

NM OIL CONSERVATION

ARTESIA DISTRICT

SEP 16 2014

Form 3160-3
(March 2012)

FORM APPROVED
OMB No. 1004-0137
Expires October 31, 2014

UNITED STATES **RECEIVED**
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

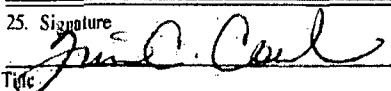
APPLICATION FOR PERMIT TO DRILL OR REENTER

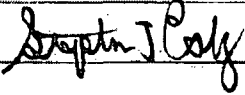
1a. Type of work: ☒ DRILL ☐ REENTER		5. Lease Serial No. BHL:NM042625/SHL:NM046525
1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone		6. If Indian, Allottee or Tribe Name
2. Name of Operator Devon Energy Production Company, L.P.		7. If Unit or CA Agreement, Name and No. Cotton Draw Unit NM70928X
3a. Address 333 W. Sheridan Oklahoma City, OK 73102-5010		8. Lease Name and Well No. Cotton Draw Unit 216Y < 300635 >
3b. Phone No. (include area code) 405-228-7203		9. API Well No. 30-015-42648
4. Location of Well (Report location clearly and in accordance with any State requirements.) At surface 200' FSL & 1475' FEL, Unit O, Sec. 3, T25S-R31E At proposed prod. zone 330' FNL & 1980' FEL, Lot 2, Sec. 3 T25S-31E		10. Field and Pool, or Exploratory Paduca; Bone Spring < 96641 >
11. Sec., T. R. M. or Blk. and Survey or Area Sec. 3, T25S-31E		12. County or Parish Eddy County
13. State NM		14. Distance in miles and direction from nearest town or post office* Approximately 19 miles Southeast of Malaga, NM
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) See attached map	16. No. of acres in lease NM042625 - 159.38 NM046525 - 80	17. Spacing Unit dedicated to this well W/2 E/2 Sec. 3, T25S-R31E = 159.76 ac
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. See attached map	19. Proposed Depth MD: 15,152' TVD: 10,320'	20. BLM/BIA Bond No. on file CO-1104; NBM-000801
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3425.3' GL	22. Approximate date work will start* 09/10/2014	23. Estimated duration 45 Days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, must be attached to this form:

- | | |
|--|---|
| 1. Well plat certified by a registered surveyor. | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan. | 5. Operator certification |
| 3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office). | 6. Such other site specific information and/or plans as may be required by the BLM. |

25. Signature 	Name (Printed/Typed) Trina C. Couch	Date 09/05/2014
Title Regulatory Analyst		

Approved by (Signature) 	Name (Printed/Typed) /S/ STEPHEN J. CAFFEY	Date 9/16/17
Title AFM	Office CFO	

Application approval 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.
Conditions of approval, if any, are attached.

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.

(Continued on page 2)

*(Instructions on page 2)

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

APPROVAL SUBJECT TO
GENERAL REQUIREMENTS AND
SPECIAL STIPULATIONS
ATTACHED

CARLSBAD CONTROLLED WATER BASIN

NM OIL CONSERVATION

ARTESIA DISTRICT

SEP 16 2014

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

RECEIVED

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 30-015-42648	² Pool Code 96641	³ Pool Name Paduca; Bone Spring (0)
⁴ Property Code 300635	⁵ Property Name COTTON DRAW UNIT	
⁶ OGRID No. 6137	⁷ Operator Name DEVON ENERGY PRODUCTION COMPANY, L.P.	⁸ Well Number 216Y
		⁹ Elevation 3425.7

¹⁰ Surface Location

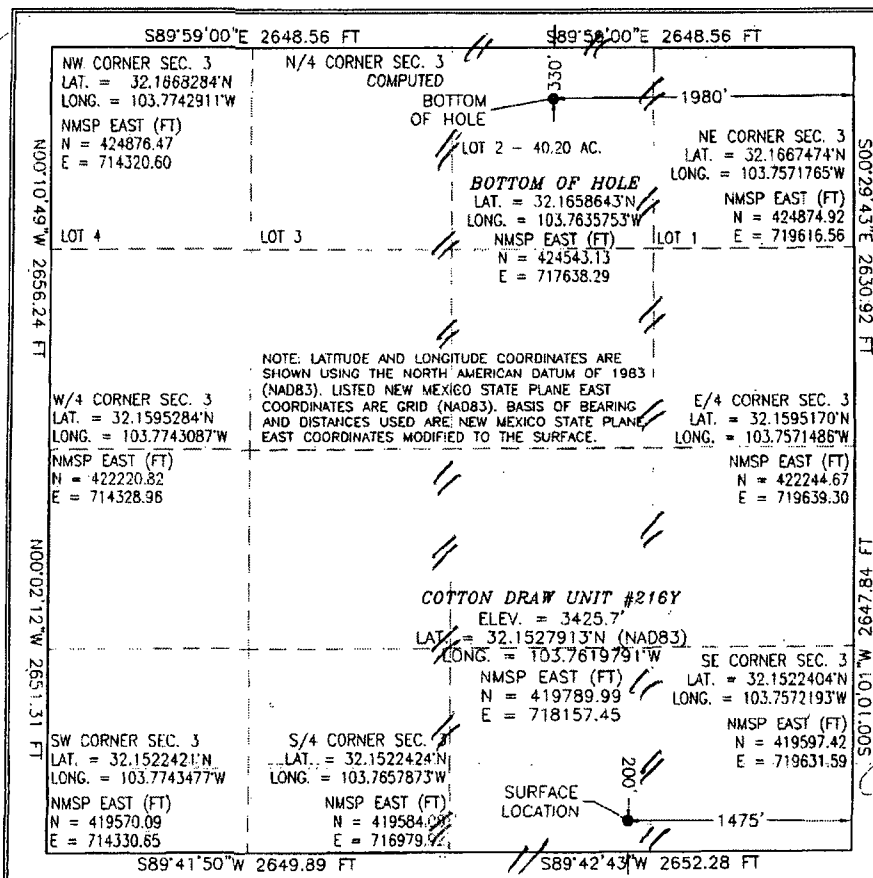
U/L or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
0	3	25 S	31 E		200	SOUTH	1475	EAST	EDDY

¹¹ Bottom Hole Location If Different From Surface

U/L or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
2	3	25 S	31 E		330	NORTH	1980	EAST	EDDY

¹² Dedicated Acres	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
159.76			

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.



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.

Signature: *Trina C. Couch* Date: *9/14/14*
Trina C. Couch, Regulatory Analyst

Printed Name:
trina.couch@dmr.com

E-mail Address

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.

SEPTEMBER 9, 2014

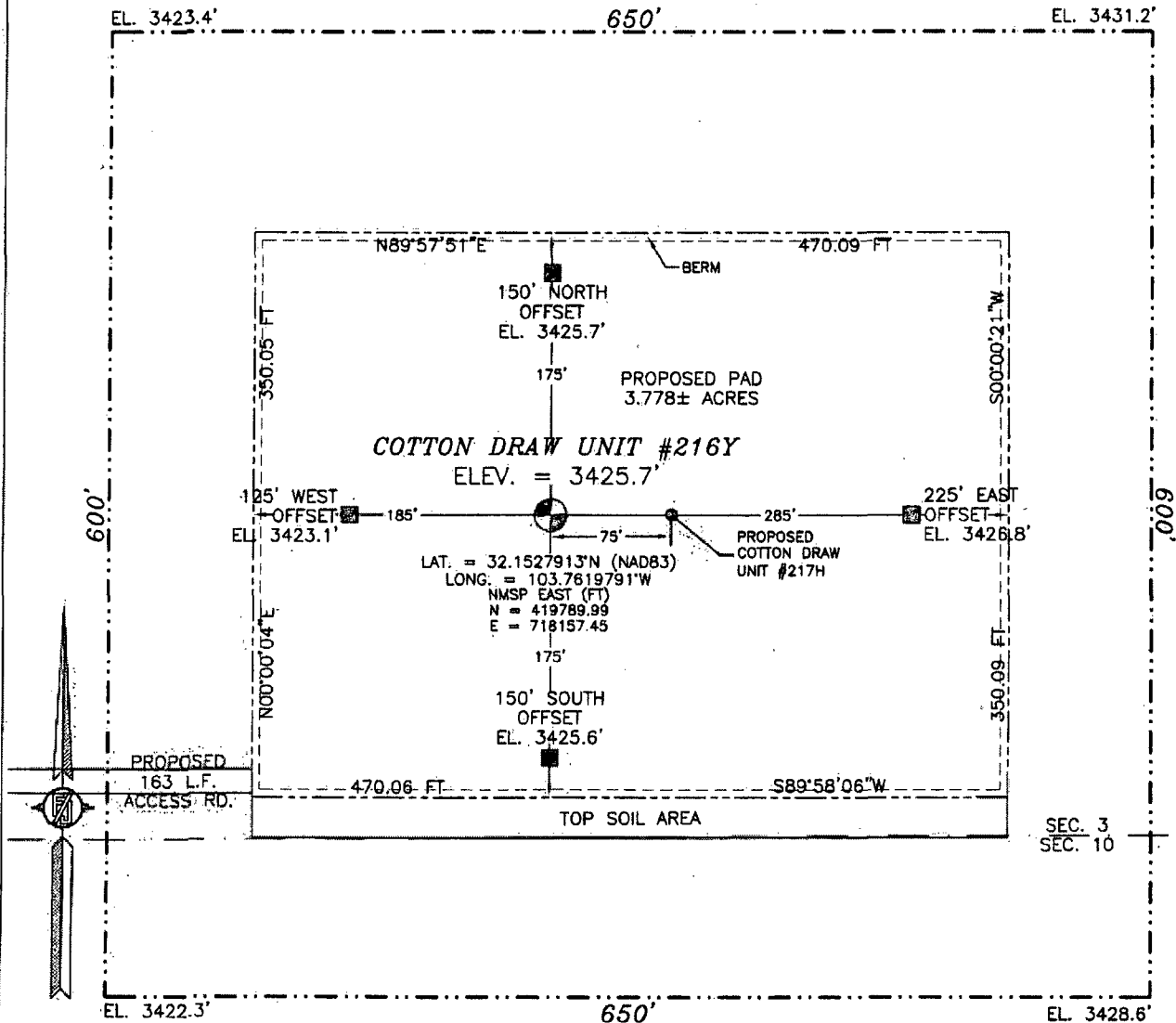
Date of Survey

Signature and Seal of Professional Surveyor
[Signature]

Certificate Number: **FILMION 171416110. PLS 12797**
SURVEY NO. 1889C

SECTION 3, 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.



0 10 50 100 200

SCALE 1" = 100'

DIRECTIONS TO LOCATION

FROM INTERSECTION OF ORLA HWY. #1 AND MONSANTO ROAD GO WEST ON MONSANTO ROAD APPROX. 2.1 MILES ROAD TURNS RIGHT (NORTH) GO NORTH APPROX. 0.9 MILES ROAD TURN LEFT (WEST) GO WEST APPROX. 2.0 MILES ROAD TURNS RIGHT (NORTH) GO NORTH APPROX. 1.0 MILES TO A LEASE ROAD ON LEFT (WEST) TURN LEFT (WEST) GO WEST 1.35 MILES TO LEASE ROAD ON RIGHT (NORTH) TURN RIGHT (NORTH) GO APPROX. 0.12 MILES LOCATION ON RIGHT (EAST) OF ROAD APPROX. 200 FEET.

DEVON ENERGY PRODUCTION COMPANY, L.P.
COTTON DRAW UNIT #216Y

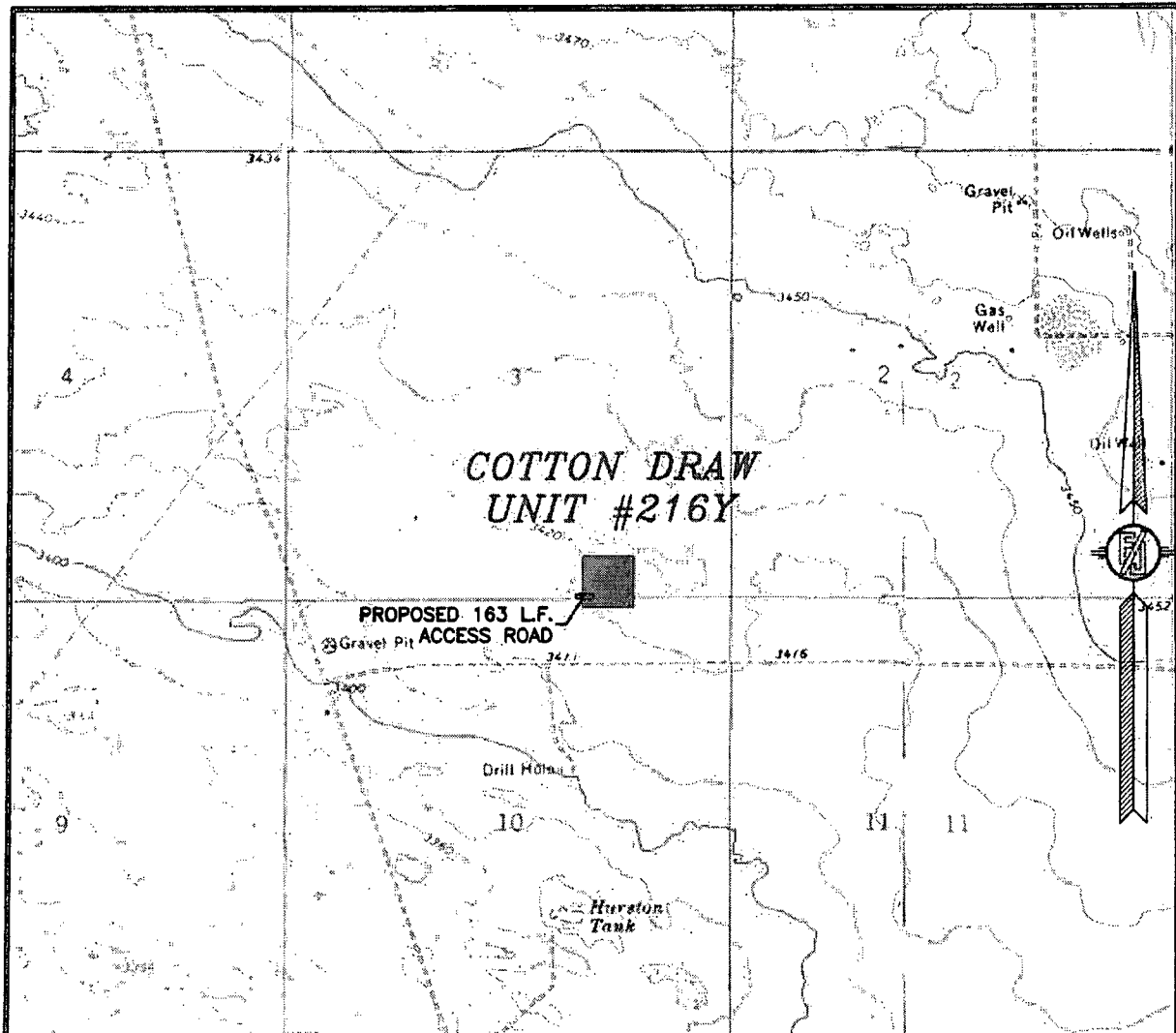
LOCATED 200 FT. FROM THE SOUTH LINE
AND 1475 FT. FROM THE EAST LINE OF
SECTION 3, TOWNSHIP 25 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

SEPTEMBER 9, 2014

SURVEY NO. 1889C

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

SECTION 3, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
LOCATION VERIFICATION MAP



USGS QUAD MAP:
BIG SINKS

NOT TO SCALE

DEVON ENERGY PRODUCTION COMPANY, L.P.
COTTON DRAW UNIT #216Y

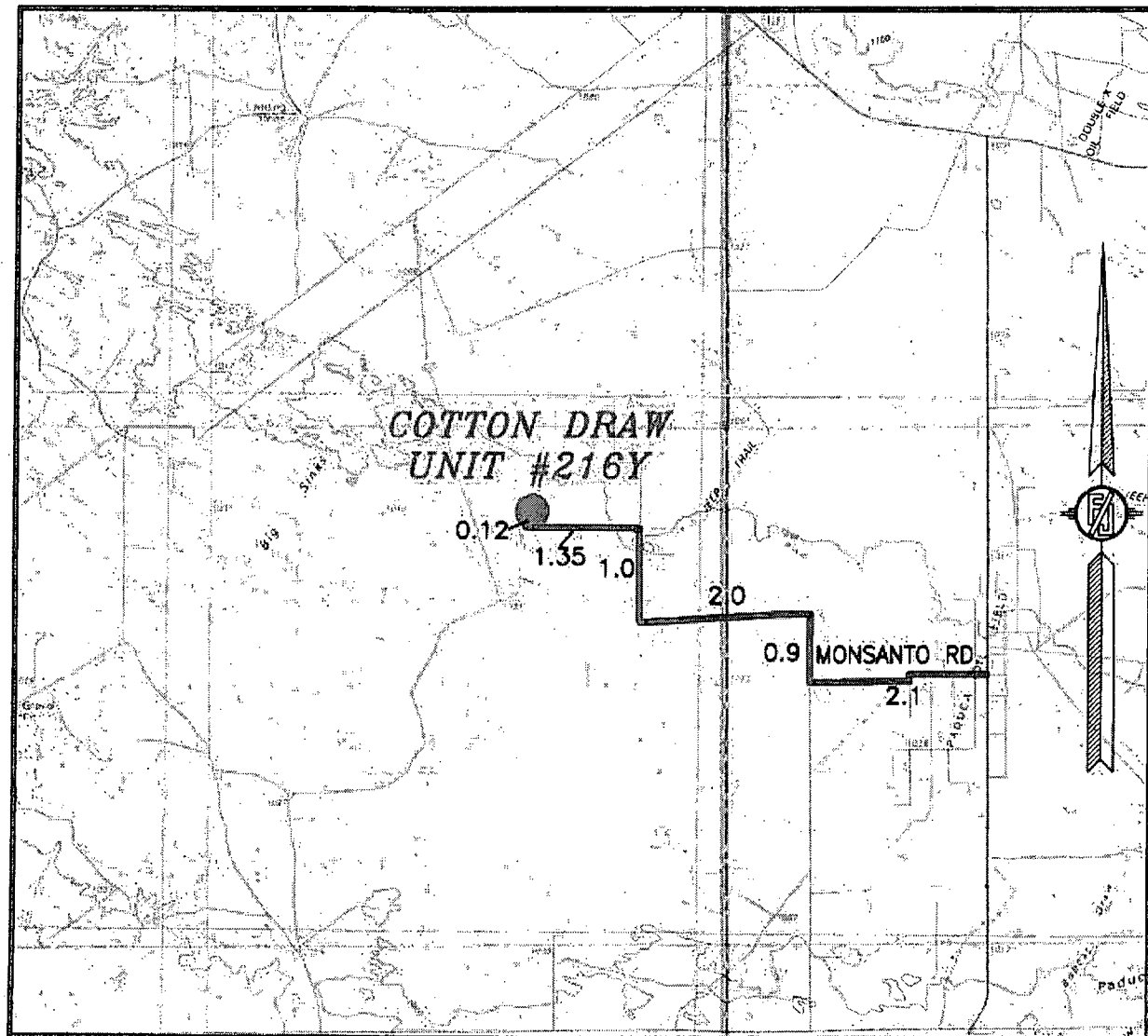
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RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

SEPTEMBER 9, 2014

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

SURVEY NO. 1889C

SECTION 3, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
VICINITY MAP



NOT TO SCALE

DIRECTIONS TO LOCATION

FROM INTERSECTION OF ORLA HWY. #1 AND MONSANTO ROAD GO WEST ON MONSANTO ROAD APPROX. 2.1 MILES ROAD TURNS RIGHT (NORTH) GO NORTH APPROX. 0.9 MILES ROAD TURN LEFT (WEST) GO WEST APPROX. 2.0 MILES ROAD TURNS RIGHT (NORTH) GO NORTH APPROX. 1.0 MILES TO A LEASE ROAD ON LEFT (WEST) TURN LEFT (WEST) GO WEST 1.35 MILES TO LEASE ROAD ON RIGHT (NORTH) TURN RIGHT (NORTH) GO APPROX. 0.12 MILES LOCATION ON RIGHT (EAST) OF ROAD APPROX. 200 FEET.

DEVON ENERGY PRODUCTION COMPANY, L.P.
COTTON DRAW UNIT #216Y

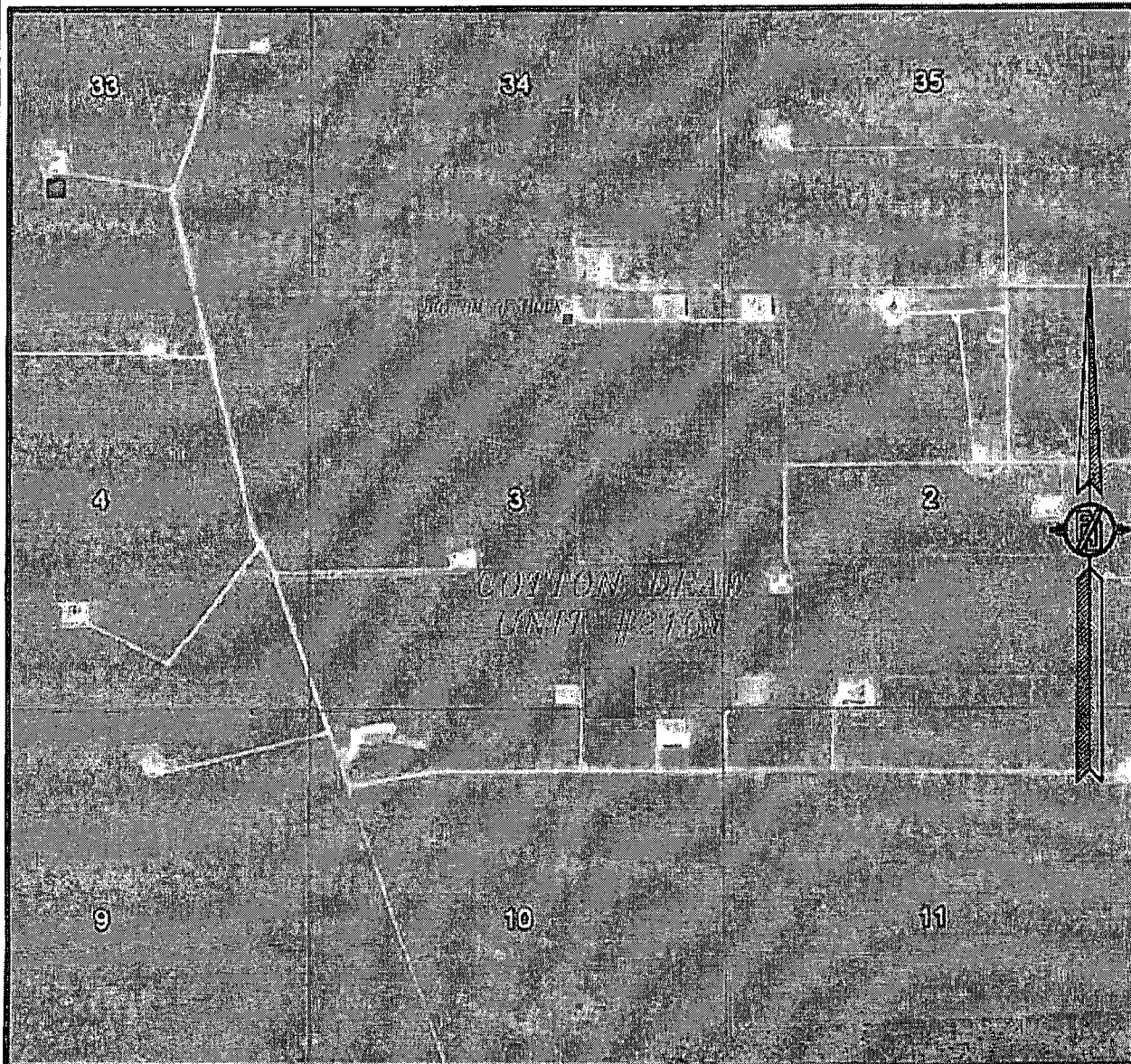
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AND 1475 FT. FROM THE EAST LINE OF
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RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

SEPTEMBER 9, 2014

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

SURVEY NO. 1889C

SECTION 3, 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
MARCH 2012

DEVON ENERGY PRODUCTION COMPANY, L.P.
COTTON DRAW UNIT #216Y

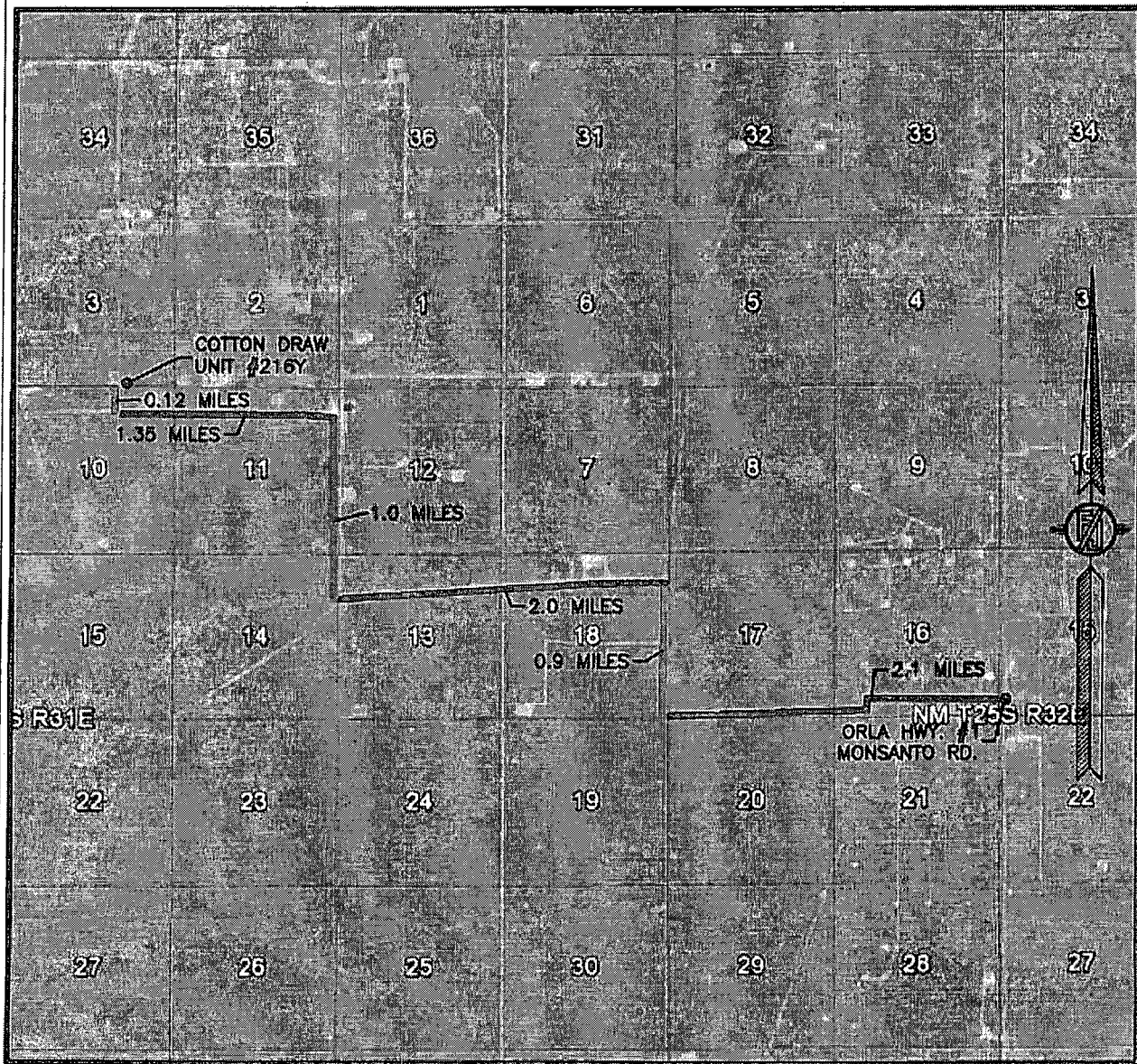
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RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

SEPTEMBER 9, 2014

SURVEY NO. 1889C

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

SECTION 3, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO
 AERIAL ACCESS ROUTE MAP



NOT TO SCALE

DEVON ENERGY PRODUCTION COMPANY, L.P.
 COTTON DRAW UNIT #216Y
 LOCATED 200 FT. FROM THE SOUTH LINE
 AND 1475 FT. FROM THE EAST LINE OF
 SECTION 3, TOWNSHIP 25 SOUTH,
 RANGE 31 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO

SEPTEMBER 9, 2014

SURVEY NO. 1889C

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

DEVON ENERGY

Project: Eddy County, NM (NAD-83)
Site: Cotton Draw Unit
Well: 216H-Y
Wellbore: OH
Design: Plan #1



Azimuths to Grid North
True North: -0.30°
Magnetic North: 7.18°

Magnetic Field
Strength: 48300.1nT
Dip Angle: 60.02°
Date: 10/25/2013
Model: BGGM2013

devon

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

DESIGN TARGET DETAILS

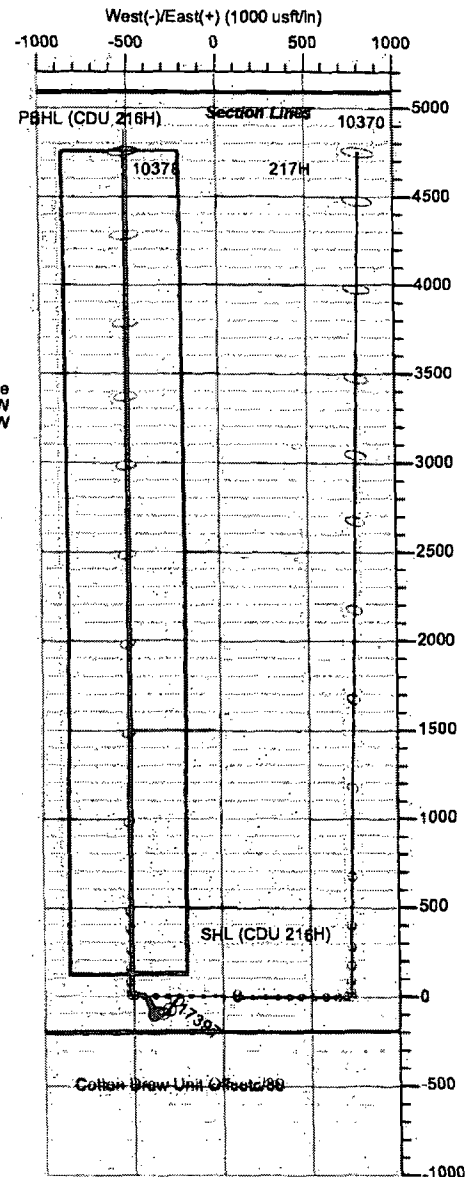
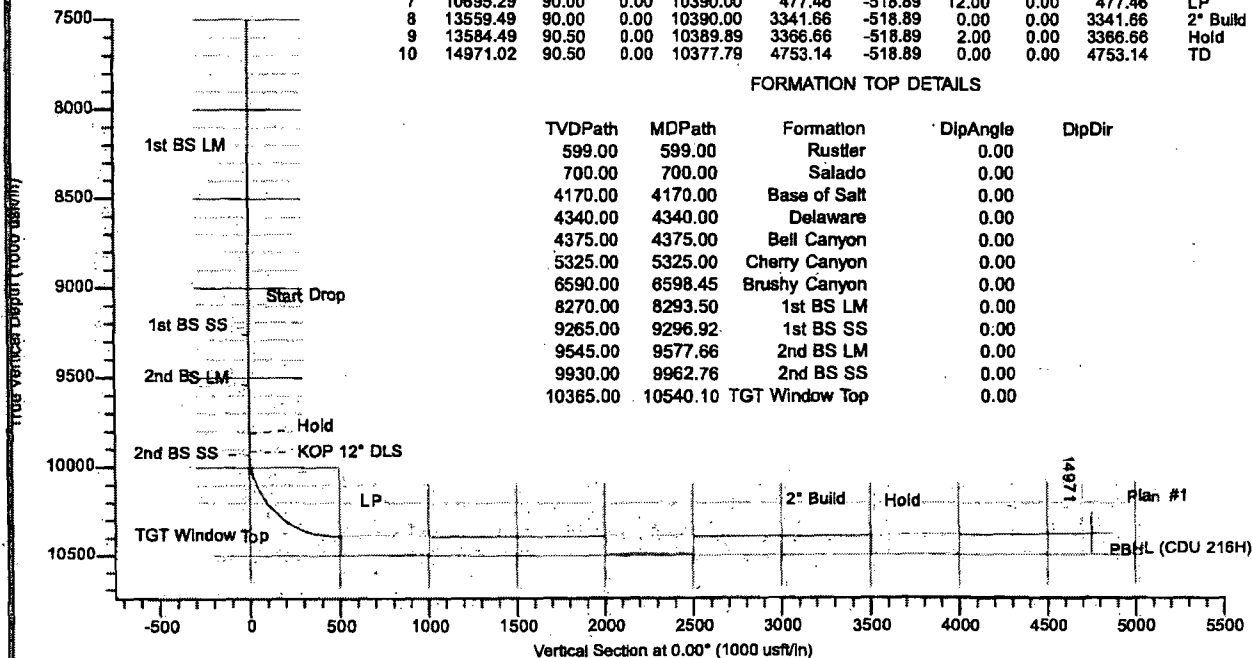
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
SHL (CDU 216H)	0.00	0.00	0.00	419789.99	718157.45	32° 9' 10.049 N	103° 45' 43.125 W
PBHL (CDU 216H)	10377.79	4753.14	-519.16	424543.13	717638.29	32° 9' 57.111 N	103° 45' 48.871 W

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	5306.65	0.00	0.00	5306.65	0.00	0.00	0.00	0.00	0.00	Start Nudge
3	5815.98	7.64	270.00	5814.48	0.00	-33.91	1.50	270.00	0.00	Hold
4	9081.29	7.64	270.00	9050.80	0.00	-468.03	0.00	0.00	0.00	Start Drop
5	9845.29	0.00	0.00	9812.54	0.00	-518.89	1.00	180.00	0.00	Hold
6	9945.29	0.00	0.00	9912.54	0.00	-518.89	0.00	0.00	0.00	KOP 12" DLS
7	10695.29	90.00	0.00	10390.00	477.46	-518.89	12.00	0.00	477.46	LP
8	13559.49	90.00	0.00	10390.00	3341.66	-518.89	0.00	0.00	3341.66	2" Build
9	13584.49	90.50	0.00	10389.89	3366.66	-518.89	2.00	0.00	3366.66	Hold
10	14971.02	90.50	0.00	10377.79	4753.14	-518.89	0.00	0.00	4753.14	TD

FORMATION TOP DETAILS

	TVDPath	MDPath	Formation	DipAngle	DipDir
1st BS LM	599.00	599.00	Rustler	0.00	
	700.00	700.00	Salado	0.00	
	4170.00	4170.00	Base of Salt	0.00	
	4340.00	4340.00	Delaware	0.00	
	4375.00	4375.00	Bell Canyon	0.00	
	5325.00	5325.00	Cherry Canyon	0.00	
	6590.00	6598.45	Brushy Canyon	0.00	
	8270.00	8293.50	1st BS LM	0.00	
	9265.00	9296.92	1st BS SS	0.00	
	9545.00	9577.66	2nd BS LM	0.00	
	9930.00	9962.76	2nd BS SS	0.00	
	10365.00	10540.10	TGT Window Top	0.00	



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

Plan: Plan #1 (216H-YTOH)
Cotton Draw Unit
Created By: Brady Deaver
Date: 13/38, September 10 2014
Approved: _____

DEVON ENERGY

Eddy County, NM (NAD-83)

Cotton Draw Unit

216H-Y

OH

Plan: Plan #1

Standard Planning Report

10 September, 2014

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 216H-Y
Company:	DEVON ENERGY	TVD Reference:	H&P 223: 3425.3' GL + 25' RKB @ 3450.30usft
Project:	Eddy County, NM (NAD-83)	MD Reference:	H&P 223: 3425.3' GL + 25' RKB @ 3450.30usft
Site:	Cotton Draw Unit	North Reference:	Grid
Well:	216H-Y	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
From:	Map	Easting:	722,955.98 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16"
		Latitude:	32° 9' 3.901 N
		Longitude:	103° 44' 47.345 W
		Grid Convergence:	0.31°

Well	216H-Y		
Well Position	+N/-S	595.48 usft	Northing:
	+E/-W	-4,798.53 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	3,450.30 usft
		Latitude:	32° 9' 10.049 N
		Longitude:	103° 45' 43.125 W
		Ground Level:	3,425.30 usft

Wellbore	OH		
----------	----	--	--

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (mT)
	BGGM2013	10/25/2013	7.49	60.02	48,300

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

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	
5,306.65	0.00	0.00	5,306.65	0.00	0.00	0.00	0.00	0.00	0.00	
5,815.98	7.64	270.00	5,814.48	0.00	-33.91	1.50	1.50	0.00	270.00	
9,081.29	7.64	270.00	9,050.80	0.00	-468.03	0.00	0.00	0.00	0.00	
9,845.29	0.00	0.00	9,812.54	0.00	-518.89	1.00	-1.00	0.00	180.00	
9,945.29	0.00	0.00	9,912.54	0.00	-518.89	0.00	0.00	0.00	0.00	
10,695.29	90.00	0.00	10,390.00	477.48	-518.89	12.00	12.00	0.00	0.00	
13,559.49	90.00	0.00	10,390.00	3,341.66	-518.89	0.00	0.00	0.00	0.00	
13,584.49	90.50	0.00	10,389.89	3,366.66	-518.89	2.00	2.00	0.00	0.00	
14,971.02	90.50	0.00	10,377.79	4,753.14	-518.89	0.00	0.00	0.00	0.00	PBHL (CDU 216H)

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000:1 Single User Db	Local Co-ordinate Reference:	Well 216H-Y
Company:	DEVON ENERGY	TVD Reference:	H&P 223: 3425.3' GL + 25' RKB @ 3450.30usft
Project:	Eddy County, NM (NAD-83)	MD Reference:	H&P 223: 3425.3' GL + 25' RKB @ 3450.30usft
Site:	Colton Draw Unit	North Reference:	Grid
Well:	216H-Y	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
SHL (CDU 216H)									
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
Salado									
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
1,100.00	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
4,170.00	0.00	0.00	4,170.00	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
4,340.00	0.00	0.00	4,340.00	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: 218H-Y
Company:	DEVON ENERGY	TVD Reference:	H&P 223: 3425.3' GL + 25' RKB @ 3450.30usft
Project:	Eddy County, NM (NAD-83)	MD Reference:	H&P 223: 3425.3' GL + 25' RKB @ 3450.30usft
Site:	Cotton Draw Unit	North Reference:	Grid
Well:	218H-Y	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)
Delaware									
4,375.00	0.00	0.00	4,375.00	0.00	0.00	0.00	0.00	0.00	0.00
Bell Canyon									
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
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
5,306.65	0.00	0.00	5,306.65	0.00	0.00	0.00	0.00	0.00	0.00
Start Nudge									
5,325.00	0.28	270.00	5,325.00	0.00	-0.04	0.00	1.50	1.50	0.00
Cherry Canyon									
5,400.00	1.40	270.00	5,399.99	0.00	-1.14	0.00	1.50	1.50	0.00
5,500.00	2.90	270.00	5,499.92	0.00	-4.89	0.00	1.50	1.50	0.00
5,600.00	4.40	270.00	5,599.71	0.00	-11.28	0.00	1.50	1.50	0.00
5,700.00	5.90	270.00	5,699.31	0.00	-20.24	0.00	1.50	1.50	0.00
5,800.00	7.40	270.00	5,798.63	0.00	-31.82	0.00	1.50	1.50	0.00
5,815.98	7.64	270.00	5,814.48	0.00	-33.91	0.00	1.50	1.50	0.00
Hold									
5,900.00	7.64	270.00	5,897.75	0.00	-45.08	0.00	0.00	0.00	0.00
6,000.00	7.64	270.00	5,996.86	0.00	-58.37	0.00	0.00	0.00	0.00
6,100.00	7.64	270.00	6,095.97	0.00	-71.87	0.00	0.00	0.00	0.00
6,200.00	7.64	270.00	6,195.08	0.00	-84.96	0.00	0.00	0.00	0.00
6,300.00	7.64	270.00	6,294.20	0.00	-98.26	0.00	0.00	0.00	0.00
6,400.00	7.64	270.00	6,393.31	0.00	-111.55	0.00	0.00	0.00	0.00
6,500.00	7.64	270.00	6,492.42	0.00	-124.85	0.00	0.00	0.00	0.00
6,598.45	7.64	270.00	6,590.00	0.00	-137.94	0.00	0.00	0.00	0.00
Brushy Canyon									
6,600.00	7.64	270.00	6,591.53	0.00	-138.14	0.00	0.00	0.00	0.00
6,700.00	7.64	270.00	6,690.64	0.00	-151.44	0.00	0.00	0.00	0.00
6,800.00	7.64	270.00	6,789.76	0.00	-164.73	0.00	0.00	0.00	0.00
6,900.00	7.64	270.00	6,888.87	0.00	-178.03	0.00	0.00	0.00	0.00
7,000.00	7.64	270.00	6,987.98	0.00	-191.32	0.00	0.00	0.00	0.00
7,100.00	7.64	270.00	7,087.09	0.00	-204.62	0.00	0.00	0.00	0.00
7,200.00	7.64	270.00	7,186.21	0.00	-217.91	0.00	0.00	0.00	0.00
7,300.00	7.64	270.00	7,285.32	0.00	-231.21	0.00	0.00	0.00	0.00
7,400.00	7.64	270.00	7,384.43	0.00	-244.50	0.00	0.00	0.00	0.00
7,500.00	7.64	270.00	7,483.54	0.00	-257.80	0.00	0.00	0.00	0.00
7,600.00	7.64	270.00	7,582.66	0.00	-271.09	0.00	0.00	0.00	0.00
7,700.00	7.64	270.00	7,681.77	0.00	-284.38	0.00	0.00	0.00	0.00
7,800.00	7.64	270.00	7,780.88	0.00	-297.68	0.00	0.00	0.00	0.00
7,900.00	7.64	270.00	7,879.99	0.00	-310.97	0.00	0.00	0.00	0.00
8,000.00	7.64	270.00	7,979.10	0.00	-324.27	0.00	0.00	0.00	0.00
8,100.00	7.64	270.00	8,078.22	0.00	-337.56	0.00	0.00	0.00	0.00
8,200.00	7.64	270.00	8,177.33	0.00	-350.86	0.00	0.00	0.00	0.00
8,293.50	7.64	270.00	8,270.00	0.00	-363.29	0.00	0.00	0.00	0.00
1st BS LM									

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 218H-Y
Company:	DEVON ENERGY	TVD Reference:	H&P 223 : 3425.3' GL + 25' RKB @ 3450.30usft
Project:	Eddy County, NM (NAD-83)	MD Reference:	H&P 223 : 3425.3' GL + 25' RKB @ 3450.30usft
Site:	Cotton Draw Unit	North Reference:	Grid
Well:	218H-Y	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)
8,300.00	7.64	270.00	8,276.44	0.00	-364.15	0.00	0.00	0.00	0.00
8,400.00	7.64	270.00	8,375.55	0.00	-377.45	0.00	0.00	0.00	0.00
8,500.00	7.64	270.00	8,474.67	0.00	-390.74	0.00	0.00	0.00	0.00
8,600.00	7.64	270.00	8,573.78	0.00	-404.04	0.00	0.00	0.00	0.00
8,700.00	7.64	270.00	8,672.89	0.00	-417.33	0.00	0.00	0.00	0.00
8,800.00	7.64	270.00	8,772.00	0.00	-430.63	0.00	0.00	0.00	0.00
8,900.00	7.64	270.00	8,871.12	0.00	-443.92	0.00	0.00	0.00	0.00
9,000.00	7.64	270.00	8,970.23	0.00	-457.22	0.00	0.00	0.00	0.00
9,081.29	7.64	270.00	9,050.80	0.00	-468.03	0.00	0.00	0.00	0.00
Start Drop									
9,100.00	7.45	270.00	9,069.34	0.00	-470.48	0.00	1.00	-1.00	0.00
9,200.00	6.45	270.00	9,168.61	0.00	-482.59	0.00	1.00	-1.00	0.00
9,296.92	5.48	270.00	9,265.00	0.00	-492.68	0.00	1.00	-1.00	0.00
1st BS SS									
9,300.00	5.45	270.00	9,268.07	0.00	-492.98	0.00	1.00	-1.00	0.00
9,400.00	4.45	270.00	9,367.69	0.00	-501.59	0.00	1.00	-1.00	0.00
9,500.00	3.45	270.00	9,467.45	0.00	-508.49	0.00	1.00	-1.00	0.00
9,577.66	2.68	270.00	9,545.00	0.00	-512.64	0.00	1.00	-1.00	0.00
2nd BS LM									
9,600.00	2.45	270.00	9,567.32	0.00	-513.84	0.00	1.00	-1.00	0.00
9,700.00	1.45	270.00	9,667.26	0.00	-517.04	0.00	1.00	-1.00	0.00
9,800.00	0.45	270.00	9,767.24	0.00	-518.71	0.00	1.00	-1.00	0.00
9,845.29	0.00	0.00	9,812.54	0.00	-518.89	0.00	1.00	-1.00	0.00
Hold									
9,900.00	0.00	0.00	9,867.24	0.00	-518.89	0.00	0.00	0.00	0.00
9,945.29	0.00	0.00	9,912.54	0.00	-518.89	0.00	0.00	0.00	0.00
KOP 12' DL8									
9,950.00	0.56	0.00	9,917.24	0.02	-518.89	0.02	12.00	12.00	0.00
9,962.76	2.10	0.00	9,930.00	0.32	-518.89	0.32	12.00	12.00	0.00
2nd BS SS									
9,975.00	3.56	0.00	9,942.22	0.92	-518.89	0.92	12.00	12.00	0.00
10,000.00	6.56	0.00	9,967.12	3.13	-518.89	3.13	12.00	12.00	0.00
10,025.00	9.56	0.00	9,991.87	6.64	-518.89	6.64	12.00	12.00	0.00
10,050.00	12.56	0.00	10,016.41	11.43	-518.89	11.43	12.00	12.00	0.00
10,075.00	15.56	0.00	10,040.65	17.51	-518.89	17.51	12.00	12.00	0.00
10,100.00	18.56	0.00	10,064.55	24.85	-518.89	24.85	12.00	12.00	0.00
10,125.00	21.56	0.00	10,088.03	33.42	-518.89	33.42	12.00	12.00	0.00
10,150.00	24.56	0.00	10,111.03	43.21	-518.89	43.21	12.00	12.00	0.00
10,175.00	27.56	0.00	10,133.48	54.20	-518.89	54.20	12.00	12.00	0.00
10,200.00	30.56	0.00	10,155.33	66.34	-518.89	66.34	12.00	12.00	0.00
10,225.00	33.56	0.00	10,178.52	79.61	-518.89	79.61	12.00	12.00	0.00
10,250.00	36.56	0.00	10,196.98	93.97	-518.89	93.97	12.00	12.00	0.00
10,275.00	39.56	0.00	10,216.66	109.38	-518.89	109.38	12.00	12.00	0.00
10,300.00	42.56	0.00	10,235.51	125.81	-518.89	125.81	12.00	12.00	0.00
10,325.00	45.56	0.00	10,253.47	143.19	-518.89	143.19	12.00	12.00	0.00
10,350.00	48.56	0.00	10,270.49	161.49	-518.89	161.49	12.00	12.00	0.00
10,375.00	51.56	0.00	10,286.54	180.66	-518.89	180.66	12.00	12.00	0.00
10,400.00	54.56	0.00	10,301.56	200.64	-518.89	200.64	12.00	12.00	0.00
10,425.00	57.56	0.00	10,315.52	221.38	-518.89	221.38	12.00	12.00	0.00
10,450.00	60.56	0.00	10,328.37	242.82	-518.89	242.82	12.00	12.00	0.00
10,475.00	63.56	0.00	10,340.08	264.90	-518.89	264.90	12.00	12.00	0.00

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 216H-Y
Company:	DEVON ENERGY	TVD Reference:	H&P 223: 3425.3' GL + 25' RKB @ 3450.30usft
Project:	Eddy County, NM (NAD-83)	MD Reference:	H&P 223: 3425.3' GL + 25' RKB @ 3450.30usft
Site:	Cotton Draw Unit	North Reference:	Grid
Well:	216H-Y	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)
10,500.00	66.56	0.00	10,350.62	287.57	-518.89	287.57	12.00	12.00	0.00
10,525.00	69.56	0.00	10,359.95	310.76	-518.89	310.78	12.00	12.00	0.00
10,540.10	71.38	0.00	10,365.00	324.99	-518.89	324.99	12.00	12.00	0.00
TGT Window Top									
10,550.00	72.56	0.00	10,368.07	334.40	-518.89	334.40	12.00	12.00	0.00
10,575.00	75.56	0.00	10,374.93	358.44	-518.89	358.44	12.00	12.00	0.00
10,600.00	78.56	0.00	10,380.52	382.80	-518.89	382.80	12.00	12.00	0.00
10,625.00	81.56	0.00	10,384.84	407.43	-518.89	407.43	12.00	12.00	0.00
10,650.00	84.56	0.00	10,387.88	432.24	-518.89	432.24	12.00	12.00	0.00
10,675.00	87.56	0.00	10,389.57	457.18	-518.89	457.18	12.00	12.00	0.00
10,695.29	90.00	0.00	10,390.00	477.46	-518.89	477.46	12.00	12.00	0.00
LP									
10,700.00	90.00	0.00	10,390.00	482.17	-518.89	482.17	0.00	0.00	0.00
10,800.00	90.00	0.00	10,390.00	582.17	-518.89	582.17	0.00	0.00	0.00
10,900.00	90.00	0.00	10,390.00	682.17	-518.89	682.17	0.00	0.00	0.00
11,000.00	90.00	0.00	10,390.00	782.17	-518.89	782.17	0.00	0.00	0.00
11,100.00	90.00	0.00	10,390.00	882.17	-518.89	882.17	0.00	0.00	0.00
11,200.00	90.00	0.00	10,390.00	982.17	-518.89	982.17	0.00	0.00	0.00
11,300.00	90.00	0.00	10,390.00	1,082.17	-518.89	1,082.17	0.00	0.00	0.00
11,400.00	90.00	0.00	10,390.00	1,182.17	-518.89	1,182.17	0.00	0.00	0.00
11,500.00	90.00	0.00	10,390.00	1,282.17	-518.89	1,282.17	0.00	0.00	0.00
11,600.00	90.00	0.00	10,390.00	1,382.17	-518.89	1,382.17	0.00	0.00	0.00
11,700.00	90.00	0.00	10,390.00	1,482.17	-518.89	1,482.17	0.00	0.00	0.00
11,800.00	90.00	0.00	10,390.00	1,582.17	-518.89	1,582.17	0.00	0.00	0.00
11,900.00	90.00	0.00	10,390.00	1,682.17	-518.89	1,682.17	0.00	0.00	0.00
12,000.00	90.00	0.00	10,390.00	1,782.17	-518.89	1,782.17	0.00	0.00	0.00
12,100.00	90.00	0.00	10,390.00	1,882.17	-518.89	1,882.17	0.00	0.00	0.00
12,200.00	90.00	0.00	10,390.00	1,982.17	-518.89	1,982.17	0.00	0.00	0.00
12,300.00	90.00	0.00	10,390.00	2,082.17	-518.89	2,082.17	0.00	0.00	0.00
12,400.00	90.00	0.00	10,390.00	2,182.17	-518.89	2,182.17	0.00	0.00	0.00
12,500.00	90.00	0.00	10,390.00	2,282.17	-518.89	2,282.17	0.00	0.00	0.00
12,600.00	90.00	0.00	10,390.00	2,382.17	-518.89	2,382.17	0.00	0.00	0.00
12,700.00	90.00	0.00	10,390.00	2,482.17	-518.89	2,482.17	0.00	0.00	0.00
12,800.00	90.00	0.00	10,390.00	2,582.17	-518.89	2,582.17	0.00	0.00	0.00
12,900.00	90.00	0.00	10,390.00	2,682.17	-518.89	2,682.17	0.00	0.00	0.00
13,000.00	90.00	0.00	10,390.00	2,782.17	-518.89	2,782.17	0.00	0.00	0.00
13,100.00	90.00	0.00	10,390.00	2,882.17	-518.89	2,882.17	0.00	0.00	0.00
13,200.00	90.00	0.00	10,390.00	2,982.17	-518.89	2,982.17	0.00	0.00	0.00
13,300.00	90.00	0.00	10,390.00	3,082.17	-518.89	3,082.17	0.00	0.00	0.00
13,400.00	90.00	0.00	10,390.00	3,182.17	-518.89	3,182.17	0.00	0.00	0.00
13,500.00	90.00	0.00	10,390.00	3,282.17	-518.89	3,282.17	0.00	0.00	0.00
13,559.49	90.00	0.00	10,390.00	3,341.66	-518.89	3,341.66	0.00	0.00	0.00
2" Build									
13,584.49	90.50	0.00	10,389.89	3,366.66	-518.89	3,366.66	2.00	2.00	0.00
Hold									
13,600.00	90.50	0.00	10,389.76	3,382.17	-518.89	3,382.17	0.00	0.00	0.00
13,700.00	90.50	0.00	10,388.89	3,482.17	-518.89	3,482.17	0.00	0.00	0.00
13,800.00	90.50	0.00	10,388.01	3,582.16	-518.89	3,582.16	0.00	0.00	0.00
13,900.00	90.50	0.00	10,387.14	3,682.16	-518.89	3,682.16	0.00	0.00	0.00
14,000.00	90.50	0.00	10,386.27	3,782.16	-518.89	3,782.16	0.00	0.00	0.00
14,100.00	90.50	0.00	10,385.39	3,882.15	-518.89	3,882.15	0.00	0.00	0.00
14,200.00	90.50	0.00	10,384.52	3,982.15	-518.89	3,982.15	0.00	0.00	0.00

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 216H-Y
Company:	DEVON ENERGY	TVD Reference:	H&P 223: 3425.3' GL + 25' RKB @ 3450.30usft
Project:	Eddy County, NM (NAD-83)	MD Reference:	H&P 223: 3425.3' GL + 25' RKB @ 3450.30usft
Site:	Cotton Draw Unit	North Reference:	Grid
Well:	216H-Y	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)
14,300.00	90.50	0.00	10,383.65	4,082.14	-518.89	4,082.14	0.00	0.00	0.00
14,400.00	90.50	0.00	10,382.78	4,182.14	-518.89	4,182.14	0.00	0.00	0.00
14,500.00	90.50	0.00	10,381.90	4,282.14	-518.89	4,282.14	0.00	0.00	0.00
14,600.00	90.50	0.00	10,381.03	4,382.13	-518.89	4,382.13	0.00	0.00	0.00
14,700.00	90.50	0.00	10,380.16	4,482.13	-518.89	4,482.13	0.00	0.00	0.00
14,800.00	90.50	0.00	10,379.29	4,582.12	-518.89	4,582.12	0.00	0.00	0.00
14,900.00	90.50	0.00	10,378.41	4,682.12	-518.89	4,682.12	0.00	0.00	0.00
14,970.91	90.50	0.00	10,377.79	4,753.03	-518.89	4,753.03	0.00	0.00	0.00
TD									
14,971.02	90.50	0.00	10,377.79	4,753.14	-518.89	4,753.14	0.00	0.00	0.00
PBHL (CDU 216H)									

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N-S (usft)	+E-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
SHL (CDU 216H)	0.00	0.00	0.00	0.11	24.98	419,790.10	718,182.43	32° 9' 10.048 N	103° 45' 42.834 W
- plan misses target center by 24.98usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Point									
PBHL (CDU 216H)	0.00	0.00	10,377.79	4,753.14	-519.16	424,543.13	717,638.29	32° 9' 57.111 N	103° 45' 48.871 W
- plan misses target center by 0.27usft at 14971.02usft MD (10377.79 TVD, 4753.14 N, -518.89 E)									
- Point									

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
599.00	599.00	Rustler		0.00	
700.00	700.00	Salado		0.00	
4,170.00	4,170.00	Base of Salt		0.00	
4,340.00	4,340.00	Delaware		0.00	
4,375.00	4,375.00	Bell Canyon		0.00	
5,325.00	5,325.00	Cherry Canyon		0.00	
6,598.45	6,590.00	Brushy Canyon		0.00	
8,293.50	8,270.00	1st BS LM		0.00	
9,296.92	9,265.00	1st BS SS		0.00	
9,577.68	9,545.00	2nd BS LM		0.00	
9,962.76	9,930.00	2nd BS SS		0.00	
10,540.10	10,365.00	TGT Window Top		0.00	

LEAM Drilling Systems LLC **Planning Report**

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 216H-Y
Company:	DEVON ENERGY	TVD Reference:	H&P 223: 3425.3' GL + 25' RKB @ 3450.30usft
Project:	Eddy County, NM (NAD-83)	MD Reference:	H&P 223: 3425.3' GL + 25' RKB @ 3450.30usft
Site:	Cotton Draw Unit	North Reference:	Grid
Well:	216H-Y	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N-S (usft)	+E-W (usft)	
5,306.65	5,306.65	0.00	0.00	Start Nudge
5,815.98	5,814.48	0.00	-33.91	Hold
9,081.29	9,050.80	0.00	-468.03	Start Drop
9,845.29	9,812.54	0.00	-518.89	Hold
9,945.29	9,912.54	0.00	-518.89	KOP 12" DLS
10,695.29	10,390.00	477.46	-518.89	LP
13,559.49	10,390.00	3,341.66	-518.89	2" Build
13,584.49	10,389.89	3,366.66	-518.89	Hold
14,970.91	10,377.79	4,753.03	-518.89	TD

PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	DEVON ENERGY
LEASE NO.:	NM042625
WELL NAME & NO.:	216Y-COTTON DRAW UNIT
SURFACE HOLE FOOTAGE:	200' FSL & 1475' FEL
BOTTOM HOLE FOOTAGE:	330' FNL & 1980' FEL
LOCATION:	Section 3, T. 25 S., R 31 E., NMPM
COUNTY:	Eddy County, New Mexico

This application is approved in accordance with the original approval of the Cotton Draw Unit 216H. The only difference incorporated in this approval is the surface location has been moved 25 feet west because the original wellbore was plugged after getting stuck in the surface hole.

TABLE OF CONTENTS

Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

- ☐ General Provisions
- ☐ Permit Expiration
- ☐ Archaeology, Paleontology, and Historical Sites
- ☐ Noxious Weeds
- ☒ Special Requirements

- Lesser Prairie-Chicken Timing Stipulations
- Ground-level Abandoned Well Marker
- Commercial Well Determination
- Unit Well Sign Specs

- ☐ Construction
 - Notification
 - Topsoil
 - Closed Loop System
 - Federal Mineral Material Pits
 - Well Pads
 - Roads

- ☐ Road Section Diagram

- ☒ Drilling
 - Cement Requirements
 - Logging Requirements
 - Waste Material and Fluids

- ☐ Production (Post Drilling)
 - Well Structures & Facilities

- ☐ Interim Reclamation

- ☐ Final Abandonment & Reclamation

I. GENERAL PROVISIONS

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

II. PERMIT EXPIRATION

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

IV. NOXIOUS WEEDS

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

V. SPECIAL REQUIREMENT(S)

Timing Limitation Stipulation/Condition of Approval for Lesser Prairie-Chicken:

Oil and gas activities including 3-D geophysical exploration, and drilling will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, geophysical exploration other than 3-D operations, and pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Additionally, no new drilling will be allowed within up to 200 meters of leks known at the time of permitting. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 ft. from the source of the noise.

Ground-level Abandoned Well Marker to avoid raptor perching:

Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well. For more installation details, contact the Carlsbad Field Office at 575-234-5972.

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.

VI. CONSTRUCTION

A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5909 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

B. TOPSOIL

The operator shall strip the top portion of the soil (root zone) from the entire well pad area and stockpile the topsoil along the edge of the well pad as depicted in the APD. The root zone is typically six (6) inches in depth. All the stockpiled topsoil will be redistributed over the interim reclamation areas. Topsoil shall not be used for berming the pad or facilities. For final reclamation, the topsoil shall be spread over the entire pad area for seeding preparation.

Other subsoil (below six inches) stockpiles must be completely segregated from the topsoil stockpile. Large rocks or subsoil clods (not evident in the surrounding terrain) must be buried within the approved area for interim and final reclamation.

C. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

D. FEDERAL MINERAL MATERIALS PIT

Payment shall be made to the BLM prior to removal of any federal mineral materials. Call the Carlsbad Field Office at (575) 234-5972.

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation. The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

F. EXCLOSURE FENCING (CELLARS & PITS)

Exclosure Fencing

The operator will install and maintain exclosure fencing for all open well cellars to prevent access to public, livestock, and large forms of wildlife before and after drilling operations until the pit is free of fluids and the operator initiates backfilling. (For examples of exclosure fencing design, refer to BLM's Oil and Gas Gold Book, Exclosure Fence Illustrations, Figure 1, Page 18.)

G. ON LEASE ACCESS ROADS

Road Width

The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed twenty-five (25) feet.

Surfacing

Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

Crowning

Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

Ditching

Ditching shall be required on both sides of the road.

Turnouts

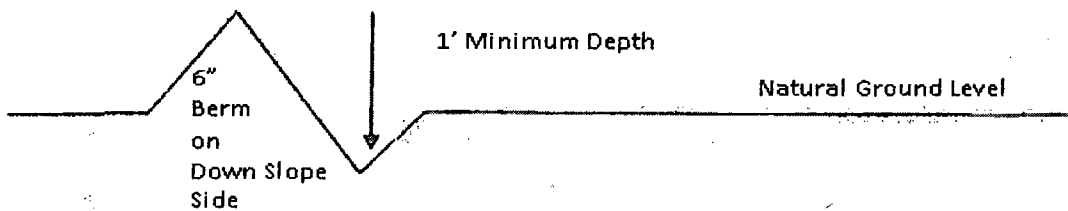
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

Drainage

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outslowing and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.

Cross Section of a Typical Lead-off Ditch



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

Formula for Spacing Interval of Lead-off Ditches

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

$$400 \text{ foot road with } 4\% \text{ road slope: } \frac{400'}{4\%} + 100' = 200' \text{ lead-off ditch interval}$$

Cattleguards

An appropriately sized cattleguard sufficient to carry out the project shall be installed and maintained at fence/road crossings. Any existing cattleguards on the access road route shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattleguards that are in place and are utilized during lease operations.

Fence Requirement

Where entry is granted across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

Public Access

Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.

Construction Steps

1. Salvage topsoil
2. Construct road

3. Redistribute topsoil
4. Revegetate slopes

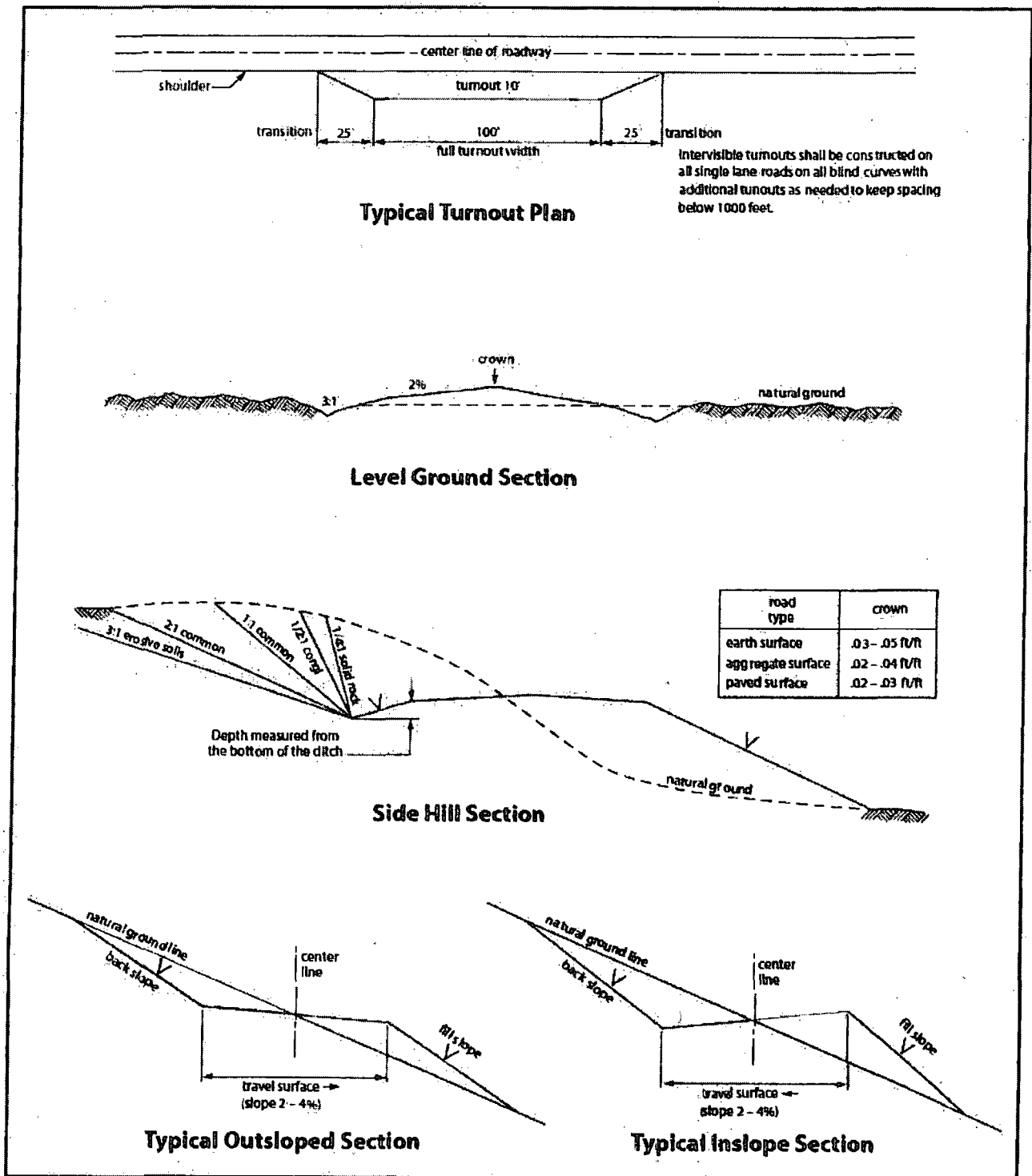


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

VII. 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. Operator has stated that they will have monitoring equipment in place prior to drilling out of the surface shoe. 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. IF OPERATOR DOES NOT HAVE THE WELL SPECIFIC CEMENT DETAILS ONSITE PRIOR TO PUMPING THE CEMENT FOR EACH CASING STRING, THE WOC WILL BE 30 HOURS. 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.

Possibility of water flows in the Salado, Castile, and Delaware.

Possibility of lost circulation in the Red Bed, Rustler, Delaware, and Bone Spring.

High pressures may be encountered within the 2nd Bone Spring.

1. The 13-3/8 inch surface casing shall be set at approximately 650 feet (in a competent bed below the Magenta Dolomite, which is a Member of the Rustler, and if salt is encountered, set casing at least 25 feet above the salt) and cemented to the surface.

- a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
- b. **Wait on cement (WOC) time for a primary cement job 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: (Casing is to set at 4300')

☒ 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:

Operator has proposed DV tool at depth of 6000'. Operator is to submit sundry if DV tool depth varies by more than 100' from approved depth.

- a. First stage to DV tool:

☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office before proceeding with second stage cement job. Operator should have plans as to how they will achieve approved top of cement on the next stage.

- b. Second stage above DV tool:

☒ Cement should tie-back at least 500 feet into previous casing string. Operator shall provide method of verification. **Additional cement may be required – excess calculates to 22 %.**

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**.
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**.
 - 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 with a corresponding chart (i.e. two hour clock-two hour chart, one hour clock-one hour chart).
 - 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.

CRW 040814

VIII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

Placement of Production Facilities

Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

Exclosure Netting (Open-top Tanks)

Immediately following active drilling or completion operations, the operator will take actions necessary to prevent wildlife and livestock access, including avian wildlife, to all open-topped tanks that contain or have the potential to contain salinity sufficient to cause harm to wildlife or livestock, hydrocarbons, or Resource Conservation and Recovery Act of 1976-exempt hazardous substances. At a minimum, the operator will net, screen, or cover open-topped tanks to exclude wildlife and livestock and prevent mortality. If the operator uses netting, the operator will cover and secure the open portion of the tank to prevent wildlife entry. The operator will net, screen, or cover the tanks until the operator removes the tanks from the location or the tanks no longer contain substances that could be harmful to wildlife or livestock. Use a maximum netting mesh size of 1 ½ inches. The netting must not be in contact with fluids and must not have holes or gaps.

Chemical and Fuel Secondary Containment and Exclosure Screening

The operator will prevent all hazardous, poisonous, flammable, and toxic substances from coming into contact with soil and water. At a minimum, the operator will install and maintain an impervious secondary containment system for any tank or barrel containing hazardous, poisonous, flammable, or toxic substances sufficient to contain the contents of the tank or barrel and any drips, leaks, and anticipated precipitation. The operator will dispose of fluids within the containment system that do not meet applicable state or U. S. Environmental Protection Agency livestock water standards in accordance with state law; the operator must not drain the fluids to the soil or ground. The operator will design, construct, and maintain all secondary containment systems to prevent wildlife and livestock exposure to harmful substances. At a minimum, the operator will install effective wildlife and livestock exclosure systems such as fencing, netting, expanded metal mesh, lids, and grate covers. Use a maximum netting mesh size of 1 ½ inches.

Open-Vent Exhaust Stack Exclosures

The operator will construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. (*Recommended exclosure structures on open-vent exhaust stacks are in the shape of a cone.*) Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, in-line units, and compressor mufflers.

Containment Structures

Proposed production facilities such as storage tanks and other vessels will have a secondary containment structure that is constructed to hold the capacity of 1.5 times the

largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

Painting Requirement

All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color, **Shale Green** from the BLM Standard Environmental Color Chart (CC-001: June 2008).

IX. INTERIM RECLAMATION

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche that is free of contaminants may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

Upon completion of interim reclamation, the operator shall submit a Sundry Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

X. FINAL ABANDONMENT & RECLAMATION

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by

drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

Ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well.

Seed Mixture for LPC Sand/Shinnery Sites

The holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

<u>Species</u>	<u>lb/acre</u>
Plains Bristlegrass	5lbs/A
Sand Bluestem	5lbs/A
Little Bluestem	3lbs/A
Big Bluestem	6lbs/A
Plains Coreopsis	2lbs/A
Sand Dropseed	1lbs/A

*Pounds of pure live seed: Pounds of seed x percent purity x percent germination
= pounds pure live seed

DEVON ENERGY

Project: Eddy County, NM (NAD-83)
Site: Cotton Draw Unit
Well: 216H-Y
Wellbore: OH
Design: Plan #1



Azimuths to Grid North
True North: -0.30°
Magnetic North: 7.18°

Magnetic Field
Strength: 48300.1snT
Dip Angle: 60.02°
Date: 10/25/2013
Model: BGGM2013

devon

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

DESIGN TARGET DETAILS

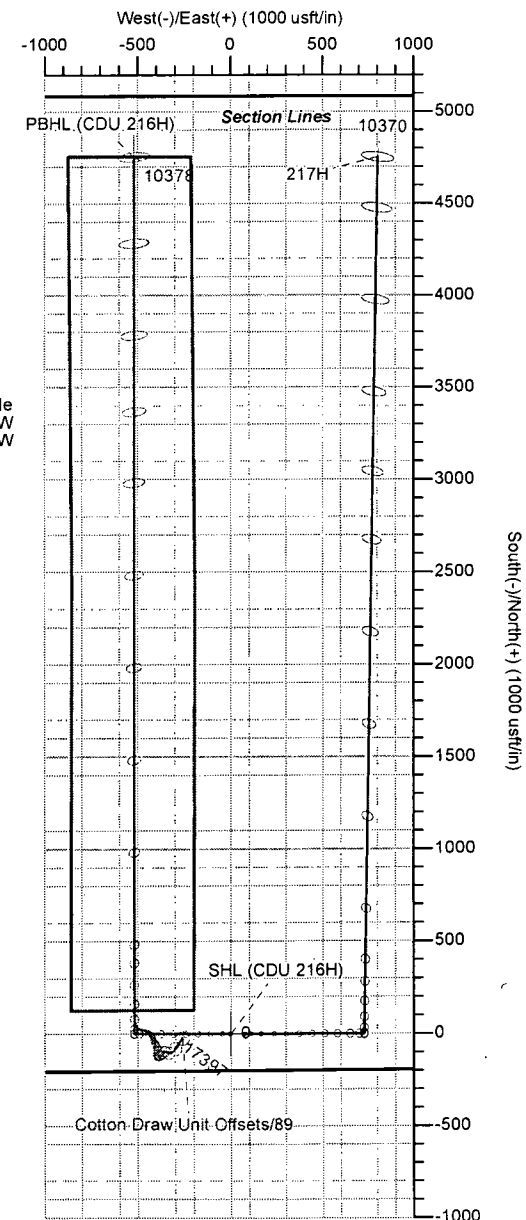
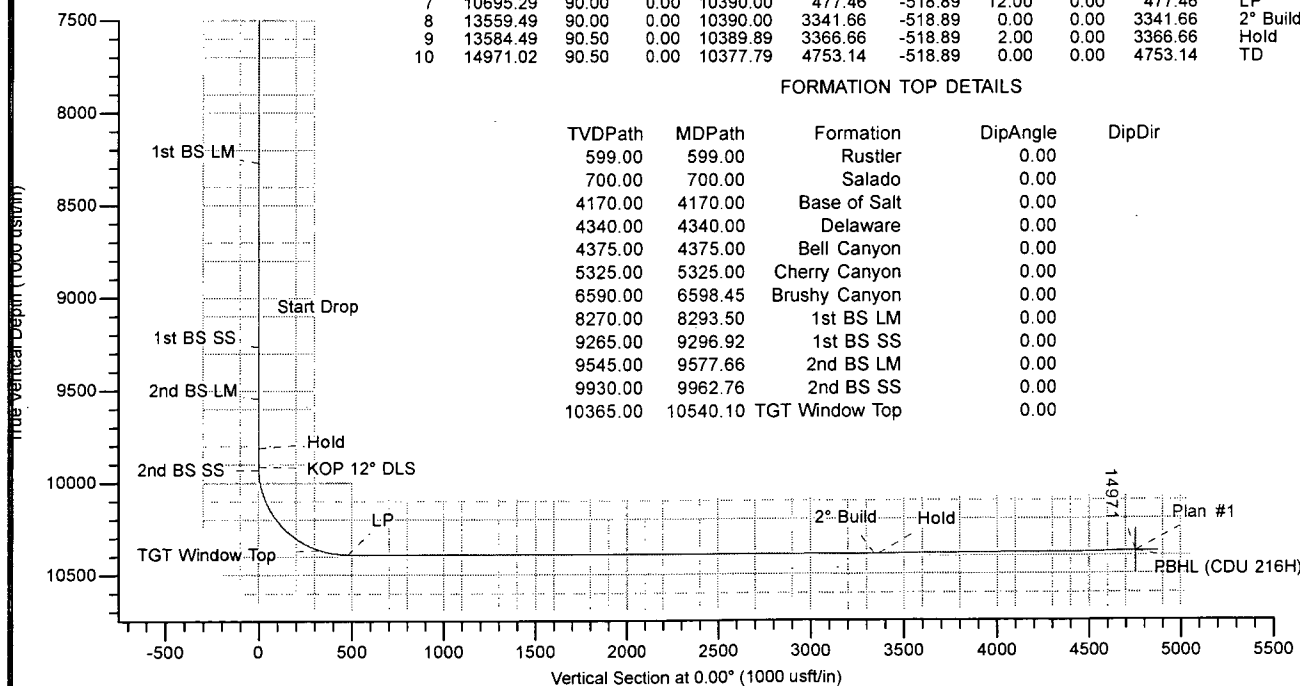
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
SHL (CDU 216H)	0.00	0.00	0.00	419789.99	718157.45	32° 9' 10.049 N	103° 45' 43.125 W
PBHL (CDU 216H)	10377.79	4753.14	-519.16	424543.13	717638.29	32° 9' 57.111 N	103° 45' 48.871 W

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	5306.65	0.00	0.00	5306.65	0.00	0.00	0.00	0.00	0.00	Start Nudge
3	5815.98	7.64	270.00	5814.48	0.00	-33.91	1.50	270.00	0.00	Hold
4	9081.29	7.64	270.00	9050.80	0.00	-468.03	0.00	0.00	0.00	Start Drop
5	9845.29	0.00	0.00	9812.54	0.00	-518.89	1.00	180.00	0.00	Hold
6	9945.29	0.00	0.00	9912.54	0.00	-518.89	0.00	0.00	0.00	KOP 12° DLS
7	10695.29	90.00	0.00	10390.00	477.46	-518.89	12.00	0.00	477.46	LP
8	13559.49	90.00	0.00	10390.00	3341.66	-518.89	0.00	0.00	3341.66	2° Build
9	13584.49	90.50	0.00	10389.89	3366.66	-518.89	2.00	0.00	3366.66	Hold
10	14971.02	90.50	0.00	10377.79	4753.14	-518.89	0.00	0.00	4753.14	TD

FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
599.00	599.00	Rustler	0.00	
700.00	700.00	Salado	0.00	
4170.00	4170.00	Base of Salt	0.00	
4340.00	4340.00	Delaware	0.00	
4375.00	4375.00	Bell Canyon	0.00	
5325.00	5325.00	Cherry Canyon	0.00	
6590.00	6598.45	Brushy Canyon	0.00	
8270.00	8293.50	1st BS LM	0.00	
9265.00	9296.92	1st BS SS	0.00	
9545.00	9577.66	2nd BS LM	0.00	
9930.00	9962.76	2nd BS SS	0.00	
10365.00	10540.10	TGT Window Top	0.00	



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

Plan: Plan #1 (216H-Y/OH)
Cotton Draw Unit
Created By: Brady Deaver
Date: 13:39, September 10 2014
Approved: _____ Date: _____

DEVON ENERGY

Eddy County, NM (NAD-83)

Cotton Draw Unit

216H-Y

OH

Plan: Plan #1

Standard Planning Report

10 September, 2014

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 216H-Y
Company:	DEVON ENERGY	TVD Reference:	H&P 223: 3425.3' GL + 25' RKB @ 3450.30usft
Project:	Eddy County, NM (NAD-83)	MD Reference:	H&P 223: 3425.3' GL + 25' RKB @ 3450.30usft
Site:	Cotton Draw Unit	North Reference:	Grid
Well:	216H-Y	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:	216H-Y			
Well Position	+N/-S	595.48 usft	Northing:	419,789.99 usft
	+E/-W	-4,798.53 usft	Easting:	718,157.45 usft
Position Uncertainty	0.00 usft		Wellhead Elevation:	3,450.30 usft
			Ground Level:	3,425.30 usft

Wellbore:	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2013	10/25/2013	7.49	60.02	48,300

Design:	Plan #1			
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	0.00

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	
5,306.65	0.00	0.00	5,306.65	0.00	0.00	0.00	0.00	0.00	0.00	
5,815.98	7.64	270.00	5,814.48	0.00	-33.91	1.50	1.50	0.00	270.00	
9,081.29	7.64	270.00	9,050.80	0.00	-468.03	0.00	0.00	0.00	0.00	
9,845.29	0.00	0.00	9,812.54	0.00	-518.89	1.00	-1.00	0.00	180.00	
9,945.29	0.00	0.00	9,912.54	0.00	-518.89	0.00	0.00	0.00	0.00	
10,695.29	90.00	0.00	10,390.00	477.46	-518.89	12.00	12.00	0.00	0.00	
13,559.49	90.00	0.00	10,390.00	3,341.66	-518.89	0.00	0.00	0.00	0.00	
13,584.49	90.50	0.00	10,389.89	3,366.66	-518.89	2.00	2.00	0.00	0.00	
14,971.02	90.50	0.00	10,377.79	4,753.14	-518.89	0.00	0.00	0.00	0.00	PBHL (CDU 216H)

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 216H-Y
Company:	DEVON ENERGY	TVD Reference:	H&P 223: 3425.3' GL + 25' RKB @ 3450.30usft
Project:	Eddy County, NM (NAD-83)	MD Reference:	H&P 223: 3425.3' GL + 25' RKB @ 3450.30usft
Site:	Cotton Draw Unit	North Reference:	Grid
Well:	216H-Y	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	
SHL (CDU 216H)										
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	
Salado										
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	
1,100.00	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	
4,170.00	0.00	0.00	4,170.00	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	
4,340.00	0.00	0.00	4,340.00	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 216H-Y
Company:	DEVON ENERGY	TVD Reference:	H&P 223: 3425.3' GL + 25' RKB @ 3450.30usft
Project:	Eddy County, NM (NAD-83)	MD Reference:	H&P 223: 3425.3' GL + 25' RKB @ 3450.30usft
Site:	Cotton Draw Unit	North Reference:	Grid
Well:	216H-Y	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)	
Delaware										
4,375.00	0.00	0.00	4,375.00	0.00	0.00	0.00	0.00	0.00	0.00	
Bell Canyon										
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00	
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	
5,306.65	0.00	0.00	5,306.65	0.00	0.00	0.00	0.00	0.00	0.00	
Start Nudge										
5,325.00	0.28	270.00	5,325.00	0.00	-0.04	0.00	1.50	1.50	0.00	
Cherry Canyon										
5,400.00	1.40	270.00	5,399.99	0.00	-1.14	0.00	1.50	1.50	0.00	
5,500.00	2.90	270.00	5,499.92	0.00	-4.89	0.00	1.50	1.50	0.00	
5,600.00	4.40	270.00	5,599.71	0.00	-11.26	0.00	1.50	1.50	0.00	
5,700.00	5.90	270.00	5,699.31	0.00	-20.24	0.00	1.50	1.50	0.00	
5,800.00	7.40	270.00	5,798.63	0.00	-31.82	0.00	1.50	1.50	0.00	
5,815.98	7.64	270.00	5,814.48	0.00	-33.91	0.00	1.50	1.50	0.00	
Hold										
5,900.00	7.64	270.00	5,897.75	0.00	-45.08	0.00	0.00	0.00	0.00	
6,000.00	7.64	270.00	5,998.86	0.00	-58.37	0.00	0.00	0.00	0.00	
6,100.00	7.64	270.00	6,095.97	0.00	-71.67	0.00	0.00	0.00	0.00	
6,200.00	7.64	270.00	6,195.08	0.00	-84.96	0.00	0.00	0.00	0.00	
6,300.00	7.64	270.00	6,294.20	0.00	-98.26	0.00	0.00	0.00	0.00	
6,400.00	7.64	270.00	6,393.31	0.00	-111.55	0.00	0.00	0.00	0.00	
6,500.00	7.64	270.00	6,492.42	0.00	-124.85	0.00	0.00	0.00	0.00	
6,598.45	7.64	270.00	6,590.00	0.00	-137.94	0.00	0.00	0.00	0.00	
Brushy Canyon										
6,600.00	7.64	270.00	6,591.53	0.00	-138.14	0.00	0.00	0.00	0.00	
6,700.00	7.64	270.00	6,690.64	0.00	-151.44	0.00	0.00	0.00	0.00	
6,800.00	7.64	270.00	6,789.76	0.00	-164.73	0.00	0.00	0.00	0.00	
6,900.00	7.64	270.00	6,888.87	0.00	-178.03	0.00	0.00	0.00	0.00	
7,000.00	7.64	270.00	6,987.98	0.00	-191.32	0.00	0.00	0.00	0.00	
7,100.00	7.64	270.00	7,087.09	0.00	-204.62	0.00	0.00	0.00	0.00	
7,200.00	7.64	270.00	7,186.21	0.00	-217.91	0.00	0.00	0.00	0.00	
7,300.00	7.64	270.00	7,285.32	0.00	-231.21	0.00	0.00	0.00	0.00	
7,400.00	7.64	270.00	7,384.43	0.00	-244.50	0.00	0.00	0.00	0.00	
7,500.00	7.64	270.00	7,483.54	0.00	-257.80	0.00	0.00	0.00	0.00	
7,600.00	7.64	270.00	7,582.66	0.00	-271.09	0.00	0.00	0.00	0.00	
7,700.00	7.64	270.00	7,681.77	0.00	-284.38	0.00	0.00	0.00	0.00	
7,800.00	7.64	270.00	7,780.88	0.00	-297.68	0.00	0.00	0.00	0.00	
7,900.00	7.64	270.00	7,879.99	0.00	-310.97	0.00	0.00	0.00	0.00	
8,000.00	7.64	270.00	7,979.10	0.00	-324.27	0.00	0.00	0.00	0.00	
8,100.00	7.64	270.00	8,078.22	0.00	-337.56	0.00	0.00	0.00	0.00	
8,200.00	7.64	270.00	8,177.33	0.00	-350.86	0.00	0.00	0.00	0.00	
8,293.50	7.64	270.00	8,270.00	0.00	-363.29	0.00	0.00	0.00	0.00	
1st BS LM										

LEAM Drilling Systems LLC
Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 216H-Y
Company:	DEVON ENERGY	TVD Reference:	H&P 223: 3425.3' GL + 25' RKB @ 3450.30usft
Project:	Eddy County, NM (NAD-83)	MD Reference:	H&P 223: 3425.3' GL + 25' RKB @ 3450.30usft
Site:	Cotton Draw Unit	North Reference:	Grid
Well:	216H-Y	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)
8,300.00	7.64	270.00	8,276.44	0.00	-364.15	0.00	0.00	0.00	0.00
8,400.00	7.64	270.00	8,375.55	0.00	-377.45	0.00	0.00	0.00	0.00
8,500.00	7.64	270.00	8,474.67	0.00	-390.74	0.00	0.00	0.00	0.00
8,600.00	7.64	270.00	8,573.78	0.00	-404.04	0.00	0.00	0.00	0.00
8,700.00	7.64	270.00	8,672.89	0.00	-417.33	0.00	0.00	0.00	0.00
8,800.00	7.64	270.00	8,772.00	0.00	-430.63	0.00	0.00	0.00	0.00
8,900.00	7.64	270.00	8,871.12	0.00	-443.92	0.00	0.00	0.00	0.00
9,000.00	7.64	270.00	8,970.23	0.00	-457.22	0.00	0.00	0.00	0.00
9,081.29	7.64	270.00	9,050.80	0.00	-468.03	0.00	0.00	0.00	0.00
Start Drop									
9,100.00	7.45	270.00	9,069.34	0.00	-470.48	0.00	1.00	-1.00	0.00
9,200.00	6.45	270.00	9,168.61	0.00	-482.59	0.00	1.00	-1.00	0.00
9,296.92	5.48	270.00	9,265.00	0.00	-492.66	0.00	1.00	-1.00	0.00
1st BS SS									
9,300.00	5.45	270.00	9,268.07	0.00	-492.96	0.00	1.00	-1.00	0.00
9,400.00	4.45	270.00	9,367.69	0.00	-501.59	0.00	1.00	-1.00	0.00
9,500.00	3.45	270.00	9,467.45	0.00	-508.49	0.00	1.00	-1.00	0.00
9,577.66	2.68	270.00	9,545.00	0.00	-512.64	0.00	1.00	-1.00	0.00
2nd BS LM									
9,600.00	2.45	270.00	9,567.32	0.00	-513.64	0.00	1.00	-1.00	0.00
9,700.00	1.45	270.00	9,667.26	0.00	-517.04	0.00	1.00	-1.00	0.00
9,800.00	0.45	270.00	9,767.24	0.00	-518.71	0.00	1.00	-1.00	0.00
9,845.29	0.00	0.00	9,812.54	0.00	-518.89	0.00	1.00	-1.00	0.00
Hold									
9,900.00	0.00	0.00	9,867.24	0.00	-518.89	0.00	0.00	0.00	0.00
9,945.29	0.00	0.00	9,912.54	0.00	-518.89	0.00	0.00	0.00	0.00
KOP 12° DLS									
9,950.00	0.56	0.00	9,917.24	0.02	-518.89	0.02	12.00	12.00	0.00
9,962.76	2.10	0.00	9,930.00	0.32	-518.89	0.32	12.00	12.00	0.00
2nd BS SS									
9,975.00	3.56	0.00	9,942.22	0.92	-518.89	0.92	12.00	12.00	0.00
10,000.00	6.56	0.00	9,967.12	3.13	-518.89	3.13	12.00	12.00	0.00
10,025.00	9.56	0.00	9,991.87	6.64	-518.89	6.64	12.00	12.00	0.00
10,050.00	12.56	0.00	10,016.41	11.43	-518.89	11.43	12.00	12.00	0.00
10,075.00	15.56	0.00	10,040.65	17.51	-518.89	17.51	12.00	12.00	0.00
10,100.00	18.56	0.00	10,064.55	24.85	-518.89	24.85	12.00	12.00	0.00
10,125.00	21.56	0.00	10,088.03	33.42	-518.89	33.42	12.00	12.00	0.00
10,150.00	24.56	0.00	10,111.03	43.21	-518.89	43.21	12.00	12.00	0.00
10,175.00	27.56	0.00	10,133.48	54.20	-518.89	54.20	12.00	12.00	0.00
10,200.00	30.56	0.00	10,155.33	66.34	-518.89	66.34	12.00	12.00	0.00
10,225.00	33.56	0.00	10,176.52	79.61	-518.89	79.61	12.00	12.00	0.00
10,250.00	36.56	0.00	10,196.98	93.97	-518.89	93.97	12.00	12.00	0.00
10,275.00	39.56	0.00	10,216.66	109.38	-518.89	109.38	12.00	12.00	0.00
10,300.00	42.56	0.00	10,235.51	125.81	-518.89	125.81	12.00	12.00	0.00
10,325.00	45.56	0.00	10,253.47	143.19	-518.89	143.19	12.00	12.00	0.00
10,350.00	48.56	0.00	10,270.49	161.49	-518.89	161.49	12.00	12.00	0.00
10,375.00	51.56	0.00	10,286.54	180.66	-518.89	180.66	12.00	12.00	0.00
10,400.00	54.56	0.00	10,301.56	200.64	-518.89	200.64	12.00	12.00	0.00
10,425.00	57.56	0.00	10,315.52	221.38	-518.89	221.38	12.00	12.00	0.00
10,450.00	60.56	0.00	10,328.37	242.82	-518.89	242.82	12.00	12.00	0.00
10,475.00	63.56	0.00	10,340.08	264.90	-518.89	264.90	12.00	12.00	0.00

LEAM Drilling Systems LLC
Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 216H-Y
Company:	DEVON ENERGY	TVD Reference:	H&P 223: 3425.3' GL + 25' RKB @ 3450.30usft
Project:	Eddy County, NM (NAD-83)	MD Reference:	H&P 223: 3425.3' GL + 25' RKB @ 3450.30usft
Site:	Cotton Draw Unit	North Reference:	Grid
Well:	216H-Y	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)
10,500.00	66.56	0.00	10,350.62	287.57	-518.89	287.57	12.00	12.00	0.00
10,525.00	69.56	0.00	10,359.95	310.76	-518.89	310.76	12.00	12.00	0.00
10,540.10	71.38	0.00	10,365.00	324.99	-518.89	324.99	12.00	12.00	0.00
TGT Window Top									
10,550.00	72.56	0.00	10,368.07	334.40	-518.89	334.40	12.00	12.00	0.00
10,575.00	75.56	0.00	10,374.93	358.44	-518.89	358.44	12.00	12.00	0.00
10,600.00	78.56	0.00	10,380.52	382.80	-518.89	382.80	12.00	12.00	0.00
10,625.00	81.56	0.00	10,384.84	407.43	-518.89	407.43	12.00	12.00	0.00
10,650.00	84.56	0.00	10,387.86	432.24	-518.89	432.24	12.00	12.00	0.00
10,675.00	87.56	0.00	10,389.57	457.18	-518.89	457.18	12.00	12.00	0.00
10,695.29	90.00	0.00	10,390.00	477.46	-518.89	477.46	12.00	12.00	0.00
LP									
10,700.00	90.00	0.00	10,390.00	482.17	-518.89	482.17	0.00	0.00	0.00
10,800.00	90.00	0.00	10,390.00	582.17	-518.89	582.17	0.00	0.00	0.00
10,900.00	90.00	0.00	10,390.00	682.17	-518.89	682.17	0.00	0.00	0.00
11,000.00	90.00	0.00	10,390.00	782.17	-518.89	782.17	0.00	0.00	0.00
11,100.00	90.00	0.00	10,390.00	882.17	-518.89	882.17	0.00	0.00	0.00
11,200.00	90.00	0.00	10,390.00	982.17	-518.89	982.17	0.00	0.00	0.00
11,300.00	90.00	0.00	10,390.00	1,082.17	-518.89	1,082.17	0.00	0.00	0.00
11,400.00	90.00	0.00	10,390.00	1,182.17	-518.89	1,182.17	0.00	0.00	0.00
11,500.00	90.00	0.00	10,390.00	1,282.17	-518.89	1,282.17	0.00	0.00	0.00
11,600.00	90.00	0.00	10,390.00	1,382.17	-518.89	1,382.17	0.00	0.00	0.00
11,700.00	90.00	0.00	10,390.00	1,482.17	-518.89	1,482.17	0.00	0.00	0.00
11,800.00	90.00	0.00	10,390.00	1,582.17	-518.89	1,582.17	0.00	0.00	0.00
11,900.00	90.00	0.00	10,390.00	1,682.17	-518.89	1,682.17	0.00	0.00	0.00
12,000.00	90.00	0.00	10,390.00	1,782.17	-518.89	1,782.17	0.00	0.00	0.00
12,100.00	90.00	0.00	10,390.00	1,882.17	-518.89	1,882.17	0.00	0.00	0.00
12,200.00	90.00	0.00	10,390.00	1,982.17	-518.89	1,982.17	0.00	0.00	0.00
12,300.00	90.00	0.00	10,390.00	2,082.17	-518.89	2,082.17	0.00	0.00	0.00
12,400.00	90.00	0.00	10,390.00	2,182.17	-518.89	2,182.17	0.00	0.00	0.00
12,500.00	90.00	0.00	10,390.00	2,282.17	-518.89	2,282.17	0.00	0.00	0.00
12,600.00	90.00	0.00	10,390.00	2,382.17	-518.89	2,382.17	0.00	0.00	0.00
12,700.00	90.00	0.00	10,390.00	2,482.17	-518.89	2,482.17	0.00	0.00	0.00
12,800.00	90.00	0.00	10,390.00	2,582.17	-518.89	2,582.17	0.00	0.00	0.00
12,900.00	90.00	0.00	10,390.00	2,682.17	-518.89	2,682.17	0.00	0.00	0.00
13,000.00	90.00	0.00	10,390.00	2,782.17	-518.89	2,782.17	0.00	0.00	0.00
13,100.00	90.00	0.00	10,390.00	2,882.17	-518.89	2,882.17	0.00	0.00	0.00
13,200.00	90.00	0.00	10,390.00	2,982.17	-518.89	2,982.17	0.00	0.00	0.00
13,300.00	90.00	0.00	10,390.00	3,082.17	-518.89	3,082.17	0.00	0.00	0.00
13,400.00	90.00	0.00	10,390.00	3,182.17	-518.89	3,182.17	0.00	0.00	0.00
13,500.00	90.00	0.00	10,390.00	3,282.17	-518.89	3,282.17	0.00	0.00	0.00
13,559.49	90.00	0.00	10,390.00	3,341.66	-518.89	3,341.66	0.00	0.00	0.00
2" Build									
13,584.49	90.50	0.00	10,389.89	3,366.66	-518.89	3,366.66	2.00	2.00	0.00
Hold									
13,600.00	90.50	0.00	10,389.76	3,382.17	-518.89	3,382.17	0.00	0.00	0.00
13,700.00	90.50	0.00	10,388.89	3,482.17	-518.89	3,482.17	0.00	0.00	0.00
13,800.00	90.50	0.00	10,388.01	3,582.16	-518.89	3,582.16	0.00	0.00	0.00
13,900.00	90.50	0.00	10,387.14	3,682.16	-518.89	3,682.16	0.00	0.00	0.00
14,000.00	90.50	0.00	10,386.27	3,782.16	-518.89	3,782.16	0.00	0.00	0.00
14,100.00	90.50	0.00	10,385.39	3,882.15	-518.89	3,882.15	0.00	0.00	0.00
14,200.00	90.50	0.00	10,384.52	3,982.15	-518.89	3,982.15	0.00	0.00	0.00

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 216H-Y
Company:	DEVON ENERGY	TVD Reference:	H&P 223: 3425.3' GL + 25' RKB @ 3450.30usft
Project:	Eddy County, NM (NAD-83)	MD Reference:	H&P 223: 3425.3' GL + 25' RKB @ 3450.30usft
Site:	Cotton Draw Unit	North Reference:	Grid
Well:	216H-Y	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)	
14,300.00	90.50	0.00	10,383.65	4,082.14	-518.89	4,082.14	0.00	0.00	0.00	
14,400.00	90.50	0.00	10,382.78	4,182.14	-518.89	4,182.14	0.00	0.00	0.00	
14,500.00	90.50	0.00	10,381.90	4,282.14	-518.89	4,282.14	0.00	0.00	0.00	
14,600.00	90.50	0.00	10,381.03	4,382.13	-518.89	4,382.13	0.00	0.00	0.00	
14,700.00	90.50	0.00	10,380.16	4,482.13	-518.89	4,482.13	0.00	0.00	0.00	
14,800.00	90.50	0.00	10,379.29	4,582.12	-518.89	4,582.12	0.00	0.00	0.00	
14,900.00	90.50	0.00	10,378.41	4,682.12	-518.89	4,682.12	0.00	0.00	0.00	
14,970.91	90.50	0.00	10,377.79	4,753.03	-518.89	4,753.03	0.00	0.00	0.00	
TD										
14,971.02	90.50	0.00	10,377.79	4,753.14	-518.89	4,753.14	0.00	0.00	0.00	
PBHL (CDU 216H)										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
SHL (CDU 216H)	0.00	0.00	0.00	0.11	24.98	419,790.10	718,182.43	32° 9' 10.048 N	103° 45' 42.834 W	
- hit/miss target										
- Shape										
- plan misses target center by 24.98usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)										
- Point										
PBHL (CDU 216H)	0.00	0.00	10,377.79	4,753.14	-519.16	424,543.13	717,638.29	32° 9' 57.111 N	103° 45' 48.871 W	
- plan misses target center by 0.27usft at 14971.02usft MD (10377.79 TVD, 4753.14 N, -518.89 E)										
- Point										

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
599.00	599.00	Rustler		0.00		
700.00	700.00	Salado		0.00		
4,170.00	4,170.00	Base of Salt		0.00		
4,340.00	4,340.00	Delaware		0.00		
4,375.00	4,375.00	Bell Canyon		0.00		
5,325.00	5,325.00	Cherry Canyon		0.00		
6,598.45	6,590.00	Brushy Canyon		0.00		
8,293.50	8,270.00	1st BS LM		0.00		
9,296.92	9,265.00	1st BS SS		0.00		
9,577.66	9,545.00	2nd BS LM		0.00		
9,962.76	9,930.00	2nd BS SS		0.00		
10,540.10	10,365.00	TGT Window Top		0.00		

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 216H-Y
Company:	DEVON ENERGY	TVD Reference:	H&P 223: 3425.3' GL + 25' RKB @ 3450.30usft
Project:	Eddy County, NM (NAD-83)	MD Reference:	H&P 223: 3425.3' GL + 25' RKB @ 3450.30usft
Site:	Cotton Draw Unit	North Reference:	Grid
Well:	216H-Y	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
5,306.65	5,306.65	0.00	0.00	Start Nudge
5,815.98	5,814.48	0.00	-33.91	Hold
9,081.29	9,050.80	0.00	-468.03	Start Drop
9,845.29	9,812.54	0.00	-518.89	Hold
9,945.29	9,912.54	0.00	-518.89	KOP 12° DLS
10,695.29	10,390.00	477.46	-518.89	LP
13,559.49	10,390.00	3,341.66	-518.89	2° Build
13,584.49	10,389.89	3,366.66	-518.89	Hold
14,970.91	10,377.79	4,753.03	-518.89	TD