

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTFORM APPROVED
OMB NO. 1004-0137
Expires: January 31, 2018**SUNDRY NOTICES AND REPORTS ON WELLS**
Do not use this form for proposals to drill or to re-enter an
abandoned well. Use form 3160-3 (APD) for such proposals.**SUBMIT IN TRIPLICATE - Other instructions on page 2**

1. Type of Well ☒ Oil Well ☐ Gas Well ☐ Other		8. Well Name and No. VAN DOO DAH 28-33 FED COM 237H
2. Name of Operator DEVON ENERGY PRODUCTION COMPANY Contact: LINDA GOOD Email: linda.good@dvn.com		9. API Well No. 30-025-45237-00-X1
3a. Address 333 WEST SHERIDAN AVENUE OKLAHOMA CITY, OK 73102	3b. Phone No. (include area code) Ph: 405.552.6571	10. Field and Pool or Exploratory Area WC025G06S253206M-BONE SPRING
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 28 T25S R32E NENE 205FNL 925FEL 32.108131 N Lat, 103.674484 W Lon		11. County or Parish, State LEA COUNTY, NM

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

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

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

Attention Haque & Chris,

Devon Energy Production Co., L.P. respectfully request permission to change the bottomhole location from 330 FSL 660 FEL, Unit P, Sec 33-T25S-R32E to 20 FNL 1980 FEL, Unit B, Sec 16-T25S-R32E.

Pool change from WC-025 G-08 S253235G; Bone Spring to WC-025 G-07 S253206M; Bone Spring.

Attachments: Revised C-102 plat, Drilling Plan, Dir Plan, Permit Plan, Plot and AC Report.

Carlsbad Field Office
OCD Hobbs

14. I hereby certify that the foregoing is true and correct. Electronic Submission #444357 verified by the BLM Well Information System For DEVON ENERGY PRODUCTION COMPANY, sent to the Hobbs Committed to AFMSS for processing by PRISCILLA PEREZ on 11/16/2018 (19PP0444SE)	
Name (Printed/Typed) LINDA GOOD	Title REGULATORY COMPLIANCE SPECIALI
Signature (Electronic Submission)	Date 11/16/2018

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By <u>LONG VO</u>	Title <u>PETROLEUM ENGINEER</u>	Date <u>02/05/2019</u>
Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.		Office Hobbs

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Instructions on page 2)

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

K2

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

API Number 30-025-45237		Pool Code 8720196715	Pool Name W.C-025 E-04 S243206M Dore Spring
Property Code 322444	Property Name VAN DOO DAH 28-33 FED COM		Well Number 237H
GRID No. 6137	Operator Name DEVON ENERGY PRODUCTION COMPANY, L.P.		Elevation 3384.2

Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	28	25 S	32 E		205	NORTH	925	EAST	LEA

Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
	10	25 S	32 E					EAST	LEA
Dedicated Acres 320	Joint or Infill	Consolidation Code	Order No.						

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

" OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling under heretofore entered by the division. <i>Linda Good</i> 2/5/2019 Signature Date Linda Good Printed Name linda.good@dvn.com E-mail Address		"SURVEYOR CERTIFICATION I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief. OCTOBER 30 2018 Date of Survey HEIMON F. JARAMILLO Professional Surveyor NEW MEXICO 12797 Signature and Seal of Professional Surveyor Certificate Number: HEIMON F. JARAMILLO, PLS 12797 SURVEY NO. 5914C	
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Intent ☐ As Drilled ☐

API #

Operator Name:

DEVON ENERGY PRODUCTION CO., L.P.

Property Name:

VAN DOO DAH 28-33 FED COM

Well Number

237H

Kick Off Point (KOP)

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

First Take Point (FTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
B	28	25S	32E		100	NORTH	1980	EAST	LEA
Latitude					Longitude			NAD	
32.1084032					103.6778908			83	

Last Take Point (LTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
B	16	25S	32E		100	NORTH	1980	EAST	LEA
Latitude					Longitude			NAD	
32.1374183					103.6778302			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

Devon Energy, Van Doo Dah 28-33 Fed 237H

1. Geologic Formations

TVD of target	10,728'	Pilot hole depth	N/A
MD at TD:	20,903'	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	10,263		

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

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	20,903'	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

Devon Energy, Van Doo Dah 28-33 Fed 237H

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?	

3. Cementing Program

Casing	# Sks	Wt. lb/ gal	Yld ft3/ 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
	2353	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.
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Devon Energy, Van Doo Dah 28-33 Fed 237H

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		
			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	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. 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 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. ○ 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 EMC Technologies, Cactus Wellhead, or Cameron.
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Devon Energy, Van Doo Dah 28-33 Fed 237H

	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.
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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	20,903	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
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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	KOP to TD
	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 (H2S) monitors will be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM.	
N	H2S is present
Y	H2S Plan attached

8. Other facets of operation

Is this a walking operation? Potentially

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

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

Will be pre-setting casing? Potentially

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

☒ Directional Plan

☐ Other, describe

Devon Energy

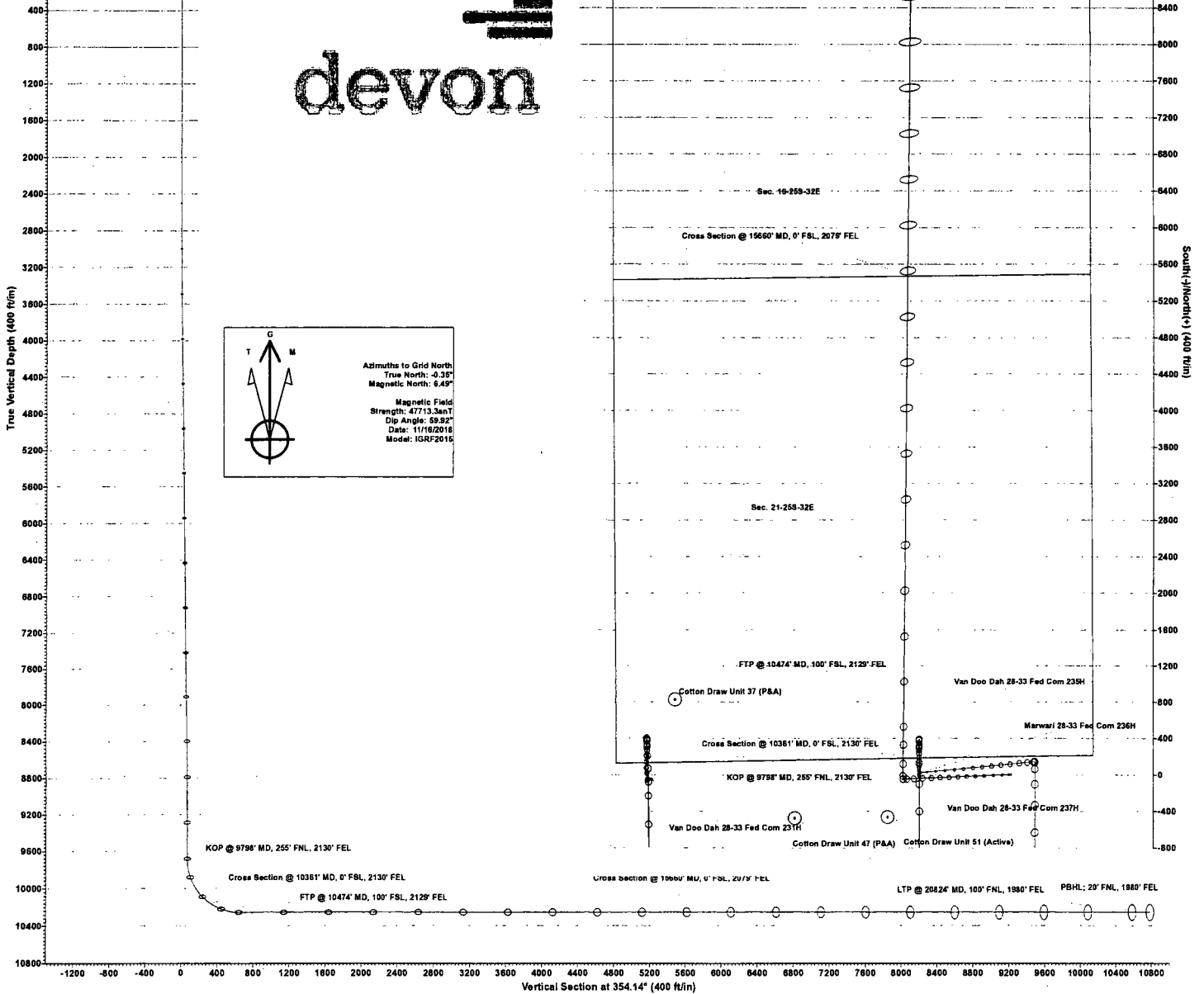
WELL DETAILS: Van Doo Dah 28-33 Fed Com 237H

RKB @ 3409.20ft

3384.20
Northing 403697.47 Easting 745334.93 Latitude 32.108130 Longitude -103.674484

SECTION DETAILS Permit Plan 1

MD	Inc	Azi	TVD	+N-S	+E-W	Dleg	V-Sect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2500.00	0.00	0.00	2500.00	0.00	0.00	0.00	0.00	
3500.06	11.37	267.62	3493.51	-4.10	-98.83	1.14	6.01	
8780.87	11.37	267.62	8670.66	-47.27	-1139.11	0.00	69.30	
9447.58	0.00	0.00	9333.00	-50.00	-1205.00	1.71	73.31	
9797.82	0.00	0.00	9683.04	-50.00	-1205.00	0.00	73.31	KOP @ 9798' MD, 255' FNL, 2130' FEL
10697.62	90.00	0.55	10256.00	522.93	-1199.49	10.00	642.68	
20903.60	90.00	0.55	10256.00	10728.44	-1101.25	0.00	10784.81	PBHL: 20' FNL, 1980' FEL



WCDSC Permian NM

Lea County (NAD83 New Mexico East)

Sec 28-T25S-R32E

Van Doo Dah 28-33 Fed Com 237H

Wellbore #1

Plan: Permit Plan 1

Standard Planning Report - Geographic

16 November, 2018

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well Van Doo Dah 28-33 Fed Com 237H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3409.20ft
Project:	Lea County (NAD83 New Mexico East)	MD Reference:	RKB @ 3409.20ft
Site:	Sec 28-T25S-R32E	North Reference:	Grid
Well:	Van Doo Dah 28-33 Fed Com 237H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

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

Site	Sec 28-T25S-R32E			
Site Position:		Northing:	403,829.87 usft	Latitude: 32.108567
From:	Map	Easting:	740,937.30 usft	Longitude: -103.688684
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence: 0.34 °

Well	Van Doo Dah 28-33 Fed Com 237H			
Well Position	+N/-S	0.00 ft	Northing:	403,697.47 usft
	+E/-W	0.00 ft	Easting:	745,334.93 usft
Position Uncertainty	0.50 ft	Wellhead Elevation:	Ground Level: 3,384.20 ft	

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	IGRF2015	11/16/2018	6.84	59.92	47,713.32710088

Design	Permit Plan 1			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.00	0.00	0.00	354.14

Plan Survey Tool Program	Date	11/16/2018		
Depth From	Depth To	Survey (Wellbore)	Tool Name	Remarks
(ft)	(ft)			
1	0.00	20,903.60 Permit Plan 1 (Wellbore #1)	MWD+HDGM	
			OWSG MWD + HDGM	

Plan Sections										
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Dogleg	Build	Turn	TFO	Target
Depth	(°)	(°)	Depth	(ft)	(ft)	Rate	Rate	Rate	(°)	
(ft)			(ft)			(°/100usft)	(°/100usft)	(°/100usft)		
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,500.06	11.37	267.62	3,493.51	-4.10	-98.83	1.14	1.14	0.00	267.62	
8,780.87	11.37	267.62	8,670.66	-47.27	-1,139.11	0.00	0.00	0.00	0.00	
9,447.58	0.00	0.00	9,333.00	-50.00	-1,205.00	1.71	-1.71	0.00	180.00	
9,797.62	0.00	0.00	9,683.04	-50.00	-1,205.00	0.00	0.00	0.00	0.00	
10,697.62	90.00	0.55	10,256.00	522.93	-1,199.49	10.00	10.00	0.00	0.55	PBHL - Van Doo Dah
20,903.60	90.00	0.55	10,256.00	10,728.44	-1,101.25	0.00	0.00	0.00	0.00	PBHL - Van Doo Dah

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well Van Doo Dah 28-33 Fed Com 237H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3409.20ft
Project:	Lea County (NAD83 New Mexico East)	MD Reference:	RKB @ 3409.20ft
Site:	Sec 28-T25S-R32E	North Reference:	Grid
Well:	Van Doo Dah 28-33 Fed Com 237H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.00	0.00	0.00	0.00	403,697.47	745,334.93	32.108130	-103.674484
100.00	0.00	0.00	100.00	0.00	0.00	403,697.47	745,334.93	32.108130	-103.674484
200.00	0.00	0.00	200.00	0.00	0.00	403,697.47	745,334.93	32.108130	-103.674484
300.00	0.00	0.00	300.00	0.00	0.00	403,697.47	745,334.93	32.108130	-103.674484
400.00	0.00	0.00	400.00	0.00	0.00	403,697.47	745,334.93	32.108130	-103.674484
500.00	0.00	0.00	500.00	0.00	0.00	403,697.47	745,334.93	32.108130	-103.674484
600.00	0.00	0.00	600.00	0.00	0.00	403,697.47	745,334.93	32.108130	-103.674484
700.00	0.00	0.00	700.00	0.00	0.00	403,697.47	745,334.93	32.108130	-103.674484
800.00	0.00	0.00	800.00	0.00	0.00	403,697.47	745,334.93	32.108130	-103.674484
900.00	0.00	0.00	900.00	0.00	0.00	403,697.47	745,334.93	32.108130	-103.674484
1,000.00	0.00	0.00	1,000.00	0.00	0.00	403,697.47	745,334.93	32.108130	-103.674484
1,100.00	0.00	0.00	1,100.00	0.00	0.00	403,697.47	745,334.93	32.108130	-103.674484
1,200.00	0.00	0.00	1,200.00	0.00	0.00	403,697.47	745,334.93	32.108130	-103.674484
1,300.00	0.00	0.00	1,300.00	0.00	0.00	403,697.47	745,334.93	32.108130	-103.674484
1,400.00	0.00	0.00	1,400.00	0.00	0.00	403,697.47	745,334.93	32.108130	-103.674484
1,500.00	0.00	0.00	1,500.00	0.00	0.00	403,697.47	745,334.93	32.108130	-103.674484
1,600.00	0.00	0.00	1,600.00	0.00	0.00	403,697.47	745,334.93	32.108130	-103.674484
1,700.00	0.00	0.00	1,700.00	0.00	0.00	403,697.47	745,334.93	32.108130	-103.674484
1,800.00	0.00	0.00	1,800.00	0.00	0.00	403,697.47	745,334.93	32.108130	-103.674484
1,900.00	0.00	0.00	1,900.00	0.00	0.00	403,697.47	745,334.93	32.108130	-103.674484
2,000.00	0.00	0.00	2,000.00	0.00	0.00	403,697.47	745,334.93	32.108130	-103.674484
2,100.00	0.00	0.00	2,100.00	0.00	0.00	403,697.47	745,334.93	32.108130	-103.674484
2,200.00	0.00	0.00	2,200.00	0.00	0.00	403,697.47	745,334.93	32.108130	-103.674484
2,300.00	0.00	0.00	2,300.00	0.00	0.00	403,697.47	745,334.93	32.108130	-103.674484
2,400.00	0.00	0.00	2,400.00	0.00	0.00	403,697.47	745,334.93	32.108130	-103.674484
2,500.00	0.00	0.00	2,500.00	0.00	0.00	403,697.47	745,334.93	32.108130	-103.674484
2,600.00	1.14	267.62	2,599.99	-0.04	-0.99	403,697.43	745,333.94	32.108130	-103.674487
2,700.00	2.27	267.62	2,699.95	-0.16	-3.97	403,697.30	745,330.96	32.108130	-103.674497
2,800.00	3.41	267.62	2,799.82	-0.37	-8.92	403,697.10	745,326.01	32.108129	-103.674513
2,900.00	4.55	267.62	2,899.58	-0.66	-15.85	403,696.81	745,319.07	32.108128	-103.674535
3,000.00	5.69	267.62	2,999.18	-1.03	-24.76	403,696.44	745,310.16	32.108127	-103.674564
3,100.00	6.82	267.62	3,098.58	-1.48	-35.65	403,695.99	745,299.28	32.108126	-103.674599
3,200.00	7.96	267.62	3,197.75	-2.01	-48.50	403,695.46	745,286.43	32.108125	-103.674641
3,300.00	9.10	267.62	3,296.64	-2.63	-63.32	403,694.84	745,271.61	32.108124	-103.674689
3,400.00	10.23	267.62	3,395.22	-3.32	-80.09	403,694.15	745,254.84	32.108122	-103.674743
3,500.00	11.37	267.62	3,493.45	-4.10	-98.82	403,693.37	745,236.11	32.108120	-103.674803
3,500.06	11.37	267.62	3,493.51	-4.10	-98.83	403,693.37	745,236.10	32.108120	-103.674803
3,600.00	11.37	267.62	3,591.49	-4.92	-118.51	403,692.55	745,216.41	32.108118	-103.674867
3,700.00	11.37	267.62	3,689.52	-5.74	-138.21	403,691.73	745,196.71	32.108116	-103.674930
3,800.00	11.37	267.62	3,787.56	-6.55	-157.91	403,690.92	745,177.01	32.108115	-103.674994
3,900.00	11.37	267.62	3,885.60	-7.37	-177.61	403,690.10	745,157.31	32.108113	-103.675058
4,000.00	11.37	267.62	3,983.63	-8.19	-197.31	403,689.28	745,137.61	32.108111	-103.675121
4,100.00	11.37	267.62	4,081.67	-9.00	-217.01	403,688.46	745,117.92	32.108109	-103.675185
4,200.00	11.37	267.62	4,179.71	-9.82	-236.71	403,687.65	745,098.22	32.108107	-103.675249
4,300.00	11.37	267.62	4,277.75	-10.64	-256.41	403,686.83	745,078.52	32.108105	-103.675312
4,400.00	11.37	267.62	4,375.78	-11.46	-276.11	403,686.01	745,058.82	32.108103	-103.675376
4,500.00	11.37	267.62	4,473.82	-12.27	-295.81	403,685.19	745,039.12	32.108101	-103.675440
4,600.00	11.37	267.62	4,571.86	-13.09	-315.51	403,684.38	745,019.42	32.108099	-103.675503
4,700.00	11.37	267.62	4,669.89	-13.91	-335.21	403,683.56	744,999.72	32.108097	-103.675567
4,800.00	11.37	267.62	4,767.93	-14.73	-354.91	403,682.74	744,980.02	32.108095	-103.675630
4,900.00	11.37	267.62	4,865.97	-15.54	-374.61	403,681.93	744,960.32	32.108093	-103.675694
5,000.00	11.37	267.62	4,964.01	-16.36	-394.31	403,681.11	744,940.62	32.108092	-103.675758
5,100.00	11.37	267.62	5,062.04	-17.18	-414.01	403,680.29	744,920.92	32.108090	-103.675821
5,200.00	11.37	267.62	5,160.08	-18.00	-433.71	403,679.47	744,901.22	32.108088	-103.675885
5,300.00	11.37	267.62	5,258.12	-18.81	-453.40	403,678.66	744,881.52	32.108086	-103.675949

Planning Report - Geographic

Database: EDM r5000.141_Prod US
 Company: WCDSC Permian NM
 Project: Lea County (NAD83 New Mexico East)
 Site: Sec 28-T25S-R32E
 Well: Van Doo Dah 28-33 Fed Com 237H
 Wellbore: Wellbore #1
 Design: Permit Plan 1

Local Co-ordinate Reference: Well Van Doo Dah 28-33 Fed Com 237H
 TVD Reference: RKB @ 3409.20ft
 MD Reference: RKB @ 3409.20ft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
5,400.00	11.37	267.62	5,356.15	-19.63	-473.10	403,677.84	744,861.82	32.108084	-103.676012
5,500.00	11.37	267.62	5,454.19	-20.45	-492.80	403,677.02	744,842.12	32.108082	-103.676076
5,600.00	11.37	267.62	5,552.23	-21.27	-512.50	403,676.20	744,822.43	32.108080	-103.676140
5,700.00	11.37	267.62	5,650.26	-22.08	-532.20	403,675.39	744,802.73	32.108078	-103.676203
5,800.00	11.37	267.62	5,748.30	-22.90	-551.90	403,674.57	744,783.03	32.108076	-103.676267
5,900.00	11.37	267.62	5,846.34	-23.72	-571.60	403,673.75	744,763.33	32.108074	-103.676330
6,000.00	11.37	267.62	5,944.38	-24.54	-591.30	403,672.93	744,743.63	32.108072	-103.676394
6,100.00	11.37	267.62	6,042.41	-25.35	-611.00	403,672.12	744,723.93	32.108070	-103.676458
6,200.00	11.37	267.62	6,140.45	-26.17	-630.70	403,671.30	744,704.23	32.108069	-103.676521
6,300.00	11.37	267.62	6,238.49	-26.99	-650.40	403,670.48	744,684.53	32.108067	-103.676585
6,400.00	11.37	267.62	6,336.52	-27.80	-670.10	403,669.66	744,664.83	32.108065	-103.676649
6,500.00	11.37	267.62	6,434.56	-28.62	-689.80	403,668.85	744,645.13	32.108063	-103.676712
6,600.00	11.37	267.62	6,532.60	-29.44	-709.50	403,668.03	744,625.43	32.108061	-103.676776
6,700.00	11.37	267.62	6,630.64	-30.26	-729.20	403,667.21	744,605.73	32.108059	-103.676840
6,800.00	11.37	267.62	6,728.67	-31.07	-748.90	403,666.39	744,586.03	32.108057	-103.676903
6,900.00	11.37	267.62	6,826.71	-31.89	-768.59	403,665.58	744,566.33	32.108055	-103.676967
7,000.00	11.37	267.62	6,924.75	-32.71	-788.29	403,664.76	744,546.63	32.108053	-103.677030
7,100.00	11.37	267.62	7,022.78	-33.53	-807.99	403,663.94	744,526.93	32.108051	-103.677094
7,200.00	11.37	267.62	7,120.82	-34.34	-827.69	403,663.12	744,507.24	32.108049	-103.677158
7,300.00	11.37	267.62	7,218.86	-35.16	-847.39	403,662.31	744,487.54	32.108047	-103.677221
7,400.00	11.37	267.62	7,316.89	-35.98	-867.09	403,661.49	744,467.84	32.108046	-103.677285
7,500.00	11.37	267.62	7,414.93	-36.80	-886.79	403,660.67	744,448.14	32.108044	-103.677349
7,600.00	11.37	267.62	7,512.97	-37.61	-906.49	403,659.86	744,428.44	32.108042	-103.677412
7,700.00	11.37	267.62	7,611.01	-38.43	-926.19	403,659.04	744,408.74	32.108040	-103.677476
7,800.00	11.37	267.62	7,709.04	-39.25	-945.89	403,658.22	744,389.04	32.108038	-103.677540
7,900.00	11.37	267.62	7,807.08	-40.07	-965.59	403,657.40	744,369.34	32.108036	-103.677603
8,000.00	11.37	267.62	7,905.12	-40.88	-985.29	403,656.59	744,349.64	32.108034	-103.677667
8,100.00	11.37	267.62	8,003.15	-41.70	-1,004.99	403,655.77	744,329.94	32.108032	-103.677730
8,200.00	11.37	267.62	8,101.19	-42.52	-1,024.69	403,654.95	744,310.24	32.108030	-103.677794
8,300.00	11.37	267.62	8,199.23	-43.34	-1,044.39	403,654.13	744,290.54	32.108028	-103.677858
8,400.00	11.37	267.62	8,297.27	-44.15	-1,064.09	403,653.32	744,270.84	32.108026	-103.677921
8,500.00	11.37	267.62	8,395.30	-44.97	-1,083.79	403,652.50	744,251.14	32.108024	-103.677985
8,600.00	11.37	267.62	8,493.34	-45.79	-1,103.48	403,651.68	744,231.44	32.108023	-103.678049
8,700.00	11.37	267.62	8,591.38	-46.61	-1,123.18	403,650.86	744,211.75	32.108021	-103.678112
8,780.87	11.37	267.62	8,670.66	-47.27	-1,139.11	403,650.20	744,195.81	32.108019	-103.678164
8,800.00	11.04	267.62	8,689.42	-47.42	-1,142.83	403,650.05	744,192.10	32.108019	-103.678176
8,900.00	9.34	267.62	8,787.84	-48.15	-1,160.51	403,649.32	744,174.42	32.108017	-103.678233
9,000.00	7.63	267.62	8,886.74	-48.77	-1,175.25	403,648.70	744,159.68	32.108016	-103.678280
9,100.00	5.93	267.62	8,986.04	-49.26	-1,187.05	403,648.21	744,147.88	32.108014	-103.678319
9,200.00	4.22	267.62	9,085.65	-49.62	-1,195.89	403,647.85	744,139.04	32.108014	-103.678347
9,300.00	2.52	267.62	9,185.47	-49.87	-1,201.76	403,647.60	744,133.17	32.108013	-103.678366
9,400.00	0.81	267.62	9,285.42	-49.99	-1,204.66	403,647.48	744,130.27	32.108013	-103.678375
9,447.58	0.00	0.00	9,333.00	-50.00	-1,205.00	403,647.47	744,129.93	32.108013	-103.678377
9,500.00	0.00	0.00	9,385.42	-50.00	-1,205.00	403,647.47	744,129.93	32.108013	-103.678377
9,600.00	0.00	0.00	9,485.42	-50.00	-1,205.00	403,647.47	744,129.93	32.108013	-103.678377
9,700.00	0.00	0.00	9,585.42	-50.00	-1,205.00	403,647.47	744,129.93	32.108013	-103.678377
9,797.62	0.00	0.00	9,683.04	-50.00	-1,205.00	403,647.47	744,129.93	32.108013	-103.678377
KOP @ 9798' MD, 255' FNL, 2130' FEL									
9,800.00	0.24	0.55	9,685.42	-50.00	-1,205.00	403,647.47	744,129.93	32.108013	-103.678377
9,900.00	10.24	0.55	9,784.88	-40.88	-1,204.91	403,656.59	744,130.02	32.108038	-103.678376
10,000.00	20.24	0.55	9,881.24	-14.63	-1,204.66	403,682.84	744,130.27	32.108110	-103.678375
10,100.00	30.24	0.55	9,971.58	27.95	-1,204.25	403,725.42	744,130.68	32.108227	-103.678373
10,200.00	40.24	0.55	10,053.15	85.57	-1,203.70	403,783.04	744,131.23	32.108385	-103.678370
10,300.00	50.24	0.55	10,123.48	156.48	-1,203.01	403,853.95	744,131.92	32.108580	-103.678366

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well Van Doo Dah 28-33 Fed Com 237H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3409.20ft
Project:	Lea County (NAD83 New Mexico East)	MD Reference:	RKB @ 3409.20ft
Site:	Sec 28-T25S-R32E	North Reference:	Grid
Well:	Van Doo Dah 28-33 Fed Com 237H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
10,361.00	56.34	0.55	10,159.93	205.36	-1,202.54	403,902.83	744,132.39	32.108715	-103.678364
Cross Section @ 10361' MD, 0' FSL, 2130' FEL									
10,400.00	60.24	0.55	10,180.42	238.53	-1,202.22	403,936.00	744,132.71	32.108806	-103.678362
10,474.05	67.64	0.55	10,212.93	305.00	-1,201.58	404,002.47	744,133.35	32.108988	-103.678359
FTP @ 10474' MD, 100' FSL, 2129' FEL									
10,500.00	70.24	0.55	10,222.25	329.22	-1,201.35	404,026.68	744,133.58	32.109055	-103.678357
10,600.00	80.24	0.55	10,247.70	425.79	-1,200.42	404,123.26	744,134.51	32.109320	-103.678352
10,697.62	90.00	0.55	10,256.00	522.93	-1,199.49	404,220.40	744,135.44	32.109587	-103.678347
10,700.00	90.00	0.55	10,256.00	525.31	-1,199.46	404,222.78	744,135.47	32.109594	-103.678347
10,800.00	90.00	0.55	10,256.00	625.31	-1,198.50	404,322.77	744,136.43	32.109869	-103.678342
10,900.00	90.00	0.55	10,256.00	725.30	-1,197.54	404,422.77	744,137.39	32.110144	-103.678337
11,000.00	90.00	0.55	10,256.00	825.30	-1,196.57	404,522.76	744,138.35	32.110418	-103.678332
11,100.00	90.00	0.55	10,256.00	925.29	-1,195.61	404,622.76	744,139.32	32.110693	-103.678327
11,200.00	90.00	0.55	10,256.00	1,025.29	-1,194.65	404,722.76	744,140.28	32.110968	-103.678322
11,300.00	90.00	0.55	10,256.00	1,125.28	-1,193.69	404,822.75	744,141.24	32.111243	-103.678317
11,400.00	90.00	0.55	10,256.00	1,225.28	-1,192.72	404,922.75	744,142.20	32.111518	-103.678312
11,500.00	90.00	0.55	10,256.00	1,325.27	-1,191.76	405,022.74	744,143.17	32.111793	-103.678307
11,600.00	90.00	0.55	10,256.00	1,425.27	-1,190.80	405,122.74	744,144.13	32.112068	-103.678302
11,700.00	90.00	0.55	10,256.00	1,525.27	-1,189.84	405,222.73	744,145.09	32.112342	-103.678297
11,800.00	90.00	0.55	10,256.00	1,625.26	-1,188.87	405,322.73	744,146.05	32.112617	-103.678292
11,900.00	90.00	0.55	10,256.00	1,725.26	-1,187.91	405,422.72	744,147.02	32.112892	-103.678287
12,000.00	90.00	0.55	10,256.00	1,825.25	-1,186.95	405,522.72	744,147.98	32.113167	-103.678281
12,100.00	90.00	0.55	10,256.00	1,925.25	-1,185.99	405,622.71	744,148.94	32.113442	-103.678276
12,200.00	90.00	0.55	10,256.00	2,025.24	-1,185.02	405,722.71	744,149.90	32.113717	-103.678271
12,300.00	90.00	0.55	10,256.00	2,125.24	-1,184.06	405,822.70	744,150.87	32.113992	-103.678266
12,400.00	90.00	0.55	10,256.00	2,225.23	-1,183.10	405,922.70	744,151.83	32.114266	-103.678261
12,500.00	90.00	0.55	10,256.00	2,325.23	-1,182.14	406,022.69	744,152.79	32.114541	-103.678256
12,600.00	90.00	0.55	10,256.00	2,425.22	-1,181.17	406,122.69	744,153.75	32.114816	-103.678251
12,700.00	90.00	0.55	10,256.00	2,525.22	-1,180.21	406,222.68	744,154.72	32.115091	-103.678246
12,800.00	90.00	0.55	10,256.00	2,625.21	-1,179.25	406,322.68	744,155.68	32.115366	-103.678241
12,900.00	90.00	0.55	10,256.00	2,725.21	-1,178.29	406,422.67	744,156.64	32.115641	-103.678236
13,000.00	90.00	0.55	10,256.00	2,825.20	-1,177.32	406,522.67	744,157.60	32.115915	-103.678231
13,100.00	90.00	0.55	10,256.00	2,925.20	-1,176.36	406,622.66	744,158.57	32.116190	-103.678226
13,200.00	90.00	0.55	10,256.00	3,025.20	-1,175.40	406,722.66	744,159.53	32.116465	-103.678221
13,300.00	90.00	0.55	10,256.00	3,125.19	-1,174.44	406,822.65	744,160.49	32.116740	-103.678216
13,400.00	90.00	0.55	10,256.00	3,225.19	-1,173.47	406,922.65	744,161.45	32.117015	-103.678210
13,500.00	90.00	0.55	10,256.00	3,325.18	-1,172.51	407,022.64	744,162.42	32.117290	-103.678205
13,600.00	90.00	0.55	10,256.00	3,425.18	-1,171.55	407,122.64	744,163.38	32.117565	-103.678200
13,700.00	90.00	0.55	10,256.00	3,525.17	-1,170.59	407,222.63	744,164.34	32.117839	-103.678195
13,800.00	90.00	0.55	10,256.00	3,625.17	-1,169.62	407,322.63	744,165.30	32.118114	-103.678190
13,900.00	90.00	0.55	10,256.00	3,725.16	-1,168.66	407,422.62	744,166.27	32.118389	-103.678185
14,000.00	90.00	0.55	10,256.00	3,825.16	-1,167.70	407,522.62	744,167.23	32.118664	-103.678180
14,100.00	90.00	0.55	10,256.00	3,925.15	-1,166.74	407,622.62	744,168.19	32.118939	-103.678175
14,200.00	90.00	0.55	10,256.00	4,025.15	-1,165.77	407,722.61	744,169.15	32.119214	-103.678170
14,300.00	90.00	0.55	10,256.00	4,125.14	-1,164.81	407,822.61	744,170.12	32.119488	-103.678165
14,400.00	90.00	0.55	10,256.00	4,225.14	-1,163.85	407,922.60	744,171.08	32.119763	-103.678160
14,500.00	90.00	0.55	10,256.00	4,325.14	-1,162.89	408,022.60	744,172.04	32.120038	-103.678155
14,600.00	90.00	0.55	10,256.00	4,425.13	-1,161.92	408,122.59	744,173.00	32.120313	-103.678150
14,700.00	90.00	0.55	10,256.00	4,525.13	-1,160.96	408,222.59	744,173.97	32.120588	-103.678145
14,800.00	90.00	0.55	10,256.00	4,625.12	-1,160.00	408,322.58	744,174.93	32.120863	-103.678139
14,900.00	90.00	0.55	10,256.00	4,725.12	-1,159.04	408,422.58	744,175.89	32.121138	-103.678134
15,000.00	90.00	0.55	10,256.00	4,825.11	-1,158.07	408,522.57	744,176.85	32.121412	-103.678129
15,100.00	90.00	0.55	10,256.00	4,925.11	-1,157.11	408,622.57	744,177.82	32.121687	-103.678124
15,200.00	90.00	0.55	10,256.00	5,025.10	-1,156.15	408,722.56	744,178.78	32.121962	-103.678119

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well Van Doo Dah 28-33 Fed Com 237H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3409.20ft
Project:	Lea County (NAD83 New Mexico East)	MD Reference:	RKB @ 3409.20ft
Site:	Sec 28-T25S-R32E	North Reference:	Grid
Well:	Van Doo Dah 28-33 Fed Com 237H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
15,300.00	90.00	0.55	10,256.00	5,125.10	-1,155.19	408,822.56	744,179.74	32.122237	-103.678114
15,400.00	90.00	0.55	10,256.00	5,225.09	-1,154.22	408,922.55	744,180.70	32.122512	-103.678109
15,500.00	90.00	0.55	10,256.00	5,325.09	-1,153.26	409,022.55	744,181.67	32.122787	-103.678104
15,600.00	90.00	0.55	10,256.00	5,425.08	-1,152.30	409,122.54	744,182.63	32.123061	-103.678099
15,660.00	90.00	0.55	10,256.00	5,485.08	-1,151.72	409,182.54	744,183.21	32.123226	-103.678096
Cross Section @ 15660' MD, 0' FSL, 2079' FEL									
15,700.00	90.00	0.55	10,256.00	5,525.08	-1,151.34	409,222.54	744,183.59	32.123336	-103.678094
15,800.00	90.00	0.55	10,256.00	5,625.08	-1,150.37	409,322.53	744,184.55	32.123611	-103.678089
15,900.00	90.00	0.55	10,256.00	5,725.07	-1,149.41	409,422.53	744,185.52	32.123886	-103.678084
16,000.00	90.00	0.55	10,256.00	5,825.07	-1,148.45	409,522.52	744,186.48	32.124161	-103.678079
16,100.00	90.00	0.55	10,256.00	5,925.06	-1,147.49	409,622.52	744,187.44	32.124436	-103.678073
16,200.00	90.00	0.55	10,256.00	6,025.06	-1,146.52	409,722.51	744,188.40	32.124711	-103.678068
16,300.00	90.00	0.55	10,256.00	6,125.05	-1,145.56	409,822.51	744,189.37	32.124985	-103.678063
16,400.00	90.00	0.55	10,256.00	6,225.05	-1,144.60	409,922.50	744,190.33	32.125260	-103.678058
16,500.00	90.00	0.55	10,256.00	6,325.04	-1,143.64	410,022.50	744,191.29	32.125535	-103.678053
16,600.00	90.00	0.55	10,256.00	6,425.04	-1,142.67	410,122.49	744,192.25	32.125810	-103.678048
16,700.00	90.00	0.55	10,256.00	6,525.03	-1,141.71	410,222.49	744,193.22	32.126085	-103.678043
16,800.00	90.00	0.55	10,256.00	6,625.03	-1,140.75	410,322.48	744,194.18	32.126360	-103.678038
16,900.00	90.00	0.55	10,256.00	6,725.02	-1,139.79	410,422.48	744,195.14	32.126635	-103.678033
17,000.00	90.00	0.55	10,256.00	6,825.02	-1,138.82	410,522.48	744,196.10	32.126909	-103.678028
17,100.00	90.00	0.55	10,256.00	6,925.02	-1,137.86	410,622.47	744,197.07	32.127184	-103.678023
17,200.00	90.00	0.55	10,256.00	7,025.01	-1,136.90	410,722.47	744,198.03	32.127459	-103.678018
17,300.00	90.00	0.55	10,256.00	7,125.01	-1,135.94	410,822.46	744,198.99	32.127734	-103.678013
17,400.00	90.00	0.55	10,256.00	7,225.00	-1,134.97	410,922.46	744,199.95	32.128009	-103.678008
17,500.00	90.00	0.55	10,256.00	7,325.00	-1,134.01	411,022.45	744,200.92	32.128284	-103.678002
17,600.00	90.00	0.55	10,256.00	7,424.99	-1,133.05	411,122.45	744,201.88	32.128558	-103.677997
17,700.00	90.00	0.55	10,256.00	7,524.99	-1,132.09	411,222.44	744,202.84	32.128833	-103.677992
17,800.00	90.00	0.55	10,256.00	7,624.98	-1,131.12	411,322.44	744,203.80	32.129108	-103.677987
17,900.00	90.00	0.55	10,256.00	7,724.98	-1,130.16	411,422.43	744,204.77	32.129383	-103.677982
18,000.00	90.00	0.55	10,256.00	7,824.97	-1,129.20	411,522.43	744,205.73	32.129658	-103.677977
18,100.00	90.00	0.55	10,256.00	7,924.97	-1,128.24	411,622.42	744,206.69	32.129933	-103.677972
18,200.00	90.00	0.55	10,256.00	8,024.96	-1,127.27	411,722.42	744,207.65	32.130208	-103.677967
18,300.00	90.00	0.55	10,256.00	8,124.96	-1,126.31	411,822.41	744,208.62	32.130482	-103.677962
18,400.00	90.00	0.55	10,256.00	8,224.95	-1,125.35	411,922.41	744,209.58	32.130757	-103.677957
18,500.00	90.00	0.55	10,256.00	8,324.95	-1,124.39	412,022.40	744,210.54	32.131032	-103.677952
18,600.00	90.00	0.55	10,256.00	8,424.95	-1,123.42	412,122.40	744,211.50	32.131307	-103.677947
18,700.00	90.00	0.55	10,256.00	8,524.94	-1,122.46	412,222.39	744,212.47	32.131582	-103.677942
18,800.00	90.00	0.55	10,256.00	8,624.94	-1,121.50	412,322.39	744,213.43	32.131857	-103.677936
18,900.00	90.00	0.55	10,256.00	8,724.93	-1,120.54	412,422.38	744,214.39	32.132131	-103.677931
19,000.00	90.00	0.55	10,256.00	8,824.93	-1,119.57	412,522.38	744,215.35	32.132406	-103.677926
19,100.00	90.00	0.55	10,256.00	8,924.92	-1,118.61	412,622.37	744,216.32	32.132681	-103.677921
19,200.00	90.00	0.55	10,256.00	9,024.92	-1,117.65	412,722.37	744,217.28	32.132956	-103.677916
19,300.00	90.00	0.55	10,256.00	9,124.91	-1,116.69	412,822.36	744,218.24	32.133231	-103.677911
19,400.00	90.00	0.55	10,256.00	9,224.91	-1,115.72	412,922.36	744,219.20	32.133506	-103.677906
19,500.00	90.00	0.55	10,256.00	9,324.90	-1,114.76	413,022.35	744,220.17	32.133781	-103.677901
19,600.00	90.00	0.55	10,256.00	9,424.90	-1,113.80	413,122.35	744,221.13	32.134055	-103.677896
19,700.00	90.00	0.55	10,256.00	9,524.89	-1,112.84	413,222.34	744,222.09	32.134330	-103.677891
19,800.00	90.00	0.55	10,256.00	9,624.89	-1,111.87	413,322.34	744,223.05	32.134605	-103.677886
19,900.00	90.00	0.55	10,256.00	9,724.89	-1,110.91	413,422.33	744,224.02	32.134880	-103.677881
20,000.00	90.00	0.55	10,256.00	9,824.88	-1,109.95	413,522.33	744,224.98	32.135155	-103.677876
20,100.00	90.00	0.55	10,256.00	9,924.88	-1,108.99	413,622.33	744,225.94	32.135430	-103.677871
20,200.00	90.00	0.55	10,256.00	10,024.87	-1,108.02	413,722.32	744,226.90	32.135704	-103.677865
20,300.00	90.00	0.55	10,256.00	10,124.87	-1,107.06	413,822.32	744,227.87	32.135979	-103.677860
20,400.00	90.00	0.55	10,256.00	10,224.86	-1,106.10	413,922.31	744,228.83	32.136254	-103.677855

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well Van Doo Dah 28-33 Fed Com 237H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3409.20ft
Project:	Lea County (NAD83 New Mexico East)	MD Reference:	RKB @ 3409.20ft
Site:	Sec 28-T25S-R32E	North Reference:	Grid
Well:	Van Doo Dah 28-33 Fed Com 237H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
20,500.00	90.00	0.55	10,256.00	10,324.86	-1,105.14	414,022.31	744,229.79	32.136529	-103.677850
20,600.00	90.00	0.55	10,256.00	10,424.85	-1,104.17	414,122.30	744,230.75	32.136804	-103.677845
20,700.00	90.00	0.55	10,256.00	10,524.85	-1,103.21	414,222.30	744,231.72	32.137079	-103.677840
20,800.00	90.00	0.55	10,256.00	10,624.84	-1,102.25	414,322.29	744,232.68	32.137354	-103.677835
20,823.60	90.00	0.55	10,256.00	10,648.44	-1,102.02	414,345.89	744,232.91	32.137418	-103.677834
LTP @ 20824' MD, 100' FNL, 1980' FEL									
20,900.00	90.00	0.55	10,256.00	10,724.84	-1,101.29	414,422.29	744,233.64	32.137628	-103.677830
20,903.59	90.00	0.55	10,256.00	10,728.43	-1,101.25	414,425.88	744,233.68	32.137638	-103.677830
PBHL; 20' FNL, 1980' FEL									
	90.00	0.55		10,728.44	-1,101.25	414,425.89	744,233.68	32.137638	-103.677830

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
PBHL - Van Doo Dah 28	0.00	0.00	0.00	10,728.44	-1,101.25	414,425.89	744,233.68	32.137638	-103.677830
- plan misses target center by 10256.00ft at 20903.60ft MD (10256.00 TVD, 10728.44 N, -1101.25 E)									
- Point									

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
9,797.62	9,683.04	-50.00	-1,205.00	KOP @ 9798' MD, 255' FNL, 2130' FEL
10,361.00	10,159.93	205.36	-1,202.54	Cross Section @ 10361' MD, 0' FSL, 2130' FEL
10,474.05	10,212.93	305.00	-1,201.58	FTP @ 10474' MD, 100' FSL, 2129' FEL
15,660.00	10,256.00	5,485.08	-1,151.72	Cross Section @ 15660' MD, 0' FSL, 2079' FEL
20,823.60	10,256.00	10,648.44	-1,102.02	LTP @ 20824' MD, 100' FNL, 1980' FEL
20,903.59	10,256.00	10,728.43	-1,101.25	PBHL; 20' FNL, 1980' FEL

WCDSC Permian NM

Van Doo Dah 28-33 Fed Com 237H - Permit Plan 1

Lea County (NAD83 New Mexico East)

Sec 28-T25S-R32E

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	1.137	267.624	2599.99	-0.04	-0.99	0.06	1.14
2700	2.274	267.624	2699.95	-0.16	-3.97	0.24	1.14
2800	3.411	267.624	2799.82	-0.37	-8.92	0.54	1.14
2900	4.548	267.624	2899.58	-0.66	-15.85	0.96	1.14
3000	5.685	267.624	2999.18	-1.03	-24.76	1.51	1.14
3100	6.822	267.624	3098.58	-1.48	-35.65	2.17	1.14

3200	7.959	267.624	3197.75	-2.01	-48.5	2.95	1.14
3300	9.096	267.624	3296.64	-2.63	-63.32	3.85	1.14
3400	10.233	267.624	3395.22	-3.32	-80.09	4.87	1.14
3500	11.37	267.624	3493.45	-4.1	-98.82	6.01	1.14
3500.06	11.371	267.624	3493.51	-4.1	-98.83	6.01	1.14
3600	11.371	267.624	3591.49	-4.92	-118.51	7.21	0
3700	11.371	267.624	3689.52	-5.74	-138.21	8.41	0
3800	11.371	267.624	3787.56	-6.55	-157.91	9.61	0
3900	11.371	267.624	3885.6	-7.37	-177.61	10.8	0
4000	11.371	267.624	3983.63	-8.19	-197.31	12	0
4100	11.371	267.624	4081.67	-9	-217.01	13.2	0
4200	11.371	267.624	4179.71	-9.82	-236.71	14.4	0
4300	11.371	267.624	4277.75	-10.64	-256.41	15.6	0
4400	11.371	267.624	4375.78	-11.46	-276.11	16.8	0
4500	11.371	267.624	4473.82	-12.27	-295.81	18	0
4600	11.371	267.624	4571.86	-13.09	-315.51	19.19	0
4700	11.371	267.624	4669.89	-13.91	-335.21	20.39	0
4800	11.371	267.624	4767.93	-14.73	-354.91	21.59	0
4900	11.371	267.624	4865.97	-15.54	-374.61	22.79	0
5000	11.371	267.624	4964.01	-16.36	-394.31	23.99	0
5100	11.371	267.624	5062.04	-17.18	-414.01	25.19	0
5200	11.371	267.624	5160.08	-18	-433.71	26.38	0
5300	11.371	267.624	5258.12	-18.81	-453.4	27.58	0
5400	11.371	267.624	5356.15	-19.63	-473.1	28.78	0
5500	11.371	267.624	5454.19	-20.45	-492.8	29.98	0
5600	11.371	267.624	5552.23	-21.27	-512.5	31.18	0
5700	11.371	267.624	5650.26	-22.08	-532.2	32.38	0
5800	11.371	267.624	5748.3	-22.9	-551.9	33.57	0
5900	11.371	267.624	5846.34	-23.72	-571.6	34.77	0
6000	11.371	267.624	5944.38	-24.54	-591.3	35.97	0
6100	11.371	267.624	6042.41	-25.35	-611	37.17	0
6200	11.371	267.624	6140.45	-26.17	-630.7	38.37	0
6300	11.371	267.624	6238.49	-26.99	-650.4	39.57	0
6400	11.371	267.624	6336.52	-27.8	-670.1	40.77	0
6500	11.371	267.624	6434.56	-28.62	-689.8	41.96	0
6600	11.371	267.624	6532.6	-29.44	-709.5	43.16	0
6700	11.371	267.624	6630.64	-30.26	-729.2	44.36	0
6800	11.371	267.624	6728.67	-31.07	-748.9	45.56	0
6900	11.371	267.624	6826.71	-31.89	-768.59	46.76	0
7000	11.371	267.624	6924.75	-32.71	-788.29	47.96	0
7100	11.371	267.624	7022.78	-33.53	-807.99	49.15	0
7200	11.371	267.624	7120.82	-34.34	-827.69	50.35	0
7300	11.371	267.624	7218.86	-35.16	-847.39	51.55	0
7400	11.371	267.624	7316.89	-35.98	-867.09	52.75	0
7500	11.371	267.624	7414.93	-36.8	-886.79	53.95	0
7600	11.371	267.624	7512.97	-37.61	-906.49	55.15	0
7700	11.371	267.624	7611.01	-38.43	-926.19	56.34	0

7800	11.371	267.624	7709.04	-39.25	-945.89	57.54	0
7900	11.371	267.624	7807.08	-40.07	-965.59	58.74	0
8000	11.371	267.624	7905.12	-40.88	-985.29	59.94	0
8100	11.371	267.624	8003.15	-41.7	-1004.99	61.14	0
8200	11.371	267.624	8101.19	-42.52	-1024.69	62.34	0
8300	11.371	267.624	8199.23	-43.34	-1044.39	63.53	0
8400	11.371	267.624	8297.27	-44.15	-1064.09	64.73	0
8500	11.371	267.624	8395.3	-44.97	-1083.79	65.93	0
8600	11.371	267.624	8493.34	-45.79	-1103.48	67.13	0
8700	11.371	267.624	8591.38	-46.61	-1123.18	68.33	0
8780.87	11.371	267.624	8670.66	-47.27	-1139.11	69.3	0
8800	11.045	267.624	8689.42	-47.42	-1142.83	69.52	1.71
8900	9.339	267.624	8787.84	-48.15	-1160.51	70.6	1.71
9000	7.634	267.624	8886.74	-48.77	-1175.25	71.5	1.71
9100	5.928	267.624	8986.04	-49.26	-1187.05	72.21	1.71
9200	4.223	267.624	9085.64	-49.62	-1195.89	72.75	1.71
9300	2.517	267.624	9185.47	-49.87	-1201.76	73.11	1.71
9400	0.811	267.624	9285.42	-49.99	-1204.66	73.29	1.71
9447.58	0	0	9333	-50	-1205	73.31	1.71
9500	0	0	9385.42	-50	-1205	73.31	0
9600	0	0	9485.42	-50	-1205	73.31	0
9700	0	0	9585.42	-50	-1205	73.31	0
9797.62	0	0	9683.04	-50	-1205	73.31	0
9800	0.238	0.551	9685.42	-50	-1205	73.31	10
9900	10.238	0.551	9784.88	-40.88	-1204.91	82.37	10
10000	20.238	0.551	9881.24	-14.63	-1204.66	108.46	10
10100	30.238	0.551	9971.58	27.95	-1204.25	150.77	10
10200	40.238	0.551	10053.15	85.57	-1203.7	208.04	10
10300	50.238	0.551	10123.48	156.48	-1203.01	278.51	10
10400	60.238	0.551	10180.42	238.53	-1202.22	360.04	10
10500	70.238	0.551	10222.25	329.22	-1201.35	450.17	10
10600	80.238	0.551	10247.7	425.79	-1200.42	546.14	10
10697.62	90	0.551	10256	522.93	-1199.49	642.68	10
10700	90	0.551	10256	525.31	-1199.46	645.04	0
10800	90	0.551	10256	625.31	-1198.5	744.42	0
10900	90	0.551	10256	725.3	-1197.54	843.79	0
11000	90	0.551	10256	825.3	-1196.57	943.17	0
11100	90	0.551	10256	925.29	-1195.61	1042.54	0
11200	90	0.551	10256	1025.29	-1194.65	1141.92	0
11300	90	0.551	10256	1125.28	-1193.69	1241.29	0
11400	90	0.551	10256	1225.28	-1192.72	1340.67	0
11500	90	0.551	10256	1325.27	-1191.76	1440.04	0
11600	90	0.551	10256	1425.27	-1190.8	1539.41	0
11700	90	0.551	10256	1525.27	-1189.84	1638.79	0
11800	90	0.551	10256	1625.26	-1188.87	1738.16	0
11900	90	0.551	10256	1725.26	-1187.91	1837.54	0
12000	90	0.551	10256	1825.25	-1186.95	1936.91	0

12100	90	0.551	10256	1925.25	-1185.99	2036.29	0
12200	90	0.551	10256	2025.24	-1185.02	2135.66	0
12300	90	0.551	10256	2125.24	-1184.06	2235.03	0
12400	90	0.551	10256	2225.23	-1183.1	2334.41	0
12500	90	0.551	10256	2325.23	-1182.14	2433.78	0
12600	90	0.551	10256	2425.22	-1181.17	2533.16	0
12700	90	0.551	10256	2525.22	-1180.21	2632.53	0
12800	90	0.551	10256	2625.21	-1179.25	2731.91	0
12900	90	0.551	10256	2725.21	-1178.29	2831.28	0
13000	90	0.551	10256	2825.2	-1177.32	2930.66	0
13100	90	0.551	10256	2925.2	-1176.36	3030.03	0
13200	90	0.551	10256	3025.2	-1175.4	3129.4	0
13300	90	0.551	10256	3125.19	-1174.44	3228.78	0
13400	90	0.551	10256	3225.19	-1173.47	3328.15	0
13500	90	0.551	10256	3325.18	-1172.51	3427.53	0
13600	90	0.551	10256	3425.18	-1171.55	3526.9	0
13700	90	0.551	10256	3525.17	-1170.59	3626.28	0
13800	90	0.551	10256	3625.17	-1169.62	3725.65	0
13900	90	0.551	10256	3725.16	-1168.66	3825.03	0
14000	90	0.551	10256	3825.16	-1167.7	3924.4	0
14100	90	0.551	10256	3925.15	-1166.74	4023.77	0
14200	90	0.551	10256	4025.15	-1165.77	4123.15	0
14300	90	0.551	10256	4125.14	-1164.81	4222.52	0
14400	90	0.551	10256	4225.14	-1163.85	4321.9	0
14500	90	0.551	10256	4325.14	-1162.89	4421.27	0
14600	90	0.551	10256	4425.13	-1161.92	4520.65	0
14700	90	0.551	10256	4525.13	-1160.96	4620.02	0
14800	90	0.551	10256	4625.12	-1160	4719.39	0
14900	90	0.551	10256	4725.12	-1159.04	4818.77	0
15000	90	0.551	10256	4825.11	-1158.07	4918.14	0
15100	90	0.551	10256	4925.11	-1157.11	5017.52	0
15200	90	0.551	10256	5025.1	-1156.15	5116.89	0
15300	90	0.551	10256	5125.1	-1155.19	5216.27	0
15400	90	0.551	10256	5225.09	-1154.22	5315.64	0
15500	90	0.551	10256	5325.09	-1153.26	5415.02	0
15600	90	0.551	10256	5425.08	-1152.3	5514.39	0
15700	90	0.551	10256	5525.08	-1151.34	5613.76	0
15800	90	0.551	10256	5625.08	-1150.37	5713.14	0
15900	90	0.551	10256	5725.07	-1149.41	5812.51	0
16000	90	0.551	10256	5825.07	-1148.45	5911.89	0
16100	90	0.551	10256	5925.06	-1147.49	6011.26	0
16200	90	0.551	10256	6025.06	-1146.52	6110.64	0
16300	90	0.551	10256	6125.05	-1145.56	6210.01	0
16400	90	0.551	10256	6225.05	-1144.6	6309.39	0
16500	90	0.551	10256	6325.04	-1143.64	6408.76	0
16600	90	0.551	10256	6425.04	-1142.67	6508.13	0
16700	90	0.551	10256	6525.03	-1141.71	6607.51	0

16800	90	0.551	10256	6625.03	-1140.75	6706.88	0
16900	90	0.551	10256	6725.02	-1139.79	6806.26	0
17000	90	0.551	10256	6825.02	-1138.82	6905.63	0
17100	90	0.551	10256	6925.01	-1137.86	7005.01	0
17200	90	0.551	10256	7025.01	-1136.9	7104.38	0
17300	90	0.551	10256	7125.01	-1135.94	7203.76	0
17400	90	0.551	10256	7225	-1134.97	7303.13	0
17500	90	0.551	10256	7325	-1134.01	7402.5	0
17600	90	0.551	10256	7424.99	-1133.05	7501.88	0
17700	90	0.551	10256	7524.99	-1132.09	7601.25	0
17800	90	0.551	10256	7624.98	-1131.12	7700.63	0
17900	90	0.551	10256	7724.98	-1130.16	7800	0
18000	90	0.551	10256	7824.97	-1129.2	7899.38	0
18100	90	0.551	10256	7924.97	-1128.24	7998.75	0
18200	90	0.551	10256	8024.96	-1127.27	8098.12	0
18300	90	0.551	10256	8124.96	-1126.31	8197.5	0
18400	90	0.551	10256	8224.95	-1125.35	8296.87	0
18500	90	0.551	10256	8324.95	-1124.39	8396.25	0
18600	90	0.551	10256	8424.95	-1123.42	8495.62	0
18700	90	0.551	10256	8524.94	-1122.46	8595	0
18800	90	0.551	10256	8624.94	-1121.5	8694.37	0
18900	90	0.551	10256	8724.93	-1120.54	8793.75	0
19000	90	0.551	10256	8824.93	-1119.57	8893.12	0
19100	90	0.551	10256	8924.92	-1118.61	8992.49	0
19200	90	0.551	10256	9024.92	-1117.65	9091.87	0
19300	90	0.551	10256	9124.91	-1116.69	9191.24	0
19400	90	0.551	10256	9224.91	-1115.72	9290.62	0
19500	90	0.551	10256	9324.9	-1114.76	9389.99	0
19600	90	0.551	10256	9424.9	-1113.8	9489.37	0
19700	90	0.551	10256	9524.89	-1112.84	9588.74	0
19800	90	0.551	10256	9624.89	-1111.87	9688.12	0
19900	90	0.551	10256	9724.89	-1110.91	9787.49	0
20000	90	0.551	10256	9824.88	-1109.95	9886.86	0
20100	90	0.551	10256	9924.88	-1108.99	9986.24	0
20200	90	0.551	10256	10024.87	-1108.02	10085.61	0
20300	90	0.551	10256	10124.87	-1107.06	10184.99	0
20400	90	0.551	10256	10224.86	-1106.1	10284.36	0
20500	90	0.551	10256	10324.86	-1105.14	10383.74	0
20600	90	0.551	10256	10424.85	-1104.17	10483.11	0
20700	90	0.551	10256	10524.85	-1103.21	10582.48	0
20800	90	0.551	10256	10624.84	-1102.25	10681.86	0
20900	90	0.551	10256	10724.84	-1101.29	10781.23	0
20903.6	90	0.551	10256	10728.44	-1101.25	10784.81	0

All data are in feet unless otherwise stated. Directions and coordinates are relative to Grid North.
Vertical depths are relative to RKB. 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 354.139° (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 0.350°.

Based upon Minimum Curvature type calculations, at a Measured Depth of 20903.60ft., the Bottom Hole Displacement is 10784.81ft., in the Direction of 354.139° (Grid).

PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Devon Energy Production Company LP
LEASE NO.:	NMLC0062300
WELL NAME & NO.:	Van Doo Dah 28-33 Fed Com 237H
SURFACE HOLE FOOTAGE:	205'/N & 925'/E
BOTTOM HOLE FOOTAGE:	330'/S & 660'/E
LOCATION:	Section 28, T25S, R32E, NMPM
COUNTY:	Lea County, New Mexico

Potash	☒ None	☐ Secretary	☐ R-111-P
Cave/Karst Potential	☒ Low	☐ Medium	☐ High
Variance	☐ None	☒ Flex Hose	☐ Other
Wellhead	☐ Conventional	☒ Multibowl	
Other	☐ 4 String Area	☐ Capitan Reef	☐ WIPP

All Previous COAs Still Apply.

A. CASING

1. The **13 3/8** inch surface casing shall be set at approximately **815 feet** (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface.
 - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
 - b. Wait on cement (WOC) time for a primary cement job will be a minimum of **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:
 - Cement to surface. If cement does not circulate see B.1.a, c-d above.
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.

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)

☒ Chaves and Roosevelt Counties
Call the Roswell Field Office, 2909 West Second St., Roswell NM 88201.
During office hours call (575) 627-0272.
After office hours call (575)

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

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

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
 - a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
 - b. When the operator proposes to set surface casing with Spudder Rig
 - Notify the BLM when moving in and removing the Spudder Rig.
 - Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
 - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.
2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.

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

A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.
2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log.
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.
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.