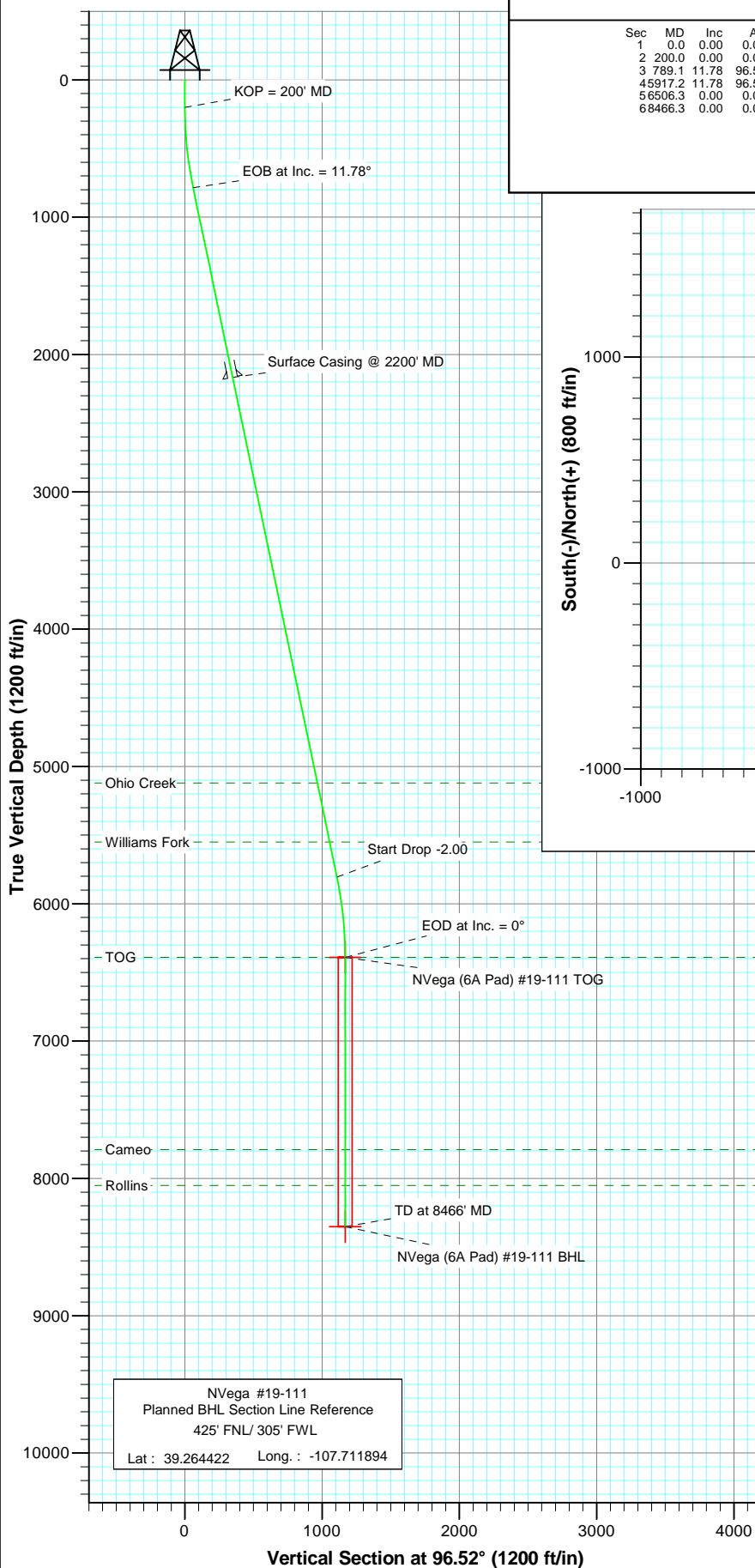


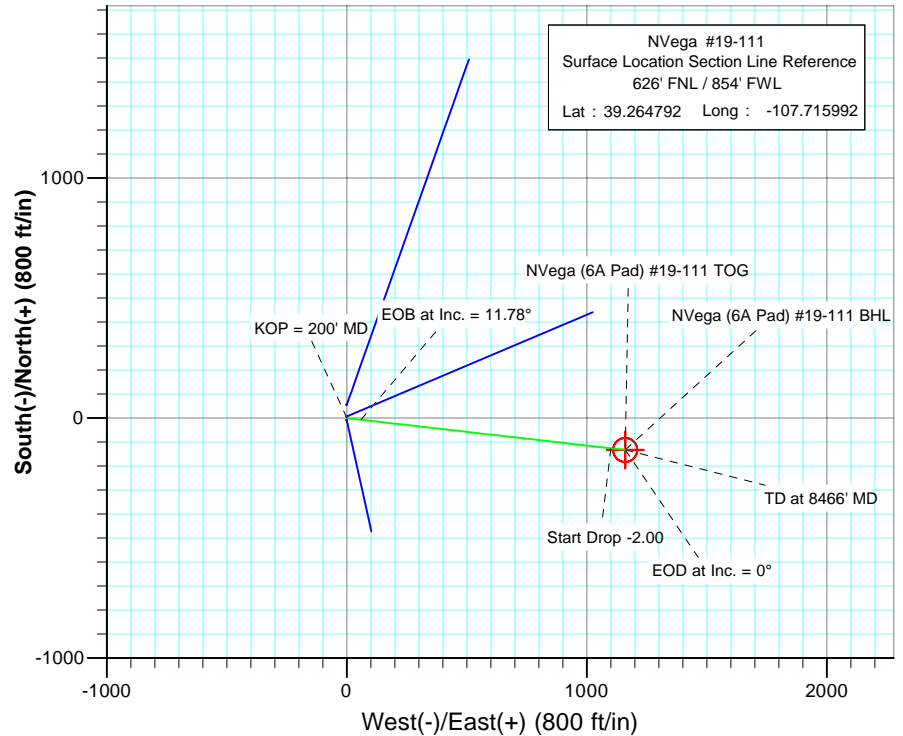


Project: North Vega
Site: NENE S24-T9S-R93W (6A Pad)
Well: NVega #19-111
Wellbore: DD
Plan: Plan #1



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSEct	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0	
3	789.1	11.78	96.52	785.0	-6.9	60.0	2.00	96.52	60.4	
4	5917.2	11.78	96.52	5805.0	-125.7	1100.3	0.00	0.00	1107.5	
5	6506.3	0.00	0.00	6390.0	-132.5	1160.3	2.00	180.00	1167.8	NVega (6A Pad) #19-111 TOG
6	8466.3	0.00	0.00	8350.0	-132.5	1160.3	0.00	0.00	1167.8	NVega (6A Pad) #19-111 BHL



FORMATION TOP DETAILS

TVDP	MD	Formation	DipAngle
5120.0	5217.4	Ohio Creek	0.00
5550.0	5656.7	Williams Fork	0.00
6390.0	6506.3	TOG	0.00
7790.0	7906.3	Cameo	0.00
8050.0	8166.3	Rollins	0.00



Azimuths to True North
Magnetic North: 10.36°

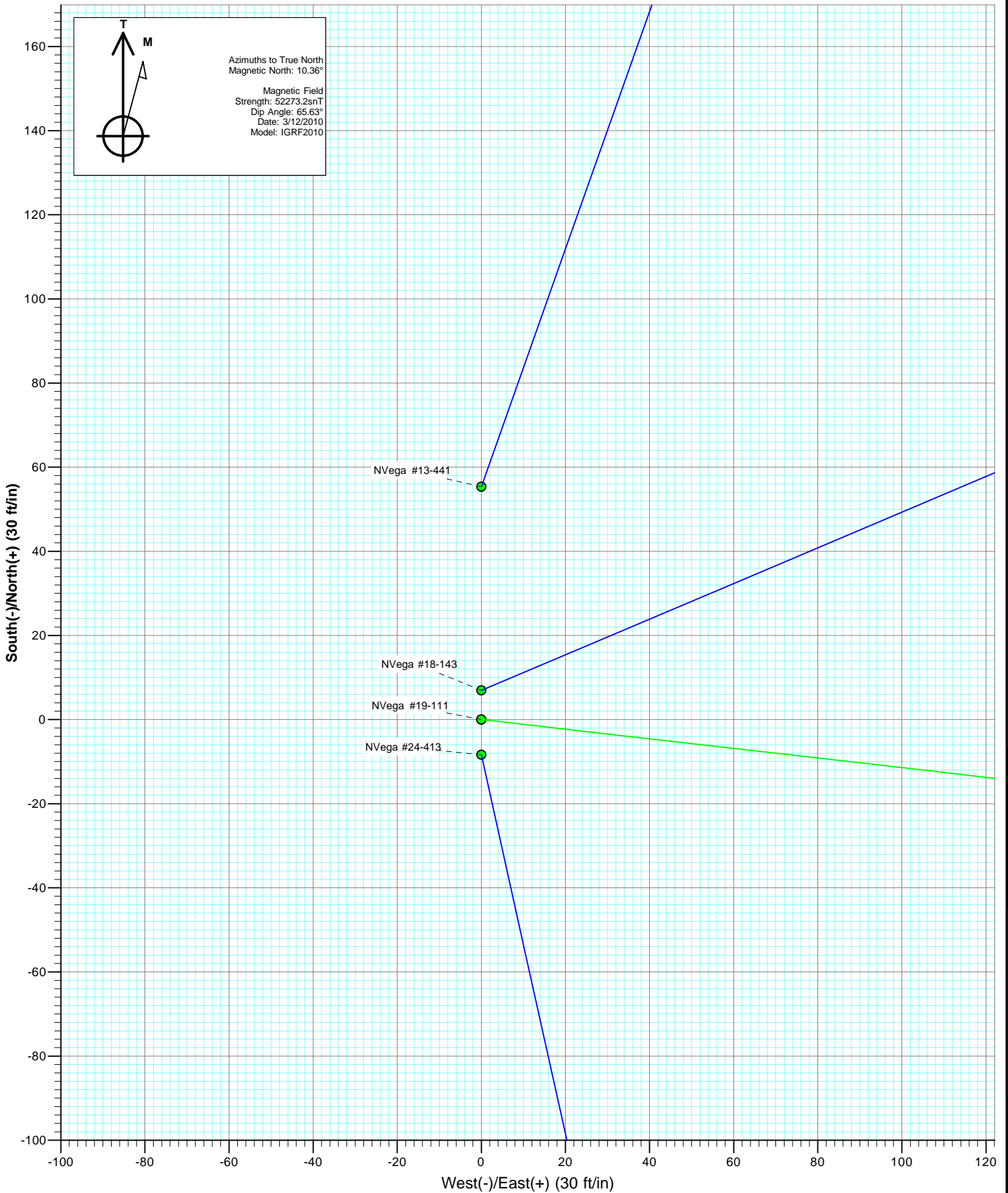
Magnetic Field
Strength: 52273.2snT
Dip Angle: 65.63°
Date: 3/12/2010
Model: IGRF2010

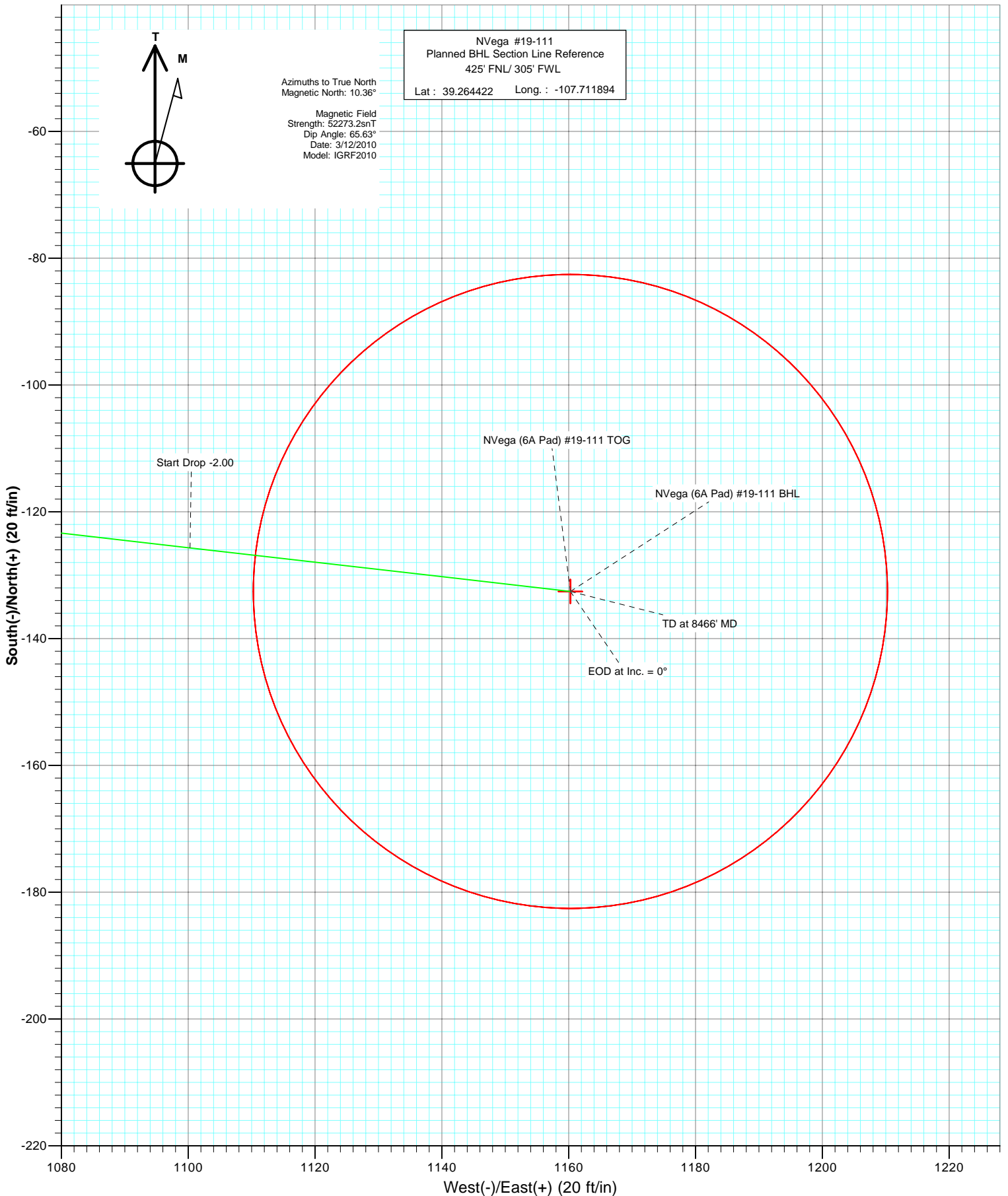
DESIGN DETAILS: Plan #1

Job #105XXX

KBE @ 7840.0ft (Original Well Elev)

Target	Azimuth	Origin Type	N/S	E/W	From TVD
NVega (6A Pad) #19-111 BHL	96.52	Slot	0.0	0.0	0.0





Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well NVega #19-111
Company:	Delta Petroleum	TVD Reference:	KBE @ 7840.0ft (Original Well Elev)
Project:	North Vega	MD Reference:	KBE @ 7840.0ft (Original Well Elev)
Site:	NENE S24-T9S-R93W (6A Pad)	North Reference:	True
Well:	NVega #19-111	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Project	North Vega		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Central Zone		

Site		NENE S24-T9S-R93W (6A Pad)			
Site Position:		Northing:	1,528,996.04 ft	Latitude:	39.264811
From:	Lat/Long	Easting:	2,372,658.97 ft	Longitude:	-107.715992
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.40 °

Well	NVega #19-111					
Well Position	+N/-S	0.0 ft	Northing:	1,528,989.11 ft	Latitude:	39.264792
	+E/-W	0.0 ft	Easting:	2,372,658.80 ft	Longitude:	-107.715992
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	7,822.0 ft

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	3/12/2010	10.36	65.63	52,273

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	96.52

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.00	0.00	
789.1	11.78	96.52	785.0	-6.9	60.0	2.00	2.00	0.00	96.52	
5,917.2	11.78	96.52	5,805.0	-125.7	1,100.3	0.00	0.00	0.00	0.00	
6,506.3	0.00	0.00	6,390.0	-132.5	1,160.3	2.00	-2.00	0.00	180.00	NVega (6A Pad) #19-
8,466.3	0.00	0.00	8,350.0	-132.5	1,160.3	0.00	0.00	0.00	0.00	NVega (6A Pad) #19-

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well NVega #19-111
Company:	Delta Petroleum	TVD Reference:	KBE @ 7840.0ft (Original Well Elev)
Project:	North Vega	MD Reference:	KBE @ 7840.0ft (Original Well Elev)
Site:	NENE S24-T9S-R93W (6A Pad)	North Reference:	True
Well:	NVega #19-111	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
30.0	0.00	0.00	30.0	0.0	0.0	0.0	0.00	0.00	
60.0	0.00	0.00	60.0	0.0	0.0	0.0	0.00	0.00	
90.0	0.00	0.00	90.0	0.0	0.0	0.0	0.00	0.00	
120.0	0.00	0.00	120.0	0.0	0.0	0.0	0.00	0.00	
150.0	0.00	0.00	150.0	0.0	0.0	0.0	0.00	0.00	
180.0	0.00	0.00	180.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	KOP = 200' MD
210.0	0.20	96.52	210.0	0.0	0.0	0.0	2.00	2.00	
240.0	0.80	96.52	240.0	0.0	0.3	0.3	2.00	2.00	
270.0	1.40	96.52	270.0	-0.1	0.8	0.9	2.00	2.00	
300.0	2.00	96.52	300.0	-0.2	1.7	1.7	2.00	2.00	
330.0	2.60	96.52	330.0	-0.3	2.9	2.9	2.00	2.00	
360.0	3.20	96.52	359.9	-0.5	4.4	4.5	2.00	2.00	
390.0	3.80	96.52	389.9	-0.7	6.3	6.3	2.00	2.00	
420.0	4.40	96.52	419.8	-1.0	8.4	8.4	2.00	2.00	
450.0	5.00	96.52	449.7	-1.2	10.8	10.9	2.00	2.00	
480.0	5.60	96.52	479.6	-1.6	13.6	13.7	2.00	2.00	
510.0	6.20	96.52	509.4	-1.9	16.6	16.8	2.00	2.00	
540.0	6.80	96.52	539.2	-2.3	20.0	20.2	2.00	2.00	
570.0	7.40	96.52	569.0	-2.7	23.7	23.9	2.00	2.00	
600.0	8.00	96.52	598.7	-3.2	27.7	27.9	2.00	2.00	
630.0	8.60	96.52	628.4	-3.7	32.0	32.2	2.00	2.00	
660.0	9.20	96.52	658.0	-4.2	36.6	36.9	2.00	2.00	
690.0	9.80	96.52	687.6	-4.7	41.5	41.8	2.00	2.00	
720.0	10.40	96.52	717.1	-5.3	46.8	47.1	2.00	2.00	
750.0	11.00	96.52	746.6	-6.0	52.3	52.6	2.00	2.00	
780.0	11.60	96.52	776.0	-6.6	58.1	58.5	2.00	2.00	
789.1	11.78	96.52	785.0	-6.9	60.0	60.4	2.00	2.00	EOB at Inc. = 11.78°
810.0	11.78	96.52	805.4	-7.3	64.2	64.6	0.00	0.00	
840.0	11.78	96.52	834.8	-8.0	70.3	70.7	0.00	0.00	
870.0	11.78	96.52	864.2	-8.7	76.4	76.9	0.00	0.00	
900.0	11.78	96.52	893.5	-9.4	82.5	83.0	0.00	0.00	
930.0	11.78	96.52	922.9	-10.1	88.6	89.1	0.00	0.00	
960.0	11.78	96.52	952.3	-10.8	94.6	95.3	0.00	0.00	
990.0	11.78	96.52	981.6	-11.5	100.7	101.4	0.00	0.00	
1,020.0	11.78	96.52	1,011.0	-12.2	106.8	107.5	0.00	0.00	
1,050.0	11.78	96.52	1,040.4	-12.9	112.9	113.6	0.00	0.00	
1,080.0	11.78	96.52	1,069.7	-13.6	119.0	119.8	0.00	0.00	
1,110.0	11.78	96.52	1,099.1	-14.3	125.1	125.9	0.00	0.00	
1,140.0	11.78	96.52	1,128.5	-15.0	131.2	132.0	0.00	0.00	
1,170.0	11.78	96.52	1,157.8	-15.7	137.2	138.1	0.00	0.00	
1,200.0	11.78	96.52	1,187.2	-16.4	143.3	144.3	0.00	0.00	
1,230.0	11.78	96.52	1,216.6	-17.1	149.4	150.4	0.00	0.00	
1,260.0	11.78	96.52	1,245.9	-17.8	155.5	156.5	0.00	0.00	
1,290.0	11.78	96.52	1,275.3	-18.5	161.6	162.6	0.00	0.00	
1,320.0	11.78	96.52	1,304.7	-19.2	167.7	168.8	0.00	0.00	
1,350.0	11.78	96.52	1,334.0	-19.8	173.8	174.9	0.00	0.00	
1,380.0	11.78	96.52	1,363.4	-20.5	179.8	181.0	0.00	0.00	
1,410.0	11.78	96.52	1,392.8	-21.2	185.9	187.1	0.00	0.00	
1,440.0	11.78	96.52	1,422.1	-21.9	192.0	193.3	0.00	0.00	
1,470.0	11.78	96.52	1,451.5	-22.6	198.1	199.4	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well NVega #19-111
Company:	Delta Petroleum	TVD Reference:	KBE @ 7840.0ft (Original Well Elev)
Project:	North Vega	MD Reference:	KBE @ 7840.0ft (Original Well Elev)
Site:	NENE S24-T9S-R93W (6A Pad)	North Reference:	True
Well:	NVega #19-111	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
1,500.0	11.78	96.52	1,480.9	-23.3	204.2	205.5	0.00	0.00	
1,530.0	11.78	96.52	1,510.2	-24.0	210.3	211.6	0.00	0.00	
1,560.0	11.78	96.52	1,539.6	-24.7	216.4	217.8	0.00	0.00	
1,590.0	11.78	96.52	1,569.0	-25.4	222.4	223.9	0.00	0.00	
1,620.0	11.78	96.52	1,598.4	-26.1	228.5	230.0	0.00	0.00	
1,650.0	11.78	96.52	1,627.7	-26.8	234.6	236.1	0.00	0.00	
1,680.0	11.78	96.52	1,657.1	-27.5	240.7	242.3	0.00	0.00	
1,710.0	11.78	96.52	1,686.5	-28.2	246.8	248.4	0.00	0.00	
1,740.0	11.78	96.52	1,715.8	-28.9	252.9	254.5	0.00	0.00	
1,770.0	11.78	96.52	1,745.2	-29.6	259.0	260.6	0.00	0.00	
1,800.0	11.78	96.52	1,774.6	-30.3	265.0	266.8	0.00	0.00	
1,830.0	11.78	96.52	1,803.9	-31.0	271.1	272.9	0.00	0.00	
1,860.0	11.78	96.52	1,833.3	-31.7	277.2	279.0	0.00	0.00	
1,890.0	11.78	96.52	1,862.7	-32.4	283.3	285.1	0.00	0.00	
1,920.0	11.78	96.52	1,892.0	-33.1	289.4	291.3	0.00	0.00	
1,950.0	11.78	96.52	1,921.4	-33.8	295.5	297.4	0.00	0.00	
1,980.0	11.78	96.52	1,950.8	-34.4	301.6	303.5	0.00	0.00	
2,010.0	11.78	96.52	1,980.1	-35.1	307.6	309.6	0.00	0.00	
2,040.0	11.78	96.52	2,009.5	-35.8	313.7	315.8	0.00	0.00	
2,070.0	11.78	96.52	2,038.9	-36.5	319.8	321.9	0.00	0.00	
2,100.0	11.78	96.52	2,068.2	-37.2	325.9	328.0	0.00	0.00	
2,130.0	11.78	96.52	2,097.6	-37.9	332.0	334.2	0.00	0.00	
2,160.0	11.78	96.52	2,127.0	-38.6	338.1	340.3	0.00	0.00	
2,190.0	11.78	96.52	2,156.3	-39.3	344.2	346.4	0.00	0.00	
2,200.0	11.78	96.52	2,166.1	-39.5	346.2	348.4	0.00	0.00	Surface Casing

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
NVega (6A Pad) #19-11	0.00	0.00	8,350.0	-132.5	1,160.3	1,528,828.31	2,373,815.49	39.264428	-107.711894
- hit/miss target									
- plan misses target center by 6237.9ft at 2200.0ft MD (2166.1 TVD, -39.5 N, 346.2 E)									
- Shape									
- Point									
NVega (6A Pad) #19-11	0.00	0.00	6,390.0	-132.5	1,160.3	1,528,828.31	2,373,815.49	39.264428	-107.711894
- hit/miss target									
- plan misses target center by 4302.6ft at 2200.0ft MD (2166.1 TVD, -39.5 N, 346.2 E)									
- Shape									
- Point									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
2,200.0	2,166.1	Surface Casing	5.500	6.000	

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well NVega #19-111
Company:	Delta Petroleum	TVD Reference:	KBE @ 7840.0ft (Original Well Elev)
Project:	North Vega	MD Reference:	KBE @ 7840.0ft (Original Well Elev)
Site:	NENE S24-T9S-R93W (6A Pad)	North Reference:	True
Well:	NVega #19-111	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
2,200.0	11.78	96.52	2,166.1	-39.5	346.2	348.4	0.00	0.00	Surface Casing
2,300.0	11.78	96.52	2,264.0	-41.9	366.5	368.9	0.00	0.00	
2,400.0	11.78	96.52	2,361.9	-44.2	386.8	389.3	0.00	0.00	
2,500.0	11.78	96.52	2,459.8	-46.5	407.1	409.7	0.00	0.00	
2,600.0	11.78	96.52	2,557.7	-48.8	427.3	430.1	0.00	0.00	
2,700.0	11.78	96.52	2,655.6	-51.1	447.6	450.5	0.00	0.00	
2,800.0	11.78	96.52	2,753.5	-53.5	467.9	471.0	0.00	0.00	
2,900.0	11.78	96.52	2,851.4	-55.8	488.2	491.4	0.00	0.00	
3,000.0	11.78	96.52	2,949.3	-58.1	508.5	511.8	0.00	0.00	
3,100.0	11.78	96.52	3,047.2	-60.4	528.8	532.2	0.00	0.00	
3,200.0	11.78	96.52	3,145.1	-62.7	549.1	552.6	0.00	0.00	
3,300.0	11.78	96.52	3,243.0	-65.0	569.3	573.0	0.00	0.00	
3,400.0	11.78	96.52	3,340.9	-67.4	589.6	593.5	0.00	0.00	
3,500.0	11.78	96.52	3,438.7	-69.7	609.9	613.9	0.00	0.00	
3,600.0	11.78	96.52	3,536.6	-72.0	630.2	634.3	0.00	0.00	
3,700.0	11.78	96.52	3,634.5	-74.3	650.5	654.7	0.00	0.00	
3,800.0	11.78	96.52	3,732.4	-76.6	670.8	675.1	0.00	0.00	
3,900.0	11.78	96.52	3,830.3	-78.9	691.1	695.6	0.00	0.00	
4,000.0	11.78	96.52	3,928.2	-81.3	711.4	716.0	0.00	0.00	
4,100.0	11.78	96.52	4,026.1	-83.6	731.6	736.4	0.00	0.00	
4,200.0	11.78	96.52	4,124.0	-85.9	751.9	756.8	0.00	0.00	
4,300.0	11.78	96.52	4,221.9	-88.2	772.2	777.2	0.00	0.00	
4,400.0	11.78	96.52	4,319.8	-90.5	792.5	797.7	0.00	0.00	
4,500.0	11.78	96.52	4,417.7	-92.8	812.8	818.1	0.00	0.00	
4,600.0	11.78	96.52	4,515.6	-95.2	833.1	838.5	0.00	0.00	
4,700.0	11.78	96.52	4,613.5	-97.5	853.4	858.9	0.00	0.00	
4,800.0	11.78	96.52	4,711.4	-99.8	873.6	879.3	0.00	0.00	
4,900.0	11.78	96.52	4,809.2	-102.1	893.9	899.7	0.00	0.00	
5,000.0	11.78	96.52	4,907.1	-104.4	914.2	920.2	0.00	0.00	
5,100.0	11.78	96.52	5,005.0	-106.8	934.5	940.6	0.00	0.00	
5,200.0	11.78	96.52	5,102.9	-109.1	954.8	961.0	0.00	0.00	
5,217.4	11.78	96.52	5,120.0	-109.5	958.3	964.6	0.00	0.00	Ohio Creek
5,300.0	11.78	96.52	5,200.8	-111.4	975.1	981.4	0.00	0.00	
5,400.0	11.78	96.52	5,298.7	-113.7	995.4	1,001.8	0.00	0.00	
5,500.0	11.78	96.52	5,396.6	-116.0	1,015.7	1,022.3	0.00	0.00	
5,600.0	11.78	96.52	5,494.5	-118.3	1,035.9	1,042.7	0.00	0.00	
5,656.7	11.78	96.52	5,550.0	-119.7	1,047.4	1,054.3	0.00	0.00	Williams Fork
5,700.0	11.78	96.52	5,592.4	-120.7	1,056.2	1,063.1	0.00	0.00	
5,800.0	11.78	96.52	5,690.3	-123.0	1,076.5	1,083.5	0.00	0.00	
5,900.0	11.78	96.52	5,788.2	-125.3	1,096.8	1,103.9	0.00	0.00	
5,917.2	11.78	96.52	5,805.0	-125.7	1,100.3	1,107.5	0.00	0.00	Start Drop -2.00
6,000.0	10.13	96.52	5,886.3	-127.5	1,115.9	1,123.2	2.00	-2.00	
6,100.0	8.13	96.52	5,985.0	-129.3	1,131.7	1,139.0	2.00	-2.00	
6,200.0	6.13	96.52	6,084.3	-130.7	1,144.0	1,151.4	2.00	-2.00	
6,300.0	4.13	96.52	6,183.9	-131.7	1,152.9	1,160.4	2.00	-2.00	
6,400.0	2.13	96.52	6,283.7	-132.3	1,158.3	1,165.8	2.00	-2.00	
6,500.0	0.13	96.52	6,383.7	-132.5	1,160.3	1,167.8	2.00	-2.00	
6,506.3	0.00	0.00	6,390.0	-132.5	1,160.3	1,167.8	2.00	-2.00	EOD at Inc. = 0° - TOG - NVega (6A Pad) #19-
6,600.0	0.00	0.00	6,483.7	-132.5	1,160.3	1,167.8	0.00	0.00	
6,700.0	0.00	0.00	6,583.7	-132.5	1,160.3	1,167.8	0.00	0.00	
6,800.0	0.00	0.00	6,683.7	-132.5	1,160.3	1,167.8	0.00	0.00	
6,900.0	0.00	0.00	6,783.7	-132.5	1,160.3	1,167.8	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well NVega #19-111
Company:	Delta Petroleum	TVD Reference:	KBE @ 7840.0ft (Original Well Elev)
Project:	North Vega	MD Reference:	KBE @ 7840.0ft (Original Well Elev)
Site:	NENE S24-T9S-R93W (6A Pad)	North Reference:	True
Well:	NVega #19-111	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
7,000.0	0.00	0.00	6,883.7	-132.5	1,160.3	1,167.8	0.00	0.00	
7,100.0	0.00	0.00	6,983.7	-132.5	1,160.3	1,167.8	0.00	0.00	
7,200.0	0.00	0.00	7,083.7	-132.5	1,160.3	1,167.8	0.00	0.00	
7,300.0	0.00	0.00	7,183.7	-132.5	1,160.3	1,167.8	0.00	0.00	
7,400.0	0.00	0.00	7,283.7	-132.5	1,160.3	1,167.8	0.00	0.00	
7,500.0	0.00	0.00	7,383.7	-132.5	1,160.3	1,167.8	0.00	0.00	
7,600.0	0.00	0.00	7,483.7	-132.5	1,160.3	1,167.8	0.00	0.00	
7,700.0	0.00	0.00	7,583.7	-132.5	1,160.3	1,167.8	0.00	0.00	
7,800.0	0.00	0.00	7,683.7	-132.5	1,160.3	1,167.8	0.00	0.00	
7,900.0	0.00	0.00	7,783.7	-132.5	1,160.3	1,167.8	0.00	0.00	
7,906.3	0.00	0.00	7,790.0	-132.5	1,160.3	1,167.8	0.00	0.00	Cameo
8,000.0	0.00	0.00	7,883.7	-132.5	1,160.3	1,167.8	0.00	0.00	
8,100.0	0.00	0.00	7,983.7	-132.5	1,160.3	1,167.8	0.00	0.00	
8,166.3	0.00	0.00	8,050.0	-132.5	1,160.3	1,167.8	0.00	0.00	Rollins
8,200.0	0.00	0.00	8,083.7	-132.5	1,160.3	1,167.8	0.00	0.00	
8,300.0	0.00	0.00	8,183.7	-132.5	1,160.3	1,167.8	0.00	0.00	
8,400.0	0.00	0.00	8,283.7	-132.5	1,160.3	1,167.8	0.00	0.00	
8,466.3	0.00	0.00	8,350.0	-132.5	1,160.3	1,167.8	0.00	0.00	TD at 8466' MD - NVega (6A Pad) #19-111 BHI

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
NVega (6A Pad) #19-11 - plan hits target center - Point	0.00	0.00	8,350.0	-132.5	1,160.3	1,528,828.31	2,373,815.49	39.264428	-107.711894
NVega (6A Pad) #19-11 - plan hits target center - Point	0.00	0.00	6,390.0	-132.5	1,160.3	1,528,828.31	2,373,815.49	39.264428	-107.711894

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
2,200.0	2,166.1	Surface Casing	5.500	6.000

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
5,217.4	5,120.0	Ohio Creek		0.00	
5,656.7	5,550.0	Williams Fork		0.00	
6,506.3	6,390.0	TOG		0.00	
7,906.3	7,790.0	Cameo		0.00	
8,166.3	8,050.0	Rollins		0.00	

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well NVega #19-111
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Project:	North Vega	MD Reference:	KBE @ 7840.0ft (Original Well Elev)
Site:	NENE S24-T9S-R93W (6A Pad)	North Reference:	True
Well:	NVega #19-111	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
200.0	200.0	0.0	0.0	KOP = 200' MD
789.1	785.0	-6.9	60.0	EOB at Inc. = 11.78°
5,917.2	5,805.0	-125.7	1,100.3	Start Drop -2.00
6,506.3	6,390.0	-132.5	1,160.3	EOD at Inc. = 0°
8,466.3	8,350.0	-132.5	1,160.3	TD at 8466' MD