Form 3160-3
(June 2015)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

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

5. Lease Serial No.

6. If Indian, Allotee or Tribe Name

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

8. Lease Name and Well No.

[331539]

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

2. Name of Operator **[6137]**

9. API Well No. **30-025-49660**

3a. Address

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

10. Field and Pool, or Exploratory

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 12/16/2021

SL

APPROVED WITH CONDITIONS

KZ
12/20/2021

(Continued on page 2)

*(Instructions on page 2)

Approval Date: 12/02/2021

Additional Operator Remarks

Location of Well

0. SHL: SWNW / 2485 FNL / 281 FWL / TWSP: 26S / RANGE: 34E / SECTION: 23 / LAT: 32.029343 / LONG: -103.448345 (TVD: 0 feet, MD: 0 feet)
PPP: SWSW / 158 FSL / 400 FWL / TWSP: 26S / RANGE: 34E / SECTION: 14 / LAT: 32.0365156 / LONG: -103.4479174 (TVD: 10959 feet, MD: 13500 feet)
PPP: SWNW / 2539 FNL / 440 FWL / TWSP: 26S / RANGE: 34E / SECTION: 23 / LAT: 32.029192 / LONG: -103.447832 (TVD: 10570 feet, MD: 10585 feet)
BHL: NWNW / 20 FNL / 440 FWL / TWSP: 26S / RANGE: 34E / SECTION: 11 / LAT: 32.065149 / LONG: -103.447843 (TVD: 10785 feet, MD: 23885 feet)

BLM Point of Contact

Name: Candy Vigil
Title: LIE
Phone: (575) 234-5982
Email: cvigil@blm.gov

Approval Date: 12/02/2021

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 & 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
30-025-49660	96661	HARDIN TANK; BONE SPRING

Property Code	Property Name	Well Number
331539	MUSKIE 23-11 FED COM	11H

OGRID No.	Operator Name	Elevation
6137	DEVON ENERGY PRODUCTION COMPANY, L.P.	3213.1'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
E	23	26-S	34-E		2485	NORTH	281	WEST	LEA

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	11	26-S	34-E		20	NORTH	440	WEST	LEA

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
800			

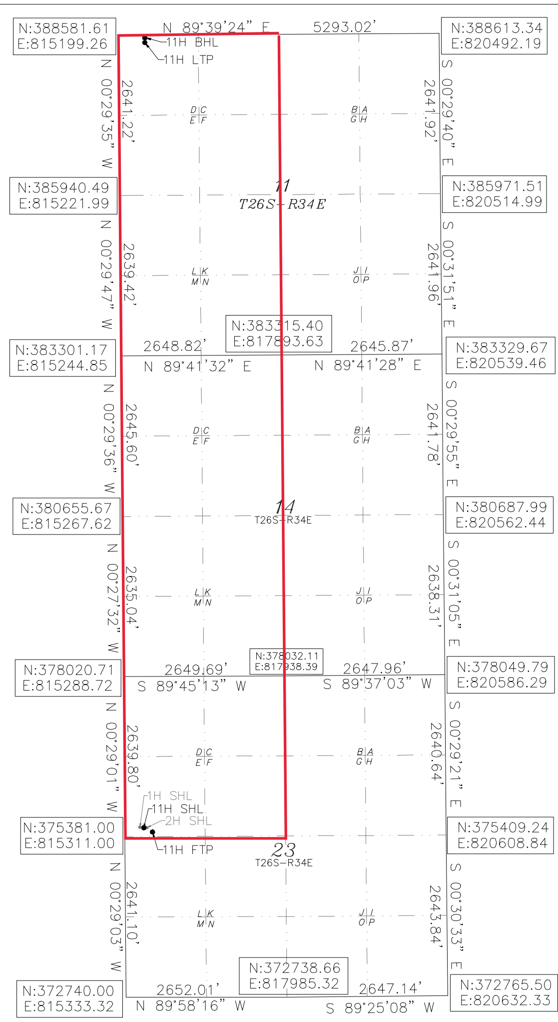
NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

MUSKIE 23-11 FED COM 11H
EL: 3213.1'
LAT:32.029343
LON:103.448345
N:375536.99
E:815590.70

FIRST TAKE POINT
2539' FNL 440' FWL SEC. 23
LAT:32.029192
LON:103.447832
N:375483.34
E:815750.16

LAST TAKE POINT
100' FNL 440' FWL SEC. 11
LAT:32.064929
LON:103.447843
N:388484.25
E:815640.12

BOTTOM OF HOLE
LAT:32.065149
LON:103.447843
N:388564.25
E:815639.43



Note: All bearings recited herein are based on the New Mexico State Plane Coordinate System, NAD 83,New Mexico East Zone 3001, US Survey Feet, all distances are grid.

OPERATOR CERTIFICATION

I hereby certify that the information 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 mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Rebecca Deal 7/14/2021
Signature Date

Rebecca Deal, Regulatory Analyst
Printed Name

rebecca.deal@dvn.com
E-mail 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 supervision, and that the same is true and correct to the best of my belief.

01/27/2020
Date of Survey

Signature & Seal of Professional Surveyor

B. L. LAMAN
NEW MEXICO
22404
PROFESSIONAL SURVEYOR

REV: 7/12/21

Certificate No. 22404 B.L. LAMAN

DRAWN BY: CM

Intent [ ] As Drilled [ ]

API # 30-025-49660

Operator Name:	Property Name:	Well Number

Kick Off Point (KOP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
Latitude					Longitude				NAD

First Take Point (FTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
Latitude					Longitude				NAD

Last Take Point (LTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
Latitude					Longitude			NAD	

Is this well the defining well for the Horizontal Spacing Unit? [ ]

Is this well an infill well? [ ]

If infill is yes please provide API if available, Operator Name and well number for Defining well for Horizontal Spacing Unit.

API #

Operator Name:	Property Name:	Well Number

KZ 06/29/2018

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: Devon Energy Production Company, L.P. **OGRID:** 6137 **Date:** 10 /21 / 2021

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
See Attached						

IV. Central Delivery Point Name: Muskie 23 CTB 4 [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
See Attached						

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

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

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

Section 2 – Enhanced Plan
EFFECTIVE APRIL 1, 2022

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

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

IX. Anticipated Natural Gas Production:

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

X. Natural Gas Gathering System (NGGS):

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

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

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

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

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

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

Section 3 - Certifications

Effective May 25, 2021

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

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

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

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

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

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

Section 4 - Notices

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

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

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

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

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

Signature:	
Printed Name:	Lindsey Miles
Title:	Land Manager
E-mail Address:	
Date:	
Phone:	

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

Muskie 23 CTB 4									
Well Name	API	ULSTR	N/S Footage	Call	E/W Footage	Call	Anticipated Oil BBL/D	Anticipated Gas MCF/D	Anticipated Produced Water BBL/D
Muskie 23-11 Fed Com 1H		23-26S-34E	2485	FNL	251	FWL	(+/-)1468 BOPD	(+/-)2202 MCFD	(+/-)14908BWPD
Muskie 23-11 Fed Com 2H		23-26S-34E	2485	FNL	311	FWL	(+/-)1468 BOPD	(+/-)2202 MCFD	(+/-)14908BWPD
Muskie 23-11 Fed Com 11H		23-26S-34E	2845	FNL	281	FWL	(+/-)1468 BOPD	(+/-)2202 MCFD	(+/-)14908BWPD
Muskie 23-11 Fed Com 9H		23-26S-34E	2316	FNL	1662	FWL	(+/-)1468 BOPD	(+/-)2202 MCFD	(+/-)14908BWPD
Muskie 23-11 Fed Com 3H		23-26S-34E	2316	FNL	1722	FWL	(+/-)1468 BOPD	(+/-)2202 MCFD	(+/-)14908BWPD
Muskie 23-11 Fed Com 4H		23-26S-34E	2316	FNL	1752	FWL	(+/-)1468 BOPD	(+/-)2202 MCFD	(+/-)14908BWPD
Muskie 23-11 Fed Com 12H		23-26S-34E	2316	FNL	1692	FWL	(+/-)1468 BOPD	(+/-)2202 MCFD	(+/-)14908BWPD
Muskie 23-11 Fed Com 13H		23-26S-34E	2316	FNL	1782	FWL	(+/-)1468 BOPD	(+/-)2202 MCFD	(+/-)14908BWPD

30-025-49660

Well Name	API	Spud Date	TD Reached Date	Completion Commencement Date	Initial Flow Back Date	First Production Date
Muskie 23-11 Fed Com 1H		12/1/2023	12/31/2023	4/29/2024	4/29/2024	4/29/2024
Muskie 23-11 Fed Com 2H		3/17/2022	4/16/2022	8/14/2022	8/14/2022	8/14/2022
Muskie 23-11 Fed Com 11H		2/18/2022	3/20/2022	7/18/2022	7/18/2022	7/18/2022
Muskie 23-11 Fed Com 9H		3/23/2023	4/22/2023	8/20/2023	8/20/2023	8/20/2023
Muskie 23-11 Fed Com 3H		1/30/2022	3/1/2022	6/29/2022	6/29/2022	6/29/2022
Muskie 23-11 Fed Com 4H		3/25/2022	4/24/2022	8/22/2022	8/22/2022	8/22/2022
Muskie 23-11 Fed Com 12H		2/25/2022	3/27/2022	7/25/2022	7/25/2022	7/25/2022
Muskie 23-11 Fed Com 13H		2/25/2022	3/27/2022	7/25/2022	7/25/2022	7/25/2022

devon

VI. Separation Equipment

Devon Energy Production Company, L.P. utilizes a "stage separation" process in which oil and gas separation is carried out through a series of separators operating at successively reduced pressures. Hydrocarbon liquids are produced into a high-pressure inlet separator, then carried through one or more lower pressure separation vessels before entering the storage tanks. The purpose of this separation process is to attain maximum recovery of liquid hydrocarbons from the fluids and allow maximum capture of produced gas into the sales pipeline. Devon utilizes a series of Low-Pressure Compression units to capture gas off the staged separation and send it to the sales pipeline. This process minimizes the amount of flash gas that enters the end-stage storage tanks that is subsequently vented or flared.

devon

VII. Operational Practices

Devon Energy Production Company, L. P. will employ best management practices and control technologies to maximize the recovery and minimize waste of natural gas through venting and flaring.

- During drilling operations, Devon will utilize flares and/or combustors to capture and control natural gas, where technically feasible. If flaring is deemed technically in-feasible, Devon will employ best management practices to minimize or reduce venting to the extent possible.
- During completions operations, Devon will utilize Green Completion methods to capture gas produced during well completions that is otherwise vented or flared. If capture is technically in-feasible, flares and/or combustors will be used to capture and control flow back fluids entering into frac tanks during initial flowback. Upon indication of first measurable hydrocarbon volumes, Devon will turn operations to onsite separation vessels and flow to the gathering pipeline.
- During production operations, Devon will take every practical effort to minimize waste of natural gas through venting and flaring by:
    - Designing and constructing facilities in a manner consistent to achieve maximum capture and control of hydrocarbon liquids & produced gas
    - Utilizing a closed-loop capture system to collect and route produced gas to sales line via low pressure compression, or to a flare/combustor
    - Flaring in lieu of venting, where technically feasible
    - Utilizing auto-ignitors or continuous pilots, with thermocouples connected to Scada, to quickly detect and resolve issues related to malfunctioning flares/combustors
    - Employ the use of automatic tank gauging to minimize storage tank venting during loading events
    - Installing air-driven or electric-driven pneumatics & combustion engines, where technically feasible to minimize venting to the atmosphere
    - Confirm equipment is properly maintained and repaired through a preventative maintenance and repair program to ensure equipment meets all manufacturer specifications
    - Conduct and document AVO inspections on the frequency set forth in Part 27 to detect and repair any onsite leaks as quickly and efficiently as is feasible

devon

VIII. Best Management Practices during Maintenance

Devon Energy Production Company, L.P. will utilize best management practices to minimize venting during active and planned maintenance activities. Devon is operating under guidance that production facilities permitted under NOI permits have no provisions to allow high pressure flaring and high pressure flaring is only allowed in disruption scenarios so long as the duration is less than eight hours. When technically feasible, flaring during maintenance activities will be utilized in lieu of venting to the atmosphere. Devon will work with third-party operators during scheduled maintenance of downstream pipeline or processing plants to address those events ahead of time to minimize venting. Actions considered include identifying alternative capture approaches or planning to temporarily reduce production or shut in the well to address these circumstances.

1. Geologic Formations

TVD of target	10786	Pilot hole depth	N/A
MD at TD:	23885	Deepest expected fresh water	

Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/Target Zone?	Hazards*
Rustler	890		
Salt	1250		
Base of Salt	5000		
Lamar	5000		
Delaware	5300		
Cherry Canyon	6335		
Brushy Canyon	7975		
1st Bone Spring Lime	9405		
Bone Spring 1st	10570		

*H2S, water flows, loss of circulation, abnormal pressures, etc.

2. Casing Program

Hole Size	Csg. Size	Wt (PPF)	Grade	Conn	Casing Interval		Casing Interval	
					From (MD)	To (MD)	From (TVD)	To (TVD)
17 1/2	13 3/8	48	H40	BTC	0	915	0	915
12 1/4	9 5/8	40	J-55	BTC	0	5100	0	5100
8 3/4	5 1/2	17	P110	BTC	0	23885	0	10786

• All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 IILB.1.h Must have table for contingency casing.

3. Cementing Program (3-String Primary Design)

Casing	# Sks	TOC	Wt. (lb/gal)	Yld (ft3/sack)	Slurry Description
Surface	701	Surf	13.2	1.4	Lead: Class C Cement + additives
Int 1	564	Surf	9.0	3.3	Lead: Class C Cement + additives
	154	500' above shoe	13.2	1.4	Tail: Class H / C + additives
Int 1 Intermediate Squeeze	As Needed	Surf	9.0	3.3	Squeeze Lead: Class C Cement + additives
	564	Surf	9.0	3.3	Lead: Class C Cement + additives
	154	500' above shoe	13.2	1.4	Tail: Class H / C + additives
Production	497	500' tieback	9.0	3.3	Lead: Class H /C + additives
	2595	KOP	13.2	1.4	Tail: Class H / C + additives

If a DV tool is ran the depth(s) will be adjusted based on hole conditions and cement volumes will be adjusted proportionally. Slurry weights will be adjusted based on estimated fracture gradient of the formation. DV tool will be set a minimum of 50 feet below previous casing and a minimum of 200 feet above current shoe. If cement is not returned to surface during the primary cement job on the surface casing string, a planned top job will be conducted immediately after completion of the primary job.

Casing String	% Excess
Surface	50%
Intermediate	30%
Production	10%

4. Pressure Control Equipment (Three String Design)

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type		✓	Tested to:
Int 1	13-58"	5M	Annular		X	50% of rated working pressure
			Blind Ram		X	5M
			Pipe Ram			
			Double Ram		X	
			Other*			
Production	13-5/8"	5M	Annular		X	50% of rated working pressure
			Blind Ram		X	5M
			Pipe Ram			
			Double Ram		X	
			Other*			
			Annular (5M)			
			Blind Ram			
			Pipe Ram			
			Double Ram			
			Other*			

5. Mud Program (Three String Design)

Section	Type	Weight (ppg)
Surface	FW Gel	8.5-9
Intermediate	Brine	10-10.5
Production	WBM	8.5-9

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.

What will be used to monitor the loss or gain of fluid?	PVT/Pason/Visual Monitoring

6. Logging and Testing Procedures

Logging, Coring and Testing	
X	Will run GR/CNL from TD to surface (horizontal well - vertical portion of hole). Stated logs run will be in the Completion Report and sbumitted to the BLM.
	No logs are planned based on well control or offset log information.
	Drill stem test? If yes, explain.
	Coring? If yes, explain.

Additional logs planned		Interval
	Resistivity	
	Density	
X	CBL	Production casing
X	Mud log	KOP to TD
	PEX	

7. Drilling Conditions

Condition	Specfiy what type and where?
BH pressure at deepest TVD	5048
Abnormal temperature	No

Mitigation measure for abnormal conditions. Describe. Lost circulation material/sweeps/mud scavengers.

Hydrogren Sulfide (H2S) monitors will be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered measured values and formations will be provided to the BLM.	
N	H2S is present
Y	H2S plan attached.

8. Other facets of operation

Is this a walking operation? Potentially

1. If operator elects, drilling rig will batch drill the surface holes and run/cement surface casing; walking the rig to next wells on the pad.
2. The drilling rig will then batch drill the intermediate sections and run/cement intermediate casing; the wellbore will be isolated with a blind flange and pressure gauge installed for monitoring the well before walking to the next well.
3. The drilling rig will then batch drill the production hole sections on the wells with OBM, run/cement production casing, and install TA caps or tubing heads for completions.

   NOTE: During batch operations the drilling rig will be moved from well to well however, it will not be removed from the pad until all wells have production casing run/cemented.

Will be pre-setting casing? Potentially

1. Spudder rig will move in and batch drill surface hole.
   a. Rig will utilize fresh water based mud to drill surface hole to TD. Solids control will be handled entirely on a closed loop basis.
2. After drilling the surface hole section, the spudder rig will run casing and cement following all of the applicable rules and regulations (OnShore Order 2, all COAs and NMOCD regulations).
3. The wellhead will be installed and tested once the surface casing is cut off and the WOC time has been reached.
4. A blind flange with the same pressure rating as the wellhead will be installed to seal the wellbore. Pressure will be monitored with a pressure gauge installed on the wellhead.
5. Spudder rig operations is expected to take 4-5 days per well on a multi-well pad.
6. The NMOCD will be contacted and notified 24 hours prior to commencing spudder rig operations.
7. Drilling operations will be performed with drilling rig. At that time an approved BOP stack will be nippled up and tested on the wellhead before drilling operations commences on each well.
   a. The NMOCD will be contacted / notified 24 hours before the drilling rig moves back on to the pad with the pre-set surface casing.

Attachments

X ______ Directional Plan
______ Other, describe

AFMSS

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

Drilling Plan Data Report

12/16/2021

APD ID: 10400077596

Submission Date: 07/19/2021

Highlighted data reflects the most recent changes

Show Final Text

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: MUSKIE 23-11 FED COM

Well Number: 11H

Well Type: OIL WELL

Well Work Type: Drill

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
6627015	---	3213	0	0	OTHER : Surface	NONE	N
6627016	RUSTLER	2323	890	890	SANDSTONE	NONE	N
6627017	TOP SALT	1963	1250	1250	SALT	NONE	N
6627025	BASE OF SALT	-1787	5000	5000	ANHYDRITE	NONE	N
6627014	BONE SPRING 1ST	-7357	10570	10570	SANDSTONE	NATURAL GAS, OIL	N
6627023	BONE SPRING 2ND	-7907	11120	11120	SANDSTONE	NATURAL GAS, OIL	N
6627021	BONE SPRING 3RD	-8962	12175	12175	SANDSTONE	NATURAL GAS, OIL	N
6627024	WOLFCAMP	-9382	12595	12595	SHALE	NATURAL GAS, OIL	Y

Section 2 - Blowout Prevention

Pressure Rating (PSI): 5M

Rating Depth: 10786

Equipment: BOP/BOPE will be installed per Onshore Oil & Gas Order #2 requirements prior to drilling below intermediate casing, a BOP/BOPE system with the above minimum rating will be installed on the wellhead system. BOP/BOPE will be tested by an independent service company per Onshore Oil & Gas Order #2 requirements and MASP (Maximum Anticipated Surface Pressure) calculations. If the system is upgraded, all the components installed will be functional and tested.

Requesting Variance? YES

Variance request: A variance is requested for the use of a flexible choke line from the BOP stack to the choke manifold. See attached for specs for hydrostatic test chart.

Testing Procedure: A multibowl wellhead may be used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested.

Choke Diagram Attachment:

5M_BOPE__CK_20200309161821.pdf

BOP Diagram Attachment:

MB_Verb_5M_20210716133433.pdf

Devon Energy
APD VARIANCE DATA

OPERATOR NAME: Devon Energy

1. **SUMMARY OF Variance:**

Devon Energy respectfully requests approval for the following additions to the drilling plan:

1. Potential utilization of a spudder rig to pre-set surface casing.

2. **Description of Operations**
   1. A spudder rig contractor may move in their rig to drill the surface hole section and pre-set surface casing on this well.
      - **a.** After drilling the surface hole section, the rig will run casing and cement following all of the applicable rules and regulations (OnShore Order 2, all COAs and NMOCD regulations).
      - **b.** Rig will utilize fresh water based mud to drill surface hole to TD.
   2. The wellhead will be installed and tested once the surface casing is cut off and the WOC time has been reached.
   3. A blind flange with the same pressure rating as the wellhead will be installed to seal the wellbore. Pressure will be monitored with needle valves installed on two wingvalves.
      - **a.** A means for intervention will be maintained while the drilling rig is not over the well.
   4. The BLM will be contacted and notified 24 hours prior to commencing spudder rig operations.
   5. Drilling operation will be performed with the big rig. At that time an approved BOP stack will be nippled up and tested on the wellhead before drilling operations commences on each well.
      - **a.** The BLM will be contacted / notified 24 hours before the big rig moves back on to the pad with the pre-set surface casing.
   6. Devon Energy will have supervision on the rig to ensure compliance with all BLM and NMOCD regulations and to oversee operations.
   7. Once the rig is removed, Devon Energy will secure the wellhead area by placing a guard rail around the cellar area.

Fluid Technology

ContiTech Beattie Corp.
Website: www.contitechbeattie.com

Monday, June 14, 2010

RE: Drilling & Production Hoses
Lifting & Safety Equipment

To Helmerich & Payne,

A Continental ContiTech hose assembly can perform as intended and suitable for the application regardless of whether the hose is secured or unsecured in its configuration. As a manufacturer of High Pressure Hose Assemblies for use in Drilling & Production, we do offer the corresponding lifting and safety equipment, this has the added benefit of easing the lifting and handling of each hose assembly whilst affording hose longevity by ensuring correct handling methods and procedures as well as securing the hose in the unlikely event of a failure; but in no way does the lifting and safety equipment affect the performance of the hoses providing the hoses have been handled and installed correctly It is good practice to use lifting & safety equipment but not mandatory

Should you have any questions or require any additional information/clarifications then please do not hesitate to contact us.

ContiTech Beattie is part of the Continental AG Corporation and can offer the full support resources associated with a global organization.

Best regards,

Robin Hodgson
Sales Manager
ContiTech Beattie Corp

ContiTech Beattie Corp,
11535 Brittmoore Park Drive,
Houston, TX 77041
Phone: +1 (832) 327-0141
Fax: +1 (832) 327-0148
www.contitechbeattie.com

RIG 212

PHOENIX

QUALITY DOCUMENT

PHOENIX RUBBER
INDUSTRIAL LTD.

6728 Szeged, Budapesti út 10. Hungary • H-6701 Szeged, P. O. Box 152
Phone: (3662) 556-737 • Fax: (3662) 566-738

SALES & MARKETING: H-1092 Budapest, Ráday u. 42-44. Hungary • H-1440 Budapest, P. O. Box 26
Phone: (361) 456-4200 · Fax: (361) 217-2972, 456-4273 · www.taurusemerge.hu

QUALITY CONTROL INSPECTION AND TEST CERTIFICATE			CERT. N°: 552
PURCHASER: Phoenix Beattie Co.			P.O. N°: 1519FA-871
PHOENIX RUBBER order N°: 170466	HOSE TYPE: 3" ID	Choke and Kill Hose	
HOSE SERIAL N°: 34128	NOMINAL / ACTUAL LENGTH:	11,43 m	
W.P. 68,96 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 = 25 MPa

COUPLINGS

Type	Serial N°	Quality	Heat N°
3" coupling with 4 1/16" Flange end	720 719	AISI 4130 AISI 4130	C7626 47357

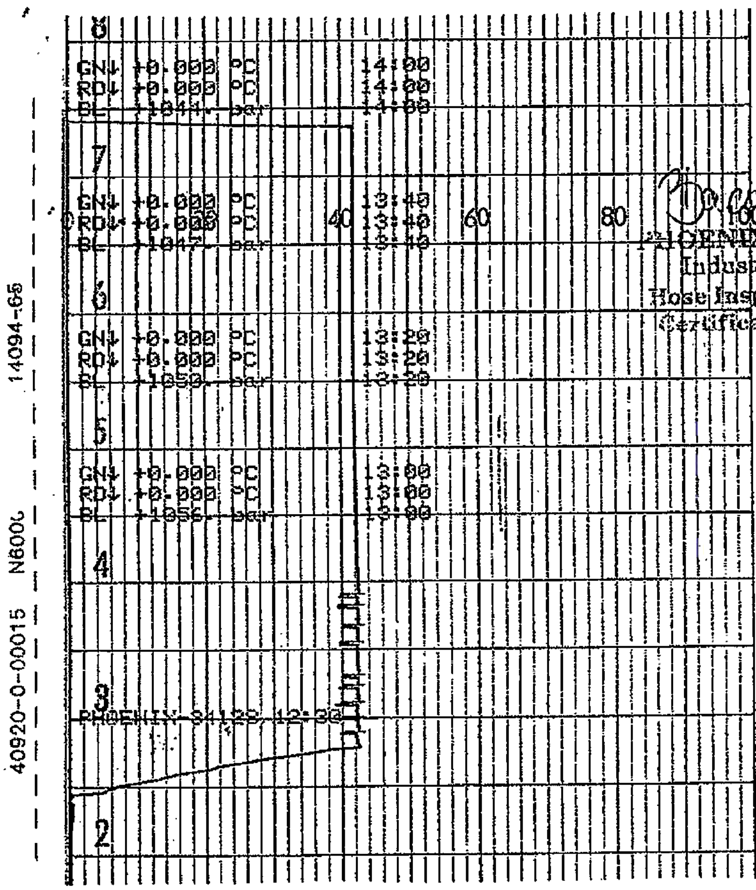
API Spec 16 C
Temperature rate:"B"

All metal parts are flawless

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

Date:	Inspector	Quality Control
29. April. 2002.		PHOENIX RUBBER Industrial Ltd. Hose Inspection and Test Dept.

VERIFIED TRUE COPY
PHOENIX RUBBER Q.C.



PHOENIX RUBBER
Industrial Ltd.
Hose Inspection and
Certification Dept.

VERIFIED TRUE CO.
PHOENIX RUBBER Q.C.

devon

Commitment Runs Deep

Design Plan
Operation and Maintenance Plan
Closure Plan

SENM – Closed Loop Systems
June 2010

I. Design Plan

Devon uses MI SWACO closed loop system (CLS). The MI SWACO CLS is designed to maintain drill solids at or below 5%. The equipment is arranged to progressively remove solids from the largest to the smallest size. Drilling fluids can thus be reused and savings is realized on mud and disposal costs. Dewatering may be required with the centrifuges to insure removal of ultra fine solids.

The drilling location is constructed to allow storm water to flow to a central sump normally the cellar. This insures no contamination leaves the drilling pad in the event of a spill. Storm water is reused in the mud system or stored in a reserve fluid tank farm until it can be reused. All lubricants, oils, or chemicals are removed immediately from the ground to prevent the contamination of storm water. An oil trap is normally installed on the sump if an oil spill occurs during a storm.

A tank farm is utilized to store drilling fluids including fresh water and brine fluids. The tank farm is constructed on a 20 ml plastic lined, bermed pad to prevent the contamination of the drilling site during a spill. Fluids from other sites may be stored in these tanks for processing by the solids control equipment and reused in the mud system. At the end of the well the fluids are transported from the tank farm to an adjoining well or to the next well for the rig.

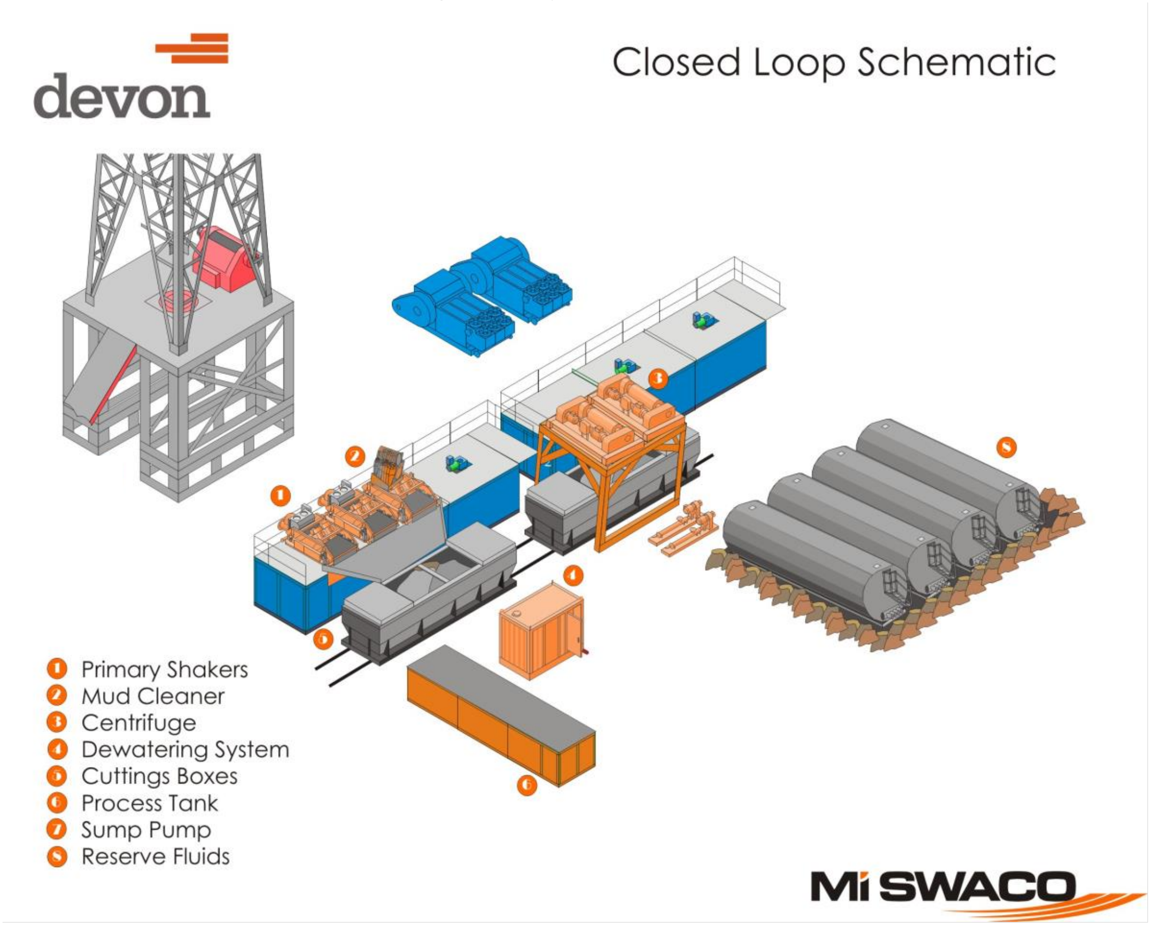
Prior to installing a closed-loop system on site, the topsoil, if present, will be stripped and stockpiled for use as the final cover or fill at the time of closure.

Signs will be posted on the fence surrounding the closed-loop system unless the closed-loop system is located on a site where there is an existing well, that is operated by Devon.

II. Operations and Maintenance Plan

Primary Shakers: The primary shakers make the first removal of drill solids from the drilling mud as it leaves the well bore. The shakers are sized to handle maximum drilling rate at optimal screen size. The shakers normally remove solids down to 74 microns.

Mud Cleaner: The Mud Cleaner cleans the fluid after it leaves the shakers. A set of hydrocyclones are sized to handle 1.25 to 1.5 times the maximum circulating rate. This ensures all the fluid is being processed to an average cut point of 25 microns. The wet discharged is dewatered on a shaker equipped with ultra fine mesh screens and generally cut at 40 microns.



Centrifuges: The centrifuges can be one or two in number depending on the well geometry or depth of well. The centrifuges are sized to maintain low gravity solids at 5% or below. They may or may not need a dewatering system to enhance the removal rates. The centrifuges can make a cut point of 8-10 microns depending on bowl speed, feed rate, solids loading and other factors.

The centrifuge system is designed to work on the active system and be flexible to process incoming fluids from other locations. This set-up is also dependant on well factors.

Dewatering System: The dewatering system is a chemical mixing and dosing system designed to enhance the solids removal of the centrifuge. Not commonly used in shallow wells. It may contain pH adjustment, coagulant mixing and dosing, and polymer mixing and dosing. Chemical flocculation binds ultra fine solids into a mass that is within the centrifuge operating design. The dewatering system improves the centrifuge cut point to infinity or allows for the return of clear water or brine fluid. This ability allows for the ultimate control of low gravity solids.

Cuttings Boxes: Cuttings boxes are utilized to capture drill solids that are discarded from the solids control equipment. These boxes are set upon a rail system that allows for the removal and replacement of a full box of cuttings with an empty one. They are equipped with a cover that insures no product is spilled into the environment during the transportation phase.

Process Tank: (Optional) The process tank allows for the holding and process of fluids that are being transferred into the mud system. Additionally, during times of lost circulation the process tank may hold active fluids that are removed for additional treatment. It can further be used as a mixing tank during well control conditions.

Sump and Sump Pump: The sump is used to collect storm water and the pump is used to transfer this fluid to the active system or to the tank for to hold in reserve. It can also be used to collect fluids that may escape during spills. The location contains drainage ditches that allow the location fluids to drain to the sump.

Reserve Fluids (Tank Farm): A series of frac tanks are used to replace the reserve pit. These are steel tanks that are equipped with a manifold system and a transfer pump. These tanks can contain any number of fluids used during the drilling process. These can include fresh water, cut brine, and saturated salt fluid. The fluid can be from the active well or reclaimed fluid from other locations. A 20 ml liner and berm system is employed to ensure the fluids do not migrate to the environment during a spill.

If a leak develops, the appropriate division district office will be notified within 48 hours of the discovery and the leak will be addressed. Spill prevention is accomplished by maintaining pump packing, hoses, and pipe fittings to insure no leaks are occurring. During an upset condition the source of the spill is isolated and repaired as soon as it is discovered. Free liquid is removed by a diaphragm pump and returned to the mud system. Loose topsoil may be used to stabilize the spill and the contaminated soil is excavated and placed in the cuttings boxes. After the well is finished and the rig has moved, the entire location is scrapped and testing will be performed to determine if a release has occurred.

All trash is kept in a wire mesh enclosure and removed to an approved landfill when full. All spent motor oils are kept in separate containers and they are removed and sent to an approved recycling center. Any spilled lubricants, pipe dope, or regulated chemicals are removed from soil and sent to landfills approved for these products.

These operations are monitored by Mi Swaco service technicians. Daily logs are maintained to ensure optimal equipment operation and maintenance. Screen and chemical use is logged to maintain inventory control. Fluid properties are monitored and recorded and drilling mud volumes are accounted for in the mud storage farm. This data is kept for end of well review to insure performance goals are met. Lessons learned are logged and used to help with continuous improvement.

A MI SWACO field supervisor manages from 3-5 wells. They are responsible for training personnel, supervising installations, and inspecting sites for compliance of MI SWACO safety and operational policy.

III. Closure Plan

A maximum 340' X 340' caliche pad is built per well. All of the trucks and steel tanks fit on this pad. All fluid cuttings go to the steel tanks to be hauled by various trucking companies to an agency approved disposal.

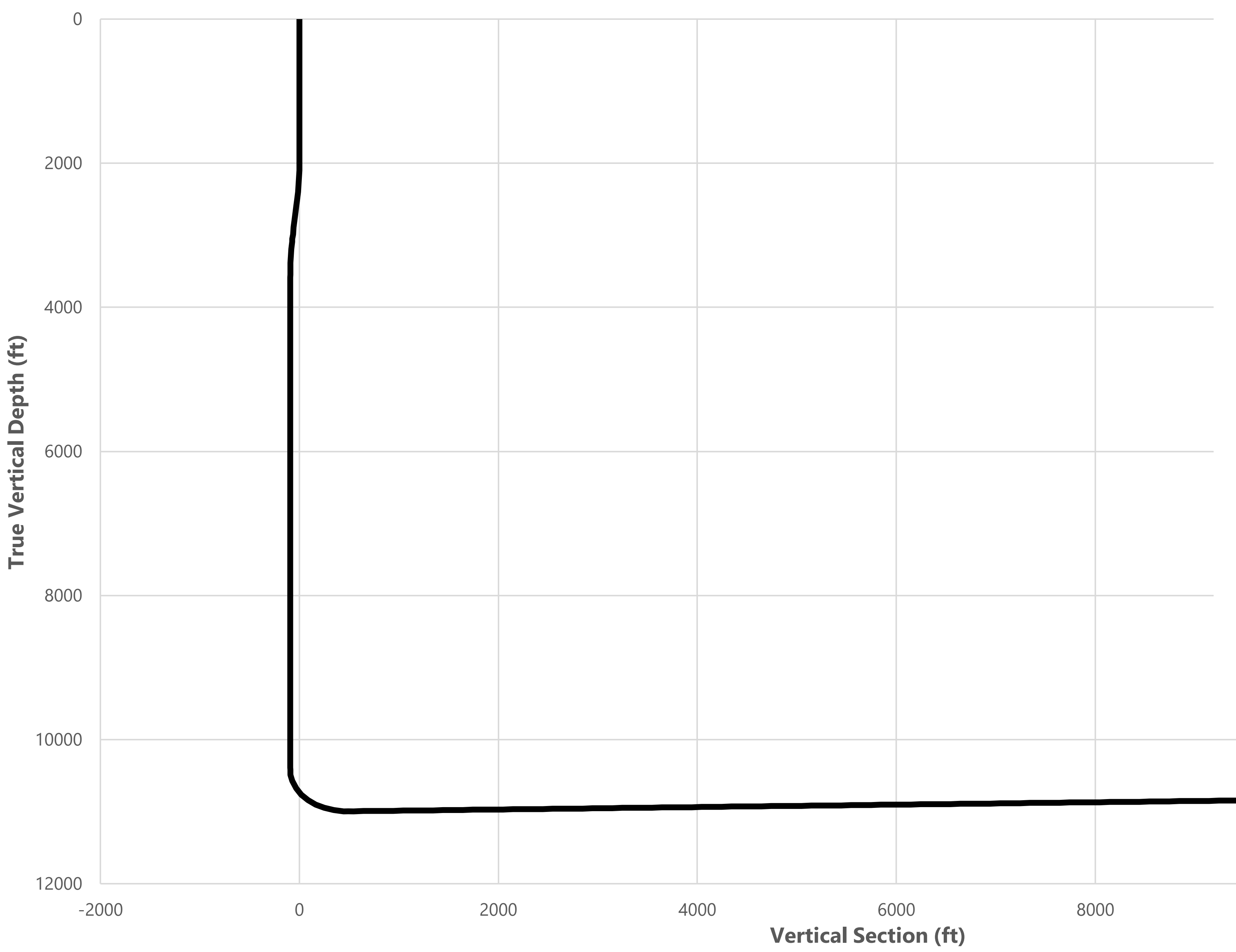
Muskie 23-11 Fed Com 11H

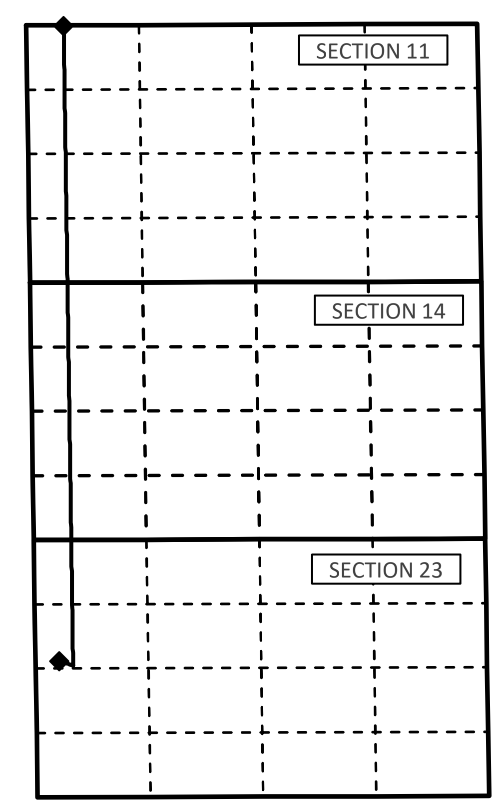
devon

Well: Muskie 23-11 Fed Com 11H
County: Lea
Wellbore: Permit Plan
Design: Permit Plan #1

Geodetic System: US State Plane 1983
Datum: North American Datum 1927
Ellipsoid: Clarke 1866
Zone: 3001 - NM East (NAD83)

MD (ft)	INC (°)	AZI (°)	TVD (ft)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)	Comment
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	SHL
2000.00	0.00	120.00	2000.00	0.00	0.00	0.00	0.00	Start Tangent
2500.00	10.00	120.00	2497.47	-21.76	37.69	-21.62	2.00	Hold Tangent
3061.26	10.00	120.00	3050.20	-70.49	122.10	-70.03	0.00	Drop to Vertical
3561.26	0.00	120.00	3547.66	-92.25	159.79	-91.65	2.00	Hold Vertical
10435.72	0.00	359.52	10422.12	-92.25	159.79	-91.65	0.00	KOP
11345.31	90.96	359.52	10995.00	490.28	154.86	490.86	10.00	Landing Point
23884.50	90.96	359.52	10785.00	13027.26	48.73	13027.35	0.00	BHL





Key Depths	MD (ft)	TVD (ft)
Rustler	890.00	890.00
Salt	1250.00	1250.00
Base of Salt	5013.60	5000.00
Lamar	5013.60	5000.00
Delaware	5313.60	5300.00
Cherry Canyon	6348.60	6335.00
Brushy Canyon	7988.60	7975.00
1st Bone Spring Lime	9418.60	9405.00
Bone Spring 1st / Point of Penetratio	10585.29	10570.00
EXIT	23804.50	10786.36

	MD (ft)	TVD (ft)	Lat (°)	Long (°)	Section Footages
SHL	0.00	0.00	32.0292	-103.4484	2485' FNL, 281' FWL of Sec 23 in T26S, R34E
KOP	10435.72	10422.12	32.0290	-103.4479	2578' FNL, 440' FWL of Sec 23 in T26S, R34E
Point of Penetration	10585.29	10570.00	32.0292	-103.4478	2539' FNL, 440' FWL of Sec 23 in T26S, R34E
Exit	23804.50	10786.36	32.0649	-103.4478	100' FNL, 440' FWL of Sec 11 in T26S, R34E
BHL	23884.50	10785.00	32.0651	-103.4479	20' FNL, 440' FWL of Sec 11 in T26S, R34E

devon

Well: Muskie 23-11 Fed Com 11H
County: Lea
Wellbore: Permit Plan
Design: Permit Plan #1

Geodetic System: US State Plane 1983
Datum: North American Datum 1927
Ellipsoid: Clarke 1866
Zone: 3001 - NM East (NAD83)

MD (ft)	INC (°)	AZI (°)	TVD (ft)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)	Comment
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	SHL
100.00	0.00	120.00	100.00	0.00	0.00	0.00	0.00	
200.00	0.00	120.00	200.00	0.00	0.00	0.00	0.00	
300.00	0.00	120.00	300.00	0.00	0.00	0.00	0.00	
400.00	0.00	120.00	400.00	0.00	0.00	0.00	0.00	
500.00	0.00	120.00	500.00	0.00	0.00	0.00	0.00	
600.00	0.00	120.00	600.00	0.00	0.00	0.00	0.00	
700.00	0.00	120.00	700.00	0.00	0.00	0.00	0.00	
800.00	0.00	120.00	800.00	0.00	0.00	0.00	0.00	
890.00	0.00	120.00	890.00	0.00	0.00	0.00	0.00	Rustler
900.00	0.00	120.00	900.00	0.00	0.00	0.00	0.00	
1000.00	0.00	120.00	1000.00	0.00	0.00	0.00	0.00	
1100.00	0.00	120.00	1100.00	0.00	0.00	0.00	0.00	
1200.00	0.00	120.00	1200.00	0.00	0.00	0.00	0.00	
1250.00	0.00	120.00	1250.00	0.00	0.00	0.00	0.00	Salt
1300.00	0.00	120.00	1300.00	0.00	0.00	0.00	0.00	
1400.00	0.00	120.00	1400.00	0.00	0.00	0.00	0.00	
1500.00	0.00	120.00	1500.00	0.00	0.00	0.00	0.00	
1600.00	0.00	120.00	1600.00	0.00	0.00	0.00	0.00	
1700.00	0.00	120.00	1700.00	0.00	0.00	0.00	0.00	
1800.00	0.00	120.00	1800.00	0.00	0.00	0.00	0.00	
1900.00	0.00	120.00	1900.00	0.00	0.00	0.00	0.00	
2000.00	0.00	120.00	2000.00	0.00	0.00	0.00	0.00	Start Tangent
2100.00	2.00	120.00	2099.98	-0.87	1.51	-0.87	2.00	
2200.00	4.00	120.00	2199.84	-3.49	6.04	-3.47	2.00	
2300.00	6.00	120.00	2299.45	-7.85	13.59	-7.80	2.00	
2400.00	8.00	120.00	2398.70	-13.94	24.14	-13.85	2.00	
2500.00	10.00	120.00	2497.47	-21.76	37.69	-21.62	2.00	Hold Tangent
2600.00	10.00	120.00	2595.95	-30.44	52.73	-30.25	0.00	
2700.00	10.00	120.00	2694.43	-39.13	67.77	-38.87	0.00	
2800.00	10.00	120.00	2792.91	-47.81	82.81	-47.50	0.00	
2900.00	10.00	120.00	2891.39	-56.49	97.85	-56.12	0.00	
3000.00	10.00	120.00	2989.87	-65.17	112.88	-64.75	0.00	
3061.26	10.00	120.00	3050.20	-70.49	122.10	-70.03	0.00	Drop to Vertical
3100.00	9.23	120.00	3088.39	-73.73	127.70	-73.25	2.00	
3200.00	7.23	120.00	3187.36	-80.88	140.09	-80.35	2.00	
3300.00	5.23	120.00	3286.77	-86.30	149.48	-85.74	2.00	
3400.00	3.23	120.00	3386.49	-89.98	155.86	-89.40	2.00	
3500.00	1.23	120.00	3486.41	-91.93	159.22	-91.33	2.00	
3561.26	0.00	120.00	3547.66	-92.25	159.79	-91.65	2.00	Hold Vertical
3600.00	0.00	359.52	3586.40	-92.25	159.79	-91.65	0.00	
3700.00	0.00	359.52	3686.40	-92.25	159.79	-91.65	0.00	
3800.00	0.00	359.52	3786.40	-92.25	159.79	-91.65	0.00	
3900.00	0.00	359.52	3886.40	-92.25	159.79	-91.65	0.00	
4000.00	0.00	359.52	3986.40	-92.25	159.79	-91.65	0.00	
4100.00	0.00	359.52	4086.40	-92.25	159.79	-91.65	0.00	
4200.00	0.00	359.52	4186.40	-92.25	159.79	-91.65	0.00	
4300.00	0.00	359.52	4286.40	-92.25	159.79	-91.65	0.00	
4400.00	0.00	359.52	4386.40	-92.25	159.79	-91.65	0.00	
4500.00	0.00	359.52	4486.40	-92.25	159.79	-91.65	0.00	
4600.00	0.00	359.52	4586.40	-92.25	159.79	-91.65	0.00	
4700.00	0.00	359.52	4686.40	-92.25	159.79	-91.65	0.00	
4800.00	0.00	359.52	4786.40	-92.25	159.79	-91.65	0.00	
4900.00	0.00	359.52	4886.40	-92.25	159.79	-91.65	0.00	
5000.00	0.00	359.52	4986.40	-92.25	159.79	-91.65	0.00	
5013.60	0.00	359.52	5000.00	-92.25	159.79	-91.65	0.00	Base of Salt, Lamar
5100.00	0.00	359.52	5086.40	-92.25	159.79	-91.65	0.00	
5200.00	0.00	359.52	5186.40	-92.25	159.79	-91.65	0.00	
5300.00	0.00	359.52	5286.40	-92.25	159.79	-91.65	0.00	
5313.60	0.00	359.52	5300.00	-92.25	159.79	-91.65	0.00	Delaware
5400.00	0.00	359.52	5386.40	-92.25	159.79	-91.65	0.00	
5500.00	0.00	359.52	5486.40	-92.25	159.79	-91.65	0.00	
5600.00	0.00	359.52	5586.40	-92.25	159.79	-91.65	0.00	
5700.00	0.00	359.52	5686.40	-92.25	159.79	-91.65	0.00	
5800.00	0.00	359.52	5786.40	-92.25	159.79	-91.65	0.00	
5900.00	0.00	359.52	5886.40	-92.25	159.79	-91.65	0.00	
6000.00	0.00	359.52	5986.40	-92.25	159.79	-91.65	0.00	
6100.00	0.00	359.52	6086.40	-92.25	159.79	-91.65	0.00	
6200.00	0.00	359.52	6186.40	-92.25	159.79	-91.65	0.00	
6300.00	0.00	359.52	6286.40	-92.25	159.79	-91.65	0.00	

Well: Muskie 23-11 Fed Com 11H
County: Lea
Wellbore: Permit Plan
Design: Permit Plan #1

Geodetic System: US State Plane 1983
Datum: North American Datum 1927
Ellipsoid: Clarke 1866
Zone: 3001 - NM East (NAD83)

MD (ft)	INC (°)	AZI (°)	TVD (ft)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)	Comment
6348.60	0.00	359.52	6335.00	-92.25	159.79	-91.65	0.00	Cherry Canyon
6400.00	0.00	359.52	6386.40	-92.25	159.79	-91.65	0.00	
6500.00	0.00	359.52	6486.40	-92.25	159.79	-91.65	0.00	
6600.00	0.00	359.52	6586.40	-92.25	159.79	-91.65	0.00	
6700.00	0.00	359.52	6686.40	-92.25	159.79	-91.65	0.00	
6800.00	0.00	359.52	6786.40	-92.25	159.79	-91.65	0.00	
6900.00	0.00	359.52	6886.40	-92.25	159.79	-91.65	0.00	
7000.00	0.00	359.52	6986.40	-92.25	159.79	-91.65	0.00	
7100.00	0.00	359.52	7086.40	-92.25	159.79	-91.65	0.00	
7200.00	0.00	359.52	7186.40	-92.25	159.79	-91.65	0.00	
7300.00	0.00	359.52	7286.40	-92.25	159.79	-91.65	0.00	
7400.00	0.00	359.52	7386.40	-92.25	159.79	-91.65	0.00	
7500.00	0.00	359.52	7486.40	-92.25	159.79	-91.65	0.00	
7600.00	0.00	359.52	7586.40	-92.25	159.79	-91.65	0.00	
7700.00	0.00	359.52	7686.40	-92.25	159.79	-91.65	0.00	
7800.00	0.00	359.52	7786.40	-92.25	159.79	-91.65	0.00	
7900.00	0.00	359.52	7886.40	-92.25	159.79	-91.65	0.00	
7988.60	0.00	359.52	7975.00	-92.25	159.79	-91.65	0.00	Brushy Canyon
8000.00	0.00	359.52	7986.40	-92.25	159.79	-91.65	0.00	
8100.00	0.00	359.52	8086.40	-92.25	159.79	-91.65	0.00	
8200.00	0.00	359.52	8186.40	-92.25	159.79	-91.65	0.00	
8300.00	0.00	359.52	8286.40	-92.25	159.79	-91.65	0.00	
8400.00	0.00	359.52	8386.40	-92.25	159.79	-91.65	0.00	
8500.00	0.00	359.52	8486.40	-92.25	159.79	-91.65	0.00	
8600.00	0.00	359.52	8586.40	-92.25	159.79	-91.65	0.00	
8700.00	0.00	359.52	8686.40	-92.25	159.79	-91.65	0.00	
8800.00	0.00	359.52	8786.40	-92.25	159.79	-91.65	0.00	
8900.00	0.00	359.52	8886.40	-92.25	159.79	-91.65	0.00	
9000.00	0.00	359.52	8986.40	-92.25	159.79	-91.65	0.00	
9100.00	0.00	359.52	9086.40	-92.25	159.79	-91.65	0.00	
9200.00	0.00	359.52	9186.40	-92.25	159.79	-91.65	0.00	
9300.00	0.00	359.52	9286.40	-92.25	159.79	-91.65	0.00	
9400.00	0.00	359.52	9386.40	-92.25	159.79	-91.65	0.00	
9418.60	0.00	359.52	9405.00	-92.25	159.79	-91.65	0.00	1st Bone Spring Lime
9500.00	0.00	359.52	9486.40	-92.25	159.79	-91.65	0.00	
9600.00	0.00	359.52	9586.40	-92.25	159.79	-91.65	0.00	
9700.00	0.00	359.52	9686.40	-92.25	159.79	-91.65	0.00	
9800.00	0.00	359.52	9786.40	-92.25	159.79	-91.65	0.00	
9900.00	0.00	359.52	9886.40	-92.25	159.79	-91.65	0.00	
10000.00	0.00	359.52	9986.40	-92.25	159.79	-91.65	0.00	
10100.00	0.00	359.52	10086.40	-92.25	159.79	-91.65	0.00	
10200.00	0.00	359.52	10186.40	-92.25	159.79	-91.65	0.00	
10300.00	0.00	359.52	10286.40	-92.25	159.79	-91.65	0.00	
10400.00	0.00	359.52	10386.40	-92.25	159.79	-91.65	0.00	
10435.72	0.00	359.52	10422.12	-92.25	159.79	-91.65	0.00	KOP
10500.00	6.43	359.52	10486.27	-88.65	159.76	-88.05	10.00	
10585.29	14.96	359.52	10570.00	-72.84	159.62	-72.24	10.00	Bone Spring 1st / Point of Penetration
10600.00	16.43	359.52	10584.16	-68.86	159.59	-68.27	10.00	
10700.00	26.43	359.52	10677.13	-32.38	159.28	-31.78	10.00	
10800.00	36.43	359.52	10762.35	19.70	158.84	20.29	10.00	
10900.00	46.43	359.52	10837.24	85.78	158.28	86.37	10.00	
11000.00	56.43	359.52	10899.51	163.86	157.62	164.45	10.00	
11100.00	66.43	359.52	10947.27	251.57	156.88	252.15	10.00	
11200.00	76.43	359.52	10979.08	346.24	156.07	346.82	10.00	
11300.00	86.43	359.52	10993.97	444.99	155.24	445.57	10.00	
11345.31	90.96	359.52	10995.00	490.28	154.86	490.86	10.00	Landing Point
11400.00	90.96	359.52	10994.08	544.96	154.39	545.53	0.00	
11500.00	90.96	359.52	10992.41	644.94	153.55	645.51	0.00	
11600.00	90.96	359.52	10990.73	744.92	152.70	745.49	0.00	
11700.00	90.96	359.52	10989.06	844.90	151.85	845.47	0.00	
11800.00	90.96	359.52	10987.39	944.89	151.01	945.44	0.00	
11900.00	90.96	359.52	10985.71	1044.87	150.16	1045.42	0.00	
12000.00	90.96	359.52	10984.04	1144.85	149.31	1145.40	0.00	
12100.00	90.96	359.52	10982.36	1244.83	148.46	1245.38	0.00	
12200.00	90.96	359.52	10980.69	1344.81	147.62	1345.36	0.00	
12300.00	90.96	359.52	10979.01	1444.80	146.77	1445.34	0.00	
12400.00	90.96	359.52	10977.34	1544.78	145.92	1545.31	0.00	
12500.00	90.96	359.52	10975.66	1644.76	145.08	1645.29	0.00	
12600.00	90.96	359.52	10973.99	1744.74	144.23	1745.27	0.00	
12700.00	90.96	359.52	10972.31	1844.73	143.38	1845.25	0.00	

devon

Well: Muskie 23-11 Fed Com 11H
County: Lea
Wellbore: Permit Plan
Design: Permit Plan #1

Geodetic System: US State Plane 1983
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Ellipsoid: Clarke 1866
Zone: 3001 - NM East (NAD83)

MD (ft)	INC (°)	AZI (°)	TVD (ft)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)	Comment
12800.00	90.96	359.52	10970.64	1944.71	142.54	1945.23	0.00	
12900.00	90.96	359.52	10968.96	2044.69	141.69	2045.21	0.00	
13000.00	90.96	359.52	10967.29	2144.67	140.84	2145.19	0.00	
13100.00	90.96	359.52	10965.62	2244.66	140.00	2245.16	0.00	
13200.00	90.96	359.52	10963.94	2344.64	139.15	2345.14	0.00	
13300.00	90.96	359.52	10962.27	2444.62	138.30	2445.12	0.00	
13400.00	90.96	359.52	10960.59	2544.60	137.46	2545.10	0.00	
13500.00	90.96	359.52	10958.92	2644.59	136.61	2645.08	0.00	
13600.00	90.96	359.52	10957.24	2744.57	135.76	2745.06	0.00	
13700.00	90.96	359.52	10955.57	2844.55	134.91	2845.04	0.00	
13800.00	90.96	359.52	10953.89	2944.53	134.07	2945.01	0.00	
13900.00	90.96	359.52	10952.22	3044.52	133.22	3044.99	0.00	
14000.00	90.96	359.52	10950.54	3144.50	132.37	3144.97	0.00	
14100.00	90.96	359.52	10948.87	3244.48	131.53	3244.95	0.00	
14200.00	90.96	359.52	10947.19	3344.46	130.68	3344.93	0.00	
14300.00	90.96	359.52	10945.52	3444.45	129.83	3444.91	0.00	
14400.00	90.96	359.52	10943.85	3544.43	128.99	3544.89	0.00	
14500.00	90.96	359.52	10942.17	3644.41	128.14	3644.86	0.00	
14600.00	90.96	359.52	10940.50	3744.39	127.29	3744.84	0.00	
14700.00	90.96	359.52	10938.82	3844.37	126.45	3844.82	0.00	
14800.00	90.96	359.52	10937.15	3944.36	125.60	3944.80	0.00	
14900.00	90.96	359.52	10935.47	4044.34	124.75	4044.78	0.00	
15000.00	90.96	359.52	10933.80	4144.32	123.91	4144.76	0.00	
15100.00	90.96	359.52	10932.12	4244.30	123.06	4244.73	0.00	
15200.00	90.96	359.52	10930.45	4344.29	122.21	4344.71	0.00	
15300.00	90.96	359.52	10928.77	4444.27	121.36	4444.69	0.00	
15400.00	90.96	359.52	10927.10	4544.25	120.52	4544.67	0.00	
15500.00	90.96	359.52	10925.42	4644.23	119.67	4644.65	0.00	
15600.00	90.96	359.52	10923.75	4744.22	118.82	4744.63	0.00	
15700.00	90.96	359.52	10922.08	4844.20	117.98	4844.61	0.00	
15800.00	90.96	359.52	10920.40	4944.18	117.13	4944.58	0.00	
15900.00	90.96	359.52	10918.73	5044.16	116.28	5044.56	0.00	
16000.00	90.96	359.52	10917.05	5144.15	115.44	5144.54	0.00	
16100.00	90.96	359.52	10915.38	5244.13	114.59	5244.52	0.00	
16200.00	90.96	359.52	10913.70	5344.11	113.74	5344.50	0.00	
16300.00	90.96	359.52	10912.03	5444.09	112.90	5444.48	0.00	
16400.00	90.96	359.52	10910.35	5544.08	112.05	5544.46	0.00	
16500.00	90.96	359.52	10908.68	5644.06	111.20	5644.43	0.00	
16600.00	90.96	359.52	10907.00	5744.04	110.35	5744.41	0.00	
16700.00	90.96	359.52	10905.33	5844.02	109.51	5844.39	0.00	
16800.00	90.96	359.52	10903.65	5944.00	108.66	5944.37	0.00	
16900.00	90.96	359.52	10901.98	6043.99	107.81	6044.35	0.00	
17000.00	90.96	359.52	10900.31	6143.97	106.97	6144.33	0.00	
17100.00	90.96	359.52	10898.63	6243.95	106.12	6244.31	0.00	
17200.00	90.96	359.52	10896.96	6343.93	105.27	6344.28	0.00	
17300.00	90.96	359.52	10895.28	6443.92	104.43	6444.26	0.00	
17400.00	90.96	359.52	10893.61	6543.90	103.58	6544.24	0.00	
17500.00	90.96	359.52	10891.93	6643.88	102.73	6644.22	0.00	
17600.00	90.96	359.52	10890.26	6743.86	101.89	6744.20	0.00	
17700.00	90.96	359.52	10888.58	6843.85	101.04	6844.18	0.00	
17800.00	90.96	359.52	10886.91	6943.83	100.19	6944.15	0.00	
17900.00	90.96	359.52	10885.23	7043.81	99.35	7044.13	0.00	
18000.00	90.96	359.52	10883.56	7143.79	98.50	7144.11	0.00	
18100.00	90.96	359.52	10881.88	7243.78	97.65	7244.09	0.00	
18200.00	90.96	359.52	10880.21	7343.76	96.80	7344.07	0.00	
18300.00	90.96	359.52	10878.54	7443.74	95.96	7444.05	0.00	
18400.00	90.96	359.52	10876.86	7543.72	95.11	7544.03	0.00	
18500.00	90.96	359.52	10875.19	7643.71	94.26	7644.00	0.00	
18600.00	90.96	359.52	10873.51	7743.69	93.42	7743.98	0.00	
18700.00	90.96	359.52	10871.84	7843.67	92.57	7843.96	0.00	
18800.00	90.96	359.52	10870.16	7943.65	91.72	7943.94	0.00	
18900.00	90.96	359.52	10868.49	8043.63	90.88	8043.92	0.00	
19000.00	90.96	359.52	10866.81	8143.62	90.03	8143.90	0.00	
19100.00	90.96	359.52	10865.14	8243.60	89.18	8243.88	0.00	
19200.00	90.96	359.52	10863.46	8343.58	88.34	8343.85	0.00	
19300.00	90.96	359.52	10861.79	8443.56	87.49	8443.83	0.00	
19400.00	90.96	359.52	10860.11	8543.55	86.64	8543.81	0.00	
19500.00	90.96	359.52	10858.44	8643.53	85.80	8643.79	0.00	
19600.00	90.96	359.52	10856.77	8743.51	84.95	8743.77	0.00	
19700.00	90.96	359.52	10855.09	8843.49	84.10	8843.75	0.00	

devon

Well: Muskie 23-11 Fed Com 11H
County: Lea
Wellbore: Permit Plan
Design: Permit Plan #1

Geodetic System: US State Plane 1983
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Ellipsoid: Clarke 1866
Zone: 3001 - NM East (NAD83)

MD (ft)	INC (°)	AZI (°)	TVD (ft)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)	Comment
19800.00	90.96	359.52	10853.42	8943.48	83.25	8943.73	0.00	
19900.00	90.96	359.52	10851.74	9043.46	82.41	9043.70	0.00	
20000.00	90.96	359.52	10850.07	9143.44	81.56	9143.68	0.00	
20100.00	90.96	359.52	10848.39	9243.42	80.71	9243.66	0.00	
20200.00	90.96	359.52	10846.72	9343.41	79.87	9343.64	0.00	
20300.00	90.96	359.52	10845.04	9443.39	79.02	9443.62	0.00	
20400.00	90.96	359.52	10843.37	9543.37	78.17	9543.60	0.00	
20500.00	90.96	359.52	10841.69	9643.35	77.33	9643.58	0.00	
20600.00	90.96	359.52	10840.02	9743.34	76.48	9743.55	0.00	
20700.00	90.96	359.52	10838.34	9843.32	75.63	9843.53	0.00	
20800.00	90.96	359.52	10836.67	9943.30	74.79	9943.51	0.00	
20900.00	90.96	359.52	10835.00	10043.28	73.94	10043.49	0.00	
21000.00	90.96	359.52	10833.32	10143.27	73.09	10143.47	0.00	
21100.00	90.96	359.52	10831.65	10243.25	72.25	10243.45	0.00	
21200.00	90.96	359.52	10829.97	10343.23	71.40	10343.42	0.00	
21300.00	90.96	359.52	10828.30	10443.21	70.55	10443.40	0.00	
21400.00	90.96	359.52	10826.62	10543.19	69.70	10543.38	0.00	
21500.00	90.96	359.52	10824.95	10643.18	68.86	10643.36	0.00	
21600.00	90.96	359.52	10823.27	10743.16	68.01	10743.34	0.00	
21700.00	90.96	359.52	10821.60	10843.14	67.16	10843.32	0.00	
21800.00	90.96	359.52	10819.92	10943.12	66.32	10943.30	0.00	
21900.00	90.96	359.52	10818.25	11043.11	65.47	11043.27	0.00	
22000.00	90.96	359.52	10816.57	11143.09	64.62	11143.25	0.00	
22100.00	90.96	359.52	10814.90	11243.07	63.78	11243.23	0.00	
22200.00	90.96	359.52	10813.23	11343.05	62.93	11343.21	0.00	
22300.00	90.96	359.52	10811.55	11443.04	62.08	11443.19	0.00	
22400.00	90.96	359.52	10809.88	11543.02	61.24	11543.17	0.00	
22500.00	90.96	359.52	10808.20	11643.00	60.39	11643.15	0.00	
22600.00	90.96	359.52	10806.53	11742.98	59.54	11743.12	0.00	
22700.00	90.96	359.52	10804.85	11842.97	58.69	11843.10	0.00	
22800.00	90.96	359.52	10803.18	11942.95	57.85	11943.08	0.00	
22900.00	90.96	359.52	10801.50	12042.93	57.00	12043.06	0.00	
23000.00	90.96	359.52	10799.83	12142.91	56.15	12143.04	0.00	
23100.00	90.96	359.52	10798.15	12242.90	55.31	12243.02	0.00	
23200.00	90.96	359.52	10796.48	12342.88	54.46	12343.00	0.00	
23300.00	90.96	359.52	10794.80	12442.86	53.61	12442.97	0.00	
23400.00	90.96	359.52	10793.13	12542.84	52.77	12542.95	0.00	
23500.00	90.96	359.52	10791.46	12642.82	51.92	12642.93	0.00	
23600.00	90.96	359.52	10789.78	12742.81	51.07	12742.91	0.00	
23700.00	90.96	359.52	10788.11	12842.79	50.23	12842.89	0.00	
23800.00	90.96	359.52	10786.43	12942.77	49.38	12942.87	0.00	
23804.50	90.96	359.52	10786.36	12947.27	49.34	12947.37	0.00	EXIT
23884.50	90.96	359.52	10785.00	13027.26	48.73	13027.35	0.00	BHL

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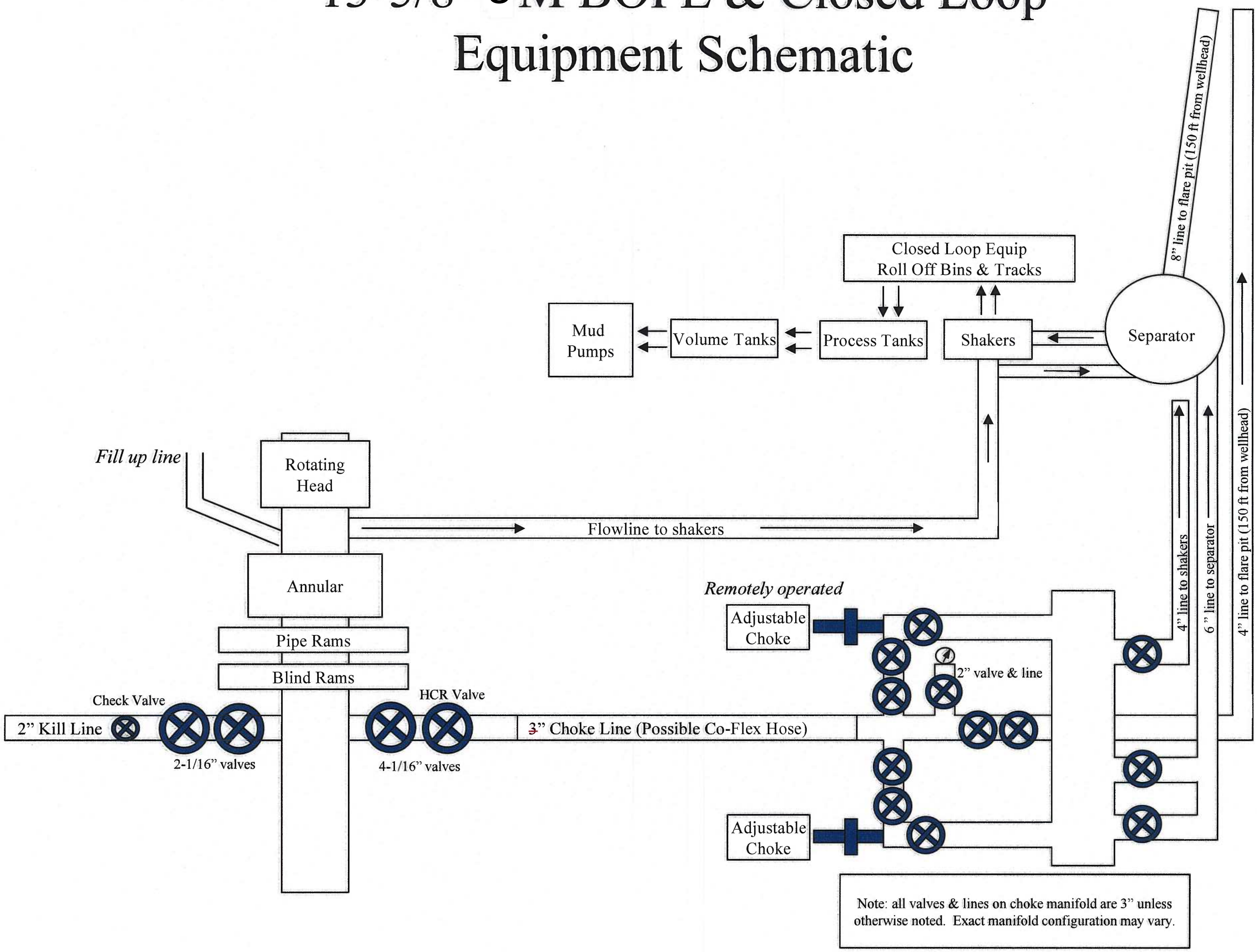
MD (ft)	INC (°)	AZI (°)	TVD (ft)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)	Comment

13-5/8" 5M BOPE & Closed Loop Equipment Schematic



A multibowl wellhead may be used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested.

Devon proposes using 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.

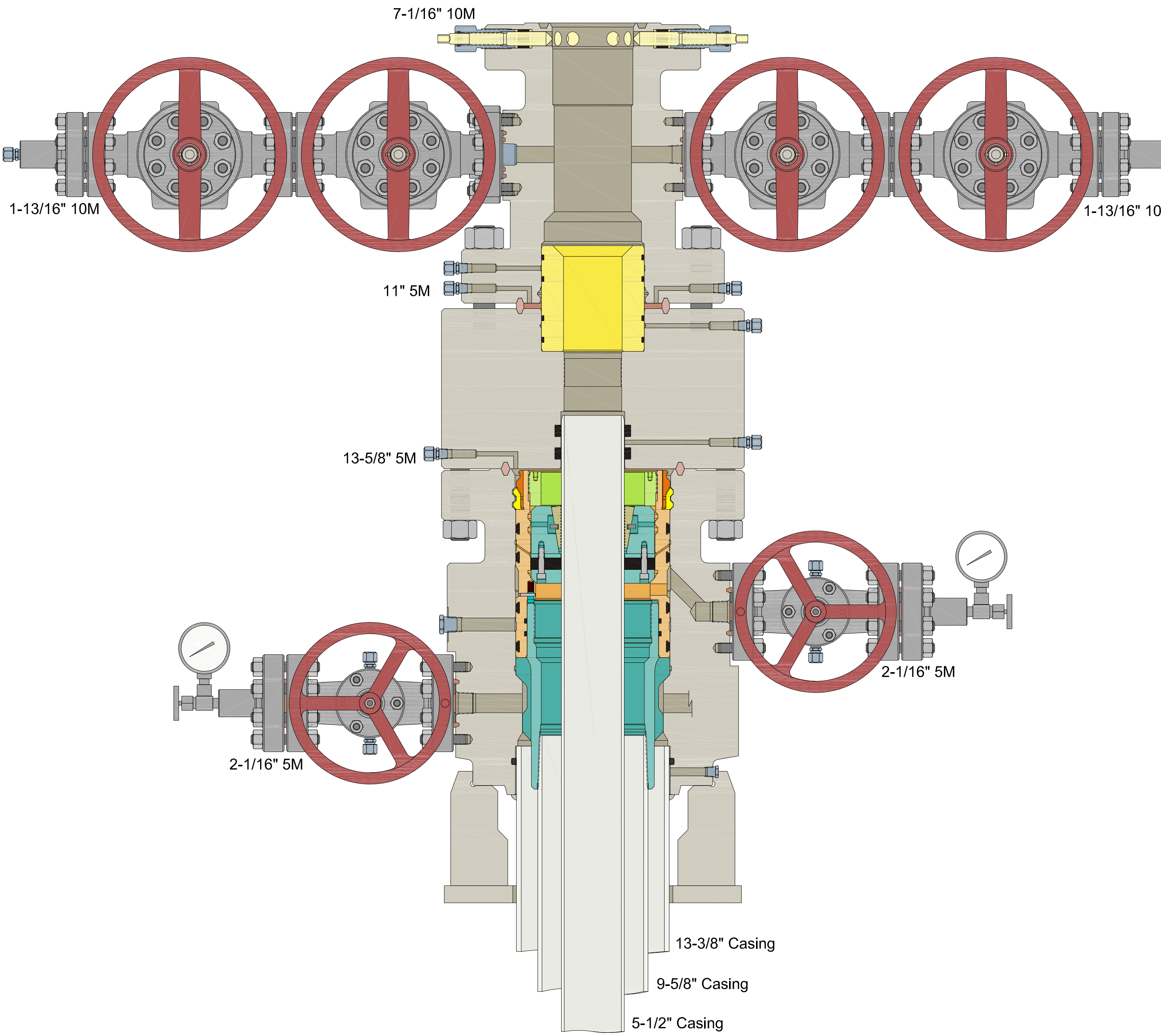
- Wellhead will be installed by wellhead representatives.
- If the welding is performed by a third party, the wellhead representative will monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
- Wellhead representative will install the test plug for the initial BOP test.
- Wellhead company will install a solid steel body pack-off to completely isolate the lower head after cementing intermediate casing. After installation of the pack-off, the pack-off and the lower flange will be tested to 5M, as shown on the attached schematic. Everything above the pack-off will not have been altered whatsoever from the initial nipple up. Therefore the BOP components will not be retested at that time.
- If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head will be cut and top out operations will be conducted.
- Devon will pressure test all seals above and below the mandrel (but still above the casing) to full working pressure rating.
- Devon will test the casing to 0.22 psi/ft or 1500 psi, whichever is greater, as per Onshore Order #2.

After running the surface casing, a 13-5/8" BOP/BOPE system with a minimum rating of 5M will be installed on the wellhead system and will undergo a 250 psi low pressure test followed by a 5,000 psi high pressure test. The 5,000 psi high and 250 psi low test will cover testing requirements a maximum of 30 days, as per Onshore Order #2. If the well is not complete within 30 days of this BOP test, another full BOP test will be conducted, as per Onshore Order #2.

After running the intermediate casing with a mandrel hanger, the 13-5/8" BOP/BOPE system with a minimum rating of 5M will already be installed on the wellhead.

The pipe rams will be operated and checked each 24 hour period and each time the drill pipe is out of the hole. These tests will be logged in the daily driller’s log. A 2” kill line and 3” choke line will be incorporated into the drilling spool below the ram BOP. In addition to the rams and annular preventer, additional BOP accessories include a kelly cock, floor safety valve, choke lines, and choke manifold rated at 5,000 psi WP.

Devon’s proposed wellhead manufactures will be FMC Technologies, Cactus Wellhead, or Cameron.


7-1/16" 10M
1-13/16" 10M
1-13/16" 10M
11" 5M
13-5/8" 5M
2-1/16" 5M
2-1/16" 5M
13-3/8" Casing
9-5/8" Casing
5-1/2" Casing

Casing Assumptions and Load Cases

Production

All casing design assumptions were ran in Stress Check to determine safety factor which meet or exceed both Devon Energy and BLM minimum requirements. All casing strings will be filled while running in hole in order to not exceed collapse rating of the pipe.

Production Casing Burst Design		
Load Case	**External Pressure**	**Internal Pressure**
Pressure Test	Formation Pore Pressure	Fluid in hole (water or produced water) + test psi
Tubing Leak	Formation Pore Pressure	Packer @ KOP, leak below surface 8.6 ppg packer fluid
Stimulation	Formation Pore Pressure	Max frac pressure with heaviest frac fluid

Production Casing Collapse Design		
Load Case	**External Pressure**	**Internal Pressure**
Full Evacuation	Water gradient in cement, mud above TOC.	None
Cementing	Wet cement weight	Water (8.33ppg)

Production Casing Tension Design	
Load Case	**Assumptions**
Overpull	100kips
Runing in hole	2 ft/s
Service Loads	N/A

Casing Assumptions and Load Cases

Surface

All casing design assumptions were ran in Stress Check to determine safety factor which meet or exceed both Devon Energy and BLM minimum requirements. All casing strings will be filled while running in hole in order to not exceed collapse rating of the pipe.

Surface Casing Burst Design		
Load Case	**External Pressure**	**Internal Pressure**
Pressure Test	Formation Pore Pressure	Max mud weight of next hole-section plus Test psi
Drill Ahead	Formation Pore Pressure	Max mud weight of next hole section
Displace to Gas	Formation Pore Pressure	Dry gas from next casing point

Surface Casing Collapse Design		
Load Case	**External Pressure**	**Internal Pressure**
Full Evacuation	Water gradient in cement, mud above TOC	None
Cementing	Wet cement weight	Water (8.33ppg)

Surface Casing Tension Design	
Load Case	**Assumptions**
Overpull	100kips
Runing in hole	3 ft/s
Service Loads	N/A

Casing Assumptions and Load Cases

Intermediate

All casing design assumptions were ran in Stress Check to determine safety factor which meet or exceed both Devon Energy and BLM minimum requirements. All casing strings will be filled while running in hole in order to not exceed collapse rating of the pipe.

Intermediate Casing Burst Design		
Load Case	**External Pressure**	**Internal Pressure**
Pressure Test	Formation Pore Pressure	Max mud weight of next hole-section plus Test psi
Drill Ahead	Formation Pore Pressure	Max mud weight of next hole section
Fracture @ Shoe	Formation Pore Pressure	Dry gas

Intermediate Casing Collapse Design		
Load Case	**External Pressure**	**Internal Pressure**
Full Evacuation	Water gradient in cement, mud above TOC	None
Cementing	Wet cement weight	Water (8.33ppg)

Intermediate Casing Tension Design	
Load Case	**Assumptions**
Overpull	100kips
Runing in hole	2 ft/s
Service Loads	N/A

U. S. Steel Tubular Products

13.375" 48.00lbs/ft (0.330" Wall) H40

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MECHANICAL PROPERTIES	Pipe	BTC	LTC	STC	
Minimum Yield Strength	40,000	--	--	--	psi
Maximum Yield Strength	80,000	--	--	--	psi
Minimum Tensile Strength	60,000	--	--	--	psi
DIMENSIONS	**Pipe**	**BTC**	**LTC**	**STC**	
Outside Diameter	13.375	--	--	14.375	in.
Wall Thickness	0.330	--	--	--	in.
Inside Diameter	12.715	--	--	12.715	in.
Standard Drift	12.559	12.559	--	12.559	in.
Alternate Drift	--	--	--	--	in.
Nominal Linear Weight, T&C	48.00	--	--	--	lbs/ft
Plain End Weight	46.02	--	--	--	lbs/ft
PERFORMANCE	**Pipe**	**BTC**	**LTC**	**STC**	
Minimum Collapse Pressure	740	740	--	740	psi
Minimum Internal Yield Pressure	1,730	1,730	--	1,730	psi
Minimum Pipe Body Yield Strength	541	--	--	--	1,000 lbs
Joint Strength	--	--	--	322	1,000 lbs
Reference Length	--	--	--	4,473	ft
MAKE-UP DATA	**Pipe**	**BTC**	**LTC**	**STC**	
Make-Up Loss	--	--	--	3.50	in.
Minimum Make-Up Torque	--	--	--	2,420	ft-lbs
Maximum Make-Up Torque	--	--	--	4,030	ft-lbs

U. S. Steel Tubular Products
460 Wildwood Forest Drive, Suite 300S
Spring, Texas 77380

1-877-893-9461
connections@uss.com
www.usstubular.com

U. S. Steel Tubular Products

1/24/2019 2:45:24 PM

9.625" 40.00lbs/ft (0.395" Wall) J55

MECHANICAL PROPERTIES	Pipe	BTC	LTC	STC	
Minimum Yield Strength	55,000	--	--	--	psi
Maximum Yield Strength	80,000	--	--	--	psi
Minimum Tensile Strength	75,000	--	--	--	psi
DIMENSIONS	**Pipe**	**BTC**	**LTC**	**STC**	
Outside Diameter	9.625	10.625	10.625	10.625	in.
Wall Thickness	0.395	--	--	--	in.
Inside Diameter	8.835	8.835	8.835	8.835	in.
Standard Drift	8.679	8.679	8.679	8.679	in.
Alternate Drift	8.750	8.750	8.750	8.750	in.
Nominal Linear Weight, T&C	40.00	--	--	--	lbs/ft
Plain End Weight	38.97	--	--	--	lbs/ft
PERFORMANCE	**Pipe**	**BTC**	**LTC**	**STC**	
Minimum Collapse Pressure	2,570	2,570	2,570	2,570	psi
Minimum Internal Yield Pressure	3,950	3,950	3,950	3,950	psi
Minimum Pipe Body Yield Strength	630	--	--	--	1,000 lbs
Joint Strength	--	714	520	452	1,000 lbs
Reference Length	--	11,898	8,665	7,529	ft
MAKE-UP DATA	**Pipe**	**BTC**	**LTC**	**STC**	
Make-Up Loss	--	4.81	4.75	3.38	in.
Minimum Make-Up Torque	--	--	3,900	3,390	ft-lbs
Maximum Make-Up Torque	--	--	6,500	5,650	ft-lbs

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2/21/2019 8:12:22 AM

5.500" 17.00lbs/ft (0.304" Wall) P110

MECHANICAL PROPERTIES	Pipe	BTC	LTC	STC	
Minimum Yield Strength	110,000	--	--	--	psi
Maximum Yield Strength	140,000	--	--	--	psi
Minimum Tensile Strength	125,000	--	--	--	psi
DIMENSIONS	**Pipe**	**BTC**	**LTC**	**STC**	
Outside Diameter	5.500	6.050	6.050	--	in.
Wall Thickness	0.304	--	--	--	in.
Inside Diameter	4.892	4.892	4.892	--	in.
Standard Drift	4.767	4.767	4.767	--	in.
Alternate Drift	--	--	--	--	in.
Nominal Linear Weight, T&C	17.00	--	--	--	lbs/ft
Plain End Weight	16.89	--	--	--	lbs/ft
PERFORMANCE	**Pipe**	**BTC**	**LTC**	**STC**	
Minimum Collapse Pressure	7,480	7,480	7,480	--	psi
Minimum Internal Yield Pressure	10,640	10,640	10,640	--	psi
Minimum Pipe Body Yield Strength	546	--	--	--	1,000 lbs
Joint Strength	--	568	445	--	1,000 lbs
Reference Length	--	22,271	17,449	--	ft
MAKE-UP DATA	**Pipe**	**BTC**	**LTC**	**STC**	
Make-Up Loss	--	4.13	3.50	--	in.
Minimum Make-Up Torque	--	--	3,470	--	ft-lbs
Maximum Make-Up Torque	--	--	5,780	--	ft-lbs

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PECOS DISTRICT
SURFACE USE
CONDITIONS OF APPROVAL

Muskie 23		**FED**	**013H**		**Well Pad 4**				
Surface	Section	**23**	T26S,	R34E	2316	FNL,	1782	FWL,	Lea County
Bottom Hole	Section	**14**	T26S,	R34E	20	FNL,	2200	FWL,	Lea County
Muskie 23		**FED**	**011H**		**Well Pad 3**				
Surface	Section	**23**	T26S,	R34E	2845	FNL,	281	FWL,	Lea County
Bottom Hole	Section	**14**	T26S,	R34E	20	FNL,	440	FWL,	Lea County
Muskie 23		**FED**	**012H**		**Well Pad 4**				
Surface	Section	**23**	T26S,	R34E	2316	FNL,	1692	FWL,	Lea County
Bottom Hole	Section	**14**	T26S,	R34E	20	FNL,	1320	FWL,	Lea County
Muskie 23		**FED**	**014H**		**Well Pad 6**				
Surface	Section	**23**	T26S,	R34E	2264	FNL,	1756	FEL,	Lea County
Bottom Hole	Section	**14**	T26S,	R34E	20	FNL,	2200	FEL,	Lea County
Muskie 23		**FED**	**015H**		**Well Pad 6**				
Surface	Section	**23**	T26S,	R34E	2264	FNL,	1666	FEL,	Lea County
Bottom Hole	Section	**14**	T26S,	R34E	20	FNL,	1320	FEL,	Lea County
Muskie 23		**FED**	**016H**		**Well Pad 7**				
Surface	Section	**23**	T26S,	R34E	1922	FNL,	311	FEL,	Lea County
Bottom Hole	Section	**14**	T26S,	R34E	20	FNL,	1010	FEL,	Lea County
Muskie 23		**FED**	**008H**		**Well Pad 7**				
Surface	Section	**23**	T26S,	R34E	1922	FNL,	311	FEL,	Lea County
Bottom Hole	Section	**14**	T26S,	R34E	20	FNL,	440	FEL,	Lea County
Muskie 23		**FED**	**001H**		**Well Pad 3**				
Surface	Section	**23**	T26S,	R34E	2485	FNL,	281	FWL,	Lea County
Bottom Hole	Section	**14**	T26S,	R34E	20	FNL,	360	FWL,	Lea County
Muskie 23		**FED**	**002H**		**Well Pad 3**				
Surface	Section	**23**	T26S,	R34E	2485	FNL,	311	FWL,	Lea County
Bottom Hole	Section	**14**	T26S,	R34E	20	FNL,	1010	FWL,	Lea County
Muskie 23		**FED**	**003H**		**Well Pad 4**				
Surface	Section	**23**	T26S,	R34E	2316	FNL,	1722	FWL,	Lea County
Bottom Hole	Section	**14**	T26S,	R34E	20	FNL,	1660	FWL,	Lea County
Muskie 23		**FED**	**004H**		**Well Pad 4**				
Surface	Section	**23**	T26S,	R34E	2316	FNL,	1752	FWL,	Lea County
Bottom Hole	Section	**14**	T26S,	R34E	20	FNL,	2310	FWL,	Lea County
Muskie 23		**FED**	**005H**		**Well Pad 6**				
Surface	Section	**23**	T26S,	R34E	2264	FNL,	1756	FEL,	Lea County
Bottom Hole	Section	**14**	T26S,	R34E	20	FNL,	2300	FEL,	Lea County

Approval Date: 12/02/2021

Muskie 23		**FED**	**006H**		**Well Pad 6**				
Surface	Section	**23**	T26S,	R34E	2264	FNL,	1726	FEL,	Lea County
Bottom Hole	Section	**14**	T26S,	R34E	20	FNL,	1660	FEL,	Lea County
Muskie 23		**FED**	**007H**		**Well Pad 7**				
Surface	Section	**23**	T26S,	R34E	1922	FNL,	341	FEL,	Lea County
Bottom Hole	Section	**14**	T26S,	R34E	20	FNL,	1010	FEL,	Lea County
Muskie 23		**FED**	**008H**		**Well Pad 7**				
Surface	Section	**23**	T26S,	R34E	1922	FNL,	311	FEL,	Lea County
Bottom Hole	Section	**14**	T26S,	R34E	20	FNL,	360	FEL,	Lea County
Muskie 23		**FED**	**009H**		**Well Pad 4**				
Surface	Section	**23**	T26S,	R34E	2316	FNL,	1692	FWL,	Lea County
Bottom Hole	Section	**14**	T26S,	R34E	20	FNL,	1200	FWL,	Lea County
Muskie 23		**FED**	**010H**		**Well Pad 6**				
Surface	Section	**23**	T26S,	R34E	2264	FNL,	1696	FEL,	Lea County
Bottom Hole	Section	**14**	T26S,	R34E	20	FNL,	1200	FEL,	Lea County

TABLE OF CONTENTS

Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

 Approval Date: 12/02/2021

I. GENERAL PROVISIONS

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

II. PERMIT EXPIRATION

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

IV. NOXIOUS WEEDS

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

V. SPECIAL REQUIREMENT(S)

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.

Timing Limitation Exceptions:
The Carlsbad Field Office will publish an annual map of where the LPC timing and noise stipulations and conditions of approval (Limitations) will apply for the identified year (between March 1 and June 15) based on the latest survey information. The LPC Timing Area map will identify areas which are Habitat Areas (HA), Isolated Population Area (IPA), and Primary Population Area (PPA). The LPC Timing Area map will also have an area in red crosshatch. The red crosshatch area is the only area where an operator is required to submit a request for exception to the LPC Limitations. If an operator is operating outside the red crosshatch area, the LPC Limitations do not apply for that year and an exception to LPC Limitations is not required.

Ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well. For more installation details, contact the Carlsbad Field Office at 575-234-5972.

Hydrology:
The entire well pad(s) will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad. The compacted berm shall be constructed at a minimum of 12 inches with impermeable mineral material (e.g. caliche). Topsoil shall not be used to construct the berm. No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad. The integrity of the berm shall be maintained around the surfaced pad throughout the life of the well and around the downsized pad after interim reclamation has been completed. Any water erosion that may occur due to the construction of the well pad during the life of the well will be quickly corrected and proper measures will be taken to prevent future erosion. Stockpiling of topsoil is required. The top soil shall be stockpiled in an appropriate location to prevent loss of soil due to water or wind erosion and not used for berming or erosion control. If fluid collects within the bermed area, the fluid must be vacuumed into a safe container and disposed of properly at a state approved facility. The berm would be maintained through the life of the wells and after interim reclamation has been completed.

Tank battery locations will be lined and bermed. A 20 mil permanent liner will be installed with a 4 oz. felt backing to prevent tears or punctures. Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank or 24 hour production, whichever is greater. Automatic shut off, check valves, or similar systems will be installed for tanks to minimize the effects of catastrophic line failures used in production or drilling.

When crossing ephemeral drainages the pipeline(s) will be buried to a minimum depth of 48 inches from the top of pipe to ground level. Erosion control methods such as gabions and/or rock aprons should be placed on both up and downstream sides of the pipeline crossing. In addition, curled (weed free) wood/straw fiber wattles/logs and/or silt fences should be placed on the downstream side for sediment control during construction and maintained until soils and vegetation have stabilized. Water bars should be placed within the ROW to divert and dissipate surface runoff. A pipeline access road is not permitted to cross these ephemeral drainages. Traffic should be diverted to a preexisting route. Additional seeding may be required in floodplains and drainages to restore energy dissipating vegetation.

Any water erosion that may occur due to the construction of overhead electric line and during the life of the power line will be quickly corrected and proper measures will be taken to prevent future erosion. A power pole should not be placed in drainages, playas, wetlands, riparian areas, or floodplains and must span across the features at a distance away that would not promote further erosion.

<u>Livestock Watering Requirement</u>
Any damage to structures that provide water to livestock throughout the life of the well, caused by operations from the well site, must be immediately corrected by the operator. The operator must notify the BLM office (575-234-5972) and the private surface landowner or the grazing allotment holder if any damage occurs to structures that provide water to livestock.

<u>Fence Requirement</u>
Where entry is granted across a fence line, the fence must be braced and tied off on both sides of the passageway with H-braces prior to cutting. Once the work is completed, the fence will be restored to its prior condition, or better. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fence(s).

The operator must contact the allotment holder prior to construction to identify the location of the pipeline. The operator must take measures to protect the pipeline from compression or other damages. If the pipeline is damaged or compromised in any way near the proposed project as a result of oil and gas activity, the operator is responsible for repairing the pipeline immediately. The operator must notify the BLM office (575-234-5972) and the private surface landowner or the grazing allotment holder if any damage occurs to structures that provide water to livestock.

During construction, the proponent shall minimize disturbance to existing fences, water lines, troughs, windmills, and other improvements on public lands. The proponent is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the grazing permittee/allottee prior to disturbing any range improvement projects. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

VI. CONSTRUCTION

A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5909 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

B. TOPSOIL

The operator shall strip the top portion of the soil (root zone) from the entire well pad area and stockpile the topsoil along the edge of the well pad as depicted in the APD. The root zone is typically six (6) inches in depth. All the stockpiled topsoil will be redistributed over the interim reclamation areas. Topsoil shall not be used for berming the pad or facilities. For final reclamation, the topsoil shall be spread over the entire pad area for seeding preparation.

Other subsoil (below six inches) stockpiles must be completely segregated from the topsoil stockpile. Large rocks or subsoil clods (not evident in the surrounding terrain) must be buried within the approved area for interim and final reclamation.

C. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

D. FEDERAL MINERAL MATERIALS PIT

Payment shall be made to the BLM prior to removal of any federal mineral materials. Call the Carlsbad Field Office at (575) 234-5972.

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation. The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

F. EXCLOSURE FENCING (CELLARS & PITS)

Exclosure Fencing
The operator will install and maintain exclosure fencing for all open well cellars to prevent access to public, livestock, and large forms of wildlife before and after drilling operations until the pit is free of fluids and the operator initiates backfilling. (For examples of exclosure fencing design, refer to BLM's Oil and Gas Gold Book, Exclosure Fence Illustrations, Figure 1, Page 18.)

G. ON LEASE ACCESS ROADS

Road Width
The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed twenty-five (25) feet.

Surfacing
Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

Crowning
Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

Ditching
Ditching shall be required on both sides of the road.

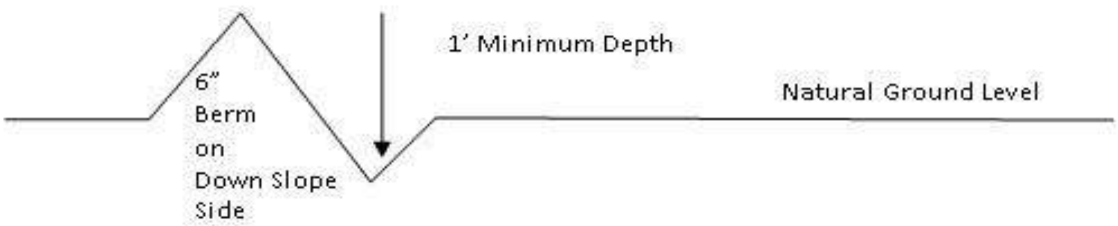
Turnouts
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

Drainage

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outsloping and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.

Cross Section of a Typical Lead-off Ditch



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

Formula for Spacing Interval of Lead-off Ditches

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

400 foot road with 4% road slope: $\frac{400'}{4\%} + 100' = 200'$ lead-off ditch interval

Cattle guards

An appropriately sized cattle guard sufficient to carry out the project shall be installed and maintained at fence/road crossings. Any existing cattle guards on the access road route shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattle guards that are in place and are utilized during lease operations.

Fence Requirement

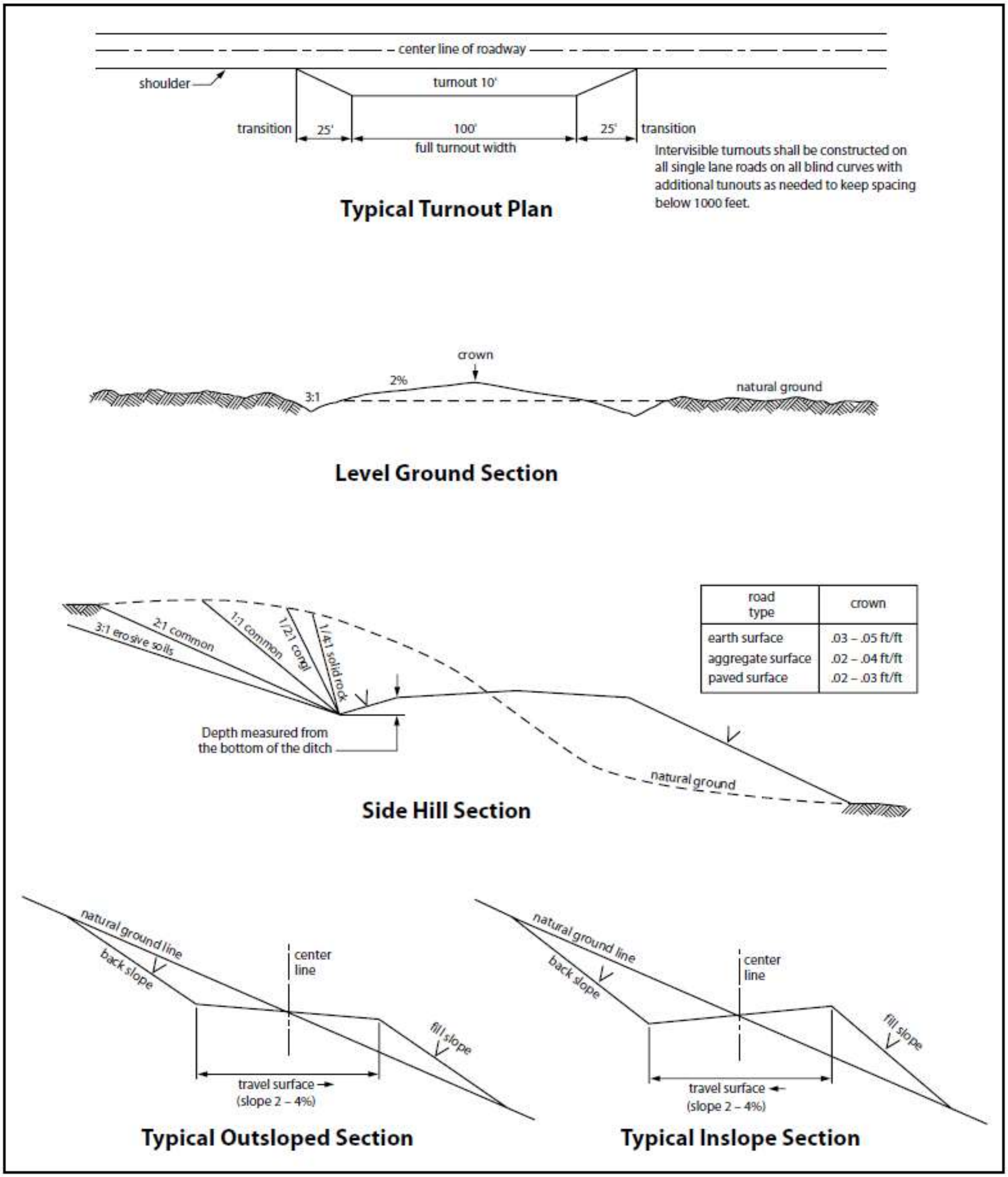
Where entry is granted across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

Public Access

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

Construction Steps

1. Salvage topsoil
2. Construct road
3. Redistribute topsoil
4. Revegetate slopes



road type	crown
earth surface	.03 – .05 ft/ft
aggregate surface	.02 – .04 ft/ft
paved surface	.02 – .03 ft/ft

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

VII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

Placement of Production Facilities
Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

Exclosure Netting (Open-top Tanks)
Immediately following active drilling or completion operations, the operator will take actions necessary to prevent wildlife and livestock access, including avian wildlife, to all open-topped tanks that contain or have the potential to contain salinity sufficient to cause harm to wildlife or livestock, hydrocarbons, or Resource Conservation and Recovery Act of 1976-exempt hazardous substances. At a minimum, the operator will net, screen, or cover open-topped tanks to exclude wildlife and livestock and prevent mortality. If the operator uses netting, the operator will cover and secure the open portion of the tank to prevent wildlife entry. The operator will net, screen, or cover the tanks until the operator removes the tanks from the location or the tanks no longer contain substances that could be harmful to wildlife or livestock. Use a maximum netting mesh size of 1 ½ inches. The netting must not be in contact with fluids and must not have holes or gaps.

Chemical and Fuel Secondary Containment and Exclosure Screening
The operator will prevent all hazardous, poisonous, flammable, and toxic substances from coming into contact with soil and water. At a minimum, the operator will install and maintain an impervious secondary containment system for any tank or barrel containing hazardous, poisonous, flammable, or toxic substances sufficient to contain the contents of the tank or barrel and any drips, leaks, and anticipated precipitation. The operator will dispose of fluids within the containment system that do not meet applicable state or U. S. Environmental Protection Agency livestock water standards in accordance with state law; the operator must not drain the fluids to the soil or ground. The operator will design, construct, and maintain all secondary containment systems to prevent wildlife and livestock exposure to harmful substances. At a minimum, the operator will install effective wildlife and livestock exclosure systems such as fencing, netting, expanded metal mesh, lids, and grate covers. Use a maximum netting mesh size of 1 ½ inches.

Open-Vent Exhaust Stack Exclosures
The operator will construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. (*Recommended exclosure structures on open-vent exhaust stacks are in the shape of a cone*.) Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, in-line units, and compressor mufflers.

Containment Structures

Proposed production facilities such as storage tanks and other vessels will have a secondary containment structure that is constructed to hold the capacity of 1.5 times the largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

Painting Requirement
All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color, **Shale Green** from the BLM Standard Environmental Color Chart (CC-001: June 2008).

B. PIPELINES

BURIED PIPELINE STIPULATIONS

A copy of the application (Grant, APD, or Sundry Notice) and attachments, including conditions of approval, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. The Holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.

2. The Holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.

3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C.6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

4. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil or other pollutant should be discharged from the pipeline system, impacting Federal lands, the control and total removal, disposal, and cleaning up of such oil or other pollutant, wherever found, shall be the responsibility of holder, regardless of fault. Upon failure of holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages resulting therefrom, on the Federal lands, the Authorized Officer may take such measures as he deems necessary to control and clean up the discharge and restore the area, including where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the holder. Such action by the Authorized Officer shall not relieve holder of any responsibility as provided herein.

5. All construction and maintenance activity will be confined to the authorized right-of-way.

6. The pipeline will be buried with a minimum cover of **36** inches between the top of the pipe and ground level.

7. The maximum allowable disturbance for construction in this right-of-way will be **30** feet:

- Blading of vegetation within the right-of-way will be allowed: maximum width of blading operations will not exceed **20** feet. The trench is included in this area. (*Blading is defined as the complete removal of brush and ground vegetation*.)

- Clearing of brush species within the right-of-way will be allowed: maximum width of clearing operations will not exceed **30** feet. The trench and bladed area are included in this area. (*Clearing is defined as the removal of brush while leaving ground vegetation (grasses, weeds, etc.) intact. Clearing is best accomplished by holding the blade 4 to 6 inches above the ground surface.*)

- The remaining area of the right-of-way (if any) shall only be disturbed by compressing the vegetation. (*Compressing can be caused by vehicle tires, placement of equipment, etc.*)

8. The holder shall stockpile an adequate amount of topsoil where blading is allowed. The topsoil to be stripped is approximately ___6___ inches in depth. The topsoil will be segregated from other spoil piles from trench construction. The topsoil will be evenly distributed over the bladed area for the preparation of seeding.

9. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

10. Vegetation, soil, and rocks left as a result of construction or maintenance activity will be randomly scattered on this right-of-way and will not be left in rows, piles, or berms, unless otherwise approved by the Authorized Officer. The entire right-of-way shall be recontoured to match the surrounding landscape. The backfilled soil shall be compacted and a 6 inch berm will be left over the ditch line to allow for settling back to grade.

11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.

12. The holder will reseed all disturbed areas. Seeding will be done according to the attached seeding requirements, using the following seed mix.

( ) seed mixture 1	( ) seed mixture 3
(X) seed mixture 2	( ) seed mixture 4
( ) seed mixture 2/LPC	( ) Aplomado Falcon Mixture

13. All above-ground structures not subject to safety requirements shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2.

14. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder's name, BLM serial number, and the product being transported. All signs and information thereon will be posted in a permanent, conspicuous manner, and will be maintained in a legible condition for the life of the pipeline.

15. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder before maintenance begins. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway. As determined necessary during the life of the pipeline, the Authorized Officer may ask the holder to construct temporary deterrence structures.

16. Any cultural and/or paleontological resources (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the Authorized Officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

17. The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes associated roads, pipeline corridor and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

18. <u>Escape Ramps</u> - The operator will construct and maintain pipeline/utility trenches that are not otherwise fenced, screened, or netted to prevent livestock, wildlife, and humans from becoming entrapped. At a minimum, the operator will construct and maintain escape ramps, ladders, or

other methods of avian and terrestrial wildlife escape in the trenches according to the following criteria:

a. Any trench left open for eight (8) hours or less is not required to have escape ramps; however, before the trench is backfilled, the contractor/operator shall inspect the trench for wildlife, remove all trapped wildlife, and release them at least 100 yards from the trench.
b. For trenches left open for eight (8) hours or more, earthen escape ramps (built at no more than a 30 degree slope and spaced no more than 500 feet apart) shall be placed in the trench.

19. Special Stipulations:

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.

C. ELECTRIC LINES

STANDARD STIPULATIONS FOR OVERHEAD ELECTRIC DISTRIBUTION LINES

A copy of the grant and attachments, including stipulations, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. The holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.

2. The holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the

reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.

3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

4. There will be no clearing or blading of the right-of-way unless otherwise agreed to in writing by the Authorized Officer.

5. Power lines shall be constructed and designed in accordance to standards outlined in "Suggested Practices for Avian Protection on Power lines: The State of the Art in 2006" Edison Electric Institute, APLIC, and the California Energy Commission 2006 . The holder shall assume the burden and expense of proving that pole designs not shown in the above publication deter raptor perching, roosting, and nesting. Such proof shall be provided by a raptor expert approved by the Authorized Officer. The BLM reserves the right to require modification or additions to all powerline structures placed on this right-of-way, should they be necessary to ensure the safety of large perching birds. Such modifications and/or additions shall be made by the holder without liability or expense to the United States.

Raptor deterrence will consist of but not limited to the following: triangle perch discouragers shall be placed on each side of the cross arms and a nonconductive perching deterrence shall be placed on all vertical poles that extend past the cross arms.

6. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

7. The BLM serial number assigned to this authorization shall be posted in a permanent, conspicuous manner where the power line crosses roads and at all serviced facilities. Numbers will be at least two inches high and will be affixed to the pole nearest the road crossing and at the facilities served.

8. Upon cancellation, relinquishment, or expiration of this grant, the holder shall comply with those abandonment procedures as prescribed by the Authorized Officer.

9. All surface structures (poles, lines, transformers, etc.) shall be removed within 180 days of abandonment, relinquishment, or termination of use of the serviced facility or facilities or within 180 days of abandonment, relinquishment, cancellation, or expiration of this grant, whichever comes first. This will not apply where the power line extends service to an active, adjoining facility or facilities.

10. Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the Authorized Officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

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

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, geophysical exploration other than 3-D operations, and 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 ft. from the source of the noise.

VIII. INTERIM RECLAMATION

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche that is free of contaminants may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

Upon completion of interim reclamation, the operator shall submit a Sundry Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

IX. FINAL ABANDONMENT & RECLAMATION

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

Ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well.

Approval Date: 12/02/2021

Seed Mixture 2, for Sandy Sites

The holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law (s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

Species	lb/acre
Sand dropseed (Sporobolus cryptandrus)	1.0
Sand love grass (Eragrostis trichodes)	1.0
Plains bristlegrass (Setaria macrostachya)	2.0

*Pounds of pure live seed:

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

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**Devon Energy Production Company LP**
LEASE NO.:	**NMNM100568**
LOCATION:	Section 23, T.26 S., R.34 E., NMPM
COUNTY:	Lea County, New Mexico

WELL NAME & NO.:	Muskie 23-11 Fed Com 11H
SURFACE HOLE FOOTAGE:	2485'/N & 281'/W
BOTTOM HOLE FOOTAGE	20'/N & 440'/W

WELL NAME & NO.:	Muskie 23-11 Fed Com 12H
SURFACE HOLE FOOTAGE:	2316'/N & 1692'/W
BOTTOM HOLE FOOTAGE	20'/N & 1320'/W

WELL NAME & NO.:	Muskie 23-11 Fed Com 13H
SURFACE HOLE FOOTAGE:	2316'/N & 1782'/W
BOTTOM HOLE FOOTAGE	20'/N & 2200'/W

WELL NAME & NO.:	Muskie 23-11 Fed Com 14H
SURFACE HOLE FOOTAGE:	2264'/N & 1756'/E
BOTTOM HOLE FOOTAGE	20'/N & 2200'/E

WELL NAME & NO.:	Muskie 23-11 Fed Com 15H
SURFACE HOLE FOOTAGE:	2264'/N & 1666'/E
BOTTOM HOLE FOOTAGE	20'/N & 1320'/E

WELL NAME & NO.:	Muskie 23-11 Fed Com 16H
SURFACE HOLE FOOTAGE:	1922'/N & 311'/E
BOTTOM HOLE FOOTAGE	20'/N & 440'/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

Approval Date: 12/02/2021

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 **1100 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 <u>**8 hours**</u> 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 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. **Cement excess is less than 25%, more cement might be required.**

Operator has proposed to pump down 13-3/8" X 9-5/8" annulus. <u>Operator must run a CBL from TD of the 9-5/8" casing to surface. Submit results to BLM.</u>

Approval Date: 12/02/2021

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

    - Cement should tie-back at least **200 feet** into previous casing string. Operator shall provide method of verification.
    Cement excess is less than 25%, more cement might be required.

C. PRESSURE CONTROL

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

2. Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M)** psi.

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

D. SPECIAL REQUIREMENT (S)

<u>Communitization Agreement</u>

- 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. <u>When the Communitization Agreement number is known, it shall also be on the sign.</u>

GENERAL REQUIREMENTS

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

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

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

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

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

   a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
   b. When the operator proposes to set surface casing with Spudder Rig
      - Notify the BLM when moving in and removing the Spudder Rig.
      - Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
      - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.

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

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

A. CASING

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

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

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

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

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

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

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

B. PRESSURE CONTROL

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

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

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

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

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

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

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

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

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

d. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.

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

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

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

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

C. DRILLING MUD

 Approval Date: 12/02/2021

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.

devon

Devon Energy Center
333 West Sheridan Avenue
Oklahoma City, Oklahoma 73102-5015

Hydrogen Sulfide (H_2S) Contingency Plan

For

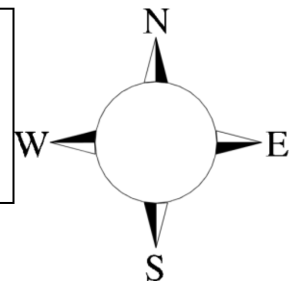
Muskie 23-11 Fed Com 11H

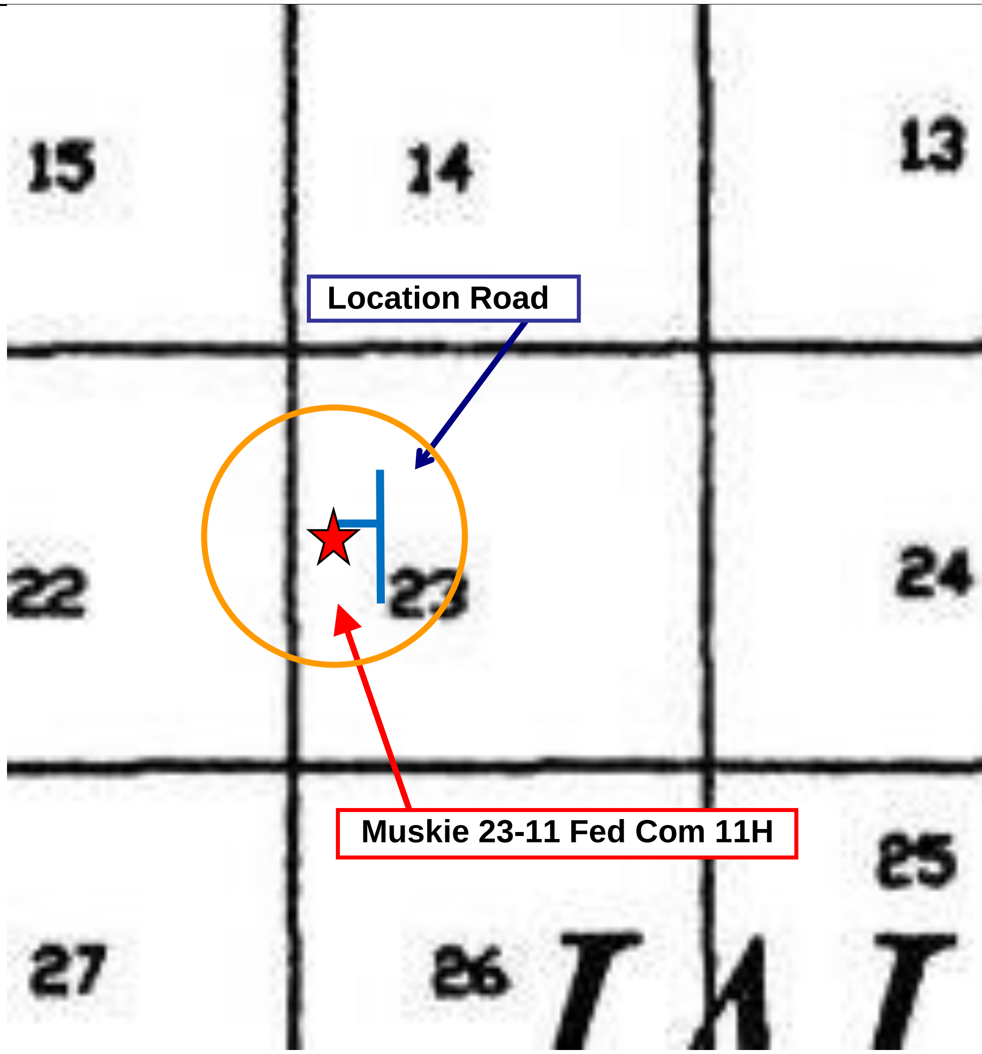
Sec-23 T-26S R-34E
2485' FNL & 281' FWL
LAT. = 32.029344' N (NAD83)
LONG = 103.448442' W

Lea County NM

Muskie 23-11 Fed Com 11H

This is an open drilling site. H_2S monitoring equipment and emergency response equipment will be used within 500' of zones known to contain H_2S, including warning signs, wind indicators and H_2S monitor.





Assumed 100 ppm ROE = 3000' (Radius of Exposure)
100 ppm H2S concentration shall trigger activation of this plan.

Escape

Crews shall escape upwind of escaping gas in the event of an emergency release of gas. Escape can be facilitated from the location entrance road. Crews should then block the entrance to the location from the lease road so as not to allow anyone traversing into a hazardous area. The blockade should be at a safe distance outside of the ROE. <u>There are no homes or buildings in or near the ROE</u>.

Assumed 100 ppm ROE = 3000'

100 ppm H_2S concentration shall trigger activation of this plan.

Emergency Procedures

In the event of a release of gas containing H_2S, the first responder(s) must

- **Isolate the area and prevent entry by other persons into the 100 ppm ROE.**
- **Evacuate any public places encompassed by the 100 ppm ROE.**
- **Be equipped with H_2S monitors and air packs in order to control the release.**
- **Use the "buddy system" to ensure no injuries occur during the response**
- **Take precautions to avoid personal injury during this operation.**
- **Contact operator and/or local officials to aid in operation. See list of phone numbers attached.**
- **Have received training in the**
  - **Detection of H_2S, and**
  - **Measures for protection against the gas,**
  - **Equipment used for protection and emergency response.**

Ignition of Gas Source

Should control of the well be considered lost and ignition considered, take care to protect against exposure to Sulfur Dioxide (SO_2). Intentional ignition must be coordinated with the NMOCD and local officials. Additionally the NM State Police may become involved. NM State Police shall be the Incident Command on scene of any major release. Take care to protect downwind whenever there is an ignition of the gas

Characteristics of H_2S and SO_2

Common Name	Chemical Formula	Specific Gravity	Threshold Limit	Hazardous Limit	Lethal Concentration
Hydrogen Sulfide	H_2S	1.189 Air = 1	10 ppm	100 ppm/hr	600 ppm
Sulfur Dioxide	SO_2	2.21 Air = 1	2 ppm	N/A	1000 ppm

Contacting Authorities

Devon Energy Corp. personnel must liaison with local and state agencies to ensure a proper response to a major release. Additionally, the OCD must be notified of the release as soon as possible but no later than 4 hours. Agencies will ask for information such as type and volume of release, wind direction, location of release, etc. Be prepared with all information available. The following call list of essential and potential responders has been prepared for use during a release. Devon Energy Corp. Company response must be in coordination with the State of New Mexico's 'Hazardous Materials Emergency Response Plan' (HMER)

Hydrogen Sulfide Drilling Operation Plan

I. HYDROGEN SULFIDE (H_2S) TRAINING

All personnel, whether regularly assigned, contracted, or employed on an unscheduled basis, will receive training from a qualified instructor in the following areas prior to commencing drilling operations on this well:

1. The hazards and characteristics of hydrogen sulfide (H_2S)

2. The proper use and maintenance of personal protective equipment and life support systems.

3. The proper use of H_2S detectors, alarms, warning systems, briefing areas, evacuation procedures, and prevailing winds.

4. The proper techniques for first aid and rescue procedures.

In addition, supervisory personnel will be trained in the following areas:

1. The effects of H_2S metal components. If high tensile tubulars are to be used, personnel will be trained in their special maintenance requirements.

2. Corrective action and shut-in procedures when drilling or reworking a well and blowout prevention and well control procedures.

3. The contents and requirements of the H_2S Drilling Operations Plan

There will be weekly H_2S and well control drills conducted for all personnel on each crew.

II. HYDROGEN SULFIDE TRAINING

Note: All H_2S safety equipment and systems will be installed, tested, and operational when drilling reaches a depth of 500 feet above, or three days prior to penetrating the first zone containing or reasonably expected to contain H_2S.

1. **Well Control Equipment**

   A. Flare line

   B. Choke manifold – Remotely Operated

   C. Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit

   D. Auxiliary equipment may include if applicable: annular preventer and rotating head.

   E. Mud/Gas Separator

2. **Protective equipment for essential personnel:**

   30-minute SCBA units located at briefing areas, as indicated on well site diagram, with escape units available in the top doghouse. As it may be difficult to communicate audibly while wearing these units, hand signals shall be utilized.

3. **H_2S detection and monitoring equipment:**

   Portable H_2S monitors positioned on location for best coverage and response. These units have warning lights which activate when H_2S levels reach 10 ppm and audible sirens which activate at 15 ppm. Sensor locations:

   - **Bell nipple**
   - **Rig floor**
   - **Cellar**
   - **Possum Belly/Shale shaker**
   - **Choke manifold**

   Visual warning systems:

   A. Wind direction indicators as shown on well site diagram

   B. Caution/ Danger signs shall be posted on roads providing direct access to locations. Signs will be painted a high visibility yellow with black lettering of sufficient size to be reasonable distance from the immediate location. Bilingual signs will be used when appropriate.

4. Mud program:

The mud program has been designed to minimize the volume of H_2S circulated to surface. Proper mud weight, safe drilling practices and the use of H_2S scavengers will minimize hazards when penetrating H_2S bearing zones.

5. Metallurgy:

A. All drill strings, casings, tubing, wellhead, blowout preventer, drilling spool, kill lines, choke manifold lines, and valves shall be H_2S trim.

B. All elastomers used for packing and seals shall be H_2S trim.

6. Communication:

A. Company personnel have/use cellular telephones in the field.

B. Land line (telephone) communications at Office

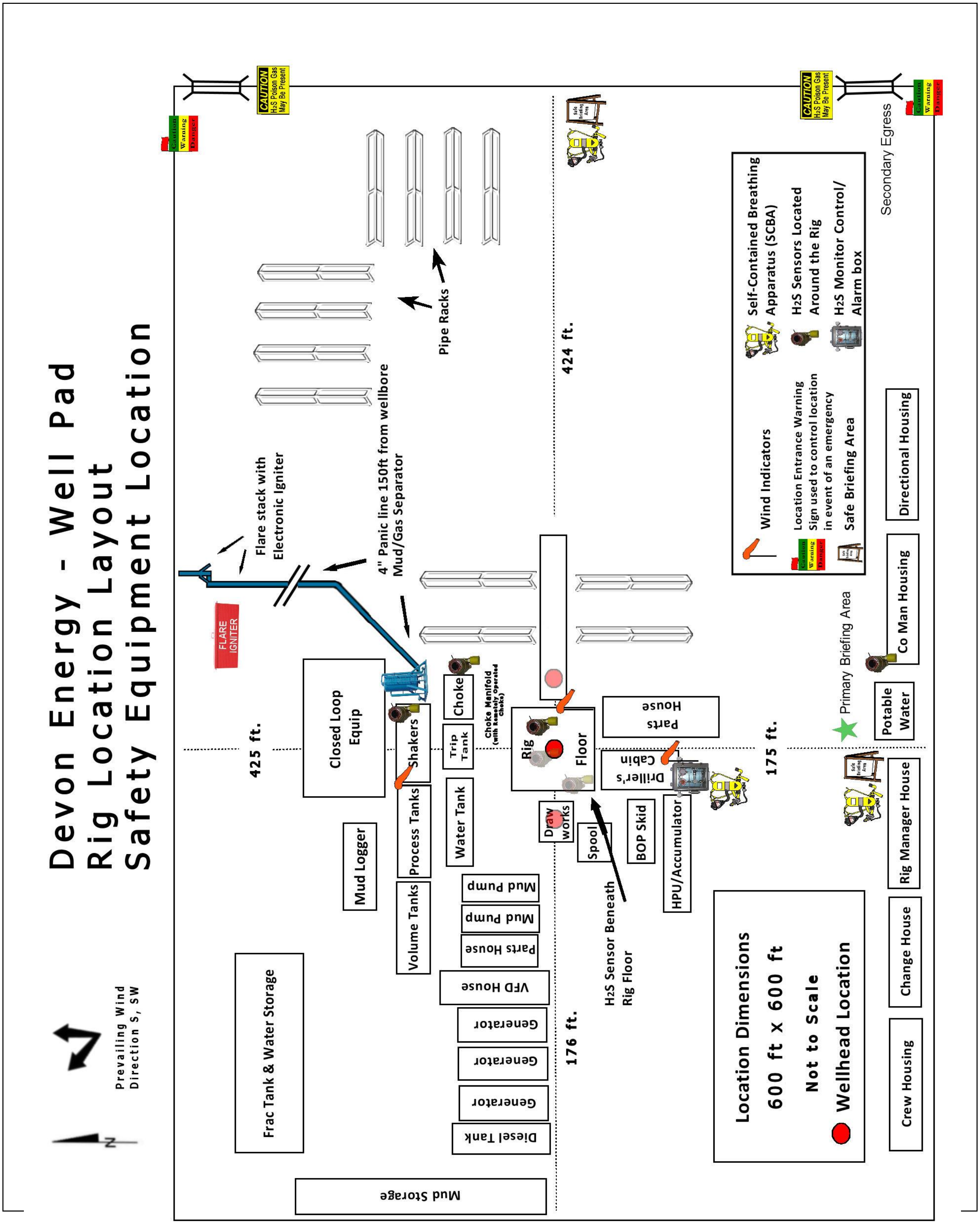
7. Well testing:

A. Drill stem testing will be performed with a minimum number of personnel in the immediate vicinity, which are necessary to safety and adequately conduct the test. The drill stem testing will be conducted during daylight hours and formation fluids will not be flowed to the surface. All drill-stem-testing operations conducted in an H_2S environment will use the closed chamber method of testing.

B. There will be no drill stem testing.

Delaware Basin Business Unit (DBBU) Key Company Contacts			
Employee/Company Contract Representative	Position	Phone Number	After Hours Number
Jonathan Fisher (North)	Drilling Manager	832-967-7912	
Jason Hildebrand (South)	Drilling Manager	405-552-6514	
Rich Downey	Drilling VP	405-228-2415	
Josh Harvey	EHS Manager	405-228-2440	918-500-5536
Laura Wright	EHS Supervisor	405-552-5334	832-969-8145
Robert Glover	EHS Professional	575-703-5712	575-703-5712
Lane Frank	Lead EHS	580-579-7052	580-579-7052
Rickey Porter	Lead EHS	903-720-8315	903-720-8315
Ronnie Handy	Lead EHS	918-839-2046	918-839-2046
Brock Vise	Lead EHS	918-413-3291	918-413-3291

Delaware Basin Business Unit (DBBU) Emergency Contacts	
County/Location	
Police / Sherriff	
Eddy County	575-616-7155
Lea County	575-397-9265
Loving County	432-377-2411
Winkler County	432-586-3461
Fire	
Eddy County	575-616-7155
Lea County	575-397-9265
Loving County	432-377-2411
Winkler County	432-586-3461
Ambulance & Hospital	
Eddy County	575-616-7155
Lea County	575-397-9265
Carlsbad Medical Center	575-887-4100
Lea County Regional Medical Center	575-492-5000
Reeves County Hospital District	432-447-3551
Winkler County Memorial Hospital	432-586-5864
Helicopter/Lifeline Services	
Aero Care/Life Flight	575-616-7155 Eddy County or 575-397-9265 Lea County
OHSI	844-449-0911


Devon Energy - Well Pad
Rig Location Layout
Safety Equipment Location
Prevailing Wind
Direction S, SW
N
Frac Tank & Water Storage
Mud Storage
Diesel Tank
Generator
Generator
Generator
VFD House
Parts House
Mud Pump
Mud Pump
Volume Tanks
Process Tanks
Mud Logger
Water Tank
Shakers
Closed Loop Equip
425 ft.
FLARE IGNITER
Flare stack with Electronic Igniter
4" Panic line 150ft from wellbore Mud/Gas Separator
Pipe Racks
424 ft.
Trip Tank
Choke
Choke Manifold (with Remotely Operated Choke)
Rig Floor
Draw works
Spool
BOP Skid
HPU/Accumulator
Driller's Cabin
Parts House
H2S Sensor Beneath Rig Floor
176 ft.
175 ft.
Location Dimensions
600 ft x 600 ft
Not to Scale
Wellhead Location
Wind Indicators
Location Entrance Warning Sign used to control location in event of an emergency
Safe Briefing Area
Self-Contained Breathing Apparatus (SCBA)
H2S Sensors Located Around the Rig
H2S Monitor Control/ Alarm box
Secondary Egress
Primary Briefing Area
Potable Water
Co Man Housing
Directional Housing
Rig Manager House
Change House
Crew Housing
CAUTION H2S Poison Gas May Be Present
Caution
Warning
Danger

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 67523

CONDITIONS

Operator:	
DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 67523
	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	12/20/2021
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	12/20/2021
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	12/20/2021
pkautz	Cement is required to circulate on both surface and intermediate1 strings of casing	12/20/2021