC informed. Notify applicable government agencies **(Appendix A)** If off-site impact; notify any neighbors within Radius of Exposure **(ROE)**, **Fig 5.11**	❑
Continuously monitor H_2S until readings below 10 ppm.	❑
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.	

H_2S CONDITION 3: EXTREME DANGER TO LIFE AND HEALTH → WARNING SIGN RED	
> **30 ppm H_2S** concentration in air detected by location monitors: Extreme danger to life	❑
General Actions During Condition 3	❑
Sound H_2S alarm and/or display red flag.	❑
Account for on-site personnel	❑
Move away from H_2S source and get out of the affected area.	❑
Proceed to designated safe briefing area; alert other affected personnel.	❑
Account for personnel at safe briefing area.	❑
If trained and safe to do so undertake measures to control source H2S discharge and eliminate possible ignition sources. Initiate Emergency Shutdown procedures as deemed necessary to correct or control the specific situation.	❑
Notify vehicles or situation and divert all traffic away from location.	❑
Centennial Peron-in-Charge will make appropriate community notifications.	❑
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 **Condition 1**.	❑
Notify management of the condition and action taken. If H_2S 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_2S Contingency Plan. If well control at the surface is lost, determine if situation warrants igniting the well.	❑
If uncontrolled flow at the surface occurs, the Centennial PIC, with approval, if possible, from those coordinating the emergency **(as specified in the site-specific H_2S Contingency Plan)** 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.	❑
If the flow is ignited, burning H_2S will be converted to sulfur dioxide (SO_2), 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_2 will remain in low-lying places under no-wind conditions.	❑
Keep Site Supervisor / Centennial PIC informed. Notify applicable government agencies and local law enforcement **(Appendix A)** If off-site impact; notify any neighbors within the Radius of Exposure **(ROE)**, see example in **Figure 5-11.**	❑
Continuously monitor H_2S until readings fall below 10 ppm.	❑
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.	❑
IF ABOVE ACTIONS CANNOT BE ACCOMPLISHED IN TIME TO PREVENT EXPOSURE TO THE PUBLIC	
Alert public (directly or through appropriate government agencies) who may be subject to potentially harmful exposure levels.	❑
Make recommendations to public officials regarding blocking unauthorized access to the unsafe area and assist as appropriate.	❑

Make recommendations to public officials regarding evacuating the public and assist as appropriate.	❑
Monitor ambient air in the area of exposure (after following abatement measures) to determine when it is safe for re-entry.	❑

Section 4.0 - Notification of H_2S Release Event

I. Local & State Law Enforcement

Prior to the planned / controlled release of a hazardous concentration of H_2S gas or any associated byproducts of the combustion of H_2S 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_2S 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_2S 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_2S 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_2S 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_2S gas or any associated byproducts of combustion.

Section 5.0 - Emergency Contact List

EMERGENCY CONTACT LIST				
CENTENNIAL RESOURCE PRODUCTION, LLC.				
POSITION	**NAME**	**OFFICE**	**CELL**	**ALT PHONE**
Operations				
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	
HSE & Regulatory				
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	
Local, State, & Federal Agencies				
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_2S 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.

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

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

4. H_2S Detectors and Alarms
    a. Continuous monitoring type H_2S detectors, capable of sensing a minimum of 5ppm H_2S in air will be located centrally located at the tanks, heater treater, and combustor. Continuous monitoring type SO_2 detector will also be located at the combustor. The automatic H_2S 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_2S.

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_2S 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

PROCEED IN A EASTERLY, THEN NORTHEASTERLY, THEN EASTERLY DIRECTION FROM CARLSBAD, NEW MEXICO ALONG U.S. HIGHWAY 62 APPROXIMATELY 31.1 MILES TO THE JUNCTION OF THIS ROAD AND CAMPBELL ROAD TO THE SOUTH; TURN RIGHT AND PROCEED IN A SOUTHERLY, THEN SOUTHEASTERLY, THEN SOUTHERLY DIRECTION APPROXIMATELY 9.0 MILES TO THE JUNCTION OF THIS ROAD AND AN EXISTING ROAD TO THE EAST; TURN LEFT AND PROCEED IN AN EASTERLY, THEN NORTHERLY, THEN EASTERLY DIRECTION APPROXIMATELY 1.6 MILES TO THE JUNCTION OF THIS ROAD AND AN EXISTING ROAD TO THE SOUTH; TURN RIGHT AND PROCEED IN A SOUTHERLY DIRECTION APPROXIMATELY 1.3 MILES TO THE JUNCTION OF THIS ROAD AND AN EXISTING ROAD TO THE SOUTHWEST; TURN RIGHT AND

Hydrogen sulfide (H_2S) is a colorless, poisonous gas that is soluble in water. It can be present in crude oils, condensates, natural gas and wastewater streams.

H_2S is heavier than air with a vapor density of 1.189 (air = 1.0); however, H_2S is most often mixed with other gases. These mixtures of H_2S and other gases can be heavier or lighter than air. If the H_2S-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_2S 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_2S

Properties of H2S	Description
Vapor Density > 1 = 1.189 Air = 1	▪ H2S gas is slightly heavier than air, which can cause it to settle in low places and build in concentration. ▪ Produced as a mixture with other gases associated with oil and gas production.
Flammable Range 4.3%-46% 43000 ppm – 460000 ppm	▪ H2S can be extremely flammable / explosive when these concentrations are reached by volume in air.

Although H_2S 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_2S 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

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_2S and its associated byproducts from combustion presents a serious environmental hazard. Sulphur Dioxide SO_2 is produced as a constituent of flaring H_2S Gas and can present hazards associated, which are similar to H_2S. Although SO_2 is heavier than air, it will be picked up by a breeze and carried downwind at elevated temperatures. Since Sulfur Dioxide is extremely irritating to the eyes and mucous membranes of the upper respiratory tract, it has exceptionally good warning powers in this respect. The following table indicates the toxic nature of the gas. Please see the attached SDS in Appendix B for reference.

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

Section 8.0 - Regulatory Information

I. OSHA & NIOSH Information

II. Table 8.0. OSHA & NIOSH H_2S Information

PEL, IDLH, TLV	Description
NIOSH PEL 10 PPM	▪ PEL is the Permissible Exposure Limit that an employee may be exposed up to 8 hr / day.
OSHA General Industry Ceiling PEL – 20 PPM	▪ The maximum exposure limit, which cannot be exceeded for any length of time.
IDLH 100 PPM	▪ Immediately Dangerous to Life and Health
Centennial PEL 10 PPM	▪ Centennial Policy Regarding H2S for employee safety

III. New Mexico OCD & BLM – H_2S 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_2S contingency plan for sites where the H_2S concentrations are as follows.

Table 8.1. Calculating H_2S Radius of Exposure

H_2S Radius of Exposure	Description	Control and Equipment Requirements
100 ppm	Distance from a release to where the H_2S 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
500 ppm	Distance from a release to where the H_2S 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)

Calculating H_2S Radius of Exposure

The ROE of an H_2S release is calculated to determine if a potentially hazardous volume of H_2S gas at 100 or 500 parts per million (ppm) is within a regulated distance requiring further action. If information about the concentration of H_2S 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**:

$x = [(1.589)\ (\text{mole fraction } H_2S)(Q)]^{(.6258)}$.

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

$x = [(0.4546)\ (\text{mole fraction } H_2S)(Q)]^{(.6258)}$.

Table 8.2. Calculating H2S Radius of Exposure

ROE Variable	Description
X =	ROE in feet
Q =	**Max volume of gas released determined to be released in cubic feet per day (ft^3/d)** normalized to standard temperature and pressure, 60°F and 14.65 psia
Mole fraction H_2S =	Mole fraction of H_2S 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_2S 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_2S ROE cases is included in **Table 8.3**.
    - **CASE 1 -**100 ppm ROE < 50'
    - **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_2S 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_2S as part of routine or maintenance work.

- The hazards, characteristics, and properties of hydrogen sulfide (H_2S) and (SO_2).
- Sources of H_2S and SO_2.
- Proper use of H_2S and SO_2 detection methods used at the workplace.
- Recognition of, and proper response to, the warning signals initiated by H_2S and SO_2 detection systems in use at the workplace.
- Symptoms of H_2S exposure; symptoms of SO_2 exposure
- Rescue techniques and first aid to victims of H_2S and SO_2 exposure.
- Proper use and maintenance of breathing equipment for working in H_2S and SO_2 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_2S and SO_2.
- Wind direction awareness and routes of egress.
- 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_2S Monitors

All personnel engaged in planned or unplanned work activity to mitigate the release of a hazardous concentration of H_2S shall have on their person a personal H2S monitor.

II. Fixed H_2S Detection and Alarms

- 4 channel H_2S monitor
- 4 wireless H_2S monitors
- H_2S 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/Escape 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_2S 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_2S levels present, or if initial measurements are to be taken of H_2S levels.
- During rescue of employees suspected of H_2S 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.
- 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.

Appendix A
H_2S SDS

PRAXAIR

Hydrogen sulfide

Safety Data Sheet E-4611

according to the Hazardous Products Regulation (February 11, 2015)

Date of issue: 10-15-1979 Revision date: 08-10-2016 Supersedes: 10-15-2013

SECTION 1: Identification

1.1. Product identifier

Product form	:	Substance
Name	:	Hydrogen sulfide
CAS No	:	7783-06-4
Formula	:	H2S
Other means of identification	:	Hydrogen sulfide
Product group	:	Core Products

1.2. Recommended use and restrictions on use

Recommended uses and restrictions	:	Industrial use Use as directed

1.3. Supplier

Praxair Canada inc.
1200 – 1 City Centre Drive
Mississauga - Canada L5B 1M2
T 1-905-803-1600 - F 1-905-803-1682
www.praxair.ca

1.4. Emergency telephone number

Emergency number	:	1-800-363-0042 Call emergency number 24 hours a day only for spills, leaks, fire, exposure, or accidents involving this product. For routine information, contact your supplier or Praxair sales representative.

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

GHS-CA classification

Flam. Gas 1	H220
Liquefied gas	H280
Acute Tox. 2 (Inhalation: gas)	H330
STOT SE 3	H335

2.2. GHS Label elements, including precautionary statements

GHS-CA labelling

Hazard pictograms :

GHS02 GHS04 GHS06 GHS07

Signal word : DANGER

Hazard statements : **EXTREMELY FLAMMABLE GAS**
CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED
FATAL IF INHALED
MAY CAUSE RESPIRATORY IRRITATION
MAY FORM EXPLOSIVE MIXTURES WITH AIR
SYMPTOMS MAY BE DELAYED
EXTENDED EXPOSURE TO GAS REDUCES THE ABILITY TO SMELL SULFIDES

Precautionary statements : Do not handle until all safety precautions have been read and understood
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking

PRAXAIR

Hydrogen sulfide

Safety Data Sheet E-4611

according to the Hazardous Products Regulation (February 11, 2015)

Date of issue: 10-15-1979 Revision date: 08-10-2016 Supersedes: 10-15-2013

Do not breathe gas
Use and store only outdoors or in a well-ventilated area
Avoid release to the environment
Wear protective gloves, protective clothing, eye protection, respiratory protection, and/or face protection
Leaking gas fire: Do not extinguish, unless leak can be stopped safely
In case of leakage, eliminate all ignition sources
Store locked up
Dispose of contents/container in accordance with container Supplier/owner instructions
Protect from sunlight when ambient temperature exceeds 52°C (125°F)
Close valve after each use and when empty
Do not open valve until connected to equipment prepared for use
When returning cylinder, install leak tight valve outlet cap or plug
Do not depend on odour to detect the presence of gas

2.3. Other hazards

Other hazards not contributing to the classification : Contact with liquid may cause cold burns/frostbite.

2.4. Unknown acute toxicity (GHS-CA)

No data available

SECTION 3: Composition/information on ingredients

3.1. Substances

Name	CAS No.	% (Vol.)	Common Name (synonyms)
Hydrogen sulfide (Main constituent)	(CAS No) 7783-06-4	100	Hydrogen sulfide (H2S) / Hydrogen sulphide / Sulfur hydride / Sulfureted hydrogen / Dihydrogen sulphide / Hydrogensulfide

3.2. Mixtures

Not applicable

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : Remove to fresh air and keep at rest in a position comfortable for breathing. If not breathing, give artificial respiration. If breathing is difficult, trained personnel should give oxygen. Call a physician.

First-aid measures after skin contact : The liquid may cause frostbite. For exposure to liquid, immediately warm frostbite area with warm water not to exceed 105°F (41°C). Water temperature should be tolerable to normal skin. Maintain skin warming for at least 15 minutes or until normal coloring and sensation have returned to the affected area. In case of massive exposure, remove clothing while showering with warm water. Seek medical evaluation and treatment as soon as possible.

First-aid measures after eye contact : Immediately flush eyes thoroughly with water for at least 15 minutes. Hold the eyelids open and away from the eyeballs to ensure that all surfaces are flushed thoroughly. Contact an ophthalmologist immediately.

First-aid measures after ingestion : Ingestion is not considered a potential route of exposure.

4.2. Most important symptoms and effects (acute and delayed)

No additional information available

4.3. Immediate medical attention and special treatment, if necessary

Other medical advice or treatment : Obtain medical assistance. Treat with corticosteroid spray as soon as possible after inhalation.

SECTION 5: Fire-fighting measures

5.1. Suitable extinguishing media

Suitable extinguishing media : Carbon dioxide, Dry chemical, Water spray or fog. Use extinguishing media appropriate for surrounding fire.

5.2. Unsuitable extinguishing media

No additional information available

5.3. Specific hazards arising from the hazardous product

Fire hazard	:	**EXTREMELY FLAMMABLE GAS**. If venting or leaking gas catches fire, do not extinguish flames. Flammable vapors may spread from leak, creating an explosive reignition hazard. Vapors can be ignited by pilot lights, other flames, smoking, sparks, heaters, electrical equipment, static discharge, or other ignition sources at locations distant from product handling point. Explosive atmospheres may linger. Before entering an area, especially a confined area, check the atmosphere with an appropriate device.
Explosion hazard	:	**EXTREMELY FLAMMABLE GAS**. Forms explosive mixtures with air and oxidizing agents.
Reactivity	:	No reactivity hazard other than the effects described in sub-sections below.
Reactivity in case of fire	:	No reactivity hazard other than the effects described in sub-sections below.

5.4. Special protective equipment and precautions for fire-fighters

Firefighting instructions	:	**DANGER! Toxic, flammable liquefied gas** Evacuate all personnel from the danger area. Use self-contained breathing apparatus (SCBA) and protective clothing. Immediately cool containers with water from maximum distance. Stop flow of gas if safe to do so, while continuing cooling water spray. Remove ignition sources if safe to do so. Remove containers from area of fire if safe to do so. On-site fire brigades must comply with their provincial and local fire code regulations.
Special protective equipment for fire fighters	:	Standard protective clothing and equipment (Self Contained Breathing Apparatus) for fire fighters.
Other information	:	Containers are equipped with a pressure relief device. (Exceptions may exist where authorized by TC.).

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures	:	**DANGER! Toxic, flammable liquefied gas** . Forms explosive mixtures with air and oxidizing agents. Immediately evacuate all personnel from danger area. Use self-contained breathing apparatus where needed. Remove all sources of ignition if safe to do so. Reduce vapors with fog or fine water spray, taking care not to spread liquid with water. Shut off flow if safe to do so. Ventilate area or move container to a well-ventilated area. Flammable vapors may spread from leak and could explode if reignited by sparks or flames. Explosive atmospheres may linger. Before entering area, especially confined areas, check atmosphere with an appropriate device.

6.2. Methods and materials for containment and cleaning up

Methods for cleaning up	:	Try to stop release. Reduce vapour with fog or fine water spray. Prevent waste from contaminating the surrounding environment. Prevent soil and water pollution. Dispose of contents/container in accordance with local/regional/national/international regulations. Contact supplier for any special requirements.

6.3. Reference to other sections

For further information refer to section 8: Exposure controls/personal protection

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling	:	Leak-check system with soapy water; never use a flame All piped systems and associated equipment must be grounded Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use only non-sparking tools. Use only explosion-proof equipment Wear leather safety gloves and safety shoes when handling cylinders. Protect cylinders from physical damage; do not drag, roll, slide or drop. While moving cylinder, always keep in place removable valve cover. Never attempt to lift a cylinder by its cap; the cap is intended solely to protect the valve. When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders. Never insert an object (e.g, wrench, screwdriver, pry bar) into cap openings; doing so may damage the valve and cause a leak. Use an adjustable strap wrench to remove over-tight or rusted caps. Slowly open the valve. If the valve is hard to open, discontinue use and contact your supplier. Close the container valve after each use; keep closed even when empty. Never apply flame or localized heat directly to any part of the container. High temperatures may damage the container and could cause the pressure relief device to fail prematurely, venting the container contents. For other precautions in using this product, see section 16.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store only where temperature will not exceed 125°F (52°C). Post "No Smoking/No Open Flames" signs in storage and use areas. There must be no sources of ignition. Separate packages and protect against potential fire and/or explosion damage following appropriate codes and requirements (e.g, NFPA 30, NFPA 55, NFPA 70, and/or NFPA 221 in the U.S.) or according to requirements determined by the Authority Having Jurisdiction (AHJ). Always secure containers upright to keep them from falling or being knocked over. Install valve protection cap, if provided, firmly in place by hand when the container is not in use. Store full and empty containers separately. Use a first-in, first-out inventory system to prevent storing full containers for long periods. For other precautions in using this product, see section 16

OTHER PRECAUTIONS FOR HANDLING, STORAGE, AND USE: When handling product under pressure, use piping and equipment adequately designed to withstand the pressures to be encountered. Never work on a pressurized system. Use a back flow preventive device in the piping. Gases can cause rapid suffocation because of oxygen deficiency; store and use with adequate ventilation. If a leak occurs, close the container valve and blow down the system in a safe and environmentally correct manner in compliance with all international, federal/national, state/provincial, and local laws; then repair the leak. Never place a container where it may become part of an electrical circuit.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Hydrogen sulfide (7783-06-4)		
USA - ACGIH	ACGIH TLV-TWA (ppm)	1 ppm
USA - ACGIH	ACGIH TLV-STEL (ppm)	5 ppm
USA - OSHA	OSHA PEL (Ceiling) (ppm)	20 ppm
Canada (Quebec)	VECD (mg/m³)	21 mg/m³
Canada (Quebec)	VECD (ppm)	15 ppm
Canada (Quebec)	VEMP (mg/m³)	14 mg/m³
Canada (Quebec)	VEMP (ppm)	10 ppm
Alberta	OEL Ceiling (mg/m³)	21 mg/m³
Alberta	OEL Ceiling (ppm)	15 ppm
Alberta	OEL TWA (mg/m³)	14 mg/m³
Alberta	OEL TWA (ppm)	10 ppm
British Columbia	OEL Ceiling (ppm)	10 ppm
Manitoba	OEL STEL (ppm)	5 ppm
Manitoba	OEL TWA (ppm)	1 ppm
New Brunswick	OEL STEL (mg/m³)	21 mg/m³
New Brunswick	OEL STEL (ppm)	15 ppm
New Brunswick	OEL TWA (mg/m³)	14 mg/m³
New Brunswick	OEL TWA (ppm)	10 ppm
New Foundland & Labrador	OEL STEL (ppm)	5 ppm
New Foundland & Labrador	OEL TWA (ppm)	1 ppm
Nova Scotia	OEL STEL (ppm)	5 ppm
Nova Scotia	OEL TWA (ppm)	1 ppm
Nunavut	OEL Ceiling (mg/m³)	28 mg/m³
Nunavut	OEL Ceiling (ppm)	20 ppm
Nunavut	OEL STEL (mg/m³)	21 mg/m³
Nunavut	OEL STEL (ppm)	15 ppm
Nunavut	OEL TWA (mg/m³)	14 mg/m³
Nunavut	OEL TWA (ppm)	10 ppm
Northwest Territories	OEL STEL (ppm)	15 ppm

Hydrogen sulfide (7783-06-4)		
Northwest Territories	OEL TWA (ppm)	10 ppm
Ontario	OEL STEL (ppm)	15 ppm
Ontario	OEL TWA (ppm)	10 ppm
Prince Edward Island	OEL STEL (ppm)	5 ppm
Prince Edward Island	OEL TWA (ppm)	1 ppm
Québec	VECD (mg/m³)	21 mg/m³
Québec	VECD (ppm)	15 ppm
Québec	VEMP (mg/m³)	14 mg/m³
Québec	VEMP (ppm)	10 ppm
Saskatchewan	OEL STEL (ppm)	15 ppm
Saskatchewan	OEL TWA (ppm)	10 ppm
Yukon	OEL STEL (mg/m³)	27 mg/m³
Yukon	OEL STEL (ppm)	15 ppm
Yukon	OEL TWA (mg/m³)	15 mg/m³
Yukon	OEL TWA (ppm)	10 ppm

8.2. Appropriate engineering controls

Appropriate engineering controls : Use corrosion-resistant equipment. Use an explosion-proof local exhaust system. Local exhaust and general ventilation must be adequate to meet exposure standards. MECHANICAL (GENERAL): **Inadequate - Use only in a closed system.** Use explosion proof equipment and lighting.

8.3. Individual protection measures/Personal protective equipment

Personal protective equipment : Safety glasses. Face shield. Gloves.

Hand protection : Wear work gloves when handling containers. Wear heavy rubber gloves where contact with product may occur.

Eye protection : Wear goggles and a face shield when transfilling or breaking transfer connections. Select in accordance with the current CSA standard Z94.3, "Industrial Eye and Face Protection", and any provincial regulations, local bylaws or guidelines.

Respiratory protection : **Respiratory protection:** Use respirable fume respirator or air supplied respirator when working in confined space or where local exhaust or ventilation does not keep exposure below TLV. Select in accordance with provincial regulations, local bylaws or guidelines. Selection should be based on the current CSA standard Z94.4, "Selection, Care, and Use of Respirators." Respirators should also be approved by NIOSH and MSHA. For emergencies or instances with unknown exposure levels, use a self-contained breathing apparatus (SCBA).

Thermal hazard protection : Wear cold insulating gloves when transfilling or breaking transfer connections. Standard EN 511 - Cold insulating gloves.

Other information : **Other protection :** Safety shoes for general handling at customer sites. Metatarsal shoes and cuffless trousers for cylinder handling at packaging and filling plants. Select in accordance with the current CSA standard Z195, "Protective Foot Wear", and any provincial regulations, local bylaws or guidelines. For working with flammable and oxidizing materials, consider the use of flame resistant anti-static safety clothing.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Gas

Appearance : Colorless gas. Colorless liquid at low temperature or under high pressure.

Molecular mass : 34 g/mol

Colour : Colourless.

Odour : Odour can persist. Poor warning properties at low concentrations. Rotten eggs.

Odour threshold : Odour threshold is subjective and inadequate to warn of overexposure.

pH	:	Not applicable.
pH solution	:	No data available
Relative evaporation rate (butylacetate=1)	:	No data available
Relative evaporation rate (ether=1)	:	Not applicable.
Melting point	:	-86 °C
Freezing point	:	-82.9 °C
Boiling point	:	-60.3 °C
Flash point	:	Not applicable.
Critical temperature	:	100.4 °C
Auto-ignition temperature	:	260 °C
Decomposition temperature	:	No data available
Vapour pressure	:	1880 kPa
Vapour pressure at 50 °C	:	No data available
Critical pressure	:	8940 kPa
Relative vapour density at 20 °C	:	>=
Relative density	:	No data available
Relative density of saturated gas/air mixture	:	No data available
Density	:	No data available
Relative gas density	:	1.2
Solubility	:	Water: 3980 mg/l
Log Pow	:	Not applicable.
Log Kow	:	Not applicable.
Viscosity, kinematic	:	Not applicable.
Viscosity, dynamic	:	Not applicable.
Viscosity, kinematic (calculated value) (40 °C)	:	No data available
Explosive properties	:	Not applicable.
Oxidizing properties	:	None.
Flammability (solid, gas)	:	4.3 - 46 vol %

9.2. Other information

Gas group	:	Liquefied gas
Additional information	:	Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity	:	No reactivity hazard other than the effects described in sub-sections below.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	May react violently with oxidants. Can form explosive mixture with air.
Conditions to avoid	:	Avoid moisture in installation systems. Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
Incompatible materials	:	Ammonia. Bases. Bromine pentafluoride. Chlorine trifluoride. chromium trioxide. (and heat). Copper. (powdered). Fluorine. Lead. Lead oxide. Mercury. Nitric acid. Nitrogen trifluoride. nitrogen sulfide. Organic compounds. Oxidizing agents. Oxygen difluoride. Rubber. Sodium. (and moisture). Water.
Hazardous decomposition products	:	Thermal decomposition may produce : Sulfur. Hydrogen.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	:	Not classified
Acute toxicity (dermal)	:	Not classified

Acute toxicity (inhalation) : Inhalation:gas: FATAL IF INHALED.

Hydrogen sulfide (\f)7783-06-4	
LC50 inhalation rat (mg/l)	0.99 mg/l (Exposure time: 1 h)
LC50 inhalation rat (ppm)	356 ppm/4h
ATE CA (gases)	356.00000000 ppmv/4h
ATE CA (vapours)	0.99000000 mg/l/4h
ATE CA (dust,mist)	0.99000000 mg/l/4h

Skin corrosion/irritation : Not classified
pH: Not applicable.

Serious eye damage/irritation : Not classified
pH: Not applicable.

Respiratory or skin sensitization : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Reproductive toxicity : Not classified

Specific target organ toxicity (single exposure) : MAY CAUSE RESPIRATORY IRRITATION.

Specific target organ toxicity (repeated exposure) : Not classified

Aspiration hazard : Not classified

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : VERY TOXIC TO AQUATIC LIFE.

Hydrogen sulfide (7783-06-4)	
LC50 fish 1	0.0448 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [flow-through])
LC50 fish 2	0.016 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])

12.2. Persistence and degradability

Hydrogen sulfide (7783-06-4)	
Persistence and degradability	Not applicable for inorganic gases.

12.3. Bioaccumulative potential

Hydrogen sulfide (7783-06-4)	
BCF fish 1	(no bioaccumulation expected)
Log Pow	Not applicable.
Log Kow	Not applicable.
Bioaccumulative potential	No data available.

12.4. Mobility in soil

Hydrogen sulfide (7783-06-4)	
Mobility in soil	No data available.
Log Pow	Not applicable.
Log Kow	Not applicable.
Ecology - soil	Because of its high volatility, the product is unlikely to cause ground or water pollution.

12.5. Other adverse effects

Other adverse effects : May cause pH changes in aqueous ecological systems.

Effect on the ozone layer : None

Effect on global warming : No known effects from this product

PRAXAIR

Hydrogen sulfide

Safety Data Sheet E-4611

according to the Hazardous Products Regulation (February 11, 2015)

Date of issue: 10-15-1979 Revision date: 08-10-2016 Supersedes: 10-15-2013

SECTION 13: Disposal considerations

13.1. Disposal methods

Waste disposal recommendations : Do not attempt to dispose of residual or unused quantities. Return container to supplier.

SECTION 14: Transport information

14.1. Basic shipping description

In accordance with TDG

TDG

UN-No. (TDG)	: UN1053
TDG Primary Hazard Classes	: 2.3 - Class 2.3 - Toxic Gas.
TDG Subsidiary Classes	: 2.1
Proper shipping name	: HYDROGEN SULPHIDE
ERAP Index	: 500
Explosive Limit and Limited Quantity Index	: 0
Passenger Carrying Ship Index	: Forbidden
Passenger Carrying Road Vehicle or Passenger Carrying Railway Vehicle Index	: Forbidden

14.3. Air and sea transport

IMDG

UN-No. (IMDG)	: 1053
Proper Shipping Name (IMDG)	: HYDROGEN SULPHIDE
Class (IMDG)	: 2 - Gases
MFAG-No	: 117

IATA

UN-No. (IATA)	: 1053
Proper Shipping Name (IATA)	: Hydrogen sulphide
Class (IATA)	: 2

SECTION 15: Regulatory information

15.1. National regulations

Hydrogen sulfide (7783-06-4)

Listed on the Canadian DSL (Domestic Substances List)

15.2. International regulations

Hydrogen sulfide (7783-06-4)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on the United States TSCA (Toxic Substances Control Act) inventory
Listed on INSQ (Mexican national Inventory of Chemical Substances)

SECTION 16: Other information

Date of issue	: 15/10/1979
Revision date	: 10/08/2016
Supersedes	: 15/10/2013

Indication of changes:

Training advice : Users of breathing apparatus must be trained. Ensure operators understand the toxicity hazard. Ensure operators understand the flammability hazard.

PRAXAIR

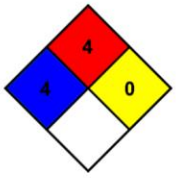
Hydrogen sulfide

Safety Data Sheet E-4611

according to the Hazardous Products Regulation (February 11, 2015)

Date of issue: 10-15-1979 Revision date: 08-10-2016 Supersedes: 10-15-2013

Other information	: When you mix two or more chemicals, you can create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an industrial hygienist or other trained person when you evaluate the end product. Before using any plastics, confirm their compatibility with this product Praxair asks users of this product to study this SDS and become aware of the product hazards and safety information. To promote safe use of this product, a user should (1) notify employees, agents, and contractors of the information in this SDS and of any other known product hazards and safety information, (2) furnish this information to each purchaser of the product, and (3) ask each purchaser to notify its employees and customers of the product hazards and safety information The opinions expressed herein are those of qualified experts within Praxair Canada Inc. We believe that the information contained herein is current as of the date of this Safety Data Sheet. Since the use of this information and the conditions of use are not within the control of Praxair Canada Inc, it is the user's obligation to determine the conditions of safe use of the product. Praxair Canada Inc, SDSs are furnished on sale or delivery by Praxair Canada Inc, or the independent distributors and suppliers who package and sell our products. To obtain current SDSs for these products, contact your Praxair sales representative, local distributor, or supplier, or download from www.praxair.ca. If you have questions regarding Praxair SDSs, would like the document number and date of the latest SDS, or would like the names of the Praxair suppliers in your area, phone or write Praxair Canada Inc, (Phone: 1-888-257-5149; Address: Praxair Canada Inc, 1 City Centre Drive, Suite 1200, Mississauga, Ontario, L5B 1M2). PRAXAIR and the Flowing Airstream design are trademarks or registered trademarks of Praxair Technology, Inc. in the United States and/or other countries.
NFPA health hazard	: 4 - Very short exposure could cause death or serious residual injury even though prompt medical attention was given.
NFPA fire hazard	: 4 - Will rapidly or completely vaporize at normal pressure and temperature, or is readily dispersed in air and will burn readily.
NFPA reactivity	: 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.



HMIS III Rating	
Health	: 2 Moderate Hazard - Temporary or minor injury may occur
Flammability	: 4 Severe Hazard - Flammable gases, or very volatile flammable liquids with flash points below 73 F, and boiling points below 100 F. Materials may ignite spontaneously with air. (Class IA)
Physical	: 2 Moderate Hazard - Materials that are unstable and may undergo violent chemical changes at normal temperature and pressure with low risk for explosion. Materials may react violently with water or form peroxides upon exposure to air.

SDS Canada (GHS) - Praxair

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

Appendix B

Centennial Resource Production, LLC.	H_2S Contingency Plan Mozzarella Fed Com 602H 603H	Lea County, New Mexico

SO_2 SDS

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Safety Data Sheet

Material Name: SULFUR DIOXIDE **SDS ID: MAT22290**

Section 1 - PRODUCT AND COMPANY IDENTIFICATION

Material Name
SULFUR DIOXIDE
Synonyms
MTG MSDS 80; SULFUROUS ACID ANHYDRIDE; SULFUROUS OXIDE; SULPHUR DIOXIDE; SULFUROUS ANHYDRIDE; FERMENTICIDE LIQUID; SULFUR DIOXIDE(SO2); SULFUR OXIDE; SULFUR OXIDE(SO2)
Chemical Family
inorganic, gas
Product Description
Classification determined in accordance with Compressed Gas Association standards.
Product Use
Industrial and Specialty Gas Applications.
Restrictions on Use
None known.
Details of the supplier of the safety data sheet
MATHESON TRI-GAS, INC.
3 Mountainview Road
Warren, NJ 07059
General Information: 1-800-416-2505
Emergency #: 1-800-424-9300 (CHEMTREC)
Outside the US: 703-527-3887 (Call collect)

Section 2 - HAZARDS IDENTIFICATION

Classification in accordance with paragraph (d) of 29 CFR 1910.1200.
Gases Under Pressure - Liquefied gas
Acute Toxicity - Inhalation - Gas - Category 3
Skin Corrosion/Irritation - Category 1B
Serious Eye Damage/Eye Irritation - Category 1
Simple Asphyxiant
GHS Label Elements
Symbol(s)

Signal Word
Danger
Hazard Statement(s)
Contains gas under pressure; may explode if heated.
Toxic if inhaled.
Causes severe skin burns and eye damage.
May displace oxygen and cause rapid suffocation.
Precautionary Statement(s)
Prevention
Use only outdoors or in a well-ventilated area.
Wear protective gloves/protective clothing/eye protection/face protection.

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Safety Data Sheet

Material Name: SULFUR DIOXIDE **SDS ID: MAT22290**

Wash thoroughly after handling.
Do not breathe dusts or mists.

Response

IF INHALED: Remove person to fresh air and keep comfortable for breathing.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse.
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
Immediately call a POISON CENTER or doctor.
Specific treatment (see label).

Storage

Store in a well-ventilated place. Keep container tightly closed.
Store locked up.
Protect from sunlight.

Disposal

Dispose of contents/container in accordance with local/regional/national/international regulations.

Other Hazards

Contact with liquified gas may cause frostbite.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

CAS	Component Name	Percent
7446-09-5	Sulfur dioxide	100.0

Section 4 - FIRST AID MEASURES

Inhalation

IF INHALED: Remove person to fresh air and keep at rest in a position comfortable for breathing. Get immediate medical attention.

Skin

IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. If frostbite or freezing occur, immediately flush with plenty of lukewarm water (105-115°F; 41-46°C). If warm water is not available, gently wrap affected parts in blankets. DO NOT induce vomiting. Get immediate medical attention.

Eyes

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical attention.

Ingestion

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Get immediate medical attention.

Most Important Symptoms/Effects

Acute

Toxic if inhaled, frostbite, suffocation, respiratory tract burns, skin burns, eye burns

Delayed

No information on significant adverse effects.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically and supportively.

Note to Physicians

For inhalation, consider oxygen.

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Safety Data Sheet

Material Name: SULFUR DIOXIDE **SDS ID: MAT22290**

Section 5 - FIRE FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media

carbon dioxide, regular dry chemical, Large fires: Use regular foam or flood with fine water spray.

Unsuitable Extinguishing Media

None known.

Special Hazards Arising from the Chemical

Negligible fire hazard.

Hazardous Combustion Products

sulfur oxides

Fire Fighting Measures

Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. Keep unnecessary people away, isolate hazard area and deny entry.

Special Protective Equipment and Precautions for Firefighters

Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure.

Section 6 - ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

Wear personal protective clothing and equipment, see Section 8.

Methods and Materials for Containment and Cleaning Up

Keep unnecessary people away, isolate hazard area and deny entry. Stay upwind and keep out of low areas. Ventilate closed spaces before entering. Evacuation radius: 150 feet. Stop leak if possible without personal risk. Reduce vapors with water spray. Do not get water directly on material.

Environmental Precautions

Avoid release to the environment.

Section 7 - HANDLING AND STORAGE

Precautions for Safe Handling

Do not get in eyes, on skin, or on clothing. Do not breathe gas, fumes, vapor, or spray. Wash hands thoroughly after handling. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection. Contaminated work clothing should not be allowed out of the workplace. Do not eat, drink or smoke when using this product. Keep only in original container. Avoid release to the environment.

Conditions for Safe Storage, Including any Incompatibilities

Store in a well-ventilated place. Keep container tightly closed.
Store locked up.
Protect from sunlight.
Store and handle in accordance with all current regulations and standards. Protect from physical damage. Store outside or in a detached building. Keep separated from incompatible substances.

Incompatible Materials

bases, combustible materials, halogens, metal carbide, metal oxides, metals, oxidizing materials, peroxides, reducing agents

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits

Sulfur dioxide	**7446-09-5**
ACGIH:	0.25 ppm STEL

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Material Name: SULFUR DIOXIDE **SDS ID: MAT22290**

NIOSH:	2 ppm TWA ; 5 mg/m3 TWA
	5 ppm STEL ; 13 mg/m3 STEL
	100 ppm IDLH
OSHA (US):	5 ppm TWA ; 13 mg/m3 TWA
Mexico:	0.25 ppm STEL [PPT-CT]

ACGIH - Threshold Limit Values - Biological Exposure Indices (BEI)
There are no biological limit values for any of this product's components.
Engineering Controls
Provide local exhaust or process enclosure ventilation system. Ensure compliance with applicable exposure limits.
Individual Protection Measures, such as Personal Protective Equipment
Eye/face protection
Wear splash resistant safety goggles with a faceshield. Contact lenses should not be worn. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.
Skin Protection
Wear appropriate chemical resistant clothing. Wear chemical resistant clothing to prevent skin contact.
Respiratory Protection
Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.
Glove Recommendations
Wear appropriate chemical resistant gloves.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance	colorless gas	**Physical State**	gas
Odor	irritating odor	**Color**	colorless
Odor Threshold	3 - 5 ppm	**pH**	(Acidic in solution)
Melting Point	-73 °C (-99 °F)	**Boiling Point**	-10 °C (14 °F)
Boiling Point Range	Not available	**Freezing point**	Not available
Evaporation Rate	>1 (Butyl acetate = 1)	**Flammability (solid, gas)**	Not available
Autoignition Temperature	Not available	**Flash Point**	(Not flammable)
Lower Explosive Limit	Not available	**Decomposition temperature**	Not available
Upper Explosive Limit	Not available	**Vapor Pressure**	2432 mmHg @ 20 °C
Vapor Density (air=1)	2.26	**Specific Gravity (water=1)**	1.462 at -10 °C

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Safety Data Sheet

Material Name: SULFUR DIOXIDE **SDS ID: MAT22290**

Water Solubility	22.8 % (@ 0 °C)	**Partition coefficient: n-octanol/water**	Not available
Viscosity	Not available	**Kinematic viscosity**	Not available
Solubility (Other)	Not available	**Density**	Not available
Physical Form	liquified gas	**Molecular Formula**	S-O2
Molecular Weight	64.06		

Solvent Solubility
Soluble
alcohol, acetic acid, sulfuric acid, ether, chloroform, Benzene, sulfuryl chloride, nitrobenzenes, Toluene, acetone

Section 10 - STABILITY AND REACTIVITY

Reactivity
No reactivity hazard is expected.
Chemical Stability
Stable at normal temperatures and pressure.
Possibility of Hazardous Reactions
Will not polymerize.
Conditions to Avoid
Minimize contact with material. Containers may rupture or explode if exposed to heat.
Incompatible Materials
bases, combustible materials, halogens, metal carbide, metal oxides, metals, oxidizing materials, peroxides, reducing agents
Hazardous decomposition products
oxides of sulfur

Section 11 - TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure
Inhalation
Toxic if inhaled. Causes damage to respiratory system, burns, difficulty breathing
Skin Contact
skin burns
Eye Contact
eye burns
Ingestion
burns, nausea, vomiting, diarrhea, stomach pain
Acute and Chronic Toxicity
Component Analysis - LD50/LC50
The components of this material have been reviewed in various sources and the following selected endpoints are published:
Sulfur dioxide (7446-09-5)
Inhalation LC50 Rat 965 - 1168 ppm 4 h
Product Toxicity Data
Acute Toxicity Estimate
No data available.
Immediate Effects

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Material Name: SULFUR DIOXIDE **SDS ID: MAT22290**

Toxic if inhaled, frostbite, suffocation, respiratory tract burns, skin burns, eye burns

Delayed Effects
No information on significant adverse effects.

Irritation/Corrosivity Data
respiratory tract burns, skin burns, eye burns

Respiratory Sensitization
No data available.

Dermal Sensitization
No data available.

Component Carcinogenicity

Sulfur dioxide	**7446-09-5**
ACGIH:	A4 - Not Classifiable as a Human Carcinogen
IARC:	Monograph 54 [1992] (Group 3 (not classifiable))

Germ Cell Mutagenicity
No data available.

Tumorigenic Data
No data available

Reproductive Toxicity
No data available.

Specific Target Organ Toxicity - Single Exposure
No target organs identified.

Specific Target Organ Toxicity - Repeated Exposure
No target organs identified.

Aspiration hazard
Not applicable.

Medical Conditions Aggravated by Exposure
respiratory disorders

Section 12 - ECOLOGICAL INFORMATION

Component Analysis - Aquatic Toxicity
No LOLI ecotoxicity data are available for this product's components.

Persistence and Degradability
No data available.

Bioaccumulative Potential
No data available.

Mobility
No data available.

Section 13 - DISPOSAL CONSIDERATIONS

Disposal Methods
Dispose of contents/container in accordance with local/regional/national/international regulations.

Component Waste Numbers
The U.S. EPA has not published waste numbers for this product's components.

Section 14 - TRANSPORT INFORMATION

US DOT Information:
Shipping Name: SULFUR DIOXIDE

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Safety Data Sheet

Material Name: SULFUR DIOXIDE **SDS ID: MAT22290**

Hazard Class: 2.3
UN/NA #: UN1079
Required Label(s): 2.3

IMDG Information:
Shipping Name: SULPHUR DIOXIDE
Hazard Class: 2.3
UN#: UN1079
Required Label(s): 2.3

TDG Information:
Shipping Name: SULFUR DIOXIDE
Hazard Class: 2.3
UN#: UN1079
Required Label(s): 2.3

International Bulk Chemical Code
This material does not contain any chemicals required by the IBC Code to be identified as dangerous chemicals in bulk.

Section 15 - REGULATORY INFORMATION

U.S. Federal Regulations
This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), and/or require an OSHA process safety plan.

Sulfur dioxide	**7446-09-5**
SARA 302:	500 lb TPQ
OSHA (safety):	1000 lb TQ (Liquid)
SARA 304:	500 lb EPCRA RQ

SARA Section 311/312 (40 CFR 370 Subparts B and C) reporting categories
Gas Under Pressure; Acute toxicity; Skin Corrosion/Irritation; Serious Eye Damage/Eye Irritation; Simple Asphyxiant

U.S. State Regulations
The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA
Sulfur dioxide	**7446-09-5**	Yes	Yes	Yes	Yes	Yes

California Safe Drinking Water and Toxic Enforcement Act (Proposition 65)

WARNING

This product can expose you to chemicals including Sulfur dioxide , which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

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Safety Data Sheet

Material Name: SULFUR DIOXIDE **SDS ID: MAT22290**

Sulfur dioxide	**7446-09-5**
Repro/Dev. Tox	developmental toxicity , 7/29/2011

Component Analysis - Inventory
Sulfur dioxide (7446-09-5)

US	CA	AU	CN	EU	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2
Yes	DSL	Yes	Yes	EIN	Yes	Yes	Yes	No

KR - REACH CCA	MX	NZ	PH	TH-TECI	TW, CN	VN (Draft)
No	Yes	Yes	Yes	Yes	Yes	Yes

Section 16 - OTHER INFORMATION

NFPA Ratings
Health: 3 Fire: 0 Instability: 0
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

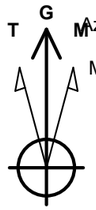
Summary of Changes
SDS update: 02/10/2016

Key / Legend
ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CA/MA/MN/NJ/PA - California/Massachusetts/Minnesota/New Jersey/Pennsylvania*; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CFR - Code of Federal Regulations (US); CLP - Classification, Labelling, and Packaging; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSD - Dangerous Substance Directive; DSL - Domestic Substances List; EC – European Commission; EEC - European Economic Community; EIN - European Inventory of (Existing Commercial Chemical Substances); EINECS - European Inventory of Existing Commercial Chemical Substances; ENCS - Japan Existing and New Chemical Substance Inventory; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; F - Background (for Venezuela Biological Exposure Indices); IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; ISHL - Japan Industrial Safety and Health Law; IUCLID - International Uniform Chemical Information Database; JP - Japan; Kow - Octanol/water partition coefficient; KR KECI Annex 1 - Korea Existing Chemicals Inventory (KECI) / Korea Existing Chemicals List (KECL); KR KECI Annex 2 - Korea Existing Chemicals Inventory (KECI) / Korea Existing Chemicals List (KECL) , KR - Korea; LD50/LC50 - Lethal Dose/ Lethal Concentration; KR REACH CCA - Korea Registration and Evaluation of Chemical Substances Chemical Control Act; LEL - Lower Explosive Limit; LLV - Level Limit Value; LOLI - List Of LIsts™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; MX – Mexico; Ne- Non-specific; NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; Nq - Non-quantitative; NSL – Non-Domestic Substance List (Canada); NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PEL- Permissible Exposure Limit; PH - Philippines; RCRA - Resource Conservation and Recovery Act; REACH- Registration, Evaluation, Authorisation, and restriction of Chemicals; RID - European Rail Transport; SARA - Superfund Amendments and Reauthorization Act; Sc - Semi-quantitative; STEL - Short-term Exposure Limit;

PERMIAN RESOURCES

PROJECT DETAILS: (SP) LEA	
Geodetic System:	US State Plane 1983
Datum:	North American Datum 1983
Ellipsoid:	GRS 1980
Zone:	New Mexico Eastern Zone
System Datum:	Mean Sea Level

Project:	(SP) LEA
Site:	MOZZARELLA
Well:	MOZZARELLA FED COM 653H
Wellbore:	OWB
Design:	PWP0



Azimuths to Grid North
True North: -0.34°
Magnetic North: 7.48°

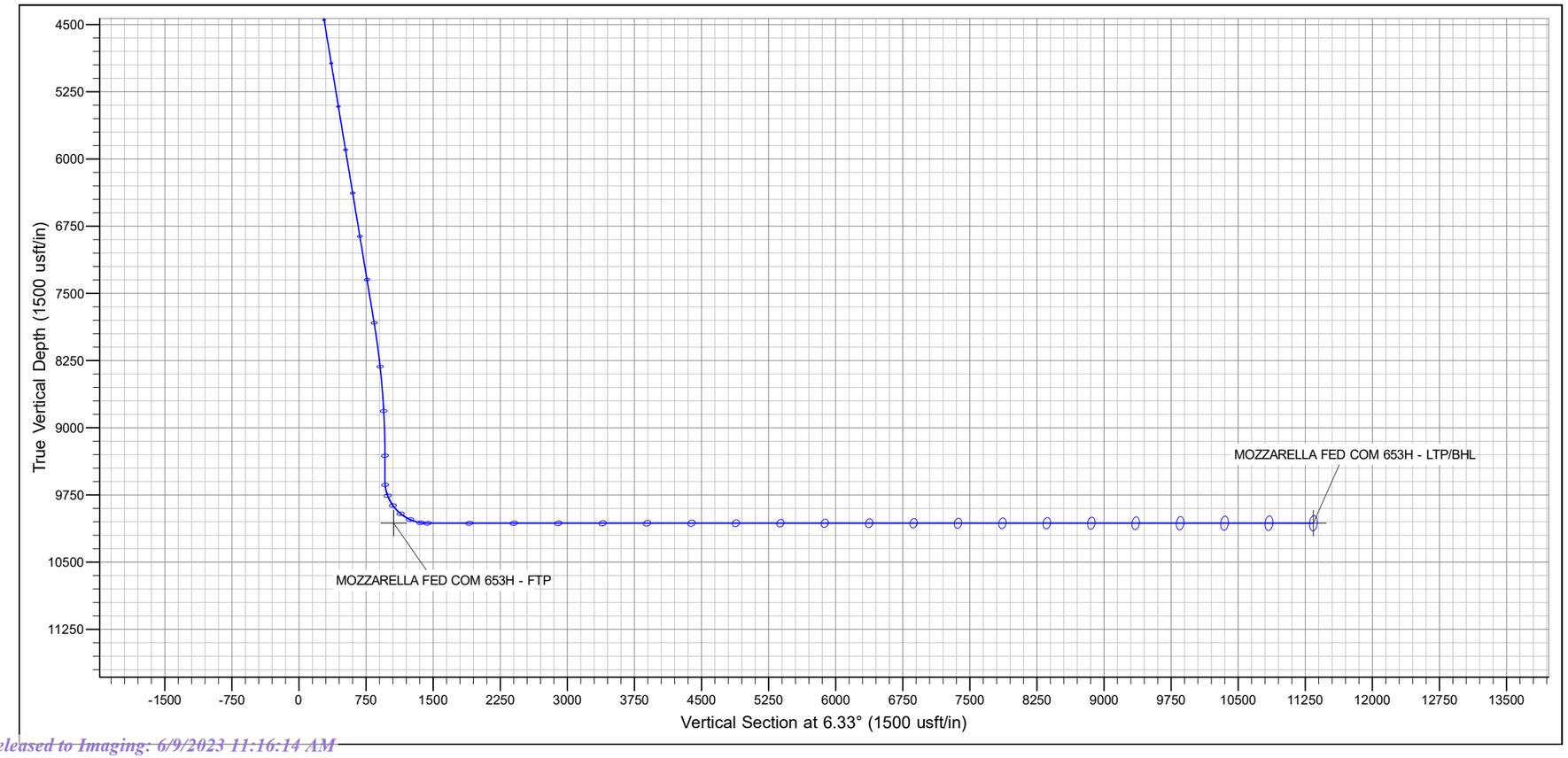
Magnetic Field
Strength: 48889.9nT
Dip Angle: 60.39°
Date: 12/31/2009
Model: IGRF200510

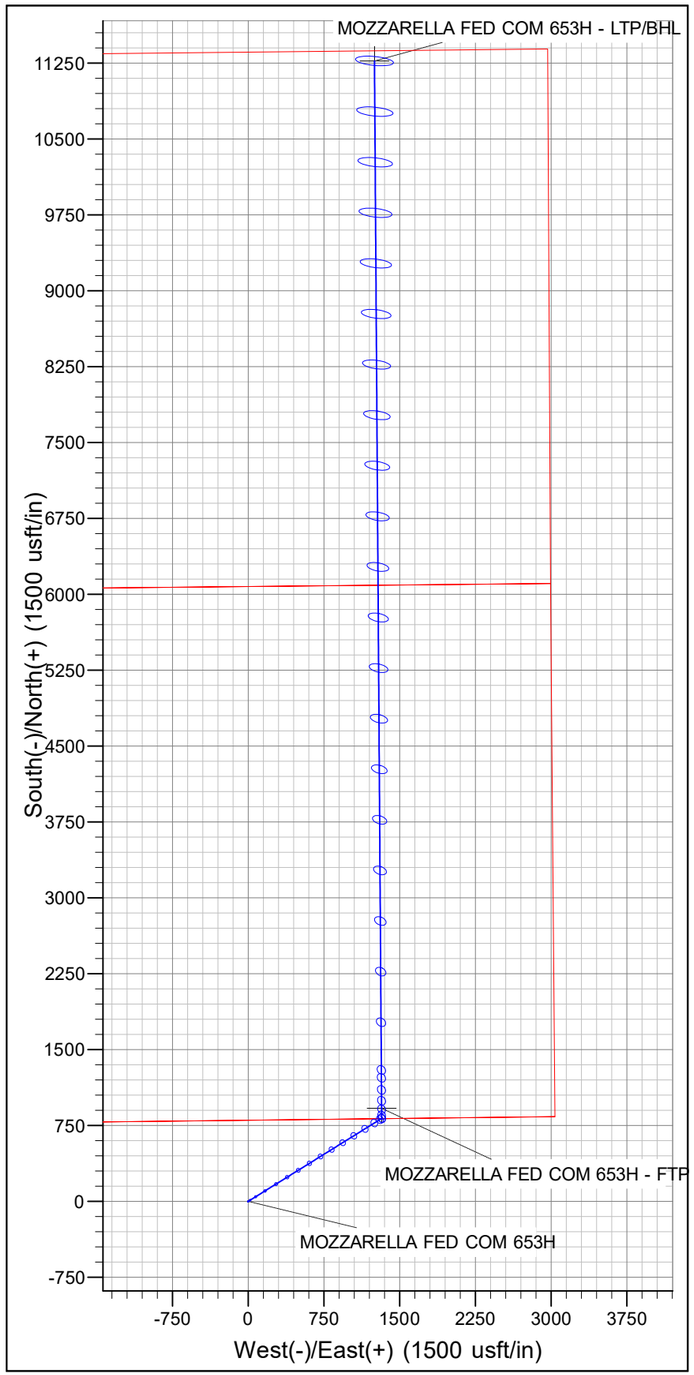
SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	2000.0	0.00	0.00	2000.0	0.0	0.0	0.00	0.00	0.0	
3	3500.0	15.00	58.20	3482.9	102.9	165.9	1.00	58.20	120.5	
4	8000.0	15.00	58.20	7829.6	716.6	1155.8	0.00	0.00	839.7	
5	9500.0	0.00	0.00	9312.5	819.5	1321.7	1.00	180.00	960.2	
6	9776.0	0.00	0.00	9588.5	819.5	1321.7	0.00	0.00	960.2	
7	10526.0	90.00	359.61	10066.0	1297.0	1318.5	12.00	359.61	1434.4	
8	10527.0	90.02	359.61	10066.0	1298.0	1318.5	2.00	0.00	1435.4	
9	10528.0	90.00	359.61	10066.0	1299.0	1318.4	2.00	-179.45	1436.4	
10	20500.7	90.00	359.61	10066.0	11271.4	1250.5	0.00	0.00	11340.5	MOZZARELLA FED COM 653H - LTP/BHL

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
MOZZARELLA FED COM 653H - FTP	10066.0	919.0	1321.8	514816.78	738684.87	32° 24' 49.232 N	103° 41' 37.760 W
MOZZARELLA FED COM 653H - LTP/BHL	10066.0	11271.4	1250.5	525169.14	738613.61	32° 26' 31.674 N	103° 41' 37.868 W





NEW MEXICO

(SP) LEA
MOZZARELLA
MOZZARELLA FED COM 653H

OWB

Plan: PWP0

Standard Planning Report - Geographic

22 February, 2023

Permian Resources

Planning Report - Geographic

Database:	Compass	**Local Co-ordinate Reference:**	Well MOZZARELLA FED COM 653H
Company:	NEW MEXICO	**TVD Reference:**	GL @ 3698.7usft
Project:	(SP) LEA	**MD Reference:**	GL @ 3698.7usft
Site:	MOZZARELLA	**North Reference:**	Grid
Well:	MOZZARELLA FED COM 653H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OWB		
Design:	PWP0		

Project (SP) LEA

Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site MOZZARELLA

Site Position:		**Northing:**	513,897.78 usft	**Latitude:**	32° 24' 40.216 N
From:	Map	**Easting:**	737,363.08 usft	**Longitude:**	103° 41' 53.243 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.34 °

Well MOZZARELLA FED COM 653H

Well Position	**+N/-S**	0.0 usft	**Northing:**	513,897.78 usft	**Latitude:**	32° 24' 40.216 N
	+E/-W	0.0 usft	**Easting:**	737,363.08 usft	**Longitude:**	103° 41' 53.243 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**		**Ground Level:**	3,698.7 usft

Wellbore OWB

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	12/31/2009	7.82	60.39	48,889.94425397

Design PWP0

Audit Notes:

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

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	6.33

Plan Survey Tool Program **Date** 2/22/2023

	Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.0	20,500.7	PWP0 (OWB)	MWD OWSG_Rev2_ MWD - Standa	

Permian Resources

Planning Report - Geographic

Database:	Compass	**Local Co-ordinate Reference:**	Well MOZZARELLA FED COM 653H
Company:	NEW MEXICO	**TVD Reference:**	GL @ 3698.7usft
Project:	(SP) LEA	**MD Reference:**	GL @ 3698.7usft
Site:	MOZZARELLA	**North Reference:**	Grid
Well:	MOZZARELLA FED COM 653H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OWB		
Design:	PWP0		

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
3,500.0	15.00	58.20	3,482.9	102.9	165.9	1.00	1.00	0.00	58.20	
8,000.0	15.00	58.20	7,829.6	716.6	1,155.8	0.00	0.00	0.00	0.00	
9,500.0	0.00	0.00	9,312.5	819.5	1,321.7	1.00	-1.00	0.00	180.00	
9,776.0	0.00	0.00	9,588.5	819.5	1,321.7	0.00	0.00	0.00	0.00	
10,526.0	90.00	359.61	10,066.0	1,297.0	1,318.5	12.00	12.00	0.00	359.61	
10,527.0	90.02	359.61	10,066.0	1,298.0	1,318.5	2.00	2.00	0.00	0.00	
10,528.0	90.00	359.61	10,066.0	1,299.0	1,318.4	2.00	-2.00	-0.02	-179.45	
20,500.7	90.00	359.61	10,066.0	11,271.4	1,250.5	0.00	0.00	0.00	0.00	MOZZARELLA FED C

Permian Resources

Planning Report - Geographic

Database:	Compass	**Local Co-ordinate Reference:**	Well MOZZARELLA FED COM 653H
Company:	NEW MEXICO	**TVD Reference:**	GL @ 3698.7usft
Project:	(SP) LEA	**MD Reference:**	GL @ 3698.7usft
Site:	MOZZARELLA	**North Reference:**	Grid
Well:	MOZZARELLA FED COM 653H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OWB		
Design:	PWP0		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.0	0.00	0.00	0.0	0.0	0.0	513,897.78	737,363.08	32° 24' 40.216 N	103° 41' 53.243 W
100.0	0.00	0.00	100.0	0.0	0.0	513,897.78	737,363.08	32° 24' 40.216 N	103° 41' 53.243 W
200.0	0.00	0.00	200.0	0.0	0.0	513,897.78	737,363.08	32° 24' 40.216 N	103° 41' 53.243 W
300.0	0.00	0.00	300.0	0.0	0.0	513,897.78	737,363.08	32° 24' 40.216 N	103° 41' 53.243 W
400.0	0.00	0.00	400.0	0.0	0.0	513,897.78	737,363.08	32° 24' 40.216 N	103° 41' 53.243 W
500.0	0.00	0.00	500.0	0.0	0.0	513,897.78	737,363.08	32° 24' 40.216 N	103° 41' 53.243 W
600.0	0.00	0.00	600.0	0.0	0.0	513,897.78	737,363.08	32° 24' 40.216 N	103° 41' 53.243 W
700.0	0.00	0.00	700.0	0.0	0.0	513,897.78	737,363.08	32° 24' 40.216 N	103° 41' 53.243 W
800.0	0.00	0.00	800.0	0.0	0.0	513,897.78	737,363.08	32° 24' 40.216 N	103° 41' 53.243 W
900.0	0.00	0.00	900.0	0.0	0.0	513,897.78	737,363.08	32° 24' 40.216 N	103° 41' 53.243 W
1,000.0	0.00	0.00	1,000.0	0.0	0.0	513,897.78	737,363.08	32° 24' 40.216 N	103° 41' 53.243 W
1,100.0	0.00	0.00	1,100.0	0.0	0.0	513,897.78	737,363.08	32° 24' 40.216 N	103° 41' 53.243 W
1,200.0	0.00	0.00	1,200.0	0.0	0.0	513,897.78	737,363.08	32° 24' 40.216 N	103° 41' 53.243 W
1,300.0	0.00	0.00	1,300.0	0.0	0.0	513,897.78	737,363.08	32° 24' 40.216 N	103° 41' 53.243 W
1,400.0	0.00	0.00	1,400.0	0.0	0.0	513,897.78	737,363.08	32° 24' 40.216 N	103° 41' 53.243 W
1,500.0	0.00	0.00	1,500.0	0.0	0.0	513,897.78	737,363.08	32° 24' 40.216 N	103° 41' 53.243 W
1,600.0	0.00	0.00	1,600.0	0.0	0.0	513,897.78	737,363.08	32° 24' 40.216 N	103° 41' 53.243 W
1,700.0	0.00	0.00	1,700.0	0.0	0.0	513,897.78	737,363.08	32° 24' 40.216 N	103° 41' 53.243 W
1,800.0	0.00	0.00	1,800.0	0.0	0.0	513,897.78	737,363.08	32° 24' 40.216 N	103° 41' 53.243 W
1,900.0	0.00	0.00	1,900.0	0.0	0.0	513,897.78	737,363.08	32° 24' 40.216 N	103° 41' 53.243 W
2,000.0	0.00	0.00	2,000.0	0.0	0.0	513,897.78	737,363.08	32° 24' 40.216 N	103° 41' 53.243 W
2,100.0	1.00	58.20	2,100.0	0.5	0.7	513,898.24	737,363.82	32° 24' 40.221 N	103° 41' 53.234 W
2,200.0	2.00	58.20	2,200.0	1.8	3.0	513,899.62	737,366.04	32° 24' 40.234 N	103° 41' 53.208 W
2,300.0	3.00	58.20	2,299.9	4.1	6.7	513,901.92	737,369.75	32° 24' 40.257 N	103° 41' 53.164 W
2,400.0	4.00	58.20	2,399.7	7.4	11.9	513,905.14	737,374.94	32° 24' 40.288 N	103° 41' 53.104 W
2,500.0	5.00	58.20	2,499.4	11.5	18.5	513,909.27	737,381.61	32° 24' 40.329 N	103° 41' 53.026 W
2,600.0	6.00	58.20	2,598.9	16.5	26.7	513,914.32	737,389.75	32° 24' 40.378 N	103° 41' 52.930 W
2,700.0	7.00	58.20	2,698.3	22.5	36.3	513,920.29	737,399.37	32° 24' 40.437 N	103° 41' 52.818 W
2,800.0	8.00	58.20	2,797.4	29.4	47.4	513,927.16	737,410.47	32° 24' 40.504 N	103° 41' 52.688 W
2,900.0	9.00	58.20	2,896.3	37.2	60.0	513,934.95	737,423.03	32° 24' 40.581 N	103° 41' 52.541 W
3,000.0	10.00	58.20	2,994.9	45.9	74.0	513,943.65	737,437.05	32° 24' 40.666 N	103° 41' 52.376 W
3,100.0	11.00	58.20	3,093.2	55.5	89.5	513,953.25	737,452.54	32° 24' 40.760 N	103° 41' 52.195 W
3,200.0	12.00	58.20	3,191.2	66.0	106.4	513,963.76	737,469.49	32° 24' 40.863 N	103° 41' 51.997 W
3,300.0	13.00	58.20	3,288.9	77.4	124.8	513,975.16	737,487.88	32° 24' 40.975 N	103° 41' 51.781 W
3,400.0	14.00	58.20	3,386.1	89.7	144.6	513,987.46	737,507.72	32° 24' 41.095 N	103° 41' 51.549 W
3,500.0	15.00	58.20	3,482.9	102.9	165.9	514,000.66	737,529.00	32° 24' 41.225 N	103° 41' 51.300 W
3,600.0	15.00	58.20	3,579.5	116.5	187.9	514,014.30	737,551.00	32° 24' 41.358 N	103° 41' 51.042 W
3,700.0	15.00	58.20	3,676.1	130.2	209.9	514,027.94	737,572.99	32° 24' 41.492 N	103° 41' 50.785 W
3,800.0	15.00	58.20	3,772.7	143.8	231.9	514,041.57	737,594.99	32° 24' 41.626 N	103° 41' 50.527 W
3,900.0	15.00	58.20	3,869.3	157.4	253.9	514,055.21	737,616.99	32° 24' 41.759 N	103° 41' 50.270 W
4,000.0	15.00	58.20	3,965.9	171.1	275.9	514,068.85	737,638.98	32° 24' 41.893 N	103° 41' 50.012 W
4,100.0	15.00	58.20	4,062.5	184.7	297.9	514,082.49	737,660.98	32° 24' 42.026 N	103° 41' 49.755 W
4,200.0	15.00	58.20	4,159.1	198.3	319.9	514,096.13	737,682.98	32° 24' 42.160 N	103° 41' 49.497 W
4,300.0	15.00	58.20	4,255.7	212.0	341.9	514,109.77	737,704.97	32° 24' 42.294 N	103° 41' 49.240 W
4,400.0	15.00	58.20	4,352.2	225.6	363.9	514,123.41	737,726.97	32° 24' 42.427 N	103° 41' 48.982 W
4,500.0	15.00	58.20	4,448.8	239.3	385.9	514,137.04	737,748.97	32° 24' 42.561 N	103° 41' 48.724 W
4,600.0	15.00	58.20	4,545.4	252.9	407.9	514,150.68	737,770.96	32° 24' 42.695 N	103° 41' 48.467 W
4,700.0	15.00	58.20	4,642.0	266.5	429.9	514,164.32	737,792.96	32° 24' 42.828 N	103° 41' 48.209 W
4,800.0	15.00	58.20	4,738.6	280.2	451.9	514,177.96	737,814.96	32° 24' 42.962 N	103° 41' 47.952 W
4,900.0	15.00	58.20	4,835.2	293.8	473.9	514,191.60	737,836.96	32° 24' 43.096 N	103° 41' 47.694 W
5,000.0	15.00	58.20	4,931.8	307.5	495.9	514,205.24	737,858.95	32° 24' 43.229 N	103° 41' 47.437 W
5,100.0	15.00	58.20	5,028.4	321.1	517.9	514,218.88	737,880.95	32° 24' 43.363 N	103° 41' 47.179 W
5,200.0	15.00	58.20	5,125.0	334.7	539.9	514,232.51	737,902.95	32° 24' 43.497 N	103° 41' 46.922 W
5,300.0	15.00	58.20	5,221.6	348.4	561.9	514,246.15	737,924.94	32° 24' 43.630 N	103° 41' 46.664 W
5,400.0	15.00	58.20	5,318.2	362.0	583.9	514,259.79	737,946.94	32° 24' 43.764 N	103° 41' 46.407 W

Permian Resources

Planning Report - Geographic

Database:	Compass	**Local Co-ordinate Reference:**	Well MOZZARELLA FED COM 653H
Company:	NEW MEXICO	**TVD Reference:**	GL @ 3698.7usft
Project:	(SP) LEA	**MD Reference:**	GL @ 3698.7usft
Site:	MOZZARELLA	**North Reference:**	Grid
Well:	MOZZARELLA FED COM 653H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OWB		
Design:	PWP0		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
5,500.0	15.00	58.20	5,414.8	375.6	605.9	514,273.43	737,968.94	32° 24' 43.898 N	103° 41' 46.149 W
5,600.0	15.00	58.20	5,511.4	389.3	627.9	514,287.07	737,990.93	32° 24' 44.031 N	103° 41' 45.891 W
5,700.0	15.00	58.20	5,607.9	402.9	649.9	514,300.71	738,012.93	32° 24' 44.165 N	103° 41' 45.634 W
5,800.0	15.00	58.20	5,704.5	416.6	671.8	514,314.35	738,034.93	32° 24' 44.299 N	103° 41' 45.376 W
5,900.0	15.00	58.20	5,801.1	430.2	693.8	514,327.98	738,056.92	32° 24' 44.432 N	103° 41' 45.119 W
6,000.0	15.00	58.20	5,897.7	443.8	715.8	514,341.62	738,078.92	32° 24' 44.566 N	103° 41' 44.861 W
6,100.0	15.00	58.20	5,994.3	457.5	737.8	514,355.26	738,100.92	32° 24' 44.700 N	103° 41' 44.604 W
6,200.0	15.00	58.20	6,090.9	471.1	759.8	514,368.90	738,122.91	32° 24' 44.833 N	103° 41' 44.346 W
6,300.0	15.00	58.20	6,187.5	484.8	781.8	514,382.54	738,144.91	32° 24' 44.967 N	103° 41' 44.089 W
6,400.0	15.00	58.20	6,284.1	498.4	803.8	514,396.18	738,166.91	32° 24' 45.101 N	103° 41' 43.831 W
6,500.0	15.00	58.20	6,380.7	512.0	825.8	514,409.82	738,188.90	32° 24' 45.234 N	103° 41' 43.574 W
6,600.0	15.00	58.20	6,477.3	525.7	847.8	514,423.45	738,210.90	32° 24' 45.368 N	103° 41' 43.316 W
6,700.0	15.00	58.20	6,573.9	539.3	869.8	514,437.09	738,232.90	32° 24' 45.502 N	103° 41' 43.059 W
6,800.0	15.00	58.20	6,670.5	553.0	891.8	514,450.73	738,254.89	32° 24' 45.635 N	103° 41' 42.801 W
6,900.0	15.00	58.20	6,767.1	566.6	913.8	514,464.37	738,276.89	32° 24' 45.769 N	103° 41' 42.543 W
7,000.0	15.00	58.20	6,863.7	580.2	935.8	514,478.01	738,298.89	32° 24' 45.903 N	103° 41' 42.286 W
7,100.0	15.00	58.20	6,960.2	593.9	957.8	514,491.65	738,320.88	32° 24' 46.036 N	103° 41' 42.028 W
7,200.0	15.00	58.20	7,056.8	607.5	979.8	514,505.29	738,342.88	32° 24' 46.170 N	103° 41' 41.771 W
7,300.0	15.00	58.20	7,153.4	621.1	1,001.8	514,518.92	738,364.88	32° 24' 46.304 N	103° 41' 41.513 W
7,400.0	15.00	58.20	7,250.0	634.8	1,023.8	514,532.56	738,386.88	32° 24' 46.437 N	103° 41' 41.256 W
7,500.0	15.00	58.20	7,346.6	648.4	1,045.8	514,546.20	738,408.87	32° 24' 46.571 N	103° 41' 40.998 W
7,600.0	15.00	58.20	7,443.2	662.1	1,067.8	514,559.84	738,430.87	32° 24' 46.705 N	103° 41' 40.741 W
7,700.0	15.00	58.20	7,539.8	675.7	1,089.8	514,573.48	738,452.87	32° 24' 46.838 N	103° 41' 40.483 W
7,800.0	15.00	58.20	7,636.4	689.3	1,111.8	514,587.12	738,474.86	32° 24' 46.972 N	103° 41' 40.225 W
7,900.0	15.00	58.20	7,733.0	703.0	1,133.8	514,600.76	738,496.86	32° 24' 47.105 N	103° 41' 39.968 W
8,000.0	15.00	58.20	7,829.6	716.6	1,155.8	514,614.40	738,518.86	32° 24' 47.239 N	103° 41' 39.710 W
8,100.0	14.00	58.20	7,926.4	729.8	1,177.1	514,627.59	738,540.14	32° 24' 47.368 N	103° 41' 39.461 W
8,200.0	13.00	58.20	8,023.6	742.1	1,196.9	514,639.89	738,559.98	32° 24' 47.489 N	103° 41' 39.229 W
8,300.0	12.00	58.20	8,121.3	753.5	1,215.3	514,651.30	738,578.37	32° 24' 47.601 N	103° 41' 39.014 W
8,400.0	11.00	58.20	8,219.2	764.0	1,232.2	514,661.80	738,595.31	32° 24' 47.704 N	103° 41' 38.815 W
8,500.0	10.00	58.20	8,317.6	773.6	1,247.7	514,671.40	738,610.80	32° 24' 47.798 N	103° 41' 38.634 W
8,600.0	9.00	58.20	8,416.2	782.3	1,261.8	514,680.10	738,624.83	32° 24' 47.883 N	103° 41' 38.470 W
8,700.0	8.00	58.20	8,515.1	790.1	1,274.3	514,687.89	738,637.39	32° 24' 47.959 N	103° 41' 38.323 W
8,800.0	7.00	58.20	8,614.2	797.0	1,285.4	514,694.77	738,648.49	32° 24' 48.027 N	103° 41' 38.193 W
8,900.0	6.00	58.20	8,713.6	803.0	1,295.0	514,700.73	738,658.11	32° 24' 48.085 N	103° 41' 38.080 W
9,000.0	5.00	58.20	8,813.1	808.0	1,303.2	514,705.79	738,666.25	32° 24' 48.135 N	103° 41' 37.985 W
9,100.0	4.00	58.20	8,912.8	812.1	1,309.8	514,709.92	738,672.92	32° 24' 48.175 N	103° 41' 37.907 W
9,200.0	3.00	58.20	9,012.6	815.4	1,315.0	514,713.14	738,678.11	32° 24' 48.207 N	103° 41' 37.846 W
9,300.0	2.00	58.20	9,112.5	817.7	1,318.7	514,715.44	738,681.82	32° 24' 48.229 N	103° 41' 37.802 W
9,400.0	1.00	58.20	9,212.5	819.0	1,321.0	514,716.82	738,684.04	32° 24' 48.243 N	103° 41' 37.776 W
9,500.0	0.00	0.00	9,312.5	819.5	1,321.7	514,717.28	738,684.78	32° 24' 48.247 N	103° 41' 37.768 W
9,600.0	0.00	0.00	9,412.5	819.5	1,321.7	514,717.28	738,684.78	32° 24' 48.247 N	103° 41' 37.768 W
9,700.0	0.00	0.00	9,512.5	819.5	1,321.7	514,717.28	738,684.78	32° 24' 48.247 N	103° 41' 37.768 W
9,776.0	0.00	0.00	9,588.5	819.5	1,321.7	514,717.28	738,684.78	32° 24' 48.247 N	103° 41' 37.768 W
9,800.0	2.88	359.61	9,612.5	820.1	1,321.7	514,717.88	738,684.78	32° 24' 48.253 N	103° 41' 37.768 W
9,900.0	14.88	359.61	9,711.1	835.5	1,321.6	514,733.28	738,684.68	32° 24' 48.406 N	103° 41' 37.768 W
10,000.0	26.88	359.61	9,804.4	871.1	1,321.4	514,768.85	738,684.43	32° 24' 48.758 N	103° 41' 37.768 W
10,100.0	38.88	359.61	9,888.2	925.3	1,321.0	514,823.03	738,684.06	32° 24' 49.294 N	103° 41' 37.769 W
10,200.0	50.88	359.61	9,958.9	995.7	1,320.5	514,893.46	738,683.59	32° 24' 49.991 N	103° 41' 37.769 W
10,300.0	62.87	359.61	10,013.5	1,079.3	1,319.9	514,977.05	738,683.02	32° 24' 50.818 N	103° 41' 37.770 W
10,400.0	74.87	359.61	10,049.5	1,172.4	1,319.3	515,070.16	738,682.38	32° 24' 51.739 N	103° 41' 37.771 W
10,500.0	86.87	359.61	10,065.3	1,270.9	1,318.6	515,168.71	738,681.71	32° 24' 52.715 N	103° 41' 37.772 W
10,526.0	90.00	359.61	10,066.0	1,297.0	1,318.5	515,194.75	738,681.53	32° 24' 52.972 N	103° 41' 37.772 W
10,527.0	90.02	359.61	10,066.0	1,298.0	1,318.5	515,195.75	738,681.53	32° 24' 52.982 N	103° 41' 37.772 W
10,528.0	90.00	359.61	10,066.0	1,299.0	1,318.4	515,196.75	738,681.52	32° 24' 52.992 N	103° 41' 37.772 W

Permian Resources

Planning Report - Geographic

Database:	Compass	**Local Co-ordinate Reference:**	Well MOZZARELLA FED COM 653H
Company:	NEW MEXICO	**TVD Reference:**	GL @ 3698.7usft
Project:	(SP) LEA	**MD Reference:**	GL @ 3698.7usft
Site:	MOZZARELLA	**North Reference:**	Grid
Well:	MOZZARELLA FED COM 653H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OWB		
Design:	PWP0		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
10,600.0	90.00	359.61	10,066.0	1,370.9	1,318.0	515,268.69	738,681.03	32° 24' 53.704 N	103° 41' 37.773 W
10,700.0	90.00	359.61	10,066.0	1,470.9	1,317.3	515,368.69	738,680.35	32° 24' 54.693 N	103° 41' 37.774 W
10,800.0	90.00	359.61	10,066.0	1,570.9	1,316.6	515,468.69	738,679.67	32° 24' 55.683 N	103° 41' 37.775 W
10,900.0	90.00	359.61	10,066.0	1,670.9	1,315.9	515,568.69	738,678.99	32° 24' 56.673 N	103° 41' 37.776 W
11,000.0	90.00	359.61	10,066.0	1,770.9	1,315.2	515,668.68	738,678.31	32° 24' 57.662 N	103° 41' 37.777 W
11,100.0	90.00	359.61	10,066.0	1,870.9	1,314.5	515,768.68	738,677.63	32° 24' 58.652 N	103° 41' 37.778 W
11,200.0	90.00	359.61	10,066.0	1,970.9	1,313.9	515,868.68	738,676.94	32° 24' 59.641 N	103° 41' 37.779 W
11,300.0	90.00	359.61	10,066.0	2,070.9	1,313.2	515,968.68	738,676.26	32° 25' 0.631 N	103° 41' 37.780 W
11,400.0	90.00	359.61	10,066.0	2,170.9	1,312.5	516,068.67	738,675.58	32° 25' 1.620 N	103° 41' 37.781 W
11,500.0	90.00	359.61	10,066.0	2,270.9	1,311.8	516,168.67	738,674.90	32° 25' 2.610 N	103° 41' 37.782 W
11,600.0	90.00	359.61	10,066.0	2,370.9	1,311.1	516,268.67	738,674.22	32° 25' 3.599 N	103° 41' 37.783 W
11,700.0	90.00	359.61	10,066.0	2,470.9	1,310.5	516,368.67	738,673.54	32° 25' 4.589 N	103° 41' 37.784 W
11,800.0	90.00	359.61	10,066.0	2,570.9	1,309.8	516,468.66	738,672.86	32° 25' 5.578 N	103° 41' 37.784 W
11,900.0	90.00	359.61	10,066.0	2,670.9	1,309.1	516,568.66	738,672.18	32° 25' 6.568 N	103° 41' 37.785 W
12,000.0	90.00	359.61	10,066.0	2,770.9	1,308.4	516,668.66	738,671.50	32° 25' 7.557 N	103° 41' 37.786 W
12,100.0	90.00	359.61	10,066.0	2,870.9	1,307.7	516,768.66	738,670.82	32° 25' 8.547 N	103° 41' 37.787 W
12,200.0	90.00	359.61	10,066.0	2,970.9	1,307.1	516,868.65	738,670.13	32° 25' 9.536 N	103° 41' 37.788 W
12,300.0	90.00	359.61	10,066.0	3,070.9	1,306.4	516,968.65	738,669.45	32° 25' 10.526 N	103° 41' 37.789 W
12,400.0	90.00	359.61	10,066.0	3,170.9	1,305.7	517,068.65	738,668.77	32° 25' 11.515 N	103° 41' 37.790 W
12,500.0	90.00	359.61	10,066.0	3,270.9	1,305.0	517,168.65	738,668.09	32° 25' 12.505 N	103° 41' 37.791 W
12,600.0	90.00	359.61	10,066.0	3,370.9	1,304.3	517,268.64	738,667.41	32° 25' 13.495 N	103° 41' 37.792 W
12,700.0	90.00	359.61	10,066.0	3,470.9	1,303.7	517,368.64	738,666.73	32° 25' 14.484 N	103° 41' 37.793 W
12,800.0	90.00	359.61	10,066.0	3,570.9	1,303.0	517,468.64	738,666.05	32° 25' 15.474 N	103° 41' 37.794 W
12,900.0	90.00	359.61	10,066.0	3,670.9	1,302.3	517,568.64	738,665.37	32° 25' 16.463 N	103° 41' 37.795 W
13,000.0	90.00	359.61	10,066.0	3,770.9	1,301.6	517,668.63	738,664.69	32° 25' 17.453 N	103° 41' 37.796 W
13,100.0	90.00	359.61	10,066.0	3,870.8	1,300.9	517,768.63	738,664.01	32° 25' 18.442 N	103° 41' 37.797 W
13,200.0	90.00	359.61	10,066.0	3,970.8	1,300.2	517,868.63	738,663.32	32° 25' 19.432 N	103° 41' 37.798 W
13,300.0	90.00	359.61	10,066.0	4,070.8	1,299.6	517,968.63	738,662.64	32° 25' 20.421 N	103° 41' 37.799 W
13,400.0	90.00	359.61	10,066.0	4,170.8	1,298.9	518,068.62	738,661.96	32° 25' 21.411 N	103° 41' 37.800 W
13,500.0	90.00	359.61	10,066.0	4,270.8	1,298.2	518,168.62	738,661.28	32° 25' 22.400 N	103° 41' 37.801 W
13,600.0	90.00	359.61	10,066.0	4,370.8	1,297.5	518,268.62	738,660.60	32° 25' 23.390 N	103° 41' 37.802 W
13,700.0	90.00	359.61	10,066.0	4,470.8	1,296.8	518,368.62	738,659.92	32° 25' 24.379 N	103° 41' 37.803 W
13,800.0	90.00	359.61	10,066.0	4,570.8	1,296.2	518,468.61	738,659.24	32° 25' 25.369 N	103° 41' 37.804 W
13,900.0	90.00	359.61	10,066.0	4,670.8	1,295.5	518,568.61	738,658.56	32° 25' 26.358 N	103° 41' 37.805 W
14,000.0	90.00	359.61	10,066.0	4,770.8	1,294.8	518,668.61	738,657.88	32° 25' 27.348 N	103° 41' 37.806 W
14,100.0	90.00	359.61	10,066.0	4,870.8	1,294.1	518,768.61	738,657.20	32° 25' 28.337 N	103° 41' 37.807 W
14,200.0	90.00	359.61	10,066.0	4,970.8	1,293.4	518,868.60	738,656.51	32° 25' 29.327 N	103° 41' 37.808 W
14,300.0	90.00	359.61	10,066.0	5,070.8	1,292.8	518,968.60	738,655.83	32° 25' 30.317 N	103° 41' 37.809 W
14,400.0	90.00	359.61	10,066.0	5,170.8	1,292.1	519,068.60	738,655.15	32° 25' 31.306 N	103° 41' 37.810 W
14,500.0	90.00	359.61	10,066.0	5,270.8	1,291.4	519,168.60	738,654.47	32° 25' 32.296 N	103° 41' 37.810 W
14,600.0	90.00	359.61	10,066.0	5,370.8	1,290.7	519,268.59	738,653.79	32° 25' 33.285 N	103° 41' 37.811 W
14,700.0	90.00	359.61	10,066.0	5,470.8	1,290.0	519,368.59	738,653.11	32° 25' 34.275 N	103° 41' 37.812 W
14,800.0	90.00	359.61	10,066.0	5,570.8	1,289.4	519,468.59	738,652.43	32° 25' 35.264 N	103° 41' 37.813 W
14,900.0	90.00	359.61	10,066.0	5,670.8	1,288.7	519,568.59	738,651.75	32° 25' 36.254 N	103° 41' 37.814 W
15,000.0	90.00	359.61	10,066.0	5,770.8	1,288.0	519,668.58	738,651.07	32° 25' 37.243 N	103° 41' 37.815 W
15,100.0	90.00	359.61	10,066.0	5,870.8	1,287.3	519,768.58	738,650.39	32° 25' 38.233 N	103° 41' 37.816 W
15,200.0	90.00	359.61	10,066.0	5,970.8	1,286.6	519,868.58	738,649.70	32° 25' 39.222 N	103° 41' 37.817 W
15,300.0	90.00	359.61	10,066.0	6,070.8	1,285.9	519,968.58	738,649.02	32° 25' 40.212 N	103° 41' 37.818 W
15,400.0	90.00	359.61	10,066.0	6,170.8	1,285.3	520,068.57	738,648.34	32° 25' 41.201 N	103° 41' 37.819 W
15,500.0	90.00	359.61	10,066.0	6,270.8	1,284.6	520,168.57	738,647.66	32° 25' 42.191 N	103° 41' 37.820 W
15,600.0	90.00	359.61	10,066.0	6,370.8	1,283.9	520,268.57	738,646.98	32° 25' 43.180 N	103° 41' 37.821 W
15,700.0	90.00	359.61	10,066.0	6,470.8	1,283.2	520,368.57	738,646.30	32° 25' 44.170 N	103° 41' 37.822 W
15,800.0	90.00	359.61	10,066.0	6,570.8	1,282.5	520,468.56	738,645.62	32° 25' 45.159 N	103° 41' 37.823 W
15,900.0	90.00	359.61	10,066.0	6,670.8	1,281.9	520,568.56	738,644.94	32° 25' 46.149 N	103° 41' 37.824 W
16,000.0	90.00	359.61	10,066.0	6,770.8	1,281.2	520,668.56	738,644.26	32° 25' 47.138 N	103° 41' 37.825 W

Permian Resources

Planning Report - Geographic

Database:	Compass	**Local Co-ordinate Reference:**	Well MOZZARELLA FED COM 653H
Company:	NEW MEXICO	**TVD Reference:**	GL @ 3698.7usft
Project:	(SP) LEA	**MD Reference:**	GL @ 3698.7usft
Site:	MOZZARELLA	**North Reference:**	Grid
Well:	MOZZARELLA FED COM 653H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OWB		
Design:	PWP0		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
16,100.0	90.00	359.61	10,066.0	6,870.8	1,280.5	520,768.56	738,643.58	32° 25' 48.128 N	103° 41' 37.826 W
16,200.0	90.00	359.61	10,066.0	6,970.8	1,279.8	520,868.55	738,642.89	32° 25' 49.118 N	103° 41' 37.827 W
16,300.0	90.00	359.61	10,066.0	7,070.8	1,279.1	520,968.55	738,642.21	32° 25' 50.107 N	103° 41' 37.828 W
16,400.0	90.00	359.61	10,066.0	7,170.8	1,278.5	521,068.55	738,641.53	32° 25' 51.097 N	103° 41' 37.829 W
16,500.0	90.00	359.61	10,066.0	7,270.8	1,277.8	521,168.55	738,640.85	32° 25' 52.086 N	103° 41' 37.830 W
16,600.0	90.00	359.61	10,066.0	7,370.8	1,277.1	521,268.54	738,640.17	32° 25' 53.076 N	103° 41' 37.831 W
16,700.0	90.00	359.61	10,066.0	7,470.8	1,276.4	521,368.54	738,639.49	32° 25' 54.065 N	103° 41' 37.832 W
16,800.0	90.00	359.61	10,066.0	7,570.8	1,275.7	521,468.54	738,638.81	32° 25' 55.055 N	103° 41' 37.833 W
16,900.0	90.00	359.61	10,066.0	7,670.8	1,275.1	521,568.54	738,638.13	32° 25' 56.044 N	103° 41' 37.834 W
17,000.0	90.00	359.61	10,066.0	7,770.8	1,274.4	521,668.53	738,637.45	32° 25' 57.034 N	103° 41' 37.835 W
17,100.0	90.00	359.61	10,066.0	7,870.7	1,273.7	521,768.53	738,636.77	32° 25' 58.023 N	103° 41' 37.836 W
17,200.0	90.00	359.61	10,066.0	7,970.7	1,273.0	521,868.53	738,636.08	32° 25' 59.013 N	103° 41' 37.836 W
17,300.0	90.00	359.61	10,066.0	8,070.7	1,272.3	521,968.53	738,635.40	32° 26' 0.002 N	103° 41' 37.837 W
17,400.0	90.00	359.61	10,066.0	8,170.7	1,271.6	522,068.52	738,634.72	32° 26' 0.992 N	103° 41' 37.838 W
17,500.0	90.00	359.61	10,066.0	8,270.7	1,271.0	522,168.52	738,634.04	32° 26' 1.981 N	103° 41' 37.839 W
17,600.0	90.00	359.61	10,066.0	8,370.7	1,270.3	522,268.52	738,633.36	32° 26' 2.971 N	103° 41' 37.840 W
17,700.0	90.00	359.61	10,066.0	8,470.7	1,269.6	522,368.52	738,632.68	32° 26' 3.960 N	103° 41' 37.841 W
17,800.0	90.00	359.61	10,066.0	8,570.7	1,268.9	522,468.51	738,632.00	32° 26' 4.950 N	103° 41' 37.842 W
17,900.0	90.00	359.61	10,066.0	8,670.7	1,268.2	522,568.51	738,631.32	32° 26' 5.940 N	103° 41' 37.843 W
18,000.0	90.00	359.61	10,066.0	8,770.7	1,267.6	522,668.51	738,630.64	32° 26' 6.929 N	103° 41' 37.844 W
18,100.0	90.00	359.61	10,066.0	8,870.7	1,266.9	522,768.51	738,629.96	32° 26' 7.919 N	103° 41' 37.845 W
18,200.0	90.00	359.61	10,066.0	8,970.7	1,266.2	522,868.50	738,629.27	32° 26' 8.908 N	103° 41' 37.846 W
18,300.0	90.00	359.61	10,066.0	9,070.7	1,265.5	522,968.50	738,628.59	32° 26' 9.898 N	103° 41' 37.847 W
18,400.0	90.00	359.61	10,066.0	9,170.7	1,264.8	523,068.50	738,627.91	32° 26' 10.887 N	103° 41' 37.848 W
18,500.0	90.00	359.61	10,066.0	9,270.7	1,264.2	523,168.50	738,627.23	32° 26' 11.877 N	103° 41' 37.849 W
18,600.0	90.00	359.61	10,066.0	9,370.7	1,263.5	523,268.49	738,626.55	32° 26' 12.866 N	103° 41' 37.850 W
18,700.0	90.00	359.61	10,066.0	9,470.7	1,262.8	523,368.49	738,625.87	32° 26' 13.856 N	103° 41' 37.851 W
18,800.0	90.00	359.61	10,066.0	9,570.7	1,262.1	523,468.49	738,625.19	32° 26' 14.845 N	103° 41' 37.852 W
18,900.0	90.00	359.61	10,066.0	9,670.7	1,261.4	523,568.49	738,624.51	32° 26' 15.835 N	103° 41' 37.853 W
19,000.0	90.00	359.61	10,066.0	9,770.7	1,260.7	523,668.48	738,623.83	32° 26' 16.824 N	103° 41' 37.854 W
19,100.0	90.00	359.61	10,066.0	9,870.7	1,260.1	523,768.48	738,623.15	32° 26' 17.814 N	103° 41' 37.855 W
19,200.0	90.00	359.61	10,066.0	9,970.7	1,259.4	523,868.48	738,622.46	32° 26' 18.803 N	103° 41' 37.856 W
19,300.0	90.00	359.61	10,066.0	10,070.7	1,258.7	523,968.48	738,621.78	32° 26' 19.793 N	103° 41' 37.857 W
19,400.0	90.00	359.61	10,066.0	10,170.7	1,258.0	524,068.47	738,621.10	32° 26' 20.782 N	103° 41' 37.858 W
19,500.0	90.00	359.61	10,066.0	10,270.7	1,257.3	524,168.47	738,620.42	32° 26' 21.772 N	103° 41' 37.859 W
19,600.0	90.00	359.61	10,066.0	10,370.7	1,256.7	524,268.47	738,619.74	32° 26' 22.761 N	103° 41' 37.860 W
19,700.0	90.00	359.61	10,066.0	10,470.7	1,256.0	524,368.46	738,619.06	32° 26' 23.751 N	103° 41' 37.860 W
19,800.0	90.00	359.61	10,066.0	10,570.7	1,255.3	524,468.46	738,618.38	32° 26' 24.741 N	103° 41' 37.861 W
19,900.0	90.00	359.61	10,066.0	10,670.7	1,254.6	524,568.46	738,617.70	32° 26' 25.730 N	103° 41' 37.862 W
20,000.0	90.00	359.61	10,066.0	10,770.7	1,253.9	524,668.46	738,617.02	32° 26' 26.720 N	103° 41' 37.863 W
20,100.0	90.00	359.61	10,066.0	10,870.7	1,253.3	524,768.45	738,616.34	32° 26' 27.709 N	103° 41' 37.864 W
20,200.0	90.00	359.61	10,066.0	10,970.7	1,252.6	524,868.45	738,615.65	32° 26' 28.699 N	103° 41' 37.865 W
20,300.0	90.00	359.61	10,066.0	11,070.7	1,251.9	524,968.45	738,614.97	32° 26' 29.688 N	103° 41' 37.866 W
20,400.0	90.00	359.61	10,066.0	11,170.7	1,251.2	525,068.45	738,614.29	32° 26' 30.678 N	103° 41' 37.867 W
20,500.0	90.00	359.61	10,066.0	11,270.7	1,250.5	525,168.44	738,613.61	32° 26' 31.667 N	103° 41' 37.868 W
20,500.7	90.00	359.61	10,066.0	11,271.4	1,250.5	525,169.14	738,613.61	32° 26' 31.674 N	103° 41' 37.868 W

Permian Resources

Planning Report - Geographic

Database:	Compass	**Local Co-ordinate Reference:**	Well MOZZARELLA FED COM 653H
Company:	NEW MEXICO	**TVD Reference:**	GL @ 3698.7usft
Project:	(SP) LEA	**MD Reference:**	GL @ 3698.7usft
Site:	MOZZARELLA	**North Reference:**	Grid
Well:	MOZZARELLA FED COM 653H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OWB		
Design:	PWP0		

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
MOZZARELLA FED CO - plan hits target center - Point	0.00	0.00	10,066.0	11,271.4	1,250.5	525,169.14	738,613.61	32° 26' 31.674 N	103° 41' 37.868 W
MOZZARELLA FED CO - plan misses target center by 131.7usft at 10200.0usft MD (9958.9 TVD, 995.7 N, 1320.5 E) - Point	0.00	0.00	10,066.0	919.0	1,321.8	514,816.78	738,684.87	32° 24' 49.232 N	103° 41' 37.760 W

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

13-3/8" Surface Casing - CRD intends to Batch set all 13-3/8" casing to a depth approved in the APD. 17-1/2" Surface Holes will be batch drilled by a 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 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 see Illustration 1-1 Below to depth approved in APD.
3. Set packoff and test to 5k psi
4. Offline Cement
5. Install nightcap with Pressure Gauge on wellhead. Nightcap is shown on final wellhead Stack up Illustration #2-2 page 3.
6. Skid Rig to adjacent well to drill Surface hole.
7. Surface casing test will be performed by the 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.

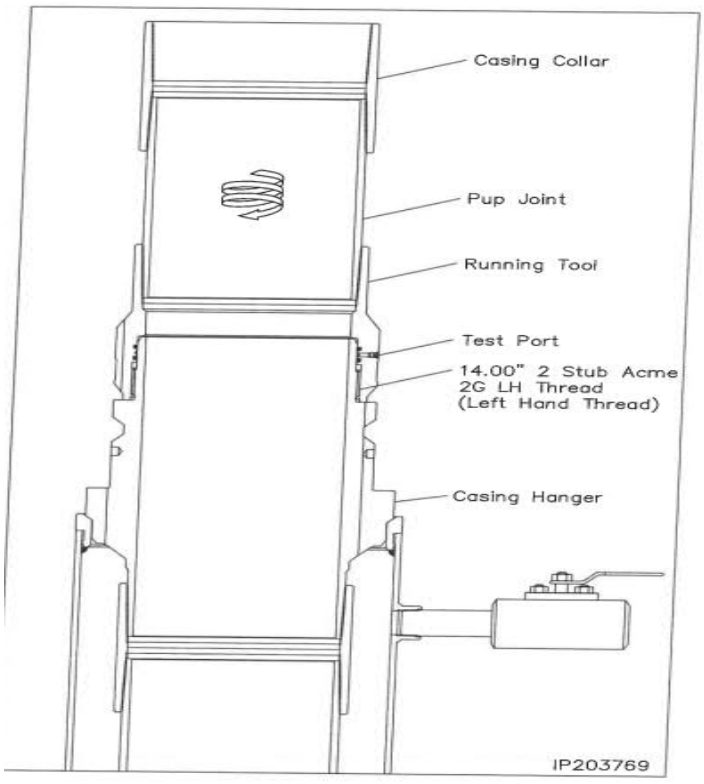


Illustration 1-1

Intermediate Casing – CRD intends to Batch set all intermediate casing strings to a depth approved in the APD, typically set into Lamar. 12-1/4" Intermediate Holes will be batch drilled by the rig. Appropriate notifications will be made prior Testing BOPE, and prior to running/cementing all casing strings.

1. 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 5,000 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.

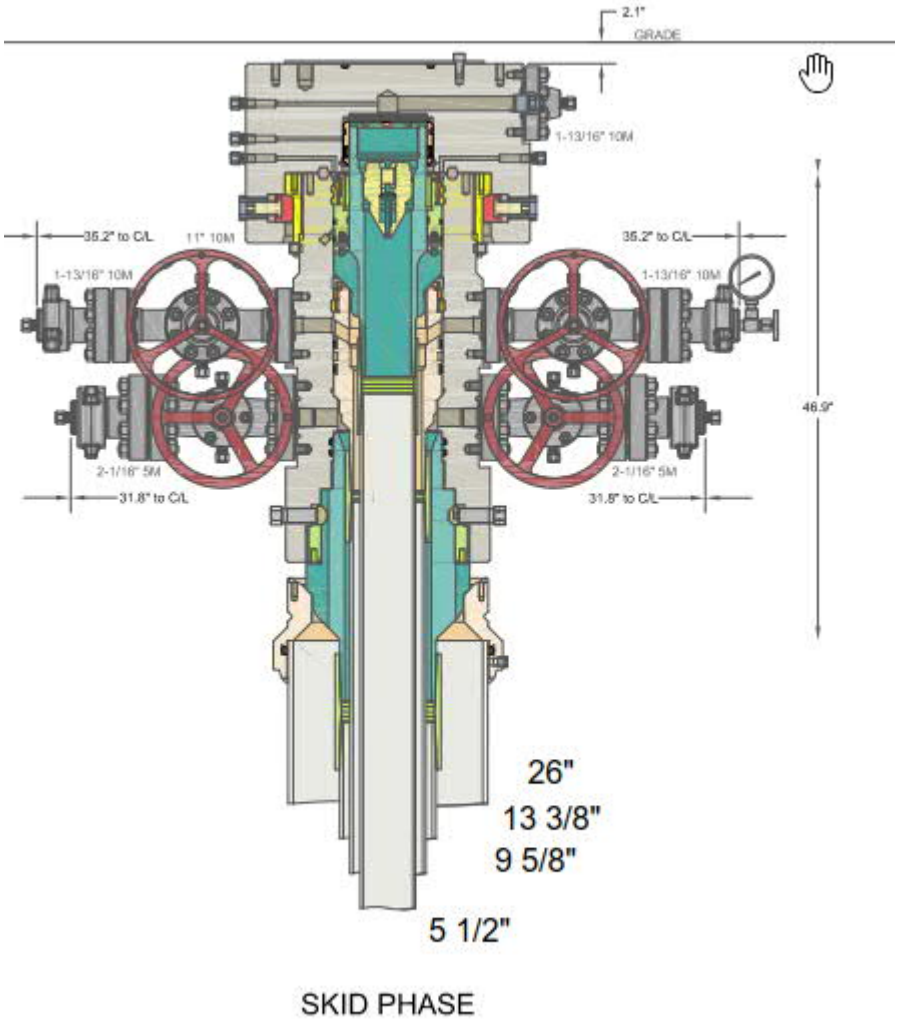


Illustration 2-2

Production Casing – CRD intends to Batch set all Production casings with Rig. 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.

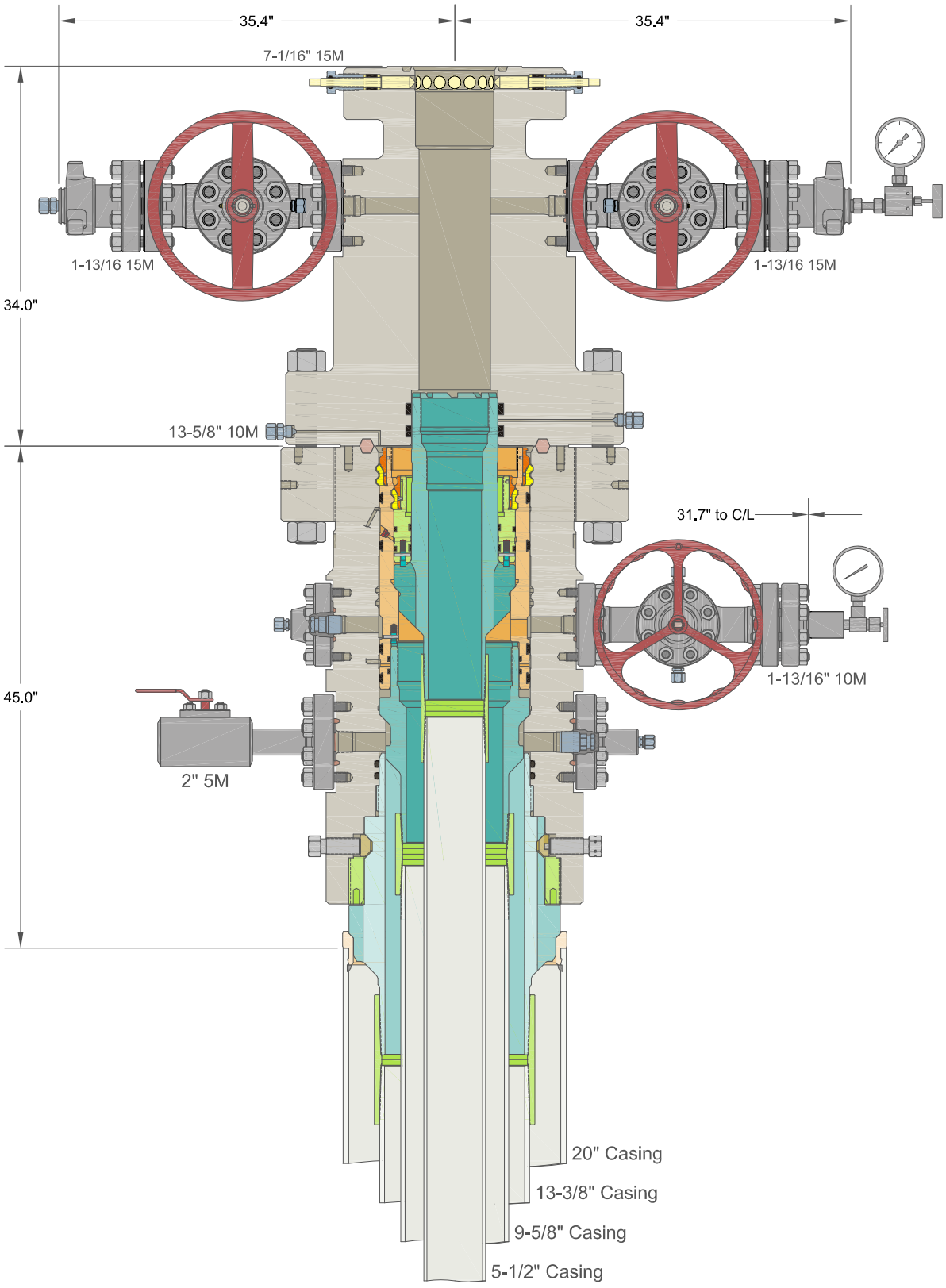
8. Run in with wash tool and wash wellhead area – install pack-off and test void to 5,000psi for 15 minutes.
9. Install BPV in 5-1/2" mandrel hanger – Nipple down BOPE and install nightcap.
10. Test nightcap void to 5,000psi for 30 minutes per illustration 2-2 page 3.
11. Skid rig to adjacent well on pad to drill production hole.

Mozzarella Fed Com 653H

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 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 7-7/8" 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.



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

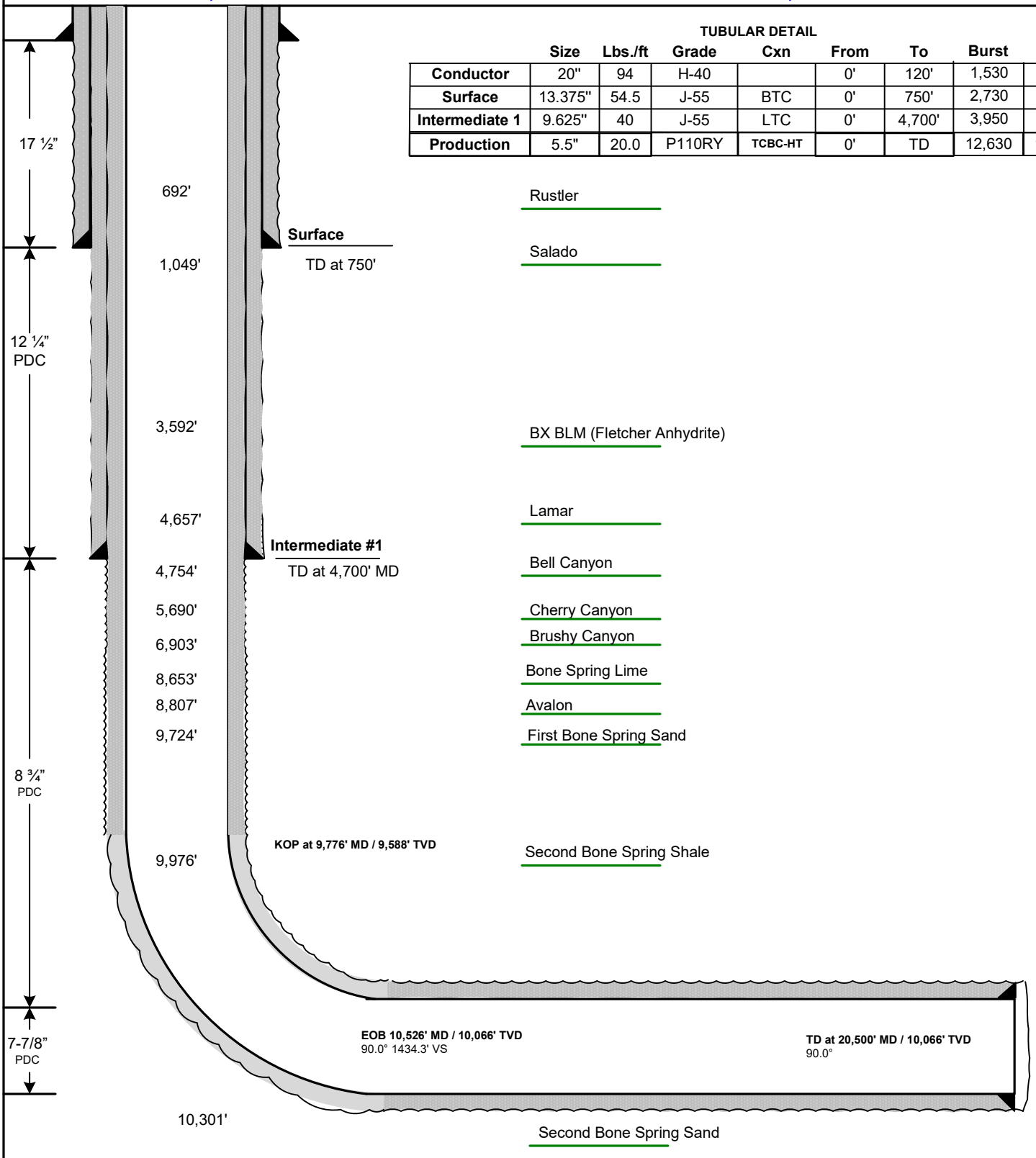
CENTENNIAL | WBD

Well : Mozzarella Fed Com 653H
Area : Burratta **FM tgt:** 2nd BS CARB
County : Lea **State** : NM
Location : Lot C Section 8, T22S, R32E; 804' FNL & 2239' FWL
BHL : Lot B, Section 32, T21S, R32E; 100' FNL & 1716' FEL
KB Elev : 3,730' MSL **KB** : 26' AGL **GL Elev** : 3,704' MSL

CENTENNIAL RESOURCE DEVELOPMENT, INC

TUBULAR DETAIL

	Size	Lbs./ft	Grade	Cxn	From	To	Burst	Cllps
Conductor	20"	94	H-40		0'	120'	1,530	520
Surface	13.375"	54.5	J-55	BTC	0'	750'	2,730	1,130
Intermediate 1	9.625"	40	J-55	LTC	0'	4,700'	3,950	2,570
Production	5.5"	20.0	P110RY	TCBC-HT	0'	TD	12,630	11,110



GEOLOGIC PROG

CENTENNIAL RESOURCE DEVELOPMENT, LLC

WELL NAME	Mozzarella Fed Com 653H					6/15/2022	
AREA	Burratta			API			
HZ TARGET	SBSG CARB			WI %			
LAT LENGTH	9,500			AFE#			
TRRC PERMIT				COUNTY	Lea		

	TWNP	RNG	SECTION	FOOTAGE	COMMENT
SHL	22S	32E	8	804' FSL, 2239' FWL	Off lease. Drill S to N.
FTP/PP	22S	32E	5	100' FSL, 1716' FEL	
LTP	21S	32E	32	100' FNL, 1716' FEL	
BHL	21S	32E	32	100' FNL, 1716' FEL	

GROUND LEVEL	3,704'	RIG KB	26'	KB ELEV	3,730'	
GEOLOGIST						

LOGGING	No open hole logging. MWD GR from drill out of surface casing to TD.
MUDLOGGING	N/A

FORMATION	TVD	SSTVD	THICKNESS	FINAL MD	FINAL TVD	DELTA
Rustler	692'	3,038'	357'			
Salado	1,049'	2,681'	2,543'			
BX BLM (Fletcher Anhydrite)	3,592'	138'	1,065'			
Lamar	4,657'	-927'	97'			
Bell Canyon	4,754'	-1,024'	836'			
Cherry Canyon	5,590'	-1,860'	186'			
Manzanita Lime	5,776'	-2,046'	1,127'			
Brushy Canyon	6,903'	-3,173'	1,750'			
Bone Spring Lime	8,653'	-4,923'	154'			
Avalon	8,807'	-5,077'	917'			
FBSG Sand	9,724'	-5,994'	252'			
SBSG Shale	9,976'	-6,246'	325'			
SBSG Sand	10,301'	-6,571'	487'			
TBSG Carb	10,788'	-7,058'	600'			
TBSG Sand	11,388'	-7,658'				
Target Top at 0'VS	10,056'	-6,326'	20'			
Target Base at 0' VS	10,076'	-6,346'				
HZ TARGET AT 0' VS	10,066'	-6,336'				

TARGET: KBTVD = 11,245' at 0' VS, INC = 90.0 deg
Target Window +10/-10'

COMMENT:

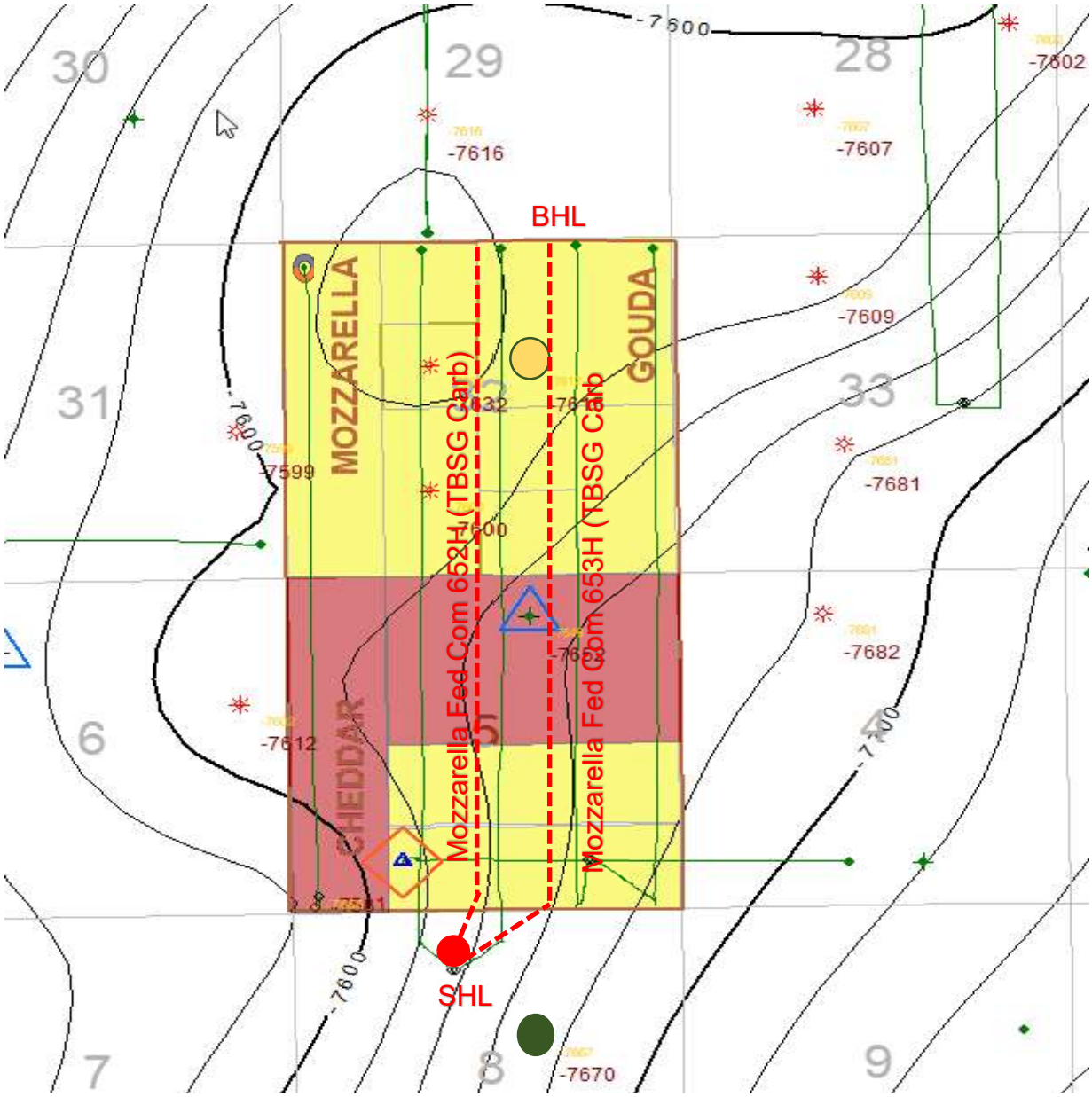
GEOLOGIC PROG

CENTENNIAL
RESOURCE DEVELOPMENT, LLC

GEOLOGIC PROG

OFFSET TYPE WELLS				
CENTENNIAL RESOURCE DEVELOPMENT, LLC	DRILLING WELL	Mozzarella Fed Com 653H		6/15/2022
	HZ TARGET	SBSG CARB	AREA	Burratta
	0		0	
LOCATION				
DISTANCE				
DIRECTION SURVEY				
KB ELEV				

LOCATION & TBSG SAND STRUCTURE MAP



GEOLOGIC PROG

OFFSET TYPE SECTION

CENTENNIAL
RESOURCE DEVELOPMENT, LLC

	DRILLING WELL			
	HZ TARGET		AREA	
	0			0
LOCATION				
DISTANCE				
DIRECTION SURVEY				
KB ELEV				

Type Log and Target Zone

GEOLOGIC PROG

GEOPHYSICAL DATA

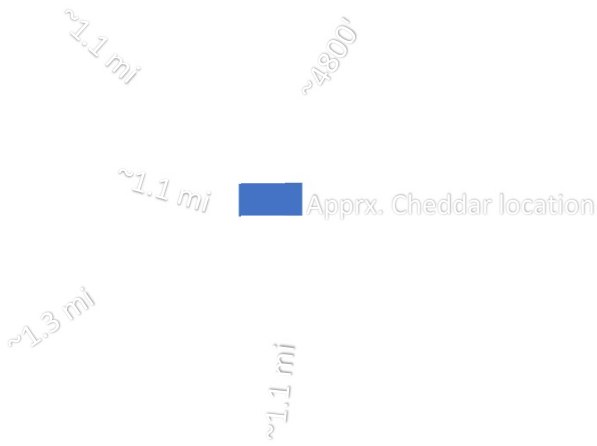
POTENTIAL GEOHAZARDS

SEISMIC DISPLAYS

GEOLOGIC PROG

CENTENNIAL
RESOURCE DEVELOPMENT, LLC

GEOLOGIC PROG



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 availiable**:
    I. Sound alarm, alert crew.
    II. If possible to pick up high enough, pull string clear of the stack and follow Open Hole (III) scenario.
    III. If impossible to pick up high enough to pull the string clear of the stack:
        a. Stab crossover, make up one joint/stand of drill pipe and full opening safety valve and close.
        b. Space out drillstring with tool joint just beneath the upper pipe ram.
        c. Open HCR
        d. Shut-in utilizing upper VBRs.
        e. Close choke
        f. Confirm shut-in
        g. Notify rig manager and Centennial company representative.
        h. Call Centennial drilling engineer
        i. Read and record:
            i. SIDPP and SICP
            ii. Pit gain
            iii. Time
    IV. Regroup and identify forward plan.

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

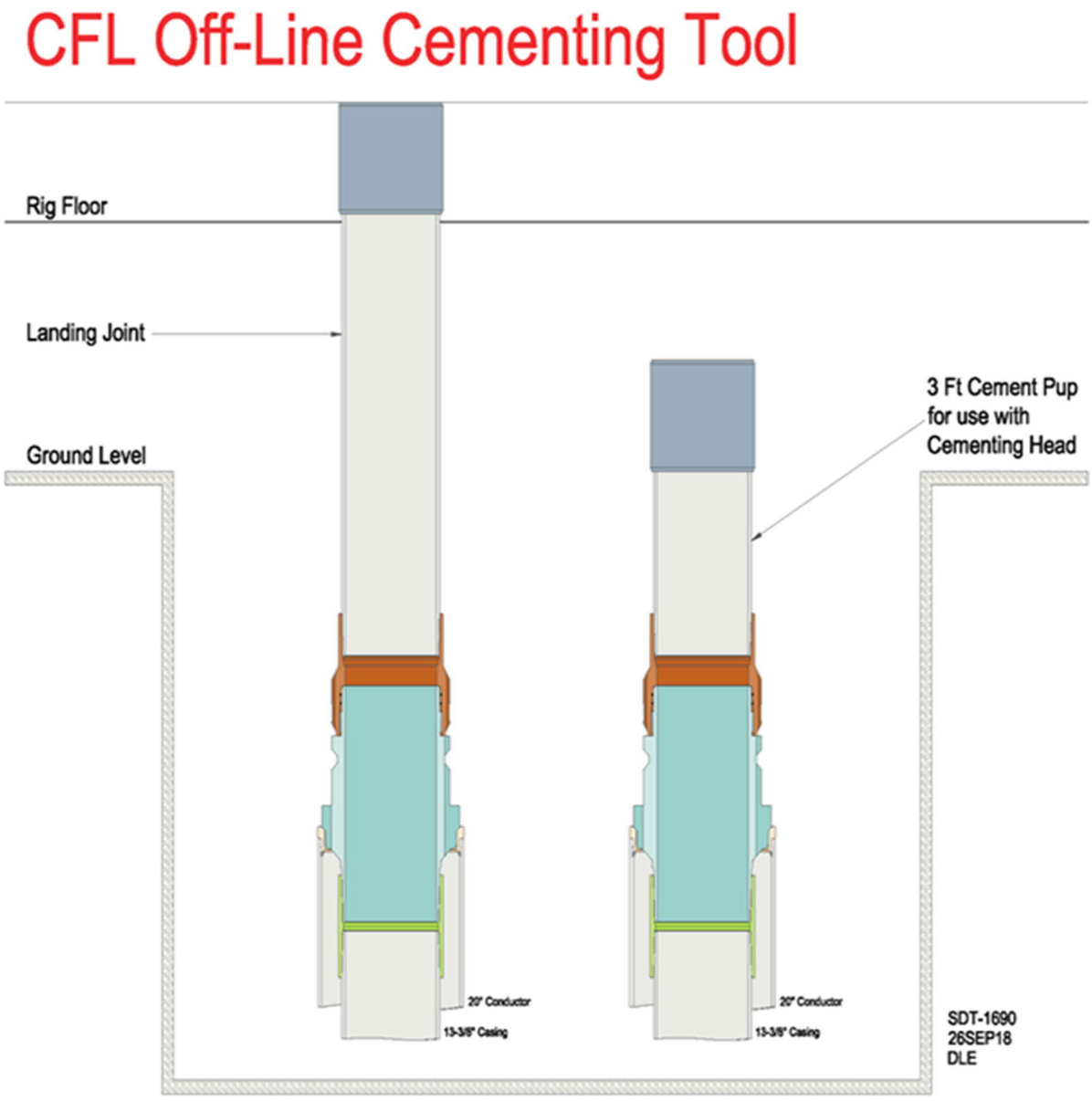
Mozzarella Fed Com 653H

Centennial Offline Cementing Procedure

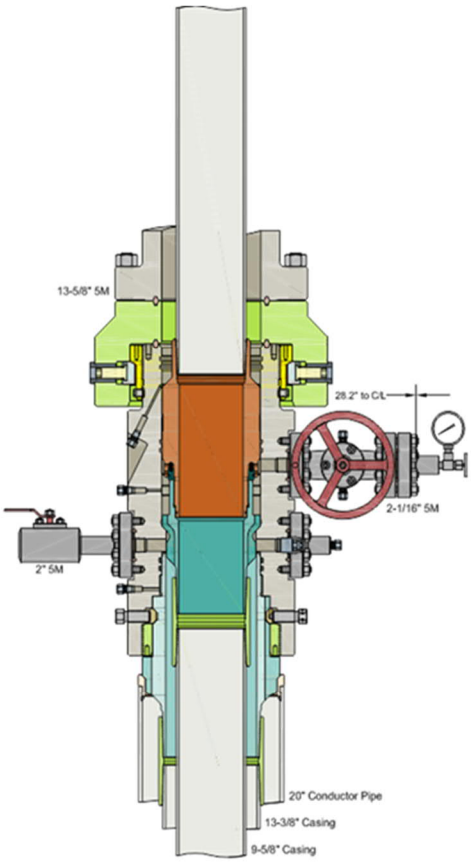
13-3/8" & 9-5/8" Casing

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 and floats are holding.
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.

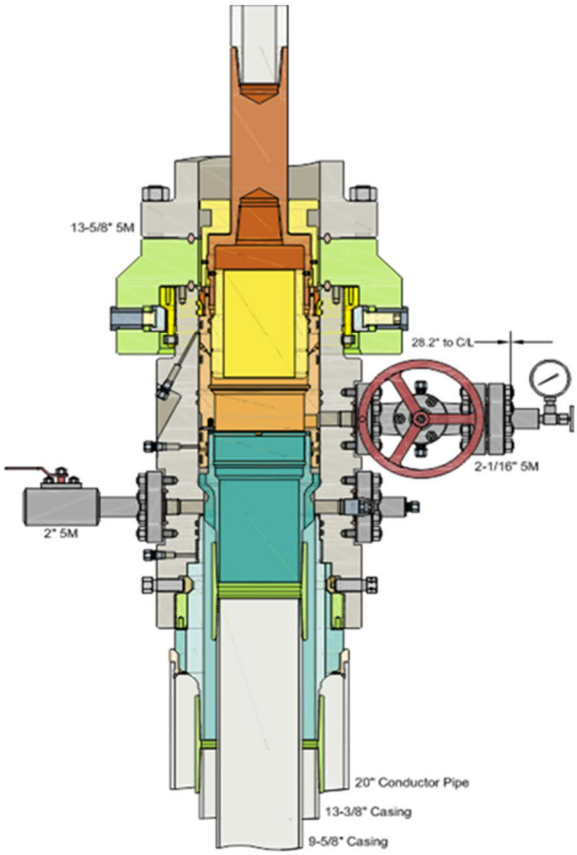
13 3/8" Surface job



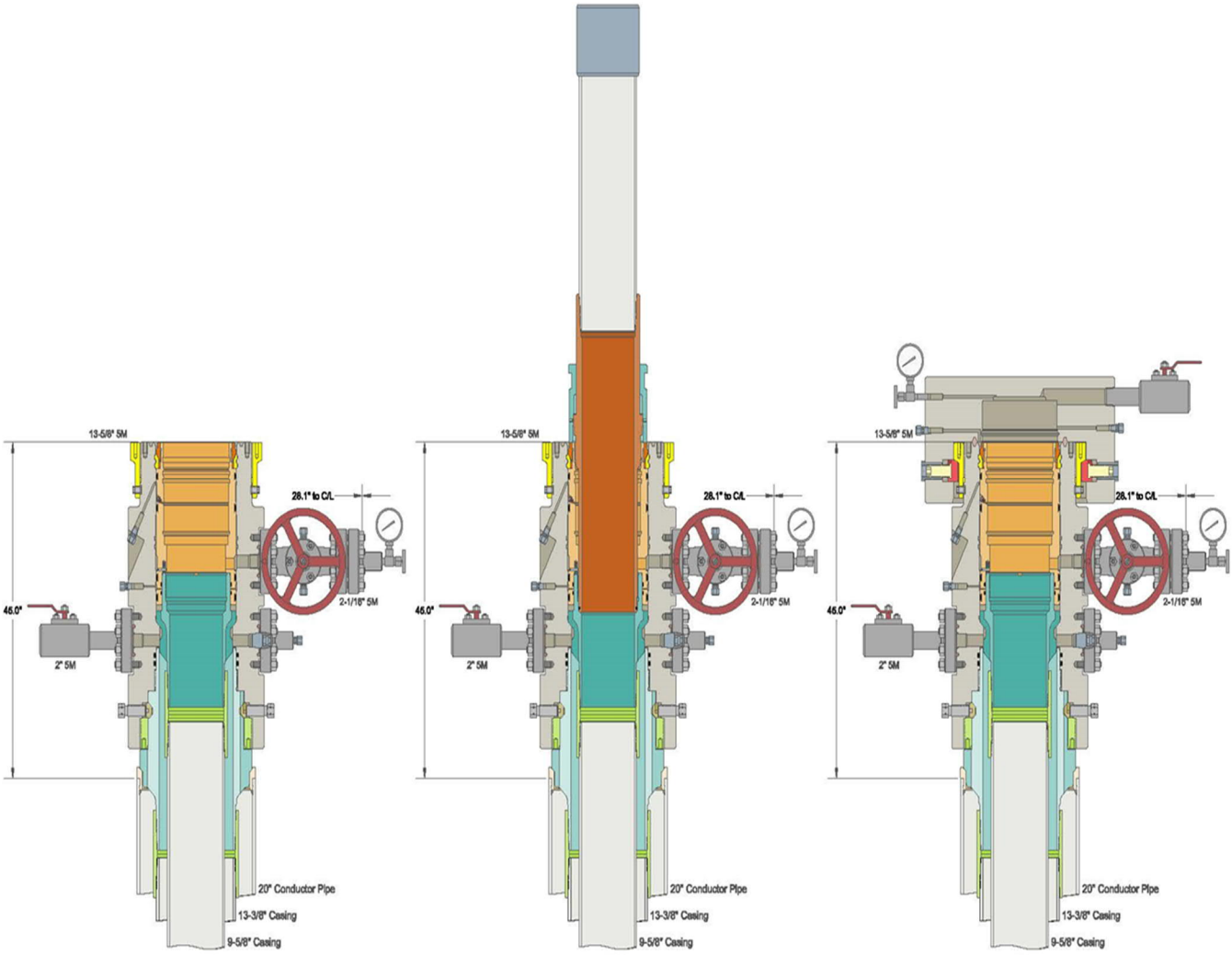
9 5/8” Intermediate Job



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


13-5/8" 5M
28.1" to C/L
2-1/16" 5M
46.0"
2" 5M
20" Conductor Pipe
13-3/8" Casing
9-5/8" Casing
13-5/8" 5M
28.1" to C/L
2-1/16" 5M
46.0"
2" 5M
20" Conductor Pipe
13-3/8" Casing
9-5/8" Casing
13-5/8" 5M
28.1" to C/L
2-1/16" 5M
46.0"
2" 5M
20" Conductor Pipe
13-3/8" Casing
9-5/8" Casing

Centennial Resource Production, LLC hereby requests to use a flex hose on H&P choke manifold for the Mozzarella Fed Com 653H well. The Flex Hose specifications are listed on the following pages.

Continental
ContiTech

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

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

Pressure test with water at
ambient temperature

See attachment. (1 page)

↑ 10 mm = 10 Min.
→ 10 mm = 20 MPa

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

Not Designed For Well Testing

API Spec 16 C

Temperature rate:"B"

All metal parts are flawless

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

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

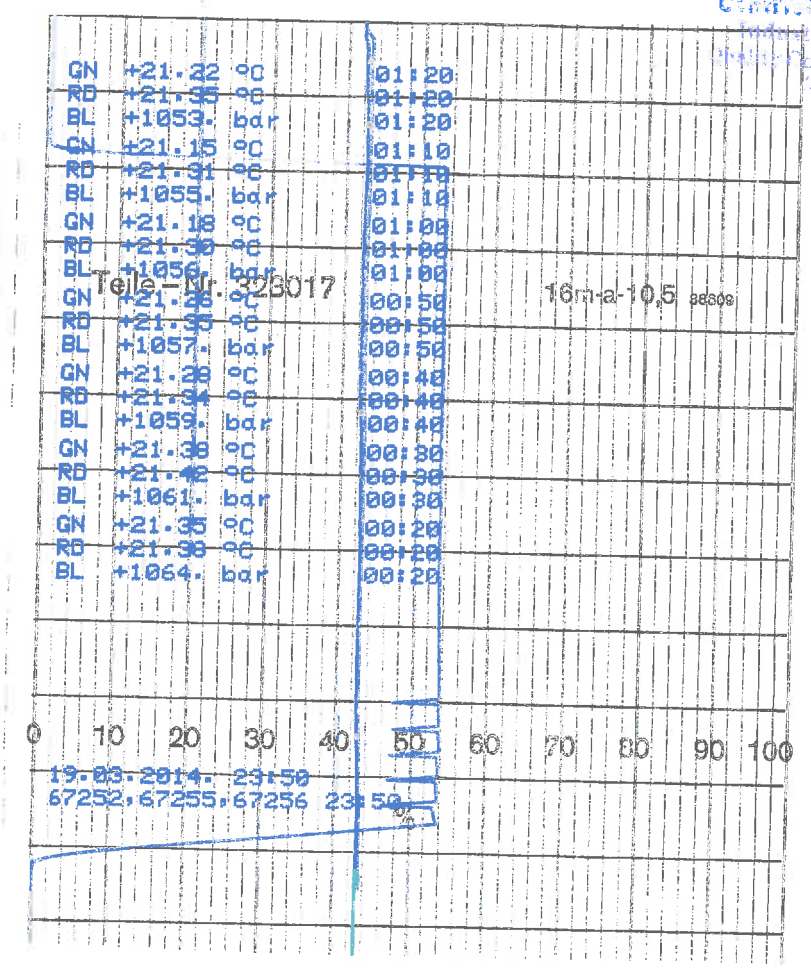
COUNTRY OF ORIGIN HUNGARY/EU

Date:	Inspector	Quality Control
20. March 2014.		ContiTech Rubber Industrial Kft. Quality Control Dept. (1)

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

Page: 1 / 1

Rubber Industrial Kft. Quality Control Dept.



Hose Data Sheet

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

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

SUPO Data Report
05/23/2023

APD ID: 10400087721 **Submission Date:** 09/01/2022

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: MOZZARELLA FEDERAL COM **Well Number:** 653H

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

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - Existing Roads

Will existing roads be used? YES

Existing Road Map:

Mozz_653H_Access_Road_Map_20220901123934.pdf

Existing Road Purpose: ACCESS,FLUID TRANSPORT **Row(s) Exist?** YES

ROW ID(s)

ID:

Do the existing roads need to be improved? NO

Existing Road Improvement Description:

Existing Road Improvement Attachment:

Section 2 - New or Reconstructed Access Roads

Will new roads be needed? NO

Section 3 - Location of Existing Wells

Existing Wells Map? YES

Attach Well map:

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: MOZZARELLA FEDERAL COM **Well Number:** 653H

Mozz_653H_Well_Proximity_Map_Attachment_20220826142129.pdf

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

Submit or defer a Proposed Production Facilities plan? SUBMIT

Production Facilities description: Production facility will be located on the NE/4 NW/4 of Sec. 8, T22S-R32E, off pad on the west side of the drilling pad, where oil and gas sales will take place. Facility pad is 200' x 500'.

Production Facilities map:

Mozzarella_Fed_Com_8_NENW_Basic_Facility_Layout_20220826151453.pdf

MOZZARELLA_FED_COM_8_NENW_PAD__Facility_Map_20220826152345.pdf

Section 5 - Location and Types of Water Supply

Water Source Table

Water source type: RECYCLED

Water source use type: STIMULATION

Source latitude: **Source longitude:**

Source datum:

Water source permit type: OTHER

Water source transport method: PIPELINE

Source land ownership: FEDERAL

Source transportation land ownership: FEDERAL

Water source volume (barrels): 450000 **Source volume (acre-feet):** 58.00189335

Source volume (gal): 18900000

Water source and transportation

Mozzarella_Fed_Com_653H_Water_Source_Map_20220901125904.pdf

Water source comments: Temporary surface lines will be used to transport water for drilling and completions from either AST (recycled) or private pit (Fresh) to the pad location. Water source supply is located in NWNW of Sec. 6, T22E, R32E.

New water well? N

New Water Well Info

Well latitude: **Well Longitude:** **Well datum:**

Well target aquifer:

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: MOZZARELLA FEDERAL COM **Well Number:** 653H

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 Mills/BLM pit located in {SW4 NE4, Sec 4, & NE4 NE4 Sec 3, T22S, R32E}.

Construction Materials source location

Caliche_Sources_MAP_20220901142425.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: Haul to approved facility.

Waste type: DRILLING

Waste content description: Brine water based drilling fluid.

Amount of waste: 1500 barrels

Waste disposal frequency : Monthly

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: MOZZARELLA FEDERAL COM **Well Number:** 653H

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: Haul to approved facility.

Waste type: DRILLING

Waste content description: Drill Cuttings

Amount of waste: 2051 barrels

Waste disposal frequency : Monthly

Safe containment description: Steel tanks

Safe containmant attachment:

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

Disposal location description: Haul to approved facility.

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
Disposal type description:

Disposal location description: Haul to approved facility.

Waste type: GARBAGE

Waste content description: General trash/garbage

Amount of waste: 5000 pounds

Waste disposal frequency : Weekly

Safe containment description: Enclosed trash trailer.

Safe containmant attachment:

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

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: MOZZARELLA FEDERAL COM **Well Number:** 653H

Disposal location description: Haul to approved 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 Waste stored in steel tanks. Hauled off to a commercial approved 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:

Section 9 - Well Site

Well Site Layout Diagram:

Mozzarella_Federal_Com_Rig_Layout_20201125155109.pdf
Mozzarella_653H_UPDATED_Well_SIte_Layout_20230126132747.pdf

Comments:

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: MOZZARELLA FEDERAL COM **Well Number:** 653H

Section 10 - Plans for Surface

Type of disturbance: No New Surface Disturbance **Multiple Well Pad Name:** MOZZARELLA FED 8 NENW

Multiple Well Pad Number: 1

Recontouring

Mozz_653H_Reclamation_Diagram_20220831183057.pdf

Drainage/Erosion control construction: Culverts will be installed on an as needed basis.

Drainage/Erosion control reclamation: Water breaks will be added if needed, to prevent unnatural erosion and loss of vegetation.

Well pad proposed disturbance (acres):	**Well pad interim reclamation (acres):** 0	**Well pad long term disturbance (acres):** 0
Road proposed disturbance (acres):	**Road interim reclamation (acres):** 0	**Road long term disturbance (acres):** 0
Powerline proposed disturbance (acres):	**Powerline interim reclamation (acres):** 0	**Powerline long term disturbance (acres):** 0
Pipeline proposed disturbance (acres):	**Pipeline interim reclamation (acres):** 0	**Pipeline long term disturbance (acres):** 0
Other proposed disturbance (acres):	**Other interim reclamation (acres):** 0	**Other long term disturbance (acres):** 0
Total proposed disturbance: 0	**Total interim reclamation:** 0	**Total long term disturbance:** 0

Disturbance Comments:

Reconstruction method: This pad will not be reclaimed as it is a drill island.

Topsoil redistribution: Topsoil will be stock piled along the north fill slope and south edge of the borrow area. Topsoil along the south edge of borrow area will be redistributed over the borrow area at this is a drill island and will not be reclaimed.

Soil treatment: Native soil 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: Surface disturbance will be limited to well site surveyed and extending south to borrow deficit quantities. Topsoil will be stored along the north edge of pad site and south edge of borrow area.

Existing Vegetation at the well pad

Existing Vegetation Community at the road: 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

Existing Vegetation Community at the pipeline: Will be windrowed to the edge of the disturbance and be utilized as a barrier from water run-off.
Existing Vegetation Community at the pipeline

Existing Vegetation Community at other disturbances: Will be windrowed to the edge of the disturbance and be utilized as a barrier from water run-off.
Existing Vegetation Community at other disturbances

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: MOZZARELLA FEDERAL COM **Well Number:** 653H

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

Total pounds/Acre:

Seed Type	Pounds/Acre

Seed reclamation

Operator Contact/Responsible Official

First Name: **Last Name:**

Phone: **Email:**

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

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.

Monitoring plan

Success standards: No primary or secondary noxious weed will be allowed. Vegetation will be returned to its native standard.
Pit closure description: No open pits will be constructed.

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: MOZZARELLA FEDERAL COM **Well Number:** 653H

Pit closure attachment:

Section 11 - Surface

Disturbance type: WELL PAD

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland: **USFS Ranger District:**

Disturbance type: EXISTING ACCESS ROAD

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: MOZZARELLA FEDERAL COM **Well Number:** 653H

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland: **USFS Ranger District:**

Section 12 - Other

Right of Way needed? N **Use APD as ROW?**

ROW Type(s):

ROW

SUPO Additional Information:

Use a previously conducted onsite? Y

Previous Onsite information: Onsite conducted by Paul Murphy on 10/18/18.

Other SUPO

Mozzarella_Federal_Com_653H_FINAL_SUPO_9.1.22_20220901160601.pdf

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BUREAU OF LAND MANAGEMENT

PWD Data Report

05/23/2023

APD ID: 10400087721 **Submission Date:** 09/01/2022

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: MOZZARELLA FEDERAL COM **Well Number:** 653H

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: MOZZARELLA FEDERAL COM **Well Number:** 653H

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:

Decribe 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: MOZZARELLA FEDERAL COM **Well Number:** 653H

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: MOZZARELLA FEDERAL COM **Well Number:** 653H

Other PWD type description:

Other PWD type

Have other regulatory requirements been met?

Other regulatory requirements

AFMSS

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

Bond Info Data

05/23/2023

APD ID: 10400087721 **Submission Date:** 09/01/2022

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: MOZZARELLA FEDERAL COM **Well Number:** 653H

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

Highlighted data reflects the most recent changes

Show Final Text

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

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 225005

CONDITIONS

Operator: Permian Resources Operating, LLC 1001 17th Street, Suite 1800 Denver, CO 80202	OGRID: 372165
	Action Number: 225005
	Action Type: [C-101] BLM - Federal/Indian Land Lease (Form 3160-3)

CONDITIONS

Created By	Condition	Condition Date
pkautz	Will require a File As Drilled C-102 and a Directional Survey with the C-104	6/9/2023
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	6/9/2023
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	6/9/2023
pkautz	Cement is required to circulate on both surface and intermediate1 strings of casing	6/9/2023