

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.*5. Lease Serial No.
NMNM0503

6. If Indian, Allottee or Tribe Name

SUBMIT IN TRIPLICATE - Other instructions on reverse side.

7. If Unit or CA/Agreement, Name and/or No.

1. Type of Well

☒ Oil Well ☐ Gas Well ☐ Other8. Well Name and No.
COTTON DRAW UNIT 278H

2. Name of Operator

DEVON ENERGY PROD CO., L.P.

Contact: LINDA GOOD

E-Mail: linda.good@dev.com

9. API Well No.
30-015-43740

3a. Address

333 WEST SHERIDAN AVE.
OKLAHOMA CITY, OK 73102

3b. Phone No. (include area code)

Ph: 405-552-6558

10. Field and Pool, or Exploratory
COTTON DRAW; DELAWARE, S

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

Sec 13 T25S R31E Mer NMP NENE 200FNL 610FEL

11. County or Parish, and State

EDDY COUNTY, NM

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

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

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports 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 respectfully requests to change the Surface Hole Location from 200 FNL 850 FEL to 200 FNL 610 FEL and change the Bottom Hole Location from 330 FNL 660 FEL to 290 FNL 660 FEL of the Cotton Draw Unit 278H in order to pad it up with the Cotton Draw Unit 255H. Devon also respectfully request to update our cement program to reflect a single stage cement job for our primary cement job with a contingency option reflecting a 2 stage DV tool/ECP job. Please see attached updated cement program, directional plan, C-102 and casing design.

NM OIL CONSERVATION
ARTESIA DISTRICT

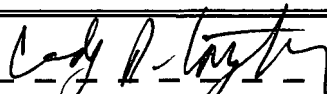
SEP 06 2016

RECEIVED

NRS JB 8-29-16 use original COA'S
Engineering Review Okay. C. Nimmer. 08/29/16. 08/29/16.

14. I hereby certify that the foregoing is true and correct.	
Electronic Submission #346819 verified by the BLM Well Information System For DEVON ENERGY PROD CO., L.P., sent to the Carlsbad Committed to AFMSS for processing by DEBORAH MCKINNEY on 08/23/2016 ()	
Name (Printed/Typed) LINDA GOOD	Title REGULATORY SPECIALIST
Signature (Electronic Submission)	Date 08/04/2016

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By 	Title  FIELD MANAGER	Date 08/29/16
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 CARLSBAD FIELD OFFICE

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

**** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED ****

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

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

Form C-102
Revised August 1, 2011
Submit one copy to appropriate
District Office

☒ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-015-43740	² Pool Code 96757	³ Pool Name Cotton Draw, Delaware, South
⁴ Property Code 300635	⁵ Property Name COTTON DRAW UNIT	
⁷ OGRID No. 6137	⁸ Operator Name DEVON ENERGY PRODUCTION COMPANY, L.P.	⁶ Well Number 278H
		⁹ Elevation 3411.3

¹⁰ Surface Location

UL or lot no.	Section	Township	Range	Lot Id	Feet from the	North/South line	Feet from the	East/West line	County
A	13	25 S	31 E		200	NORTH	610	EAST	EDDY

¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Id	Feet from the	North/South line	Feet from the	East/West line	County
A	12	25 S	31 E		290	NORTH	660	EAST	EDDY

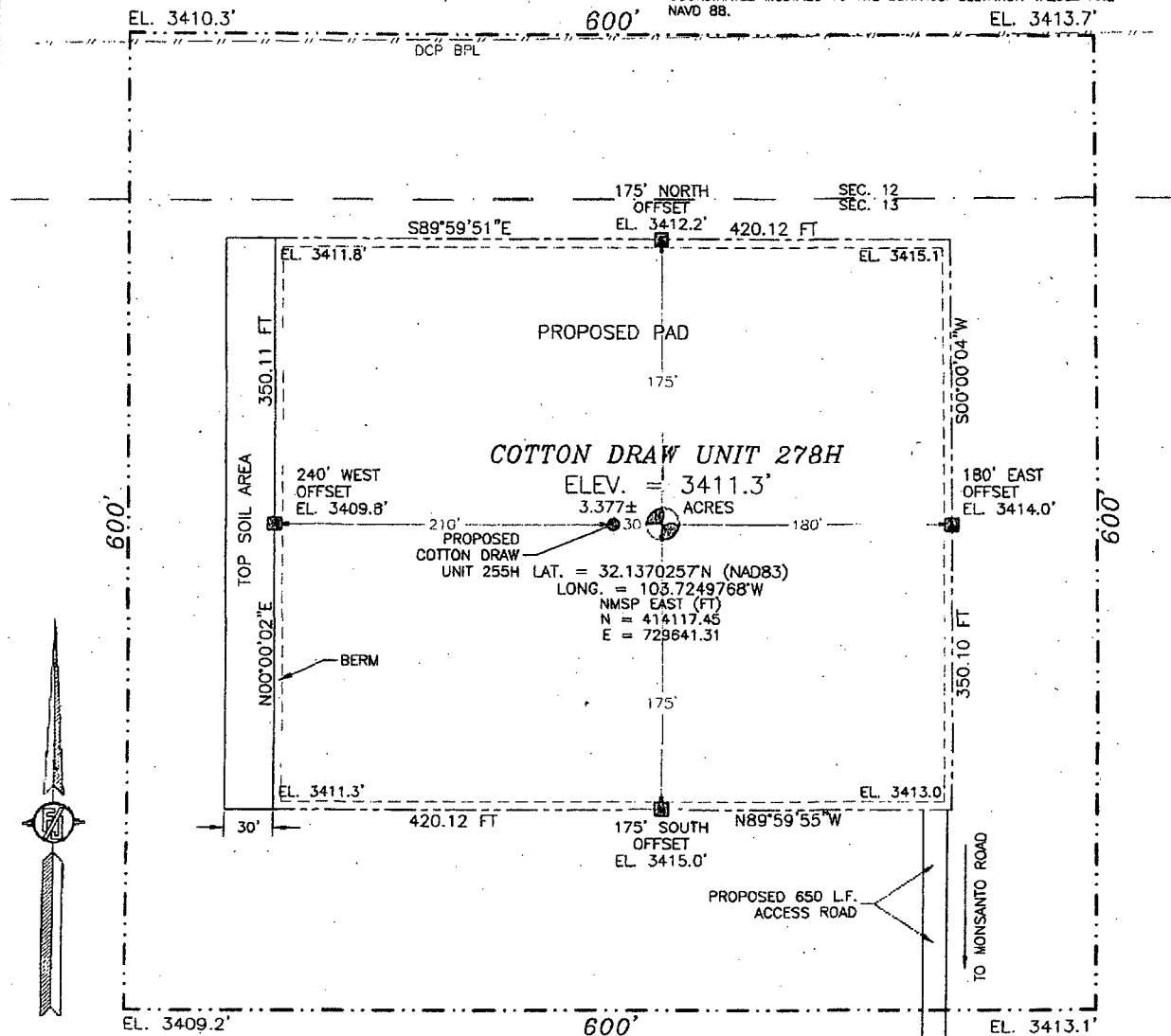
¹² Dedicated Acres 160.00	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
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No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.

NW CORNER SEC. 12 LAT. = 32.1520886°N LONG. = 103.7401028°W NMSP EAST (FT) N = 419570.97 E = 724929.11 W/4 CORNER SEC. 12 LAT. = 32.1448157°N LONG. = 103.7401166°W NMSP EAST (FT) N = 416925.16 E = 724939.41 SECTION CORNER LAT. = 32.1375499°N LONG. = 103.7401065°W NMSP EAST (FT) N = 414281.99 E = 724957.10 W/4 CORNER SEC. 13 LAT. = 32.1302841°N LONG. = 103.7401147°W NMSP EAST (FT) N = 411638.81 E = 724969.15 SW CORNER SEC. 13 LAT. = 32.1230397°N LONG. = 103.7401304°W NMSP EAST (FT) N = 409003.37 E = 724978.78		N/4 CORNER SEC. 12 LAT. = 32.1520889°N LONG. = 103.7315342°W NMSP EAST (FT) N = 419578.52 E = 727581.01 SECTION CORNER LAT. = 32.1375820°N LONG. = 103.7315741°W NMSP EAST (FT) N = 414308.35 E = 727598.11 S/4 CORNER SEC. 13 LAT. = 32.1230701°N LONG. = 103.7316050°W NMSP EAST (FT) N = 409029.07 E = 727618.02		BOTTOM OF HOLE LAT. = 32.1512818°N LONG. = 103.7251112°W NMSP EAST (FT) N = 419303.33 E = 729570.42 SECTION CORNER LAT. = 32.1375735°N LONG. = 103.7230053°W NMSP EAST (FT) N = 414320.16 E = 730250.42 SE CORNER SEC. 13 LAT. = 32.1230600°N LONG. = 103.7230339°W NMSP EAST (FT) N = 409040.33 E = 730271.48		¹⁷ OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division. <i>Linda Good</i> 8/4/2016 Signature Date Linda Good Printed Name linda.good@dmn.com E-mail Address	
NOTE: LATITUDE AND LONGITUDE COORDINATES ARE SHOWN USING THE NORTH AMERICAN DATUM OF 1983 (NAD83). LISTED NEW MEXICO STATE PLANE EAST COORDINATES ARE GRID (NAD83). BASIS OF BEARING AND DISTANCES USED ARE NEW MEXICO STATE PLANE EAST COORDINATES MODIFIED TO THE SURFACE. ELEVATION VALUES ARE NAVD 88.		¹⁸ SURVEYOR CERTIFICATION I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief. MAY 17, 2016 Date of Survey <i>[Signature]</i> Signature and Seal of Professional Surveyor Certificate Number: ELLIMON F. JARAMILLO, PLS 12797 SURVEY NO. 3830A					

SECTION 13, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
SITE MAP

NOTE: LATITUDE AND LONGITUDE COORDINATES ARE SHOWN USING THE NORTH AMERICAN DATUM OF 1983 (NAD83). LISTED NEW MEXICO STATE PLANE EAST COORDINATES ARE GRID (NAD83). BASIS OF BEARING AND DISTANCES USED ARE NEW MEXICO STATE PLANE EAST COORDINATES MODIFIED TO THE SURFACE. ELEVATION VALUES ARE NAVD 88.



010 50 100 200
SCALE 1" = 100'

DIRECTIONS TO LOCATION

FROM THE INTERSECTION OF HWY #128 AND COUNTY ROAD #1 (ORLA HWY) GO SOUTH ON COUNTY ROAD #1 APPROX. 6.0 MILES TO MONSANTO ROAD ON RIGHT (WEST) TURN WEST ON MONSANTO ROAD GO APPROX. 2.1 MILES ROAD TURN RIGHT (NORTH) GO APPROX. 0.9 MILES ROAD TURNS LEFT (WEST) GO APPROX. 1.0 MILES TO ROAD LATH WITH RED & WHITE FLAGGING ON RIGHT SIDE (NORTH) OF ROAD LOCATION IS 650' NORTH OF ROAD

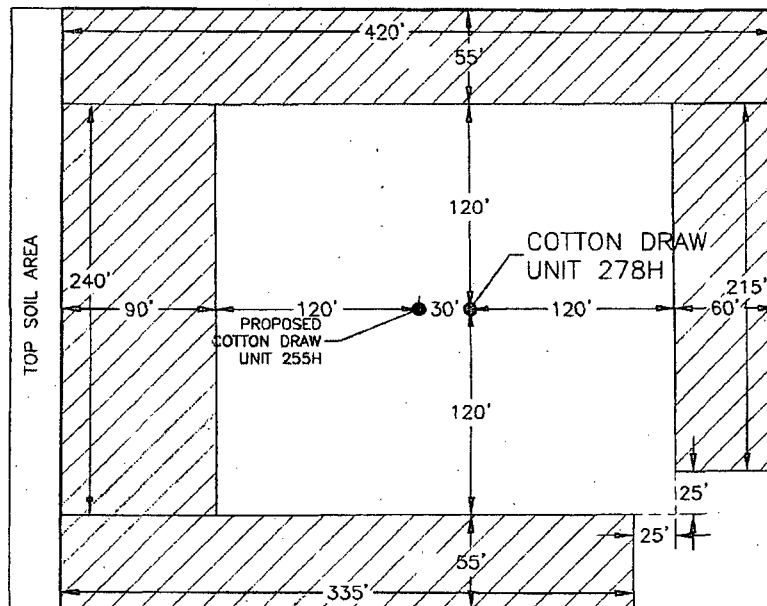
DEVON ENERGY PRODUCTION COMPANY, L.P.
COTTON DRAW UNIT 278H
LOCATED 200 FT. FROM THE NORTH LINE
AND 610 FT. FROM THE EAST LINE OF
SECTION 13, TOWNSHIP 25 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

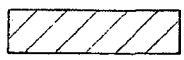
MAY 17, 2016

SURVEY NO. 3830A

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

**PROPOSED INTERIM SITE RECLAMATION
FOR COTTON DRAW UNIT 278H
SECTION 13, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO**



 DENOTES
RECLAMATION AREA
1.748± ACRES RECLAMATION AREA

PROPOSED 650 L.F.
ACCESS ROAD

010 50 100 200
SCALE 1" = 100'

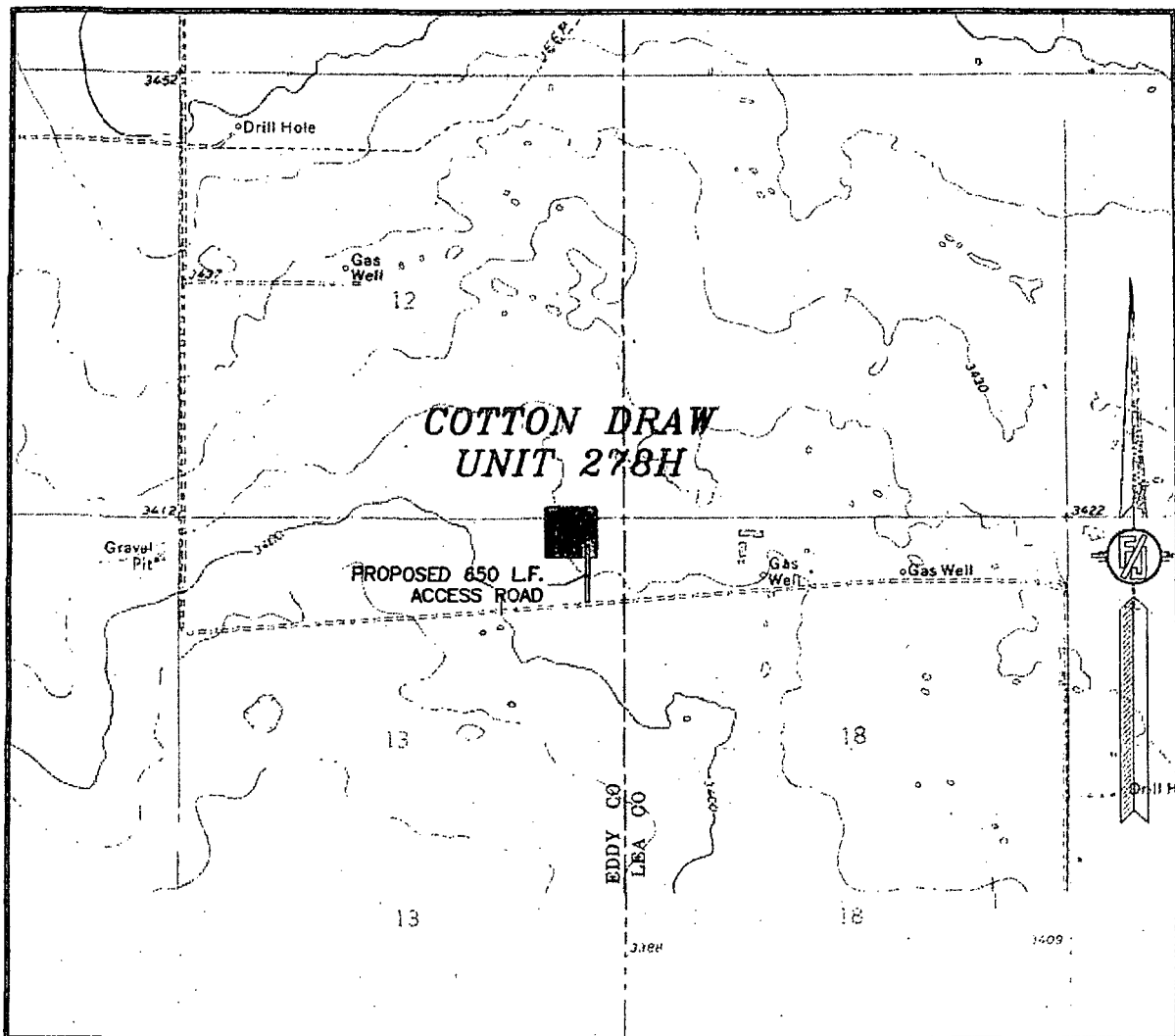
**DEVON ENERGY PRODUCTION COMPANY, L.P.
COTTON DRAW UNIT 278H
LOCATED 200 FT. FROM THE NORTH LINE
AND 610 FT. FROM THE EAST LINE OF
SECTION 13, TOWNSHIP 25 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO**

MAY 17, 2016

SURVEY NO. 3830A

MADRON SURVEYING, INC. 301 SOUTH CANAL CARLSBAD, NEW MEXICO
(575) 234-3341

SECTION 13, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
LOCATION VERIFICATION MAP



USGS QUAD MAP:
PADUCA BREAKS NW
PADUCA BREAKS WEST

NOT TO SCALE

DEVON ENERGY PRODUCTION COMPANY, L.P.

COTTON DRAW UNIT 278H

LOCATED 200 FT. FROM THE NORTH LINE
AND 610 FT. FROM THE EAST LINE OF

SECTION 13, TOWNSHIP 25 SOUTH,

RANGE 31 EAST, N.M.P.M.

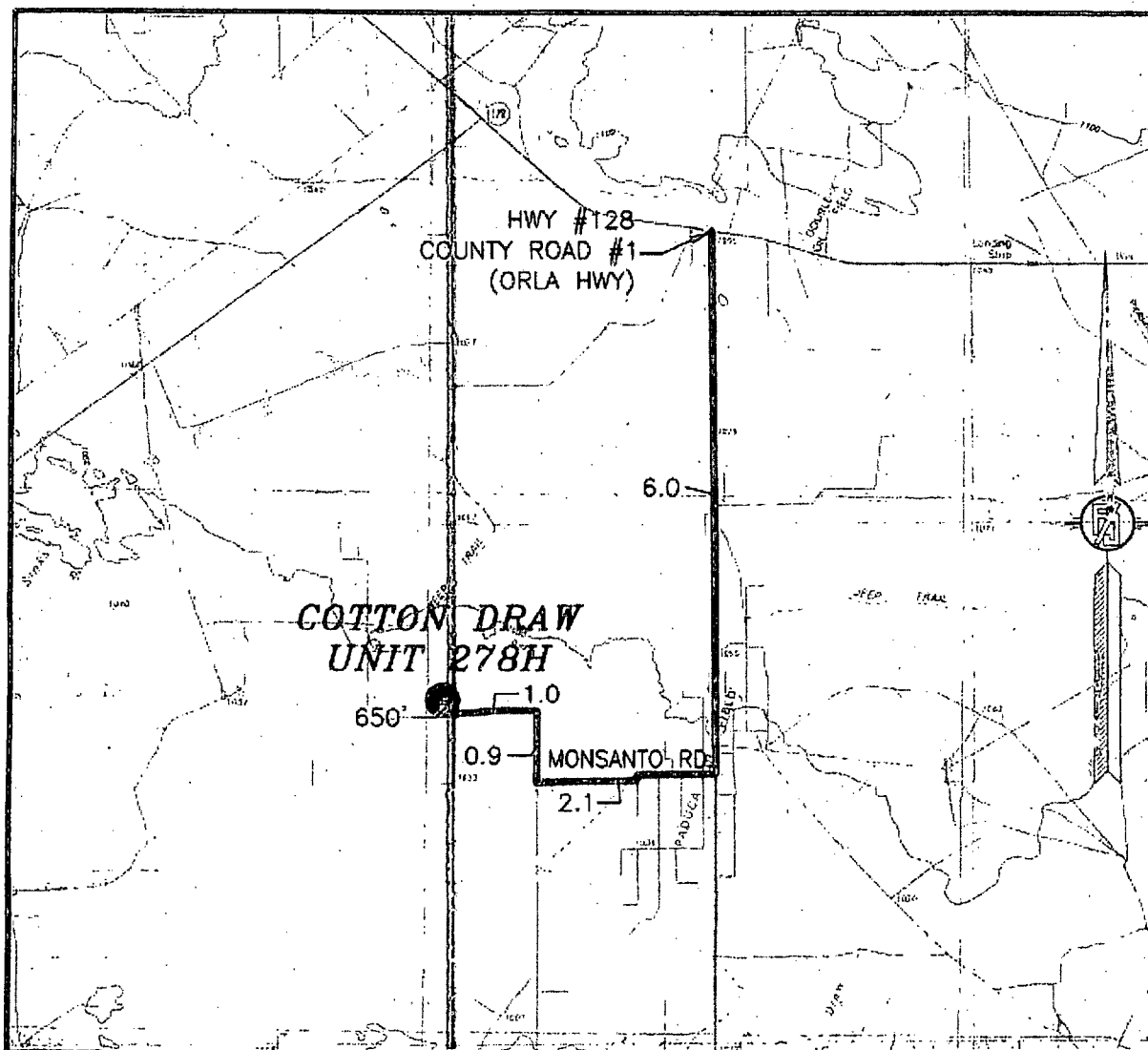
EDDY COUNTY, STATE OF NEW MEXICO

MAY 17, 2016

SURVEY NO. 3830H

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234 3341 CARLSBAD, NEW MEXICO

SECTION 13, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
VICINITY MAP



DISTANCES IN MILES

NOT TO SCALE

DIRECTIONS TO LOCATION

FROM THE INTERSECTION OF HWY #128 AND COUNTY ROAD #1 (ORLA HWY) GO SOUTH ON COUNTY ROAD #1 APPROX. 6.0 MILES TO MONSANTO ROAD ON RIGHT (WEST) TURN WEST ON MONSANTO ROAD GO APPROX. 2.1 MILES ROAD TURN RIGHT (NORTH) GO APPROX. 0.9 MILES ROAD TURNS LEFT (WEST) GO APPROX. 1.0 MILES TO ROAD LATH WITH RED & WHITE FLAGGING ON RIGHT SIDE (NORTH) OF ROAD LOCATION IS 650' NORTH OF ROAD

DEVON ENERGY PRODUCTION COMPANY, L.P.

COTTON DRAW UNIT 278H

LOCATED 200 FT. FROM THE NORTH LINE
AND 610 FT. FROM THE EAST LINE OF

SECTION 13, TOWNSHIP 25 SOUTH,
RANGE 31 EAST, N.M.P.M.

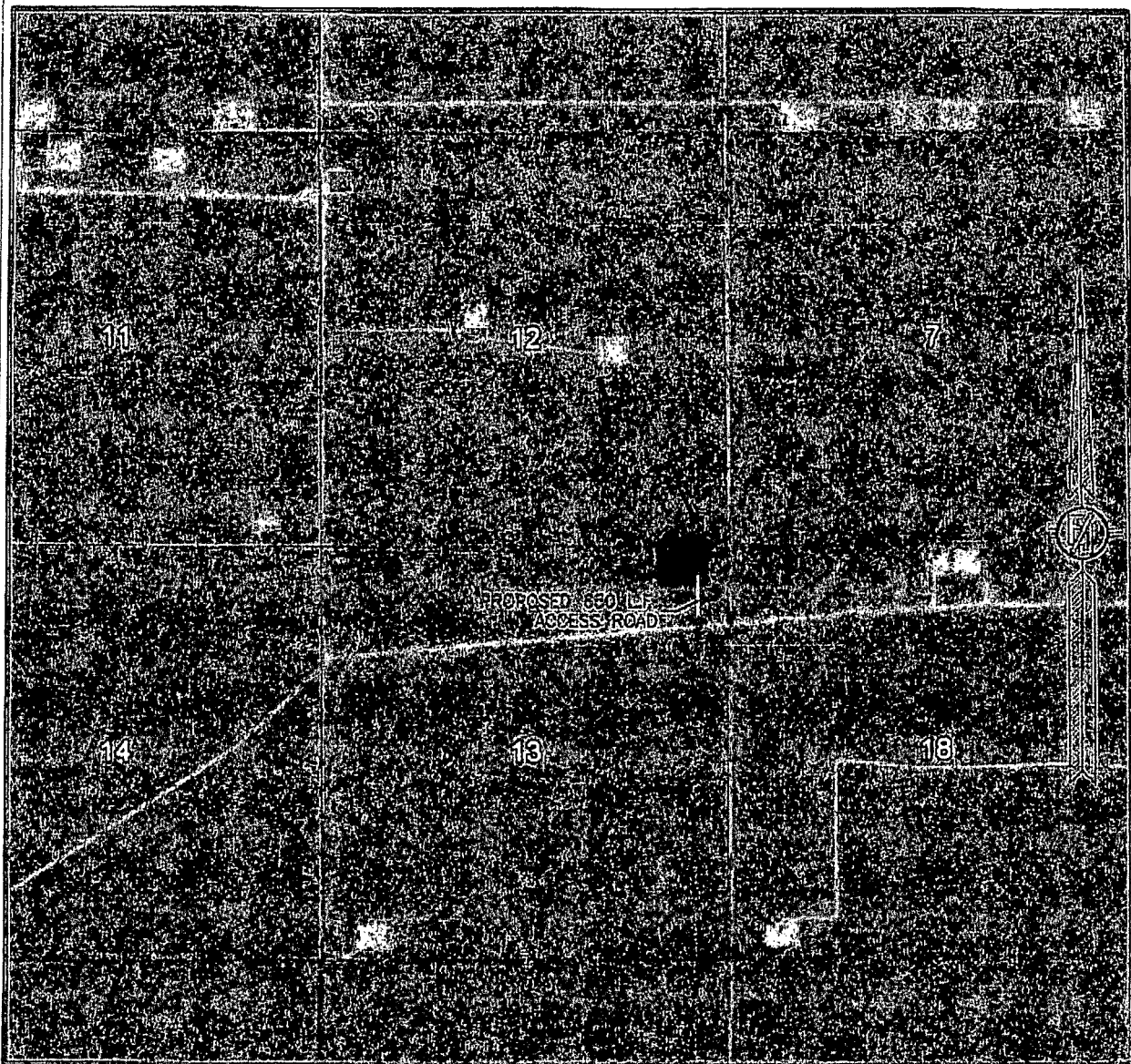
EDDY COUNTY, STATE OF NEW MEXICO

MAY 17, 2016

SURVEY NO. 3830A

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

SECTION 13, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
AERIAL PHOTO



NOT TO SCALE
AERIAL PHOTO:
GOOGLE EARTH
APR. 2014

DEVON ENERGY PRODUCTION COMPANY, L.P.
COTTON DRAW UNIT 278H

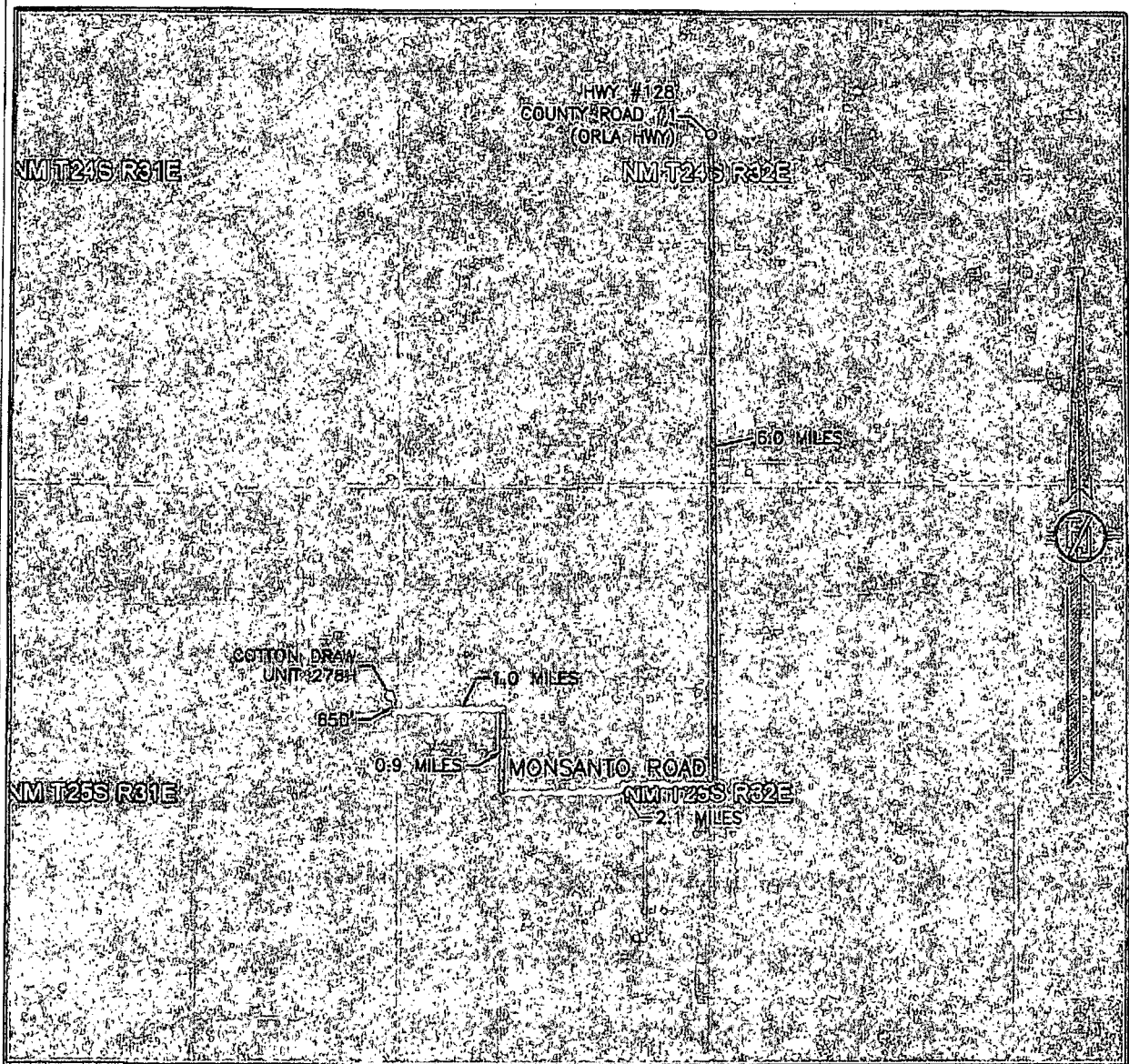
LOCATED 200 FT. FROM THE NORTH LINE
AND 610 FT. FROM THE EAST LINE OF
SECTION 13, TOWNSHIP 25 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

MAY 17, 2016

SURVEY NO. 3830A

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

SECTION 13, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO
 AERIAL ACCESS ROUTE MAP



NOT TO SCALE
 AERIAL PHOTO:
 GOOGLE EARTH
 APR. 2014

DEVON ENERGY PRODUCTION COMPANY, L.P.
 COTTON DRAW UNIT 278H

LOCATED 200 FT. FROM THE NORTH LINE
 AND 610 FT. FROM THE EAST LINE OF
 SECTION 13, TOWNSHIP 25 SOUTH,
 RANGE 31 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO

MAY 17, 2016

SURVEY NO. 38304

MADRON SURVEYING, INC. 361 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

Cotton Draw Unit 278H Sundry Request

Casing Design

Hole Size	Casing Interval		Csg. Size	Weight (lbs)	Grade	Conn	SF Collapse	SF Burst	SF Tension
	From	To							
17.5"	0	700'	13.375"	48	H-40	STC	2.12	4.77	14.54
12.25"	0	3,400'	9.625"	36	J-55	LTC	1.15	1.66	1.97
12.25"	3,400'	4,300'	9.625"	40	J-55	BTC	1.18	1.81	3.10
8.75"	0	13,130'	5.5"	17	P-110	BTC	1.54	2.19	1.15
BLM Minimum Safety Factor							1.125	1.00	1.6 Dry 1.8 Wet

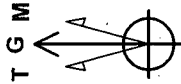
All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

Cement Program

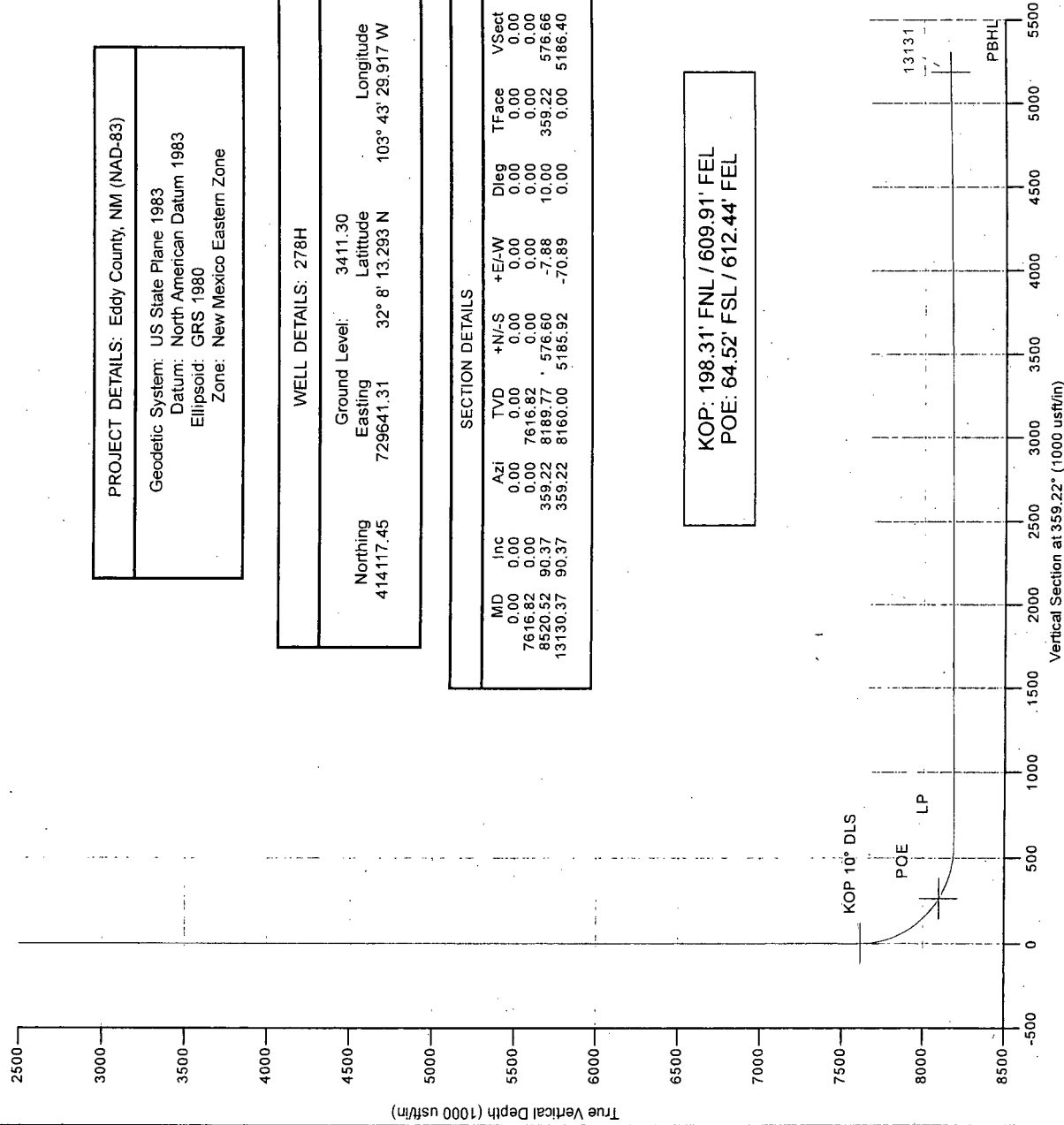
Casing	# Sks	Wt. lb/ gal	H ₂ O gal/sk	Yld ft ³ / sack	500# Comp. Strengt h (hours)	Slurry Description
13-3/8" Surf.	600	14.8	6.32	1.33	7	Tail: Class C Cement + 0.125 lbs/sack Poly-E-Flake
9-5/8" Inter.	725	12.9	9.81	1.85	17	Lead: (65:35) Class C Cement: Poz (Fly Ash): 6% BWOC Bentonite + 5% BWOW Sodium Chloride + 0.125 lbs/sack Poly-E-Flake
	310	14.8	6.32	1.33	6	Tail: Class C Cement + 0.125 lbs/sack Poly-E-Flake
5-1/2" Prod	360	9	13.5	3.27	21	Lead: Tuned Light® Cement
	1220	14.5	5.31	1.2	25	Tail: (50:50) Class H Cement: Poz (Fly Ash) + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.2% BWOC HR-601 + 2% bwoc Bentonite
5-1/2" Prod Two Stage	360	10.9	20.6	3.31	24	1 st Stage Lead: (50:40:10) Class C: Silicalite: Enhancer 923 + 10% BWOC Bentonite + 0.05% BWOC SA-1015 + 0.3% BWOC HR-800 + 0.2% BWOC FE-2 + 0.125 lb/sk Pol-E-Flake + 0.5 lb/sk D-Air 5000
	1220	14.5	5.31	1.2	25	1 st Stage Tail: (50:50) Class H Cement: Poz (Fly Ash) + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.2% BWOC HR-601 + 2% bwoc Bentonite
	DV Tool = 4350ft					
	20	10.9	20.6	3.3 1	24	2 nd Stage Lead: (50:40:10) Class C: Silicalite: Enhancer 923 + 10% BWOC Bentonite + 0.05% BWOC SA-1015 + 0.3% BWOC HR-800 + 0.2% BWOC FE-2 + 0.125 lb/sk Pol-E-Flake + 0.5 lb/sk D-Air 5000
	30	14.8	6.32	1.3 3	6	2 nd Stage Tail: Class C Cement + 0.125 lbs/sack Poly-E-Flake



Project: Eddy County, NM (NAD-83)
 Site: Cotton Draw Unit
 Well: 278H
 Wellbore: OH
 Design: APD Plan #1



Azimuths to Grid North
 True North: -0.32°
 Magnetic North: 6.63°
 Magnetic Field
 Strength: 48139.4snT
 Dip Angle: 59.90°
 Date: 8/1/2016
 Model: HDGM

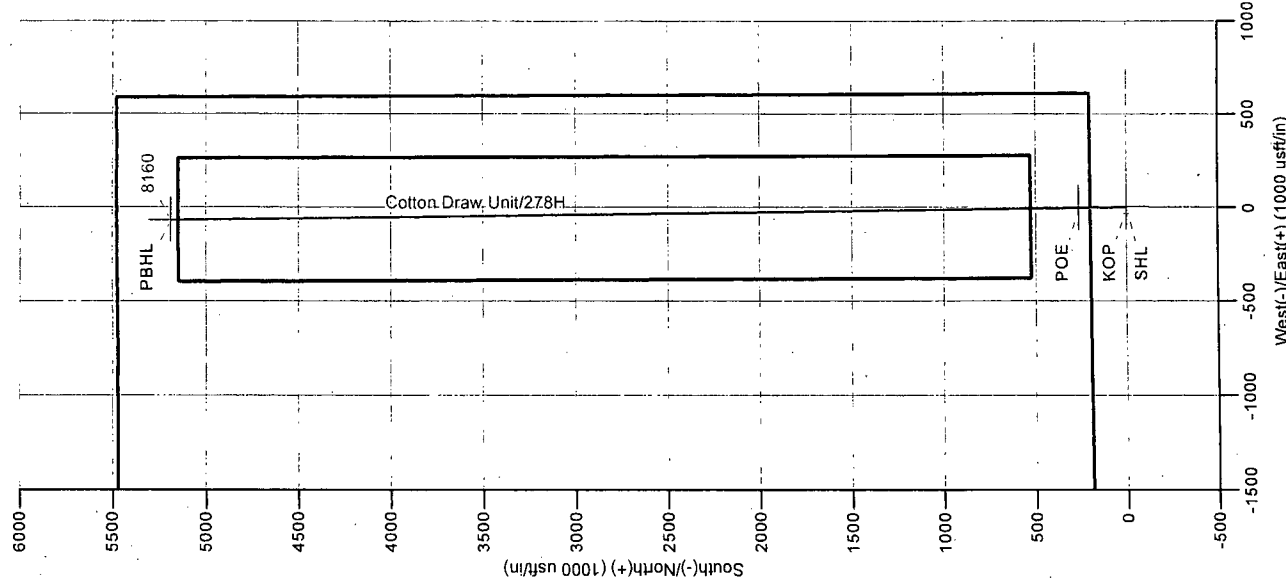


PROJECT DETAILS: Eddy County, NM (NAD-83)	
Geodetic System:	US State Plane 1983
Datum:	North American Datum 1983
Ellipsoid:	GRS 1980
Zone:	New Mexico Eastern Zone

WELL DETAILS: 278H			
Ground Level:	3411.30	Latitude	103° 43' 29.917 W
North	414117.45	Longitude	32° 8' 13.293 N
East	729641.31		

SECTION DETAILS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VFace	VDepth
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7616.82	0.00	0.00	7616.82	0.00	0.00	0.00	0.00	0.00	0.00
8520.52	90.37	359.22	8189.77	576.60	-7.88	10.00	359.22	576.66	576.66
13130.37	90.37	359.22	8160.00	5185.92	-70.89	0.00	0.00	5186.40	5186.40

KOP: 198.31' FNL / 609.91' FEL
 POE: 64.52' FSL / 612.44' FEL



DEVON ENERGY

Eddy County, NM (NAD-83)

Cotton Draw Unit

278H

OH

Plan: APD Plan #1

Standard Planning Report

01 August, 2016

LEAM Drilling Systems LLC

Planning Report

Database: EDM 5000.1 Single User Db
Company: DEVON ENERGY
Project: Eddy County, NM (NAD-83)
Site: Cotton Draw Unit
Well: 278H
Wellbore: OH
Design: APD Plan #1

Local Co-ordinate Reference: Well 278H
TVD Reference: 3411.3' GE + 25' KB @ 3436.30usft (Original Well Elev)
MD Reference: 3411.3' GE + 25' KB @ 3436.30usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

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

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: 278H
Well Position: +N-S -5,077.06 usft Northing: 414,117.45 usft Latitude: 32° 8' 13.293 N
+E-W 6,685.33 usft Easting: 729,641.31 usft Longitude: 103° 43' 29.917 W
Position Uncertainty: 0.00 usft Wellhead Elevation: 3,436.30 usft Ground Level: 3,411.30 usft

Wellbore: OH
Magnetics: Model Name: Sample Date: Declination: Dip Angle: Field Strength:
(°) (°) (nT)
HDGM 8/1/2016 6.95 59.90 48,139

Design: APD Plan #1

Audit Notes:

Version: Phase: PLAN Tie On Depth: 0.00

Vertical Section: Depth From (TVD) +N-S +E-W Direction
(usft) (usft) (usft) (°)
0.00 0.00 0.00 359.22

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
7,616.82	0.00	0.00	7,616.82	0.00	0.00	0.00	0.00	0.00	0.00	
8,520.52	90.37	359.22	8,189.77	576.60	-7.88	10.00	10.00	0.00	359.22	
13,130.37	90.37	359.22	8,160.00	5,185.92	-70.89	0.00	0.00	0.00	0.00	PBHL (CDU 278H)

LEAM Drilling Systems LLC

Planning Report

Database: EDM 5000.1 Single User Db
Company: DEVON ENERGY

Local Co-ordinate Reference:
TVD Reference:

Well 278H
3411.3' GE + 25' KB @ 3436.30usft (Original Well Elev)
3411.3' GE + 25' KB @ 3436.30usft (Original Well Elev)

Project: Eddy County, NM (NAD-83)

MD Reference:

Grid
Minimum Curvature

Site: Cotton Draw Unit

North Reference:

Well: 278H

Survey Calculation Method:

Wellbore: OH

Design: APD 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
SHL (CDU 278H)									
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
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
668.30	0.00	0.00	668.30	0.00	0.00	0.00	0.00	0.00	0.00
Rustler									
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
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,022.30	0.00	0.00	1,022.30	0.00	0.00	0.00	0.00	0.00	0.00
Salado									
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
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
4,187.30	0.00	0.00	4,187.30	0.00	0.00	0.00	0.00	0.00	0.00
Base of Salt									
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

LEAM Drilling Systems LLC

Planning Report

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 Well: 278H
 Wellbore: OH
 Design: APD Plan #1

Local Co-ordinate Reference: Well 278H
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 MD Reference: 3411.3' GE + 25' KB @ 3436.30usft (Original Well Elev)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,407.30	0.00	0.00	4,407.30	0.00	0.00	0.00	0.00	0.00	0.00
Delaware									
4,441.30	0.00	0.00	4,441.30	0.00	0.00	0.00	0.00	0.00	0.00
Bell Canyon									
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
5,300.00	0.00	0.00	5,300.00	0.00	0.00	0.00	0.00	0.00	0.00
5,388.30	0.00	0.00	5,388.30	0.00	0.00	0.00	0.00	0.00	0.00
Cherry Canyon									
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
6,700.00	0.00	0.00	6,700.00	0.00	0.00	0.00	0.00	0.00	0.00
6,736.30	0.00	0.00	6,736.30	0.00	0.00	0.00	0.00	0.00	0.00
Brushy Canyon									
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
7,616.82	0.00	0.00	7,616.82	0.00	0.00	0.00	0.00	0.00	0.00
KOP 10° DLS - KOP (CDU 278H)									
7,650.00	3.32	359.22	7,649.98	0.96	-0.01	0.96	10.00	10.00	0.00
7,700.00	8.32	359.22	7,699.71	6.03	-0.08	6.03	10.00	10.00	0.00
7,750.00	13.32	359.22	7,748.80	15.41	-0.21	15.41	10.00	10.00	0.00
7,800.00	18.32	359.22	7,796.90	29.03	-0.40	29.03	10.00	10.00	0.00
7,850.00	23.32	359.22	7,843.62	46.79	-0.64	46.80	10.00	10.00	0.00
7,900.00	28.32	359.22	7,888.61	68.56	-0.94	68.57	10.00	10.00	0.00
7,950.00	33.32	359.22	7,931.54	94.16	-1.29	94.17	10.00	10.00	0.00
8,000.00	38.32	359.22	7,972.07	123.41	-1.69	123.42	10.00	10.00	0.00
8,050.00	43.32	359.22	8,009.90	156.08	-2.13	156.10	10.00	10.00	0.00

LEAM Drilling Systems LLC

Planning Report

Database: EDM 5000.1 Single User Db
Company: DEVON ENERGY
Project: Eddy County, NM (NAD-83)
Site: Cotton Draw Unit
Well: 278H
Wellbore: OH
Design: APD Plan #1

Local Co-ordinate Reference: Well 278H
TVD Reference: 3411.3' GE + 25' KB @ 3436.30usft (Original Well Elev)
MD Reference: 3411.3' GE + 25' KB @ 3436.30usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,100.00	48.32	359.22	8,044.73	191.92	-2.62	191.94	10.00	10.00	0.00
8,150.00	53.32	359.22	8,076.31	230.66	-3.15	230.69	10.00	10.00	0.00
8,189.14	57.23	359.22	8,098.60	262.82	-3.59	262.85	10.00	10.00	0.00
L Brushy Canyon - POE (CDU 278H)									
8,200.00	58.32	359.22	8,104.40	272.01	-3.72	272.04	10.00	10.00	0.00
8,250.00	63.32	359.22	8,128.77	315.65	-4.31	315.68	10.00	10.00	0.00
8,300.00	68.32	359.22	8,149.24	361.24	-4.94	361.27	10.00	10.00	0.00
8,350.00	73.32	359.22	8,165.67	408.44	-5.58	408.48	10.00	10.00	0.00
8,400.00	78.32	359.22	8,177.91	456.90	-6.25	456.94	10.00	10.00	0.00
8,402.11	78.53	359.22	8,178.34	458.97	-6.27	459.01	10.00	10.00	0.00
L Brushy D									
8,450.00	83.32	359.22	8,185.89	506.24	-6.92	506.29	10.00	10.00	0.00
8,500.00	88.32	359.22	8,189.53	556.09	-7.60	556.14	10.00	10.00	0.00
8,520.52	90.37	359.22	8,189.77	576.60	-7.88	576.66	10.00	10.00	0.00
LP									
8,600.00	90.37	359.22	8,189.26	656.07	-8.97	656.13	0.00	0.00	0.00
8,700.00	90.37	359.22	8,188.61	756.06	-10.34	756.13	0.00	0.00	0.00
8,800.00	90.37	359.22	8,187.96	856.05	-11.70	856.13	0.00	0.00	0.00
8,900.00	90.37	359.22	8,187.32	956.04	-13.07	956.13	0.00	0.00	0.00
9,000.00	90.37	359.22	8,186.67	1,056.03	-14.44	1,056.12	0.00	0.00	0.00
9,100.00	90.37	359.22	8,186.03	1,156.01	-15.80	1,156.12	0.00	0.00	0.00
9,200.00	90.37	359.22	8,185.38	1,256.00	-17.17	1,256.12	0.00	0.00	0.00
9,300.00	90.37	359.22	8,184.74	1,355.99	-18.54	1,356.12	0.00	0.00	0.00
9,400.00	90.37	359.22	8,184.09	1,455.98	-19.90	1,456.12	0.00	0.00	0.00
9,500.00	90.37	359.22	8,183.44	1,555.97	-21.27	1,556.11	0.00	0.00	0.00
9,600.00	90.37	359.22	8,182.80	1,655.96	-22.64	1,656.11	0.00	0.00	0.00
9,700.00	90.37	359.22	8,182.15	1,755.95	-24.00	1,756.11	0.00	0.00	0.00
9,800.00	90.37	359.22	8,181.51	1,855.93	-25.37	1,856.11	0.00	0.00	0.00
9,900.00	90.37	359.22	8,180.86	1,955.92	-26.74	1,956.11	0.00	0.00	0.00
10,000.00	90.37	359.22	8,180.22	2,055.91	-28.10	2,056.10	0.00	0.00	0.00
10,100.00	90.37	359.22	8,179.57	2,155.90	-29.47	2,156.10	0.00	0.00	0.00
10,200.00	90.37	359.22	8,178.92	2,255.89	-30.84	2,256.10	0.00	0.00	0.00
10,300.00	90.37	359.22	8,178.28	2,355.88	-32.20	2,356.10	0.00	0.00	0.00
10,400.00	90.37	359.22	8,177.63	2,455.87	-33.57	2,456.10	0.00	0.00	0.00
10,500.00	90.37	359.22	8,176.99	2,555.85	-34.94	2,556.09	0.00	0.00	0.00
10,600.00	90.37	359.22	8,176.34	2,655.84	-36.30	2,656.09	0.00	0.00	0.00
10,700.00	90.37	359.22	8,175.69	2,755.83	-37.67	2,756.09	0.00	0.00	0.00
10,800.00	90.37	359.22	8,175.05	2,855.82	-39.04	2,856.09	0.00	0.00	0.00
10,900.00	90.37	359.22	8,174.40	2,955.81	-40.41	2,956.09	0.00	0.00	0.00
11,000.00	90.37	359.22	8,173.76	3,055.80	-41.77	3,056.08	0.00	0.00	0.00
11,100.00	90.37	359.22	8,173.11	3,155.79	-43.14	3,156.08	0.00	0.00	0.00
11,200.00	90.37	359.22	8,172.47	3,255.77	-44.51	3,256.08	0.00	0.00	0.00
11,300.00	90.37	359.22	8,171.82	3,355.76	-45.87	3,356.08	0.00	0.00	0.00
11,400.00	90.37	359.22	8,171.17	3,455.75	-47.24	3,456.07	0.00	0.00	0.00
11,500.00	90.37	359.22	8,170.53	3,555.74	-48.61	3,556.07	0.00	0.00	0.00
11,600.00	90.37	359.22	8,169.88	3,655.73	-49.97	3,656.07	0.00	0.00	0.00
11,700.00	90.37	359.22	8,169.24	3,755.72	-51.34	3,756.07	0.00	0.00	0.00
11,800.00	90.37	359.22	8,168.59	3,855.71	-52.71	3,856.07	0.00	0.00	0.00
11,900.00	90.37	359.22	8,167.95	3,955.69	-54.07	3,956.06	0.00	0.00	0.00
12,000.00	90.37	359.22	8,167.30	4,055.68	-55.44	4,056.06	0.00	0.00	0.00
12,100.00	90.37	359.22	8,166.65	4,155.67	-56.81	4,156.06	0.00	0.00	0.00

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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	90.37	359.22	8,166.01	4,255.66	-58.17	4,256.06	0.00	0.00	0.00
12,300.00	90.37	359.22	8,165.36	4,355.65	-59.54	4,356.06	0.00	0.00	0.00
12,400.00	90.37	359.22	8,164.72	4,455.64	-60.91	4,456.05	0.00	0.00	0.00
12,500.00	90.37	359.22	8,164.07	4,555.63	-62.27	4,556.05	0.00	0.00	0.00
12,600.00	90.37	359.22	8,163.43	4,655.61	-63.64	4,656.05	0.00	0.00	0.00
12,700.00	90.37	359.22	8,162.78	4,755.60	-65.01	4,756.05	0.00	0.00	0.00
12,800.00	90.37	359.22	8,162.13	4,855.59	-66.37	4,856.05	0.00	0.00	0.00
12,900.00	90.37	359.22	8,161.49	4,955.58	-67.74	4,956.04	0.00	0.00	0.00
13,000.00	90.37	359.22	8,160.84	5,055.57	-69.11	5,056.04	0.00	0.00	0.00
13,100.00	90.37	359.22	8,160.20	5,155.56	-70.47	5,156.04	0.00	0.00	0.00
13,130.37	90.37	359.22	8,160.00	5,185.92	-70.89	5,186.40	0.00	0.00	0.00

TD - PBHL (CDU 278H)

Design Targets

Target Name hit/miss target Shape	Dip Angle (°)	Dip Dir (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
SHL (CDU 278H) - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	414,117.45	729,641.31	32° 8' 13.293 N	103° 43' 29.917 W
KOP (CDU 278H) - plan hits target center - Point	0.00	0.00	7,616.82	0.00	0.00	414,117.45	729,641.31	32° 8' 13.293 N	103° 43' 29.917 W
POE (CDU 278H) - plan hits target center - Point	0.00	0.00	8,098.60	262.82	-3.59	414,380.27	729,637.71	32° 8' 15.894 N	103° 43' 29.941 W
PBHL (CDU 278H) - plan hits target center - Point	0.00	0.00	8,160.00	5,185.92	-70.89	419,303.37	729,570.42	32° 9' 4.615 N	103° 43' 30.400 W

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
668.30	668.30	Rustler		-0.37	359.22
1,022.30	1,022.30	Salado		-0.37	359.22
4,187.30	4,187.30	Base of Salt		-0.37	359.22
4,407.30	4,407.30	Delaware		-0.37	359.22
4,441.30	4,441.30	Bell Canyon		-0.37	359.22
5,388.30	5,388.30	Cherry Canyon		-0.37	359.22
6,736.30	6,736.30	Brushy Canyon		-0.37	359.22
8,189.14	8,098.60	L Brushy Canyon		-0.37	359.22
8,402.11	8,178.34	L Brushy D		-0.37	359.22

LEAM Drilling Systems LLC

Planning Report

Database: EDM 5000.1 Single User Db
 Company: DEVON ENERGY
 Project: Eddy County, NM (NAD-83)
 Site: Cotton Draw Unit
 Well: 278H
 Wellbore: OH
 Design: APD Plan #1

Local Co-ordinate Reference: Well 278H
 TVD Reference: 3411.3' GE + 25' KB @ 3436.30usft (Original Well Elev)
 MD Reference: 3411.3' GE + 25' KB @ 3436.30usft (Original Well Elev)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
7,616.82	7,616.82	0.00	0.00	KOP 10° DLS
8,520.52	8,189.77	576.60	-7.88	LP
13,130.37	8,160.00	5,185.92	-70.89	TD