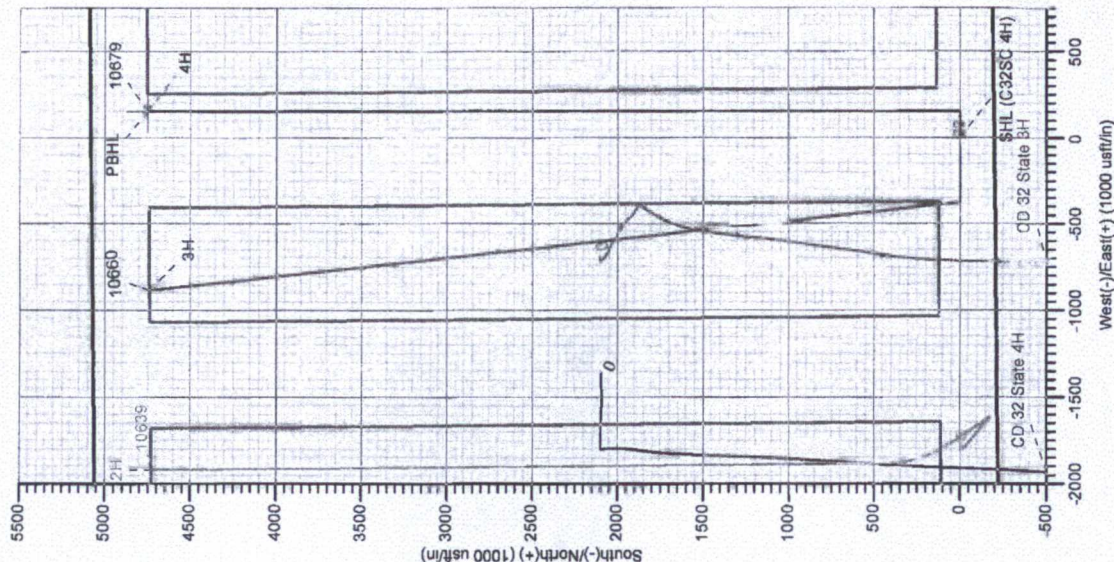
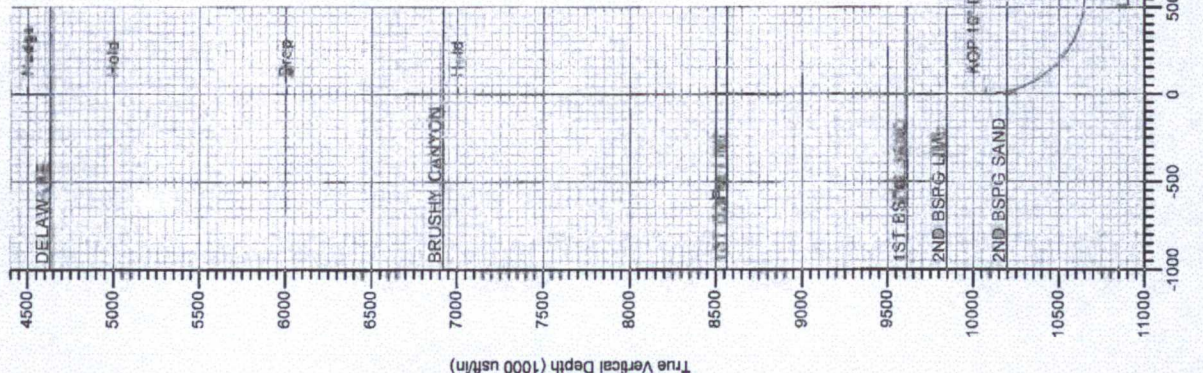


Project: Lea County, NM (NAD-83)
Site: Chincoteague 32 State Com
Well: 4H
Wellbore: OH
Design: Prelim 1



Azimuths to Grid North
True North: -0.34°
Magnetic North: 6.93°
Magnetic Field
Strength: 48112.0nT
Dip Angle: 60.05°
Date: 1/11/2016
Model: BGGM2015



DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting
SHL (C32SC 4H)	0.00	0.00	0.00	425147.25	738383.22
PBHL (C32SC 4H)	10679.00	4753.07	153.42	429800.32	738536.64

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4500.00	0.00	0.00	4500.00	0.00	0.00	0.00	0.00	0.00
5000.00	5.00	90.00	4999.37	0.00	21.80	1.00	90.00	0.00
6010.00	5.00	90.00	6005.52	0.00	109.83	0.00	0.00	0.00
7010.00	0.00	0.00	7004.25	0.00	153.44	0.50	180.00	0.00
10081.80	0.00	0.00	10079.05	0.00	153.44	0.00	0.00	0.00
10977.69	89.59	360.00	10649.00	568.85	153.43	10.00	360.00	568.85
15162.02	89.59	360.00	10679.00	4753.07	153.42	0.00	0.00	4753.07

PROJECT DETAILS:

Lea County, NM
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone
System Datum: Mean Sea Level

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
744.00	744.00	RUSTLER
1044.00	1044.00	SALT
4384.00	4384.00	BASE SALT
4629.01	4629.01	DELAWARE
6919.00	6924.75	BRUSHY CANYON
8564.00	8569.75	1ST BSPG LIME
9614.00	9619.75	1ST BSPG SAND
9844.00	9849.75	2ND BSPG LIME
10194.00	10200.60	2ND BSPG SAND

HOBBS OCD

JAN 14 2016

RECEIVED

REVISED DD PLAN

JAN 7 1 2016



DEVON ENERGY

Lea County, NM (NAD-83)
Chincoteague 32 State Com
4H

OH

Plan: Prelim 1

Standard Planning Report

11 January, 2016

LEAM
Drilling Systems LLC



LEAM Drilling Systems LLC

Planning Report



Database: EDM 5000.1 Single User Db
Company: DEVON ENERGY
Project: Lea County, NM (NAD-83)
Site: Chincoteague 32 State Com
Well: 4H
Wellbore: OH
Design: Prelim 1

Local Co-ordinate Reference: Well 4H
TVD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
MD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

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	Chincoteague 32 State Com		
Site Position:		Northing:	425,129.39 usft
From:	Map	Easting:	736,582.94 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Grid Convergence:	0.34 °

Well	4H		
Well Position	+N/-S	17.86 usft	Northing:
	+E/-W	1,800.28 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	3,494.40 usft
		Ground Level:	3,470.90 usft

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination
	BGGM2015	1/11/2016	7.27
			Dip Angle
			60.05
			Field Strength
			48,112

Design	Prelim 1		
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
			(°)
			0.00

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	
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,000.00	5.00	90.00	4,999.37	0.00	21.80	1.00	1.00	0.00	90.00	
6,010.00	5.00	90.00	6,005.52	0.00	109.83	0.00	0.00	0.00	0.00	
7,010.00	0.00	0.00	7,004.25	0.00	153.44	0.50	-0.50	0.00	180.00	
10,081.80	0.00	0.00	10,076.05	0.00	153.44	0.00	0.00	0.00	0.00	
10,977.69	89.59	360.00	10,649.00	568.85	153.43	10.00	10.00	0.00	360.00	
15,162.02	89.59	360.00	10,679.00	4,753.07	153.42	0.00	0.00	0.00	0.00	PBHL (C32SC 4H)



LEAM Drilling Systems LLC

Planning Report



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North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SHL (C32SC 4H)									
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
744.00	0.00	0.00	744.00	0.00	0.00	0.00	0.00	0.00	0.00
RUSTLER									
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
1,044.00	0.00	0.00	1,044.00	0.00	0.00	0.00	0.00	0.00	0.00
SALT									
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00
4,384.00	0.00	0.00	4,384.00	0.00	0.00	0.00	0.00	0.00	0.00
BASE SALT									
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00
Nudge									



LEAM Drilling Systems LLC

Planning Report



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Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,600.00	1.00	90.00	4,600.00	0.00	0.87	0.00	1.00	1.00	0.00
4,629.01	1.29	90.00	4,629.00	0.00	1.45	0.00	1.00	1.00	0.00
DELAWARE									
4,700.00	2.00	90.00	4,699.96	0.00	3.49	0.00	1.00	1.00	0.00
4,800.00	3.00	90.00	4,799.86	0.00	7.85	0.00	1.00	1.00	0.00
4,900.00	4.00	90.00	4,899.68	0.00	13.96	0.00	1.00	1.00	0.00
5,000.00	5.00	90.00	4,999.37	0.00	21.80	0.00	1.00	1.00	0.00
Hold									
5,100.00	5.00	90.00	5,098.99	0.00	30.52	0.00	0.00	0.00	0.00
5,200.00	5.00	90.00	5,198.60	0.00	39.23	0.00	0.00	0.00	0.00
5,300.00	5.00	90.00	5,298.22	0.00	47.95	0.00	0.00	0.00	0.00
5,400.00	5.00	90.00	5,397.84	0.00	56.67	0.00	0.00	0.00	0.00
5,500.00	5.00	90.00	5,497.46	0.00	65.38	0.00	0.00	0.00	0.00
5,600.00	5.00	90.00	5,597.08	0.00	74.10	0.00	0.00	0.00	0.00
5,700.00	5.00	90.00	5,696.70	0.00	82.81	0.00	0.00	0.00	0.00
5,800.00	5.00	90.00	5,796.32	0.00	91.53	0.00	0.00	0.00	0.00
5,900.00	5.00	90.00	5,895.94	0.00	100.24	0.00	0.00	0.00	0.00
6,010.00	5.00	90.00	6,005.52	0.00	109.83	0.00	0.00	0.00	0.00
Drop									
6,100.00	4.55	90.00	6,095.21	0.00	117.32	0.00	0.50	-0.50	0.00
6,200.00	4.05	90.00	6,194.93	0.00	124.82	0.00	0.50	-0.50	0.00
6,300.00	3.55	90.00	6,294.71	0.00	131.45	0.00	0.50	-0.50	0.00
6,400.00	3.05	90.00	6,394.54	0.00	137.20	0.00	0.50	-0.50	0.00
6,500.00	2.55	90.00	6,494.42	0.00	142.09	0.00	0.50	-0.50	0.00
6,600.00	2.05	90.00	6,594.34	0.00	146.10	0.00	0.50	-0.50	0.00
6,700.00	1.55	90.00	6,694.29	0.00	149.24	0.00	0.50	-0.50	0.00
6,800.00	1.05	90.00	6,794.27	0.00	151.51	0.00	0.50	-0.50	0.00
6,900.00	0.55	90.00	6,894.26	0.00	152.91	0.00	0.50	-0.50	0.00
6,924.75	0.43	90.00	6,919.00	0.00	153.12	0.00	0.50	-0.50	0.00
BRUSHY CANYON									
7,010.00	0.00	0.00	7,004.25	0.00	153.44	0.00	0.50	-0.50	0.00
Hold									
7,100.00	0.00	0.00	7,094.25	0.00	153.44	0.00	0.00	0.00	0.00
7,200.00	0.00	0.00	7,194.25	0.00	153.44	0.00	0.00	0.00	0.00
7,300.00	0.00	0.00	7,294.25	0.00	153.44	0.00	0.00	0.00	0.00
7,400.00	0.00	0.00	7,394.25	0.00	153.44	0.00	0.00	0.00	0.00
7,500.00	0.00	0.00	7,494.25	0.00	153.44	0.00	0.00	0.00	0.00
7,600.00	0.00	0.00	7,594.25	0.00	153.44	0.00	0.00	0.00	0.00
7,700.00	0.00	0.00	7,694.25	0.00	153.44	0.00	0.00	0.00	0.00
7,800.00	0.00	0.00	7,794.25	0.00	153.44	0.00	0.00	0.00	0.00
7,900.00	0.00	0.00	7,894.25	0.00	153.44	0.00	0.00	0.00	0.00
8,000.00	0.00	0.00	7,994.25	0.00	153.44	0.00	0.00	0.00	0.00
8,100.00	0.00	0.00	8,094.25	0.00	153.44	0.00	0.00	0.00	0.00
8,200.00	0.00	0.00	8,194.25	0.00	153.44	0.00	0.00	0.00	0.00
8,300.00	0.00	0.00	8,294.25	0.00	153.44	0.00	0.00	0.00	0.00
8,400.00	0.00	0.00	8,394.25	0.00	153.44	0.00	0.00	0.00	0.00
8,500.00	0.00	0.00	8,494.25	0.00	153.44	0.00	0.00	0.00	0.00
8,569.75	0.00	0.00	8,564.00	0.00	153.44	0.00	0.00	0.00	0.00
1ST BSPG LIME									
8,600.00	0.00	0.00	8,594.25	0.00	153.44	0.00	0.00	0.00	0.00
8,700.00	0.00	0.00	8,694.25	0.00	153.44	0.00	0.00	0.00	0.00
8,800.00	0.00	0.00	8,794.25	0.00	153.44	0.00	0.00	0.00	0.00
8,900.00	0.00	0.00	8,894.25	0.00	153.44	0.00	0.00	0.00	0.00



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Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,000.00	0.00	0.00	9,994.25	0.00	153.44	0.00	0.00	0.00	0.00
9,100.00	0.00	0.00	9,094.25	0.00	153.44	0.00	0.00	0.00	0.00
9,200.00	0.00	0.00	9,194.25	0.00	153.44	0.00	0.00	0.00	0.00
9,300.00	0.00	0.00	9,294.25	0.00	153.44	0.00	0.00	0.00	0.00
9,400.00	0.00	0.00	9,394.25	0.00	153.44	0.00	0.00	0.00	0.00
9,500.00	0.00	0.00	9,494.25	0.00	153.44	0.00	0.00	0.00	0.00
9,600.00	0.00	0.00	9,594.25	0.00	153.44	0.00	0.00	0.00	0.00
9,619.75	0.00	0.00	9,614.00	0.00	153.44	0.00	0.00	0.00	0.00
1ST BSPG SAND									
9,700.00	0.00	0.00	9,694.25	0.00	153.44	0.00	0.00	0.00	0.00
9,800.00	0.00	0.00	9,794.25	0.00	153.44	0.00	0.00	0.00	0.00
9,849.75	0.00	0.00	9,844.00	0.00	153.44	0.00	0.00	0.00	0.00
2ND BSPG LIME									
9,900.00	0.00	0.00	9,894.25	0.00	153.44	0.00	0.00	0.00	0.00
10,000.00	0.00	0.00	9,994.25	0.00	153.44	0.00	0.00	0.00	0.00
10,081.80	0.00	0.00	10,076.05	0.00	153.44	0.00	0.00	0.00	0.00
KOP 10" DLS									
10,100.00	1.82	360.00	10,094.25	0.29	153.44	0.29	10.00	10.00	0.00
10,150.00	6.82	360.00	10,144.09	4.05	153.44	4.05	10.00	10.00	0.00
10,200.00	11.82	360.00	10,193.42	12.15	153.44	12.15	10.00	10.00	0.00
10,200.60	11.88	360.00	10,194.00	12.27	153.44	12.27	10.00	10.00	0.00
2ND BSPG SAND									
10,250.00	16.82	360.00	10,241.85	24.51	153.44	24.51	10.00	10.00	0.00
10,300.00	21.82	360.00	10,289.02	41.05	153.44	41.05	10.00	10.00	0.00
10,350.00	26.82	360.00	10,334.57	61.63	153.44	61.63	10.00	10.00	0.00
10,400.00	31.82	360.00	10,378.15	86.11	153.44	86.11	10.00	10.00	0.00
10,450.00	36.82	360.00	10,419.43	114.29	153.44	114.29	10.00	10.00	0.00
10,500.00	41.82	360.00	10,458.10	145.96	153.44	145.96	10.00	10.00	0.00
10,550.00	46.82	360.00	10,493.86	180.89	153.44	180.89	10.00	10.00	0.00
10,600.00	51.82	360.00	10,526.44	218.79	153.43	218.79	10.00	10.00	0.00
10,650.00	56.82	360.00	10,555.59	259.39	153.43	259.39	10.00	10.00	0.00
10,700.00	61.82	360.00	10,581.10	302.38	153.43	302.38	10.00	10.00	0.00
10,750.00	66.82	360.00	10,602.76	347.43	153.43	347.43	10.00	10.00	0.00
10,800.00	71.82	360.00	10,620.41	394.19	153.43	394.19	10.00	10.00	0.00
10,850.00	76.82	360.00	10,633.92	442.32	153.43	442.32	10.00	10.00	0.00
10,900.00	81.82	360.00	10,643.18	491.44	153.43	491.44	10.00	10.00	0.00
10,950.00	86.82	360.00	10,648.13	541.17	153.43	541.17	10.00	10.00	0.00
10,977.69	89.59	360.00	10,649.00	568.85	153.43	568.85	10.00	10.00	0.00
LP									
11,000.00	89.59	360.00	10,649.16	591.16	153.43	591.16	0.00	0.00	0.00
11,100.00	89.59	360.00	10,649.87	691.15	153.43	691.15	0.00	0.00	0.00
11,200.00	89.59	360.00	10,650.59	791.15	153.43	791.15	0.00	0.00	0.00
11,300.00	89.59	360.00	10,651.31	891.15	153.43	891.15	0.00	0.00	0.00
11,400.00	89.59	360.00	10,652.02	991.15	153.43	991.15	0.00	0.00	0.00
11,500.00	89.59	360.00	10,652.74	1,091.14	153.43	1,091.14	0.00	0.00	0.00
11,600.00	89.59	360.00	10,653.46	1,191.14	153.43	1,191.14	0.00	0.00	0.00
11,700.00	89.59	360.00	10,654.18	1,291.14	153.43	1,291.14	0.00	0.00	0.00
11,800.00	89.59	360.00	10,654.89	1,391.14	153.43	1,391.14	0.00	0.00	0.00
11,900.00	89.59	360.00	10,655.61	1,491.13	153.43	1,491.13	0.00	0.00	0.00
12,000.00	89.59	360.00	10,656.33	1,591.13	153.43	1,591.13	0.00	0.00	0.00
12,100.00	89.59	360.00	10,657.04	1,691.13	153.43	1,691.13	0.00	0.00	0.00
12,200.00	89.59	360.00	10,657.76	1,791.13	153.43	1,791.13	0.00	0.00	0.00
12,300.00	89.59	360.00	10,658.48	1,891.12	153.43	1,891.12	0.00	0.00	0.00
12,400.00	89.59	360.00	10,659.20	1,991.12	153.43	1,991.12	0.00	0.00	0.00



LEAM Drilling Systems LLC

Planning Report



Database: EDM 5000.1 Single User Db
Company: DEVON ENERGY
Project: Lea County, NM (NAD-83)
Site: Chincoteague 32 State Com
Well: 4H
Wellbore: OH
Design: Prelim 1

Local Co-ordinate Reference: Well 4H
TVD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
MD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
12,500.00	89.59	360.00	10,659.91	2,091.12	153.43	2,091.12	0.00	0.00	0.00
12,600.00	89.59	360.00	10,660.63	2,191.12	153.43	2,191.12	0.00	0.00	0.00
12,700.00	89.59	360.00	10,661.35	2,291.11	153.43	2,291.11	0.00	0.00	0.00
12,800.00	89.59	360.00	10,662.06	2,391.11	153.43	2,391.11	0.00	0.00	0.00
12,900.00	89.59	360.00	10,662.78	2,491.11	153.43	2,491.11	0.00	0.00	0.00
13,000.00	89.59	360.00	10,663.50	2,591.11	153.43	2,591.11	0.00	0.00	0.00
13,100.00	89.59	360.00	10,664.21	2,691.10	153.43	2,691.10	0.00	0.00	0.00
13,200.00	89.59	360.00	10,664.93	2,791.10	153.43	2,791.10	0.00	0.00	0.00
13,300.00	89.59	360.00	10,665.65	2,891.10	153.43	2,891.10	0.00	0.00	0.00
13,400.00	89.59	360.00	10,666.37	2,991.10	153.43	2,991.10	0.00	0.00	0.00
13,500.00	89.59	360.00	10,667.08	3,091.09	153.43	3,091.09	0.00	0.00	0.00
13,600.00	89.59	360.00	10,667.80	3,191.09	153.43	3,191.09	0.00	0.00	0.00
13,700.00	89.59	360.00	10,668.52	3,291.09	153.42	3,291.09	0.00	0.00	0.00
13,800.00	89.59	360.00	10,669.23	3,391.09	153.42	3,391.09	0.00	0.00	0.00
13,900.00	89.59	360.00	10,669.95	3,491.08	153.42	3,491.08	0.00	0.00	0.00
14,000.00	89.59	360.00	10,670.67	3,591.08	153.42	3,591.08	0.00	0.00	0.00
14,100.00	89.59	360.00	10,671.39	3,691.08	153.42	3,691.08	0.00	0.00	0.00
14,200.00	89.59	360.00	10,672.10	3,791.08	153.42	3,791.08	0.00	0.00	0.00
14,300.00	89.59	360.00	10,672.82	3,891.07	153.42	3,891.07	0.00	0.00	0.00
14,400.00	89.59	360.00	10,673.54	3,991.07	153.42	3,991.07	0.00	0.00	0.00
14,500.00	89.59	360.00	10,674.25	4,091.07	153.42	4,091.07	0.00	0.00	0.00
14,600.00	89.59	360.00	10,674.97	4,191.06	153.42	4,191.06	0.00	0.00	0.00
14,700.00	89.59	360.00	10,675.69	4,291.06	153.42	4,291.06	0.00	0.00	0.00
14,800.00	89.59	360.00	10,676.40	4,391.06	153.42	4,391.06	0.00	0.00	0.00
14,900.00	89.59	360.00	10,677.12	4,491.06	153.42	4,491.06	0.00	0.00	0.00
15,000.00	89.59	360.00	10,677.84	4,591.05	153.42	4,591.05	0.00	0.00	0.00
15,100.00	89.59	360.00	10,678.56	4,691.05	153.42	4,691.05	0.00	0.00	0.00
15,162.02	89.59	360.00	10,679.00	4,753.07	153.42	4,753.07	0.00	0.00	0.00

TD - PBHL (C32SC 4H)

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
SHL (C32SC 4H)	0.00	0.00	0.00	0.00	0.00	425,147.25	738,383.22	32° 10' 1.939 N	103° 41' 47.490 W
- plan hits target center									
- Point									
PBHL (C32SC 4H)	0.00	0.00	10,679.00	4,753.07	153.42	429,900.32	738,536.64	32° 10' 48.964 N	103° 41' 45.377 W
- plan hits target center									
- Point									



LEAM Drilling Systems LLC

Planning Report



Database: EDM 5000.1 Single User Db
Company: DEVON ENERGY
Project: Lea County, NM (NAD-83)
Site: Chincoteague 32 State Com
Well: 4H
Wellbore: OH
Design: Prelim 1

Local Co-ordinate Reference: Well 4H
TVD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
MD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
744.00	744.00	RUSTLER		0.00	
1,044.00	1,044.00	SALT		0.00	
4,384.00	4,384.00	BASE SALT		0.00	
4,629.01	4,629.00	DELAWARE		0.00	
6,924.75	6,919.00	BRUSHY CANYON		0.00	
8,569.75	8,564.00	1ST BSPG LIME		0.00	
9,619.75	9,614.00	1ST BSPG SAND		0.00	
9,849.75	9,844.00	2ND BSPG LIME		0.00	
10,200.60	10,194.00	2ND BSPG SAND		0.00	

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
4,500.00	4,500.00	0.00	0.00	Nudge
5,000.00	4,999.37	0.00	21.80	Hold
6,010.00	6,005.52	0.00	109.83	Drop
7,010.00	7,004.25	0.00	153.44	Hold
10,081.80	10,076.05	0.00	153.44	KOP 10° DLS
10,977.69	10,649.00	568.85	153.43	LP
15,162.02	10,679.00	4,753.07	153.42	TD

devon

DEVON ENERGY

Lea County, NM (NAD-83)
Chincoteague 32 State Com
4H

OH
Prelim 1

Anticollision Report

11 January, 2016

LEAM
Drilling Systems LLC



LEAM Drilling Systems LLC
Anticollision Report



Company: DEVON ENERGY
Project: Lea County, NM (NAD-83)
Reference Site: Chincoteague 32 State Com
Site Error: 0.00 usft
Reference Well: 4H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Prelim 1

Local Co-ordinate Reference: Well 4H
TVD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
MD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

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

Survey Tool Program		Date	1/11/2016	
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	15,162.02	Prelim 1 (OH)	LEAM MWD-ADJ	MWD - Standard

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Chincoteague 32 State Com						
2H - OH - Plan #1	10,000.00	10,009.67	1,778.41	1,735.22	41.170	CC, ES
2H - OH - Plan #1	15,162.02	15,327.85	2,072.76	1,893.21	11.544	SF
3H - OH - Prelim 1	4,466.57	4,466.87	50.75	30.95	2.563	CC
3H - OH - Prelim 1	4,500.00	4,500.00	50.75	30.80	2.544	ES, SF
Cotton Draw 32 State						
3H (offset) - OH - OH	8,311.13	9,946.00	867.26	817.15	17.304	CC, ES, SF
4H - OH - OH	8,295.30	10,105.00	2,062.19	2,006.34	36.924	CC
4H - OH - OH	8,300.00	10,105.00	2,062.20	2,006.33	36.917	ES
4H - OH - OH	8,500.00	10,105.00	2,072.33	2,016.02	36.805	SF

Offset Design Chincoteague 32 State Com - 2H - OH - Plan #1												Offset Site Error:	0.00 usft
Survey Program: C-LEAM MWD-ADJ												Offset Well Error:	0.00 usft
Reference													
Offset													
Semi Major Axis													
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	5.90	5.90	0.00	0.01	-90.57	-17.86	-1,800.28	1,800.37				
100.00	100.00	105.90	105.90	0.09	0.10	-90.57	-17.86	-1,800.28	1,800.37	1,800.18	0.19	9,720.822	
200.00	200.00	205.90	205.90	0.31	0.32	-90.57	-17.86	-1,800.28	1,800.37	1,798.73	0.63	2,836.390	
300.00	300.00	305.90	305.90	0.54	0.55	-90.57	-17.86	-1,800.28	1,800.37	1,799.28	1.08	1,660.441	
400.00	400.00	405.90	405.90	0.76	0.77	-90.57	-17.86	-1,800.28	1,800.37	1,798.83	1.53	1,173.793	
500.00	500.00	505.90	505.90	0.99	1.00	-90.57	-17.86	-1,800.28	1,800.37	1,798.39	1.98	907.748	
600.00	600.00	605.90	605.90	1.21	1.22	-90.57	-17.86	-1,800.28	1,800.37	1,797.94	2.43	740.019	
700.00	700.00	705.90	705.90	1.43	1.45	-90.57	-17.86	-1,800.28	1,800.37	1,797.49	2.88	624.808	
800.00	800.00	805.90	805.90	1.66	1.67	-90.57	-17.86	-1,800.28	1,800.37	1,797.04	3.33	540.338	
900.00	900.00	905.90	905.90	1.88	1.90	-90.57	-17.86	-1,800.28	1,800.37	1,796.59	3.78	476.104	
1,000.00	1,000.00	1,005.90	1,005.90	2.11	2.12	-90.57	-17.86	-1,800.28	1,800.37	1,796.14	4.23	425.519	
1,100.00	1,100.00	1,105.90	1,105.90	2.33	2.35	-90.57	-17.86	-1,800.28	1,800.37	1,795.69	4.68	384.851	
1,200.00	1,200.00	1,205.90	1,205.90	2.56	2.57	-90.57	-17.86	-1,800.28	1,800.37	1,795.24	5.13	350.945	
1,300.00	1,300.00	1,305.90	1,305.90	2.78	2.80	-90.57	-17.86	-1,800.28	1,800.37	1,794.79	5.58	322.670	
1,400.00	1,400.00	1,405.90	1,405.90	3.01	3.02	-90.57	-17.86	-1,800.28	1,800.37	1,794.34	6.03	298.812	
1,500.00	1,500.00	1,505.90	1,505.90	3.23	3.25	-90.57	-17.86	-1,800.28	1,800.37	1,793.89	6.48	277.892	
1,600.00	1,600.00	1,605.90	1,605.90	3.46	3.47	-90.57	-17.86	-1,800.28	1,800.37	1,793.44	6.93	259.861	
1,700.00	1,700.00	1,705.90	1,705.90	3.68	3.70	-90.57	-17.86	-1,800.28	1,800.37	1,792.99	7.38	244.028	

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

Company: DEVON ENERGY
Project: Lea County, NM (NAD-83)
Reference Site: Chincoteague 32 State Com
Site Error: 0.00 usft
Reference Well: 4H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Prelim 1

Local Co-ordinate Reference: Well 4H
TVD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
MD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Chincoteague 32 State Com - 2H - OH - Plan #1														Offset Site Error: 0.00 usft
Survey Program: 0-LEAM MWD-ADJ														Offset Well Error: 0.00 usft
Reference	Offset	Semi Major Axis		Distance		Minimum		Separation		Warning				
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
1,800.00	1,800.00	1,805.90	1,805.90	3.91	3.92	-90.57	-17.86	-1,800.28	1,800.37	1,782.54	7.83	230.013		
1,900.00	1,900.00	1,905.90	1,905.90	4.13	4.15	-90.57	-17.86	-1,800.28	1,800.37	1,782.09	8.28	217.520		
2,000.00	2,000.00	2,005.90	2,005.90	4.36	4.37	-90.57	-17.86	-1,800.28	1,800.37	1,791.84	8.73	206.315		
2,100.00	2,100.00	2,105.90	2,105.90	4.58	4.59	-90.57	-17.86	-1,800.28	1,800.37	1,791.19	9.18	196.207		
2,200.00	2,200.00	2,205.90	2,205.90	4.81	4.82	-90.57	-17.86	-1,800.28	1,800.37	1,790.74	9.63	187.044		
2,300.00	2,300.00	2,305.90	2,305.90	5.03	5.04	-90.57	-17.86	-1,800.28	1,800.37	1,790.29	10.07	178.898		
2,400.00	2,400.00	2,405.90	2,405.90	5.26	5.27	-90.57	-17.86	-1,800.28	1,800.37	1,789.84	10.52	171.065		
2,500.00	2,500.00	2,505.90	2,505.90	5.48	5.49	-90.57	-17.86	-1,800.28	1,800.37	1,789.39	10.97	164.058		
2,600.00	2,600.00	2,605.90	2,605.90	5.71	5.72	-90.57	-17.86	-1,800.28	1,800.37	1,788.95	11.42	157.802		
2,700.00	2,700.00	2,705.90	2,705.90	5.93	5.94	-90.57	-17.86	-1,800.28	1,800.37	1,788.50	11.87	151.635		
2,800.00	2,800.00	2,805.90	2,805.90	6.15	6.17	-90.57	-17.86	-1,800.28	1,800.37	1,788.05	12.32	146.103		
2,900.00	2,900.00	2,905.90	2,905.90	6.38	6.39	-90.57	-17.86	-1,800.28	1,800.37	1,787.60	12.77	140.961		
3,000.00	3,000.00	3,005.90	3,005.90	6.60	6.62	-90.57	-17.86	-1,800.28	1,800.37	1,787.15	13.22	136.168		
3,100.00	3,100.00	3,105.90	3,105.90	6.83	6.84	-90.57	-17.86	-1,800.28	1,800.37	1,786.70	13.67	131.691		
3,200.00	3,200.00	3,205.90	3,205.90	7.05	7.07	-90.57	-17.86	-1,800.28	1,800.37	1,786.25	14.12	127.499		
3,300.00	3,300.00	3,305.90	3,305.90	7.28	7.29	-90.57	-17.86	-1,800.28	1,800.37	1,785.80	14.57	123.565		
3,400.00	3,400.00	3,405.90	3,405.90	7.50	7.52	-90.57	-17.86	-1,800.28	1,800.37	1,785.35	15.02	119.867		
3,500.00	3,500.00	3,505.90	3,505.90	7.73	7.74	-90.57	-17.86	-1,800.28	1,800.37	1,784.90	15.47	116.383		
3,600.00	3,600.00	3,605.90	3,605.90	7.95	7.97	-90.57	-17.86	-1,800.28	1,800.37	1,784.45	15.92	113.097		
3,700.00	3,700.00	3,705.90	3,705.90	8.18	8.19	-90.57	-17.86	-1,800.28	1,800.37	1,784.00	16.37	109.991		
3,800.00	3,800.00	3,805.90	3,805.90	8.40	8.42	-90.57	-17.86	-1,800.28	1,800.37	1,783.55	16.82	107.051		
3,900.00	3,900.00	3,905.90	3,905.90	8.63	8.64	-90.57	-17.86	-1,800.28	1,800.37	1,783.10	17.27	104.264		
4,000.00	4,000.00	4,005.90	4,005.90	8.85	8.87	-90.57	-17.86	-1,800.28	1,800.37	1,782.65	17.72	101.618		
4,100.00	4,100.00	4,105.90	4,105.90	9.08	9.09	-90.57	-17.86	-1,800.28	1,800.37	1,782.20	18.17	99.104		
4,200.00	4,200.00	4,205.90	4,205.90	9.30	9.31	-90.57	-17.86	-1,800.28	1,800.37	1,781.75	18.62	96.711		
4,300.00	4,300.00	4,305.90	4,305.90	9.53	9.54	-90.57	-17.86	-1,800.28	1,800.37	1,781.30	19.07	94.430		
4,400.00	4,400.00	4,405.90	4,405.90	9.75	9.76	-90.57	-17.86	-1,800.28	1,800.37	1,780.85	19.52	92.255		
4,500.00	4,500.00	4,505.90	4,505.90	9.98	9.99	-90.57	-17.86	-1,800.28	1,800.37	1,780.40	19.96	90.178		
4,600.00	4,600.00	4,607.74	4,607.74	10.19	10.22	179.43	-17.86	-1,800.28	1,801.24	1,780.84	20.40	88.301		
4,700.00	4,699.96	4,739.11	4,739.09	10.38	10.47	179.40	-18.95	-1,798.99	1,802.88	1,782.04	20.84	86.508		
4,800.00	4,799.86	4,870.45	4,870.35	10.58	10.71	179.30	-21.96	-1,795.39	1,804.53	1,783.28	21.28	84.890		
4,900.00	4,899.88	5,001.71	5,001.38	10.79	10.95	179.15	-28.91	-1,789.50	1,806.20	1,784.53	21.67	83.344		
5,000.00	4,999.37	5,125.01	5,124.28	10.99	11.18	178.95	-33.28	-1,781.91	1,807.94	1,785.87	22.07	81.917		
5,100.00	5,098.99	5,224.83	5,223.72	11.20	11.38	178.77	-38.87	-1,775.24	1,810.09	1,787.63	22.46	80.598		
5,200.00	5,198.60	5,324.85	5,323.16	11.42	11.57	178.59	-44.46	-1,768.58	1,812.25	1,789.40	22.85	79.311		
5,300.00	5,298.22	5,424.48	5,422.61	11.63	11.77	178.42	-50.05	-1,761.91	1,814.43	1,791.18	23.25	78.057		
5,400.00	5,397.84	5,524.30	5,522.05	11.85	11.97	178.24	-55.64	-1,755.25	1,816.63	1,792.98	23.64	76.833		
5,500.00	5,497.46	5,624.12	5,621.49	12.07	12.18	178.07	-61.24	-1,748.59	1,818.84	1,794.79	24.05	75.640		
5,600.00	5,597.08	5,723.94	5,720.93	12.29	12.38	177.90	-66.83	-1,741.92	1,821.07	1,796.62	24.46	74.477		
5,700.00	5,696.70	5,823.77	5,820.38	12.52	12.60	177.72	-72.42	-1,735.26	1,823.32	1,798.46	24.86	73.343		
5,800.00	5,796.32	5,923.59	5,919.82	12.74	12.81	177.55	-78.01	-1,728.59	1,825.58	1,800.31	25.27	72.238		
5,900.00	5,895.94	6,023.41	6,019.28	12.97	13.02	177.38	-83.61	-1,721.93	1,827.86	1,802.18	25.69	71.161		
6,010.00	6,005.52	6,133.21	6,128.65	13.22	13.26	177.19	-89.76	-1,714.90	1,830.38	1,804.24	26.15	70.009		
6,100.00	6,095.21	6,223.06	6,218.15	13.42	13.46	177.03	-94.79	-1,708.80	1,832.12	1,805.59	26.53	69.060		
6,200.00	6,194.93	6,322.90	6,317.81	13.62	13.68	176.86	-100.38	-1,701.93	1,833.23	1,806.26	26.95	68.026		
6,300.00	6,294.71	6,422.74	6,417.07	13.83	13.91	176.69	-105.98	-1,695.27	1,833.48	1,806.12	27.37	66.991		
6,400.00	6,394.54	6,522.58	6,516.53	14.03	14.13	176.51	-111.57	-1,688.60	1,832.89	1,805.10	27.79	65.955		
6,500.00	6,494.42	6,622.41	6,615.98	14.24	14.36	176.33	-117.16	-1,681.93	1,831.44	1,803.23	28.21	64.920		
6,600.00	6,594.34	6,722.21	6,716.41	14.44	14.59	176.15	-122.76	-1,675.27	1,829.13	1,800.50	28.63	63.885		
6,700.00	6,694.29	6,821.99	6,814.81	14.64	14.82	175.97	-128.35	-1,668.61	1,826.96	1,798.93	29.05	62.851		
6,800.00	6,794.27	6,921.74	6,914.17	14.84	15.05	175.78	-133.93	-1,661.95	1,821.97	1,792.50	29.47	61.819		
6,900.00	6,894.26	7,021.44	7,013.50	15.04	15.28	175.59	-139.52	-1,655.29	1,817.11	1,787.22	29.89	60.788		

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

Company: DEVON ENERGY
Project: Lea County, NM (NAD-83)
Reference Site: Chincoteague 32 State Com
Site Error: 0.00 usft
Reference Well: 4H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Prelim 1

Local Co-ordinate Reference: Well 4H
TVD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
MD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Chincoteague 32 State Com - 2H - OH - Plan #1													Offset Site Error: 0.00 usft
Survey Program: Q-LEAM MWD-ADJ													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	
7,010.00	7,004.25	7,127.91	7,119.56	15.25	15.53	-94.82	-145.46	-1,648.21	1,810.82	1,780.48	30.34	59.890	
7,100.00	7,094.25	7,208.55	7,199.94	15.43	15.72	-94.78	-149.67	-1,643.19	1,805.61	1,774.91	30.70	58.819	
7,200.00	7,194.25	7,300.00	7,291.14	15.65	15.92	-94.91	-154.01	-1,638.03	1,800.37	1,769.25	31.12	57.851	
7,300.00	7,294.25	7,388.06	7,379.01	15.87	16.12	-95.04	-157.74	-1,633.58	1,795.70	1,764.16	31.54	56.941	
7,400.00	7,394.25	7,477.95	7,468.74	16.09	16.32	-95.16	-161.10	-1,629.57	1,791.59	1,759.83	31.95	56.068	
7,500.00	7,494.25	7,567.92	7,558.60	16.31	16.52	-95.27	-164.01	-1,626.11	1,788.04	1,755.67	32.37	55.236	
7,600.00	7,594.25	7,657.95	7,648.55	16.53	16.71	-95.35	-166.47	-1,623.17	1,785.05	1,752.26	32.79	54.443	
7,700.00	7,694.25	7,748.04	7,738.58	16.75	16.91	-95.42	-168.47	-1,620.78	1,782.82	1,749.41	33.20	53.689	
7,800.00	7,794.25	7,838.17	7,828.68	16.97	17.10	-95.48	-170.03	-1,618.94	1,780.74	1,747.12	33.62	52.972	
7,900.00	7,894.25	7,928.34	7,918.83	17.19	17.29	-95.52	-171.12	-1,617.63	1,779.41	1,745.38	34.03	52.291	
8,000.00	7,994.25	8,018.52	8,009.01	17.41	17.47	-95.54	-171.76	-1,616.87	1,778.64	1,744.20	34.44	51.646	
8,100.00	8,094.25	8,109.67	8,100.15	17.63	17.65	-95.55	-171.95	-1,616.84	1,778.41	1,743.57	34.84	51.040	
8,200.00	8,194.25	8,209.67	8,200.15	17.85	17.85	-95.55	-171.95	-1,616.84	1,778.41	1,743.14	35.27	50.423	
8,300.00	8,294.25	8,309.67	8,300.15	18.08	18.07	-95.55	-171.95	-1,616.84	1,778.41	1,742.70	35.71	49.804	
8,400.00	8,394.25	8,409.67	8,400.15	18.30	18.28	-95.55	-171.95	-1,616.84	1,778.41	1,742.26	36.15	49.200	
8,500.00	8,494.25	8,509.67	8,500.15	18.52	18.49	-95.55	-171.95	-1,616.84	1,778.41	1,741.83	36.59	48.609	
8,600.00	8,594.25	8,609.67	8,600.15	18.74	18.71	-95.55	-171.95	-1,616.84	1,778.41	1,741.39	37.03	48.033	
8,700.00	8,694.25	8,709.67	8,700.15	18.96	18.92	-95.55	-171.95	-1,616.84	1,778.41	1,740.95	37.48	47.469	
8,800.00	8,794.25	8,809.67	8,800.15	19.18	19.14	-95.55	-171.95	-1,616.84	1,778.41	1,740.51	37.90	46.919	
8,900.00	8,894.25	8,909.67	8,900.15	19.40	19.35	-95.55	-171.95	-1,616.84	1,778.41	1,740.07	38.34	46.380	
9,000.00	8,994.25	9,009.67	9,000.15	19.62	19.57	-95.55	-171.95	-1,616.84	1,778.41	1,739.63	38.78	45.854	
9,100.00	9,094.25	9,109.67	9,100.15	19.85	19.78	-95.55	-171.95	-1,616.84	1,778.41	1,739.19	39.22	45.339	
9,200.00	9,194.25	9,209.67	9,200.15	20.07	20.00	-95.55	-171.95	-1,616.84	1,778.41	1,738.75	39.67	44.836	
9,300.00	9,294.25	9,309.67	9,300.15	20.29	20.22	-95.55	-171.95	-1,616.84	1,778.41	1,738.31	40.11	44.343	
9,400.00	9,394.25	9,409.67	9,400.15	20.51	20.43	-95.55	-171.95	-1,616.84	1,778.41	1,737.88	40.55	43.861	
9,500.00	9,494.25	9,509.67	9,500.15	20.73	20.65	-95.55	-171.95	-1,616.84	1,778.41	1,737.42	40.99	43.389	
9,600.00	9,594.25	9,609.67	9,600.15	20.95	20.88	-95.55	-171.95	-1,616.84	1,778.41	1,736.98	41.43	42.926	
9,700.00	9,694.25	9,709.67	9,700.15	21.18	21.08	-95.55	-171.95	-1,616.84	1,778.41	1,736.54	41.87	42.474	
9,800.00	9,794.25	9,809.67	9,800.15	21.40	21.30	-95.55	-171.95	-1,616.84	1,778.41	1,736.10	42.31	42.030	
9,900.00	9,894.25	9,909.67	9,900.15	21.62	21.51	-95.55	-171.95	-1,616.84	1,778.41	1,735.66	42.75	41.596	
10,000.00	9,994.25	10,009.67	10,000.15	21.84	21.73	-95.55	-171.95	-1,616.84	1,778.41	1,735.22	43.20	41.170 CC, ES	
10,081.80	10,079.05	10,050.00	10,040.48	22.03	21.82	-95.53	-171.45	-1,616.97	1,779.17	1,735.71	43.47	40.933	
10,100.00	10,094.25	10,050.00	10,040.48	22.07	21.82	-95.48	-171.45	-1,616.97	1,779.72	1,736.21	43.51	40.907	
10,150.00	10,144.09	10,079.19	10,069.59	22.18	21.87	-95.28	-169.72	-1,618.11	1,781.87	1,738.19	43.67	40.801	
10,200.00	10,193.42	10,100.00	10,090.26	22.29	21.91	-94.98	-167.73	-1,619.42	1,785.30	1,741.48	43.82	40.745	
10,250.00	10,241.85	10,119.84	10,109.68	22.40	21.94	-94.57	-165.28	-1,621.04	1,789.93	1,745.98	43.95	40.725	
10,300.00	10,289.02	10,150.00	10,139.47	22.51	21.99	-94.16	-160.41	-1,624.26	1,795.81	1,751.70	44.11	40.716	
10,350.00	10,334.57	10,160.00	10,139.47	22.62	21.99	-93.46	-160.41	-1,624.26	1,802.74	1,758.53	44.21	40.778	
10,400.00	10,378.15	10,179.00	10,167.60	22.73	22.04	-92.90	-154.52	-1,628.13	1,810.73	1,766.36	44.37	40.814	
10,450.00	10,419.43	10,200.00	10,187.73	22.84	22.07	-92.21	-149.53	-1,631.43	1,819.83	1,775.32	44.52	40.878	
10,500.00	10,458.10	10,217.16	10,204.00	22.96	22.09	-91.39	-144.99	-1,634.42	1,829.94	1,785.26	44.68	40.960	
10,550.00	10,493.86	10,250.00	10,234.66	23.09	22.13	-90.73	-135.18	-1,640.89	1,841.13	1,796.26	44.87	41.032	
10,600.00	10,528.44	10,250.00	10,234.66	23.24	22.13	-89.51	-135.18	-1,640.89	1,852.97	1,807.94	45.03	41.149	
10,650.00	10,555.59	10,271.30	10,254.16	23.42	22.15	-88.56	-128.04	-1,645.60	1,865.76	1,820.53	45.24	41.248	
10,700.00	10,581.10	10,300.00	10,279.92	23.62	22.19	-87.70	-117.47	-1,652.57	1,879.42	1,833.95	45.47	41.335	
10,750.00	10,602.78	10,300.00	10,279.92	23.85	22.19	-86.22	-117.47	-1,652.57	1,893.63	1,847.97	45.68	41.475	
10,800.00	10,620.41	10,320.45	10,297.87	24.11	22.21	-85.11	-109.29	-1,657.98	1,908.54	1,862.65	45.89	41.586	
10,850.00	10,633.92	10,335.44	10,310.79	24.40	22.23	-83.84	-102.95	-1,662.14	1,924.03	1,877.91	46.12	41.716	
10,900.00	10,643.18	10,350.00	10,323.16	24.71	22.25	-82.52	-96.53	-1,666.37	1,940.01	1,893.96	46.35	41.856	
10,950.00	10,648.13	10,362.85	10,333.91	25.04	22.26	-81.13	-90.85	-1,670.25	1,956.40	1,909.83	46.57	42.009	
10,977.89	10,649.00	10,369.78	10,339.82	25.24	22.27	-80.35	-87.40	-1,672.39	1,965.63	1,918.94	46.89	42.098	
11,000.00	10,649.16	10,375.27	10,344.14	25.40	22.27	-80.49	-84.77	-1,674.13	1,973.20	1,926.33	46.87	42.096	

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

Company: DEVON ENERGY
 Project: Lea County, NM (NAD-83)
 Reference Site: Chincoteague 32 State Com
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Prelim 1

Local Co-ordinate Reference: Well 4H
 TVD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
 MD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at 2.00 sigma
 Database: EDM 5000.1 Single User Db
 Offset TVD Reference: Offset Datum

Offset Design Chincoteague 32 State Com - 2H - OH - Plan #1													Offset Site Error: 0.00 usft
Survey Program: O-LEAM MWD-ADJ													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 (usft)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor
11,100.00	10,849.87	10,400.00	10,364.05	26.19	22.30	-81.14	-72.53	-1,882.20	2,009.44	1,981.69	47.75	42.081	
11,200.00	10,850.59	11,372.81	10,626.48	27.09	27.56	-89.16	774.79	-1,888.84	2,040.56	1,986.22	54.35	37.547	
11,300.00	10,851.31	11,472.81	10,626.95	28.07	28.56	-89.15	874.78	-1,887.85	2,041.37	1,985.01	56.37	36.215	
11,400.00	10,852.02	11,572.80	10,627.42	29.14	29.65	-89.15	974.78	-1,888.46	2,042.19	1,983.64	58.58	34.880	
11,500.00	10,852.74	11,672.80	10,627.88	30.28	30.85	-89.14	1,074.77	-1,889.27	2,043.00	1,982.13	60.87	33.562	
11,600.00	10,853.46	11,772.59	10,628.35	31.48	32.09	-89.13	1,174.76	-1,890.08	2,043.81	1,980.49	63.32	32.277	
11,700.00	10,854.18	11,872.59	10,628.82	32.74	33.36	-89.13	1,274.75	-1,890.89	2,044.62	1,978.74	65.88	31.035	
11,800.00	10,854.89	11,972.59	10,629.29	34.05	34.72	-89.12	1,374.74	-1,891.70	2,045.43	1,976.89	68.54	29.842	
11,900.00	10,855.61	12,072.58	10,629.76	35.41	36.10	-89.11	1,474.74	-1,892.50	2,046.25	1,974.98	71.29	28.703	
12,000.00	10,856.33	12,172.58	10,630.23	36.81	37.52	-89.11	1,574.73	-1,893.31	2,047.06	1,972.94	74.12	27.619	
12,100.00	10,857.04	12,272.58	10,630.69	38.24	38.97	-89.10	1,674.72	-1,894.12	2,047.87	1,970.86	77.01	26.591	
12,200.00	10,857.76	12,372.57	10,631.16	39.71	40.46	-89.09	1,774.71	-1,894.93	2,048.68	1,968.71	79.97	25.617	
12,300.00	10,858.48	12,472.57	10,631.63	41.21	41.97	-89.09	1,874.70	-1,895.74	2,049.50	1,966.51	82.99	24.696	
12,400.00	10,859.20	12,572.57	10,632.10	42.73	43.51	-89.08	1,974.70	-1,896.55	2,050.31	1,964.26	86.05	23.826	
12,500.00	10,859.91	12,672.56	10,632.57	44.27	45.07	-89.07	2,074.69	-1,897.36	2,051.12	1,961.96	89.18	23.004	
12,600.00	10,860.63	12,772.56	10,633.03	45.84	46.65	-89.07	2,174.68	-1,898.16	2,051.93	1,959.62	92.31	22.228	
12,700.00	10,861.35	12,872.56	10,633.50	47.42	48.24	-89.06	2,274.67	-1,898.97	2,052.74	1,957.25	95.50	21.495	
12,800.00	10,862.06	12,972.55	10,633.97	49.02	49.86	-89.05	2,374.66	-1,899.78	2,053.56	1,954.84	98.72	20.803	
12,900.00	10,862.78	13,072.55	10,634.44	50.64	51.48	-89.05	2,474.66	-1,900.59	2,054.37	1,952.41	101.96	20.148	
13,000.00	10,863.50	13,172.54	10,634.91	52.27	53.13	-89.04	2,574.65	-1,901.40	2,055.18	1,949.94	105.24	19.529	
13,100.00	10,864.21	13,272.54	10,635.38	53.91	54.78	-89.04	2,674.64	-1,902.21	2,055.99	1,947.46	108.54	18.943	
13,200.00	10,864.93	13,372.54	10,635.84	55.57	56.44	-89.03	2,774.63	-1,903.02	2,056.81	1,944.95	111.88	18.388	
13,300.00	10,865.65	13,472.53	10,636.31	57.23	58.12	-89.02	2,874.62	-1,903.83	2,057.62	1,942.42	115.20	17.861	
13,400.00	10,866.37	13,572.53	10,636.78	58.91	59.80	-89.02	2,974.62	-1,904.63	2,058.43	1,939.87	118.56	17.362	
13,500.00	10,867.08	13,672.53	10,637.25	60.59	61.49	-89.01	3,074.61	-1,905.44	2,059.24	1,937.31	121.94	16.888	
13,600.00	10,867.80	13,772.52	10,637.72	62.28	63.19	-89.00	3,174.60	-1,906.25	2,060.06	1,934.73	125.33	16.437	
13,700.00	10,868.52	13,872.52	10,638.19	63.98	64.90	-89.00	3,274.59	-1,907.06	2,060.87	1,932.13	128.74	16.008	
13,800.00	10,869.23	13,972.52	10,638.65	65.69	66.61	-88.99	3,374.59	-1,907.87	2,061.68	1,929.53	132.16	15.600	
13,900.00	10,869.95	14,072.51	10,639.12	67.40	68.33	-88.98	3,474.58	-1,908.68	2,062.50	1,926.91	135.59	15.211	
14,000.00	10,870.67	14,172.51	10,639.59	69.12	70.05	-88.98	3,574.57	-1,909.49	2,063.31	1,924.27	139.03	14.840	
14,100.00	10,871.39	14,272.51	10,640.06	70.84	71.78	-88.97	3,674.56	-1,910.30	2,064.12	1,921.63	142.49	14.486	
14,200.00	10,872.10	14,372.50	10,640.53	72.57	73.52	-88.96	3,774.55	-1,911.10	2,064.93	1,918.98	145.95	14.148	
14,300.00	10,872.82	14,472.50	10,640.99	74.30	75.26	-88.96	3,874.55	-1,911.91	2,065.75	1,916.32	149.43	13.824	
14,400.00	10,873.54	14,572.49	10,641.46	76.04	77.00	-88.95	3,974.54	-1,912.72	2,066.56	1,913.65	152.91	13.515	
14,500.00	10,874.25	14,672.49	10,641.93	77.78	78.75	-88.94	4,074.53	-1,913.53	2,067.37	1,910.97	156.40	13.219	
14,600.00	10,874.97	14,772.49	10,642.40	79.53	80.50	-88.94	4,174.52	-1,914.34	2,068.18	1,908.29	159.90	12.935	
14,700.00	10,875.69	14,872.48	10,642.87	81.28	82.25	-88.93	4,274.51	-1,915.15	2,069.00	1,905.60	163.40	12.662	
14,800.00	10,876.40	14,972.48	10,643.34	83.03	84.01	-88.92	4,374.51	-1,915.96	2,069.81	1,902.90	166.91	12.401	
14,900.00	10,877.12	15,072.48	10,643.80	84.79	85.77	-88.92	4,474.50	-1,916.76	2,070.62	1,900.19	170.43	12.149	
15,000.00	10,877.84	15,172.47	10,644.27	86.54	87.53	-88.91	4,574.49	-1,917.57	2,071.44	1,897.48	173.95	11.908	
15,100.00	10,878.56	15,272.47	10,644.74	88.31	89.30	-88.91	4,674.48	-1,918.38	2,072.25	1,894.77	177.48	11.676	
15,162.02	10,879.00	15,327.85	10,645.00	89.40	90.28	-88.90	4,729.86	-1,918.83	2,072.76	1,893.21	179.55	11.544 SF	



LEAM Drilling Systems LLC

Anticollision Report



Company: DEVON ENERGY
Project: Lea County, NM (NAD-83)
Reference Site: Chincoteague 32 State Com
Site Error: 0.00 usft
Reference Well: 4H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Prelim 1

Local Co-ordinate Reference: Well 4H
TVD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
MD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Chincoteague 32 State Com - 3H - OH - Prelim 1													Offset Site Error: 0.00 usft
Survey Program: 0-LEAM MWD-ADJ													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
0.00	0.00	0.30	0.30	0.00	0.00	-90.60	-0.53	-50.75	50.75				
100.00	100.00	100.30	100.30	0.09	0.09	-90.60	-0.53	-50.75	50.75	50.55	0.17	294.013	
200.00	200.00	200.30	200.30	0.31	0.31	-90.60	-0.53	-50.75	50.75	50.13	0.62	81.576	
300.00	300.00	300.30	300.30	0.54	0.54	-90.60	-0.53	-50.75	50.75	49.68	1.07	47.358	
400.00	400.00	400.30	400.30	0.76	0.76	-90.60	-0.53	-50.75	50.75	49.23	1.52	33.363	
500.00	500.00	500.30	500.30	0.99	0.99	-90.60	-0.53	-50.75	50.75	48.78	1.97	25.753	
600.00	600.00	600.30	600.30	1.21	1.21	-90.60	-0.53	-50.75	50.75	48.33	2.42	20.970	
700.00	700.00	700.30	700.30	1.43	1.44	-90.60	-0.53	-50.75	50.75	47.88	2.87	17.685	
800.00	800.00	800.30	800.30	1.66	1.68	-90.60	-0.53	-50.75	50.75	47.43	3.32	15.290	
900.00	900.00	900.30	900.30	1.88	1.88	-90.60	-0.53	-50.75	50.75	46.98	3.77	13.466	
1,000.00	1,000.00	1,000.30	1,000.30	2.11	2.11	-90.60	-0.53	-50.75	50.75	46.53	4.22	12.031	
1,100.00	1,100.00	1,100.30	1,100.30	2.33	2.33	-90.60	-0.53	-50.75	50.75	46.08	4.67	10.873	
1,200.00	1,200.00	1,200.30	1,200.30	2.56	2.56	-90.60	-0.53	-50.75	50.75	45.64	5.12	9.918	
1,300.00	1,300.00	1,300.30	1,300.30	2.78	2.78	-90.60	-0.53	-50.75	50.75	45.19	5.57	9.117	
1,400.00	1,400.00	1,400.30	1,400.30	3.01	3.01	-90.60	-0.53	-50.75	50.75	44.74	6.02	8.436	
1,500.00	1,500.00	1,500.30	1,500.30	3.23	3.23	-90.60	-0.53	-50.75	50.75	44.29	6.47	7.849	
1,600.00	1,600.00	1,600.30	1,600.30	3.46	3.46	-90.60	-0.53	-50.75	50.75	43.84	6.92	7.339	
1,700.00	1,700.00	1,700.30	1,700.30	3.68	3.68	-90.60	-0.53	-50.75	50.75	43.39	7.37	6.891	
1,800.00	1,800.00	1,800.30	1,800.30	3.91	3.91	-90.60	-0.53	-50.75	50.75	42.94	7.81	6.495	
1,900.00	1,900.00	1,800.30	1,800.30	4.13	4.13	-90.60	-0.53	-50.75	50.75	42.49	8.26	6.141	
2,000.00	2,000.00	2,000.30	2,000.30	4.36	4.36	-90.60	-0.53	-50.75	50.75	42.04	8.71	5.824	
2,100.00	2,100.00	2,100.30	2,100.30	4.58	4.58	-90.60	-0.53	-50.75	50.75	41.59	9.16	5.539	
2,200.00	2,200.00	2,200.30	2,200.30	4.81	4.81	-90.60	-0.53	-50.75	50.75	41.14	9.61	5.280	
2,300.00	2,300.00	2,300.30	2,300.30	5.03	5.03	-90.60	-0.53	-50.75	50.75	40.69	10.06	5.044	
2,400.00	2,400.00	2,400.30	2,400.30	5.26	5.26	-90.60	-0.53	-50.75	50.75	40.24	10.51	4.828	
2,500.00	2,500.00	2,500.30	2,500.30	5.48	5.48	-90.60	-0.53	-50.75	50.75	39.79	10.96	4.630	
2,600.00	2,600.00	2,600.30	2,600.30	5.71	5.71	-90.60	-0.53	-50.75	50.75	39.34	11.41	4.448	
2,700.00	2,700.00	2,700.30	2,700.30	5.93	5.93	-90.60	-0.53	-50.75	50.75	38.89	11.86	4.279	
2,800.00	2,800.00	2,800.30	2,800.30	6.15	6.16	-90.60	-0.53	-50.75	50.75	38.44	12.31	4.123	
2,900.00	2,900.00	2,900.30	2,900.30	6.38	6.38	-90.60	-0.53	-50.75	50.75	37.99	12.76	3.978	
3,000.00	3,000.00	3,000.30	3,000.30	6.60	6.60	-90.60	-0.53	-50.75	50.75	37.54	13.21	3.842	
3,100.00	3,100.00	3,100.30	3,100.30	6.83	6.83	-90.60	-0.53	-50.75	50.75	37.09	13.66	3.716	
3,200.00	3,200.00	3,200.30	3,200.30	7.05	7.05	-90.60	-0.53	-50.75	50.75	36.64	14.11	3.597	
3,300.00	3,300.00	3,300.30	3,300.30	7.28	7.28	-90.60	-0.53	-50.75	50.75	36.20	14.56	3.486	
3,400.00	3,400.00	3,400.30	3,400.30	7.50	7.50	-90.60	-0.53	-50.75	50.75	35.75	15.01	3.382	
3,500.00	3,500.00	3,500.30	3,500.30	7.73	7.73	-90.60	-0.53	-50.75	50.75	35.30	15.46	3.284	
3,600.00	3,600.00	3,600.30	3,600.30	7.95	7.95	-90.60	-0.53	-50.75	50.75	34.85	15.91	3.191	
3,700.00	3,700.00	3,700.30	3,700.30	8.18	8.18	-90.60	-0.53	-50.75	50.75	34.40	16.36	3.103	
3,800.00	3,800.00	3,800.30	3,800.30	8.40	8.40	-90.60	-0.53	-50.75	50.75	33.95	16.81	3.020	
3,900.00	3,900.00	3,900.30	3,900.30	8.63	8.63	-90.60	-0.53	-50.75	50.75	33.50	17.25	2.941	
4,000.00	4,000.00	4,000.30	4,000.30	8.85	8.85	-90.60	-0.53	-50.75	50.75	33.05	17.70	2.867	
4,100.00	4,100.00	4,100.30	4,100.30	9.08	9.08	-90.60	-0.53	-50.75	50.75	32.60	18.15	2.798	
4,200.00	4,200.00	4,200.30	4,200.30	9.30	9.30	-90.60	-0.53	-50.75	50.75	32.15	18.60	2.728	
4,300.00	4,300.00	4,300.30	4,300.30	9.53	9.53	-90.60	-0.53	-50.75	50.75	31.70	19.05	2.664	
4,400.00	4,400.00	4,400.30	4,400.30	9.75	9.75	-90.60	-0.53	-50.75	50.75	31.25	19.50	2.602	
4,466.57	4,466.57	4,466.57	4,466.57	9.90	9.90	-90.60	-0.53	-50.75	50.75	30.95	19.80	2.563 CC	
4,500.00	4,500.00	4,500.00	4,500.00	9.98	9.98	-90.60	-0.53	-50.75	50.75	30.80	19.95	2.544 ES, SF	
4,600.00	4,600.00	4,599.39	4,599.38	10.19	10.18	179.42	-0.53	-51.61	52.50	32.13	20.37	2.577	
4,700.00	4,699.96	4,699.30	4,699.28	10.38	10.38	179.47	-0.53	-54.18	57.71	36.96	20.75	2.781	
4,800.00	4,799.86	4,796.86	4,796.73	10.56	10.56	179.54	-0.53	-58.44	66.38	45.26	21.13	3.142	
4,900.00	4,899.68	4,894.88	4,894.57	10.79	10.78	179.61	-0.53	-64.35	78.50	57.00	21.50	3.651	
5,000.00	4,999.37	4,992.20	4,991.80	10.99	10.98	179.87	-0.53	-71.88	94.03	72.17	21.86	4.301	

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

Company: DEVON ENERGY
 Project: Lea County, NM (NAD-83)
 Reference Site: Chincoteague 32 State Com
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Prelim 1

Local Co-ordinate Reference: Well 4H
 TVD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
 MD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 2.00 sigma
 Database: EDM 5000.1 Single User Db
 Offset TVD Reference: Offset Datum

Offset Design Chincoteague 32 State Com - 3H - OH - Prelim 1													Offset Site Error: 0.00 usft
Survey Program: 0-LEAM MWD-ADJ													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
5,100.00	5,098.99	5,090.56	5,089.58	11.20	11.18	179.72	-0.53	-80.45	111.39	89.13	22.26	5.004	
5,200.00	5,198.80	5,189.04	5,187.85	11.42	11.39	179.76	-0.53	-89.03	128.75	105.09	22.66	5.882	
5,300.00	5,298.22	5,287.52	5,285.79	11.83	11.81	179.79	-0.53	-97.81	148.12	123.06	23.06	6.337	
5,400.00	5,397.84	5,386.06	5,383.90	11.85	11.82	179.81	-0.53	-106.19	163.48	140.02	23.46	6.986	
5,500.00	5,497.46	5,484.48	5,482.00	12.07	12.04	179.83	-0.53	-114.78	180.85	158.98	23.87	7.577	
5,600.00	5,597.08	5,582.86	5,580.11	12.29	12.26	179.84	-0.53	-123.36	198.21	173.94	24.27	8.186	
5,700.00	5,696.70	5,681.44	5,678.21	12.52	12.48	179.86	-0.53	-131.94	215.58	190.89	24.68	8.734	
5,800.00	5,796.32	5,779.82	5,776.32	12.74	12.70	179.87	-0.53	-140.53	232.94	207.85	25.09	9.283	
5,900.00	5,895.94	5,878.40	5,874.43	12.97	12.92	179.88	-0.53	-149.11	250.31	224.80	25.51	9.814	
6,010.00	5,905.52	5,886.73	5,882.34	13.22	13.17	179.89	-0.53	-158.55	269.41	243.45	25.98	10.377	
6,100.00	6,005.21	6,075.42	6,070.70	13.42	13.38	179.89	-0.53	-168.28	284.69	258.34	26.34	10.806	
6,200.00	6,104.83	6,174.11	6,169.01	13.62	13.61	179.90	-0.53	-174.88	300.85	274.09	26.76	11.241	
6,300.00	6,204.71	6,272.93	6,267.45	13.83	13.84	179.90	-0.53	-183.50	316.15	288.97	27.18	11.631	
6,400.00	6,304.54	6,371.88	6,366.03	14.03	14.07	179.91	-0.53	-192.12	330.58	302.98	27.80	11.978	
6,500.00	6,404.42	6,470.96	6,464.73	14.24	14.31	179.91	-0.53	-200.76	344.15	316.14	28.02	12.283	
6,600.00	6,504.34	6,570.15	6,563.54	14.44	14.55	179.91	-0.53	-209.40	356.86	328.42	28.44	12.549	
6,700.00	6,604.29	6,669.44	6,662.46	14.64	14.78	179.92	-0.53	-218.05	368.70	339.85	28.85	12.778	
6,800.00	6,704.27	6,768.84	6,761.47	14.84	15.02	179.92	-0.53	-226.72	379.67	350.40	29.27	12.971	
6,900.00	6,804.26	6,868.33	6,860.58	15.04	15.27	179.92	-0.53	-235.39	389.78	360.09	29.69	13.129	
7,010.00	7,004.25	6,977.86	6,969.70	15.25	15.53	-90.08	-0.53	-244.93	399.89	369.75	30.14	13.269	
7,100.00	7,094.25	7,067.52	7,059.02	15.43	15.75	-90.07	-0.53	-252.75	407.74	377.22	30.51	13.363	
7,200.00	7,194.25	7,167.14	7,158.26	15.65	16.00	-90.07	-0.53	-261.43	416.45	385.50	30.95	13.455	
7,300.00	7,294.25	7,266.76	7,257.50	15.87	16.24	-90.07	-0.53	-270.11	425.17	393.78	31.39	13.545	
7,400.00	7,394.25	7,366.38	7,356.74	16.09	16.49	-90.07	-0.53	-278.80	433.88	402.06	31.83	13.632	
7,500.00	7,494.25	7,468.00	7,455.98	16.31	16.74	-90.07	-0.53	-287.48	442.60	410.33	32.27	13.717	
7,600.00	7,594.25	7,565.82	7,555.22	16.53	16.98	-90.07	-0.53	-296.16	451.31	418.61	32.71	13.799	
7,700.00	7,694.25	7,665.24	7,654.46	16.75	17.23	-90.07	-0.53	-304.84	460.03	426.88	33.15	13.878	
7,800.00	7,794.25	7,764.86	7,753.70	16.97	17.48	-90.07	-0.53	-313.53	468.75	435.16	33.59	13.956	
7,900.00	7,894.25	7,864.47	7,852.94	17.19	17.73	-90.06	-0.53	-322.21	477.46	443.43	34.03	14.031	
8,000.00	7,994.25	7,964.09	7,952.18	17.41	17.98	-90.06	-0.53	-330.89	486.18	451.71	34.47	14.104	
8,100.00	8,094.25	8,066.59	8,054.30	17.63	18.23	-90.06	-0.53	-339.63	494.71	459.80	34.91	14.171	
8,200.00	8,194.25	8,170.83	8,158.23	17.85	18.45	-90.06	-0.53	-347.84	502.39	467.05	35.34	14.216	
8,300.00	8,294.25	8,275.21	8,262.37	18.08	18.67	-90.06	-0.53	-354.71	509.17	473.40	35.77	14.256	
8,400.00	8,394.25	8,379.70	8,366.69	18.30	18.88	-90.06	-0.53	-360.84	515.03	478.84	36.19	14.291	
8,500.00	8,494.25	8,484.31	8,471.16	18.52	19.09	-90.06	-0.53	-366.02	519.99	483.37	36.62	14.301	
8,600.00	8,594.25	8,588.99	8,575.76	18.74	19.30	-90.06	-0.53	-370.26	524.03	486.88	37.04	14.146	
8,700.00	8,694.25	8,693.75	8,680.47	18.96	19.51	-90.06	-0.53	-373.53	527.16	489.99	37.47	14.069	
8,800.00	8,794.25	8,790.56	8,785.25	19.18	19.71	-90.06	-0.53	-375.85	529.37	491.48	37.90	13.969	
8,900.00	8,894.25	8,903.40	8,890.06	19.40	19.91	-90.06	-0.53	-377.22	530.67	492.35	38.32	13.847	
9,000.00	8,994.25	9,007.87	8,994.55	19.62	20.10	-90.06	-0.53	-377.83	531.06	492.31	38.75	13.706	
9,100.00	9,094.25	9,107.87	9,094.55	19.85	20.30	-90.06	-0.53	-377.83	531.06	491.89	39.17	13.557	
9,200.00	9,194.25	9,207.87	9,194.55	20.07	20.51	-90.06	-0.53	-377.83	531.06	491.45	39.61	13.406	
9,300.00	9,294.25	9,307.87	9,294.55	20.29	20.72	-90.06	-0.53	-377.83	531.06	491.01	40.08	13.258	
9,400.00	9,394.25	9,407.87	9,394.55	20.51	20.93	-90.06	-0.53	-377.83	531.06	490.56	40.60	13.113	
9,500.00	9,494.25	9,507.87	9,494.55	20.73	21.14	-90.06	-0.53	-377.83	531.06	490.12	40.94	12.972	
9,600.00	9,594.25	9,607.87	9,594.55	20.95	21.36	-90.06	-0.53	-377.83	531.06	489.68	41.38	12.833	
9,700.00	9,694.25	9,707.87	9,694.55	21.18	21.57	-90.06	-0.53	-377.83	531.06	489.24	41.82	12.698	
9,800.00	9,794.25	9,807.87	9,794.55	21.40	21.78	-90.06	-0.53	-377.83	531.06	488.80	42.27	12.565	
9,900.00	9,894.25	9,907.87	9,894.55	21.62	22.00	-90.06	-0.53	-377.83	531.06	488.35	42.71	12.435	
10,000.00	9,994.25	10,007.87	9,994.55	21.84	22.21	-90.06	-0.53	-377.83	531.06	487.91	43.15	12.307	
10,039.46	10,033.71	10,047.33	10,034.01	21.93	22.29	-90.06	-0.53	-377.83	531.06	487.74	43.33	12.258	
10,081.80	10,078.05	10,087.05	10,073.72	22.03	22.38	-89.99	0.09	-377.89	531.13	487.63	43.51	12.208	

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

Company: DEVON ENERGY
 Project: Lea County, NM (NAD-83)
 Reference Site: Chincoteague 32 State Com
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Prelim 1

Local Co-ordinate Reference: Well 4H
 TVD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
 MD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 2.00 sigma
 Database: EDM 5000.1 Single User Db
 Offset TVD Reference: Offset Datum

Offset Design Chincoteague 32 State Com - 3H - OH - Prelim 1												Offset Site Error: 0.00 usft
Survey Program: O-LEAM MWD-ADJ												Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance				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)	Between Centres (usft)	Between Ellipses (usft)		
10,100.00	10,094.25	10,103.59	10,090.23	22.07	22.41	-89.90	1.09	-377.80	531.25	487.67	43.58	12.189
10,150.00	10,144.09	10,150.00	10,136.32	22.18	22.62	-89.84	6.42	-378.37	531.87	488.08	43.79	12.145
10,200.00	10,193.42	10,194.14	10,179.81	22.29	22.62	-89.40	14.92	-379.28	532.91	488.91	44.00	12.112
10,250.00	10,241.85	10,239.25	10,223.04	22.40	22.72	-89.15	27.01	-380.57	534.35	490.15	44.20	12.089
10,300.00	10,289.02	10,284.29	10,265.32	22.51	22.82	-88.91	42.42	-382.21	536.19	491.78	44.40	12.075
10,350.00	10,334.57	10,329.28	10,306.20	22.62	22.92	-88.68	61.06	-384.20	538.40	493.79	44.61	12.068
10,400.00	10,378.15	10,374.24	10,345.46	22.73	23.03	-88.45	82.82	-386.53	540.98	496.15	44.83	12.067
10,450.00	10,419.43	10,419.19	10,382.87	22.84	23.14	-88.24	107.58	-389.17	543.90	498.84	45.06	12.070
10,500.00	10,458.10	10,464.16	10,418.24	22.96	23.26	-88.03	135.18	-392.12	547.14	501.83	45.31	12.075
10,550.00	10,493.86	10,509.19	10,451.38	23.09	23.38	-87.84	165.49	-395.36	550.68	505.09	45.59	12.079
10,600.00	10,529.44	10,554.29	10,482.03	23.24	23.52	-87.67	198.35	-398.87	554.49	508.59	45.90	12.082
10,650.00	10,565.59	10,600.00	10,510.37	23.42	23.68	-87.51	234.00	-402.68	558.55	512.31	46.24	12.079
10,700.00	10,581.10	10,644.82	10,535.30	23.62	23.85	-87.36	271.03	-406.63	562.83	516.20	46.63	12.070
10,750.00	10,602.76	10,690.32	10,557.55	23.85	24.05	-87.23	310.48	-410.85	567.32	520.25	47.07	12.054
10,800.00	10,620.41	10,736.02	10,576.66	24.11	24.28	-87.12	351.74	-415.25	571.97	524.42	47.55	12.028
10,850.00	10,633.92	10,781.94	10,592.46	24.40	24.53	-87.03	394.60	-419.83	576.76	528.67	48.09	11.993
10,900.00	10,643.18	10,826.13	10,604.83	24.71	24.81	-86.95	438.84	-424.56	581.66	532.98	48.68	11.948
10,950.00	10,648.13	10,874.80	10,613.62	25.04	25.12	-86.90	484.20	-429.40	586.65	537.32	49.32	11.894
10,977.69	10,649.00	10,900.00	10,616.85	25.24	25.30	-86.87	509.25	-432.08	589.43	539.74	49.69	11.862
11,000.00	10,649.16	10,921.43	10,616.71	25.40	25.46	-87.05	530.48	-434.34	591.70	541.69	50.01	11.831
11,100.00	10,649.87	11,019.09	10,620.81	26.19	26.23	-87.21	627.55	-444.71	602.24	550.67	51.57	11.678
11,200.00	10,650.59	11,118.52	10,621.56	27.09	27.12	-87.28	726.42	-455.27	612.84	559.50	53.34	11.490
11,300.00	10,651.31	11,217.95	10,622.51	28.07	28.11	-87.35	825.28	-465.83	623.44	568.15	55.29	11.276
11,400.00	10,652.02	11,317.39	10,623.45	29.14	29.18	-87.42	924.15	-476.39	634.04	576.62	57.41	11.043
11,500.00	10,652.74	11,416.82	10,624.40	30.28	30.33	-87.48	1,023.02	-486.95	644.64	584.95	59.69	10.800
11,600.00	10,653.46	11,516.26	10,625.35	31.48	31.55	-87.54	1,121.88	-497.51	655.24	593.14	62.10	10.552
11,700.00	10,654.18	11,615.69	10,626.29	32.74	32.83	-87.60	1,220.75	-508.07	665.84	601.21	64.83	10.303
11,800.00	10,654.89	11,715.13	10,627.24	34.05	34.16	-87.66	1,319.62	-518.63	676.44	609.17	67.26	10.057
11,900.00	10,655.61	11,814.56	10,628.19	35.41	35.54	-87.72	1,418.49	-529.19	687.04	617.05	69.98	9.816
12,000.00	10,656.33	11,913.99	10,629.13	36.81	36.96	-87.77	1,517.35	-539.75	697.64	624.84	72.81	9.582
12,100.00	10,657.04	12,013.43	10,630.08	38.24	38.42	-87.83	1,616.22	-550.32	708.25	632.55	75.69	9.357
12,200.00	10,657.76	12,112.86	10,631.03	39.71	39.91	-87.88	1,715.09	-560.88	718.85	640.20	78.65	9.140
12,300.00	10,658.48	12,212.30	10,631.97	41.21	41.43	-87.93	1,813.96	-571.44	729.45	647.80	81.66	8.933
12,400.00	10,659.20	12,311.73	10,632.92	42.73	42.96	-87.97	1,912.82	-582.00	740.06	655.33	84.72	8.735
12,500.00	10,659.91	12,411.16	10,633.87	44.27	44.56	-88.02	2,011.69	-592.56	750.66	662.83	87.84	8.546
12,600.00	10,660.63	12,510.60	10,634.81	45.84	46.15	-88.07	2,110.56	-603.12	761.27	670.28	90.99	8.368
12,700.00	10,661.35	12,610.03	10,635.76	47.42	47.77	-88.11	2,209.42	-613.66	771.88	677.89	94.18	8.195
12,800.00	10,662.06	12,709.47	10,636.71	49.02	49.40	-88.15	2,308.29	-624.24	782.48	685.07	97.41	8.033
12,900.00	10,662.78	12,808.90	10,637.65	50.64	51.05	-88.20	2,407.16	-634.80	793.09	692.42	100.67	7.878
13,000.00	10,663.50	12,908.34	10,638.60	52.27	52.71	-88.24	2,506.03	-645.36	803.70	699.74	103.95	7.731
13,100.00	10,664.21	13,007.77	10,639.54	53.91	54.38	-88.28	2,604.89	-655.92	814.31	707.04	107.27	7.592
13,200.00	10,664.93	13,107.20	10,640.49	55.57	56.07	-88.32	2,703.76	-666.48	824.91	714.31	110.60	7.459
13,300.00	10,665.65	13,206.64	10,641.44	57.23	57.77	-88.35	2,802.63	-677.04	835.52	721.57	113.96	7.332
13,400.00	10,666.37	13,306.07	10,642.38	58.91	59.47	-88.39	2,901.50	-687.60	846.13	728.80	117.33	7.211
13,500.00	10,667.08	13,405.51	10,643.33	60.59	61.19	-88.43	3,000.36	-698.16	856.74	736.02	120.72	7.097
13,600.00	10,667.80	13,504.94	10,644.28	62.28	62.91	-88.46	3,099.23	-708.72	867.35	743.22	124.13	6.987
13,700.00	10,668.52	13,604.38	10,645.22	63.98	64.64	-88.50	3,198.10	-719.28	877.96	750.40	127.56	6.883
13,800.00	10,669.23	13,703.81	10,646.17	65.69	66.38	-88.53	3,296.97	-729.84	888.57	757.58	131.00	6.783
13,900.00	10,669.95	13,803.24	10,647.12	67.40	68.13	-88.56	3,395.83	-740.40	899.18	764.73	134.45	6.688
14,000.00	10,670.67	13,902.68	10,648.06	69.12	69.88	-88.59	3,494.70	-750.96	909.79	771.88	137.91	6.597
14,100.00	10,671.39	14,002.11	10,649.01	70.84	71.64	-88.62	3,593.57	-761.52	920.40	779.02	141.38	6.510
14,200.00	10,672.10	14,101.55	10,649.96	72.57	73.40	-88.65	3,692.43	-772.08	931.02	786.15	144.87	6.427

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



LEAM Drilling Systems LLC
Anticollision Report



Company: DEVON ENERGY
Project: Lea County, NM (NAD-83)
Reference Site: Chincoteague 32 State Com
Site Error: 0.00 usft
Reference Well: 4H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Prelim 1

Local Co-ordinate Reference: Well 4H
TVD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
MD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Chincoteague 32 State Com - 3H - OH - Prelim 1													Offset Site Error: 0.00 usft
Survey Program: O-LEAM MWD-ADJ													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	
14,300.00	10,872.82	14,200.98	10,650.90	74.30	75.17	-88.68	3,791.30	-782.64	941.63	793.27	148.36	6.347	
14,400.00	10,873.54	14,300.41	10,651.85	76.04	76.94	-88.71	3,890.17	-793.20	952.24	800.38	151.86	6.270	
14,500.00	10,874.25	14,399.85	10,652.80	77.78	78.71	-88.74	3,989.04	-803.76	962.85	807.48	155.37	6.197	
14,600.00	10,874.97	14,499.28	10,653.74	79.53	80.49	-88.77	4,087.90	-814.32	973.46	814.57	158.89	6.127	
14,700.00	10,875.69	14,598.72	10,654.69	81.28	82.27	-88.80	4,186.77	-824.88	984.08	821.66	162.42	6.059	
14,800.00	10,876.40	14,698.15	10,655.64	83.03	84.06	-88.82	4,285.64	-835.44	994.69	828.74	165.95	5.994	
14,900.00	10,877.12	14,797.59	10,656.58	84.79	85.85	-88.85	4,384.51	-846.00	1,005.30	835.82	169.49	5.931	
15,000.00	10,877.84	14,897.02	10,657.53	86.54	87.64	-88.87	4,483.37	-856.56	1,015.92	842.89	173.03	5.871	
15,100.00	10,878.56	14,996.45	10,658.48	88.31	89.44	-88.90	4,582.24	-867.12	1,026.53	849.95	176.58	5.813	
15,162.02	10,879.00	15,058.12	10,659.06	89.40	90.55	-88.92	4,643.56	-873.67	1,033.11	854.33	178.78	5.779	

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



LEAM Drilling Systems LLC
Anticollision Report



Company: DEVON ENERGY
Project: Lea County, NM (NAD-83)
Reference Site: Chincoteague 32 State Corn
Site Error: 0.00 usft
Reference Well: 4H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Prelim 1

Local Co-ordinate Reference: Well 4H
TVD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
MD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Cotton Draw 32 State - 3H (offset) - OH - OH														Offset Site Error: 0.00 usft
Survey Program: 135- VES GyroFlex V2, 7720-MWD-ISCWGA														Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)				
0.00	0.00	4.88	4.88	0.00	0.00	-18.82	2,102.53	-716.49	2,221.26					
100.00	100.00	134.73	134.73	0.09	0.11	-18.82	2,101.88	-716.34	2,220.53	2,220.35	0.18	N/A		
200.00	200.00	239.42	239.40	0.31	0.21	-18.81	2,100.28	-715.35	2,219.04	2,218.54	0.51	4,360.580		
300.00	300.00	366.55	366.50	0.54	0.29	-18.78	2,098.07	-713.53	2,216.98	2,216.16	0.81	2,729.346		
400.00	400.00	491.88	491.75	0.76	0.37	-18.75	2,094.20	-710.98	2,213.36	2,212.26	1.10	2,013.892		
500.00	500.00	591.35	591.13	0.99	0.42	-18.72	2,090.77	-708.64	2,209.33	2,207.97	1.37	1,616.495		
600.00	600.00	688.31	687.99	1.21	0.48	-18.68	2,087.77	-705.74	2,205.44	2,203.81	1.63	1,352.805		
700.00	700.00	791.06	790.84	1.43	0.51	-18.62	2,084.88	-702.43	2,201.57	2,199.88	1.89	1,162.789		
800.00	800.00	885.82	885.12	1.68	0.55	-18.57	2,081.86	-699.44	2,197.73	2,195.58	2.15	1,021.598		
900.00	900.00	986.00	985.40	1.88	0.60	-18.51	2,079.01	-696.21	2,194.01	2,191.60	2.41	910.451		
1,000.00	1,000.00	1,081.89	1,081.00	2.11	0.84	-18.46	2,076.40	-693.04	2,190.38	2,187.71	2.67	821.886		
1,100.00	1,100.00	1,187.47	1,186.89	2.33	0.88	-18.39	2,073.49	-689.42	2,186.88	2,183.76	2.92	747.565		
1,200.00	1,200.00	1,285.78	1,284.90	2.58	0.72	-18.33	2,070.75	-686.03	2,182.95	2,179.77	3.18	686.699		
1,300.00	1,300.00	1,387.85	1,386.65	2.78	0.78	-18.26	2,067.91	-682.18	2,179.11	2,175.88	3.43	634.448		
1,400.00	1,400.00	1,478.87	1,477.58	3.01	0.80	-18.20	2,065.52	-678.99	2,175.52	2,171.83	3.69	590.135		
1,500.00	1,500.00	1,573.73	1,572.56	3.23	0.83	-18.14	2,063.30	-675.80	2,172.25	2,168.31	3.94	551.472		
1,600.00	1,600.00	1,673.90	1,672.85	3.46	0.87	-18.07	2,061.09	-672.37	2,169.08	2,164.90	4.19	517.311		
1,700.00	1,700.00	1,776.45	1,775.11	3.68	0.91	-17.99	2,058.78	-668.68	2,165.83	2,161.39	4.45	486.973		
1,800.00	1,800.00	1,875.83	1,874.40	3.91	0.95	-17.92	2,056.48	-665.12	2,162.53	2,157.83	4.70	460.036		
1,900.00	1,900.00	1,969.18	1,967.67	4.13	0.99	-17.86	2,054.44	-661.81	2,159.35	2,154.40	4.95	436.027		
2,000.00	2,000.00	2,064.42	2,062.82	4.36	1.02	-17.78	2,052.88	-658.17	2,156.80	2,151.40	5.21	414.297		
2,100.00	2,100.00	2,175.59	2,173.86	4.58	1.06	-17.66	2,051.09	-652.89	2,153.84	2,148.17	5.48	394.117		
2,200.00	2,200.00	2,280.22	2,278.32	4.81	1.11	-17.54	2,048.54	-647.28	2,150.04	2,144.31	5.72	375.827		
2,300.00	2,300.00	2,382.94	2,380.86	5.03	1.14	-17.42	2,046.88	-641.88	2,145.99	2,140.01	5.98	358.874		
2,400.00	2,400.00	2,484.86	2,482.57	5.26	1.18	-17.28	2,043.41	-636.78	2,141.88	2,135.64	6.24	343.432		
2,500.00	2,500.00	2,587.85	2,585.33	5.48	1.22	-17.14	2,041.42	-629.87	2,137.89	2,131.39	6.49	329.329		
2,600.00	2,600.00	2,697.64	2,694.86	5.71	1.26	-16.97	2,039.08	-622.27	2,133.87	2,127.11	6.75	316.033		
2,700.00	2,700.00	2,813.44	2,810.37	5.93	1.30	-16.81	2,036.66	-615.04	2,129.22	2,122.21	7.01	303.831		
2,800.00	2,800.00	2,918.59	2,915.27	6.15	1.34	-16.68	2,031.78	-608.76	2,123.95	2,116.88	7.27	292.196		
2,900.00	2,900.00	3,023.83	3,020.23	6.38	1.38	-16.54	2,028.02	-602.12	2,118.73	2,111.21	7.53	281.526		
3,000.00	3,000.00	3,130.88	3,126.96	6.60	1.42	-16.39	2,023.64	-595.18	2,112.95	2,105.17	7.78	271.467		
3,100.00	3,100.00	3,233.33	3,229.10	6.83	1.46	-16.24	2,019.35	-588.39	2,107.07	2,099.03	8.04	262.088		
3,200.00	3,200.00	3,336.28	3,331.64	7.05	1.51	-16.07	2,015.50	-580.21	2,100.86	2,092.35	8.30	253.043		
3,300.00	3,300.00	3,473.78	3,468.59	7.28	1.56	-15.89	2,008.85	-571.33	2,093.10	2,084.54	8.56	244.422		
3,400.00	3,400.00	3,580.88	3,574.91	7.50	1.60	-15.69	2,000.58	-562.07	2,085.08	2,076.28	8.82	236.304		
3,500.00	3,500.00	3,683.36	3,677.01	7.73	1.64	-15.50	1,994.19	-553.09	2,076.72	2,067.83	9.08	228.638		
3,600.00	3,600.00	3,784.28	3,777.30	7.95	1.68	-15.30	1,988.05	-543.82	2,068.39	2,059.05	9.34	221.402		
3,700.00	3,700.00	3,883.45	3,875.88	8.18	1.72	-15.10	1,981.88	-534.72	2,059.97	2,050.37	9.60	214.550		
3,800.00	3,800.00	3,977.49	3,969.33	8.40	1.76	-14.90	1,976.25	-525.89	2,051.73	2,041.87	9.86	208.106		
3,900.00	3,900.00	4,064.80	4,056.26	8.63	1.79	-14.73	1,971.24	-516.15	2,043.91	2,033.80	10.11	202.102		
4,000.00	4,000.00	4,154.16	4,145.14	8.85	1.83	-14.59	1,966.33	-511.74	2,036.75	2,026.39	10.37	196.481		
4,100.00	4,100.00	4,251.17	4,241.78	9.08	1.87	-14.44	1,961.27	-504.86	2,029.92	2,019.30	10.62	191.106		
4,200.00	4,200.00	4,354.51	4,344.65	9.30	1.91	-14.24	1,956.09	-496.57	2,023.06	2,012.18	10.88	185.918		
4,300.00	4,300.00	4,443.88	4,433.46	9.53	1.95	-14.10	1,951.46	-490.00	2,016.22	2,005.09	11.14	181.089		
4,400.00	4,400.00	4,528.52	4,518.05	9.75	1.98	-13.98	1,947.52	-484.70	2,010.20	1,998.81	11.39	176.554		
4,500.00	4,500.00	4,618.82	4,608.23	9.98	2.01	-13.87	1,943.66	-479.95	2,004.77	1,993.14	11.64	172.285		
4,600.00	4,600.00	4,722.47	4,711.58	10.19	2.05	-103.84	1,939.32	-475.17	1,999.81	1,987.83	11.98	166.958		
4,700.00	4,699.96	4,823.84	4,812.55	10.38	2.09	-103.88	1,934.55	-470.96	1,994.86	1,982.65	12.21	163.397		
4,800.00	4,799.86	4,910.79	4,899.56	10.58	2.12	-103.96	1,930.88	-467.71	1,990.71	1,978.28	12.44	160.063		
4,900.00	4,899.88	5,009.82	4,998.28	10.79	2.16	-104.09	1,926.83	-464.34	1,987.58	1,974.91	12.67	156.849		
5,000.00	4,999.37	5,103.84	5,092.35	10.99	2.19	-104.27	1,922.86	-461.44	1,984.67	1,971.76	12.91	153.745		
5,100.00	5,098.99	5,194.17	5,182.57	11.20	2.23	-104.43	1,919.75	-458.38	1,982.64	1,969.49	13.15	150.787		

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

Company: DEVON ENERGY
 Project: Lea County, NM (NAD-83)
 Reference Site: Chincoteague 32 State Com
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Prelim 1

Local Co-ordinate Reference: Well 4H
 TVD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
 MD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 2.00 sigma
 Database: EDM 5000.1 Single User Db
 Offset TVD Reference: Offset Datum

Offset Design Cotton Draw 32 State - 3H (offset) - OH - OH													Offset Site Error: 0.00 usft
Survey Program: 135- VES GyroFlex V2, 7720-MWD-ISCWSA													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)	Between Centres (usft)	Between Ellipses (usft)			
5,200.00	5,198.80	5,285.26	5,273.56	11.42	2.26	-104.58	1,916.93	-455.12	1,980.93	1,967.54	13.39	147.945	
5,300.00	5,298.22	5,379.27	5,367.46	11.63	2.30	-104.72	1,914.86	-451.34	1,978.78	1,966.15	13.63	145.225	
5,400.00	5,397.84	5,475.44	5,463.55	11.85	2.33	-104.88	1,912.24	-448.00	1,978.89	1,964.81	13.88	142.573	
5,500.00	5,497.46	5,572.82	5,560.85	12.07	2.37	-105.05	1,910.08	-444.85	1,977.96	1,963.83	14.13	140.011	
5,600.00	5,597.08	5,670.05	5,658.01	12.29	2.40	-105.22	1,907.79	-441.92	1,977.18	1,962.80	14.38	137.516	
5,700.00	5,696.70	5,765.26	5,753.15	12.52	2.44	-105.38	1,905.96	-438.77	1,976.74	1,962.11	14.63	135.128	
5,800.00	5,796.32	5,866.07	5,853.89	12.74	2.48	-105.54	1,904.07	-435.42	1,976.38	1,961.50	14.88	132.800	
5,900.00	5,895.94	5,968.85	5,956.40	12.97	2.51	-105.72	1,902.00	-432.14	1,975.92	1,960.78	15.14	130.518	
6,010.00	6,005.52	6,075.19	6,062.86	13.22	2.55	-105.90	1,899.84	-428.68	1,975.41	1,959.99	15.42	128.094	
6,100.00	6,095.21	6,164.52	6,152.13	13.42	2.59	-106.04	1,898.10	-425.99	1,975.05	1,959.40	15.65	126.241	
6,200.00	6,194.93	6,260.57	6,248.13	13.62	2.62	-106.18	1,896.24	-423.33	1,974.50	1,958.62	15.88	124.331	
6,300.00	6,294.71	6,366.56	6,353.06	13.83	2.66	-106.32	1,894.16	-420.70	1,973.78	1,957.84	16.12	122.439	
6,400.00	6,394.54	6,459.85	6,447.30	14.03	2.69	-106.42	1,892.22	-418.45	1,972.72	1,956.37	16.36	120.607	
6,500.00	6,494.42	6,561.50	6,548.91	14.24	2.73	-106.50	1,890.18	-416.20	1,971.54	1,954.95	16.59	118.805	
6,600.00	6,594.34	10,003.01	8,306.96	14.44	33.51	177.47	-40.70	-714.73	1,914.01	1,867.04	46.97	40.748	
6,700.00	6,694.29	9,999.94	8,307.07	14.64	33.48	177.62	-37.64	-714.66	1,826.80	1,779.85	47.15	38.743	
6,800.00	6,794.27	9,996.87	8,307.17	14.84	33.41	177.78	-34.57	-714.80	1,740.50	1,693.17	47.33	36.775	
6,900.00	6,894.26	9,993.79	8,307.28	15.04	33.38	177.95	-31.50	-714.54	1,655.27	1,607.77	47.50	34.846	
7,010.00	7,004.25	9,990.41	8,307.40	15.25	33.31	-91.86	-28.11	-714.47	1,582.97	1,515.28	47.68	32.779	
7,100.00	7,094.25	9,987.82	8,307.50	15.43	33.28	-91.67	-25.33	-714.41	1,488.97	1,441.13	47.84	31.124	
7,200.00	7,194.25	9,984.51	8,307.60	15.65	33.21	-91.47	-22.22	-714.35	1,408.93	1,360.90	48.03	29.333	
7,300.00	7,294.25	9,981.38	8,307.71	15.87	33.16	-91.26	-19.09	-714.29	1,331.59	1,283.36	48.23	27.811	
7,400.00	7,394.25	9,978.22	8,307.83	16.09	33.11	-91.05	-15.94	-714.23	1,257.44	1,209.02	48.42	25.970	
7,500.00	7,494.25	9,975.04	8,307.94	16.31	33.08	-90.84	-12.76	-714.17	1,187.07	1,138.46	48.61	24.420	
7,600.00	7,594.25	9,971.84	8,308.05	16.53	33.00	-90.63	-9.57	-714.11	1,121.21	1,072.41	48.80	22.975	
7,700.00	7,694.25	9,968.62	8,308.17	16.75	32.95	-90.42	-6.35	-714.06	1,060.69	1,011.70	48.99	21.650	
7,800.00	7,794.25	9,965.38	8,308.28	16.97	32.90	-90.21	-3.10	-714.00	1,008.47	957.29	49.18	20.464	
7,900.00	7,894.25	9,962.11	8,308.40	17.19	32.85	-89.99	0.15	-713.94	959.83	910.26	49.37	19.437	
8,000.00	7,994.25	9,958.82	8,308.52	17.41	32.79	-89.77	3.45	-713.89	921.29	871.73	49.56	18.589	
8,100.00	8,094.25	9,955.50	8,308.64	17.63	32.74	-89.55	6.76	-713.83	892.54	842.79	49.75	17.941	
8,200.00	8,194.25	9,952.17	8,308.76	17.85	32.68	-89.33	10.09	-713.78	874.33	824.40	49.94	17.509	
8,300.00	8,294.25	9,946.00	8,308.99	18.08	32.58	-88.93	16.26	-713.68	867.34	817.24	50.09	17.314	
8,311.13	8,305.39	9,946.00	8,308.99	18.10	32.58	-88.93	16.26	-713.68	867.26	817.15	50.12	17.304 CC, ES, SF	
8,400.00	8,394.25	9,945.30	8,309.01	18.30	32.57	-88.88	16.95	-713.67	871.81	821.50	50.31	17.329	
8,500.00	8,494.25	9,941.16	8,309.16	18.52	32.50	-88.61	21.07	-713.60	867.58	837.09	50.49	17.581	
8,600.00	8,594.25	9,937.02	8,309.32	18.74	32.44	-88.33	25.23	-713.53	914.07	883.41	50.66	18.043	
8,700.00	8,694.25	9,932.83	8,309.47	18.96	32.37	-88.06	29.42	-713.46	950.37	899.54	50.84	18.695	
8,800.00	8,794.25	9,928.59	8,309.63	19.18	32.30	-87.78	33.65	-713.39	995.43	944.42	51.01	19.514	
8,900.00	8,894.25	9,924.32	8,309.79	19.40	32.23	-87.50	37.91	-713.31	1,048.09	996.91	51.18	20.478	
9,000.00	8,994.25	9,920.02	8,309.95	19.62	32.16	-87.21	42.22	-713.23	1,107.29	1,055.94	51.35	21.562	
9,100.00	9,094.25	9,915.67	8,310.12	19.85	32.09	-86.92	46.56	-713.15	1,172.03	1,120.51	51.52	22.747	
9,200.00	9,194.25	9,911.26	8,310.28	20.07	32.01	-86.64	50.94	-713.06	1,241.45	1,189.75	51.69	24.016	
9,300.00	9,294.25	9,906.86	8,310.45	20.29	31.94	-86.34	55.37	-712.97	1,314.80	1,262.93	51.87	25.348	
9,400.00	9,394.25	9,902.39	8,310.62	20.51	31.87	-86.05	59.83	-712.88	1,391.46	1,339.41	52.05	26.733	
9,500.00	9,494.25	9,897.88	8,310.80	20.73	31.79	-85.75	64.33	-712.78	1,470.91	1,418.68	52.23	28.162	
9,600.00	9,594.25	9,893.33	8,310.97	20.95	31.72	-85.45	68.88	-712.69	1,552.73	1,500.32	52.41	29.627	
9,700.00	9,694.25	9,888.74	8,311.15	21.18	31.64	-85.15	73.46	-712.58	1,636.56	1,583.97	52.59	31.121	
9,800.00	9,794.25	9,884.11	8,311.33	21.40	31.57	-84.85	78.09	-712.48	1,722.11	1,669.34	52.76	32.638	
9,900.00	9,894.25	9,879.43	8,311.51	21.62	31.49	-84.54	82.76	-712.37	1,809.13	1,756.19	52.94	34.174	
10,000.00	9,994.25	9,874.71	8,311.70	21.84	31.41	-84.23	87.48	-712.26	1,897.42	1,844.31	53.11	35.725	
10,081.80	10,076.05	9,870.82	8,311.85	22.03	31.35	-83.97	91.37	-712.16	1,870.48	1,917.21	53.25	37.002	
10,100.00	10,094.25	9,869.50	8,311.90	22.07	31.33	-80.23	92.59	-712.13	1,986.79	1,933.25	53.54	37.109	

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



LEAM Drilling Systems LLC

Anticollision Report



Company: DEVON ENERGY
Project: Lea County, NM (NAD-83)
Reference Site: Chincoteague 32 State Com
Site Error: 0.00 usft
Reference Well: 4H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Prelim 1

Local Co-ordinate Reference: Well 4H
TVD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
MD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Cotton Draw 32 State - 3H (offset) - OH - OH													Offset Site Error: 0.00 usft
Survey Program: 135- VES GyroFlex V2, 7720-MWD-ISCWSA													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)	Between Centres (usft)	Between Ellipses (usft)			
10,150.00	10,144.09	9,862.85	8,312.18	22.18	31.22	-70.13	99.53	-711.96	2,031.54	1,977.85	53.88	37.844	
10,200.00	10,183.42	9,850.43	8,312.87	22.29	31.01	-80.80	111.73	-711.63	2,075.82	2,022.87	52.95	39.202	
10,250.00	10,241.85	9,833.07	8,313.35	22.40	30.73	-52.68	129.07	-711.09	2,119.28	2,067.69	51.59	41.080	
10,300.00	10,289.02	9,810.99	8,314.16	22.51	30.36	-45.88	151.12	-710.19	2,161.54	2,111.88	49.88	43.333	
10,350.00	10,334.57	9,784.43	8,315.06	22.62	29.93	-40.31	177.83	-708.81	2,202.24	2,154.20	48.05	45.836	
10,400.00	10,378.15	9,752.06	8,316.06	22.73	29.39	-35.76	209.91	-706.89	2,241.03	2,194.86	46.17	48.534	
10,450.00	10,419.43	9,699.87	8,317.65	22.84	28.53	-31.81	261.79	-702.36	2,277.45	2,233.37	44.08	51.667	
10,500.00	10,458.10	9,651.91	8,319.20	22.96	27.74	-28.75	309.57	-697.38	2,311.05	2,268.83	42.22	54.734	
10,550.00	10,493.86	9,618.85	8,320.13	23.09	27.19	-26.51	342.39	-693.48	2,341.81	2,301.09	40.72	57.510	
10,600.00	10,526.44	9,583.58	8,320.93	23.24	26.60	-24.66	377.35	-688.92	2,369.57	2,330.29	39.28	60.321	
10,650.00	10,555.59	9,542.53	8,321.68	23.42	25.92	-23.12	418.00	-683.26	2,394.09	2,356.23	37.86	63.232	
10,700.00	10,581.10	9,496.15	8,322.65	23.62	25.14	-21.86	463.95	-677.08	2,415.10	2,378.82	36.48	66.204	
10,750.00	10,602.76	9,453.59	8,323.83	23.85	24.44	-20.89	508.14	-671.52	2,432.40	2,397.15	35.25	68.995	
10,800.00	10,620.41	9,415.01	8,324.30	24.11	23.82	-20.17	544.34	-666.20	2,448.02	2,411.84	34.18	71.556	
10,850.00	10,633.92	9,373.33	8,324.72	24.40	23.14	-19.80	585.57	-660.05	2,455.87	2,422.68	33.19	73.965	
10,900.00	10,643.18	9,305.35	8,325.64	24.71	22.04	-19.10	652.80	-650.02	2,461.56	2,429.48	32.08	76.742	
10,950.00	10,648.13	9,254.34	8,326.73	25.04	21.19	-18.88	703.28	-642.80	2,462.91	2,431.82	31.29	78.721	
10,977.89	10,649.00	9,230.16	8,327.24	25.24	20.77	-18.82	727.23	-639.49	2,461.92	2,430.97	30.95	79.533	
11,000.00	10,649.16	9,210.85	8,327.66	25.40	20.44	-18.76	746.55	-638.87	2,460.85	2,429.83	30.83	79.822	
11,100.00	10,649.87	9,123.74	8,329.35	26.19	18.92	-18.52	832.72	-625.57	2,455.29	2,425.00	30.29	81.069	
11,200.00	10,650.59	9,056.54	8,330.18	27.09	17.76	-18.33	899.34	-616.91	2,450.75	2,420.77	29.98	81.741	
11,300.00	10,651.31	8,998.85	8,329.73	28.07	16.74	-18.15	958.49	-608.88	2,447.88	2,418.09	29.79	82.174	
11,400.00	10,652.02	8,907.00	8,328.19	29.14	15.28	-17.87	1,047.53	-596.94	2,446.06	2,416.89	29.37	83.277	
11,500.00	10,652.74	8,824.46	8,326.67	30.28	13.94	-17.63	1,129.47	-587.10	2,444.83	2,415.76	29.08	84.080	
11,577.59	10,653.30	8,768.16	8,325.50	31.21	13.03	-17.49	1,185.44	-581.22	2,444.47	2,415.51	28.96	84.422	
11,600.00	10,653.46	8,752.44	8,325.09	31.48	12.77	-17.45	1,201.09	-579.65	2,444.50	2,415.57	28.93	84.510	
11,700.00	10,654.18	8,695.00	8,323.33	32.74	11.84	-17.31	1,258.21	-573.93	2,445.36	2,416.43	28.93	84.520	
11,800.00	10,654.89	8,604.00	8,321.66	34.05	11.31	-17.21	1,288.95	-570.29	2,448.47	2,419.28	29.19	83.894	
11,900.00	10,655.81	8,533.00	8,318.59	35.41	10.79	-17.10	1,319.53	-566.31	2,454.78	2,425.32	29.46	83.320	
12,000.00	10,656.33	8,419.09	8,316.70	36.81	10.56	-17.05	1,333.19	-564.47	2,464.27	2,434.36	29.91	82.385	
12,100.00	10,657.04	8,302.00	8,313.93	38.24	10.28	-16.98	1,349.91	-562.30	2,477.04	2,446.89	30.35	81.605	
12,200.00	10,657.76	8,170.00	8,307.68	39.71	9.77	-16.85	1,381.06	-558.44	2,492.94	2,462.25	30.69	81.223	
12,300.00	10,658.48	8,055.52	8,304.42	41.21	9.55	-16.79	1,395.07	-556.83	2,511.79	2,480.59	31.20	80.507	
12,400.00	10,659.20	7,939.00	8,300.35	42.73	9.29	-16.73	1,411.00	-555.20	2,533.74	2,502.04	31.71	79.912	
12,500.00	10,659.91	7,807.00	8,291.64	44.27	8.79	-16.60	1,441.64	-552.21	2,558.43	2,526.32	32.10	79.693	
12,600.00	10,660.63	7,676.00	8,282.07	45.84	8.31	-16.46	1,470.93	-548.82	2,585.82	2,553.29	32.53	79.493	
12,700.00	10,661.35	7,476.00	8,262.07	47.42	8.31	-16.46	1,470.93	-548.82	2,616.09	2,582.88	33.21	78.773	
12,800.00	10,662.06	7,444.00	8,270.39	49.02	7.84	-16.29	1,500.43	-544.72	2,649.16	2,615.50	33.66	78.708	
12,900.00	10,662.78	7,444.00	8,270.39	50.64	7.84	-16.29	1,500.43	-544.72	2,685.07	2,650.71	34.36	78.145	
13,000.00	10,663.50	7,426.45	8,263.05	52.27	7.58	-16.19	1,516.19	-542.36	2,723.79	2,688.85	34.94	77.959	
13,100.00	10,664.21	7,413.00	8,256.98	53.91	7.39	-16.11	1,526.05	-540.49	2,765.20	2,729.65	35.55	77.774	
13,200.00	10,664.93	7,398.03	8,249.85	55.57	7.19	-16.02	1,541.04	-538.34	2,809.13	2,772.97	36.16	77.679	
13,300.00	10,665.65	7,381.00	8,241.35	57.23	6.95	-15.91	1,555.56	-535.75	2,855.40	2,818.64	36.76	77.675	
13,400.00	10,666.37	7,350.00	8,225.13	58.91	6.55	-15.69	1,581.48	-530.82	2,903.82	2,866.58	37.25	77.963	
13,500.00	10,667.08	7,328.58	8,213.51	60.59	6.28	-15.53	1,599.01	-526.49	2,954.03	2,916.22	37.81	78.124	
13,600.00	10,667.80	7,306.02	8,200.94	62.28	6.00	-15.34	1,617.00	-521.35	3,006.04	2,967.86	38.38	78.327	
13,700.00	10,668.52	7,287.00	8,189.98	63.98	5.76	-15.18	1,631.79	-516.58	3,059.93	3,020.96	38.97	78.515	
13,800.00	10,669.23	7,267.00	8,189.98	65.69	5.76	-15.18	1,631.79	-516.58	3,115.86	3,076.14	39.73	78.435	
13,900.00	10,669.95	7,255.00	8,170.52	67.40	5.38	-14.88	1,655.81	-508.30	3,173.53	3,133.29	40.24	78.865	
14,000.00	10,670.67	7,255.00	8,170.52	69.12	5.38	-14.88	1,655.81	-508.30	3,232.94	3,191.94	41.00	78.855	
14,100.00	10,671.39	7,255.00	8,170.52	70.84	5.38	-14.88	1,655.81	-508.30	3,294.32	3,252.58	41.76	78.885	
14,200.00	10,672.10	7,224.00	8,150.24	72.57	5.04	-14.60	1,677.81	-500.24	3,357.25	3,314.95	42.30	79.373	

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



LEAM Drilling Systems LLC

Anticollision Report



Company: DEVON ENERGY
Project: Lea County, NM (NAD-83)
Reference Site: Chincoteague 32 State Com
Site Error: 0.00 usft
Reference Well: 4H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Prelim 1

Local Co-ordinate Reference: Well 4H
TVD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
MD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Cotton Draw 32 State - 3H (offset) - OH - OH												Offset Site Error:	0.00 usft
Survey Program: 135- VES GyroFlex V2, 7720-MWD-ISCWSA												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
14,300.00	10,672.82	8,224.00	8,150.24	74.30	5.04	-14.80	1,577.81	-500.24	3,421.80	3,378.54	43.08	79.455	
14,400.00	10,673.54	8,224.00	8,150.24	76.04	5.04	-14.80	1,577.81	-500.24	3,487.84	3,443.81	43.83	79.565	
14,500.00	10,674.25	8,208.37	8,139.49	77.78	4.88	-14.45	1,688.39	-496.14	3,556.01	3,510.52	44.49	79.913	
14,600.00	10,674.97	8,192.00	8,127.89	79.53	4.72	-14.29	1,699.12	-491.84	3,623.83	3,578.69	45.13	80.293	
14,700.00	10,675.69	8,192.00	8,127.89	81.28	4.72	-14.29	1,699.12	-491.84	3,693.80	3,647.89	45.91	80.461	
14,800.00	10,676.40	8,192.00	8,127.89	83.03	4.72	-14.29	1,699.12	-491.84	3,765.13	3,718.44	46.69	80.648	
14,900.00	10,677.12	8,161.00	8,105.17	84.79	4.44	-13.99	1,718.42	-483.37	3,837.51	3,790.30	47.21	81.284	
15,000.00	10,677.84	8,161.00	8,105.17	86.54	4.44	-13.99	1,718.42	-483.37	3,910.84	3,862.85	47.99	81.493	
15,100.00	10,678.56	8,161.00	8,105.17	88.31	4.44	-13.99	1,718.42	-483.37	3,985.33	3,936.56	48.77	81.716	
15,162.02	10,679.00	8,161.00	8,105.17	89.40	4.44	-13.99	1,718.42	-483.37	4,032.09	3,982.83	49.26	81.860	

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



LEAM Drilling Systems LLC

Anticollision Report

Company: DEVON ENERGY
Project: Lea County, NM (NAD-83)
Reference Site: Chincoteague 32 State Corn
Site Error: 0.00 usft
Reference Well: 4H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Prelim 1

Local Co-ordinate Reference: Well 4H
TVD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
MD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Cotton Draw 32 State - 4H - OH - OH												Offset Site Error:	0.00 usft
Survey Program: 100-MWD-ISCWSA, 4680-MWD-ISCWSA												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
0.00	0.00	2.30	2.30	0.00	0.00	-33.10	2,096.11	-1,366.29	2,502.08				
100.00	100.00	112.31	112.31	0.09	0.11	-33.11	2,095.71	-1,366.49	2,501.88	2,501.88	0.20	N/A	
200.00	200.00	222.57	222.56	0.31	0.35	-33.12	2,094.69	-1,366.75	2,501.23	2,500.57	0.66	3,770.638	
300.00	300.00	321.14	321.13	0.54	0.55	-33.13	2,093.80	-1,366.90	2,500.39	2,499.30	1.09	2,292.131	
400.00	400.00	409.00	408.99	0.76	0.73	-33.13	2,093.39	-1,366.41	2,499.88	2,498.39	1.49	1,876.747	
472.32	472.32	474.43	474.42	0.92	0.86	-33.14	2,093.24	-1,366.47	2,499.78	2,497.99	1.79	1,398.860	
500.00	500.00	500.00	499.99	0.99	0.92	-33.14	2,093.18	-1,366.58	2,499.79	2,497.89	1.90	1,314.700	
600.00	600.00	604.47	604.46	1.21	1.13	-33.14	2,093.10	-1,366.71	2,499.79	2,497.45	2.34	1,086.171	
677.38	677.38	679.54	679.52	1.38	1.29	-33.14	2,093.18	-1,366.51	2,499.75	2,497.08	2.68	933.708	
700.00	700.00	700.00	699.99	1.43	1.34	-33.14	2,093.23	-1,366.45	2,499.76	2,496.99	2.77	902.002	
800.00	800.00	795.47	795.46	1.66	1.54	-33.13	2,093.40	-1,366.44	2,499.90	2,496.71	3.20	782.217	
900.00	900.00	896.00	897.98	1.88	1.75	-33.13	2,093.84	-1,366.48	2,500.13	2,496.49	3.64	687.732	
1,000.00	1,000.00	1,004.74	1,004.73	2.11	1.97	-33.12	2,093.85	-1,366.20	2,500.15	2,496.06	4.08	612.260	
1,063.74	1,063.74	1,065.85	1,065.84	2.25	2.10	-33.12	2,093.87	-1,366.13	2,500.11	2,495.78	4.35	574.279	
1,100.00	1,100.00	1,100.00	1,099.99	2.33	2.17	-33.12	2,093.86	-1,366.15	2,500.13	2,495.62	4.51	554.865	
1,200.00	1,200.00	1,195.50	1,195.49	2.56	2.37	-33.12	2,093.99	-1,366.24	2,500.29	2,495.36	4.93	507.103	
1,300.00	1,300.00	1,304.04	1,304.02	2.78	2.60	-33.12	2,094.09	-1,366.28	2,500.38	2,495.00	5.38	464.532	
1,330.64	1,330.64	1,332.97	1,332.95	2.85	2.66	-33.12	2,094.06	-1,366.30	2,500.37	2,494.88	5.51	453.828	
1,400.00	1,400.00	1,400.00	1,399.98	3.01	2.80	-33.13	2,094.04	-1,366.42	2,500.42	2,494.61	5.81	430.512	
1,500.00	1,500.00	1,500.00	1,499.98	3.23	3.01	-33.13	2,094.05	-1,366.49	2,500.47	2,494.23	6.24	400.559	
1,600.00	1,600.00	1,593.95	1,593.94	3.46	3.21	-33.13	2,094.15	-1,366.58	2,500.62	2,493.95	6.66	375.231	
1,700.00	1,700.00	1,700.00	1,699.98	3.68	3.43	-33.13	2,094.20	-1,366.62	2,500.67	2,493.58	7.11	351.663	
1,746.98	1,746.98	1,747.40	1,747.39	3.79	3.53	-33.13	2,094.18	-1,366.56	2,500.62	2,493.30	7.32	341.810	
1,800.00	1,800.00	1,792.49	1,792.48	3.91	3.62	-33.13	2,094.24	-1,366.67	2,500.74	2,493.21	7.53	332.131	
1,900.00	1,900.00	1,901.73	1,901.71	4.13	3.85	-33.13	2,094.48	-1,366.77	2,500.98	2,493.00	7.98	313.282	
2,000.00	2,000.00	2,007.49	2,007.47	4.36	4.07	-33.12	2,094.46	-1,366.55	2,500.85	2,492.42	8.43	296.695	
2,029.15	2,029.15	2,032.89	2,032.87	4.42	4.12	-33.12	2,094.43	-1,366.53	2,500.81	2,492.26	8.55	292.586	
2,100.00	2,100.00	2,100.00	2,099.98	4.58	4.27	-33.12	2,094.52	-1,366.58	2,500.91	2,492.07	8.85	282.674	
2,200.00	2,200.00	2,200.00	2,199.98	4.81	4.48	-33.12	2,094.75	-1,366.59	2,501.11	2,491.83	9.28	269.466	
2,300.00	2,300.00	2,293.39	2,293.37	5.03	4.67	-33.12	2,095.00	-1,366.51	2,501.29	2,491.59	9.70	257.804	
2,400.00	2,400.00	2,399.89	2,399.87	5.26	4.89	-33.11	2,095.37	-1,366.41	2,501.53	2,491.38	10.15	246.447	
2,500.00	2,500.00	2,492.41	2,492.39	5.48	5.09	-33.10	2,095.68	-1,366.34	2,501.77	2,491.20	10.57	236.713	
2,600.00	2,600.00	2,596.95	2,596.93	5.71	5.31	-33.10	2,096.07	-1,366.29	2,502.05	2,491.04	11.02	227.112	
2,700.00	2,700.00	2,699.73	2,699.71	5.93	5.52	-33.09	2,096.31	-1,366.12	2,502.16	2,490.71	11.45	218.483	
2,800.00	2,800.00	2,799.27	2,799.25	6.15	5.73	-33.09	2,096.55	-1,365.95	2,502.27	2,490.38	11.89	210.527	
2,900.00	2,900.00	2,897.37	2,897.35	6.38	5.94	-33.08	2,096.77	-1,365.89	2,502.42	2,490.10	12.32	203.185	
3,000.00	3,000.00	2,997.45	2,997.43	6.60	6.15	-33.08	2,097.00	-1,365.87	2,502.61	2,489.86	12.75	196.277	
3,100.00	3,100.00	3,103.25	3,103.23	6.83	6.37	-33.08	2,097.06	-1,365.93	2,502.68	2,489.48	13.20	189.844	
3,189.31	3,189.31	3,195.58	3,195.55	7.03	6.56	-33.08	2,096.82	-1,366.11	2,502.59	2,489.99	13.59	184.139	
3,200.00	3,200.00	3,200.00	3,199.98	7.05	6.57	-33.09	2,096.81	-1,366.12	2,502.58	2,489.95	13.62	183.888	
3,300.00	3,300.00	3,293.08	3,293.05	7.28	6.76	-33.09	2,096.81	-1,366.28	2,502.68	2,489.64	14.04	178.203	
3,400.00	3,400.00	3,409.03	3,409.01	7.50	7.01	-33.08	2,096.95	-1,366.14	2,502.71	2,489.20	14.51	172.456	
3,463.21	3,463.21	3,465.33	3,465.31	7.65	7.13	-33.08	2,096.92	-1,366.05	2,502.83	2,487.85	14.77	169.416	
3,500.00	3,500.00	3,500.00	3,499.98	7.73	7.20	-33.08	2,096.91	-1,366.11	2,502.86	2,487.73	14.93	167.656	
3,600.00	3,600.00	3,609.81	3,609.58	7.95	7.43	-33.08	2,096.80	-1,366.03	2,502.53	2,487.15	15.38	162.696	
3,639.21	3,639.21	3,642.77	3,642.74	8.04	7.50	-33.08	2,096.79	-1,365.95	2,502.46	2,486.93	15.54	161.042	
3,700.00	3,700.00	3,700.00	3,699.98	8.18	7.62	-33.08	2,096.87	-1,365.98	2,502.55	2,486.76	15.80	158.431	
3,800.00	3,800.00	3,800.00	3,799.98	8.40	7.83	-33.09	2,096.83	-1,366.19	2,502.63	2,486.40	16.23	154.203	
3,900.00	3,900.00	3,891.72	3,891.70	8.63	8.02	-33.09	2,096.82	-1,366.38	2,502.75	2,486.10	16.65	150.349	
4,000.00	4,000.00	3,997.57	3,997.54	8.85	8.24	-33.09	2,097.18	-1,366.47	2,503.09	2,486.00	17.09	146.437	
4,100.00	4,100.00	4,106.79	4,106.76	9.08	8.47	-33.08	2,097.33	-1,366.20	2,503.06	2,485.52	17.55	142.640	
4,167.33	4,167.33	4,169.46	4,169.43	9.23	8.80	-33.08	2,097.34	-1,366.08	2,503.00	2,485.17	17.83	140.377	

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



LEAM Drilling Systems LLC

Anticollision Report



Company: DEVON ENERGY
Project: Lea County, NM (NAD-83)
Reference Site: Chincoaleague 32 State Com
Site Error: 0.00 usft
Reference Well: 4H
Well Error: 0.00 usft
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Reference Design: Prelim 1

Local Co-ordinate Reference: Well 4H
TVD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
MD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Cotton Draw 32 State - 4H - OH - OH													Offset Site Error: 0.00 usft
Survey Program: 100-MWD-ISCWSA, 4680-MWD-ISCWSA													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore +N/-S (usft)	Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
4,200.00	4,200.00	4,200.00	4,199.97	9.30	8.67	-33.08	2,097.35	-1,366.09	2,503.02	2,485.05	17.97	139.305	
4,300.00	4,300.00	4,300.00	4,299.97	9.53	8.87	-33.08	2,097.41	-1,366.14	2,503.09	2,484.89	18.40	136.023	
4,400.00	4,400.00	4,396.72	4,396.70	9.75	9.08	-33.07	2,097.68	-1,366.15	2,503.33	2,484.50	18.83	132.957	
4,500.00	4,500.00	4,499.52	4,499.49	9.98	9.29	-33.07	2,097.95	-1,366.06	2,503.51	2,484.23	19.27	129.910	
4,600.00	4,600.00	4,598.08	4,598.08	10.19	9.50	-123.08	2,098.12	-1,365.88	2,504.03	2,484.34	19.69	127.200	
4,700.00	4,699.96	4,680.00	4,679.97	10.38	9.67	-123.12	2,098.27	-1,366.78	2,506.15	2,486.10	20.05	124.985	
4,800.00	4,799.86	4,738.11	4,738.05	10.58	9.73	-123.16	2,098.42	-1,368.57	2,510.37	2,490.07	20.31	123.620	
4,900.00	4,899.88	4,803.49	4,803.34	10.79	9.77	-123.25	2,098.65	-1,372.07	2,516.96	2,496.42	20.54	122.515	
5,000.00	4,999.37	4,871.00	4,870.83	10.99	9.78	-123.37	2,098.88	-1,377.35	2,525.85	2,505.11	20.74	121.758	
5,100.00	5,098.99	4,933.47	4,932.76	11.20	9.79	-123.60	2,098.99	-1,383.85	2,539.61	2,515.65	20.96	121.018	
5,200.00	5,198.80	5,005.43	5,004.10	11.42	9.80	-123.89	2,098.86	-1,393.29	2,548.72	2,527.54	21.18	120.313	
5,300.00	5,298.22	5,084.54	5,082.25	11.63	9.83	-124.26	2,098.14	-1,405.53	2,561.71	2,540.29	21.42	119.808	
5,400.00	5,397.84	5,161.51	5,158.07	11.85	9.87	-124.64	2,097.28	-1,418.72	2,575.61	2,553.95	21.66	118.912	
5,500.00	5,497.46	5,251.00	5,246.10	12.07	9.92	-125.06	2,096.25	-1,434.80	2,590.19	2,568.27	21.92	118.169	
5,600.00	5,597.08	5,348.46	5,341.93	12.29	9.99	-125.57	2,095.14	-1,452.52	2,605.06	2,582.87	22.19	117.376	
5,700.00	5,696.70	5,448.26	5,440.09	12.52	10.07	-126.06	2,094.00	-1,470.53	2,620.05	2,597.57	22.47	116.577	
5,800.00	5,796.32	5,536.00	5,526.42	12.74	10.14	-126.49	2,092.93	-1,486.16	2,635.04	2,612.29	22.75	115.809	
5,900.00	5,895.94	5,613.71	5,602.89	12.97	10.22	-126.85	2,092.57	-1,499.91	2,650.74	2,627.71	23.03	115.075	
6,010.00	6,005.52	5,705.55	5,693.28	13.22	10.32	-127.26	2,093.30	-1,516.17	2,669.19	2,645.84	23.36	114.270	
6,100.00	6,095.21	5,792.95	5,779.28	13.42	10.43	-127.70	2,094.15	-1,531.75	2,684.40	2,660.77	23.64	113.567	
6,200.00	6,194.93	5,887.58	5,872.38	13.62	10.56	-128.16	2,094.98	-1,548.85	2,700.90	2,676.98	23.94	112.808	
6,300.00	6,294.71	5,983.85	5,968.88	13.83	10.70	-128.61	2,095.85	-1,565.98	2,717.10	2,692.84	24.26	112.022	
6,400.00	6,394.54	6,087.39	6,068.96	14.03	10.86	-129.06	2,096.86	-1,584.41	2,732.79	2,708.21	24.58	111.194	
6,500.00	6,494.42	10,052.68	8,290.90	14.24	38.03	-177.61	88.74	-1,906.91	2,725.08	2,673.83	51.24	53.179	
6,600.00	6,594.34	10,052.54	8,290.90	14.44	38.03	-177.59	88.89	-1,906.90	2,863.44	2,811.97	51.47	51.750	
6,700.00	6,694.29	10,052.42	8,290.90	14.64	38.03	-177.57	89.01	-1,906.89	2,803.48	2,551.79	51.69	50.368	
6,800.00	6,794.27	10,052.33	8,290.90	14.84	38.03	-177.55	89.09	-1,906.89	2,545.31	2,493.40	51.91	49.035	
6,900.00	6,894.26	10,052.29	8,290.90	15.04	38.03	-177.54	89.13	-1,906.89	2,499.07	2,436.95	52.12	47.753	
7,010.00	7,004.25	10,052.31	8,290.90	15.25	38.03	-87.52	89.11	-1,906.89	2,429.60	2,377.25	52.35	46.411	
7,100.00	7,094.25	10,052.36	8,290.90	15.43	38.03	-87.52	89.06	-1,906.89	2,383.24	2,330.71	52.53	45.367	
7,200.00	7,194.25	10,052.43	8,290.90	15.65	38.03	-87.53	88.99	-1,906.89	2,334.72	2,281.98	52.76	44.255	
7,300.00	7,294.25	10,052.52	8,290.90	15.87	38.03	-87.53	88.91	-1,906.90	2,289.54	2,236.56	52.98	43.216	
7,400.00	7,394.25	10,052.62	8,290.90	16.09	38.03	-87.53	88.80	-1,906.90	2,247.91	2,194.71	53.20	42.252	
7,500.00	7,494.25	10,052.77	8,290.90	16.31	38.03	-87.54	88.66	-1,906.91	2,210.02	2,158.59	53.43	41.365	
7,600.00	7,594.25	10,052.96	8,290.90	16.53	38.04	-87.54	88.47	-1,906.92	2,176.07	2,122.42	53.65	40.559	
7,700.00	7,694.25	10,053.23	8,290.90	16.75	38.04	-87.55	88.19	-1,906.93	2,146.25	2,092.37	53.88	39.836	
7,800.00	7,794.25	10,053.67	8,290.90	16.97	38.05	-87.56	87.75	-1,906.95	2,120.72	2,066.62	54.11	39.196	
7,900.00	7,894.25	10,054.45	8,290.90	17.19	38.06	-87.56	86.97	-1,906.96	2,099.65	2,045.32	54.34	38.640	
8,000.00	7,994.25	10,056.27	8,290.91	17.41	38.09	-87.63	85.15	-1,907.06	2,083.18	2,028.60	54.58	38.165	
8,100.00	8,094.25	10,105.00	8,291.65	17.63	38.86	-88.99	36.45	-1,908.43	2,071.42	2,016.00	55.41	37.380	
8,200.00	8,194.25	10,105.00	8,291.65	17.85	38.86	-88.99	36.45	-1,908.43	2,064.39	2,008.75	55.64	37.104	
8,295.30	8,289.55	10,105.00	8,291.65	18.06	38.86	-88.99	36.45	-1,908.43	2,062.19	2,006.34	55.85	36.924 CC	
8,300.00	8,294.25	10,105.00	8,291.65	18.08	38.86	-88.99	36.45	-1,908.43	2,062.20	2,006.33	55.86	36.917 ES	
8,400.00	8,394.25	10,105.00	8,291.65	18.30	38.86	-88.99	36.45	-1,908.43	2,064.85	2,008.78	56.08	36.817	
8,500.00	8,494.25	10,105.00	8,291.65	18.52	38.86	-88.99	36.45	-1,908.43	2,072.33	2,016.02	56.31	36.805 SF	
8,600.00	8,594.25	10,105.00	8,291.65	18.74	38.86	-88.99	36.45	-1,908.43	2,084.58	2,028.05	56.53	36.876	
8,700.00	8,694.25	10,105.00	8,291.65	18.96	38.86	-88.99	36.45	-1,908.43	2,101.53	2,044.77	56.75	37.030	
8,800.00	8,794.25	10,105.00	8,291.65	19.16	38.86	-88.99	36.45	-1,908.43	2,123.05	2,066.08	56.98	37.263	
8,900.00	8,894.25	10,105.00	8,291.65	19.40	38.86	-88.99	36.45	-1,908.43	2,149.02	2,091.82	57.20	37.571	
9,000.00	8,994.25	10,105.00	8,291.65	19.62	38.86	-88.99	36.45	-1,908.43	2,179.27	2,121.85	57.42	37.952	
9,100.00	9,094.25	10,105.00	8,291.65	19.85	38.86	-88.99	36.45	-1,908.43	2,213.63	2,155.99	57.64	38.401	
9,200.00	9,194.25	10,105.00	8,291.65	20.07	38.86	-88.99	36.45	-1,908.43	2,251.91	2,194.05	57.87	38.915	

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

Company: DEVON ENERGY
 Project: Lea County, NM (NAD-83)
 Reference Site: Chincoteague 32 State Com
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Prelim 1

Local Co-ordinate Reference: Well 4H
 TVD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
 MD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at 2.00 sigma
 Database: EDM 5000.1 Single User Db
 Offset TVD Reference: Offset Datum

Offset Design Cotton Draw 32 State - 4H - OH - OH													Offset Site Error: 0.00 usft
Survey Program: 100-MWD-ISCWSA, 4680-MWD-ISCWSA													Offset Well Error: 0.00 usft
Reference	Offset	Semi Major Axis		Distance		Warning							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
9,300.00	9,294.25	10,105.00	8,291.65	20.29	38.86	-88.99	36.45	-1,908.43	2,293.92	2,235.83	58.09	39.488	
9,400.00	9,394.25	10,105.00	8,291.65	20.51	38.86	-88.99	36.45	-1,908.43	2,338.44	2,281.13	58.31	40.118	
9,500.00	9,494.25	10,105.00	8,291.65	20.73	38.86	-88.99	36.45	-1,908.43	2,388.29	2,329.75	58.54	40.799	
9,600.00	9,594.25	10,105.00	8,291.65	20.95	38.86	-88.99	36.45	-1,908.43	2,440.26	2,381.50	58.76	41.529	
9,700.00	9,694.25	10,105.00	8,291.65	21.18	38.86	-88.99	36.45	-1,908.43	2,495.16	2,436.17	58.98	42.302	
9,800.00	9,794.25	10,105.00	8,291.65	21.40	38.86	-88.99	36.45	-1,908.43	2,552.79	2,493.59	59.21	43.116	
9,900.00	9,894.25	10,105.00	8,291.65	21.62	38.86	-88.99	36.45	-1,908.43	2,612.99	2,553.56	59.43	43.967	
10,000.00	9,994.25	10,105.00	8,291.65	21.84	38.86	-88.99	36.45	-1,908.43	2,675.56	2,615.91	59.65	44.851	
10,081.80	10,076.05	10,105.00	8,291.65	22.03	38.86	-88.99	36.45	-1,908.43	2,728.41	2,668.57	59.84	45.597	
10,100.00	10,094.25	10,105.00	8,291.65	22.07	38.86	-87.40	36.45	-1,908.43	2,740.36	2,680.28	60.08	45.612	
10,150.00	10,144.09	10,105.00	8,291.65	22.18	38.86	-83.02	36.45	-1,908.43	2,773.39	2,712.77	60.62	45.752	
10,200.00	10,193.42	9,971.91	8,292.12	22.29	36.74	-75.18	169.36	-1,902.23	2,805.98	2,747.10	58.85	47.678	
10,250.00	10,241.85	9,963.08	8,292.28	22.40	36.60	-70.90	178.18	-1,901.71	2,838.35	2,779.80	58.75	48.313	
10,300.00	10,289.02	9,951.54	8,292.47	22.51	36.41	-68.79	189.70	-1,901.05	2,870.12	2,811.41	58.71	48.886	
10,350.00	10,334.57	9,937.41	8,292.69	22.62	36.18	-62.94	203.81	-1,900.26	2,900.99	2,842.58	58.41	49.667	
10,400.00	10,378.15	9,915.00	8,292.99	22.73	35.82	-58.28	228.18	-1,899.07	2,930.71	2,872.95	57.76	50.739	
10,450.00	10,419.43	9,915.00	8,292.99	22.84	35.82	-56.37	228.18	-1,899.07	2,959.05	2,901.75	57.30	51.839	
10,500.00	10,458.10	9,882.28	8,293.26	22.96	35.29	-53.29	258.87	-1,897.41	2,985.69	2,929.54	56.14	53.180	
10,550.00	10,493.86	9,860.32	8,293.31	23.09	34.93	-50.75	280.79	-1,896.32	3,010.51	2,955.46	55.05	54.890	
10,600.00	10,526.44	9,820.00	8,293.10	23.24	34.28	-48.36	321.06	-1,894.37	3,033.34	2,979.77	53.57	56.820	
10,650.00	10,555.59	9,820.00	8,293.10	23.42	34.28	-46.71	321.06	-1,894.37	3,053.80	3,001.10	52.70	57.949	
10,700.00	10,581.10	9,781.32	8,292.81	23.62	33.67	-45.00	359.70	-1,892.57	3,071.84	3,020.63	51.22	59.977	
10,750.00	10,602.76	9,750.82	8,292.05	23.85	33.19	-43.65	390.36	-1,891.19	3,087.30	3,037.41	49.89	61.883	
10,800.00	10,620.41	9,700.42	8,290.89	24.11	32.43	-42.49	440.50	-1,888.94	3,099.99	3,051.62	48.37	64.095	
10,850.00	10,633.92	9,519.14	8,289.13	24.40	29.80	-41.12	621.36	-1,877.05	3,108.51	3,063.19	45.32	68.590	
10,900.00	10,643.18	9,444.20	8,290.61	24.71	28.69	-40.64	696.10	-1,871.66	3,112.48	3,068.63	43.64	70.990	
10,950.00	10,648.13	9,439.00	8,290.74	25.04	28.61	-40.57	701.28	-1,871.32	3,113.27	3,069.90	43.37	71.781	
10,977.69	10,649.00	9,439.00	8,290.74	25.24	28.61	-40.61	701.28	-1,871.32	3,112.63	3,069.43	43.20	72.052	
11,000.00	10,649.16	9,403.88	8,291.28	25.40	28.10	-40.58	736.31	-1,868.90	3,111.34	3,068.43	42.91	72.508	
11,100.00	10,649.87	9,344.00	8,290.51	26.19	27.23	-40.52	796.07	-1,865.26	3,108.48	3,065.74	42.74	72.732	
11,200.00	10,650.59	9,301.57	8,289.35	27.09	26.67	-40.47	838.42	-1,862.98	3,107.01	3,064.15	42.87	72.481	
11,300.00	10,651.31	9,112.00	8,289.07	28.07	24.05	-40.30	1,027.70	-1,852.79	3,103.81	3,062.32	41.49	74.809	
11,400.00	10,652.02	9,059.00	8,289.17	29.14	23.30	-40.26	1,080.61	-1,849.86	3,100.68	3,059.07	41.61	74.525	
11,500.00	10,652.74	8,996.28	8,288.67	30.28	22.51	-40.21	1,143.26	-1,846.96	3,098.89	3,057.16	41.73	74.258	
11,600.00	10,653.46	8,915.88	8,287.55	31.48	21.49	-40.15	1,223.81	-1,844.23	3,098.25	3,056.51	41.74	74.232	
11,680.56	10,654.11	8,840.75	8,286.42	32.62	20.55	-40.09	1,298.69	-1,841.73	3,097.88	3,056.12	41.76	74.190	
11,700.00	10,654.18	8,834.95	8,286.30	32.74	20.47	-40.09	1,304.48	-1,841.54	3,097.88	3,056.11	41.78	74.155	
11,800.00	10,654.89	8,774.00	8,284.42	34.05	19.69	-40.03	1,365.37	-1,839.48	3,098.63	3,056.80	42.03	73.724	
11,900.00	10,655.81	8,709.56	8,281.36	35.41	18.92	-39.96	1,429.70	-1,837.24	3,100.57	3,058.27	42.31	73.288	
12,000.00	10,656.33	8,647.00	8,277.38	36.81	18.19	-39.87	1,492.09	-1,834.91	3,103.66	3,061.02	42.64	72.789	
12,100.00	10,657.04	8,616.00	8,274.92	38.24	17.85	-39.82	1,522.96	-1,833.63	3,108.25	3,064.94	43.31	71.761	
12,200.00	10,657.76	8,584.00	8,271.48	39.71	17.52	-39.76	1,554.74	-1,832.23	3,114.98	3,070.98	44.00	70.787	
12,300.00	10,658.48	8,568.00	8,269.32	41.21	17.35	-39.72	1,570.58	-1,831.52	3,124.25	3,079.38	44.87	69.828	
12,400.00	10,659.20	8,538.00	8,264.13	42.73	17.05	-39.64	1,600.09	-1,830.17	3,135.92	3,090.30	45.62	68.738	
12,500.00	10,659.91	8,524.71	8,261.21	44.27	16.93	-39.60	1,613.05	-1,829.53	3,150.32	3,103.77	46.55	67.678	
12,600.00	10,660.63	8,507.00	8,256.71	45.84	16.78	-39.53	1,630.15	-1,828.62	3,167.35	3,119.91	47.44	66.759	
12,700.00	10,661.35	8,507.00	8,256.71	47.42	16.78	-39.53	1,630.15	-1,828.62	3,167.12	3,138.59	48.53	65.873	
12,800.00	10,662.06	8,475.00	8,246.76	49.02	16.48	-39.39	1,680.50	-1,826.92	3,209.27	3,159.96	49.31	65.088	
12,900.00	10,662.78	8,475.00	8,246.76	50.64	16.48	-39.39	1,680.50	-1,826.92	3,234.04	3,183.82	50.42	64.146	
13,000.00	10,663.50	8,444.00	8,235.12	52.27	16.22	-39.22	1,689.18	-1,825.20	3,261.24	3,210.02	51.22	63.674	
13,100.00	10,664.21	8,444.00	8,235.12	53.91	16.22	-39.22	1,689.18	-1,825.20	3,290.83	3,238.48	52.35	62.866	
13,200.00	10,664.93	8,412.00	8,221.38	55.57	15.97	-39.04	1,718.01	-1,823.31	3,322.68	3,269.53	53.15	62.519	

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



LEAM Drilling Systems LLC
Anticollision Report



Company: DEVON ENERGY
Project: Lea County, NM (NAD-83)
Reference Site: Chincoteague 32 State Com
Site Error: 0.00 usft
Reference Well: 4H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Prelim 1

Local Co-ordinate Reference: Well 4H
TVD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
MD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Cotton Draw 32 State - 4H - OH - OH												Offset Site Error: 0.00 usft	
Survey Program: 100-MWD-ISCWSA, 4680-MWD-ISCWSA												Offset Well Error: 0.00 usft	
Reference		Offset		Semi Major Axis			Distance					Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)		Separation Factor
13,300.00	10,665.65	8,412.00	8,221.38	57.23	15.97	-39.04	1,718.01	-1,823.31	3,356.83	3,302.54	54.29	61.830	
13,400.00	10,666.37	8,380.00	8,206.11	58.91	15.74	-38.83	1,748.05	-1,821.23	3,393.02	3,337.82	55.10	61.583	
13,500.00	10,667.08	8,366.93	8,199.47	60.59	15.65	-38.74	1,757.27	-1,820.32	3,431.36	3,375.25	56.11	61.153	
13,600.00	10,667.80	8,348.00	8,189.45	62.28	15.53	-38.61	1,773.28	-1,818.99	3,471.78	3,414.72	57.06	60.843	
13,700.00	10,668.52	8,331.93	8,180.62	63.98	15.43	-38.49	1,786.85	-1,817.84	3,514.16	3,456.11	58.05	60.539	
13,800.00	10,669.23	8,317.00	8,172.19	65.69	15.34	-38.38	1,798.93	-1,816.74	3,558.40	3,498.35	59.05	60.264	
13,900.00	10,669.95	8,285.00	8,153.45	67.40	15.15	-38.13	1,824.73	-1,814.15	3,604.36	3,544.51	59.85	60.219	
14,000.00	10,670.67	8,265.31	8,141.49	69.12	15.04	-37.97	1,840.27	-1,812.35	3,651.99	3,591.19	60.80	60.065	
14,100.00	10,671.39	8,253.00	8,133.85	70.84	14.98	-37.87	1,849.85	-1,811.14	3,701.27	3,639.44	61.83	59.863	
14,200.00	10,672.10	8,222.00	8,113.97	72.57	14.82	-37.60	1,873.41	-1,807.88	3,752.19	3,689.58	62.84	59.902	
14,300.00	10,672.82	8,222.00	8,113.97	74.30	14.82	-37.60	1,873.41	-1,807.88	3,804.75	3,740.94	63.81	59.622	
14,400.00	10,673.54	8,203.30	8,101.51	76.04	14.74	-37.44	1,887.21	-1,805.91	3,858.93	3,794.18	64.77	59.579	
14,500.00	10,674.25	8,190.00	8,092.44	77.78	14.68	-37.32	1,896.85	-1,804.56	3,914.70	3,848.91	65.79	59.505	
14,600.00	10,674.97	8,190.00	8,092.44	79.53	14.68	-37.32	1,896.85	-1,804.56	3,972.08	3,905.11	66.97	59.313	
14,700.00	10,675.69	8,159.00	8,070.74	81.28	14.56	-37.05	1,918.80	-1,801.73	4,030.75	3,962.97	67.78	59.472	
14,800.00	10,676.40	8,159.00	8,070.74	83.03	14.56	-37.05	1,918.80	-1,801.73	4,090.86	4,021.90	68.98	59.324	
14,900.00	10,677.12	8,144.54	8,060.35	84.79	14.51	-36.92	1,928.80	-1,800.60	4,152.33	4,082.36	69.97	59.347	
15,000.00	10,677.84	8,127.00	8,047.49	86.54	14.45	-36.77	1,940.66	-1,799.39	4,215.19	4,144.25	70.94	59.421	
15,100.00	10,678.56	8,127.00	8,047.49	88.31	14.45	-36.77	1,940.66	-1,799.39	4,279.21	4,207.09	72.12	59.333	
15,162.02	10,679.00	8,127.00	8,047.49	89.40	14.45	-36.77	1,940.66	-1,799.39	4,319.60	4,246.75	72.88	59.288	

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



LEAM Drilling Systems LLC
Anticollision Report



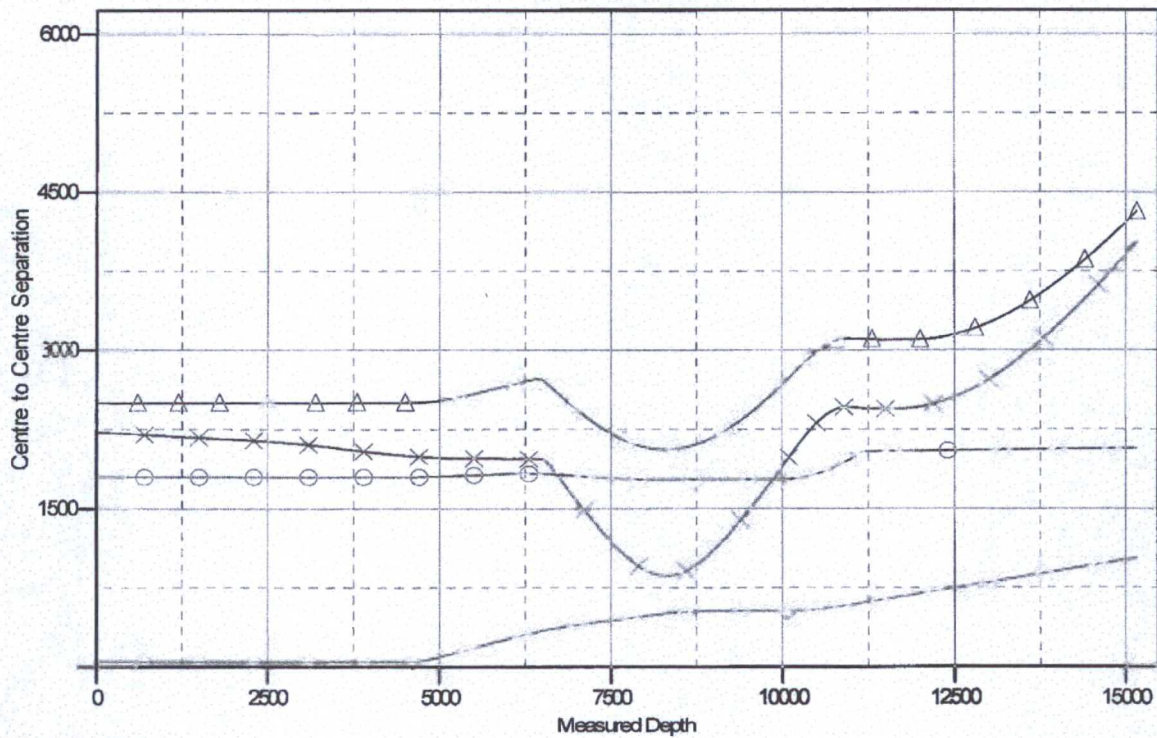
Company: DEVON ENERGY
Project: Lea County, NM (NAD-83)
Reference Site: Chincoteague 32 State Com
Site Error: 0.00 usft
Reference Well: 4H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Prelim 1

Local Co-ordinate Reference: Well 4H
TVD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
MD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Reference Depths are relative to 3470.9' GE + 23.5' RKB @ 3494.40us
Offset Depths are relative to Offset Datum
Central Meridian is 104° 20' 0.000 W

Coordinates are relative to: 4H
Coordinate System is US State Plane 1983, New Mexico Eastern Zone
Grid Convergence at Surface is: 0.34°

Ladder Plot



LEGEND

✕ 3H (offset), OH, OH V0 ○ 2H, OH, Plan #1 V0
▲ 4H, OH, OH V0 ◆ 3H, OH, Prelim 1 V0

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



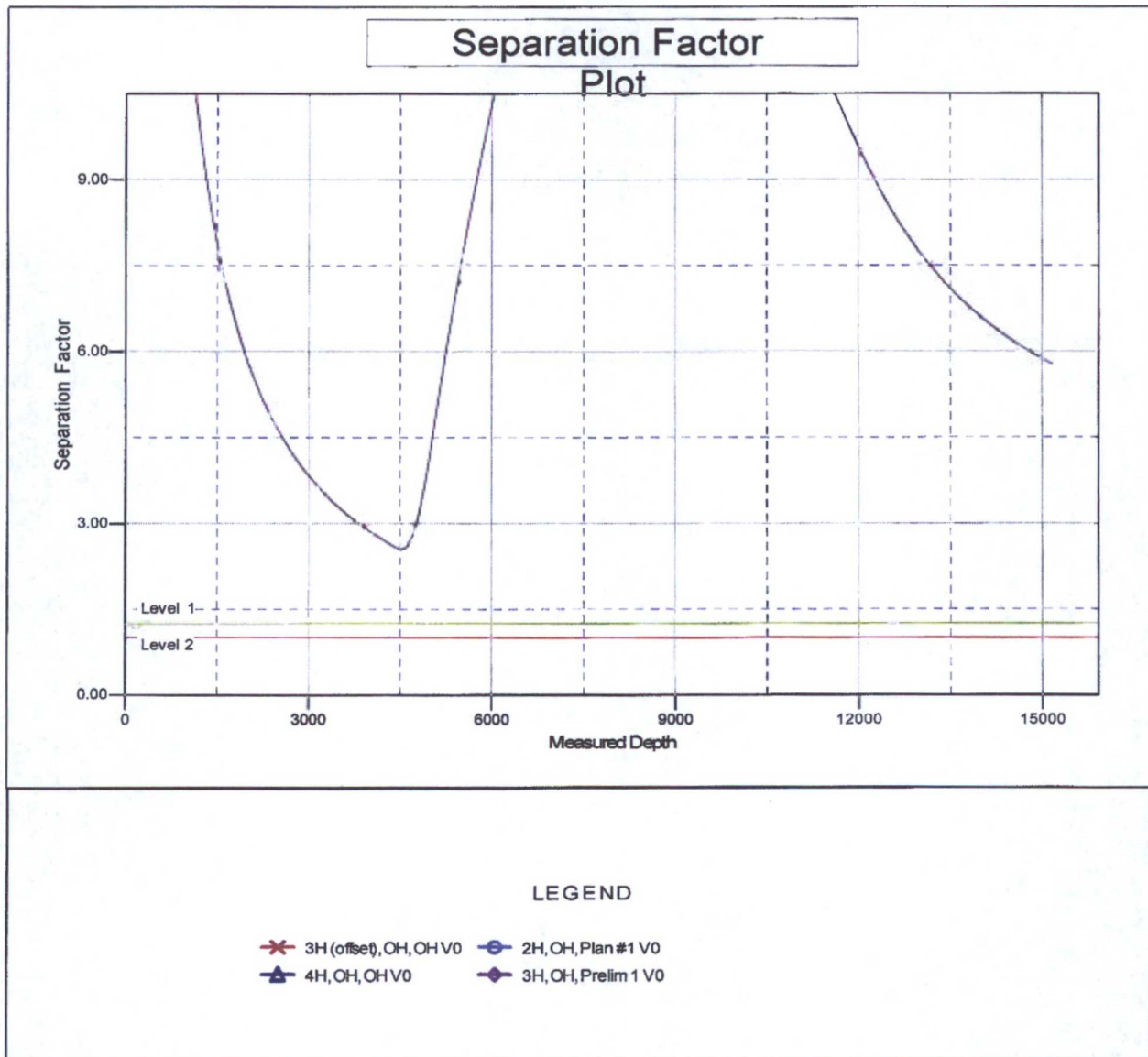
LEAM Drilling Systems LLC
Anticollision Report



Company:	DEVON ENERGY	Local Co-ordinate Reference:	Well 4H
Project:	Lea County, NM (NAD-83)	TVD Reference:	3470.9' GE + 23.5' RKB @ 3494.40usft
Reference Site:	Chincoteague 32 State Com	MD Reference:	3470.9' GE + 23.5' RKB @ 3494.40usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	4H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.1 Single User Db
Reference Design:	Prelim 1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to 3470.9' GE + 23.5' RKB @ 3494.40us
Offset Depths are relative to Offset Datum
Central Meridian is 104° 20' 0.000 W

Coordinates are relative to: 4H
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