

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OCD Artesia

FORM APPROVED
OMB NO. 1004-0135
Expires: July 31, 2010**SUNDRY NOTICES AND REPORTS ON WELLS**
*Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.***SUBMIT IN TRIPLICATE - Other instructions on reverse side.**

1. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other		5. Lease Serial No. NMNM06370
2. Name of Operator DEVON ENERGY PRODUCTION CO LP Contact: LINDA GOOD Email: linda.good@dvn.com		6. If Indian, Allottee or Tribe Name
3a. Address 333 WEST SHERIDAN AVE OKLAHOMA CITY, OK 73102	3b. Phone No. (include area code) Ph: 405.552.6558	7. If Unit or CA/Agreement, Name and/or No.
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 17 T19S R31E SWSW 0962FSL 0200FWL 32.631140 N Lat, 103.900020 W Lon		8. Well Name and No. SIRIUS 17 FED COM 8H
		9. API Well No. 30-015-41888-00-X1
		10. Field and Pool, or Exploratory HACKBERRY
		11. County or Parish, and State EDDY COUNTY, NM

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

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

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

Jennifer, per email from Art Alarcon:

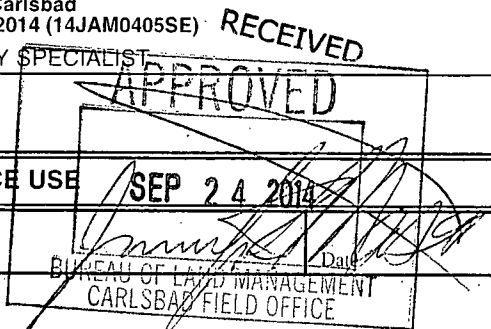
Devon Energy Production Company, L.P. respectfully requests to deepen the approved surface casing depth of 400 ft to 500 ft to reach the Rustler estimated to be at 435 ft.

Devon also requests to set the 13-3/8" Casing at 2,350 ft instead of the approved 2,450 ft in order to allow sufficient room to set the multi-stage tool and packer on the 9-5/8" casing 50 ft below the 13-3/8" casing shoe and remain above the top of the Capitan Reef estimated at 2,490.

Devon also requests to run a tapered production string of 7" x 5-1/2" casing to a total depth of 12,369 ft measured depth as long as hole conditions permits. If lost circulation is encountered we will stay as originally planned to run a 5-1/2" production longstring. Casing and cement design.

Accepted for record
NMOCD TES
9-25-14SEE ATTACHED FOR
CONDITIONS OF APPROV.NM OIL CONSERVATION
ARTESIA DISTRICT
SEP 24 2014

14. I hereby certify that the foregoing is true and correct. Electronic Submission #265380 verified by the BLM Well Information System For DEVON ENERGY PRODUCTION CO LP, sent to the Carlsbad Committed to AFMSS for processing by JENNIFER MASON on 09/24/2014 (14JAM0405SE)	
Name (Printed/Typed) LINDA GOOD	Title REGULATORY SPECIALIST
Signature (Electronic Submission)	Date 09/23/2014
THIS SPACE FOR FEDERAL OR STATE OFFICE USE	
Approved By _____	Title _____
Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.	
Office _____	



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.

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

Additional data for EC transaction #265380 that would not fit on the form

32. Additional remarks, continued

requirements are attached for both the 7" x 5-1/2" tapered production string and the 5-1/2" production longstring.

Sirius 17 Fed Com 8H – Sundry Request

AAA 9-22-2014: Surface, Intermediate Depths and 7" x 5.5" Combination Production String

Sundry Request:

Casing Program Changes: Surface Depth, Intermediate Depth, and 7" x 5.5" Tapered Production String

Hole Size	Hole Interval	OD Csg	Casing Interval	Weight	Collar	Grade
26	0 - 500	20	0 - 500	94#	BTC	J-55
17-1/2"	500 - 2350	13-3/8	0 - 2350	68#	BTC	J-55
12-1/4"	2350 - 4000	12-1/4	0 - 4000	40#	LTC	J-55
8-3/4"	4000 - 7405	7"	0 - 7405	29#	BTC	P-110
8-3/4"	7405 - 12744	5-1/2"	7405 - 12744	17#	BTC	P-110

Original Option: 5.5 Production Longstring

Hole Size	Hole Interval	OD Csg	Casing Interval	Weight	Collar	Grade
8-3/4"	0 - 12744	5-1/2"	0 - 12744	17#	BTC	P-110

Note: only new casing will be utilized

MAXIMUM LATERAL TVD 8,048

Design Factors: 7" x 5.5" Tapered Production String

Casing Size	Collapse Design Factor	Burst Design Factor	Tension Design Factor
20", 94#, J-55, BTC	2.08	8.45	29.83
13-3/8", 68#, J/K-55, BTC	1.56	2.77	7.13
9-5/8", 40#, J-55, LT&C	1.37	2.11	3.25
7" 29# P-110 BTC	2.44	3.21	4.29
5-1/2" 17# P-110 BTC	1.99	2.82	6.56

Original Option: 5.5 Production Longstring

Casing Size	Collapse Design Factor	Burst Design Factor	Tension Design Factor
5-1/2" 17# P-110 BTC	1.99	2.82	2.60

Cementing Table:

String	Number of sx	Weight lbs/gal	Water Volume g/sx	Yield cf/sx	Stage; Lead/Tail	Slurry Description
20" Surface	580	13.50	9.14	1.73	Lead	Premium Plus C + 1% bwoc Calcium Chloride + 0.125 lbs/sack Cello Flake + 4% bwoc Bentonite + 81.1% Fresh Water
	300	14.80	6.35	1.35	Tail	Premium Plus C + 2% bwoc Calcium Chloride + 0.125 lbs/sack Cello Flake + 56.3% Fresh Water
13-3/8" Intermediate 1	1315	12.80	8.23	1.66	Lead	(60:40) Poz (Fly Ash):Premium Plus C + 5% bwow Sodium Chloride + 0.125 lbs/sack Cello Flake + 3 lbs/sack LCM-1 + 0.25% bwoc FL-52 + 1.5% bwoc Sodium Metasilicate + 83.7% Fresh Water
	450	13.80	6.42	1.38	Tail	(60:40) Poz (Fly Ash):Premium Plus C + 5% bwow Sodium Chloride + 0.125 lbs/sack Cello Flake + 0.5% bwoc Sodium Metasilicate + 0.5% bwoc BA-10A + 4% bwoc MPA-5 + 5.3% Fresh Water
See COA 9-5/8 Intermediate 2 2-Stage	440	12.60	8.81	1.73	Stage 1 Lead	(60:40) Poz (Fly Ash):Premium Plus C + 5% bwow Sodium Chloride + 0.2% bwoc R-3 + 0.125 lbs/sack Cello Flake + 3 lbs/sack LCM-1 + 0.25% bwoc FL-52 + 1% bwoc Sodium Metasilicate + 89.6% Fresh Water
	300	13.8	6.41	1.38	Stage 1 Tail	(60:40) Poz (Fly Ash):Premium Plus C + 5% bwow Sodium Chloride + 0.125 lbs/sack Cello Flake + 0.1% bwoc Sodium Metasilicate + 0.5% bwoc BA-10A + 4% bwoc MPA-5 + 65.2% Fresh Water
	DV Tool at 2400'					
	395	12.80	8.23	1.66	Stage 2 Lead	(60:40) Poz (Fly Ash):Premium Plus C + 5% bwow Sodium Chloride + 0.125 lbs/sack Cello Flake + 3 lbs/sack LCM-1 + 0.25% bwoc FL-52 + 1.5% bwoc Sodium Metasilicate + 83.7% Fresh Water
	150	13.80	6.42	1.38	Stage 2 Tail	(60:40) Poz (Fly Ash):Premium Plus C + 5% bwow Sodium Chloride + 0.125 lbs/sack Cello Flake + 0.5% bwoc Sodium Metasilicate + 0.5% bwoc BA-10A + 4% bwoc MPA-5 + 65.3% Fresh Water
See COA 5-1/2" Production 2-Stage Original Option	405	12.5	11.02	2.01	Stage 1 Lead	(35:65) Poz (Fly Ash):Premium Plus H Cement + 3% bwow Sodium Chloride + 0.125 lbs/sack Cello Flake + 0.7% bwoc FL-52 + 0.3% bwoc ASA-301 + 6% bwoc Bentonite + 105.6% Fresh Water
	1395	14.2	5.76	1.28	Stage 1 Tail	(50:50) Poz (Fly Ash):Premium Plus H Cement + 5% bwow Sodium Chloride + 0.3% bwoc CD-32 + 0.5% bwoc FL-25 + 0.5% bwoc FL-52 + 0.3% bwoc Sodium Metasilicate + 57.2% Fresh Water
	DV Tool @ 5000 ft					
	180	11.4	17.69	2.88	Stage 2 Lead	Premium Plus C Cement + 1% bwoc R-3 + 0.125 lbs/sack Cello Flake + 0.3% bwoc FL-52 + 3% bwoc Sodium Metasilicate + 157% Fresh Water
	150	13.8	6.40	1.37	Stage 2 Tail	(60:40) Poz (Fly Ash):Premium Plus C Cement + 5% bwow Sodium Chloride + 0.125 lbs/sack Cello Flake + 0.5% bwoc BA-10A + 4% bwoc MPA-5 + 65.1% Fresh Water
7" x 5-1/2" Production Casing Single Stage	270	11.8	13.16	2.3	1 st Lead	(50:50) Poz (Fly Ash):Class H Cement + 0.5% bwoc FL-52 + 0.3% bwoc ASA-301 + 10% bwoc Bentonite + 0.35% bwoc R-21 + 130.7% Fresh Water
	110	12.5	11.01	2.01	2 nd Lead	(35:65) Poz (Fly Ash):Class H Cement + 3% bwow Sodium Chloride + 0.2% bwoc R-3 + 0.125 lbs/sack Cello Flake + 0.7% bwoc FL-52 + 0.3% bwoc ASA-301 + 6% bwoc Bentonite + 105.5% Fresh Water
	1858	14.2	5.76	1.28	Tail	(50:50) Poz (Fly Ash):Class H Cement + 5% bwow Sodium Chloride + 0.4% .3%

TOC for all Strings:

Surface	@	0 ft
Intermediate 1	@	0 ft
Intermediate 2	@	0 ft
Production	@	2440' (Cement top will tie-back 50' above Capitan Reef at 2490')

Notes:

- Cement volumes based on following excess:
 - Surface at 75%
 - Intermediate 1 @ 75%
 - Intermediate 2 @ 100%
 - Production based on at least 25% excess
- Actual cement volumes will be adjusted based on fluid caliper and caliper log data
- If lost circulation is encountered while drilling the production wellbore, the 5.5" original production longstring will be used with a DV tool installed a minimum of 50' below the previous casing shoe and of 200' above the current shoe. If the DV tool has to be moved, the cement volumes will be adjusted proportionately.

devon

Project: Eddy County (NAD83)
Site: Sirius 17 Fed Com 8H
Well: Sirius 17 Fed Com 8H
OH
Design 4



Azimuths to Grid-North
True North: -0.23°
Magnetic North: 7.14°

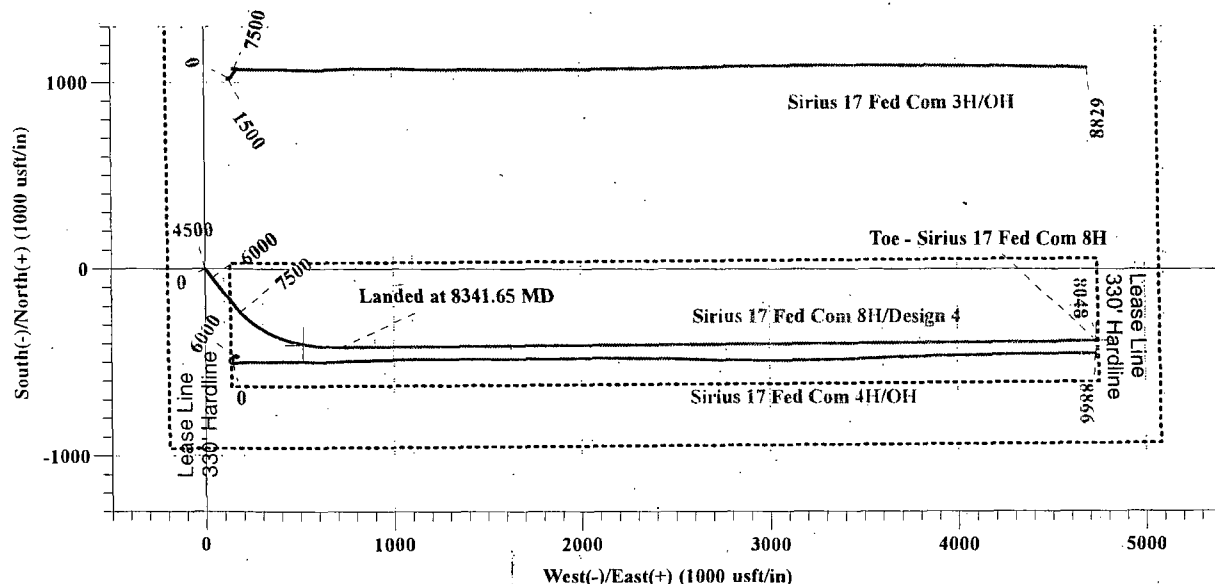
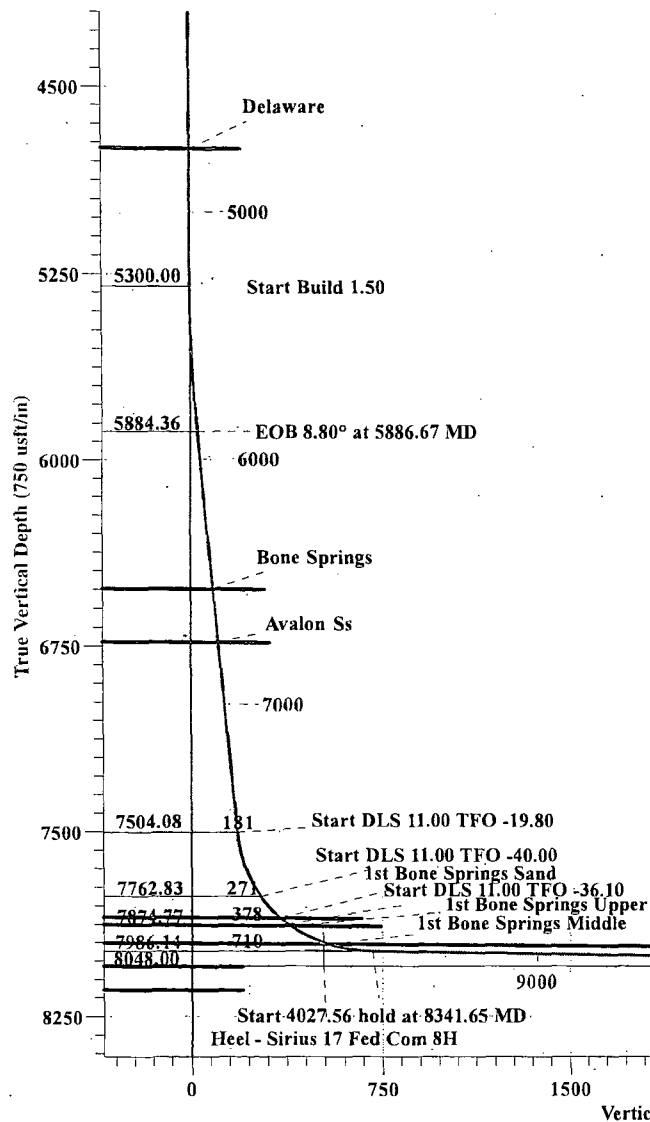
Magnetic Field
Strength: 48570.7nT
Dip Angle: 60.48°
Date: 8/19/2014
Model: IGRF200510

PATHFINDER

A Schlumberger Company

WELL DETAILS: Sirius 17 Fed Com 8H

+N/-S	+E/-W	3419' GL + 20' KB @ 3439.00usft (H&P 300)	3419.00	Slot
North	Easting	Latitude	Longitude	
602580.64	674891.83	32° 39' 20.847 N	103° 53' 57.772 W	



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VFace	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	5300.00	0.00	0.00	5300.00	0.00	0.00	0.00	0.00	0.00	
3	5886.67	8.80	142.00	5884.36	-35.43	27.68	1.50	142.00	27.48	
4	7525.68	8.80	142.00	7504.08	-233.02	182.06	0.00	0.00	180.75	
5	7813.14	40.00	125.96	7762.83	-306.48	272.69	11.00	-19.80	270.97	
6	7978.85	55.00	111.75	7874.77	-363.39	379.74	11.00	-40.00	377.70	
7	8341.65	89.12	89.54	7986.14	-419.27	712.69	11.00	-36.10	710.34	
8	12369.21	89.12	89.54	8048.00	-386.90	4739.64	0.00	0.00	4737.41	Toe - Sirius 17 Fed Com 8H

FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
435.00	435.00	Rustler	0.34	89.68
550.00	550.00	Salado	0.34	89.68
1990.00	1990.00	Tansil Dolomite	0.34	89.68
2095.00	2095.00	Yates	0.34	89.68
2395.00	2395.00	Seven Rivers	0.34	89.68
2490.00	2490.00	Capitan	0.34	89.68
2870.00	2870.00	Queen	0.34	89.68
4750.00	4750.00	Delaware	0.34	89.68
6525.52	6535.46	Bone Springs	0.34	89.68
6735.64	6748.09	Avalon Ss	0.34	89.68
7852.08	7940.96	1st Bone Springs Sand	0.34	89.68
7882.30	7992.19	1st Bone Springs Upper	0.34	89.68
7958.20	8167.32	1st Bone Springs Middle	0.34	89.68

Plan: Design 4 (Sirius 17 Fed Com 8H/OH)

Created By: Jenise Kirkpatrick Date: 14:47, September 22 2014

Devon Energy, Inc.

Eddy County (NAD83)

Sirius 17 Fed Com 8H

Sirius 17 Fed Com 8H

OH

Plan: Design 4

Standard Planning Report

22 September, 2014

Pathfinder - A Schlumberger Company

Planning Report

Database: EDM 5000.1 Single User Db
 Company: Devon Energy, Inc.
 Project: Eddy County (NAD83)
 Site: Sirius 17 Fed Com 8H
 Well: Sirius 17 Fed Com 8H
 Wellbore: OH
 Design: Design 4

Local Co-ordinate Reference: Well Sirius 17 Fed Com 8H
 TVD Reference: 3419' GL + 20' KB @ 3439.00usft (H&P 300)
 MD Reference: 3419' GL + 20' KB @ 3439.00usft (H&P 300)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

Project	Eddy County (NAD83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Sirius 17 Fed Com 8H		
Site Position:	Map	Northing: 602,580.64 usft	Latitude: 32° 39' 20.847 N
From:	Map	Easting: 674,891.83 usft	Longitude: 103° 53' 57.772 W
Position Uncertainty:	0.00 usft	Slot Radius: 13-3/16"	Grid Convergence: 0.23 °

Well	Sirius 17 Fed Com 8H		
Well Position	+N/-S 0.00 usft	Northing: 602,580.64 usft	Latitude: 32° 39' 20.847 N
	+E/-W 0.00 usft	Easting: 674,891.83 usft	Longitude: 103° 53' 57.772 W
Position Uncertainty	0.00 usft	Wellhead Elevation: 3,439.00 usft	Ground Level: 3,419.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	8/19/2014	7.37	60.48	48,571

Design:	Design 4			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	89.68

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,300.00	0.00	0.00	5,300.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,886.67	8.80	142.00	5,884.36	-35.43	27.68	1.50	1.50	0.00	142.00	
7,525.68	8.80	142.00	7,504.08	-233.02	182.06	0.00	0.00	0.00	0.00	
7,813.14	40.00	125.96	7,762.83	-306.48	272.69	11.00	10.85	-5.58	-19.80	
7,978.85	55.00	111.75	7,874.77	-363.39	379.74	11.00	9.05	-8.57	-40.00	
8,341.65	89.12	89.54	7,986.14	-419.27	712.69	11.00	9.40	-6.12	-36.10	
12,369.21	89.12	89.54	8,048.00	-386.90	4,739.64	0.00	0.00	0.00	0.00	Toe - Sirius 17 Fed Co

Pathfinder - A Schlumberger Company

Planning Report

Database: EDM 5000.1 Single User Db
 Company: Devon Energy, Inc.
 Project: Eddy County (NAD83)
 Site: Sirius 17 Fed Com 8H
 Well: Sirius 17 Fed Com 8H
 Wellbore: OH
 Design: Design 4

Local Co-ordinate Reference:
 TVD Reference:
 MD Reference:
 North Reference:
 Survey Calculation Method:

Well Sirius 17 Fed Com 8H
 3419' GL + 20' KB @ 3439.00usft (H&P 300)
 3419' GL + 20' KB @ 3439.00usft (H&P 300)
 Grid
 Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,300.00	0.00	0.00	5,300.00	0.00	0.00	0.00	0.00	0.00	0.00
5,400.00	1.50	142.00	5,399.99	-1.03	0.81	0.80	1.50	1.50	0.00
5,500.00	3.00	142.00	5,499.91	-4.13	3.22	3.20	1.50	1.50	0.00
5,600.00	4.50	142.00	5,599.69	-9.28	7.25	7.20	1.50	1.50	0.00
5,700.00	6.00	142.00	5,699.27	-16.49	12.88	12.79	1.50	1.50	0.00
5,800.00	7.50	142.00	5,798.57	-25.75	20.12	19.97	1.50	1.50	0.00
5,886.67	8.80	142.00	5,884.36	-35.43	27.68	27.48	1.50	1.50	0.00
5,900.00	8.80	142.00	5,897.54	-37.04	28.94	28.73	0.00	0.00	0.00
6,000.00	8.80	142.00	5,996.36	-49.10	38.36	38.08	0.00	0.00	0.00
6,100.00	8.80	142.00	6,095.19	-61.15	47.78	47.43	0.00	0.00	0.00
6,200.00	8.80	142.00	6,194.01	-73.21	57.19	56.79	0.00	0.00	0.00
6,300.00	8.80	142.00	6,292.83	-85.26	66.61	66.14	0.00	0.00	0.00
6,400.00	8.80	142.00	6,391.65	-97.32	76.03	75.49	0.00	0.00	0.00
6,500.00	8.80	142.00	6,490.48	-109.37	85.45	84.84	0.00	0.00	0.00
6,535.46	8.80	142.00	6,525.52	-113.65	88.79	88.16	0.00	0.00	0.00
Bone Springs									
6,600.00	8.80	142.00	6,589.30	-121.43	94.87	94.19	0.00	0.00	0.00
6,700.00	8.80	142.00	6,688.12	-133.48	104.29	103.54	0.00	0.00	0.00
6,748.09	8.80	142.00	6,735.64	-139.28	108.82	108.04	0.00	0.00	0.00
Avalon Ss									
6,800.00	8.80	142.00	6,786.94	-145.54	113.71	112.89	0.00	0.00	0.00
6,900.00	8.80	142.00	6,885.77	-157.59	123.13	122.24	0.00	0.00	0.00
7,000.00	8.80	142.00	6,984.59	-169.65	132.54	131.60	0.00	0.00	0.00
7,100.00	8.80	142.00	7,083.41	-181.71	141.96	140.95	0.00	0.00	0.00
7,200.00	8.80	142.00	7,182.24	-193.76	151.38	150.30	0.00	0.00	0.00
7,300.00	8.80	142.00	7,281.06	-205.82	160.80	159.65	0.00	0.00	0.00
7,400.00	8.80	142.00	7,379.88	-217.87	170.22	169.00	0.00	0.00	0.00
7,500.00	8.80	142.00	7,478.70	-229.93	179.64	178.35	0.00	0.00	0.00
7,525.68	8.80	142.00	7,504.08	-233.02	182.06	180.75	0.00	0.00	0.00
7,600.00	16.72	132.36	7,576.52	-244.73	193.48	192.11	11.00	10.66	-12.97
7,700.00	27.61	128.11	7,668.99	-268.79	222.43	220.92	11.00	10.89	-4.25
7,800.00	38.56	126.15	7,752.65	-301.58	265.96	264.27	11.00	10.95	-1.96
7,813.14	40.00	125.96	7,762.83	-306.48	272.69	270.97	11.00	10.96	-1.42
7,900.00	47.65	117.66	7,825.50	-337.84	323.83	321.94	11.00	8.80	-9.56
7,940.96	51.43	114.44	7,852.08	-351.50	351.82	349.86	11.00	9.23	-7.86
1st Bone Springs Sand									
7,978.85	55.00	111.75	7,874.77	-363.39	379.74	377.70	11.00	9.42	-7.09
7,992.19	56.19	110.71	7,882.30	-367.37	389.99	387.94	11.00	8.92	-7.80
1st Bone Springs Upper									
8,000.00	56.89	110.12	7,886.61	-369.64	396.10	394.03	11.00	8.97	-7.63
8,100.00	66.07	103.21	7,934.35	-394.57	480.18	477.97	11.00	9.18	-6.91
8,167.32	72.41	99.11	7,958.20	-406.69	541.90	539.62	11.00	9.42	-6.08
1st Bone Springs Middle									
8,200.00	75.52	97.23	7,967.23	-411.16	572.99	570.68	11.00	9.51	-5.75
8,300.00	85.11	91.76	7,984.04	-418.80	671.11	668.76	11.00	9.59	-5.48
8,341.65	89.12	89.54	7,986.14	-419.27	712.69	710.34	11.00	9.63	-5.32
8,400.00	89.12	89.54	7,987.04	-418.80	771.04	768.68	0.00	0.00	0.00
8,500.00	89.12	89.54	7,988.57	-418.00	871.02	868.67	0.00	0.00	0.00
8,600.00	89.12	89.54	7,990.11	-417.20	971.01	968.66	0.00	0.00	0.00
8,700.00	89.12	89.54	7,991.64	-416.39	1,070.99	1,068.65	0.00	0.00	0.00
8,800.00	89.12	89.54	7,993.18	-415.59	1,170.98	1,168.64	0.00	0.00	0.00
8,900.00	89.12	89.54	7,994.71	-414.78	1,270.96	1,268.62	0.00	0.00	0.00
9,000.00	89.12	89.54	7,996.25	-413.98	1,370.95	1,368.61	0.00	0.00	0.00
9,100.00	89.12	89.54	7,997.79	-413.18	1,470.93	1,468.60	0.00	0.00	0.00

Pathfinder - A Schlumberger Company

Planning Report

Database: EDM 5000.1 Single User Db
Company: Devon Energy, Inc.
Project: Eddy County (NAD83)
Site: Sirius 17 Fed Com 8H
Well: Sirius 17 Fed Com 8H
Wellbore: OH
Design: Design 4

Local Co-ordinate Reference: Well Sirius 17 Fed Com 8H
TVD Reference: 3419' GL + 20' KB @ 3439.00usft (H&P 300)
MD Reference: 3419' GL + 20' KB @ 3439.00usft (H&P 300)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,200.00	89.12	89.54	7,999.32	-412.37	1,570.92	1,568.59	0.00	0.00	0.00
9,300.00	89.12	89.54	8,000.86	-411.57	1,670.90	1,668.58	0.00	0.00	0.00
9,400.00	89.12	89.54	8,002.39	-410.77	1,770.88	1,768.56	0.00	0.00	0.00
9,500.00	89.12	89.54	8,003.93	-409.96	1,870.87	1,868.55	0.00	0.00	0.00
9,600.00	89.12	89.54	8,005.47	-409.16	1,970.85	1,968.54	0.00	0.00	0.00
9,700.00	89.12	89.54	8,007.00	-408.35	2,070.84	2,068.53	0.00	0.00	0.00
9,800.00	89.12	89.54	8,008.54	-407.55	2,170.82	2,168.51	0.00	0.00	0.00
9,900.00	89.12	89.54	8,010.07	-406.75	2,270.81	2,268.50	0.00	0.00	0.00
10,000.00	89.12	89.54	8,011.61	-405.94	2,370.79	2,368.49	0.00	0.00	0.00
10,100.00	89.12	89.54	8,013.14	-405.14	2,470.78	2,468.48	0.00	0.00	0.00
10,200.00	89.12	89.54	8,014.68	-404.33	2,570.76	2,568.47	0.00	0.00	0.00
10,300.00	89.12	89.54	8,016.22	-403.53	2,670.75	2,668.45	0.00	0.00	0.00
10,400.00	89.12	89.54	8,017.75	-402.73	2,770.73	2,768.44	0.00	0.00	0.00
10,500.00	89.12	89.54	8,019.29	-401.92	2,870.72	2,868.43	0.00	0.00	0.00
10,600.00	89.12	89.54	8,020.82	-401.12	2,970.70	2,968.42	0.00	0.00	0.00
10,700.00	89.12	89.54	8,022.36	-400.32	3,070.69	3,068.41	0.00	0.00	0.00
10,800.00	89.12	89.54	8,023.90	-399.51	3,170.67	3,168.39	0.00	0.00	0.00
10,900.00	89.12	89.54	8,025.43	-398.71	3,270.66	3,268.38	0.00	0.00	0.00
11,000.00	89.12	89.54	8,026.97	-397.90	3,370.64	3,368.37	0.00	0.00	0.00
11,100.00	89.12	89.54	8,028.50	-397.10	3,470.63	3,468.36	0.00	0.00	0.00
11,200.00	89.12	89.54	8,030.04	-396.30	3,570.61	3,568.35	0.00	0.00	0.00
11,300.00	89.12	89.54	8,031.57	-395.49	3,670.60	3,668.33	0.00	0.00	0.00
11,400.00	89.12	89.54	8,033.11	-394.69	3,770.58	3,768.32	0.00	0.00	0.00
11,500.00	89.12	89.54	8,034.65	-393.89	3,870.57	3,868.31	0.00	0.00	0.00
11,600.00	89.12	89.54	8,036.18	-393.08	3,970.55	3,968.30	0.00	0.00	0.00
11,700.00	89.12	89.54	8,037.72	-392.28	4,070.54	4,068.29	0.00	0.00	0.00
11,800.00	89.12	89.54	8,039.25	-391.47	4,170.52	4,168.27	0.00	0.00	0.00
11,900.00	89.12	89.54	8,040.79	-390.67	4,270.51	4,268.26	0.00	0.00	0.00
12,000.00	89.12	89.54	8,042.33	-389.87	4,370.49	4,368.25	0.00	0.00	0.00
12,100.00	89.12	89.54	8,043.86	-389.06	4,470.48	4,468.24	0.00	0.00	0.00
12,200.00	89.12	89.54	8,045.40	-388.26	4,570.46	4,568.22	0.00	0.00	0.00
12,300.00	89.12	89.54	8,046.93	-387.45	4,670.45	4,668.21	0.00	0.00	0.00
12,369.21	89.12	89.54	8,048.00	-386.90	4,739.64	4,737.41	0.00	0.00	0.00

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
Heel - Sirius 17 Fed Con	0.00	0.00	7,983.00	-408.83	517.94	602,171.81	675,409.77	32° 39' 16.781 N	103° 53' 51.733 W
- plan misses target center by 31.46usft at 8154.51usft MD (7954.20 TVD, -404.69 N, 529.90 E)									
- Point									
Toe - Sirius 17 Fed Com	0.00	0.00	8,048.00	-385.32	4,739.64	602,195.33	679,631.46	32° 39' 16.840 N	103° 53' 2.351 W
- plan misses target center by 1.58usft at 12369.21usft MD (8048.00 TVD, -386.90 N, 4739.64 E)									
- Point									

Pathfinder - A Schlumberger Company

Planning Report

Database: EDM 5000.1 Single User Db
Company: Devon Energy, Inc.
Project: Eddy County (NAD83)
Site: Sirius 17 Fed Com 8H
Well: Sirius 17 Fed Com 8H
Wellbore: OH
Design: Design 4

Local Co-ordinate Reference: Well Sirius 17 Fed Com 8H
TVD Reference: 3419' GL + 20' KB @ 3439.00usft (H&P 300)
MD Reference: 3419' GL + 20' KB @ 3439.00usft (H&P 300)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
435.00	435.00	Rustler		0.34	89.68
550.00	550.00	Salado		0.34	89.68
1,990.00	1,990.00	Tansil Dolomite		0.34	89.68
2,095.00	2,095.00	Yates		0.34	89.68
2,395.00	2,395.00	Seven Rivers		0.34	89.68
2,490.00	2,490.00	Capitan		0.34	89.68
2,870.00	2,870.00	Queen		0.34	89.68
4,750.00	4,750.00	Delaware		0.34	89.68
6,535.46	6,525.52	Bone Springs		0.34	89.68
6,748.09	6,735.64	Avalon Ss		0.34	89.68
7,940.96	7,852.08	1st Bone Springs Sand		0.34	89.68
7,992.19	7,882.30	1st Bone Springs Upper		0.34	89.68
8,167.32	7,958.20	1st Bone Springs Middle		0.34	89.68

Devon Energy, Inc.
Sirius 17 Fed Com 8H - Design 4

Eddy County (NAD83)

Sirius 17 Fed Com 8H

Your Ref:

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
0	0	0	0	0	0	0	0
100	0	0	100	0	0	0	0
200	0	0	200	0	0	0	0
300	0	0	300	0	0	0	0
400	0	0	400	0	0	0	0
500	0	0	500	0	0	0	0
600	0	0	600	0	0	0	0
700	0	0	700	0	0	0	0
800	0	0	800	0	0	0	0
900	0	0	900	0	0	0	0
1000	0	0	1000	0	0	0	0
1100	0	0	1100	0	0	0	0
1200	0	0	1200	0	0	0	0
1300	0	0	1300	0	0	0	0
1400	0	0	1400	0	0	0	0
1500	0	0	1500	0	0	0	0
1600	0	0	1600	0	0	0	0
1700	0	0	1700	0	0	0	0
1800	0	0	1800	0	0	0	0
1900	0	0	1900	0	0	0	0
2000	0	0	2000	0	0	0	0
2100	0	0	2100	0	0	0	0
2200	0	0	2200	0	0	0	0
2300	0	0	2300	0	0	0	0
2400	0	0	2400	0	0	0	0
2500	0	0	2500	0	0	0	0
2600	0	0	2600	0	0	0	0
2700	0	0	2700	0	0	0	0
2800	0	0	2800	0	0	0	0
2900	0	0	2900	0	0	0	0
3000	0	0	3000	0	0	0	0
3100	0	0	3100	0	0	0	0

3200	0	0	3200	0	0	0	0
3300	0	0	3300	0	0	0	0
3400	0	0	3400	0	0	0	0
3500	0	0	3500	0	0	0	0
3600	0	0	3600	0	0	0	0
3700	0	0	3700	0	0	0	0
3800	0	0	3800	0	0	0	0
3900	0	0	3900	0	0	0	0
4000	0	0	4000	0	0	0	0
4100	0	0	4100	0	0	0	0
4200	0	0	4200	0	0	0	0
4300	0	0	4300	0	0	0	0
4400	0	0	4400	0	0	0	0
4500	0	0	4500	0	0	0	0
4600	0	0	4600	0	0	0	0
4700	0	0	4700	0	0	0	0
4800	0	0	4800	0	0	0	0
4900	0	0	4900	0	0	0	0
5000	0	0	5000	0	0	0	0
5100	0	0	5100	0	0	0	0
5200	0	0	5200	0	0	0	0
5300	0	0	5300	0	0	0	0
5400	1.5	142	5399.99	-1.03	0.81	0.8	1.5
5500	3	142	5499.91	-4.13	3.22	3.2	1.5
5600	4.5	142	5599.69	-9.28	7.25	7.2	1.5
5700	6	142	5699.27	-16.49	12.88	12.79	1.5
5800	7.5	142	5798.57	-25.75	20.12	19.97	1.5
5886.67	8.8	142	5884.36	-35.43	27.68	27.48	1.5
5900	8.8	142	5897.54	-37.04	28.94	28.73	0
6000	8.8	142	5996.36	-49.1	38.36	38.08	0
6100	8.8	142	6095.18	-61.15	47.78	47.43	0
6200	8.8	142	6194.01	-73.21	57.19	56.79	0
6300	8.8	142	6292.83	-85.26	66.61	66.14	0
6400	8.8	142	6391.65	-97.32	76.03	75.49	0
6500	8.8	142	6490.48	-109.37	85.45	84.84	0
6600	8.8	142	6589.3	-121.43	94.87	94.19	0
6700	8.8	142	6688.12	-133.48	104.29	103.54	0
6800	8.8	142	6786.94	-145.54	113.71	112.89	0
6900	8.8	142	6885.77	-157.59	123.13	122.24	0
7000	8.8	142	6984.59	-169.65	132.54	131.6	0
7100	8.8	142	7083.41	-181.71	141.96	140.95	0
7200	8.8	142	7182.24	-193.76	151.38	150.3	0
7300	8.8	142	7281.06	-205.82	160.8	159.65	0
7400	8.8	142	7379.88	-217.87	170.22	169	0
7500	8.8	142	7478.7	-229.93	179.64	178.35	0
7525.68	8.8	142	7504.08	-233.02	182.06	180.75	0
7550	11.353	137.393	7528.03	-236.25	184.82	183.5	11

7600	16.721	132.362	7576.52	-244.73	193.48	192.11	11
7650	22.153	129.738	7623.65	-255.61	206.05	204.62	11
7700	27.61	128.109	7668.99	-268.79	222.43	220.92	11
7750	33.081	126.984	7712.13	-284.17	242.46	240.87	11
7800	38.559	126.148	7752.65	-301.58	265.96	264.27	11
7813.14	40	125.961	7762.83	-306.48	272.69	270.97	11
7850	43.171	122.152	7790.4	-320.15	292.96	291.17	11
7900	47.648	117.66	7825.5	-337.84	323.83	321.94	11
7950	52.276	113.775	7857.66	-354.4	358.32	356.33	11
7978.85	55	111.752	7874.77	-363.39	379.74	377.7	11
8000	56.89	110.116	7886.61	-369.64	396.1	394.03	11
8050	61.438	106.511	7912.24	-383.1	436.85	434.7	11
8100	66.073	103.208	7934.35	-394.57	480.18	477.97	11
8150	70.773	100.135	7952.73	-403.95	525.7	523.44	11
8200	75.522	97.235	7967.23	-411.16	572.99	570.68	11
8250	80.305	94.457	7977.7	-416.12	621.61	619.27	11
8300	85.109	91.757	7984.04	-418.8	671.11	668.76	11
8341.65	89.12	89.539	7986.14	-419.27	712.69	710.34	11
8400	89.12	89.539	7987.04	-418.8	771.04	768.68	0
8500	89.12	89.539	7988.57	-418	871.02	868.67	0
8600	89.12	89.539	7990.11	-417.2	971.01	968.66	0
8700	89.12	89.539	7991.64	-416.39	1070.99	1068.65	0
8800	89.12	89.539	7993.18	-415.59	1170.98	1168.64	0
8900	89.12	89.539	7994.71	-414.78	1270.96	1268.62	0
9000	89.12	89.539	7996.25	-413.98	1370.95	1368.61	0
9100	89.12	89.539	7997.79	-413.18	1470.93	1468.6	0
9200	89.12	89.539	7999.32	-412.37	1570.92	1568.59	0
9300	89.12	89.539	8000.86	-411.57	1670.9	1668.58	0
9400	89.12	89.539	8002.39	-410.77	1770.88	1768.56	0
9500	89.12	89.539	8003.93	-409.96	1870.87	1868.55	0
9600	89.12	89.539	8005.47	-409.16	1970.85	1968.54	0
9700	89.12	89.539	8007	-408.35	2070.84	2068.53	0
9800	89.12	89.539	8008.54	-407.55	2170.82	2168.51	0
9900	89.12	89.539	8010.07	-406.75	2270.81	2268.5	0
10000	89.12	89.539	8011.61	-405.94	2370.79	2368.49	0
10100	89.12	89.539	8013.14	-405.14	2470.78	2468.48	0
10200	89.12	89.539	8014.68	-404.33	2570.76	2568.47	0
10300	89.12	89.539	8016.22	-403.53	2670.75	2668.45	0
10400	89.12	89.539	8017.75	-402.73	2770.73	2768.44	0
10500	89.12	89.539	8019.29	-401.92	2870.72	2868.43	0
10600	89.12	89.539	8020.82	-401.12	2970.7	2968.42	0
10700	89.12	89.539	8022.36	-400.32	3070.69	3068.41	0
10800	89.12	89.539	8023.9	-399.51	3170.67	3168.39	0
10900	89.12	89.539	8025.43	-398.71	3270.66	3268.38	0
11000	89.12	89.539	8026.97	-397.9	3370.64	3368.37	0
11100	89.12	89.539	8028.5	-397.1	3470.63	3468.36	0
11200	89.12	89.539	8030.04	-396.3	3570.61	3568.35	0

11300	89.12	89.539	8031.57	-395.49	3670.6	3668.33	0
11400	89.12	89.539	8033.11	-394.69	3770.58	3768.32	0
11500	89.12	89.539	8034.65	-393.89	3870.57	3868.31	0
11600	89.12	89.539	8036.18	-393.08	3970.55	3968.3	0
11700	89.12	89.539	8037.72	-392.28	4070.54	4068.28	0
11800	89.12	89.539	8039.25	-391.47	4170.52	4168.27	0
11900	89.12	89.539	8040.79	-390.67	4270.51	4268.26	0
12000	89.12	89.539	8042.33	-389.87	4370.49	4368.25	0
12100	89.12	89.539	8043.86	-389.06	4470.48	4468.24	0
12200	89.12	89.539	8045.4	-388.26	4570.46	4568.22	0
12300	89.12	89.539	8046.93	-387.45	4670.45	4668.21	0
12369.21	89.12	89.539	8048	-386.9	4739.64	4737.41	0

All data are in feet unless otherwise stated. Directions and coordinates are relative to Grid North.
Vertical depths are relative to 3419' GL + 20' KB. Northings and Eastings are relative to Well.

The Dogleg Severity is in Degrees per 100 feet.

Vertical Section is from Slot and calculated along an Azimuth of 89.680° (Grid).

Coordinate System is North American Datum 1983 US State Plane 1983, New Mexico Eastern Zone.

Central meridian is -104.333°.

Grid Convergence at Surface is 0.234°.

Based upon Minimum Curvature type calculations, at a Measured Depth of 12369.21ft.,
the Bottom Hole Displacement is 4755.41ft., in the Direction of 89.680° (Grid).

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Devon Energy Production Company, LP,
LEASE NO.:	NMNM-06370
WELL NAME & NO.:	Sirius 17 Fed Com 8H
SURFACE HOLE FOOTAGE:	962' FSL & 0200' FWL
BOTTOM HOLE FOOTAGE:	0550' FSL & 0340' FEL
LOCATION:	Section 17, T. 19 S., R 31 E., NMPM
COUNTY:	Eddy County, New Mexico
API:	30-015-41888

I. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

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

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

☒ Eddy County

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

1. A Hydrogen Sulfide (H₂S) Drilling Plan shall be activated 500 feet prior to drilling into the Yates formation. **As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.**
2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval. **If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a “Major” violation.**
3. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor; unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works is located, this does not include the dog house or stairway area.

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

B. CASING

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

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

Wait on cement (WOC) time prior to drilling out for a primary cement job will be a minimum 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compressive strength, whichever is greater for all casing strings. DURING THIS WOC TIME, NO DRILL PIPE, ETC. SHALL BE RUN IN THE HOLE. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. IF OPERATOR DOES NOT HAVE THE WELL SPECIFIC CEMENT DETAILS ONSITE PRIOR TO PUMPING THE CEMENT FOR EACH CASING STRING, THE WOC WILL BE 30 HOURS. See individual casing strings for details regarding lead cement slurry requirements.

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

Capitan Reef

Possibility of water flows in the Artesia Group, Salado, and Delaware.

Possibility of lost circulation in the Artesia Group, Capitan Reef, and Delaware.

1. The **20** inch surface casing shall be set at approximately **500** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface. **If salt is encountered, set casing at least 25 feet above the salt.**
 - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
 - b. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.**
 - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
 - d. If cement falls back, remedial cementing will be done prior to drilling out that string.
2. The minimum required fill of cement behind the **13-3/8** inch 1st intermediate casing, which shall be set at **2350** feet, is:
 - ☒ Cement to surface. If cement does not circulate see B.1.a, c-d above.
3. The minimum required fill of cement behind the **9-5/8** inch 2nd intermediate casing, which shall be set at approximately **4000** feet, is:

Operator has proposed DV tool at depth of 2400'. Operator is to submit sundry if DV tool depth varies by more than 100' from approved depth.

- a. First stage to DV tool:
 - ☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office before proceeding with second stage cement job. Operator should have plans as to how they will achieve circulation on the next stage.
- b. Second stage above DV tool:
 - ☒ Cement to surface. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to Capitan Reef. Excess calculates to 7% - Additional cement may be required.**

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

Production Casing Option #1:

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

Operator has proposed DV tool at depth of 5000'. Operator is to submit sundry if DV tool depth varies by more than 100' from approved depth.

a. First stage to DV tool:

- ☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office before proceeding with second stage cement job. Operator should have plans as to how they will achieve circulation on the next stage. **Excess calculates to 23% - Additional cement may be required.**

b. Second stage above DV tool:

- ☒ Cement should tie-back at least 50' above the Capitan Reef. Operator shall provide method of verification. **Excess calculates to 12% - Additional cement may be required.**

Production Casing Option #2:

5. The minimum required fill of cement behind the 7 X 5-1/2 inch production casing is:

- ☒ Cement should tie-back at least 50' above the Capitan Reef. Operator shall provide method of verification.

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

C. PRESSURE CONTROL

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

2. Variance approved to use flex line from BOP to choke manifold. 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.** If the BLM inspector questions the straightness of the hose, a BLM engineer will be contacted and will review in the field or via picture supplied by inspector to determine if changes are required (operator shall expect delays if this occurs).
3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **2000 (2M) psi**.
 - a. **For surface casing only:** If the BOP/BOPE is to be tested against casing, the wait on cement (WOC) time for that casing is to be met (see WOC statement at start of casing section). Independent service company required.
4. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **9-5/8** intermediate casing shoe shall be **3000 (3M) psi**.
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. 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 (18 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).

- c. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.
- d. The results of the test shall be reported to the appropriate BLM office.
- e. All tests are required to be recorded on a calibrated test chart. **A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.**
- f. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.

D. DRILL STEM TEST

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

E. WASTE MATERIAL AND FLUIDS

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

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

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