

NM OIL CONSERVATION
ARTESIA DISTRICT

MAR 01 2017

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 30-015-44068	² Pool Code 96641	³ Pool Name PADUCA; BONE SPRING
⁴ Property Code 300635	⁵ Property Name COTTON DRAW UNIT	
⁷ OGRID No. 6137	⁶ Operator Name DEVON ENERGY PRODUCTION COMPANY, L.P.	⁸ Well Number 511H
		⁹ Elevation 3511.8

¹⁰ Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
O	25	24 S	31 E		230	SOUTH	1965	EAST	EDDY

¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
O	36	24 S	31 E		290	SOUTH	2310	EAST	EDDY

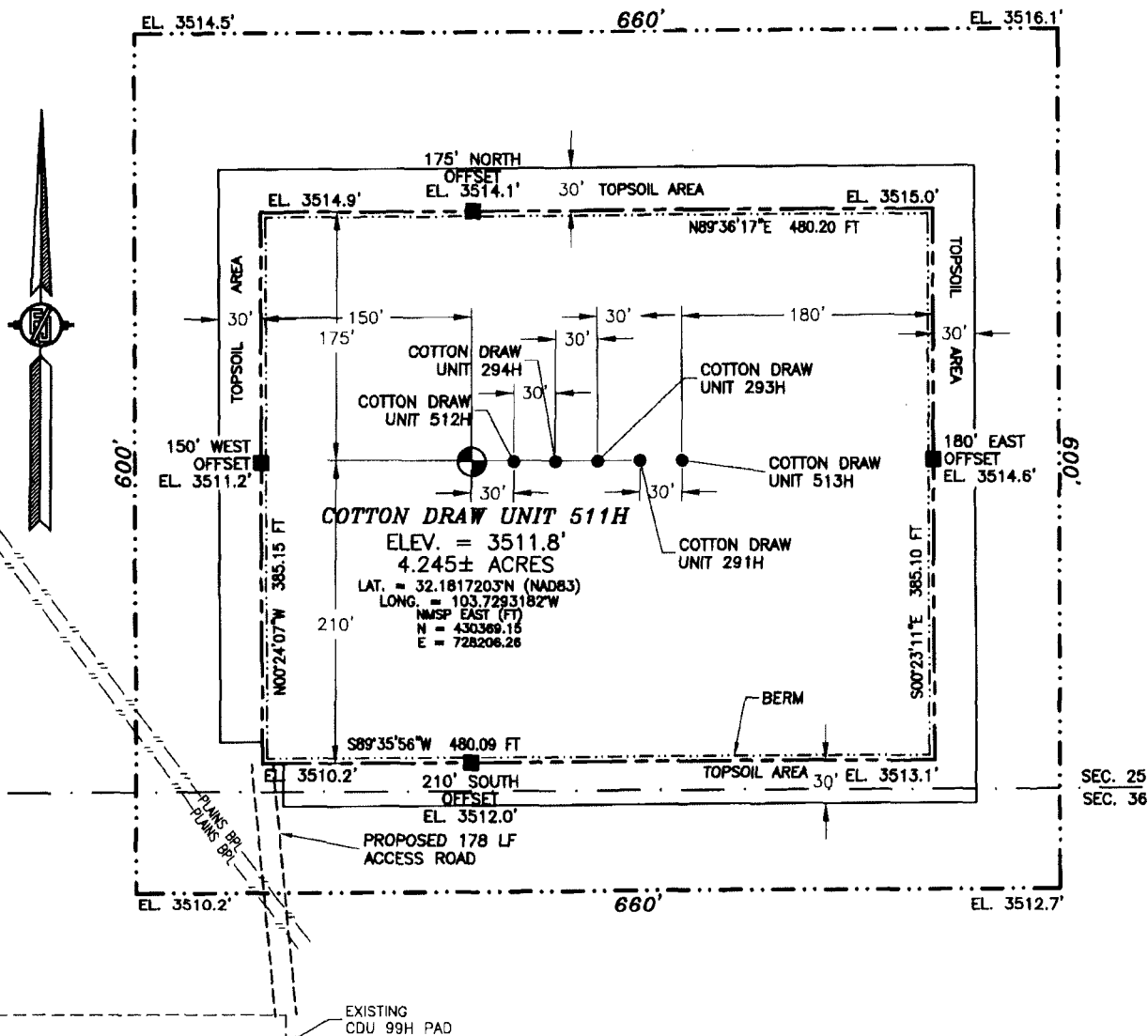
¹² Dedicated Acres	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
160			

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

NW CORNER SEC. 25 LAT. = 32.1956002°N LONG. = 103.7400460°W NMSP EAST (FT) N = 435400.01 E = 724859.42 W Q CORNER SEC. 25 LAT. = 32.1883435°N LONG. = 103.7400437°W NMSP EAST (FT) N = 432760.11 E = 724874.69 SW CORNER SEC. 25 LAT. = 32.1810840°N LONG. = 103.7400384°W NMSP EAST (FT) N = 430119.23 E = 724890.89 W Q CORNER SEC. 36 LAT. = 32.1738251°N LONG. = 103.7400608°W NMSP EAST (FT) N = 427478.46 E = 724898.60 SW CORNER SEC. 36 LAT. = 32.1666605°N LONG. = 103.7400854°W NMSP EAST (FT) N = 424872.06 E = 724905.29	N89°39'11"E 2639.95 FT N Q CORNER SEC. 25 LAT. = 32.1956038°N LONG. = 103.7315137°W NMSP EAST (FT) N = 435415.99 E = 727498.75 NOTE: LATITUDE AND LONGITUDE COORDINATES ARE SHOWN USING THE NORTH AMERICAN DATUM OF 1983 (NAD83). LISTED NEW MEXICO STATE PLANE EAST COORDINATES ARE GRID (NMSP). BASIS OF BEARING AND DISTANCES USED ARE NEW MEXICO STATE PLANE EAST COORDINATES ADJUSTED TO THE SURFACE. COTTON DRAW UNIT 511H ELEV. = 3511.8' LAT. = 32.1817203°N (NAD83) LONG. = 103.7293182°W NMSP EAST (FT) N = 430369.15 E = 728206.26 S Q CORNER SEC. 25 LAT. = 32.1810875°N LONG. = 103.7315034°W NMSP EAST (FT) N = 430135.17 E = 727531.50 SE CORNER SEC. 25 LAT. = 32.1883462°N LONG. = 103.7229693°W NMSP EAST (FT) N = 432790.66 E = 730156.82 SE CORNER SEC. 25 LAT. = 32.1810900°N LONG. = 103.7229683°W NMSP EAST (FT) N = 430150.94 E = 730172.13	" OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling under heretofore entered by the division. <i>Linda Good</i> 2/22/2017 Signature Date Linda Good Printed Name linda.good@dvn.com E-mail Address
	S89°39'15"W 2641.23 FT S Q CORNER SEC. 36 LAT. = 32.1666197°N LONG. = 103.7315233°W NMSP EAST (FT) N = 424871.91 E = 727554.76 S89°38'28"W 2641.25 FT SE CORNER SEC. 36 LAT. = 32.1665811°N LONG. = 103.7229571°W NMSP EAST (FT) N = 424872.82 E = 730205.51 SE CORNER SEC. 36 LAT. = 32.1665811°N LONG. = 103.7229571°W NMSP EAST (FT) N = 424872.82 E = 730205.51	" 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. FEBRUARY 7 2017 Date of Survey <i>Filimon F. Jaramillo</i> Signature and Seal of Professional Surveyor Certificate Number: FILIMON F. JARAMILLO, PLS 12797 SURVEY NO. 5154

SECTION 25, TOWNSHIP 24 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. VERTICAL DATUM NAVD88.



012 60 120 240

SCALE 1" = 120'

DIRECTIONS TO LOCATION

FROM STATE HIGHWAY 128 AND CR 1 (ORLA ROAD) GO SOUTH ON CR 1 8.1 MILES, TURN RIGHT ON CALICHE ROAD (MONSANTO ROAD) AND GO WEST 2.1 MILES, TURN RIGHT AND GO NORTH 0.75 OF A MILE, TURN LEFT AND GO WEST 2.0 MILES, TURN RIGHT AND GO NORTH 1.8 MILES, TURN LEFT AND GO WEST 0.3 OF A MILE, TURN RIGHT AND GO NORTH 0.5 OF A MILE, TURN RIGHT AND GO EAST 0.7 OF A MILE, TURN LEFT AND GO NORTH 0.83 OF A MILE, TURN RIGHT AND GO NORTHEAST 0.15 OF A MILE TO EXISTING CDU 99H PAD. FROM NORTHEAST PAD CORNER FOLLOW ROAD SURVEY FLAGS NORTH 178' TO THE SOUTHWEST PAD CORNER FOR THIS LOCATION.

DEVON ENERGY PRODUCTION COMPANY, L.P.
COTTON DRAW UNIT 511H
LOCATED 230 FT. FROM THE SOUTH LINE
AND 1965 FT. FROM THE EAST LINE OF
SECTION 25, TOWNSHIP 24 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

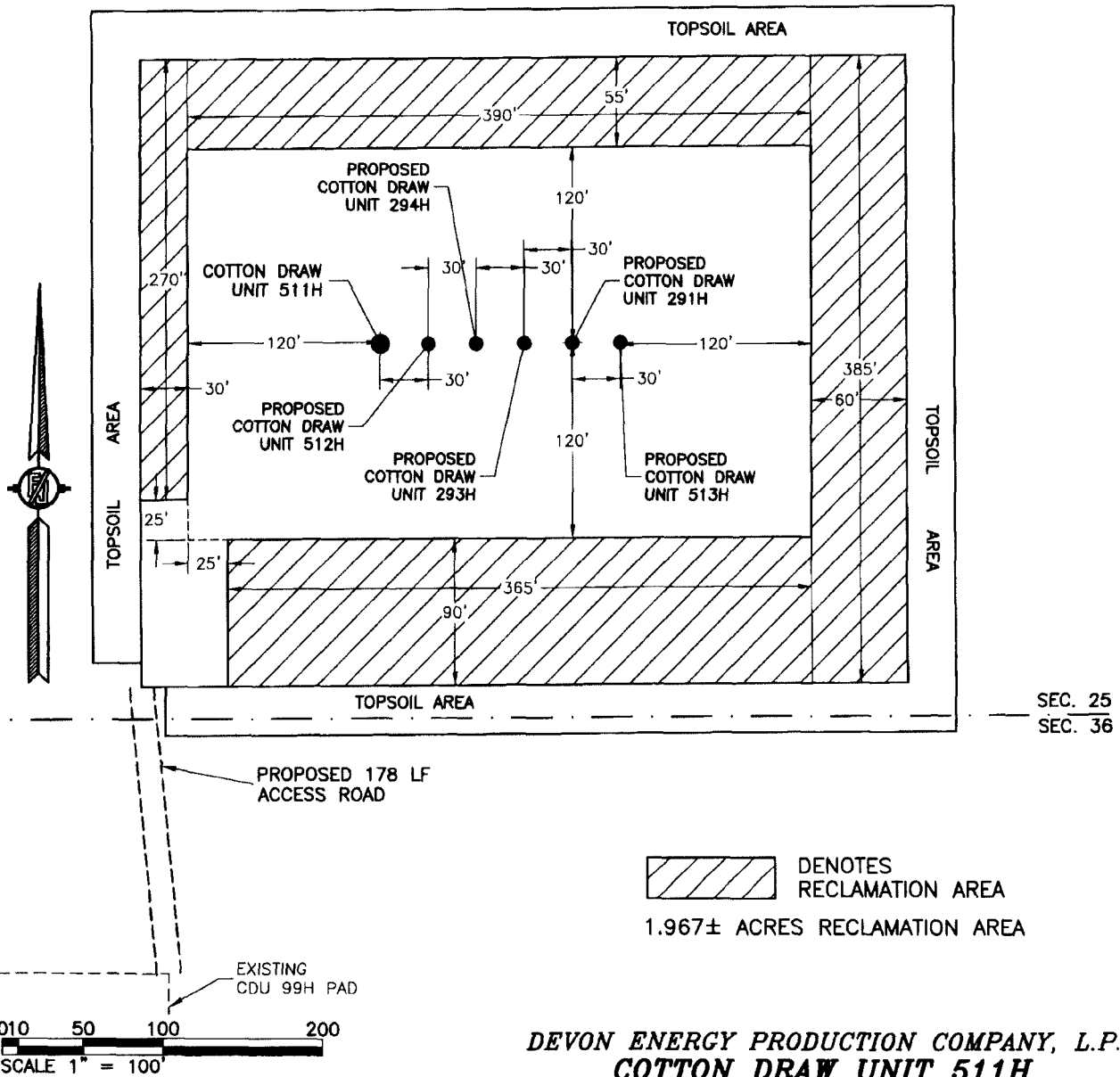
FEBRUARY 7, 2017

SURVEY NO. 5154

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

CARLSBAD, NEW MEXICO

**PROPOSED INTERIM SITE RECLAMATION
FOR COTTON DRAW UNIT 511H
SECTION 25, TOWNSHIP 24 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO**



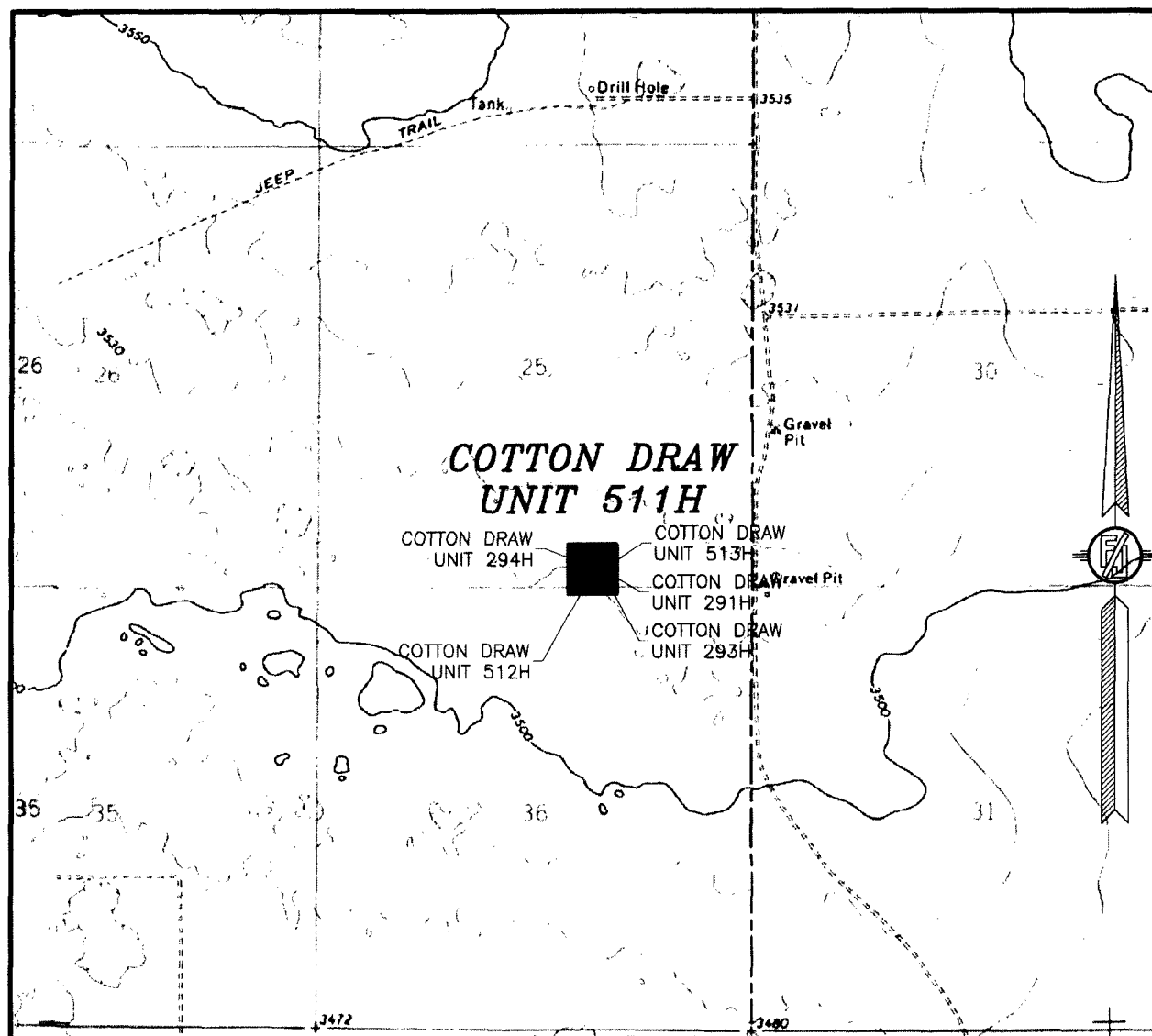
**DEVON ENERGY PRODUCTION COMPANY, L.P.
COTTON DRAW UNIT 511H
LOCATED 230 FT. FROM THE SOUTH LINE
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SECTION 25, TOWNSHIP 24 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO**

FEBRUARY 7, 2017

SURVEY NO. 5154

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

SECTION 25, TOWNSHIP 24 SOUTH, RANGE 31 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO
 LOCATION VERIFICATION MAP



USGS QUAD MAP:
 PADUCA BREAKS NW

NOT TO SCALE

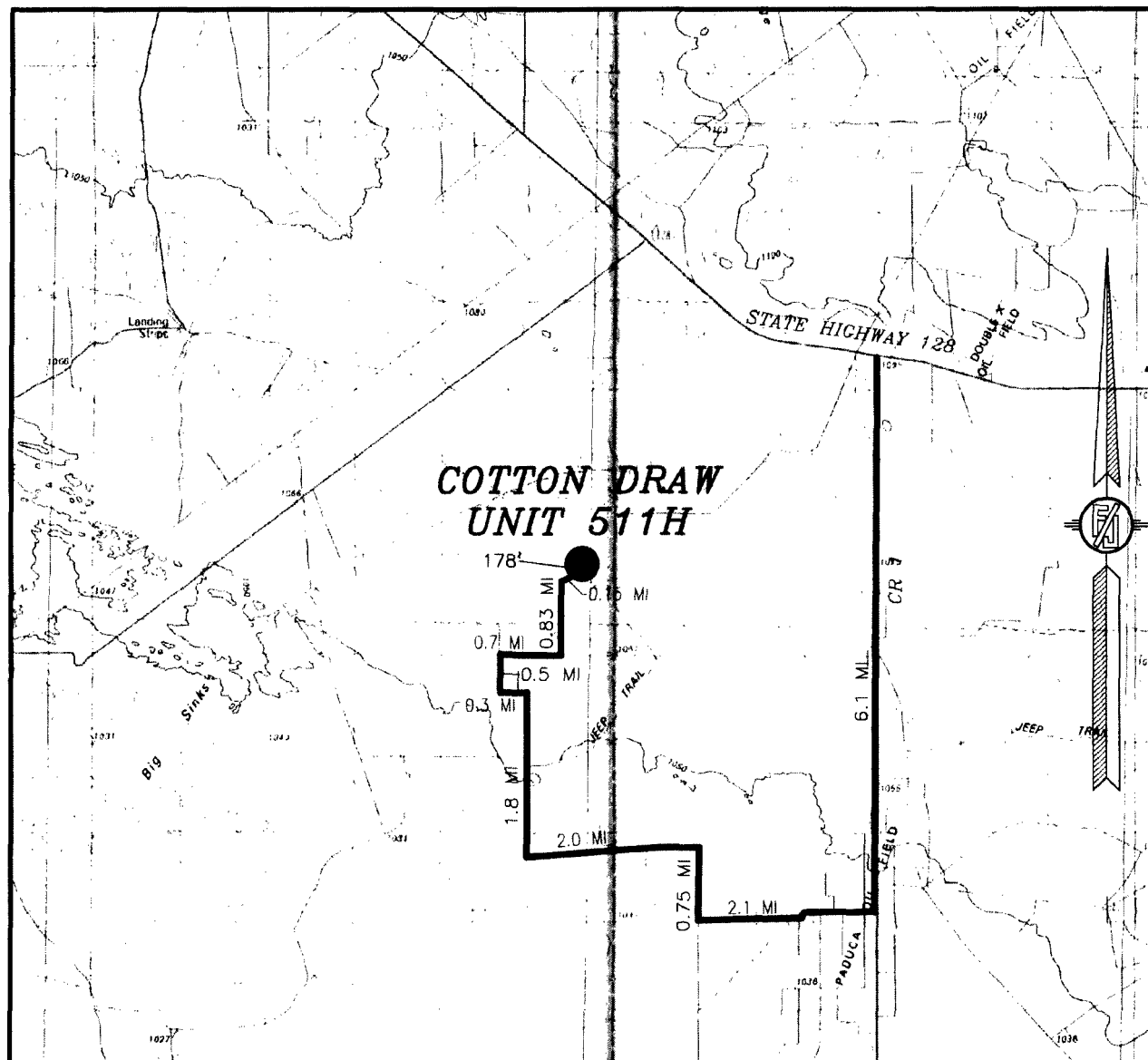
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FEBRUARY 7, 2017

SURVEY NO. 5154

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

SECTION 25, TOWNSHIP 24 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
VICINITY MAP



DISTANCES IN MILES

NOT TO SCALE

DEVON ENERGY PRODUCTION COMPANY, L.P.
COTTON DRAW UNIT 511H

LOCATED 230 FT. FROM THE SOUTH LINE
AND 1965 FT. FROM THE EAST LINE OF
SECTION 25, TOWNSHIP 24 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

DIRECTIONS TO LOCATION

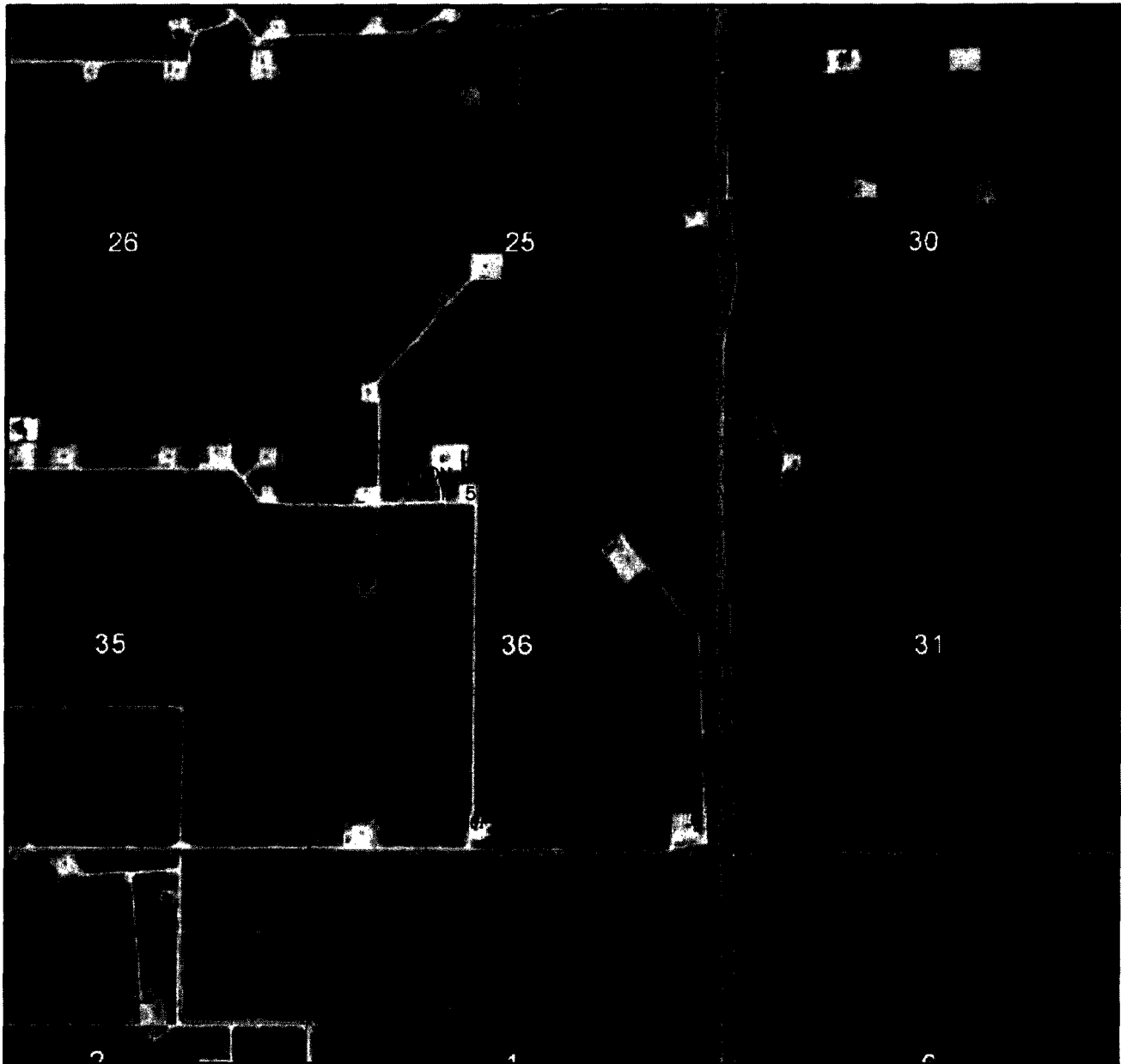
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FEBRUARY 7, 2017

SURVEY NO. 5154

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 734-3341 CARLSBAD, NEW MEXICO

SECTION 25, TOWNSHIP 24 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
AERIAL PHOTO



NOT TO SCALE
AERIAL PHOTO:
GOOGLE EARTH
NOVEMBER 2015

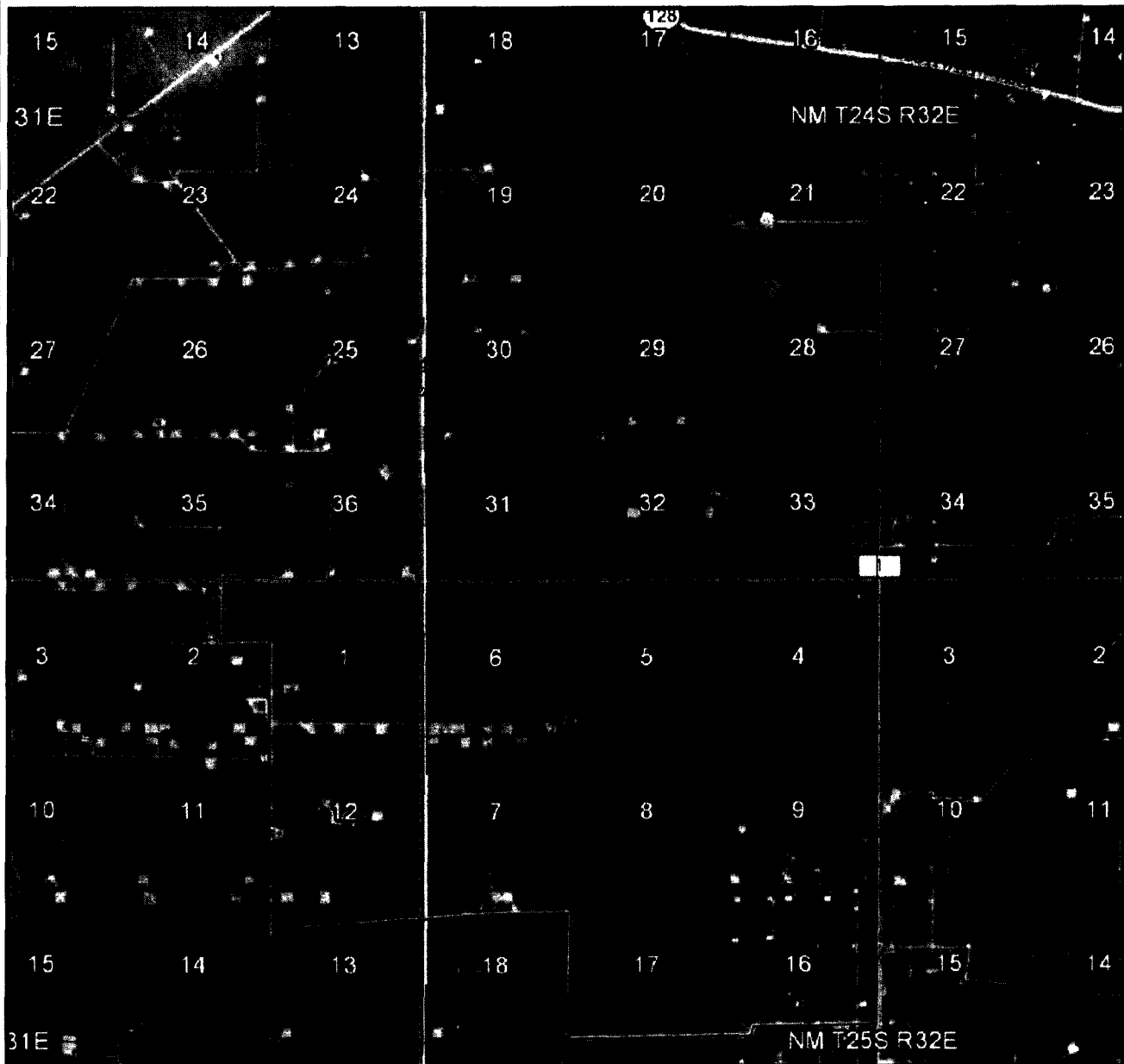
DEVON ENERGY PRODUCTION COMPANY, L.P.
COTTON DRAW UNIT 511H
LOCATED 230 FT. FROM THE SOUTH LINE
AND 1965 FT. FROM THE EAST LINE OF
SECTION 25, TOWNSHIP 24 SOUTH,
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EDDY COUNTY, STATE OF NEW MEXICO

FEBRUARY 7, 2017

SURVEY NO. 5154

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

SECTION 25, TOWNSHIP 24 SOUTH, RANGE 31 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO
 ACCESS AERIAL ROUTE MAP



NOT TO SCALE
 AERIAL PHOTO:
 GOOGLE EARTH
 NOVEMBER 2015

DEVON ENERGY PRODUCTION COMPANY, L.P.
COTTON DRAW UNIT 511H
 LOCATED 230 FT. FROM THE SOUTH LINE
 AND 1965 FT. FROM THE EAST LINE OF
 SECTION 25, TOWNSHIP 24 SOUTH,
 RANGE 31 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO

FEBRUARY 7, 2017

SURVEY NO. 5154

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

Devon Energy, Cotton Draw Unit 511H

1. Geologic Formations

TVD of target	10,200'	Pilot hole depth	N/A
MD at TD:	15,393'	Deepest expected fresh water:	

Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Quaternary Fill	Surface	Water	
Rustler	675	Water	
Top of Salt	1500	Salt	
Lamar	4250	Barren	
Delaware Group	4300	Oil/Gas	
Bone Spring	8400	Target Zone	

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

Devon Energy, Cotton Draw Unit 511H

2. Casing Program

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	1.74	2.45	4.13
12.25"	0	4,300'	9.625"	40	J-55	LTC	1.19	1.42	3.98
8.75"	0	15,393'	5.5"	17	P-110	BTC	1.7	2.11	2.51
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

Must have table for contingency casing

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Does casing meet API specifications? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	N
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	
Is well within the designated 4 string boundary.	
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3 rd string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2 nd string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

Devon Energy, Cotton Draw Unit 511H

3. Cementing Program

Casing	# Sks	Wt. lb/gal	H ₂ O gal/sk	Yld ft ³ /sack	500# Comp. Strength (hours)	Slurry Description
13-3/8" Surface	560	14.8	6.34	1.34	6	Tail: Class C Cement + 1% Calcium Chloride
9-5/8" Inter.	700	12.9	9.81	1.85	14	Lead: (65:35) Class C Cement: Poz (Fly Ash): 6% BWOC Bentonite + 5% BWOW Sodium Chloride + 0.125 lbs/sack Poly-E-Flake
	320	14.8	6.32	1.33	6	Tail: Class C Cement + 0.125 lbs/sack Poly-E-Flake
5-1/2" Prod	560	9	13.5	3.27	21	Lead: Tuned Light® Cement
	1130	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	540	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
	1130	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	3.31	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	1.33	6	2 nd Stage Tail: Class C Cement + 0.125 lbs/sack Poly-E-Flake

DV tool depth(s) will be adjusted based on hole conditions and cement volumes will be adjusted proportionally. DV tool will be set a minimum of 50 feet below previous casing and a minimum of 200 feet above current shoe. Lab reports with the 500 psi compressive strength time for the cement will be onsite for review.

Casing String	TOC	% Excess
13-3/8" Surface	0'	50%
9-5/8" Intermediate	0'	30%
5-1/2" Production Casing	4100'	15%
5-1/2" Production Casing Two Stage Option	1 st Stage = 4350' / 2 nd Stage = 4100'	15%

Devon Energy, Cotton Draw Unit 511H

4. Pressure Control Equipment

N	A variance is requested for the use of a diverter on the surface casing. See attached for schematic.
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BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:
12-1/4"	13-5/8"	3M	Annular	x	50% of working pressure
			Blind Ram		3M
			Pipe Ram		
			Double Ram	x	
			Other*		
8-3/4"	13-5/8"	3M	Annular	x	50% testing pressure
			Blind Ram		3M
			Pipe Ram		
			Double Ram	x	
			Other*		
			Annular		
			Blind Ram		
			Pipe Ram		
			Double Ram		
			Other*		

*Specify if additional ram is utilized.

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics.

Y	Formation integrity test will be performed per Onshore Order #2. On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.
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Devon Energy, Cotton Draw Unit 511H

Y	A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.
	Y Are anchors required by manufacturer?
Y	A multibowl wellhead may be used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested. Devon proposes using a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be 3000 (3M) psi. - Wellhead will be installed by wellhead representatives. - If the welding is performed by a third party, the wellhead representative will monitor the temperature to verify that it does not exceed the maximum temperature of the seal. - Wellhead representative will install the test plug for the initial BOP test. - Wellhead company will install a solid steel body pack-off to completely isolate the lower head after cementing intermediate casing. After installation of the pack-off, the pack-off and the lower flange will be tested to 3M, as shown on the attached schematic. Everything above the pack-off will not have been altered whatsoever from the initial nipple up. Therefore the BOP components will not be retested at that time. - If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head will be cut and top out operations will be conducted. - Devon will pressure test all seals above and below the mandrel (but still above the casing) to full working pressure rating. - Devon will test the casing to 0.22 psi/ft or 1500 psi, whichever is greater, as per Onshore Order #2. After running the 13-3/8" surface casing, a 13-5/8" BOP/BOPE system with a minimum rating of 3M will be installed on the wellhead system and will undergo a 250 psi low pressure test followed by a 3,000 psi high pressure test. The 3,000 psi high and 250 psi low test will cover testing requirements a maximum of 30 days, as per Onshore Order #2. If the well is not complete within 30 days of this BOP test, another full BOP test will be conducted, as per Onshore Order #2. After running the 9-5/8" intermediate casing with a mandrel hanger, the 13-5/8" BOP/BOPE system with a minimum rating of 3M will already be installed on the wellhead. The pipe rams will be operated and checked each 24 hour period and each time the drill pipe is out of the hole. These tests will be logged in the daily driller's log. A 2" kill line and 3" choke line will be incorporated into the drilling spool below the ram BOP. In addition to the rams and annular preventer, additional BOP accessories include a kelly cock, floor safety valve, choke lines, and choke manifold rated at 3,000 psi WP.

Devon Energy, Cotton Draw Unit 511H

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

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0	700'	FW Gel	8.6-8.8	28-34	N/C
700'	4,300'	Saturated Brine	10.0-10.2	28-34	N/C
4,300'	15,393'	Cut Brine	8.5-9.3	28-34	N/C

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

What will be used to monitor the loss or gain of fluid?	PVT/Pason/Visual Monitoring
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6. Logging and Testing Procedures

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

Additional logs planned		Interval
	Resistivity	Int. shoe to KOP
	Density	Int. shoe to KOP
X	CBL	Production casing
X	Mud log	Intermediate shoe to TD
	PEX	

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	4,548 psi
Abnormal Temperature	No

Devon Energy, Cotton Draw Unit 511H

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

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

8. Other facets of operation

Is this a walking operation? Yes

Will be pre-setting casing? No

Attachments

☒ Directional Plan

☐ Other, describe

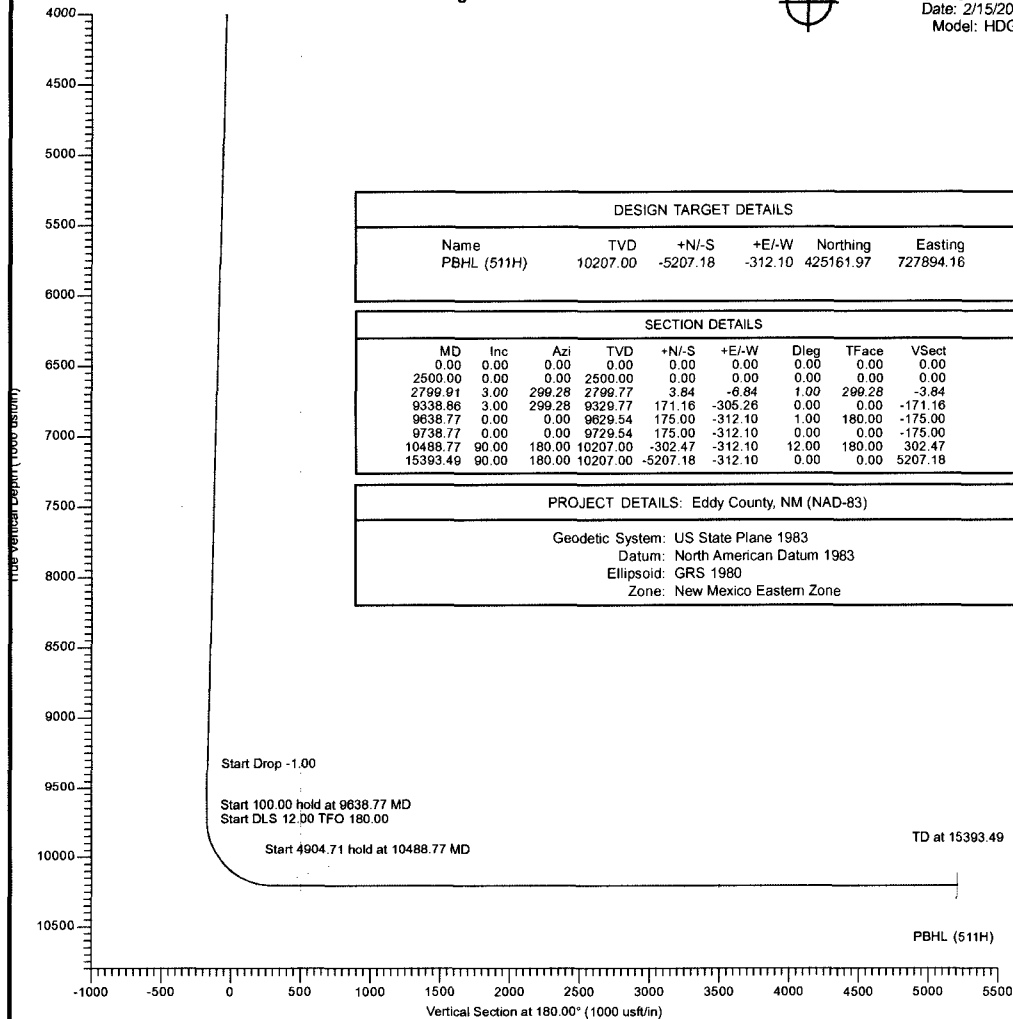


Project: Eddy County, NM (NAD-83)
Site: Cotton Draw Unit
Well: 511H
Wellbore: OH
Design: Plan #1



Azimuths to Grid North
True North: -0.32°
Magnetic North: 6.59°

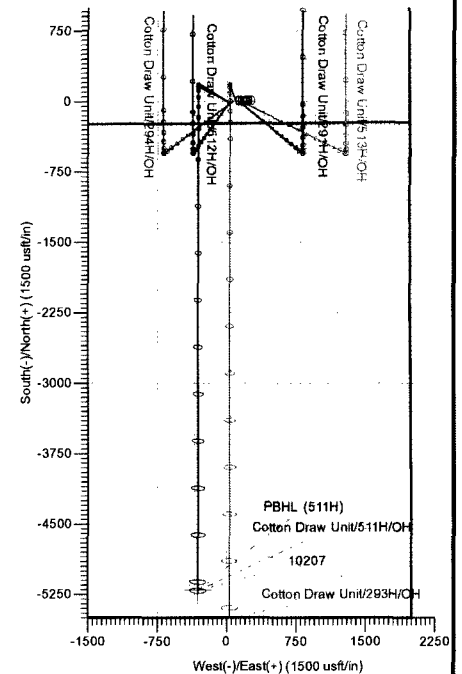
Magnetic Field
Strength: 48124.8snT
Dip Angle: 59.95°
Date: 2/15/2017
Model: HDGM



DESIGN TARGET DETAILS						
Name	TVD	+N/-S	+E/-W	Northing	Easting	
PBHL (511H)	10207.00	-5207.18	-312.10	425161.97	727894.16	

SECTION DETAILS								
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2500.00	0.00	0.00	2500.00	0.00	0.00	0.00	0.00	0.00
2799.91	3.00	299.28	2799.77	3.84	-6.84	1.00	299.28	-3.84
9338.86	3.00	299.28	9338.77	171.16	-305.26	0.00	0.00	-171.16
9638.77	0.00	0.00	9629.54	175.00	-312.10	1.00	180.00	-175.00
9738.77	0.00	0.00	9729.54	175.00	-312.10	0.00	0.00	-175.00
10488.77	90.00	180.00	10207.00	-302.47	-312.10	12.00	180.00	302.47
15393.49	90.00	180.00	10207.00	-5207.18	-312.10	0.00	0.00	5207.18

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						



Devon Energy
Eddy County, NM (NAD-83)
Cotton Draw Unit
511H

NM OIL CONSERVATION
ARTESIA DISTRICT

MAR 01 2017

RECEIVED

OH

Plan: Plan #1

Standard Planning Report

20 February, 2017

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Multi User Db	Local Co-ordinate Reference:	Well 511H
Company:	Devon Energy	TVD Reference:	3511.8' GE + 23.5' KB @ 3535.30usft (Original Well Elev)
Project:	Eddy County, NM (NAD-83)	MD Reference:	3511.8' GE + 23.5' KB @ 3535.30usft (Original Well Elev)
Site:	Cotton Draw Unit	North Reference:	Grid
Well:	511H	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	511H					
Well Position	+N/-S	11,174.64 usft	Northing:	430,369.15 usft	Latitude:	32° 10' 54.193 N
	+E/-W	5,250.28 usft	Easting:	728,206.26 usft	Longitude:	103° 43' 45.546 W
Position Uncertainty	0.00 usft		Wellhead Elevation:	3,535.30 usft	Ground Level:	3,511.80 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	2/15/2017	6.92	59.95	48,125

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	180.00

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	
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,799.91	3.00	299.28	2,799.77	3.84	-6.84	1.00	1.00	0.00	299.28	
9,338.86	3.00	299.28	9,329.77	171.16	-305.26	0.00	0.00	0.00	0.00	
9,638.77	0.00	0.00	9,629.54	175.00	-312.10	1.00	-1.00	0.00	180.00	
9,738.77	0.00	0.00	9,729.54	175.00	-312.10	0.00	0.00	0.00	0.00	
10,488.77	90.00	180.00	10,207.01	-302.47	-312.10	12.00	12.00	-24.00	180.00	
15,393.49	90.00	180.00	10,207.00	-5,207.18	-312.10	0.00	0.00	0.00	0.00	PBHL (511H)

LEAM Drilling Systems LLC

Planning Report

Database: EDM 5000.1 Multi User Db
Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Site: Cotton Draw Unit
Well: 511H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well 511H
TVD Reference: 3511.8' GE + 23.5' KB @ 3535.30usft
 (Original Well Elev)
MD Reference: 3511.8' GE + 23.5' KB @ 3535.30usft
 (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)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
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	1.00	299.28	2,599.99	0.43	-0.76	-0.43	1.00	1.00	0.00
2,700.00	2.00	299.28	2,699.96	1.71	-3.04	-1.71	1.00	1.00	0.00
2,799.91	3.00	299.28	2,799.77	3.84	-6.84	-3.84	1.00	1.00	0.00
2,900.00	3.00	299.28	2,899.73	6.40	-11.41	-6.40	0.00	0.00	0.00
3,000.00	3.00	299.28	2,999.59	8.96	-15.98	-8.96	0.00	0.00	0.00
3,100.00	3.00	299.28	3,099.45	11.52	-20.54	-11.52	0.00	0.00	0.00
3,200.00	3.00	299.28	3,199.32	14.08	-25.10	-14.08	0.00	0.00	0.00
3,300.00	3.00	299.28	3,299.18	16.63	-29.67	-16.63	0.00	0.00	0.00
3,400.00	3.00	299.28	3,399.04	19.19	-34.23	-19.19	0.00	0.00	0.00
3,500.00	3.00	299.28	3,498.90	21.75	-38.79	-21.75	0.00	0.00	0.00
3,600.00	3.00	299.28	3,598.77	24.31	-43.36	-24.31	0.00	0.00	0.00
3,700.00	3.00	299.28	3,698.63	26.87	-47.92	-26.87	0.00	0.00	0.00
3,800.00	3.00	299.28	3,798.49	29.43	-52.48	-29.43	0.00	0.00	0.00
3,900.00	3.00	299.28	3,898.36	31.99	-57.05	-31.99	0.00	0.00	0.00
4,000.00	3.00	299.28	3,998.22	34.55	-61.61	-34.55	0.00	0.00	0.00
4,100.00	3.00	299.28	4,098.08	37.11	-66.18	-37.11	0.00	0.00	0.00
4,200.00	3.00	299.28	4,197.95	39.66	-70.74	-39.66	0.00	0.00	0.00
4,300.00	3.00	299.28	4,297.81	42.22	-75.30	-42.22	0.00	0.00	0.00
4,400.00	3.00	299.28	4,397.67	44.78	-79.87	-44.78	0.00	0.00	0.00
4,500.00	3.00	299.28	4,497.53	47.34	-84.43	-47.34	0.00	0.00	0.00
4,600.00	3.00	299.28	4,597.40	49.90	-88.99	-49.90	0.00	0.00	0.00
4,700.00	3.00	299.28	4,697.26	52.46	-93.56	-52.46	0.00	0.00	0.00
4,800.00	3.00	299.28	4,797.12	55.02	-98.12	-55.02	0.00	0.00	0.00
4,900.00	3.00	299.28	4,896.99	57.58	-102.68	-57.58	0.00	0.00	0.00
5,000.00	3.00	299.28	4,996.85	60.14	-107.25	-60.14	0.00	0.00	0.00
5,100.00	3.00	299.28	5,096.71	62.69	-111.81	-62.69	0.00	0.00	0.00

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5,200.00	3.00	299.28	5,196.58	65.25	-116.37	-65.25	0.00	0.00	0.00
5,300.00	3.00	299.28	5,296.44	67.81	-120.94	-67.81	0.00	0.00	0.00
5,400.00	3.00	299.28	5,396.30	70.37	-125.50	-70.37	0.00	0.00	0.00
5,500.00	3.00	299.28	5,496.17	72.93	-130.07	-72.93	0.00	0.00	0.00
5,600.00	3.00	299.28	5,596.03	75.49	-134.63	-75.49	0.00	0.00	0.00
5,700.00	3.00	299.28	5,695.89	78.05	-139.19	-78.05	0.00	0.00	0.00
5,800.00	3.00	299.28	5,795.75	80.61	-143.76	-80.61	0.00	0.00	0.00
5,900.00	3.00	299.28	5,895.62	83.17	-148.32	-83.17	0.00	0.00	0.00
6,000.00	3.00	299.28	5,995.48	85.72	-152.88	-85.72	0.00	0.00	0.00
6,100.00	3.00	299.28	6,095.34	88.28	-157.45	-88.28	0.00	0.00	0.00
6,200.00	3.00	299.28	6,195.21	90.84	-162.01	-90.84	0.00	0.00	0.00
6,300.00	3.00	299.28	6,295.07	93.40	-166.57	-93.40	0.00	0.00	0.00
6,400.00	3.00	299.28	6,394.93	95.96	-171.14	-95.96	0.00	0.00	0.00
6,500.00	3.00	299.28	6,494.80	98.52	-175.70	-98.52	0.00	0.00	0.00
6,600.00	3.00	299.28	6,594.66	101.08	-180.27	-101.08	0.00	0.00	0.00
6,700.00	3.00	299.28	6,694.52	103.64	-184.83	-103.64	0.00	0.00	0.00
6,800.00	3.00	299.28	6,794.38	106.20	-189.39	-106.20	0.00	0.00	0.00
6,900.00	3.00	299.28	6,894.25	108.75	-193.96	-108.75	0.00	0.00	0.00
7,000.00	3.00	299.28	6,994.11	111.31	-198.52	-111.31	0.00	0.00	0.00
7,100.00	3.00	299.28	7,093.97	113.87	-203.08	-113.87	0.00	0.00	0.00
7,200.00	3.00	299.28	7,193.84	116.43	-207.65	-116.43	0.00	0.00	0.00
7,300.00	3.00	299.28	7,293.70	118.99	-212.21	-118.99	0.00	0.00	0.00
7,400.00	3.00	299.28	7,393.56	121.55	-216.77	-121.55	0.00	0.00	0.00
7,500.00	3.00	299.28	7,493.43	124.11	-221.34	-124.11	0.00	0.00	0.00
7,600.00	3.00	299.28	7,593.29	126.67	-225.90	-126.67	0.00	0.00	0.00
7,700.00	3.00	299.28	7,693.15	129.23	-230.46	-129.23	0.00	0.00	0.00
7,800.00	3.00	299.28	7,793.01	131.78	-235.03	-131.78	0.00	0.00	0.00
7,900.00	3.00	299.28	7,892.88	134.34	-239.59	-134.34	0.00	0.00	0.00
8,000.00	3.00	299.28	7,992.74	136.90	-244.16	-136.90	0.00	0.00	0.00
8,100.00	3.00	299.28	8,092.60	139.46	-248.72	-139.46	0.00	0.00	0.00
8,200.00	3.00	299.28	8,192.47	142.02	-253.28	-142.02	0.00	0.00	0.00
8,300.00	3.00	299.28	8,292.33	144.58	-257.85	-144.58	0.00	0.00	0.00
8,400.00	3.00	299.28	8,392.19	147.14	-262.41	-147.14	0.00	0.00	0.00
8,500.00	3.00	299.28	8,492.06	149.70	-266.97	-149.70	0.00	0.00	0.00
8,600.00	3.00	299.28	8,591.92	152.26	-271.54	-152.26	0.00	0.00	0.00
8,700.00	3.00	299.28	8,691.78	154.81	-276.10	-154.81	0.00	0.00	0.00
8,800.00	3.00	299.28	8,791.65	157.37	-280.66	-157.37	0.00	0.00	0.00
8,900.00	3.00	299.28	8,891.51	159.93	-285.23	-159.93	0.00	0.00	0.00
9,000.00	3.00	299.28	8,991.37	162.49	-289.79	-162.49	0.00	0.00	0.00
9,100.00	3.00	299.28	9,091.23	165.05	-294.35	-165.05	0.00	0.00	0.00
9,200.00	3.00	299.28	9,191.10	167.61	-298.92	-167.61	0.00	0.00	0.00
9,300.00	3.00	299.28	9,290.96	170.17	-303.48	-170.17	0.00	0.00	0.00
9,338.86	3.00	299.28	9,329.77	171.16	-305.26	-171.16	0.00	0.00	0.00
9,400.00	2.39	299.28	9,390.84	172.57	-307.76	-172.57	1.00	-1.00	0.00
9,500.00	1.39	299.28	9,490.78	174.18	-310.63	-174.18	1.00	-1.00	0.00
9,600.00	0.39	299.28	9,590.77	174.94	-311.99	-174.94	1.00	-1.00	0.00
9,638.77	0.00	0.00	9,629.54	175.00	-312.10	-175.00	1.00	-1.00	0.00
9,700.00	0.00	0.00	9,690.77	175.00	-312.10	-175.00	0.00	0.00	0.00
9,738.77	0.00	0.00	9,729.54	175.00	-312.10	-175.00	0.00	0.00	0.00
9,750.00	1.35	180.00	9,740.77	174.87	-312.10	-174.87	12.00	12.00	0.00
9,775.00	4.35	180.00	9,765.74	173.63	-312.10	-173.63	12.00	12.00	0.00
9,800.00	7.35	180.00	9,790.60	171.08	-312.10	-171.08	12.00	12.00	0.00

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Project: Eddy County, NM (NAD-83)
Site: Cotton Draw Unit
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Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,825.00	10.35	180.00	9,815.30	167.23	-312.10	-167.23	12.00	12.00	0.00
9,850.00	13.35	180.00	9,839.77	162.10	-312.10	-162.10	12.00	12.00	0.00
9,875.00	16.35	180.00	9,863.93	155.70	-312.10	-155.70	12.00	12.00	0.00
9,900.00	19.35	180.00	9,887.72	148.04	-312.10	-148.04	12.00	12.00	0.00
9,925.00	22.35	180.00	9,911.08	139.14	-312.10	-139.14	12.00	12.00	0.00
9,950.00	25.35	180.00	9,933.95	129.03	-312.10	-129.03	12.00	12.00	0.00
9,975.00	28.35	180.00	9,956.25	117.74	-312.10	-117.74	12.00	12.00	0.00
10,000.00	31.35	180.00	9,977.93	105.30	-312.10	-105.30	12.00	12.00	0.00
10,025.00	34.35	180.00	9,998.93	91.74	-312.10	-91.74	12.00	12.00	0.00
10,050.00	37.35	180.00	10,019.19	77.11	-312.10	-77.11	12.00	12.00	0.00
10,075.00	40.35	180.00	10,038.66	61.43	-312.10	-61.43	12.00	12.00	0.00
10,100.00	43.35	180.00	10,057.28	44.75	-312.10	-44.75	12.00	12.00	0.00
10,125.00	46.35	180.00	10,075.01	27.12	-312.10	-27.12	12.00	12.00	0.00
10,150.00	49.35	180.00	10,091.78	8.59	-312.10	-8.59	12.00	12.00	0.00
10,175.00	52.35	180.00	10,107.56	-10.80	-312.10	10.80	12.00	12.00	0.00
10,200.00	55.35	180.00	10,122.31	-30.98	-312.10	30.98	12.00	12.00	0.00
10,225.00	58.35	180.00	10,135.98	-51.91	-312.10	51.91	12.00	12.00	0.00
10,250.00	61.35	180.00	10,148.54	-73.52	-312.10	73.52	12.00	12.00	0.00
10,275.00	64.35	180.00	10,159.94	-95.77	-312.10	95.77	12.00	12.00	0.00
10,300.00	67.35	180.00	10,170.17	-118.57	-312.10	118.57	12.00	12.00	0.00
10,325.00	70.35	180.00	10,179.19	-141.89	-312.10	141.89	12.00	12.00	0.00
10,350.00	73.35	180.00	10,186.98	-165.64	-312.10	165.64	12.00	12.00	0.00
10,375.00	76.35	180.00	10,193.51	-189.77	-312.10	189.77	12.00	12.00	0.00
10,400.00	79.35	180.00	10,198.78	-214.21	-312.10	214.21	12.00	12.00	0.00
10,425.00	82.35	180.00	10,202.75	-238.88	-312.10	238.88	12.00	12.00	0.00
10,450.00	85.35	180.00	10,205.43	-263.74	-312.10	263.74	12.00	12.00	0.00
10,475.00	88.35	180.00	10,206.81	-288.70	-312.10	288.70	12.00	12.00	0.00
10,488.77	90.00	180.00	10,207.01	-302.47	-312.10	302.47	12.00	12.00	0.00
10,500.00	90.00	180.00	10,207.01	-313.69	-312.10	313.69	0.00	0.00	0.00
10,600.00	90.00	180.00	10,207.00	-413.69	-312.10	413.69	0.00	0.00	0.00
10,700.00	90.00	180.00	10,207.00	-513.69	-312.10	513.69	0.00	0.00	0.00
10,800.00	90.00	180.00	10,207.00	-613.69	-312.10	613.69	0.00	0.00	0.00
10,900.00	90.00	180.00	10,207.00	-713.69	-312.10	713.69	0.00	0.00	0.00
11,000.00	90.00	180.00	10,207.00	-813.69	-312.10	813.69	0.00	0.00	0.00
11,100.00	90.00	180.00	10,207.00	-913.69	-312.10	913.69	0.00	0.00	0.00
11,200.00	90.00	180.00	10,207.00	-1,013.69	-312.10	1,013.69	0.00	0.00	0.00
11,300.00	90.00	180.00	10,207.00	-1,113.69	-312.10	1,113.69	0.00	0.00	0.00
11,400.00	90.00	180.00	10,207.00	-1,213.69	-312.10	1,213.69	0.00	0.00	0.00
11,500.00	90.00	180.00	10,207.00	-1,313.69	-312.10	1,313.69	0.00	0.00	0.00
11,600.00	90.00	180.00	10,207.00	-1,413.69	-312.10	1,413.69	0.00	0.00	0.00
11,700.00	90.00	180.00	10,207.00	-1,513.69	-312.10	1,513.69	0.00	0.00	0.00
11,800.00	90.00	180.00	10,207.00	-1,613.69	-312.10	1,613.69	0.00	0.00	0.00
11,900.00	90.00	180.00	10,207.00	-1,713.69	-312.10	1,713.69	0.00	0.00	0.00
12,000.00	90.00	180.00	10,207.00	-1,813.69	-312.10	1,813.69	0.00	0.00	0.00
12,100.00	90.00	180.00	10,207.00	-1,913.69	-312.10	1,913.69	0.00	0.00	0.00
12,200.00	90.00	180.00	10,207.00	-2,013.69	-312.10	2,013.69	0.00	0.00	0.00
12,300.00	90.00	180.00	10,207.00	-2,113.69	-312.10	2,113.69	0.00	0.00	0.00
12,400.00	90.00	180.00	10,207.00	-2,213.69	-312.10	2,213.69	0.00	0.00	0.00
12,500.00	90.00	180.00	10,207.00	-2,313.69	-312.10	2,313.69	0.00	0.00	0.00
12,600.00	90.00	180.00	10,207.00	-2,413.69	-312.10	2,413.69	0.00	0.00	0.00
12,700.00	90.00	180.00	10,207.00	-2,513.69	-312.10	2,513.69	0.00	0.00	0.00
12,800.00	90.00	180.00	10,207.00	-2,613.69	-312.10	2,613.69	0.00	0.00	0.00

LEAM Drilling Systems LLC

Planning Report

Database: EDM 5000.1 Multi User Db
Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Site: Cotton Draw Unit
Well: 511H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well 511H
TVD Reference: 3511.8' GE + 23.5' KB @ 3535.30usft
 (Original Well Elev)
MD Reference: 3511.8' GE + 23.5' KB @ 3535.30usft
 (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)
12,900.00	90.00	180.00	10,207.00	-2,713.69	-312.10	2,713.69	0.00	0.00	0.00
13,000.00	90.00	180.00	10,207.00	-2,813.69	-312.10	2,813.69	0.00	0.00	0.00
13,100.00	90.00	180.00	10,207.00	-2,913.69	-312.10	2,913.69	0.00	0.00	0.00
13,200.00	90.00	180.00	10,207.00	-3,013.69	-312.10	3,013.69	0.00	0.00	0.00
13,300.00	90.00	180.00	10,207.00	-3,113.69	-312.10	3,113.69	0.00	0.00	0.00
13,400.00	90.00	180.00	10,207.00	-3,213.69	-312.10	3,213.69	0.00	0.00	0.00
13,500.00	90.00	180.00	10,207.00	-3,313.69	-312.10	3,313.69	0.00	0.00	0.00
13,600.00	90.00	180.00	10,207.00	-3,413.69	-312.10	3,413.69	0.00	0.00	0.00
13,700.00	90.00	180.00	10,207.00	-3,513.69	-312.10	3,513.69	0.00	0.00	0.00
13,800.00	90.00	180.00	10,207.00	-3,613.69	-312.10	3,613.69	0.00	0.00	0.00
13,900.00	90.00	180.00	10,207.00	-3,713.70	-312.10	3,713.70	0.00	0.00	0.00
14,000.00	90.00	180.00	10,207.00	-3,813.70	-312.10	3,813.70	0.00	0.00	0.00
14,100.00	90.00	180.00	10,207.00	-3,913.70	-312.10	3,913.70	0.00	0.00	0.00
14,200.00	90.00	180.00	10,207.00	-4,013.70	-312.10	4,013.70	0.00	0.00	0.00
14,300.00	90.00	180.00	10,207.00	-4,113.70	-312.10	4,113.70	0.00	0.00	0.00
14,400.00	90.00	180.00	10,207.00	-4,213.70	-312.10	4,213.70	0.00	0.00	0.00
14,500.00	90.00	180.00	10,207.00	-4,313.70	-312.10	4,313.70	0.00	0.00	0.00
14,600.00	90.00	180.00	10,207.00	-4,413.70	-312.10	4,413.70	0.00	0.00	0.00
14,700.00	90.00	180.00	10,207.00	-4,513.70	-312.10	4,513.70	0.00	0.00	0.00
14,800.00	90.00	180.00	10,207.00	-4,613.70	-312.10	4,613.70	0.00	0.00	0.00
14,900.00	90.00	180.00	10,207.00	-4,713.70	-312.10	4,713.70	0.00	0.00	0.00
15,000.00	90.00	180.00	10,207.00	-4,813.70	-312.10	4,813.70	0.00	0.00	0.00
15,100.00	90.00	180.00	10,207.00	-4,913.70	-312.10	4,913.70	0.00	0.00	0.00
15,200.00	90.00	180.00	10,207.00	-5,013.70	-312.10	5,013.70	0.00	0.00	0.00
15,300.00	90.00	180.00	10,207.00	-5,113.70	-312.10	5,113.70	0.00	0.00	0.00
15,393.49	90.00	180.00	10,207.00	-5,207.18	-312.10	5,207.18	0.00	0.00	0.00
PBHL (511H)									

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									
PBHL (511H)	0.00	0.00	10,207.00	-5,207.18	-312.10	425,161.97	727,894.16	32° 10' 2.682 N	103° 43' 49.517 W
- plan hits target center									
- Point									

NM OIL CONSERVATION
ARTESIA DISTRICT

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Devon Energy

**Eddy County, NM (NAD-83)
Cotton Draw Unit
511H**

**OH
Plan #1**

Anticollision Report

20 February, 2017

LEAM Drilling Systems LLC

Anticollision Report

Company:	Devon Energy	Local Co-ordinate Reference:	Well 511H
Project:	Eddy County, NM (NAD-83)	TVD Reference:	3511.8' GE + 23.5' KB @ 3535.30usft (Original Well Elev)
Reference Site:	Cotton Draw Unit	MD Reference:	3511.8' GE + 23.5' KB @ 3535.30usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	511H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference	Plan #1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 9,999.98 usft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program	Date	2/20/2017		
From	To	Survey (Wellbore)	Tool Name	Description
(usft)	(usft)			
0.00	15,392.95	Plan #1 (OH)	LEAM MWD+HDGM	MWD+HDGM

Summary		Reference	Offset	Distance		Separation	Warning
Site Name	Measured	Measured	Between	Between	Factor		
Offset Well - Wellbore - Design	Depth	Depth	Centres	Ellipses			
	(usft)	(usft)	(usft)	(usft)			
Cotton Draw Unit							
291H - OH - Plan #1	2,415.99	2,417.99	119.87	109.29	11.322	CC	
291H - OH - Plan #1	2,500.00	2,501.97	119.87	108.91	10.933	ES	
291H - OH - Plan #1	2,600.00	2,600.00	121.33	109.95	10.664	SF	
293H - OH - Plan #1	2,500.47	2,501.27	89.94	78.98	8.203	CC, ES	
293H - OH - Plan #1	15,393.94	15,712.37	468.63	327.59	3.323	SF	
294H - OH - Plan #1	2,500.00	2,500.30	59.87	48.91	5.462	CC, ES	
294H - OH - Plan #1	2,700.00	2,700.26	62.93	51.09	5.315	SF	
512H - OH - Plan #1	2,500.22	2,500.32	29.99	19.03	2.736	CC	
512H - OH - Plan #1	10,375.00	10,395.64	61.09	16.06	1.357	Level 3, ES, SF	
513H - OH - Plan #1	2,415.95	2,418.05	149.96	139.38	14.164	CC	
513H - OH - Plan #1	2,500.00	2,502.05	149.96	139.00	13.677	ES	
513H - OH - Plan #1	2,700.00	2,697.23	156.15	144.38	13.269	SF	

Offset Design												Offset Site Error:	0.00 usft
Cotton Draw Unit - 291H - OH - Plan #1												Offset Well Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM													
Reference													
Measured	Vertical	Measured	Vertical	Semi Major Axis		Highside	Offset Wellbore Centre		Distance		Minimum	Separation	Warning
Depth	Depth	Depth	Depth	Reference	Offset	Toolface	+N-S	+E-W	Between	Between	Separation	Factor	
(usft)	(usft)	(usft)	(usft)	(usft)	(usft)	(°)	(usft)	(usft)	Centres	Ellipses	(usft)		
0.00	0.00	2.00	2.00	0.00	0.00	89.60	0.83	119.87	119.87				
100.00	100.00	102.00	102.00	0.09	0.09	89.60	0.83	119.87	119.87	119.70	0.18	679.391	
200.00	200.00	202.00	202.00	0.31	0.32	89.60	0.83	119.87	119.87	119.25	0.63	191.498	
300.00	300.00	302.00	302.00	0.54	0.54	89.60	0.83	119.87	119.87	118.80	1.08	111.457	
400.00	400.00	402.00	402.00	0.76	0.76	89.60	0.83	119.87	119.87	118.35	1.53	78.603	
500.00	500.00	502.00	502.00	0.99	0.99	89.60	0.83	119.87	119.87	117.90	1.97	60.708	
600.00	600.00	602.00	602.00	1.21	1.21	89.60	0.83	119.87	119.87	117.45	2.42	49.450	
700.00	700.00	702.00	702.00	1.43	1.44	89.60	0.83	119.87	119.87	117.00	2.87	41.715	
800.00	800.00	802.00	802.00	1.66	1.66	89.60	0.83	119.87	119.87	116.55	3.32	36.072	
900.00	900.00	902.00	902.00	1.88	1.89	89.60	0.83	119.87	119.87	116.10	3.77	31.774	
1,000.00	1,000.00	1,002.00	1,002.00	2.11	2.11	89.60	0.83	119.87	119.87	115.65	4.22	28.391	
1,100.00	1,100.00	1,102.00	1,102.00	2.33	2.34	89.60	0.83	119.87	119.87	115.20	4.67	25.659	
1,200.00	1,200.00	1,202.00	1,202.00	2.56	2.56	89.60	0.83	119.87	119.87	114.75	5.12	23.407	
1,300.00	1,300.00	1,302.00	1,302.00	2.78	2.79	89.60	0.83	119.87	119.87	114.30	5.57	21.518	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)

Reference Site: Cotton Draw Unit

Site Error: 0.00 usft

Reference Well: 511H

Well Error: 0.00 usft

Reference Wellbore: OH

Reference Design: Plan #1

Local Co-ordinate Reference: Well 511H
TVD Reference: 3511.8' GE + 23.5' KB @ 3535.30usft
(Original Well Elev)

MD Reference: 3511.8' GE + 23.5' KB @ 3535.30usft
(Original Well Elev)

North Reference: Grid

Survey Calculation Method: Minimum Curvature

Output errors are at 2.00 sigma

Database: EDM 5000.1 Multi User Db

Offset TVD Reference: Offset Datum

Offset Design Cotton Draw Unit - 291H - OH - Plan #1												Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM												Offset Well Error:	0.00 usft
Reference	Offset	Semi Major Axis		Distance		Minimum		Separation		Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
1,400.00	1,400.00	1,402.00	1,402.00	3.01	3.01	89.60	0.83	119.87	119.87	113.85	6.02	19.911	
1,500.00	1,500.00	1,502.00	1,502.00	3.23	3.24	89.60	0.83	119.87	119.87	113.40	6.47	18.528	
1,600.00	1,600.00	1,602.00	1,602.00	3.46	3.46	89.60	0.83	119.87	119.87	112.95	6.92	17.324	
1,700.00	1,700.00	1,702.00	1,702.00	3.68	3.69	89.60	0.83	119.87	119.87	112.50	7.37	16.267	
1,800.00	1,800.00	1,802.00	1,802.00	3.91	3.91	89.60	0.83	119.87	119.87	112.05	7.82	15.332	
1,900.00	1,900.00	1,902.00	1,902.00	4.13	4.14	89.60	0.83	119.87	119.87	111.60	8.27	14.498	
2,000.00	2,000.00	2,002.00	2,002.00	4.36	4.36	89.60	0.83	119.87	119.87	111.16	8.72	13.751	
2,100.00	2,100.00	2,102.00	2,102.00	4.58	4.59	89.60	0.83	119.87	119.87	110.71	9.17	13.076	
2,200.00	2,200.00	2,202.00	2,202.00	4.81	4.81	89.60	0.83	119.87	119.87	110.26	9.62	12.465	
2,300.00	2,300.00	2,302.00	2,302.00	5.03	5.04	89.60	0.83	119.87	119.87	109.81	10.07	11.909	
2,400.00	2,400.00	2,402.00	2,402.00	5.26	5.26	89.60	0.83	119.87	119.87	109.36	10.52	11.399	
2,415.99	2,415.99	2,417.99	2,417.99	5.29	5.30	89.60	0.83	119.87	119.87	109.29	10.59	11.322 CC	
2,500.00	2,500.00	2,501.97	2,501.97	5.48	5.48	89.60	0.83	119.87	119.87	108.91	10.96	10.933 ES	
2,600.00	2,599.99	2,600.00	2,599.99	5.70	5.68	150.77	0.29	120.55	121.33	109.95	11.38	10.664 SF	
2,700.00	2,699.96	2,698.53	2,698.49	5.91	5.86	152.06	-1.31	122.56	125.69	113.93	11.76	10.685	
2,799.91	2,799.77	2,796.28	2,796.15	6.12	6.04	153.99	-3.94	125.86	133.06	120.91	12.15	10.952	
2,900.00	2,899.73	2,893.79	2,893.48	6.34	6.23	156.25	-7.59	130.46	142.80	130.26	12.53	11.393	
3,000.00	2,999.59	2,990.82	2,990.22	6.56	6.41	158.54	-12.25	136.31	154.18	141.26	12.92	11.936	
3,100.00	3,099.45	3,087.39	3,086.37	6.78	6.61	160.78	-17.89	143.42	167.25	153.95	13.30	12.576	
3,200.00	3,199.32	3,183.47	3,181.85	7.00	6.81	162.91	-24.51	151.74	182.05	168.37	13.68	13.307	
3,300.00	3,299.18	3,279.85	3,277.46	7.22	7.02	164.93	-32.11	161.29	198.50	184.44	14.07	14.111	
3,400.00	3,399.04	3,378.18	3,374.94	7.44	7.24	166.71	-40.11	171.36	215.56	201.08	14.48	14.890	
3,500.00	3,498.90	3,476.51	3,472.43	7.67	7.47	168.23	-48.12	181.43	232.79	217.90	14.89	15.634	
3,600.00	3,598.77	3,574.84	3,569.91	7.89	7.70	169.54	-56.12	191.49	250.15	234.85	15.31	16.343	
3,700.00	3,698.63	3,673.17	3,667.39	8.12	7.94	170.69	-64.13	201.56	267.63	251.91	15.73	17.019	
3,800.00	3,798.49	3,771.50	3,764.88	8.34	8.18	171.69	-72.13	211.63	285.20	269.05	16.15	17.662	
3,900.00	3,898.36	3,869.83	3,862.36	8.57	8.43	172.57	-80.14	221.69	302.84	286.27	16.57	18.275	
4,000.00	3,998.22	3,968.16	3,959.85	8.80	8.68	173.36	-88.14	231.76	320.55	303.55	17.00	18.858	
4,100.00	4,098.08	4,066.49	4,057.33	9.02	8.93	174.07	-96.15	241.83	338.31	320.88	17.43	19.413	
4,200.00	4,197.95	4,164.82	4,154.82	9.25	9.19	174.70	-104.15	251.90	356.11	338.25	17.86	19.942	
4,300.00	4,297.81	4,263.15	4,252.30	9.48	9.45	175.28	-112.16	261.96	373.95	355.66	18.29	20.446	
4,400.00	4,397.67	4,361.48	4,349.79	9.71	9.71	175.80	-120.16	272.03	391.82	373.10	18.72	20.927	
4,500.00	4,497.53	4,459.81	4,447.27	9.94	9.98	176.28	-128.17	282.10	409.73	390.57	19.16	21.385	
4,600.00	4,597.40	4,558.14	4,544.76	10.17	10.25	176.71	-136.17	292.16	427.66	408.06	19.60	21.824	
4,700.00	4,697.26	4,656.47	4,642.24	10.40	10.52	177.12	-144.18	302.23	445.61	425.57	20.03	22.242	
4,800.00	4,797.12	4,754.80	4,739.73	10.63	10.79	177.49	-152.18	312.30	463.58	443.10	20.47	22.643	
4,900.00	4,896.99	4,853.12	4,837.21	10.87	11.06	177.83	-160.19	322.36	481.56	460.65	20.91	23.026	
5,000.00	4,996.85	4,951.45	4,934.70	11.10	11.34	178.15	-168.19	332.43	499.57	478.21	21.36	23.392	
5,100.00	5,096.71	5,049.78	5,032.18	11.33	11.62	178.44	-176.20	342.50	517.58	495.79	21.80	23.744	
5,200.00	5,196.58	5,148.11	5,129.67	11.56	11.90	178.72	-184.20	352.56	535.61	513.37	22.24	24.081	
5,300.00	5,296.44	5,246.44	5,227.15	11.80	12.18	178.98	-192.21	362.63	553.65	530.97	22.69	24.404	
5,400.00	5,396.30	5,344.77	5,324.63	12.03	12.46	179.22	-200.21	372.70	571.71	548.57	23.13	24.714	
5,500.00	5,496.17	5,443.10	5,422.12	12.26	12.74	179.45	-208.22	382.77	589.77	566.19	23.58	25.013	
5,600.00	5,596.03	5,541.43	5,519.60	12.50	13.02	179.66	-216.22	392.83	607.83	583.81	24.03	25.299	
5,700.00	5,695.89	5,639.76	5,617.09	12.73	13.31	179.86	-224.23	402.90	625.91	601.44	24.47	25.575	
5,800.00	5,795.75	5,738.09	5,714.57	12.96	13.60	-179.95	-232.23	412.97	643.99	619.07	24.92	25.840	
5,900.00	5,895.62	5,836.42	5,812.06	13.20	13.88	-179.77	-240.24	423.03	662.08	636.71	25.37	26.096	
6,000.00	5,995.48	5,934.75	5,909.54	13.43	14.17	-179.60	-248.24	433.10	680.18	654.36	25.82	26.342	
6,100.00	6,095.34	6,033.08	6,007.03	13.67	14.46	-179.44	-256.25	443.17	698.28	672.01	26.27	26.580	
6,200.00	6,195.21	6,131.41	6,104.51	13.90	14.75	-179.28	-264.25	453.23	716.39	689.67	26.72	26.809	
6,300.00	6,295.07	6,229.74	6,202.00	14.14	15.04	-179.14	-272.26	463.30	734.50	707.33	27.17	27.030	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)

Reference Site: Cotton Draw Unit

Site Error: 0.00 usft

Reference Well: 511H

Well Error: 0.00 usft

Reference Wellbore: OH

Reference Design: Plan #1

Local Co-ordinate Reference: Well 511H
TVD Reference: 3511.8' GE + 23.5' KB @ 3535.30usft
(Original Well Elev)

MD Reference: 3511.8' GE + 23.5' KB @ 3535.30usft
(Original Well Elev)

North Reference: Grid
Survey Calculation Method: Minimum Curvature

Output errors are at 2.00 sigma

Database: EDM 5000.1 Multi User Db

Offset TVD Reference: Offset Datum

Offset Design Cotton Draw Unit - 291H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
6,400.00	6,394.93	6,328.07	6,299.48	14.37	15.33	-179.00	-280.26	473.37	752.62	724.99	27.63	27.243		
6,500.00	6,494.80	6,426.40	6,396.97	14.61	15.62	-178.87	-288.27	483.44	770.73	742.66	28.08	27.450		
6,600.00	6,594.66	6,524.73	6,494.45	14.84	15.91	-178.74	-296.27	493.50	788.86	760.33	28.53	27.649		
6,700.00	6,694.52	6,623.06	6,591.94	15.08	16.21	-178.62	-304.28	503.57	806.99	778.00	28.98	27.842		
6,800.00	6,794.38	6,721.39	6,689.42	15.31	16.50	-178.50	-312.28	513.64	825.12	795.68	29.44	28.029		
6,900.00	6,894.25	6,819.71	6,786.91	15.55	16.79	-178.39	-320.29	523.70	843.25	813.36	29.89	28.209		
7,000.00	6,994.11	6,918.04	6,884.39	15.78	17.09	-178.29	-328.29	533.77	861.39	831.04	30.35	28.384		
7,100.00	7,093.97	7,016.37	6,981.88	16.02	17.38	-178.19	-336.30	543.84	879.52	848.72	30.80	28.554		
7,200.00	7,193.84	7,114.70	7,079.36	16.25	17.68	-178.09	-344.30	553.90	897.67	866.41	31.26	28.718		
7,300.00	7,293.70	7,213.03	7,176.84	16.49	17.97	-178.00	-352.31	563.97	915.81	884.10	31.71	28.877		
7,400.00	7,393.56	7,311.36	7,274.33	16.73	18.27	-177.91	-360.31	574.04	933.96	901.79	32.17	29.032		
7,500.00	7,493.43	7,409.89	7,371.81	16.96	18.57	-177.82	-368.32	584.11	952.10	919.48	32.63	29.182		
7,600.00	7,593.29	7,508.02	7,469.30	17.20	18.86	-177.74	-376.32	594.17	970.25	937.17	33.08	29.328		
7,700.00	7,693.15	7,606.35	7,566.78	17.44	19.16	-177.66	-384.33	604.24	988.41	954.87	33.54	29.469		
7,800.00	7,793.01	7,704.68	7,664.27	17.67	19.46	-177.58	-392.33	614.31	1,006.56	972.56	34.00	29.606		
7,900.00	7,892.88	7,803.01	7,761.75	17.91	19.76	-177.51	-400.34	624.37	1,024.72	990.26	34.46	29.740		
8,000.00	7,992.74	7,901.34	7,859.24	18.14	20.06	-177.44	-408.34	634.44	1,042.87	1,007.96	34.91	29.870		
8,100.00	8,092.60	7,999.67	7,956.72	18.38	20.35	-177.37	-416.35	644.51	1,061.03	1,025.66	35.37	29.996		
8,200.00	8,192.47	8,098.00	8,054.21	18.62	20.65	-177.30	-424.35	654.57	1,079.19	1,043.36	35.83	30.119		
8,300.00	8,292.33	8,196.33	8,151.69	18.85	20.95	-177.23	-432.36	664.64	1,097.35	1,061.06	36.29	30.239		
8,400.00	8,392.19	8,294.66	8,249.18	19.09	21.25	-177.17	-440.36	674.71	1,115.52	1,078.77	36.75	30.355		
8,500.00	8,492.06	8,392.99	8,346.66	19.33	21.55	-177.11	-448.37	684.78	1,133.68	1,096.47	37.21	30.468		
8,600.00	8,591.92	8,491.32	8,444.15	19.57	21.85	-177.05	-456.37	694.84	1,151.85	1,114.18	37.67	30.579		
8,700.00	8,691.78	8,589.85	8,541.63	19.80	22.15	-177.00	-464.38	704.91	1,170.01	1,131.89	38.13	30.686		
8,800.00	8,791.65	8,687.98	8,639.12	20.04	22.45	-176.94	-472.38	714.98	1,188.18	1,149.59	38.59	30.791		
8,900.00	8,891.51	8,786.31	8,736.60	20.28	22.75	-176.89	-480.39	725.04	1,206.35	1,167.30	39.05	30.894		
9,000.00	8,991.37	8,884.63	8,834.08	20.51	23.05	-176.84	-488.39	735.11	1,224.52	1,185.01	39.51	30.993		
9,100.00	9,091.23	8,982.96	8,931.57	20.75	23.35	-176.79	-496.40	745.18	1,242.69	1,202.72	39.97	31.091		
9,200.00	9,191.10	9,081.29	9,029.05	20.99	23.65	-176.74	-504.40	755.24	1,260.86	1,220.43	40.43	31.185		
9,300.00	9,290.96	9,179.62	9,126.54	21.23	23.95	-176.69	-512.41	765.31	1,279.03	1,238.14	40.89	31.278		
9,338.86	9,329.77	9,217.83	9,164.42	21.32	24.07	-176.67	-515.52	769.22	1,286.10	1,245.02	41.07	31.313		
9,400.00	9,390.84	9,284.75	9,230.77	21.45	24.26	-176.65	-520.92	776.01	1,296.83	1,255.46	41.36	31.351		
9,500.00	9,490.78	9,412.62	9,357.80	21.62	24.56	-176.60	-530.04	787.48	1,311.48	1,269.62	41.86	31.330		
9,600.00	9,590.77	9,541.52	9,486.14	21.80	24.83	-176.56	-537.44	796.78	1,322.20	1,279.87	42.33	31.232		
9,638.77	9,629.54	9,591.70	9,536.18	21.86	24.94	122.74	-539.83	799.80	1,325.29	1,282.78	42.51	31.173		
9,700.00	9,690.77	9,671.10	9,615.41	21.98	25.09	122.76	-543.06	803.86	1,329.28	1,286.47	42.81	31.054		
9,738.77	9,729.54	9,721.44	9,665.68	22.06	25.19	122.77	-544.76	805.99	1,331.36	1,288.37	42.99	30.966		
9,750.00	9,740.77	9,736.04	9,680.25	22.08	25.21	-57.18	-545.20	806.55	1,331.83	1,288.79	43.05	30.940		
9,775.00	9,765.74	9,768.53	9,712.71	22.12	25.27	-57.19	-546.10	807.67	1,332.26	1,289.11	43.16	30.871		
9,800.00	9,790.60	9,800.94	9,745.09	22.16	25.33	-57.35	-546.88	808.66	1,331.85	1,288.58	43.26	30.784		
9,825.00	9,815.30	11,095.37	10,528.00	22.20	25.00	-96.48	167.24	811.54	1,329.54	1,289.01	40.52	32.811		
9,850.00	9,839.77	11,090.23	10,528.00	22.24	25.00	-98.03	162.10	811.54	1,316.62	1,275.82	40.80	32.269		
9,875.00	9,863.93	11,083.83	10,528.00	22.28	25.00	-99.42	155.70	811.54	1,304.19	1,263.12	41.07	31.753		
9,900.00	9,887.72	11,076.17	10,528.00	22.31	25.00	-100.66	148.04	811.54	1,292.27	1,250.94	41.34	31.263		
9,925.00	9,911.08	11,067.27	10,528.00	22.34	25.00	-101.75	139.14	811.54	1,280.90	1,239.31	41.59	30.799		
9,950.00	9,933.95	11,057.16	10,528.00	22.37	25.00	-102.71	129.03	811.54	1,270.08	1,228.25	41.83	30.362		
9,975.00	9,956.25	11,045.87	10,528.00	22.40	25.00	-103.54	117.74	811.54	1,259.84	1,217.77	42.06	29.952		
10,000.00	9,977.93	11,033.43	10,528.00	22.43	25.01	-104.24	105.30	811.54	1,250.18	1,207.90	42.28	29.569		
10,025.00	9,998.93	11,019.87	10,528.00	22.45	25.02	-104.82	91.74	811.54	1,241.12	1,198.63	42.49	29.212		
10,050.00	10,019.19	11,005.24	10,528.00	22.48	25.04	-105.30	77.11	811.54	1,232.65	1,189.97	42.68	28.881		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)

Reference Site: Cotton Draw Unit

Site Error: 0.00 usft

Reference Well: 511H

Well Error: 0.00 usft

Reference Wellbore: OH

Reference Design: Plan #1

Local Co-ordinate Reference: Well 511H
TVD Reference: 3511.8' GE + 23.5' KB @ 3535.30usft
(Original Well Elev)

MD Reference: 3511.8' GE + 23.5' KB @ 3535.30usft
(Original Well Elev)

North Reference: Grid
Survey Calculation Method: Minimum Curvature

Output errors are at 2.00 sigma

Database: EDM 5000.1 Multi User Db

Offset TVD Reference: Offset Datum

Offset Design Cotton Draw Unit - 291H - OH - Plan #1												Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
10,075.00	10,038.66	10,989.56	10,528.00	22.50	25.06	-105.68	61.43	811.54	1,224.77	1,181.90	42.87	28.568	
10,100.00	10,057.28	10,972.88	10,528.00	22.53	25.08	-105.98	44.75	811.54	1,217.48	1,174.43	43.06	28.275	
10,125.00	10,075.01	10,955.25	10,528.00	22.55	25.10	-106.19	27.12	811.54	1,210.77	1,167.54	43.23	28.006	
10,150.00	10,091.78	10,936.72	10,528.00	22.57	25.12	-106.34	8.59	811.54	1,204.62	1,161.23	43.40	27.758	
10,175.00	10,107.56	10,917.33	10,528.01	22.60	25.15	-106.43	-10.80	811.54	1,199.02	1,155.48	43.55	27.533	
10,200.00	10,122.31	10,897.15	10,528.01	22.62	25.19	-106.46	-30.98	811.54	1,193.96	1,150.26	43.69	27.326	
10,225.00	10,135.98	10,876.22	10,528.01	22.65	25.22	-106.46	-51.91	811.54	1,189.41	1,145.56	43.84	27.129	
10,250.00	10,148.54	10,847.75	10,527.93	22.68	25.27	-106.27	-80.38	811.54	1,185.34	1,141.37	43.98	26.955	
10,275.00	10,159.94	10,754.87	10,517.24	22.71	25.44	-104.33	-172.50	811.54	1,180.97	1,136.85	44.12	26.767	
10,300.00	10,170.17	10,680.81	10,496.07	22.75	25.58	-102.58	-243.38	811.54	1,176.03	1,131.65	44.38	26.500	
10,325.00	10,179.19	10,621.07	10,471.16	22.79	25.69	-101.11	-297.65	811.54	1,170.86	1,126.19	44.67	26.212	
10,350.00	10,186.98	10,571.78	10,445.64	22.84	25.77	-99.89	-339.79	811.54	1,165.66	1,120.71	44.95	25.931	
10,375.00	10,193.51	10,530.10	10,420.77	22.89	25.83	-98.88	-373.21	811.54	1,160.58	1,115.37	45.22	25.666	
10,400.00	10,198.78	10,494.04	10,396.96	22.95	25.88	-98.02	-400.29	811.54	1,155.72	1,110.25	45.46	25.420	
10,425.00	10,202.75	10,462.17	10,374.27	23.02	25.92	-97.28	-422.66	811.54	1,151.12	1,105.43	45.69	25.193	
10,450.00	10,205.43	10,433.50	10,352.63	23.10	25.95	-96.61	-441.46	811.54	1,146.84	1,100.93	45.90	24.983	
10,475.00	10,206.81	10,407.31	10,331.90	23.18	25.97	-96.00	-457.46	811.54	1,142.89	1,096.79	46.10	24.789	
10,488.77	10,207.01	10,393.74	10,320.83	23.23	25.98	-95.68	-465.30	811.54	1,140.87	1,094.66	46.21	24.689	
10,500.00	10,207.01	10,383.24	10,312.11	23.27	25.99	-95.24	-471.15	811.54	1,139.29	1,093.00	46.29	24.611	
10,600.00	10,207.00	10,313.60	10,251.28	23.69	26.01	-92.15	-504.92	811.54	1,128.13	1,081.12	47.01	23.996	
10,700.00	10,207.00	10,270.79	10,211.68	24.22	26.01	-90.14	-521.16	811.54	1,123.67	1,075.92	47.74	23.535	
10,708.41	10,207.00	10,267.95	10,209.00	24.27	26.01	-90.00	-522.11	811.54	1,123.64	1,075.83	47.81	23.502	
10,800.00	10,207.00	10,242.24	10,184.53	24.85	26.00	-88.75	-529.98	811.54	1,127.02	1,078.52	48.50	23.236	
10,900.00	10,207.00	10,225.00	10,167.90	25.57	25.99	-87.90	-534.52	811.54	1,138.58	1,089.30	49.28	23.106	
11,000.00	10,207.00	10,206.89	10,150.26	26.37	25.98	-87.01	-538.64	811.54	1,158.31	1,108.29	50.02	23.159	
11,100.00	10,207.00	10,200.00	10,143.52	27.25	25.97	-86.66	-540.03	811.54	1,185.95	1,135.23	50.72	23.380	
11,200.00	10,207.00	10,186.00	10,129.75	28.19	25.96	-85.97	-542.55	811.54	1,220.99	1,169.85	51.34	23.782	
11,300.00	10,207.00	10,175.00	10,118.88	29.19	25.95	-85.41	-544.25	811.54	1,262.91	1,211.03	51.88	24.342	
11,400.00	10,207.00	10,175.00	10,118.88	30.25	25.95	-85.41	-544.25	811.54	1,311.05	1,258.68	52.37	25.037	
11,500.00	10,207.00	10,167.02	10,110.97	31.36	25.94	-85.01	-545.33	811.54	1,364.76	1,312.01	52.75	25.874	
11,600.00	10,207.00	10,162.54	10,106.53	32.51	25.93	-84.79	-545.86	811.54	1,423.44	1,370.38	53.06	26.827	
11,700.00	10,207.00	10,158.68	10,102.70	33.71	25.93	-84.60	-546.31	811.54	1,486.50	1,433.19	53.31	27.883	
11,800.00	10,207.00	10,150.00	10,094.06	34.94	25.92	-84.16	-547.18	811.54	1,553.46	1,499.96	53.50	29.038	
11,900.00	10,207.00	10,150.00	10,094.06	36.20	25.92	-84.16	-547.18	811.54	1,623.74	1,570.08	53.66	30.261	
12,000.00	10,207.00	10,150.00	10,094.06	37.49	25.92	-84.16	-547.18	811.54	1,697.01	1,643.23	53.78	31.556	
12,100.00	10,207.00	10,150.00	10,094.06	38.80	25.92	-84.16	-547.18	811.54	1,772.89	1,719.02	53.87	32.912	
12,200.00	10,207.00	10,150.00	10,094.06	40.14	25.92	-84.16	-547.18	811.54	1,851.06	1,797.13	53.93	34.321	
12,300.00	10,207.00	10,150.00	10,094.06	41.50	25.92	-84.16	-547.18	811.54	1,931.25	1,877.27	53.98	35.777	
12,400.00	10,207.00	10,150.00	10,094.06	42.88	25.92	-84.16	-547.18	811.54	2,013.22	1,959.20	54.01	37.273	
12,500.00	10,207.00	10,140.12	10,084.20	44.28	25.90	-83.66	-547.98	811.54	2,096.64	2,042.62	54.02	38.814	
12,600.00	10,207.00	10,138.68	10,082.77	45.69	25.90	-83.59	-548.08	811.54	2,181.52	2,127.49	54.03	40.378	
12,700.00	10,207.00	10,137.36	10,081.46	47.12	25.90	-83.52	-548.17	811.54	2,267.63	2,213.59	54.03	41.968	
12,800.00	10,207.00	10,136.15	10,080.25	48.56	25.90	-83.46	-548.24	811.54	2,354.83	2,300.80	54.03	43.581	
12,900.00	10,207.00	10,125.00	10,069.11	50.02	25.88	-82.90	-548.81	811.54	2,443.13	2,389.11	54.02	45.230	
13,000.00	10,207.00	10,125.00	10,069.11	51.48	25.88	-82.90	-548.81	811.54	2,532.16	2,478.15	54.01	46.879	
13,100.00	10,207.00	10,125.00	10,069.11	52.95	25.88	-82.90	-548.81	811.54	2,621.99	2,567.98	54.01	48.544	
13,200.00	10,207.00	10,125.00	10,069.11	54.44	25.88	-82.90	-548.81	811.54	2,712.53	2,658.52	54.01	50.223	
13,300.00	10,207.00	10,125.00	10,069.11	55.93	25.88	-82.90	-548.81	811.54	2,803.71	2,749.70	54.01	51.913	
13,400.00	10,207.00	10,125.00	10,069.11	57.43	25.88	-82.90	-548.81	811.54	2,895.47	2,841.46	54.01	53.613	
13,500.00	10,207.00	10,125.00	10,069.11	58.93	25.88	-82.90	-548.81	811.54	2,987.76	2,933.76	54.01	55.322	
13,600.00	10,207.00	10,125.00	10,069.11	60.45	25.88	-82.90	-548.81	811.54	3,080.54	3,026.53	54.01	57.038	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)

Reference Site: Cotton Draw Unit

Site Error: 0.00 usft

Reference Well: 511H

Well Error: 0.00 usft

Reference Wellbore: OH

Reference Design: Plan #1

Local Co-ordinate Reference: Well 511H
TVD Reference: 3511.8' GE + 23.5' KB @ 3535.30usft
(Original Well Elev)

MD Reference: 3511.8' GE + 23.5' KB @ 3535.30usft
(Original Well Elev)

North Reference: Grid

Survey Calculation Method: Minimum Curvature

Output errors are at 2.00 sigma

Database: EDM 5000.1 Multi User Db

Offset TVD Reference: Offset Datum

Offset Design Cotton Draw Unit - 291H - OH - Plan #1												Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
13,700.00	10,207.00	10,125.00	10,069.11	61.97	25.88	-82.90	-548.81	811.54	3,173.75	3,119.74	54.01	58.761	
13,800.00	10,207.00	10,125.00	10,069.11	63.49	25.88	-82.90	-548.81	811.54	3,267.36	3,213.35	54.02	60.488	
13,900.00	10,207.00	10,125.00	10,069.11	65.02	25.88	-82.90	-548.81	811.54	3,361.35	3,307.32	54.02	62.220	
14,000.00	10,207.00	10,125.00	10,069.11	66.56	25.88	-82.90	-548.81	811.54	3,455.66	3,401.63	54.03	63.955	
14,100.00	10,207.00	10,125.00	10,069.11	68.10	25.88	-82.90	-548.81	811.54	3,550.30	3,496.25	54.04	65.692	
14,200.00	10,207.00	10,125.00	10,069.11	69.64	25.88	-82.90	-548.81	811.54	3,645.21	3,591.15	54.06	67.431	
14,300.00	10,207.00	10,125.00	10,069.11	71.19	25.88	-82.90	-548.81	811.54	3,740.39	3,686.32	54.07	69.172	
14,400.00	10,207.00	10,125.00	10,069.11	72.75	25.88	-82.90	-548.81	811.54	3,835.82	3,781.73	54.09	70.913	
14,500.00	10,207.00	10,125.00	10,069.11	74.30	25.88	-82.90	-548.81	811.54	3,931.48	3,877.36	54.11	72.654	
14,600.00	10,207.00	10,125.00	10,069.11	75.86	25.88	-82.90	-548.81	811.54	4,027.34	3,973.21	54.13	74.395	
14,700.00	10,207.00	10,125.00	10,069.11	77.42	25.88	-82.90	-548.81	811.54	4,123.40	4,069.24	54.16	76.135	
14,800.00	10,207.00	10,125.00	10,069.11	78.99	25.88	-82.90	-548.81	811.54	4,219.65	4,165.46	54.19	77.874	
14,900.00	10,207.00	10,125.00	10,069.11	80.56	25.88	-82.90	-548.81	811.54	4,316.06	4,261.85	54.21	79.611	
15,000.00	10,207.00	10,125.00	10,069.11	82.13	25.88	-82.90	-548.81	811.54	4,412.64	4,358.39	54.25	81.345	
15,100.00	10,207.00	10,125.00	10,069.11	83.70	25.88	-82.90	-548.81	811.54	4,509.36	4,455.09	54.28	83.078	
15,200.00	10,207.00	10,125.00	10,069.11	85.28	25.88	-82.90	-548.81	811.54	4,606.23	4,551.92	54.31	84.808	
15,300.00	10,207.00	10,125.00	10,069.11	86.86	25.88	-82.90	-548.81	811.54	4,703.22	4,648.87	54.35	86.534	
15,393.49	10,207.00	10,125.00	10,069.11	88.00	25.88	-82.90	-548.81	811.54	4,794.01	4,736.74	57.27	83.711	
15,393.94	10,207.00	10,125.00	10,069.11	88.01	25.88	-82.90	-548.81	811.54	4,794.46	4,737.19	57.27	83.719	

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)

Reference Site: Cotton Draw Unit

Site Error: 0.00 usft

Reference Well: 511H

Well Error: 0.00 usft

Reference Wellbore: OH

Reference Design: Plan #1

Local Co-ordinate Reference: Well 511H
TVD Reference: 3511.8' GE + 23.5' KB @ 3535.30usft
(Original Well Elev)

MD Reference: 3511.8' GE + 23.5' KB @ 3535.30usft
(Original Well Elev)

North Reference: Grid

Survey Calculation Method: Minimum Curvature

Output errors are at 2.00 sigma

Database: EDM 5000.1 Multi User Db

Offset TVD Reference: Offset Datum

Offset Design Cotton Draw Unit - 293H - OH - Plan #1												Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Tooface (')	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
0.00	0.00	0.80	0.80	0.00	0.00	89.66	0.53	89.94	89.94				
100.00	100.00	100.80	100.80	0.09	0.09	89.66	0.53	89.94	89.94	89.77	0.17	517.666	
200.00	200.00	200.80	200.80	0.31	0.31	89.66	0.53	89.94	89.94	89.32	0.62	144.304	
300.00	300.00	300.80	300.80	0.54	0.54	89.66	0.53	89.94	89.94	88.87	1.07	83.837	
400.00	400.00	400.80	400.80	0.76	0.76	89.66	0.53	89.94	89.94	88.42	1.52	59.081	
500.00	500.00	500.80	500.80	0.99	0.99	89.66	0.53	89.94	89.94	87.97	1.97	45.612	
600.00	600.00	600.80	600.80	1.21	1.21	89.66	0.53	89.94	89.94	87.52	2.42	37.144	
700.00	700.00	700.80	700.80	1.43	1.44	89.66	0.53	89.94	89.94	87.07	2.87	31.328	
800.00	800.00	800.80	800.80	1.66	1.66	89.66	0.53	89.94	89.94	86.62	3.32	27.087	
900.00	900.00	900.80	900.80	1.88	1.89	89.66	0.53	89.94	89.94	86.17	3.77	23.857	
1,000.00	1,000.00	1,000.80	1,000.80	2.11	2.11	89.66	0.53	89.94	89.94	85.72	4.22	21.316	
1,100.00	1,100.00	1,100.80	1,100.80	2.33	2.34	89.66	0.53	89.94	89.94	85.27	4.67	19.263	
1,200.00	1,200.00	1,200.80	1,200.80	2.56	2.56	89.66	0.53	89.94	89.94	84.82	5.12	17.572	
1,300.00	1,300.00	1,300.80	1,300.80	2.78	2.78	89.66	0.53	89.94	89.94	84.37	5.57	16.153	
1,400.00	1,400.00	1,400.80	1,400.80	3.01	3.01	89.66	0.53	89.94	89.94	83.92	6.02	14.946	
1,500.00	1,500.00	1,500.80	1,500.80	3.23	3.23	89.66	0.53	89.94	89.94	83.47	6.47	13.907	
1,600.00	1,600.00	1,600.80	1,600.80	3.46	3.46	89.66	0.53	89.94	89.94	83.02	6.92	13.003	
1,700.00	1,700.00	1,700.80	1,700.80	3.68	3.68	89.66	0.53	89.94	89.94	82.58	7.37	12.210	
1,800.00	1,800.00	1,800.80	1,800.80	3.91	3.91	89.66	0.53	89.94	89.94	82.13	7.82	11.508	
1,900.00	1,900.00	1,900.80	1,900.80	4.13	4.13	89.66	0.53	89.94	89.94	81.68	8.27	10.882	
2,000.00	2,000.00	2,000.80	2,000.80	4.36	4.36	89.66	0.53	89.94	89.94	81.23	8.71	10.320	
2,100.00	2,100.00	2,100.80	2,100.80	4.58	4.58	89.66	0.53	89.94	89.94	80.78	9.16	9.814	
2,200.00	2,200.00	2,200.80	2,200.80	4.81	4.81	89.66	0.53	89.94	89.94	80.33	9.61	9.355	
2,300.00	2,300.00	2,300.80	2,300.80	5.03	5.03	89.66	0.53	89.94	89.94	79.88	10.06	8.937	
2,400.00	2,400.00	2,400.80	2,400.80	5.26	5.26	89.66	0.53	89.94	89.94	79.43	10.51	8.555	
2,500.00	2,500.00	2,500.80	2,500.80	5.48	5.48	89.66	0.53	89.94	89.94	78.98	10.96	8.204	
2,500.47	2,500.47	2,501.27	2,501.27	5.48	5.48	89.66	0.53	89.94	89.94	78.98	10.96	8.203 CC, ES	
2,600.00	2,599.99	2,601.30	2,601.30	5.70	5.71	150.12	1.38	89.65	90.42	79.01	11.40	7.928	
2,700.00	2,699.98	2,701.78	2,701.78	5.91	5.93	149.35	3.89	88.79	91.87	80.03	11.84	7.760	
2,799.91	2,799.77	2,802.11	2,801.97	6.12	6.16	148.14	8.06	87.36	94.31	82.04	12.27	7.685	
2,900.00	2,899.73	2,902.55	2,902.22	6.34	6.38	146.28	13.90	85.37	97.08	84.37	12.71	7.639	
3,000.00	2,999.59	3,002.44	3,001.87	6.56	6.61	144.07	20.49	83.11	99.77	86.62	13.15	7.588	
3,100.00	3,099.45	3,102.33	3,101.52	6.78	6.83	141.98	27.08	80.86	102.59	89.00	13.59	7.550	
3,200.00	3,199.32	3,202.22	3,201.17	7.00	7.06	140.01	33.66	78.61	105.55	91.51	14.03	7.521	
3,300.00	3,299.18	3,302.12	3,300.81	7.22	7.29	138.14	40.25	76.35	108.62	94.14	14.48	7.501	
3,400.00	3,399.04	3,402.01	3,400.46	7.44	7.52	136.38	46.83	74.10	111.80	96.87	14.93	7.488	
3,500.00	3,498.90	3,501.90	3,500.11	7.67	7.75	134.72	53.42	71.85	115.09	99.70	15.38	7.481	
3,600.00	3,598.77	3,601.79	3,599.76	7.89	7.98	133.15	60.01	69.60	118.46	102.62	15.84	7.479	
3,700.00	3,698.63	3,701.68	3,699.41	8.12	8.22	131.67	66.59	67.34	121.92	105.62	16.29	7.482	
3,800.00	3,798.49	3,801.58	3,799.06	8.34	8.45	130.27	73.18	65.09	125.45	108.70	16.75	7.489	
3,900.00	3,898.36	3,901.47	3,898.71	8.57	8.69	128.95	79.76	62.84	129.06	111.84	17.21	7.498	
4,000.00	3,998.22	4,001.36	3,998.36	8.80	8.92	127.70	86.35	60.58	132.73	115.05	17.67	7.510	
4,100.00	4,098.08	4,101.25	4,098.01	9.02	9.16	126.51	92.94	58.33	136.45	118.32	18.13	7.524	
4,200.00	4,197.95	4,201.14	4,197.66	9.25	9.40	125.40	99.52	56.08	140.24	121.64	18.60	7.540	
4,300.00	4,297.81	4,301.04	4,297.31	9.48	9.63	124.34	106.11	53.83	144.07	125.01	19.06	7.558	
4,400.00	4,397.67	4,400.93	4,396.95	9.71	9.87	123.33	112.69	51.57	147.96	128.43	19.53	7.576	
4,500.00	4,497.53	4,500.82	4,496.60	9.94	10.11	122.38	119.28	49.32	151.88	131.88	20.00	7.596	
4,600.00	4,597.40	4,600.71	4,596.25	10.17	10.35	121.48	125.87	47.07	155.84	135.38	20.48	7.616	
4,700.00	4,697.26	4,700.60	4,695.90	10.40	10.59	120.62	132.45	44.81	159.85	138.91	20.93	7.637	
4,800.00	4,797.12	4,800.50	4,795.55	10.63	10.83	119.80	139.04	42.56	163.88	142.48	21.40	7.658	
4,900.00	4,896.99	4,900.39	4,895.20	10.87	11.07	119.02	145.62	40.31	167.95	146.08	21.87	7.679	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
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Reference Site: Cotton Draw Unit

Site Error: 0.00 usft

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Output errors are at 2.00 sigma

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Offset Design Cotton Draw Unit - 293H - OH - Plan #1													Offset Site Error:	0.00 usft
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Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (usft)	Separation Factor	Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N-S (usft)	+E-W (usft)						
5,000.00	4,996.85	5,000.28	4,994.85	11.10	11.31	118.28	152.21	38.06	172.04	149.70	22.34	7.701		
5,100.00	5,096.71	5,100.17	5,094.50	11.33	11.55	117.58	158.80	35.80	176.17	153.36	22.81	7.723		
5,200.00	5,196.58	5,200.44	5,194.53	11.56	11.78	116.96	165.23	33.60	180.27	157.00	23.27	7.747		
5,300.00	5,296.44	5,301.19	5,295.15	11.80	11.96	116.82	170.27	31.88	184.00	160.31	23.68	7.769		
5,400.00	5,396.30	5,401.96	5,395.85	12.03	12.14	117.21	173.63	30.73	187.28	163.18	24.09	7.773		
5,500.00	5,496.17	5,502.69	5,496.56	12.26	12.32	118.10	175.32	30.15	190.14	165.64	24.50	7.762		
5,600.00	5,596.03	5,602.96	5,596.83	12.50	12.50	119.41	175.53	30.08	192.71	167.80	24.91	7.737		
5,700.00	5,695.89	5,702.82	5,696.69	12.73	12.72	120.75	175.53	30.08	195.34	169.98	25.35	7.705		
5,800.00	5,795.75	5,802.68	5,796.55	12.96	12.94	122.05	175.53	30.08	198.06	172.27	25.80	7.678		
5,900.00	5,895.62	5,902.55	5,896.42	13.20	13.16	123.31	175.53	30.08	200.89	174.65	26.24	7.656		
6,000.00	5,995.48	6,002.41	5,996.28	13.43	13.37	124.54	175.53	30.08	203.82	177.13	26.68	7.638		
6,100.00	6,095.34	6,102.27	6,096.14	13.67	13.59	125.73	175.53	30.08	206.83	179.70	27.13	7.625		
6,200.00	6,195.21	6,202.13	6,196.01	13.90	13.81	126.89	175.53	30.08	209.93	182.36	27.57	7.615		
6,300.00	6,295.07	6,302.00	6,295.87	14.14	14.03	128.01	175.53	30.08	213.12	185.10	28.01	7.608		
6,400.00	6,394.93	6,401.86	6,395.73	14.37	14.25	129.11	175.53	30.08	216.38	187.92	28.45	7.604		
6,500.00	6,494.80	6,501.72	6,495.60	14.61	14.47	130.16	175.53	30.08	219.72	190.82	28.90	7.604		
6,600.00	6,594.66	6,601.59	6,595.46	14.84	14.69	131.19	175.53	30.08	223.13	193.79	29.34	7.605		
6,700.00	6,694.52	6,701.45	6,695.32	15.08	14.91	132.18	175.53	30.08	226.62	196.83	29.78	7.609		
6,800.00	6,794.38	6,801.31	6,795.18	15.31	15.13	133.15	175.53	30.08	230.16	199.94	30.23	7.615		
6,900.00	6,894.25	6,901.18	6,895.05	15.55	15.35	134.08	175.53	30.08	233.78	203.11	30.67	7.623		
7,000.00	6,994.11	7,001.04	6,994.91	15.78	15.57	134.99	175.53	30.08	237.45	206.34	31.11	7.632		
7,100.00	7,093.97	7,100.90	7,094.77	16.02	15.79	135.87	175.53	30.08	241.18	209.62	31.55	7.644		
7,200.00	7,193.84	7,200.76	7,194.64	16.25	16.01	136.72	175.53	30.08	244.96	212.97	32.00	7.656		
7,300.00	7,293.70	7,300.63	7,294.50	16.49	16.23	137.55	175.53	30.08	248.80	216.36	32.44	7.670		
7,400.00	7,393.56	7,400.49	7,394.36	16.73	16.45	138.35	175.53	30.08	252.69	219.80	32.88	7.685		
7,500.00	7,493.43	7,500.35	7,494.23	16.96	16.67	139.12	175.53	30.08	256.62	223.30	33.33	7.701		
7,600.00	7,593.29	7,600.22	7,594.09	17.20	16.89	139.87	175.53	30.08	260.60	226.83	33.77	7.717		
7,700.00	7,693.15	7,700.08	7,693.95	17.44	17.11	140.60	175.53	30.08	264.63	230.41	34.21	7.735		
7,800.00	7,793.01	7,799.94	7,793.81	17.67	17.33	141.31	175.53	30.08	268.69	234.04	34.66	7.753		
7,900.00	7,892.88	7,899.81	7,893.68	17.91	17.55	142.00	175.53	30.08	272.80	237.70	35.10	7.772		
8,000.00	7,992.74	7,999.67	7,993.54	18.14	17.77	142.68	175.53	30.08	276.94	241.40	35.54	7.792		
8,100.00	8,092.60	8,099.53	8,093.40	18.38	17.99	143.31	175.53	30.08	281.12	245.13	35.99	7.812		
8,200.00	8,192.47	8,199.39	8,193.27	18.62	18.21	143.94	175.53	30.08	285.34	248.91	36.43	7.832		
8,300.00	8,292.33	8,299.26	8,293.13	18.85	18.44	144.55	175.53	30.08	289.58	252.71	36.88	7.853		
8,400.00	8,392.19	8,399.12	8,392.99	19.09	18.66	145.14	175.53	30.08	293.86	256.54	37.32	7.874		
8,500.00	8,492.06	8,498.98	8,492.86	19.33	18.88	145.71	175.53	30.08	298.17	260.41	37.76	7.896		
8,600.00	8,591.92	8,598.85	8,592.72	19.57	19.10	146.27	175.53	30.08	302.51	264.30	38.21	7.917		
8,700.00	8,691.78	8,698.71	8,692.58	19.80	19.32	146.81	175.53	30.08	306.88	268.23	38.65	7.939		
8,800.00	8,791.65	8,798.57	8,792.45	20.04	19.54	147.34	175.53	30.08	311.27	272.17	39.10	7.961		
8,900.00	8,891.51	8,898.44	8,892.31	20.28	19.77	147.85	175.53	30.08	315.69	276.15	39.54	7.983		
9,000.00	8,991.37	8,998.30	8,992.17	20.51	19.99	148.35	175.53	30.08	320.14	280.15	39.99	8.005		
9,100.00	9,091.23	9,098.16	9,092.03	20.75	20.21	148.83	175.53	30.08	324.60	284.17	40.44	8.028		
9,200.00	9,191.10	9,198.03	9,191.90	20.99	20.43	149.31	175.53	30.08	329.09	288.21	40.88	8.050		
9,300.00	9,290.96	9,297.89	9,291.76	21.23	20.65	149.76	175.53	30.08	333.60	292.28	41.33	8.072		
9,338.86	9,329.77	9,336.69	9,330.57	21.32	20.74	149.94	175.53	30.08	335.36	293.86	41.50	8.081		
9,400.00	9,390.84	9,397.77	9,391.64	21.45	20.88	150.20	175.53	30.08	337.85	296.10	41.76	8.091		
9,500.00	9,490.78	9,497.71	9,491.58	21.62	21.10	150.49	175.53	30.08	340.72	298.56	42.15	8.083		
9,600.00	9,590.77	9,597.70	9,591.57	21.80	21.32	150.62	175.53	30.08	342.07	299.52	42.55	8.039		
9,638.77	9,629.54	9,636.47	9,630.34	21.86	21.41	89.91	175.53	30.08	342.18	299.47	42.71	8.013		
9,700.00	9,690.77	9,697.70	9,691.57	21.98	21.54	89.91	175.53	30.08	342.18	299.22	42.96	7.965		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)

Reference Site: Cotton Draw Unit

Site Error: 0.00 usft

Reference Well: 511H

Well Error: 0.00 usft

Reference Wellbore: OH

Reference Design: Plan #1

Local Co-ordinate Reference: Well 511H
TVD Reference: 3511.8' GE + 23.5' KB @ 3535.30usft
(Original Well Elev)

MD Reference: 3511.8' GE + 23.5' KB @ 3535.30usft
(Original Well Elev)

North Reference: Grid
Survey Calculation Method: Minimum Curvature

Output errors are at 2.00 sigma

Database: EDM 5000.1 Multi User Db

Offset TVD Reference: Offset Datum

Offset Design Cotton Draw Unit - 293H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
9,738.77	9,729.54	9,736.47	9,730.34	22.06	21.63	89.91	175.53	30.08	342.18	299.05	43.13	7.933		
9,750.00	9,740.77	9,747.70	9,741.57	22.08	21.65	-90.11	175.53	30.08	342.18	299.00	43.18	7.925		
9,775.00	9,765.74	9,772.66	9,766.54	22.12	21.71	-90.32	175.53	30.08	342.19	298.91	43.28	7.907		
9,800.00	9,790.60	9,797.53	9,791.40	22.16	21.76	-90.74	175.53	30.08	342.21	298.83	43.38	7.889		
9,825.00	9,815.30	9,822.23	9,816.10	22.20	21.82	-91.37	175.53	30.08	342.28	298.81	43.48	7.873		
9,850.00	9,839.77	9,846.69	9,840.57	22.24	21.87	-92.19	175.53	30.08	342.44	298.87	43.57	7.859		
9,875.00	9,863.93	9,870.85	9,864.73	22.28	21.93	-93.18	175.53	30.08	342.75	299.09	43.67	7.849		
9,900.00	9,887.72	9,894.65	9,888.52	22.31	21.98	-94.34	175.53	30.08	343.28	299.52	43.76	7.845		
9,925.00	9,911.08	9,918.01	9,911.88	22.34	22.03	-95.62	175.53	30.08	344.11	300.26	43.85	7.847		
9,950.00	9,933.95	9,940.88	9,934.75	22.37	22.08	-97.00	175.53	30.08	345.32	301.38	43.94	7.859		
9,975.00	9,956.25	9,963.18	9,957.05	22.40	22.13	-98.45	175.53	30.08	347.03	303.00	44.03	7.882		
10,000.00	9,977.93	9,984.86	9,978.73	22.43	22.18	-99.94	175.53	30.08	349.31	305.20	44.12	7.918		
10,025.00	9,998.93	10,005.86	9,999.73	22.45	22.23	-101.43	175.53	30.08	352.29	308.09	44.20	7.971		
10,050.00	10,019.19	10,026.12	10,019.99	22.48	22.27	-102.88	175.53	30.08	356.05	311.78	44.28	8.041		
10,075.00	10,038.66	10,045.59	10,039.46	22.50	22.32	-104.26	175.53	30.08	360.70	316.35	44.36	8.132		
10,100.00	10,057.28	10,064.05	10,060.93	22.53	22.36	-105.82	175.42	30.08	366.29	321.86	44.44	8.243		
10,125.00	10,075.01	10,083.26	10,080.09	22.55	22.41	-107.77	174.13	30.08	372.59	328.09	44.50	8.372		
10,150.00	10,091.78	10,100.92	10,114.60	22.57	22.45	-109.72	171.21	30.08	379.50	334.96	44.54	8.520		
10,175.00	10,107.56	10,116.28	10,143.55	22.60	22.49	-111.69	168.38	30.08	386.93	342.40	44.54	8.688		
10,200.00	10,122.31	10,131.62	10,174.07	22.62	22.53	-113.68	159.27	30.08	394.82	350.34	44.48	8.877		
10,225.00	10,135.98	10,145.25	10,206.23	22.65	22.57	-115.71	149.43	30.08	403.05	358.70	44.35	9.089		
10,250.00	10,148.54	10,158.59	10,240.09	22.68	22.62	-117.78	136.29	30.08	411.52	367.40	44.12	9.327		
10,275.00	10,159.94	10,170.05	10,275.62	22.71	22.66	-119.88	119.15	30.08	420.09	376.30	43.78	9.595		
10,300.00	10,170.17	10,181.14	10,312.66	22.75	22.71	-122.00	97.15	30.08	428.60	385.28	43.32	9.895		
10,325.00	10,179.19	10,189.40	10,350.81	22.79	22.76	-124.12	69.30	30.08	436.88	394.17	42.71	10.229		
10,350.00	10,186.98	10,197.32	10,389.32	22.84	22.82	-126.20	34.51	30.08	444.71	402.75	41.96	10.597		
10,375.00	10,193.51	10,204.34	10,426.99	22.89	22.87	-128.17	-8.24	30.08	451.88	410.75	41.12	10.990		
10,400.00	10,198.78	10,209.64	10,462.01	22.95	22.92	-129.94	-59.73	30.08	458.06	417.83	40.23	11.385		
10,425.00	10,202.75	10,213.05	10,492.00	23.02	23.01	-131.40	-120.03	30.08	463.05	423.60	39.45	11.737		
10,450.00	10,205.43	10,216.80	10,514.25	23.10	23.18	-132.46	-188.17	30.08	466.56	427.62	38.93	11.984		
10,475.00	10,208.81	10,219.52	10,526.32	23.18	23.40	-133.02	-261.83	30.08	468.39	429.54	38.85	12.056		
10,488.77	10,207.01	10,207.20	10,528.01	23.23	23.53	-133.10	-302.47	30.08	468.63	429.61	39.02	12.010		
10,500.00	10,207.01	10,208.43	10,528.01	23.27	23.58	-133.10	-313.70	30.08	468.63	429.54	39.09	11.987		
10,600.00	10,207.00	10,208.43	10,528.00	23.69	24.00	-133.10	-413.70	30.08	468.63	428.83	39.80	11.774		
10,700.00	10,207.00	11,018.43	10,528.00	24.22	24.52	-133.10	-513.70	30.08	468.63	427.97	40.66	11.526		
10,800.00	10,207.00	11,118.43	10,528.00	24.85	25.14	-133.10	-613.70	30.08	468.63	426.97	41.66	11.249		
10,900.00	10,207.00	11,218.43	10,528.00	25.57	25.84	-133.10	-713.70	30.08	468.63	425.83	42.80	10.950		
11,000.00	10,207.00	11,318.43	10,528.00	26.37	26.63	-133.10	-813.70	30.08	468.63	424.58	44.05	10.638		
11,100.00	10,207.00	11,418.43	10,528.00	27.25	27.49	-133.10	-913.70	30.08	468.63	423.21	45.43	10.317		
11,200.00	10,207.00	11,518.43	10,528.00	28.19	28.42	-133.10	-1,013.70	30.08	468.63	421.73	46.90	9.992		
11,300.00	10,207.00	11,618.43	10,528.00	29.19	29.41	-133.10	-1,113.70	30.08	468.63	420.16	48.47	9.669		
11,400.00	10,207.00	11,718.43	10,528.00	30.25	30.45	-133.10	-1,213.70	30.08	468.63	418.51	50.12	9.350		
11,500.00	10,207.00	11,818.43	10,528.00	31.36	31.55	-133.10	-1,313.70	30.08	468.63	416.78	51.85	9.039		
11,600.00	10,207.00	11,918.43	10,528.00	32.51	32.69	-133.10	-1,413.70	30.08	468.63	414.98	53.65	8.736		
11,700.00	10,207.00	12,018.43	10,528.00	33.71	33.88	-133.10	-1,513.70	30.08	468.63	413.12	55.51	8.443		
11,800.00	10,207.00	12,118.43	10,528.00	34.94	35.09	-133.10	-1,613.70	30.08	468.63	411.21	57.42	8.161		
11,900.00	10,207.00	12,218.43	10,528.00	36.20	36.35	-133.10	-1,713.70	30.08	468.63	409.24	59.39	7.890		
12,000.00	10,207.00	12,318.43	10,528.00	37.49	37.63	-133.10	-1,813.70	30.08	468.63	407.22	61.41	7.631		
12,100.00	10,207.00	12,418.43	10,528.00	38.80	38.93	-133.10	-1,913.70	30.08	468.63	405.17	63.46	7.384		
12,200.00	10,207.00	12,518.43	10,528.00	40.14	40.27	-133.10	-2,013.70	30.08	468.63	403.07	65.56	7.148		
12,300.00	10,207.00	12,618.43	10,528.00	41.50	41.62	-133.10	-2,113.70	30.08	468.63	400.94	67.69	6.924		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)

Reference Site: Cotton Draw Unit

Site Error: 0.00 usft

Reference Well: 511H

Well Error: 0.00 usft

Reference Wellbore: OH

Reference Design: Plan #1

Local Co-ordinate Reference: Well 511H
TVD Reference: 3511.8' GE + 23.5' KB @ 3535.30usft
(Original Well Elev)

MD Reference: 3511.8' GE + 23.5' KB @ 3535.30usft
(Original Well Elev)

North Reference: Grid

Survey Calculation Method: Minimum Curvature

Output errors are at 2.00 sigma

Database: EDM 5000.1 Multi User Db

Offset TVD Reference: Offset Datum

Offset Design Cotton Draw Unit - 293H - OH - Plan #1													Offset Site Error: 0.00 usft	
Survey Program: 0-LEAM MWD+HDGM													Offset Well Error: 0.00 usft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
12,400.00	10,207.00	12,718.43	10,528.00	42.88	42.99	-133.10	-2,213.70	30.08	468.63	398.79	69.85	6.709		
12,500.00	10,207.00	12,818.43	10,528.00	44.28	44.38	-133.10	-2,313.70	30.08	468.63	396.60	72.03	6.506		
12,600.00	10,207.00	12,918.43	10,528.00	45.69	45.79	-133.10	-2,413.70	30.08	468.63	394.38	74.25	6.312		
12,700.00	10,207.00	13,018.43	10,528.00	47.12	47.21	-133.10	-2,513.70	30.08	468.63	392.15	76.49	6.127		
12,800.00	10,207.00	13,118.43	10,528.00	48.56	48.65	-133.10	-2,613.70	30.08	468.63	389.89	78.74	5.951		
12,900.00	10,207.00	13,218.43	10,528.00	50.02	50.10	-133.10	-2,713.70	30.08	468.63	387.61	81.02	5.784		
13,000.00	10,207.00	13,318.43	10,528.00	51.48	51.55	-133.10	-2,813.70	30.08	468.63	385.31	83.32	5.624		
13,100.00	10,207.00	13,418.43	10,528.00	52.95	53.02	-133.10	-2,913.70	30.08	468.63	383.00	85.63	5.472		
13,200.00	10,207.00	13,518.43	10,528.00	54.44	54.50	-133.10	-3,013.70	30.08	468.63	380.67	87.96	5.328		
13,300.00	10,207.00	13,618.43	10,528.00	55.93	55.99	-133.10	-3,113.70	30.08	468.63	378.33	90.31	5.189		
13,400.00	10,207.00	13,718.43	10,528.00	57.43	57.48	-133.10	-3,213.70	30.08	468.63	375.97	92.66	5.057		
13,500.00	10,207.00	13,818.43	10,528.00	58.93	58.99	-133.10	-3,313.70	30.08	468.63	373.60	95.03	4.931		
13,600.00	10,207.00	13,918.43	10,528.00	60.45	60.50	-133.10	-3,413.70	30.08	468.63	371.22	97.41	4.811		
13,700.00	10,207.00	14,018.43	10,528.00	61.97	62.01	-133.10	-3,513.70	30.08	468.63	368.83	99.80	4.696		
13,800.00	10,207.00	14,118.43	10,528.00	63.49	63.54	-133.10	-3,613.70	30.08	468.63	366.43	102.20	4.585		
13,900.00	10,207.00	14,218.43	10,528.00	65.02	65.06	-133.10	-3,713.70	30.08	468.63	364.02	104.61	4.480		
14,000.00	10,207.00	14,318.43	10,528.00	66.56	66.60	-133.10	-3,813.70	30.08	468.63	361.60	107.03	4.379		
14,100.00	10,207.00	14,418.43	10,528.00	68.10	68.13	-133.10	-3,913.70	30.08	468.63	359.18	109.45	4.282		
14,200.00	10,207.00	14,518.43	10,528.00	69.64	69.68	-133.10	-4,013.70	30.08	468.63	356.75	111.89	4.189		
14,300.00	10,207.00	14,618.43	10,528.00	71.19	71.22	-133.10	-4,113.70	30.08	468.63	354.31	114.32	4.099		
14,400.00	10,207.00	14,718.43	10,528.00	72.75	72.77	-133.10	-4,213.70	30.08	468.63	351.86	116.77	4.013		
14,500.00	10,207.00	14,818.43	10,528.00	74.30	74.33	-133.10	-4,313.70	30.08	468.63	349.41	119.22	3.931		
14,600.00	10,207.00	14,918.43	10,528.00	75.86	75.88	-133.10	-4,413.70	30.08	468.63	346.95	121.68	3.851		
14,700.00	10,207.00	15,018.43	10,528.00	77.42	77.44	-133.10	-4,513.70	30.08	468.63	344.49	124.14	3.775		
14,800.00	10,207.00	15,118.43	10,528.00	78.99	79.01	-133.10	-4,613.70	30.08	468.63	342.02	126.61	3.701		
14,900.00	10,207.00	15,218.43	10,528.00	80.56	80.57	-133.10	-4,713.70	30.08	468.63	339.55	129.08	3.630		
15,000.00	10,207.00	15,318.43	10,528.00	82.13	82.14	-133.10	-4,813.70	30.08	468.63	337.07	131.56	3.562		
15,100.00	10,207.00	15,418.43	10,528.00	83.70	83.72	-133.10	-4,913.70	30.08	468.63	334.59	134.04	3.496		
15,200.00	10,207.00	15,518.43	10,528.00	85.28	85.29	-133.10	-5,013.70	30.08	468.63	332.10	136.53	3.432		
15,300.00	10,207.00	15,618.43	10,528.00	86.86	86.87	-133.10	-5,113.70	30.08	468.63	329.61	139.02	3.371		
15,393.49	10,207.00	15,711.91	10,528.00	88.00	88.34	-133.10	-5,207.18	30.08	468.63	327.60	141.03	3.323		
15,393.94	10,207.00	15,712.37	10,528.00	88.01	88.35	-133.10	-5,207.64	30.08	468.63	327.59	141.04	3.323 SF		

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)

Reference Site: Cotton Draw Unit

Site Error: 0.00 usft

Reference Well: 511H

Well Error: 0.00 usft

Reference Wellbore: OH

Reference Design: Plan #1

Local Co-ordinate Reference: Well 511H
TVD Reference: 3511.8' GE + 23.5' KB @ 3535.30usft (Original Well Elev)

MD Reference: 3511.8' GE + 23.5' KB @ 3535.30usft (Original Well Elev)

North Reference: Grid

Survey Calculation Method: Minimum Curvature

Output errors are at 2.00 sigma

Database: EDM 5000.1 Multi User Db

Offset TVD Reference: Offset Datum

Offset Design Cotton Draw Unit - 294H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Tooface (')	Offset Wellbore Centre		Distance				Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.30	0.30	0.00	0.00	89.60	0.42	59.87	59.87					
100.00	100.00	100.30	100.30	0.09	0.09	89.60	0.42	59.87	59.87	59.70	0.17	346.839		
200.00	200.00	200.30	200.30	0.31	0.31	89.60	0.42	59.87	59.87	59.25	0.62	96.233		
300.00	300.00	300.30	300.30	0.54	0.54	89.60	0.42	59.87	59.87	58.80	1.07	55.867		
400.00	400.00	400.30	400.30	0.76	0.76	89.60	0.42	59.87	59.87	58.35	1.52	39.358		
500.00	500.00	500.30	500.30	0.99	0.99	89.60	0.42	59.87	59.87	57.90	1.97	30.380		
600.00	600.00	600.30	600.30	1.21	1.21	89.60	0.42	59.87	59.87	57.45	2.42	24.737		
700.00	700.00	700.30	700.30	1.43	1.44	89.60	0.42	59.87	59.87	57.00	2.87	20.863		
800.00	800.00	800.30	800.30	1.66	1.66	89.60	0.42	59.87	59.87	56.55	3.32	18.037		
900.00	900.00	900.30	900.30	1.88	1.88	89.60	0.42	59.87	59.87	56.10	3.77	15.886		
1,000.00	1,000.00	1,000.30	1,000.30	2.11	2.11	89.60	0.42	59.87	59.87	55.65	4.22	14.193		
1,100.00	1,100.00	1,100.30	1,100.30	2.33	2.33	89.60	0.42	59.87	59.87	55.20	4.67	12.826		
1,200.00	1,200.00	1,200.30	1,200.30	2.56	2.56	89.60	0.42	59.87	59.87	54.75	5.12	11.699		
1,300.00	1,300.00	1,300.30	1,300.30	2.78	2.78	89.60	0.42	59.87	59.87	54.30	5.57	10.755		
1,400.00	1,400.00	1,400.30	1,400.30	3.01	3.01	89.60	0.42	59.87	59.87	53.85	6.02	9.951		
1,500.00	1,500.00	1,500.30	1,500.30	3.23	3.23	89.60	0.42	59.87	59.87	53.41	6.47	9.259		
1,600.00	1,600.00	1,600.30	1,600.30	3.46	3.46	89.60	0.42	59.87	59.87	52.96	6.92	8.657		
1,700.00	1,700.00	1,700.30	1,700.30	3.68	3.68	89.60	0.42	59.87	59.87	52.51	7.37	8.129		
1,800.00	1,800.00	1,800.30	1,800.30	3.91	3.91	89.60	0.42	59.87	59.87	52.06	7.81	7.661		
1,900.00	1,900.00	1,900.30	1,900.30	4.13	4.13	89.60	0.42	59.87	59.87	51.61	8.26	7.245		
2,000.00	2,000.00	2,000.30	2,000.30	4.36	4.36	89.60	0.42	59.87	59.87	51.16	8.71	6.871		
2,100.00	2,100.00	2,100.30	2,100.30	4.58	4.58	89.60	0.42	59.87	59.87	50.71	9.16	6.534		
2,200.00	2,200.00	2,200.30	2,200.30	4.81	4.81	89.60	0.42	59.87	59.87	50.26	9.61	6.228		
2,300.00	2,300.00	2,300.30	2,300.30	5.03	5.03	89.60	0.42	59.87	59.87	49.81	10.06	5.950		
2,400.00	2,400.00	2,400.30	2,400.30	5.26	5.26	89.60	0.42	59.87	59.87	49.36	10.51	5.696		
2,500.00	2,500.00	2,500.30	2,500.30	5.48	5.48	89.60	0.42	59.87	59.87	48.91	10.96	5.462 CC, ES		
2,600.00	2,599.99	2,600.29	2,600.29	5.70	5.71	150.72	0.42	59.87	60.63	49.23	11.40	5.317		
2,700.00	2,699.96	2,700.26	2,700.26	5.91	5.93	151.88	0.42	59.87	62.93	51.09	11.84	5.315 SF		
2,799.91	2,799.77	2,800.07	2,800.07	6.12	6.15	153.62	0.42	59.87	66.80	54.53	12.27	5.442		
2,900.00	2,899.73	2,900.03	2,900.03	6.34	6.38	155.49	0.42	59.87	71.53	58.82	12.71	5.627		
3,000.00	2,999.59	2,999.89	2,999.89	6.56	6.60	157.11	0.42	59.87	76.33	63.18	13.15	5.804		
3,100.00	3,099.45	3,100.77	3,100.76	6.78	6.81	159.00	-0.10	59.16	80.55	66.98	13.57	5.937		
3,200.00	3,199.32	3,201.66	3,201.62	7.00	6.99	161.58	-1.68	57.01	83.64	69.68	13.96	5.991		
3,300.00	3,299.18	3,302.50	3,302.36	7.22	7.18	164.87	-4.31	53.44	85.75	71.39	14.36	5.972		
3,400.00	3,399.04	3,403.23	3,402.90	7.44	7.37	168.93	-7.98	48.44	87.10	72.34	14.76	5.901		
3,500.00	3,498.90	3,503.80	3,503.15	7.67	7.56	173.81	-12.69	42.04	87.95	72.79	15.17	5.799		
3,600.00	3,598.77	3,604.12	3,603.00	7.89	7.76	179.57	-18.43	34.23	88.67	73.09	15.59	5.690		
3,700.00	3,698.63	3,704.15	3,702.38	8.12	7.97	173.79	-25.18	25.05	89.70	73.69	16.02	5.601		
3,800.00	3,798.49	3,803.83	3,801.20	8.34	8.18	166.34	-32.93	14.52	91.56	75.10	16.46	5.562		
3,900.00	3,898.36	3,903.07	3,899.36	8.57	8.40	158.36	-41.59	2.74	94.81	77.89	16.92	5.603		
4,000.00	3,998.22	4,002.12	3,997.27	8.80	8.63	150.84	-50.45	-9.31	99.81	82.43	17.38	5.742		
4,100.00	4,098.08	4,101.16	4,095.18	9.02	8.87	144.13	-59.30	-21.35	106.37	88.53	17.84	5.962		
4,200.00	4,197.95	4,200.21	4,193.09	9.25	9.11	138.25	-68.16	-33.39	114.22	95.93	18.30	6.242		
4,300.00	4,297.81	4,299.25	4,291.00	9.48	9.36	133.18	-77.01	-45.44	123.13	104.37	18.76	6.565		
4,400.00	4,397.67	4,398.30	4,388.91	9.71	9.61	128.80	-85.87	-57.48	132.87	113.65	19.21	6.916		
4,500.00	4,497.53	4,497.34	4,486.82	9.94	9.87	125.04	-94.73	-69.53	143.27	123.60	19.67	7.285		
4,600.00	4,597.40	4,596.39	4,584.73	10.17	10.13	121.80	-103.58	-81.57	154.21	134.09	20.12	7.663		
4,700.00	4,697.26	4,695.43	4,682.64	10.40	10.40	118.99	-112.44	-93.61	165.57	144.99	20.58	8.046		
4,800.00	4,797.12	4,794.48	4,780.55	10.63	10.67	116.54	-121.29	-105.66	177.28	156.24	21.04	8.427		
4,900.00	4,896.99	4,893.52	4,878.46	10.87	10.95	114.40	-130.15	-117.70	189.27	167.77	21.49	8.805		
5,000.00	4,996.85	4,992.57	4,976.37	11.10	11.22	112.52	-139.01	-129.74	201.48	179.53	21.95	9.178		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)

Reference Site: Cotton Draw Unit

Site Error: 0.00 usft

Reference Well: 511H

Well Error: 0.00 usft

Reference Wellbore: OH

Reference Design: Plan #1

Local Co-ordinate Reference: Well 511H
TVD Reference: 3511.8' GE + 23.5' KB @ 3535.30usft
(Original Well Elev)

MD Reference: 3511.8' GE + 23.5' KB @ 3535.30usft
(Original Well Elev)

North Reference: Grid

Survey Calculation Method: Minimum Curvature

Output errors are at 2.00 sigma

Database: EDM 5000.1 Multi User Db

Offset TVD Reference: Offset Datum

Offset Design Cotton Draw Unit - 294H - OH - Plan #1												Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM												Offset Well Error:	0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	5,096.71	5,091.62	5,074.28	11.33	11.50	-110.85	-147.86	-141.79	213.89	191.48	22.41	9.543	
5,200.00	5,196.58	5,190.66	5,172.19	11.56	11.79	-109.37	-156.72	-153.83	226.46	203.58	22.88	9.900	
5,300.00	5,296.44	5,289.71	5,270.10	11.80	12.07	-108.04	-165.57	-165.88	239.16	215.82	23.34	10.248	
5,400.00	5,396.30	5,388.75	5,368.01	12.03	12.36	-106.84	-174.43	-177.92	251.98	228.18	23.80	10.587	
5,500.00	5,496.17	5,487.80	5,465.92	12.26	12.65	-105.77	-183.29	-189.96	264.89	240.62	24.27	10.916	
5,600.00	5,596.03	5,586.84	5,563.83	12.50	12.95	-104.79	-192.14	-202.01	277.89	253.16	24.73	11.236	
5,700.00	5,695.89	5,685.89	5,661.74	12.73	13.24	-103.90	-201.00	-214.05	290.96	265.76	25.20	11.546	
5,800.00	5,795.75	5,784.93	5,759.65	12.96	13.54	-103.08	-209.85	-226.09	304.09	278.42	25.67	11.847	
5,900.00	5,895.62	5,883.98	5,857.56	13.20	13.84	-102.34	-218.71	-238.14	317.28	291.14	26.14	12.139	
6,000.00	5,995.48	5,983.02	5,955.48	13.43	14.14	-101.65	-227.57	-250.18	330.52	303.91	26.61	12.422	
6,100.00	6,095.34	6,082.07	6,053.39	13.67	14.44	-101.02	-236.42	-262.23	343.80	316.72	27.08	12.697	
6,200.00	6,195.21	6,181.11	6,151.30	13.90	14.74	-100.43	-245.28	-274.27	357.12	329.57	27.55	12.963	
6,300.00	6,295.07	6,280.16	6,249.21	14.14	15.05	-99.88	-254.13	-286.31	370.47	342.45	28.02	13.221	
6,400.00	6,394.93	6,379.20	6,347.12	14.37	15.35	-99.38	-262.99	-298.36	383.85	355.36	28.50	13.471	
6,500.00	6,494.80	6,478.25	6,445.03	14.61	15.66	-98.91	-271.84	-310.40	397.27	368.30	28.97	13.713	
6,600.00	6,594.66	6,577.29	6,542.94	14.84	15.97	-98.46	-280.70	-322.44	410.70	381.26	29.44	13.948	
6,700.00	6,694.52	6,676.34	6,640.85	15.08	16.28	-98.05	-289.56	-334.49	424.16	394.24	29.92	14.176	
6,800.00	6,794.38	6,775.38	6,738.76	15.31	16.59	-97.66	-298.41	-346.53	437.64	407.24	30.40	14.398	
6,900.00	6,894.25	6,874.43	6,836.67	15.55	16.90	-97.30	-307.27	-358.57	451.14	420.26	30.87	14.612	
7,000.00	6,994.11	6,973.47	6,934.58	15.78	17.21	-96.95	-316.12	-370.62	464.65	433.30	31.35	14.821	
7,100.00	7,093.97	7,072.52	7,032.49	16.02	17.52	-96.63	-324.98	-382.66	478.18	446.35	31.83	15.024	
7,200.00	7,193.84	7,171.56	7,130.40	16.25	17.84	-96.32	-333.84	-394.71	491.73	459.42	32.31	15.220	
7,300.00	7,293.70	7,270.61	7,228.31	16.49	18.15	-96.03	-342.69	-406.75	505.28	472.50	32.79	15.411	
7,400.00	7,393.56	7,369.65	7,326.22	16.73	18.47	-95.76	-351.55	-418.79	518.85	485.59	33.27	15.597	
7,500.00	7,493.43	7,468.70	7,424.13	16.96	18.78	-95.50	-360.40	-430.84	532.43	498.69	33.75	15.778	
7,600.00	7,593.29	7,567.74	7,522.04	17.20	19.10	-95.25	-369.26	-442.88	546.02	511.80	34.23	15.953	
7,700.00	7,693.15	7,666.79	7,619.95	17.44	19.41	-95.01	-378.12	-454.92	559.62	524.92	34.71	16.124	
7,800.00	7,793.01	7,765.83	7,717.86	17.67	19.73	-94.79	-386.97	-466.97	573.23	538.04	35.19	16.290	
7,900.00	7,892.88	7,864.88	7,815.77	17.91	20.05	-94.57	-395.83	-479.01	586.85	551.18	35.67	16.452	
8,000.00	7,992.74	7,963.92	7,913.68	18.14	20.37	-94.37	-404.68	-491.06	600.48	564.32	36.15	16.609	
8,100.00	8,092.60	8,062.97	8,011.60	18.38	20.69	-94.17	-413.54	-503.10	614.11	577.47	36.64	16.763	
8,200.00	8,192.47	8,162.01	8,109.51	18.62	21.01	-93.98	-422.39	-515.14	627.75	590.63	37.12	16.912	
8,300.00	8,292.33	8,261.06	8,207.42	18.85	21.33	-93.81	-431.25	-527.19	641.39	603.79	37.60	17.058	
8,400.00	8,392.19	8,360.10	8,305.33	19.09	21.65	-93.63	-440.11	-539.23	655.04	616.96	38.09	17.199	
8,500.00	8,492.06	8,459.15	8,403.24	19.33	21.97	-93.47	-448.96	-551.27	668.70	630.13	38.57	17.338	
8,600.00	8,591.92	8,558.19	8,501.15	19.57	22.29	-93.31	-457.82	-563.32	682.36	643.31	39.05	17.472	
8,700.00	8,691.78	8,657.24	8,599.06	19.80	22.61	-93.16	-466.67	-575.36	696.03	656.49	39.54	17.604	
8,800.00	8,791.65	8,756.28	8,696.97	20.04	22.93	-93.01	-475.53	-587.41	709.70	669.68	40.02	17.732	
8,900.00	8,891.51	8,855.33	8,794.88	20.28	23.26	-92.87	-484.39	-599.45	723.38	682.87	40.51	17.857	
9,000.00	8,991.37	8,954.38	8,892.79	20.51	23.58	-92.74	-493.24	-611.49	737.06	696.06	40.99	17.980	
9,100.00	9,091.23	9,053.42	8,990.70	20.75	23.90	-92.61	-502.10	-623.54	750.74	709.26	41.48	18.099	
9,200.00	9,191.10	9,152.85	9,089.00	20.99	24.23	-92.48	-510.99	-635.63	764.43	722.46	41.97	18.215	
9,300.00	9,290.96	9,252.54	9,200.56	21.23	24.52	-92.38	-520.38	-648.39	777.20	734.70	42.51	18.285	
9,338.86	9,329.77	9,309.47	9,244.13	21.32	24.63	-92.37	-523.68	-652.89	781.70	738.99	42.71	18.303	
9,400.00	9,390.84	9,378.72	9,312.90	21.45	24.79	-92.40	-528.50	-659.44	788.22	745.21	43.01	18.328	
9,500.00	9,490.78	9,492.31	9,425.91	21.62	25.04	-92.39	-535.32	-668.72	797.41	753.96	43.45	18.353	
9,600.00	9,590.77	9,606.25	9,539.46	21.80	25.28	-92.29	-540.83	-676.21	804.77	760.90	43.87	18.346	
9,638.77	9,629.54	9,650.50	9,583.61	21.86	25.37	-152.94	-542.61	-678.63	807.13	763.10	44.02	18.334	
9,700.00	9,690.77	9,720.46	9,653.46	21.98	25.50	-152.81	-545.01	-681.90	810.30	766.02	44.28	18.300	
9,738.77	9,729.54	9,764.81	9,697.75	22.06	25.58	-152.75	-546.27	-683.62	811.97	767.52	44.44	18.270	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)

Reference Site: Cotton Draw Unit

Site Error: 0.00 usft

Reference Well: 511H

Well Error: 0.00 usft

Reference Wellbore: OH

Reference Design: Plan #1

Local Co-ordinate Reference: Well 511H
TVD Reference: 3511.8' GE + 23.5' KB @ 3535.30usft
(Original Well Elev)

MD Reference: 3511.8' GE + 23.5' KB @ 3535.30usft
(Original Well Elev)

North Reference: Grid

Survey Calculation Method: Minimum Curvature

Output errors are at 2.00 sigma

Database: EDM 5000.1 Multi User Db

Offset TVD Reference: Offset Datum

Offset Design Cotton Draw Unit - 294H - OH - Plan #1													Offset Site Error: 0.00 usft	
Survey Program: 0-LEAM MWD+HDGM													Offset Well Error: 0.00 usft	
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore +N-S (usft)	Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
9,750.00	9,740.77	9,777.66	9,710.59	22.08	25.61	27.28	-546.60	-684.06	812.28	767.79	44.49	18.258		
9,775.00	9,765.74	9,806.27	9,739.18	22.12	25.66	27.35	-547.27	-684.97	812.06	767.48	44.58	18.215		
9,800.00	9,790.60	9,834.80	9,767.69	22.16	25.71	27.56	-547.85	-685.76	810.57	765.90	44.67	18.147		
9,825.00	9,815.30	11,107.03	10,528.00	22.20	25.40	108.79	167.24	-688.11	805.54	775.16	30.38	26.514		
9,850.00	9,839.77	11,101.90	10,528.00	22.24	25.40	112.90	162.10	-688.11	783.99	753.33	30.66	25.570		
9,875.00	9,863.93	11,095.49	10,528.00	22.28	25.40	116.42	155.70	-688.11	762.88	731.92	30.95	24.647		
9,900.00	9,887.72	11,087.83	10,528.00	22.31	25.39	119.42	148.04	-688.11	742.27	711.01	31.25	23.750		
9,925.00	9,911.08	11,078.94	10,528.00	22.34	25.39	121.94	139.14	-688.11	722.22	690.66	31.57	22.880		
9,950.00	9,933.95	11,068.83	10,528.00	22.37	25.39	124.06	129.03	-688.11	702.80	670.92	31.89	22.041		
9,975.00	9,956.25	11,057.54	10,528.00	22.40	25.39	125.82	117.74	-688.11	684.06	651.85	32.22	21.234		
10,000.00	9,977.93	11,045.10	10,528.00	22.43	25.39	127.26	105.30	-688.11	666.06	633.51	32.55	20.461		
10,025.00	9,998.93	11,031.54	10,528.00	22.45	25.39	128.43	91.74	-688.11	648.83	615.94	32.89	19.724		
10,050.00	10,019.19	11,016.90	10,528.00	22.48	25.40	129.37	77.11	-688.11	632.43	599.19	33.24	19.025		
10,075.00	10,038.66	11,001.22	10,528.00	22.50	25.41	130.10	61.43	-688.11	616.88	583.29	33.59	18.364		
10,100.00	10,057.28	10,984.54	10,528.00	22.53	25.42	130.66	44.75	-688.11	602.23	568.27	33.96	17.735		
10,125.00	10,075.01	10,966.92	10,528.00	22.55	25.44	131.06	27.12	-688.11	588.49	554.17	34.32	17.147		
10,150.00	10,091.78	10,948.38	10,528.00	22.57	25.45	131.33	8.59	-688.11	575.68	541.00	34.68	16.599		
10,175.00	10,107.56	10,929.00	10,528.01	22.60	25.47	131.50	-10.80	-688.11	563.83	528.79	35.04	16.092		
10,200.00	10,122.31	10,908.82	10,528.01	22.62	25.50	131.57	-30.98	-688.11	552.93	517.54	35.38	15.627		
10,225.00	10,135.98	10,887.89	10,528.01	22.65	25.53	131.57	-51.91	-688.11	542.98	507.26	35.73	15.199		
10,250.00	10,148.54	10,860.84	10,527.96	22.68	25.58	131.28	-78.95	-688.11	533.99	497.95	36.04	14.816		
10,275.00	10,159.94	10,786.30	10,517.28	22.71	25.74	127.50	-172.74	-688.11	524.20	487.58	36.61	14.317		
10,300.00	10,170.17	10,691.22	10,495.77	22.75	25.89	123.79	-244.59	-688.11	512.91	475.23	37.68	13.612		
10,325.00	10,179.19	10,630.88	10,470.48	22.79	26.00	120.45	-299.33	-688.11	500.84	462.02	38.82	12.901		
10,350.00	10,186.98	10,581.26	10,444.64	22.84	26.09	117.55	-341.67	-688.11	488.47	448.59	39.88	12.248		
10,375.00	10,193.51	10,539.41	10,419.54	22.89	26.15	115.03	-375.12	-688.11	476.12	435.31	40.81	11.666		
10,400.00	10,198.78	10,503.27	10,395.56	22.95	26.21	112.84	-402.16	-688.11	464.02	422.41	41.62	11.150		
10,425.00	10,202.75	10,471.38	10,372.76	23.02	26.25	110.89	-424.46	-688.11	452.35	410.04	42.32	10.690		
10,450.00	10,205.43	10,442.71	10,351.04	23.10	26.28	109.11	-443.16	-688.11	441.24	398.31	42.92	10.279		
10,475.00	10,206.81	10,416.54	10,330.26	23.18	26.30	107.45	-459.06	-688.11	430.78	387.32	43.46	9.912		
10,488.77	10,207.01	10,402.99	10,319.17	23.23	26.31	106.57	-466.84	-688.11	425.34	381.61	43.73	9.726		
10,500.00	10,207.01	10,392.52	10,310.45	23.27	26.32	105.34	-472.64	-688.11	421.05	377.11	43.95	9.581		
10,600.00	10,207.00	10,323.12	10,249.70	23.69	26.34	96.43	-506.06	-688.11	389.50	343.81	45.69	8.525		
10,700.00	10,207.00	10,280.56	10,210.28	24.22	26.34	90.45	-522.07	-688.11	376.11	328.54	47.58	7.905		
10,709.42	10,207.00	10,277.41	10,207.30	24.28	26.34	90.00	-523.11	-688.11	376.01	328.24	47.77	7.871		
10,800.00	10,207.00	10,252.21	10,183.30	24.85	26.33	86.35	-530.75	-688.11	385.80	336.29	49.50	7.793		
10,900.00	10,207.00	10,232.10	10,163.87	25.57	26.32	83.41	-535.94	-688.11	418.17	367.18	51.00	8.200		
11,000.00	10,207.00	10,217.15	10,149.29	26.37	26.31	81.23	-539.26	-688.11	469.11	417.23	51.88	9.042		
11,100.00	10,207.00	10,205.61	10,137.98	27.25	26.30	79.55	-541.51	-688.11	533.59	481.30	52.29	10.204		
11,200.00	10,207.00	10,200.00	10,132.45	28.19	26.29	78.74	-542.50	-688.11	607.46	555.03	52.43	11.585		
11,300.00	10,207.00	10,189.01	10,121.60	29.19	26.28	77.16	-544.26	-688.11	687.74	635.34	52.39	13.126		
11,400.00	10,207.00	10,182.84	10,115.50	30.25	26.27	76.28	-545.14	-688.11	772.51	720.21	52.31	14.769		
11,500.00	10,207.00	10,175.00	10,107.72	31.36	26.27	75.17	-546.14	-688.11	860.49	808.30	52.19	16.489		
11,600.00	10,207.00	10,175.00	10,107.72	32.51	26.27	75.17	-546.14	-688.11	950.76	898.67	52.09	18.253		
11,700.00	10,207.00	10,175.00	10,107.72	33.71	26.27	75.17	-546.14	-688.11	1,042.81	990.82	51.99	20.059		
11,800.00	10,207.00	10,166.07	10,098.84	34.94	26.25	73.91	-547.13	-688.11	1,136.09	1,084.22	51.87	21.902		
11,900.00	10,207.00	10,163.14	10,095.93	36.20	26.25	73.50	-547.42	-688.11	1,230.44	1,178.66	51.78	23.762		
12,000.00	10,207.00	10,160.54	10,093.34	37.49	26.25	73.14	-547.66	-688.11	1,325.60	1,273.90	51.70	25.638		
12,100.00	10,207.00	10,150.00	10,082.84	38.80	26.23	71.68	-548.49	-688.11	1,421.50	1,369.88	51.62	27.538		
12,200.00	10,207.00	10,150.00	10,082.84	40.14	26.23	71.68	-548.49	-688.11	1,517.80	1,466.23	51.57	29.433		
12,300.00	10,207.00	10,150.00	10,082.84	41.50	26.23	71.68	-548.49	-688.11	1,614.54	1,563.02	51.52	31.336		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)

Reference Site: Cotton Draw Unit

Site Error: 0.00 usft

Reference Well: 511H

Well Error: 0.00 usft

Reference Wellbore: OH

Reference Design: Plan #1

Local Co-ordinate Reference: Well 511H
TVD Reference: 3511.8' GE + 23.5' KB @ 3535.30usft
(Original Well Elev)

MD Reference: 3511.8' GE + 23.5' KB @ 3535.30usft
(Original Well Elev)

North Reference: Grid

Survey Calculation Method: Minimum Curvature

Output errors are at 2.00 sigma

Database: EDM 5000.1 Multi User Db

Offset TVD Reference: Offset Datum

Offset Design Cotton Draw Unit - 294H - OH - Plan #1												Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
12,400.00	10,207.00	10,150.00	10,082.84	42.88	26.23	71.68	-548.49	-688.11	1,711.66	1,660.18	51.49	33.245	
12,500.00	10,207.00	10,150.00	10,082.84	44.28	26.23	71.68	-548.49	-688.11	1,809.10	1,757.64	51.46	35.159	
12,600.00	10,207.00	10,150.00	10,082.84	45.69	26.23	71.68	-548.49	-688.11	1,906.80	1,855.37	51.43	37.075	
12,700.00	10,207.00	10,150.00	10,082.84	47.12	26.23	71.68	-548.49	-688.11	2,004.72	1,953.31	51.41	38.992	
12,800.00	10,207.00	10,150.00	10,082.84	48.56	26.23	71.68	-548.49	-688.11	2,102.85	2,051.45	51.40	40.911	
12,900.00	10,207.00	10,150.00	10,082.84	50.02	26.23	71.68	-548.49	-688.11	2,201.14	2,149.74	51.39	42.829	
13,000.00	10,207.00	10,150.00	10,082.84	51.48	26.23	71.68	-548.49	-688.11	2,299.57	2,248.18	51.39	44.747	
13,100.00	10,207.00	10,150.00	10,082.84	52.95	26.23	71.68	-548.49	-688.11	2,398.14	2,346.75	51.39	46.663	
13,200.00	10,207.00	10,150.00	10,082.84	54.44	26.23	71.68	-548.49	-688.11	2,496.82	2,445.43	51.40	48.578	
13,300.00	10,207.00	10,150.00	10,082.84	55.93	26.23	71.68	-548.49	-688.11	2,595.61	2,544.20	51.41	50.491	
13,400.00	10,207.00	10,150.00	10,082.84	57.43	26.23	71.68	-548.49	-688.11	2,694.48	2,643.06	51.42	52.400	
13,500.00	10,207.00	10,150.00	10,082.84	58.93	26.23	71.68	-548.49	-688.11	2,793.43	2,741.99	51.44	54.307	
13,600.00	10,207.00	10,150.00	10,082.84	60.45	26.23	71.68	-548.49	-688.11	2,892.45	2,841.00	51.46	56.210	
13,700.00	10,207.00	10,150.00	10,082.84	61.97	26.23	71.68	-548.49	-688.11	2,991.54	2,940.06	51.48	58.110	
13,800.00	10,207.00	10,138.80	10,071.65	63.49	26.22	70.16	-549.11	-688.11	3,090.54	3,039.04	51.50	60.014	
13,900.00	10,207.00	10,138.22	10,071.07	65.02	26.21	70.08	-549.14	-688.11	3,189.73	3,138.20	51.53	61.906	
14,000.00	10,207.00	10,137.67	10,070.53	66.56	26.21	70.01	-549.16	-688.11	3,288.96	3,237.41	51.56	63.794	
14,100.00	10,207.00	10,137.15	10,070.01	68.10	26.21	69.94	-549.18	-688.11	3,388.24	3,336.65	51.59	65.677	
14,200.00	10,207.00	10,136.66	10,069.51	69.64	26.21	69.87	-549.20	-688.11	3,487.56	3,435.93	51.63	67.555	
14,300.00	10,207.00	10,136.19	10,069.05	71.19	26.21	69.81	-549.22	-688.11	3,586.92	3,535.25	51.66	69.428	
14,400.00	10,207.00	10,125.00	10,057.86	72.75	26.20	68.32	-549.52	-688.11	3,686.44	3,634.75	51.70	71.310	
14,500.00	10,207.00	10,125.00	10,057.86	74.30	26.20	68.32	-549.52	-688.11	3,785.86	3,734.12	51.74	73.172	
14,600.00	10,207.00	10,125.00	10,057.86	75.86	26.20	68.32	-549.52	-688.11	3,885.30	3,833.51	51.78	75.028	
14,700.00	10,207.00	10,125.00	10,057.86	77.42	26.20	68.32	-549.52	-688.11	3,984.77	3,932.94	51.83	76.878	
14,800.00	10,207.00	10,125.00	10,057.86	78.99	26.20	68.32	-549.52	-688.11	4,084.26	4,032.38	51.88	78.723	
14,900.00	10,207.00	10,125.00	10,057.86	80.56	26.20	68.32	-549.52	-688.11	4,183.78	4,131.85	51.93	80.562	
15,000.00	10,207.00	10,125.00	10,057.86	82.13	26.20	68.32	-549.52	-688.11	4,283.32	4,231.34	51.99	82.394	
15,100.00	10,207.00	10,125.00	10,057.86	83.70	26.20	68.32	-549.52	-688.11	4,382.89	4,330.85	52.04	84.220	
15,200.00	10,207.00	10,125.00	10,057.86	85.28	26.20	68.32	-549.52	-688.11	4,482.47	4,430.37	52.10	86.040	
15,300.00	10,207.00	10,125.00	10,057.86	86.86	26.20	68.32	-549.52	-688.11	4,582.07	4,529.92	52.16	87.854	
15,393.49	10,207.00	10,125.00	10,057.86	88.00	26.20	68.32	-549.52	-688.11	4,675.20	4,619.68	55.52	84.208	
15,393.94	10,207.00	10,125.00	10,057.86	88.01	26.20	68.32	-549.52	-688.11	4,675.68	4,620.14	55.52	84.216	

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)

Reference Site: Cotton Draw Unit

Site Error: 0.00 usft

Reference Well: 511H

Well Error: 0.00 usft

Reference Wellbore: OH

Reference Design: Plan #1

Local Co-ordinate Reference: Well 511H
TVD Reference: 3511.8' GE + 23.5' KB @ 3535.30usft
(Original Well Elev)

MD Reference: 3511.8' GE + 23.5' KB @ 3535.30usft
(Original Well Elev)

North Reference: Grid

Survey Calculation Method: Minimum Curvature

Output errors are at 2.00 sigma

Database: EDM 5000.1 Multi User Db

Offset TVD Reference: Offset Datum

Offset Design Cotton Draw Unit - 512H - OH - Plan #1												Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)					
0.00	0.00	0.10	0.10	0.00	0.00	89.66	0.18	29.99	29.99				
100.00	100.00	100.10	100.10	0.09	0.09	89.66	0.18	29.99	29.99	29.82	0.17	174.190	
200.00	200.00	200.10	200.10	0.31	0.31	89.66	0.18	29.99	29.99	29.37	0.62	48.239	
300.00	300.00	300.10	300.10	0.54	0.54	89.66	0.18	29.99	29.99	28.92	1.07	27.996	
400.00	400.00	400.10	400.10	0.76	0.76	89.66	0.18	29.99	29.99	28.47	1.52	19.721	
500.00	500.00	500.10	500.10	0.99	0.99	89.66	0.18	29.99	29.99	28.02	1.97	15.221	
600.00	600.00	600.10	600.10	1.21	1.21	89.66	0.18	29.99	29.99	27.57	2.42	12.394	
700.00	700.00	700.10	700.10	1.43	1.43	89.66	0.18	29.99	29.99	27.12	2.87	10.452	
800.00	800.00	800.10	800.10	1.66	1.66	89.66	0.18	29.99	29.99	26.67	3.32	9.036	
900.00	900.00	900.10	900.10	1.88	1.88	89.66	0.18	29.99	29.99	26.22	3.77	7.958	
1,000.00	1,000.00	1,000.10	1,000.10	2.11	2.11	89.66	0.18	29.99	29.99	25.77	4.22	7.110	
1,100.00	1,100.00	1,100.10	1,100.10	2.33	2.33	89.66	0.18	29.99	29.99	25.32	4.67	6.425	
1,200.00	1,200.00	1,200.10	1,200.10	2.56	2.56	89.66	0.18	29.99	29.99	24.87	5.12	5.861	
1,300.00	1,300.00	1,300.10	1,300.10	2.78	2.78	89.66	0.18	29.99	29.99	24.42	5.57	5.388	
1,400.00	1,400.00	1,400.10	1,400.10	3.01	3.01	89.66	0.18	29.99	29.99	23.97	6.02	4.985	
1,500.00	1,500.00	1,500.10	1,500.10	3.23	3.23	89.66	0.18	29.99	29.99	23.52	6.47	4.638	
1,600.00	1,600.00	1,600.10	1,600.10	3.46	3.46	89.66	0.18	29.99	29.99	23.08	6.92	4.337	
1,700.00	1,700.00	1,700.10	1,700.10	3.68	3.68	89.66	0.18	29.99	29.99	22.63	7.36	4.072	
1,800.00	1,800.00	1,800.10	1,800.10	3.91	3.91	89.66	0.18	29.99	29.99	22.18	7.81	3.838	
1,900.00	1,900.00	1,900.10	1,900.10	4.13	4.13	89.66	0.18	29.99	29.99	21.73	8.26	3.629	
2,000.00	2,000.00	2,000.10	2,000.10	4.36	4.36	89.66	0.18	29.99	29.99	21.28	8.71	3.442	
2,100.00	2,100.00	2,100.10	2,100.10	4.58	4.58	89.66	0.18	29.99	29.99	20.83	9.16	3.273	
2,200.00	2,200.00	2,200.10	2,200.10	4.81	4.81	89.66	0.18	29.99	29.99	20.38	9.61	3.120	
2,300.00	2,300.00	2,300.10	2,300.10	5.03	5.03	89.66	0.18	29.99	29.99	19.93	10.06	2.981	
2,400.00	2,400.00	2,400.10	2,400.10	5.26	5.26	89.66	0.18	29.99	29.99	19.48	10.51	2.853	
2,500.00	2,500.00	2,500.10	2,500.10	5.48	5.48	89.66	0.18	29.99	29.99	19.03	10.96	2.736	
2,500.22	2,500.22	2,500.32	2,500.32	5.48	5.48	89.66	0.18	29.99	29.99	19.03	10.96	2.736 CC	
2,600.00	2,599.99	2,600.40	2,600.39	5.70	5.68	152.53	-0.53	29.47	30.25	18.87	11.38	2.659	
2,700.00	2,699.96	2,700.62	2,700.58	5.91	5.86	158.74	-2.85	27.91	31.27	19.51	11.76	2.659	
2,799.91	2,799.77	2,800.59	2,800.45	6.12	6.04	168.01	-6.18	25.33	33.70	21.55	12.15	2.774	
2,900.00	2,899.73	2,900.54	2,900.21	6.34	6.22	178.57	-11.11	21.72	37.47	24.82	12.55	2.986	
3,000.00	2,999.59	3,000.17	2,999.54	6.56	6.41	-170.69	-17.42	17.09	42.30	29.34	12.95	3.266	
3,100.00	3,099.45	3,099.54	3,098.44	6.78	6.60	-160.39	-25.09	11.46	48.64	35.28	13.36	3.640	
3,200.00	3,199.32	3,198.93	3,197.30	7.00	6.80	-151.87	-33.42	5.36	56.46	42.69	13.78	4.099	
3,300.00	3,299.18	3,298.32	3,296.15	7.22	7.01	-145.52	-41.74	-0.74	65.22	51.03	14.19	4.595	
3,400.00	3,399.04	3,397.71	3,395.00	7.44	7.22	-140.72	-50.06	-6.84	74.59	59.97	14.62	5.103	
3,500.00	3,498.90	3,497.10	3,493.85	7.67	7.43	-137.00	-58.38	-12.94	84.36	69.32	15.04	5.608	
3,600.00	3,598.77	3,596.48	3,592.71	7.89	7.65	-134.06	-66.70	-19.04	94.41	78.94	15.47	6.102	
3,700.00	3,698.63	3,695.87	3,691.56	8.12	7.88	-131.69	-75.03	-25.14	104.66	88.75	15.90	6.580	
3,800.00	3,798.49	3,795.26	3,790.41	8.34	8.11	-129.75	-83.35	-31.24	115.05	98.71	16.34	7.041	
3,900.00	3,898.36	3,894.65	3,889.26	8.57	8.34	-128.12	-91.67	-37.34	125.56	108.78	16.78	7.483	
4,000.00	3,998.22	3,994.04	3,988.11	8.80	8.57	-126.75	-99.99	-43.44	136.14	118.93	17.22	7.906	
4,100.00	4,098.08	4,093.43	4,086.97	9.02	8.81	-125.58	-108.32	-49.54	146.80	129.14	17.66	8.311	
4,200.00	4,197.95	4,192.82	4,185.82	9.25	9.05	-124.57	-116.64	-55.64	157.50	139.40	18.11	8.698	
4,300.00	4,297.81	4,292.21	4,284.67	9.48	9.29	-123.68	-124.96	-61.74	168.25	149.70	18.55	9.068	
4,400.00	4,397.67	4,391.60	4,383.52	9.71	9.54	-122.91	-133.28	-67.84	179.04	160.03	19.00	9.421	
4,500.00	4,497.53	4,490.99	4,482.38	9.94	9.78	-122.22	-141.60	-73.94	189.85	170.40	19.45	9.759	
4,600.00	4,597.40	4,590.38	4,581.23	10.17	10.03	-121.80	-149.93	-80.04	200.69	180.78	19.91	10.082	
4,700.00	4,697.26	4,689.77	4,680.08	10.40	10.28	-121.05	-158.25	-86.14	211.54	191.18	20.36	10.391	
4,800.00	4,797.12	4,789.16	4,778.93	10.63	10.53	-120.55	-166.57	-92.24	222.42	201.61	20.81	10.686	
4,900.00	4,896.99	4,888.54	4,877.78	10.87	10.79	-120.10	-174.89	-98.34	233.31	212.04	21.27	10.969	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)

Reference Site: Cotton Draw Unit

Site Error: 0.00 usft

Reference Well: 511H

Well Error: 0.00 usft

Reference Wellbore: OH

Reference Design: Plan #1

Local Co-ordinate Reference: Well 511H

TVD Reference: 3511.8' GE + 23.5' KB @ 3535.30usft
(Original Well Elev)

MD Reference: 3511.8' GE + 23.5' KB @ 3535.30usft
(Original Well Elev)

North Reference: Grid

Survey Calculation Method: Minimum Curvature

Output errors are at 2.00 sigma

Database: EDM 5000.1 Multi User Db

Offset TVD Reference: Offset Datum

Offset Design Cotton Draw Unit - 512H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: O-LEAM MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,000.00	4,996.85	4,987.93	4,976.64	11.10	11.04	-119.69	-183.21	-104.44	244.21	222.48	21.73	11.240		
5,100.00	5,096.71	5,087.32	5,075.49	11.33	11.30	-119.31	-191.54	-110.54	255.13	232.94	22.19	11.500		
5,200.00	5,196.58	5,186.71	5,174.34	11.56	11.55	-118.97	-199.86	-116.64	266.05	243.41	22.64	11.749		
5,300.00	5,296.44	5,286.10	5,273.19	11.80	11.81	-118.65	-208.18	-122.75	276.98	253.88	23.11	11.988		
5,400.00	5,396.30	5,385.49	5,372.04	12.03	12.07	-118.36	-216.50	-128.85	287.92	264.36	23.57	12.218		
5,500.00	5,496.17	5,484.88	5,470.90	12.26	12.33	-118.08	-224.82	-134.95	298.87	274.84	24.03	12.438		
5,600.00	5,596.03	5,584.27	5,569.75	12.50	12.60	-117.83	-233.15	-141.05	309.83	285.33	24.49	12.650		
5,700.00	5,695.89	5,683.66	5,668.80	12.73	12.86	-117.59	-241.47	-147.15	320.79	295.83	24.96	12.854		
5,800.00	5,795.75	5,783.05	5,767.45	12.96	13.12	-117.37	-249.79	-153.25	331.75	306.33	25.42	13.051		
5,900.00	5,895.62	5,882.44	5,866.31	13.20	13.39	-117.17	-258.11	-159.35	342.72	316.83	25.89	13.240		
6,000.00	5,995.48	5,981.83	5,965.16	13.43	13.65	-116.97	-266.43	-165.45	353.69	327.34	26.35	13.422		
6,100.00	6,095.34	6,081.22	6,064.01	13.67	13.92	-116.79	-274.76	-171.55	364.67	337.85	26.82	13.598		
6,200.00	6,195.21	6,180.60	6,162.86	13.90	14.18	-116.62	-283.08	-177.65	375.65	348.37	27.28	13.768		
6,300.00	6,295.07	6,279.99	6,261.71	14.14	14.45	-116.46	-291.40	-183.75	386.63	358.88	27.75	13.932		
6,400.00	6,394.93	6,379.38	6,360.57	14.37	14.72	-116.31	-299.72	-189.85	397.62	369.40	28.22	14.090		
6,500.00	6,494.80	6,478.77	6,459.42	14.61	14.98	-116.16	-308.04	-195.95	408.61	379.92	28.69	14.243		
6,600.00	6,594.66	6,578.16	6,558.27	14.84	15.25	-116.03	-316.37	-202.05	419.60	390.44	29.16	14.390		
6,700.00	6,694.52	6,677.55	6,657.12	15.08	15.52	-115.90	-324.69	-208.15	430.60	400.97	29.63	14.533		
6,800.00	6,794.38	6,776.94	6,755.98	15.31	15.79	-115.77	-333.01	-214.25	441.59	411.49	30.10	14.672		
6,900.00	6,894.25	6,876.33	6,854.83	15.55	16.06	-115.66	-341.33	-220.35	452.59	422.02	30.57	14.806		
7,000.00	6,994.11	6,975.72	6,953.68	15.78	16.33	-115.54	-349.65	-226.45	463.59	432.55	31.04	14.935		
7,100.00	7,093.97	7,075.11	7,052.53	16.02	16.60	-115.44	-357.98	-232.55	474.59	443.08	31.51	15.061		
7,200.00	7,193.84	7,174.50	7,151.38	16.25	16.87	-115.34	-366.30	-238.65	485.59	453.61	31.98	15.183		
7,300.00	7,293.70	7,273.89	7,250.24	16.49	17.14	-115.24	-374.62	-244.75	496.60	464.14	32.45	15.301		
7,400.00	7,393.56	7,373.28	7,349.09	16.73	17.42	-115.15	-382.94	-250.85	507.60	474.67	32.93	15.416		
7,500.00	7,493.43	7,472.67	7,447.94	16.96	17.69	-115.06	-391.26	-256.95	518.61	485.21	33.40	15.527		
7,600.00	7,593.29	7,572.05	7,546.79	17.20	17.96	-114.97	-399.59	-263.05	529.62	495.74	33.87	15.635		
7,700.00	7,693.15	7,671.44	7,645.64	17.44	18.23	-114.89	-407.91	-269.15	540.63	506.28	34.35	15.740		
7,800.00	7,793.01	7,770.83	7,744.50	17.67	18.51	-114.81	-416.23	-275.25	551.64	516.82	34.82	15.842		
7,900.00	7,892.88	7,870.22	7,843.35	17.91	18.78	-114.74	-424.55	-281.35	562.65	527.35	35.29	15.942		
8,000.00	7,992.74	7,969.61	7,942.20	18.14	19.05	-114.66	-432.87	-287.46	573.66	537.89	35.77	16.038		
8,100.00	8,092.60	8,069.00	8,041.05	18.38	19.33	-114.59	-441.20	-293.56	584.67	548.43	36.24	16.132		
8,200.00	8,192.47	8,168.39	8,139.91	18.62	19.60	-114.53	-449.52	-299.66	595.69	558.97	36.72	16.223		
8,300.00	8,292.33	8,267.78	8,238.76	18.85	19.88	-114.46	-457.84	-305.76	606.70	569.51	37.19	16.312		
8,400.00	8,392.19	8,367.17	8,337.61	19.09	20.15	-114.40	-466.16	-311.86	617.72	580.05	37.67	16.399		
8,500.00	8,492.06	8,466.56	8,436.46	19.33	20.43	-114.34	-474.49	-317.96	628.73	590.59	38.14	16.483		
8,600.00	8,591.92	8,565.95	8,535.31	19.57	20.70	-114.28	-482.81	-324.06	639.75	601.13	38.62	16.566		
8,700.00	8,691.78	8,665.34	8,634.17	19.80	20.98	-114.22	-491.13	-330.16	650.77	611.67	39.09	16.646		
8,800.00	8,791.65	8,764.73	8,733.02	20.04	21.25	-114.17	-499.45	-336.26	661.78	622.21	39.57	16.724		
8,900.00	8,891.51	8,864.11	8,831.87	20.28	21.53	-114.12	-507.77	-342.36	672.80	632.76	40.05	16.800		
9,000.00	8,991.37	8,963.50	8,930.72	20.51	21.80	-114.07	-516.10	-348.46	683.82	643.30	40.52	16.875		
9,100.00	9,091.23	9,062.89	9,029.58	20.75	22.08	-114.02	-524.42	-354.56	694.84	653.84	41.00	16.947		
9,200.00	9,191.10	9,173.39	9,139.57	20.99	22.33	-114.00	-532.89	-360.77	705.12	663.62	41.50	16.991		
9,300.00	9,290.96	9,284.82	9,250.68	21.23	22.56	-114.08	-539.71	-365.77	713.74	671.76	41.99	17.000		
9,338.86	9,329.77	9,328.20	9,293.97	21.32	22.64	-114.14	-541.89	-367.37	716.65	674.48	42.17	16.994		
9,400.00	9,390.84	9,396.53	9,362.21	21.45	22.77	-114.26	-544.79	-369.49	720.58	678.14	42.44	16.978		
9,500.00	9,490.78	10,760.49	10,207.00	21.62	23.16	-39.43	174.18	-373.18	718.85	693.99	24.86	28.916		
9,600.00	9,590.77	10,761.25	10,207.00	21.80	23.16	-31.31	174.94	-373.18	619.17	594.03	25.14	24.630		
9,638.77	9,629.54	10,761.32	10,207.00	21.86	23.16	-90.00	175.00	-373.18	580.59	555.33	25.25	22.990		
9,700.00	9,690.77	10,761.32	10,207.00	21.98	23.16	-90.00	175.00	-373.18	519.74	494.29	25.45	20.423		

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LEAM Drilling Systems LLC

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Well Error: 0.00 usft

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Survey Calculation Method: Minimum Curvature

Output errors are at 2.00 sigma

Database: EDM 5000.1 Multi User Db

Offset TVD Reference: Offset Datum

Offset Design Cotton Draw Unit - 512H - OH - Plan #1														Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM														Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor			
9,738.77	9,729.54	10,761.32	10,207.00	22.06	23.16	-90.00	175.00	-373.18	481.26	455.67	25.58	18.811			
9,750.00	9,740.77	10,761.18	10,207.00	22.08	23.16	100.18	174.87	-373.18	470.12	444.50	25.62	18.346			
9,775.00	9,765.74	10,759.94	10,207.00	22.12	23.16	118.70	173.63	-373.18	445.38	419.66	25.72	17.319			
9,800.00	9,790.60	10,757.39	10,207.00	22.16	23.15	131.08	171.08	-373.18	420.76	394.95	25.81	16.302			
9,825.00	9,815.30	10,753.55	10,207.00	22.20	23.14	139.03	167.23	-373.18	396.34	370.43	25.91	15.299			
9,850.00	9,839.77	10,748.42	10,207.00	22.24	23.12	144.22	162.10	-373.18	372.18	346.18	26.01	14.310			
9,875.00	9,863.93	10,742.01	10,207.00	22.28	23.09	147.68	155.70	-373.18	348.37	322.25	26.12	13.338			
9,900.00	9,887.72	10,734.35	10,207.00	22.31	23.07	149.99	148.04	-373.18	324.97	298.73	26.24	12.385			
9,925.00	9,911.08	10,725.45	10,207.00	22.34	23.04	151.50	139.14	-373.18	302.06	275.69	26.37	11.453			
9,950.00	9,933.95	10,715.35	10,207.00	22.37	23.00	152.40	129.03	-373.18	279.71	253.18	26.53	10.543			
9,975.00	9,956.25	10,704.06	10,207.00	22.40	22.97	152.83	117.74	-373.18	257.99	231.27	26.71	9.657			
10,000.00	9,977.93	10,691.62	10,207.00	22.43	22.95	152.85	105.30	-373.18	236.98	210.04	26.94	8.796			
10,025.00	9,998.93	10,678.06	10,207.00	22.45	22.93	152.50	91.74	-373.18	216.76	189.54	27.22	7.963			
10,050.00	10,019.19	10,663.42	10,207.00	22.48	22.91	151.79	77.11	-373.18	197.40	169.83	27.57	7.161			
10,075.00	10,038.66	10,647.74	10,207.00	22.50	22.89	150.72	61.43	-373.18	178.99	150.99	28.00	6.392			
10,100.00	10,057.28	10,631.06	10,207.00	22.53	22.88	149.26	44.75	-373.18	161.61	133.06	28.55	5.660			
10,125.00	10,075.01	10,613.44	10,207.00	22.55	22.88	147.38	27.12	-373.18	145.36	116.10	29.25	4.969			
10,150.00	10,091.78	10,594.90	10,207.00	22.57	22.89	145.03	8.59	-373.18	130.32	100.19	30.14	4.324			
10,175.00	10,107.56	10,575.52	10,207.00	22.60	22.90	142.17	-10.80	-373.18	116.62	85.36	31.25	3.731			
10,200.00	10,122.31	10,555.33	10,207.01	22.62	22.91	138.73	-30.98	-373.18	104.34	71.72	32.62	3.199			
10,225.00	10,135.98	10,534.41	10,207.01	22.65	22.93	134.67	-51.91	-373.18	93.60	59.36	34.24	2.734			
10,250.00	10,148.54	10,512.63	10,207.00	22.68	22.95	129.94	-73.69	-373.18	84.48	48.41	36.07	2.342			
10,275.00	10,159.94	10,488.02	10,206.30	22.71	22.98	123.62	-98.28	-373.18	76.66	38.55	38.11	2.011			
10,300.00	10,170.17	10,464.07	10,204.40	22.75	23.01	116.25	-122.15	-373.18	70.06	29.69	40.37	1.736			
10,325.00	10,179.19	10,440.72	10,201.40	22.79	23.04	107.85	-145.30	-373.18	65.05	22.51	42.54	1.529			
10,350.00	10,186.98	10,417.93	10,197.38	22.84	23.08	98.63	-167.74	-373.18	61.98	17.76	44.22	1.402 Level 3			
10,372.36	10,192.89	10,397.97	10,192.99	22.88	23.11	90.00	-187.21	-373.18	61.08	16.09	44.99	1.358 Level 3			
10,375.00	10,193.51	10,395.64	10,192.42	22.89	23.11	88.98	-189.47	-373.18	61.09	16.06	45.03	1.357 Level 3, ES, SF			
10,400.00	10,198.78	10,373.82	10,186.59	22.95	23.14	79.44	-210.49	-373.18	62.41	17.55	44.87	1.391 Level 3			
10,425.00	10,202.75	10,352.43	10,179.94	23.02	23.18	70.50	-230.82	-373.18	65.73	21.76	43.97	1.495 Level 3			
10,450.00	10,205.43	10,331.43	10,172.54	23.10	23.21	62.49	-250.47	-373.18	70.68	27.94	42.74	1.654			
10,475.00	10,208.81	10,310.79	10,164.43	23.18	23.24	55.55	-269.45	-373.18	76.85	35.33	41.52	1.851			
10,488.77	10,207.01	10,300.00	10,159.86	23.23	23.26	52.28	-279.23	-373.18	80.64	39.66	40.98	1.968			
10,500.00	10,207.01	10,290.54	10,155.68	23.27	23.27	49.91	-287.71	-373.18	83.97	43.48	40.48	2.074			
10,600.00	10,207.00	10,217.67	10,117.98	23.69	23.38	34.43	-350.00	-373.18	125.42	87.13	38.29	3.275			
10,700.00	10,207.00	10,157.77	10,080.20	24.22	23.46	25.70	-396.41	-373.18	183.28	144.71	38.57	4.751			
10,800.00	10,207.00	10,109.11	10,045.41	24.85	23.51	20.69	-430.41	-373.18	251.94	212.32	39.62	6.359			
10,900.00	10,207.00	10,069.57	10,014.70	25.57	23.55	17.61	-455.31	-373.18	327.89	287.20	40.69	8.059			
11,000.00	10,207.00	10,037.20	9,988.11	26.37	23.57	15.58	-473.74	-373.18	408.97	367.37	41.59	9.832			
11,100.00	10,207.00	10,010.46	9,965.24	27.25	23.59	14.17	-487.59	-373.18	493.76	451.43	42.33	11.666			
11,200.00	10,207.00	9,988.12	9,945.56	28.19	23.59	13.15	-498.16	-373.18	581.30	538.39	42.91	13.547			
11,300.00	10,207.00	9,975.00	9,933.78	29.19	23.60	12.60	-503.93	-373.18	671.00	627.53	43.47	15.434			
11,400.00	10,207.00	9,950.00	9,910.91	30.25	23.60	11.65	-514.03	-373.18	762.23	718.52	43.71	17.438			
11,500.00	10,207.00	9,939.31	9,900.98	31.36	23.60	11.28	-517.98	-373.18	854.75	810.69	44.06	19.398			
11,600.00	10,207.00	9,925.00	9,887.54	32.51	23.59	10.82	-522.92	-373.18	948.33	904.03	44.30	21.407			
11,700.00	10,207.00	9,925.00	9,887.54	33.71	23.59	10.82	-522.92	-373.18	1,042.83	998.22	44.61	23.379			
11,800.00	10,207.00	9,900.00	9,863.75	34.94	23.59	10.09	-530.57	-373.18	1,137.89	1,093.22	44.67	25.473			
11,900.00	10,207.00	9,900.00	9,863.75	36.20	23.59	10.09	-530.57	-373.18	1,233.45	1,188.57	44.89	27.478			
12,000.00	10,207.00	9,900.00	9,863.75	37.49	23.59	10.09	-530.57	-373.18	1,329.67	1,284.61	45.07	29.505			
12,100.00	10,207.00	9,885.12	9,849.41	38.80	23.58	9.69	-534.53	-373.18	1,426.11	1,380.96	45.15	31.587			
12,200.00	10,207.00	9,875.00	9,839.58	40.14	23.57	9.44	-536.97	-373.18	1,523.00	1,477.76	45.24	33.662			

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Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
12,300.00	10,207.00	9,875.00	9,839.58	41.50	23.57	9.44	-536.97	-373.18	1,620.15	1,574.78	45.37	35.711		
12,400.00	10,207.00	9,875.00	9,839.58	42.88	23.57	9.44	-536.97	-373.18	1,717.62	1,672.14	45.48	37.768		
12,500.00	10,207.00	9,884.19	9,829.04	44.28	23.56	9.18	-539.34	-373.18	1,815.22	1,769.67	45.55	39.854		
12,600.00	10,207.00	9,860.03	9,824.96	45.69	23.56	9.08	-540.19	-373.18	1,913.06	1,867.43	45.63	41.925		
12,700.00	10,207.00	9,850.00	9,815.12	47.12	23.55	8.86	-542.09	-373.18	2,011.12	1,965.43	45.69	44.012		
12,800.00	10,207.00	9,850.00	9,815.12	48.56	23.55	8.86	-542.09	-373.18	2,109.25	2,063.47	45.78	46.074		
12,900.00	10,207.00	9,850.00	9,815.12	50.02	23.55	8.86	-542.09	-373.18	2,207.55	2,161.69	45.86	48.137		
13,000.00	10,207.00	9,850.00	9,815.12	51.48	23.55	8.86	-542.09	-373.18	2,305.99	2,260.05	45.94	50.199		
13,100.00	10,207.00	9,850.00	9,815.12	52.95	23.55	8.86	-542.09	-373.18	2,404.58	2,358.55	46.01	52.261		
13,200.00	10,207.00	9,850.00	9,815.12	54.44	23.55	8.86	-542.09	-373.18	2,503.24	2,457.16	46.08	54.322		
13,300.00	10,207.00	9,838.33	9,803.61	55.93	23.54	8.61	-544.04	-373.18	2,601.86	2,555.72	46.14	56.396		
13,400.00	10,207.00	9,835.99	9,801.30	57.43	23.53	8.56	-544.40	-373.18	2,700.66	2,654.46	46.20	58.453		
13,500.00	10,207.00	9,825.00	9,790.41	58.93	23.52	8.34	-545.92	-373.18	2,799.63	2,753.37	46.26	60.521		
13,600.00	10,207.00	9,825.00	9,790.41	60.45	23.52	8.34	-545.92	-373.18	2,898.53	2,852.20	46.33	62.565		
13,700.00	10,207.00	9,825.00	9,790.41	61.97	23.52	8.34	-545.92	-373.18	2,997.50	2,951.11	46.40	64.605		
13,800.00	10,207.00	9,825.00	9,790.41	63.49	23.52	8.34	-545.92	-373.18	3,096.54	3,050.08	46.47	66.641		
13,900.00	10,207.00	9,825.00	9,790.41	65.02	23.52	8.34	-545.92	-373.18	3,195.64	3,149.11	46.54	68.672		
14,000.00	10,207.00	9,825.00	9,790.41	66.56	23.52	8.34	-545.92	-373.18	3,294.80	3,248.19	46.60	70.698		
14,100.00	10,207.00	9,825.00	9,790.41	68.10	23.52	8.34	-545.92	-373.18	3,394.00	3,347.33	46.67	72.718		
14,200.00	10,207.00	9,825.00	9,790.41	69.64	23.52	8.34	-545.92	-373.18	3,493.25	3,446.51	46.74	74.734		
14,300.00	10,207.00	9,825.00	9,790.41	71.19	23.52	8.34	-545.92	-373.18	3,592.54	3,545.73	46.81	76.743		
14,400.00	10,207.00	9,825.00	9,790.41	72.75	23.52	8.34	-545.92	-373.18	3,691.87	3,644.99	46.88	78.746		
14,500.00	10,207.00	9,825.00	9,790.41	74.30	23.52	8.34	-545.92	-373.18	3,791.23	3,744.28	46.95	80.743		
14,600.00	10,207.00	9,825.00	9,790.41	75.86	23.52	8.34	-545.92	-373.18	3,890.63	3,843.61	47.03	82.733		
14,700.00	10,207.00	9,825.00	9,790.41	77.42	23.52	8.34	-545.92	-373.18	3,990.06	3,942.96	47.10	84.717		
14,800.00	10,207.00	9,825.00	9,790.41	78.99	23.52	8.34	-545.92	-373.18	4,089.51	4,042.34	47.17	86.693		
14,900.00	10,207.00	9,812.92	9,778.41	80.56	23.51	8.11	-547.31	-373.18	4,188.82	4,141.58	47.24	88.672		
15,000.00	10,207.00	9,811.89	9,777.39	82.13	23.51	8.09	-547.42	-373.18	4,288.30	4,240.99	47.31	90.634		
15,100.00	10,207.00	9,800.00	9,765.55	83.70	23.49	7.88	-548.46	-373.18	4,387.94	4,340.55	47.38	92.602		
15,200.00	10,207.00	9,800.00	9,765.55	85.28	23.49	7.88	-548.46	-373.18	4,487.43	4,439.97	47.46	94.548		
15,300.00	10,207.00	9,800.00	9,765.55	86.86	23.49	7.88	-548.46	-373.18	4,586.95	4,539.41	47.54	96.485		
15,393.49	10,207.00	9,800.00	9,765.55	88.00	23.49	7.88	-548.46	-373.18	4,680.00	4,629.14	50.86	92.022		
15,393.94	10,207.00	9,800.00	9,765.55	88.01	23.49	7.88	-548.46	-373.18	4,680.45	4,629.60	50.86	92.030		

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)

Reference Site: Cotton Draw Unit

Site Error: 0.00 usft

Reference Well: 511H

Well Error: 0.00 usft

Reference Wellbore: OH

Reference Design: Plan #1

Local Co-ordinate Reference: Well 511H
TVD Reference: 3511.8' GE + 23.5' KB @ 3535.30usft
(Original Well Elev)

MD Reference: 3511.8' GE + 23.5' KB @ 3535.30usft
(Original Well Elev)

North Reference: Grid

Survey Calculation Method: Minimum Curvature

Output errors are at 2.00 sigma

Database: EDM 5000.1 Multi User Db

Offset TVD Reference: Offset Datum

Offset Design Cotton Draw Unit - 513H - OH - Plan #1												Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	2.10	2.10	0.00	0.00	89.66	0.90	149.96	149.96				
100.00	100.00	102.10	102.10	0.09	0.09	89.66	0.90	149.96	149.96	149.79	0.18	848.847	
200.00	200.00	202.10	202.10	0.31	0.32	89.66	0.90	149.96	149.96	149.34	0.63	239.481	
300.00	300.00	302.10	302.10	0.54	0.54	89.66	0.90	149.96	149.96	148.89	1.08	139.405	
400.00	400.00	402.10	402.10	0.76	0.76	89.66	0.90	149.96	149.96	148.44	1.53	98.319	
500.00	500.00	502.10	502.10	0.99	0.99	89.66	0.90	149.96	149.96	147.99	1.97	75.938	
600.00	600.00	602.10	602.10	1.21	1.21	89.66	0.90	149.96	149.96	147.54	2.42	61.857	
700.00	700.00	702.10	702.10	1.43	1.44	89.66	0.90	149.96	149.96	147.09	2.87	52.182	
800.00	800.00	802.10	802.10	1.66	1.66	89.66	0.90	149.96	149.96	146.64	3.32	45.123	
900.00	900.00	902.10	902.10	1.88	1.89	89.66	0.90	149.96	149.96	146.19	3.77	39.747	
1,000.00	1,000.00	1,002.10	1,002.10	2.11	2.11	89.66	0.90	149.96	149.96	145.74	4.22	35.516	
1,100.00	1,100.00	1,102.10	1,102.10	2.33	2.34	89.66	0.90	149.96	149.96	145.29	4.67	32.098	
1,200.00	1,200.00	1,202.10	1,202.10	2.56	2.56	89.66	0.90	149.96	149.96	144.84	5.12	29.281	
1,300.00	1,300.00	1,302.10	1,302.10	2.78	2.79	89.66	0.90	149.96	149.96	144.39	5.57	26.918	
1,400.00	1,400.00	1,402.10	1,402.10	3.01	3.01	89.66	0.90	149.96	149.96	143.94	6.02	24.908	
1,500.00	1,500.00	1,502.10	1,502.10	3.23	3.24	89.66	0.90	149.96	149.96	143.49	6.47	23.178	
1,600.00	1,600.00	1,602.10	1,602.10	3.46	3.46	89.66	0.90	149.96	149.96	143.04	6.92	21.672	
1,700.00	1,700.00	1,702.10	1,702.10	3.68	3.69	89.66	0.90	149.96	149.96	142.59	7.37	20.350	
1,800.00	1,800.00	1,802.10	1,802.10	3.91	3.91	89.66	0.90	149.96	149.96	142.14	7.82	19.180	
1,900.00	1,900.00	1,902.10	1,902.10	4.13	4.14	89.66	0.90	149.96	149.96	141.69	8.27	18.137	
2,000.00	2,000.00	2,002.10	2,002.10	4.36	4.36	89.66	0.90	149.96	149.96	141.24	8.72	17.202	
2,100.00	2,100.00	2,102.10	2,102.10	4.58	4.59	89.66	0.90	149.96	149.96	140.80	9.17	16.358	
2,200.00	2,200.00	2,202.10	2,202.10	4.81	4.81	89.66	0.90	149.96	149.96	140.35	9.62	15.594	
2,300.00	2,300.00	2,302.10	2,302.10	5.03	5.04	89.66	0.90	149.96	149.96	139.90	10.07	14.897	
2,400.00	2,400.00	2,402.10	2,402.10	5.26	5.26	89.66	0.90	149.96	149.96	139.45	10.52	14.261	
2,415.95	2,415.95	2,418.05	2,418.05	5.29	5.30	89.66	0.90	149.96	149.96	139.38	10.59	14.184 CC	
2,500.00	2,500.00	2,502.05	2,502.05	5.48	5.48	89.66	0.90	149.96	149.96	139.00	10.96	13.677 ES	
2,600.00	2,599.99	2,600.00	2,599.99	5.70	5.68	150.68	0.52	150.74	151.52	140.14	11.38	13.313	
2,700.00	2,699.96	2,697.23	2,697.20	5.91	5.87	151.52	-0.59	153.01	156.15	144.38	11.77	13.269 SF	
2,799.91	2,799.77	2,794.30	2,794.17	6.12	6.05	152.81	-2.42	156.75	163.90	151.74	12.16	13.483	
2,900.00	2,899.73	2,891.14	2,890.83	6.34	6.24	154.35	-4.96	161.95	174.08	161.54	12.54	13.879	
3,000.00	2,999.59	2,987.49	2,986.90	6.56	6.43	155.90	-8.19	168.58	185.94	173.02	12.93	14.384	
3,100.00	3,099.45	3,083.40	3,082.39	6.78	6.63	157.42	-12.12	176.63	199.50	186.19	13.31	14.988	
3,200.00	3,199.32	3,178.81	3,177.22	7.00	6.83	158.87	-16.72	186.05	214.76	201.06	13.69	15.685	
3,300.00	3,299.18	3,273.67	3,271.32	7.22	7.04	160.24	-21.98	196.83	231.71	217.64	14.07	16.468	
3,400.00	3,399.04	3,367.95	3,364.63	7.44	7.26	161.51	-27.89	208.92	250.35	235.90	14.45	17.330	
3,500.00	3,498.90	3,461.59	3,457.08	7.67	7.49	162.69	-34.42	222.30	270.66	255.84	14.82	18.265	
3,600.00	3,598.77	3,554.54	3,548.60	7.89	7.73	163.77	-41.56	236.92	292.62	277.43	15.19	19.267	
3,700.00	3,698.63	3,646.78	3,639.14	8.12	7.98	164.76	-49.28	252.75	316.22	300.66	15.55	20.330	
3,800.00	3,798.49	3,740.90	3,731.26	8.34	8.24	165.67	-57.74	270.07	341.24	325.29	15.95	21.399	
3,900.00	3,898.36	3,837.52	3,825.80	8.57	8.53	166.49	-66.51	288.02	366.53	350.16	16.37	22.389	
4,000.00	3,998.22	3,934.15	3,920.33	8.80	8.83	167.20	-75.27	305.97	391.89	375.09	16.80	23.329	
4,100.00	4,098.08	4,030.77	4,014.87	9.02	9.13	167.82	-84.04	323.92	417.29	400.06	17.23	24.220	
4,200.00	4,197.95	4,127.40	4,109.41	9.25	9.44	168.38	-92.80	341.88	442.73	425.07	17.66	25.066	
4,300.00	4,297.81	4,224.02	4,203.95	9.48	9.76	168.87	-101.57	359.83	468.21	450.11	18.10	25.870	
4,400.00	4,397.67	4,320.65	4,298.48	9.71	10.08	169.31	-110.33	377.78	493.72	475.18	18.54	26.634	
4,500.00	4,497.53	4,417.27	4,393.02	9.94	10.41	169.71	-119.10	395.73	519.25	500.28	18.98	27.361	
4,600.00	4,597.40	4,513.90	4,487.56	10.17	10.74	170.07	-127.86	413.69	544.81	525.39	19.42	28.053	
4,700.00	4,697.26	4,610.52	4,582.10	10.40	11.08	170.40	-136.63	431.64	570.38	550.52	19.87	28.713	
4,800.00	4,797.12	4,707.15	4,676.63	10.63	11.42	170.70	-145.39	449.59	595.97	575.66	20.31	29.341	
4,900.00	4,896.99	4,803.77	4,771.17	10.87	11.77	170.98	-154.16	467.54	621.57	600.81	20.76	29.941	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)

Reference Site: Cotton Draw Unit

Site Error: 0.00 usft

Reference Well: 511H

Well Error: 0.00 usft

Reference Wellbore: OH

Reference Design: Plan #1

Local Co-ordinate Reference: Well 511H
TVD Reference: 3511.8' GE + 23.5' KB @ 3535.30usft
(Original Well Elev)

MD Reference: 3511.8' GE + 23.5' KB @ 3535.30usft
(Original Well Elev)

North Reference: Grid
Survey Calculation Method: Minimum Curvature

Output errors are at 2.00 sigma

Database: EDM 5000.1 Multi User Db

Offset TVD Reference: Offset Datum

Offset Design Cotton Draw Unit - 513H - OH - Plan #1													Offset Site Error: 0.00 usft	
Survey Program: 0-LEAM MWD+HDGM													Offset Well Error: 0.00 usft	
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Tooffset (")	Offset Wellbore Centre +N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,000.00	4,996.85	4,900.40	4,865.71	11.10	12.11	171.23	-162.93	485.50	647.19	625.98	21.21	30.514		
5,100.00	5,096.71	4,997.02	4,960.24	11.33	12.47	171.47	-171.69	503.45	672.82	651.15	21.66	31.061		
5,200.00	5,196.58	5,093.65	5,054.78	11.56	12.82	171.69	-180.46	521.40	698.45	676.34	22.11	31.585		
5,300.00	5,296.44	5,190.27	5,149.32	11.80	13.18	171.89	-189.22	539.35	724.10	701.53	22.57	32.085		
5,400.00	5,396.30	5,286.90	5,243.86	12.03	13.54	172.08	-197.99	557.30	749.75	726.73	23.02	32.565		
5,500.00	5,496.17	5,383.52	5,338.39	12.26	13.90	172.25	-206.75	575.26	775.41	751.93	23.48	33.025		
5,600.00	5,596.03	5,480.15	5,432.93	12.50	14.26	172.42	-215.52	593.21	801.08	777.14	23.94	33.466		
5,700.00	5,695.89	5,576.77	5,527.47	12.73	14.63	172.57	-224.28	611.16	826.75	802.35	24.40	33.889		
5,800.00	5,795.75	5,673.40	5,622.01	12.96	15.00	172.72	-233.05	629.11	852.43	827.57	24.86	34.295		
5,900.00	5,895.62	5,770.02	5,716.54	13.20	15.37	172.86	-241.81	647.07	878.11	852.79	25.32	34.686		
6,000.00	5,995.48	5,866.65	5,811.08	13.43	15.74	172.98	-250.58	665.02	903.80	878.02	25.78	35.061		
6,100.00	6,095.34	5,963.28	5,905.62	13.67	16.11	173.11	-259.34	682.97	929.49	903.25	26.24	35.423		
6,200.00	6,195.21	6,059.90	6,000.16	13.90	16.48	173.22	-268.11	700.92	955.18	928.48	26.70	35.770		
6,300.00	6,295.07	6,156.53	6,094.69	14.14	16.86	173.33	-276.87	718.88	980.88	953.71	27.17	36.105		
6,400.00	6,394.93	6,253.15	6,189.23	14.37	17.24	173.43	-285.64	736.83	1,006.58	978.95	27.63	36.428		
6,500.00	6,494.80	6,349.78	6,283.77	14.61	17.61	173.53	-294.40	754.78	1,032.29	1,004.19	28.10	36.740		
6,600.00	6,594.66	6,446.40	6,378.30	14.84	17.99	173.63	-303.17	772.73	1,057.99	1,029.43	28.56	37.040		
6,700.00	6,694.52	6,543.03	6,472.84	15.08	18.37	173.72	-311.94	790.69	1,083.70	1,054.67	29.03	37.330		
6,800.00	6,794.38	6,639.65	6,567.38	15.31	18.75	173.80	-320.70	808.64	1,109.41	1,079.92	29.50	37.610		
6,900.00	6,894.25	6,736.28	6,661.92	15.55	19.13	173.88	-329.47	826.59	1,135.13	1,105.16	29.97	37.881		
7,000.00	6,994.11	6,832.90	6,756.45	15.78	19.51	173.96	-338.23	844.54	1,160.84	1,130.41	30.43	38.143		
7,100.00	7,093.97	6,929.53	6,850.99	16.02	19.89	174.03	-347.00	862.50	1,186.56	1,155.66	30.90	38.396		
7,200.00	7,193.84	7,026.15	6,945.53	16.25	20.28	174.11	-355.76	880.45	1,212.28	1,180.91	31.37	38.641		
7,300.00	7,293.70	7,122.78	7,040.07	16.49	20.66	174.17	-364.53	898.40	1,238.00	1,206.16	31.84	38.878		
7,400.00	7,393.56	7,219.40	7,134.60	16.73	21.04	174.24	-373.29	916.35	1,263.72	1,231.41	32.31	39.107		
7,500.00	7,493.43	7,316.03	7,229.14	16.96	21.43	174.30	-382.06	934.31	1,289.45	1,256.66	32.79	39.330		
7,600.00	7,593.29	7,412.85	7,323.68	17.20	21.81	174.36	-390.82	952.26	1,315.17	1,281.92	33.26	39.545		
7,700.00	7,693.15	7,509.28	7,418.21	17.44	22.20	174.42	-399.59	970.21	1,340.90	1,307.17	33.73	39.754		
7,800.00	7,793.01	7,605.90	7,512.75	17.67	22.59	174.48	-408.35	988.16	1,366.63	1,332.43	34.20	39.957		
7,900.00	7,892.88	7,702.53	7,607.29	17.91	22.97	174.53	-417.12	1,006.12	1,392.36	1,357.68	34.68	40.154		
8,000.00	7,992.74	7,799.15	7,701.83	18.14	23.36	174.58	-425.88	1,024.07	1,418.09	1,382.94	35.15	40.345		
8,100.00	8,092.60	7,895.78	7,796.36	18.38	23.75	174.63	-434.65	1,042.02	1,443.82	1,408.20	35.62	40.530		
8,200.00	8,192.47	7,992.40	7,890.90	18.62	24.14	174.68	-443.42	1,059.97	1,469.55	1,433.46	36.10	40.710		
8,300.00	8,292.33	8,089.03	7,985.44	18.85	24.52	174.73	-452.18	1,077.93	1,495.29	1,458.72	36.57	40.886		
8,400.00	8,392.19	8,185.65	8,079.98	19.09	24.91	174.77	-460.95	1,095.88	1,521.02	1,483.97	37.05	41.056		
8,500.00	8,492.06	8,282.28	8,174.51	19.33	25.30	174.82	-469.71	1,113.83	1,546.76	1,509.23	37.52	41.221		
8,600.00	8,591.92	8,378.91	8,269.05	19.57	25.69	174.86	-478.48	1,131.78	1,572.49	1,534.49	38.00	41.382		
8,700.00	8,691.78	8,475.53	8,363.59	19.80	26.08	174.90	-487.24	1,149.74	1,598.23	1,559.75	38.48	41.539		
8,800.00	8,791.65	8,577.50	8,463.36	20.04	26.48	174.94	-496.48	1,168.65	1,623.95	1,584.97	38.96	41.662		
8,900.00	8,891.51	8,713.25	8,596.59	20.28	26.90	174.99	-507.91	1,192.07	1,648.22	1,608.61	39.61	41.807		
9,000.00	8,991.37	8,850.55	8,731.92	20.51	27.28	175.04	-518.06	1,212.85	1,670.18	1,629.95	40.23	41.519		
9,100.00	9,091.23	8,989.27	8,869.17	20.75	27.63	175.08	-526.87	1,230.89	1,689.78	1,648.96	40.82	41.397		
9,200.00	9,191.10	9,129.25	9,008.13	20.99	27.96	175.12	-534.27	1,246.06	1,707.00	1,665.61	41.39	41.245		
9,300.00	9,290.96	9,270.36	9,148.58	21.23	28.27	175.15	-540.23	1,258.26	1,721.79	1,679.86	41.93	41.063		
9,338.86	9,329.77	9,325.46	9,203.51	21.32	28.38	175.16	-542.14	1,262.18	1,726.88	1,684.75	42.13	40.965		
9,400.00	9,390.84	9,412.47	9,290.33	21.45	28.54	175.19	-544.69	1,267.40	1,733.82	1,691.38	42.43	40.860		
9,500.00	9,490.78	10,847.70	10,207.00	21.62	28.47	151.02	174.18	1,276.43	1,740.33	1,698.87	41.46	41.975		
9,600.00	9,590.77	10,848.46	10,207.00	21.80	28.47	150.79	174.94	1,276.43	1,703.00	1,660.60	42.40	40.161		
9,638.77	9,629.54	10,848.52	10,207.00	21.86	28.47	90.00	175.00	1,276.43	1,689.52	1,646.76	42.76	39.513		
9,700.00	9,690.77	10,848.52	10,207.00	21.98	28.47	90.00	175.00	1,276.43	1,669.66	1,626.35	43.31	38.551		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)

Reference Site: Cotton Draw Unit

Site Error: 0.00 usft

Reference Well: 511H

Well Error: 0.00 usft

Reference Wellbore: OH

Reference Design: Plan #1

Local Co-ordinate Reference: Well 511H
TVD Reference: 3511.8' GE + 23.5' KB @ 3535.30usft
(Original Well Elev)

MD Reference: 3511.8' GE + 23.5' KB @ 3535.30usft
(Original Well Elev)

North Reference: Grid
Survey Calculation Method: Minimum Curvature

Output errors are at 2.00 sigma

Database: EDM 5000.1 Multi User Db

Offset TVD Reference: Offset Datum

Offset Design Cotton Draw Unit - 513H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
9,738.77	9,729.54	10,848.52	10,207.00	22.06	28.47	90.00	175.00	1,276.43	1,658.13	1,614.48	43.86	37.982		
9,750.00	9,740.77	10,848.39	10,207.00	22.08	28.47	-90.39	174.87	1,276.43	1,654.95	1,611.20	43.75	37.827		
9,775.00	9,765.74	10,847.15	10,207.00	22.12	28.47	-91.20	173.63	1,276.43	1,648.12	1,604.17	43.95	37.498		
9,800.00	9,790.60	10,844.60	10,207.00	22.16	28.47	-91.91	171.08	1,276.43	1,641.67	1,597.53	44.14	37.191		
9,825.00	9,815.30	10,840.78	10,207.00	22.20	28.47	-92.52	167.23	1,276.43	1,635.61	1,591.29	44.32	36.905		
9,850.00	9,839.77	10,835.62	10,207.00	22.24	28.47	-93.04	162.10	1,276.43	1,629.96	1,585.47	44.48	36.642		
9,875.00	9,863.93	10,829.22	10,207.00	22.28	28.47	-93.46	155.70	1,276.43	1,624.71	1,580.08	44.64	36.399		
9,900.00	9,887.72	10,821.56	10,207.00	22.31	28.47	-93.78	148.04	1,276.43	1,619.89	1,575.11	44.77	36.179		
9,925.00	9,911.08	10,812.66	10,207.00	22.34	28.47	-94.02	139.14	1,276.43	1,615.47	1,570.58	44.90	35.980		
9,950.00	9,933.95	10,802.55	10,207.00	22.37	28.47	-94.18	129.03	1,276.43	1,611.47	1,566.46	45.01	35.802		
9,975.00	9,958.25	10,791.26	10,207.00	22.40	28.47	-94.25	117.74	1,276.43	1,607.87	1,562.75	45.12	35.636		
10,000.00	9,977.93	10,778.82	10,207.00	22.43	28.48	-94.25	105.30	1,276.43	1,604.66	1,559.44	45.22	35.487		
10,025.00	9,998.93	10,765.26	10,207.00	22.45	28.48	-94.18	91.74	1,276.43	1,601.83	1,556.52	45.31	35.355		
10,050.00	10,019.19	10,750.63	10,207.00	22.48	28.49	-94.06	77.11	1,276.43	1,599.35	1,553.96	45.38	35.240		
10,075.00	10,038.66	10,734.95	10,207.00	22.50	28.49	-93.88	61.43	1,276.43	1,597.21	1,551.75	45.45	35.140		
10,100.00	10,057.28	10,718.27	10,207.00	22.53	28.51	-93.65	44.75	1,276.43	1,595.37	1,549.86	45.51	35.054		
10,125.00	10,075.01	10,700.64	10,207.00	22.55	28.52	-93.39	27.12	1,276.43	1,593.83	1,548.27	45.56	34.981		
10,150.00	10,091.78	10,682.11	10,207.00	22.57	28.54	-93.09	8.59	1,276.43	1,592.55	1,546.93	45.63	34.904		
10,175.00	10,107.56	10,662.72	10,207.00	22.60	28.56	-92.78	-10.80	1,276.43	1,591.51	1,545.82	45.69	34.836		
10,200.00	10,122.31	10,642.54	10,207.01	22.62	28.58	-92.45	-30.98	1,276.43	1,590.68	1,544.93	45.74	34.776		
10,225.00	10,135.98	10,621.61	10,207.01	22.65	28.61	-92.12	-51.91	1,276.43	1,590.02	1,544.23	45.79	34.722		
10,250.00	10,148.54	10,599.74	10,207.00	22.68	28.64	-91.78	-73.78	1,276.43	1,589.53	1,543.69	45.84	34.674		
10,275.00	10,159.94	10,575.27	10,206.26	22.71	28.68	-91.40	-98.23	1,276.43	1,589.15	1,543.25	45.90	34.620		
10,300.00	10,170.17	10,551.45	10,204.34	22.75	28.71	-91.02	-121.97	1,276.43	1,588.86	1,542.89	45.97	34.563		
10,325.00	10,179.19	10,528.22	10,201.33	22.79	28.75	-90.64	-145.00	1,276.43	1,588.66	1,542.62	46.04	34.503		
10,350.00	10,186.98	10,505.54	10,197.32	22.84	28.79	-90.27	-167.33	1,276.43	1,588.55	1,542.43	46.13	34.439		
10,367.85	10,191.78	10,489.86	10,193.88	22.87	28.82	-90.00	-182.83	1,276.43	1,588.53	1,542.34	46.19	34.391		
10,375.00	10,193.51	10,483.36	10,192.37	22.89	28.83	-89.89	-188.95	1,276.43	1,588.53	1,542.32	46.22	34.372		
10,400.00	10,198.78	10,461.64	10,186.56	22.95	28.87	-89.52	-209.87	1,276.43	1,588.60	1,542.29	46.31	34.302		
10,425.00	10,202.75	10,440.34	10,179.94	23.02	28.91	-89.15	-230.12	1,276.43	1,588.75	1,542.33	46.42	34.229		
10,450.00	10,205.43	10,419.43	10,172.57	23.10	28.95	-88.78	-249.68	1,276.43	1,588.98	1,542.45	46.53	34.153		
10,475.00	10,206.81	10,400.00	10,164.96	23.18	28.98	-88.44	-267.56	1,276.43	1,589.28	1,542.64	46.64	34.073		
10,488.77	10,207.01	10,387.69	10,159.76	23.23	29.00	-88.22	-278.71	1,276.43	1,589.47	1,542.76	46.71	34.029		
10,500.00	10,207.01	10,378.70	10,155.79	23.27	29.02	-88.08	-286.78	1,276.43	1,589.65	1,542.89	46.77	33.992		
10,600.00	10,207.00	10,306.06	10,118.26	23.69	29.14	-86.73	-348.89	1,276.43	1,592.44	1,545.10	47.34	33.637		
10,700.00	10,207.00	10,246.30	10,080.61	24.22	29.22	-85.38	-395.25	1,276.43	1,598.11	1,550.09	48.03	33.274		
10,800.00	10,207.00	10,200.00	10,047.62	24.85	29.28	-84.20	-427.72	1,276.43	1,607.51	1,558.71	48.80	32.938		
10,900.00	10,207.00	10,158.19	10,015.26	25.57	29.32	-83.04	-454.17	1,276.43	1,621.22	1,571.58	49.64	32.660		
11,000.00	10,207.00	10,125.00	9,988.00	26.37	29.34	-82.08	-473.09	1,276.43	1,639.61	1,589.09	50.52	32.455		
11,100.00	10,207.00	10,100.00	9,966.64	27.25	29.36	-81.32	-486.07	1,276.43	1,662.85	1,611.42	51.43	32.334		
11,200.00	10,207.00	10,075.00	9,944.62	28.19	29.36	-80.55	-497.91	1,276.43	1,690.98	1,638.65	52.33	32.315		
11,300.00	10,207.00	10,057.82	9,929.15	29.19	29.37	-80.01	-505.37	1,276.43	1,723.91	1,670.69	53.22	32.392		
11,400.00	10,207.00	10,041.70	9,914.40	30.25	29.37	-79.49	-511.86	1,276.43	1,761.49	1,707.41	54.08	32.573		
11,500.00	10,207.00	10,025.00	9,898.89	31.36	29.37	-78.95	-518.06	1,276.43	1,803.52	1,748.64	54.89	32.858		
11,600.00	10,207.00	10,015.75	9,890.21	32.51	29.37	-78.65	-521.26	1,276.43	1,849.75	1,794.09	55.66	33.234		
11,700.00	10,207.00	10,000.00	9,875.29	33.71	29.36	-78.13	-526.31	1,276.43	1,899.94	1,843.59	56.36	33.713		
11,800.00	10,207.00	10,000.00	9,875.29	34.94	29.36	-78.13	-526.31	1,276.43	1,953.78	1,896.75	57.03	34.260		
11,900.00	10,207.00	9,987.56	9,863.39	36.20	29.36	-77.72	-529.95	1,276.43	2,011.02	1,953.40	57.61	34.906		
12,000.00	10,207.00	9,975.00	9,851.30	37.49	29.35	-77.31	-533.32	1,276.43	2,071.43	2,013.29	58.14	35.628		
12,100.00	10,207.00	9,975.00	9,851.30	38.80	29.35	-77.31	-533.32	1,276.43	2,134.69	2,076.05	58.64	36.402		
12,200.00	10,207.00	9,975.00	9,851.30	40.14	29.35	-77.31	-533.32	1,276.43	2,200.68	2,141.59	59.09	37.243		

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)

Reference Site: Cotton Draw Unit

Site Error: 0.00 usft

Reference Well: 511H

Well Error: 0.00 usft

Reference Wellbore: OH

Reference Design: Plan #1

Local Co-ordinate Reference: Well 511H
TVD Reference: 3511.8' GE + 23.5' KB @ 3535.30usft
(Original Well Elev)

MD Reference: 3511.8' GE + 23.5' KB @ 3535.30usft
(Original Well Elev)

North Reference: Grid

Survey Calculation Method: Minimum Curvature

Output errors are at 2.00 sigma

Database: EDM 5000.1 Multi User Db

Offset TVD Reference: Offset Datum

Offset Design Cotton Draw Unit - 513H - OH - Plan #1												Offset Site Error:	0.00 usft
Survey Program: O-LEAM MWD+HDGM												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
12,300.00	10,207.00	9,962.02	9,838.70	41.50	29.34	-76.87	-536.45	1,276.43	2,268.99	2,209.52	59.47	38.156	
12,400.00	10,207.00	9,950.00	9,826.97	42.88	29.34	-76.47	-539.05	1,276.43	2,339.63	2,279.83	59.80	39.122	
12,500.00	10,207.00	9,950.00	9,826.97	44.28	29.34	-76.47	-539.05	1,276.43	2,412.22	2,352.09	60.13	40.119	
12,600.00	10,207.00	9,950.00	9,826.97	45.69	29.34	-76.47	-539.05	1,276.43	2,486.71	2,426.30	60.41	41.162	
12,700.00	10,207.00	9,950.00	9,826.97	47.12	29.34	-76.47	-539.05	1,276.43	2,562.94	2,502.27	60.67	42.245	
12,800.00	10,207.00	9,950.00	9,826.97	48.56	29.34	-76.47	-539.05	1,276.43	2,640.76	2,579.86	60.90	43.366	
12,900.00	10,207.00	9,937.62	9,814.81	50.02	29.33	-76.06	-541.42	1,276.43	2,719.86	2,658.78	61.08	44.528	
13,000.00	10,207.00	9,925.00	9,802.37	51.48	29.32	-75.64	-543.51	1,276.43	2,800.46	2,739.21	61.25	45.724	
13,100.00	10,207.00	9,925.00	9,802.37	52.95	29.32	-75.64	-543.51	1,276.43	2,882.12	2,820.71	61.41	46.930	
13,200.00	10,207.00	9,925.00	9,802.37	54.44	29.32	-75.64	-543.51	1,276.43	2,964.90	2,903.34	61.56	48.161	
13,300.00	10,207.00	9,925.00	9,802.37	55.93	29.32	-75.64	-543.51	1,276.43	3,048.72	2,987.02	61.70	49.415	
13,400.00	10,207.00	9,925.00	9,802.37	57.43	29.32	-75.64	-543.51	1,276.43	3,133.49	3,071.67	61.82	50.690	
13,500.00	10,207.00	9,925.00	9,802.37	58.93	29.32	-75.64	-543.51	1,276.43	3,219.13	3,157.20	61.93	51.982	
13,600.00	10,207.00	9,925.00	9,802.37	60.45	29.32	-75.64	-543.51	1,276.43	3,305.57	3,243.54	62.03	53.292	
13,700.00	10,207.00	9,925.00	9,802.37	61.97	29.32	-75.64	-543.51	1,276.43	3,392.76	3,330.64	62.12	54.617	
13,800.00	10,207.00	9,925.00	9,802.37	63.49	29.32	-75.64	-543.51	1,276.43	3,480.64	3,418.44	62.20	55.956	
13,900.00	10,207.00	9,925.00	9,802.37	65.02	29.32	-75.64	-543.51	1,276.43	3,569.16	3,506.88	62.28	57.307	
14,000.00	10,207.00	9,912.74	9,790.23	66.56	29.30	-75.23	-545.23	1,276.43	3,658.11	3,595.76	62.34	58.676	
14,100.00	10,207.00	9,911.18	9,788.68	68.10	29.30	-75.18	-545.42	1,276.43	3,747.72	3,685.31	62.41	60.048	
14,200.00	10,207.00	9,900.00	9,777.57	69.64	29.29	-74.80	-546.68	1,276.43	3,837.95	3,775.48	62.47	61.440	
14,300.00	10,207.00	9,900.00	9,777.57	71.19	29.29	-74.80	-546.68	1,276.43	3,928.52	3,865.99	62.53	62.827	
14,400.00	10,207.00	9,900.00	9,777.57	72.75	29.29	-74.80	-546.68	1,276.43	4,019.53	3,956.95	62.59	64.222	
14,500.00	10,207.00	9,900.00	9,777.57	74.30	29.29	-74.80	-546.68	1,276.43	4,110.97	4,048.32	62.64	65.624	
14,600.00	10,207.00	9,900.00	9,777.57	75.86	29.29	-74.80	-546.68	1,276.43	4,202.79	4,140.09	62.70	67.031	
14,700.00	10,207.00	9,900.00	9,777.57	77.42	29.29	-74.80	-546.68	1,276.43	4,294.98	4,232.23	62.75	68.444	
14,800.00	10,207.00	9,900.00	9,777.57	78.99	29.29	-74.80	-546.68	1,276.43	4,387.51	4,324.71	62.80	69.862	
14,900.00	10,207.00	9,900.00	9,777.57	80.56	29.29	-74.80	-546.68	1,276.43	4,480.37	4,417.51	62.85	71.283	
15,000.00	10,207.00	9,900.00	9,777.57	82.13	29.29	-74.80	-546.68	1,276.43	4,573.52	4,510.62	62.90	72.708	
15,100.00	10,207.00	9,900.00	9,777.57	83.70	29.29	-74.80	-546.68	1,276.43	4,666.96	4,604.01	62.95	74.136	
15,200.00	10,207.00	9,900.00	9,777.57	85.28	29.29	-74.80	-546.68	1,276.43	4,760.66	4,697.66	63.00	75.567	
15,300.00	10,207.00	9,900.00	9,777.57	86.86	29.29	-74.80	-546.68	1,276.43	4,854.62	4,791.57	63.05	76.999	
15,393.49	10,207.00	9,900.00	9,777.57	88.00	29.29	-74.80	-546.68	1,276.43	4,942.66	4,877.42	63.25	75.752	
15,393.94	10,207.00	9,900.00	9,777.57	88.01	29.29	-74.80	-546.68	1,276.43	4,943.10	4,877.85	63.25	75.759	

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)

Reference Site: Cotton Draw Unit

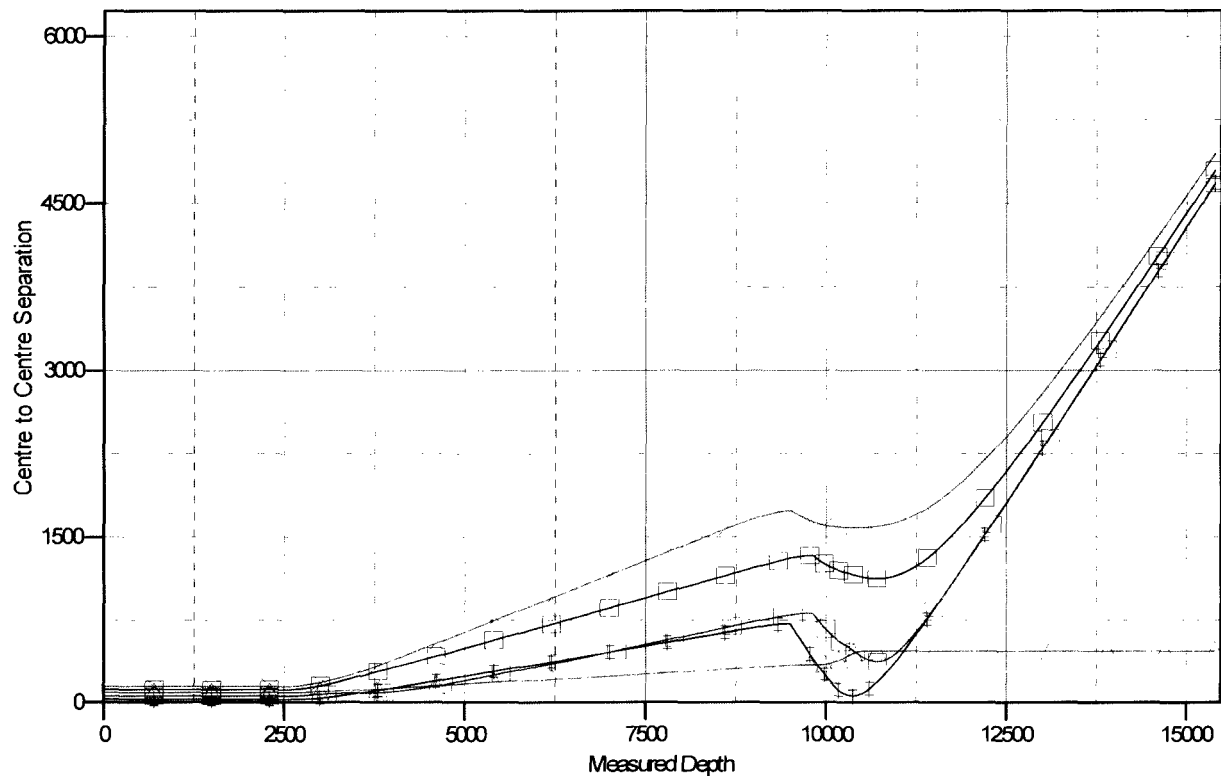
Site Error: 0.00 usft
Reference Well: 511H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #1

Local Co-ordinate Reference: Well 511H
TVD Reference: 3511.8' GE + 23.5' KB @ 3535.30usft (Original Well Elev)
MD Reference: 3511.8' GE + 23.5' KB @ 3535.30usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Reference Depths are relative to 3511.8' GE + 23.5' KB @ 3535.30usft
Offset Depths are relative to Offset Datum
Central Meridian is 104° 20' 0.000 W

Coordinates are relative to: 511H
Coordinate System is US State Plane 1983, New Mexico Eastern Zone
Grid Convergence at Surface is: 0.32°

Ladder Plot



LEGEND

✱ 513H, OH, Plan #1 V0 ▲ 293H, OH, Plan #1 V0 ▣ 294H, OH, Plan #1 V0
▣ 291H, OH, Plan #1 V0 ◆ 512H, OH, Plan #1 V0

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)

Reference Site: Cotton Draw Unit

Site Error: 0.00 usft

Reference Well: 511H

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North Reference: Grid

Survey Calculation Method: Minimum Curvature

Output errors are at 2.00 sigma

Database: EDM 5000.1 Multi User Db

Offset TVD Reference: Offset Datum

Reference Depths are relative to 3511.8' GE + 23.5' KB @ 3535.30usft

Offset Depths are relative to Offset Datum

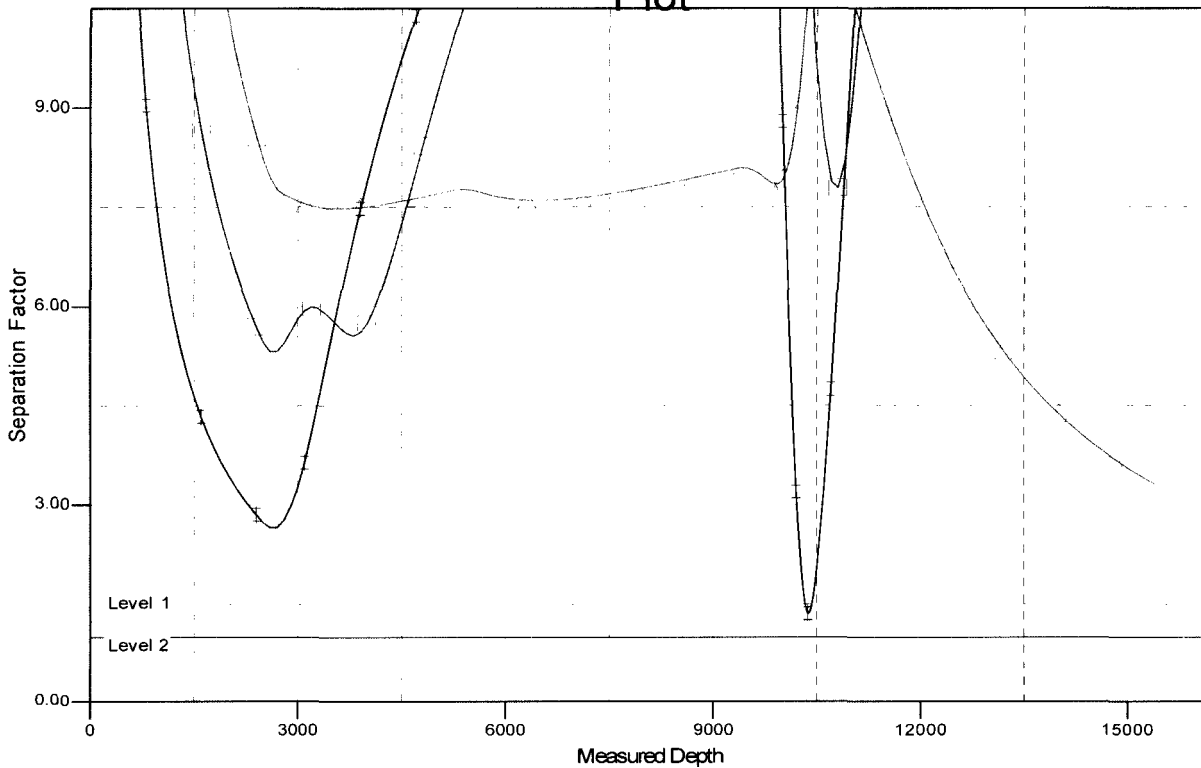
Central Meridian is 104° 20' 0.000 W

Coordinates are relative to: 511H

Coordinate System is US State Plane 1983, New Mexico Eastern Zone

Grid Convergence at Surface is: 0.32°

Separation Factor Plot



LEGEND

✕ 513H, OH, Plan #1 V0 ▲ 293H, OH, Plan #1 V0 ▣ 294H, OH, Plan #1 V0
▣ 291H, OH, Plan #1 V0 ◆ 512H, OH, Plan #1 V0

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation