Form 3160-5
(June 2015)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OCD Hobbs

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

HOBBS OCD
SEP 26 2017
RECEIVED

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE - Other instructions on page 2

1. Type of Well ☒ Oil Well ☐ Gas Well ☐ Other	5. Lease Serial No. NMNM77090
2. Name of Operator CENTENNIAL RESOURCE PRODUCTION Contact: HEIDI KACZOR	6. If Indian, Allottee or Tribe Name
3a. Address 1001 17TH STREET SUITE 1800 DENVER, CO 80202	7. If Unit or CA/Agreement, Name and/or No.
3b. Phone No. (include area code) Ph: 720.499.1422	8. Well Name and No. JULIET FEDERAL COM 1H
4. Location of Well *(Footage, Sec., T., R., M., or Survey Description)* Sec 22 T24S R34E NENW 400FNL 1980FWL	9. API Well No. 30-025-43385-00-X1
	10. Field and Pool or Exploratory Area RED HILLS-BONE SPRING, NORTH
	11. County or Parish, State LEA COUNTY, NM

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Hydraulic Fracturing	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other Change to Original APD
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.

Centennial wishes to deepen this well to the Upper Wolfcamp. The proposed new TVD is 12,446'. The SHL will remain the same.

Supporting documentation is attached as follows:
-Revised C-102 with new PP, LTP and BHL
-Revised Drilling Plan with a 10M system and increased mud weight as requested by the BLM
-Revised BOP & Manifold Diagrams
-Revised Directional Plan
-Specs for 5 and 5.5 inch casing

Centennial would also like to request a variance to use a flex hose choke line and a multi-bowl wellhead. Specs and pressure rating for the flex choke line and a wellhead running procedure are

14. I hereby certify that the foregoing is true and correct.

Electronic Submission #387609 verified by the BLM Well Information System
For CENTENNIAL RESOURCE PRODUCTION, sent to the Hobbs
Committed to AFMSS for processing by ZOTA STEVENS on 09/19/2017 (17ZS0029SE)

Name *(Printed/Typed)* HEIDI KACZOR — Title REGULATORY MANAGER

Signature (Electronic Submission) — Date 09/06/2017

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By ZOTA STEVENS — Title PETROLEUM ENGINEER — Date 09/21/2017

Conditions of approval, if any, are attached. Approval of this notice 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.

Office Hobbs

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.

(Instructions on page 2)

**** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ****

Additional data for EC transaction #387609 that would not fit on the form

32. Additional remarks, continued

also attached to this sundry.

Should you have any questions or concerns, please feel free to contact me at (720) 499-1422 or at heidi.kaczor@cdevinc.com.

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) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

Form C-102
Revised August 1, 2011

Submit one copy to appropriate District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-025-43385	~~96434~~ 2220	ANTELOPE RIDGE; WOLFCAMP ~~Red Hills North; Bone Spring~~

Property Code	Property Name	Well Number
318012	JULIET FEDERAL COM	1H

OGRID No.	Operator Name	Elevation
372165	CENTENNIAL RESOURCES PRODUCTION, LLC	3522'

Surface Location

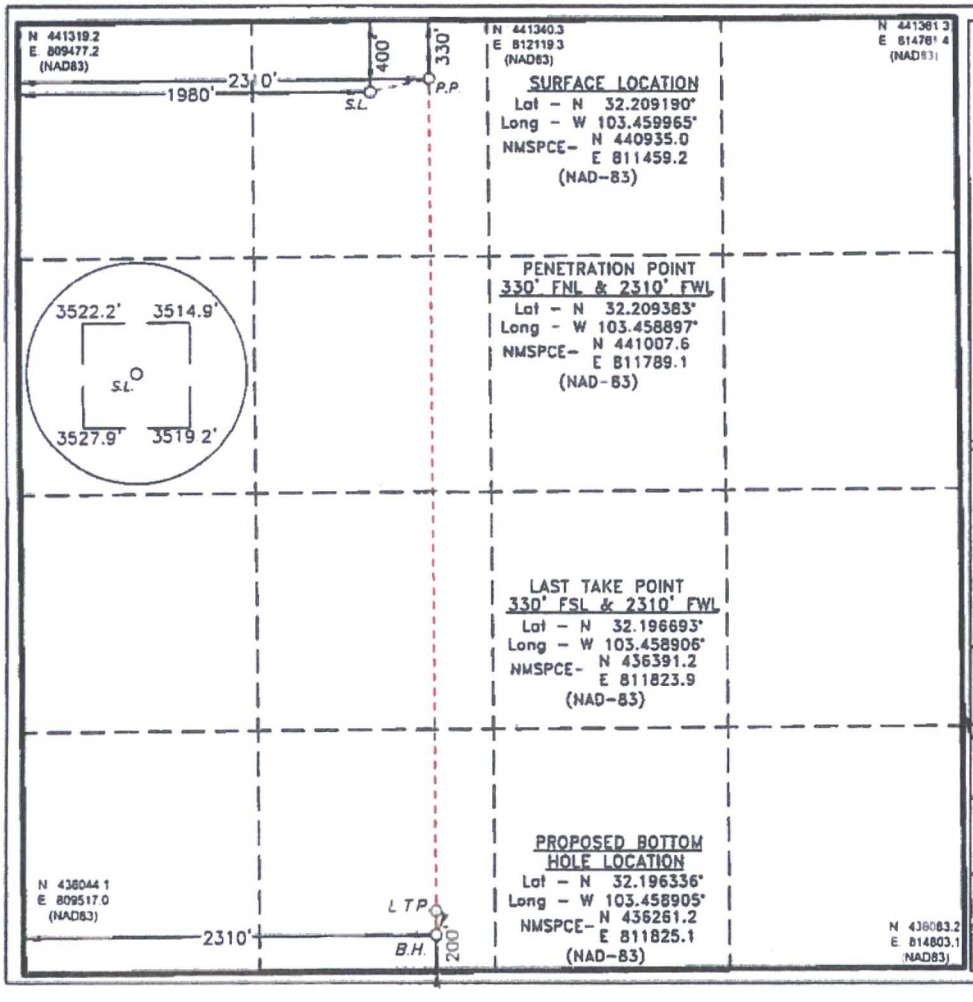
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	SOUTH/South line	Feet from the	East/West line	County
C	22	24 S	34 E		400	NORTH	1980	WEST	LEA

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	SOUTH/South line	Feet from the	East/West line	County
N	22	24 S	34 E		200	SOUTH	2310	WEST	LEA

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.

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



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 8/30/17 Date

Heidi Kaczor
Printed Name

heidi.kaczor@cdevinc.com
Email Address

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 supervison, and that the same is true and correct to the best of my belief.

MAY 20, 2015
Date Surveyed

Signature & Seal of Professional Surveyor
7977

Certificate Number GARY L. JONES 7977

0' 500' 1000' 1500' 2000'
SCALE: 1" = 1000'
WO Num.: 30454

Centennial Resource Production, LLC
Juliet Federal Com #1H
400' FNL 1980' FWL Section 22, T24S, R34E
Lea County, New Mexico

DRILLING PROGRAM
(Modified 8-15-17)

Drilling operations for this well will be conducted in accordance with the Onshore Oil and Gas Order #1, 2, 6 as provided for in 43 CFR 3164.1. This includes the well control equipment and its testing, the mud system and associated equipment, and the casing and cementing.

1. **Estimated tops of important geologic markers (TVD):**

Ground Level	***3522'***
Fresh Water	600'
Rustler	1,155'
Salt Top	1,435'
Salt Base	3,305'
Lamar Limestone	3,510'
Delaware Mountain Group	5,360'
Delaware Bell Canyon	5,365'
Delaware Cherry Canyon	6,580'
Delaware Brushy Canyon	7,725'
Lower Brushy Canyon Marker	9,055'
Bone Spring	9,125'
Avalon Shale Top	9,175'
Avalon Carbonate	9,420'
1st Bone Spring Sand	10,250'
1st Bone Spring Carbonate	10,500'
2nd Bone Spring Sand	10,830'
2nd Bone Spring Carbonate	11,290'
3rd Bone Spring Sand	11,900'
Wolfcamp	12,200'
Actual Target	12,435'

2. **Estimated depths of anticipated water, oil, gas or minerals:**

Mineral	Formation	Depth (TVD)
Water		600'
Natural Gas/Oil	Lower Brushy Canyon Marker	9,055'
Natural Gas/Oil	Avalon Shale Top	9,125'
Natural Gas/Oil	1st Bone Spring Sand	10,250'
Natural Gas/Oil	2nd Bone Spring Sand	10,830'
Natural Gas/Oil	3rd Bone Spring Sand	11,900'
Natural Gas/Oil	Wolfcamp	12,200'
Actual Target		12,435'

Fresh water: Fresh water aquifers will be protected with surface casing set at 1,180'. All potentially productive usable water, hydrocarbons, and other mineral zones will be protected with casing and cement.

3. **Minimum specifications for pressure control:**

The BOP and related equipment will meet or exceed the requirements of a 10M-psi system as set forth in On Shore Order No. 2. See attached BOP Schematic.

A. Casing head: 13 5/8" 10M x 11" x 10,000 psi
Tubing head: 7-1/16" – 10,000 psi

B. Minimum Specified Pressure Control Equipment

- Annular preventer
- Two Pipe ram, One blind ram
- Drilling spool, or blowout preventer with 2 side outlets. Choke side will be a 3-inch minimum diameter, kill will shall be at least 2-inch diameter
- 3 inch diameter choke line
- 2 – 3 inch choke line valves
- 2 inch Kill line
- 2 chokes with 1 remotely controlled from rig floor (see Figure 2)
- 2 – 2 inch kill line valves and a check valve
- Upper kelly cock valve with handle available
- When the expected pressures approach working pressure of the system, 1 remote kill line tested to stack pressure (which shall run to the outer edge of the substructure and be unobstructed)
- Lower kelly cock valve with handle available
- Safety valve(s) and subs to fit all drill string connections in use
- Inside BOP or float sub available
- Pressure gauge on choke manifold
- All BOPE connections subjected to well pressure shall be flanged, welded, or clamped
- Fill-up line above the uppermost preventer.

C. Auxiliary Equipment
- Audio and visual mud monitoring equipment shall be placed to detect volume changes indicating loss or gain of circulating fluid volume. (OOS 1, III.C.2)
- Gas Buster will be used below 6,000'.
- Upper and lower kelly cocks with handles, safety valve and subs to fit all drill string connections and pressure gauge on choke manifold.

D. BOP Testing procedures:

- 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) shall be tested to the approved BOP stack working pressure when a test plug is used. If a test plug is not used, the ram type preventer(s) shall be tested to 70% of the minimum internal yield pressure of the casing.

- The annular type preventer(s) shall be tested to 50% of the approved BOP stack working pressure. Pressure will be maintained for at least 10 minutes or until provisions of the test are met, whichever is longer.

- A Sundry Notice (Form 3160-5), along with a copy of the BOP test report, shall be submitted to the local BLM office within 5 working days following the test.

Stevens, Zota <zstevens@blm.gov>

Juliet Federal Com 1H 5 1/2" casing point

1 message

Aldo Gurmendi <Aldo.Gurmendi@cdevinc.com> Thu, Sep 21, 2017 at 8:23 AM
To: "zstevens@blm.gov" <zstevens@blm.gov>

Hello Mr. Zota –

Per our conversation, our 5 ½" production string will cross over to the 5" production string at 11,500' MD / TVD. If you need anything else please let me know.

Thank you for the help.

Aldo R. Gurmendi

Drilling

Centennial Resource Development, Inc.

1001 17th Street, Ste 1800

Denver, Colorado 80202

Ofc: 720-378-7561

Cel: 720-390-9573

- 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.

- Centennial will have a third party company perform the BOP tests. We will invite the BLM to witness them.

The BOP Configuration, Choke manifold layout, and Accumulator system, will be in compliance with Onshore Order 2 for a 10,000 psi system.

A remote accumulator will be used. Pressures, capacities, and specific placement and use of the manual and/or hydraulic controls, accumulator controls, bleed lines, etc., will be identified at the time of the BLM supervised BOP test. Any remote controls will be capable of both opening and closing all preventers and shall be readily accessible.

Centennial requests a variance to use a flex-hose choke line and a multi-bowl wellhead. Additional information for each is attached.

4. **Supplementary Information:**

Any required operational changes in the casing and cement design specified below will be submitted to the BLM Authorized Officer for approval **prior** to running casing and cementing.

A: Proposed Casing Program:

PURPOSE	INTERVAL (MD)	HOLE SIZE	CASING SIZE	WT/FT (lbs/ft)	GRADE	COND	THREAD & Coupling
CONDUCTOR	0-80'	26"	20"	94	H-40	NEW	ST&C
SURFACE	0-1,180'	17 1/2"	13 3/8"	54.5	J-55	NEW	ST&C
INTERMEDIATE	0 – 11,700'MD (11,686' TVD)	9 7/8"	7 5/8"	29.7	HCP-110	NEW	LT&C
PRODUCTION	0-16,877' MDTD	6 3/4"	5 ½" & 5"	20 & 18	HCP-110	NEW	JFE Bear

Note: 5½ set at 11500'

Minimum design safety factors: Burst-1.0, Collapse-1.125, Axial -1.6.

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 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.

B. Proposed Cementing Program:

Casing Size	Interval	% Excess	Cement Blend
Surface: 13-3/8" J-55 54.50# STC	0' – 1,180'	100 % over theoretical hole volume	**Lead Slurry: Class C**
			Density: 13.5 ppg
			Yield: 1.7 ft3/sx
			Mix Fluid: 8.87 gal/sx
			Sx Ref: 94 lb/sx
			Mix Water: 8.78 gal/sx
			Extender: 1% BWOC
			LCM/ Extender: 3 lb/sx WBWOB
			Lost Circ: 0.12 lb/sx WBWOB
			Accelerator: 0.5% BWOC
			TOC: Circulate
			Total Sx: 598 sx
			Tail Slurry: Class C
			Density: 14.8 ppg
			Yield: 1.35 ft3/sx
			Mix Fluid: 6.38 gal/sx
			Sx Ref: 94 lb/sx
			Mix Water: 6.38 gal/sx
			Accelerator: 2% BWOC
			TOT: 835'
			Total Sx: 323 sx
Intermediate: 7 5/8" 29.7# HCP-110 LTC	0' – 11,700' MD 11,686' TVD	50 % over theoretical hole volume for 1st stg lead slurry -or- 10% over caliper volume. 100% 1 st tail and 2 nd stg slurries.	**1st Stg Lead Slurry: TXI Light Weight**
			Density: 11 ppg
			Yield: 2.75 ft3/sx
			Mix Fluid: 16.87 gal/sx
			Sx Ref: 75 lb/sx
			Mix Water: 16.84 gal/sx
			Retarder: 0.4% lb/sx
			Extender: 10% BWOC
			Antifoam: 0.02 gal/sx VBWOB
			Extender: 2% BWOC
			Expanding: 2% BWOC
			Retarder: 0.01 gal/sx VBWOB
			Viscosifier: 0.05% BWOC
			Fluid Loss: 0.5% BWOC
			TOC: 4500'
			Total Sx: 980 sx
			1st Stg Tail Slurry: Class H

			Density	15.6 ppg
			Yield	1.22 ft3/sx
			Mix Fluid	5.4 gal/sx
			Sx Ref	94 lb/sx
			Mix Water	5.37 gal/sx
			Retarder	0.25% BWOC
			Extender	1.5% BWOC
			Antifoam	0.02 gal/sx VBWOB
			Dispersant	0.2% BWOC
			Fluid Loss	0.3 %BWOC
			Expanding	2% BWOC
			Retarder	0.01 gal/sx VBWOB
			TOT	10,600'
			Total Sx	280 sx
			DV Tool @ 4500'	
			2nd Stg Lead Slurry: Class 35/65 POZ Class C	
			Density	12.7 ppg
			Yield	1.86 ft3/sx
			Mix Fluid	10.25 gal/sx
			Sx Ref	87 lb/sx
			Mix Water	10.2 gal/sx
			Retarder	0.2% BWOB
			Extender	25.9 lb/sx BWOB
			Salt	5% BWOW
			Antifoam	0.02 gal/sx VBWOB
			Dispersant	0.1% BWOB
			Extender	1% BWOB
			Retarder	0.03 gal/sx VBWOB
			TOC	Surface
			Total Sx	820 sx
			2nd Stg Tail Slurry: Neat Class C	
			Density	14.8 ppg
			Yield	1.33 ft3/sx
			Mix Fluid	6.35 gal/sx
			Sx Ref	94 lb/sx
			Mix Water	6.35 gal/sx
			Retarder	0.2% BWOC
			TOT	3500'
			Total Sx	350 sx
Production: 5 1/2" 20# & 5" 18# P-110 JFE Bear	0- 16,877'	40 % over theoretical hole volume for curve 25% for lateral and 10% for pipe by pipe	**Tail Slurry Only: 50/50 POZ Class H**	
			Density	14.4 ppg
			Yield	1.29 ft3/sx
			Mix Fluid	5.72 gal/sx
			Sx Ref	84 lb/sx

		-or- 10% over caliper volume	Mix Water	5.67 gal/sx
			Extender	5.5% BWOB
			Extender	37 lb/sx BWOB
			Antifoam	0.02 gal/sx VBWOB
			Dispersant	0.1% BWOB
			Fluid Loss	0.15 BWOB
			Expanding	2% BWOB
			Retarder	0.03 gal/sx VBWOB
			Viscosifier	0.03% BWOB
			Retarder	0.5% BWOB
			TOT	10,000'
			Total Sx	713 sx

The **surface casing** shall be cemented back to surface. In the event cement does not circulate to surface or fall back of the cement column occurs, remedial cementing shall be done to cement the casing back to surface. Pea Gravel or other material shall not be used to fill up around the surface casing in the event cement fall back occurs.

A Sundry Notice (Form 3160-5), along with a copy of the service company's materials ticket and job log, shall be submitted to the local BLM office within 5 working days following the running and cementing

5. **Mud System:**

The following is meant as a guide only. Actual mud weights will be determined by hole conditions. Sufficient quantities of mud materials will be maintained or readily accessible for assuring well control.

Interval	PPG	SEC	CC	pH	Remarks
0-1180'	8.6-9.0	36-38	N/C	10.0-10.5	Fresh Water
1,135'-11,700'	9.0-9.2	50-65	N/C	Oil/ Water Ratio 70:30	OBM
11,600'-17,200'	13	45-65	N/A	Oil/ Water Ratio 70:30	OBM

Mud tests will be performed at a minimum interval of every 24 hours after mudding up to determine: density, viscosity, filtration, and pH for formation compatibility.

Centennial will use fresh water to surface casing total depth and then switch to an oil-based solution.

Sufficient quantities of mud materials shall be maintained at the well site, at all times, for the purpose of assuring well control.

Drilling of the surface casing will occur with fresh water.

If a temporary surface pipeline is used to transport drilling water, the pipeline shall be laid and removed when the ground surface is dry so as to minimize surface disturbance. No blading or other alteration of the ground surface shall be allowed.

6. **Testing, Logging, and Coring Program**

Cores-DST's: None anticipated

Surveys: MWD directional survey to TD

Mud Logger: Intermediate to TD

Logging: None anticipated

Stimulation Program:
Evaluate mud log to determine interval to perforate. Perforate selected intervals of interest after addressing spacing and commingling considerations. A completion program will be based upon evaluation of the mud log and formation parameters.

7. **Abnormal Conditions/Expected BHP**

a. Centennial does not expect any temperatures in excess of 200°F or pressures exceeding the normal gradient.

8. **Additional Information**

a. Anticipated starting date based upon approval will be 9/1/2017.

b. Duration of the drilling operations will be approximately 45 days.

c. This well is a directional well per attached directional plan. Please refer to Exhibit 2.

d. Rat and mouse holes (or any subgrade excavations for drilling operations) shall be filled and compacted, with appropriate native materials, immediately upon release of the drilling rig from the location.

e. Any permanent plug placed in the well during drilling and/or completion operations must have **prior** approval of the Authorized Officer.

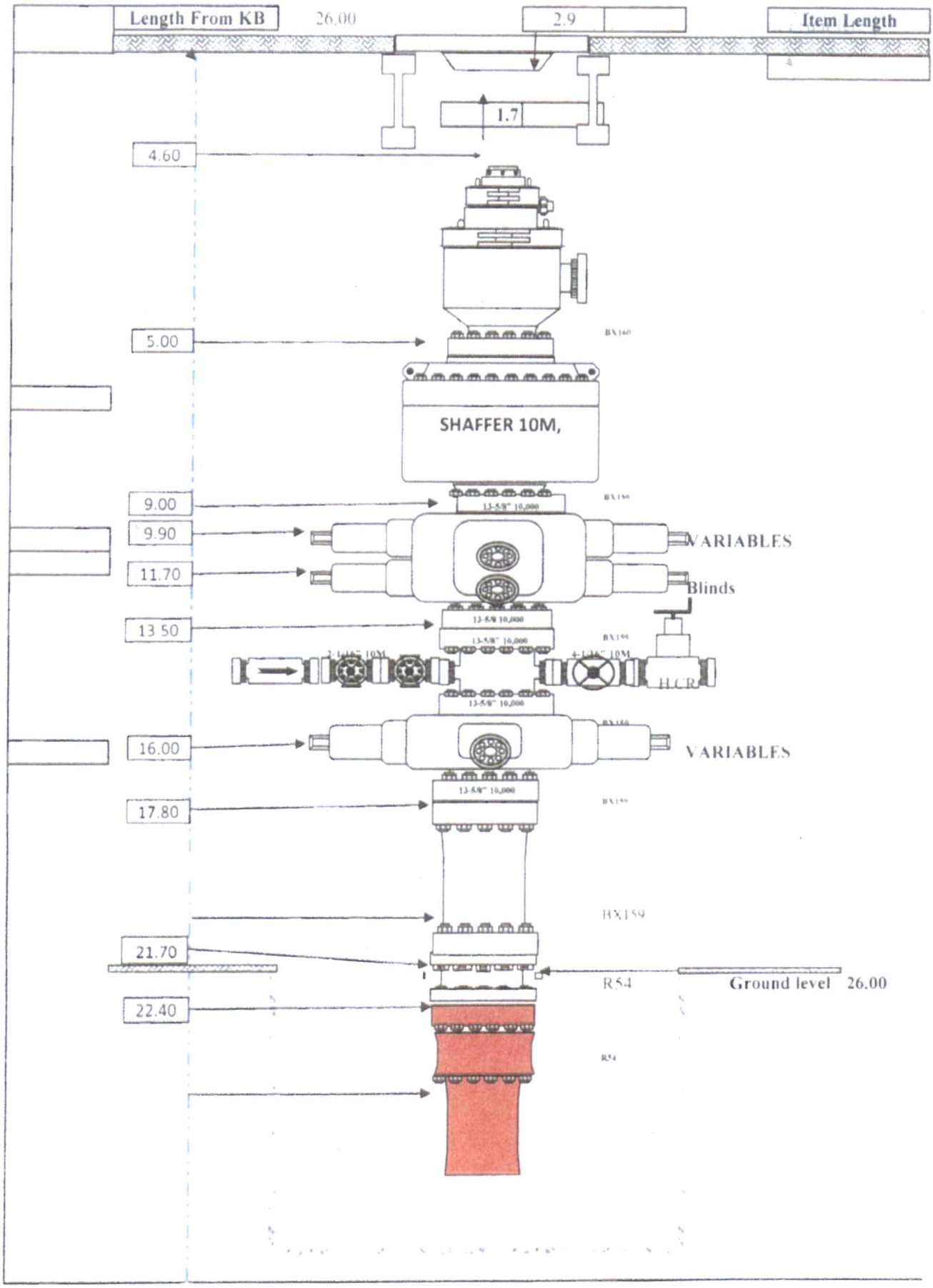
f. As provided in NTL-4A, gas produced from this well may not be vented or flared beyond an initial test period, 30 days or 50 MMCF, whichever first occurs, without approval of the Authorized Officer.

g. Centennial shall report all fresh water flows encountered while drilling to the Authorized Officers representative (Petroleum Engineer) prior to the running the next string of casing. The reported information shall include a) well name, number and location, b) the date the water flow was encountered, c) depth at which the water flow was encountered and d) estimated water flow rate into the well bore. The operator shall file a Form 3160-5 (Subsequent Report Sundry Notice) of this same information within 30 days of releasing the drilling rig.

h. Anticipated bottom hole temperature is 200°F, and its anticipated pressure is ~4873psi.

Centennial Resource Development, LLC will promptly plug and abandon each newly completed, re-completed or producing well which is not capable of producing in paying quantities. No well may be temporarily abandoned for more than 30 days without prior approval of the Authorized Officer. When justified by the Operator, the Authorized Officer may authorize additional delays, no one of which may exceed an additional 12 months. Upon removal of drilling or producing equipment from the site of a well which is to be permanently abandoned, the surface of the lands disturbed shall be reclaimed in accordance with a plan first approved or prescribed by the Authorized Officer or per the reclamation conditions of approval stated herein.

BOP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BX159
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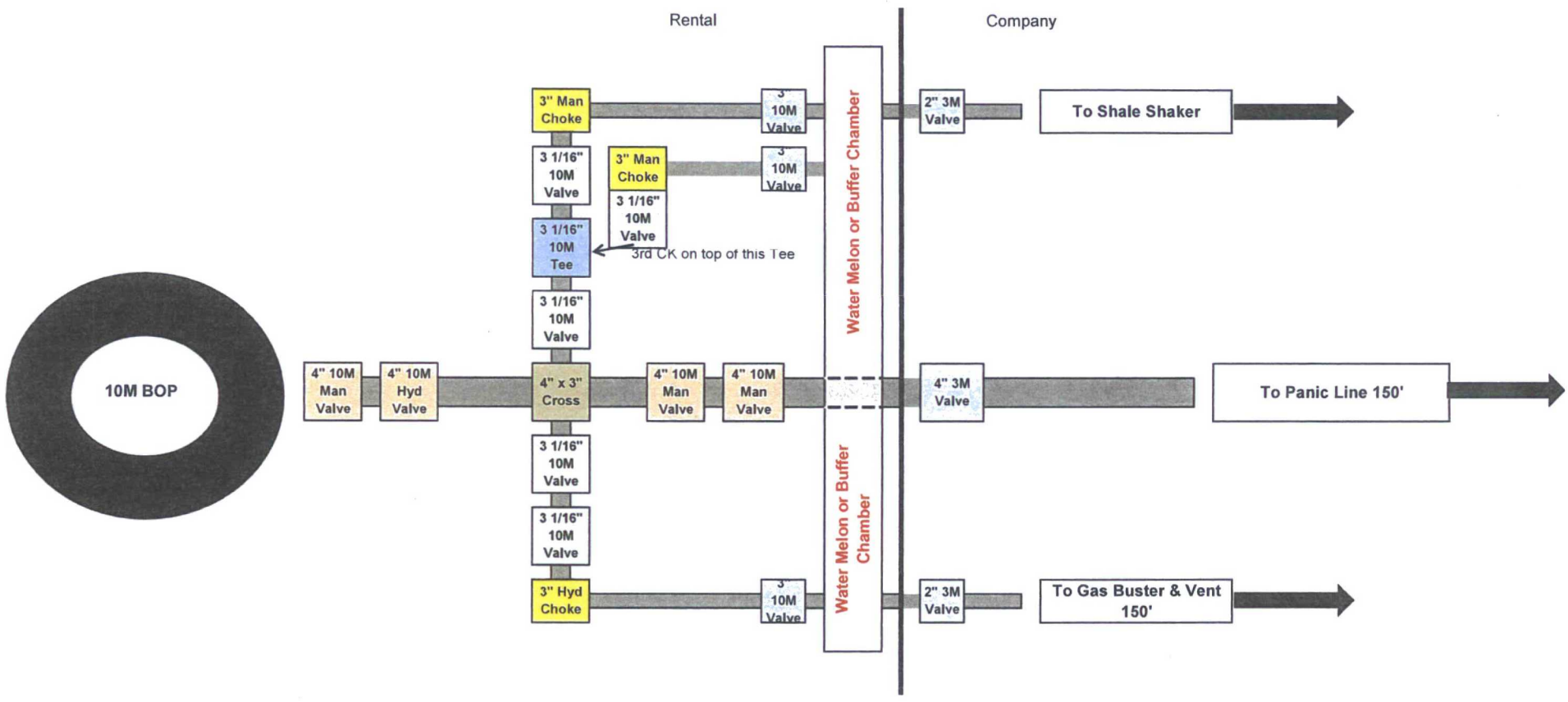
R54
Ground level 26.00
22.40
R54

Centennial Wellhead Running Procedure

1. Drill 17 ½" surface hole to total depth.
2. Pump sweep, POOH for 13 3/8" casing.
3. Run and cement 13 3/8" casing – cement to surface.
4. Dress conductor and 13 3/8" casing as needed, weld on multi-bowl system with baseplate.
    a. Test weld to 70% of 13 3/8" casing collapse.
5. NU and test BOPE with test plug per onshore order 2.
6. Test 13 3/8" casing per COA WOC times (.22 psi/ft or 1500 psi whichever is greater) - not to exceed 70% casing burst.
7. Install wear bushing.
8. Drill to 7 5/8 casing point.
9. Remove wear bushing.
10. Run and land 7 5/8" casing in hanger.
11. Cement 7 5/8 casing – cement to surface.
12. Washout stack, TIH with wash tool to wash hanger.
13. TIH and install packoff.
14. Test packoff and seals.
15. Run wear bushing.
16. Test casing per COA WOC times (.22 psi/ft or 1500 psi whichever is greater) - not to exceed 70% casing burst.
17. Drill production hole to TD.
18. Remove wear bushing.
19. Run and land 5.5" x 5" production string in hanger.
20. Cement production string (500' into intermediate string).


Rental
Company
10M BOP
3" Man Choke
3" 10M Valve
2" 3M Valve
To Shale Shaker
3 1/16" 10M Valve
3" Man Choke
3" 10M Valve
3 1/16" 10M Valve
3 1/16" 10M Tee
3rd CK on top of this Tee
Water Melon or Buffer Chamber
3 1/16" 10M Valve
4" 10M Man Valve
4" 10M Hyd Valve
4" x 3" Cross
4" 10M Man Valve
4" 10M Man Valve
4" 3M Valve
To Panic Line 150'
3 1/16" 10M Valve
3 1/16" 10M Valve
Water Melon or Buffer Chamber
3" Hyd Choke
3" 10M Valve
2" 3M Valve
To Gas Buster & Vent 150'

Line 150'

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

= Choke Hose =

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"

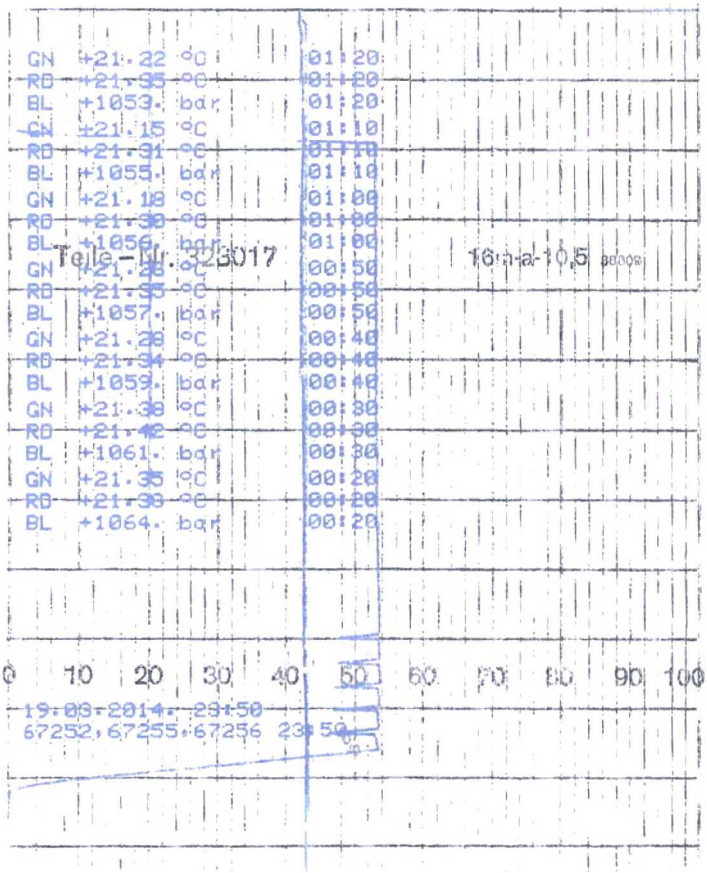
All metal parts are flawless

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.		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Centennial Resource Production, LLC

Lea County, NM (NAD 83)
Juliet Federal 1H
Juliet Federal 1H

Juliet Federal 1H

Plan: Design #2

Standard Planning Report

16 June, 2017

NEWSCO

Centennial Resource Production, LLC

Project:	Lea County, NM (NAD 83)
Site:	Juliet Federal 1H
Well:	Juliet Federal 1H
Wellbore:	Juliet Federal 1H
Design:	Design #2
Latitude:	32° 12' 33.086 N
Longitude:	103° 27' 35.875 W
GL:	3522.00
KB:	WELL @ 3542.00ft (Original Well Elev)

NEWSCO

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
VP Juliet Federal 1H P2	7000.00	0.00	328.00	440935.00	811787.20	32° 12' 33.059 N	103° 27' 32.058 W
FTP Juliet Federal 1H P2	12435.00	-571.40	332.63	440363.60	811791.83	32° 12' 27.405 N	103° 27' 32.058 W
LTP Juliet Federal 1H P2	12445.65	-4544.00	364.85	436391.01	811824.05	32° 11' 48.094 N	103° 27' 32.059 W
PBHL Juliet Federal 1H	12446.00	-4673.81	365.90	436261.20	811825.10	32° 11' 46.809 N	103° 27' 32.059 W

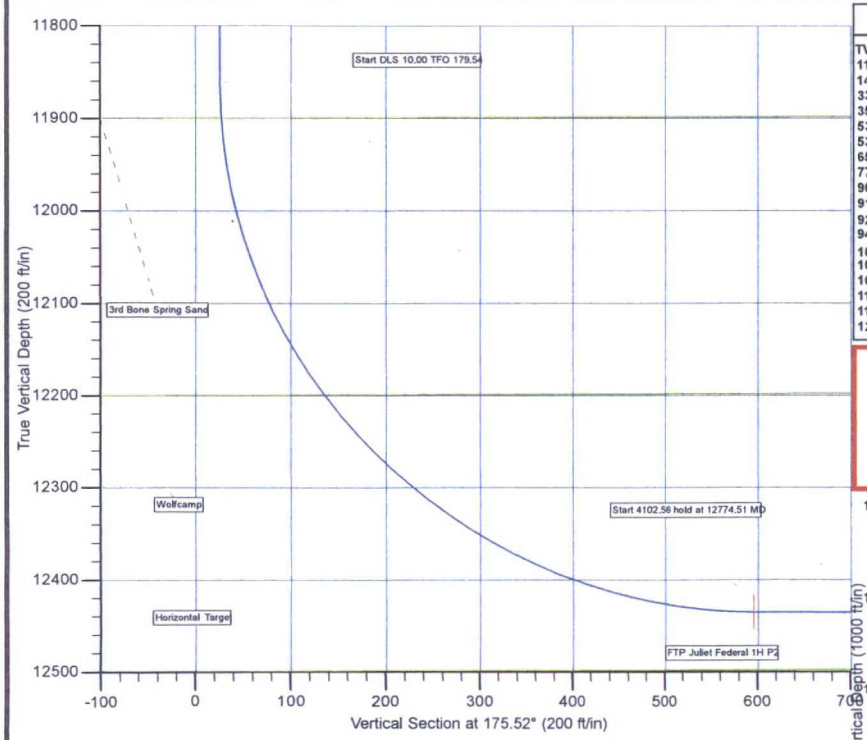
WELL DETAILS: Juliet Federal 1H

Ground Level: 3522.00

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	440935.00	811459.20	32° 12' 33.086 N	103° 27' 35.875 W	

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3000.00	0.00	0.00	3000.00	0.00	0.00	0.00	0.00	0.00	Start Build 2.00
3249.94	5.00	90.00	3249.63	0.00	10.90	2.00	90.00	0.85	Start 3514.11 hold at 3249.94 MD
6764.06	5.00	90.00	6750.37	0.00	317.10	0.00	0.00	24.75	Start Drop -2.00
7014.00	0.00	0.00	7000.00	0.00	328.00	2.00	180.00	25.60	Start 4862.04 hold at 7014.00 MD
11876.04	0.00	0.00	11862.04	0.00	328.00	0.00	0.00	25.60	Start DLS 10.00 TFO 179.54
12774.51	89.85	179.54	12435.00	-571.40	332.63	10.00	179.54	595.62	Start 4102.56 hold at 12774.51 MD
16877.06	89.85	179.54	12446.00	-4673.81	365.90	0.00	0.00	4688.11	TD at 16877.06



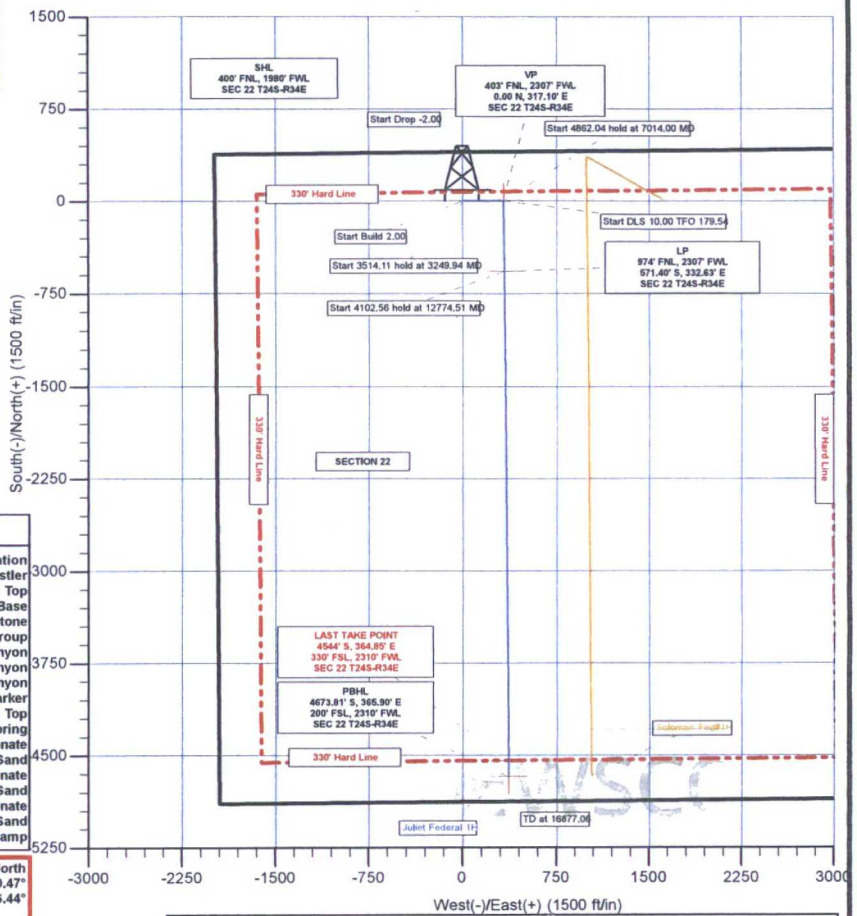
FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1155.00	1155.00	Rustler
1435.00	1435.00	Salt Top
3305.00	3305.53	Salt Base
3510.00	3511.31	Lamar Limestone
5360.00	5368.37	Delaware Mountain Group
5365.00	5373.39	Delaware Bell Canyon
6579.99	6593.03	Cherry Canyon
7724.99	7738.99	Brushy Canyon
9054.99	9068.99	Lower Brushy Canyon Marker
9174.99	9188.99	Avalon Shale Top
9204.99	9218.99	Bone Spring
9419.99	9433.99	Avalon Carbonate
10249.99	10263.99	1st Bone Spring Sand
10499.99	10513.99	Carbonate
10829.99	10843.99	2nd Bone Spring Sand
11289.99	11303.99	Carbonate
11899.99	11914.02	3rd Bone Spring Sand
12199.70	12237.14	Wolfcamp

T G M

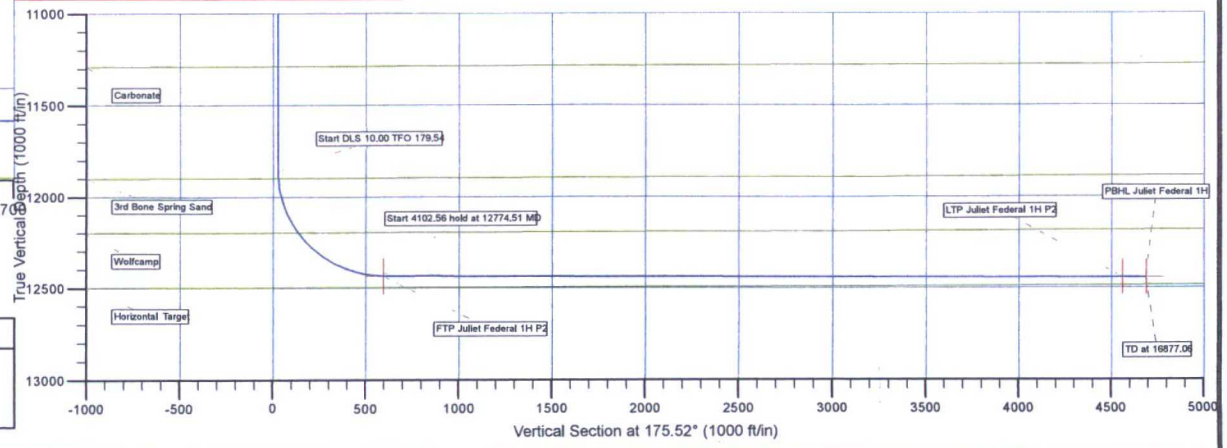
Azimuths to Grid North
True North: -0.47°
Magnetic North: 6.44°

Magnetic Field
Strength: 47949.7snT
Dip Angle: 60.07°
Date: 05/15/2017
Model: IGRF2015



Plan: Design #2 (Juliet Federal 1H/Juliet Federal 1H)

Created By: TRACY WILLIAMS Date: 10:50, June 16 2017



PROJECT DETAILS: Lea County, NM (NAD 83)

Geodetic System:	US State Plane 1983
Datum:	North American Datum 1983
Ellipsoid:	GRS 1980
Zone:	New Mexico Eastern Zone
System Datum:	Mean Sea Level

CASING DETAILS

No casing data is available

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Juliet Federal 1H
Company:	GMT Exploration	**TVD Reference:**	WELL @ 3542.00ft (Original Well Elev)
Project:	Lea County, NM (NAD 83)	**MD Reference:**	WELL @ 3542.00ft (Original Well Elev)
Site:	Juliet Federal 1H	**North Reference:**	Grid
Well:	Juliet Federal 1H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Juliet Federal 1H		
Design:	Design #2		

Project	Lea County, NM (NAD 83)		
Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Juliet Federal 1H				
Site Position:		**Northing:**	440,935.00 usft	**Latitude:**	32° 12' 33.086 N
From:	Map	**Easting:**	811,459.20 usft	**Longitude:**	103° 27' 35.875 W
Position Uncertainty:	0.00 ft	**Slot Radius:**	13-3/16"	**Grid Convergence:**	0.47 °

Well	Juliet Federal 1H					
Well Position	**+N/-S**	0.00 ft	**Northing:**	440,935.00 usft	**Latitude:**	32° 12' 33.086 N
	+E/-W	0.00 ft	**Easting:**	811,459.20 usft	**Longitude:**	103° 27' 35.875 W
Position Uncertainty		0.00 ft	**Wellhead Elevation:**	0.00 ft	**Ground Level:**	3,522.00 ft

Wellbore	Juliet Federal 1H				
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2015	05/15/17	6.91	60.07	47,950

Design	Design #2				
Audit Notes:					
Version:		**Phase:**	PLAN	**Tie On Depth:**	0.00
Vertical Section:	**Depth From (TVD) (ft)**	**+N/-S (ft)**	**+E/-W (ft)**	**Direction (°)**	
	0.00	0.00	0.00	175.52	

Plan Sections

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,249.94	5.00	90.00	3,249.63	0.00	10.90	2.00	2.00	0.00	90.00	
6,764.06	5.00	90.00	6,750.37	0.00	317.10	0.00	0.00	0.00	0.00	
7,014.00	0.00	0.00	7,000.00	0.00	328.00	2.00	-2.00	0.00	180.00	VP Juliet Federal 1H I
11,876.04	0.00	0.00	11,862.04	0.00	328.00	0.00	0.00	0.00	0.00	
12,774.51	89.85	179.54	12,435.00	-571.40	332.63	10.00	10.00	19.98	179.54	
16,877.06	89.85	179.54	12,446.00	-4,673.81	365.90	0.00	0.00	0.00	0.00	PBHL Juliet Federal 1

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Juliet Federal 1H
Company:	GMT Exploration	**TVD Reference:**	WELL @ 3542.00ft (Original Well Elev)
Project:	Lea County, NM (NAD 83)	**MD Reference:**	WELL @ 3542.00ft (Original Well Elev)
Site:	Juliet Federal 1H	**North Reference:**	Grid
Well:	Juliet Federal 1H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Juliet Federal 1H		
Design:	Design #2		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
Rustler									
1,155.00	0.00	0.00	1,155.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
Salt Top									
1,435.00	0.00	0.00	1,435.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	2.00	90.00	3,099.98	0.00	1.75	0.14	2.00	2.00	0.00
3,200.00	4.00	90.00	3,199.84	0.00	6.98	0.54	2.00	2.00	0.00
Start 3514.11 hold at 3249.94 MD									
3,249.94	5.00	90.00	3,249.63	0.00	10.90	0.85	2.00	2.00	0.00
3,300.00	5.00	90.00	3,299.49	0.00	15.26	1.19	0.00	0.00	0.00
Salt Base									
3,305.53	5.00	90.00	3,305.00	0.00	15.74	1.23	0.00	0.00	0.00
3,400.00	5.00	90.00	3,399.11	0.00	23.97	1.87	0.00	0.00	0.00
3,500.00	5.00	90.00	3,498.73	0.00	32.69	2.55	0.00	0.00	0.00
Lamar Limestone									
3,511.31	5.00	90.00	3,510.00	0.00	33.67	2.63	0.00	0.00	0.00
3,600.00	5.00	90.00	3,598.35	0.00	41.40	3.23	0.00	0.00	0.00
3,700.00	5.00	90.00	3,697.97	0.00	50.11	3.91	0.00	0.00	0.00
3,800.00	5.00	90.00	3,797.59	0.00	58.83	4.59	0.00	0.00	0.00
3,900.00	5.00	90.00	3,897.21	0.00	67.54	5.27	0.00	0.00	0.00
4,000.00	5.00	90.00	3,996.83	0.00	76.25	5.95	0.00	0.00	0.00
4,100.00	5.00	90.00	4,096.45	0.00	84.97	6.63	0.00	0.00	0.00

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Juliet Federal 1H
Company:	GMT Exploration	**TVD Reference:**	WELL @ 3542.00ft (Original Well Elev)
Project:	Lea County, NM (NAD 83)	**MD Reference:**	WELL @ 3542.00ft (Original Well Elev)
Site:	Juliet Federal 1H	**North Reference:**	Grid
Well:	Juliet Federal 1H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Juliet Federal 1H		
Design:	Design #2		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,200.00	5.00	90.00	4,196.07	0.00	93.68	7.31	0.00	0.00	0.00
4,300.00	5.00	90.00	4,295.69	0.00	102.39	7.99	0.00	0.00	0.00
4,400.00	5.00	90.00	4,395.31	0.00	111.11	8.67	0.00	0.00	0.00
4,500.00	5.00	90.00	4,494.93	0.00	119.82	9.35	0.00	0.00	0.00
4,600.00	5.00	90.00	4,594.55	0.00	128.54	10.03	0.00	0.00	0.00
4,700.00	5.00	90.00	4,694.17	0.00	137.25	10.71	0.00	0.00	0.00
4,800.00	5.00	90.00	4,793.79	0.00	145.96	11.39	0.00	0.00	0.00
4,900.00	5.00	90.00	4,893.41	0.00	154.68	12.07	0.00	0.00	0.00
5,000.00	5.00	90.00	4,993.03	0.00	163.39	12.75	0.00	0.00	0.00
5,100.00	5.00	90.00	5,092.65	0.00	172.10	13.43	0.00	0.00	0.00
5,200.00	5.00	90.00	5,192.27	0.00	180.82	14.11	0.00	0.00	0.00
5,300.00	5.00	90.00	5,291.89	0.00	189.53	14.79	0.00	0.00	0.00
Delaware Mountain Group									
5,368.37	5.00	90.00	5,360.00	0.00	195.49	15.26	0.00	0.00	0.00
Delaware Bell Canyon									
5,373.39	5.00	90.00	5,365.00	0.00	195.93	15.29	0.00	0.00	0.00
5,400.00	5.00	90.00	5,391.51	0.00	198.24	15.47	0.00	0.00	0.00
5,500.00	5.00	90.00	5,491.12	0.00	206.96	16.15	0.00	0.00	0.00
5,600.00	5.00	90.00	5,590.74	0.00	215.67	16.83	0.00	0.00	0.00
5,700.00	5.00	90.00	5,690.36	0.00	224.39	17.51	0.00	0.00	0.00
5,800.00	5.00	90.00	5,789.98	0.00	233.10	18.19	0.00	0.00	0.00
5,900.00	5.00	90.00	5,889.60	0.00	241.81	18.87	0.00	0.00	0.00
6,000.00	5.00	90.00	5,989.22	0.00	250.53	19.55	0.00	0.00	0.00
6,100.00	5.00	90.00	6,088.84	0.00	259.24	20.23	0.00	0.00	0.00
6,200.00	5.00	90.00	6,188.46	0.00	267.95	20.91	0.00	0.00	0.00
6,300.00	5.00	90.00	6,288.08	0.00	276.67	21.59	0.00	0.00	0.00
6,400.00	5.00	90.00	6,387.70	0.00	285.38	22.27	0.00	0.00	0.00
6,500.00	5.00	90.00	6,487.32	0.00	294.09	22.95	0.00	0.00	0.00
Cherry Canyon									
6,593.03	5.00	90.00	6,579.99	0.00	302.20	23.59	0.00	0.00	0.00
6,600.00	5.00	90.00	6,586.94	0.00	302.81	23.63	0.00	0.00	0.00
6,700.00	5.00	90.00	6,686.56	0.00	311.52	24.31	0.00	0.00	0.00
Start Drop -2.00									
6,764.06	5.00	90.00	6,750.37	0.00	317.10	24.75	0.00	0.00	0.00
6,800.00	4.28	90.00	6,786.20	0.00	320.01	24.98	2.00	-2.00	0.00
6,900.00	2.28	90.00	6,886.03	0.00	325.73	25.42	2.00	-2.00	0.00
7,000.00	0.28	90.00	6,986.00	0.00	327.97	25.60	2.00	-2.00	0.00
Start 4862.04 hold at 7014.00 MD									
7,014.00	0.00	0.00	7,000.00	0.00	328.00	25.60	2.00	-2.00	0.00
7,100.00	0.00	0.00	7,086.00	0.00	328.00	25.60	0.00	0.00	0.00
7,200.00	0.00	0.00	7,186.00	0.00	328.00	25.60	0.00	0.00	0.00
7,300.00	0.00	0.00	7,286.00	0.00	328.00	25.60	0.00	0.00	0.00
7,400.00	0.00	0.00	7,386.00	0.00	328.00	25.60	0.00	0.00	0.00
7,500.00	0.00	0.00	7,486.00	0.00	328.00	25.60	0.00	0.00	0.00
7,600.00	0.00	0.00	7,586.00	0.00	328.00	25.60	0.00	0.00	0.00
7,700.00	0.00	0.00	7,686.00	0.00	328.00	25.60	0.00	0.00	0.00
Brushy Canyon									
7,738.99	0.00	0.00	7,724.99	0.00	328.00	25.60	0.00	0.00	0.00
7,800.00	0.00	0.00	7,786.00	0.00	328.00	25.60	0.00	0.00	0.00
7,900.00	0.00	0.00	7,886.00	0.00	328.00	25.60	0.00	0.00	0.00
8,000.00	0.00	0.00	7,986.00	0.00	328.00	25.60	0.00	0.00	0.00
8,100.00	0.00	0.00	8,086.00	0.00	328.00	25.60	0.00	0.00	0.00
8,200.00	0.00	0.00	8,186.00	0.00	328.00	25.60	0.00	0.00	0.00

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Juliet Federal 1H
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Project:	Lea County, NM (NAD 83)	**MD Reference:**	WELL @ 3542.00ft (Original Well Elev)
Site:	Juliet Federal 1H	**North Reference:**	Grid
Well:	Juliet Federal 1H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Juliet Federal 1H		
Design:	Design #2		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,300.00	0.00	0.00	8,286.00	0.00	328.00	25.60	0.00	0.00	0.00
8,400.00	0.00	0.00	8,386.00	0.00	328.00	25.60	0.00	0.00	0.00
8,500.00	0.00	0.00	8,486.00	0.00	328.00	25.60	0.00	0.00	0.00
8,600.00	0.00	0.00	8,586.00	0.00	328.00	25.60	0.00	0.00	0.00
8,700.00	0.00	0.00	8,686.00	0.00	328.00	25.60	0.00	0.00	0.00
8,800.00	0.00	0.00	8,786.00	0.00	328.00	25.60	0.00	0.00	0.00
8,900.00	0.00	0.00	8,886.00	0.00	328.00	25.60	0.00	0.00	0.00
9,000.00	0.00	0.00	8,986.00	0.00	328.00	25.60	0.00	0.00	0.00
Lower Brushy Canyon Marker									
9,068.99	0.00	0.00	9,054.99	0.00	328.00	25.60	0.00	0.00	0.00
9,100.00	0.00	0.00	9,086.00	0.00	328.00	25.60	0.00	0.00	0.00
Avalon Shale Top									
9,188.99	0.00	0.00	9,174.99	0.00	328.00	25.60	0.00	0.00	0.00
9,200.00	0.00	0.00	9,186.00	0.00	328.00	25.60	0.00	0.00	0.00
Bone Spring									
9,218.99	0.00	0.00	9,204.99	0.00	328.00	25.60	0.00	0.00	0.00
9,300.00	0.00	0.00	9,286.00	0.00	328.00	25.60	0.00	0.00	0.00
9,400.00	0.00	0.00	9,386.00	0.00	328.00	25.60	0.00	0.00	0.00
Avalon Carbonate									
9,433.99	0.00	0.00	9,419.99	0.00	328.00	25.60	0.00	0.00	0.00
9,500.00	0.00	0.00	9,486.00	0.00	328.00	25.60	0.00	0.00	0.00
9,600.00	0.00	0.00	9,586.00	0.00	328.00	25.60	0.00	0.00	0.00
9,700.00	0.00	0.00	9,686.00	0.00	328.00	25.60	0.00	0.00	0.00
9,800.00	0.00	0.00	9,786.00	0.00	328.00	25.60	0.00	0.00	0.00
9,900.00	0.00	0.00	9,886.00	0.00	328.00	25.60	0.00	0.00	0.00
10,000.00	0.00	0.00	9,986.00	0.00	328.00	25.60	0.00	0.00	0.00
10,100.00	0.00	0.00	10,086.00	0.00	328.00	25.60	0.00	0.00	0.00
10,200.00	0.00	0.00	10,186.00	0.00	328.00	25.60	0.00	0.00	0.00
1st Bone Spring Sand									
10,263.99	0.00	0.00	10,249.99	0.00	328.00	25.60	0.00	0.00	0.00
10,300.00	0.00	0.00	10,286.00	0.00	328.00	25.60	0.00	0.00	0.00
10,400.00	0.00	0.00	10,386.00	0.00	328.00	25.60	0.00	0.00	0.00
10,500.00	0.00	0.00	10,486.00	0.00	328.00	25.60	0.00	0.00	0.00
Carbonate									
10,513.99	0.00	0.00	10,499.99	0.00	328.00	25.60	0.00	0.00	0.00
10,600.00	0.00	0.00	10,586.00	0.00	328.00	25.60	0.00	0.00	0.00
10,700.00	0.00	0.00	10,686.00	0.00	328.00	25.60	0.00	0.00	0.00
10,800.00	0.00	0.00	10,786.00	0.00	328.00	25.60	0.00	0.00	0.00
2nd Bone Spring Sand									
10,843.99	0.00	0.00	10,829.99	0.00	328.00	25.60	0.00	0.00	0.00
10,900.00	0.00	0.00	10,886.00	0.00	328.00	25.60	0.00	0.00	0.00
11,000.00	0.00	0.00	10,986.00	0.00	328.00	25.60	0.00	0.00	0.00
11,100.00	0.00	0.00	11,086.00	0.00	328.00	25.60	0.00	0.00	0.00
11,200.00	0.00	0.00	11,186.00	0.00	328.00	25.60	0.00	0.00	0.00
11,300.00	0.00	0.00	11,286.00	0.00	328.00	25.60	0.00	0.00	0.00
Carbonate									
11,303.99	0.00	0.00	11,289.99	0.00	328.00	25.60	0.00	0.00	0.00
11,400.00	0.00	0.00	11,386.00	0.00	328.00	25.60	0.00	0.00	0.00
11,500.00	0.00	0.00	11,486.00	0.00	328.00	25.60	0.00	0.00	0.00
11,600.00	0.00	0.00	11,586.00	0.00	328.00	25.60	0.00	0.00	0.00
11,700.00	0.00	0.00	11,686.00	0.00	328.00	25.60	0.00	0.00	0.00
11,800.00	0.00	0.00	11,786.00	0.00	328.00	25.60	0.00	0.00	0.00
Start DLS 10.00 TFO 179.54									

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Juliet Federal 1H
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Project:	Lea County, NM (NAD 83)	**MD Reference:**	WELL @ 3542.00ft (Original Well Elev)
Site:	Juliet Federal 1H	**North Reference:**	Grid
Well:	Juliet Federal 1H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Juliet Federal 1H		
Design:	Design #2		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
11,876.04	0.00	0.00	11,862.04	0.00	328.00	25.60	0.00	0.00	0.00
11,900.00	2.40	179.54	11,885.99	-0.50	328.00	26.10	10.00	10.00	0.00
3rd Bone Spring Sand									
11,914.02	3.80	179.54	11,899.99	-1.26	328.01	26.86	10.00	10.00	0.00
12,000.00	12.40	179.54	11,985.03	-13.36	328.11	38.92	10.00	10.00	0.00
12,100.00	22.40	179.54	12,080.34	-43.22	328.35	68.71	10.00	10.00	0.00
12,200.00	32.40	179.54	12,169.01	-89.17	328.72	114.55	10.00	10.00	0.00
Wolfcamp									
12,237.14	36.11	179.54	12,199.70	-110.07	328.89	135.40	10.00	10.00	0.00
12,300.00	42.40	179.54	12,248.36	-149.82	329.21	175.06	10.00	10.00	0.00
12,400.00	52.40	179.54	12,315.96	-223.33	329.81	248.39	10.00	10.00	0.00
12,500.00	62.40	179.54	12,369.78	-307.46	330.49	332.32	10.00	10.00	0.00
12,600.00	72.40	179.54	12,408.17	-399.66	331.24	424.29	10.00	10.00	0.00
12,700.00	82.40	179.54	12,429.96	-497.12	332.03	521.52	10.00	10.00	0.00
Start 4102.56 hold at 12774.51 MD									
12,774.51	89.85	179.54	12,435.00	-571.40	332.63	595.62	10.00	10.00	0.00
12,800.00	89.85	179.54	12,435.07	-596.90	332.84	621.05	0.00	0.00	0.00
12,900.00	89.85	179.54	12,435.33	-696.89	333.65	720.81	0.00	0.00	0.00
13,000.00	89.85	179.54	12,435.60	-796.89	334.46	820.56	0.00	0.00	0.00
13,100.00	89.85	179.54	12,435.87	-896.89	335.27	920.32	0.00	0.00	0.00
13,200.00	89.85	179.54	12,436.14	-996.88	336.08	1,020.07	0.00	0.00	0.00
13,300.00	89.85	179.54	12,436.41	-1,096.88	336.89	1,119.83	0.00	0.00	0.00
13,400.00	89.85	179.54	12,436.67	-1,196.88	337.71	1,219.58	0.00	0.00	0.00
13,500.00	89.85	179.54	12,436.94	-1,296.87	338.52	1,319.34	0.00	0.00	0.00
13,600.00	89.85	179.54	12,437.21	-1,396.87	339.33	1,419.09	0.00	0.00	0.00
13,700.00	89.85	179.54	12,437.48	-1,496.86	340.14	1,518.85	0.00	0.00	0.00
13,800.00	89.85	179.54	12,437.75	-1,596.86	340.95	1,618.60	0.00	0.00	0.00
13,900.00	89.85	179.54	12,438.02	-1,696.86	341.76	1,718.35	0.00	0.00	0.00
14,000.00	89.85	179.54	12,438.28	-1,796.85	342.57	1,818.11	0.00	0.00	0.00
14,100.00	89.85	179.54	12,438.55	-1,896.85	343.38	1,917.86	0.00	0.00	0.00
14,200.00	89.85	179.54	12,438.82	-1,996.85	344.19	2,017.62	0.00	0.00	0.00
14,300.00	89.85	179.54	12,439.09	-2,096.84	345.00	2,117.37	0.00	0.00	0.00
14,400.00	89.85	179.54	12,439.36	-2,196.84	345.81	2,217.13	0.00	0.00	0.00
14,500.00	89.85	179.54	12,439.62	-2,296.84	346.63	2,316.88	0.00	0.00	0.00
14,600.00	89.85	179.54	12,439.89	-2,396.83	347.44	2,416.64	0.00	0.00	0.00
14,700.00	89.85	179.54	12,440.16	-2,496.83	348.25	2,516.39	0.00	0.00	0.00
14,800.00	89.85	179.54	12,440.43	-2,596.82	349.06	2,616.15	0.00	0.00	0.00
14,900.00	89.85	179.54	12,440.70	-2,696.82	349.87	2,715.90	0.00	0.00	0.00
15,000.00	89.85	179.54	12,440.97	-2,796.82	350.68	2,815.66	0.00	0.00	0.00
15,100.00	89.85	179.54	12,441.23	-2,896.81	351.49	2,915.41	0.00	0.00	0.00
15,200.00	89.85	179.54	12,441.50	-2,996.81	352.30	3,015.16	0.00	0.00	0.00
15,300.00	89.85	179.54	12,441.77	-3,096.81	353.11	3,114.92	0.00	0.00	0.00
15,400.00	89.85	179.54	12,442.04	-3,196.80	353.92	3,214.67	0.00	0.00	0.00
15,500.00	89.85	179.54	12,442.31	-3,296.80	354.73	3,314.43	0.00	0.00	0.00
15,600.00	89.85	179.54	12,442.57	-3,396.80	355.55	3,414.18	0.00	0.00	0.00
15,700.00	89.85	179.54	12,442.84	-3,496.79	356.36	3,513.94	0.00	0.00	0.00
15,800.00	89.85	179.54	12,443.11	-3,596.79	357.17	3,613.69	0.00	0.00	0.00
15,900.00	89.85	179.54	12,443.38	-3,696.78	357.98	3,713.45	0.00	0.00	0.00
16,000.00	89.85	179.54	12,443.65	-3,796.78	358.79	3,813.20	0.00	0.00	0.00
16,100.00	89.85	179.54	12,443.92	-3,896.78	359.60	3,912.96	0.00	0.00	0.00
16,200.00	89.85	179.54	12,444.18	-3,996.77	360.41	4,012.71	0.00	0.00	0.00
16,300.00	89.85	179.54	12,444.45	-4,096.77	361.22	4,112.47	0.00	0.00	0.00
16,400.00	89.85	179.54	12,444.72	-4,196.77	362.03	4,212.22	0.00	0.00	0.00

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Site:	Juliet Federal 1H	**North Reference:**	Grid
Well:	Juliet Federal 1H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Juliet Federal 1H		
Design:	Design #2		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
16,500.00	89.85	179.54	12,444.99	-4,296.76	362.84	4,311.97	0.00	0.00	0.00
16,600.00	89.85	179.54	12,445.26	-4,396.76	363.65	4,411.73	0.00	0.00	0.00
16,700.00	89.85	179.54	12,445.53	-4,496.75	364.46	4,511.48	0.00	0.00	0.00
16,800.00	89.85	179.54	12,445.79	-4,596.75	365.28	4,611.24	0.00	0.00	0.00
TD at 16877.06									
16,877.06	89.85	179.54	12,446.00	-4,673.81	365.90	4,688.11	0.00	0.00	0.00

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
VP Juliet Federal 1H P2 - plan hits target center - Point	0.00	0.00	7,000.00	0.00	328.00	440,935.00	811,787.20	32° 12' 33.059 N	103° 27' 32.058 W
FTP Juliet Federal 1H P - plan hits target center - Point	0.00	0.00	12,435.00	-571.40	332.63	440,363.60	811,791.83	32° 12' 27.405 N	103° 27' 32.058 W
LTP Juliet Federal 1H P - plan hits target center - Point	0.00	0.00	12,445.65	-4,544.00	364.85	436,391.01	811,824.05	32° 11' 48.094 N	103° 27' 32.059 W
PBHL Juliet Federal 1H - plan hits target center - Point	0.00	0.00	12,446.00	-4,673.81	365.90	436,261.20	811,825.10	32° 11' 46.809 N	103° 27' 32.059 W

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,155.00	1,155.00	Rustler		-0.15	179.54
1,435.00	1,435.00	Salt Top		-0.15	179.54
3,305.53	3,305.00	Salt Base		-0.15	179.54
3,511.31	3,510.00	Lamar Limestone		-0.15	179.54
5,368.37	5,360.00	Delaware Mountain Group		-0.15	179.54
5,373.39	5,365.00	Delaware Bell Canyon		-0.15	179.54
6,593.03	6,580.00	Cherry Canyon		-0.15	179.54
7,738.99	7,725.00	Brushy Canyon		-0.15	179.54
9,068.99	9,055.00	Lower Brushy Canyon Marker		-0.15	179.54
9,188.99	9,175.00	Avalon Shale Top		-0.15	179.54
9,218.99	9,205.00	Bone Spring		-0.15	179.54
9,433.99	9,420.00	Avalon Carbonate		-0.15	179.54
10,263.99	10,250.00	1st Bone Spring Sand		-0.15	179.54
10,513.99	10,500.00	Carbonate		-0.15	179.54
10,843.99	10,830.00	2nd Bone Spring Sand		-0.15	179.54
11,303.99	11,290.00	Carbonate		-0.15	179.54
11,914.02	11,900.00	3rd Bone Spring Sand		-0.15	179.54
12,237.14	12,200.00	Wolfcamp		-0.15	179.54

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Juliet Federal 1H
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Site:	Juliet Federal 1H	**North Reference:**	Grid
Well:	Juliet Federal 1H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Juliet Federal 1H		
Design:	Design #2		

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	+E/-W (ft)	Comment
3,000.00	3,000.00	0.00	0.00	Start Build 2.00
3,249.94	3,249.63	0.00	10.90	Start 3514.11 hold at 3249.94 MD
6,764.06	6,750.37	0.00	317.10	Start Drop -2.00
7,014.00	7,000.00	0.00	328.00	Start 4862.04 hold at 7014.00 MD
11,876.04	11,862.04	0.00	328.00	Start DLS 10.00 TFO 179.54
12,774.51	12,435.00	-571.40	332.63	Start 4102.56 hold at 12774.51 MD
16,877.06	12,446.00	-4,673.81	365.90	TD at 16877.06

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**GMT Exploration Company, LLC.**
LEASE NO.:	**NMNM-77090**
WELL NAME & NO.:	**Juliet Federal Com 1H**
SURFACE HOLE FOOTAGE:	**0400' FNL & 1980' FWL**
BOTTOM HOLE FOOTAGE	**0330' FSL & 1980' FWL**
LOCATION:	**Section 22, T. 24 S., R 34 E., NMPM**
COUNTY:	**Lea County, New Mexico**

All pervious COAs still apply expect the following:

TABLE OF CONTENTS

I. SPECIAL REQUIREMENT(S)

Communitization Agreement

A Communitization Agreement covering the acreage dedicated to this well must be filed for approval with the BLM. The effective date of the agreement shall be prior to any sales. In addition, the well sign shall include the surface and bottom hole lease numbers. If the Communitization Agreement number is known, it shall also be on the sign. If not, it shall be placed on the sign when the sign is replaced.

Timing Limitation Stipulation / Condition of Approval for lesser prairie-chicken:

Oil and gas activities including 3-D geophysical exploration, and drilling will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Additionally, no new drilling will be allowed within up to 200 meters of leks known at the time of permitting. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 feet from the source of the noise.

II. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

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

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

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

1. **Hydrogen Sulfide has been reported as a hazard in formations deeper than the proposed depth. It is recommended that monitoring equipment be onsite for potential Hydrogen Sulfide. If Hydrogen Sulfide is encountered, report measurements and formations to the BLM.**

2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval. **If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a "Major" violation.**

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

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

B. CASING

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

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

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

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

Possibility of water flows in the Salado and Castile.
Possibility of lost circulation in the Red Beds, Rustler, and Delaware.

1. The **13 3/8** inch surface casing shall be set at approximately **1270** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface. **If salt is encountered, set casing at least 25 feet above the salt.**
    a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
    b. Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.
    c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
    d. If cement falls back, remedial cementing will be done prior to drilling out that string.

Formation below the 13 3/8" shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe and the mud weight for the bottom of the hole. Report results to BLM office.

2. The minimum required fill of cement behind the **7 5/8** inch intermediate casing is:

    ☒ Cement to surface. If cement does not circulate see B.1.a, c-d above.

Formation below the 7-5/8" shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe (not the mud weight required to prevent dissolving the salt formation) and the mud weight for the bottom of the hole. Report results to BLM office.

Centralizers required on horizontal leg, must be type for horizontal service and a minimum of one every other joint.

The 5-1/2 inch production casing shall be set at 11500 feet.

3. The minimum required fill of cement behind the **5-1/2 x 5** inch production casing is:
   a. ☒ Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification. **Additional cement maybe required. Excess cement calculates only -12%.**

4. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

C. PRESSURE CONTROL

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

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.

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 10,000 (10M) 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.**

3. 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. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**.
    c. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.
    d. The results of the test shall be reported to the appropriate BLM office.
    e. All tests are required to be recorded on a calibrated test chart. **A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.**

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

D. DRILL STEM TEST

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

E. WASTE MATERIAL AND FLUIDS

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

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

ZS 092117

In a Lesser Prairie-Chicken section.

13 3/8	surface csg in a		17 1/2	inch hole.		Design Factors		SURFACE	
Segment	#/ft	Grade		Coupling	Joint	Collapse	Burst	Length	Weight
"A"	54.50	J 55		ST&C	7.43	1.9	0.49	1,270	69,215
"B"								0	0
w/8.4#/g mud, 30min Sfc Csg Test psig:	1,357			Tail Cmt	does not	circ to sfc.		Totals:	1,270	69,215

Comparison of Proposed to Minimum Required Cement Volumes

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
17 1/2	0.6946	921	1453	936	55	9.00	3014	5M	1.56

Burst Frac Gradient(s) for Segment(s) A, B = , b All > 0.70, OK.

7 5/8	casing inside the		13 3/8			Design Factors		INTERMEDIATE	
Segment	#/ft	Grade		Coupling	Joint	Collapse	Burst	Length	Weight
"A"	29.70	HCP 110		LT&C	2.22	1.28	1.13	11,700	347,490
"B"								0	0
w/8.4#/g mud, 30min Sfc Csg Test psig:							Totals:	11,700	347,490
The cement volume(s) are intended to achieve a top of					0	ft from surface or a		1270	overlap.

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
9 7/8	0.2148	look ↘	0	2951		9.20	5662	10M	0.69
D V Tool(s):			4500				sum of sx	Σ CuFt	Σ%excess
t by stage % :		95	43				2430	5027	70

Class 'H' tail cmt yld > 1.20 MASP is within 10% of 5000psig, need

Tail cmt

5 1/2	casing inside the		7 5/8			Design Factors		PRODUCTION	
Segment	#/ft	Grade		Coupling	Joint	Collapse	Burst	Length	Weight
"A"	20.00	P 110		BUTT	2.60	1.43	1.51	11,500	230,000
"B"	18.00	Hcp 110		BUTT	7.32	1.50	1.66	5,377	96,786
w/8.4#/g mud, 30min Sfc Csg Test psig:	2,530						Totals:	16,877	326,786
B would be:					34.46	1.60	if it were a vertical wellbore.		

No Pilot Hole Planned

MTD	Max VTD	Csg VD	Curve KOP	Dogleg°	Severity°	MEOC
16877	12435	12435	11876	90	10	12775

The cement volume(s) are intended to achieve a top of 5200 ft from surface or a 6500 overlap.

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
6 3/4	0.0835	713	920	1040	-12	13.00			0.32

Class 'H' tail cmt yld > 1.20