

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OCD Artesia

FORM APPROVED
OMB NO. 1004-0135
Expires: July 31, 2010

SUNDRY NOTICES AND REPORTS ON WELLS
Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE - Other instructions on reverse side.

1. Type of Well <input checked="" type="checkbox"/> Oil Well <input checked="" type="checkbox"/> Gas Well <input type="checkbox"/> Other		5. Lease Serial No. NMNM037489
2. Name of Operator DEVON ENERGY PRODUCTION CO., LP Contact: ERIN L WORKMAN E-Mail: ERIN.WORKMAN@DVN.COM		6. If Indian, Allottee or Tribe Name
3a. Address 333 WEST SHERIDAN AVENUE OKC, OK 73102	3b. Phone No. (include area code) Ph: 405-552-7970	7. If Unit or CA/Agreement, Name and/or No.
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 34 T24S R31E 160FSL 1980FEL		8. Well Name and No. COTTON DRAW UNIT 117H
		9. API Well No. 30-015-38434
		10. Field and Pool, or Exploratory WILDCAT; UPPER PENN SHALE
		11. County or Parish, and State EDDY COUNTY, NE

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

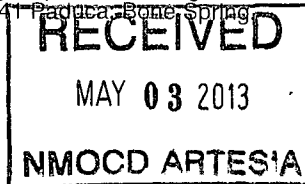
TYPE OF SUBMISSION	TYPE OF ACTION			
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (Start/Resume)	<input type="checkbox"/> Water Shut-Off
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/>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

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

Devon Energy Production Company, LP respectfully requests to change from the previously approved 97810 Wildcat; Upper Penn Shale (Gas) to the 96641 Paducah Bone Spring

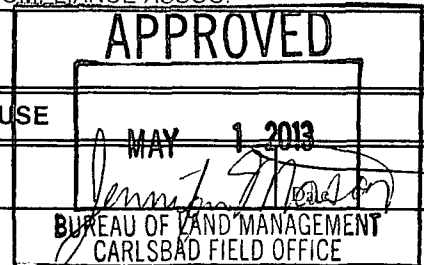
Accepted for record
NMOC

Attachments: Drilling Survey
Drilling Plan Information (2)
Revised C-102



**SEE ATTACHED FOR
CONDITIONS OF APPROVAL**

14. I hereby certify that the foregoing is true and correct.		Electronic Submission #205198 verified by the BLM Well Information System For DEVON ENERGY PRODUCTION CO., LP, sent to the Carlsbad Committed to AFMSS for processing by JOHNNY DICKERSON on 04/24/2013 ()	
Name (Printed/Typed)	ERIN L WORKMAN	Title	REGULATORY COMPLIANCE ASSOC.
Signature	(Electronic Submission)	Date	04/23/2013
THIS SPACE FOR FEDERAL OR STATE OFFICE USE			
Approved By _____		Title _____	
Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.		Office _____	



DISTRICT I

1625 N. French Dr., Hobbs, NM 88240

DISTRICT II

1301 W. Grand Avenue, Artesia, NM 88210

DISTRICT III

1000 Rio Brazos Rd., Aztec, NM 87410

DISTRICT IV

1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION

1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

Form C-102

Revised October 15, 2009

Submit one copy to appropriate
District Office

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number 30-015-38434	Pool Code 96641	Pool Name Paduca; Bone Spring
Property Code 300635	Property Name COTTON DRAW UNIT	Well Number 117H
OGRID No. 6137	Operator Name DEVON ENERGY PRODUCTION COMPANY, L.P.	Elevation 3443'

Surface Location

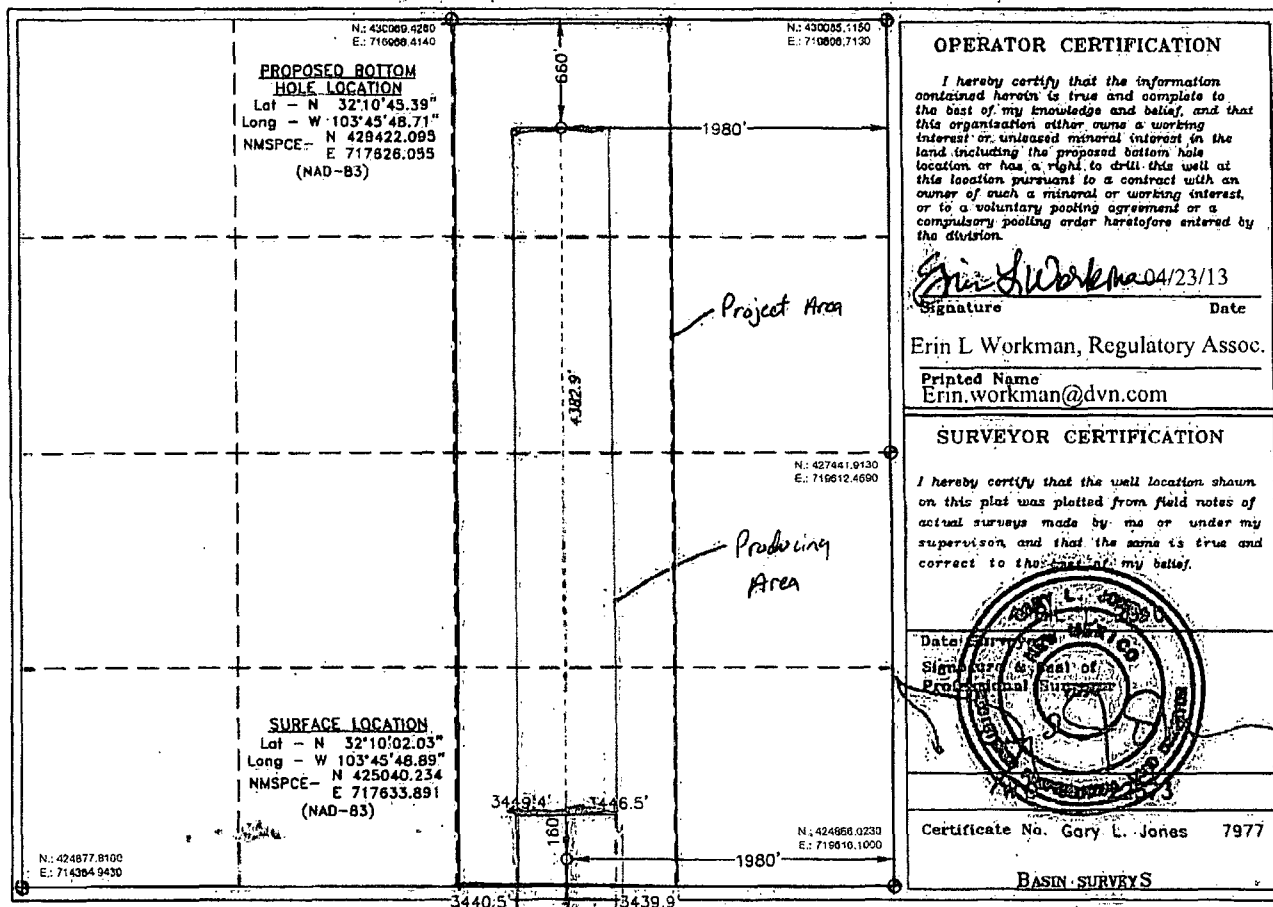
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
0	34	24 S	31 E		160	SOUTH	1980	EAST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
B	34	24 S	31 E		660	NORTH	1980	EAST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
160			

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



Cotton Draw Unit 117H – APD DRILLING PLAN
JSL 04-23-2013

Casing Program

<u>Hole Size</u>	<u>Hole Interval</u>	<u>OD Csg</u>	<u>Casing Interval</u>	<u>Weight</u>	<u>Collar</u>	<u>Grade</u>
17-1/2"	0 – 1,000	13-3/8"	0 – 1,000	48#	STC	H-40
12-1/4"	1,000 – 4,335	9-5/8"	0 – 4,335	40#	BTC	J-55
8-3/4"	4,335 – 9,500	5-1/2"	0 – 9,500	17#	LTC	HCP-110
8-3/4"	9,500 – 14,463	5-1/2"	9,500 – 14,463	17#	BTC	HCP-110

Note: only new casing will be utilized

MAXIMUM LATERAL TVD **10,327**

Design Factors:

<u>Casing Size</u>	<u>Collapse Design Factor</u>	<u>Burst Design Factor</u>	<u>Tension Design Factor</u>
13-3/8", 48#, H-40, ST&C	1.96	4.41	8.89
9-5/8", 40#, J-55 LTC	1.14	1.75	3.00
5-1/2" 17# HCP-110 LTC	1.93	2.40	2.76
5-1/2" 17# HCP-110 BTC	1.53	2.19	2.15

Mud Program:

<u>Depth</u>	<u>Mud Wt.</u>	<u>Visc.</u>	<u>Fluid Loss</u>	<u>Type System</u>
0 – 1,000	8.4 – 9.0	30 – 34	N/C	FW
1,000 – 4,335	9.8 – 10.0	28 – 32	N/C	Brine
4,335 – 14,463	8.6 – 9.0	28 – 32	N/C-12	FW

Pressure Control Equipment:

The BOP system used to drill the intermediate hole will consist of a 13-5/8" Double Ram and Annular preventer. The BOP system will be tested as per BLM Onshore Oil and Gas Order No. 2, a 3M system will be installed and tested prior to drilling out the surface casing shoe.

The BOP system used to drill the production hole will consist of a 13-5/8" Double Ram and Annular preventer. The BOP system will be tested as per BLM Onshore Oil and Gas Order No. 2 a 3M system will be installed prior to drilling out the intermediate casing shoe.

The pipe rams will be operated and checked each 24 hour period and each time the drill pipe is out of the hole. These tests will be logged in the daily driller's log. A 2" kill line and 3" choke line will be incorporated into the drilling spool below the ram BOP. In addition to the rams and annular preventer, additional BOP accessories include a kelly cock, floor safety valve, choke lines, and choke manifold rated at 5,000 psi WP.

Devon requests a variance to use a flexible line with flanged ends between the BOP and the choke manifold (choke line). The line will be kept as straight as possible with minimal turns.

*Self
C/A*

Cementing Program (cement volumes based on 100 % excess Surface, 50% excess Intermediate and at least 25% excess Production)

13-3/8" Surface 875 ft **Lead:** 300 sacks Class C Cement + 2% bwoc Calcium Chloride + 0.125 lbs/sack Poly-E-Flake + 4% bwoc Bentonite + 70.1% Fresh Water, 13.5 ppg

Yield: 1.75 cf/sk

TOC @ surface

500 ft Tail: 515 sacks Class C Cement + 2% bwoc Calcium Chloride + 0.125 lbs/sack Poly-E-Flake + 63.1% Fresh Water, 14.8 ppg

Yield: 1.35 cf/sk

9-5/8" Intermediate 4500 ft **Lead:** 900 sacks (65:35) Class C Cement:Poz (Fly Ash): + 5% bwow Sodium Chloride + 0.125 lbs/sack Poly-E-Flake + 6% bwoc Bentonite + 70.9% Fresh Water, 12.9 ppg

Yield: 1.85 cf/sk

TOC @ surface

Tail: 360 sacks Class C Cement + 0.125 lbs/sack Poly-E-Flake + 63.5% Water, 14.8 ppg

Yield: 1.33 cf/sk

5-1/2" Production 14956 ft. 3000 **1st Lead:** 380 sacks (50:50) Class H Cement:Poz (Fly Ash) + 10% bwoc Bentonite + 8 lb/sk Sodium Chloride + 0.125 lbs/sack Poly-E-Flake + 0.3% bwoc HR -601 + 0.3% bwoc Econolite + 77.2% Fresh Water, 11.8 ppg

Yield: 2.52 cf/sk

2300 2nd Lead: 375sacks (65:35) Class H Cement:Poz (Fly Ash) + 6% bwoc Bentonite + 0.125 lbs/sack Poly-E-Flake + 0.1% bwoc HR-601 + 74.1% Fresh Water, 12.5 ppg

Yield: 1.95 cf/sk

5700 ft. Tail: 1475 sacks (50:50) Class H Cement:Poz (Fly Ash) + 1 lb/sk Sodium Chloride + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.1% bwoc HR-601 + 2% bwoc Bentonite + 58.8% Fresh Water, 14.5 ppg

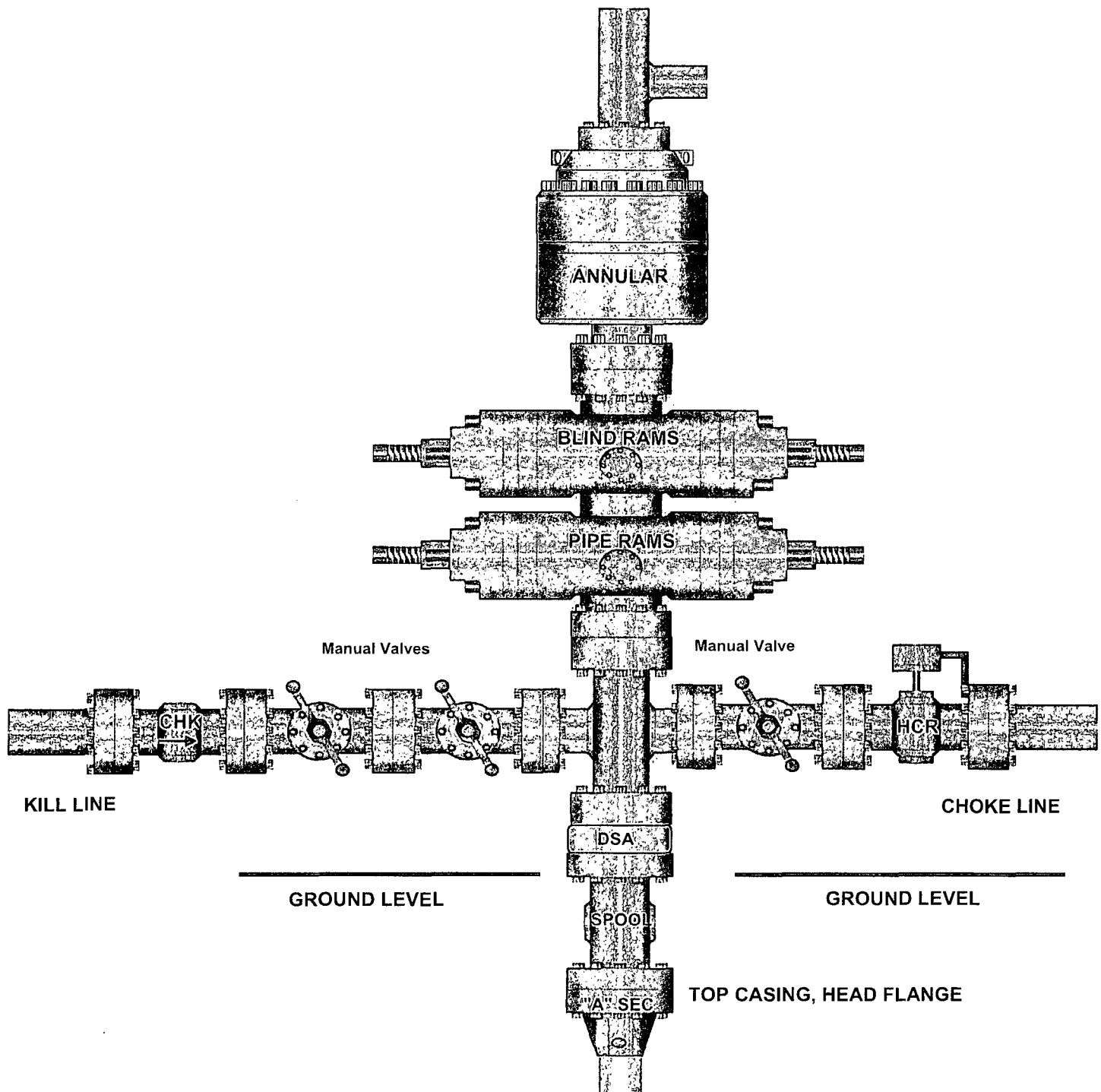
Yield: 1.22 cf/sk

TOC for All Strings:

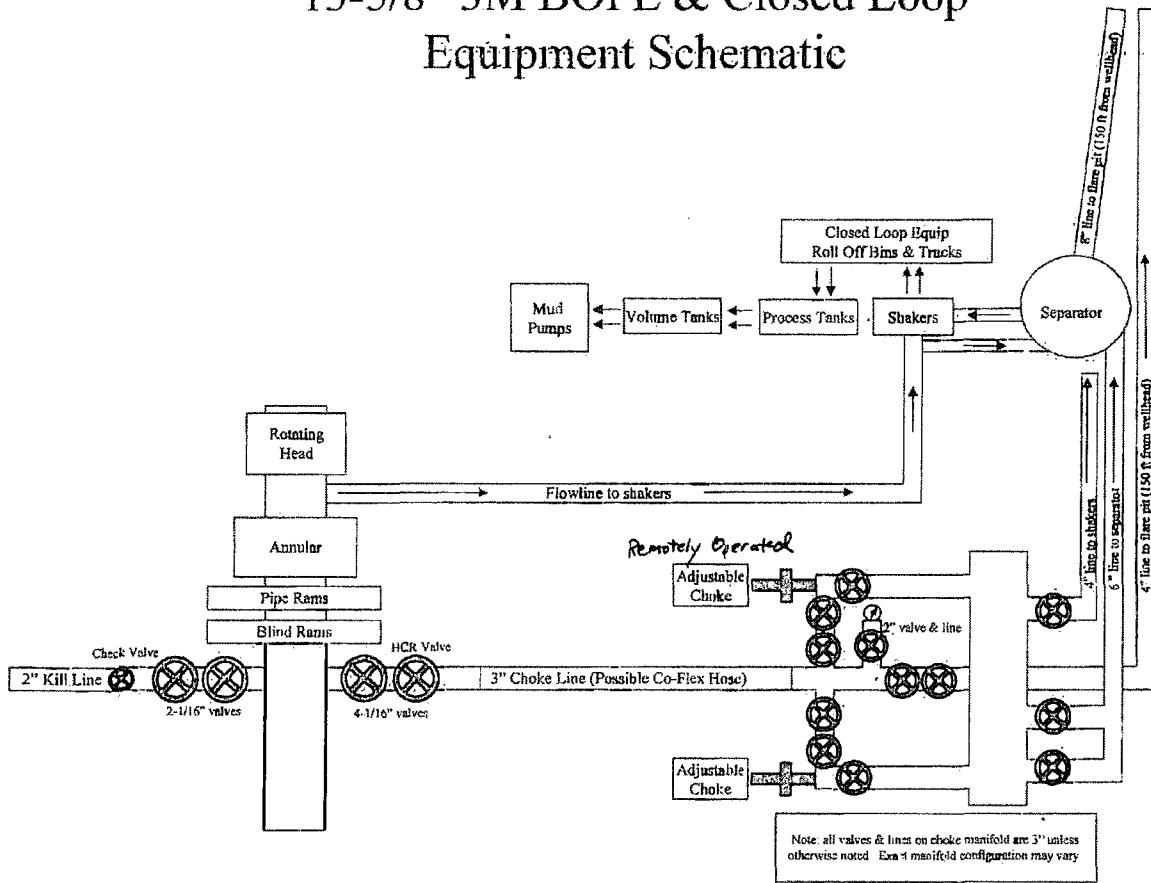
Surface:	0
Intermediate:	0
Production:	4000. ft

ACTUAL CEMENT VOLUMES WILL BE ADJUSTED BASED ON FLUID CALIPER AND CALIPER LOG DATA.

13-5/8" x 3,000 psi BOP Stack



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



DEVON ENERGY

Project: Eddy County, NM (NAD-83)
 Site: Cotton Draw Unit
 Well: 117H
 Wellbore: OH
 Design: Plan #1



Azimuths to Grid North
 True North: -0.30°
 Magnetic North: 7.14°

Magnetic Field
 Strength: 48379.2snT
 Dip Angle: 60.06°
 Date: 04/09/2013
 Model: IGRF2010

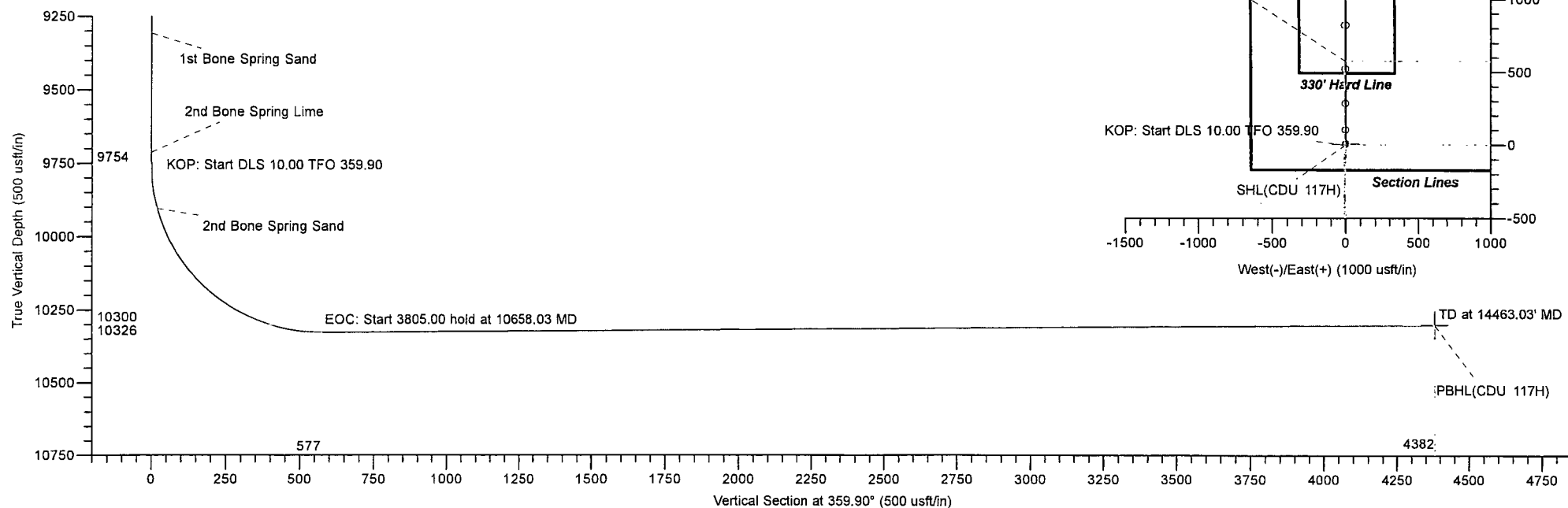
devon

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
SHL(CDU 117H)	0.00	0.00	0.00	425040.23	717633.89	32° 10' 2.031 N	103° 45' 48.891 W
PBHL(CDU 117H)10300.41	4381.86	-7.84	-7.84	429422.09	717626.06	32° 10' 45.393 N	103° 45' 48.713 W

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	9754.03	0.00	0.00	9754.03	0.00	0.00	0.00	0.00	0.00	KOP: Start DLS 10.00 TFO 359.90
3	10658.03	90.40	359.90	10326.97	576.96	-1.03	10.00	359.90	576.96	EOC: Start 3805.00 hold at 10658.03 MD
4	14463.03	90.40	359.90	10300.41	4381.86	-7.84	0.00	0.00	4381.87	TD at 14463.03' MD



LEAM DRILLING SYSTEMS LLC
 2010 East Davis, Conroe, Texas 77301
 Phone: 936/756-7577, Fax 936/756-7595

Plan: Plan #1 (117H/OH)
 Cotton Draw Unit
 Created By: Tyler Carlson Date: 13:22, April 09 2013
 Date: _____
 Approved: _____ Date: _____

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well: 117H
Company:	DEVON ENERGY	TVD Reference:	GE 3443' + KB 28' @ 3471.00usft (Permitting)
Project:	Eddy County NM (NAD 83)	MD Reference:	GE 3443' + KB 28' @ 3471.00usft (Permitting)
Site:	Cotton Draw Unit	North Reference:	Grid:
Well:	117H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Project: Eddy County, NM (NAD-83)			
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site:		Cotton Draw Unit			
Site Position:		Northing:	419,194.51 usft	Latitude:	32° 9' 3.901 N
From:	Map	Easting:	722,955.98 usft	Longitude:	103° 44' 47.345 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.31 °

Well: 117H						
Well Position	+N/-S	5,845.72 usft	Northing:	425,040.23 usft	Latitude:	32° 10' 2.031 N
	+E/-W	-5,322.09 usft	Easting:	717,633.89 usft	Longitude:	103° 45' 48.891 W
Position Uncertainty	0.00 usft		Wellhead Elevation:		Ground Level:	3,443.00 usft

Wellbore:	OH
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	04/09/13	7.45	60.06	48,379

Design:	Plan #1
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Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	359.90

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
9,754.03	0.00	0.00	9,754.03	0.00	0.00	0.00	0.00	0.00	0.00	
10,658.03	90.40	359.90	10,326.97	576.96	-1.03	10.00	10.00	-0.01	359.90	
14,463.03	90.40	359.90	10,300.41	4,381.86	-7.84	0.00	0.00	0.00	0.00	PBHL(CDU 117H)

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well: 117H
Company:	DEVONENERGY	TVD Reference:	GE 3443 + KB 28 @ 3471.00usft (Permitting)
Project:	Eddy County, NM (NAD-83)	MD Reference:	GE 3443 + KB 28 @ 3471.00usft (Permitting)
Site:	Cotton Draw Unit	North Reference:	Grid
Well:	117H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
599.00	0.00	0.00	599.00	0.00	0.00	0.00	0.00	0.00	0.00
RUSTLER									
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
994.00	0.00	0.00	994.00	0.00	0.00	0.00	0.00	0.00	0.00
TOP SALT									
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
CASTILE									
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
4,407.00	0.00	0.00	4,407.00	0.00	0.00	0.00	0.00	0.00	0.00
Bell Canyon									

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 117H
Company:	DEVON ENERGY	TVD Reference:	GE 3443 + KB 28' @ 347.100usft (Permitting)
Project:	Eddy County, NM (NAD-83)	MD Reference:	GE 3443 + KB 28' @ 347.100usft (Permitting)
Site:	Cotton Draw Unit	North Reference:	Grid
Well:	117H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,900.00	0.00	0.00	0.00	0.00	0.00	0.00
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,200.00	0.00	0.00	0.00	0.00	0.00	0.00
5,296.00	0.00	0.00	5,296.00	0.00	0.00	0.00	0.00	0.00	0.00
Cherry Canyon									
5,300.00	0.00	0.00	5,300.00	0.00	0.00	0.00	0.00	0.00	0.00
5,400.00	0.00	0.00	5,400.00	0.00	0.00	0.00	0.00	0.00	0.00
5,500.00	0.00	0.00	5,500.00	0.00	0.00	0.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,600.00	0.00	0.00	0.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,700.00	0.00	0.00	0.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,800.00	0.00	0.00	0.00	0.00	0.00	0.00
5,900.00	0.00	0.00	5,900.00	0.00	0.00	0.00	0.00	0.00	0.00
6,000.00	0.00	0.00	6,000.00	0.00	0.00	0.00	0.00	0.00	0.00
6,100.00	0.00	0.00	6,100.00	0.00	0.00	0.00	0.00	0.00	0.00
6,200.00	0.00	0.00	6,200.00	0.00	0.00	0.00	0.00	0.00	0.00
6,300.00	0.00	0.00	6,300.00	0.00	0.00	0.00	0.00	0.00	0.00
6,400.00	0.00	0.00	6,400.00	0.00	0.00	0.00	0.00	0.00	0.00
6,500.00	0.00	0.00	6,500.00	0.00	0.00	0.00	0.00	0.00	0.00
6,600.00	0.00	0.00	6,600.00	0.00	0.00	0.00	0.00	0.00	0.00
6,621.00	0.00	0.00	6,621.00	0.00	0.00	0.00	0.00	0.00	0.00
Brushy Canyon									
6,700.00	0.00	0.00	6,700.00	0.00	0.00	0.00	0.00	0.00	0.00
6,800.00	0.00	0.00	6,800.00	0.00	0.00	0.00	0.00	0.00	0.00
6,900.00	0.00	0.00	6,900.00	0.00	0.00	0.00	0.00	0.00	0.00
7,000.00	0.00	0.00	7,000.00	0.00	0.00	0.00	0.00	0.00	0.00
7,100.00	0.00	0.00	7,100.00	0.00	0.00	0.00	0.00	0.00	0.00
7,200.00	0.00	0.00	7,200.00	0.00	0.00	0.00	0.00	0.00	0.00
7,300.00	0.00	0.00	7,300.00	0.00	0.00	0.00	0.00	0.00	0.00
7,400.00	0.00	0.00	7,400.00	0.00	0.00	0.00	0.00	0.00	0.00
7,500.00	0.00	0.00	7,500.00	0.00	0.00	0.00	0.00	0.00	0.00
7,600.00	0.00	0.00	7,600.00	0.00	0.00	0.00	0.00	0.00	0.00
7,700.00	0.00	0.00	7,700.00	0.00	0.00	0.00	0.00	0.00	0.00
7,800.00	0.00	0.00	7,800.00	0.00	0.00	0.00	0.00	0.00	0.00
7,900.00	0.00	0.00	7,900.00	0.00	0.00	0.00	0.00	0.00	0.00
8,000.00	0.00	0.00	8,000.00	0.00	0.00	0.00	0.00	0.00	0.00
8,100.00	0.00	0.00	8,100.00	0.00	0.00	0.00	0.00	0.00	0.00
8,200.00	0.00	0.00	8,200.00	0.00	0.00	0.00	0.00	0.00	0.00
8,203.00	0.00	0.00	8,203.00	0.00	0.00	0.00	0.00	0.00	0.00
1st Bone Spring Lime									
8,300.00	0.00	0.00	8,300.00	0.00	0.00	0.00	0.00	0.00	0.00
8,400.00	0.00	0.00	8,400.00	0.00	0.00	0.00	0.00	0.00	0.00
8,500.00	0.00	0.00	8,500.00	0.00	0.00	0.00	0.00	0.00	0.00
8,600.00	0.00	0.00	8,600.00	0.00	0.00	0.00	0.00	0.00	0.00
8,700.00	0.00	0.00	8,700.00	0.00	0.00	0.00	0.00	0.00	0.00
8,800.00	0.00	0.00	8,800.00	0.00	0.00	0.00	0.00	0.00	0.00
8,900.00	0.00	0.00	8,900.00	0.00	0.00	0.00	0.00	0.00	0.00

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 117.H
Company:	DEVON ENERGY	TVD Reference:	GE 3443' + KB 28' @ 3471.00usft (Permitting)
Project:	Eddy County, NM (NAD-83)	MD Reference:	GE 3443' + KB 28' @ 3471.00usft (Permitting)
Site:	Cotton Draw Unit	North Reference:	Grid
Well:	117.H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
9,000.00	0.00	0.00	9,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
9,100.00	0.00	0.00	9,100.00	0.00	0.00	0.00	0.00	0.00	0.00	
9,200.00	0.00	0.00	9,200.00	0.00	0.00	0.00	0.00	0.00	0.00	
9,300.00	0.00	0.00	9,300.00	0.00	0.00	0.00	0.00	0.00	0.00	
9,306.00	0.00	0.00	9,306.00	0.00	0.00	0.00	0.00	0.00	0.00	
1st Bone Spring Sand										
9,400.00	0.00	0.00	9,400.00	0.00	0.00	0.00	0.00	0.00	0.00	
9,500.00	0.00	0.00	9,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
9,600.00	0.00	0.00	9,600.00	0.00	0.00	0.00	0.00	0.00	0.00	
9,700.00	0.00	0.00	9,700.00	0.00	0.00	0.00	0.00	0.00	0.00	
9,711.00	0.00	0.00	9,711.00	0.00	0.00	0.00	0.00	0.00	0.00	
2nd Bone Spring Lime										
9,754.03	0.00	0.00	9,754.03	0.00	0.00	0.00	0.00	0.00	0.00	
KOP: Start DLS 10.00, TFO 359.90										
9,800.00	4.60	359.90	9,799.95	1.84	0.00	1.84	10.00	10.00	0.00	
9,850.00	9.60	359.90	9,849.55	8.02	-0.01	8.02	10.00	10.00	0.00	
9,900.00	14.60	359.90	9,898.43	18.49	-0.03	18.49	10.00	10.00	0.00	
9,904.73	15.07	359.90	9,903.00	19.71	-0.04	19.71	10.00	10.00	0.00	
2nd Bone Spring Sand										
9,950.00	19.60	359.90	9,946.20	33.19	-0.06	33.19	10.00	10.00	0.00	
10,000.00	24.60	359.90	9,992.51	51.99	-0.09	51.99	10.00	10.00	0.00	
10,050.00	29.60	359.90	10,037.01	74.76	-0.13	74.76	10.00	10.00	0.00	
10,100.00	34.60	359.90	10,079.36	101.32	-0.18	101.32	10.00	10.00	0.00	
10,150.00	39.60	359.90	10,119.22	131.47	-0.24	131.47	10.00	10.00	0.00	
10,200.00	44.60	359.90	10,156.31	164.98	-0.30	164.98	10.00	10.00	0.00	
10,250.00	49.60	359.90	10,190.34	201.59	-0.36	201.59	10.00	10.00	0.00	
10,300.00	54.60	359.90	10,221.05	241.03	-0.43	241.03	10.00	10.00	0.00	
10,350.00	59.60	359.90	10,248.20	283.00	-0.51	283.00	10.00	10.00	0.00	
10,400.00	64.60	359.90	10,271.59	327.17	-0.59	327.17	10.00	10.00	0.00	
10,450.00	69.60	359.90	10,291.04	373.21	-0.67	373.21	10.00	10.00	0.00	
10,500.00	74.60	359.90	10,306.41	420.78	-0.75	420.78	10.00	10.00	0.00	
10,550.00	79.60	359.90	10,317.57	469.50	-0.84	469.50	10.00	10.00	0.00	
10,600.00	84.60	359.90	10,324.44	519.01	-0.93	519.01	10.00	10.00	0.00	
10,650.00	89.60	359.90	10,326.97	568.93	-1.02	568.93	10.00	10.00	0.00	
10,658.03	90.40	359.90	10,326.97	576.96	-1.03	576.96	10.00	10.00	0.00	
EOC: Start 3805.00 hold at 10658.03 MD										
10,700.00	90.40	359.90	10,326.68	618.93	-1.11	618.93	0.00	0.00	0.00	
10,800.00	90.40	359.90	10,325.98	718.92	-1.29	718.92	0.00	0.00	0.00	
10,900.00	90.40	359.90	10,325.28	818.92	-1.46	818.92	0.00	0.00	0.00	
11,000.00	90.40	359.90	10,324.59	918.92	-1.64	918.92	0.00	0.00	0.00	
11,100.00	90.40	359.90	10,323.89	1,018.92	-1.82	1,018.92	0.00	0.00	0.00	
11,200.00	90.40	359.90	10,323.19	1,118.91	-2.00	1,118.91	0.00	0.00	0.00	
11,300.00	90.40	359.90	10,322.49	1,218.91	-2.18	1,218.91	0.00	0.00	0.00	
11,400.00	90.40	359.90	10,321.79	1,318.91	-2.36	1,318.91	0.00	0.00	0.00	
11,500.00	90.40	359.90	10,321.10	1,418.91	-2.54	1,418.91	0.00	0.00	0.00	
11,600.00	90.40	359.90	10,320.40	1,518.90	-2.72	1,518.90	0.00	0.00	0.00	
11,700.00	90.40	359.90	10,319.70	1,618.90	-2.90	1,618.90	0.00	0.00	0.00	
11,800.00	90.40	359.90	10,319.00	1,718.90	-3.07	1,718.90	0.00	0.00	0.00	
11,900.00	90.40	359.90	10,318.30	1,818.89	-3.25	1,818.90	0.00	0.00	0.00	
12,000.00	90.40	359.90	10,317.60	1,918.89	-3.43	1,918.90	0.00	0.00	0.00	
12,100.00	90.40	359.90	10,316.91	2,018.89	-3.61	2,018.89	0.00	0.00	0.00	

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 117H
Company:	DEVON ENERGY	TVD Reference:	GE 3443 + KB 28 @ 3471.00usft
Project:	Eddy County, NM (NAD-83)	MD Reference:	GE 3443 + KB 28 @ 3471.00usft
Site:	Cotton Draw Unit	North Reference:	Grid
Well:	117H	Survey/Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/S (usft)	+E/W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
12,200.00	90.40	359.90	10,316.21	2,118.89	-3.79	2,118.89	0.00	0.00	0.00
12,300.00	90.40	359.90	10,315.51	2,218.88	-3.97	2,218.89	0.00	0.00	0.00
12,400.00	90.40	359.90	10,314.81	2,318.88	-4.15	2,318.89	0.00	0.00	0.00
12,500.00	90.40	359.90	10,314.11	2,418.88	-4.33	2,418.88	0.00	0.00	0.00
12,600.00	90.40	359.90	10,313.42	2,518.88	-4.50	2,518.88	0.00	0.00	0.00
12,700.00	90.40	359.90	10,312.72	2,618.87	-4.68	2,618.88	0.00	0.00	0.00
12,800.00	90.40	359.90	10,312.02	2,718.87	-4.86	2,718.88	0.00	0.00	0.00
12,900.00	90.40	359.90	10,311.32	2,818.87	-5.04	2,818.87	0.00	0.00	0.00
13,000.00	90.40	359.90	10,310.62	2,918.87	-5.22	2,918.87	0.00	0.00	0.00
13,100.00	90.40	359.90	10,309.92	3,018.86	-5.40	3,018.87	0.00	0.00	0.00
13,200.00	90.40	359.90	10,309.23	3,118.86	-5.58	3,118.87	0.00	0.00	0.00
13,300.00	90.40	359.90	10,308.53	3,218.86	-5.76	3,218.86	0.00	0.00	0.00
13,400.00	90.40	359.90	10,307.83	3,318.86	-5.94	3,318.86	0.00	0.00	0.00
13,500.00	90.40	359.90	10,307.13	3,418.85	-6.11	3,418.86	0.00	0.00	0.00
13,600.00	90.40	359.90	10,306.43	3,518.85	-6.29	3,518.86	0.00	0.00	0.00
13,700.00	90.40	359.90	10,305.74	3,618.85	-6.47	3,618.85	0.00	0.00	0.00
13,800.00	90.40	359.90	10,305.04	3,718.85	-6.65	3,718.85	0.00	0.00	0.00
13,900.00	90.40	359.90	10,304.34	3,818.84	-6.83	3,818.85	0.00	0.00	0.00
14,000.00	90.40	359.90	10,303.64	3,918.84	-7.01	3,918.85	0.00	0.00	0.00
14,100.00	90.40	359.90	10,302.94	4,018.84	-7.19	4,018.84	0.00	0.00	0.00
14,200.00	90.40	359.90	10,302.24	4,118.83	-7.37	4,118.84	0.00	0.00	0.00
14,300.00	90.40	359.90	10,301.55	4,218.83	-7.54	4,218.84	0.00	0.00	0.00
14,400.00	90.40	359.90	10,300.85	4,318.83	-7.72	4,318.84	0.00	0.00	0.00
14,463.03	90.40	359.90	10,300.41	4,381.86	-7.84	4,381.87	0.00	0.00	0.00
TD at 14463.03 MD									

Design Targets										
Target Name	hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
SHL(CDU 117H)		0.00	0.00	0.00	0.00	0.00	425,040.23	717,633.89	32° 10' 2.031 N	103° 45' 48.891 W
- plan hits target center										
- Point										
PBHL(CDU 117H)		0.00	0.01	10,300.41	4,381.86	-7.84	429,422.09	717,626.05	32° 10' 45.393 N	103° 45' 48.713 W
- plan hits target center										
- Point										

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 117H
Company:	DEVON ENERGY	TVD Reference:	GE 3443' + KB 28' @ 3471.00usft (Permitting)
Project:	Eddy County, NM (NAD 83)	MD Reference:	GE 3443' + KB 28' @ 3471.00usft (Permitting)
Site:	Cotton Draw Unit	North Reference:	Grid
Well:	117H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
599.00	599.00	RUSTLER			
994.00	994.00	TOP SALT			
2,800.00	2,800.00	CASTILE			
4,407.00	4,407.00	Bell Canyon			
5,296.00	5,296.00	Cherry Canyon			
6,621.00	6,621.00	Brushy Canyon			
8,203.00	8,203.00	1st Bone Spring Lime			
9,306.00	9,306.00	1st Bone Spring Sand			
9,711.00	9,711.00	2nd Bone Spring Lime			
9,904.73	9,903.00	2nd Bone Spring Sand			

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
9,754.03	9,754.03	0.00	0.00	KOP: Start DLS 10.00 TFO 359.90	
10,658.03	10,326.97	576.96	-1.03	EOC: Start 3805.00 hold at 10658.03 MD	
14,463.03	10,300.41	4,381.86	-7.84	TD at 14463.03' MD	

**PECOS DISTRICT
CONDITIONS OF APPROVAL**

OPERATOR'S NAME:	Devon Energy Production Co.
LEASE NO.:	NMNM-036379
WELL NAME & NO.:	Cotton Draw Unit 117H
SURFACE HOLE FOOTAGE:	0160' FSL & 1980' FEL
BOTTOM HOLE FOOTAGE	0660' FNL & 1980' FEL
LOCATION:	Section 34, T. 24 S., R 31 E., NMPM
COUNTY:	Eddy County, New Mexico

Commercial Well Determination

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

Unit Wells

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.

I. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

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

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

☒ **Eddy County**

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

1. **Although Hydrogen Sulfide has not been reported in the area, it is always a potential hazard. If Hydrogen Sulfide is encountered, report measured amounts and formations to the BLM.**
2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval. **If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a “Major” violation.**

3. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works is located, this does not include the dog house or stairway area.
4. **The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.**

B. CASING

Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size. 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.).

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

Wait on cement (WOC) time prior to drilling out for a primary cement job will be a minimum 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compressive strength, whichever is greater for all casing strings. DURING THIS WOC TIME, NO DRILL PIPE, ETC. SHALL BE RUN IN THE HOLE. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. See individual casing strings for details regarding lead cement slurry requirements.

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

**Possible water and brine flows in the Salado, Castile, Delaware, and Bone Springs.
Possible lost circulation in the Delaware and Bone Spring groups.
Abnormal high pressures may be encountered near the Wolfcamp formation.**

1. The **13-3/8** inch surface casing shall be set at approximately **1000** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface. **If salt is encountered, set casing at least 25 feet above the salt.**
 - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
 - b. Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.**
 - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
 - d. If cement falls back, remedial cementing will be done prior to drilling out that string.
2. The minimum required fill of cement behind the **9-5/8** inch intermediate casing is:

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

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

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

☒ Cement as proposed by operator. Operator shall provide method of verification.

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

C. PRESSURE CONTROL

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

2. Variance approved to use flex line from BOP to choke manifold. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. **Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.** If the BLM inspector questions the straightness of the hose, a BLM engineer will be contacted and will review in the field or via picture supplied by inspector to determine if changes are required (operator shall expect delays if this occurs).
3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **3000 (3M)** psi.
 - a. **For surface casing only:** If the BOP/BOPE is to be tested against casing, the wait on cement (WOC) time for that casing is to be met (see WOC statement at start of casing section). Independent service company required.
4. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
 - a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).
 - b. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (18 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).
 - c. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock.

- d. The results of the test shall be reported to the appropriate BLM office.
- e. All tests are required to be recorded on a calibrated test chart. **A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.**
- f. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.

D. DRILL STEM TEST

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

E. WASTE MATERIAL AND FLUIDS

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

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

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