

30-025-41050

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 3H
Company:	DEVON ENERGY	TVD Reference:	GE 3946' + KB 18' @ 3964.00usft (Original Well Elev)
Project:	Lea County, NM (NAD-83)	MD Reference:	GE 3946' + KB 18' @ 3964.00usft (Original Well Elev)
Site:	Ironhouse "19" State Com	North Reference:	Grid
Well:	3H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

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	Ironhouse "19" State Com				
Site Position:		Northing:	629,052.98 usft	Latitude:	32° 43' 35.385 N
From:	Map	Easting:	799,462.79 usft	Longitude:	103° 29' 38.277 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.45 °

Well	3H					
Well Position	+N/-S	-0.08 usft	Northing:	629,052.90 usft	Latitude:	32° 43' 35.388 N
	+E/-W	-49.98 usft	Easting:	799,412.81 usft	Longitude:	103° 29' 38.862 W
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	3,946.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	03/05/13	7.37	60.62	48,751

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

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
9,257.06	0.00	0.00	9,257.06	0.00	0.00	0.00	0.00	0.00	0.00	
10,045.23	94.58	345.09	9,733.00	498.22	-132.70	12.00	-12.00	0.00	345.09	
10,659.95	94.58	0.00	9,683.65	1,104.07	-212.00	2.42	0.00	2.43	89.41	
14,352.50	94.58	0.00	9,389.00	4,784.84	-212.00	0.00	0.00	0.00	0.00	PBHL(I-19-SC 3H)

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Site:	Ironhouse "19" State Com	North Reference:	Grid
Well:	3H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
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
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,900.00	0.00	0.00	0.00	0.00	0.00	0.00
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00	0.00	0.00

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5,200.00	0.00	0.00	5,200.00	0.00	0.00	0.00	0.00	0.00	0.00
5,300.00	0.00	0.00	5,300.00	0.00	0.00	0.00	0.00	0.00	0.00
5,400.00	0.00	0.00	5,400.00	0.00	0.00	0.00	0.00	0.00	0.00
5,500.00	0.00	0.00	5,500.00	0.00	0.00	0.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,600.00	0.00	0.00	0.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,700.00	0.00	0.00	0.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,800.00	0.00	0.00	0.00	0.00	0.00	0.00
5,900.00	0.00	0.00	5,900.00	0.00	0.00	0.00	0.00	0.00	0.00
6,000.00	0.00	0.00	6,000.00	0.00	0.00	0.00	0.00	0.00	0.00
6,100.00	0.00	0.00	6,100.00	0.00	0.00	0.00	0.00	0.00	0.00
6,200.00	0.00	0.00	6,200.00	0.00	0.00	0.00	0.00	0.00	0.00
6,300.00	0.00	0.00	6,300.00	0.00	0.00	0.00	0.00	0.00	0.00
6,400.00	0.00	0.00	6,400.00	0.00	0.00	0.00	0.00	0.00	0.00
6,500.00	0.00	0.00	6,500.00	0.00	0.00	0.00	0.00	0.00	0.00
6,600.00	0.00	0.00	6,600.00	0.00	0.00	0.00	0.00	0.00	0.00
6,700.00	0.00	0.00	6,700.00	0.00	0.00	0.00	0.00	0.00	0.00
6,800.00	0.00	0.00	6,800.00	0.00	0.00	0.00	0.00	0.00	0.00
6,900.00	0.00	0.00	6,900.00	0.00	0.00	0.00	0.00	0.00	0.00
7,000.00	0.00	0.00	7,000.00	0.00	0.00	0.00	0.00	0.00	0.00
7,100.00	0.00	0.00	7,100.00	0.00	0.00	0.00	0.00	0.00	0.00
7,200.00	0.00	0.00	7,200.00	0.00	0.00	0.00	0.00	0.00	0.00
7,300.00	0.00	0.00	7,300.00	0.00	0.00	0.00	0.00	0.00	0.00
7,400.00	0.00	0.00	7,400.00	0.00	0.00	0.00	0.00	0.00	0.00
7,500.00	0.00	0.00	7,500.00	0.00	0.00	0.00	0.00	0.00	0.00
7,600.00	0.00	0.00	7,600.00	0.00	0.00	0.00	0.00	0.00	0.00
7,700.00	0.00	0.00	7,700.00	0.00	0.00	0.00	0.00	0.00	0.00
7,800.00	0.00	0.00	7,800.00	0.00	0.00	0.00	0.00	0.00	0.00
7,900.00	0.00	0.00	7,900.00	0.00	0.00	0.00	0.00	0.00	0.00
8,000.00	0.00	0.00	8,000.00	0.00	0.00	0.00	0.00	0.00	0.00
8,100.00	0.00	0.00	8,100.00	0.00	0.00	0.00	0.00	0.00	0.00
8,200.00	0.00	0.00	8,200.00	0.00	0.00	0.00	0.00	0.00	0.00
8,300.00	0.00	0.00	8,300.00	0.00	0.00	0.00	0.00	0.00	0.00
8,400.00	0.00	0.00	8,400.00	0.00	0.00	0.00	0.00	0.00	0.00
8,500.00	0.00	0.00	8,500.00	0.00	0.00	0.00	0.00	0.00	0.00
8,600.00	0.00	0.00	8,600.00	0.00	0.00	0.00	0.00	0.00	0.00
8,700.00	0.00	0.00	8,700.00	0.00	0.00	0.00	0.00	0.00	0.00
8,800.00	0.00	0.00	8,800.00	0.00	0.00	0.00	0.00	0.00	0.00
8,900.00	0.00	0.00	8,900.00	0.00	0.00	0.00	0.00	0.00	0.00
9,000.00	0.00	0.00	9,000.00	0.00	0.00	0.00	0.00	0.00	0.00
9,100.00	0.00	0.00	9,100.00	0.00	0.00	0.00	0.00	0.00	0.00
9,200.00	0.00	0.00	9,200.00	0.00	0.00	0.00	0.00	0.00	0.00
9,257.06	0.00	0.00	9,257.06	0.00	0.00	0.00	0.00	0.00	0.00
KOP: Start Build 12.00									
9,275.00	2.15	345.09	9,275.00	0.33	-0.09	0.33	12.00	12.00	0.00
9,300.00	5.15	345.09	9,299.94	1.86	-0.50	1.86	12.00	12.00	0.00
9,325.00	8.15	345.09	9,324.77	4.66	-1.24	4.66	12.00	12.00	0.00
9,350.00	11.15	345.09	9,349.41	8.71	-2.32	8.71	12.00	12.00	0.00
9,375.00	14.15	345.09	9,373.80	14.00	-3.73	14.00	12.00	12.00	0.00
9,400.00	17.15	345.09	9,397.87	20.52	-5.47	20.52	12.00	12.00	0.00
9,425.00	20.15	345.09	9,421.56	28.25	-7.52	28.25	12.00	12.00	0.00
9,450.00	23.15	345.09	9,444.79	37.16	-9.90	37.16	12.00	12.00	0.00
9,475.00	26.15	345.09	9,467.51	47.24	-12.58	47.24	12.00	12.00	0.00

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Well:	3H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

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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)
9,500.00	29.15	345.09	9,489.65	58.45	-15.57	58.45	12.00	12.00	0.00
9,525.00	32.15	345.09	9,511.16	70.76	-18.85	70.76	12.00	12.00	0.00
9,550.00	35.15	345.09	9,531.96	84.15	-22.41	84.15	12.00	12.00	0.00
9,575.00	38.15	345.09	9,552.02	98.57	-26.25	98.57	12.00	12.00	0.00
9,600.00	41.15	345.09	9,571.27	113.98	-30.36	113.98	12.00	12.00	0.00
9,625.00	44.15	345.09	9,589.65	130.35	-34.72	130.35	12.00	12.00	0.00
9,650.00	47.15	345.09	9,607.12	147.62	-39.32	147.62	12.00	12.00	0.00
9,675.00	50.15	345.09	9,623.64	165.75	-44.15	165.75	12.00	12.00	0.00
9,700.00	53.15	345.09	9,639.15	184.70	-49.19	184.70	12.00	12.00	0.00
9,725.00	56.15	345.09	9,653.61	204.40	-54.44	204.40	12.00	12.00	0.00
9,750.00	59.15	345.09	9,666.98	224.81	-59.88	224.81	12.00	12.00	0.00
9,775.00	62.15	345.09	9,679.23	245.86	-65.49	245.86	12.00	12.00	0.00
9,800.00	65.15	345.09	9,690.33	267.51	-71.25	267.51	12.00	12.00	0.00
9,825.00	68.15	345.09	9,700.23	289.69	-77.16	289.69	12.00	12.00	0.00
9,850.00	71.15	345.09	9,708.93	312.33	-83.19	312.33	12.00	12.00	0.00
9,875.00	74.15	345.09	9,716.38	335.39	-89.33	335.39	12.00	12.00	0.00
9,900.00	77.15	345.09	9,722.57	358.79	-95.56	358.79	12.00	12.00	0.00
9,925.00	80.15	345.09	9,727.49	382.47	-101.87	382.47	12.00	12.00	0.00
9,950.00	83.15	345.09	9,731.12	406.37	-108.24	406.37	12.00	12.00	0.00
9,975.00	86.15	345.09	9,733.45	430.42	-114.64	430.42	12.00	12.00	0.00
10,000.00	89.15	345.09	9,734.47	454.56	-121.07	454.56	12.00	12.00	0.00
10,025.00	92.15	345.09	9,734.19	478.71	-127.50	478.71	12.00	12.00	0.00
10,045.23	94.58	345.09	9,733.00	498.22	-132.70	498.22	12.00	12.00	0.00
EOC: Start DLS 2.42 TFO 89.41									
10,100.00	94.59	346.41	9,728.62	551.14	-146.14	551.14	2.42	0.02	2.43
10,200.00	94.61	348.84	9,720.60	648.49	-167.50	648.49	2.42	0.02	2.43
10,300.00	94.62	351.27	9,712.56	746.66	-184.71	746.66	2.42	0.01	2.43
10,400.00	94.62	353.69	9,704.51	845.47	-197.76	845.47	2.42	0.00	2.43
10,500.00	94.61	356.12	9,696.46	944.75	-206.61	944.75	2.42	-0.01	2.43
10,600.00	94.59	358.55	9,688.45	1,044.31	-211.24	1,044.31	2.42	-0.02	2.43
10,659.95	94.58	0.00	9,683.65	1,104.07	-212.00	1,104.07	2.42	-0.02	2.43
Start 3692.55 hold at 10659.95 MD									
10,700.00	94.58	0.00	9,680.46	1,143.99	-212.00	1,143.99	0.00	0.00	0.00
10,800.00	94.58	0.00	9,672.48	1,243.67	-212.00	1,243.67	0.00	0.00	0.00
10,900.00	94.58	0.00	9,664.50	1,343.35	-212.00	1,343.35	0.00	0.00	0.00
11,000.00	94.58	0.00	9,656.52	1,443.03	-212.00	1,443.03	0.00	0.00	0.00
11,100.00	94.58	0.00	9,648.54	1,542.71	-212.00	1,542.71	0.00	0.00	0.00
11,200.00	94.58	0.00	9,640.56	1,642.39	-212.00	1,642.39	0.00	0.00	0.00
11,300.00	94.58	0.00	9,632.58	1,742.07	-212.00	1,742.07	0.00	0.00	0.00
11,400.00	94.58	0.00	9,624.60	1,841.75	-212.00	1,841.75	0.00	0.00	0.00
11,500.00	94.58	0.00	9,616.62	1,941.44	-212.00	1,941.44	0.00	0.00	0.00
11,600.00	94.58	0.00	9,608.64	2,041.12	-212.00	2,041.12	0.00	0.00	0.00
11,700.00	94.58	0.00	9,600.66	2,140.80	-212.00	2,140.80	0.00	0.00	0.00
11,800.00	94.58	0.00	9,592.68	2,240.48	-212.00	2,240.48	0.00	0.00	0.00
11,900.00	94.58	0.00	9,584.70	2,340.16	-212.00	2,340.16	0.00	0.00	0.00
12,000.00	94.58	0.00	9,576.72	2,439.84	-212.00	2,439.84	0.00	0.00	0.00
12,100.00	94.58	0.00	9,568.74	2,539.52	-212.00	2,539.52	0.00	0.00	0.00
12,200.00	94.58	0.00	9,560.76	2,639.20	-212.00	2,639.20	0.00	0.00	0.00
12,300.00	94.58	0.00	9,552.78	2,738.88	-212.00	2,738.88	0.00	0.00	0.00
12,400.00	94.58	0.00	9,544.80	2,838.57	-212.00	2,838.57	0.00	0.00	0.00
12,500.00	94.58	0.00	9,536.82	2,938.25	-212.00	2,938.25	0.00	0.00	0.00
12,600.00	94.58	0.00	9,528.84	3,037.93	-212.00	3,037.93	0.00	0.00	0.00

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 3H
Company:	DEVON ENERGY	TVD Reference:	GE 3946' + KB 18' @ 3964.00usft (Original Well Elev)
Project:	Lea County, NM (NAD-83)	MD Reference:	GE 3946' + KB 18' @ 3964.00usft (Original Well Elev)
Site:	Ironhouse "19" State Com	North Reference:	Grid
Well:	3H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
12,700.00	94.58	0.00	9,520.86	3,137.61	-212.00	3,137.61	0.00	0.00	0.00
12,800.00	94.58	0.00	9,512.88	3,237.29	-212.00	3,237.29	0.00	0.00	0.00
12,900.00	94.58	0.00	9,504.91	3,336.97	-212.00	3,336.97	0.00	0.00	0.00
13,000.00	94.58	0.00	9,496.93	3,436.65	-212.00	3,436.65	0.00	0.00	0.00
13,100.00	94.58	0.00	9,488.95	3,536.33	-212.00	3,536.33	0.00	0.00	0.00
13,200.00	94.58	0.00	9,480.97	3,636.01	-212.00	3,636.01	0.00	0.00	0.00
13,300.00	94.58	0.00	9,472.99	3,735.70	-212.00	3,735.70	0.00	0.00	0.00
13,400.00	94.58	0.00	9,465.01	3,835.38	-212.00	3,835.38	0.00	0.00	0.00
13,500.00	94.58	0.00	9,457.03	3,935.06	-212.00	3,935.06	0.00	0.00	0.00
13,600.00	94.58	0.00	9,449.05	4,034.74	-212.00	4,034.74	0.00	0.00	0.00
13,700.00	94.58	0.00	9,441.07	4,134.42	-212.00	4,134.42	0.00	0.00	0.00
13,800.00	94.58	0.00	9,433.09	4,234.10	-212.00	4,234.10	0.00	0.00	0.00
13,900.00	94.58	0.00	9,425.11	4,333.78	-212.00	4,333.78	0.00	0.00	0.00
14,000.00	94.58	0.00	9,417.13	4,433.46	-212.00	4,433.46	0.00	0.00	0.00
14,100.00	94.58	0.00	9,409.15	4,533.14	-212.00	4,533.14	0.00	0.00	0.00
14,200.00	94.58	0.00	9,401.17	4,632.83	-212.00	4,632.83	0.00	0.00	0.00
14,300.00	94.58	0.00	9,393.19	4,732.51	-212.00	4,732.51	0.00	0.00	0.00
14,352.50	94.58	0.00	9,389.00	4,784.84	-212.00	4,784.84	0.00	0.00	0.00

TD at 14352.50' MD

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(I-19-SC 3H)	0.00	0.00	0.00	0.00	0.00	629,052.90	799,412.81	32° 43' 35.388 N	103° 29' 38.862 W
- plan hits target center									
- Point									
PBHL(I-19-SC 3H)	0.00	0.00	9,389.00	4,784.84	-212.00	633,837.75	799,200.81	32° 44' 22.747 N	103° 29' 40.900 W
- plan hits target center									
- Point									

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
9,257.06	9,257.06	0.00	0.00	KOP: Start Build 12.00
10,045.23	9,733.00	498.22	-132.70	EOC: Start DLS 2.42 TFO 89.41
10,659.95	9,683.65	1,104.07	-212.00	Start 3692.55 hold at 10659.95 MD
14,352.50	9,389.00	4,784.84	-212.00	TD at 14352.50' MD

LEAM Drilling Systems LLC

Anticollision Report

Company:	DEVON ENERGY	Local Co-ordinate Reference:	Well 3H
Project:	Lea County, NM (NAD-83)	TVD Reference:	GE 3946' + KB 18' @ 3964.00usft (Original Well Elev)
Reference Site:	Ironhouse "19" State Com	MD Reference:	GE 3946' + KB 18' @ 3964.00usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	3H	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:	Plan #1	Offset TVD Reference:	Reference Datum

Reference	Plan #1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.00usft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,165.59 usft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program	Date	03/05/13		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	14,352.50	Plan #1 (OH)	LEAM MWD	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							
Ironhouse "19" State Com							
2H - OH - Plan #1	2,000.00	1,999.00	49.98	41.26	5.730	CC, ES	
2H - OH - Plan #1	2,100.00	2,097.27	51.66	42.51	5.643	SF	

Offset Design	Ironhouse "19" State Com - 2H - OH - Plan #1										Offset Site Error:	0.00 usft
Survey Program:	0-LEAM MWD										Offset Well Error:	0.00 usft
Reference	Offset	Semi Major Axis	Reference	Offset	Highside Toolface	Offset Wellbore Centre	Distance	Minimum Separation	Separation Factor	Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	(usft)	(usft)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
0.00	0.00	0.00	1.00	0.00	0.00	89.91	0.08	49.98	49.99			
100.00	100.00	99.00	100.00	0.09	0.09	89.91	0.08	49.98	49.98	49.80	0.18	272.539
200.00	200.00	199.00	200.00	0.32	0.31	89.91	0.08	49.98	49.98	49.35	0.63	79.133
300.00	300.00	299.00	300.00	0.54	0.54	89.91	0.08	49.98	49.98	48.90	1.08	46.230
400.00	400.00	399.00	400.00	0.77	0.76	89.91	0.08	49.98	49.98	48.45	1.53	32.653
500.00	500.00	499.00	500.00	0.99	0.99	89.91	0.08	49.98	49.98	48.00	1.98	25.240
600.00	600.00	599.00	600.00	1.22	1.21	89.91	0.08	49.98	49.98	47.55	2.43	20.570
700.00	700.00	699.00	700.00	1.44	1.44	89.91	0.08	49.98	49.98	47.10	2.88	17.359
800.00	800.00	799.00	800.00	1.67	1.66	89.91	0.08	49.98	49.98	46.65	3.33	15.015
900.00	900.00	899.00	900.00	1.89	1.89	89.91	0.08	49.98	49.98	46.20	3.78	13.228
1,000.00	1,000.00	999.00	1,000.00	2.12	2.11	89.91	0.08	49.98	49.98	45.75	4.23	11.822
1,100.00	1,100.00	1,099.00	1,100.00	2.34	2.34	89.91	0.08	49.98	49.98	45.30	4.68	10.685
1,200.00	1,200.00	1,199.00	1,200.00	2.56	2.56	89.91	0.08	49.98	49.98	44.85	5.13	9.749
1,300.00	1,300.00	1,299.00	1,300.00	2.79	2.79	89.91	0.08	49.98	49.98	44.40	5.58	8.963
1,400.00	1,400.00	1,399.00	1,400.00	3.01	3.01	89.91	0.08	49.98	49.98	43.95	6.03	8.294
1,500.00	1,500.00	1,499.00	1,500.00	3.24	3.24	89.91	0.08	49.98	49.98	43.50	6.48	7.718
1,600.00	1,600.00	1,599.00	1,600.00	3.46	3.46	89.91	0.08	49.98	49.98	43.06	6.93	7.217
1,700.00	1,700.00	1,699.00	1,700.00	3.69	3.69	89.91	0.08	49.98	49.98	42.61	7.37	6.777
1,800.00	1,800.00	1,799.00	1,800.00	3.91	3.91	89.91	0.08	49.98	49.98	42.16	7.82	6.388
1,900.00	1,900.00	1,899.00	1,900.00	4.14	4.14	89.91	0.08	49.98	49.98	41.71	8.27	6.041
2,000.00	2,000.00	1,999.00	2,000.00	4.36	4.36	89.91	0.08	49.98	49.98	41.26	8.72	5.730 CC, ES
2,100.00	2,100.00	2,097.27	2,098.25	4.59	4.57	89.91	0.08	51.63	51.66	42.51	9.15	5.643 SF
2,200.00	2,200.00	2,195.28	2,196.13	4.81	4.77	89.92	0.08	56.63	56.77	47.19	9.58	5.928

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

LEAM Drilling Systems LLC

Anticollision Report

Company:	DEVON ENERGY	Local Co-ordinate Reference:	Well 3H
Project:	Lea County, NM (NAD-83)	TVD Reference:	GE 3946' + KB 18' @ 3964.00usft (Original Well Elev)
Reference Site:	Ironhouse "19" State Com	MD Reference:	GE 3946' + KB 18' @ 3964.00usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	3H	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:	Plan #1	Offset TVD Reference:	Reference Datum

Offset Design Ironhouse "19" State Com - 2H - OH - Plan #1														Offset Site Error:	0.00 usft
Survey Program: O-LEAM MWD														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)							
2,300.00	2,300.00	2,292.85	2,293.34	5.04	4.97	89.93	0.08	64.93	65.28	55.28	10.00	6.529			
2,400.00	2,400.00	2,389.74	2,389.53	5.26	5.18	89.94	0.08	76.45	77.16	66.74	10.42	7.403			
2,500.00	2,500.00	2,485.73	2,484.41	5.49	5.41	89.95	0.08	91.06	92.39	81.54	10.85	8.515			
2,600.00	2,600.00	2,583.75	2,580.95	5.71	5.67	89.96	0.08	108.05	109.72	98.43	11.28	9.725			
2,700.00	2,700.00	2,682.23	2,677.93	5.94	5.93	89.96	0.08	125.15	127.08	115.37	11.72	10.846			
2,800.00	2,800.00	2,780.71	2,774.91	6.16	6.21	89.97	0.08	142.25	144.45	132.29	12.16	11.883			
2,900.00	2,900.00	2,879.19	2,871.90	6.39	6.50	89.97	0.08	159.36	161.82	149.22	12.60	12.845			
3,000.00	3,000.00	2,977.67	2,968.88	6.61	6.80	89.97	0.08	176.46	179.18	166.14	13.04	13.738			
3,100.00	3,100.00	3,076.15	3,065.86	6.84	7.11	89.98	0.08	193.57	196.55	183.06	13.49	14.570			
3,200.00	3,200.00	3,174.63	3,162.85	7.06	7.42	89.98	0.08	210.67	213.92	199.98	13.94	15.345			
3,300.00	3,300.00	3,273.12	3,259.83	7.28	7.74	89.98	0.08	227.77	231.29	216.89	14.39	16.070			
3,400.00	3,400.00	3,371.60	3,356.82	7.51	8.07	89.98	0.08	244.88	248.65	233.81	14.85	16.748			
3,500.00	3,500.00	3,470.08	3,453.80	7.73	8.40	89.98	0.08	261.98	266.02	250.72	15.30	17.384			
3,600.00	3,600.00	3,568.56	3,550.78	7.96	8.73	89.98	0.08	279.08	283.39	267.63	15.76	17.981			
3,700.00	3,700.00	3,667.04	3,647.77	8.18	9.07	89.98	0.08	296.19	300.76	284.54	16.22	18.542			
3,800.00	3,800.00	3,765.52	3,744.75	8.41	9.41	89.99	0.08	313.29	318.12	301.44	16.68	19.071			
3,900.00	3,900.00	3,864.00	3,841.73	8.63	9.76	89.99	0.08	330.39	335.49	318.35	17.14	19.571			
4,000.00	4,000.00	3,962.48	3,938.72	8.86	10.11	89.99	0.08	347.50	352.86	335.25	17.61	20.042			
4,100.00	4,100.00	4,060.96	4,035.70	9.08	10.46	89.99	0.08	364.60	370.23	352.16	18.07	20.488			
4,200.00	4,200.00	4,159.44	4,132.69	9.31	10.81	89.99	0.08	381.70	387.59	369.06	18.54	20.911			
4,300.00	4,300.00	4,257.92	4,229.67	9.53	11.16	89.99	0.08	398.81	404.96	385.96	19.00	21.312			
4,400.00	4,400.00	4,356.40	4,326.65	9.76	11.52	89.99	0.08	415.91	422.33	402.86	19.47	21.693			
4,500.00	4,500.00	4,454.88	4,423.64	9.98	11.88	89.99	0.08	433.01	439.69	419.76	19.94	22.055			
4,600.00	4,600.00	4,553.36	4,520.62	10.21	12.23	89.99	0.08	450.12	457.06	436.66	20.40	22.400			
4,700.00	4,700.00	4,651.84	4,617.60	10.43	12.60	89.99	0.08	467.22	474.43	453.56	20.87	22.729			
4,800.00	4,800.00	4,750.32	4,714.59	10.66	12.96	89.99	0.08	484.32	491.80	470.45	21.34	23.042			
4,900.00	4,900.00	4,848.80	4,811.57	10.88	13.32	89.99	0.08	501.43	509.16	487.35	21.81	23.342			
5,000.00	5,000.00	4,947.28	4,908.56	11.11	13.68	89.99	0.08	518.53	526.53	504.25	22.28	23.628			
5,100.00	5,100.00	5,045.76	5,005.54	11.33	14.05	89.99	0.08	535.63	543.90	521.14	22.76	23.901			
5,200.00	5,200.00	5,144.24	5,102.52	11.56	14.41	89.99	0.08	552.74	561.27	538.04	23.23	24.163			
5,300.00	5,300.00	5,242.72	5,199.51	11.78	14.78	89.99	0.08	569.84	578.63	554.93	23.70	24.415			
5,400.00	5,400.00	5,341.20	5,296.49	12.00	15.15	89.99	0.08	586.94	596.00	571.83	24.17	24.656			
5,500.00	5,500.00	5,439.68	5,393.47	12.23	15.52	89.99	0.08	604.05	613.37	588.72	24.65	24.887			
5,600.00	5,600.00	5,538.16	5,490.46	12.45	15.89	89.99	0.08	621.15	630.74	605.62	25.12	25.109			
5,700.00	5,700.00	5,636.64	5,587.44	12.68	16.25	89.99	0.08	638.25	648.10	622.51	25.59	25.323			
5,800.00	5,800.00	5,735.12	5,684.43	12.90	16.62	89.99	0.08	655.36	665.47	639.40	26.07	25.528			
5,900.00	5,900.00	5,833.60	5,781.41	13.13	17.00	89.99	0.08	672.46	682.84	656.29	26.54	25.726			
6,000.00	6,000.00	5,932.08	5,878.39	13.35	17.37	89.99	0.08	689.56	700.20	673.19	27.02	25.917			
6,100.00	6,100.00	6,030.56	5,975.38	13.58	17.74	89.99	0.08	706.67	717.57	690.08	27.49	26.100			
6,200.00	6,200.00	6,129.04	6,072.36	13.80	18.11	89.99	0.08	723.77	734.94	706.97	27.97	26.278			
6,300.00	6,300.00	6,227.53	6,169.34	14.03	18.48	89.99	0.08	740.87	752.31	723.86	28.44	26.449			
6,400.00	6,400.00	6,326.01	6,266.33	14.25	18.86	89.99	0.08	757.98	769.67	740.75	28.92	26.614			
6,500.00	6,500.00	6,424.49	6,363.31	14.48	19.23	89.99	0.08	775.08	787.04	757.65	29.40	26.774			
6,600.00	6,600.00	6,522.97	6,460.30	14.70	19.60	89.99	0.08	792.18	804.41	774.54	29.87	26.928			
6,700.00	6,700.00	6,621.45	6,557.28	14.93	19.98	89.99	0.08	809.29	821.78	791.43	30.35	27.078			
6,800.00	6,800.00	6,719.93	6,654.26	15.15	20.35	89.99	0.08	826.39	839.14	808.32	30.83	27.222			
6,900.00	6,900.00	6,818.41	6,751.25	15.38	20.72	89.99	0.08	843.49	856.51	825.21	31.30	27.362			
7,000.00	7,000.00	6,916.89	6,848.23	15.60	21.10	89.99	0.08	860.60	873.88	842.10	31.78	27.498			
7,100.00	7,100.00	7,015.37	6,945.21	15.83	21.47	89.99	0.08	877.70	891.25	858.99	32.26	27.629			
7,200.00	7,200.00	7,113.85	7,042.20	16.05	21.85	89.99	0.08	894.80	908.61	875.88	32.73	27.757			
7,300.00	7,300.00	7,212.33	7,139.18	16.28	22.23	89.99	0.08	911.91	925.98	892.77	33.21	27.881			

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

LEAM Drilling Systems LLC

Anticollision Report

Company:	DEVON ENERGY	Local Co-ordinate Reference:	Well 3H
Project:	Lea County, NM (NAD-83)	TVD Reference:	GE 3946' + KB 18' @ 3964.00usft (Original Well Elev)
Reference Site:	Ironhouse "19" State Com	MD Reference:	GE 3946' + KB 18' @ 3964.00usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	3H	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:	Plan #1	Offset TVD Reference:	Reference Datum

Offset Design Ironhouse "19" State Com - 2H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD													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)						
7,400.00	7,400.00	7,310.81	7,236.17	16.50	22.60	90.00	0.08	929.01	943.35	909.66	33.69	28.001		
7,500.00	7,500.00	7,409.29	7,333.15	16.72	22.98	90.00	0.08	946.11	960.71	926.55	34.17	28.118		
7,600.00	7,600.00	7,507.77	7,430.13	16.95	23.35	90.00	0.08	963.22	978.08	943.44	34.65	28.231		
7,700.00	7,700.00	7,606.25	7,527.12	17.17	23.73	90.00	0.08	980.32	995.45	960.32	35.12	28.341		
7,800.00	7,800.00	7,704.73	7,624.10	17.40	24.11	90.00	0.08	997.42	1,012.82	977.21	35.60	28.448		
7,900.00	7,900.00	7,803.21	7,721.08	17.62	24.48	90.00	0.08	1,014.53	1,030.18	994.10	36.08	28.552		
8,000.00	8,000.00	7,901.69	7,818.07	17.85	24.86	90.00	0.08	1,031.63	1,047.55	1,010.99	36.56	28.653		
8,100.00	8,100.00	8,000.17	7,915.05	18.07	25.24	90.00	0.08	1,048.74	1,064.92	1,027.88	37.04	28.752		
8,200.00	8,200.00	8,107.02	8,020.29	18.30	25.63	90.00	0.08	1,067.21	1,082.23	1,044.70	37.53	28.835		
8,300.00	8,300.00	8,286.82	8,178.54	18.52	26.06	90.00	0.08	1,089.34	1,096.09	1,058.00	38.09	28.776		
8,400.00	8,400.00	8,428.64	8,339.78	18.75	26.39	90.00	0.08	1,102.72	1,104.36	1,065.74	38.63	28.592		
8,500.00	8,500.00	8,588.94	8,500.00	18.97	26.64	90.00	0.08	1,106.98	1,106.98	1,067.85	39.13	28.286		
8,600.00	8,600.00	8,688.94	8,600.00	19.20	26.79	90.00	0.08	1,106.98	1,106.98	1,067.43	39.55	27.991		
8,700.00	8,700.00	8,788.94	8,700.00	19.42	26.94	90.00	0.08	1,106.98	1,106.98	1,067.02	39.96	27.701		
8,800.00	8,800.00	8,888.94	8,800.00	19.65	27.09	90.00	0.08	1,106.98	1,106.98	1,066.60	40.38	27.416		
8,900.00	8,900.00	8,988.94	8,900.00	19.87	27.24	90.00	0.08	1,106.98	1,106.98	1,066.19	40.79	27.137		
9,000.00	9,000.00	9,088.94	9,000.00	20.10	27.40	90.00	0.08	1,106.98	1,106.98	1,065.77	41.21	26.862		
9,100.00	9,100.00	9,188.94	9,100.00	20.32	27.55	90.00	0.08	1,106.98	1,106.98	1,065.35	41.63	26.593		
9,200.00	9,200.00	9,288.94	9,200.00	20.55	27.70	90.00	0.08	1,106.98	1,106.98	1,064.94	42.04	26.329		
9,236.01	9,236.00	9,324.94	9,236.00	20.63	27.76	104.93	0.08	1,106.98	1,107.13	1,065.38	41.75	26.515		
9,300.00	9,299.94	9,388.93	9,299.94	20.77	27.86	104.85	1.92	1,106.98	1,107.48	1,065.50	41.98	26.383		
9,400.00	9,397.87	9,488.75	9,397.74	21.00	28.02	104.26	20.96	1,106.98	1,112.45	1,070.28	42.17	26.380		
9,500.00	9,489.65	9,588.05	9,489.00	21.21	28.17	103.02	59.63	1,106.98	1,122.55	1,080.20	42.35	26.509		
9,600.00	9,571.27	9,686.54	9,569.70	21.44	28.32	101.22	115.79	1,106.98	1,137.34	1,094.71	42.63	26.677		
9,700.00	9,639.15	9,784.17	9,636.66	21.74	28.49	98.92	186.60	1,106.98	1,156.18	1,113.03	43.15	26.797		