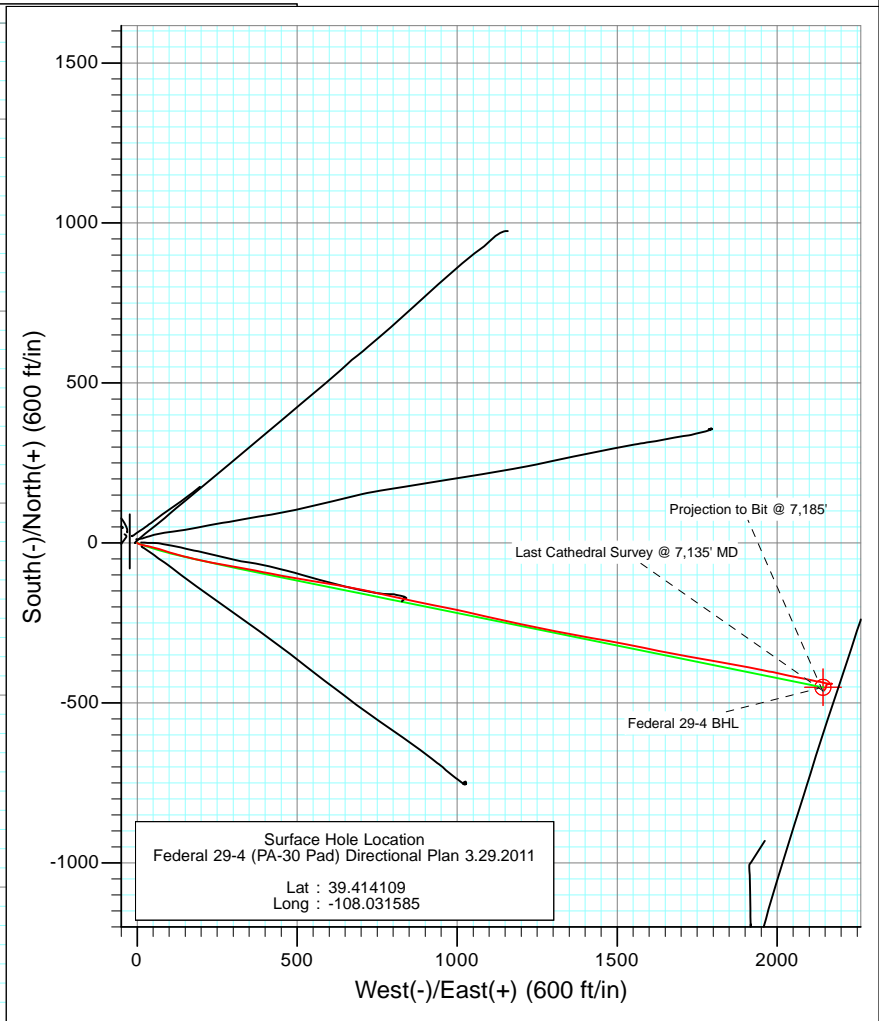
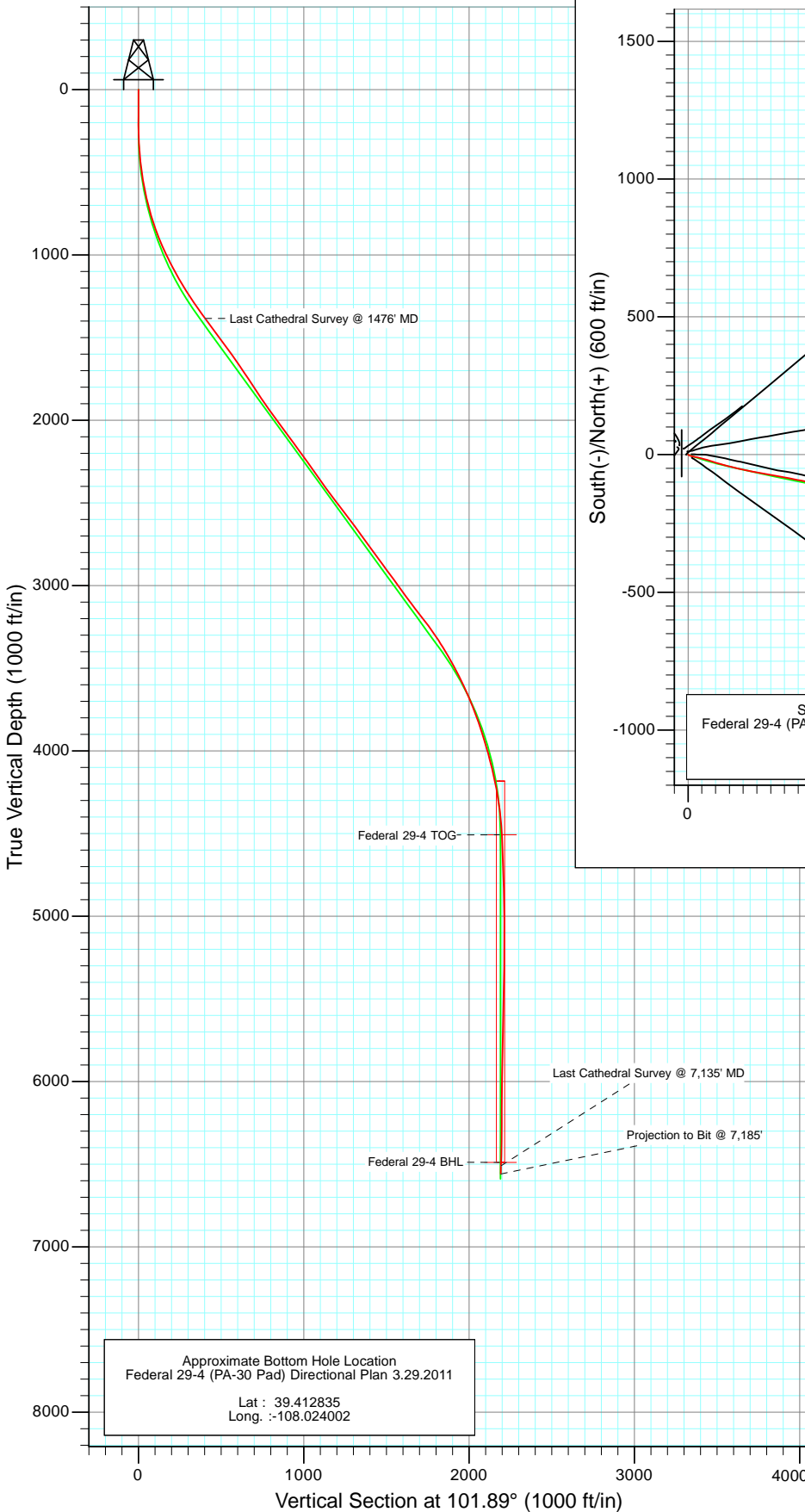




Project: S. Piceance (Parachute)
 Site: SESE 19-7S-95W (PA-30 Pad)
 Well: Federal 29-4 (PA-30 Pad) Directional Plan 3.29.2011
 Wellbore: DD
 Design: FINAL



Azimuths to True North
 Magnetic North: 10.32°

Magnetic Field
 Strength: 52174.4snT
 Dip Angle: 65.66°
 Date: 9/23/2011
 Model: IGRF2010

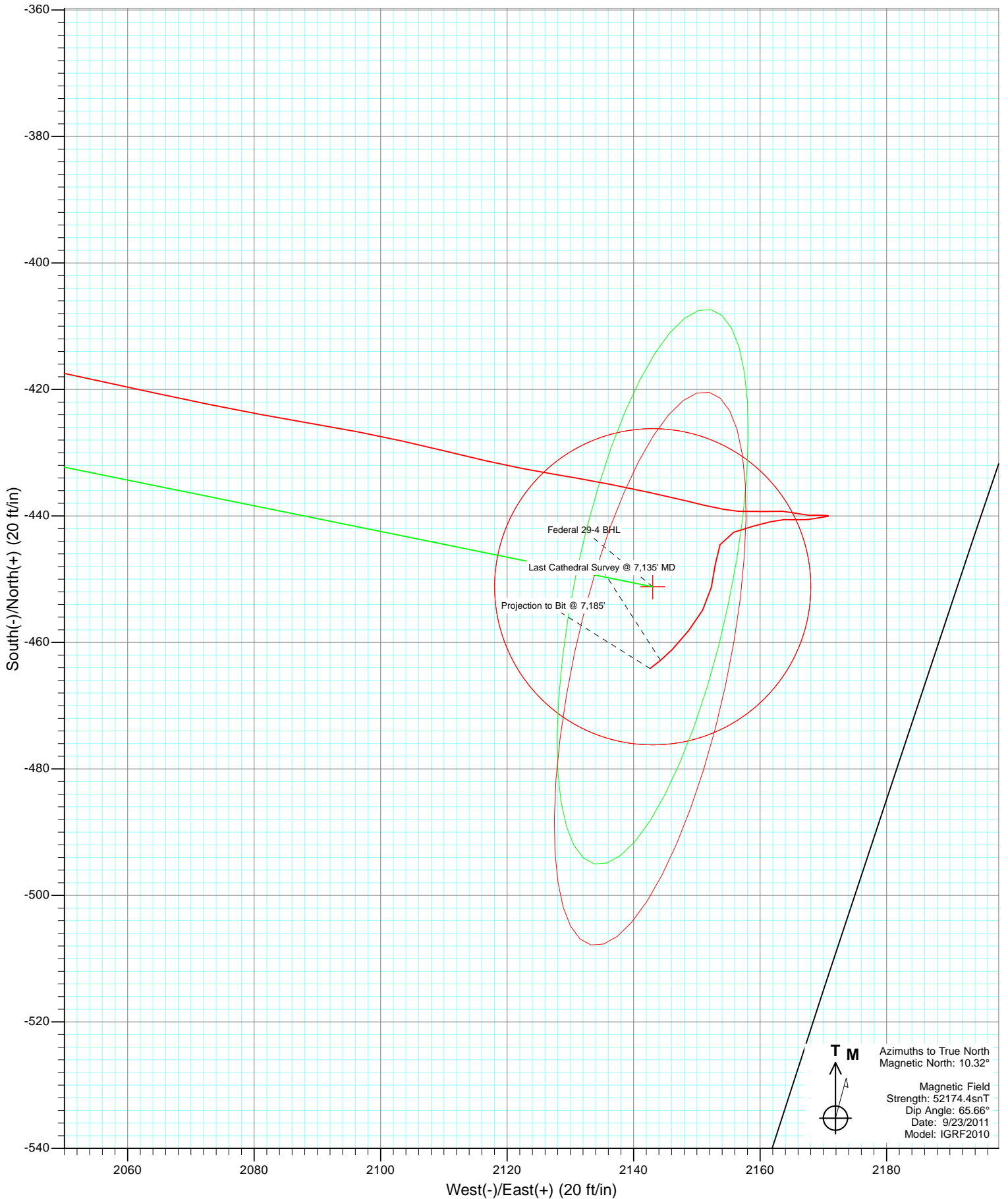
DESIGN DETAILS: DD

Job #1115403: KR
 WELL @ 5827.0ft (Original Well Elev)

Target	Azimuth	Origin	N/S	E/W	From TVD
Federal 29-4 BHL	101.89	Slot	0.0	0.0	0.0

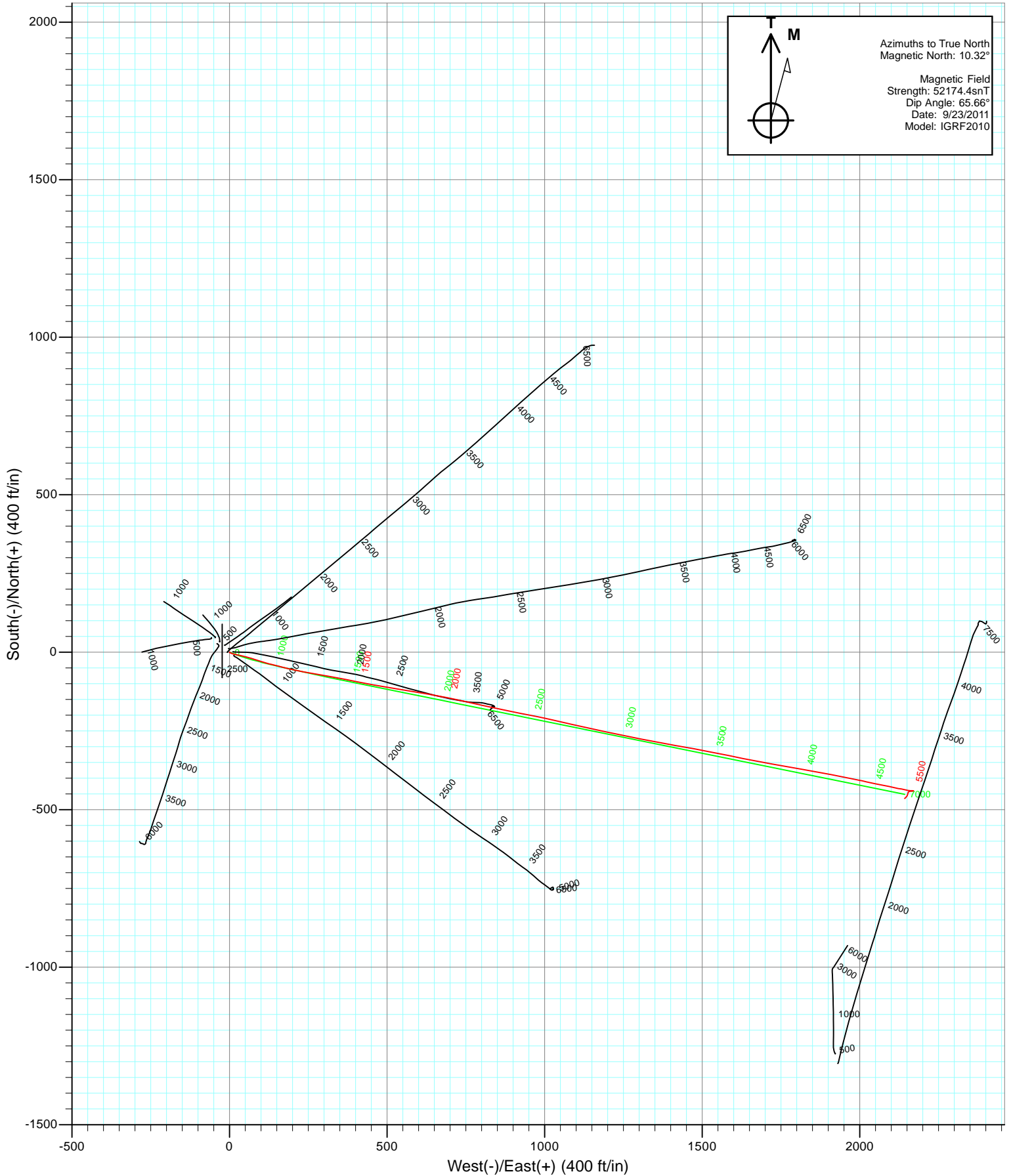


Project: S. Piceance (Parachute)
Site: SESE 19-7S-95W (PA-30 Pad)
Well: Federal 29-4 (PA-30 Pad) Directional Plan 3.29.2011
Wellbore: DD
Design: FINAL





Project: S. Piceance (Parachute)
Site: SESE 19-7S-95W (PA-30 Pad)
Federal 29-4 (PA-30 Pad) Directional Plan 3.29.2011
Wellbore: DD
Design: FINAL



Cathedral Energy Services

Survey Report

Company: EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference: Well Federal 29-4 (PA-30 Pad) Directional Plan 3.
Project: S. Piceance (Parachute)	TVD Reference: WELL @ 5827.0ft (Original Well Elev)
Site: SESE 19-7S-95W (PA-30 Pad)	MD Reference: WELL @ 5827.0ft (Original Well Elev)
Well: Federal 29-4 (PA-30 Pad) Directional Plan	North Reference: True
Wellbore: DD 9.2011	Survey Calculation Method: Minimum Curvature
Design: DD	Database: USA EDM 5000 Multi Users DB

Project S. Piceance (Parachute), Garfield County, CO		
Map System: US State Plane 1983	System Datum: Mean Sea Level	
Geo Datum: North American Datum 1983		
Map Zone: Colorado Central Zone		

Site SESE 19-7S-95W (PA-30 Pad)				
Site Position:	Northing: 1,585,669.17 ft	Latitude: 39.414060		
From: Lat/Long	Easting: 2,284,869.32 ft	Longitude: -108.031520		
Position Uncertainty: 0.0 ft	Slot Radius: 13.200 in	Grid Convergence: -1.60 °		

Well Federal 29-4 (PA-30 Pad) Directional Plan 3.29.2011				
Well Position	+N/-S 0.0 ft	Northing: 1,585,687.52 ft	Latitude: 39.414109	
	+E/-W 0.0 ft	Easting: 2,284,851.46 ft	Longitude: -108.031585	
Position Uncertainty	0.0 ft	Wellhead Elevation: ft	Ground Level: 5,805.0 ft	

Wellbore DD					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	9/23/2011	10.32	65.66	52,174

Design DD				
Audit Notes:				
Version: 1.0	Phase: ACTUAL	Tie On Depth: 0.0		
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	101.89

Survey Program		Date 10/18/2011		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
96.0	1,476.0	Survey #1 (DD)	MWD	Geolink MWD
1,544.0	7,185.0	Survey #2 (DD)	MWD	Geolink MWD

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
96.0	0.30	55.40	96.0	0.1	0.2	0.2	0.31	0.31	
127.0	0.30	23.00	127.0	0.3	0.3	0.2	0.54	0.00	
158.0	0.60	256.10	158.0	0.3	0.2	0.1	2.63	0.97	
188.0	1.00	159.50	188.0	0.0	0.1	0.1	4.08	1.33	
218.0	1.00	160.30	218.0	-0.5	0.3	0.4	0.05	0.00	
250.0	2.20	116.80	250.0	-1.0	0.9	1.1	5.09	3.75	
280.0	2.10	105.40	280.0	-1.4	2.0	2.2	1.46	-0.33	
311.0	2.40	125.50	310.9	-1.9	3.1	3.4	2.71	0.97	
402.0	5.00	109.00	401.7	-4.3	8.4	9.1	3.06	2.86	
495.0	7.60	100.80	494.2	-6.8	18.2	19.3	2.95	2.80	
587.0	11.60	103.30	584.9	-10.1	33.2	34.6	4.37	4.35	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Federal 29-4 (PA-30 Pad) Directional Plan 3.
Project:	S. Piceance (Parachute)	TVD Reference:	WELL @ 5827.0ft (Original Well Elev)
Site:	SESE 19-7S-95W (PA-30 Pad)	MD Reference:	WELL @ 5827.0ft (Original Well Elev)
Well:	Federal 29-4 (PA-30 Pad) Directional Plan	North Reference:	True
Wellbore:	DD9.2011	Survey Calculation Method:	Minimum Curvature
Design:	DD	Database:	USA EDM 5000 Multi Users DB

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
679.0	13.40	103.30	674.7	-14.7	52.6	54.5	1.96	1.96	
771.0	16.20	108.80	763.6	-21.3	75.1	77.9	3.40	3.04	
863.0	20.00	106.70	851.1	-29.9	102.4	106.3	4.19	4.13	
956.0	23.40	104.70	937.5	-39.2	135.5	140.6	3.74	3.66	
1,050.0	26.50	103.20	1,022.7	-48.7	173.9	180.2	3.37	3.30	
1,145.0	28.80	102.30	1,106.8	-58.4	216.9	224.3	2.46	2.42	
1,241.0	31.20	100.10	1,190.0	-67.7	264.0	272.3	2.75	2.50	
1,336.0	33.80	99.50	1,270.1	-76.4	314.3	323.3	2.76	2.74	
1,431.0	35.60	101.50	1,348.2	-86.3	367.5	377.4	2.24	1.89	
1,476.0	36.30	101.30	1,384.6	-91.5	393.4	403.8	1.58	1.56	Last Cathedral Survey @ 1476' MD
1,544.0	37.30	100.10	1,439.1	-99.0	433.4	444.5	1.81	1.47	
1,640.0	35.70	100.60	1,516.2	-109.3	489.6	501.6	1.70	-1.67	
1,735.0	35.90	98.80	1,593.3	-118.7	544.4	557.1	1.13	0.21	
1,831.0	34.60	98.90	1,671.7	-127.2	599.1	612.4	1.36	-1.35	
1,927.0	33.40	101.70	1,751.3	-136.8	651.9	666.1	2.05	-1.25	
2,023.0	33.90	101.00	1,831.2	-147.2	704.1	719.3	0.66	0.52	
2,116.0	34.40	103.00	1,908.1	-158.1	755.1	771.5	1.32	0.54	
2,212.0	36.60	102.40	1,986.3	-170.3	809.5	827.2	2.32	2.29	
2,307.0	35.80	101.60	2,063.0	-182.0	864.4	883.3	0.98	-0.84	
2,403.0	36.90	101.40	2,140.3	-193.3	920.1	940.2	1.15	1.15	
2,498.0	35.70	100.90	2,216.8	-204.2	975.3	996.5	1.30	-1.26	
2,593.0	34.90	103.10	2,294.4	-215.6	1,029.0	1,051.3	1.58	-0.84	
2,689.0	36.10	102.90	2,372.5	-228.2	1,083.3	1,107.1	1.26	1.25	
2,785.0	36.40	102.60	2,449.9	-240.7	1,138.7	1,163.8	0.36	0.31	
2,880.0	37.40	101.60	2,525.9	-252.6	1,194.5	1,220.9	1.23	1.05	
2,975.0	37.20	101.60	2,601.5	-264.2	1,250.8	1,278.4	0.21	-0.21	
3,071.0	35.90	101.30	2,678.6	-275.6	1,306.9	1,335.6	1.37	-1.35	
3,166.0	36.50	100.90	2,755.3	-286.4	1,361.9	1,391.7	0.68	0.63	
3,262.0	35.60	99.80	2,832.9	-296.5	1,417.5	1,448.2	1.15	-0.94	
3,357.0	36.90	100.40	2,909.5	-306.4	1,472.8	1,504.3	1.42	1.37	
3,453.0	35.90	101.00	2,986.8	-316.9	1,528.8	1,561.3	1.11	-1.04	
3,549.0	35.90	101.60	3,064.5	-328.0	1,584.0	1,617.6	0.37	0.00	
3,644.0	37.90	101.00	3,140.5	-339.1	1,639.9	1,674.6	2.14	2.11	
3,739.0	37.80	100.40	3,215.5	-350.0	1,697.2	1,732.9	0.40	-0.11	
3,835.0	34.60	100.90	3,293.0	-360.4	1,752.9	1,789.6	3.35	-3.33	
3,930.0	31.50	100.10	3,372.6	-369.9	1,803.8	1,841.4	3.30	-3.26	
4,026.0	29.30	99.40	3,455.4	-378.1	1,851.7	1,889.9	2.32	-2.29	
4,121.0	27.20	100.10	3,539.0	-385.7	1,896.0	1,934.8	2.24	-2.21	
4,217.0	24.40	102.30	3,625.5	-393.8	1,937.0	1,976.6	3.08	-2.92	
4,312.0	22.50	100.90	3,712.6	-401.4	1,974.0	2,014.4	2.08	-2.00	
4,408.0	19.70	102.30	3,802.2	-408.3	2,007.9	2,048.9	2.96	-2.92	
4,503.0	17.30	102.10	3,892.3	-414.7	2,037.4	2,079.1	2.53	-2.53	
4,599.0	16.20	102.30	3,984.2	-420.6	2,064.4	2,106.8	1.15	-1.15	
4,694.0	14.20	99.60	4,075.9	-425.3	2,088.8	2,131.7	2.23	-2.11	
4,790.0	12.20	104.00	4,169.3	-429.8	2,110.3	2,153.6	2.33	-2.08	
4,885.0	9.60	99.40	4,262.6	-433.5	2,127.8	2,171.5	2.88	-2.74	
4,980.0	7.50	102.50	4,356.5	-436.1	2,141.7	2,185.6	2.26	-2.21	
5,076.0	4.20	103.80	4,452.0	-438.3	2,151.2	2,195.4	3.44	-3.44	
5,171.0	2.40	93.60	4,546.9	-439.3	2,156.6	2,200.8	1.99	-1.89	
5,266.0	2.30	87.00	4,641.8	-439.3	2,160.5	2,204.7	0.30	-0.11	
5,361.0	1.40	93.20	4,736.7	-439.2	2,163.6	2,207.6	0.97	-0.95	
5,457.0	1.30	104.50	4,832.7	-439.6	2,165.8	2,209.9	0.30	-0.10	
5,553.0	1.00	92.30	4,928.7	-439.9	2,167.7	2,211.8	0.40	-0.31	

Cathedral Energy Services

Survey Report

Company: EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference: Well Federal 29-4 (PA-30 Pad) Directional Plan 3.
Project: S. Piceance (Parachute)	TVD Reference: WELL @ 5827.0ft (Original Well Elev)
Site: SESE 19-7S-95W (PA-30 Pad)	MD Reference: WELL @ 5827.0ft (Original Well Elev)
Well: Federal 29-4 (PA-30 Pad) Directional Plan	North Reference: True
Wellbore: DD9.2011	Survey Calculation Method: Minimum Curvature
Design: DD	Database: USA EDM 5000 Multi Users DB

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
5,648.0	1.00	86.40	5,023.7	-439.9	2,169.3	2,213.4	0.11	0.00	
5,743.0	0.70	100.30	5,118.7	-439.9	2,170.7	2,214.8	0.38	-0.32	
5,838.0	0.60	270.10	5,213.7	-440.0	2,170.8	2,214.9	1.36	-0.11	
5,933.0	0.90	253.80	5,308.7	-440.2	2,169.6	2,213.8	0.38	0.32	
6,029.0	1.50	265.70	5,404.6	-440.5	2,167.6	2,211.9	0.67	0.63	
6,124.0	0.90	274.00	5,499.6	-440.6	2,165.6	2,209.9	0.66	-0.63	
6,220.0	1.30	267.80	5,595.6	-440.6	2,163.8	2,208.1	0.43	0.42	
6,315.0	1.40	254.80	5,690.6	-440.9	2,161.6	2,206.1	0.34	0.11	
6,411.0	1.80	256.20	5,786.5	-441.6	2,159.0	2,203.7	0.42	0.42	
6,506.0	2.20	249.90	5,881.5	-442.6	2,155.8	2,200.8	0.48	0.42	
6,601.0	1.70	199.10	5,976.4	-444.5	2,153.7	2,199.0	1.82	-0.53	
6,697.0	2.10	188.80	6,072.4	-447.6	2,152.9	2,199.0	0.55	0.42	
6,792.0	2.40	191.10	6,167.3	-451.3	2,152.3	2,199.1	0.33	0.32	
6,887.0	2.30	210.30	6,262.2	-454.9	2,150.9	2,198.5	0.83	-0.11	
6,983.0	2.40	218.40	6,358.1	-458.1	2,148.7	2,197.0	0.36	0.10	
7,078.0	2.50	223.70	6,453.1	-461.2	2,146.0	2,195.0	0.26	0.11	
7,135.0	2.40	231.50	6,510.0	-462.8	2,144.3	2,193.6	0.61	-0.18	Last Cathedral Survey @ 7,135' MD
7,185.0	2.40	231.50	6,560.0	-464.1	2,142.6	2,192.3	0.00	0.00	Projection to Bit @ 7,185'

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Federal 29-4 BHL - hit/miss target - Shape	0.00	0.00	6,489.0	-451.2	2,143.0	1,585,176.80	2,286,981.08	39.412870	-108.024000
- actual wellpath misses target center by 11.2ft at 7113.7ft MD (6488.7 TVD, -462.2 N, 2144.9 E)									
- Circle (radius 25.0)									
Federal 29-4 TOG - hit/miss target - Shape	0.00	0.00	4,507.0	-451.2	2,143.0	1,585,176.80	2,286,981.08	39.412870	-108.024000
- actual wellpath misses target center by 16.8ft at 5130.5ft MD (4506.5 TVD, -439.0 N, 2154.7 E)									
- Point									

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
1,476.0	1,384.6	-91.5	393.4	Last Cathedral Survey @ 1476' MD	
7,135.0	6,510.0	-462.8	2,144.3	Last Cathedral Survey @ 7,135' MD	
7,185.0	6,560.0	-464.1	2,142.6	Projection to Bit @ 7,185'	

Checked By: _____ Approved By: _____ Date: _____