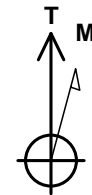
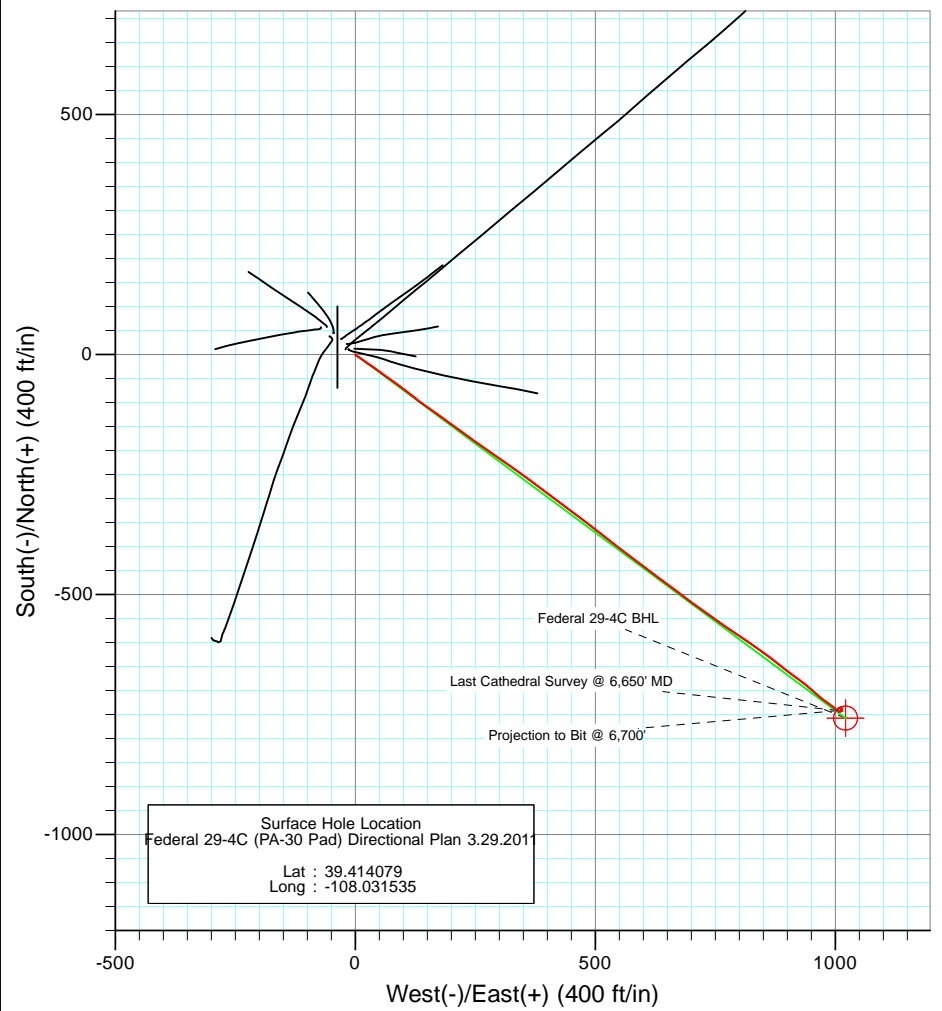
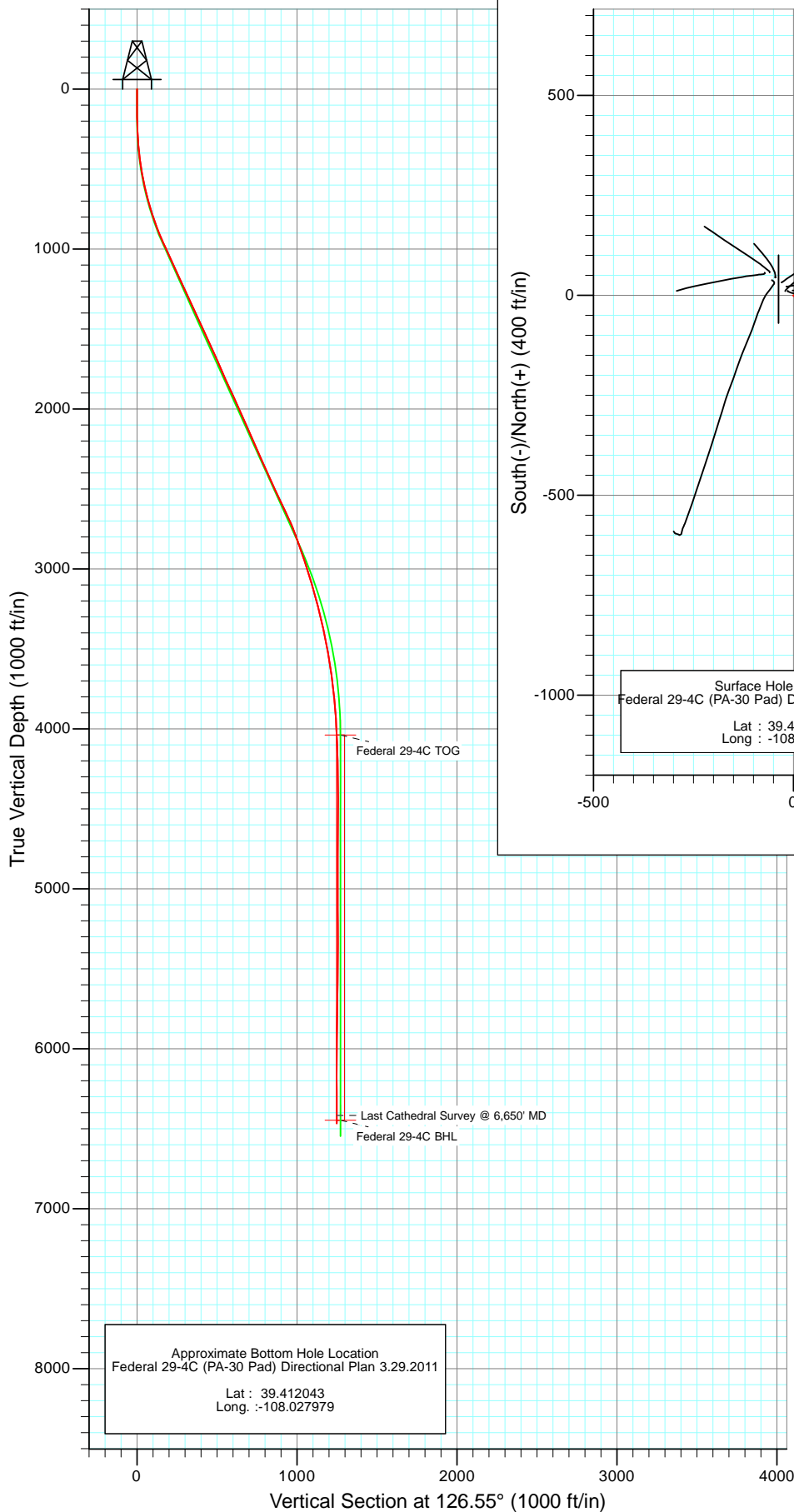




Project: S. Piceance (Parachute)
 Site: SESE 19-7S-95W (PA-30 Pad)
 Well: Federal 29-4C (PA-30 Pad) Directional Plan 3.29.2011
 Wellbore: DD
 Design: FINAL



Azimuths to True North
 Magnetic North: 10.38°

Magnetic Field
 Strength: 52223.6snT
 Dip Angle: 65.67°
 Date: 3/29/2011
 Model: IGRF2010

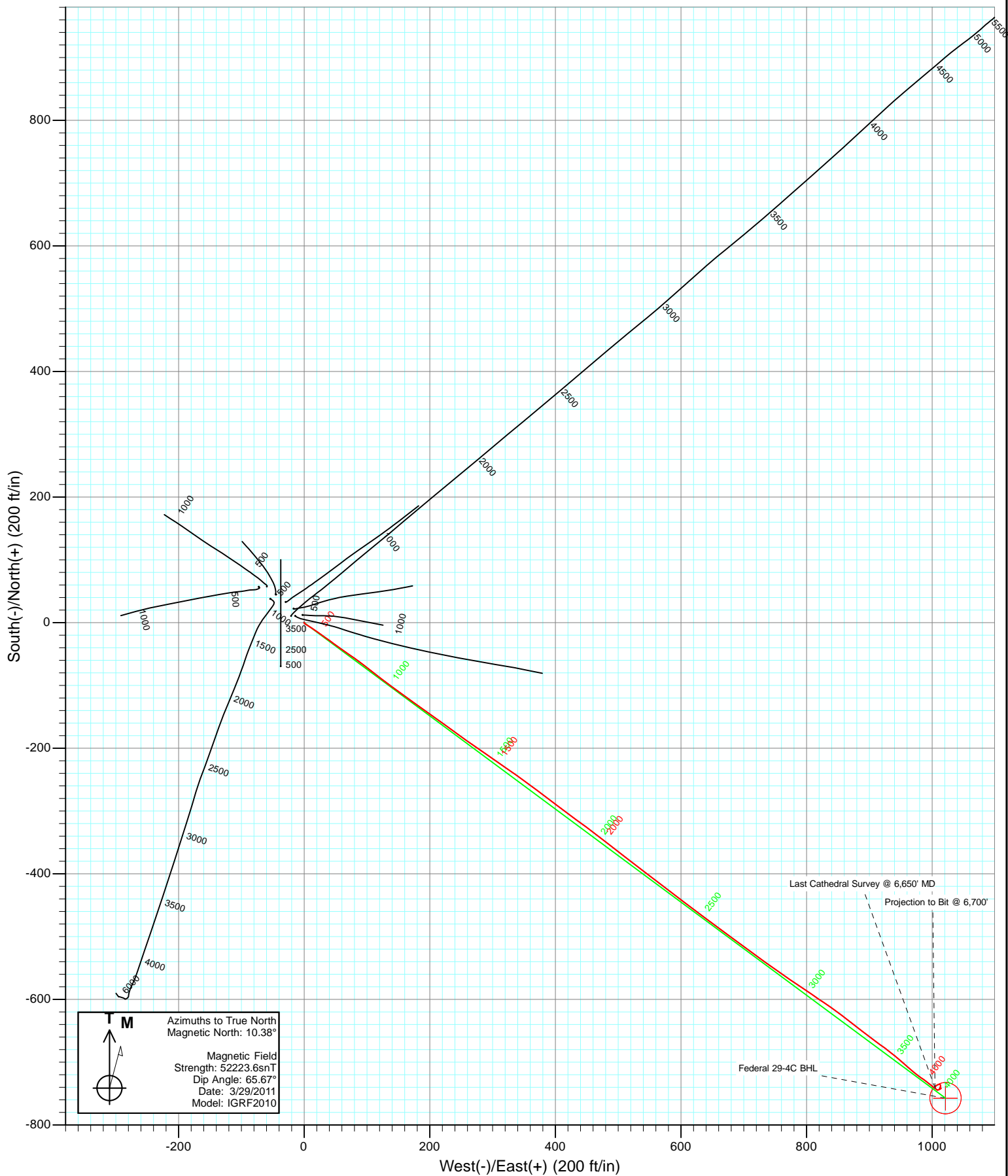
DESIGN DETAILS: DD

115385/109355 (SH_TD); SC
 WELL @ 5827.0ft (Original Well Elev)

Target	Azimuth	Origin	N/S	E/W	From TVD
Federal 29-4C BHL	126.55	Slot	0.0	0.0	0.0

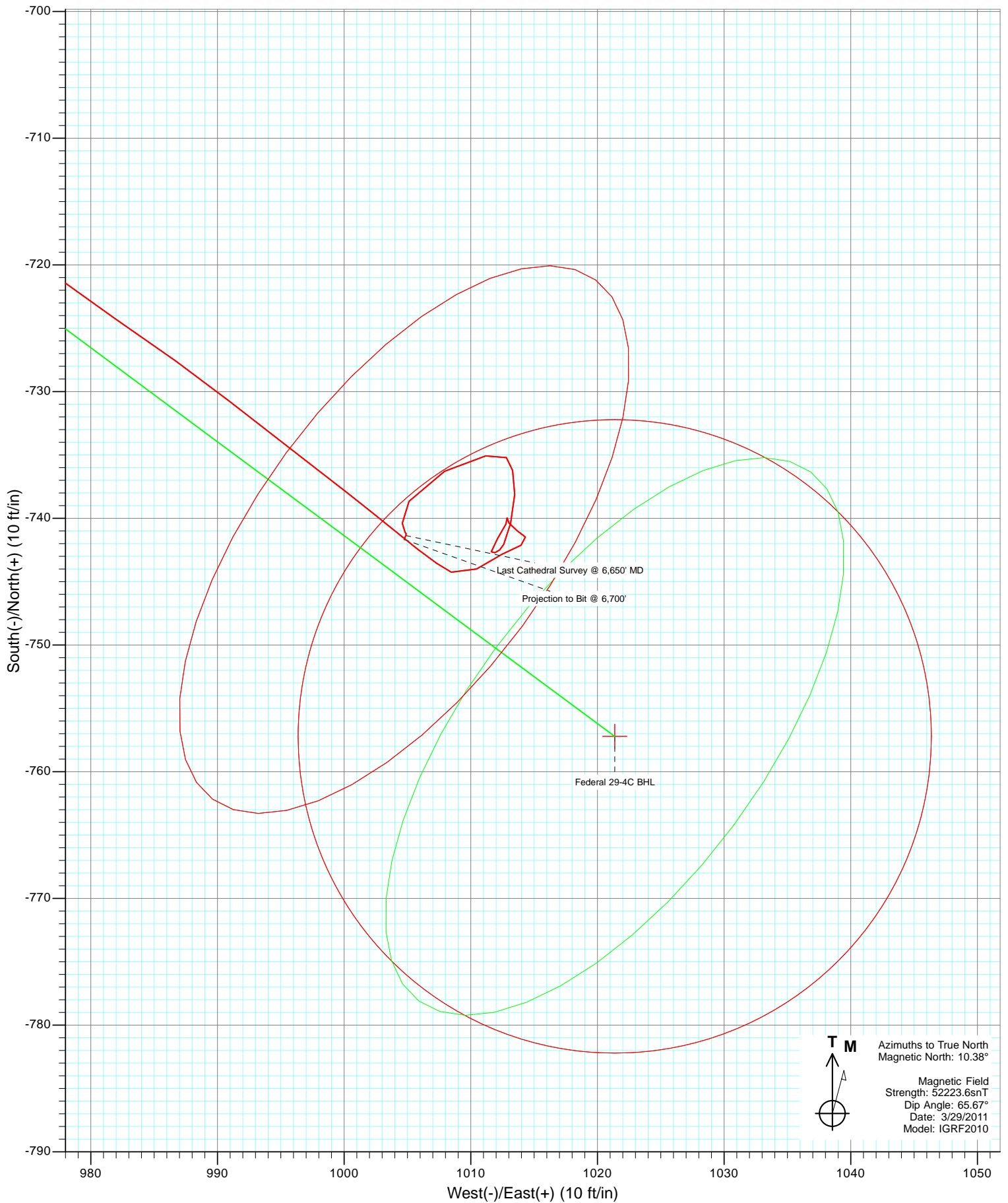


Project: S. Piceance (Parachute)
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Well: Federal 29-4C (PA-30 Pad) Directional Plan 3.29.2011
Wellbore: DD
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Project: S. Piceance (Parachute)
Site: SESE 19-7S-95W (PA-30 Pad)
Well: Federal 29-4C (PA-30 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 29-4C (PA-30 Pad) Directional Plan
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 29-4C (PA-30 Pad) Directional Plan	North Reference:	True
Wellbore:	DD 3.29.2011	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 29-4C (PA-30 Pad) Directional Plan 3.29.2011			
Well Position	+N/-S	0.0 ft	Northing:	1,585,676.20 ft
	+E/-W	0.0 ft	Easting:	2,284,865.28 ft
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	3/29/2011	10.39	65.67	52,224

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	126.55

Survey Program	Date	10/3/2011		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
127.0	6,700.0	Survey #1 (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	
127.0	0.30	182.80	127.0	-0.3	0.0	0.2	0.24	0.24	
173.0	0.60	87.40	173.0	-0.4	0.2	0.4	1.51	0.65	
219.0	1.50	138.90	219.0	-0.9	0.9	1.2	2.65	1.96	
265.0	2.50	132.90	265.0	-2.0	2.0	2.8	2.22	2.17	
311.0	4.20	119.50	310.9	-3.5	4.2	5.5	4.04	3.70	
402.0	6.10	123.90	401.5	-7.9	11.1	13.6	2.13	2.09	
495.0	8.80	124.60	493.7	-14.7	21.1	25.7	2.90	2.90	
587.0	11.90	125.30	584.2	-24.1	34.6	42.2	3.37	3.37	
679.0	14.50	126.60	673.8	-36.5	51.6	63.2	2.84	2.83	
771.0	17.60	124.10	762.2	-51.2	72.4	88.6	3.45	3.37	
863.0	20.30	127.70	849.2	-68.7	96.5	118.5	3.20	2.93	
956.0	23.10	128.00	935.6	-89.8	123.7	152.8	3.01	3.01	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Federal 29-4C (PA-30 Pad) Directional Plan
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 29-4C (PA-30 Pad) Directional Plan	North Reference:	True
Wellbore:	DDG.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
1,043.0	24.90	125.30	1,015.1	-110.9	152.1	188.2	2.42	2.07	
1,163.0	24.50	125.60	1,124.1	-140.0	192.9	238.3	0.35	-0.33	
1,259.0	25.50	126.40	1,211.1	-163.9	225.7	278.9	1.10	1.04	
1,353.0	24.80	125.50	1,296.2	-187.3	258.1	318.9	0.85	-0.74	
1,449.0	24.00	124.10	1,383.6	-209.9	290.6	358.5	1.03	-0.83	
1,544.0	24.50	125.40	1,470.2	-232.2	322.7	397.5	0.77	0.53	
1,639.0	24.90	125.30	1,556.5	-255.2	355.0	437.2	0.42	0.42	
1,735.0	24.70	128.10	1,643.7	-279.2	387.3	477.4	1.24	-0.21	
1,831.0	23.70	125.80	1,731.2	-302.9	418.8	516.8	1.43	-1.04	
1,926.0	23.70	127.10	1,818.2	-325.6	449.5	555.0	0.55	0.00	
2,022.0	24.90	127.70	1,905.7	-349.6	480.9	594.5	1.28	1.25	
2,116.0	24.20	128.00	1,991.2	-373.5	511.7	633.5	0.76	-0.74	
2,211.0	24.30	127.10	2,077.8	-397.3	542.6	672.5	0.40	0.11	
2,306.0	23.90	127.90	2,164.6	-420.9	573.4	711.3	0.54	-0.42	
2,402.0	23.50	126.90	2,252.5	-444.4	604.1	749.9	0.59	-0.42	
2,497.0	23.70	126.60	2,339.5	-467.1	634.5	787.9	0.25	0.21	
2,593.0	24.10	126.50	2,427.3	-490.3	665.8	826.8	0.42	0.42	
2,688.0	25.30	126.70	2,513.6	-513.9	697.6	866.5	1.27	1.26	
2,784.0	25.80	125.90	2,600.2	-538.5	731.0	907.9	0.63	0.52	
2,880.0	24.70	124.20	2,687.0	-562.0	764.5	948.8	1.37	-1.15	
2,975.0	20.10	123.80	2,774.8	-582.2	794.5	985.0	4.84	-4.84	
3,070.0	19.00	125.40	2,864.4	-600.3	820.7	1,016.8	1.29	-1.16	
3,166.0	18.80	124.60	2,955.2	-618.1	846.2	1,047.9	0.34	-0.21	
3,262.0	17.40	128.40	3,046.4	-635.8	870.2	1,077.7	1.91	-1.46	
3,357.0	15.50	128.80	3,137.6	-652.6	891.2	1,104.5	2.00	-2.00	
3,453.0	15.00	125.10	3,230.2	-667.8	911.3	1,129.8	1.14	-0.52	
3,548.0	13.00	127.50	3,322.4	-681.3	929.9	1,152.8	2.19	-2.11	
3,643.0	11.00	130.80	3,415.3	-693.8	945.2	1,172.5	2.22	-2.11	
3,739.0	10.50	131.40	3,509.6	-705.5	958.7	1,190.3	0.53	-0.52	
3,834.0	8.90	129.50	3,603.2	-715.9	970.9	1,206.3	1.72	-1.68	
3,930.0	7.60	124.00	3,698.2	-724.2	981.9	1,220.1	1.58	-1.35	
4,025.0	5.90	128.10	3,792.6	-730.7	990.9	1,231.2	1.86	-1.79	
4,121.0	4.40	127.50	3,888.2	-736.0	997.7	1,239.8	1.56	-1.56	
4,216.0	2.70	129.10	3,983.0	-739.7	1,002.4	1,245.7	1.79	-1.79	
4,312.0	2.60	128.50	4,078.9	-742.4	1,005.8	1,250.1	0.11	-0.10	
4,407.0	1.30	116.10	4,173.8	-744.2	1,008.5	1,253.4	1.43	-1.37	
4,503.0	1.50	54.40	4,269.8	-744.0	1,010.5	1,254.8	1.51	0.21	
4,598.0	1.30	66.20	4,364.8	-742.8	1,012.5	1,255.7	0.37	-0.21	
4,694.0	0.70	62.10	4,460.8	-742.1	1,014.0	1,256.5	0.63	-0.62	
4,789.0	0.50	334.10	4,555.8	-741.5	1,014.3	1,256.4	0.89	-0.21	
4,885.0	0.60	285.90	4,651.8	-741.0	1,013.6	1,255.6	0.48	0.10	
4,980.0	0.60	342.50	4,746.8	-740.4	1,013.0	1,254.7	0.60	0.00	
5,075.0	0.10	173.00	4,841.8	-740.0	1,012.9	1,254.3	0.74	-0.53	
5,170.0	0.50	194.40	4,936.8	-740.4	1,012.8	1,254.6	0.43	0.42	
5,266.0	1.10	217.20	5,032.7	-741.6	1,012.1	1,254.7	0.70	0.62	
5,361.0	0.40	170.30	5,127.7	-742.6	1,011.6	1,254.9	0.92	-0.74	
5,457.0	0.40	41.50	5,223.7	-742.7	1,011.9	1,255.2	0.75	0.00	
5,552.0	0.20	100.30	5,318.7	-742.5	1,012.3	1,255.4	0.36	-0.21	
5,647.0	0.60	17.80	5,413.7	-742.1	1,012.6	1,255.4	0.64	0.42	
5,743.0	1.50	17.80	5,509.7	-740.4	1,013.1	1,254.8	0.94	0.94	
5,838.0	1.30	357.70	5,604.7	-738.1	1,013.5	1,253.7	0.55	-0.21	
5,933.0	1.00	351.10	5,699.7	-736.2	1,013.3	1,252.5	0.34	-0.32	
6,028.0	0.50	298.10	5,794.7	-735.2	1,012.8	1,251.5	0.85	-0.53	

Cathedral Energy Services

Survey Report

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Site:	SESE 19-7S-95W (PA-30 Pad)	MD Reference:	WELL @ 5827.0ft (Original Well Elev)
Well:	Federal 29-4C (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

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
6,124.0	1.50	267.30	5,890.6	-735.1	1,011.2	1,250.1	1.15	1.04	
6,219.0	2.80	240.20	5,985.6	-736.3	1,007.9	1,248.2	1.70	1.37	
6,315.0	1.70	212.40	6,081.5	-738.7	1,005.1	1,247.3	1.58	-1.15	
6,410.0	0.70	158.40	6,176.5	-740.4	1,004.6	1,247.9	1.48	-1.05	
6,505.0	0.20	176.20	6,271.5	-741.1	1,004.8	1,248.5	0.54	-0.53	
6,601.0	0.10	61.60	6,367.5	-741.2	1,004.9	1,248.7	0.27	-0.10	
6,650.0	0.40	202.10	6,416.5	-741.4	1,004.9	1,248.7	0.98	0.61	Last Cathedral Survey @ 6,650' MD
6,700.0	0.40	202.10	6,466.5	-741.7	1,004.7	1,248.8	0.00	0.00	Projection to Bit @ 6,700'

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
Federal 29-4C TOG	0.00	0.00	4,038.0	-757.2	1,021.4	1,584,890.83	2,285,865.16	39.412000	-108.027920
- survey misses target center by 23.3ft at 4272.1ft MD (4039.1 TVD, -741.3 N, 1004.4 E)									
- Point									
Federal 29-4C BHL	0.00	0.00	6,446.0	-757.2	1,021.4	1,584,890.83	2,285,865.16	39.412000	-108.027920
- survey misses target center by 22.8ft at 6679.6ft MD (6446.1 TVD, -741.5 N, 1004.8 E)									
- Circle (radius 25.0)									

Survey Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
6,650.0	6,416.5	-741.4	1,004.9	Last Cathedral Survey @ 6,650' MD
6,700.0	6,466.5	-741.7	1,004.7	Projection to Bit @ 6,700'

Checked By: _____ Approved By: _____ Date: _____