Received by WCD:S0/6/2023 12:36:56 PM U.S. Department of the Interior		Sundry Print Reports
BUREAU OF LAND MANAGEMENT		and the second
Well Name: COTTON DRAW UNIT	Well Location: T24S / R31E / SEC 25 / NWNW /	County or Parish/State:
Well Number: 614H	Type of Well: OIL WELL	Allottee or Tribe Name:
Lease Number: NMNM012121	<b>Unit or CA Name:</b> COTTON DRAW UNIT	Unit or CA Number: NMNM70928X
US Well Number: 3001553174	<b>Well Status:</b> Approved Application for Permit to Drill	Operator: DEVON ENERGY PRODUCTION COMPANY LP

# **Notice of Intent**

Sundry ID: 2752624

Type of Submission: Notice of Intent

Date Sundry Submitted: 09/21/2023

Date proposed operation will begin: 09/21/2023

Type of Action: APD Change Time Sundry Submitted: 12:57

**Procedure Description:** Devon Energy Production Company L.P. respectfully requests the following changes to the approved APD: BHL change from 20 FSL & 430 FWL, 25-24S-31E to 20 FSL & 330 FEL, 2-25S-31E. Pool Code change from 96641 PADUCA; BONE SPRING to 98220 Purple Sage Wolfcamp Dedicated acreage revision. New leases have been added since approved APD and notification has been given. TVD/MD change from 11,541'/16,590' to 11,750'/27,279' Casing program change: Surface, Intermediate, & Production casing changes. Cement volume changes to accommodate casing change. Please see attached revised C-102, spec sheets, and drilling & directional plans.

**NOI Attachments** 

# **Procedure Description**

COTTON\_DRAW\_UNIT\_614H\_DRL\_PLAN\_20230921125556.pdf

10.750\_45.5\_J55\_20230921125347.pdf

MB\_Wellhd\_10M\_13.375\_8.625\_5.5\_20230921125349.PDF

COTTON\_DRAW\_UNIT\_614H\_C\_102\_BHL\_NOI\_20230921125348.pdf

5.5in\_17lb\_P110EC\_DWC\_C\_IS\_PLUS\_20230921125347.pdf

COTTON\_DRAW\_UNIT\_614H\_Directional\_Plan\_09\_15\_23\_20230921125348.pdf

8.625in\_32lb\_P110EC\_SPRINT\_FJ\_20230921125347.pdf

Received by OCD: 10/6/2023 12:36:56 PM Well Name: COTTON DRAW UNIT	Well Location: T24S / R31E / SEC 25 / NWNW /	County or Parish/State: Page 2 of 3
Well Number: 614H	Type of Well: OIL WELL	Allottee or Tribe Name:
Lease Number: NMNM012121	<b>Unit or CA Name:</b> COTTON DRAW UNIT	<b>Unit or CA Number:</b> NMNM70928X
<b>US Well Number:</b> 3001553174	Well Status: Approved Application for Permit to Drill	<b>Operator:</b> DEVON ENERGY PRODUCTION COMPANY LP

# **Conditions of Approval**

#### **Specialist Review**

Cotton\_Draw\_Unit\_614H\_Sundry\_ID\_2752624\_20230929092038.pdf

State:

# **Operator**

I certify that the foregoing is true and correct. Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction. Electronic submission of Sundry Notices through this system satisfies regulations requiring a

Operator Electronic Signature: REBECCA DEAL Name: DEVON ENERGY PRODUCTION COMPANY LP Title: Regulatory Analyst Street Address: 333 W SHERIDAN AVE City: OKLAHOMA CITY State: OK

Phone: (303) 299-1406

Email address: REBECCA.DEAL@DVN.COM

Field

Representative Name: Street Address: City: Phone: Email address:

# **BLM Point of Contact**

BLM POC Name: LONG VO BLM POC Phone: 5752345972 Disposition: Approved Signature: Long Vo BLM POC Title: Petroleum Engineer BLM POC Email Address: LVO@BLM.GOV Disposition Date: 09/29/2023

Zip:

Signed on: SEP 21, 2023 12:56 PM

# Received by OCD: 10/6/2023 12:36:56 PM

eceivea by OCD. 10/0/202	5 12.50.50 1 M			I uge 5 0j	
	UNITED STAT DEPARTMENT OF THE BUREAU OF LAND MAN	0	DRM APPROVED MB No. 1004-0137 ires: October 31, 2021		
Do not use t		ORTS ON WELLS to drill or to re-enter an APD) for such proposals.	6. If Indian, Allottee of	Tribe Name	
SUBMI	T IN TRIPLICATE - Other inst	ructions on page 2	7. If Unit of CA/Agree	ment, Name and/or No.	
1. Type of Well	Gas Well Other		8. Well Name and No.		
2. Name of Operator			9. API Well No.		
3a. Address   3b. Phone No. (include area code)			10. Field and Pool or E	10. Field and Pool or Exploratory Area	
4. Location of Well (Footage, Sec	., T.,R.,M., or Survey Description	) )	11. Country or Parish,	State	
12.	CHECK THE APPROPRIATE I	BOX(ES) TO INDICATE NATURE	OF NOTICE, REPORT OR OTH	ER DATA	
TYPE OF SUBMISSION		TYP	E OF ACTION		
Notice of Intent	Acidize	Deepen Hydraulic Fracturing	Production (Start/Resume) Reclamation	Water Shut-Off Well Integrity	
Subsequent Report	Casing Repair Change Plans	New Construction Plug and Abandon	Recomplete     Temporarily Abandon	Other	
Final Abandonment Notice		=	Water Disposal		
the proposal is to deepen dire- the Bond under which the wo completion of the involved op	ctionally or recomplete horizonta rk will be perfonned or provide the perations. If the operation results	lly, give subsurface locations and me he Bond No. on file with BLM/BIA. in a multiple completion or recomple	easured and true vertical depths o Required subsequent reports mus etion in a new interval, a Form 31	rk and approximate duration thereof. If f all pertinent markers and zones. Attach t be filed within 30 days following 60-4 must be filed once testing has been he operator has detennined that the site	

14. I hereby certify that the foregoing is true and correct. Name ( <i>Printed/Typed</i> )			
Т	ïtle		
Signature	Date		
THE SPACE FOR FEDER	RAL OR STATE	OFICE USE	
Approved by			
	Title		Date
Conditions of approval, if any, are attached. Approval of this notice does not warrant o 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.			
Title 18 U.S.C Section 1001 and Title 43 U.S.C Section 1212, make it a crime for any any false, fictitious or fraudulent statements or representations as to any matter within		l willfully to make to any de	epartment or agency of the United States

(Instructions on page 2)

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Page 4 of 55

This form is designed for submitting proposals to perform certain well operations and reports of such operations when completed as indicated on Federal and Indian lands pursuant to applicable Federal law and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local area or regional procedures and practices, are either shown below, will be issued by or may be obtained from the local Federal office.

# SPECIFIC INSTRUCTIONS

*Item 4* - Locations on Federal or Indian land should be described in accordance with Federal requirements. Consult the local Federal office for specific instructions.

*Item 13:* Proposals to abandon a well and subsequent reports of abandonment should include such special information as is required by the local Federal office. In addition, such proposals and reports should include reasons for the abandonment; data on any former or present productive zones or other zones with present significant fluid contents not sealed off by cement or otherwise; depths (top and bottom) and method of placement of cement plugs; mud or other material placed below, between and above plugs; amount, size, method of parting of any casing, liner or tubing pulled and the depth to the top of any tubing left in the hole; method of closing top of well and date well site conditioned for final inspection looking for approval of the abandonment. If the proposal will involve **hydraulic fracturing operations**, you must comply with 43 CFR 3162.3-3, including providing information about the protection of usable water. Operators should provide the best available information about all formations containing water and their depths. This information could include data and interpretation of resistivity logs run on nearby wells. Information may also be obtained from state or tribal regulatory agencies and from local BLM offices.

# NOTICES

The privacy Act of 1974 and the regulation in 43 CFR 2.48(d) provide that you be furnished the following information in connection with information required by this application.

AUTHORITY: 30 U.S.C. 181 et seq., 351 et seq., 25 U.S.C. 396; 43 CFR 3160.

PRINCIPAL PURPOSE: The information is used to: (1) Evaluate, when appropriate, approve applications, and report completion of subsequent well operations, on a Federal or Indian lease; and (2) document for administrative use, information for the management, disposal and use of National Resource lands and resources, such as: (a) evaluating the equipment and procedures to be used during a proposed subsequent well operation and reviewing the completed well operations for compliance with the approved plan; (b) requesting and granting approval to perform those actions covered by 43 CFR 3162.3-2, 3162.3-3, and 3162.3-4; (c) reporting the beginning or resumption of production, as required by 43 CFR 3162.4-1(c)and (d) analyzing future applications to drill or modify operations in light of data obtained and methods used.

ROUTINE USES: Information from the record and/or the record will be transferred to appropriate Federal, State, local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecutions in connection with congressional inquiries or to consumer reporting agencies to facilitate collection of debts owed the Government.

EFFECT OF NOT PROVIDING THE INFORMATION: Filing of this notice and report and disclosure of the information is mandatory for those subsequent well operations specified in 43 CFR 3162.3-2, 3162.3-3, 3162.3-4.

The Paperwork Reduction Act of 1995 requires us to inform you that:

The BLM collects this information to evaluate proposed and/or completed subsequent well operations on Federal or Indian oil and gas leases.

Response to this request is mandatory.

The BLM would like you to know that you do not have to respond to this or any other Federal agency-sponsored information collection unless it displays a currently valid OMB control number.

**BURDEN HOURS STATEMENT:** Public reporting burden for this form is estimated to average 8 hours per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect of this form to U.S. Department of the Interior, Bureau of Land Management (1004-0137), Bureau Information Collection Clearance Officer (WO-630), 1849 C St., N.W., Mail Stop 401 LS, Washington, D.C. 20240

# **Additional Information**

# Location of Well

0. SHL: NWNW / 200 FNL / 195 FWL / TWSP: 24S / RANGE: 31E / SECTION: 25 / LAT: 32.1950509 / LONG: -103.7394156 (TVD: 0 feet, MD: 0 feet ) PPP: NWNW / 100 FNL / 430 FWL / TWSP: 24S / RANGE: 31E / SECTION: 25 / LAT: 32.195326 / LONG: -103.7386562 (TVD: 11250 feet, MD: 11279 feet ) BHL: SWSW / 20 FSL / 430 FWL / TWSP: 24S / RANGE: 31E / SECTION: 25 / LAT: 32.1811396 / LONG: -103.7386489 (TVD: 11541 feet, MD: 16590 feet )

# 1. Geologic Formations

TVD of target	11750	Pilot hole depth	N/A
MD at TD:	27279	Deepest expected fresh water	

Basin

Dushi		*** / /* ** *	
	Depth	Water/Mineral	
Formation	(TVD)	Bearing/Target	Hazards*
	from KB	Zone?	
Rustler	660		
Salt	1010		
Base of Salt	4400		
Delaware	4400		
Cherry Canyon	5360		
Brushy Canyon	6680		
1st Bone Spring Lime	8290		
Bone Spring 1st	9300		
Bone Spring 2nd	9920		
3rd Bone Spring Lime	10440		
Bone Spring 3rd	11215		
Wolfcamp	11700		

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

		Wt				Interval	Casing	Interval
Hole Size	Csg. Size	(PPF)	Grade	Conn	From (MD)	To (MD)	From (TVD)	To (TVD)
14 3/4	10 3/4	45 1/2	J-55	BTC	0	685	0	685
9 7/8	8 5/8	32	P110EC	Sprint FJ	0	11121	0	11121
7 7/8	5 1/2	20	P110EC	DWC / C-IS+	0	27279	0	11750

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

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

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

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

Casing	# Sks	тос	Wt. ppg	Yld (ft3/sack)	Slurry Description
Surface	421	Surf	13.2	1.44	Lead: Class C Cement + additives
Int 1	474	Surf	13.0	2.3	2nd State: Bradenhead Squeeze - Lead: Class C Cement + additives
Int I	510	6724	13.2	1.44	Tail: Class H / C + additives
Production	117	9222	9	3.27	Lead: Class H /C + additives
Froduction	2125	11222	13.2	1.44	Tail: Class H / C + additives

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

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Туре		~	Tested to:
			An	nular	Х	50% of rated working pressure
Int 1	13-5/8"	5M		d Ram	Х	
	15-5/0	5111	<b>^</b>	e Ram		5M
			Doub	le Ram	X	5101
			Other*			
			Annul	ar (5M)	Х	50% of rated working
					X	pressure
Production	13-5/8"	5M		Blind Ram		5M
			Pipe Ram			
			Double Ram		X	
			Other*			
			Annul	ar (5M)		
			Bline	d Ram		
			Pipe Ram			
			Doub	le Ram		]
			Other*			
N A variance is requested for	the use of a	a diverter or	the surface	casing. See	attached for s	chematic.
Y A variance is requested to r	un a 5 M ai	nnular on a	10M system			

# 4. Pressure Control Equipment (Three String Design)

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

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

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

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

#### 6. Logging and Testing Procedures

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

Addition	al logs planned	Interval
	Resistivity	Int. shoe to KOP
	Density	Int. shoe to KOP
Х	CBL	Production casing
Х	Mud log	Intermediate shoe to TD
	PEX	

#### 7. Drilling Conditions

Condition	Specfiy what type and where?			
BH pressure at deepest TVD	6416			
Abnormal temperature	No			

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

Hydrogren Sulfide (H2S) monitors will be installed prior to drilling out the surface shoe. If H2S is detected in concentrations<br/>greater than 100 ppm, the operator will comply with the provisions of 43 CFR 3176. If Hydrogen Sulfide is encountered<br/>measured values and formations will be provided to the BLM.NH2S is present

Y H2S plan attached.

#### COTTON DRAW UNIT 614H

#### Page 10 of 55

#### 8. Other facets of operation

Is this a walking operation? Potentially

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

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

Will be pre-setting casing? Potentially

- 1 Spudder rig will move in and batch drill surface hole.
  - a. Rig will utilize fresh water based mud to drill surface hole to TD. Solids control will be handled entirely on a closed loop basis.,
- 2 After drilling the surface hole section, the spudder rig will run casing and cement following all of the applicable rules and regulations (43 CFR 3172, all COAs and NMOCD regulations).

 $^{3}$  The wellhead will be installed and tested once the surface casing is cut off and the WOC time has been reached.

- 4 A blind flange with the same pressure rating as the wellhead will be installed to seal the wellbore. Pressure will be monitored with a pressure gauge installed on the wellhead.
- 5 Spudder rig operations is expected to take 4-5 days per well on a multi-well pa.
- 6 The NMOCD will be contacted and notified 24 hours prior to commencing spudder rig operations.
- 7 Drilling operations will be performed with drilling rig. A that time an approved BOP stack will be nippled up and tested on the wellhead before drilling operations commences on each well.
  - a. The NMOCD will be contacted / notified 24 hours before the drilling rig moves back on to the pad with the pre-set surface casing.

#### Attachments

X Directional Plan Other, describe

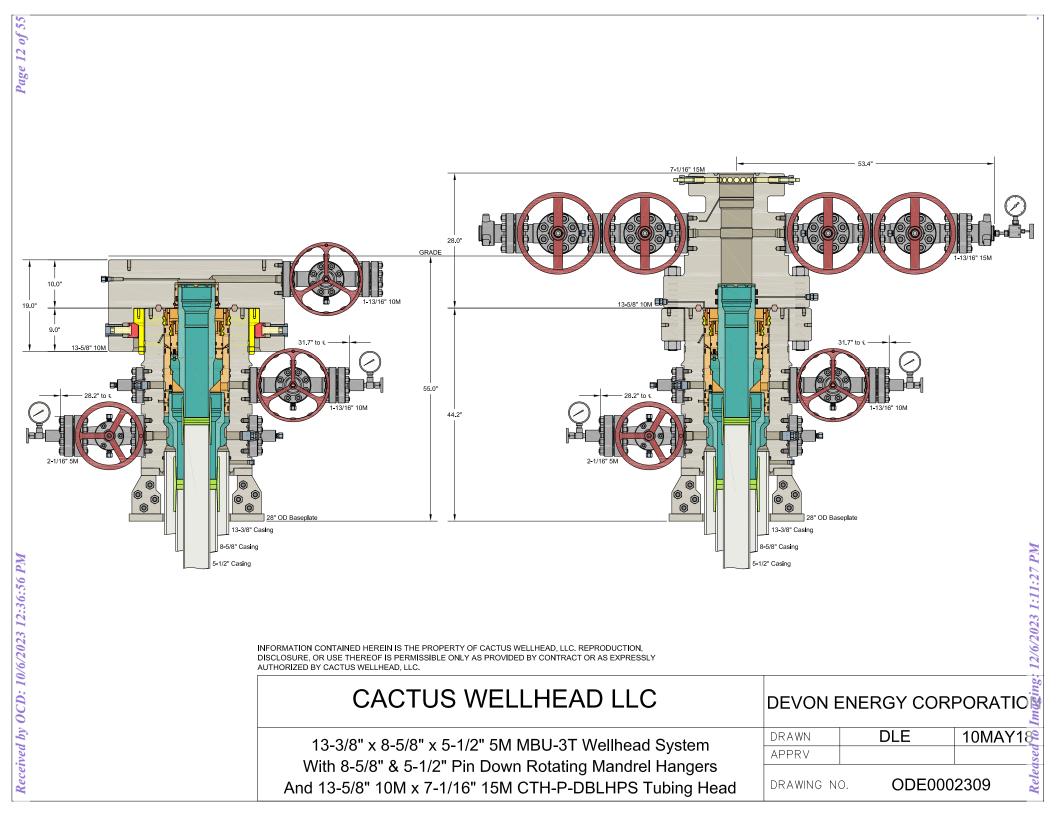


# <u>10-3/4"</u> <u>45.50#</u> <u>0.400"</u> <u>J-55</u>

# **Dimensions (Nominal)**

Outside Diameter	10.750	in.
Wall	0.400	in.
Inside Diameter	9.950	in.
Drift	9.875	in.
	45 500	11 /0
Weight, T&C	45.500	lbs/ft
Weight, PE	44.260	lbs/ft
Internal Yield Pressure at Minimum Yield		
Collapse	2090	psi
Internal Yields Pressure		
PE	3580	psi
STC	3580	psi
ВТС	3580	psi
Yield Strength, Pipe Body	715	1000 lbs
Joint Strength, STC		
STC	493	1000 lbs
втс	796	1000 lbs

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



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

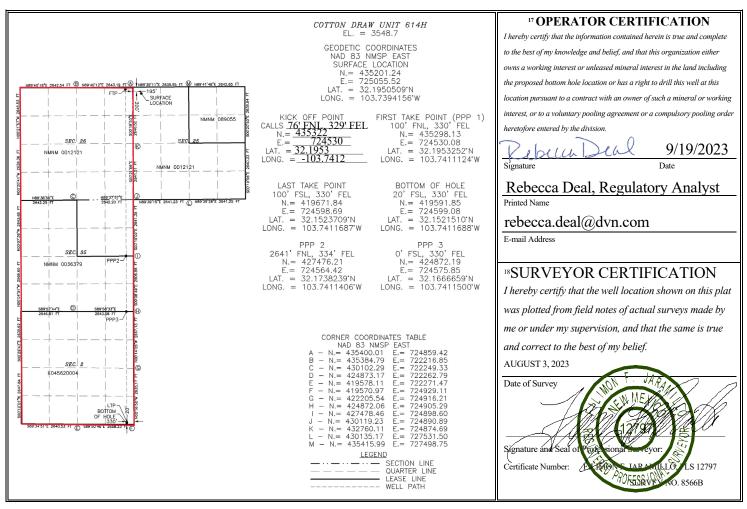
WELL LOCATION AND A CREACE DEDICATION DLAT

Page 13 of 55

X AMENDED REPORT

1.4	PI Number			<sup>2</sup> Pool Code		LAGE DEDIC	<sup>3</sup> Pool Na				
30-015-53174											
30	-015-5:	51/4		98220	0	PL	<u>JRPLE SAG</u>	<u>E;WOL</u>	<u>FCAN</u>	1P	
<sup>4</sup> Property C					<sup>5</sup> Property	Name			<sup>6</sup> Well Number		
30063	35				COTTON DR	AW UNIT			614H		
<sup>7</sup> OGRID N	lo.				<sup>8</sup> Operator	Name				<sup>9</sup> Elevation	
6137			DEV	ON ENE	RGY PRODUC	CTION COMPA	NY, L.P.		3548.7		
					<sup>10</sup> Surfac	e Location					
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/We	st line	County	
D	25	24 S	31 E		200	NORTH	195	WES	ST	EDDY	
			пE	Bottom H	lole Location	If Different Fr	om Surface				
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/We	st line	County	
Р	2	25 S	31 E		20	SOUTH	330	EAS	ST	EDDY	
<sup>12</sup> Dedicated Acres	<sup>13</sup> Joint	or Infill	<sup>14</sup> Consolidation	n Code	•		<sup>15</sup> Order No.				
1,913.48											

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.



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<b>1</b>	•	π

Operator Name:	Property Name:	Well Number
DEVON ENERGY PRODUCTION COMPANY, L.P.	COTTON DRAW UNIT	614H

### Kick Off Point (KOP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
	26	24S	31E		76	FNL	329	FEL	LEA
Latitu	de				Longitude				NAD
	32.1953	}			-1	03.7412			83

# First Take Point (FTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
A	26	24S	31E		100	NORTH	330	EAST	EDDY
Latitu 32.1	<sup>de</sup> 95325	2			Longitude <b>103.741</b> 1	124			NAD 83

# Last Take Point (LTP)

UL P	Section 2	Township 25S	Range 31E	Lot	Feet 100	From N/S SOUTH	Feet 330	From E/W EAST	County EDDY
Latitude				Longitud	le		NAD		
32.1	52370	9			103.7	411687			83

Is this well the defining well for the Horizontal Spacing Unit? N

Is this well an infill well?

v	
1	

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
DEVON ENERGY PRODUCTION COMPANY, L.P.	COTTON DRAW UNIT	607H
	•	

KZ 06/29/2018



# **Connection Data Sheet**

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

#### PIPE PROPERTIES

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

#### **CONNECTION PROPERTIES**

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

#### **CONNECTION PERFORMANCES**

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

#### FIELD TORQUE VALUES

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

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

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

All information is provided by VAM USA or its affiliates at user's sole risk, without liability for loss, damage or injury resulting from the use thereof; and on an "AS IS" basis without warranty or representation of any kind, whether express or implied, including without limitation any warranty of merchantability, fitness for purpose or completeness. This document and its contents are subject to change without notice. In no event shall VAM USA or its affiliates be responsible for any indirect, special, incidental, punitive, exemplary or consequential loss or damage (including without limitation, loss of use, loss of bargain, loss of revenue, profit or anticipated profit) however caused or arising, and whether such losses or damages were foreseeable or VAM USA or its affiliates was advised of the possibility of such damages.

05/23/2023 4:15 PM



VAM USA 2107 CityWest Boulevard Suite 1300 Houston, TX 77042 Phone: 713-479-3200 Fax: 713-479-3234 VAM USA Sales E-mail: <u>VAMUSAsales@vam-usa.com</u> Tech Support E-mail: tech.support@vam-usa.com

#### **DWC Connection Data Notes:**

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

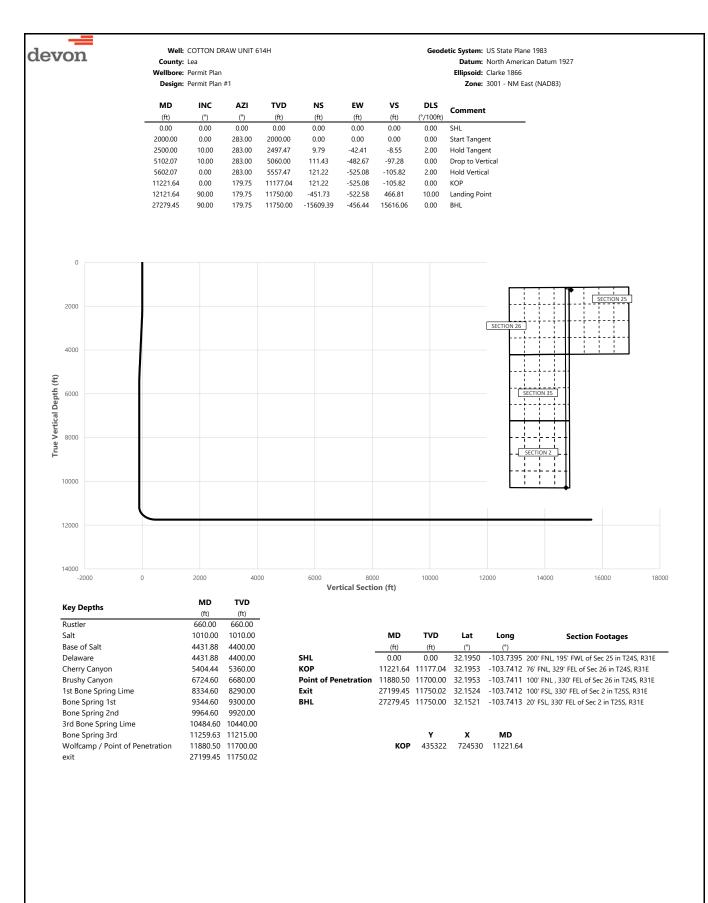
Connection specifications within the control of VAM USA were correct as of the date printed. Specifications are subject to change without notice. Certain connection specifications are dependent on the mechanical properties of the pipe. Mechanical properties of mill proprietary pipe grades were obtained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

All information is provided by VAM USA or its affiliates at user's sole risk, without liability for loss, damage or injury resulting from the use thereof; and on an "AS IS" basis without warranty or representation of any kind, whether express or implied, including without limitation any warranty of merchantability, fitness for purpose or completeness. This document and its contents are subject to change without notice. In no event shall VAM USA or its affiliates be responsible for any indirect, special, incidental, punitive, exemplary or consequential loss or damage (including without limitation, loss of use, loss of bargain, loss of revenue, profit or anticipated profit) however caused or arising, and whether such losses or damages were foreseeable or VAM USA or its affiliates was advised of the possibility of such damages.

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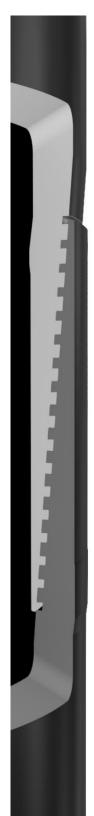
devon		Well:	COTTON D	RAW UNIT 6	I4H				Geodetic System: US State Plane 1983
devon		County:	Lea						Datum: North American Datum 1927
			Permit Plan Permit Plan						Ellipsoid: Clarke 1866 Zone: 3001 - NM East (NAD83)
		-							
	MD (ft)	INC	<b>AZI</b> (°)	TVD (ft)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)	Comment
-	0.00	(°) 0.00	0.00	0.00	0.00	0.00	0.00	0.00	SHL
	100.00	0.00	283.00	100.00	0.00	0.00	0.00	0.00	
	200.00	0.00	283.00	200.00	0.00	0.00	0.00	0.00	
	300.00 400.00	0.00 0.00	283.00 283.00	300.00 400.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	
	500.00	0.00	283.00	500.00	0.00	0.00	0.00	0.00	
	600.00	0.00	283.00	600.00	0.00	0.00	0.00	0.00	
	660.00	0.00	283.00	660.00	0.00	0.00	0.00	0.00	Rustler
	700.00	0.00	283.00	700.00	0.00	0.00	0.00	0.00	
	800.00 900.00	0.00 0.00	283.00 283.00	800.00 900.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	
	1000.00	0.00	283.00	1000.00	0.00	0.00	0.00	0.00	
	1010.00	0.00	283.00	1010.00	0.00	0.00	0.00	0.00	Salt
	1100.00	0.00	283.00	1100.00	0.00	0.00	0.00	0.00	
	1200.00	0.00	283.00	1200.00	0.00	0.00	0.00	0.00	
	1300.00 1400.00	0.00 0.00	283.00 283.00	1300.00 1400.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	
	1500.00	0.00	283.00	1500.00	0.00	0.00	0.00	0.00	
	1600.00	0.00	283.00	1600.00	0.00	0.00	0.00	0.00	
	1700.00	0.00	283.00	1700.00	0.00	0.00	0.00	0.00	
	1800.00	0.00	283.00	1800.00	0.00	0.00	0.00	0.00	
	1900.00	0.00	283.00	1900.00	0.00	0.00	0.00	0.00	Start Tangapt
	2000.00 2100.00	0.00 2.00	283.00 283.00	2000.00 2099.98	0.00 0.39	0.00 -1.70	0.00 -0.34	0.00 2.00	Start Tangent
	2200.00	4.00	283.00	2199.84	1.57	-6.80	-1.37	2.00	
	2300.00	6.00	283.00	2299.45	3.53	-15.29	-3.08	2.00	
	2400.00	8.00	283.00	2398.70	6.27	-27.17	-5.47	2.00	
	2500.00	10.00	283.00	2497.47	9.79	-42.41	-8.55	2.00	Hold Tangent
	2600.00 2700.00	10.00 10.00	283.00 283.00	2595.95 2694.43	13.70 17.60	-59.33 -76.25	-11.96 -15.37	0.00 0.00	
	2800.00	10.00	283.00	2792.91	21.51	-93.17	-18.78	0.00	
	2900.00	10.00	283.00	2891.39	25.42	-110.09	-22.19	0.00	
	3000.00	10.00	283.00	2989.87	29.32	-127.01	-25.60	0.00	
	3100.00	10.00	283.00	3088.35	33.23	-143.93	-29.01	0.00	
	3200.00 3300.00	10.00 10.00	283.00 283.00	3186.83 3285.31	37.13 41.04	-160.85 -177.77	-32.42 -35.83	0.00 0.00	
	3400.00	10.00	283.00	3383.79	44.95	-194.68	-39.24	0.00	
	3500.00	10.00	283.00	3482.27	48.85	-211.60	-42.65	0.00	
	3600.00	10.00	283.00	3580.75	52.76	-228.52	-46.06	0.00	
	3700.00	10.00	283.00	3679.23	56.66	-245.44	-49.47	0.00	
	3800.00	10.00	283.00	3777.72	60.57	-262.36	-52.88	0.00	
	3900.00 4000.00	10.00 10.00	283.00 283.00	3876.20 3974.68	64.48 68.38	-279.28 -296.20	-56.29 -59.70	0.00 0.00	
	4100.00	10.00	283.00	4073.16	72.29	-313.12	-63.11	0.00	
	4200.00	10.00	283.00	4171.64	76.20	-330.04	-66.52	0.00	
	4300.00	10.00	283.00	4270.12	80.10	-346.96	-69.93	0.00	
	4400.00	10.00	283.00	4368.60	84.01	-363.88	-73.34	0.00	
	4431.88 4500.00	10.00 10.00	283.00 283.00	4400.00 4467.08	85.25 87.91	-369.28 -380.80	-74.42 -76.75	0.00 0.00	Base of Salt, Delaware
	4600.00	10.00	283.00	4565.56	91.82	-397.72	-80.16	0.00	
	4700.00	10.00	283.00	4664.04	95.73	-414.64	-83.57	0.00	
	4800.00	10.00	283.00	4762.52	99.63	-431.56	-86.97	0.00	
	4900.00	10.00	283.00	4861.00	103.54	-448.48	-90.38	0.00	
	5000.00 5100.00	10.00 10.00	283.00 283.00	4959.48 5057.97	107.44 111.35	-465.40 -482.32	-93.79 -97.20	0.00 0.00	
	5102.07	10.00	283.00	5060.00	111.43	-482.67	-97.28	0.00	Drop to Vertical
	5200.00	8.04	283.00	5156.72	114.89	-497.63	-100.29	2.00	
	5300.00	6.04	283.00	5255.96	117.64	-509.58	-102.70	2.00	
	5400.00	4.04	283.00	5355.57	119.62	-518.14	-104.42	2.00	
	5404.44	3.95	283.00	5360.00	119.69	-518.44	-104.49	2.00	Cherry Canyon
	5500.00 5600.00	2.04 0.04	283.00 283.00	5455.42 5555.40	120.81 121.22	-523.31 -525.08	-105.47 -105.82	2.00 2.00	
	5602.07	0.04	283.00	55557.47	121.22	-525.08	-105.82	2.00	Hold Vertical
	5700.00	0.00	179.75	5655.40	121.22	-525.08	-105.82	0.00	
	5800.00	0.00	179.75	5755.40	121.22	-525.08	-105.82	0.00	
	5900.00	0.00	179.75	5855.40	121.22	-525.08	-105.82	0.00	
	6000.00 6100.00	0.00 0.00	179.75 179.75	5955.40 6055.40	121.22 121.22	-525.08 -525.08	-105.82 -105.82	0.00 0.00	
	6200.00	0.00	179.75	6155.40	121.22	-525.08	-105.82	0.00	
	6300.00	0.00	179.75	6255.40	121.22	-525.08	-105.82	0.00	

		Well	COTTON	RAW UNIT 61	4H				Geodetic System: US State Plane 1983
devon		County:							Datum: North American Datum 1927
		Wellbore:	Permit Plar						Ellipsoid: Clarke 1866
		Design:	Permit Plar	n #1					Zone: 3001 - NM East (NAD83)
	MD	INC	AZI	TVD	NS	EW	vs	DLS	
	(ft)	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(°/100ft)	Comment
	6400.00	0.00	179.75	6355.40	121.22	-525.08	-105.82	0.00	
	6500.00 6600.00	0.00 0.00	179.75 179.75	6455.40 6555.40	121.22 121.22	-525.08 -525.08	-105.82 -105.82	0.00 0.00	
	6700.00	0.00	179.75	6655.40 6655.40	121.22	-525.08	-105.82	0.00	
	6724.60	0.00	179.75	6680.00	121.22	-525.08	-105.82	0.00	Brushy Canyon
	6800.00	0.00	179.75	6755.40	121.22	-525.08	-105.82	0.00	
	6900.00	0.00	179.75	6855.40	121.22	-525.08	-105.82	0.00	
	7000.00 7100.00	0.00 0.00	179.75 179.75	6955.40 7055.40	121.22 121.22	-525.08 -525.08	-105.82 -105.82	0.00 0.00	
	7200.00	0.00	179.75	7155.40	121.22	-525.08	-105.82	0.00	
	7300.00	0.00	179.75	7255.40	121.22	-525.08	-105.82	0.00	
	7400.00	0.00	179.75	7355.40	121.22	-525.08	-105.82	0.00	
	7500.00 7600.00	0.00 0.00	179.75 179.75	7455.40 7555.40	121.22 121.22	-525.08 -525.08	-105.82 -105.82	0.00 0.00	
	7700.00	0.00	179.75	7655.40	121.22	-525.08	-105.82	0.00	
	7800.00	0.00	179.75	7755.40	121.22	-525.08	-105.82	0.00	
	7900.00	0.00	179.75	7855.40	121.22	-525.08	-105.82	0.00	
	8000.00 8100.00	0.00 0.00	179.75 179.75	7955.40 8055.40	121.22 121.22	-525.08 -525.08	-105.82 -105.82	0.00 0.00	
	8200.00	0.00	179.75	8155.40	121.22	-525.08	-105.82	0.00	
	8300.00	0.00	179.75	8255.40	121.22	-525.08	-105.82	0.00	
	8334.60	0.00	179.75	8290.00	121.22	-525.08	-105.82	0.00	1st Bone Spring Lime
	8400.00 8500.00	0.00 0.00	179.75 179.75	8355.40 8455.40	121.22 121.22	-525.08 -525.08	-105.82 -105.82	0.00 0.00	
	8600.00	0.00	179.75	8555.40	121.22	-525.08	-105.82	0.00	
	8700.00	0.00	179.75	8655.40	121.22	-525.08	-105.82	0.00	
	8800.00	0.00	179.75	8755.40	121.22	-525.08	-105.82	0.00	
	8900.00 9000.00	0.00 0.00	179.75 179.75	8855.40 8955.40	121.22 121.22	-525.08 -525.08	-105.82 -105.82	0.00 0.00	
	9100.00	0.00	179.75	9055.40	121.22	-525.08	-105.82	0.00	
	9200.00	0.00	179.75	9155.40	121.22	-525.08	-105.82	0.00	
	9300.00	0.00	179.75	9255.40	121.22	-525.08	-105.82	0.00	
	9344.60 9400.00	0.00 0.00	179.75 179.75	9300.00 9355.40	121.22 121.22	-525.08 -525.08	-105.82 -105.82	0.00 0.00	Bone Spring 1st
	9500.00	0.00	179.75	9455.40	121.22	-525.08	-105.82	0.00	
	9600.00	0.00	179.75	9555.40	121.22	-525.08	-105.82	0.00	
	9700.00	0.00	179.75	9655.40	121.22	-525.08	-105.82	0.00	
	9800.00 9900.00	0.00 0.00	179.75 179.75	9755.40 9855.40	121.22 121.22	-525.08 -525.08	-105.82 -105.82	0.00 0.00	
	9964.60	0.00	179.75	9920.00	121.22	-525.08	-105.82	0.00	Bone Spring 2nd
	10000.00	0.00	179.75	9955.40	121.22	-525.08	-105.82	0.00	
	10100.00	0.00	179.75	10055.40	121.22	-525.08	-105.82	0.00	
	10200.00 10300.00	0.00 0.00	179.75 179.75	10155.40 10255.40	121.22 121.22	-525.08 -525.08	-105.82 -105.82	0.00 0.00	
	10400.00	0.00	179.75	10255.40	121.22	-525.08	-105.82	0.00	
	10484.60	0.00	179.75	10440.00	121.22	-525.08	-105.82	0.00	3rd Bone Spring Lime
	10500.00	0.00	179.75	10455.40	121.22	-525.08	-105.82	0.00	
	10600.00 10700.00	0.00 0.00	179.75 179.75	10555.40 10655.40	121.22 121.22	-525.08 -525.08	-105.82 -105.82	0.00 0.00	
	10800.00	0.00	179.75	10755.40	121.22	-525.08	-105.82	0.00	
	10900.00	0.00	179.75	10855.40	121.22	-525.08	-105.82	0.00	
	11000.00	0.00	179.75	10955.40	121.22	-525.08	-105.82	0.00	
	11100.00 11200.00	0.00 0.00	179.75 179.75	11055.40 11155.40	121.22 121.22	-525.08 -525.08	-105.82 -105.82	0.00 0.00	
	11220.00	0.00	179.75	11177.04	121.22	-525.08	-105.82	0.00	КОР
	11259.63	3.80	179.75	11215.00	119.97	-525.07	-104.57	10.00	Bone Spring 3rd
	11300.00	7.84 17.84	179.75	11255.16	115.87	-525.05	-100.48	10.00	
	11400.00 11500.00	17.84 27.84	179.75 179.75	11352.53 11444.58	93.69 54.93	-524.96 -524.79	-78.30 -39.56	10.00 10.00	
	11600.00	37.84	179.75	11528.49	0.77	-524.55	14.56	10.00	
	11700.00	47.84	179.75	11601.73	-67.13	-524.26	82.42	10.00	
	11800.00	57.84	179.75	11662.07	-146.72	-523.91	161.97	10.00	Welfermen / Drint of Donatoria
	11880.50 11900.00	65.89 67.84	179.75 179.75	11700.00 11707.66	-217.65 -235.57	-523.60 -523.52	232.86 250.78	10.00 10.00	Wolfcamp / Point of Penetration
	12000.00	77.84	179.75	11737.14	-331.00	-523.10	346.15	10.00	
	12100.00	87.84	179.75	11749.59	-430.09	-522.67	445.19	10.00	
	12121.64	90.00	179.75	11750.00	-451.73	-522.58	466.81	10.00	Landing Point
	12200.00 12300.00	90.00 90.00	179.75 179.75	11750.00 11750.00	-530.09 -630.08	-522.24 -521.80	545.12 645.07	0.00 0.00	
	12400.00	90.00	179.75	11750.00	-730.08	-521.36	745.01	0.00	

<text><text></text></text>										
The province of th	devon				RAW UNIT 61	14H				-
bigs         bigs <th< th=""><th>0101011</th><th></th><th></th><th></th><th>,</th><th></th><th></th><th></th><th></th><th></th></th<>	0101011				,					
net         n         n         n         n         n         n           126000         1000         1730         17500         8000         8049         8049         800           126000         000         1737         17500         8000         8200         9404         800           129000         8000         1737         17500         18000         8200         9407         100           131000         8000         1737         17500         18000         8707         8443         800           131000         8000         1737         17500         18000         8717         8443         800           138000         9000         1737         17500         18007         7104         14442         800           138000         9000         1737         17500         28007         5152         2442         800           138000         9000         1737         17500         28007         5443         800           140000         9000         1737         17500         28007         5443         800           140000         9000         1737         17500         28007         5443         <										-
net         n         n         n         n         n         n           126000         1000         1730         17500         8000         8049         8049         800           126000         000         1737         17500         8000         8200         9404         800           129000         8000         1737         17500         18000         8200         9407         100           131000         8000         1737         17500         18000         8707         8443         800           131000         8000         1737         17500         18000         8717         8443         800           138000         9000         1737         17500         18007         7104         14442         800           138000         9000         1737         17500         28007         5152         2442         800           138000         9000         1737         17500         28007         5443         800           140000         9000         1737         17500         28007         5443         800           140000         9000         1737         17500         28007         5443         <										
12000         3000         1737         17300         9000         504.9         944.9         000           120200         0000         1737         175000         9000         504.9         900           120200         0000         1737         175000         1000         494.2         100           120200         0000         1737         175000         15000         494.2         100           120200         0000         1737         175000         494.9         100         494.1           130000         0000         1737         175000         574.4         494.5         000           130000         0000         1737         175000         450.0         444.5         000           130000         0000         1737         175000         450.0         444.5         000           130000         0000         1737         175000         450.0         444.5         000           130000         0000         1737         175000         450.0         444.5         000           140000         0000         1737         175000         450.0         444.5         000           140000         0000         1										Comment
120200         9000         7735         17500         9200         9200         9440         00           120000         9000         7735         17500         17000	-									
1270009000175717500170001										
12000     9000     1775     17000     12000     -1010     14470     0.0       13000     9000     1775     17000     14000     14440     0.0       13000     9001     1775     17000     14000     14440     0.0       13000     9001     1775     17000     16007     1744     14449     0.0       13000     9001     1775     17000     15007     15120     14449     0.0       13000     9001     1775     17000     15007     15120     14449     0.0       13000     9001     1775     17000     15007     15120     14449     0.0       13000     9001     1775     17000     23007     5152     24442     0.0       14000     9001     1775     17000     23007     5132     24440     0.0       14000     9001     1775     17000     23007     5132     24440     0.0       14000     9001     1775     17000     23007     5132     24440     0.0       14000     9001     1775     17000     2300     5112     24338     0.0       14000     9001     1775     17000     2300     5112     24349 <th></th>										
120020     90.00     17975     179200     12000     12004     14442     0.0       130000     90.00     17975     179200     15900     57804     54454     0.0       130000     90.00     17975     179200     179200     179200     179200     179200     17010     170100 <t< th=""><th></th><th>12800.00</th><th>90.00</th><th>179.75</th><th>11750.00</th><th>-1130.08</th><th>-519.62</th><th>1144.79</th><th>0.00</th><th></th></t<>		12800.00	90.00	179.75	11750.00	-1130.08	-519.62	1144.79	0.00	
131000       000       17930       17900       147000       15043       100         133000       000       1793       17500       15048       15445       00         130000       000       1793       17500       15000       17444       000         130000       000       1793       17500       15100       14430       000         130000       000       1793       17500       2510       24430       000         130000       000       1793       17500       2510       2440       00         1400000       000       1793       17500       2510       2440       00         140000       000       1793       17500       2500       5143       24414       00         140000       000       1793       17500       2500       5143       24434       00         140000       000       1793       17500       2500       5143       3414       00         140000       000       1793       17500       2500       5143       3414       00         140000       000       1793       17500       2500       5143       3414       00										
130000       000       1750       17500       17500       17600       17600       17600         134000       000       1793       17500       17600       17600       17600       17600       17600         134000       000       1793       17500       17600       18407       1564       00         134000       000       1793       17500       19007       1561       18433       00         136000       000       1793       17500       23007       1542       2444       00         136000       000       1793       17500       23007       1543       24441       00         140000       000       1793       17500       23007       1543       2441       00         140000       000       1793       17500       23007       5130       24340       00         140000       000       1793       17500       2300       5130       24341       00         140000       000       1793       17500       2300       5130       24341       00         140000       000       1793       17500       2300       5131       24344       00										
130000       900       1737       17500       17600       17445       000         150000       900       1737       17500       18007       17445       000         150000       900       1737       17500       18007       17445       000         137000       900       1737       17500       21007       1515       21442       000         138000       900       1737       17500       22107       1515       24442       000         140000       900       1737       17500       23107       5155       24443       000         140000       900       1737       17500       23007       5153       24408       000         140000       900       1737       17500       23007       5153       2408       000         140000       900       1737       17500       23006       5128       24338       00         140000       900       1737       17500       23006       5128       24348       00         140000       900       1737       17500       23006       5128       24343       00         140000       900       1737       17500										
130000       9000       17375       17500       17600       19433       00         1370000       9000       17937       17500       21807       5156       24442       00         138000       9000       1737       17500       23807       5148       22442       00         138000       9000       1737       17500       23807       5148       224410       00         140000       9000       1737       17500       23807       5148       224410       00         140000       9000       1737       17500       23807       5148       24440       00         140000       9000       1737       17500       23806       5176       24834       00         140000       9000       1737       17500       23806       5176       24834       00         140000       9000       1737       17500       17500       3806       5176       24834       00         140000       9000       1737       17500       17500       3806       5176       24834       00         150000       9000       1737       17500       17500       3807       51836       00 <tr< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></tr<>										
136000       9000       1725       17500       2000       2007       251.2       94.33       000         138000       9000       1775       17500       23007       51.52       24.42       000         140000       9000       1775       17500       23007       51.38       24.41       000         140000       9000       1775       17500       23007       51.38       24.41       000         1420000       9000       1753       17500       23007       51.38       24.40       000         1420000       9000       1753       17500       23007       51.38       24.40       000         1440000       9000       1735       17500       23006       51.38       343.60       000         147000       9000       1725       17500       33006       50.57       343.40       000         150000       9000       1775       17500       33006       50.57       343.40       000         150000       9000       1775       17500       340.60       100       100       100       100       100       100       100       100       100       100       100       100       1		13400.00	90.00				-517.00	1744.45	0.00	
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139000       9000       1775       17500       223007       51.48       224.14       00         1410000       9000       1775       17500       23007       51.34       244.05       000         1430000       9000       1775       17500       23007       51.35       254.00       00         1430000       9000       1775       17500       23006       51.21       248.38       00         1440000       9000       1775       17500       23006       51.21       248.38       00         1470000       9000       1775       17500       33006       50.13       343.44       00         1470000       9000       1775       17500       35006       550.27       343.44       00         152000       9000       1775       17500       35006       550.27       343.43       00         152000       9000       1775       17500       35006       550.27       343.43       00         154000       9000       1775       17500       350.05       550.57       34.34       00         154000       9000       1775       1750.00       350.05       550.57       34.34       00     <										
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142000900175717500-2300713150243400001440009001757517500-230061216224338001460009001757517500-23006117224307001460009001757517500-33006117224307001460009001757517500-33006112824317001460009001757517500-33006116834366001500009001757517500-33006507534334001500009001757517500-33006507734336001500009001757517500-33006507234336001500009001757517500360055078343360015000090017575175004300550624430900156000900175751750043005506244309001560009001757517500430055054442870016000090017571750043005504244428700160000900175717500450055424100160000900175717500450055423001600009001757175004500554230016000090017571750045005542300 </th <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>0.00</th> <th></th>									0.00	
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140000       900       1775       117500       280.06       91176       284.33       0.00         140000       900       1775       117500       290.06       91176       284.35       0.00         140000       900       1775       117500       300.06       91183       343.65       0.00         140000       900       1775       117500       330.06       910.83       343.45       0.00         1510000       9000       1775       117500       330.06       981.4       343.45       0.00         150000       9000       1775       117500       330.05       598.2       343.43       0.00         150000       9000       1775       117500       330.05       597.83       384.32       0.00         150000       9000       1775       117500       330.05       597.83       384.32       0.00         150000       9000       1775       117500       430.05       596.84       433.14       0.00         150000       9000       1775       117501       430.05       596.54       443.15       0.00         150000       9000       1775       117501       4300.55       543.44       442.										
14700.00       90.00       1775       117500       330.06       51188       318.6       0.00         14000.00       90.00       1777       117500       330.06       510.83       343.60       0.00         1500.00       90.00       1777       117500       330.06       510.03       343.45       0.00         1500.00       90.00       1777       117500       330.06       691.43       343.45       0.00         1500.00       90.00       1777       117500       330.06       698.13       343.43       0.00         1500.00       90.00       1777       117500       330.05       508.23       373.33       0.00         1500.00       90.00       1777       117500       330.05       507.83       343.45       0.00         1500.00       90.00       1775       117500       430.05       505.84       430.40       0.00         1500.00       90.00       1775       117500       430.05       505.84       442.32       0.00         1600.00       90.00       1775       117501       430.05       504.24       442.15       0.00         1600.00       90.00       1775       117501       4500.05										
148000         9000         1725         117500         3130.6         51088         3143.66         0.00           159000         9000         1727         117500         3330.6         5101         3343.49         0.00           150000         9000         1727         117500         330.06         5001         3343.49         0.00           150000         9000         1727         117500         3500.6         50873         343.43         0.00           150000         9000         17275         1175000         3700.5         58273         343.26         0.00           156000         9000         17275         1175000         3800.5         507.83         384.26         0.00           156000         9000         17275         1175000         4300.5         56564         443.49         0.00           1560000         9000         17275         1175001         4300.5         56554         443.49         0.00           1660000         9000         17975         1175001         4300.5         5642         443.24         0.00           1660000         9000         17975         1175001         4300.5         56324         442.275         0.00 <th></th> <th>14600.00</th> <th>90.00</th> <th>179.75</th> <th>11750.00</th> <th>-2930.06</th> <th>-511.76</th> <th>2943.77</th> <th>0.00</th> <th></th>		14600.00	90.00	179.75	11750.00	-2930.06	-511.76	2943.77	0.00	
140000         9000         1775         1175000         3230.6         -510.43         3243.60         0.00           150000         9000         1775         1175000         330.06         -500.75         343.44         0.00           150000         9000         1775         11750.00         -330.06         -508.72         343.44         0.00           150000         90.00         1775         11750.00         -330.05         -507.33         343.22         0.00           150000         90.00         17975         11750.00         -330.05         -507.33         343.22         0.00           1500000         90.00         17975         11750.00         -330.05         -507.33         343.22         0.00           1500000         90.00         17975         11750.01         -430.05         -566.84         424.34         0.00           1600000         90.00         17975         11750.01         -430.05         -566.44         424.94         0.00           1600000         90.00         17975         11750.01         -430.05         -566.44         424.94         0.00           1600000         90.00         17975         11750.01         -430.05         -566.44<										
150000         9000         1737         1175000         3330.6         -51010         334.34         0.00           150000         9000         1737         1175000         -3300.6         -5931.4         343.43         0.00           150000         9000         17975         11750.00         -3300.6         -5981.4         354.34         0.00           150000         9000         17975         11750.00         -3300.6         -5987.3         343.20         0.00           150000         9000         17975         11750.00         -3300.6         -5062.4         443.90         0.00           1570000         9000         17975         11750.01         -4300.5         -565.6         443.14         0.00           158000.0         9000         17975         11750.01         -4300.5         -565.4         442.98         0.00           158000.0         9000         17975         11750.01         -4300.5         -565.4         442.98         0.00           160000.0         9000         17975         11750.01         -4300.4         503.4         442.87         0.00           163000.0         9000         17975         11750.01         -563.2         442.75										
111000       9000       17975       117500       -34006       -9957       443.44       0.00         1320000       9000       17975       117500       -36006       -98131       000         1340000       9000       17975       117500       -360305       -98133       0.00         1550000       9000       17975       117500       -38005       -50783       384320       0.00         1550000       9000       17975       117500       -38005       -50554       4403.15       0.00         1580000       9000       17975       117500       -413005       -50554       4433.40       0.00         1600000       9000       17975       117500       -43005       -50554       443.24       0.00         1600000       9000       17975       117500       -43005       -50514       442.92       0.00         1600000       9000       17975       117500       -43005       -50514       442.92       0.00         1640000       9000       17975       117500       -43004       -50324       442.72       0.00         1640000       9000       17975       117500       -53004       -50124       500245										
13000       900       17975       17500       363.05       508.70       384.32       0.00         150000       900       17975       17500       380.05       507.83       384.32       0.00         150000       9000       17975       17500       380.05       507.83       384.32       0.00         150000       9000       17975       17500       430.05       505.62       443.04       0.00         150000       9000       17975       17500       430.05       505.65       442.94       0.00         160000       9000       17975       17500       430.05       505.65       442.92       0.00         160000       9000       17975       17500       430.05       504.74       442.42       0.00         160000       9000       17975       17500       430.05       504.74       442.82       0.00         160000       9000       17975       17500       430.05       504.74       442.82       0.00         160000       9000       17975       17500       430.05       504.74       442.82       0.00         160000       9000       17975       17500       430.04       502.55										
14000         9000         179.75         117500         -39.005         -508.27         37.43.2         0.00           1550000         9000         179.75         117500         -393005         -507.39         3943.20         0.00           1570000         9000         179.75         117500         -403005         -506.56         443.15         0.00           1590000         9000         179.75         117500         -43005         -506.28         443.29         0.00           1600000         9000         179.75         117500         -43005         -506.28         442.29         0.00           1600000         9000         179.75         117500         -43005         -504.24         442.28         0.00           1600000         9000         179.75         117500         -43005         -504.44         442.28         0.00           1600000         9000         179.75         117500         -43004         -503.44         442.28         0.00           1600000         9000         179.75         117500         -530.04         -502.15         542.53         0.00           1600000         9000         179.75         117500         -530.04         -502.15										
150000       9000       179.75       1175000       383005       507.83       3943.20       0.00         150000       9000       179.75       1175000       403005       506.52       4143.09       0.00         150000       9000       179.75       1175000       403005       506.52       4143.09       0.00         150000       9000       179.75       1175001       433005       505.65       432.39       0.00         160000       9000       179.75       1175001       433005       505.65       432.39       0.00         160000       9000       179.75       1175001       433005       505.47       4442.92       0.00         160000       9000       179.75       1175001       43005       503.44       4642.81       0.00         160000       9000       179.75       1175001       430.04       503.30       4942.64       0.00         160000       9000       179.75       1175001       430.04       503.26       504.25       0.00         160000       9000       179.75       1175001       530.04       502.56       542.54       0.00         1700000       9000       179.75       1175001       53										
1600.00         90.00         179.75         1175.00         -939.05         597.39         934.20         0.00           15700.00         90.00         179.75         1175.00         -430.05         506.62         443.30         0.00           15900.00         90.00         179.75         1175.00         -430.05         506.68         424.30         0.00           16000.00         90.00         179.75         1175.00         +430.05         505.61         424.30         0.00           16000.00         90.00         179.75         1175.00         +430.05         505.21         442.92         0.00           16000.00         90.00         179.75         1175.00         +430.05         504.34         442.81         0.00           16400.00         90.00         179.75         1175.00         +430.04         503.30         4742.75         0.00           16600.00         90.00         179.75         1175.00         +530.04         500.42         0.00           16600.00         90.00         179.75         1175.00         +530.04         +502.42         0.00           17000.00         90.00         179.75         1175.00         +530.04         +502.42         0.00										
1570.00       90.00       179.75       1175.00       -030.05       -506.56       403.15       0.00         15800.00       90.00       179.75       1175.00       -4130.05       -505.65       4243.04       0.00         16000.00       90.00       179.75       1175.001       -4330.05       -505.65       4243.24       0.00         16000.00       90.00       179.75       1175.001       -4330.05       -504.24       442.28       0.00         16200.00       90.00       179.75       1175.001       -4530.05       -504.44       442.17       0.00         16400.00       90.00       179.75       1175.001       -4830.04       -502.59       504.27       0.00         16600.00       90.00       179.75       1175.001       -4830.04       -502.59       504.27       0.00         16700.00       90.00       179.75       1175.001       -503.04       -502.59       504.258       0.00         16900.00       90.00       179.75       1175.001       -530.04       -504.25       0.00         17900.00       90.00       179.75       1175.001       -530.04       -594.23       0.00         17900.00       90.00       179.75       1175.0										
1590.0090.00179.751175.01-423.05-506.684243.040.001600.0090.00179.751175.00-433.05-505.21442.290.001620.0090.00179.751175.00-433.05-503.21442.290.001630.0090.00179.751175.00-433.05-503.21442.270.001640.0090.00179.751175.00-433.04-503.44442.410.001660.0090.00179.751175.00-433.04-503.30442.640.001670.0090.00179.751175.00-501.205042.580.001680.0090.00179.751175.00-533.04-501.25542.540.001790.0090.00179.751175.00-533.04-501.25542.540.001700.0090.00179.751175.00-533.04-501.25542.340.001700.0090.00179.751175.00-530.04-501.25542.300.001700.0090.00179.751175.00-530.04-501.25542.300.001700.0090.00179.751175.00-530.04-501.25542.300.001700.0090.00179.751175.00-530.03-490.45542.300.001700.0090.00179.751175.00-530.03-490.15542.300.001760.0090.00179.751175.00-630.03-494.260										
16000.0090.00179.751175.01-430.05-505.654342.920.0016200.0090.00179.751175.00-453.05-504.77454.2870.0016300.0090.00179.751175.00-463.005-504.344642.810.0016600.0090.00179.751175.00-463.004-503.034942.620.0016600.0090.00179.751175.00-483.004-503.034942.640.0016600.0090.00179.751175.00-633.04450.25504.77404.2810.0016600.0090.00179.751175.00-633.04-502.59504.250.0016600.0090.00179.751175.00-533.04-501.28544.240.0017000.0090.00179.751175.00-533.04-501.28544.250.0017000.0090.00179.751175.00-533.04-501.485442.360.0017000.0090.00179.751175.00-533.04-501.485442.360.0017000.0090.00179.751175.00-533.04-499.97542.250.0017000.0090.00179.751175.00-533.04-591.48500.417000.0090.00179.751175.00-633.03-494.97542.130.0017600.0090.00179.751175.00-633.03-494.97542.250.0017600.0090.00179.751175.00<										
1610000       9000       179.75       1175001       -4430.05       -505.21       4442.92       0.00         1620000       9000       179.75       1175001       -4630.05       -504.34       442.82       1.00         1640000       9000       179.75       11750.01       -4630.05       -503.34       442.75       0.00         1650000       9000       179.75       11750.01       -4830.04       -503.33       442.64       0.00         16600.00       9000       179.75       11750.01       -4930.04       -502.35       5042.58       0.00         16600.00       9000       179.75       11750.01       -533.04       -501.28       542.44       0.00         16900.00       9000       179.75       11750.01       -530.04       -501.28       542.43       0.00         17000.00       9000       179.75       11750.01       -530.04       -501.28       542.30       0.00         17200.00       9000       179.75       11750.01       -530.04       -508.4       542.23       0.00         17300.00       9000       179.75       11750.01       -530.04       -499.35       742.19       0.00         17400.00       90.00 <t< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></t<>										
1620000       90.00       179.75       11750.01       -453.005       -504.34       4462.87       0.00         16300.00       90.00       179.75       11750.01       -473.005       -503.90       4422.75       0.00         16500.00       90.00       179.75       11750.01       -473.005       -503.90       4424.75       0.00         16500.00       90.00       179.75       11750.01       -493.04       -503.34       4424.270       0.00         16700.00       90.00       179.75       11750.01       -533.04       -502.15       5142.53       0.00         16900.00       90.00       179.75       11750.01       -533.04       -501.25       542.30       0.00         17000.00       90.00       179.75       11750.01       -533.04       -501.25       542.30       0.00         17000.00       90.00       179.75       11750.01       -553.04       -499.35       5422.30       0.00         17300.00       90.00       179.75       11750.01       -553.04       -499.35       542.25       0.00         17400.00       90.00       179.75       11750.01       -583.03       -499.35       542.19       0.00         17600.00       90										
163000       90.00       179.75       1175.001       -463.005       -503.90       4742.75       0.00         16600.00       90.00       179.75       1175.001       -483.004       -503.46       4427.00       0.00         16600.00       90.00       179.75       1175.001       -483.004       -503.30       442.70       0.00         16700.00       90.00       179.75       1175.001       -530.00       502.55       542.53       0.00         16800.00       90.00       179.75       1175.001       -533.00       -501.25       542.453       0.00         17000.00       90.00       179.75       1175.001       -533.04       -501.25       542.451       0.00         17100.00       90.00       179.75       1175.001       -553.04       -501.45       542.35       0.00         17200.00       90.00       179.75       1175.001       -563.04       499.53       5742.15       0.00         17300.00       90.00       179.75       1175.001       -563.04       499.53       5742.19       0.00         17600.00       90.00       179.75       1175.001       -563.03       498.45       604.22       0.00         17600.00       90.00 <th></th>										
16500.0       90.00       179.75       1175.001       -4830.04       -503.36       4842.70       0.00         16600.00       90.00       179.75       1175.001       -503.03       4942.64       0.00         16700.00       90.00       179.75       1175.001       -503.04       -502.59       0.00         16800.00       90.00       179.75       1175.001       -533.04       -501.25       542.58       0.00         17000.00       90.00       179.75       1175.001       -533.04       -501.28       542.41       0.00         17200.00       90.00       179.75       1175.001       -543.04       -504.41       542.36       0.00         17200.00       90.00       179.75       1175.001       -553.004       -504.41       542.36       0.00         17300.00       90.00       179.75       1175.001       -530.04       -499.53       574.219       0.00         17600.00       90.00       179.75       1175.001       -530.03       -498.10       504.21       0.00         17600.00       90.00       179.75       1175.001       -530.03       -498.16       544.230       0.00         17600.00       90.00       179.75       1175.001		16300.00	90.00	179.75	11750.01	-4630.05	-504.34	4642.81	0.00	
16600.0       90.00       179.75       1175.001       -9030.04       -503.03       4942.64       0.00         16700.00       90.00       179.75       1175.001       -503.04       -502.29       5042.58       0.00         16800.00       90.00       179.75       1175.001       -532.004       -501.72       5242.47       0.00         17000.00       90.00       179.75       1175.001       -533.04       -501.28       5342.41       0.00         17000.00       90.00       179.75       1175.001       -533.04       -500.128       5342.41       0.00         17200.00       90.00       179.75       1175.001       -533.04       -500.41       5542.30       0.00         17300.00       90.00       179.75       1175.001       -533.04       -499.97       542.25       0.00         17400.00       90.00       179.75       1175.001       -533.03       -499.10       542.13       0.00         17500.00       90.00       179.75       1175.001       -533.03       -499.10       542.13       0.00         1760.00       90.00       179.75       1175.001       -633.03       -499.10       542.13       0.00         1780.00       90.00										
16700.0       90.0       179.75       1175.00       -503.04       -502.15       5142.58       0.00         16800.00       90.00       179.75       1175.00       -520.15       5142.58       0.00         16900.00       90.00       179.75       1175.00       -520.40       -501.28       5342.41       0.00         17000.00       90.00       179.75       1175.00       -530.04       -501.28       5342.41       0.00         17100.00       90.00       179.75       1175.00       -530.04       -500.44       542.26       0.00         17200.00       90.00       179.75       1175.00       -530.04       -499.53       5742.19       0.00         17300.00       90.00       179.75       1175.00       -530.04       -499.53       5742.19       0.00         17400.00       90.00       179.75       1175.00       -530.03       -499.10       5842.13       0.00         17600.00       90.00       179.75       1175.00       -530.03       -499.15       0.00         17600.00       90.00       179.75       1175.00       -530.03       -497.9       614.16       0.00         17900.00       90.00       179.75       175.00       <										
16800.00       90.00       179.75       1175.001       -513.004       -502.15       5142.53       0.00         17000.00       90.00       179.75       1175.001       -523.004       -501.72       5242.47       0.00         17000.00       90.00       179.75       1175.001       -533.004       -501.28       5342.41       0.00         17100.00       90.00       179.75       1175.001       -533.04       -500.41       5542.30       0.00         17300.00       90.00       179.75       1175.001       -573.004       -499.73       5742.19       0.00         17400.00       90.00       179.75       1175.001       -583.03       -499.13       5742.19       0.00         17600.00       90.00       179.75       1175.001       -683.03       -499.13       5742.19       0.00         17600.00       90.00       179.75       1175.001       -630.03       -498.66       5942.08       0.00         17700.00       90.00       179.75       1175.001       -633.03       -497.39       614.196       0.00         1780.00       90.00       179.75       1175.001       -633.03       -495.01       6341.19       0.00         1800.00 <td< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></td<>										
17000.00       90.00       179.75       1175.001       -5330.04       -501.28       5342.41       0.00         17100.00       90.00       179.75       1175.001       -5430.04       -500.84       5442.30       0.00         17200.00       90.00       179.75       1175.001       -5630.04       -500.41       5542.30       0.00         17400.00       90.00       179.75       1175.001       -5630.04       -499.53       5742.19       0.00         17600.00       90.00       179.75       1175.001       -5630.03       -499.53       5742.19       0.00         17600.00       90.00       179.75       1175.001       -5630.03       -499.53       5742.19       0.00         17600.00       90.00       179.75       1175.001       -5630.03       -498.62       6042.02       0.00         17800.00       90.00       179.75       1175.001       -6630.03       -498.75       6241.91       0.00         17800.00       90.00       179.75       1175.001       -6630.03       -496.46       6341.85       0.00         1800.00       90.00       179.75       1175.001       -6630.03       -495.06       6641.86       0.00         1800.00									0.00	
17100.00       90.00       179.75       11750.01       -543.0.4       -500.84       5542.30       0.00         17200.00       90.00       179.75       11750.01       -553.0.4       -5642.25       0.00         17400.00       90.00       179.75       11750.01       -573.0.4       -499.97       5642.25       0.00         17400.00       90.00       179.75       11750.01       -573.0.4       -499.53       5742.19       0.00         17500.00       90.00       179.75       11750.01       -593.0.3       -499.10       5842.13       0.00         17600.00       90.00       179.75       11750.01       -593.0.3       -498.66       594.08       0.00         17700.00       90.00       179.75       11750.01       -630.03       -497.35       641.96       0.00         17800.00       90.00       179.75       11750.01       -630.03       -497.35       6241.91       0.00         1800.00       90.00       179.75       11750.01       -630.03       -496.46       6441.79       0.00         1800.00       90.00       179.75       11750.01       -630.03       -495.06       6441.68       0.00         1800.00       90.00       1										
17200.0090.00179.751175.01-5530.04-500.415542.300.0017300.0090.00179.751175.00-5630.04-499.975642.250.0017400.0090.00179.751175.00-5730.04-499.505742.190.0017500.0090.00179.751175.00-5830.03-498.665942.080.0017600.0090.00179.751175.00-6030.03-498.226042.020.0017700.0090.00179.751175.00-6130.03-497.356241.910.0017900.0090.00179.751175.00-6330.03-496.486441.790.0018000.0090.00179.751175.00-6530.03-496.486441.790.0018000.0090.00179.751175.00-6530.03-496.486441.790.0018000.0090.00179.751175.00-6530.03-496.486441.790.0018000.0090.00179.751175.00-6530.03-496.48641.790.0018000.0090.00179.751175.00-6730.03-496.1650.0018000.0090.00179.751175.00-6730.03-494.736841.570.0018000.0090.00179.751175.00-6730.02-494.296941.510.0018000.0090.00179.751175.00-730.02-494.247414.400.0018000.0090.00179.751175.0										
17300.0090.00179.751175.00-563.04-499.975642.250.0017400.0090.00179.751175.00-573.04-499.535742.190.0017500.0090.00179.751175.001-593.03-499.105842.130.0017700.0090.00179.751175.001-593.03-498.665942.080.0017700.0090.00179.751175.001-633.03-497.796141.960.0017800.0090.00179.751175.001-633.03-496.166341.850.0017900.0090.00179.751175.001-633.03-496.466441.790.0018000.0090.00179.751175.001-633.03-495.066641.680.0018200.0090.00179.751175.001-633.03-495.066641.680.0018300.0090.00179.751175.001-633.03-495.10641.570.0018400.0090.00179.751175.001-633.03-495.10641.570.0018500.0090.00179.751175.001-633.03-495.10641.570.0018600.0090.00179.751175.001-633.03-495.10641.570.0018700.0090.00179.751175.001-733.02-492.266941.510.0018600.0090.00179.751175.001-733.02-492.57741.400.0018800.0090.00179.75										
17500.0090.00179.7511750.01-5830.03-499.105842.130.0017600.0090.00179.7511750.01-5930.03-498.665942.080.0017700.0090.00179.7511750.01-6030.03-498.226042.020.0017800.0090.00179.7511750.01-6130.03-497.356241.910.0018000.0090.00179.7511750.01-6330.03-496.486441.790.0018100.0090.00179.7511750.01-6330.03-496.486441.790.0018200.0090.00179.7511750.01-6530.03-495.606641.680.0018300.0090.00179.7511750.01-6530.03-495.606641.680.0018400.0090.00179.7511750.01-6630.03-495.606641.570.0018500.0090.00179.7511750.01-6730.03-495.176141.920.0018600.0090.00179.7511750.01-6730.03-495.176141.920.0018500.0090.00179.7511750.01-7330.02-494.296941.510.0018600.0090.00179.7511750.01-7330.02-492.887241.340.0018900.0090.00179.7511750.01-7330.02-492.877341.290.0019000.0090.00179.7511750.01-7330.02-492.577341.290.0019000.0090.										
17600.0090.00179.751175.01-593.03-498.665942.080.0017700.0090.00179.751175.01-603.03-498.226042.020.0017800.0090.00179.751175.01-613.03-497.796141.960.0017900.0090.00179.751175.01-623.03-496.756241.910.0018000.0090.00179.751175.01-643.03-496.486441.790.0018100.0090.00179.751175.01-663.03-495.606641.680.0018200.0090.00179.751175.01-663.03-495.10641.850.0018300.0090.00179.751175.01-663.03-495.17674.1620.0018600.0090.00179.751175.01-663.03-495.17674.1620.0018600.0090.00179.751175.01-663.03-495.17674.1620.0018600.0090.00179.751175.01-663.03-495.17641.850.0018600.0090.00179.751175.01-703.02-493.42714.1400.0018600.0090.00179.751175.01-713.02-492.557341.240.0018000.0090.00179.751175.01-723.02-492.557341.290.0019000.0090.00179.751175.01-733.02-492.557341.230.0019000.0090.00179.751175.0		17400.00	90.00	179.75	11750.01	-5730.04	-499.53	5742.19	0.00	
17700.0090.00179.7511750.01-6030.03-498.226042.020.0017800.0090.00179.7511750.01-6130.03-497.796141.960.0017900.0090.00179.7511750.01-6230.03-497.356241.910.0018000.0090.00179.7511750.01-6330.03-496.916341.850.0018100.0090.00179.7511750.01-6330.03-496.446441.790.0018200.0090.00179.7511750.01-6630.03-496.446541.740.0018300.0090.00179.7511750.01-6630.03-495.606641.680.0018400.0090.00179.7511750.01-6730.03-495.606641.680.0018500.0090.00179.7511750.01-6730.03-495.17671.620.0018600.0090.00179.7511750.01-6930.02-494.296941.510.0018600.0090.00179.7511750.01-730.02-493.867041.460.0018700.0090.00179.7511750.01-7230.02-493.457341.400.0018800.0090.00179.7511750.01-7230.02-492.557341.290.0018900.0090.00179.7511750.01-7230.02-492.557341.290.0019000.0090.00179.7511750.01-7330.02-492.557341.290.0019000.0090.00										
17800.0090.00179.7511750.01-6130.03-497.796141.960.0017900.0090.00179.7511750.01-6230.03-497.356241.910.0018000.0090.00179.7511750.01-6330.03-496.916341.850.0018100.0090.00179.7511750.01-6430.03-496.486441.790.0018200.0090.00179.7511750.01-6530.03-496.446541.740.0018300.0090.00179.7511750.01-6630.03-496.466541.740.0018400.0090.00179.7511750.01-6730.03-495.176741.620.0018400.0090.00179.7511750.01-6730.03-494.736841.570.0018600.0090.00179.7511750.01-6730.02-494.296941.510.0018600.0090.00179.7511750.01-7030.02-493.467041.460.0018600.0090.00179.7511750.01-7130.02-493.427141.400.0018900.0090.00179.7511750.01-7230.02-492.557341.290.0019000.0090.00179.7511750.01-730.02-492.557341.290.0019000.0090.00179.7511750.01-730.02-492.557341.290.0019000.0090.00179.7511750.01-730.02-492.557341.290.0019000.0090.00<										
17900.0090.00179.7511750.01-6230.03-497.356241.910.0018000.0090.00179.7511750.01-6330.03-496.916341.850.0018100.0090.00179.7511750.01-6430.03-496.486441.790.0018200.0090.00179.7511750.01-6530.03-496.486441.790.0018300.0090.00179.7511750.01-6630.03-495.606641.680.0018400.0090.00179.7511750.01-6730.03-495.176741.620.0018500.0090.00179.7511750.01-6730.03-494.296941.510.0018600.0090.00179.7511750.01-6930.02-494.296941.510.0018600.0090.00179.7511750.01-7030.02-493.467041.460.0018800.0090.00179.7511750.01-7130.02-493.427141.400.0018900.0090.00179.7511750.01-7230.02-492.557341.290.0019000.0090.00179.7511750.01-7230.02-492.557341.290.0019000.0090.00179.7511750.01-7330.02-492.557341.290.0019000.0090.00179.7511750.01-7330.02-492.557341.290.0019000.0090.00179.7511750.01-7330.02-492.517441.230.0019000.0090.										
18100.00       90.00       179.75       11750.01       -6430.03       -496.48       6441.79       0.00         18200.00       90.00       179.75       11750.01       -6530.03       -496.04       6541.74       0.00         18300.00       90.00       179.75       11750.01       -6530.03       -495.00       6641.68       0.00         18400.00       90.00       179.75       11750.01       -6730.03       -495.17       6741.62       0.00         18500.00       90.00       179.75       11750.01       -6730.03       -495.17       6741.62       0.00         18600.00       90.00       179.75       11750.01       -6730.03       -495.17       6741.62       0.00         18600.00       90.00       179.75       11750.01       -6930.02       -494.73       6841.51       0.00         18600.00       90.00       179.75       11750.01       -7030.02       -493.86       7041.46       0.00         18800.00       90.00       179.75       11750.01       -7130.02       -492.98       7241.34       0.00         19000.00       90.00       179.75       11750.01       -7230.02       -492.55       7341.29       0.00         19000.00										
18200.00       90.00       179.75       11750.01       -6530.03       -496.04       6541.74       0.00         18300.00       90.00       179.75       11750.01       -6630.03       -495.60       6641.68       0.00         18400.00       90.00       179.75       11750.01       -6730.03       -495.17       6741.62       0.00         18500.00       90.00       179.75       11750.01       -6830.03       -494.73       6841.57       0.00         18600.00       90.00       179.75       11750.01       -6930.02       -494.29       6941.51       0.00         18600.00       90.00       179.75       11750.01       -6930.02       -493.42       7041.46       0.00         18700.00       90.00       179.75       11750.01       -7130.02       -493.42       7141.40       0.00         18800.00       90.00       179.75       11750.01       -7130.02       -493.42       7141.40       0.00         18900.00       90.00       179.75       11750.01       -7130.02       -492.98       7241.34       0.00         19000.00       90.00       179.75       11750.01       -733.02       -492.55       7341.29       0.00         19100.00			90.00					6341.85	0.00	
18300.00       90.00       179.75       11750.01       -6630.03       -495.60       6641.68       0.00         18400.00       90.00       179.75       11750.01       -6730.03       -495.17       6741.62       0.00         18500.00       90.00       179.75       11750.01       -6830.03       -494.73       6841.57       0.00         18600.00       90.00       179.75       11750.01       -6930.02       -494.29       6941.51       0.00         18700.00       90.00       179.75       11750.01       -6930.02       -493.86       7041.46       0.00         18800.00       90.00       179.75       11750.01       -7130.02       -493.42       7141.40       0.00         18800.00       90.00       179.75       11750.01       -7130.02       -493.42       7141.40       0.00         1800.00       90.00       179.75       11750.01       -7130.02       -493.42       7141.40       0.00         1800.00       90.00       179.75       11750.01       -7130.02       -492.98       7241.34       0.00         19000.00       90.00       179.75       11750.01       -733.02       -492.55       7341.29       0.00         19100.00										
18400.0090.00179.7511750.01-6730.03-495.176741.620.0018500.0090.00179.7511750.01-6830.03-494.736841.570.0018600.0090.00179.7511750.01-6930.02-494.296941.510.0018700.0090.00179.7511750.01-7030.02-493.867041.460.0018800.0090.00179.7511750.01-7130.02-493.427141.400.0018900.0090.00179.7511750.01-7230.02-492.987241.340.0019000.0090.00179.7511750.01-7230.02-492.557341.290.0019100.0090.00179.7511750.01-7430.02-492.557341.290.0019200.0090.00179.7511750.01-7530.02-491.677541.170.0019200.0090.00179.7511750.01-7530.02-491.677541.170.0019300.0090.00179.7511750.01-7530.02-491.677541.170.00										
18500.0090.00179.7511750.01-6830.03-494.736841.570.0018600.0090.00179.7511750.01-6930.02-494.296941.510.0018700.0090.00179.7511750.01-7030.02-493.867041.460.0018800.0090.00179.7511750.01-7130.02-493.427141.400.0018900.0090.00179.7511750.01-7230.02-492.987241.340.0019000.0090.00179.7511750.01-7230.02-492.987241.340.0019000.0090.00179.7511750.01-7230.02-492.557341.290.0019100.0090.00179.7511750.01-7430.02-492.117441.230.0019200.0090.00179.7511750.01-7530.02-491.677541.170.0019300.0090.00179.7511750.01-7630.02-491.427641.120.00										
18600.00       90.00       179.75       11750.01       -6930.02       -494.29       6941.51       0.00         18700.00       90.00       179.75       11750.01       -7030.02       -493.86       7041.46       0.00         18800.00       90.00       179.75       11750.01       -7130.02       -493.42       7141.40       0.00         18900.00       90.00       179.75       11750.01       -7230.02       -492.98       7241.34       0.00         19000.00       90.00       179.75       11750.01       -7230.02       -492.55       7341.29       0.00         19100.00       90.00       179.75       11750.01       -7430.02       -492.55       7341.29       0.00         19200.00       90.00       179.75       11750.01       -7430.02       -491.67       7541.17       0.00         19300.00       90.00       179.75       11750.01       -7530.02       -491.67       7541.17       0.00         19300.00       90.00       179.75       11750.01       -7630.02       -491.24       7641.12       0.00										
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18900.0090.00179.7511750.01-7230.02-492.987241.340.0019000.0090.00179.7511750.01-7330.02-492.557341.290.0019100.0090.00179.7511750.01-7430.02-492.117441.230.0019200.0090.00179.7511750.01-7530.02-491.677541.170.0019300.0090.00179.7511750.01-7630.02-491.247641.120.00										
19000.00 90.00 179.75 11750.01 -7330.02 -492.55 7341.29 0.00 19100.00 90.00 179.75 11750.01 -7430.02 -492.11 7441.23 0.00 19200.00 90.00 179.75 11750.01 -7530.02 -491.67 7541.17 0.00 19300.00 90.00 179.75 11750.01 -7630.02 -491.24 7641.12 0.00										
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19400.00 90.00 179.75 11750.01 -7730.02 -490.80 7741.06 0.00										
		19400.00	90.00	1/9./5	11/50.01	-1130.02	-490.80	//41.06	0.00	

_												
douron		Well:	COTTON D	RAW UNIT 6	14H				Geodetic System:	US State Plane 198	3	
devon		County:								North American D	atum 1927	
			Permit Plar Permit Plar							Clarke 1866 3001 - NM East (N	AD83)	
		-										
	MD (ft)	INC (°)	<b>AZI</b> (°)	TVD (ft)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)	Comment			
-	19500.00	90.00	179.75	11750.01	-7830.02	-490.36	7841.00	0.00			-	
	19600.00	90.00	179.75	11750.01	-7930.01	-489.93	7940.95	0.00				
	19700.00 19800.00	90.00 90.00	179.75 179.75	11750.01 11750.01	-8030.01 -8130.01	-489.49 -489.05	8040.89 8140.83	0.00 0.00				
	19900.00	90.00	179.75	11750.01	-8230.01	-488.62	8240.78	0.00				
	20000.00	90.00	179.75	11750.01	-8330.01	-488.18	8340.72	0.00				
	20100.00 20200.00	90.00 90.00	179.75 179.75	11750.01 11750.01	-8430.01 -8530.01	-487.75 -487.31	8440.66 8540.61	0.00 0.00				
	20200.00	90.00	179.75	11750.01	-8630.01	-486.87	8640.55	0.00				
	20400.00	90.00	179.75	11750.01	-8730.01	-486.44	8740.50	0.00				
	20500.00	90.00	179.75	11750.01	-8830.01	-486.00	8840.44	0.00				
	20600.00 20700.00	90.00 90.00	179.75 179.75	11750.01 11750.01	-8930.01 -9030.00	-485.56 -485.13	8940.38 9040.33	0.00 0.00				
	20800.00	90.00	179.75	11750.01	-9130.00	-484.69	9140.27	0.00				
	20900.00	90.00	179.75	11750.01	-9230.00	-484.25	9240.21	0.00				
	21000.00 21100.00	90.00 90.00	179.75 179.75	11750.01 11750.01	-9330.00 -9430.00	-483.82 -483.38	9340.16 9440.10	0.00 0.00				
	21200.00	90.00	179.75	11750.01	-9430.00	-482.94	9440.10 9540.04	0.00				
	21300.00	90.00	179.75	11750.01	-9630.00	-482.51	9639.99	0.00				
	21400.00	90.00	179.75	11750.01	-9730.00	-482.07	9739.93	0.00				
	21500.00 21600.00	90.00 90.00	179.75 179.75	11750.01 11750.01	-9830.00 -9930.00	-481.63 -481.20	9839.87 9939.82	0.00 0.00				
	21700.00	90.00	179.75		-10029.99	-480.76	10039.76	0.00				
	21800.00	90.00	179.75		-10129.99	-480.32	10139.71	0.00				
	21900.00	90.00	179.75		-10229.99	-479.89	10239.65	0.00				
	22000.00 22100.00	90.00 90.00	179.75 179.75		-10329.99 -10429.99	-479.45 -479.01	10339.59 10439.54	0.00 0.00				
	22200.00	90.00	179.75		-10529.99	-478.58	10539.48	0.00				
	22300.00	90.00	179.75		-10629.99	-478.14	10639.42	0.00				
	22400.00 22500.00	90.00 90.00	179.75 179.75		-10729.99 -10829.99	-477.70 -477.27	10739.37 10839.31	0.00 0.00				
	22600.00	90.00	179.75		-10929.99	-476.83	10939.25	0.00				
	22700.00	90.00	179.75		-11029.99	-476.39	11039.20	0.00				
	22800.00 22900.00	90.00 90.00	179.75 179.75		-11129.98 -11229.98	-475.96 -475.52	11139.14 11239.08	0.00 0.00				
	23000.00	90.00	179.75		-11329.98	-475.08	11339.03	0.00				
	23100.00	90.00	179.75		-11429.98	-474.65	11438.97	0.00				
	23200.00	90.00	179.75		-11529.98	-474.21	11538.92	0.00				
	23300.00 23400.00	90.00 90.00	179.75 179.75		-11629.98 -11729.98	-473.77 -473.34	11638.86 11738.80	0.00 0.00				
	23500.00	90.00	179.75		-11829.98	-472.90	11838.75	0.00				
	23600.00	90.00	179.75		-11929.98	-472.46	11938.69	0.00				
	23700.00 23800.00	90.00 90.00	179.75 179.75		-12029.98 -12129.97	-472.03 -471.59	12038.63 12138.58	0.00 0.00				
	23900.00	90.00	179.75		-12229.97	-471.15	12238.52	0.00				
	24000.00	90.00	179.75		-12329.97	-470.72	12338.46	0.00				
	24100.00 24200.00	90.00 90.00	179.75 179.75		-12429.97 -12529.97	-470.28 -469.84	12438.41 12538.35	0.00 0.00				
	24200.00	90.00	179.75		-12529.97	-469.64 -469.41	12536.55	0.00				
	24400.00	90.00	179.75		-12729.97	-468.97	12738.24	0.00				
	24500.00	90.00	179.75		-12829.97	-468.53	12838.18	0.00				
	24600.00 24700.00	90.00 90.00	179.75 179.75		-12929.97 -13029.97	-468.10 -467.66	12938.12 13038.07	0.00 0.00				
	24800.00	90.00	179.75		-13129.97	-467.23	13138.01	0.00				
	24900.00	90.00	179.75		-13229.96	-466.79	13237.96	0.00				
	25000.00 25100.00	90.00 90.00	179.75 179.75		-13329.96 -13429.96	-466.35 -465.92	13337.90 13437.84	0.00 0.00				
	25200.00	90.00	179.75		-13529.96	-465.48	13537.79	0.00				
	25300.00	90.00	179.75	11750.02	-13629.96	-465.04	13637.73	0.00				
	25400.00	90.00	179.75		-13729.96	-464.61	13737.67	0.00				
	25500.00 25600.00	90.00 90.00	179.75 179.75		-13829.96 -13929.96	-464.17 -463.73	13837.62 13937.56	0.00 0.00				
	25700.00	90.00	179.75		-14029.96	-463.30	14037.50	0.00				
	25800.00	90.00	179.75	11750.02	-14129.96	-462.86	14137.45	0.00				
	25900.00	90.00	179.75		-14229.95	-462.42	14237.39	0.00				
	26000.00 26100.00	90.00 90.00	179.75 179.75		-14329.95 -14429.95	-461.99 -461.55	14337.33 14437.28	0.00 0.00				
	26200.00	90.00	179.75		-14529.95	-461.11	14537.22	0.00				
	26300.00	90.00	179.75		-14629.95	-460.68	14637.17	0.00				
	26400.00	90.00	179.75	11750.02	-14729.95	-460.24	14737.11	0.00				
L												

	Well:	COTTON D	RAW UNIT 6	14H		Geodetic System: US State Plane 1983				
	County:	Lea						Datum: North American Datum 1927		
	Wellbore:	Permit Plar	ı					Ellipsoid: Clarke 1866		
	Permit Plar	1 #1					Zone: 3001 - NM East (NAD83)			
MD	INC	AZI	TVD	NS	EW	vs	DLS	Comment		
(ft)	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(°/100ft)			
26500.00	90.00	179.75	11750.02	-14829.95	-459.80	14837.05	0.00			
26600.00	90.00	179.75	11750.02	-14929.95	-459.37	14937.00	0.00			
26700.00	90.00	179.75	11750.02	-15029.95	-458.93	15036.94	0.00			
26800.00	90.00	179.75	11750.02	-15129.95	-458.49	15136.88	0.00			
26900.00	90.00	179.75	11750.02	-15229.95	-458.06	15236.83	0.00			
27000.00	90.00	179.75	11750.02	-15329.94	-457.62	15336.77	0.00			
27100.00	90.00	179.75	11750.02	-15429.94	-457.18	15436.71	0.00			
27199.45	90.00	179.75	11750.02	-15529.39	-456.75	15536.11	0.00	exit		
27200.00	90.00	179.75	11750.02	-15529.94	-456.75	15536.66	0.00			
27279.45	90.00	179.75	11750.00	-15609.39	-456.44	15616.06	0.00	BHL		



ssued on:	16 Sep.	2022 b	y Logan	Van Gorp	



#### et

Connection

**VAM® SPRINT-FJ** 

|--|

OD

	Со	nnection	Data She	e

8 5/8 in.	Nominal: 32.00	0.352 in	<b>.</b>	P110E
	Plain End: 31.13			
	PIPE PROPERTIES			
Nominal OD		8.625	in.	Connection
Nominal ID		7.921	in.	Connection
Nominal Cross Section	n Area	9.149	sqin.	Connection
Grade Type		Hig	h Yield	Make-Up L
Min. Yield Strength		125	ksi	Critical Cro
Max. Yield Strength		140	ksi	Tension Eff
Min. Ultimate Tensile	Strength	135	ksi	Compressi

Weight (lb/ft)

Wall Th.

CONNECTION PR	OPERTIES	
Connection Type	Semi-Premium Inte	egral Flush
Connection OD (nom):	8.665	in.
Connection ID (nom):	7.954	in.
Make-Up Loss	2.614	in.
Critical Cross Section	5.978	sqin.
Tension Efficiency	65.0	% of pipe
Compression Efficiency	65.0	% of pipe
Internal Pressure Efficiency	80.0	% of pipe
External Pressure Efficiency	100	% of pipe

Alt. Drift:

7.875 in.

Grade

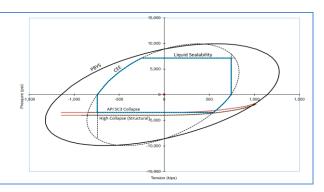
P110EC

CONNECTION PERFORMANCES				
Tensile Yield Strength	744	klb		
Compression Resistance	744	klb		
Max. Internal Pressure	7,150	psi		
Structural Collapse Resistance	4,000	psi		
Max. Structural Bending	41	°/100ft		
Max. Bending with Sealability	10	°/100ft		

TORQUE VALUE	S	
Min. Make-up torque	23,000	ft.lb
Opt. Make-up torque	25,500	ft.lb
Max. Make-up torque	28,000	ft.lb
Max. Torque with Sealability (MTS)	48,000	ft.lb

\* 87.5% RBW

VAM® SPRINT-FJ is a semi-premium flush connection designed for shale applications, where maximum clearance and high tension capacity are required for intermediate casing strings.



#### Do you need help on this product? - Remember no one knows VAM<sup>®</sup> like VAM<sup>®</sup>

canada@vamfieldservice.com usa@vamfieldservice.com mexico@vamfieldservice.com brazil@vamfieldservice.com

uk@vamfieldservice.com dubai@vamfieldservice.com nigeria@vamfieldservice.com angola@vamfieldservice.com

Over 140 VAM® Specialists available worldwide 24/7 for Rig Site Assistance

china@vamfieldservice.com baku@vamfieldservice.com singapore@vamfieldservice.com australia@vamfieldservice.com



Received by UCD: S0/6/2023 12:36:56 PM U.S. Department of the Interior		Sundry Print Report 09/29/2023
BUREAU OF LAND MANAGEMENT	THE REAL OF	and the second second
Well Name: COTTON DRAW UNIT	Well Location: T24S / R31E / SEC 25 / NWNW /	County or Parish/State:
Well Number: 614H	Type of Well: OIL WELL	Allottee or Tribe Name:
Lease Number: NMNM012121	<b>Unit or CA Name:</b> COTTON DRAW UNIT	Unit or CA Number: NMNM70928X
US Well Number: 3001553174	<b>Well Status:</b> Approved Application for Permit to Drill	<b>Operator:</b> DEVON ENERGY PRODUCTION COMPANY LP

# **Notice of Intent**

Sundry ID: 2752624

Type of Submission: Notice of Intent

Date Sundry Submitted: 09/21/2023

Date proposed operation will begin: 09/21/2023

Type of Action: APD Change Time Sundry Submitted: 12:57

**Procedure Description:** Devon Energy Production Company L.P. respectfully requests the following changes to the approved APD: BHL change from 20 FSL & 430 FWL, 25-24S-31E to 20 FSL & 330 FEL, 2-25S-31E. Pool Code change from 96641 PADUCA; BONE SPRING to 98220 Purple Sage Wolfcamp Dedicated acreage revision. New leases have been added since approved APD and notification has been given. TVD/MD change from 11,541'/16,590' to 11,750'/27,279' Casing program change: Surface, Intermediate, & Production casing changes. Cement volume changes to accommodate casing change. Please see attached revised C-102, spec sheets, and drilling & directional plans.

**NOI Attachments** 

# **Procedure Description**

COTTON\_DRAW\_UNIT\_614H\_DRL\_PLAN\_20230921125556.pdf

10.750\_45.5\_J55\_20230921125347.pdf

MB\_Wellhd\_10M\_13.375\_8.625\_5.5\_20230921125349.PDF

COTTON\_DRAW\_UNIT\_614H\_C\_102\_BHL\_NOI\_20230921125348.pdf

5.5in\_17lb\_P110EC\_DWC\_C\_IS\_PLUS\_20230921125347.pdf

COTTON\_DRAW\_UNIT\_614H\_Directional\_Plan\_09\_15\_23\_20230921125348.pdf

8.625in\_32lb\_P110EC\_SPRINT\_FJ\_20230921125347.pdf

Received by OCD: 10/6/2023 12:36:56 PM Well Name: COTTON DRAW UNIT	Well Location: T24S / R31E / SEC 25 / NWNW /	County or Parish/State: Page 25 of
Well Number: 614H	Type of Well: OIL WELL	Allottee or Tribe Name:
Lease Number: NMNM012121	<b>Unit or CA Name:</b> COTTON DRAW UNIT	Unit or CA Number: NMNM70928X
US Well Number: 3001553174	Well Status: Approved Application for Permit to Drill	<b>Operator:</b> DEVON ENERGY PRODUCTION COMPANY LP

# Operator

I certify that the foregoing is true and correct. Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction. Electronic submission of Sundry Notices through this system satisfies regulations requiring a

**Operator Electronic Signature: REBECCA DEAL** 

Signed on: SEP 21, 2023 12:56 PM

Name: DEVON ENERGY PRODUCTION COMPANY LP

State: OK

State:

Title: Regulatory Analyst

Street Address: 333 W SHERIDAN AVE

City: OKLAHOMA CITY

Phone: (303) 299-1406

Email address: REBECCA.DEAL@DVN.COM

Field

Representative Name: Street Address: City: Phone: Email address:

Zip:

# PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

	Devon Energy Production Company LP NMNM012121
	Section 25, T.24 S., R.31 E., NMPM
COUNTY:	Eddy County, New Mexico

WELL NAME & NO.:	Cotton Draw Unit 614H
SURFACE HOLE FOOTAGE:	200'/N & 195'/W
<b>BOTTOM HOLE FOOTAGE</b>	20'/S & 330'/E
ATS/API ID:	3001553174
APD ID:	10400065594
Sundry ID:	2752624

# COA

H2S	Yes		
Potash	None 🔽		
Cave/Karst Potential	Low		
Cave/Karst Potential	Critical		
Variance	C None	🖸 Flex Hose	C Other
Wellhead	Conventional and Multibow	/I  _	
Other	□ 4 String	Capitan Reef	WIPP
		None 🝷	
Other	Pilot Hole	Open Annulus	
	None 🔻		
Cementing	Contingency Squeeze	Echo-Meter	Primary Cement
	None 🔫	Int 1 🔹	Squeeze
			None –
Special	□ Water	COM	✓ Unit
Requirements	Disposal/Injection		
Special	Batch Sundry		
Requirements			
Special	Break Testing	□ Offline	$\Box$ Casing
Requirements		Cementing	Clearance
Variance			

# A. HYDROGEN SULFIDE

A Hydrogen Sulfide (H2S) Drilling Plan shall be activated 500 feet prior to drilling into the **Cotton Draw** pool. As a result, the Hydrogen Sulfide area must meet **43 CFR part 3170 Subpart 3176** requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.

# **B.** CASING

- 1. The 10-3/4 inch surface casing shall be set at approximately 775 feet (a minimum of 70 feet (Eddy County) into the Rustler Anhydrite, above the salt, and below usable fresh water) and cemented to the surface. The surface hole shall be 14 3/4 inch in diameter.
  - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
  - b. Wait on cement (WOC) time for a primary cement job will be a minimum of <u>8</u> <u>hours</u> or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)
  - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
  - d. If cement falls back, remedial cementing will be done prior to drilling out that string.

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

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

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

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

# **Option 2:**

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

- a. First stage: Operator will cement with intent to reach the top of the **Brushy** Canyon at 6680' (510 sxs Class H/C+ additives).
- b. Second stage:
  - Operator will perform bradenhead squeeze and top-out. Cement to surface. If cement does not reach surface, the appropriate BLM office shall be notified. (Squeeze 474 sxs Class C)

Operator has proposed to pump down 10-3/4" X 8-5/8" annulus after primary cementing stage. <u>Operator must run Echo-meter to verify Cement Slurry/Fluid top in the annulus Or operator shall run a CBL from TD of the 8-5/8" casing to surface after the second stage BH to verify TOC.</u>

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

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

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

- 3. The minimum required fill of cement behind the 5-1/2 inch production casing is:
  - Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification.
     Cement excess is less than 25%, more cement is required if washout occurs. Adjust cement volume and excess based on a fluid caliper or similar method that reflects the as-drilled size of the wellbore.

# C. PRESSURE CONTROL

- 1. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).'
- 2.

# **Option 1:**

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

casing shoe shall be 10,000 (10M) psi. Variance is approved to use a 5000 (5M) Annular which shall be tested to 5000 (5M) psi.

# **Option 2:**

Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the **10-3/4** inch surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **10,000** (**10M**) psi. Variance is approved to use a **5000** (**5M**) Annular which shall be tested to **5000** (**5M**) psi.

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

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

# <u>Unit Wells</u>

The well sign for a unit well shall include the unit number in addition to the surface and bottom hole lease numbers. This also applies to participating area numbers. If a participating area has not been established, the operator can use the general unit designation, but will replace the unit number with the participating area number when the sign is replaced.

# **Commercial Well Determination**

A commercial well determination shall be submitted after production has been established for at least six months.

# 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)

# $\boxtimes$ Eddy County

**EMAIL** or call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220,

**BLM\_NM\_CFO\_DrillingNotifications@BLM.GOV** (575) 361-2822

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

- 1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
  - a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
  - b. When the operator proposes to set surface casing with Spudder Rig
    - Notify the BLM when moving in and removing the Spudder Rig.
    - Notify the BLM when moving in the 2<sup>nd</sup> Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
    - BOP/BOPE test to be conducted per **43** CFR part **3170** Subpart **3172** as soon as 2nd Rig is rigged up on well.
- 2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.
- 3. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a

digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

# A. CASING

- 1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.
- <u>Wait on cement (WOC) for Potash Areas:</u> 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 <u>24 hours</u>. WOC time will be recorded in the driller's log. The casing intergrity test can be done (prior to the cement setting up) immediately after bumping the plug.
- 3. <u>Wait on cement (WOC) for Water Basin:</u> 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 <u>8 hours</u>. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. The casing intergrity test can be done (prior to the cement setting up) immediately after bumping the plug.
- 4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.
- 5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.
- 6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.
- 7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

- 8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.
- B. PRESSURE CONTROL
- All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in 43 CFR part 3170 Subpart 3172 and API STD 53 Sec. 5.3.
- 2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.
- 3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.
- 4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:
  - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
  - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
  - c. Manufacturer representative shall install the test plug for the initial BOP test.
  - d. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.
  - e. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
- 5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
  - a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after

installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead cement), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

- b. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the cement plug. The BOPE test can be initiated after bumping the cement plug with the casing valve open. (only applies to single stage cement jobs, prior to the cement setting up.)
- c. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer and can be initiated immediately with the casing valve open. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to 43 CFR part 3170
  Subpart 3172 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (8 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).
- d. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.
- e. The results of the test shall be reported to the appropriate BLM office.
- f. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.
- g. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.
- h. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per **43 CFR**

# part 3170 Subpart 3172.

# C. DRILLING MUD

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

# D. WASTE MATERIAL AND FLUIDS

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

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

LVO 9/29/2023

# 1. Geologic Formations

TVD of target	11750	Pilot hole depth	N/A
MD at TD:	27279	Deepest expected fresh water	

Basin

Formation	Depth (TVD)	Water/Mineral Bearing/Target	Hazards*
I of matron	from KB	Zone?	The Date of the Da
Rustler	660		
Salt	1010		
Base of Salt	4400		
Delaware	4400		
Cherry Canyon	5360		
Brushy Canyon	6680		
1st Bone Spring Lime	8290		
Bone Spring 1st	9300		
Bone Spring 2nd	9920		
3rd Bone Spring Lime	10440		
Bone Spring 3rd	11215		
Wolfcamp	11700		

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

		Wt			Casing Interval		Casing Interval	
Hole Size	Csg. Size	(PPF)	Grade Conn	From (MD)	To (MD)	From (TVD)	To (TVD)	
14 3/4	10 3/4	45 1/2	J-55	BTC	0	685	0	685
9 7/8	8 5/8	32	P110EC	Sprint FJ	0	11121	0	11121
7 7/8	5 1/2	20	P110EC	DWC / C-IS+	0	27279	0	11750

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

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

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

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

Casing	# Sks	тос	Wt. ppg	Yld (ft3/sack)	Slurry Description
Surface	421	Surf	13.2	1.44	Lead: Class C Cement + additives
Int 1	474	Surf	13.0	2.3	2nd State: Bradenhead Squeeze - Lead: Class C Cement + additives
Int I	510	6724	13.2	1.44	Tail: Class H / C + additives
Production	117	9222	9	3.27	Lead: Class H /C + additives
Production	2125	11222	13.2	1.44	Tail: Class H / C + additives

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

.

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	T	уре	~	Tested to:	
			Annular		X	50% of rated working pressure	
Int 1	13-5/8"	5M		d Ram	Х		
Int I	15-5/0	5101	Pipe	e Ram		- 5M	
			Doub	le Ram	Х	5101	
			Other*				
Production	13-5/8"	5M	Annul	ar (5M)	Х	50% of rated working pressure	
			Blind Ram		Х		
Troduction		5101	Pipe Ram			- 5M	
			Double Ram		Х	5141	
			Other*				
			Annul	ar (5M)			
			Bline	d Ram			
			Pipe	e Ram			
			Doub	le Ram			
			Other*				
N A variance is requested for	the use of a	a diverter or	h the surface	casing. See	attached for	schematic.	
Y A variance is requested to	A variance is requested to run a 5 M annular on a 10M system						

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

## 5. Mud Program (Three String Design)

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

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

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

## **6.** Logging and Testing Procedures

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

Addition	al logs planned	Interval
	Resistivity	Int. shoe to KOP
	Density	Int. shoe to KOP
Х	CBL	Production casing
Х	Mud log	Intermediate shoe to TD
	PEX	

## 7. Drilling Conditions

Condition	Specfiy what type and where?			
BH pressure at deepest TVD	6416			
Abnormal temperature	No			

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

Hydrogren Sulfide (H2S) monitors will be installed prior to drilling out the surface shoe. If H2S is detected in concentrations					
greater than	100 ppm, the operator will comply with the provisions of 43 CFR 3176. If Hydrogen Sulfide is encountered				
measured va	measured values and formations will be provided to the BLM.				
Ν	H2S is present				

Y H2S plan attached.

### COTTON DRAW UNIT 614H

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## 8. Other facets of operation

Is this a walking operation? Potentially

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

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

Will be pre-setting casing? Potentially

- 1 Spudder rig will move in and batch drill surface hole.
  - a. Rig will utilize fresh water based mud to drill surface hole to TD. Solids control will be handled entirely on a closed loop basis.,
- 2 After drilling the surface hole section, the spudder rig will run casing and cement following all of the applicable rules and regulations (43 CFR 3172, all COAs and NMOCD regulations).

 $^{3}$  The wellhead will be installed and tested once the surface casing is cut off and the WOC time has been reached.

- 4 A blind flange with the same pressure rating as the wellhead will be installed to seal the wellbore. Pressure will be monitored with a pressure gauge installed on the wellhead.
- 5 Spudder rig operations is expected to take 4-5 days per well on a multi-well pa.
- 6 The NMOCD will be contacted and notified 24 hours prior to commencing spudder rig operations.
- 7 Drilling operations will be performed with drilling rig. A that time an approved BOP stack will be nippled up and tested on the wellhead before drilling operations commences on each well.
  - a. The NMOCD will be contacted / notified 24 hours before the drilling rig moves back on to the pad with the pre-set surface casing.

### Attachments

X Directional Plan Other, describe

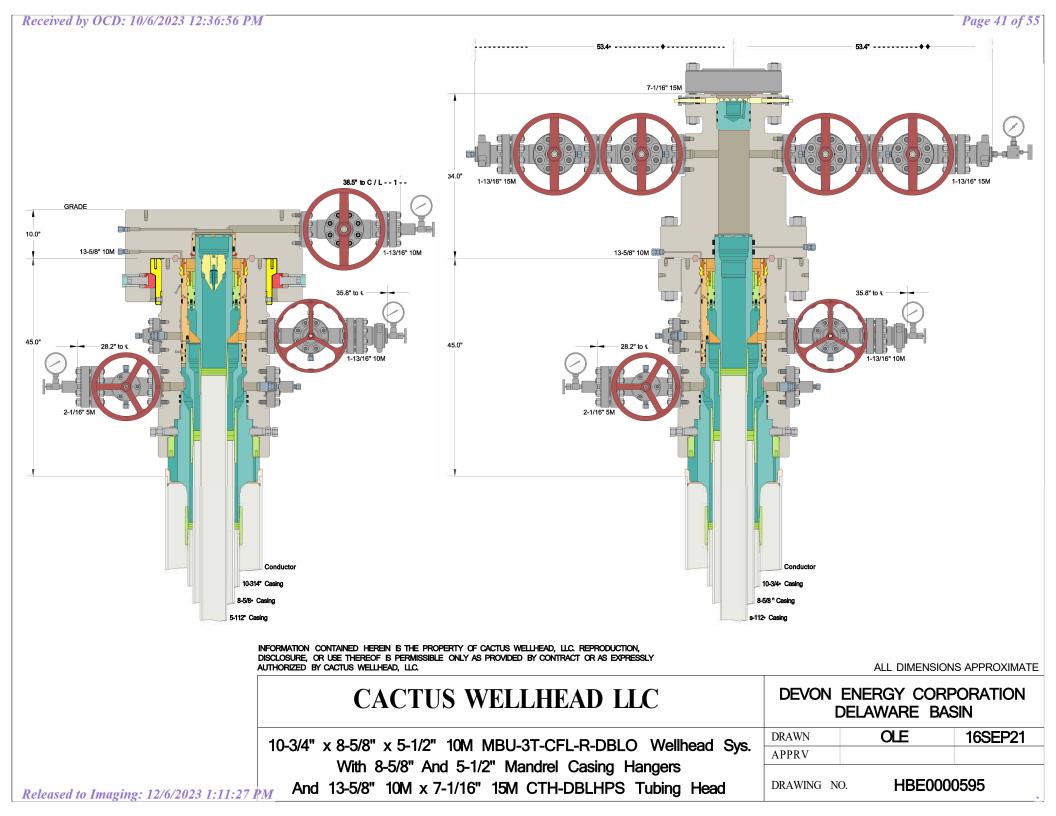


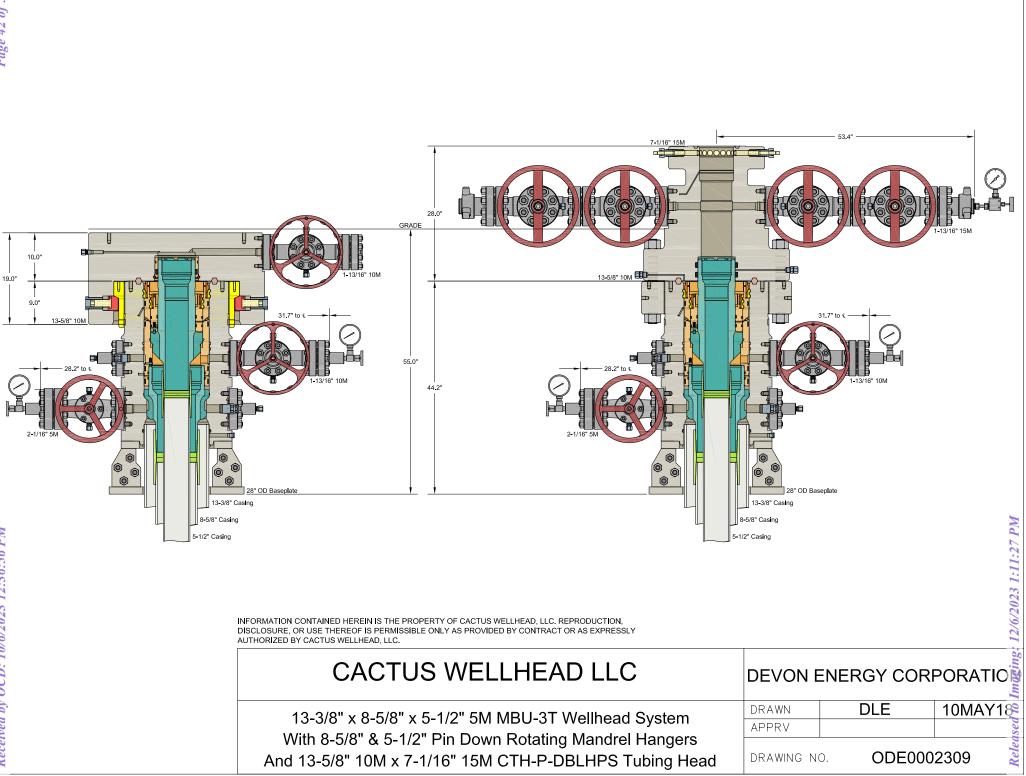
# <u>10-3/4"</u> <u>45.50#</u> <u>0.400"</u> <u>J-55</u>

## **Dimensions (Nominal)**

Outside Diameter Wall Inside Diameter Drift	10.750 0.400 9.950 9.875	in. in. in. in.
Weight, T&C Weight, PE	45.500 44.260	lbs/ft lbs/ft
Internal Yield Pressure at Minimum Yield		
Collapse	2090	psi
Internal Yields Pressure		
PE	3580	psi
STC	3580	psi
BTC	3580	psi
Yield Strength, Pipe Body	715	1000 lbs
Joint Strength, STC		
STC	493	1000 lbs
ВТС	796	1000 lbs

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





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

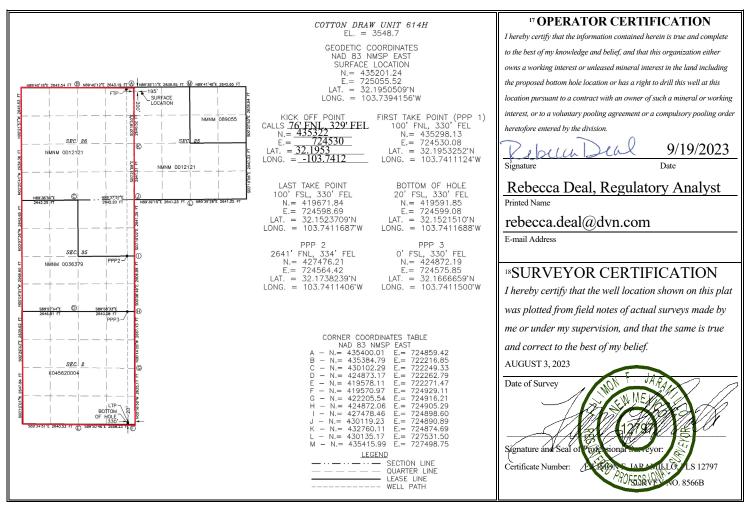
WELL LOCATION AND A CREACE DEDICATION DLAT

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X AMENDED REPORT

				CATIO		LAGE DEDIC					
<sup>1</sup> A	API Number	<sup>2</sup> Pool Code <sup>3</sup> Pool Name									
30	-015-5.	3174		9822	0	PURPLE SAGE; WOLFCAMP				ΛP	
<sup>4</sup> Property C	Code				<sup>5</sup> Property Name				<sup>6</sup> Well Number		
30063	35				COTTON DR	AW UNIT			614H		
<sup>7</sup> OGRID N	lo.				<sup>8</sup> Operator	Name				<sup>9</sup> Elevation	
6137			DEV	ON ENEI	ENERGY PRODUCTION COMPANY, L.P. 3548				3548.7		
<sup>10</sup> Surface Location											
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line		County	
D	25	24 S	31 E		200	NORTH	195	WEST		EDDY	
			пE	Bottom H	lole Location	If Different Fr	om Surface				
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	om the North/South line Feet from the East/West line C			County		
Р	2	25 S	31 E		20	SOUTH	330	EAST EDDY			
<sup>12</sup> Dedicated Acres	s <sup>13</sup> Joint	or Infill	<sup>14</sup> Consolidation	n Code	<sup>15</sup> Order No.						
1,913.48											
	•										

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.



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I	r	J	t	e	r	l	t
I	I	1	ι	e	I	1	ι

API #		
Operator Name:	Property Name:	Well Number
DEVON ENERGY PRODUCTION COMPANY, L.P.	COTTON DRAW UNIT	614H

## Kick Off Point (KOP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
	26	245	31E		76 FNL 329 FEL				LEA
Latitude				Longitude		NAD			
	32.1953	3			-1	03.7412	83		

## First Take Point (FTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
A	26	24S	31E		100	NORTH	330	EAST	EDDY
Latitu 32.1	<sup>de</sup> 95325	2			Longitude <b>103.741</b> 1	1124			NAD 83

## Last Take Point (LTP)

UL P	Section 2	Township 25S	Range 31E	Lot	Feet 100	From N/S SOUTH	Feet 330	From E/W EAST	County EDDY
Latitude					Longitud	le		NAD	
32.1523709					103.7	411687		83	

Is this well the defining well for the Horizontal Spacing Unit? N

Is this well an infill well?

v	

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
DEVON ENERGY PRODUCTION COMPANY, L.P.	COTTON DRAW UNIT	607H
	•	1/7 00 /00 /000

KZ 06/29/2018



# **Connection Data Sheet**

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

#### PIPE PROPERTIES

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

#### **CONNECTION PROPERTIES**

in.
in.
in.
in.
sq.in.
of pipe
of pipe
of pipe
of pipe
of of of

### **CONNECTION PERFORMANCES**

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

#### FIELD TORQUE VALUES

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

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

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

All information is provided by VAM USA or its affiliates at user's sole risk, without liability for loss, damage or injury resulting from the use thereof; and on an "AS IS" basis without warranty or representation of any kind, whether express or implied, including without limitation any warranty of merchantability, fitness for purpose or completeness. This document and its contents are subject to change without notice. In no event shall VAM USA or its affiliates be responsible for any indirect, special, incidental, punitive, exemplary or consequential loss or damage (including without limitation, loss of use, loss of bargain, loss of revenue, profit or anticipated profit) however caused or arising, and whether such losses or damages were foreseeable or VAM USA or its affiliates was advised of the possibility of such damages.

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VAM USA 2107 CityWest Boulevard Suite 1300 Houston, TX 77042 Phone: 713-479-3200 Fax: 713-479-3234 VAM USA Sales E-mail: <u>VAMUSAsales@vam-usa.com</u> Tech Support E-mail: tech.support@vam-usa.com

### **DWC Connection Data Notes:**

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

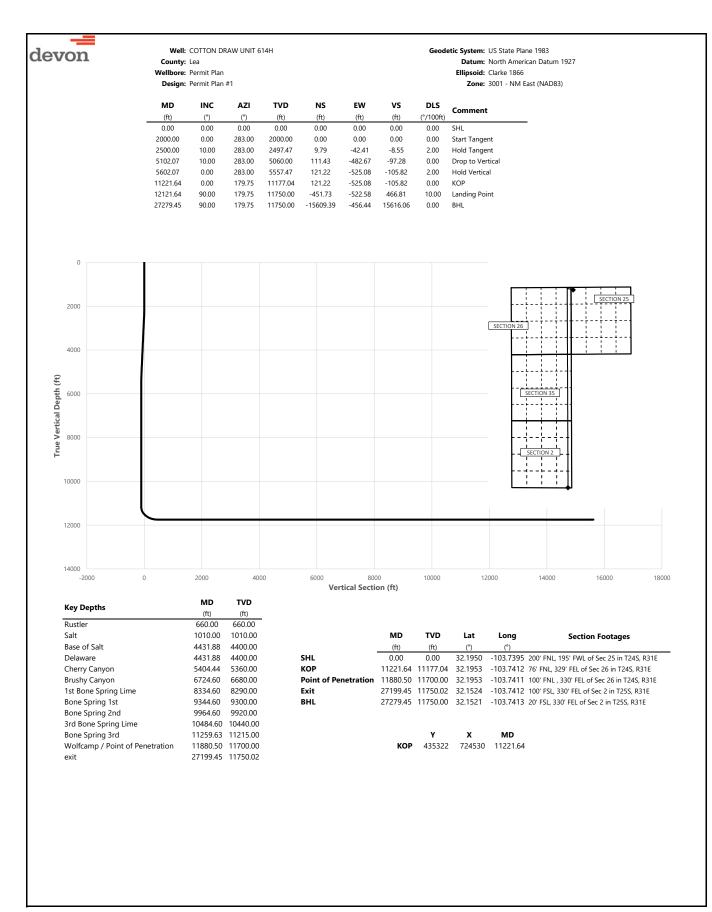
Connection specifications within the control of VAM USA were correct as of the date printed. Specifications are subject to change without notice. Certain connection specifications are dependent on the mechanical properties of the pipe. Mechanical properties of mill proprietary pipe grades were obtained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

All information is provided by VAM USA or its affiliates at user's sole risk, without liability for loss, damage or injury resulting from the use thereof; and on an "AS IS" basis without warranty or representation of any kind, whether express or implied, including without limitation any warranty of merchantability, fitness for purpose or completeness. This document and its contents are subject to change without notice. In no event shall VAM USA or its affiliates be responsible for any indirect, special, incidental, punitive, exemplary or consequential loss or damage (including without limitation, loss of use, loss of bargain, loss of revenue, profit or anticipated profit) however caused or arising, and whether such losses or damages were foreseeable or VAM USA or its affiliates was advised of the possibility of such damages.

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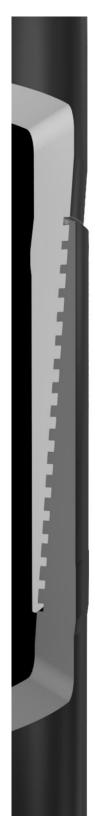
Normal Part Part Part Part Part Part Part Part	douron		Well:	COTTON D	RAW UNIT 6	14H				Geodetic System: US State Plane 1983
Depuise June June June June June June June Jun	aevon									•
ND         KZ         KZ         VD         KS         EV         VS         DD         Comment           10         0         0         0.00         0										•
m         m         m         m         m         m         m         m         m         m           102         02			Design:	Permit Plan	n #1					Zone: 3001 - NM East (NAD83)
(b)         (c)         (c)<		MD	INC	AZI	TVD	NS	EW	vs	DLS	Commont
100.000.000.000.000.000.000.000.00500.000.002.83030.000.000.000.000.000.00500.000.002.83030.000.000.000.000.000.000.00500.000.002.83030.000.000.000.000.000.000.00500.000.0033.0030.000.000.000.000.000.000.00700.000.0033.0030.000.000.000.000.000.000.00700.000.0033.0010.000.000.000.000.000.000.00700.000.0033.0010.000.000.000.000.000.000.00700.000.0033.0010.000.000.000.000.000.000.00710.000.0033.0010.000.000.000.000.000.000.00710.000.0033.0010.000.000.000.000.000.000.00710.000.0033.0010.000.000.000.000.000.000.00710.000.0033.0010.000.000.000.000.000.000.00710.000.0033.0010.000.000.000.000.000.000.00710.000.0033.0010.000.00										
2000         0.00         23.00         0.00         0.00         0.00         0.00           40.00         0.00         23.00         0.00         0.00         0.00         0.00         0.00           40.00         0.00         23.00         0.00         0.00         0.00         0.00         0.00         0.00           60.00         0.00         23.00         0.00         0.00         0.00         0.00         0.00         0.00           0.000         0.00         23.00         0.00         0.00         0.00         0.00         0.00         0.00           0.000         0.00         23.00         0.000         0.00         0.00         0.00         0.00         0.00         0.00           10000         0.00         23.00         10.00         0.00         0.00         0.00         0.00         0.00           10000         0.00         23.00         10.00         0.00         0.00         0.00         0.00         0.00           10000         0.00         23.00         10.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.										SHL
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9000         000         83.00         900.0         0.00         0.00         0.00         0.00           1010.0         000         283.0         1010.0         0.00         0.00         0.00         0.00         0.00           1700.00         0.00         283.0         1000.0         0.00         0.00         0.00         0.00         0.00           1700.00         0.00         283.0         1000.0         0.00			0.00				0.00			
10002         0.00         283.00         10000         0.00         0.00         0.00         5at           110000         0.00         283.00         10000         0.00         0.00         0.00         0.00           130000         0.00         283.00         10000         0.00         0.00         0.00         0.00         0.00           130000         0.00         283.00         10000         0.00         0.00         0.00         0.00         0.00           130000         0.00         283.00         10000         0.00         0.00         0.00         0.00         0.00           130000         0.00         283.00         10000         0.00         0.00         0.00         0.00         0.00           170000         0.00         233.00         1000         0.00         0.00         0.00         0.00         0.00           200000         1.00         233.00         1.53         1.53         1.53         1.53         1.50         1.60         1.60         1.60         1.60         1.60         1.60         1.60         1.60         1.60         1.60         1.60         1.60         1.60         1.60         1.60         1.60 </td <td></td>										
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12000         0.00         28.00         1000         0.00         0.00           15000         0.00         28.00         1000         0.00         0.00         0.00           170000         0.00         28.00         1000         0.00         0.00         0.00           170000         0.00         28.00         1000         0.00         0.00         0.00           190000         0.00         28.00         1000         0.00         0.00         0.00           190000         0.00         28.00         2009         0.00         0.00         0.00         1.00           200000         2.00         28.00         299.98         0.37         -7.7         -3.84         2.00           200000         6.00         28.00         299.98         0.37         -7.7         -3.84         2.00           200000         10.00         28.00         299.97         6.27         -1.77         -3.84         2.00           200000         10.00         28.00         299.79         2.11         -3.13         10.00         -4.14           200000         10.00         28.00         299.17         2.47         -7.7         -5.84 <td< td=""><td></td><td>1100.00</td><td>0.00</td><td>283.00</td><td>1100.00</td><td>0.00</td><td>0.00</td><td>0.00</td><td>0.00</td><td></td></td<>		1100.00	0.00	283.00	1100.00	0.00	0.00	0.00	0.00	
14000         0.00         28.00         1000         0.00         0.00           16000         0.00         28.00         1000         0.00         0.00         0.00           16000         0.00         28.00         1000         0.00         0.00         0.00           16000         0.00         28.00         1000         0.00         0.00         0.00         100           200000         0.00         28.00         1000         0.00         0.00         100         100           200000         0.00         28.00         29.00         1.00         1.00         1.00         1.00           200000         1.00         28.00         29.00         1.00         1.00         1.00         1.00           200000         1.00         28.00         29.00         29.00         29.00         1.00         29.00										
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16000         0.00         0.00         0.00         0.00         0.00         0.00           160000         0.00         0.00         0.00         0.00         0.00         0.00           160000         0.00         0.00         0.00         0.00         0.00         0.00           20000         0.00         0.00         0.00         0.00         0.00         0.00           20000         0.00         0.00         0.00         0.00         0.00         0.00           20000         0.00         0.00         0.00         0.00         0.00         0.00           20000         0.00         0.00         0.00         0.00         0.00         0.00           20000         0.00         0.00         0.00         0.00         1.00         1.00         1.00         1.00           20000         0.00         0.00         0.00         1.00         1.00         1.00         1.00         1.00           20000         1.00         2.000         1.00         2.000         1.00         2.000         1.00         2.000           300000         1.00         2.000         2.000         2.000         2.000         2.000 </td <td></td>										
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190000.000.000.000.000.000.00SAR Tangent2100000.000.83000.09980.37-7.0-0.342.00200000.000.83000.99981.57-0.362.00200000.000.83002.99453.53-1.70-3.682.00200000.000.83002.89453.77-7.27-7.642.00200001.002.83002.8951.37-7.231.5370.002700001.002.83002.891.92.522-1.5370.002700001.002.83002.891.92.5211.5170.002900001.002.83002.891.92.5211.5150.002900001.002.83002.891.92.5211.5150.003100001.002.83003.833-1.4382.9010.003100001.002.83003.833-1.4382.9010.003100001.002.83003.8575.44-1.7053.830.003100001.002.83003.7726.67-2.5246.200.003100001.002.83003.7726.67-2.5454.003100001.002.83003.7726.57-2.5500.003100001.002.83003.7726.57-2.5500.003100001.002.83004.752-2.7525.6200.0031										
200000.000.000.000.000.00NonSurt Tangent200006.00283029984531.523.00200Hold200006.002830298455.31.523.00HoldHald200001002830298747.74.748.5200HoldHald200001002830298751.707.721.731.00HoldHald200001002830298751.707.7231.731.00HoldHald200001002830298192.119.171.8781.00HoldHold200001002830298192.321.1002.302.98973.131.6031.00Hold300001002830289872.321.1011.7775.641.00HoldHoldHold300001002830387.31.6332.9100.00HoldHoldHoldHoldHoldHoldHold300001002830377.726.16-2.544.05HoldHoldHoldHoldHoldHoldHold300001002830377.726.16-2.544.05Hold<										
22000         4.00         28.00         29944         5.73         -5.80         2.00           26000         6.00         28.00         29870         6.27         -27.17         -5.47         2.00           260000         10.00         28.00         25870         17.00         -76.25         -15.37         0.00           270000         10.00         28.00         259.39         17.00         -76.25         -15.37         0.00           2800.00         10.00         28.00         299.39         25.42         -11.00         -22.10         0.00           2900.00         10.00         28.00         289.39         23.2         -11.00         -22.10         0.00           3100.00         10.00         28.00         28.33         32.3         -14.93         -20.00         -           3300.00         10.00         28.00         28.33         32.33         -14.93         -20.00         -           3300.00         10.00         28.00         38.37         4.95         -11.60         -22.54         40.00         -         -           3500.00         10.00         28.00         37.72         6.57         -24.54         40.00         -										Start Tangent
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24000         8.00         2380.00         2380.00         2380.00         2380.00         2380.00         2380.00         2380.00         2380.00         2380.00         2380.00         2380.00         2585.55         1.106         0.00           2000.00         10.00         2380.00         2792.91         1.51         9.317         1.07           2000.00         10.00         2380.00         2792.91         2.51         9.317         1.878         0.00           2000.00         10.00         2380.00         2893.00         254.2         -110.00         2.55.0         0.00           3100.00         10.00         2380.00         3088.35         3.32.3         -143.93         -2.00           300.00         10.00         2380.00         3285.1         41.04         -17.77         7.58.8         0.00           300.00         10.00         2380.00         3697.55         5.26         -245.40         0.00           300.00         10.00         2380.00         367.27         62.35         -285.24         40.00           300.00         10.00         2380.00         367.27         62.36         -27.28         40.00         10.00           3000.00         10.00										
250001000281002497.479.79-4.24-8.552.00Hold Tangent260001000283002694.4317.60-5331.1530.002800001000283002891.392.151-93.1718.700.003000001000283002998.872.32-17.10-25.600.00300000100028300398.853.23-14.93-22.910.00300000100028300398.853.23-14.93-22.910.00300000100028300388.553.24-14.60-22.910.00300000100028300388.553.24-14.60-22.910.00300000100028300388.755.76-22.24-6060.00300000100028300377.266.77-22.26-52.860.00300000100028300377.726.57-22.26-52.860.00300000100028300377.726.57-23.26-52.860.00300000100028300377.726.57-23.26-52.860.00400000100028300377.726.57-23.24-52.900.00400000100028300471.1672.29-33.040.00400000100028300471.6773.800.00400000100028300455.5617.24-37.260.00 <tr<< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr<<>										
27000         1000         28300         279241         2151         -9317         1878         0.00           280000         1000         28300         279241         211009         -22560         0.00           300000         1000         28300         298987         2932         -1701         -2560         0.00           30000         1000         28300         30833         332         -14393         -29010         0.00           30000         1000         28103         30833         4143         -777.7         -5838         0.00           30000         1000         28103         382531         4140         -177.7         -5838         0.00           30000         1000         28300         384227         4856         -3146         -4426         0.00           30000         1000         28300         37722         6167         -26236         5629         0.00           30000         1000         28300         37727         6167         -33040         6552         0.00           40000         1000         28300         47716         7526         -3242         0.00           400000         1000         28300										Hold Tangent
20000         1000         28300         29139         2151         9317         18.78         0.00           20000         1000         28300         28139         2524         -1000         2100         0           310000         10.00         28300         308633         3123         -1433         -2901         0.00           330000         10.00         28300         318633         313         -160.85         -3242         0.00           330000         10.00         28300         3818.79         4455         -114.66         -3242         0.00           360000         10.00         28300         3818.79         4455         -116.6         -3242         0.00           360000         10.00         28300         3607.5         275.7         -225.2         -662.9         0.00           370000         10.00         28300         377.72         60.57         -225.2         -510         0.00           380000         10.00         28300         377.62         64.44         -271.28         -65.29         0.00           400000         10.00         28300         471.64         73.73         -346.84         -373.0         0.00 <tr< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr<>										
2000         1000         28100         298987         292         -12.00         -25.60         0.00           31000         1000         28300         30883         3.23         -14.39         -2901         0.00           320000         1000         28300         30883         3.73         -16.08         -2242         0.00           330000         1000         28300         3263.31         41.40         -17.77         -55.83         0.00           360000         1000         28300         3867.5         44.85         -116.06         -42.65         0.00           370000         1000         28300         3677.2         60.57         -262.36         -52.80         0.00           390000         1000         28300         377.12         60.57         -262.36         -52.80         0.00           410000         1000         28300         377.12         60.57         -262.30         -57.90         0.00           42000         1000         28300         377.60         -30.00         -55.70         0.00           440000         1000         28300         476.00         75.71         -0.00         -55.71         0.00           4500										
3000       1000       28300       2887       29.22       -127.01       -25.60       0.00         3100.00       1000       28300       3088.35       32.23       -143.93       -29.01       0.00         3200.00       1000       28300       366.83       37.13       -16.68       -32.42       0.00         3300.00       1000       28300       383.73       41.04       -177.77       -55.83       0.00         3600.00       1000       28300       382.72       4825       -116.06       -39.24       0.00         3700.00       1000       28300       350.75       52.66       -24.54       -49.47       0.00         3700.00       1000       28300       377.27       60.57       -262.36       -52.28       0.00         4000.00       1000       283.00       376.26       65.82       -59.20       0.00         4100.00       1000       283.00       371.46       76.23       -39.24       0.00         4200.00       10.00       283.00       470.12       80.11       -36.38       -73.44       0.00         4300.00       10.00       283.00       466.56       91.82       -97.72       0.00										
320000       10.00       283.00       3268.31       41.04       -177.77       -35.83       0.00         3300.00       10.00       283.00       338.37       44.95       -194.66       -39.24       0.00         3500.00       10.00       283.00       388.27       48.85       -211.60       -42.65       0.00         3600.00       10.00       283.00       3580.75       27.67       -228.28       -46.06       0.00         3700.00       10.00       283.00       377.72       60.57       -262.36       -52.88       0.00         3900.00       10.00       283.00       377.17       72.9       -312.2       -56.52       0.00         4000.00       10.00       283.00       377.16       72.9       -313.2       -63.11       0.00         4100.00       10.00       283.00       477.14       76.20       -330.4       -65.2       0.00         4400.00       10.00       283.00       476.12       80.10       -36.38       -73.34       0.00         4400.00       10.00       283.00       476.55       91.82       -97.72       40.16       0.00         4400.00       10.00       283.00       465.44       -97.7										
330000         10.00         283.00         3285.31         41.49         -177.77         -55.83         0.00           360000         10.00         283.00         3842.79         44.95         -194.68         -392.4         0.00           360000         10.00         283.00         3842.75         52.76         -22.85.2         -46.06         0.00           380000         10.00         283.00         377.72         60.57         -262.36         -52.88         0.00           380000         10.00         283.00         377.72         60.57         -262.36         -52.88         0.00           4000.00         10.00         283.00         377.67         66.83         -292.26         -57.97         0.00           4000.00         10.00         283.00         477.16         72.29         -313.12         -63.11         0.00           4300.00         10.00         283.00         4470.10         -366.28         -77.44         0.00           4400.00         10.00         283.00         456.56         91.91         -380.80         -76.75         0.00           4500.00         10.00         283.00         456.56         91.82         -37.37         0.00										
34000         10.00         283.00         383.79         44.85         -211.60         -226.50         0.00           3600.00         10.00         283.00         356.27         52.76         -228.52         -46.66         0.00           3700.00         10.00         283.00         3767.23         55.66         -224.54         -49.47         0.00           3800.00         10.00         283.00         377.72         60.57         -226.26         -52.80         0.00           3900.00         10.00         283.00         377.72         60.57         -56.29         0.00           4000.00         10.00         283.00         477.16         72.29         -31.12         -61.11         0.00           4300.00         10.00         283.00         477.16         72.29         -33.04         -66.52         0.00           4400.00         10.00         283.00         467.08         87.91         -380.80         -77.75         0.00           4431.80         10.00         283.00         466.10         95.73         481.56         -69.79         0.00           460.00         10.00         283.00         466.10         95.73         1.00         -200         -200 <td></td>										
360.00       10.00       283.00       3672.3       52.66       -28.52       -46.06       0.00         370.00       10.00       283.00       3772.2       65.57       -282.36       -28.28       0.00         390.00       10.00       283.00       377.27       65.57       -282.36       -52.90       0.00         4000.00       10.00       283.00       377.16       72.20       -53.11       0.00         420.00       10.00       283.00       477.16       72.20       -33.04       -65.52       0.00         430.00.0       10.00       283.00       477.16       72.20       -33.04       -65.52       0.00         440.00       10.00       283.00       476.60       84.01       -36.38       -73.41       0.00         443.18       10.00       283.00       456.56       91.82       -397.27       -80.16       0.00         460.00       10.00       283.00       456.56       91.82       -397.72       -80.16       0.00         470.00       10.00       283.00       456.57       91.82       -397.72       -80.16       0.00         500.00       10.00       283.00       456.57       91.82       -397.20 <td></td>										
370000       10.00       28300       3679.23       56.66       -242.36       -52.88       0.00         3800.00       10.00       283.00       3777.72       60.57       -262.36       -52.98       0.00         4000.00       10.00       283.00       3974.66       68.38       -292.28       -55.29       0.00         4100.00       10.00       283.00       3971.67       72.29       -330.04       -66.52       0.00         4200.00       10.00       283.00       4171.64       76.20       -330.04       -66.52       0.00         4300.00       10.00       283.00       4270.12       80.10       -363.88       -77.34       0.00         4431.88       10.00       283.00       4467.08       87.11       -380.80       -76.75       0.00         4400.00       10.00       283.00       466.04       95.73       -414.64       -83.57       0.00         4800.00       10.00       283.00       466.10       103.54       -448.48       -93.38       0.00         5100.00       10.00       283.00       455.77       11.143       -482.67       -97.20       0.00         5100.00       10.00       283.00       555.79			10.00	283.00		48.85		-42.65	0.00	
380000       10.00       283.00       3777.72       60.57       -262.36       -52.88       0.00         3900.00       10.00       283.00       3876.20       64.48       -292.20       -55.70       0.00         4100.00       10.00       283.00       4073.16       72.29       -313.12       -63.11       0.00         4200.00       10.00       283.00       477.12       80.10       -346.96       -65.93       0.00         4300.00       10.00       283.00       470.12       80.10       -346.96       -77.75       0.00         4400.00       10.00       283.00       4407.08       87.91       -380.80       -77.75       0.00         4400.00       10.00       283.00       4407.08       87.91       -380.80       -76.75       0.00         4600.00       10.00       283.00       465.55       91.82       -37.72       -80.16       0.00         4800.00       10.00       283.00       465.22       96.3       -414.48       -90.38       0.00         4800.00       10.00       283.00       465.10       11.35       -484.84       -90.38       0.00         5000.00       10.00       283.00       505.77										
3900.0         10.0         283.00         3876.20         64.48         -279.28         -56.29         0.00           4000.0         10.00         283.00         397.46         63.38         -296.20         -59.70         0.00           4200.00         10.00         283.00         471.67         76.20         -33.12         63.11         0.00           4200.00         10.00         283.00         477.12         80.10         -36.36         66.93         0.00           4400.00         10.00         283.00         436.08         80.10         -36.36         -76.75         0.00           4431.88         10.00         283.00         436.08         87.91         -380.80         -76.75         0.00           4700.00         10.00         283.00         466.04         95.73         -41.64         -83.57         0.00           4700.00         10.00         283.00         466.25         91.83         -37.34         0.00           4900.00         10.00         283.00         66.44         93.73         0.01           4900.00         10.00         283.00         495.73         -414.64         -83.57         0.00           5102.07         10.00										
4100.0       10.00       283.00       4073.16       72.29       -313.12       -63.11       0.00         4200.00       10.00       283.00       4717.164       76.20       -330.04       -66.512       0.00         4300.00       10.00       283.00       4368.60       84.01       -363.88       -73.34       0.00         4400.00       10.00       283.00       4460.08       85.25       -369.28       -74.75       0.00         4500.00       10.00       283.00       456.56       91.82       -397.72       -80.16       0.00         4600.00       10.00       283.00       466.04       95.73       -141.64       -83.57       0.00         4700.00       10.00       283.00       466.10       103.54       -448.48       -90.38       0.00         4800.00       10.00       283.00       455.56       91.82       -397.72       0.00       Doop to Vertical         5000.00       10.00       283.00       4651.40       111.35       -482.32       -97.20       0.00         5100.07       10.00       283.00       505.79       111.35       -482.32       -97.28       0.00         5100.07       10.00       283.00										
4200.00       10.00       283.00       4171.64       76.20       -330.04       -66.52       0.00         4300.00       10.00       283.00       4270.12       80.10       -346.96       -69.39       0.00         4400.00       10.00       283.00       436.60       84.01       -56.38       -73.34       0.00         4431.88       10.00       283.00       4467.08       87.91       -380.80       -76.75       0.00         4600.00       10.00       283.00       466.04       95.73       -91.44       -83.57       0.00         4700.00       10.00       283.00       466.104       95.73       -414.64       -83.57       0.00         4800.00       10.00       283.00       466.104       95.73       -414.64       -83.57       0.00         5000.00       10.00       283.00       466.104       95.73       -111.35       -482.32       -97.20       0.00         5100.00       10.00       283.00       505.77       111.43       -482.47       -97.28       0.00       Drop to Vertical         5200.00       6.04       283.00       535.57       114.89       -104.42       2.00       Drop to Vertical         5300.00										
4300.00       10.00       283.00       4270.12       80.10       -346.96       -69.93       0.00         4400.00       10.00       283.00       4366.60       84.01       -363.88       -73.44       0.00         4431.88       10.00       283.00       4467.08       87.91       -380.80       -76.75       0.00         4600.00       10.00       283.00       4664.04       95.73       -414.64       0.00         4700.00       10.00       283.00       4664.04       95.73       -414.64       90.8       0.00         4800.000       10.00       283.00       4661.00       103.54       -444.84       90.38       0.00         4900.00       10.00       283.00       4661.00       103.54       -448.48       -90.38       0.00         5100.00       10.00       283.00       505.77       11.135       -482.32       -97.20       0.00         5102.07       10.00       283.00       505.77       11.43       -482.42       -97.28       0.00       Drop to Vertical         5200.00       6.04       283.00       535.57       119.62       -518.14       -104.49       2.00       Cherry Canyon         5404.44       3.95										
4400.00       10.00       283.00       4368.60       84.01       -363.88       -73.34       0.00         4431.88       10.00       283.00       4400.00       85.25       -369.28       -74.42       0.00         4500.00       10.00       283.00       4467.08       87.91       -380.80       -76.75       0.00         4600.00       10.00       283.00       4664.04       95.73       -414.64       -83.57       0.00         4700.00       10.00       283.00       4664.04       95.73       -414.64       -83.57       0.00         4900.00       10.00       283.00       4661.04       95.73       -414.64       -93.79       0.00         5000.00       10.00       283.00       4655.56       97.63       -97.20       0.00         5100.00       10.00       283.00       505.77       111.35       -482.32       -97.20       0.00         5100.00       10.00       283.00       515.72       114.89       -97.83       0.00       -00         5300.00       6.04       283.00       515.72       117.64       -509.58       -102.70       2.00         5400.00       4.04       283.00       5355.71       19.62										
4500.00       10.00       283.00       4467.08       87.91       -380.80       -76.75       0.00         4600.00       10.00       283.00       4565.56       91.82       -397.72       -80.16       0.00         4700.00       10.00       283.00       4664.04       95.73       -414.64       -83.57       0.00         4800.00       10.00       283.00       4762.52       99.63       -414.64       -90.38       0.00         4900.00       10.00       283.00       4762.52       99.63       -448.48       -90.38       0.00         5000.00       10.00       283.00       4861.00       103.54       -448.48       -90.38       0.00         5100.00       10.00       283.00       505.77       111.35       -482.37       -97.28       0.00         5102.07       10.00       283.00       505.77       114.89       -497.63       -102.9       2.00         5300.00       6.04       283.00       535.57       119.62       -518.44       -104.49       2.00       Cherry Canyon         5400.00       0.04       283.00       535.57.47       121.22       -525.08       -105.82       2.00       Forty Canyon         5602.07										
4600.00       10.00       283.00       4565.56       91.82       -397.72       -80.16       0.00         4700.00       10.00       283.00       4664.04       95.73       -414.64       -83.57       0.00         4800.00       10.00       283.00       4762.52       99.63       -431.56       -86.97       0.00         5000.00       10.00       283.00       4861.00       103.54       -448.48       -90.38       0.00         5100.00       10.00       283.00       4959.48       107.44       -465.40       -93.79       0.00         5100.00       10.00       283.00       505.797       111.35       -482.32       -97.20       0.00         5102.07       10.00       283.00       505.797       111.43       -482.67       -97.28       0.00       Drop to Vertical         5200.00       8.04       283.00       515.672       114.89       -497.63       -100.29       2.00       100.42       283.00       535.57       119.62       -518.14       -104.42       2.00       100.42       2.00       100.42       2.00       100.42       2.00       100.42       2.00       100.42       2.00       100.42       2.00       100.42       2.00       <										Base of Salt, Delaware
4700.0010.00283.004664.0495.73-414.64-83.570.004800.0010.00283.004762.5299.63-431.56-86.970.004900.0010.00283.004861.00103.54-448.48-90.380.005000.0010.00283.005057.97111.35-482.32-97.200.005102.0710.00283.00506.00111.43-482.67-97.280.005102.0710.00283.00515.72114.89-497.63-100.292.005300.006.04283.00525.96117.64-509.58-102.702.005404.443.95283.00536.00119.69-518.14-104.422.005400.004.04283.00536.00119.69-518.44-104.422.005404.443.95283.00536.00119.69-518.44-104.422.005400.000.04283.00555.40121.22-525.08-105.822.005600.000.04283.005557.47121.22-525.08-105.820.005600.000.00179.75575.40121.22-525.08-105.820.005900.000.00179.75565.40121.22-525.08-105.820.005900.000.00179.75565.40121.22-525.08-105.820.005900.000.00179.75565.40121.22-525.08-105.82										
4900.0010.00283.004861.00103.54-448.48-90.380.005000.0010.00283.004959.48107.44-465.40-93.790.005100.0010.00283.005057.97111.35-482.32-97.200.005102.0710.00283.005050.00111.43-482.67-97.280.005200.008.04283.005156.72114.89-497.63-100.292.005300.006.04283.00525.96117.64-509.58-102.702.005400.004.04283.005355.57119.62-518.14-104.422.005404.443.95283.00536.00119.69-518.44-104.422.005600.000.04283.00555.40121.22-525.08-105.822.005602.070.00283.00555.40121.22-525.08-105.822.005602.070.00179.755655.40121.22-525.08-105.822.005800.000.00179.755655.40121.22-525.08-105.820.005900.000.00179.755655.40121.22-525.08-105.820.005900.000.00179.755855.40121.22-525.08-105.820.005900.000.00179.755855.40121.22-525.08-105.820.005900.000.00179.755855.40121.22-525.08-105.82<										
5000.00       10.00       283.00       4959.48       107.44       -465.40       -93.79       0.00         5100.00       10.00       283.00       5057.97       111.35       -482.32       -97.20       0.00         5102.07       10.00       283.00       506.00       111.43       -482.67       -97.28       0.00         5200.00       8.04       283.00       5156.72       114.89       -497.63       -100.29       2.00         5300.00       6.04       283.00       5255.57       117.64       -595.58       -102.70       2.00         5404.44       3.95       283.00       5355.57       119.62       -518.14       -104.49       2.00       Cherry Canyon         5500.00       2.04       283.00       5355.57       119.62       -518.44       -104.49       2.00       Cherry Canyon         500.00       2.04       283.00       5355.40       121.22       -525.08       -105.82       2.00       Forty Canyon         500.00       0.04       283.00       555.40       121.22       -525.08       -105.82       0.00         500.00       0.00       179.75       5655.40       121.22       -525.08       -105.82       0.00										
5100.00       10.00       283.00       5057.97       111.35       -482.32       -97.20       0.00         5102.07       10.00       283.00       5060.00       111.43       -482.67       -97.28       0.00         5200.00       8.04       283.00       5156.72       114.89       -497.63       -100.29       2.00         5300.00       6.04       283.00       525.56       117.64       -509.58       -102.70       2.00         5400.00       4.04       283.00       535.57       119.62       -518.14       -104.42       2.00         5404.44       3.95       283.00       535.57       119.62       -518.14       -104.42       2.00         5600.00       2.04       283.00       535.57       119.62       -518.14       -104.42       2.00         5600.00       2.04       283.00       535.57       121.22       -525.08       -105.82       2.00         5600.00       0.04       283.00       555.40       121.22       -525.08       -105.82       2.00         5700.00       0.00       179.75       5655.40       121.22       -525.08       -105.82       0.00         5800.00       0.00       179.75       5855.4										
5102.07       10.00       283.00       5060.00       111.43       -482.67       -97.28       0.00       Drop to Vertical         5200.00       8.04       283.00       5156.72       114.89       -497.63       -100.29       2.00         5300.00       6.04       283.00       5255.96       117.64       -509.58       -102.70       2.00         5400.00       4.04       283.00       5355.57       119.62       -518.14       -104.42       2.00         5404.44       3.95       283.00       5355.57       119.69       -518.14       -104.42       2.00         5500.00       2.04       283.00       5455.42       120.81       -523.31       -105.47       2.00         5600.00       0.04       283.00       555.40       121.22       -525.08       -105.82       2.00         5602.07       0.00       283.00       555.40       121.22       -525.08       -105.82       0.00         5800.00       0.00       179.75       5655.40       121.22       -525.08       -105.82       0.00         5900.00       0.00       179.75       585.40       121.22       -525.08       -105.82       0.00         5900.00       0.00										
5300.00       6.04       283.00       5255.96       117.64       -509.58       -102.70       2.00         5400.00       4.04       283.00       5355.57       119.62       -518.14       -104.42       2.00         5404.44       3.95       283.00       5360.00       119.69       -518.44       -104.49       2.00       Cherry Canyon         5500.00       2.04       283.00       5455.42       120.81       -523.31       -105.47       2.00         5600.00       0.04       283.00       5555.40       121.22       -525.08       -105.82       2.00         5602.07       0.00       283.00       5557.47       121.22       -525.08       -105.82       2.00         5800.00       0.00       179.75       5655.40       121.22       -525.08       -105.82       0.00         5800.00       0.00       179.75       5755.40       121.22       -525.08       -105.82       0.00         5900.00       0.00       179.75       5855.40       121.22       -525.08       -105.82       0.00         5900.00       0.00       179.75       5955.40       121.22       -525.08       -105.82       0.00         6000.00       0.00										Drop to Vertical
5400.00       4.04       283.00       5355.57       119.62       -518.14       -104.42       2.00         5404.44       3.95       283.00       5360.00       119.69       -518.44       -104.49       2.00       Cherry Canyon         5500.00       2.04       283.00       5455.42       120.81       -523.31       -105.47       2.00         5600.00       0.04       283.00       5555.40       121.22       -525.08       -105.82       2.00         5602.07       0.00       283.00       5557.47       121.22       -525.08       -105.82       2.00         5700.00       0.00       179.75       5655.40       121.22       -525.08       -105.82       2.00         5800.00       0.00       179.75       5755.40       121.22       -525.08       -105.82       0.00         5900.00       0.00       179.75       5755.40       121.22       -525.08       -105.82       0.00         5900.00       0.00       179.75       5855.40       121.22       -525.08       -105.82       0.00         5000.00       0.00       179.75       5855.40       121.22       -525.08       -105.82       0.00         600.00       0.00										
5404.44       3.95       283.00       5360.00       119.69       -518.44       -104.49       2.00       Cherry Canyon         5500.00       2.04       283.00       5455.42       120.81       -523.31       -105.47       2.00         5600.00       0.04       283.00       5555.40       121.22       -525.08       -105.82       2.00         5602.07       0.00       283.00       5557.47       121.22       -525.08       -105.82       2.00         5700.00       0.00       179.75       5655.40       121.22       -525.08       -105.82       2.00         5800.00       0.00       179.75       5655.40       121.22       -525.08       -105.82       0.00         5800.00       0.00       179.75       5655.40       121.22       -525.08       -105.82       0.00         5900.00       0.00       179.75       5855.40       121.22       -525.08       -105.82       0.00         6000.00       0.00       179.75       5855.40       121.22       -525.08       -105.82       0.00         600.00       0.00       179.75       5955.40       121.22       -525.08       -105.82       0.00         600.00       0.00										
5500.00       2.04       283.00       5455.42       120.81       -523.31       -105.47       2.00         5600.00       0.04       283.00       5555.40       121.22       -525.08       -105.82       2.00         5602.07       0.00       283.00       5557.47       121.22       -525.08       -105.82       2.00         5700.00       0.00       179.75       5655.40       121.22       -525.08       -105.82       2.00         5800.00       0.00       179.75       5655.40       121.22       -525.08       -105.82       0.00         5900.00       0.00       179.75       5755.40       121.22       -525.08       -105.82       0.00         5900.00       0.00       179.75       5855.40       121.22       -525.08       -105.82       0.00         5900.00       0.00       179.75       5855.40       121.22       -525.08       -105.82       0.00         6000.00       0.00       179.75       5955.40       121.22       -525.08       -105.82       0.00         6100.00       0.00       179.75       6055.40       121.22       -525.08       -105.82       0.00         6200.00       0.00       179.75										Cherry Canyon
5602.07       0.00       283.00       5557.47       121.22       -525.08       -105.82       2.00       Hold Vertical         5700.00       0.00       179.75       5655.40       121.22       -525.08       -105.82       0.00         5800.00       0.00       179.75       5755.40       121.22       -525.08       -105.82       0.00         5900.00       0.00       179.75       5855.40       121.22       -525.08       -105.82       0.00         6000.00       0.00       179.75       5955.40       121.22       -525.08       -105.82       0.00         6000.00       0.00       179.75       5955.40       121.22       -525.08       -105.82       0.00         6100.00       0.00       179.75       5955.40       121.22       -525.08       -105.82       0.00         6200.00       0.00       179.75       6055.40       121.22       -525.08       -105.82       0.00         6200.00       0.00       179.75       6155.40       121.22       -525.08       -105.82       0.00										
5700.000.00179.755655.40121.22-525.08-105.820.005800.000.00179.755755.40121.22-525.08-105.820.005900.000.00179.755855.40121.22-525.08-105.820.006000.000.00179.755955.40121.22-525.08-105.820.006000.000.00179.755955.40121.22-525.08-105.820.006100.000.00179.756055.40121.22-525.08-105.820.006200.000.00179.756155.40121.22-525.08-105.820.00										
5800.00       0.00       179.75       5755.40       121.22       -525.08       -105.82       0.00         5900.00       0.00       179.75       5855.40       121.22       -525.08       -105.82       0.00         6000.00       0.00       179.75       5955.40       121.22       -525.08       -105.82       0.00         6100.00       0.00       179.75       5955.40       121.22       -525.08       -105.82       0.00         6100.00       0.00       179.75       6055.40       121.22       -525.08       -105.82       0.00         6200.00       0.00       179.75       6155.40       121.22       -525.08       -105.82       0.00										Hold Vertical
5900.00         0.00         179.75         5855.40         121.22         -525.08         -105.82         0.00           6000.00         0.00         179.75         5955.40         121.22         -525.08         -105.82         0.00           6100.00         0.00         179.75         6955.40         121.22         -525.08         -105.82         0.00           6200.00         0.00         179.75         6055.40         121.22         -525.08         -105.82         0.00           6200.00         0.00         179.75         6155.40         121.22         -525.08         -105.82         0.00										
6100.00 0.00 179.75 6055.40 121.22 -525.08 -105.82 0.00 6200.00 0.00 179.75 6155.40 121.22 -525.08 -105.82 0.00										
6200.00 0.00 179.75 6155.40 121.22 -525.08 -105.82 0.00										

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devon		Well: County:		0RAW UNIT 61	4H				Geodetic System: US State Plane 1983
			Permit Plar	ı					Datum: North American Datum 1927 Ellipsoid: Clarke 1866
			Permit Plar						Zone: 3001 - NM East (NAD83)
	MD	INC	AZI	TVD	NS	EW	vs	DLS	
_	(ft)	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(°/100ft)	Comment
	6400.00	0.00	179.75	6355.40	121.22	-525.08	-105.82	0.00	
	6500.00 6600.00	0.00 0.00	179.75 179.75	6455.40 6555.40	121.22 121.22	-525.08 -525.08	-105.82 -105.82	0.00 0.00	
	6700.00	0.00	179.75	6655.40	121.22	-525.08	-105.82	0.00	
	6724.60	0.00	179.75	6680.00	121.22	-525.08	-105.82	0.00	Brushy Canyon
	6800.00	0.00	179.75	6755.40	121.22	-525.08	-105.82	0.00	
	6900.00 7000.00	0.00 0.00	179.75 179.75	6855.40 6955.40	121.22 121.22	-525.08 -525.08	-105.82 -105.82	0.00 0.00	
	7100.00	0.00	179.75	7055.40	121.22	-525.08	-105.82	0.00	
	7200.00	0.00	179.75	7155.40	121.22	-525.08	-105.82	0.00	
	7300.00	0.00	179.75	7255.40	121.22	-525.08	-105.82	0.00	
	7400.00 7500.00	0.00 0.00	179.75 179.75	7355.40 7455.40	121.22 121.22	-525.08 -525.08	-105.82 -105.82	0.00 0.00	
	7600.00	0.00	179.75	7555.40	121.22	-525.08	-105.82	0.00	
	7700.00	0.00	179.75	7655.40	121.22	-525.08	-105.82	0.00	
	7800.00	0.00	179.75	7755.40	121.22	-525.08	-105.82	0.00	
	7900.00	0.00	179.75	7855.40	121.22	-525.08	-105.82	0.00	
	8000.00 8100.00	0.00 0.00	179.75 179.75	7955.40 8055.40	121.22 121.22	-525.08 -525.08	-105.82 -105.82	0.00 0.00	
	8200.00	0.00	179.75	8155.40	121.22	-525.08	-105.82	0.00	
	8300.00	0.00	179.75	8255.40	121.22	-525.08	-105.82	0.00	
	8334.60	0.00	179.75	8290.00	121.22	-525.08	-105.82	0.00	1st Bone Spring Lime
	8400.00 8500.00	0.00 0.00	179.75 179.75	8355.40 8455.40	121.22 121.22	-525.08 -525.08	-105.82 -105.82	0.00 0.00	
	8600.00	0.00	179.75	8555.40	121.22	-525.08	-105.82	0.00	
	8700.00	0.00	179.75	8655.40	121.22	-525.08	-105.82	0.00	
	8800.00	0.00	179.75	8755.40	121.22	-525.08	-105.82	0.00	
	8900.00	0.00	179.75 179.75	8855.40	121.22 121.22	-525.08	-105.82	0.00	
	9000.00 9100.00	0.00 0.00	179.75	8955.40 9055.40	121.22	-525.08 -525.08	-105.82 -105.82	0.00 0.00	
	9200.00	0.00	179.75	9155.40	121.22	-525.08	-105.82	0.00	
	9300.00	0.00	179.75	9255.40	121.22	-525.08	-105.82	0.00	
	9344.60	0.00	179.75	9300.00	121.22	-525.08	-105.82	0.00	Bone Spring 1st
	9400.00 9500.00	0.00 0.00	179.75 179.75	9355.40 9455.40	121.22 121.22	-525.08 -525.08	-105.82 -105.82	0.00 0.00	
	9600.00	0.00	179.75	9555.40	121.22	-525.08	-105.82	0.00	
	9700.00	0.00	179.75	9655.40	121.22	-525.08	-105.82	0.00	
	9800.00	0.00	179.75	9755.40	121.22	-525.08	-105.82	0.00	
	9900.00 9964.60	0.00 0.00	179.75 179.75	9855.40 9920.00	121.22 121.22	-525.08 -525.08	-105.82 -105.82	0.00 0.00	Bone Spring 2nd
	10000.00	0.00	179.75	9955.40	121.22	-525.08	-105.82	0.00	
	10100.00	0.00	179.75	10055.40	121.22	-525.08	-105.82	0.00	
	10200.00	0.00	179.75	10155.40	121.22	-525.08	-105.82	0.00	
	10300.00 10400.00	0.00 0.00	179.75 179.75	10255.40 10355.40	121.22 121.22	-525.08 -525.08	-105.82 -105.82	0.00 0.00	
	10400.00	0.00	179.75	10333.40	121.22	-525.08	-105.82	0.00	3rd Bone Spring Lime
	10500.00	0.00	179.75	10455.40	121.22	-525.08	-105.82	0.00	
	10600.00	0.00	179.75	10555.40	121.22	-525.08	-105.82	0.00	
	10700.00 10800.00	0.00 0.00	179.75 179.75	10655.40 10755.40	121.22 121.22	-525.08 -525.08	-105.82 -105.82	0.00 0.00	
	10800.00	0.00	179.75	10755.40	121.22	-525.08	-105.82	0.00	
	11000.00	0.00	179.75	10955.40	121.22	-525.08	-105.82	0.00	
	11100.00	0.00	179.75	11055.40	121.22	-525.08	-105.82	0.00	
	11200.00 11221.64	0.00 0.00	179.75 179.75	11155.40 11177.04	121.22 121.22	-525.08 -525.08	-105.82 -105.82	0.00 0.00	КОР
	11259.63	3.80	179.75	11215.00	121.22	-525.08	-105.82	10.00	Bone Spring 3rd
	11300.00	7.84	179.75	11255.16	115.87	-525.05	-100.48	10.00	
	11400.00	17.84	179.75	11352.53	93.69	-524.96	-78.30	10.00	
	11500.00	27.84	179.75	11444.58	54.93	-524.79	-39.56	10.00	
	11600.00 11700.00	37.84 47.84	179.75 179.75	11528.49 11601.73	0.77 -67.13	-524.55 -524.26	14.56 82.42	10.00 10.00	
	11800.00	57.84	179.75	11662.07	-146.72	-523.91	161.97	10.00	
	11880.50	65.89	179.75	11700.00	-217.65	-523.60	232.86	10.00	Wolfcamp / Point of Penetration
	11900.00	67.84	179.75	11707.66	-235.57	-523.52	250.78	10.00	
	12000.00 12100.00	77.84 87.84	179.75 179.75	11737.14 11749.59	-331.00 -430.09	-523.10 -522.67	346.15 445.19	10.00 10.00	
	12100.00	90.00	179.75	11749.39	-450.09 -451.73	-522.67	466.81	10.00	Landing Point
	12200.00	90.00	179.75	11750.00	-530.09	-522.24	545.12	0.00	-
	12300.00	90.00	179.75	11750.00	-630.08	-521.80	645.07	0.00	
	12400.00	90.00	179.75	11750.00	-730.08	-521.36	745.01	0.00	

ļ			COTTON						
devon		Well: County:		RAW UNIT 6	14H				Geodetic System: US State Plane 1983 Datum: North American Datum 1927
			Permit Plar	ı					Ellipsoid: Clarke 1866
		Design:	Permit Plar	n #1					Zone: 3001 - NM East (NAD83)
	MD	INC	AZI	TVD	NS	EW	vs	DLS	
	(ft)	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(°/100ft)	Comment
-	12500.00	90.00	179.75	11750.00	-830.08	-520.93	844.95	0.00	
	12600.00 12700.00	90.00 90.00	179.75 179.75	11750.00 11750.00	-930.08 -1030.08	-520.49 -520.05	944.90 1044.84	0.00 0.00	
	12700.00	90.00	179.75	11750.00	-1130.08	-520.05	1044.84	0.00	
	12900.00	90.00	179.75	11750.00	-1230.08	-519.18	1244.73	0.00	
	13000.00	90.00	179.75	11750.00	-1330.08	-518.74	1344.67	0.00	
	13100.00 13200.00	90.00 90.00	179.75 179.75	11750.00 11750.00	-1430.08 -1530.08	-518.31 -517.87	1444.62 1544.56	0.00 0.00	
	13300.00	90.00	179.75	11750.00	-1630.07	-517.43	1644.50	0.00	
	13400.00	90.00	179.75	11750.00	-1730.07	-517.00	1744.45	0.00	
	13500.00	90.00	179.75	11750.00	-1830.07	-516.56	1844.39	0.00	
	13600.00 13700.00	90.00 90.00	179.75 179.75	11750.00 11750.00	-1930.07 -2030.07	-516.12 -515.69	1944.33 2044.28	0.00 0.00	
	13800.00	90.00	179.75	11750.00	-2130.07	-515.25	2144.22	0.00	
	13900.00	90.00	179.75	11750.00	-2230.07	-514.81	2244.16	0.00	
	14000.00	90.00	179.75	11750.00	-2330.07	-514.38	2344.11	0.00	
	14100.00 14200.00	90.00 90.00	179.75 179.75	11750.00 11750.00	-2430.07 -2530.07	-513.94 -513.50	2444.05 2544.00	0.00 0.00	
	14200.00	90.00	179.75	11750.00	-2630.07	-513.50	2544.00 2643.94	0.00	
	14400.00	90.00	179.75	11750.00	-2730.06	-512.63	2743.88	0.00	
	14500.00	90.00	179.75	11750.00	-2830.06	-512.19	2843.83	0.00	
	14600.00 14700.00	90.00 90.00	179.75 179.75	11750.00 11750.00	-2930.06 -3030.06	-511.76 -511.32	2943.77 3043.71	0.00 0.00	
	14800.00	90.00	179.75	11750.00	-3130.06	-510.88	3143.66	0.00	
	14900.00	90.00	179.75	11750.00	-3230.06	-510.45	3243.60	0.00	
	15000.00	90.00	179.75	11750.00	-3330.06	-510.01	3343.54	0.00	
	15100.00 15200.00	90.00 90.00	179.75 179.75	11750.00 11750.00	-3430.06 -3530.06	-509.57 -509.14	3443.49 3543.43	0.00 0.00	
	15300.00	90.00	179.75	11750.00	-3630.06	-508.70	3643.37	0.00	
	15400.00	90.00	179.75	11750.00	-3730.05	-508.27	3743.32	0.00	
	15500.00	90.00	179.75	11750.00	-3830.05	-507.83	3843.26	0.00	
	15600.00 15700.00	90.00 90.00	179.75 179.75	11750.00 11750.00	-3930.05 -4030.05	-507.39 -506.96	3943.20 4043.15	0.00 0.00	
	15800.00	90.00	179.75	11750.00	-4130.05	-506.52	4143.09	0.00	
	15900.00	90.00	179.75	11750.01	-4230.05	-506.08	4243.04	0.00	
	16000.00	90.00	179.75	11750.01	-4330.05	-505.65	4342.98	0.00	
	16100.00 16200.00	90.00 90.00	179.75 179.75	11750.01 11750.01	-4430.05 -4530.05	-505.21 -504.77	4442.92 4542.87	0.00 0.00	
	16300.00	90.00	179.75	11750.01	-4630.05	-504.34	4642.81	0.00	
	16400.00	90.00	179.75	11750.01	-4730.05	-503.90	4742.75	0.00	
	16500.00 16600.00	90.00 90.00	179.75 179.75	11750.01 11750.01	-4830.04 -4930.04	-503.46 -503.03	4842.70 4942.64	0.00 0.00	
	16700.00	90.00	179.75	11750.01		-503.03	5042.58	0.00	
	16800.00	90.00	179.75	11750.01	-5130.04	-502.15	5142.53	0.00	
	16900.00	90.00	179.75	11750.01	-5230.04	-501.72	5242.47	0.00	
	17000.00 17100.00	90.00 90.00	179.75 179.75	11750.01 11750.01	-5330.04 -5430.04	-501.28 -500.84	5342.41 5442.36	0.00 0.00	
	17200.00	90.00	179.75	11750.01	-5530.04	-500.41	5542.30	0.00	
	17300.00	90.00	179.75	11750.01	-5630.04	-499.97	5642.25	0.00	
	17400.00	90.00	179.75	11750.01	-5730.04	-499.53	5742.19	0.00	
	17500.00 17600.00	90.00 90.00	179.75 179.75	11750.01 11750.01	-5830.03 -5930.03	-499.10 -498.66	5842.13 5942.08	0.00 0.00	
	17700.00	90.00	179.75	11750.01	-6030.03	-498.22	6042.02	0.00	
	17800.00	90.00	179.75	11750.01	-6130.03	-497.79	6141.96	0.00	
	17900.00	90.00	179.75	11750.01	-6230.03	-497.35	6241.91	0.00	
	18000.00 18100.00	90.00 90.00	179.75 179.75	11750.01 11750.01	-6330.03 -6430.03	-496.91 -496.48	6341.85 6441.79	0.00 0.00	
	18200.00	90.00	179.75	11750.01	-6530.03	-496.04	6541.74	0.00	
	18300.00	90.00	179.75	11750.01	-6630.03	-495.60	6641.68	0.00	
	18400.00	90.00	179.75	11750.01	-6730.03	-495.17	6741.62	0.00	
	18500.00 18600.00	90.00 90.00	179.75 179.75	11750.01 11750.01	-6830.03 -6930.02	-494.73 -494.29	6841.57 6941.51	0.00 0.00	
	18700.00	90.00	179.75	11750.01	-7030.02	-494.29 -493.86	7041.46	0.00	
	18800.00	90.00	179.75	11750.01	-7130.02	-493.42	7141.40	0.00	
	18900.00	90.00	179.75	11750.01	-7230.02	-492.98	7241.34	0.00	
	19000.00 19100.00	90.00 90.00	179.75 179.75	11750.01 11750.01	-7330.02 -7430.02	-492.55 -492.11	7341.29 7441.23	0.00 0.00	
	19200.00	90.00	179.75	11750.01	-7530.02	-492.11	7541.17	0.00	
	19300.00	90.00	179.75	11750.01	-7630.02	-491.24	7641.12	0.00	
	19400.00	90.00	179.75	11750.01	-7730.02	-490.80	7741.06	0.00	

devon		Well	COTTON D	RAW UNIT 6	14H				Geodetic System:	US State Plane 198	33	
devon		County								North American D	atum 1927	
			Permit Plar Permit Plar							Clarke 1866 3001 - NM East (N	IAD83)	
	MD	INC	AZI	TVD	NS	EW	vs	DLS				
	(ft)	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(°/100ft)	Comment		_	
	19500.00	90.00	179.75	11750.01	-7830.02	-490.36	7841.00	0.00				
	19600.00 19700.00	90.00 90.00	179.75 179.75	11750.01 11750.01	-7930.01 -8030.01	-489.93 -489.49	7940.95 8040.89	0.00 0.00				
	19800.00	90.00	179.75	11750.01	-8130.01	-489.05	8140.83	0.00				
	19900.00 20000.00	90.00 90.00	179.75 179.75	11750.01 11750.01	-8230.01 -8330.01	-488.62 -488.18	8240.78 8340.72	0.00 0.00				
	20100.00	90.00	179.75	11750.01	-8430.01	-487.75	8440.66	0.00				
	20200.00	90.00	179.75	11750.01	-8530.01	-487.31	8540.61	0.00				
	20300.00 20400.00	90.00 90.00	179.75 179.75	11750.01 11750.01	-8630.01 -8730.01	-486.87 -486.44	8640.55 8740.50	0.00 0.00				
	20400.00	90.00	179.75	11750.01	-8830.01	-486.00	8840.44	0.00				
	20600.00	90.00	179.75	11750.01	-8930.01	-485.56	8940.38	0.00				
	20700.00 20800.00	90.00 90.00	179.75 179.75	11750.01 11750.01	-9030.00 -9130.00	-485.13 -484.69	9040.33 9140.27	0.00 0.00				
	20900.00	90.00	179.75	11750.01	-9230.00	-484.25	9240.21	0.00				
	21000.00	90.00	179.75	11750.01	-9330.00	-483.82	9340.16	0.00				
	21100.00	90.00	179.75	11750.01	-9430.00 -9530.00	-483.38	9440.10	0.00				
	21200.00 21300.00	90.00 90.00	179.75 179.75	11750.01 11750.01	-9530.00	-482.94 -482.51	9540.04 9639.99	0.00 0.00				
	21400.00	90.00	179.75	11750.01	-9730.00	-482.07	9739.93	0.00				
	21500.00	90.00	179.75	11750.01	-9830.00	-481.63	9839.87	0.00				
	21600.00 21700.00	90.00 90.00	179.75 179.75	11750.01 11750.01	-9930.00 -10029.99	-481.20 -480.76	9939.82 10039.76	0.00 0.00				
	21800.00	90.00	179.75		-10129.99	-480.32	10139.71	0.00				
	21900.00	90.00	179.75		-10229.99	-479.89	10239.65	0.00				
	22000.00 22100.00	90.00 90.00	179.75 179.75		-10329.99 -10429.99	-479.45 -479.01	10339.59 10439.54	0.00 0.00				
	22200.00	90.00	179.75		-10529.99	-478.58	10539.48	0.00				
	22300.00 22400.00	90.00 90.00	179.75 179.75		-10629.99 -10729.99	-478.14 -477.70	10639.42 10739.37	0.00 0.00				
	22400.00	90.00	179.75		-10729.99	-477.27	10739.37	0.00				
	22600.00	90.00	179.75		-10929.99	-476.83	10939.25	0.00				
	22700.00 22800.00	90.00 90.00	179.75 179.75		-11029.99 -11129.98	-476.39 -475.96	11039.20 11139.14	0.00 0.00				
	22900.00	90.00	179.75		-11229.98	-475.52	11239.08	0.00				
	23000.00	90.00	179.75		-11329.98	-475.08	11339.03	0.00				
	23100.00 23200.00	90.00 90.00	179.75 179.75		-11429.98 -11529.98	-474.65 -474.21	11438.97 11538.92	0.00 0.00				
	23300.00	90.00	179.75		-11629.98	-473.77	11638.86	0.00				
	23400.00	90.00	179.75		-11729.98	-473.34	11738.80	0.00				
	23500.00 23600.00	90.00 90.00	179.75 179.75		-11829.98 -11929.98	-472.90 -472.46	11838.75 11938.69	0.00 0.00				
	23700.00	90.00	179.75		-12029.98	-472.03	12038.63	0.00				
	23800.00	90.00	179.75		-12129.97	-471.59	12138.58	0.00				
	23900.00 24000.00	90.00 90.00	179.75 179.75		-12229.97 -12329.97	-471.15 -470.72	12238.52 12338.46	0.00 0.00				
	24100.00	90.00	179.75		-12429.97	-470.28	12438.41	0.00				
	24200.00	90.00	179.75		-12529.97	-469.84	12538.35	0.00				
	24300.00 24400.00	90.00 90.00	179.75 179.75		-12629.97 -12729.97	-469.41 -468.97	12638.29 12738.24	0.00 0.00				
	24500.00	90.00	179.75		-12829.97	-468.53	12838.18	0.00				
	24600.00	90.00	179.75		-12929.97	-468.10	12938.12	0.00				
	24700.00 24800.00	90.00 90.00	179.75 179.75		-13029.97 -13129.97	-467.66 -467.23	13038.07 13138.01	0.00 0.00				
	24900.00	90.00	179.75		-13229.96	-466.79	13237.96	0.00				
	25000.00	90.00	179.75		-13329.96	-466.35	13337.90	0.00				
	25100.00 25200.00	90.00 90.00	179.75 179.75		-13429.96 -13529.96	-465.92 -465.48	13437.84 13537.79	0.00 0.00				
	25300.00	90.00	179.75		-13629.96	-465.04	13637.73	0.00				
	25400.00	90.00	179.75		-13729.96	-464.61	13737.67	0.00				
	25500.00 25600.00	90.00 90.00	179.75 179.75		-13829.96 -13929.96	-464.17 -463.73	13837.62 13937.56	0.00 0.00				
	25700.00	90.00	179.75		-14029.96	-463.30	14037.50	0.00				
	25800.00	90.00	179.75		-14129.96	-462.86	14137.45	0.00				
	25900.00 26000.00	90.00 90.00	179.75 179.75		-14229.95 -14329.95	-462.42 -461.99	14237.39 14337.33	0.00 0.00				
	26100.00	90.00	179.75		-14429.95	-461.55	14437.28	0.00				
l	26200.00	90.00	179.75		-14529.95	-461.11	14537.22	0.00				
	26300.00 26400.00	90.00 90.00	179.75 179.75		-14629.95 -14729.95	-460.68 -460.24	14637.17 14737.11	0.00 0.00				

	Well:	COTTON D	RAW UNIT 6	14H				Geodetic System: US State Plane 1983
	County:	Lea						Datum: North American Datum 1927
	Wellbore:	Permit Plar	ı					Ellipsoid: Clarke 1866
	Design:	Permit Plar	1 #1					Zone: 3001 - NM East (NAD83)
MD	INC	AZI	TVD	NS	EW	vs	DLS	Comment
(ft)	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(°/100ft)	Comment
26500.00	90.00	179.75	11750.02	-14829.95	-459.80	14837.05	0.00	
26600.00	90.00	179.75	11750.02	-14929.95	-459.37	14937.00	0.00	
26700.00	90.00	179.75	11750.02	-15029.95	-458.93	15036.94	0.00	
26800.00	90.00	179.75	11750.02	-15129.95	-458.49	15136.88	0.00	
26900.00	90.00	179.75	11750.02	-15229.95	-458.06	15236.83	0.00	
27000.00	90.00	179.75	11750.02	-15329.94	-457.62	15336.77	0.00	
27100.00	90.00	179.75	11750.02	-15429.94	-457.18	15436.71	0.00	
27199.45	90.00	179.75	11750.02	-15529.39	-456.75	15536.11	0.00	exit
27200.00	90.00	179.75	11750.02	-15529.94	-456.75	15536.66	0.00	
27279.45	90.00	179.75	11750.00	-15609.39	-456.44	15616.06	0.00	BHL



Issued on: 16 Sep.	2022 by Logan Van Gorp



#### et

Connection

**VAM® SPRINT-FJ** 

|--|

OD

8 5/8 in.

	Cor	nnection	Data	Sheet

Alt. Drift:

7.875 in.

Grade

P110EC

Plain End: 31.13		
PIPE PROPERTIES		
Nominal OD	8.625 ir	ı.
Nominal ID	7.921 ir	ı.
Nominal Cross Section Area	9.149 sqir	1.
Grade Type	High Yiel	d
Min. Yield Strength	125 k:	si
Max. Yield Strength	140 k:	si
Min. Ultimate Tensile Strength	135 k	si
		_

Weight (lb/ft)

Nominal: 32.00

Wall Th.

0.352 in.

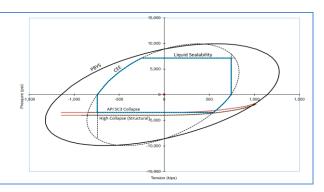
CONNECTION	PROPERTIES	
Connection Type	Semi-Premium Inte	gral Flush
Connection OD (nom):	8.665	in.
Connection ID (nom):	7.954	in.
Make-Up Loss	2.614	in.
Critical Cross Section	5.978	sqin.
Tension Efficiency	65.0	% of pipe
Compression Efficiency	65.0	% of pipe
Internal Pressure Efficiency	80.0	% of pipe
External Pressure Efficiency	100	% of pipe

CONNECTION PERFORMANCES		
Tensile Yield Strength	744	klb
Compression Resistance	744	klb
Max. Internal Pressure	7,150	psi
Structural Collapse Resistance	4,000	psi
Max. Structural Bending	41	°/100ft
Max. Bending with Sealability	10	°/100ft

TORQUE VALU	ES	
Min. Make-up torque	23,000	ft.lb
Opt. Make-up torque	25,500	ft.lb
Max. Make-up torque	28,000	ft.lb
Max. Torque with Sealability (MTS)	48,000	ft.lb

\* 87.5% RBW

VAM® SPRINT-FJ is a semi-premium flush connection designed for shale applications, where maximum clearance and high tension capacity are required for intermediate casing strings.



#### Do you need help on this product? - Remember no one knows VAM<sup>®</sup> like VAM<sup>®</sup>

canada@vamfieldservice.com usa@vamfieldservice.com mexico@vamfieldservice.com brazil@vamfieldservice.com

uk@vamfieldservice.com dubai@vamfieldservice.com nigeria@vamfieldservice.com angola@vamfieldservice.com

china@vamfieldservice.com baku@vamfieldservice.com singapore@vamfieldservice.com australia@vamfieldservice.com

Over 140 VAM® Specialists available worldwide 24/7 for Rig Site Assistance



#### Cotton Draw Unit 614H

10 3/4	S	urface csg in a	14 3/4	inch hole.		Design	Factors			Surface		
Segment	#/ft	Grade		Coupling	Body	Collapse	Burst	Length	B@s	a-B	a-C	Weight
"A"	45.50		j 55	btc	20.29	5.77	0.59	775	10	0.99	10.89	35,263
"B"			,	btc				0				0
	w/8	.4#/g mud, 30min Sfc Csg Test	t psig: 1,500	Tail Cmt	does not	circ to sfc.	Totals:	775				35,263
comparison o		Minimum Required Cem										
Hole	Annular	1 Stage	1 Stage	Min	1 Stage	Drilling	Calc	Req'd				Min Dis
Size	Volume	Cmt Sx	CuFt Cmt	Cu Ft	% Excess	Mud Wt	MASP	BOPE				Hole-Cpl
14 3/4	0.5563	421	606	431	41	9.00	3619	5M				1.50
urst Frac Grad	lient(s) for Segr	ment(s) A, B = , b All > 0.	.70, OK.									
8 5/8	са	sing inside the	10 3/4			Design	Factors			Int 1		
Segment	#/ft	Grade	·	Coupling	Joint	Collapse	Burst	Length	B@s	a-B	a-C	Weight
"A"	32.00		p 110	vam sprint fj	2.09	0.66	1.12	11,121	1	1.87	1.11	
"B"								0				0
	w/8.	.4#/g mud, 30min Sfc Csg Test	t psig: 152				Totals:	11,121				355,872
				ded to achieve a top of	0	ft from su	irface or a	775				overlap.
Hole	Annular	1 Stage	1 Stage	Min	1 Stage	Drilling	Calc	Req'd				Min Dis
Size	Volume	Cmt Sx	CuFt Cmt	Cu Ft	% Excess	Mud Wt	MASP	BOPE				Hole-Cpl
9 7/8	0.1261	510	734	1409	-48	10.50	3824	5M				0.61
D V Tool(s):			6680				sum of sx	<u>Σ CuFt</u>				Σ%exces
		31	28				984	1825				30
lass 'C' tail cm	t yld > 1.35											
, 0		sing inside the	8 5/8			Design Fa	<u>ctors</u>			Prod 1		
5 1/2 Segment	ca #/ft	sing inside the Grade	8 5/8	Coupling	Joint	<u>Design Fa</u> Collapse	<u>ctors</u> Burst	Length	B@s	Prod 1 a-B	a-C	Weight
Tail cmt 5 1/2 Segment "A"	ca	•	<b>8 5/8</b> p 110	Coupling dwc/c is+	Joint 3.10			27,279	<b>B@s</b> 2		<b>a-C</b> 3.16	545,580
Tail cmt 5 1/2 Segment "A" "B"	ca #/ft	•				Collapse	Burst	27,279 0	<u> </u>	a-B	-	545,58 0
Tail cmt 5 1/2 Segment "A" "B" "C"	ca #/ft	•		dwc/c is+		Collapse	Burst	27,279 <b>0</b> 0	<u> </u>	a-B	-	545,580 <b>0</b> 0
Tail cmt 5 1/2 Segment "A" "B"	ca #/ft 20.00	Grade	p 110			Collapse	Burst 2.24	27,279 0 0 0	<u> </u>	a-B	-	545,580 0 0
Tail cmt 5 1/2 Segment "A" "B" "C"	ca #/ft 20.00	Grade	p 110 : psig: 2,585	dwc/c is+	3.10	Collapse 1.89	Burst 2.24 Totals:	27,279 0 0 27,279	<u> </u>	a-B	3.16	545,580 0 0 545,580
Tail cmt 5 1/2 Segment "A" "B" "C" "D"	ca #/ft 20.00 w/8.	Grade .4#/g mud, 30min Sfc Csg Test The cement	p 110 p 5:g: 2,585 volume(s) are inten	dwc/c is+ 0 ded to achieve a top of	3.10	Collapse 1.89 ft from su	Burst 2.24 Totals: Inface or a	27,279 0 0 27,279 200	<u> </u>	a-B	3.16	545,580 0 0 545,580 overlap.
Tail cmt 5 1/2 Segment "A" "B" "C" "D" Hole	ca #/ft 20.00 w/8. Annular	Grade .4#/g mud, 30min Sfc Csg Test The cement of 1 Stage	p 110 p 110	dwc/c is+ 0 ded to achieve a top of Min	3.10 10921 1 Stage	Collapse 1.89 ft from su Drilling	Burst 2.24 Totals: Irface or a Calc	27,279 0 0 27,279 200 Req'd	<u> </u>	a-B	3.16	545,580 0 0 545,580 overlap. Min Dist
Tail cmt 5 1/2 Segment "A" "B" "C" "D" Hole Size	ca #/ft 20.00 w/8. Annular Volume	Grade .4#/g mud, 30min Sfc Csg Test The cement v 1 Stage Cmt Sx	p 110 : psig: 2,585 volume(s) are inten 1 Stage CuFt Cmt	dwc/c is+ 0 ded to achieve a top of Min Cu Ft	3.10 10921 1 Stage % Excess	Collapse 1.89 ft from su Drilling Mud Wt	Burst 2.24 Totals: Inface or a	27,279 0 0 27,279 200	<u> </u>	a-B	3.16	0 0 545,580 overlap. Min Dist Hole-Cplg
Tail cmt 51/2 Segment "A" "B" "C" "D" Hole Size 7 7/8	ca #/ft 20.00 w/8. Annular Volume 0.1733	Grade .4#/g mud, 30min Sfc Csg Test The cement of 1 Stage	p 110 p 110	dwc/c is+ 0 ded to achieve a top of Min	3.10 10921 1 Stage	Collapse 1.89 ft from su Drilling	Burst 2.24 Totals: Irface or a Calc	27,279 0 0 27,279 200 Req'd	<u> </u>	a-B	3.16	545,580 0 0 545,580 overlap. Min Dist
Tail cmt 5 1/2 Segment "A" "B" "C" "D" Hole Size	ca #/ft 20.00 w/8. Annular Volume 0.1733	Grade .4#/g mud, 30min Sfc Csg Test The cement v 1 Stage Cmt Sx	p 110 : psig: 2,585 volume(s) are inten 1 Stage CuFt Cmt	dwc/c is+ 0 ded to achieve a top of Min Cu Ft	3.10 10921 1 Stage % Excess	Collapse 1.89 ft from su Drilling Mud Wt	Burst 2.24 Totals: Irface or a Calc	27,279 0 0 27,279 200 Req'd	<u> </u>	a-B	3.16	545,580 0 0 545,580 overlap. Min Dist Hole-Cpl
Tail cmt 5 1/2 Segment "A" "B" "C" "D" Hole Size 7 7/8 Class 'C' tail cm	ca #/ft 20.00 w/8. Annular Volume 0.1733	Grade .4#/g mud, 30min Sfc Csg Test The cement v 1 Stage Cmt Sx	p 110 : psig: 2,585 volume(s) are inten 1 Stage CuFt Cmt	dwc/c is+ 0 ded to achieve a top of Min Cu Ft	3.10 10921 1 Stage % Excess	Collapse 1.89 ft from su Drilling Mud Wt	Burst 2.24 Totals: Irface or a Calc	27,279 0 0 27,279 200 Req'd	<u> </u>	a-B	3.16	545,580 0 0 545,580 overlap. Min Dist Hole-Cpl
Tail cmt 5 1/2 Segment "A" "B" "C" "D" Hole Size 7 7/8 class 'C' tail cm #N/A 0	ca #/ft 20.00 w/8. Annular Volume 0.1733 t yld > 1.35	Grade .4#/g mud, 30min Sfc Csg Test The cement 1 Stage Cmt Sx 2242	p 110 : psig: 2,585 volume(s) are inten 1 Stage CuFt Cmt	dwc/c is+ 0 ded to achieve a top of Min Cu Ft 2835	3.10 10921 1 Stage % Excess 21	Collapse 1.89 ft from su Drilling Mud Wt 10.50 Design	Burst 2.24 Totals: urface or a Calc MASP Factors	27,279 0 0 27,279 200 Req'd	2	a-B 3.76	3.16 ing>	545,58( 0 0 545,58( overlap. Min Dist Hole-Cpl 1.19
Tail cmt 5 1/2 Segment "A" "B" "C" "D" Hole Size 7 7/8 Class 'C' tail cm #N/A 0 Segment	ca #/ft 20.00 w/8. Annular Volume 0.1733	Grade .4#/g mud, 30min Sfc Csg Test The cement v 1 Stage Cmt Sx	p 110 p 110 p p p 110 p p p p p p p p p p p p p p p p p p p	dwc/c is+ 0 ded to achieve a top of Min Cu Ft 2835 Coupling	3.10 10921 1 Stage % Excess	Collapse 1.89 ft from su Drilling Mud Wt 10.50	Burst 2.24 Totals: urface or a Calc MASP	27,279 0 0 27,279 200 Req'd BOPE	2	<b>a-B</b> 3.76	3.16	545,58( 0 0 545,58( overlap. Min Dist Hole-Cpl 1.19
Tail cmt 5 1/2 Segment "A" "B" "C" "D" Hole Size 7 7/8 Cass 'C' tail cm #N/A 0 Segment "A"	ca #/ft 20.00 w/8. Annular Volume 0.1733 t yld > 1.35	Grade .4#/g mud, 30min Sfc Csg Test The cement 1 Stage Cmt Sx 2242	p 110 p 110 p p p 110 p p p p p p p p p p p p p p p p p p p	dwc/c is+ 0 ded to achieve a top of Min Cu Ft 2835 Coupling 0.00	3.10 10921 1 Stage % Excess 21	Collapse 1.89 ft from su Drilling Mud Wt 10.50 Design	Burst 2.24 Totals: urface or a Calc MASP Factors	27,279 0 0 27,279 200 Req'd BOPE	2	a-B 3.76	3.16 ing>	545,58( 0 0 545,58( overlap. Min Dist Hole-Cpl 1.19 Weight 0
Tail cmt 5 1/2 Segment "A" "B" "C" "D" Hole Size 7 7/8 Class 'C' tail cm #N/A 0 Segment	ca #/ft 20.00 w/8. Annular Volume 0.1733 tyld > 1.35 #/ft	Grade 4#/g mud, 30min Sfc Csg Test The cement v 1 Stage Cmt Sx 2242 Grade	p 110 p 110 p sig: 2,585 volume(s) are inten 1 Stage CuFt Cmt 3443 5 1/2	dwc/c is+ 0 ded to achieve a top of Min Cu Ft 2835 Coupling	3.10 10921 1 Stage % Excess 21	Collapse 1.89 ft from su Drilling Mud Wt 10.50 Design	Burst 2.24 Totals: Inface or a Calc MASP Factors Burst	27,279 0 0 27,279 200 Req'd BOPE	2	a-B 3.76	3.16 ing>	545,58( 0 0 545,58( overlap. Min Dist Hole-Cpl 1.19 Weight 0 0
Tail cmt 5 1/2 Segment "A" "B" "C" "D" Hole Size 7 7/8 Cass 'C' tail cm #N/A 0 Segment "A"	ca #/ft 20.00 w/8. Annular Volume 0.1733 tyld > 1.35 #/ft	Grade .4#/g mud, 30min Sfc Csg Test The cement 1 Stage Cmt Sx 2242 Grade .4#/g mud, 30min Sfc Csg Test	p 110 : psig: 2,585 volume(s) are inten 1 Stage CuFt Cmt 3443 51/2	dwc/c is+ 0 ded to achieve a top of Min Cu Ft 2835 Coupling 0.00 0.00	3.10 10921 1 Stage % Excess 21 #N/A	Collapse 1.89 ft from su Drilling Mud Wt 10.50 <u>Design</u> Collapse	Burst 2.24 Totals: urface or a Calc MASP Factors Burst Totals:	27,279 0 0 27,279 200 Req'd BOPE	2	a-B 3.76	3.16 ing> a-C	545,580 0 0 545,580 overlap. Min Dis Hole-Cpl 1.19 Weigh 0 0 0
Tail cmt 5 1/2 Segment "A" "B" "C" "D" Hole Size 7 7/8 Class 'C' tail cm #N/A 0 Segment "A" "B"	ca #/ft 20.00 w/8. Annular Volume 0.1733 tyld > 1.35 #/ft w/8.	Grade .4#/g mud, 30min Sfc Csg Test The cement 1 Stage Cmt Sx 2242 Grade .4#/g mud, 30min Sfc Csg Test Cmt vol ci	p 110 : psig: 2,585 volume(s) are inten 1 Stage CuFt Cmt 3443 51/2 : psig: alc below includes	dwc/c is+ 0 ded to achieve a top of Min Cu Ft 2835 Coupling 0.00 0.00 this csg, TOC intended	3.10 10921 1 Stage % Excess 21 #N/A #N/A	Collapse 1.89 ft from su Drilling Mud Wt 10.50 <u>Design</u> Collapse ft from su	Burst 2.24 Totals: urface or a Calc MASP Factors Burst	27,279 0 0 27,279 200 Req'd BOPE Length 0 0 wN/A	2	a-B 3.76	3.16 ing> a-C	545,58 0 0 545,58 overlap. Min Dis Hole-Cpl 1.19 Weigh 0 0 0 0 overlap.
Tail cmt 5 1/2 Segment "A" "B" "C" "D" Hole Size 7 7/8 class 'C' tail cm #N/A 0 Segment "A" "B" Hole	ca #/ft 20.00 w/8. Annular Volume 0.1733 tyld > 1.35 #/ft w/8. Annular	Grade .4#/g mud, 30min Sfc Csg Test The cement 1 Stage Cmt Sx 2242 Grade .4#/g mud, 30min Sfc Csg Test Cmt vol ci 1 Stage	p 110 : psig: 2,585 volume(s) are inten 1 Stage CuFt Cmt 3443 5 1/2 : psig: alc below includes 1 Stage	dwc/c is+ 0 ded to achieve a top of Min Cu Ft 2835 Coupling 0.00 0.00 this csg, TOC intended Min	3.10 10921 1 Stage % Excess 21 #N/A 1 Stage	Collapse 1.89 ft from su Drilling Mud Wt 10.50 <u>Design</u> Collapse ft from su Drilling	Burst 2.24 Totals: urface or a Calc MASP Factors Burst	27,279 0 0 27,279 200 Req'd BOPE Length 0 0 WN/A Req'd	2	a-B 3.76	3.16 ing> a-C	545,58( 0 0 545,58( overlap. Min Dis Hole-Cpl 1.19 Weigh 0 0 0 overlap. Min Dis
Tail cmt Tail cmt 5 1/2 Segment "A" "B" "C" "D" Hole Size 7 7/8 Class 'C' tail cm #N/A 0 Segment "A" "B" Hole Size	ca #/ft 20.00 w/8. Annular Volume 0.1733 tyld > 1.35 #/ft w/8.	Grade .4#/g mud, 30min Sfc Csg Test The cement v 1 Stage Cmt Sx 2242 Grade .4#/g mud, 30min Sfc Csg Test Cmt vol ca 1 Stage Cmt Sx	p 110 : psig: 2,585 volume(s) are inten 1 Stage CuFt Cmt 3443 5 1/2 : psig: alc below includes: 1 Stage CuFt Cmt	dwc/c is+ 0 ded to achieve a top of Min Cu Ft 2835 Coupling 0.00 0.00 this csg, TOC intended Min Cu Ft	3.10 10921 1 Stage % Excess 21 #N/A 1 Stage % Excess	Collapse 1.89 ft from su Drilling Mud Wt 10.50 <u>Design</u> Collapse ft from su	Burst 2.24 Totals: urface or a Calc MASP Factors Burst	27,279 0 0 27,279 200 Req'd BOPE Length 0 0 wN/A	2	a-B 3.76	3.16 ing> a-C	545,58( 0 0 545,58( overlap. Min Dist Hole-Cpl 1.19 Weight 0 0 0
Tail cmt 5 1/2 Segment "A" "B" "C" "D" Hole Size 7 7/8 class 'C' tail cm #N/A 0 Segment "A" "B" Hole	ca #/ft 20.00 w/8. Annular Volume 0.1733 tyld > 1.35 #/ft w/8. Annular	Grade .4#/g mud, 30min Sfc Csg Test The cement 1 Stage Cmt Sx 2242 Grade .4#/g mud, 30min Sfc Csg Test Cmt vol ci 1 Stage	p 110 : psig: 2,585 volume(s) are inten 1 Stage CuFt Cmt 3443 5 1/2 : psig: alc below includes 1 Stage	dwc/c is+ 0 ded to achieve a top of Min Cu Ft 2835 Coupling 0.00 0.00 this csg, TOC intended Min Cu Ft 0	3.10 10921 1 Stage % Excess 21 #N/A 1 Stage	Collapse 1.89 ft from su Drilling Mud Wt 10.50 <u>Design</u> Collapse ft from su Drilling	Burst 2.24 Totals: urface or a Calc MASP Factors Burst	27,279 0 0 27,279 200 Req'd BOPE Length 0 0 WN/A Req'd	2	a-B 3.76	3.16 ing> a-C	545,58( 0 0 545,58) overlap. Min Dist Hole-Cpl 1.19 Weight 0 0 0 overlap. Min Dist

.

District I 1625 N. French Dr., Hobbs, NM 88240 Phone:(575) 393-6161 Fax:(575) 393-0720 District II

811 S. First St., Artesia, NM 88210 Phone:(575) 748-1283 Fax:(575) 748-9720

District III

1000 Rio Brazos Rd., Aztec, NM 87410 Phone:(505) 334-6178 Fax:(505) 334-6170

District IV

1220 S. St Francis Dr., Santa Fe, NM 87505 Phone: (505) 476-3470 Fax: (505) 476-3462

## **State of New Mexico Energy, Minerals and Natural Resources Oil Conservation Division** 1220 S. St Francis Dr. Santa Fe, NM 87505

CONDITIONS

Operator:	OGRID:
DEVON ENERGY PRODUCTION COMPANY, LP	6137
333 West Sheridan Ave.	Action Number:
Oklahoma City, OK 73102	273286
	Action Type:
	[C-103] NOI Change of Plans (C-103A)

CONDITIONS		
Created By	Condition	Condition Date
ward.rikala	All original COA's still apply. Additionally, if cement is not circulated to surface during cementing, then a CBL is required for that string.	12/6/2023

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