

Well Name: MARWARI 21-16 STATE FED COM	Well Location: T25S / R32E / SEC 28 / NWNW /	County or Parish/State:
Well Number: 524H	Type of Well: OIL WELL	Allottee or Tribe Name:
Lease Number: NMLC062300	Unit or CA Name:	Unit or CA Number:
US Well Number: 3002549514	Well Status: Approved Application for Permit to Drill	Operator: DEVON ENERGY PRODUCTION COMPANY LP

Notice of Intent

Sundry ID: 2766936

Type of Submission: Notice of Intent	Type of Action: APD Change
Date Sundry Submitted: 12/20/2023	Time Sundry Submitted: 01:32
Date proposed operation will begin: 12/20/2023	

**Procedure Description:** Devon Energy Production Co., L.P. (Devon) respectfully requests to change the well name, SHL, BHL, and depth on the subject well. Please see attached revised C102, drill plan (break test variance included), and directional plan. Permitted Well name: VAN DOO DAH 28-33 FED COM 735H Proposed Well name: MARWARI 21-16 STATE FED COM 524H Permitted SHL: NWNW 475 FNL, 1860 FEL, 28-25S-32E Proposed SHL: NWNW 175 FNL, 1900 FEL, 28-25S-32E Permitted BHL: SWSE 20 FSL, 1650 FEL, 33-25S-32E Proposed BHL: NENW 20 FNL, 2310 FWL, 16-25S-32E Permitted TVD/MD: 12344/22575 - [98270] WC-025 G-08 S253216D; UPPER WOLFCAMP Proposed TVD/MD: 8980/19466 - [96715] WC-025 G-05 S253209L; BONE SPRING New leases have been added since approved APD and notification has been given.

NOI Attachments

Procedure Description

- MARWARI\_21\_16\_STATE\_FED\_COM\_524H\_C\_102\_SHL\_BHL\_NAME\_NOI\_20231220122558.pdf
- break\_test\_variance\_BOP\_20231220122552.pdf
- MARWARI\_21\_16\_STATE\_FED\_COM\_524H\_Directional\_Plan\_12\_19\_23\_20231220122552.pdf
- 13.375\_54.50\_J55\_SEAH\_20231220122552.pdf
- 5.5in\_x\_17.00lb\_P110EC\_DWC\_C\_IS\_PLUS\_\_\_5\_23\_2023\_20231220122551.pdf
- MARWARI\_21\_16\_STATE\_FED\_COM\_524H\_20231220122552.pdf
- 9.625\_40lb\_J55\_SeAH\_20231220122551.pdf

<b>Well Name:</b> MARWARI 21-16 STATE FED COM	<b>Well Location:</b> T25S / R32E / SEC 28 / NWNE /	<b>County or Parish/State:</b>
<b>Well Number:</b> 524H	<b>Type of Well:</b> OIL WELL	<b>Allottee or Tribe Name:</b>
<b>Lease Number:</b> NMLC062300	<b>Unit or CA Name:</b>	<b>Unit or CA Number:</b>
<b>US Well Number:</b> 3002549514	<b>Well Status:</b> Approved Application for Permit to Drill	<b>Operator:</b> DEVON ENERGY PRODUCTION COMPANY LP

Conditions of Approval

Additional

Sundry\_ID\_2766936\_20240119091644.pdf  
Sundry\_ID\_2766936\_COA\_20240119091644.pdf

Operator

I certify that the foregoing is true and correct. 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. Electronic submission of Sundry Notices through this system satisfies regulations requiring a

<b>Operator Electronic Signature:</b> SHAYDA OMOUMI	<b>Signed on:</b> DEC 20, 2023 01:32 PM
<b>Name:</b> DEVON ENERGY PRODUCTION COMPANY LP	
<b>Title:</b> Regulatory Compliance Associate 3	
<b>Street Address:</b> 333 W SHERIDAN AVE	
<b>City:</b> OKLAHOMA CITY	<b>State:</b> OK
<b>Phone:</b> (405) 235-3611	
<b>Email address:</b> SHAYDA.OMOUMI@DVN.COM	

Field

<b>Representative Name:</b>		
<b>Street Address:</b>		
<b>City:</b>	<b>State:</b>	<b>Zip:</b>
<b>Phone:</b>		
<b>Email address:</b>		

BLM Point of Contact

<b>BLM POC Name:</b> CHRISTOPHER WALLS	<b>BLM POC Title:</b> Petroleum Engineer
<b>BLM POC Phone:</b> 5752342234	<b>BLM POC Email Address:</b> cwalls@blm.gov
<b>Disposition:</b> Approved	<b>Disposition Date:</b> 01/24/2024
<b>Signature:</b> Chris Walls	

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

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

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

## WELL LOCATION AND ACREAGE DEDICATION PLAT

<sup>1</sup> API Number	<sup>2</sup> Pool Code	<sup>3</sup> Pool Name
<sup>4</sup> Property Code	<sup>5</sup> Property Name <b>MARWARI 21-16 STATE FED COM</b>	
<sup>7</sup> OGRID No. <b>6137</b>	<sup>8</sup> Operator Name <b>DEVON ENERGY PRODUCTION COMPANY, L.P.</b>	<sup>6</sup> Well Number <b>524H</b>
		<sup>9</sup> Elevation <b>3389.7</b>

<sup>10</sup> Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
<b>B</b>	<b>28</b>	<b>25 S</b>	<b>32 E</b>		<b>175</b>	<b>NORTH</b>	<b>1900</b>	<b>EAST</b>	<b>LEA</b>

<sup>11</sup> Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
<b>C</b>	<b>16</b>	<b>25 S</b>	<b>23 E</b>		<b>20</b>	<b>NORTH</b>	<b>2310</b>	<b>WEST</b>	<b>LEA</b>
<sup>12</sup> Dedicated Acres	<sup>13</sup> Joint or Infill	<sup>14</sup> Consolidation Code	<sup>15</sup> Order No.						

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

	<p><b>MARWARI 21-16 STATE FED COM 524H</b> EL. = 3389.7</p> <p>GEODETTIC COORDINATES NAD 83 NMSP EAST SURFACE LOCATION N. = 403716.44 E. = 744359.98 LAT. = 32.1081983°N LONG. = 103.6776320°W</p> <p>KICK OFF POINT CALLS _____ N. = _____ E. = _____ LAT. = _____ LONG. = _____</p> <p>FIRST TAKE POINT (PPP 1) 100' FSL, 2310' FWL N. = 403975.78 E. = 743245.91 LAT. = 32.1089298°N LONG. = 103.6812248°W</p> <p>LAST TAKE POINT 100' FNL, 2310' FWL N. = 414333.63 E. = 743208.30 LAT. = 32.1374017°N LONG. = 103.6811438°W</p> <p>BOTTOM OF HOLE 20' FNL, 2310' FWL N. = 414413.62 E. = 743208.20 LAT. = 32.1376216°N LONG. = 103.6811426°W</p> <p>PPP 2 0' FNL, 2322' FWL N. = 409149.85 E. = 743227.13 LAT. = 32.1231524°N LONG. = 103.6811844°W</p> <p>PPP 3 2648' FSL, 2316' FWL N. = 411797.74 E. = 743217.51 LAT. = 32.1304310°N LONG. = 103.6811637°W</p> <p>CORNER COORDINATES TABLE NAD 83 NMSP EAST</p> <table border="1"> <tr><td>A</td><td>N. = 414403.87</td><td>E. = 740898.71</td></tr> <tr><td>B</td><td>N. = 414438.01</td><td>E. = 743549.18</td></tr> <tr><td>C</td><td>N. = 414468.64</td><td>E. = 746213.12</td></tr> <tr><td>D</td><td>N. = 411837.10</td><td>E. = 746221.18</td></tr> <tr><td>E</td><td>N. = 409194.57</td><td>E. = 746229.47</td></tr> <tr><td>F</td><td>N. = 406553.45</td><td>E. = 746242.49</td></tr> <tr><td>G</td><td>N. = 403912.78</td><td>E. = 746258.05</td></tr> <tr><td>H</td><td>N. = 401272.46</td><td>E. = 746280.66</td></tr> <tr><td>I</td><td>N. = 398632.65</td><td>E. = 746300.54</td></tr> <tr><td>J</td><td>N. = 398599.50</td><td>E. = 743641.83</td></tr> <tr><td>K</td><td>N. = 398579.22</td><td>E. = 740986.41</td></tr> <tr><td>L</td><td>N. = 401215.68</td><td>E. = 740967.06</td></tr> <tr><td>M</td><td>N. = 403829.87</td><td>E. = 740937.30</td></tr> <tr><td>N</td><td>N. = 406496.74</td><td>E. = 740920.33</td></tr> <tr><td>O</td><td>N. = 409130.93</td><td>E. = 740905.34</td></tr> <tr><td>P</td><td>N. = 411767.40</td><td>E. = 740902.02</td></tr> <tr><td>Q</td><td>N. = 409152.64</td><td>E. = 743569.95</td></tr> <tr><td>R</td><td>N. = 403882.79</td><td>E. = 743598.11</td></tr> </table> <p>LEGEND --- SECTION LINE --- QUARTER LINE --- LEASE LINE --- WELL PATH</p>	A	N. = 414403.87	E. = 740898.71	B	N. = 414438.01	E. = 743549.18	C	N. = 414468.64	E. = 746213.12	D	N. = 411837.10	E. = 746221.18	E	N. = 409194.57	E. = 746229.47	F	N. = 406553.45	E. = 746242.49	G	N. = 403912.78	E. = 746258.05	H	N. = 401272.46	E. = 746280.66	I	N. = 398632.65	E. = 746300.54	J	N. = 398599.50	E. = 743641.83	K	N. = 398579.22	E. = 740986.41	L	N. = 401215.68	E. = 740967.06	M	N. = 403829.87	E. = 740937.30	N	N. = 406496.74	E. = 740920.33	O	N. = 409130.93	E. = 740905.34	P	N. = 411767.40	E. = 740902.02	Q	N. = 409152.64	E. = 743569.95	R	N. = 403882.79	E. = 743598.11	<p><b><sup>17</sup> OPERATOR CERTIFICATION</b></p> <p>I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.</p> <p>Signature _____ Date _____</p> <p>Printed Name _____</p> <p>E-mail Address _____</p>
	A	N. = 414403.87	E. = 740898.71																																																					
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	<p><b><sup>18</sup> SURVEYOR CERTIFICATION</b></p> <p>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.</p> <p>OCTOBER 31, 2023</p> <p>Date of Survey _____</p> <p>Signature and Seal of Professional Surveyor: </p> <p>Certificate Number: 12797</p> <p>Survey No. 8526A</p>																																																							

Intent ☐ As Drilled ☐

API #		
Operator Name: DEVON ENERGY PRODUCTION COMPANY, L.P.	Property Name: MARWARI 21-16 STATE FED COM	Well Number 524H

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 N	Section 21	Township 25S	Range 32E	Lot	Feet 100	From N/S SOUTH	Feet 2310	From E/W WEST	County LEA
Latitude 32.1089298					Longitude 103.6812248				NAD 83

Last Take Point (LTP)

UL C	Section 21	Township 25S	Range 32E	Lot	Feet 100	From N/S NORTH	Feet 2310	From E/W WEST	County LEA
Latitude 32.1374017					Longitude 103.6811438				NAD 83

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



13-3/8"   54.50#   .380   J-55

**Dimensions (Nominal)**

Outside Diameter	13.375	in.
Wall	0.380	in.
Inside Diameter	12.615	in.
Drift	12.459	in.
Weight, T&C	54.500	lbs/ft
Weight, PE	52.790	lbs/ft

**Performance Ratings, Minimum**

Collapse, PE	1130	psi
Internal Yields Pressure		
PE	2730	psi
STC	2730	PSI
BTC	2730	psi
Yield Strength, Pipe Body	853	1000 lbs
Joint Strength, STC	514	1000 lbs
Joint Strength, BTC	909	1000 lbs

Note: SeAH Steel has produced this specification sheet for general information only. SeAH does not assume liability or responsibility for any loss or injury resulting from the use of information or data contained herein. All applications for the material described are at the customer's own risk and responsibility.

## Connection Data Sheet

OD (in.)	WEIGHT (lbs./ft.)	WALL (in.)	GRADE	DRIFT (in.)	RBW%	CONNECTION
5.500	Nominal: 17.00 Plain End: 16.89	0.304	VST P110 EC	4.767	87.5	DWC/C-IS PLUS

## PIPE PROPERTIES

Nominal OD	5.500	in.
Nominal ID	4.892	in.
Nominal Area	4.962	sq.in.
Grade Type	API 5CT	
Min. Yield Strength	125	ksi
Max. Yield Strength	140	ksi
Min. Tensile Strength	135	ksi
Yield Strength	620	klb
Ultimate Strength	670	klb
Min. Internal Yield	12,090	psi
*High Collapse*	8,840	psi

## CONNECTION PROPERTIES

Connection Type	Semi-Premium T&C	
Connection OD (nom)	6.300	in.
Connection ID (nom)	4.892	in.
Make-Up Loss	4.125	in.
Coupling Length	9.250	in.
Critical Cross Section	4.962	sq.in.
Tension Efficiency	100.0%	of pipe
Compression Efficiency	100.0%	of pipe
Internal Pressure Efficiency	100.0%	of pipe
External Pressure Efficiency	100.0%	of pipe

## CONNECTION PERFORMANCES

Yield Strength	620	klb
Parting Load	670	klb
Compression Rating	620	klb
Min. Internal Yield	12,090	psi
*High Collapse*	8,840	psi
Maximum Uniaxial Bend Rating	104.2	°/100 ft
Ref String Length w 1.4 Design Factor	26,050	ft

## FIELD TORQUE VALUES

Min. Make-up Torque	13,400	ft.lbs
Opti. Make-up Torque	14,350	ft.lbs
Max. Make-up Torque	15,300	ft.lbs
Min. Shoulder Torque	1,340	ft.lbs
Max. Shoulder Torque	10,720	ft.lbs
Max. Delta Turn	0.200	Turns
Max Operational Torque	17,200	ft.lbs
Maximum Torsional Value (MTV)	18,920	ft.lbs

For detailed information on performance properties, refer to DWC Connection Data Notes on following page(s).

Connection specifications within the control of VAM USA were correct as of the date printed. Specifications are subject to change without notice. Certain connection specifications are dependent on the mechanical properties of the pipe. Mechanical properties of mill proprietary pipe grades were obtained from mill publications and are subject to change. Properties of mill proprietary grades should be confirmed with the mill. Users are advised to obtain current connection specifications and verify pipe mechanical properties for each application.

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05/23/2023 4:15 PM





VAM USA  
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Tech Support E-mail: [tech.support@vam-usa.com](mailto:tech.support@vam-usa.com)

**DWC Connection Data Notes:**

1. DWC connections are available with a seal ring (SR) option.
2. All standard DWC/C connections are interchangeable for a given pipe OD. DWC connections are interchangeable with DWC/C-SR connections of the same OD and wall.
3. Connection performance properties are based on nominal pipe body and connection dimensions.
4. DWC connection internal and external pressure resistance is calculated using the API rating for buttress connections. API Internal pressure resistance is calculated from formulas 31, 32, and 35 in the API Bulletin 5C3.
5. DWC joint strength is the minimum pipe body yield strength multiplied by the connection critical area.
6. API joint strength is for reference only. It is calculated from formulas 42 and 43 in the API Bulletin 5C3.
7. Bending efficiency is equal to the compression efficiency.
8. The torque values listed are recommended. The actual torque required may be affected by field conditions such as temperature, thread compound, speed of make-up, weather conditions, etc.
9. Connection yield torque is not to be exceeded.
10. Reference string length is calculated by dividing the joint strength by both the nominal weight in air and a design factor (DF) of 1.4. These values are offered for reference only and do not include load factors such as bending, buoyancy, temperature, load dynamics, etc.
11. DWC connections will accommodate API standard drift diameters.
12. DWC/C family of connections are compatible with API Buttress BTC connections. Please contact [tech.support@vam-usa.com](mailto:tech.support@vam-usa.com) for details on connection ratings and make-up.

Connection specifications within the control of VAM USA were correct as of the date printed. Specifications are subject to change without notice. Certain connection specifications are dependent on the mechanical properties of the pipe. Mechanical properties of mill proprietary pipe grades were obtained from mill publications and are subject to change. Properties of mill proprietary grades should be confirmed with the mill. Users are advised to obtain current connection specifications and verify pipe mechanical properties for each application.

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05/23/2023 4:15 PM





9.625"    40#    .395"    J-55

**Dimensions (Nominal)**

Outside Diameter	9.625	in.
Wall	0.395	in.
Inside Diameter	8.835	in.
Drift	8.750	in.
Weight, T&C	40.000	lbs./ft.
Weight, PE	38.970	lbs./ft.

**Performance Properties**

Collapse, PE	2570	psi
Internal Yield Pressure at Minimum Yield		
PE	3950	psi
LTC	3950	psi
BTC	3950	psi
Yield Strength, Pipe Body	630	1000 lbs.
Joint Strength		
STC	452	1000 lbs.
LTC	520	1000 lbs.
BTC	714	1000 lbs.

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## Section 2 - Blowout Preventer Testing Procedure

### Variance Request

Devon Energy requests to only test BOP connection breaks after drilling out of surface casing and while skidding between wells which conforms to API Standard 53 and industry standards. This test will include the Top Pipe Rams, HCR, Kill Line Check Valve, QDC (quick disconnect to wellhead) and Shell of the 10M BOPE to 5M for 10 minutes. If a break to the flex hose that runs to the choke manifold is required due to repositioning from a skid, the HCR will remain open during the shell test to include that additional break. The variance only pertains to intermediate hole-sections and no deeper than the Bone Springs Formation where 5M BOP tests are required. The initial BOP test will follow OOGO2.III.A.2.i, and subsequent tests following a skid will only test connections that are broken. The annular preventer will be tested to 100% working pressure. This variance will meet or exceed OOGO2.III.A.2.i per the following: Devon Energy will perform a full BOP test per OOGO2.III.A.2.i before drilling out of the intermediate casing string(s) and starting the production hole, before starting any hole section that requires a 10M test, before the expiration of the allotted 14-days for 5M intermediate batch drilling or when the drilling rig is fully mobilized to a new well pad, whichever is sooner. We will utilize a 200' TVD tolerance between intermediate shoes as the cutoff for a full BOP test. The BLM will be contacted 4hrs prior to a BOPE test. The BLM will be notified if and when a well control event is encountered. Break test will be a 14 day interval and not a 30 day full BOPE test interval. If in the event break testing is not utilized, then a full BOPE test would be conducted.

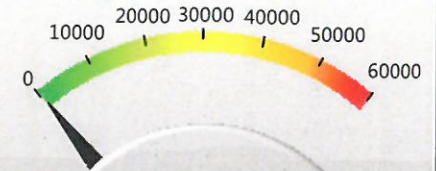
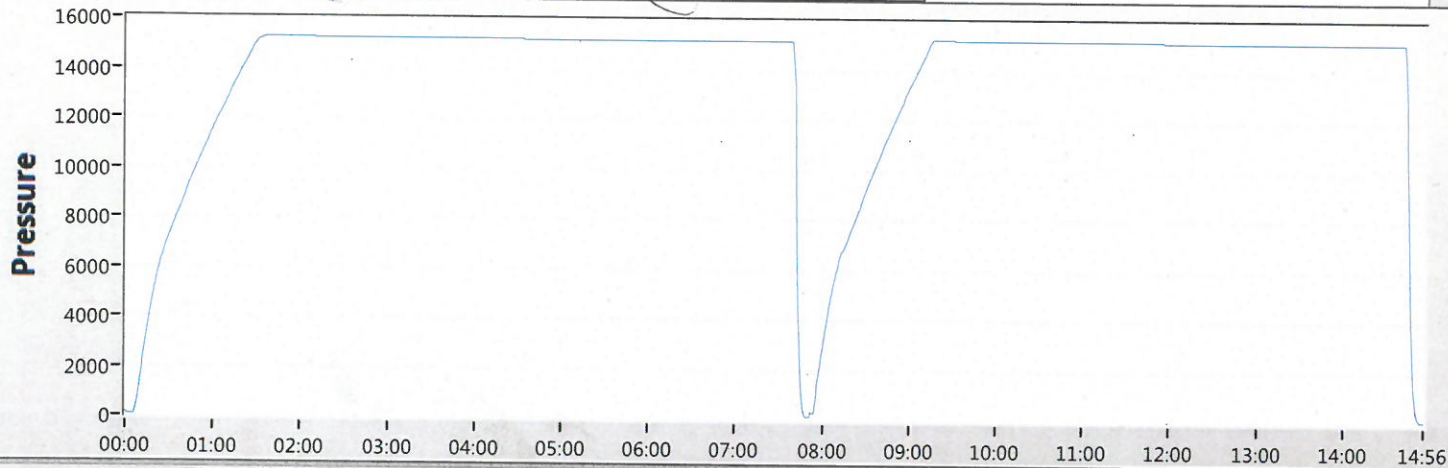
1. Well Control Response:
  1. Primary barrier remains fluid
  2. In the event of an influx due to being underbalanced and after a realized gain or flow, the order of closing BOPE is as follows:
    - a) Annular first
    - b) If annular were to not hold, Upper pipe rams second (which were tested on the skid BOP test)
    - c) If the Upper Pipe Rams were to not hold, Lower Pipe Rams would be third

**Cactus**  
Wellhead

2-9-17  
E Bell

80.7 °F

15:49



50

Date 02-09-17

Tested By E.BELL

Transducer bay2

Transducer Serial 181504

Calibration Date 9/6/15

	Job#	Part#	Serial#	Description	Test Pressure
1	TRJ0006341-0007	116966	TRJ6341-7-1	ADPT,DRLG,CW,MBU-3T,13-5/8 10M	15000
2					
3					
4					
5				TRANSDUCER CALIBRATION DUE 03/13/2017	
6					
7					
8					



Start



Stop



Zero



Config



Save



Print

EXIT



**Well:** MARWARI 21-16 STATE FED COM 524H

**County:** Lea

**Wellbore:** Permit Plan

**Design:** Permit Plan #1

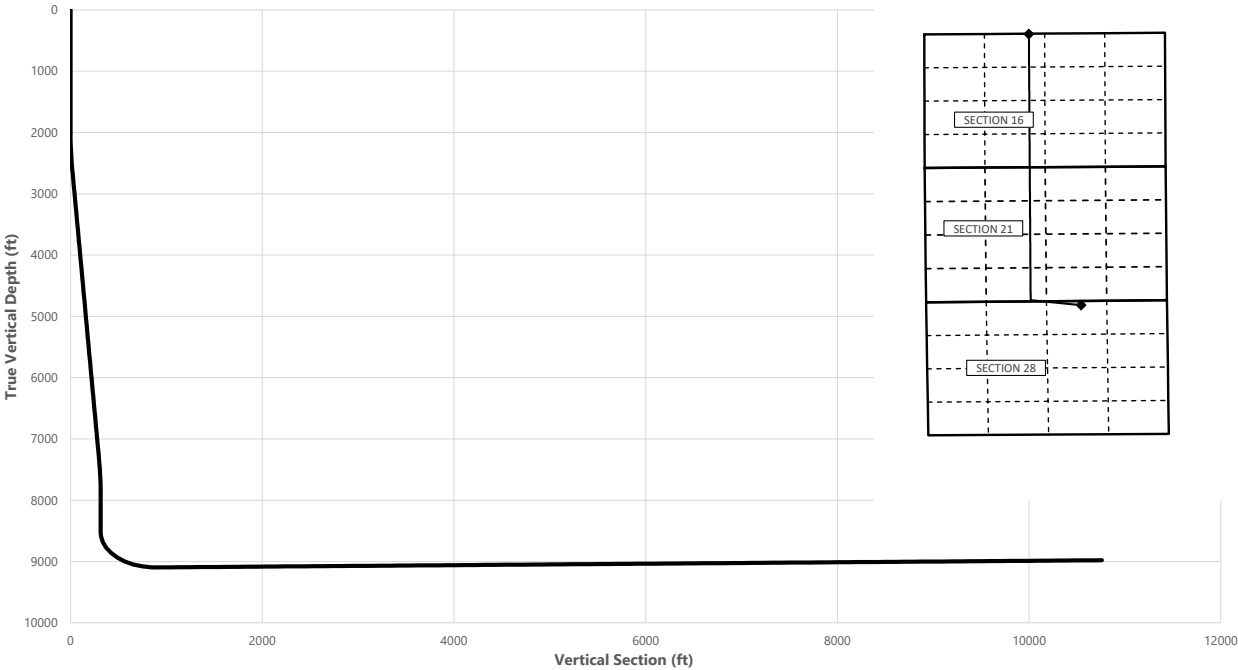
**Geodetic System:** US State Plane 1983

**Datum:** North American Datum 1927

**Ellipsoid:** Clarke 1866

**Zone:** 3001 - NM East (NAD83)

MD	INC	AZI	TVD	NS	EW	VS	DLS	Comment
(ft)	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(°/100ft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	SHL
2000.00	0.00	280.00	2000.00	0.00	0.00	0.00	0.00	Start Tangent
2600.00	12.00	280.00	2595.62	10.87	-61.65	17.41	2.00	Hold Tangent
7435.04	12.00	280.00	7325.01	185.43	-1051.64	296.95	0.00	Drop to Vertical
8035.04	0.00	280.00	7920.63	196.30	-1113.29	314.35	2.00	Hold Vertical
8637.49	0.00	359.79	8523.08	196.30	-1113.29	314.35	0.00	KOP
9544.25	90.68	359.79	9096.00	776.01	-1115.42	890.96	10.00	Landing Point
19466.17	90.68	359.79	8979.00	10697.18	-1151.78	10759.01	0.00	BHL



Key Depths	MD	TVD
	(ft)	(ft)
Rustler	782.00	782.00
Salt	1148.00	1148.00
Base of Salt	4391.53	4348.00
Delaware	4618.49	4570.00
Cherry Canyon	5609.13	5539.00
Brushy Canyon	7079.26	6977.00
1st Bone Spring Lime / Point of Pene	8670.43	8556.00
exit	19386.17	8979.96

**SHL**  
**KOP**  
**Point of Penetration**  
**Exit**  
**BHL**

MD	TVD	Lat	Long	Section Footages
(ft)	(ft)	(°)	(°)	
0.00	0.00	32.1081	-103.6777	175' FNL, 1900' FEL of Sec 28 in T25S, R32E
8637.49	8523.08	32.1087	-103.6813	48' FSL, 2310' FWL of Sec 21 in T25S, R32E
8670.43	8556.00	32.1089	-103.6812	100' FSL, 2310' FWL of Sec 21 in T25S, R32E
19386.17	8979.96	32.1374	-103.6811	100' FNL , 2310' FWL of Sec 16 in T25S, R32E
19466.17	8979.00	32.1375	-103.6812	20' FNL, 2310' FWL of Sec 16 in T25S, R32E

	Y	X	MD
KOP	403913	743247	8637.49

MARWARI 21-16 STATE FED COM 524H



**Well:** MARWARI 21-16 STATE FED COM 524H  
**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	280.00	100.00	0.00	0.00	0.00	0.00	
200.00	0.00	280.00	200.00	0.00	0.00	0.00	0.00	
300.00	0.00	280.00	300.00	0.00	0.00	0.00	0.00	
400.00	0.00	280.00	400.00	0.00	0.00	0.00	0.00	
500.00	0.00	280.00	500.00	0.00	0.00	0.00	0.00	
600.00	0.00	280.00	600.00	0.00	0.00	0.00	0.00	
700.00	0.00	280.00	700.00	0.00	0.00	0.00	0.00	
782.00	0.00	280.00	782.00	0.00	0.00	0.00	0.00	Rustler
800.00	0.00	280.00	800.00	0.00	0.00	0.00	0.00	
900.00	0.00	280.00	900.00	0.00	0.00	0.00	0.00	
1000.00	0.00	280.00	1000.00	0.00	0.00	0.00	0.00	
1100.00	0.00	280.00	1100.00	0.00	0.00	0.00	0.00	
1148.00	0.00	280.00	1148.00	0.00	0.00	0.00	0.00	Salt
1200.00	0.00	280.00	1200.00	0.00	0.00	0.00	0.00	
1300.00	0.00	280.00	1300.00	0.00	0.00	0.00	0.00	
1400.00	0.00	280.00	1400.00	0.00	0.00	0.00	0.00	
1500.00	0.00	280.00	1500.00	0.00	0.00	0.00	0.00	
1600.00	0.00	280.00	1600.00	0.00	0.00	0.00	0.00	
1700.00	0.00	280.00	1700.00	0.00	0.00	0.00	0.00	
1800.00	0.00	280.00	1800.00	0.00	0.00	0.00	0.00	
1900.00	0.00	280.00	1900.00	0.00	0.00	0.00	0.00	
2000.00	0.00	280.00	2000.00	0.00	0.00	0.00	0.00	Start Tangent
2100.00	2.00	280.00	2099.98	0.30	-1.72	0.49	2.00	
2200.00	4.00	280.00	2199.84	1.21	-6.87	1.94	2.00	
2300.00	6.00	280.00	2299.45	2.73	-15.46	4.36	2.00	
2400.00	8.00	280.00	2398.70	4.84	-27.46	7.75	2.00	
2500.00	10.00	280.00	2497.47	7.56	-42.86	12.10	2.00	
2600.00	12.00	280.00	2595.62	10.87	-61.65	17.41	2.00	Hold Tangent
2700.00	12.00	280.00	2693.44	14.48	-82.13	23.19	0.00	
2800.00	12.00	280.00	2791.25	18.09	-102.60	28.97	0.00	
2900.00	12.00	280.00	2889.07	21.70	-123.08	34.75	0.00	
3000.00	12.00	280.00	2986.88	25.31	-143.55	40.53	0.00	
3100.00	12.00	280.00	3084.70	28.92	-164.03	46.32	0.00	
3200.00	12.00	280.00	3182.51	32.53	-184.50	52.10	0.00	
3300.00	12.00	280.00	3280.33	36.14	-204.98	57.88	0.00	
3400.00	12.00	280.00	3378.14	39.75	-225.45	63.66	0.00	
3500.00	12.00	280.00	3475.96	43.36	-245.93	69.44	0.00	
3600.00	12.00	280.00	3573.77	46.97	-266.40	75.22	0.00	
3700.00	12.00	280.00	3671.59	50.58	-286.88	81.00	0.00	
3800.00	12.00	280.00	3769.40	54.19	-307.36	86.79	0.00	
3900.00	12.00	280.00	3867.22	57.80	-327.83	92.57	0.00	
4000.00	12.00	280.00	3965.03	61.41	-348.31	98.35	0.00	
4100.00	12.00	280.00	4062.84	65.02	-368.78	104.13	0.00	
4200.00	12.00	280.00	4160.66	68.63	-389.26	109.91	0.00	
4300.00	12.00	280.00	4258.47	72.25	-409.73	115.69	0.00	
4391.53	12.00	280.00	4348.00	75.55	-428.47	120.98	0.00	Base of Salt
4400.00	12.00	280.00	4356.29	75.86	-430.21	121.47	0.00	
4500.00	12.00	280.00	4454.10	79.47	-450.68	127.26	0.00	
4600.00	12.00	280.00	4551.92	83.08	-471.16	133.04	0.00	
4618.49	12.00	280.00	4570.00	83.74	-474.94	134.11	0.00	Delaware
4700.00	12.00	280.00	4649.73	86.69	-491.63	138.82	0.00	
4800.00	12.00	280.00	4747.55	90.30	-512.11	144.60	0.00	
4900.00	12.00	280.00	4845.36	93.91	-532.58	150.38	0.00	
5000.00	12.00	280.00	4943.18	97.52	-553.06	156.16	0.00	
5100.00	12.00	280.00	5040.99	101.13	-573.53	161.95	0.00	
5200.00	12.00	280.00	5138.81	104.74	-594.01	167.73	0.00	
5300.00	12.00	280.00	5236.62	108.35	-614.48	173.51	0.00	
5400.00	12.00	280.00	5334.44	111.96	-634.96	179.29	0.00	
5500.00	12.00	280.00	5432.25	115.57	-655.44	185.07	0.00	
5600.00	12.00	280.00	5530.07	119.18	-675.91	190.85	0.00	
5609.13	12.00	280.00	5539.00	119.51	-677.78	191.38	0.00	Cherry Canyon
5700.00	12.00	280.00	5627.88	122.79	-696.39	196.63	0.00	
5800.00	12.00	280.00	5725.70	126.40	-716.86	202.42	0.00	
5900.00	12.00	280.00	5823.51	130.01	-737.34	208.20	0.00	
6000.00	12.00	280.00	5921.33	133.62	-757.81	213.98	0.00	
6100.00	12.00	280.00	6019.14	137.23	-778.29	219.76	0.00	
6200.00	12.00	280.00	6116.95	140.84	-798.76	225.54	0.00	
6300.00	12.00	280.00	6214.77	144.45	-819.24	231.32	0.00	
6400.00	12.00	280.00	6312.58	148.06	-839.71	237.10	0.00	

MARWARI 21-16 STATE FED COM 524H



Well: MARWARI 21-16 STATE FED COM 524H  
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
6500.00	12.00	280.00	6410.40	151.67	-860.19	242.89	0.00	
6600.00	12.00	280.00	6508.21	155.28	-880.66	248.67	0.00	
6700.00	12.00	280.00	6606.03	158.89	-901.14	254.45	0.00	
6800.00	12.00	280.00	6703.84	162.50	-921.61	260.23	0.00	
6900.00	12.00	280.00	6801.66	166.11	-942.09	266.01	0.00	
7000.00	12.00	280.00	6899.47	169.72	-962.56	271.79	0.00	
7079.26	12.00	280.00	6977.00	172.58	-978.79	276.38	0.00	Brushy Canyon
7100.00	12.00	280.00	6997.29	173.33	-983.04	277.57	0.00	
7200.00	12.00	280.00	7095.10	176.94	-1003.52	283.36	0.00	
7300.00	12.00	280.00	7192.92	180.55	-1023.99	289.14	0.00	
7400.00	12.00	280.00	7290.73	184.16	-1044.47	294.92	0.00	
7435.04	12.00	280.00	7325.01	185.43	-1051.64	296.95	0.00	Drop to Vertical
7500.00	10.70	280.00	7388.69	187.65	-1064.23	300.50	2.00	
7600.00	8.70	280.00	7487.26	190.58	-1080.82	305.19	2.00	
7700.00	6.70	280.00	7586.35	192.91	-1094.02	308.92	2.00	
7800.00	4.70	280.00	7685.85	194.63	-1103.80	311.68	2.00	
7900.00	2.70	280.00	7785.64	195.75	-1110.16	313.47	2.00	
8000.00	0.70	280.00	7885.59	196.27	-1113.08	314.30	2.00	
8035.04	0.00	280.00	7920.63	196.30	-1113.29	314.35	2.00	Hold Vertical
8100.00	0.00	359.79	7985.59	196.30	-1113.29	314.36	0.00	
8200.00	0.00	359.79	8085.59	196.30	-1113.29	314.36	0.00	
8300.00	0.00	359.79	8185.59	196.30	-1113.29	314.36	0.00	
8400.00	0.00	359.79	8285.59	196.30	-1113.29	314.36	0.00	
8500.00	0.00	359.79	8385.59	196.30	-1113.29	314.36	0.00	
8600.00	0.00	359.79	8485.59	196.30	-1113.29	314.36	0.00	
8637.49	0.00	359.79	8523.08	196.30	-1113.29	314.35	0.00	KOP
8670.43	3.29	359.79	8556.00	197.25	-1113.30	315.30	10.00	1st Bone Spring Lime / Point of Penetration
8700.00	6.25	359.79	8585.47	199.71	-1113.31	317.75	10.00	
8800.00	16.25	359.79	8683.42	219.20	-1113.38	337.13	10.00	
8900.00	26.25	359.79	8776.50	255.39	-1113.51	373.13	10.00	
9000.00	36.25	359.79	8861.88	307.21	-1113.70	424.67	10.00	
9100.00	46.25	359.79	8936.97	373.06	-1113.94	490.17	10.00	
9200.00	56.25	359.79	8999.48	450.95	-1114.23	567.64	10.00	
9300.00	66.25	359.79	9047.52	538.51	-1114.55	654.73	10.00	
9400.00	76.25	359.79	9079.62	633.08	-1114.90	748.80	10.00	
9500.00	86.25	359.79	9094.81	731.79	-1115.26	846.98	10.00	
9544.25	90.68	359.79	9096.00	776.01	-1115.42	890.96	10.00	Landing Point
9600.00	90.68	359.79	9095.34	831.76	-1115.62	946.41	0.00	
9700.00	90.68	359.79	9094.16	931.75	-1115.99	1045.87	0.00	
9800.00	90.68	359.79	9092.98	1031.75	-1116.36	1145.33	0.00	
9900.00	90.68	359.79	9091.81	1131.74	-1116.72	1244.78	0.00	
10000.00	90.68	359.79	9090.63	1231.73	-1117.09	1344.24	0.00	
10100.00	90.68	359.79	9089.45	1331.72	-1117.46	1443.70	0.00	
10200.00	90.68	359.79	9088.27	1431.71	-1117.82	1543.15	0.00	
10300.00	90.68	359.79	9087.09	1531.71	-1118.19	1642.61	0.00	
10400.00	90.68	359.79	9085.91	1631.70	-1118.56	1742.07	0.00	
10500.00	90.68	359.79	9084.73	1731.69	-1118.93	1841.53	0.00	
10600.00	90.68	359.79	9083.55	1831.68	-1119.29	1940.98	0.00	
10700.00	90.68	359.79	9082.37	1931.68	-1119.66	2040.44	0.00	
10800.00	90.68	359.79	9081.19	2031.67	-1120.03	2139.90	0.00	
10900.00	90.68	359.79	9080.01	2131.66	-1120.39	2239.35	0.00	
11000.00	90.68	359.79	9078.84	2231.65	-1120.76	2338.81	0.00	
11100.00	90.68	359.79	9077.66	2331.65	-1121.13	2438.27	0.00	
11200.00	90.68	359.79	9076.48	2431.64	-1121.49	2537.72	0.00	
11300.00	90.68	359.79	9075.30	2531.63	-1121.86	2637.18	0.00	
11400.00	90.68	359.79	9074.12	2631.62	-1122.23	2736.64	0.00	
11500.00	90.68	359.79	9072.94	2731.62	-1122.60	2836.10	0.00	
11600.00	90.68	359.79	9071.76	2831.61	-1122.96	2935.55	0.00	
11700.00	90.68	359.79	9070.58	2931.60	-1123.33	3035.01	0.00	
11800.00	90.68	359.79	9069.40	3031.59	-1123.70	3134.47	0.00	
11900.00	90.68	359.79	9068.22	3131.59	-1124.06	3233.92	0.00	
12000.00	90.68	359.79	9067.04	3231.58	-1124.43	3333.38	0.00	
12100.00	90.68	359.79	9065.87	3331.57	-1124.80	3432.84	0.00	
12200.00	90.68	359.79	9064.69	3431.56	-1125.16	3532.29	0.00	
12300.00	90.68	359.79	9063.51	3531.55	-1125.53	3631.75	0.00	
12400.00	90.68	359.79	9062.33	3631.55	-1125.90	3731.21	0.00	
12500.00	90.68	359.79	9061.15	3731.54	-1126.27	3830.67	0.00	
12600.00	90.68	359.79	9059.97	3831.53	-1126.63	3930.12	0.00	
12700.00	90.68	359.79	9058.79	3931.52	-1127.00	4029.58	0.00	
12800.00	90.68	359.79	9057.61	4031.52	-1127.37	4129.04	0.00	

MARWARI 21-16 STATE FED COM 524H



**Well:** MARWARI 21-16 STATE FED COM 524H  
**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
12900.00	90.68	359.79	9056.43	4131.51	-1127.73	4228.49	0.00	
13000.00	90.68	359.79	9055.25	4231.50	-1128.10	4327.95	0.00	
13100.00	90.68	359.79	9054.08	4331.49	-1128.47	4427.41	0.00	
13200.00	90.68	359.79	9052.90	4431.49	-1128.83	4526.87	0.00	
13300.00	90.68	359.79	9051.72	4531.48	-1129.20	4626.32	0.00	
13400.00	90.68	359.79	9050.54	4631.47	-1129.57	4725.78	0.00	
13500.00	90.68	359.79	9049.36	4731.46	-1129.94	4825.24	0.00	
13600.00	90.68	359.79	9048.18	4831.46	-1130.30	4924.69	0.00	
13700.00	90.68	359.79	9047.00	4931.45	-1130.67	5024.15	0.00	
13800.00	90.68	359.79	9045.82	5031.44	-1131.04	5123.61	0.00	
13900.00	90.68	359.79	9044.64	5131.43	-1131.40	5223.06	0.00	
14000.00	90.68	359.79	9043.46	5231.42	-1131.77	5322.52	0.00	
14100.00	90.68	359.79	9042.28	5331.42	-1132.14	5421.98	0.00	
14200.00	90.68	359.79	9041.11	5431.41	-1132.51	5521.44	0.00	
14300.00	90.68	359.79	9039.93	5531.40	-1132.87	5620.89	0.00	
14400.00	90.68	359.79	9038.75	5631.39	-1133.24	5720.35	0.00	
14500.00	90.68	359.79	9037.57	5731.39	-1133.61	5819.81	0.00	
14600.00	90.68	359.79	9036.39	5831.38	-1133.97	5919.26	0.00	
14700.00	90.68	359.79	9035.21	5931.37	-1134.34	6018.72	0.00	
14800.00	90.68	359.79	9034.03	6031.36	-1134.71	6118.18	0.00	
14900.00	90.68	359.79	9032.85	6131.36	-1135.07	6217.63	0.00	
15000.00	90.68	359.79	9031.67	6231.35	-1135.44	6317.09	0.00	
15100.00	90.68	359.79	9030.49	6331.34	-1135.81	6416.55	0.00	
15200.00	90.68	359.79	9029.31	6431.33	-1136.18	6516.01	0.00	
15300.00	90.68	359.79	9028.14	6531.33	-1136.54	6615.46	0.00	
15400.00	90.68	359.79	9026.96	6631.32	-1136.91	6714.92	0.00	
15500.00	90.68	359.79	9025.78	6731.31	-1137.28	6814.38	0.00	
15600.00	90.68	359.79	9024.60	6831.30	-1137.64	6913.83	0.00	
15700.00	90.68	359.79	9023.42	6931.30	-1138.01	7013.29	0.00	
15800.00	90.68	359.79	9022.24	7031.29	-1138.38	7112.75	0.00	
15900.00	90.68	359.79	9021.06	7131.28	-1138.74	7212.21	0.00	
16000.00	90.68	359.79	9019.88	7231.27	-1139.11	7311.66	0.00	
16100.00	90.68	359.79	9018.70	7331.26	-1139.48	7411.12	0.00	
16200.00	90.68	359.79	9017.52	7431.26	-1139.85	7510.58	0.00	
16300.00	90.68	359.79	9016.34	7531.25	-1140.21	7610.03	0.00	
16400.00	90.68	359.79	9015.17	7631.24	-1140.58	7709.49	0.00	
16500.00	90.68	359.79	9013.99	7731.23	-1140.95	7808.95	0.00	
16600.00	90.68	359.79	9012.81	7831.23	-1141.31	7908.40	0.00	
16700.00	90.68	359.79	9011.63	7931.22	-1141.68	8007.86	0.00	
16800.00	90.68	359.79	9010.45	8031.21	-1142.05	8107.32	0.00	
16900.00	90.68	359.79	9009.27	8131.20	-1142.41	8206.78	0.00	
17000.00	90.68	359.79	9008.09	8231.20	-1142.78	8306.23	0.00	
17100.00	90.68	359.79	9006.91	8331.19	-1143.15	8405.69	0.00	
17200.00	90.68	359.79	9005.73	8431.18	-1143.52	8505.15	0.00	
17300.00	90.68	359.79	9004.55	8531.17	-1143.88	8604.60	0.00	
17400.00	90.68	359.79	9003.37	8631.17	-1144.25	8704.06	0.00	
17500.00	90.68	359.79	9002.20	8731.16	-1144.62	8803.52	0.00	
17600.00	90.68	359.79	9001.02	8831.15	-1144.98	8902.97	0.00	
17700.00	90.68	359.79	8999.84	8931.14	-1145.35	9002.43	0.00	
17800.00	90.68	359.79	8998.66	9031.14	-1145.72	9101.89	0.00	
17900.00	90.68	359.79	8997.48	9131.13	-1146.09	9201.35	0.00	
18000.00	90.68	359.79	8996.30	9231.12	-1146.45	9300.80	0.00	
18100.00	90.68	359.79	8995.12	9331.11	-1146.82	9400.26	0.00	
18200.00	90.68	359.79	8993.94	9431.10	-1147.19	9499.72	0.00	
18300.00	90.68	359.79	8992.76	9531.10	-1147.55	9599.17	0.00	
18400.00	90.68	359.79	8991.58	9631.09	-1147.92	9698.63	0.00	
18500.00	90.68	359.79	8990.41	9731.08	-1148.29	9798.09	0.00	
18600.00	90.68	359.79	8989.23	9831.07	-1148.65	9897.55	0.00	
18700.00	90.68	359.79	8988.05	9931.07	-1149.02	9997.00	0.00	
18800.00	90.68	359.79	8986.87	10031.06	-1149.39	10096.46	0.00	
18900.00	90.68	359.79	8985.69	10131.05	-1149.76	10195.92	0.00	
19000.00	90.68	359.79	8984.51	10231.04	-1150.12	10295.37	0.00	
19100.00	90.68	359.79	8983.33	10331.04	-1150.49	10394.83	0.00	
19200.00	90.68	359.79	8982.15	10431.03	-1150.86	10494.29	0.00	
19300.00	90.68	359.79	8980.97	10531.02	-1151.22	10593.74	0.00	
19386.17	90.68	359.79	8979.96	10617.19	-1151.54	10679.45	0.00	exit
19400.00	90.68	359.79	8979.79	10631.01	-1151.59	10693.20	0.00	
19466.17	90.68	359.79	8979.00	10697.18	-1151.78	10759.01	0.00	BHL

1. Geologic Formations

TVD of target	8980	Pilot hole depth	N/A
MD at TD:	19466	Deepest expected fresh water	

Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/Target Zone?	Hazards*
Rustler	782		
Salt	1148		
Base of Salt	4348		
Delaware	4570		
Cherry Canyon	5539		
Brushy Canyon	6977		
1st Bone Spring Lime	8556		

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



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**2. Casing Program (Primary Design)**

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	54 1/2	J-55	BTC	0	807	0	807
12 1/4	9 5/8	40	J-55	BTC	0	8537	0	8537
8 3/4	5 1/2	17	P110	DWC/C-IS PLUS	0	19466	0	8980

•All casing strings will be tested in accordance with 43 CFR 3172. Must have table for contingency casing.

**3. Cementing Program (Primary Design)**

Assuming no returns are established while drilling, Devon requests to pump a two stage cement job on the intermediate casing string with the first stage being pumped conventionally with the calculated top of cement at the Brushy Canyon and the second stage performed as a bradenhead squeeze with planned cement from the Brushy Canyon to surface. The final cement top will be verified by Echo-meter. Devon will include the Echo-meter verified fluid top and the volume of displacement fluid above the cement slurry in the annulus in all post-drill sundries on wells utilizing this cement program. Devon will report to the BLM the volume of fluid (limited to 1 bbls) used to flush intermediate casing valves following backside cementing procedures.

Casing	# Sks	TOC	Wt. ppg	Yld (ft3/sack)	Slurry Description
Surface	623	Surf	13.2	1.44	Lead: Class C Cement + additives
Int 1	1242	Surf	13.0	2.3	2nd State: Bradenhead Squeeze - Lead: Class C Cement + additives
	425	7079	13.2	1.44	Tail: Class H / C + additives
Production	44	8137	9	3.27	Lead: Class H / C + additives
	2089	8637	13.2	1.44	Tail: Class H / C + additives

Casing String	% Excess
Surface	50%
Intermediate 1	30%
Prod	10%

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**4. Pressure Control Equipment (Three String Design)**

BOP installed and tested before drilling which hole?		Size?	Min. Required WP	Type	✓	Tested to:
Int 1	13-5/8"	5M	Annular		X	50% of rated working pressure
			Blind Ram		X	5M
			Pipe Ram			
			Double Ram		X	
			Other*			
Production	13-5/8"	5M	Annular (5M)		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*			
N	A variance is requested for the use of a diverter on the surface casing. See attached for schematic.					
Y	A variance is requested to run a 5 M annular on a 10M system					

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**5. Mud Program (Three String Design)**

Section	Type	Weight (ppg)
Surface	FW Gel	8.5-9
Intermediate	DBE / Cut Brine	10-10.5
Production	OBM	10-10.5

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 submitted 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	Int. shoe to KOP
	Density	Int. shoe to KOP
X	CBL	Production casing
X	Mud log	Intermediate shoe to TD
	PEX	

**7. Drilling Conditions**

Condition	Specify what type and where?
BH pressure at deepest TVD	4903
Abnormal temperature	No

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

Hydrogen Sulfide (H<sub>2</sub>S) monitors will be installed prior to drilling out the surface shoe. If H<sub>2</sub>S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of 43 CFR 3176. If Hydrogen Sulfide is encountered measured values and formations will be provided to the BLM.

N	H <sub>2</sub> S is present
Y	H <sub>2</sub> S plan attached.

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**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 (43 CFR 3172, 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 pa.
- 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. A that time an approved BOP stack will be nipped 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

Sundry ID 2766936

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13 3/8		surface csg in a		17 1/2		inch hole.		Design Factors				Surface		
Segment	#/ft	Grade		Coupling	Body	Collapse	Burst	Length	B@s	a-B	a-C	Weight		
"A"	54.50		j 55	btc	17.02	2.63	0.59	920	7	0.98	4.96	50,140		
"B"				btc				0				0		
w/8.4#/g mud, 30min Sfc Csg Test psig: 1,500				Tail Cmt	does not	circ to sfc.	Totals:	920				50,140		
Comparison of Proposed to Minimum Required Cement Volumes														
Hole	Annular	1 Stage	1 Stage	Min	1 Stage	Drilling	Calc	Req'd				Min Dist		
Size	Volume	Cmt Sx	CuFt Cmt	Cu Ft	% Excess	Mud Wt	MASP	BOPE				Hole-Cplg		
17 1/2	0.6946	623	897	639	40	9.00	2778	3M				1.56		
Burst Frac Gradient(s) for Segment(s) A, B = , b All > 0.70, OK.														
Site plot (pipe racks 3 or 4) as per O.D. 1.31/1.31, not found														

9 5/8		casing inside the		13 3/8		Design Factors				Int 1		
Segment	#/ft	Grade		Coupling	Body	Collapse	Burst	Length	B@s	a-B	a-C	Weight
"A"	40.00		j 55	btc	1.84	0.55	0.81	8,537	1	1.35	0.92	341,480
"B"								0				0
w/8.4#/g mud, 30min Sfc Csg Test psig: -960								Totals:	8,537			341,480
The cement volume(s) are intended to achieve a top of 0								ft from surface or a		920		overlap.
Hole	Annular	1 Stage	1 Stage	Min	1 Stage	Drilling	Calc	Req'd				Min Dist
Size	Volume	Cmt Sx	CuFt Cmt	Cu Ft	% Excess	Mud Wt	MASP	BOPE				Hole-Cplg
12 1/4	0.3132	425	612	2719	-77	10.50	2923	3M				0.81
r D V Tool(s):				6977			sum of sx	Σ CuFt				Σ%excess
t by stage % :				25	28		1667	3469				28
Class 'C' tail cmt yld > 1.35												
Burst Frac Gradient(s) for Segment(s): A, B, C, D = 0.46, b, c, d <0.70 a Problem!!												

Tail cmt		casing inside the		9 5/8		Design Factors				Prod 1		
Segment	#/ft	Grade		Coupling	Joint	Collapse	Burst	Length	B@s	a-B	a-C	Weight
"A"	17.00		p 110	dwc/c is+	3.58	1.53	2.17	19,466	2	3.64	2.56	330,922
"B"								0				0
"C"								0				0
"D"				0				0				0
w/8.4#/g mud, 30min Sfc Csg Test psig: 1,976								Totals:	19,466			330,922
The cement volume(s) are intended to achieve a top of								ft from surface or a		200		overlap.
Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE				Min Dist Hole-Cplg
8 3/4	0.2526	2133	3152	2813	12	10.50						1.35
Class 'C' tail cmt yld > 1.35												

#N/A											
0	5 1/2			Design Factors				<Choose Casing>			
Segment	#/ft	Grade	Coupling	#N/A	Collapse	Burst	Length	B@s	a-B	a-C	Weight
"A"			0.00				0				0
"B"			0.00				0				0
w/8.4#/g mud, 30min Sfc Csg Test psig:							Totals:	0			0
Cmt vol calc below includes this csg, TOC intended				#N/A	ft from surface or a			#N/A			overlap.
Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE			Min Dist Hole-Cplg
0		#N/A	#N/A	0	#N/A						
#N/A Capitan Reef est top XXXX.											

## PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

<b>OPERATOR'S NAME:</b>	<b>Devon Energy Production Company LP</b>
<b>LEASE NO.:</b>	<b>NMLC062300</b>
<b>LOCATION:</b>	Section 28, T.25 S., R.32 E., NMPM
<b>COUNTY:</b>	Lea County, New Mexico ▼

<b>WELL NAME &amp; NO.:</b>	<b>Marwari 21-16 State Fed Com 524H</b>
<b>SURFACE HOLE FOOTAGE:</b>	175'/N & 1900'/E
<b>BOTTOM HOLE FOOTAGE:</b>	20'/N & 2310'/W
<b>ATS/API ID:</b>	<b>3002549514</b>
<b>APD ID:</b>	<b>10400065169</b>
<b>Sundry ID:</b>	<b>2766936</b>

COA

H2S	Yes ▼		
Potash	None ▼		
Cave/Karst Potential	Low ▼		
Cave/Karst Potential	<input type="checkbox"/> Critical		
Variance	<input checked="" type="checkbox"/> None	<input checked="" type="checkbox"/> Flex Hose	<input checked="" type="checkbox"/> Other
Wellhead	Conventional and Multibowl ▼		
Other	<input type="checkbox"/> 4 String	Capitan Reef None ▼	<input type="checkbox"/> WIPP
Other	Pilot Hole None ▼	<input type="checkbox"/> Open Annulus	
Cementing	Contingency Squeeze None ▼	Echo-Meter Int 1 ▼	Primary Cement Squeeze None ▼
Special Requirements	<input type="checkbox"/> Water Disposal/Injection	<input checked="" type="checkbox"/> COM	<input type="checkbox"/> Unit
Special Requirements	<input type="checkbox"/> Batch Sundry		
Special Requirements Variance	<input checked="" type="checkbox"/> Break Testing	<input type="checkbox"/> Offline Cementing	<input type="checkbox"/> Casing Clearance

## A. HYDROGEN SULFIDE

A Hydrogen Sulfide (H<sub>2</sub>S) Drilling Plan shall be activated 500 feet prior to drilling into the **Delaware** formation. As a result, the Hydrogen Sulfide area must meet **43 CFR part 3170 Subpart 3176** requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.

## B. CASING

1. The **13-3/8** inch surface casing shall be set at approximately **920** feet (a minimum of **25 feet (Lea County)**) into the Rustler Anhydrite, above the salt, and below usable fresh water) and cemented to the surface. The surface hole shall be **17 1/2** inch in diameter.
  - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
  - b. Wait on cement (WOC) time for a primary cement job will be a minimum of **8 hours** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)
  - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
  - d. If cement falls back, remedial cementing will be done prior to drilling out that string.

**Intermediate casing must be kept fluid filled to meet BLM minimum collapse requirement.**

2. The minimum required fill of cement behind the **9-5/8** inch intermediate casing is:

### **Option 1 (Single Stage):**

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

### **Option 2:**

Operator has proposed to cement in two stages by conventionally cementing the first stage and performing a bradenhead squeeze on the second stage, contingent upon no returns to surface.



- a. First stage: Operator will cement with intent to reach the top of the **Brushy Canyon at 6977' (425 sxs Class H/C+ additives)**.
- b. Second stage:
  - Operator will perform bradenhead squeeze and top-out. Cement to surface. If cement does not reach surface, the appropriate BLM office shall be notified. (**Squeeze 1242 sxs Class C**)

**Operator has proposed to pump down 13-3/8" X 9-5/8" annulus after primary cementing stage. Operator must run Echo-meter to verify Cement Slurry/Fluid top in the annulus Or operator shall run a CBL from TD of the 9-5/8" casing to surface after the second stage BH to verify TOC.**

**Submit results to the BLM. No displacement fluid/wash out shall be utilized at the top of the cement slurry between second stage BH and top out. Operator must run one CBL per Well Pad.**

**If cement does not reach surface, the next casing string must come to surface.**

**Operator must use a limited flush fluid volume of 1 bbl following backside cementing procedures.**

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 is required if washout occurs. Adjust cement volume and excess based on a fluid caliper or similar method that reflects the as-drilled size of the wellbore.**

### **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.

#### **Option 1:**

- a. 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. Annular which shall be tested to 3500 (70% Working Pressure) psi.**

- b. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **9-5/8** inch intermediate casing shoe shall be **5000 (5M)** psi.

### **Option 2:**

Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the **13-3/8** inch 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 43 CFR 3172.6(b)(9) must be followed.

## **D. SPECIAL REQUIREMENT (S)**

### **Communitization Agreement**

- The operator will submit a Communitization Agreement to the Santa Fe Office, 301 Dinosaur Trail Santa Fe, New Mexico 87508, at least 90 days before the anticipated date of first production from a well subject to a spacing order issued by the New Mexico Oil Conservation Division. The Communitization Agreement will include the signatures of all working interest owners in all Federal and Indian leases subject to the Communitization Agreement (i.e., operating rights owners and lessees of record), or certification that the operator has obtained the written signatures of all such owners and will make those signatures available to the BLM immediately upon request.
- The operator will submit an as-drilled survey well plat of the well completion, but are not limited to, those specified in **43 CFR part 3170 Subpart 3171**
- If the operator does not comply with this condition of approval, the BLM may take enforcement actions that include, but are not limited to, those specified in 43 CFR 3163.1.
- In addition, the well sign shall include the surface and bottom hole lease numbers. When the Communitization Agreement number is known, it shall also be on the sign.

**BOPE Break Testing Variance (Approved)**

- BOPE Break Testing is ONLY permitted for 5M BOPE or less. (**Annular preventer must be tested to a minimum of 70% of BOPE working pressure and shall be higher than the MASP**)
- BOPE Break Testing is NOT permitted to drilling the production hole section.
- Variance only pertains to the intermediate hole-sections and no deeper than the Bone Springs formation.
- While in transfer between wells, the BOPE shall be secured by the hydraulic carrier or cradle.
- Any well control event while drilling require notification to the BLM Petroleum Engineer (**575-706-2779**) prior to the commencement of any BOPE Break Testing operations.
- A full BOPE test is required prior to drilling the first deep intermediate hole section. If any subsequent hole interval is deeper than the first, a full BOPE test will be required. (200' TVD tolerance between intermediate shoes is allowable).
- The BLM is to be contacted (**575-689-5981 Lea County**) 4 hours prior to BOPE tests.
- As a minimum, a full BOPE test shall be performed at **21-day** intervals.
- In the event any repairs or replacement of the BOPE is required, the BOPE shall test as per **43 CFR part 3170 Subpart 3172**.
- If in the event break testing is not utilized, then a full BOPE test would be conducted.

## 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)

☒ Lea County

Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240,  
(575) 689-5981

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 2<sup>nd</sup> Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
    - BOP/BOPE test to be conducted per **43 CFR part 3170 Subpart 3172** as soon as 2nd Rig is rigged up on well.
2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.
3. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator

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

2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.
5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.
6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.
7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.
8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

B. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in **43 CFR part 3170 Subpart 3172 and API STD 53 Sec. 5.3**.
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 43 CFR 3172.6(b)(9) 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 cement), 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 cement plug. The BOPE test can be initiated after bumping the cement plug with the casing valve open. (only applies to single stage cement jobs, prior to the cement setting up.)
- c. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer and can be initiated immediately with the casing valve open. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to **43 CFR part 3170 Subpart 3172** 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 **43 CFR part 3170 Subpart 3172**.

C. DRILLING MUD



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

D. WASTE MATERIAL AND FLUIDS

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

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

LVO 1/19/2024

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State of New Mexico  
Energy, Minerals and Natural Resources  
Oil Conservation Division  
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CONDITIONS  
  
Action 307557

CONDITIONS

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 307557
	Action Type: [C-103] NOI Change of Plans (C-103A)

CONDITIONS

Created By	Condition	Condition Date
pkautz	None	2/15/2024