

Project: Lea County, NM (NAD-83)
 Site: Thistle Unit Sec 22-27 Trac Pad
 Well: Thistle Unit 116H
 Wellbore: OH
 Design: Plan #2

3713.3' GE +23.5' KB @ 3736.80usft
 Ground Level: 3713.30

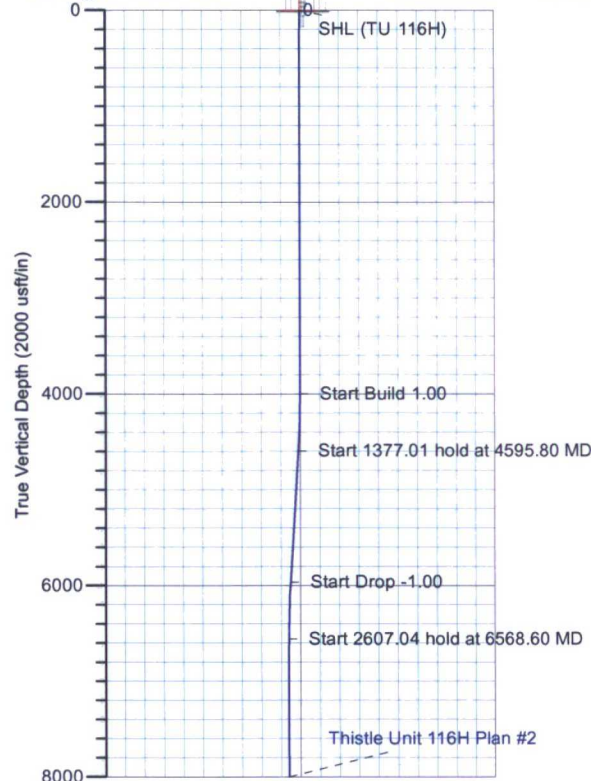


Azimuths to Grid North
 True North: -0.41°
 Magnetic North: 6.42°

Magnetic Field
 Strength: 48166.4snT
 Dip Angle: 60.12°
 Date: 9/19/2017
 Model: HDGM

PROJECT DETAILS: Lea County, NM (NAD-83)

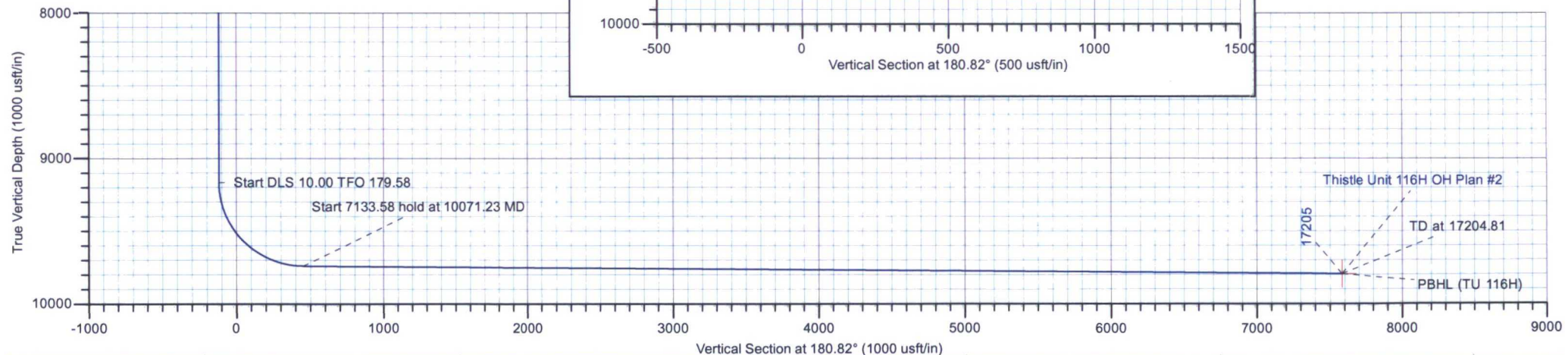
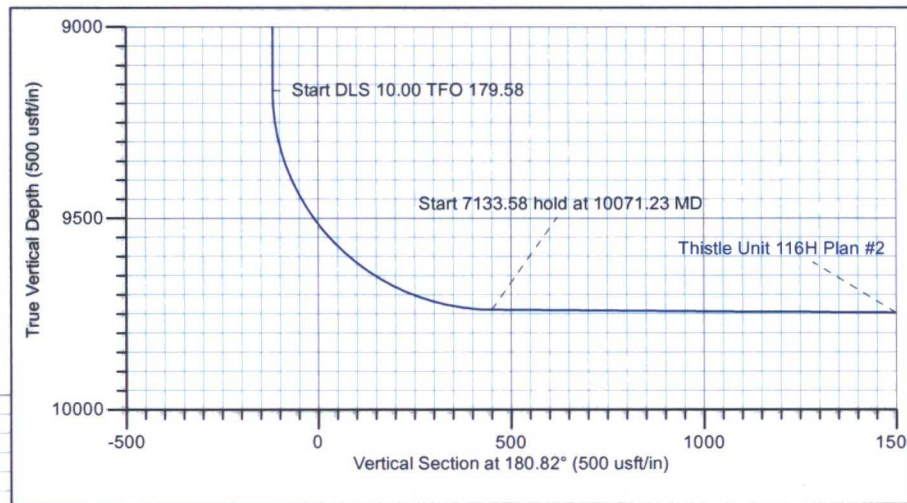
Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: New Mexico Eastern Zone



MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
4000.00	0.00	0.00	4000.00	0.00	0.00	0.00	0.00	0.00	Start Build 1.00
4595.80	5.96	305.86	4594.73	18.13	-25.08	1.00	305.86	-17.77	Start 1377.01 hold at 4595.80 MD
5972.81	5.96	305.86	5964.29	101.87	-140.92	0.00	0.00	-99.83	Start Drop -1.00
6568.60	0.00	0.00	6559.02	120.00	-166.00	1.00	180.00	-117.60	Start 2607.04 hold at 6568.60 MD
9175.64	0.00	0.00	9166.06	120.00	-166.00	0.00	0.00	-117.60	Start DLS 10.00 TFO 179.58
10071.23	89.56	179.58	9739.00	-448.52	-161.79	10.00	179.58	450.80	Start 7133.58 hold at 10071.23 MD
17204.81	89.56	179.58	9794.00	-7581.70	-108.98	0.00	0.00	7582.48	TD at 17204.81

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
PBHL (TU 116H)	9794.00	-7581.70	-108.98	32° 16' 32.5301 N	103° 33' 27.9729 W
SHL (TU 116H)	0.00	0.00	0.00	32° 17' 47.5436 N	103° 33' 26.0646 W



Devon Energy

Project: Lea County, NM (NAD-83)
Site: Thistle Unit Sec 22-27 Trac Pad
Well: Thistle Unit 116H
Wellbore: OH
Design: Plan #2



Azimuths to Grid North
True North: -0.41°
Magnetic North: 6.42°

Magnetic Field
Strength: 48166.4snT
Dip Angle: 60.12°
Date: 9/19/2017
Model: HDGM

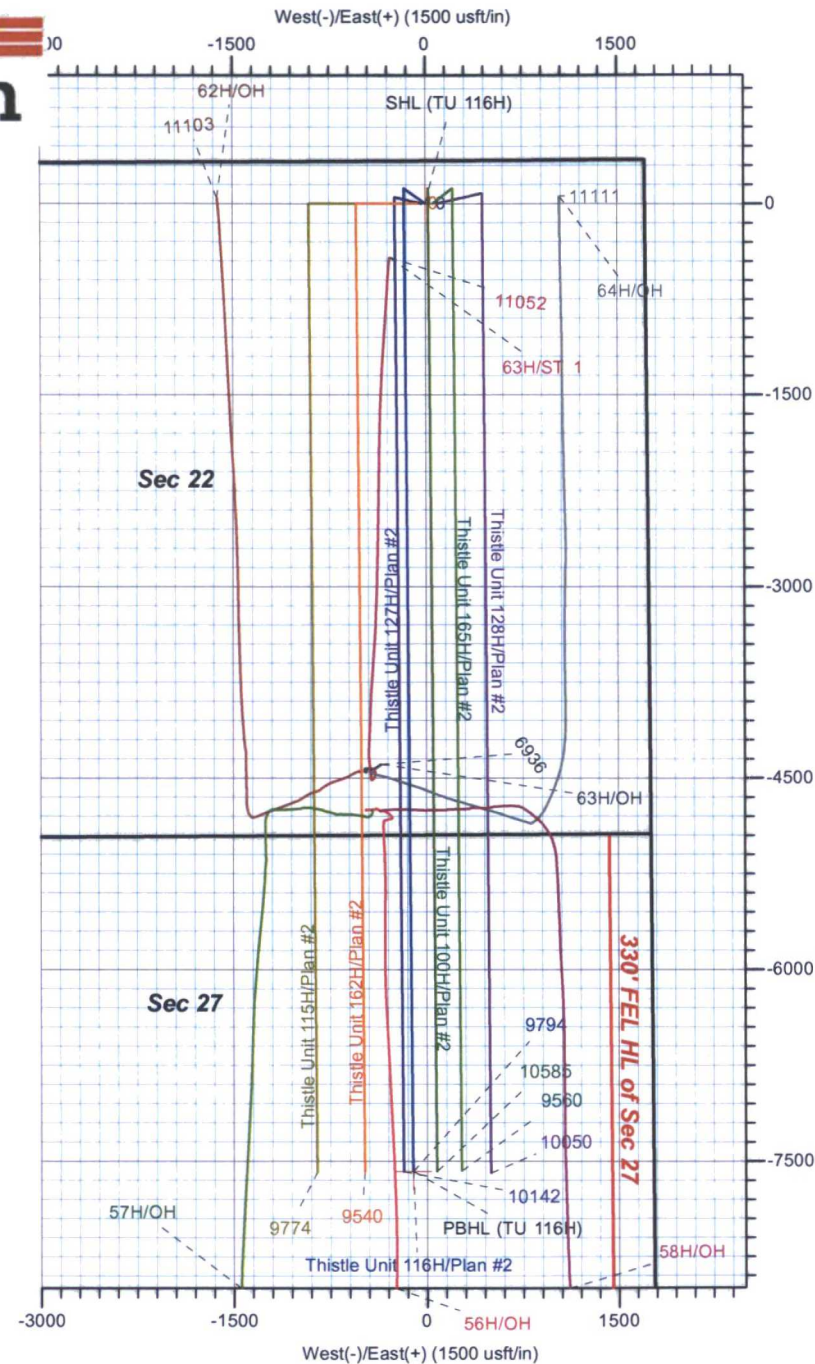
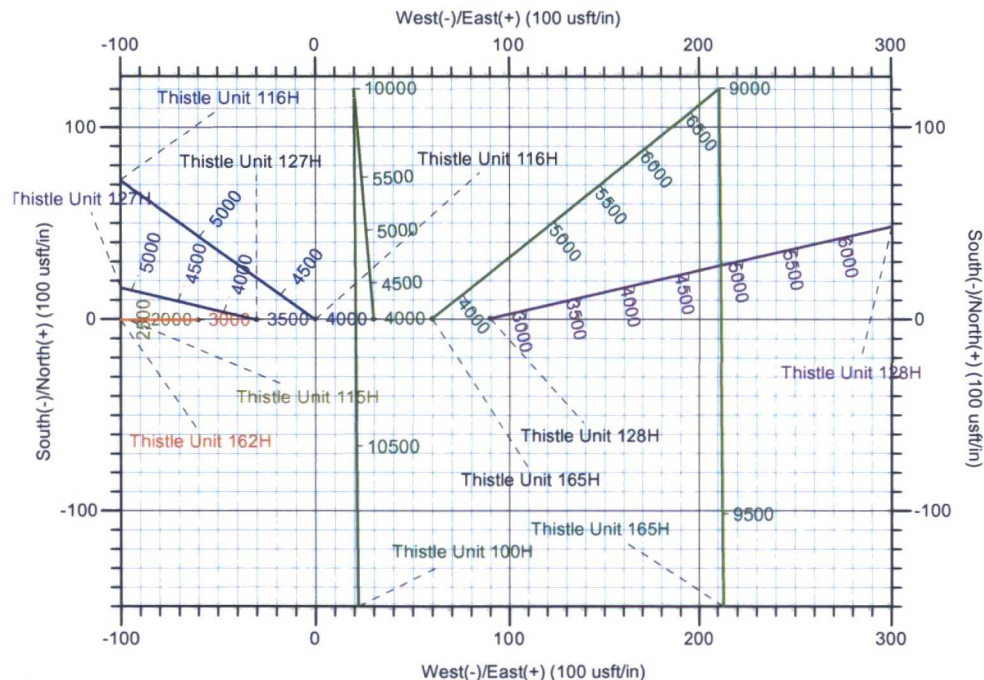
PROJECT DETAILS: Lea County, NM (NAD-83)
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone



SECTION DETAILS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
4000.00	0.00	0.00	4000.00	0.00	0.00	0.00	0.00	0.00	
4595.80	5.96	305.86	4594.73	18.13	-25.08	1.00	305.86	-17.77	
5972.81	5.96	305.86	5964.29	101.87	-140.92	0.00	0.00	-99.83	
6568.60	0.00	0.00	6559.02	120.00	-166.00	1.00	180.00	-117.60	
9175.64	0.00	0.00	9166.06	120.00	-166.00	0.00	0.00	-117.60	
10071.23	89.56	179.58	9739.00	-448.52	-161.79	10.00	179.58	450.80	PBHL (TU 116H)
17204.81	89.56	179.58	9794.00	-7581.70	-108.98	0.00	0.00	7582.48	

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
PBHL (TU 116H)	9794.00	-7581.70	-108.98	464899.91	781033.79	32° 16' 32.5301 N	103° 33' 27.9729 W
SHL (TU 116H)	0.00	0.00	0.00	472481.61	781142.77	32° 17' 47.5436 N	103° 33' 26.0646 W



LEAM DRILLING SYSTEMS LLC
2010 East Davis, Conroe, Texas 77301

Plan: Plan #2 (Thistle Unit 116H/OH)
Thistle Unit Sec 22-27 Trac Pad
Created By: Dustin Ault
Date: 15:18, September 20 2017

Devon Energy

Lea County, NM (NAD-83)

Thistle Unit Sec 22-27 Trac Pad

Thistle Unit 116H

OH

Plan: Plan #2

Standard Planning Report

20 September, 2017

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Multi User Db	Local Co-ordinate Reference:	Well Thistle Unit 116H
Company:	Devon Energy	TVD Reference:	3713.3' GE + 23.5' KB @ 3736.80usft
Project:	Lea County, NM (NAD-83)	MD Reference:	3713.3' GE + 23.5' KB @ 3736.80usft
Site:	Thistle Unit Sec 22-27 Trac Pad	North Reference:	Grid
Well:	Thistle Unit 116H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

Project	Lea 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	Thistle Unit Sec 22-27 Trac Pad		
Site Position:		Northing:	472,548.43 usft
From:	Map	Easting:	777,932.69 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 17' 48.4331 N
		Longitude:	103° 34' 3.4563 W
		Grid Convergence:	0.41 °

Well	Thistle Unit 116H		
Well Position	+N/-S	-66.82 usft	Northing:
	+E/-W	3,210.08 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft
		Latitude:	32° 17' 47.5436 N
		Longitude:	103° 33' 26.0646 W
		Ground Level:	3,713.30 usft

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination
			(°)
	HDGM	9/19/2017	6.83
			Dip Angle
			(°)
			60.12
			Field Strength
			(nT)
			48,166

Design	Plan #2		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth:
			0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			Direction
			(°)
			180.82

Plan Sections										
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Dogleg	Build	Turn	TFO	Target
Depth	(°)	(°)	Depth	(usft)	(usft)	Rate	Rate	Rate	(°)	
(usft)			(usft)			(°/100usft)	(°/100usft)	(°/100usft)		
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,595.80	5.96	305.86	4,594.73	18.13	-25.08	1.00	1.00	0.00	305.86	
5,972.81	5.96	305.86	5,964.29	101.87	-140.92	0.00	0.00	0.00	0.00	
6,568.60	0.00	0.00	6,559.02	120.00	-166.00	1.00	-1.00	0.00	180.00	
9,175.64	0.00	0.00	9,166.06	120.00	-166.00	0.00	0.00	0.00	0.00	
10,071.23	89.56	179.58	9,739.00	-448.52	-161.79	10.00	10.00	20.05	179.58	
17,204.81	89.56	179.58	9,794.00	-7,581.70	-108.98	0.00	0.00	0.00	0.00	PBHL (TU 116H)

LEAM Drilling Systems LLC

Planning Report

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Company:	Devon Energy	TVD Reference:	3713.3' GE + 23.5' KB @ 3736.80usft
Project:	Lea County, NM (NAD-83)	MD Reference:	3713.3' GE + 23.5' KB @ 3736.80usft
Site:	Thistle Unit Sec 22-27 Trac Pad	North Reference:	Grid
Well:	Thistle Unit 116H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SHL (TU 116H)									
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	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 1.00									
4,100.00	1.00	305.86	4,100.00	0.51	-0.71	-0.50	1.00	1.00	0.00
4,200.00	2.00	305.86	4,199.96	2.04	-2.83	-2.00	1.00	1.00	0.00
4,300.00	3.00	305.86	4,299.86	4.60	-6.36	-4.51	1.00	1.00	0.00
4,400.00	4.00	305.86	4,399.68	8.18	-11.31	-8.01	1.00	1.00	0.00
4,500.00	5.00	305.86	4,499.37	12.77	-17.67	-12.52	1.00	1.00	0.00
4,595.80	5.96	305.86	4,594.73	18.13	-25.08	-17.77	1.00	1.00	0.00
Start 1377.01 hold at 4595.80 MD									
4,600.00	5.96	305.86	4,598.90	18.39	-25.44	-18.02	0.00	0.00	0.00
4,700.00	5.96	305.86	4,698.36	24.47	-33.85	-23.98	0.00	0.00	0.00
4,800.00	5.96	305.86	4,797.82	30.55	-42.26	-29.94	0.00	0.00	0.00

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Multi User Db	Local Co-ordinate Reference:	Well Thistle Unit 116H
Company:	Devon Energy	TVD Reference:	3713.3' GE + 23.5' KB @ 3736.80usft
Project:	Lea County, NM (NAD-83)	MD Reference:	3713.3' GE + 23.5' KB @ 3736.80usft
Site:	Thistle Unit Sec 22-27 Trac Pad	North Reference:	Grid
Well:	Thistle Unit 116H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,900.00	5.96	305.86	4,897.28	36.63	-50.67	-35.90	0.00	0.00	0.00
5,000.00	5.96	305.86	4,996.74	42.71	-59.08	-41.86	0.00	0.00	0.00
5,100.00	5.96	305.86	5,096.20	48.79	-67.50	-47.82	0.00	0.00	0.00
5,200.00	5.96	305.86	5,195.66	54.87	-75.91	-53.78	0.00	0.00	0.00
5,300.00	5.96	305.86	5,295.12	60.95	-84.32	-59.74	0.00	0.00	0.00
5,400.00	5.96	305.86	5,394.58	67.04	-92.73	-65.70	0.00	0.00	0.00
5,500.00	5.96	305.86	5,494.04	73.12	-101.14	-71.66	0.00	0.00	0.00
5,600.00	5.96	305.86	5,593.50	79.20	-109.56	-77.61	0.00	0.00	0.00
5,700.00	5.96	305.86	5,692.96	85.28	-117.97	-83.57	0.00	0.00	0.00
5,800.00	5.96	305.86	5,792.42	91.36	-126.38	-89.53	0.00	0.00	0.00
5,900.00	5.96	305.86	5,891.88	97.44	-134.79	-95.49	0.00	0.00	0.00
5,972.81	5.96	305.86	5,964.29	101.87	-140.92	-99.83	0.00	0.00	0.00
Start Drop -1.00									
6,000.00	5.69	305.86	5,991.35	103.48	-143.15	-101.42	1.00	-1.00	0.00
6,100.00	4.69	305.86	6,090.94	108.78	-150.48	-106.61	1.00	-1.00	0.00
6,200.00	3.69	305.86	6,190.67	113.06	-156.39	-110.80	1.00	-1.00	0.00
6,300.00	2.69	305.86	6,290.51	116.31	-160.90	-113.99	1.00	-1.00	0.00
6,400.00	1.69	305.86	6,390.44	118.55	-163.99	-116.18	1.00	-1.00	0.00
6,500.00	0.69	305.86	6,490.42	119.76	-165.67	-117.37	1.00	-1.00	0.00
6,568.60	0.00	0.00	6,559.02	120.00	-166.00	-117.60	1.00	-1.00	0.00
Start 2607.04 hold at 6568.60 MD									
6,600.00	0.00	0.00	6,590.42	120.00	-166.00	-117.60	0.00	0.00	0.00
6,700.00	0.00	0.00	6,690.42	120.00	-166.00	-117.60	0.00	0.00	0.00
6,800.00	0.00	0.00	6,790.42	120.00	-166.00	-117.60	0.00	0.00	0.00
6,900.00	0.00	0.00	6,890.42	120.00	-166.00	-117.60	0.00	0.00	0.00
7,000.00	0.00	0.00	6,990.42	120.00	-166.00	-117.60	0.00	0.00	0.00
7,100.00	0.00	0.00	7,090.42	120.00	-166.00	-117.60	0.00	0.00	0.00
7,200.00	0.00	0.00	7,190.42	120.00	-166.00	-117.60	0.00	0.00	0.00
7,300.00	0.00	0.00	7,290.42	120.00	-166.00	-117.60	0.00	0.00	0.00
7,400.00	0.00	0.00	7,390.42	120.00	-166.00	-117.60	0.00	0.00	0.00
7,500.00	0.00	0.00	7,490.42	120.00	-166.00	-117.60	0.00	0.00	0.00
7,600.00	0.00	0.00	7,590.42	120.00	-166.00	-117.60	0.00	0.00	0.00
7,700.00	0.00	0.00	7,690.42	120.00	-166.00	-117.60	0.00	0.00	0.00
7,800.00	0.00	0.00	7,790.42	120.00	-166.00	-117.60	0.00	0.00	0.00
7,900.00	0.00	0.00	7,890.42	120.00	-166.00	-117.60	0.00	0.00	0.00
8,000.00	0.00	0.00	7,990.42	120.00	-166.00	-117.60	0.00	0.00	0.00
8,100.00	0.00	0.00	8,090.42	120.00	-166.00	-117.60	0.00	0.00	0.00
8,200.00	0.00	0.00	8,190.42	120.00	-166.00	-117.60	0.00	0.00	0.00
8,300.00	0.00	0.00	8,290.42	120.00	-166.00	-117.60	0.00	0.00	0.00
8,400.00	0.00	0.00	8,390.42	120.00	-166.00	-117.60	0.00	0.00	0.00
8,500.00	0.00	0.00	8,490.42	120.00	-166.00	-117.60	0.00	0.00	0.00
8,600.00	0.00	0.00	8,590.42	120.00	-166.00	-117.60	0.00	0.00	0.00
8,700.00	0.00	0.00	8,690.42	120.00	-166.00	-117.60	0.00	0.00	0.00
8,800.00	0.00	0.00	8,790.42	120.00	-166.00	-117.60	0.00	0.00	0.00
8,900.00	0.00	0.00	8,890.42	120.00	-166.00	-117.60	0.00	0.00	0.00
9,000.00	0.00	0.00	8,990.42	120.00	-166.00	-117.60	0.00	0.00	0.00
9,100.00	0.00	0.00	9,090.42	120.00	-166.00	-117.60	0.00	0.00	0.00
9,175.64	0.00	0.00	9,166.06	120.00	-166.00	-117.60	0.00	0.00	0.00
Start DLS 10.00 TFO 179.58									
9,200.00	2.44	179.58	9,190.41	119.48	-166.00	-117.08	10.00	10.00	0.00
9,250.00	7.44	179.58	9,240.21	115.18	-165.96	-112.78	10.00	10.00	0.00
9,300.00	12.44	179.58	9,289.44	106.56	-165.90	-104.16	10.00	10.00	0.00
9,350.00	17.44	179.58	9,337.74	93.68	-165.81	-91.28	10.00	10.00	0.00

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Multi User Db	Local Co-ordinate Reference:	Well Thistle Unit 116H
Company:	Devon Energy	TVD Reference:	3713.3' GE + 23.5' KB @ 3736.80usft
Project:	Lea County, NM (NAD-83)	MD Reference:	3713.3' GE + 23.5' KB @ 3736.80usft
Site:	Thistle Unit Sec 22-27 Trac Pad	North Reference:	Grid
Well:	Thistle Unit 116H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

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)
9,400.00	22.44	179.58	9,384.73	76.63	-165.68	-74.24	10.00	10.00	0.00
9,450.00	27.44	179.58	9,430.05	55.56	-165.52	-53.18	10.00	10.00	0.00
9,500.00	32.44	179.58	9,473.37	30.62	-165.34	-28.24	10.00	10.00	0.00
9,550.00	37.44	179.58	9,514.34	2.00	-165.13	0.38	10.00	10.00	0.00
9,600.00	42.44	179.58	9,552.67	-30.09	-164.89	32.46	10.00	10.00	0.00
9,650.00	47.44	179.58	9,588.05	-65.39	-164.63	67.75	10.00	10.00	0.00
9,700.00	52.44	179.58	9,620.23	-103.65	-164.34	106.00	10.00	10.00	0.00
9,750.00	57.44	179.58	9,648.94	-144.56	-164.04	146.90	10.00	10.00	0.00
9,800.00	62.44	179.58	9,673.98	-187.82	-163.72	190.15	10.00	10.00	0.00
9,850.00	67.44	179.58	9,695.16	-233.09	-163.39	235.42	10.00	10.00	0.00
9,900.00	72.44	179.58	9,712.31	-280.04	-163.04	282.35	10.00	10.00	0.00
9,950.00	77.44	179.58	9,725.30	-328.31	-162.68	330.61	10.00	10.00	0.00
10,000.00	82.44	179.58	9,734.03	-377.52	-162.32	379.81	10.00	10.00	0.00
10,050.00	87.44	179.58	9,738.44	-427.31	-161.95	429.59	10.00	10.00	0.00
10,071.23	89.56	179.58	9,739.00	-448.52	-161.79	450.80	10.00	10.00	0.00
Start 7133.58 hold at 10071.23 MD									
10,100.00	89.56	179.58	9,739.22	-477.30	-161.58	479.57	0.00	0.00	0.00
10,200.00	89.56	179.58	9,739.99	-577.29	-160.84	579.54	0.00	0.00	0.00
10,300.00	89.56	179.58	9,740.76	-677.28	-160.10	679.52	0.00	0.00	0.00
10,400.00	89.56	179.58	9,741.54	-777.28	-159.36	779.49	0.00	0.00	0.00
10,500.00	89.56	179.58	9,742.31	-877.27	-158.62	879.46	0.00	0.00	0.00
10,600.00	89.56	179.58	9,743.08	-977.27	-157.88	979.44	0.00	0.00	0.00
10,700.00	89.56	179.58	9,743.85	-1,077.26	-157.14	1,079.41	0.00	0.00	0.00
10,800.00	89.56	179.58	9,744.62	-1,177.26	-156.40	1,179.38	0.00	0.00	0.00
10,900.00	89.56	179.58	9,745.39	-1,277.25	-155.66	1,279.36	0.00	0.00	0.00
11,000.00	89.56	179.58	9,746.16	-1,377.24	-154.92	1,379.33	0.00	0.00	0.00
11,100.00	89.56	179.58	9,746.93	-1,477.24	-154.17	1,479.30	0.00	0.00	0.00
11,200.00	89.56	179.58	9,747.70	-1,577.23	-153.43	1,579.28	0.00	0.00	0.00
11,300.00	89.56	179.58	9,748.47	-1,677.23	-152.69	1,679.25	0.00	0.00	0.00
11,400.00	89.56	179.58	9,749.25	-1,777.22	-151.95	1,779.22	0.00	0.00	0.00
11,500.00	89.56	179.58	9,750.02	-1,877.22	-151.21	1,879.20	0.00	0.00	0.00
11,600.00	89.56	179.58	9,750.79	-1,977.21	-150.47	1,979.17	0.00	0.00	0.00
11,700.00	89.56	179.58	9,751.56	-2,077.20	-149.73	2,079.14	0.00	0.00	0.00
11,800.00	89.56	179.58	9,752.33	-2,177.20	-148.99	2,179.12	0.00	0.00	0.00
11,900.00	89.56	179.58	9,753.10	-2,277.19	-148.25	2,279.09	0.00	0.00	0.00
12,000.00	89.56	179.58	9,753.87	-2,377.19	-147.51	2,379.06	0.00	0.00	0.00
12,100.00	89.56	179.58	9,754.64	-2,477.18	-146.77	2,479.04	0.00	0.00	0.00
12,200.00	89.56	179.58	9,755.41	-2,577.18	-146.03	2,579.01	0.00	0.00	0.00
12,300.00	89.56	179.58	9,756.18	-2,677.17	-145.29	2,678.98	0.00	0.00	0.00
12,400.00	89.56	179.58	9,756.96	-2,777.16	-144.55	2,778.96	0.00	0.00	0.00
12,500.00	89.56	179.58	9,757.73	-2,877.16	-143.81	2,878.93	0.00	0.00	0.00
12,600.00	89.56	179.58	9,758.50	-2,977.15	-143.07	2,978.90	0.00	0.00	0.00
12,700.00	89.56	179.58	9,759.27	-3,077.15	-142.33	3,078.88	0.00	0.00	0.00
12,800.00	89.56	179.58	9,760.04	-3,177.14	-141.59	3,178.85	0.00	0.00	0.00
12,900.00	89.56	179.58	9,760.81	-3,277.14	-140.85	3,278.82	0.00	0.00	0.00
13,000.00	89.56	179.58	9,761.58	-3,377.13	-140.11	3,378.80	0.00	0.00	0.00
13,100.00	89.56	179.58	9,762.35	-3,477.12	-139.37	3,478.77	0.00	0.00	0.00
13,200.00	89.56	179.58	9,763.12	-3,577.12	-138.63	3,578.74	0.00	0.00	0.00
13,300.00	89.56	179.58	9,763.89	-3,677.11	-137.89	3,678.72	0.00	0.00	0.00
13,400.00	89.56	179.58	9,764.67	-3,777.11	-137.15	3,778.69	0.00	0.00	0.00
13,500.00	89.56	179.58	9,765.44	-3,877.10	-136.41	3,878.66	0.00	0.00	0.00
13,600.00	89.56	179.58	9,766.21	-3,977.10	-135.67	3,978.64	0.00	0.00	0.00
13,700.00	89.56	179.58	9,766.98	-4,077.09	-134.93	4,078.61	0.00	0.00	0.00
13,800.00	89.56	179.58	9,767.75	-4,177.08	-134.19	4,178.58	0.00	0.00	0.00

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Multi User Db	Local Co-ordinate Reference:	Well Thistle Unit 116H
Company:	Devon Energy	TVD Reference:	3713.3' GE + 23.5' KB @ 3736.80usft
Project:	Lea County, NM (NAD-83)	MD Reference:	3713.3' GE + 23.5' KB @ 3736.80usft
Site:	Thistle Unit Sec 22-27 Trac Pad	North Reference:	Grid
Well:	Thistle Unit 116H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

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)
13,900.00	89.56	179.58	9,768.52	-4,277.08	-133.45	4,278.56	0.00	0.00	0.00
14,000.00	89.56	179.58	9,769.29	-4,377.07	-132.71	4,378.53	0.00	0.00	0.00
14,100.00	89.56	179.58	9,770.06	-4,477.07	-131.97	4,478.50	0.00	0.00	0.00
14,200.00	89.56	179.58	9,770.83	-4,577.06	-131.23	4,578.48	0.00	0.00	0.00
14,300.00	89.56	179.58	9,771.60	-4,677.06	-130.48	4,678.45	0.00	0.00	0.00
14,400.00	89.56	179.58	9,772.38	-4,777.05	-129.74	4,778.42	0.00	0.00	0.00
14,500.00	89.56	179.58	9,773.15	-4,877.04	-129.00	4,878.40	0.00	0.00	0.00
14,600.00	89.56	179.58	9,773.92	-4,977.04	-128.26	4,978.37	0.00	0.00	0.00
14,700.00	89.56	179.58	9,774.69	-5,077.03	-127.52	5,078.34	0.00	0.00	0.00
14,800.00	89.56	179.58	9,775.46	-5,177.03	-126.78	5,178.32	0.00	0.00	0.00
14,900.00	89.56	179.58	9,776.23	-5,277.02	-126.04	5,278.29	0.00	0.00	0.00
15,000.00	89.56	179.58	9,777.00	-5,377.02	-125.30	5,378.26	0.00	0.00	0.00
15,100.00	89.56	179.58	9,777.77	-5,477.01	-124.56	5,478.24	0.00	0.00	0.00
15,200.00	89.56	179.58	9,778.54	-5,577.00	-123.82	5,578.21	0.00	0.00	0.00
15,300.00	89.56	179.58	9,779.31	-5,677.00	-123.08	5,678.18	0.00	0.00	0.00
15,400.00	89.56	179.58	9,780.09	-5,776.99	-122.34	5,778.16	0.00	0.00	0.00
15,500.00	89.56	179.58	9,780.86	-5,876.99	-121.60	5,878.13	0.00	0.00	0.00
15,600.00	89.56	179.58	9,781.63	-5,976.98	-120.86	5,978.10	0.00	0.00	0.00
15,700.00	89.56	179.58	9,782.40	-6,076.98	-120.12	6,078.07	0.00	0.00	0.00
15,800.00	89.56	179.58	9,783.17	-6,176.97	-119.38	6,178.05	0.00	0.00	0.00
15,900.00	89.56	179.58	9,783.94	-6,276.96	-118.64	6,278.02	0.00	0.00	0.00
16,000.00	89.56	179.58	9,784.71	-6,376.96	-117.90	6,377.99	0.00	0.00	0.00
16,100.00	89.56	179.58	9,785.48	-6,476.95	-117.16	6,477.97	0.00	0.00	0.00
16,200.00	89.56	179.58	9,786.25	-6,576.95	-116.42	6,577.94	0.00	0.00	0.00
16,300.00	89.56	179.58	9,787.02	-6,676.94	-115.68	6,677.91	0.00	0.00	0.00
16,400.00	89.56	179.58	9,787.80	-6,776.94	-114.94	6,777.89	0.00	0.00	0.00
16,500.00	89.56	179.58	9,788.57	-6,876.93	-114.20	6,877.86	0.00	0.00	0.00
16,600.00	89.56	179.58	9,789.34	-6,976.92	-113.46	6,977.83	0.00	0.00	0.00
16,700.00	89.56	179.58	9,790.11	-7,076.92	-112.72	7,077.81	0.00	0.00	0.00
16,800.00	89.56	179.58	9,790.88	-7,176.91	-111.98	7,177.78	0.00	0.00	0.00
16,900.00	89.56	179.58	9,791.65	-7,276.91	-111.24	7,277.75	0.00	0.00	0.00
17,000.00	89.56	179.58	9,792.42	-7,376.90	-110.50	7,377.73	0.00	0.00	0.00
17,100.00	89.56	179.58	9,793.19	-7,476.90	-109.76	7,477.70	0.00	0.00	0.00
17,204.81	89.56	179.58	9,794.00	-7,581.70	-108.98	7,582.48	0.00	0.00	0.00

TD at 17204.81 - PBHL (TU 116H)

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
SHL (TU 116H) - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	472,481.61	781,142.77	32° 17' 47.5436 N	103° 33' 26.0646 W
PBHL (TU 116H) - plan hits target center - Point	0.00	0.01	9,794.00	-7,581.70	-108.98	464,899.91	781,033.79	32° 16' 32.5301 N	103° 33' 27.9729 W

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Multi User Db	Local Co-ordinate Reference:	Well Thistle Unit 116H
Company:	Devon Energy	TVD Reference:	3713.3' GE + 23.5' KB @ 3736.80usft
Project:	Lea County, NM (NAD-83)	MD Reference:	3713.3' GE + 23.5' KB @ 3736.80usft
Site:	Thistle Unit Sec 22-27 Trac Pad	North Reference:	Grid
Well:	Thistle Unit 116H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
4,000.00	4,000.00	0.00	0.00	Start Build 1.00	
4,595.80	4,594.73	18.13	-25.08	Start 1377.01 hold at 4595.80 MD	
5,972.81	5,964.29	101.87	-140.92	Start Drop -1.00	
6,568.60	6,559.02	120.00	-166.00	Start 2607.04 hold at 6568.60 MD	
9,175.64	9,166.06	120.00	-166.00	Start DLS 10.00 TFO 179.58	
10,071.23	9,739.00	-448.52	-161.79	Start 7133.58 hold at 10071.23 MD	
17,204.81	9,794.00	-7,581.70	-108.98	TD at 17204.81	

Devon Energy

Lea County, NM (NAD-83)

Thistle Unit Sec 22-27 Trac Pad

Thistle Unit 116H

OH

Plan #2

Anticollision Report

20 September, 2017

LEAM Drilling Systems LLC

Anticollision Report

Company:	Devon Energy	Local Co-ordinate Reference:	Well Thistle Unit 116H
Project:	Lea County, NM (NAD-83)	TVD Reference:	3713.3' GE + 23.5' KB @ 3736.80usft
Reference Site:	Thistle Unit Sec 22-27 Trac Pad	MD Reference:	3713.3' GE + 23.5' KB @ 3736.80usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Thistle Unit 116H	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 #2	Offset TVD Reference:	Offset Datum

Reference	Plan #2		
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	9/20/2017		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	10,071.23	Plan #2 (OH)	LEAM MWD+HDGM	MWD+HDGM	
10,071.23	17,204.81	Plan #2 (OH)	MWD+IFR1+MS	MWD + IFR1 + Multi-Station Correction	

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Thistle Unit						
62H - OH - OH	14,397.90	9,668.09	1,152.50	1,081.97	16.339	CC
62H - OH - OH	14,400.00	9,668.26	1,152.50	1,081.95	16.335	ES
62H - OH - OH	14,500.00	9,676.07	1,157.00	1,085.65	16.217	SF
63H - OH - OH	13,993.70	6,929.00	2,841.70	2,801.45	70.596	CC
63H - OH - OH	14,000.00	6,929.00	2,841.71	2,801.42	70.531	ES
63H - OH - OH	14,800.00	6,929.00	2,953.88	2,909.34	66.324	SF
63H - ST 1 - ST 1	14,110.83	9,748.29	271.61	231.42	6.758	CC, ES, SF
64H - OH - OH	14,480.14	9,803.98	919.56	858.13	14.971	CC
64H - OH - OH	14,500.00	9,804.60	919.77	858.10	14.915	ES
64H - OH - OH	14,600.00	9,807.70	927.33	864.47	14.752	SF
Thistle Unit (Offsets)						
56H - OH - OH	14,441.57	9,750.90	146.42	87.86	2.500	CC, ES, SF
57H - OH - OH	14,366.12	9,694.81	985.60	927.91	17.083	CC, ES
57H - OH - OH	14,500.00	9,694.68	994.66	936.29	17.042	SF
58H - OH - OH	14,348.41	9,739.01	726.27	668.26	12.519	CC, ES
58H - OH - OH	14,400.00	9,739.17	728.10	669.85	12.498	SF
Thistle Unit Sec 22-27 Trac Pad						
Thistle Unit 100H - OH - Plan #2	4,000.00	3,999.90	29.98	12.28	1.693	CC, ES
Thistle Unit 100H - OH - Plan #2	4,100.00	4,099.94	30.62	12.47	1.687	SF
Thistle Unit 115H - OH - Plan #2	2,203.47	2,203.37	89.96	80.33	9.344	CC
Thistle Unit 115H - OH - Plan #2	2,300.00	2,299.13	90.18	80.12	8.971	ES
Thistle Unit 115H - OH - Plan #2	17,204.81	17,109.02	744.13	559.49	4.030	SF
Thistle Unit 127H - OH - Plan #2	3,500.00	3,499.90	29.99	14.53	1.940	CC, ES
Thistle Unit 127H - OH - Plan #2	9,461.05	9,444.80	73.51	32.51	1.793	SF
Thistle Unit 128H - OH - Plan #2	2,500.00	2,499.80	89.98	79.02	8.210	CC, ES
Thistle Unit 128H - OH - Plan #2	17,204.81	17,566.28	657.90	481.65	3.733	SF
Thistle Unit 162H - OH - Plan #2	3,000.00	3,000.00	60.00	46.79	4.543	CC, ES
Thistle Unit 162H - OH - Plan #2	17,204.81	16,977.28	453.69	337.56	3.907	SF
Thistle Unit 165H - OH - Plan #2	3,500.00	3,499.80	59.97	44.52	3.880	CC, ES
Thistle Unit 165H - OH - Plan #2	17,204.81	17,077.58	443.54	273.70	2.612	SF

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	Local Co-ordinate Reference:	Well Thistle Unit 116H
Project:	Lea County, NM (NAD-83)	TVD Reference:	3713.3' GE + 23.5' KB @ 3736.80usft
Reference Site:	Thistle Unit Sec 22-27 Trac Pad	MD Reference:	3713.3' GE + 23.5' KB @ 3736.80usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Thistle Unit 116H	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 #2	Offset TVD Reference:	Offset Datum

Offset Design Thistle Unit - 62H - OH - OH													Offset Site Error: 0.00 usft
Survey Program: 85-ISCWSA-GYRO-3, 1447-LEAM_MWD, 15750-Project													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	0.00	0.00	0.00	0.00	-173.34	-4,455.27	-520.13	4,485.58				
100.00	100.00	59.95	59.95	0.09	0.06	-173.34	-4,455.41	-520.04	4,485.69	4,485.57	0.13	N/A	
200.00	200.00	161.91	161.90	0.31	0.20	-173.35	-4,455.95	-519.75	4,486.19	4,485.69	0.50	8,962.375	
300.00	300.00	274.51	274.50	0.54	0.39	-173.34	-4,456.19	-519.99	4,486.43	4,485.50	0.92	4,868.161	
400.00	400.00	389.47	389.47	0.76	0.59	-173.34	-4,456.02	-520.66	4,486.34	4,485.00	1.35	3,328.074	
500.00	500.00	499.44	499.43	0.99	0.78	-173.33	-4,455.54	-521.32	4,485.98	4,484.22	1.77	2,541.493	
600.00	600.00	613.57	613.56	1.21	0.98	-173.32	-4,454.77	-521.96	4,485.38	4,483.19	2.19	2,047.823	
700.00	700.00	721.50	721.49	1.43	1.17	-173.31	-4,453.78	-522.37	4,484.51	4,481.91	2.60	1,722.193	
800.00	800.00	822.19	822.17	1.66	1.34	-173.31	-4,452.77	-522.47	4,483.53	4,480.52	3.00	1,492.471	
900.00	900.00	914.48	914.45	1.88	1.50	-173.31	-4,451.97	-522.55	4,482.67	4,479.29	3.39	1,322.729	
1,000.00	1,000.00	1,022.47	1,022.44	2.11	1.69	-173.31	-4,451.02	-522.39	4,481.78	4,477.98	3.80	1,178.490	
1,100.00	1,100.00	1,128.74	1,128.70	2.33	1.88	-173.31	-4,449.95	-522.00	4,480.74	4,476.53	4.21	1,063.343	
1,200.00	1,200.00	1,235.07	1,235.02	2.56	2.07	-173.31	-4,448.73	-521.56	4,479.55	4,474.93	4.62	968.585	
1,300.00	1,300.00	1,334.41	1,334.36	2.78	2.24	-173.32	-4,447.51	-521.15	4,478.28	4,473.26	5.02	891.522	
1,400.00	1,400.00	1,416.00	1,415.94	3.01	2.38	-173.32	-4,446.62	-520.85	4,477.18	4,471.79	5.39	830.702	
1,500.00	1,500.00	1,489.14	1,489.08	3.23	2.42	-173.32	-4,446.16	-520.92	4,476.58	4,470.93	5.65	792.209	
1,522.15	1,522.15	1,501.01	1,500.95	3.28	2.42	-173.32	-4,446.14	-521.01	4,476.56	4,470.85	5.70	784.746	
1,600.00	1,600.00	1,550.21	1,550.14	3.46	2.45	-173.31	-4,446.21	-521.90	4,476.83	4,470.92	5.90	758.346	
1,700.00	1,700.00	1,612.91	1,612.78	3.68	2.50	-173.27	-4,446.55	-524.56	4,477.87	4,471.69	6.18	724.937	
1,800.00	1,800.00	1,668.00	1,667.75	3.91	2.56	-173.23	-4,447.16	-528.11	4,479.78	4,473.32	6.46	693.394	
1,900.00	1,900.00	1,711.44	1,711.04	4.13	2.62	-173.18	-4,448.14	-531.65	4,482.94	4,476.20	6.74	664.799	
2,000.00	2,000.00	1,763.00	1,762.37	4.36	2.70	-173.13	-4,449.77	-536.19	4,487.18	4,480.14	7.05	636.771	
2,100.00	2,100.00	1,815.34	1,814.44	4.58	2.79	-173.07	-4,452.03	-541.03	4,492.57	4,485.20	7.36	610.078	
2,200.00	2,200.00	1,901.62	1,900.21	4.81	2.98	-172.97	-4,456.30	-549.29	4,498.66	4,490.90	7.77	579.088	
2,300.00	2,300.00	2,002.46	2,000.47	5.03	3.23	-172.86	-4,461.40	-558.85	4,504.87	4,496.64	8.23	547.225	
2,400.00	2,400.00	2,099.41	2,096.86	5.26	3.49	-172.75	-4,466.28	-568.00	4,511.07	4,502.36	8.71	517.758	
2,500.00	2,500.00	2,201.93	2,198.79	5.48	3.79	-172.64	-4,471.44	-577.79	4,517.31	4,508.08	9.23	489.421	
2,600.00	2,600.00	2,306.53	2,302.78	5.71	4.12	-172.52	-4,476.61	-587.84	4,523.47	4,513.70	9.77	462.870	
2,700.00	2,700.00	2,420.69	2,416.31	5.93	4.50	-172.39	-4,481.95	-598.51	4,529.35	4,518.99	10.36	437.175	
2,800.00	2,800.00	2,519.54	2,514.63	6.15	4.83	-172.29	-4,486.55	-607.56	4,535.20	4,524.29	10.91	415.777	
2,900.00	2,900.00	2,623.31	2,617.87	6.38	5.19	-172.18	-4,491.26	-616.97	4,540.94	4,529.46	11.48	395.568	
3,000.00	3,000.00	2,750.93	2,744.84	6.60	5.64	-172.04	-4,496.87	-628.46	4,546.59	4,534.45	12.14	374.454	
3,100.00	3,100.00	2,856.39	2,849.81	6.83	6.02	-171.93	-4,500.87	-637.87	4,551.61	4,538.87	12.73	357.473	
3,200.00	3,200.00	2,973.11	2,966.02	7.05	6.44	-171.82	-4,505.08	-647.88	4,556.40	4,543.03	13.37	340.869	
3,300.00	3,300.00	3,053.00	3,045.60	7.28	6.72	-171.74	-4,508.10	-654.27	4,561.30	4,547.43	13.87	328.860	
3,400.00	3,400.00	3,181.28	3,173.29	7.50	7.19	-171.61	-4,512.51	-665.70	4,565.98	4,551.42	14.56	313.688	
3,500.00	3,500.00	3,293.42	3,284.90	7.73	7.61	-171.49	-4,516.03	-676.08	4,570.47	4,555.28	15.19	300.931	
3,600.00	3,600.00	3,394.97	3,385.99	7.95	7.98	-171.38	-4,518.85	-685.21	4,574.57	4,558.78	15.78	289.874	
3,700.00	3,700.00	3,481.17	3,471.81	8.18	8.30	-171.29	-4,521.49	-692.83	4,578.94	4,562.62	16.32	280.585	
3,800.00	3,800.00	3,593.40	3,583.50	8.40	8.73	-171.17	-4,524.98	-703.25	4,583.47	4,566.51	16.96	270.297	
3,900.00	3,900.00	3,688.45	3,678.11	8.63	9.08	-171.06	-4,527.65	-712.06	4,587.70	4,570.16	17.53	261.669	
4,000.00	4,000.00	3,764.08	3,753.35	8.85	9.37	-170.98	-4,530.02	-719.27	4,592.31	4,574.27	18.04	254.621	
4,100.00	4,100.00	3,849.77	3,838.57	9.07	9.70	-170.77	-4,533.16	-727.69	4,597.86	4,579.29	18.57	247.559	
4,200.00	4,199.96	3,968.24	3,956.44	9.28	10.15	-170.55	-4,537.42	-738.84	4,604.11	4,584.88	19.23	239.415	
4,300.00	4,299.86	4,038.12	4,025.98	9.50	10.42	-170.45	-4,539.87	-745.24	4,611.07	4,591.37	19.70	234.023	
4,400.00	4,399.68	4,092.00	4,079.55	9.72	10.63	-170.35	-4,542.28	-750.47	4,619.78	4,599.66	20.12	229.666	
4,500.00	4,499.37	4,175.33	4,162.37	9.94	10.95	-170.24	-4,546.55	-758.64	4,629.93	4,609.28	20.64	224.264	
4,595.80	4,594.73	4,306.28	4,292.58	10.15	11.46	-170.15	-4,553.05	-770.86	4,640.13	4,618.78	21.35	217.289	
4,600.00	4,598.90	4,310.59	4,296.88	10.16	11.48	-170.15	-4,553.25	-771.25	4,640.58	4,619.20	21.38	217.049	
4,700.00	4,698.36	4,402.88	4,388.73	10.38	11.83	-170.17	-4,557.60	-779.14	4,651.24	4,629.29	21.95	211.930	
4,800.00	4,797.82	4,471.00	4,456.52	10.61	12.09	-170.18	-4,561.12	-784.81	4,662.33	4,639.91	22.42	207.951	
4,900.00	4,897.28	4,565.00	4,550.04	10.84	12.45	-170.21	-4,566.48	-792.55	4,673.90	4,650.90	23.00	203.249	

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	Local Co-ordinate Reference:	Well Thistle Unit 116H
Project:	Lea County, NM (NAD-83)	TVD Reference:	3713.3' GE + 23.5' KB @ 3736.80usft
Reference Site:	Thistle Unit Sec 22-27 Trac Pad	MD Reference:	3713.3' GE + 23.5' KB @ 3736.80usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Thistle Unit 116H	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 #2	Offset TVD Reference:	Offset Datum

Offset Design Thistle Unit - 62H - OH - OH													Offset Site Error: 0.00 usft
Survey Program: 85-ISCWSA-GYRO-3, 1447-LEAM_MWD, 15750-Project													Offset Well Error: 0.00 usft
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	4,996.74	4,660.82	4,645.36	11.08	12.82	-116.23	-4,572.08	-800.65	4,685.65	4,662.06	23.58	198.694	
5,100.00	5,096.20	4,754.00	4,738.03	11.31	13.19	-116.25	-4,577.42	-808.80	4,697.33	4,673.17	24.16	194.412	
5,200.00	5,195.66	4,835.69	4,819.29	11.55	13.50	-116.27	-4,582.37	-815.51	4,709.27	4,684.58	24.69	190.702	
5,300.00	5,295.12	4,908.89	4,892.12	11.79	13.78	-116.30	-4,587.28	-820.96	4,721.70	4,696.51	25.19	187.432	
5,400.00	5,394.58	5,148.78	5,130.78	12.03	14.71	-116.36	-4,600.77	-840.89	4,733.61	4,707.25	26.35	179.614	
5,500.00	5,494.04	5,252.00	5,233.60	12.27	15.11	-116.39	-4,604.87	-849.05	4,743.43	4,716.45	26.98	175.817	
5,600.00	5,593.50	5,359.74	5,340.83	12.51	15.52	-116.40	-4,608.64	-858.72	4,752.96	4,725.33	27.63	172.031	
5,700.00	5,692.96	5,444.87	5,425.41	12.76	15.86	-116.39	-4,611.41	-868.04	4,762.58	4,734.39	28.20	168.894	
5,800.00	5,792.42	5,530.31	5,510.10	13.00	16.21	-116.36	-4,614.28	-878.90	4,772.58	4,743.81	28.78	165.846	
5,900.00	5,891.88	5,623.73	5,602.67	13.25	16.59	-116.33	-4,617.55	-891.02	4,782.76	4,753.37	29.39	162.719	
5,972.81	5,964.29	5,676.00	5,654.45	13.43	16.80	-116.31	-4,619.40	-897.91	4,790.27	4,760.50	29.78	160.878	
6,000.00	5,991.35	5,705.56	5,683.74	13.49	16.93	-116.32	-4,620.50	-901.80	4,793.08	4,763.13	29.95	160.016	
6,100.00	6,090.94	5,771.00	5,748.58	13.68	17.20	-116.38	-4,623.32	-910.18	4,803.44	4,773.04	30.40	158.023	
6,200.00	6,190.67	5,824.91	5,802.00	13.88	17.42	-116.45	-4,626.13	-916.85	4,813.85	4,783.07	30.79	156.366	
6,300.00	6,290.51	5,892.68	5,869.15	14.07	17.70	-116.49	-4,630.38	-924.90	4,824.41	4,793.18	31.23	154.491	
6,400.00	6,390.44	5,998.76	5,974.42	14.25	18.13	-116.51	-4,637.34	-935.96	4,834.28	4,802.46	31.82	151.906	
6,500.00	6,490.42	15,750.00	11,082.01	14.44	85.39	-40.34	42.00	-1,618.91	4,836.93	4,786.77	50.16	96.431	
6,568.60	6,559.02	15,750.00	11,082.01	14.56	85.39	-93.07	42.00	-1,618.91	4,771.45	4,721.03	50.42	94.635	
6,600.00	6,590.42	15,750.00	11,082.01	14.62	85.39	-93.07	42.00	-1,618.91	4,741.56	4,691.02	50.54	93.812	
6,700.00	6,690.42	15,750.00	11,082.01	14.84	85.39	-93.07	42.00	-1,618.91	4,646.48	4,595.53	50.96	91.184	
6,800.00	6,790.42	15,750.00	11,082.01	15.06	85.39	-93.07	42.00	-1,618.91	4,551.62	4,500.23	51.39	88.570	
6,900.00	6,890.42	15,750.00	11,082.01	15.28	85.39	-93.07	42.00	-1,618.91	4,456.98	4,405.14	51.84	85.973	
7,000.00	6,990.42	15,750.00	11,082.01	15.50	85.39	-93.07	42.00	-1,618.91	4,362.58	4,310.27	52.31	83.392	
7,100.00	7,090.42	15,750.00	11,082.01	15.71	85.39	-93.07	42.00	-1,618.91	4,268.44	4,215.63	52.81	80.828	
7,200.00	7,190.42	15,750.00	11,082.01	15.93	85.39	-93.07	42.00	-1,618.91	4,174.57	4,121.24	53.33	78.283	
7,300.00	7,290.42	15,750.00	11,082.01	16.15	85.39	-93.07	42.00	-1,618.91	4,080.99	4,027.12	53.87	75.758	
7,400.00	7,390.42	15,750.00	11,082.01	16.37	85.39	-93.07	42.00	-1,618.91	3,987.72	3,933.28	54.44	73.253	
7,500.00	7,490.42	15,750.00	11,082.01	16.59	85.39	-93.07	42.00	-1,618.91	3,894.78	3,839.75	55.04	70.769	
7,600.00	7,590.42	15,750.00	11,082.01	16.81	85.39	-93.07	42.00	-1,618.91	3,802.21	3,746.54	55.66	68.308	
7,700.00	7,690.42	15,750.00	11,082.01	17.03	85.39	-93.07	42.00	-1,618.91	3,710.02	3,653.69	56.32	65.870	
7,800.00	7,790.42	15,750.00	11,082.01	17.25	85.39	-93.07	42.00	-1,618.91	3,618.24	3,561.22	57.02	63.458	
7,900.00	7,890.42	15,750.00	11,082.01	17.47	85.39	-93.07	42.00	-1,618.91	3,526.91	3,469.16	57.75	61.072	
8,000.00	7,990.42	15,750.00	11,082.01	17.69	85.39	-93.07	42.00	-1,618.91	3,436.06	3,377.54	58.52	58.714	
8,100.00	8,090.42	15,750.00	11,082.01	17.91	85.39	-93.07	42.00	-1,618.91	3,345.74	3,286.40	59.34	56.385	
8,200.00	8,190.42	15,750.00	11,082.01	18.13	85.39	-93.07	42.00	-1,618.91	3,255.98	3,195.78	60.20	54.087	
8,300.00	8,290.42	15,750.00	11,082.01	18.35	85.39	-93.07	42.00	-1,618.91	3,166.84	3,105.73	61.11	51.822	
8,400.00	8,390.42	15,750.00	11,082.01	18.57	85.39	-93.07	42.00	-1,618.91	3,078.36	3,016.29	62.07	49.591	
8,500.00	8,490.42	15,750.00	11,082.01	18.79	85.39	-93.07	42.00	-1,618.91	2,990.61	2,927.51	63.10	47.397	
8,600.00	8,590.42	15,750.00	11,082.01	19.01	85.39	-93.07	42.00	-1,618.91	2,903.65	2,839.47	64.18	45.242	
8,700.00	8,690.42	15,750.00	11,082.01	19.24	85.39	-93.07	42.00	-1,618.91	2,817.56	2,752.23	65.33	43.129	
8,800.00	8,790.42	15,750.00	11,082.01	19.46	85.39	-93.07	42.00	-1,618.91	2,732.41	2,665.86	66.55	41.058	
8,900.00	8,890.42	15,750.00	11,082.01	19.68	85.39	-93.07	42.00	-1,618.91	2,648.30	2,580.46	67.84	39.035	
9,000.00	8,990.42	15,750.00	11,082.01	19.90	85.39	-93.07	42.00	-1,618.91	2,565.33	2,496.12	69.22	37.061	
9,100.00	9,090.42	15,750.00	11,082.01	20.12	85.39	-93.07	42.00	-1,618.91	2,483.62	2,412.94	70.68	35.139	
9,175.64	9,166.06	15,750.00	11,082.01	20.29	85.39	-93.07	42.00	-1,618.91	2,422.72	2,350.88	71.84	33.722	
9,200.00	9,190.41	15,750.00	11,082.01	20.34	85.39	90.58	42.00	-1,618.91	2,403.29	2,331.06	72.22	33.276	
9,250.00	9,240.21	15,746.88	11,082.09	20.42	85.39	96.91	38.89	-1,618.65	2,363.72	2,290.73	72.99	32.384	
9,300.00	9,289.44	15,737.08	11,082.33	20.49	85.38	102.63	29.13	-1,617.83	2,324.87	2,251.10	73.76	31.518	
9,350.00	9,337.74	15,723.06	11,082.67	20.57	85.37	107.75	15.16	-1,616.65	2,287.00	2,212.44	74.56	30.674	
9,400.00	9,384.73	15,704.92	11,083.12	20.64	85.36	112.23	-2.91	-1,615.14	2,250.39	2,175.03	75.35	29.865	
9,450.00	9,430.05	15,685.27	11,083.59	20.71	85.20	116.17	-22.49	-1,613.50	2,215.29	2,139.32	75.97	29.160	
9,500.00	9,473.37	15,664.63	11,084.07	20.77	84.88	119.60	-43.05	-1,611.88	2,181.98	2,105.53	76.44	28.543	

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	Local Co-ordinate Reference:	Well Thistle Unit 116H
Project:	Lea County, NM (NAD-83)	TVD Reference:	3713.3' GE + 23.5' KB @ 3736.80usft
Reference Site:	Thistle Unit Sec 22-27 Trac Pad	MD Reference:	3713.3' GE + 23.5' KB @ 3736.80usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Thistle Unit 116H	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 #2	Offset TVD Reference:	Offset Datum

Offset Design Thistle Unit - 62H - OH - OH													Offset Site Error:	0.00 usft
Survey Program: 85-ISCWSA-GYRO-3, 1447-LEAM_MWD, 15750-Project													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 (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)						
9,550.00	9,514.34	15,633.92	11,084.71	20.83	84.41	122.37	-73.68	-1,609.64	2,150.68	2,073.89	76.79	28.009		
9,600.00	9,552.67	15,580.47	11,085.50	20.89	83.59	124.35	-126.97	-1,605.58	2,121.32	2,044.45	76.87	27.597		
9,650.00	9,588.05	15,534.18	11,085.86	20.95	82.88	126.22	-173.10	-1,601.85	2,093.94	2,016.98	76.97	27.206		
9,700.00	9,620.23	15,495.64	11,085.94	21.02	82.29	127.95	-211.53	-1,598.89	2,068.93	1,991.84	77.09	26.838		
9,750.00	9,648.94	15,459.00	11,085.83	21.10	81.73	129.44	-248.07	-1,596.24	2,046.45	1,969.27	77.18	26.515		
9,800.00	9,673.98	15,429.04	11,085.81	21.21	81.27	130.76	-277.97	-1,594.20	2,026.81	1,949.53	77.28	26.227		
9,850.00	9,695.16	15,400.25	11,086.03	21.35	80.83	131.84	-306.69	-1,592.33	2,010.29	1,932.97	77.32	25.999		
9,900.00	9,712.31	15,364.00	11,086.66	21.52	80.28	132.64	-342.87	-1,590.11	1,997.01	1,919.78	77.23	25.857		
9,950.00	9,725.30	15,322.00	11,087.60	21.72	79.65	133.24	-384.78	-1,587.59	1,986.87	1,909.84	77.02	25.795		
10,000.00	9,734.03	15,268.57	11,088.74	21.95	78.84	133.66	-438.10	-1,584.29	1,979.60	1,902.95	76.64	25.828		
10,050.00	9,738.44	15,218.86	11,089.74	22.20	78.10	133.96	-487.70	-1,581.21	1,975.27	1,899.03	76.24	25.908		
10,071.23	9,739.00	15,197.70	11,090.13	22.31	77.78	134.04	-508.82	-1,579.93	1,974.35	1,898.30	76.05	25.961		
10,100.00	9,739.22	15,169.46	11,090.63	26.52	77.36	134.08	-537.00	-1,578.25	1,973.47	1,897.89	75.58	26.110		
10,200.00	9,739.99	15,077.00	11,091.89	26.60	75.98	134.17	-629.32	-1,573.39	1,970.64	1,896.22	74.41	26.482		
10,300.00	9,740.76	14,980.81	11,093.64	26.69	74.56	134.28	-725.37	-1,568.31	1,968.10	1,894.87	73.24	26.874		
10,400.00	9,741.54	14,870.35	11,095.60	26.77	72.93	134.41	-835.64	-1,562.20	1,965.38	1,893.44	71.93	27.323		
10,500.00	9,742.31	14,769.21	11,096.39	26.86	71.46	134.51	-936.65	-1,557.00	1,962.25	1,891.44	70.81	27.713		
10,600.00	9,743.08	14,675.46	11,097.23	26.95	70.11	134.58	-1,030.28	-1,552.61	1,959.51	1,889.70	69.81	28.069		
10,700.00	9,743.85	14,565.18	11,097.88	27.04	68.53	134.67	-1,140.43	-1,547.20	1,956.41	1,887.73	68.68	28.487		
10,800.00	9,744.62	14,466.50	11,097.94	27.13	67.13	134.74	-1,239.01	-1,542.69	1,953.19	1,885.46	67.73	28.838		
10,900.00	9,745.39	14,363.62	11,097.78	27.22	65.69	134.79	-1,341.79	-1,538.26	1,950.00	1,883.22	66.79	29.198		
11,000.00	9,746.16	14,251.52	11,097.30	27.31	64.13	134.86	-1,453.77	-1,533.07	1,946.40	1,880.61	65.78	29.588		
11,100.00	9,746.93	14,129.15	11,095.55	27.40	62.44	134.91	-1,575.98	-1,527.05	1,941.89	1,877.16	64.73	30.000		
11,200.00	9,747.70	14,020.07	11,093.29	27.50	60.95	134.95	-1,684.88	-1,521.15	1,936.57	1,872.72	63.86	30.328		
11,300.00	9,748.47	13,908.98	11,090.51	27.59	59.45	134.99	-1,795.74	-1,514.67	1,930.65	1,867.65	63.00	30.646		
11,400.00	9,749.25	13,807.35	11,088.16	27.69	58.10	135.05	-1,897.13	-1,508.06	1,924.40	1,862.13	62.26	30.909		
11,500.00	9,750.02	13,714.97	11,086.18	27.79	56.88	135.10	-1,989.29	-1,502.04	1,918.27	1,856.62	61.65	31.115		
11,600.00	9,750.79	13,618.96	11,084.00	27.89	55.64	135.14	-2,085.13	-1,496.63	1,912.65	1,851.59	61.06	31.326		
11,700.00	9,751.56	13,521.75	11,081.52	27.99	54.41	135.17	-2,182.15	-1,491.20	1,906.88	1,846.39	60.49	31.523		
11,800.00	9,752.33	13,432.47	11,079.33	28.09	53.30	135.19	-2,271.30	-1,486.88	1,901.69	1,841.65	60.05	31.670		
11,900.00	9,753.10	13,326.42	11,076.85	28.20	52.01	135.21	-2,377.20	-1,481.92	1,896.72	1,837.23	59.49	31.884		
12,000.00	9,753.87	13,237.31	11,074.82	28.31	50.94	135.24	-2,466.16	-1,477.22	1,891.41	1,832.30	59.11	31.999		
12,100.00	9,754.64	13,158.14	11,074.36	28.42	50.02	135.29	-2,545.23	-1,473.22	1,887.36	1,828.53	58.84	32.078		
12,200.00	9,755.41	13,071.76	11,073.93	28.55	49.04	135.33	-2,631.52	-1,469.44	1,883.93	1,825.39	58.54	32.180		
12,300.00	9,756.18	13,000.00	11,074.43	28.70	48.24	135.38	-2,703.24	-1,466.90	1,881.87	1,823.47	58.41	32.219		
12,384.22	9,756.83	12,942.41	11,075.43	28.87	47.62	135.41	-2,760.81	-1,465.46	1,881.37	1,823.01	58.35	32.241		
12,400.00	9,756.96	12,930.85	11,075.65	28.90	47.49	135.42	-2,772.36	-1,465.26	1,881.38	1,823.05	58.34	32.250		
12,500.00	9,757.73	12,824.27	11,077.50	29.22	46.38	135.45	-2,878.91	-1,463.95	1,881.75	1,823.75	58.00	32.443		
12,600.00	9,758.50	12,716.00	11,078.73	29.64	45.29	135.48	-2,987.16	-1,462.02	1,881.27	1,823.57	57.70	32.605		
12,700.00	9,759.27	12,621.00	11,080.22	30.11	44.37	135.53	-3,082.12	-1,459.87	1,880.77	1,823.23	57.54	32.688		
12,753.87	9,759.68	12,572.70	11,081.13	30.38	43.92	135.56	-3,130.41	-1,458.88	1,880.70	1,823.21	57.49	32.711		
12,800.00	9,760.04	12,527.00	11,081.94	30.61	43.50	135.57	-3,176.09	-1,458.15	1,880.76	1,823.33	57.43	32.750		
12,900.00	9,760.81	12,432.00	11,083.27	31.13	42.66	135.60	-3,271.07	-1,456.65	1,880.64	1,823.27	57.37	32.782		
12,932.74	9,761.06	9,574.44	9,531.73	31.30	32.13	79.06	-4,779.67	-1,264.53	1,861.95	1,801.60	60.34	30.856		
13,000.00	9,761.58	9,578.61	9,535.86	31.66	32.15	79.26	-4,779.89	-1,265.01	1,809.69	1,749.13	60.55	29.886		
13,100.00	9,762.35	9,584.77	9,541.97	32.20	32.18	79.57	-4,780.21	-1,265.72	1,733.89	1,672.99	60.90	28.472		
13,200.00	9,763.12	9,590.89	9,548.05	32.76	32.20	79.87	-4,780.53	-1,266.43	1,660.64	1,599.34	61.29	27.093		
13,300.00	9,763.89	9,596.98	9,554.09	33.32	32.23	80.17	-4,780.84	-1,267.13	1,590.28	1,528.53	61.74	25.757		
13,400.00	9,764.67	9,603.04	9,560.10	33.89	32.25	80.47	-4,781.15	-1,267.83	1,523.21	1,460.96	62.25	24.468		
13,500.00	9,765.44	9,609.07	9,566.07	34.47	32.28	80.77	-4,781.46	-1,268.52	1,459.90	1,397.06	62.83	23.235		
13,600.00	9,766.21	9,615.06	9,572.02	35.05	32.30	81.07	-4,781.77	-1,269.21	1,400.84	1,337.35	63.49	22.065		
13,700.00	9,766.98	9,621.02	9,577.93	35.64	32.33	81.36	-4,782.07	-1,269.90	1,346.60	1,282.39	64.21	20.971		

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	Local Co-ordinate Reference:	Well Thistle Unit 116H
Project:	Lea County, NM (NAD-83)	TVD Reference:	3713.3' GE + 23.5' KB @ 3736.80usft
Reference Site:	Thistle Unit Sec 22-27 Trac Pad	MD Reference:	3713.3' GE + 23.5' KB @ 3736.80usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Thistle Unit 116H	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 #2	Offset TVD Reference:	Offset Datum

Offset Design Thistle Unit - 62H - OH - OH													Offset Site Error:	0.00 usft
Survey Program: 85-ISCWSA-GYRO-3, 1447-LEAM_MWD, 15750-Project													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 (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)						
13,800.00	9,767.75	9,626.94	9,583.81	36.24	32.35	81.66	-4,782.37	-1,270.58	1,297.79	1,232.77	65.02	19.961		
13,900.00	9,768.52	9,632.83	9,589.65	36.85	32.37	81.95	-4,782.67	-1,271.26	1,255.03	1,189.14	65.89	19.048		
14,000.00	9,769.29	9,638.70	9,595.47	37.46	32.40	82.24	-4,782.97	-1,271.93	1,218.97	1,152.16	66.81	18.246		
14,100.00	9,770.06	9,644.53	9,601.25	38.08	32.42	82.53	-4,783.26	-1,272.60	1,190.21	1,122.45	67.76	17.564		
14,200.00	9,770.83	9,651.11	9,607.78	38.70	32.45	82.85	-4,783.59	-1,273.36	1,169.29	1,100.57	68.73	17.014		
14,300.00	9,771.60	9,659.95	9,616.56	39.33	32.48	83.29	-4,784.02	-1,274.36	1,156.63	1,086.96	69.67	16.601		
14,397.90	9,772.36	9,668.09	9,624.64	39.95	32.52	83.70	-4,784.41	-1,275.26	1,152.50	1,081.97	70.54	16.339 CC		
14,400.00	9,772.38	9,668.26	9,624.80	39.96	32.52	83.71	-4,784.42	-1,275.27	1,152.50	1,081.95	70.55	16.335 ES		
14,500.00	9,773.15	9,676.07	9,632.56	40.60	32.55	84.09	-4,784.77	-1,276.12	1,157.00	1,085.65	71.34	16.217 SF		
14,600.00	9,773.92	9,683.42	9,639.87	41.24	32.58	84.46	-4,785.09	-1,276.90	1,170.02	1,098.00	72.02	16.246		
14,700.00	9,774.69	9,690.37	9,646.77	41.88	32.61	84.80	-4,785.39	-1,277.62	1,191.29	1,118.72	72.56	16.417		
14,800.00	9,775.46	9,696.93	9,653.29	42.53	32.63	85.13	-4,785.66	-1,278.29	1,220.38	1,147.40	72.98	16.722		
14,900.00	9,776.23	9,703.14	9,659.47	43.19	32.66	85.44	-4,785.90	-1,278.91	1,256.75	1,183.47	73.28	17.150		
15,000.00	9,777.00	9,709.03	9,665.33	43.84	32.68	85.73	-4,786.13	-1,279.49	1,299.80	1,226.33	73.47	17.693		
15,100.00	9,777.77	9,714.63	9,670.89	44.50	32.70	86.01	-4,786.34	-1,280.03	1,348.88	1,275.31	73.56	18.336		
15,200.00	9,778.54	9,719.94	9,676.18	45.17	32.72	86.27	-4,786.53	-1,280.53	1,403.36	1,329.77	73.59	19.071		
15,300.00	9,779.31	9,725.00	9,681.21	45.83	32.74	86.52	-4,786.71	-1,281.00	1,462.64	1,389.08	73.56	19.885		
15,400.00	9,780.09	9,729.82	9,686.01	46.51	32.76	86.76	-4,786.87	-1,281.45	1,526.16	1,452.68	73.48	20.769		
15,500.00	9,780.86	9,734.42	9,690.59	47.18	32.78	86.99	-4,787.03	-1,281.86	1,593.42	1,520.04	73.39	21.713		
15,600.00	9,781.63	9,738.82	9,694.96	47.85	32.80	87.21	-4,787.17	-1,282.26	1,663.97	1,590.69	73.27	22.709		
15,700.00	9,782.40	9,743.02	9,699.14	48.53	32.82	87.42	-4,787.30	-1,282.63	1,737.39	1,664.24	73.15	23.750		
15,800.00	9,783.17	9,747.34	9,703.45	49.21	32.83	87.63	-4,787.43	-1,283.00	1,813.36	1,740.33	73.03	24.830		
15,900.00	9,783.94	9,751.84	9,707.93	49.90	32.85	87.85	-4,787.57	-1,283.39	1,891.55	1,818.63	72.91	25.943		
16,000.00	9,784.71	9,756.45	9,712.51	50.58	32.87	88.08	-4,787.72	-1,283.80	1,971.70	1,898.90	72.80	27.083		
16,100.00	9,785.48	9,761.17	9,717.21	51.27	32.89	88.31	-4,787.87	-1,284.21	2,053.59	1,980.88	72.70	28.246		
16,200.00	9,786.25	9,766.00	9,722.03	51.96	32.91	88.55	-4,788.03	-1,284.63	2,137.01	2,064.39	72.61	29.430		
16,300.00	9,787.02	9,770.96	9,726.97	52.65	32.92	88.80	-4,788.19	-1,285.06	2,221.79	2,149.25	72.54	30.630		
16,400.00	9,787.80	9,776.05	9,732.03	53.35	32.94	89.05	-4,788.36	-1,285.50	2,307.78	2,235.31	72.47	31.845		
16,500.00	9,788.57	9,781.27	9,737.23	54.05	32.96	89.31	-4,788.54	-1,285.96	2,394.85	2,322.43	72.42	33.071		
16,600.00	9,789.34	9,786.63	9,742.56	54.74	32.99	89.57	-4,788.73	-1,286.42	2,482.88	2,410.51	72.37	34.306		
16,700.00	9,790.11	9,792.12	9,748.04	55.44	33.01	89.84	-4,788.92	-1,286.90	2,571.78	2,499.44	72.34	35.549		
16,800.00	9,790.88	9,797.77	9,753.66	56.15	33.03	90.12	-4,789.13	-1,287.39	2,661.46	2,589.14	72.32	36.799		
16,900.00	9,791.65	9,803.57	9,759.43	56.85	33.05	90.41	-4,789.34	-1,287.90	2,751.85	2,679.53	72.32	38.053		
17,000.00	9,792.42	9,809.54	9,765.37	57.55	33.07	90.70	-4,789.56	-1,288.42	2,842.86	2,770.55	72.32	39.311		
17,100.00	9,793.19	9,815.67	9,771.47	58.26	33.10	91.00	-4,789.79	-1,288.95	2,934.46	2,862.13	72.33	40.571		
17,204.81	9,794.00	9,822.28	9,778.06	59.00	33.12	91.33	-4,790.04	-1,289.53	3,031.02	2,958.67	72.35	41.893		

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	Local Co-ordinate Reference:	Well Thistle Unit 116H
Project:	Lea County, NM (NAD-83)	TVD Reference:	3713.3' GE + 23.5' KB @ 3736.80usft
Reference Site:	Thistle Unit Sec 22-27 Trac Pad	MD Reference:	3713.3' GE + 23.5' KB @ 3736.80usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Thistle Unit 116H	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 #2	Offset TVD Reference:	Offset Datum

Offset Design Thistle Unit - 63H - OH - OH													Offset Site Error:	0.00 usft
Survey Program: 100- VES GyroFlex V2													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 (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)						
0.00	0.00	0.00	0.00	0.00	0.00	-173.98	-4,454.99	-470.14	4,479.78					
100.00	100.00	64.41	64.41	0.09	0.04	-173.98	-4,455.09	-470.15	4,479.85	4,479.72	0.13	N/A		
200.00	200.00	153.03	153.03	0.31	0.13	-173.98	-4,455.51	-470.19	4,480.33	4,479.88	0.45	N/A		
300.00	300.00	244.33	244.33	0.54	0.23	-173.98	-4,456.10	-470.29	4,480.98	4,480.21	0.76	5,874.019		
400.00	400.00	339.95	339.94	0.76	0.29	-173.98	-4,456.92	-470.32	4,481.84	4,480.78	1.05	4,249.914		
500.00	500.00	448.49	448.48	0.99	0.36	-173.97	-4,457.75	-470.55	4,482.61	4,481.27	1.34	3,338.544		
600.00	600.00	563.57	563.56	1.21	0.42	-173.97	-4,458.34	-470.64	4,483.14	4,481.51	1.63	2,755.617		
700.00	700.00	678.15	678.14	1.43	0.47	-173.97	-4,458.50	-470.83	4,483.29	4,481.39	1.90	2,361.701		
769.78	769.78	748.29	748.28	1.59	0.49	-173.97	-4,458.47	-470.97	4,483.28	4,481.20	2.08	2,158.127		
800.00	800.00	777.25	777.24	1.66	0.50	-173.97	-4,458.46	-471.07	4,483.28	4,481.13	2.15	2,081.527		
900.00	900.00	879.47	879.46	1.88	0.54	-173.96	-4,458.45	-471.38	4,483.30	4,480.89	2.41	1,862.594		
1,000.00	1,000.00	988.04	988.03	2.11	0.56	-173.96	-4,458.33	-471.38	4,483.19	4,480.54	2.66	1,687.455		
1,100.00	1,100.00	1,100.93	1,100.91	2.33	0.58	-173.97	-4,457.98	-470.94	4,482.84	4,479.94	2.91	1,542.735		
1,200.00	1,200.00	1,210.41	1,210.40	2.56	0.60	-173.98	-4,457.37	-470.29	4,482.23	4,479.07	3.15	1,421.095		
1,300.00	1,300.00	1,312.78	1,312.76	2.78	0.62	-173.99	-4,456.69	-469.59	4,481.49	4,478.09	3.40	1,317.840		
1,400.00	1,400.00	1,413.46	1,413.44	3.01	0.64	-173.99	-4,455.95	-468.97	4,480.70	4,477.05	3.65	1,228.590		
1,500.00	1,500.00	1,505.34	1,505.31	3.23	0.66	-174.00	-4,455.37	-468.50	4,480.02	4,476.12	3.89	1,151.198		
1,600.00	1,600.00	1,603.72	1,603.69	3.46	0.68	-174.00	-4,454.87	-467.90	4,479.44	4,475.30	4.14	1,082.449		
1,700.00	1,700.00	1,732.58	1,732.54	3.68	0.71	-174.02	-4,454.03	-466.60	4,478.73	4,474.34	4.39	1,019.634		
1,800.00	1,800.00	1,877.86	1,877.79	3.91	0.75	-174.03	-4,451.33	-465.57	4,476.71	4,472.06	4.65	962.334		
1,900.00	1,900.00	1,978.62	1,978.52	4.13	0.77	-174.02	-4,449.02	-465.88	4,474.47	4,469.57	4.90	913.017		
2,000.00	2,000.00	2,065.26	2,065.13	4.36	0.79	-174.01	-4,447.09	-466.66	4,472.35	4,467.21	5.15	869.085		
2,100.00	2,100.00	2,142.87	2,142.72	4.58	0.81	-173.99	-4,445.63	-467.86	4,470.64	4,465.25	5.39	829.650		
2,200.00	2,200.00	2,200.00	2,199.83	4.81	0.82	-173.98	-4,444.81	-468.99	4,469.54	4,463.91	5.63	794.459		
2,285.77	2,285.77	2,264.33	2,264.15	5.00	0.83	-173.96	-4,444.34	-470.46	4,469.17	4,463.34	5.83	766.454		
2,300.00	2,300.00	2,272.80	2,272.61	5.03	0.83	-173.95	-4,444.33	-470.67	4,469.18	4,463.32	5.86	762.065		
2,400.00	2,400.00	2,335.89	2,335.69	5.26	0.85	-173.94	-4,444.53	-472.22	4,469.75	4,463.65	6.10	732.742		
2,500.00	2,500.00	2,400.00	2,399.77	5.48	0.86	-173.92	-4,445.24	-473.58	4,471.08	4,464.75	6.33	705.884		
2,600.00	2,600.00	2,487.29	2,487.04	5.71	0.87	-173.90	-4,446.74	-474.83	4,472.96	4,466.39	6.57	680.808		
2,700.00	2,700.00	2,582.86	2,582.59	5.93	0.88	-173.90	-4,448.72	-475.30	4,475.07	4,468.26	6.81	657.389		
2,800.00	2,800.00	2,683.73	2,683.44	6.15	0.90	-173.90	-4,450.88	-475.47	4,477.21	4,470.16	7.05	635.397		
2,900.00	2,900.00	2,799.15	2,798.83	6.38	0.92	-173.89	-4,453.05	-476.54	4,479.18	4,471.90	7.29	614.503		
3,000.00	3,000.00	2,995.13	2,994.77	6.60	0.95	-173.85	-4,454.53	-480.01	4,480.35	4,472.80	7.55	593.640		
3,100.00	3,100.00	3,177.12	3,176.72	6.83	0.99	-173.81	-4,451.60	-482.66	4,478.77	4,470.97	7.80	574.122		
3,200.00	3,200.00	3,261.66	3,261.23	7.05	1.01	-173.81	-4,449.75	-482.96	4,476.65	4,468.61	8.04	556.731		
3,300.00	3,300.00	3,349.89	3,349.45	7.28	1.02	-173.80	-4,448.30	-483.07	4,475.02	4,466.73	8.28	540.328		
3,400.00	3,400.00	3,449.93	3,449.48	7.50	1.04	-173.80	-4,446.71	-482.89	4,473.41	4,464.89	8.53	524.692		
3,500.00	3,500.00	3,543.31	3,542.85	7.73	1.06	-173.80	-4,445.28	-482.77	4,471.88	4,463.11	8.77	509.953		
3,600.00	3,600.00	3,637.04	3,636.56	7.95	1.08	-173.80	-4,444.03	-482.66	4,470.54	4,461.53	9.01	495.993		
3,700.00	3,700.00	3,748.06	3,747.57	8.18	1.10	-173.80	-4,442.54	-482.36	4,469.19	4,459.93	9.26	482.563		
3,800.00	3,800.00	3,857.94	3,857.44	8.40	1.12	-173.80	-4,440.66	-482.09	4,467.45	4,457.94	9.51	469.765		
3,900.00	3,900.00	3,970.05	3,969.53	8.63	1.15	-173.80	-4,438.61	-481.86	4,465.62	4,455.86	9.76	457.553		
4,000.00	4,000.00	4,056.16	4,055.62	8.85	1.17	-173.81	-4,436.91	-481.53	4,463.63	4,453.63	10.00	446.153		
4,100.00	4,100.00	4,139.27	4,138.72	9.07	1.18	-119.69	-4,435.76	-480.89	4,462.59	4,452.34	10.24	435.658		
4,150.67	4,150.66	4,187.86	4,187.30	9.18	1.20	-119.71	-4,435.13	-480.69	4,462.46	4,452.10	10.36	430.610		
4,200.00	4,199.96	4,245.51	4,244.95	9.28	1.21	-119.73	-4,434.34	-480.60	4,462.54	4,452.05	10.48	425.715		
4,300.00	4,299.86	4,346.28	4,345.71	9.50	1.23	-119.77	-4,432.73	-480.42	4,463.09	4,452.36	10.72	416.220		
4,400.00	4,399.68	4,430.60	4,430.03	9.72	1.25	-119.81	-4,431.62	-480.31	4,464.80	4,453.84	10.96	407.319		
4,500.00	4,499.37	4,522.12	4,521.53	9.94	1.27	-119.87	-4,430.73	-479.71	4,467.68	4,456.48	11.20	398.821		
4,595.80	4,594.73	4,621.20	4,620.61	10.15	1.29	-119.97	-4,429.86	-478.19	4,471.26	4,459.82	11.43	391.022		
4,600.00	4,598.90	4,625.21	4,624.61	10.16	1.29	-119.97	-4,429.82	-478.12	4,471.43	4,459.99	11.45	390.688		
4,700.00	4,698.36	4,716.76	4,716.14	10.38	1.30	-120.10	-4,429.07	-476.44	4,475.65	4,463.96	11.69	382.977		

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	Local Co-ordinate Reference:	Well Thistle Unit 116H
Project:	Lea County, NM (NAD-83)	TVD Reference:	3713.3' GE + 23.5' KB @ 3736.80usft
Reference Site:	Thistle Unit Sec 22-27 Trac Pad	MD Reference:	3713.3' GE + 23.5' KB @ 3736.80usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Thistle Unit 116H	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 #2	Offset TVD Reference:	Offset Datum

Offset Design Thistle Unit - 63H - OH - OH													Offset Site Error:	0.00 usft
Survey Program: 100- VES GyroFlex V2													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 (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)						
4,800.00	4,797.82	4,800.00	4,799.36	10.61	1.32	-120.22	-4,428.73	-474.66	4,480.25	4,468.32	11.93	375.664		
4,900.00	4,897.28	4,876.10	4,875.43	10.84	1.32	-120.33	-4,428.79	-472.59	4,485.31	4,473.14	12.16	368.742		
5,000.00	4,996.74	4,973.15	4,972.42	11.08	1.34	-120.48	-4,429.19	-469.23	4,490.67	4,478.26	12.40	362.012		
5,100.00	5,096.20	5,090.70	5,089.87	11.31	1.35	-120.68	-4,429.51	-464.31	4,495.87	4,483.22	12.65	355.405		
5,200.00	5,195.66	5,202.21	5,201.28	11.55	1.37	-120.87	-4,429.40	-459.45	4,500.72	4,487.83	12.90	348.964		
5,300.00	5,295.12	5,300.00	5,298.98	11.79	1.38	-121.03	-4,429.08	-455.45	4,505.42	4,492.28	13.15	342.742		
5,400.00	5,394.58	5,373.44	5,372.37	12.03	1.39	-121.15	-4,429.04	-452.78	4,510.47	4,497.08	13.39	336.856		
5,500.00	5,494.04	5,475.31	5,474.19	12.27	1.41	-121.30	-4,429.42	-449.68	4,516.01	4,502.37	13.64	331.130		
5,600.00	5,593.50	5,573.73	5,572.57	12.51	1.42	-121.45	-4,429.57	-446.71	4,521.35	4,507.46	13.89	325.573		
5,700.00	5,692.96	5,668.77	5,667.57	12.76	1.44	-121.59	-4,429.82	-443.86	4,526.85	4,512.71	14.14	320.215		
5,800.00	5,792.42	5,761.58	5,760.34	13.00	1.45	-121.73	-4,430.14	-441.23	4,532.46	4,518.08	14.39	315.046		
5,900.00	5,891.88	5,861.80	5,860.51	13.25	1.47	-121.88	-4,430.62	-438.18	4,538.22	4,523.59	14.64	310.033		
5,972.81	5,964.29	5,940.92	5,939.60	13.43	1.49	-122.00	-4,430.89	-435.94	4,542.35	4,527.52	14.82	306.455		
6,000.00	5,991.35	5,970.97	5,969.64	13.49	1.49	-122.05	-4,430.95	-435.13	4,543.83	4,528.94	14.88	305.284		
6,100.00	6,090.94	6,100.00	6,098.62	13.68	1.52	-122.26	-4,430.75	-431.60	4,548.32	4,533.23	15.09	301.466		
6,200.00	6,190.67	6,171.42	6,170.00	13.88	1.53	-122.37	-4,430.60	-429.54	4,551.86	4,536.57	15.28	297.857		
6,300.00	6,290.51	6,293.56	6,292.10	14.07	1.56	-122.51	-4,430.73	-426.15	4,554.83	4,539.35	15.48	294.215		
6,400.00	6,390.44	6,329.00	6,314.46	14.25	1.77	-123.66	-4,394.22	-350.04	4,549.43	4,533.58	15.85	287.073		
6,500.00	6,490.42	6,329.00	6,314.46	14.44	1.77	-123.58	-4,394.22	-350.04	4,539.66	4,523.67	16.00	283.776		
6,568.60	6,559.02	6,329.00	6,314.46	14.56	1.77	-177.67	-4,394.22	-350.04	4,533.67	4,517.57	16.10	281.576		
6,600.00	6,590.42	6,329.00	6,314.46	14.62	1.77	-177.67	-4,394.22	-350.04	4,531.17	4,515.01	16.16	280.468		
6,700.00	6,690.42	6,329.00	6,314.46	14.84	1.77	-177.67	-4,394.22	-350.04	4,524.64	4,508.28	16.36	276.598		
6,800.00	6,790.42	6,329.00	6,314.46	15.06	1.77	-177.67	-4,394.22	-350.04	4,520.32	4,503.75	16.57	272.796		
6,900.00	6,890.42	6,329.00	6,314.46	15.28	1.77	-177.67	-4,394.22	-350.04	4,518.20	4,501.41	16.79	269.061		
6,945.54	6,935.96	6,329.00	6,314.46	15.38	1.77	-177.67	-4,394.22	-350.04	4,517.97	4,501.08	16.90	267.384		
7,000.00	6,990.42	6,329.00	6,314.46	15.50	1.77	-177.67	-4,394.22	-350.04	4,518.30	4,501.28	17.02	265.401		
7,100.00	7,090.42	6,329.00	6,314.46	15.71	1.77	-177.67	-4,394.22	-350.04	4,520.61	4,503.35	17.27	261.829		
7,200.00	7,190.42	6,329.00	6,314.46	15.93	1.77	-177.67	-4,394.22	-350.04	4,525.13	4,507.62	17.51	258.366		
7,300.00	7,290.42	6,329.00	6,314.46	16.15	1.77	-177.67	-4,394.22	-350.04	4,531.86	4,514.09	17.77	255.032		
7,400.00	7,390.42	6,329.00	6,314.46	16.37	1.77	-177.67	-4,394.22	-350.04	4,540.77	4,522.74	18.03	251.848		
7,500.00	7,490.42	6,329.00	6,314.46	16.59	1.77	-177.67	-4,394.22	-350.04	4,551.87	4,533.58	18.29	248.831		
7,600.00	7,590.42	6,329.00	6,314.46	16.81	1.77	-177.67	-4,394.22	-350.04	4,565.13	4,546.57	18.56	245.997		
7,700.00	7,690.42	6,329.00	6,314.46	17.03	1.77	-177.67	-4,394.22	-350.04	4,580.53	4,561.71	18.82	243.355		
7,800.00	7,790.42	6,329.00	6,314.46	17.25	1.77	-177.67	-4,394.22	-350.04	4,598.06	4,578.98	19.09	240.912		
7,900.00	7,890.42	6,329.00	6,314.46	17.47	1.77	-177.67	-4,394.22	-350.04	4,617.69	4,598.34	19.35	238.672		
8,000.00	7,990.42	6,329.00	6,314.46	17.69	1.77	-177.67	-4,394.22	-350.04	4,639.39	4,619.79	19.61	236.634		
8,100.00	8,090.42	6,329.00	6,314.46	17.91	1.77	-177.67	-4,394.22	-350.04	4,663.14	4,643.28	19.86	234.797		
8,200.00	8,190.42	6,329.00	6,314.46	18.13	1.77	-177.67	-4,394.22	-350.04	4,688.90	4,668.79	20.11	233.155		
8,300.00	8,290.42	6,329.00	6,314.46	18.35	1.77	-177.67	-4,394.22	-350.04	4,716.63	4,696.28	20.36	231.703		
8,400.00	8,390.42	6,329.00	6,314.46	18.57	1.77	-177.67	-4,394.22	-350.04	4,746.32	4,725.72	20.60	230.435		
8,500.00	8,490.42	6,329.00	6,314.46	18.79	1.77	-177.67	-4,394.22	-350.04	4,777.91	4,757.08	20.83	229.343		
8,600.00	8,590.42	6,329.00	6,314.46	19.01	1.77	-177.67	-4,394.22	-350.04	4,811.37	4,790.31	21.06	228.420		
8,700.00	8,690.42	6,329.00	6,314.46	19.24	1.77	-177.67	-4,394.22	-350.04	4,846.67	4,825.38	21.29	227.656		
8,800.00	8,790.42	6,329.00	6,314.46	19.46	1.77	-177.67	-4,394.22	-350.04	4,883.76	4,862.25	21.51	227.044		
8,900.00	8,890.42	6,329.00	6,314.46	19.68	1.77	-177.67	-4,394.22	-350.04	4,922.60	4,900.87	21.73	226.575		
9,000.00	8,990.42	6,329.00	6,314.46	19.90	1.77	-177.67	-4,394.22	-350.04	4,963.15	4,941.21	21.94	226.241		
9,100.00	9,090.42	6,329.00	6,314.46	20.12	1.77	-177.67	-4,394.22	-350.04	5,005.37	4,983.23	22.14	226.032		
9,175.64	9,166.06	6,329.00	6,314.46	20.29	1.77	-177.67	-4,394.22	-350.04	5,038.40	5,016.10	22.30	225.953		
9,200.00	9,190.41	6,329.00	6,314.46	20.34	1.77	2.70	-4,394.22	-350.04	5,048.76	5,026.42	22.34	225.998		
9,250.00	9,240.21	6,329.00	6,314.46	20.42	1.77	2.61	-4,394.22	-350.04	5,067.36	5,044.95	22.41	226.112		
9,300.00	9,289.44	6,329.00	6,314.46	20.49	1.77	2.54	-4,394.22	-350.04	5,082.31	5,059.83	22.48	226.101		
9,350.00	9,337.74	6,329.00	6,314.46	20.57	1.77	2.49	-4,394.22	-350.04	5,093.50	5,070.96	22.54	225.950		

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	Local Co-ordinate Reference:	Well Thistle Unit 116H
Project:	Lea County, NM (NAD-83)	TVD Reference:	3713.3' GE + 23.5' KB @ 3736.80usft
Reference Site:	Thistle Unit Sec 22-27 Trac Pad	MD Reference:	3713.3' GE + 23.5' KB @ 3736.80usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Thistle Unit 116H	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 #2	Offset TVD Reference:	Offset Datum

Offset Design Thistle Unit - 63H - OH - OH													Offset Site Error: 0.00 usft	
Survey Program: 100- VES GyroFlex V2													Offset Well Error: 0.00 usft	
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance							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)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
9,400.00	9,384.73	6,929.00	6,914.46	20.64	1.77	2.46	-4,394.22	-350.04	5,100.88	5,078.28	22.60	225.665		
9,450.00	9,430.05	6,929.00	6,914.46	20.71	1.77	2.44	-4,394.22	-350.04	5,104.42	5,081.76	22.66	225.248		
9,500.00	9,473.37	6,929.00	6,914.46	20.77	1.77	2.44	-4,394.22	-350.04	5,104.09	5,081.38	22.71	224.702		
9,550.00	9,514.34	6,929.00	6,914.46	20.83	1.77	2.46	-4,394.22	-350.04	5,099.90	5,077.14	22.76	224.029		
9,600.00	9,552.67	6,929.00	6,914.46	20.89	1.77	2.50	-4,394.22	-350.04	5,091.87	5,069.06	22.81	223.228		
9,650.00	9,588.05	6,929.00	6,914.46	20.95	1.77	2.55	-4,394.22	-350.04	5,080.04	5,057.18	22.85	222.302		
9,700.00	9,620.23	6,929.00	6,914.46	21.02	1.77	2.63	-4,394.22	-350.04	5,064.47	5,041.58	22.89	221.251		
9,750.00	9,648.94	6,929.00	6,914.46	21.10	1.77	2.72	-4,394.22	-350.04	5,045.25	5,022.32	22.92	220.078		
9,800.00	9,673.98	6,929.00	6,914.46	21.21	1.77	2.85	-4,394.22	-350.04	5,022.49	4,999.53	22.96	218.788		
9,850.00	9,695.16	6,929.00	6,914.46	21.35	1.77	3.00	-4,394.22	-350.04	4,996.30	4,973.32	22.98	217.386		
9,900.00	9,712.31	6,929.00	6,914.46	21.52	1.77	3.20	-4,394.22	-350.04	4,966.85	4,943.84	23.01	215.880		
9,950.00	9,725.30	6,929.00	6,914.46	21.72	1.77	3.45	-4,394.22	-350.04	4,934.29	4,911.26	23.03	214.278		
10,000.00	9,734.03	6,929.00	6,914.46	21.95	1.77	3.77	-4,394.22	-350.04	4,898.81	4,875.77	23.04	212.591		
10,050.00	9,738.44	6,929.00	6,914.46	22.20	1.77	4.18	-4,394.22	-350.04	4,860.63	4,837.58	23.05	210.830		
10,071.23	9,739.00	6,929.00	6,914.46	22.31	1.77	4.39	-4,394.22	-350.04	4,843.66	4,820.60	23.06	210.031		
10,100.00	9,739.22	6,929.00	6,914.46	26.52	1.77	4.39	-4,394.22	-350.04	4,820.39	4,790.73	29.66	162.531		
10,200.00	9,739.99	6,929.00	6,914.46	26.60	1.77	4.39	-4,394.22	-350.04	4,739.98	4,710.30	29.67	159.737		
10,300.00	9,740.76	6,929.00	6,914.46	26.69	1.77	4.39	-4,394.22	-350.04	4,660.33	4,630.64	29.69	156.955		
10,400.00	9,741.54	6,929.00	6,914.46	26.77	1.77	4.39	-4,394.22	-350.04	4,581.48	4,551.76	29.71	154.182		
10,500.00	9,742.31	6,929.00	6,914.46	26.86	1.77	4.39	-4,394.22	-350.04	4,503.46	4,473.72	29.74	151.421		
10,600.00	9,743.08	6,929.00	6,914.46	26.95	1.77	4.39	-4,394.22	-350.04	4,426.33	4,396.56	29.77	148.670		
10,700.00	9,743.85	6,929.00	6,914.46	27.04	1.77	4.39	-4,394.22	-350.04	4,350.14	4,320.33	29.81	145.929		
10,800.00	9,744.62	6,929.00	6,914.46	27.13	1.77	4.39	-4,394.22	-350.04	4,274.92	4,245.07	29.85	143.197		
10,900.00	9,745.39	6,929.00	6,914.46	27.22	1.77	4.39	-4,394.22	-350.04	4,200.74	4,170.84	29.90	140.475		
11,000.00	9,746.16	6,929.00	6,914.46	27.31	1.77	4.39	-4,394.22	-350.04	4,127.65	4,097.69	29.96	137.763		
11,100.00	9,746.93	6,929.00	6,914.46	27.40	1.77	4.39	-4,394.22	-350.04	4,055.70	4,025.68	30.03	135.059		
11,200.00	9,747.70	6,929.00	6,914.46	27.50	1.77	4.39	-4,394.22	-350.04	3,984.97	3,954.87	30.11	132.364		
11,300.00	9,748.47	6,929.00	6,914.46	27.59	1.77	4.39	-4,394.22	-350.04	3,915.52	3,885.32	30.19	129.678		
11,400.00	9,749.25	6,929.00	6,914.46	27.69	1.77	4.39	-4,394.22	-350.04	3,847.40	3,817.11	30.29	127.001		
11,500.00	9,750.02	6,929.00	6,914.46	27.79	1.77	4.39	-4,394.22	-350.04	3,780.71	3,750.30	30.41	124.333		
11,600.00	9,750.79	6,929.00	6,914.46	27.89	1.77	4.39	-4,394.22	-350.04	3,715.51	3,684.98	30.54	121.674		
11,700.00	9,751.56	6,929.00	6,914.46	27.99	1.77	4.39	-4,394.22	-350.04	3,651.89	3,621.21	30.68	119.025		
11,800.00	9,752.33	6,929.00	6,914.46	28.09	1.77	4.39	-4,394.22	-350.04	3,589.93	3,559.08	30.84	116.388		
11,900.00	9,753.10	6,929.00	6,914.46	28.20	1.77	4.39	-4,394.22	-350.04	3,529.71	3,498.68	31.03	113.764		
12,000.00	9,753.87	6,929.00	6,914.46	28.31	1.77	4.39	-4,394.22	-350.04	3,471.32	3,440.09	31.23	111.155		
12,100.00	9,754.64	6,929.00	6,914.46	28.42	1.77	4.39	-4,394.22	-350.04	3,414.87	3,383.42	31.45	108.565		
12,200.00	9,755.41	6,929.00	6,914.46	28.55	1.77	4.39	-4,394.22	-350.04	3,360.45	3,328.74	31.70	105.995		
12,300.00	9,756.18	6,929.00	6,914.46	28.70	1.77	4.39	-4,394.22	-350.04	3,308.15	3,276.17	31.98	103.452		
12,400.00	9,756.96	6,929.00	6,914.46	28.90	1.77	4.39	-4,394.22	-350.04	3,258.09	3,225.81	32.28	100.939		
12,500.00	9,757.73	6,929.00	6,914.46	29.22	1.77	4.39	-4,394.22	-350.04	3,210.36	3,177.75	32.61	98.461		
12,600.00	9,758.50	6,929.00	6,914.46	29.64	1.77	4.39	-4,394.22	-350.04	3,165.07	3,132.11	32.96	96.027		
12,700.00	9,759.27	6,929.00	6,914.46	30.11	1.77	4.39	-4,394.22	-350.04	3,122.33	3,088.98	33.34	93.641		
12,800.00	9,760.04	6,929.00	6,914.46	30.61	1.77	4.39	-4,394.22	-350.04	3,082.24	3,048.48	33.75	91.313		
12,900.00	9,760.81	6,929.00	6,914.46	31.13	1.77	4.39	-4,394.22	-350.04	3,044.90	3,010.71	34.19	89.049		
13,000.00	9,761.58	6,929.00	6,914.46	31.66	1.77	4.39	-4,394.22	-350.04	3,010.43	2,975.77	34.66	86.858		
13,100.00	9,762.35	6,929.00	6,914.46	32.20	1.77	4.39	-4,394.22	-350.04	2,978.92	2,943.77	35.15	84.747		
13,200.00	9,763.12	6,929.00	6,914.46	32.76	1.77	4.39	-4,394.22	-350.04	2,950.46	2,914.80	35.67	82.726		
13,300.00	9,763.89	6,929.00	6,914.46	33.32	1.77	4.39	-4,394.22	-350.04	2,925.15	2,888.94	36.20	80.801		
13,400.00	9,764.67	6,929.00	6,914.46	33.89	1.77	4.39	-4,394.22	-350.04	2,903.06	2,866.30	36.76	78.980		
13,500.00	9,765.44	6,929.00	6,914.46	34.47	1.77	4.39	-4,394.22	-350.04	2,884.27	2,846.94	37.33	77.269		
13,600.00	9,766.21	6,929.00	6,914.46	35.05	1.77	4.39	-4,394.22	-350.04	2,868.84	2,830.93	37.91	75.674		
13,700.00	9,766.98	6,929.00	6,914.46	35.64	1.77	4.39	-4,394.22	-350.04	2,856.84	2,818.34	38.50	74.199		

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	Local Co-ordinate Reference:	Well Thistle Unit 116H
Project:	Lea County, NM (NAD-83)	TVD Reference:	3713.3' GE + 23.5' KB @ 3736.80usft
Reference Site:	Thistle Unit Sec 22-27 Trac Pad	MD Reference:	3713.3' GE + 23.5' KB @ 3736.80usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Thistle Unit 116H	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 #2	Offset TVD Reference:	Offset Datum

Offset Design Thistle Unit - 63H - OH - OH													Offset Site Error: 0.00 usft
Survey Program: 100- VES GyroFlex V2													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 (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)					
13,800.00	9,767.75	6,929.00	6,914.46	36.24	1.77	4.39	-4,394.22	-350.04	2,848.30	2,809.20	39.10	72.849	
13,900.00	9,768.52	6,929.00	6,914.46	36.85	1.77	4.39	-4,394.22	-350.04	2,843.25	2,803.55	39.70	71.626	
13,993.70	9,769.24	6,929.00	6,914.46	37.42	1.77	4.39	-4,394.22	-350.04	2,841.70	2,801.45	40.25	70.596 CC	
14,000.00	9,769.29	6,929.00	6,914.46	37.46	1.77	4.39	-4,394.22	-350.04	2,841.71	2,801.42	40.29	70.531 ES	
14,100.00	9,770.06	6,929.00	6,914.46	38.08	1.77	4.39	-4,394.22	-350.04	2,843.69	2,802.81	40.88	69.566	
14,200.00	9,770.83	6,929.00	6,914.46	38.70	1.77	4.39	-4,394.22	-350.04	2,849.18	2,807.73	41.45	68.731	
14,300.00	9,771.60	6,929.00	6,914.46	39.33	1.77	4.39	-4,394.22	-350.04	2,858.16	2,816.14	42.02	68.023	
14,400.00	9,772.38	6,929.00	6,914.46	39.96	1.77	4.39	-4,394.22	-350.04	2,870.60	2,828.04	42.56	67.442	
14,500.00	9,773.15	6,929.00	6,914.46	40.60	1.77	4.39	-4,394.22	-350.04	2,886.45	2,843.36	43.09	66.985	
14,600.00	9,773.92	6,929.00	6,914.46	41.24	1.77	4.39	-4,394.22	-350.04	2,905.66	2,862.07	43.60	66.649	
14,700.00	9,774.69	6,929.00	6,914.46	41.88	1.77	4.39	-4,394.22	-350.04	2,928.16	2,884.08	44.08	66.430	
14,800.00	9,775.46	6,929.00	6,914.46	42.53	1.77	4.39	-4,394.22	-350.04	2,953.88	2,909.34	44.54	66.324 SF	
14,900.00	9,776.23	6,929.00	6,914.46	43.19	1.77	4.39	-4,394.22	-350.04	2,982.73	2,937.76	44.97	66.328	
15,000.00	9,777.00	6,929.00	6,914.46	43.84	1.77	4.39	-4,394.22	-350.04	3,014.62	2,969.24	45.38	66.437	
15,100.00	9,777.77	6,929.00	6,914.46	44.50	1.77	4.39	-4,394.22	-350.04	3,049.46	3,003.70	45.76	66.645	
15,200.00	9,778.54	6,929.00	6,914.46	45.17	1.77	4.39	-4,394.22	-350.04	3,087.14	3,041.03	46.11	66.950	
15,300.00	9,779.31	6,929.00	6,914.46	45.83	1.77	4.39	-4,394.22	-350.04	3,127.57	3,081.13	46.44	67.345	
15,400.00	9,780.09	6,929.00	6,914.46	46.51	1.77	4.39	-4,394.22	-350.04	3,170.64	3,123.90	46.75	67.827	
15,500.00	9,780.86	6,929.00	6,914.46	47.18	1.77	4.39	-4,394.22	-350.04	3,216.24	3,169.22	47.03	68.392	
15,600.00	9,781.63	6,929.00	6,914.46	47.85	1.77	4.39	-4,394.22	-350.04	3,264.27	3,216.99	47.29	69.033	
15,700.00	9,782.40	6,929.00	6,914.46	48.53	1.77	4.39	-4,394.22	-350.04	3,314.63	3,267.10	47.52	69.748	
15,800.00	9,783.17	6,929.00	6,914.46	49.21	1.77	4.39	-4,394.22	-350.04	3,367.20	3,319.46	47.74	70.532	
15,900.00	9,783.94	6,929.00	6,914.46	49.90	1.77	4.39	-4,394.22	-350.04	3,421.88	3,373.94	47.94	71.380	
16,000.00	9,784.71	6,929.00	6,914.46	50.58	1.77	4.39	-4,394.22	-350.04	3,478.58	3,430.46	48.12	72.290	
16,100.00	9,785.48	6,929.00	6,914.46	51.27	1.77	4.39	-4,394.22	-350.04	3,537.20	3,488.92	48.28	73.257	
16,200.00	9,786.25	6,929.00	6,914.46	51.96	1.77	4.39	-4,394.22	-350.04	3,597.65	3,549.21	48.43	74.278	
16,300.00	9,787.02	6,929.00	6,914.46	52.65	1.77	4.39	-4,394.22	-350.04	3,659.82	3,611.25	48.57	75.349	
16,400.00	9,787.80	6,929.00	6,914.46	53.35	1.77	4.39	-4,394.22	-350.04	3,723.65	3,674.95	48.70	76.467	
16,500.00	9,788.57	6,929.00	6,914.46	54.05	1.77	4.39	-4,394.22	-350.04	3,789.04	3,740.23	48.81	77.629	
16,600.00	9,789.34	6,929.00	6,914.46	54.74	1.77	4.39	-4,394.22	-350.04	3,855.92	3,807.00	48.91	78.833	
16,700.00	9,790.11	6,929.00	6,914.46	55.44	1.77	4.39	-4,394.22	-350.04	3,924.20	3,875.19	49.01	80.074	
16,800.00	9,790.88	6,929.00	6,914.46	56.15	1.77	4.39	-4,394.22	-350.04	3,993.82	3,944.73	49.09	81.351	
16,900.00	9,791.65	6,929.00	6,914.46	56.85	1.77	4.39	-4,394.22	-350.04	4,064.71	4,015.54	49.17	82.662	
17,000.00	9,792.42	6,929.00	6,914.46	57.55	1.77	4.39	-4,394.22	-350.04	4,136.80	4,087.56	49.25	84.003	
17,100.00	9,793.19	6,929.00	6,914.46	58.26	1.77	4.39	-4,394.22	-350.04	4,210.04	4,160.72	49.31	85.373	
17,204.81	9,794.00	6,929.00	6,914.46	59.00	1.77	4.39	-4,394.22	-350.04	4,287.95	4,238.57	49.38	86.837	

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	Local Co-ordinate Reference:	Well Thistle Unit 116H
Project:	Lea County, NM (NAD-83)	TVD Reference:	3713.3' GE + 23.5' KB @ 3736.80usft
Reference Site:	Thistle Unit Sec 22-27 Trac Pad	MD Reference:	3713.3' GE + 23.5' KB @ 3736.80usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Thistle Unit 116H	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 #2	Offset TVD Reference:	Offset Datum

Offset Design Thistle Unit - 63H - ST 1 - ST 1													Offset Site Error: 0.00 usft
Survey Program: 100- VES GyroFlex V2, 6733- VES GyroFlex V2, 10621-LEAM_MWD, 14962-Project													Offset Well Error: 0.00 usft
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)					
0.00	0.00	0.00	0.00	0.00	0.00	-173.98	-4,454.99	-470.14	4,479.78				
100.00	100.00	64.41	64.41	0.09	0.04	-173.98	-4,455.09	-470.15	4,479.85	0.13	N/A		
200.00	200.00	153.03	153.03	0.31	0.13	-173.98	-4,455.51	-470.19	4,480.33	0.45	N/A		
300.00	300.00	244.33	244.33	0.54	0.23	-173.98	-4,456.10	-470.29	4,480.98	0.76	5,874.019		
400.00	400.00	339.95	339.94	0.76	0.29	-173.98	-4,456.92	-470.32	4,481.84	1.05	4,249.914		
500.00	500.00	448.49	448.48	0.99	0.36	-173.97	-4,457.75	-470.55	4,482.61	1.34	3,338.544		
600.00	600.00	563.57	563.56	1.21	0.42	-173.97	-4,458.34	-470.64	4,483.14	1.63	2,755.617		
700.00	700.00	678.15	678.14	1.43	0.47	-173.97	-4,458.50	-470.83	4,483.29	1.90	2,361.701		
769.78	769.78	748.29	748.28	1.59	0.49	-173.97	-4,458.47	-470.97	4,483.28	2.08	2,158.127		
800.00	800.00	777.25	777.24	1.66	0.50	-173.97	-4,458.46	-471.07	4,483.28	2.15	2,081.527		
900.00	900.00	879.47	879.46	1.88	0.54	-173.96	-4,458.45	-471.38	4,483.30	2.41	1,862.594		
1,000.00	1,000.00	988.04	988.03	2.11	0.56	-173.96	-4,458.33	-471.38	4,483.19	2.66	1,687.455		
1,100.00	1,100.00	1,100.93	1,100.91	2.33	0.58	-173.97	-4,457.98	-470.94	4,482.84	2.91	1,542.735		
1,200.00	1,200.00	1,210.41	1,210.40	2.56	0.60	-173.98	-4,457.37	-470.29	4,482.23	3.15	1,421.095		
1,300.00	1,300.00	1,312.78	1,312.76	2.78	0.62	-173.99	-4,456.69	-469.59	4,481.49	3.40	1,317.840		
1,400.00	1,400.00	1,413.46	1,413.44	3.01	0.64	-173.99	-4,455.95	-468.97	4,480.70	3.65	1,228.590		
1,500.00	1,500.00	1,505.34	1,505.31	3.23	0.66	-174.00	-4,455.37	-468.50	4,480.02	3.89	1,151.198		
1,600.00	1,600.00	1,603.72	1,603.69	3.46	0.68	-174.00	-4,454.87	-467.90	4,479.44	4.14	1,082.449		
1,700.00	1,700.00	1,732.58	1,732.54	3.68	0.71	-174.02	-4,454.03	-466.60	4,478.73	4.39	1,019.634		
1,800.00	1,800.00	1,877.86	1,877.79	3.91	0.75	-174.03	-4,451.33	-465.57	4,476.71	4.65	962.334		
1,900.00	1,900.00	1,978.62	1,978.52	4.13	0.77	-174.02	-4,449.02	-465.88	4,474.47	4.90	913.017		
2,000.00	2,000.00	2,065.26	2,065.13	4.36	0.79	-174.01	-4,447.09	-466.66	4,472.35	5.15	869.085		
2,100.00	2,100.00	2,142.87	2,142.72	4.58	0.81	-173.99	-4,445.63	-467.86	4,470.64	5.39	829.650		
2,200.00	2,200.00	2,200.00	2,199.83	4.81	0.82	-173.98	-4,444.81	-468.99	4,469.54	5.63	794.459		
2,285.77	2,285.77	2,264.33	2,264.15	5.00	0.83	-173.96	-4,444.34	-470.46	4,469.17	5.83	766.454		
2,300.00	2,300.00	2,272.80	2,272.61	5.03	0.83	-173.95	-4,444.33	-470.67	4,469.18	5.86	762.065		
2,400.00	2,400.00	2,335.89	2,335.69	5.26	0.85	-173.94	-4,444.53	-472.22	4,469.75	6.10	732.742		
2,500.00	2,500.00	2,400.00	2,399.77	5.48	0.86	-173.92	-4,445.24	-473.58	4,471.08	6.33	705.884		
2,600.00	2,600.00	2,487.29	2,487.04	5.71	0.87	-173.90	-4,446.74	-474.83	4,472.96	6.57	680.808		
2,700.00	2,700.00	2,582.86	2,582.59	5.93	0.88	-173.90	-4,448.72	-475.30	4,475.07	6.81	657.389		
2,800.00	2,800.00	2,683.73	2,683.44	6.15	0.90	-173.90	-4,450.88	-475.47	4,477.21	7.05	635.397		
2,900.00	2,900.00	2,799.15	2,798.83	6.38	0.92	-173.89	-4,453.05	-476.54	4,479.18	7.29	614.503		
3,000.00	3,000.00	2,995.13	2,994.77	6.60	0.95	-173.85	-4,454.53	-480.01	4,480.35	7.55	593.640		
3,100.00	3,100.00	3,177.12	3,176.72	6.83	0.99	-173.81	-4,451.60	-482.66	4,478.77	7.80	574.122		
3,200.00	3,200.00	3,261.66	3,261.23	7.05	1.01	-173.81	-4,449.75	-482.96	4,476.65	8.04	556.731		
3,300.00	3,300.00	3,349.89	3,349.45	7.28	1.02	-173.80	-4,448.30	-483.07	4,475.02	8.28	540.328		
3,400.00	3,400.00	3,449.93	3,449.48	7.50	1.04	-173.80	-4,446.71	-482.89	4,473.41	8.53	524.692		
3,500.00	3,500.00	3,543.31	3,542.85	7.73	1.06	-173.80	-4,445.28	-482.77	4,471.88	8.77	509.953		
3,600.00	3,600.00	3,637.04	3,636.56	7.95	1.08	-173.80	-4,444.03	-482.66	4,470.54	9.01	495.993		
3,700.00	3,700.00	3,748.06	3,747.57	8.18	1.10	-173.80	-4,442.54	-482.36	4,469.19	9.26	482.563		
3,800.00	3,800.00	3,857.94	3,857.44	8.40	1.12	-173.80	-4,440.66	-482.09	4,467.45	9.51	469.765		
3,900.00	3,900.00	3,970.05	3,969.53	8.63	1.15	-173.80	-4,438.61	-481.86	4,465.62	9.76	457.553		
4,000.00	4,000.00	4,056.16	4,055.62	8.85	1.17	-173.81	-4,436.91	-481.53	4,463.63	10.00	446.153		
4,100.00	4,100.00	4,139.27	4,138.72	9.07	1.18	-119.69	-4,435.76	-480.89	4,462.59	10.24	435.658		
4,150.67	4,150.66	4,187.86	4,187.30	9.18	1.20	-119.71	-4,435.13	-480.69	4,462.46	10.36	430.610		
4,200.00	4,199.96	4,245.51	4,244.95	9.28	1.21	-119.73	-4,434.34	-480.60	4,462.54	10.48	425.715		
4,300.00	4,299.86	4,346.28	4,345.71	9.50	1.23	-119.77	-4,432.73	-480.42	4,463.09	10.72	416.220		
4,400.00	4,399.68	4,430.60	4,430.03	9.72	1.25	-119.81	-4,431.62	-480.31	4,464.80	10.96	407.319		
4,500.00	4,499.37	4,522.12	4,521.53	9.94	1.27	-119.87	-4,430.73	-479.71	4,467.68	11.20	398.821		
4,595.80	4,594.73	4,621.20	4,620.61	10.15	1.29	-119.97	-4,429.86	-478.19	4,471.26	11.43	391.022		
4,600.00	4,598.90	4,625.21	4,624.61	10.16	1.29	-119.97	-4,429.82	-478.12	4,471.43	11.45	390.688		
4,700.00	4,698.36	4,716.76	4,716.14	10.38	1.30	-120.10	-4,429.07	-476.44	4,475.65	11.69	382.977		

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	Local Co-ordinate Reference:	Well Thistle Unit 116H
Project:	Lea County, NM (NAD-83)	TVD Reference:	3713.3' GE + 23.5' KB @ 3736.80usft
Reference Site:	Thistle Unit Sec 22-27 Trac Pad	MD Reference:	3713.3' GE + 23.5' KB @ 3736.80usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Thistle Unit 116H	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 #2	Offset TVD Reference:	Offset Datum

Offset Design Thistle Unit - 63H - ST 1 - ST 1													Offset Site Error: 0.00 usft	
Survey Program: 100- VES GyroFlex V2, 6733- VES GyroFlex V2, 10621-LEAM_MWD, 14962-Project													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		
4,800.00	4,797.82	4,800.00	4,799.36	10.61	1.32	-120.22	-4,428.73	-474.66	4,480.25	4,468.32	11.93	375.664		
4,900.00	4,897.28	4,876.10	4,875.43	10.84	1.32	-120.33	-4,428.79	-472.59	4,485.31	4,473.14	12.16	368.742		
5,000.00	4,996.74	4,973.15	4,972.42	11.08	1.34	-120.48	-4,429.19	-469.23	4,490.67	4,478.26	12.40	362.012		
5,100.00	5,096.20	5,090.70	5,089.87	11.31	1.35	-120.68	-4,429.51	-464.31	4,495.87	4,483.22	12.65	355.405		
5,200.00	5,195.66	5,202.21	5,201.28	11.55	1.37	-120.87	-4,429.40	-459.45	4,500.72	4,487.83	12.90	348.964		
5,300.00	5,295.12	5,300.00	5,298.98	11.79	1.38	-121.03	-4,429.08	-455.45	4,505.42	4,492.28	13.15	342.742		
5,400.00	5,394.58	5,373.44	5,372.37	12.03	1.39	-121.15	-4,429.04	-452.78	4,510.47	4,497.08	13.39	336.856		
5,500.00	5,494.04	5,475.31	5,474.19	12.27	1.41	-121.30	-4,429.42	-449.68	4,516.01	4,502.37	13.64	331.130		
5,600.00	5,593.50	5,573.73	5,572.57	12.51	1.42	-121.45	-4,429.57	-446.71	4,521.35	4,507.46	13.89	325.573		
5,700.00	5,692.96	5,668.77	5,667.57	12.76	1.44	-121.59	-4,429.82	-443.86	4,526.85	4,512.71	14.14	320.215		
5,800.00	5,792.42	5,761.58	5,760.34	13.00	1.45	-121.73	-4,430.14	-441.23	4,532.46	4,518.08	14.39	315.046		
5,900.00	5,891.88	5,861.80	5,860.51	13.25	1.47	-121.88	-4,430.62	-438.18	4,538.22	4,523.59	14.64	310.033		
5,972.81	5,964.29	5,940.92	5,939.60	13.43	1.49	-122.00	-4,430.89	-435.94	4,542.35	4,527.52	14.82	306.455		
6,000.00	5,991.35	5,970.97	5,969.64	13.49	1.49	-122.05	-4,430.95	-435.13	4,543.83	4,528.94	14.88	305.284		
6,100.00	6,090.94	6,100.00	6,098.62	13.68	1.52	-122.26	-4,430.75	-431.60	4,548.32	4,533.23	15.09	301.466		
6,200.00	6,190.67	6,171.42	6,170.00	13.88	1.53	-122.37	-4,430.60	-429.54	4,551.86	4,536.57	15.28	297.857		
6,300.00	6,290.51	6,293.56	6,292.10	14.07	1.56	-122.51	-4,430.73	-426.15	4,554.83	4,539.35	15.48	294.215		
6,400.00	6,390.44	6,383.71	6,382.22	14.25	1.58	-122.59	-4,430.48	-423.67	4,556.45	4,540.78	15.68	290.672		
6,500.00	6,490.42	6,469.37	6,467.85	14.44	1.60	-122.64	-4,430.49	-421.34	4,557.43	4,541.56	15.87	287.242		
6,568.60	6,559.02	14,962.00	11,030.40	14.56	66.20	-167.98	-424.64	-281.96	4,527.25	4,487.33	39.92	113.401		
6,600.00	6,590.42	14,962.00	11,030.40	14.62	66.20	-167.98	-424.64	-281.96	4,496.10	4,456.12	39.98	112.462		
6,700.00	6,690.42	14,962.00	11,030.40	14.84	66.20	-167.98	-424.64	-281.96	4,396.88	4,356.72	40.16	109.483		
6,800.00	6,790.42	14,962.00	11,030.40	15.06	66.20	-167.98	-424.64	-281.96	4,297.71	4,257.36	40.35	106.520		
6,900.00	6,890.42	14,962.00	11,030.40	15.28	66.20	-167.98	-424.64	-281.96	4,198.57	4,158.03	40.54	103.574		
7,000.00	6,990.42	14,962.00	11,030.40	15.50	66.20	-167.98	-424.64	-281.96	4,099.47	4,058.74	40.73	100.646		
7,100.00	7,090.42	14,962.00	11,030.40	15.71	66.20	-167.98	-424.64	-281.96	4,000.42	3,959.49	40.93	97.735		
7,200.00	7,190.42	14,962.00	11,030.40	15.93	66.20	-167.98	-424.64	-281.96	3,901.42	3,860.29	41.14	94.844		
7,300.00	7,290.42	14,962.00	11,030.40	16.15	66.20	-167.98	-424.64	-281.96	3,802.47	3,761.13	41.34	91.972		
7,400.00	7,390.42	14,962.00	11,030.40	16.37	66.20	-167.98	-424.64	-281.96	3,703.58	3,662.02	41.56	89.120		
7,500.00	7,490.42	14,962.00	11,030.40	16.59	66.20	-167.98	-424.64	-281.96	3,604.75	3,562.97	41.77	86.290		
7,600.00	7,590.42	14,962.00	11,030.40	16.81	66.20	-167.98	-424.64	-281.96	3,505.98	3,463.99	42.00	83.480		
7,700.00	7,690.42	14,962.00	11,030.40	17.03	66.20	-167.98	-424.64	-281.96	3,407.29	3,365.06	42.23	80.693		
7,800.00	7,790.42	14,962.00	11,030.40	17.25	66.20	-167.98	-424.64	-281.96	3,308.67	3,266.22	42.46	77.928		
7,900.00	7,890.42	14,962.00	11,030.40	17.47	66.20	-167.98	-424.64	-281.96	3,210.14	3,167.45	42.70	75.186		
8,000.00	7,990.42	14,962.00	11,030.40	17.69	66.20	-167.98	-424.64	-281.96	3,111.71	3,068.77	42.94	72.467		
8,100.00	8,090.42	14,962.00	11,030.40	17.91	66.20	-167.98	-424.64	-281.96	3,013.38	2,970.19	43.19	69.773		
8,200.00	8,190.42	14,962.00	11,030.40	18.13	66.20	-167.98	-424.64	-281.96	2,915.16	2,871.71	43.44	67.103		
8,300.00	8,290.42	14,962.00	11,030.40	18.35	66.20	-167.98	-424.64	-281.96	2,817.06	2,773.36	43.70	64.459		
8,400.00	8,390.42	14,962.00	11,030.40	18.57	66.20	-167.98	-424.64	-281.96	2,719.11	2,675.14	43.97	61.840		
8,500.00	8,490.42	14,962.00	11,030.40	18.79	66.20	-167.98	-424.64	-281.96	2,621.31	2,577.06	44.24	59.248		
8,600.00	8,590.42	14,962.00	11,030.40	19.01	66.20	-167.98	-424.64	-281.96	2,523.68	2,479.16	44.52	56.683		
8,700.00	8,690.42	14,962.00	11,030.40	19.24	66.20	-167.98	-424.64	-281.96	2,426.24	2,381.43	44.81	54.146		
8,800.00	8,790.42	14,962.00	11,030.40	19.46	66.20	-167.98	-424.64	-281.96	2,329.03	2,283.92	45.10	51.637		
8,900.00	8,890.42	14,962.00	11,030.40	19.68	66.20	-167.98	-424.64	-281.96	2,232.05	2,186.65	45.41	49.158		
9,000.00	8,990.42	14,962.00	11,030.40	19.90	66.20	-167.98	-424.64	-281.96	2,135.36	2,089.65	45.72	46.710		
9,100.00	9,090.42	14,962.00	11,030.40	20.12	66.20	-167.98	-424.64	-281.96	2,038.99	1,992.96	46.03	44.293		
9,175.64	9,166.06	14,962.00	11,030.40	20.29	66.20	-167.98	-424.64	-281.96	1,966.33	1,920.05	46.28	42.487		
9,200.00	9,190.41	14,962.00	11,030.40	20.34	66.20	14.51	-424.64	-281.96	1,942.84	1,896.48	46.36	41.907		
9,250.00	9,240.21	14,962.00	11,030.40	20.42	66.20	21.80	-424.64	-281.96	1,893.96	1,847.44	46.51	40.717		
9,300.00	9,289.44	14,962.00	11,030.40	20.49	66.20	40.94	-424.64	-281.96	1,844.42	1,797.77	46.65	39.535		
9,350.00	9,337.74	14,962.00	11,030.40	20.57	66.20	99.44	-424.64	-281.96	1,794.57	1,747.80	46.77	38.369		
9,400.00	9,384.73	14,962.00	11,030.40	20.64	66.20	145.37	-424.64	-281.96	1,744.78	1,697.91	46.87	37.227		

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	Local Co-ordinate Reference:	Well Thistle Unit 116H
Project:	Lea County, NM (NAD-83)	TVD Reference:	3713.3' GE + 23.5' KB @ 3736.80usft
Reference Site:	Thistle Unit Sec 22-27 Trac Pad	MD Reference:	3713.3' GE + 23.5' KB @ 3736.80usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Thistle Unit 116H	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 #2	Offset TVD Reference:	Offset Datum

Offset Design														Offset Site Error:	0.00 usft
Thistle Unit - 63H - ST 1 - ST 1														Offset Well Error:	0.00 usft
Survey Program: 100- VES GyroFlex V2, 6733- VES GyroFlex V2, 10621-LEAM_MWD, 14962-Project															
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		
9,450.00	9,430.05	14,962.00	11,030.40	20.71	66.20	159.55	-424.64	-281.96	1,695.44	1,648.50	46.94	36.117			
9,500.00	9,473.37	14,962.00	11,030.40	20.77	66.20	165.48	-424.64	-281.96	1,647.00	1,600.01	46.99	35.048			
9,550.00	9,514.34	14,962.00	11,030.40	20.83	66.20	168.63	-424.64	-281.96	1,599.92	1,552.90	47.02	34.028			
9,600.00	9,552.67	14,962.00	11,030.40	20.89	66.20	170.55	-424.64	-281.96	1,554.69	1,507.67	47.02	33.066			
9,650.00	9,588.05	14,962.00	11,030.40	20.95	66.20	171.83	-424.64	-281.96	1,511.84	1,464.85	46.99	32.173			
9,700.00	9,620.23	14,962.00	11,030.40	21.02	66.20	172.72	-424.64	-281.96	1,471.92	1,424.98	46.94	31.359			
9,750.00	9,648.94	14,962.00	11,030.40	21.10	66.20	173.37	-424.64	-281.96	1,435.49	1,388.63	46.86	30.632			
9,800.00	9,673.98	14,962.00	11,030.40	21.21	66.20	173.84	-424.64	-281.96	1,403.11	1,356.34	46.76	30.004			
9,850.00	9,695.16	14,962.00	11,030.40	21.35	66.20	174.19	-424.64	-281.96	1,375.31	1,328.66	46.65	29.482			
9,900.00	9,712.31	14,962.00	11,030.40	21.52	66.20	174.45	-424.64	-281.96	1,352.61	1,306.09	46.52	29.075			
9,950.00	9,725.30	14,962.00	11,030.40	21.72	66.20	174.62	-424.64	-281.96	1,335.43	1,289.04	46.39	28.789			
10,000.00	9,734.03	14,962.00	11,030.40	21.95	66.20	174.73	-424.64	-281.96	1,324.12	1,277.87	46.25	28.630			
10,050.00	9,738.44	14,953.53	11,030.31	22.20	66.20	174.75	-433.08	-282.52	1,318.90	1,272.77	46.13	28.590			
10,071.23	9,739.00	14,932.38	11,030.09	22.31	66.19	174.68	-454.19	-283.92	1,318.27	1,272.12	46.15	28.564			
10,100.00	9,739.22	14,903.69	11,029.78	26.52	66.19	174.59	-482.81	-285.83	1,317.94	1,271.85	46.09	28.595			
10,200.00	9,739.99	14,803.15	11,028.73	26.60	64.78	174.27	-583.14	-292.22	1,316.82	1,271.26	45.56	28.903			
10,253.46	9,740.41	14,764.58	11,028.48	26.65	64.15	174.15	-621.64	-294.65	1,316.46	1,270.95	45.51	28.925			
10,300.00	9,740.76	14,733.75	11,028.65	26.69	63.65	174.04	-652.38	-296.91	1,316.74	1,271.22	45.52	28.924			
10,400.00	9,741.54	14,628.79	11,030.27	26.77	61.94	173.64	-756.97	-305.59	1,318.52	1,273.58	44.94	29.339			
10,500.00	9,742.31	14,525.30	11,030.68	26.86	60.25	173.30	-860.22	-312.52	1,319.00	1,274.58	44.42	29.692			
10,600.00	9,743.08	14,452.80	11,031.73	26.95	59.06	173.10	-932.58	-316.86	1,320.52	1,276.05	44.47	29.695			
10,700.00	9,743.85	14,360.78	11,034.84	27.04	57.56	172.80	-1,024.33	-323.29	1,324.03	1,279.79	44.23	29.933			
10,800.00	9,744.62	14,257.02	11,037.77	27.13	55.86	172.49	-1,127.81	-330.21	1,327.01	1,283.17	43.84	30.268			
10,900.00	9,745.39	14,173.58	11,040.65	27.22	54.50	172.27	-1,211.07	-334.92	1,330.55	1,286.74	43.81	30.370			
11,000.00	9,746.16	14,079.77	11,045.12	27.31	52.96	172.02	-1,304.60	-340.60	1,335.42	1,291.78	43.65	30.596			
11,100.00	9,746.93	13,980.39	11,049.64	27.40	51.33	171.78	-1,403.74	-345.99	1,340.04	1,296.62	43.42	30.861			
11,200.00	9,747.70	13,871.10	11,054.83	27.50	49.54	171.56	-1,512.78	-351.11	1,344.80	1,301.73	43.07	31.225			
11,300.00	9,748.47	13,765.04	11,059.05	27.59	47.80	171.39	-1,618.69	-354.85	1,348.60	1,305.81	42.79	31.517			
11,400.00	9,749.25	13,628.42	11,062.25	27.69	45.55	171.19	-1,755.20	-358.90	1,350.64	1,308.54	42.09	32.087			
11,500.00	9,750.02	13,533.60	11,063.59	27.79	43.98	171.09	-1,849.99	-360.86	1,351.71	1,309.67	42.04	32.153			
11,600.00	9,750.79	13,443.50	11,065.58	27.89	42.50	171.00	-1,940.06	-362.47	1,353.52	1,311.44	42.07	32.169			
11,700.00	9,751.56	13,331.70	11,068.22	27.99	40.65	170.89	-2,051.80	-364.65	1,355.55	1,313.72	41.83	32.405			
11,800.00	9,752.33	13,225.48	11,069.09	28.09	38.90	170.75	-2,157.99	-367.22	1,356.08	1,314.38	41.70	32.520			
11,900.00	9,753.10	13,133.99	11,070.49	28.20	37.40	170.65	-2,249.45	-369.01	1,357.25	1,315.46	41.79	32.481			
12,000.00	9,753.87	13,045.07	11,072.37	28.31	35.93	170.57	-2,338.34	-370.37	1,358.96	1,317.04	41.92	32.418			
12,100.00	9,754.64	12,952.26	11,075.42	28.42	34.40	170.55	-2,431.10	-370.70	1,361.61	1,319.60	42.01	32.408			
12,200.00	9,755.41	12,834.78	11,078.84	28.55	32.46	170.50	-2,548.53	-371.36	1,363.97	1,322.14	41.83	32.607			
12,300.00	9,756.18	12,729.96	11,080.36	28.70	30.74	170.39	-2,653.31	-373.44	1,365.09	1,323.24	41.84	32.625			
12,400.00	9,756.96	12,624.01	11,081.60	28.90	29.00	170.25	-2,759.22	-376.00	1,366.02	1,324.15	41.87	32.627			
12,500.00	9,757.73	12,542.29	11,082.90	29.22	27.65	170.15	-2,840.91	-377.90	1,367.35	1,325.16	42.19	32.411			
12,600.00	9,758.50	12,463.68	11,085.31	29.64	26.36	170.07	-2,919.47	-379.68	1,370.13	1,327.57	42.55	32.197			
12,700.00	9,759.27	12,338.00	11,089.38	30.11	24.31	169.87	-3,044.99	-384.06	1,373.43	1,330.97	42.46	32.350			
12,800.00	9,760.04	9,705.45	9,703.01	30.61	4.99	80.45	-4,488.83	-403.07	1,337.97	1,304.07	33.90	39.473			
12,900.00	9,760.81	9,708.74	9,706.30	31.13	4.99	81.13	-4,488.91	-403.10	1,240.27	1,206.26	34.01	36.469			
13,000.00	9,761.58	9,712.02	9,709.58	31.66	5.00	81.81	-4,489.00	-403.13	1,142.96	1,108.83	34.13	33.491			
13,100.00	9,762.35	9,715.31	9,712.87	32.20	5.00	82.49	-4,489.08	-403.16	1,046.15	1,011.89	34.25	30.541			
13,200.00	9,763.12	9,718.60	9,716.16	32.76	5.00	83.17	-4,489.16	-403.19	949.98	915.59	34.39	27.623			
13,300.00	9,763.89	9,721.88	9,719.44	33.32	5.01	83.86	-4,489.25	-403.22	854.69	820.14	34.55	24.739			
13,400.00	9,764.67	9,725.17	9,722.73	33.89	5.01	84.55	-4,489.33	-403.25	760.58	725.85	34.73	21.898			
13,500.00	9,765.44	9,728.35	9,725.91	34.47	5.02	85.21	-4,489.41	-403.28	668.18	633.21	34.97	19.109			
13,600.00	9,766.21	9,731.55	9,729.10	35.05	5.02	85.88	-4,489.49	-403.31	578.29	543.01	35.28	16.390			
13,700.00	9,766.98	9,734.77	9,732.32	35.64	5.02	86.56	-4,489.57	-403.34	492.30	456.57	35.73	13.777			

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	Local Co-ordinate Reference:	Well Thistle Unit 116H
Project:	Lea County, NM (NAD-83)	TVD Reference:	3713.3' GE + 23.5' KB @ 3736.80usft
Reference Site:	Thistle Unit Sec 22-27 Trac Pad	MD Reference:	3713.3' GE + 23.5' KB @ 3736.80usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Thistle Unit 116H	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 #2	Offset TVD Reference:	Offset Datum

Offset Design													Thistle Unit - 63H - ST 1 - ST 1		Offset Site Error:		0.00 usft	
Survey Program: 100- VES GyroFlex V2, 6733- VES GyroFlex V2, 10621-LEAM_MWD, 14962-Project													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					
13,800.00	9,767.75	9,738.02	9,735.57	36.24	5.03	87.24	-4,489.66	-403.37	412.64	376.23	36.41	11.333						
13,900.00	9,768.52	9,741.30	9,738.85	36.85	5.03	87.93	-4,489.74	-403.40	343.76	306.35	37.41	9.189						
14,000.00	9,769.29	9,744.60	9,742.15	37.46	5.04	88.63	-4,489.83	-403.44	293.33	254.64	38.69	7.582						
14,100.00	9,770.06	9,747.93	9,745.48	38.08	5.04	89.33	-4,489.91	-403.47	271.82	231.77	40.05	6.787						
14,110.83	9,770.15	9,748.29	9,745.84	38.14	5.04	89.41	-4,489.92	-403.47	271.61	231.42	40.19	6.758	CC, ES, SF					
14,200.00	9,770.83	9,751.29	9,748.83	38.70	5.04	90.04	-4,490.00	-403.50	285.86	244.93	40.92	6.985						
14,300.00	9,771.60	9,754.67	9,752.22	39.33	5.05	90.75	-4,490.09	-403.54	330.94	290.26	40.67	8.136						
14,400.00	9,772.38	9,758.09	9,755.63	39.96	5.05	91.47	-4,490.18	-403.57	396.61	356.64	39.96	9.924						
14,500.00	9,773.15	9,761.53	9,759.07	40.60	5.06	92.20	-4,490.28	-403.61	474.40	435.09	39.31	12.067						
14,600.00	9,773.92	9,765.00	9,762.54	41.24	5.06	92.93	-4,490.37	-403.65	559.27	520.44	38.84	14.401						
14,700.00	9,774.69	9,768.50	9,766.04	41.88	5.06	93.66	-4,490.46	-403.69	648.46	609.94	38.52	16.836						
14,800.00	9,775.46	9,772.03	9,769.57	42.53	5.07	94.40	-4,490.56	-403.73	740.39	702.08	38.31	19.326						
14,900.00	9,776.23	9,775.60	9,773.13	43.19	5.07	95.14	-4,490.66	-403.77	834.17	795.98	38.19	21.844						
15,000.00	9,777.00	9,779.19	9,776.72	43.84	5.08	95.89	-4,490.76	-403.81	929.23	891.11	38.12	24.376						
15,100.00	9,777.77	9,782.81	9,780.34	44.50	5.08	96.65	-4,490.86	-403.85	1,025.22	987.13	38.10	26.911						
15,200.00	9,778.54	9,786.46	9,784.00	45.17	5.09	97.40	-4,490.96	-403.89	1,121.90	1,083.80	38.10	29.443						
15,300.00	9,779.31	9,790.15	9,787.68	45.83	5.09	98.16	-4,491.06	-403.94	1,219.11	1,180.97	38.14	31.968						
15,400.00	9,780.09	9,793.87	9,791.40	46.51	5.09	98.93	-4,491.16	-403.98	1,316.72	1,278.54	38.18	34.484						
15,500.00	9,780.86	9,797.62	9,795.15	47.18	5.10	99.69	-4,491.27	-404.03	1,414.66	1,376.41	38.25	36.988						
15,600.00	9,781.63	9,801.40	9,798.93	47.85	5.10	100.46	-4,491.38	-404.07	1,512.86	1,474.54	38.32	39.479						
15,700.00	9,782.40	9,805.22	9,802.74	48.53	5.11	101.24	-4,491.49	-404.12	1,611.27	1,572.86	38.40	41.956						
15,800.00	9,783.17	9,809.07	9,806.59	49.21	5.11	102.01	-4,491.60	-404.17	1,709.86	1,671.36	38.49	44.419						
15,900.00	9,783.94	9,812.96	9,810.48	49.90	5.12	102.79	-4,491.71	-404.22	1,808.59	1,770.00	38.59	46.866						
16,000.00	9,784.71	9,816.88	9,814.40	50.58	5.12	103.57	-4,491.82	-404.27	1,907.45	1,868.76	38.69	49.297						
16,100.00	9,785.48	9,820.84	9,818.35	51.27	5.13	104.35	-4,491.94	-404.33	2,006.41	1,967.62	38.80	51.713						
16,200.00	9,786.25	9,824.84	9,822.35	51.96	5.13	105.13	-4,492.06	-404.38	2,105.47	2,066.56	38.91	54.113						
16,300.00	9,787.02	9,828.88	9,826.39	52.65	5.13	105.92	-4,492.18	-404.44	2,204.61	2,165.58	39.02	56.496						
16,400.00	9,787.80	9,832.97	9,830.47	53.35	5.14	106.70	-4,492.30	-404.49	2,303.81	2,264.67	39.14	58.862						
16,500.00	9,788.57	9,837.09	9,834.60	54.05	5.14	107.49	-4,492.42	-404.55	2,403.07	2,363.81	39.26	61.212						
16,600.00	9,789.34	9,841.26	9,838.77	54.74	5.15	108.28	-4,492.55	-404.62	2,502.38	2,463.01	39.38	63.545						
16,700.00	9,790.11	9,845.48	9,842.98	55.44	5.15	109.07	-4,492.68	-404.68	2,601.75	2,562.24	39.50	65.861						
16,800.00	9,790.88	9,849.73	9,847.23	56.15	5.16	109.86	-4,492.81	-404.75	2,701.15	2,661.52	39.63	68.160						
16,900.00	9,791.65	9,854.04	9,851.53	56.85	5.16	110.65	-4,492.94	-404.82	2,800.59	2,760.83	39.76	70.443						
17,000.00	9,792.42	9,858.39	9,855.88	57.55	5.17	111.44	-4,493.07	-404.89	2,900.06	2,860.17	39.89	72.708						
17,100.00	9,793.19	9,862.78	9,860.27	58.26	5.17	112.23	-4,493.21	-404.96	2,999.56	2,959.54	40.02	74.957						
17,204.81	9,794.00	9,867.44	9,864.93	59.00	5.18	113.05	-4,493.36	-405.04	3,103.88	3,063.72	40.16	77.295						

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