



APD ID: 10400028036

Submission Date: 03/11/2018

Highlighted data
reflects the most
recent changes

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: VAN DOO DAH 21-33 FED COM

Well Number: 233H

Well Type: OIL WELL

Well Work Type: Drill

OCD - HOBBS
09/27/2018
RECEIVED

[Show Final Text](#)

Section 1 - General

APD ID: 10400028036

Tie to previous NOS?

Submission Date: 03/11/2018

BLM Office: CARLSBAD

User: Erin Workman

Title: Regulatory Compliance
Professional

Federal/Indian APD: FED

Is the first lease penetrated for production Federal or Indian? FED

Lease number: NMNM0359295A

Lease Acres: 880

Surface access agreement in place?

Allotted?

Reservation:

Agreement in place? NO

Federal or Indian agreement:

Agreement number:

Agreement name:

Keep application confidential? YES

Permitting Agent? NO

APD Operator: DEVON ENERGY PRODUCTION COMPANY LP

Operator letter of designation:

Operator Info

Operator Organization Name: DEVON ENERGY PRODUCTION COMPANY LP

Operator Address: 333 West Sheridan Avenue

Zip: 73102

Operator PO Box:

Operator City: Oklahoma City

State: OK

Operator Phone: (405)552-6571

Operator Internet Address:

Section 2 - Well Information

Well in Master Development Plan? NO

Mater Development Plan name:

Well in Master SUPO? NO

Master SUPO name:

Well in Master Drilling Plan? NO

Master Drilling Plan name:

Well Name: VAN DOO DAH 21-33 FED COM

Well Number: 233H

Well API Number:

Field/Pool or Exploratory? Field and Pool

Field Name: WC-025 G-08
S253235G

Pool Name: BONE SPRING

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: VAN DOO DAH 21-33 FED COM

Well Number: 233H

Is the proposed well in an area containing other mineral resources? NATURAL GAS,OIL,POTASH

Describe other minerals:

Is the proposed well in a Helium production area? N

Use Existing Well Pad? NO

New surface disturbance?

Type of Well Pad: MULTIPLE WELL

Multiple Well Pad Name:

Number: 1

MARWARI 21 WELLPAD

Well Class: HORIZONTAL

Number of Legs: 1

Well Work Type: Drill

Well Type: OIL WELL

Describe Well Type:

Well sub-Type: INFILL

Describe sub-type:

Distance to town:

Distance to nearest well: 445 FT

Distance to lease line: 330 FT

Reservoir well spacing assigned acres Measurement: 320 Acres

Well plat: VAN_DOO_DAH_21_33_FC_233H_C_102_Final_20180307152911.pdf

Well work start Date: 12/11/2018

Duration: 45 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83

Vertical Datum: NAVD88

Survey number: 5884A

	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD
SHL Leg #1	200	FSL	1480	FWL	25S	32E	21	Aliquot SESW	32.109173	-103.6839048	LEA	NEW MEXICO	NEW MEXICO	F	NMLC0061869	3390	0	0
KOP Leg #1	200	FSL	1480	FWL	25S	32E	21	Aliquot SESW	32.109173	-103.683905	LEA	NEW MEXICO	NEW MEXICO	F	NMLC0061869	-6267	9657	9657
PPP Leg #1	354	FNL	1623	FWL	25S	32E	28	Aliquot NENW	32.1076458	-103.683452	LEA	NEW MEXICO	NEW MEXICO	F	NMLC0062300	-6840	10557	10230

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: VAN DOO DAH 21-33 FED COM

Well Number: 233H

	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD
PPP Leg #1	264 0	FNL	166 1	FWL	25S	32E	28	Aliquot SENW	32.09414 17	- 103.6832 524	LEA	NEW MEXI CO	NEW MEXI CO	F	NMNM 115422	- 684 0	154 77	102 30
EXIT Leg #1	330	FSL	165 0	FWL	25S	32E	33	Aliquot SESW	32.08054 3	- 103.6833 477	LEA	NEW MEXI CO	NEW MEXI CO	F	NMNM 035929 5A	- 687 3	203 56	102 63
BHL Leg #1	330	FSL	165 0	FWL	25S	32E	33	Aliquot SESW	32.08054 3	- 103.6833 477	LEA	NEW MEXI CO	NEW MEXI CO	F	NMNM 035929 5A	- 684 0	204 24	102 30

APD ID: 10400028036

Submission Date: 03/11/2018

Highlighted data
reflects the most
recent changes

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: VAN DOO DAH 21-33 FED COM

Well Number: 233H

[Show Final Text](#)

Well Type: OIL WELL

Well Work Type: Drill

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
1	---	3390	0	0	OTHER : SURFACE	NONE	No
2	RUSTLER	2599	790	790	ANHYDRITE	NONE	No
3	SALADO	2229	1160	1160	SALT	NONE	No
4	BASE OF SALT	-947	4336	4336	SALT	NONE	No
5	DELAWARE	-1181	4570	4570	SANDSTONE	NONE	No
6	BONE SPRING	-5151	8540	8540	SANDSTONE	NATURAL GAS,OIL	Yes

Section 2 - Blowout Prevention

Pressure Rating (PSI): 3M

Rating Depth: 5250

Equipment: BOP/BOPE will be installed per Onshore Oil & Gas Order #2 requirements prior to drilling below 13-3/8" surface casing, a 13-5/8" BOP/BOPE system with a minimum rating of 3M will be installed on the wellhead system. BOP/BOPE will be tested by an independent service company per Onshore Oil & Gas Order #2 requirements and MASP (Maximum Anticipated Surface Pressure) calculations. If the system is upgraded, all the components installed will be functional and tested.

Requesting Variance? YES

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

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

Choke Diagram Attachment:

VAN_DOO_DAH_21_33_FC_233H_3M_BOPE_CK_20180306100303.pdf

BOP Diagram Attachment:

VAN_DOO_DAH_21_33_FC_233H_3M_BOPE_CK_20180306100327.pdf

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: VAN DOO DAH 21-33 FED COM

Well Number: 233H

Pressure Rating (PSI): 3M

Rating Depth: 10300

Equipment: BOP/BOPE will be installed per Onshore Oil & Gas Order #2 requirements prior to drilling below 13-3/8" surface casing, a 13-5/8" BOP/BOPE system with a minimum rating of 3M will be installed on the wellhead system. BOP/BOPE will be tested by an independent service company per Onshore Oil & Gas Order #2 requirements and MASP (Maximum Anticipated Surface Pressure) calculations. If the system is upgraded, all the components installed will be functional and tested.

Requesting Variance? YES

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

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

Choke Diagram Attachment:

VAN_DOO_DAH_21_33_FC_233H_3M_BOPE_CK_20180306100352.pdf

BOP Diagram Attachment:

VAN_DOO_DAH_21_33_FC_233H_3M_BOPE_CK_20180306100412.pdf

Section 3 - Casing

Casing ID	String Type	Hole Size	Csg Size	Condition	Standard	Tapered String	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Calculated casing length MD	Grade	Weight	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
1	SURFACE	17.5	13.375	NEW	API	N	0	815	0	815	0		815	H-40	48	OTHER - BTC	1.125	1.25	BUOY	1.6	BUOY	1.6
2	INTERMEDIATE	12.25	9.625	NEW	API	N	0	4450	0	4450			4450	J-55	40	OTHER - BTC	1.125	1.25	BUOY	1.6	BUOY	1.6
3	PRODUCTION	8.75	5.5	NEW	API	N	0	20424	0	10230			20424	P-110	17	OTHER - BTC	1.125	1.25	BUOY	1.6	BUOY	1.6

Casing Attachments

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: VAN DOO DAH 21-33 FED COM

Well Number: 233H

Casing Attachments

Casing ID: 1 **String Type:** SURFACE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

VAN_DOO_DAH_21_33_FC_233H_SurfCsg_Ass_20180306101025.pdf

Casing ID: 2 **String Type:** INTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

VAN_DOO_DAH_21_33_FC_233H_Int_Csg_Ass_20180306101040.pdf

Casing ID: 3 **String Type:** PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

VAN_DOO_DAH_21_33_FC_233H_ProdCasing_Ass_20180306101050.pdf

Section 4 - Cement

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: VAN DOO DAH 21-33 FED COM

Well Number: 233H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	815	632	1.33	14.8	840	50	C	0.125 lbs/sack Poly-F-Flake

INTERMEDIATE	Lead		0	3950	742	3.65	10.3	2708	30	50:50 POZ	(65:35) Class C Cement: Poz (Fly Ash): 6% BWOC Bentonite + 5% BWOW Sodium Chloride + 0.125 lbs/sks Poly-E-Flake
INTERMEDIATE	Tail		3950	4450	153	1.33	14.8	203	30	C	0.125 lbs/sack Poly-F-Flake
PRODUCTION	Lead		4250	1008 2	801	3.27	9	2619	25	Tuned	N/A
PRODUCTION	Tail		1008 2	2042 4	2487	1.2	14.5	2387	25	H	(50:50) Clas H Cement: Poz (Fly Ash) + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.2% BWOC HR-601 + 2% bwoc Bentonite

Section 5 - Circulating Medium

Mud System Type: Closed

Will an air or gas system be Used? NO

Description of the equipment for the circulating system in accordance with Onshore Order #2:

Diagram of the equipment for the circulating system in accordance with Onshore Order #2:

Describe what will be on location to control well or mitigate other conditions: Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.

Describe the mud monitoring system utilized: PVT/Pason/Visual Monitoring

Circulating Medium Table

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: VAN DOO DAH 21-33 FED COM

Well Number: 233H

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
0	815	WATER-BASED MUD	8.4	9				2			
815	4450	SALT SATURATED	9	10.5				2			
4450	20424	WATER-BASED MUD	8.5	9.3				12			

Section 6 - Test, Logging, Coring

List of production tests including testing procedures, equipment and safety measures:

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.

List of open and cased hole logs run in the well:

CBL,DS,GR,MUDLOG

Coring operation description for the well:

N/A

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 4950

Anticipated Surface Pressure: 2692.14

Anticipated Bottom Hole Temperature(F): 160

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

Describe:

Contingency Plans geohazards description:

Contingency Plans geohazards attachment:

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations plan:

VAN_DOO_DAH_21_33_FC_233H_H2S_20180308075252.pdf

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: VAN DOO DAH 21-33 FED COM

Well Number: 233H

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

VAN_DOO_DAH_21_33_FC_233H_Directional_Survey_20180308082629.pdf

VAN_DOO_DAH_21_33_FC_233H_PrelimA_36x48WM_20180308082629.PDF

Other proposed operations facets description:

MULTI-BOWL VERBIAGE
MULTI-BOWL WELLHEAD
CLOSED-LOOP DESIGN PLAN
ANTI-COLLISION REPORT
DRILLING PLAN
GAS CAPTURE PLAN

Other proposed operations facets attachment:

VAN_DOO_DAH_21_33_FC_233H_PrelimA_ACRReport_20180308082054.pdf

VAN_DOO_DAH_21_33_FC_233H_Drilling_Plan_20180310035719.pdf

VAN_DOO_DAH_21_33_FC_233H_MB_Verb_3M_20180310035840.pdf

VAN_DOO_DAH_21_33_FC_233H_MB_Wellhd_3M_20180310035842.pdf

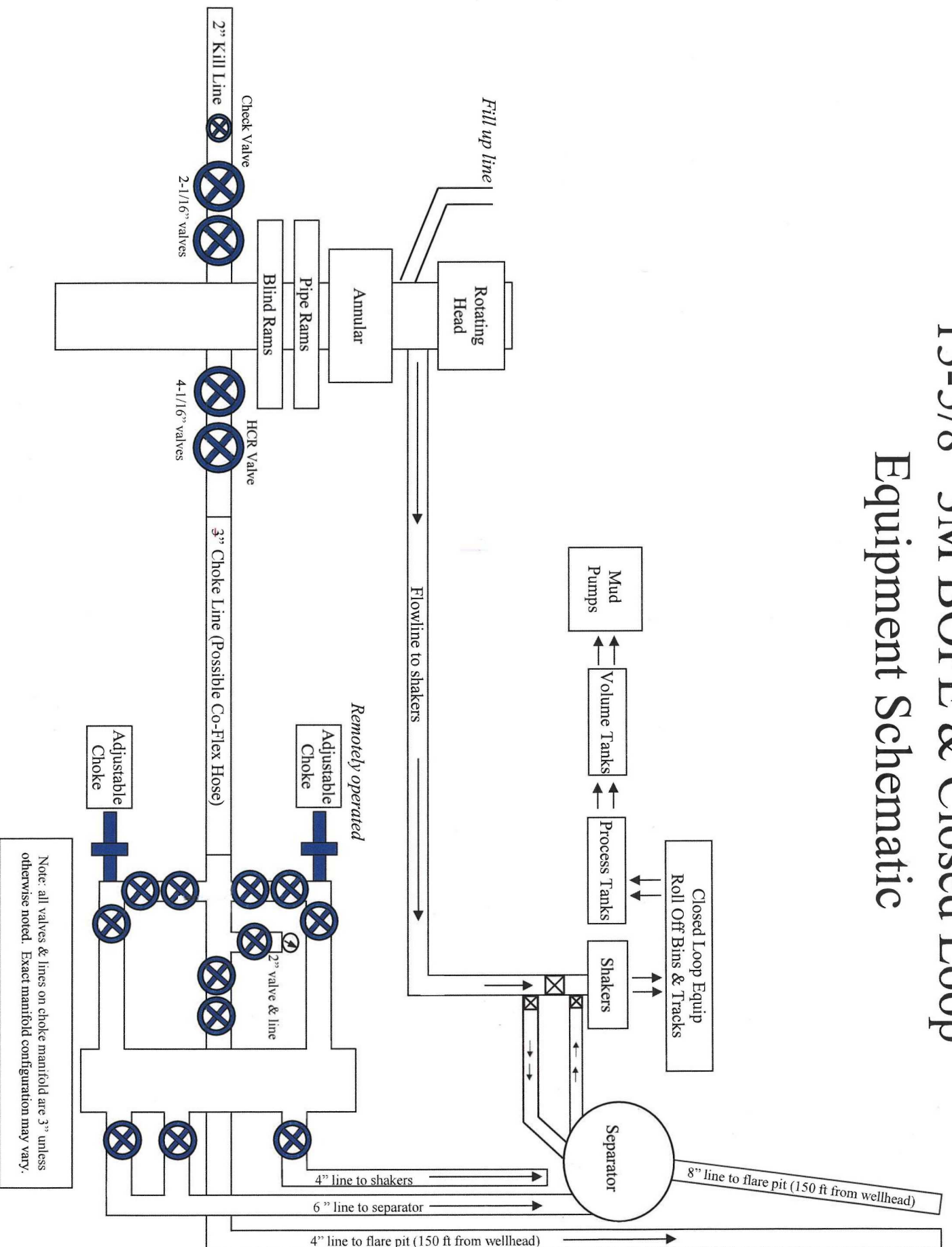
VAN_DOO_DAH_21_33_FC_233H_Clsd_Loop_20180310035923.pdf

VAN_DOO_DAH_21_33_FC_233H_GCP__2__20180820072203.pdf

Other Variance attachment:

VAN_DOO_DAH_21_33_FC_233H_Co_flex_20180310040107.pdf

13-5/8" 3M BOPE & Closed Loop Equipment Schematic



Casing Assumptions and Load Cases

Surface

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

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

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

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

Casing Assumptions and Load Cases

Production

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

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

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

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

Casing Assumptions and Load Cases

Intermediate

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

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

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

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

Devon Energy, Van Doo Dah 21-33 Fed 233H

1. Geologic Formations

TVD of target	10,230'	Pilot hole depth	N/A
MD at TD:	20,424'	Deepest expected fresh water:	

Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Rustler	790		
Salado	1160		
Base of Salt	4336		
Delaware	4570		
Lower Brushy Canyon	8330		
Bone Spring	8540		
Leonard A	8675		
Leonard B	9035		
Leonard C	9280		
1 st Bone Spring Sand	9545		
2 nd Bone Spring Lime	10030		
2 nd Bone Spring Sand	10230		

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

Devon Energy, Van Doo Dah 21-33 Fed 233H

2. Casing Program

Hole Size	Casing Interval		Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
	From	To							
17.5"	0	815'	13.375"	48	H40	STC	1.125	1	1.6
12.25"	0	4,450'	9.625"	40	J55	LTC	1.125	1	1.6
8.75"	0	20,424'	5.5"	17	P110	BTC	1.125	1	1.6
BLM Minimum Safety Factor							1.125	1	1.6 Dry 1.8 Wet

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

Must have table for contingency casing

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Does casing meet API specifications? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	N
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	
Is well within the designated 4 string boundary.	
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3 rd string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2 nd string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

Devon Energy, Van Doo Dah 21-33 Fed 233H

3. Cementing Program

Casing	# Sks	Wt. lb/gal	Yld ft ³ /sack	H ₂ O gal/sk	500# Comp. Strength (hours)	Slurry Description
Surf.	632	14.8	1.33	6.32	6	Lead: Class C Cement + 0.125 lbs/sack Poly-F-Flake
Inter.	742	10.3	3.65	22.06	24	Lead: (50:50) Poz (Silica) 3 lbm/sk Kol-Seal, .125 lbm/sk Poly-E-Flake
	153	14.8	1.33	6.32	6	Tail: Class C Cement + 0.125 lbs/sack Poly-F-Flake
Prod.	801	9	3.27	13.5	21	Lead: Tuned Light Cement
	2487	14.5	1.2	5.31	25	Tail: (50:50) Clas H Cement: Poz (Fly Ash) + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.2% BWOC HR-601 + 2% bwoc Bentonite

Casing String	TOC	% Excess
13-3/8" Surface	0'	50%
9-5/8" Intermediate	0'	30%
5-1/2" Production	4250'	25%

4. Pressure Control Equipment

N	A variance is requested for the use of a diverter on the surface casing. See attached for schematic.
---	--

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:
12-1/4"	13-5/8"	3M	Annular	x	50% of working pressure
			Blind Ram		3M
			Pipe Ram		
			Double Ram	x	
			Other*		
8-3/4"	13-5/8"	3M	Annular	x	50% of working pressure
			Blind Ram		3M
			Pipe Ram		
			Double Ram	x	
			Other*		
			Annular		
			Blind Ram		

Devon Energy, Van Doo Dah 21-33 Fed 233H

			Pipe Ram			
			Double Ram			
			Other *			

*Specify if additional ram is utilized.

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics.

Y	Formation integrity test will be performed per Onshore Order #2. On Exploratory wells or 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. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.	
Y	A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.	
	Y	Are anchors required by manufacturer?
Y	<p>A multibowl wellhead is being used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested.</p> <p>Devon proposes using a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be 3000 (3M) psi.</p> <ul style="list-style-type: none"> ○ Wellhead will be installed by wellhead representatives. ○ If the welding is performed by a third party, the wellhead representative will monitor the temperature to verify that it does not exceed the maximum temperature of the seal. ○ Wellhead representative will install the test plug for the initial BOP test. ○ Wellhead company will install a solid steel body pack-off to completely isolate the lower head after cementing intermediate casing. After installation of the packoff, the pack-off and the lower flange will be tested to 3M, as shown on the attached schematic. Everything above the pack-off will not have been altered whatsoever from the initial nipple up. Therefore the BOP components will not be retested at that time. 	

Devon Energy, Van Doo Dah 21-33 Fed 233H

	<ul style="list-style-type: none"> ○ If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head will be cut and top out operations will be conducted. ○ Devon will pressure test all seals above and below the mandrel (but still above the casing) to full working pressure rating. ○ Devon will test the casing to 0.22 psi/ft or 1500 psi, whichever is greater, as per Onshore Order #2. <p>After running the 13-3/8" surface casing, a 13-5/8" BOP/BOPE system with a minimum rating of 3M will be installed on the wellhead system and will undergo a 250 psi low pressure test followed by a 3,000 psi high pressure test. The 3,000 psi high and 250 psi. Low test will cover testing requirements a maximum of 30 days, as per Onshore Order #2. If the well is not complete within 30 days of this BOP test, another full BOP test will be conducted, as per Onshore Order #2.</p> <p>After running the 9-5/8' intermediate casing with a mandrel hanger, the 13-5/8" BOP/BOPE system with a minimum rating of 3M will already be installed on the wellhead.</p> <p>The pipe rams will be operated and checked each 24 hour period and each time the drill pipe is out of the hole. These tests will be logged in the daily driller's log. A 2" kill line and 3" choke line will be incorporated into the drilling spool below the ram BOP. In addition to the rams and annular preventer, additional BOP accessories include a Kelly cock, floor safety valve, choke lines, and choke manifold rated at 3,000 psi WP.</p> <p>Devon's proposed wellhead manufactures will be EMC Technologies, Cactus Wellhead, or Cameron.</p> <p>The pipe rams will be operated and checked each 24 hour period and each time the drill pipe is out of the hole. These tests will be logged in the daily driller's log. A 2" kill line and 3" choke line will be incorporated into the drilling spool below the ram BOP. In addition to the rams and annular preventer, additional BOP accessories include a kelly cock, floor safety valve, choke lines, and choke manifold rated at 3,000 psi WP.</p>
--	---

5. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0	815	FW Gel	8.5-9.0	28-34	N/C
815	4,250	Saturated Brine	10.0-11.0	28-34	N/C
4,250	20,424	Cut Brine	8.5-9.3	28-34	N/C

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
	Density
X	CBL
X	Mud log
	PEX

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	4942 psi
Abnormal Temperature	No

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

Hydrogen Sulfide (H ₂ S) monitors will be installed prior to drilling out the surface shoe. If H ₂ S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM.	
N	H ₂ S is present
Y	H ₂ S Plan attached

8. Other facets of operation

Devon Energy, Van Doo Dah 21-33 Fed 233H

Is this a walking operation? No.

Will be pre-setting casing? No.

Attachments

☒ Directional Plan

☐ Other, describe

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

Devon proposes using a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be 3000 (3M) psi.

- Wellhead will be installed by wellhead representatives.
- If the welding is performed by a third party, the wellhead representative will monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
- Wellhead representative will install the test plug for the initial BOP test.
- Wellhead company will install a solid steel body pack-off to completely isolate the lower head after cementing intermediate casing. After installation of the pack-off, the pack-off and the lower flange will be tested to 3M, as shown on the attached schematic. Everything above the pack-off will not have been altered whatsoever from the initial nipple up. Therefore the BOP components will not be retested at that time.
- If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head will be cut and top out operations will be conducted.
- Devon will pressure test all seals above and below the mandrel (but still above the casing) to full working pressure rating.
- Devon will test the casing to 0.22 psi/ft or 1500 psi, whichever is greater, as per Onshore Order #2.

After running the 13-3/8" surface casing, a 13-5/8" BOP/BOPE system with a minimum rating of 3M will be installed on the wellhead system and will undergo a 250 psi low pressure test followed by a 3,000 psi high pressure test. The 3,000 psi high and 250 psi low test will cover testing requirements a maximum of 30 days, as per Onshore Order #2. If the well is not complete within 30 days of this BOP test, another full BOP test will be conducted, as per Onshore Order #2.

After running the 9-5/8" intermediate casing with a mandrel hanger, the 13-5/8" BOP/BOPE system with a minimum rating of 3M will already be installed on the wellhead.

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

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

