

Devon Energy

Project: Lea County, NM (NAD-83)
Site: Fighting Okra 18-19 Fed
Well: 86H
Wellbore: OH
Design: Plan #1



Azimuths to Grid North
True North: -0.44°
Magnetic North: 6.36°

Magnetic Field
Strength: 47889.0snT
Dip Angle: 59.78°
Date: 9/13/2017
Model: HDGM

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

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



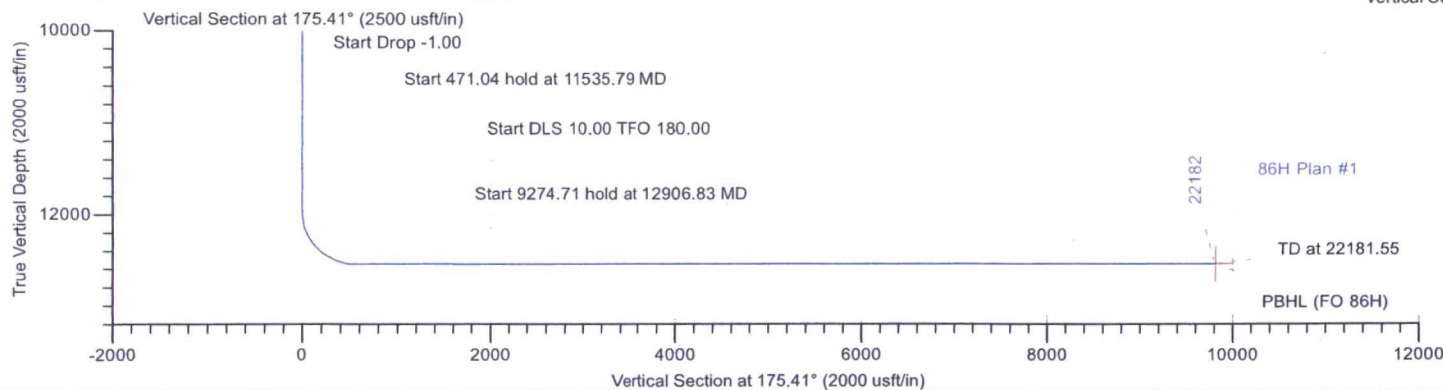
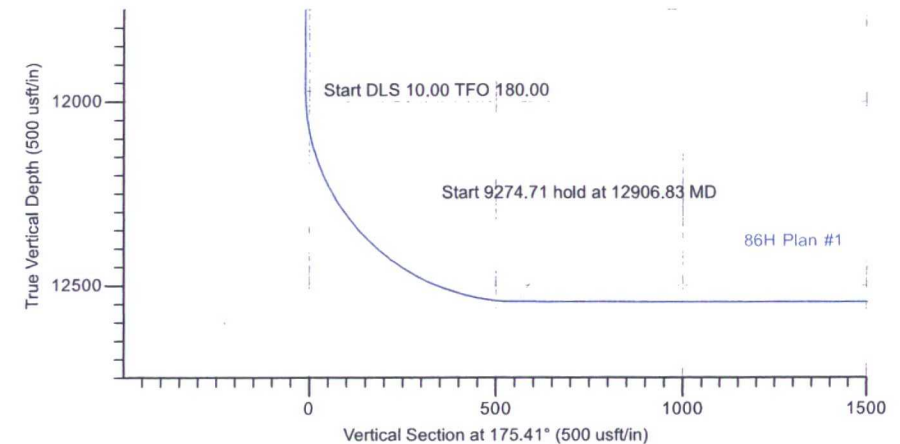
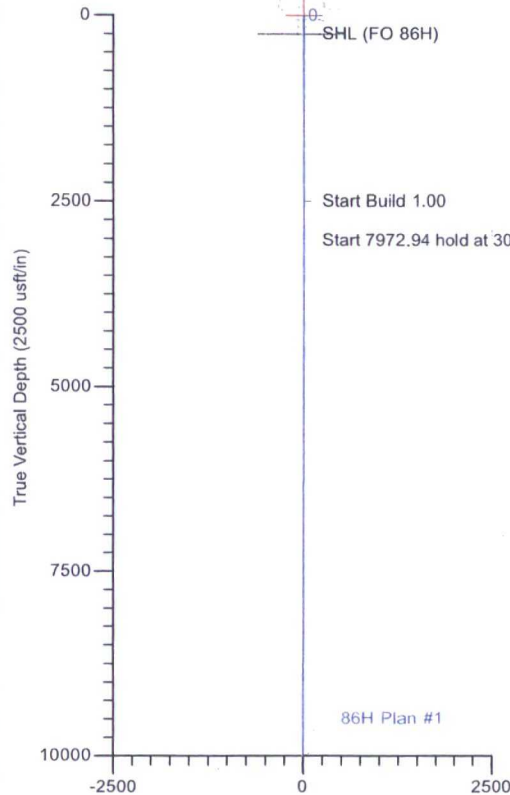
3367.7' GE + 25' KB @ 3392.70usft
Ground Level: 3367.70

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSeet	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2500.00	0.00	0.00	2500.00	0.00	0.00	0.00	0.00	0.00	Start Build 1.00
3031.43	5.31	84.54	3030.67	2.34	24.52	1.00	84.54	-0.38	Start 7972.94 hold at 3031.43 MD
11004.37	5.31	84.54	10969.33	72.66	759.60	0.00	0.00	-11.67	Start Drop -1.00
11535.79	0.00	0.00	11500.00	75.00	784.12	1.00	180.00	-12.05	Start 471.04 hold at 11535.79 MD
12006.83	0.00	0.00	11971.04	75.00	784.12	0.00	0.00	-12.05	Start DLS 10.00 TFO 180.00
12906.83	90.00	180.00	12544.00	-497.96	784.12	10.00	180.00	559.08	Start 9274.71 hold at 12906.83 MD
22181.55	90.00	180.00	12544.00	-9772.67	784.12	0.00	0.00	9804.08	TD at 22181.55

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
PBHL (FO 86H)	12544.00	-9772.67	784.12	32° 1' 21.2997 N	103° 30' 5.9076 W
SHL (FO 86H)	0.00	0.00	0.00	32° 2' 58.0630 N	103° 30' 14.1435 W



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

Plan: Plan #1 (86H/OH)
Fighting Okra 18-19 Fed
Created By: Dustin Ault
Date: 12/20, September 13 2017
Approved: _____
Date: _____

Devon Energy

Project: Lea County, NM (NAD-83)
Site: Fighting Okra 18-19 Fed
Well: 86H
Wellbore: OH
Design: Plan #1



Azimuths to Grid North
True North: -0.44°
Magnetic North: 6.36°

Magnetic Field
Strength: 47889.0snT
Dip Angle: 59.78°
Date: 9/13/2017
Model: HDGM

devon

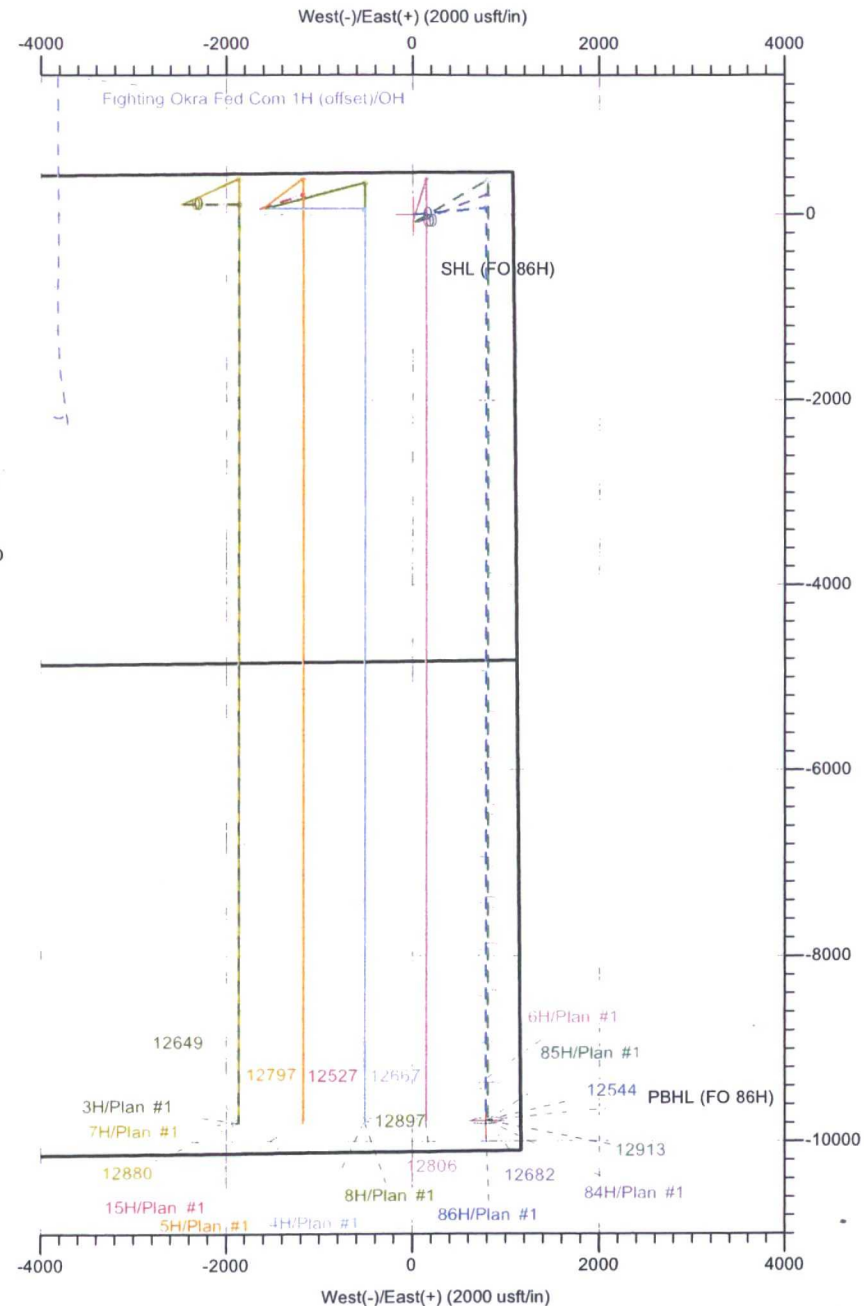
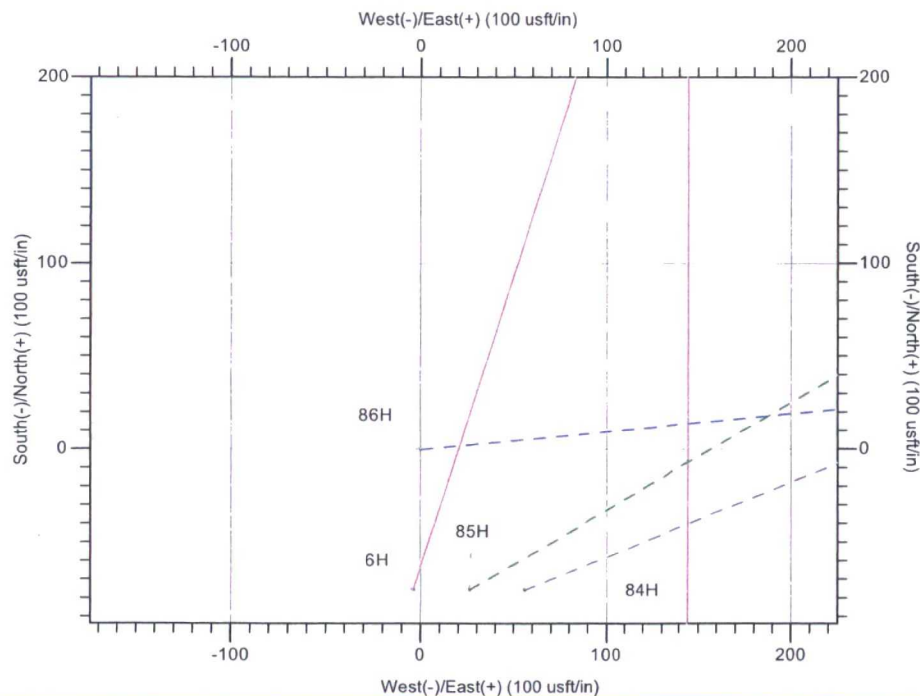
PROJECT DETAILS: Lea County, NM (NAD-83)
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
PBHL (FO 86H)	12544.00	-9772.67	784.12	372946.63	799092.98	32° 1' 21.2997 N	103° 30' 5.9076 W
SHL (FO 86H)	0.00	0.00	0.00	382719.30	798308.86	32° 2' 58.0630 N	103° 30' 14.1435 W

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2500.00	0.00	0.00	2500.00	0.00	0.00	0.00	0.00	0.00	Start Build 1.00
3031.43	5.31	84.54	3030.67	2.34	24.52	1.00	84.54	-0.38	Start 7972.94 hold at 3031.43 MD
11004.37	5.31	84.54	10969.33	72.66	759.60	0.00	0.00	-11.67	Start Drop -1.00
11535.79	0.00	0.00	11500.00	75.00	784.12	1.00	180.00	-12.05	Start 471.04 hold at 11535.79 MD
12006.83	0.00	0.00	11971.04	75.00	784.12	0.00	0.00	-12.05	Start DLS 10.00 TFO 180.00
12906.83	90.00	180.00	12544.00	-497.96	784.12	10.00	180.00	559.08	Start 9274.71 hold at 12906.83 MD
22181.55	90.00	180.00	12544.00	-9772.67	784.12	0.00	0.00	9804.08	TD at 22181.55



LEAM DRILLING SYSTEMS LLC
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Phone: 936/756-7577, Fax: 936/756-7595

Plan: Plan #1 (86H/OH)
Fighting Okra 18-19 Fed
Created By: Dustin Ault
Date: _____
Approved: _____
Date: 12:21, September 13 2017

Devon Energy

Lea County, NM (NAD-83)
Fighting Okra 18-19 Fed
86H

OH

Plan: Plan #1

Standard Planning Report

13 September, 2017

HOBBS OCD

NOV 06 2017

RECEIVED

LEAM Drilling Systems LLC

Planning Report

Database: EDM 5000.1 Multi User Db
Company: Devon Energy
Project: Lea County, NM (NAD-83)
Site: Fighting Okra 18-19 Fed
Well: 86H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well 86H
TVD Reference: 3367.7' GE + 25' KB @ 3392.70usft
MD Reference: 3367.7' GE + 25' KB @ 3392.70usft
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	Fighting Okra 18-19 Fed		
Site Position:		Northing:	382,937.52 usft
From:	Map	Easting:	794,421.25 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 3' 0.5157 N
		Longitude:	103° 30' 59.2921 W
		Grid Convergence:	0.43 °

Well	86H		
Well Position	+N/-S	-218.22 usft	Northing:
	+E/-W	3,887.61 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	3,383.00 usft
		Latitude:	32° 2' 58.0630 N
		Longitude:	103° 30' 14.1435 W
		Ground Level:	3,367.70 usft

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination
			(°)
	HDGM	9/13/2017	6.80
			Dip Angle
			(°)
			59.78
			Field Strength
			(nT)
			47,889

Design	Plan #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
			(°)
			175.41

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,031.43	5.31	84.54	3,030.67	2.34	24.52	1.00	1.00	0.00	84.54	
11,004.37	5.31	84.54	10,969.33	72.66	759.60	0.00	0.00	0.00	0.00	
11,535.79	0.00	0.00	11,500.00	75.00	784.12	1.00	-1.00	0.00	180.00	
12,006.83	0.00	0.00	11,971.04	75.00	784.12	0.00	0.00	0.00	0.00	
12,906.83	90.00	180.00	12,544.00	-497.96	784.12	10.00	10.00	-20.00	180.00	
22,181.55	90.00	180.00	12,544.00	-9,772.67	784.12	0.00	0.00	0.00	0.00	PBHL (FO 86H)

LEAM Drilling Systems LLC

Planning Report

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Design: Plan #1

Local Co-ordinate Reference: Well 86H
TVD Reference: 3367.7' GE + 25' KB @ 3392.70usft
MD Reference: 3367.7' GE + 25' KB @ 3392.70usft
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 (FO 86H)									
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
Start Build 1.00									
2,600.00	1.00	84.54	2,599.99	0.08	0.87	-0.01	1.00	1.00	0.00
2,700.00	2.00	84.54	2,699.96	0.33	3.47	-0.05	1.00	1.00	0.00
2,800.00	3.00	84.54	2,799.86	0.75	7.82	-0.12	1.00	1.00	0.00
2,900.00	4.00	84.54	2,899.68	1.33	13.89	-0.21	1.00	1.00	0.00
3,000.00	5.00	84.54	2,999.37	2.08	21.70	-0.33	1.00	1.00	0.00
3,031.43	5.31	84.54	3,030.67	2.34	24.52	-0.38	1.00	1.00	0.00
Start 7972.94 hold at 3031.43 MD									
3,100.00	5.31	84.54	3,098.94	2.95	30.84	-0.47	0.00	0.00	0.00
3,200.00	5.31	84.54	3,198.51	3.83	40.06	-0.62	0.00	0.00	0.00
3,300.00	5.31	84.54	3,298.08	4.71	49.28	-0.76	0.00	0.00	0.00
3,400.00	5.31	84.54	3,397.65	5.60	58.50	-0.90	0.00	0.00	0.00
3,500.00	5.31	84.54	3,497.22	6.48	67.72	-1.04	0.00	0.00	0.00
3,600.00	5.31	84.54	3,596.79	7.36	76.94	-1.18	0.00	0.00	0.00
3,700.00	5.31	84.54	3,696.36	8.24	86.16	-1.32	0.00	0.00	0.00
3,800.00	5.31	84.54	3,795.93	9.12	95.38	-1.47	0.00	0.00	0.00
3,900.00	5.31	84.54	3,895.51	10.00	104.60	-1.61	0.00	0.00	0.00
4,000.00	5.31	84.54	3,995.08	10.89	113.82	-1.75	0.00	0.00	0.00
4,100.00	5.31	84.54	4,094.65	11.77	123.04	-1.89	0.00	0.00	0.00
4,200.00	5.31	84.54	4,194.22	12.65	132.26	-2.03	0.00	0.00	0.00
4,300.00	5.31	84.54	4,293.79	13.53	141.48	-2.17	0.00	0.00	0.00
4,400.00	5.31	84.54	4,393.36	14.41	150.70	-2.32	0.00	0.00	0.00
4,500.00	5.31	84.54	4,492.93	15.30	159.92	-2.46	0.00	0.00	0.00
4,600.00	5.31	84.54	4,592.50	16.18	169.13	-2.60	0.00	0.00	0.00
4,700.00	5.31	84.54	4,692.07	17.06	178.35	-2.74	0.00	0.00	0.00
4,800.00	5.31	84.54	4,791.64	17.94	187.57	-2.88	0.00	0.00	0.00

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)
4,900.00	5.31	84.54	4,891.21	18.82	196.79	-3.02	0.00	0.00	0.00
5,000.00	5.31	84.54	4,990.78	19.70	206.01	-3.17	0.00	0.00	0.00
5,100.00	5.31	84.54	5,090.35	20.59	215.23	-3.31	0.00	0.00	0.00
5,200.00	5.31	84.54	5,189.92	21.47	224.45	-3.45	0.00	0.00	0.00
5,300.00	5.31	84.54	5,289.49	22.35	233.67	-3.59	0.00	0.00	0.00
5,400.00	5.31	84.54	5,389.06	23.23	242.89	-3.73	0.00	0.00	0.00
5,500.00	5.31	84.54	5,488.63	24.11	252.11	-3.87	0.00	0.00	0.00
5,600.00	5.31	84.54	5,588.20	25.00	261.33	-4.01	0.00	0.00	0.00
5,700.00	5.31	84.54	5,687.77	25.88	270.55	-4.16	0.00	0.00	0.00
5,800.00	5.31	84.54	5,787.34	26.76	279.77	-4.30	0.00	0.00	0.00
5,900.00	5.31	84.54	5,886.91	27.64	288.99	-4.44	0.00	0.00	0.00
6,000.00	5.31	84.54	5,986.48	28.52	298.21	-4.58	0.00	0.00	0.00
6,100.00	5.31	84.54	6,086.05	29.41	307.43	-4.72	0.00	0.00	0.00
6,200.00	5.31	84.54	6,185.62	30.29	316.65	-4.86	0.00	0.00	0.00
6,300.00	5.31	84.54	6,285.19	31.17	325.87	-5.01	0.00	0.00	0.00
6,400.00	5.31	84.54	6,384.76	32.05	335.09	-5.15	0.00	0.00	0.00
6,500.00	5.31	84.54	6,484.33	32.93	344.31	-5.29	0.00	0.00	0.00
6,600.00	5.31	84.54	6,583.90	33.81	353.53	-5.43	0.00	0.00	0.00
6,700.00	5.31	84.54	6,683.47	34.70	362.75	-5.57	0.00	0.00	0.00
6,800.00	5.31	84.54	6,783.04	35.58	371.97	-5.71	0.00	0.00	0.00
6,900.00	5.31	84.54	6,882.61	36.46	381.19	-5.86	0.00	0.00	0.00
7,000.00	5.31	84.54	6,982.18	37.34	390.41	-6.00	0.00	0.00	0.00
7,100.00	5.31	84.54	7,081.75	38.22	399.63	-6.14	0.00	0.00	0.00
7,200.00	5.31	84.54	7,181.32	39.11	408.85	-6.28	0.00	0.00	0.00
7,300.00	5.31	84.54	7,280.89	39.99	418.07	-6.42	0.00	0.00	0.00
7,400.00	5.31	84.54	7,380.46	40.87	427.29	-6.56	0.00	0.00	0.00
7,500.00	5.31	84.54	7,480.03	41.75	436.51	-6.71	0.00	0.00	0.00
7,600.00	5.31	84.54	7,579.60	42.63	445.73	-6.85	0.00	0.00	0.00
7,700.00	5.31	84.54	7,679.17	43.52	454.95	-6.99	0.00	0.00	0.00
7,800.00	5.31	84.54	7,778.74	44.40	464.17	-7.13	0.00	0.00	0.00
7,900.00	5.31	84.54	7,878.31	45.28	473.39	-7.27	0.00	0.00	0.00
8,000.00	5.31	84.54	7,977.88	46.16	482.61	-7.41	0.00	0.00	0.00
8,100.00	5.31	84.54	8,077.45	47.04	491.83	-7.56	0.00	0.00	0.00
8,200.00	5.31	84.54	8,177.02	47.92	501.05	-7.70	0.00	0.00	0.00
8,300.00	5.31	84.54	8,276.59	48.81	510.27	-7.84	0.00	0.00	0.00
8,400.00	5.31	84.54	8,376.16	49.69	519.49	-7.98	0.00	0.00	0.00
8,500.00	5.31	84.54	8,475.73	50.57	528.71	-8.12	0.00	0.00	0.00
8,600.00	5.31	84.54	8,575.30	51.45	537.93	-8.26	0.00	0.00	0.00
8,700.00	5.31	84.54	8,674.87	52.33	547.15	-8.41	0.00	0.00	0.00
8,800.00	5.31	84.54	8,774.44	53.22	556.37	-8.55	0.00	0.00	0.00
8,900.00	5.31	84.54	8,874.01	54.10	565.59	-8.69	0.00	0.00	0.00
9,000.00	5.31	84.54	8,973.58	54.98	574.81	-8.83	0.00	0.00	0.00
9,100.00	5.31	84.54	9,073.15	55.86	584.03	-8.97	0.00	0.00	0.00
9,200.00	5.31	84.54	9,172.72	56.74	593.25	-9.11	0.00	0.00	0.00
9,300.00	5.31	84.54	9,272.29	57.62	602.47	-9.26	0.00	0.00	0.00
9,400.00	5.31	84.54	9,371.86	58.51	611.68	-9.40	0.00	0.00	0.00
9,500.00	5.31	84.54	9,471.43	59.39	620.90	-9.54	0.00	0.00	0.00
9,600.00	5.31	84.54	9,571.00	60.27	630.12	-9.68	0.00	0.00	0.00
9,700.00	5.31	84.54	9,670.57	61.15	639.34	-9.82	0.00	0.00	0.00
9,800.00	5.31	84.54	9,770.14	62.03	648.56	-9.96	0.00	0.00	0.00
9,900.00	5.31	84.54	9,869.72	62.92	657.78	-10.11	0.00	0.00	0.00
10,000.00	5.31	84.54	9,969.29	63.80	667.00	-10.25	0.00	0.00	0.00
10,100.00	5.31	84.54	10,068.86	64.68	676.22	-10.39	0.00	0.00	0.00
10,200.00	5.31	84.54	10,168.43	65.56	685.44	-10.53	0.00	0.00	0.00

LEAM Drilling Systems LLC

Planning Report

Database: EDM 5000.1 Multi User Db
Company: Devon Energy
Project: Lea County, NM (NAD-83)
Site: Fighting Okra 18-19 Fed
Well: 86H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well 86H
TVD Reference: 3367.7' GE + 25' KB @ 3392.70usft
MD Reference: 3367.7' GE + 25' KB @ 3392.70usft
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)
10,300.00	5.31	84.54	10,268.00	66.44	694.66	-10.67	0.00	0.00	0.00
10,400.00	5.31	84.54	10,367.57	67.33	703.88	-10.81	0.00	0.00	0.00
10,500.00	5.31	84.54	10,467.14	68.21	713.10	-10.96	0.00	0.00	0.00
10,600.00	5.31	84.54	10,566.71	69.09	722.32	-11.10	0.00	0.00	0.00
10,700.00	5.31	84.54	10,666.28	69.97	731.54	-11.24	0.00	0.00	0.00
10,800.00	5.31	84.54	10,765.85	70.85	740.76	-11.38	0.00	0.00	0.00
10,900.00	5.31	84.54	10,865.42	71.73	749.98	-11.52	0.00	0.00	0.00
11,004.37	5.31	84.54	10,969.33	72.66	759.60	-11.67	0.00	0.00	0.00
Start Drop -1.00									
11,100.00	4.36	84.54	11,064.63	73.42	767.63	-11.79	1.00	-1.00	0.00
11,200.00	3.36	84.54	11,164.40	74.06	774.33	-11.90	1.00	-1.00	0.00
11,300.00	2.36	84.54	11,264.27	74.54	779.29	-11.97	1.00	-1.00	0.00
11,400.00	1.36	84.54	11,364.22	74.85	782.52	-12.02	1.00	-1.00	0.00
11,500.00	0.36	84.54	11,464.21	74.99	784.01	-12.04	1.00	-1.00	0.00
11,535.79	0.00	0.00	11,500.00	75.00	784.12	-12.05	1.00	-1.00	0.00
Start 471.04 hold at 11535.79 MD									
11,600.00	0.00	0.00	11,564.21	75.00	784.12	-12.05	0.00	0.00	0.00
11,700.00	0.00	0.00	11,664.21	75.00	784.12	-12.05	0.00	0.00	0.00
11,800.00	0.00	0.00	11,764.21	75.00	784.12	-12.05	0.00	0.00	0.00
11,900.00	0.00	0.00	11,864.21	75.00	784.12	-12.05	0.00	0.00	0.00
12,006.83	0.00	0.00	11,971.04	75.00	784.12	-12.05	0.00	0.00	0.00
Start DLS 10.00 TFO 180.00									
12,050.00	4.32	180.00	12,014.17	73.37	784.12	-10.43	10.00	10.00	0.00
12,100.00	9.32	180.00	12,063.80	67.44	784.12	-4.51	10.00	10.00	0.00
12,150.00	14.32	180.00	12,112.72	57.21	784.12	5.69	10.00	10.00	0.00
12,200.00	19.32	180.00	12,160.57	42.75	784.12	20.10	10.00	10.00	0.00
12,250.00	24.32	180.00	12,206.97	24.17	784.12	38.62	10.00	10.00	0.00
12,300.00	29.32	180.00	12,251.58	1.62	784.12	61.10	10.00	10.00	0.00
12,350.00	34.32	180.00	12,294.05	-24.73	784.12	87.37	10.00	10.00	0.00
12,400.00	39.32	180.00	12,334.07	-54.69	784.12	117.22	10.00	10.00	0.00
12,450.00	44.32	180.00	12,371.32	-88.01	784.12	150.44	10.00	10.00	0.00
12,500.00	49.32	180.00	12,405.53	-124.46	784.12	186.77	10.00	10.00	0.00
12,550.00	54.32	180.00	12,436.43	-163.75	784.12	225.94	10.00	10.00	0.00
12,600.00	59.32	180.00	12,463.78	-205.58	784.12	267.64	10.00	10.00	0.00
12,650.00	64.32	180.00	12,487.39	-249.64	784.12	311.55	10.00	10.00	0.00
12,700.00	69.32	180.00	12,507.07	-295.59	784.12	357.35	10.00	10.00	0.00
12,750.00	74.32	180.00	12,522.67	-343.08	784.12	404.69	10.00	10.00	0.00
12,800.00	79.32	180.00	12,534.07	-391.74	784.12	453.20	10.00	10.00	0.00
12,850.00	84.32	180.00	12,541.18	-441.22	784.12	502.52	10.00	10.00	0.00
12,900.00	89.32	180.00	12,543.96	-491.12	784.12	552.26	10.00	10.00	0.00
12,906.83	90.00	180.00	12,544.00	-497.96	784.12	559.08	10.00	10.00	0.00
Start 9274.71 hold at 12906.83 MD									
13,000.00	90.00	180.00	12,544.00	-591.12	784.12	651.94	0.00	0.00	0.00
13,100.00	90.00	180.00	12,544.00	-691.12	784.12	751.62	0.00	0.00	0.00
13,200.00	90.00	180.00	12,544.00	-791.12	784.12	851.30	0.00	0.00	0.00
13,300.00	90.00	180.00	12,544.00	-891.12	784.12	950.98	0.00	0.00	0.00
13,400.00	90.00	180.00	12,544.00	-991.12	784.12	1,050.66	0.00	0.00	0.00
13,500.00	90.00	180.00	12,544.00	-1,091.12	784.12	1,150.34	0.00	0.00	0.00
13,600.00	90.00	180.00	12,544.00	-1,191.12	784.12	1,250.02	0.00	0.00	0.00
13,700.00	90.00	180.00	12,544.00	-1,291.12	784.12	1,349.70	0.00	0.00	0.00
13,800.00	90.00	180.00	12,544.00	-1,391.12	784.12	1,449.38	0.00	0.00	0.00
13,900.00	90.00	180.00	12,544.00	-1,491.12	784.12	1,549.06	0.00	0.00	0.00
14,000.00	90.00	180.00	12,544.00	-1,591.12	784.12	1,648.74	0.00	0.00	0.00

LEAM Drilling Systems LLC

Planning Report

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Wellbore: OH
Design: Plan #1

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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)
14,100.00	90.00	180.00	12,544.00	-1,691.12	784.12	1,748.42	0.00	0.00	0.00
14,200.00	90.00	180.00	12,544.00	-1,791.12	784.12	1,848.10	0.00	0.00	0.00
14,300.00	90.00	180.00	12,544.00	-1,891.12	784.12	1,947.78	0.00	0.00	0.00
14,400.00	90.00	180.00	12,544.00	-1,991.12	784.12	2,047.46	0.00	0.00	0.00
14,500.00	90.00	180.00	12,544.00	-2,091.12	784.12	2,147.14	0.00	0.00	0.00
14,600.00	90.00	180.00	12,544.00	-2,191.12	784.12	2,246.82	0.00	0.00	0.00
14,700.00	90.00	180.00	12,544.00	-2,291.12	784.12	2,346.50	0.00	0.00	0.00
14,800.00	90.00	180.00	12,544.00	-2,391.12	784.12	2,446.18	0.00	0.00	0.00
14,900.00	90.00	180.00	12,544.00	-2,491.12	784.12	2,545.86	0.00	0.00	0.00
15,000.00	90.00	180.00	12,544.00	-2,591.12	784.12	2,645.54	0.00	0.00	0.00
15,100.00	90.00	180.00	12,544.00	-2,691.12	784.12	2,745.22	0.00	0.00	0.00
15,200.00	90.00	180.00	12,544.00	-2,791.12	784.12	2,844.90	0.00	0.00	0.00
15,300.00	90.00	180.00	12,544.00	-2,891.12	784.12	2,944.58	0.00	0.00	0.00
15,400.00	90.00	180.00	12,544.00	-2,991.12	784.12	3,044.26	0.00	0.00	0.00
15,500.00	90.00	180.00	12,544.00	-3,091.12	784.12	3,143.93	0.00	0.00	0.00
15,600.00	90.00	180.00	12,544.00	-3,191.12	784.12	3,243.61	0.00	0.00	0.00
15,700.00	90.00	180.00	12,544.00	-3,291.12	784.12	3,343.29	0.00	0.00	0.00
15,800.00	90.00	180.00	12,544.00	-3,391.12	784.12	3,442.97	0.00	0.00	0.00
15,900.00	90.00	180.00	12,544.00	-3,491.12	784.12	3,542.65	0.00	0.00	0.00
16,000.00	90.00	180.00	12,544.00	-3,591.12	784.12	3,642.33	0.00	0.00	0.00
16,100.00	90.00	180.00	12,544.00	-3,691.12	784.12	3,742.01	0.00	0.00	0.00
16,200.00	90.00	180.00	12,544.00	-3,791.12	784.12	3,841.69	0.00	0.00	0.00
16,300.00	90.00	180.00	12,544.00	-3,891.12	784.12	3,941.37	0.00	0.00	0.00
16,400.00	90.00	180.00	12,544.00	-3,991.12	784.12	4,041.05	0.00	0.00	0.00
16,500.00	90.00	180.00	12,544.00	-4,091.12	784.12	4,140.73	0.00	0.00	0.00
16,600.00	90.00	180.00	12,544.00	-4,191.12	784.12	4,240.41	0.00	0.00	0.00
16,700.00	90.00	180.00	12,544.00	-4,291.12	784.12	4,340.09	0.00	0.00	0.00
16,800.00	90.00	180.00	12,544.00	-4,391.12	784.12	4,439.77	0.00	0.00	0.00
16,900.00	90.00	180.00	12,544.00	-4,491.12	784.12	4,539.45	0.00	0.00	0.00
17,000.00	90.00	180.00	12,544.00	-4,591.12	784.12	4,639.13	0.00	0.00	0.00
17,100.00	90.00	180.00	12,544.00	-4,691.12	784.12	4,738.81	0.00	0.00	0.00
17,200.00	90.00	180.00	12,544.00	-4,791.12	784.12	4,838.49	0.00	0.00	0.00
17,300.00	90.00	180.00	12,544.00	-4,891.12	784.12	4,938.17	0.00	0.00	0.00
17,400.00	90.00	180.00	12,544.00	-4,991.12	784.12	5,037.85	0.00	0.00	0.00
17,500.00	90.00	180.00	12,544.00	-5,091.12	784.12	5,137.53	0.00	0.00	0.00
17,600.00	90.00	180.00	12,544.00	-5,191.12	784.12	5,237.21	0.00	0.00	0.00
17,700.00	90.00	180.00	12,544.00	-5,291.12	784.12	5,336.89	0.00	0.00	0.00
17,800.00	90.00	180.00	12,544.00	-5,391.12	784.12	5,436.57	0.00	0.00	0.00
17,900.00	90.00	180.00	12,544.00	-5,491.12	784.12	5,536.25	0.00	0.00	0.00
18,000.00	90.00	180.00	12,544.00	-5,591.12	784.12	5,635.93	0.00	0.00	0.00
18,100.00	90.00	180.00	12,544.00	-5,691.12	784.12	5,735.61	0.00	0.00	0.00
18,200.00	90.00	180.00	12,544.00	-5,791.12	784.12	5,835.29	0.00	0.00	0.00
18,300.00	90.00	180.00	12,544.00	-5,891.12	784.12	5,934.97	0.00	0.00	0.00
18,400.00	90.00	180.00	12,544.00	-5,991.12	784.12	6,034.64	0.00	0.00	0.00
18,500.00	90.00	180.00	12,544.00	-6,091.12	784.12	6,134.32	0.00	0.00	0.00
18,600.00	90.00	180.00	12,544.00	-6,191.12	784.12	6,234.00	0.00	0.00	0.00
18,700.00	90.00	180.00	12,544.00	-6,291.12	784.12	6,333.68	0.00	0.00	0.00
18,800.00	90.00	180.00	12,544.00	-6,391.12	784.12	6,433.36	0.00	0.00	0.00
18,900.00	90.00	180.00	12,544.00	-6,491.12	784.12	6,533.04	0.00	0.00	0.00
19,000.00	90.00	180.00	12,544.00	-6,591.12	784.12	6,632.72	0.00	0.00	0.00
19,100.00	90.00	180.00	12,544.00	-6,691.12	784.12	6,732.40	0.00	0.00	0.00
19,200.00	90.00	180.00	12,544.00	-6,791.12	784.12	6,832.08	0.00	0.00	0.00
19,300.00	90.00	180.00	12,544.00	-6,891.12	784.12	6,931.76	0.00	0.00	0.00
19,400.00	90.00	180.00	12,544.00	-6,991.12	784.12	7,031.44	0.00	0.00	0.00

LEAM Drilling Systems LLC

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Local Co-ordinate Reference: Well 86H
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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)
19,500.00	90.00	180.00	12,544.00	-7,091.12	784.12	7,131.12	0.00	0.00	0.00
19,600.00	90.00	180.00	12,544.00	-7,191.12	784.12	7,230.80	0.00	0.00	0.00
19,700.00	90.00	180.00	12,544.00	-7,291.12	784.12	7,330.48	0.00	0.00	0.00
19,800.00	90.00	180.00	12,544.00	-7,391.12	784.12	7,430.16	0.00	0.00	0.00
19,900.00	90.00	180.00	12,544.00	-7,491.12	784.12	7,529.84	0.00	0.00	0.00
20,000.00	90.00	180.00	12,544.00	-7,591.12	784.12	7,629.52	0.00	0.00	0.00
20,100.00	90.00	180.00	12,544.00	-7,691.12	784.12	7,729.20	0.00	0.00	0.00
20,200.00	90.00	180.00	12,544.00	-7,791.12	784.12	7,828.88	0.00	0.00	0.00
20,300.00	90.00	180.00	12,544.00	-7,891.12	784.12	7,928.56	0.00	0.00	0.00
20,400.00	90.00	180.00	12,544.00	-7,991.12	784.12	8,028.24	0.00	0.00	0.00
20,500.00	90.00	180.00	12,544.00	-8,091.12	784.12	8,127.92	0.00	0.00	0.00
20,600.00	90.00	180.00	12,544.00	-8,191.12	784.12	8,227.60	0.00	0.00	0.00
20,700.00	90.00	180.00	12,544.00	-8,291.12	784.12	8,327.28	0.00	0.00	0.00
20,800.00	90.00	180.00	12,544.00	-8,391.12	784.12	8,426.96	0.00	0.00	0.00
20,900.00	90.00	180.00	12,544.00	-8,491.12	784.12	8,526.64	0.00	0.00	0.00
21,000.00	90.00	180.00	12,544.00	-8,591.12	784.12	8,626.32	0.00	0.00	0.00
21,100.00	90.00	180.00	12,544.00	-8,691.12	784.12	8,726.00	0.00	0.00	0.00
21,200.00	90.00	180.00	12,544.00	-8,791.12	784.12	8,825.68	0.00	0.00	0.00
21,300.00	90.00	180.00	12,544.00	-8,891.12	784.12	8,925.36	0.00	0.00	0.00
21,400.00	90.00	180.00	12,544.00	-8,991.12	784.12	9,025.03	0.00	0.00	0.00
21,500.00	90.00	180.00	12,544.00	-9,091.12	784.12	9,124.71	0.00	0.00	0.00
21,600.00	90.00	180.00	12,544.00	-9,191.12	784.12	9,224.39	0.00	0.00	0.00
21,700.00	90.00	180.00	12,544.00	-9,291.12	784.12	9,324.07	0.00	0.00	0.00
21,800.00	90.00	180.00	12,544.00	-9,391.12	784.12	9,423.75	0.00	0.00	0.00
21,900.00	90.00	180.00	12,544.00	-9,491.12	784.12	9,523.43	0.00	0.00	0.00
22,000.00	90.00	180.00	12,544.00	-9,591.12	784.12	9,623.11	0.00	0.00	0.00
22,100.00	90.00	180.00	12,544.00	-9,691.12	784.12	9,722.79	0.00	0.00	0.00
22,181.55	90.00	180.00	12,544.00	-9,772.67	784.12	9,804.08	0.00	0.00	0.00

TD at 22181.55 - PBHL (FO 86H)

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 (FO 86H)	0.00	0.00	0.00	0.00	0.00	382,719.30	798,308.86	32° 2' 58.0630 N	103° 30' 14.1435 W
- plan hits target center									
- Point									
PBHL (FO 86H)	0.00	0.00	12,544.00	-9,772.67	784.12	372,946.63	799,092.98	32° 1' 21.2997 N	103° 30' 5.9076 W
- plan hits target center									
- Point									

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Local Co-ordinate Reference: Well 86H
TVD Reference: 3367.7' GE + 25' KB @ 3392.70usft
MD Reference: 3367.7' GE + 25' KB @ 3392.70usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
2,500.00	2,500.00	0.00	0.00	Start Build 1.00
3,031.43	3,030.67	2.34	24.52	Start 7972.94 hold at 3031.43 MD
11,004.37	10,969.33	72.66	759.60	Start Drop -1.00
11,535.79	11,500.00	75.00	784.12	Start 471.04 hold at 11535.79 MD
12,006.83	11,971.04	75.00	784.12	Start DLS 10.00 TFO 180.00
12,906.83	12,544.00	-497.96	784.12	Start 9274.71 hold at 12906.83 MD
22,181.55	12,544.00	-9,772.67	784.12	TD at 22181.55