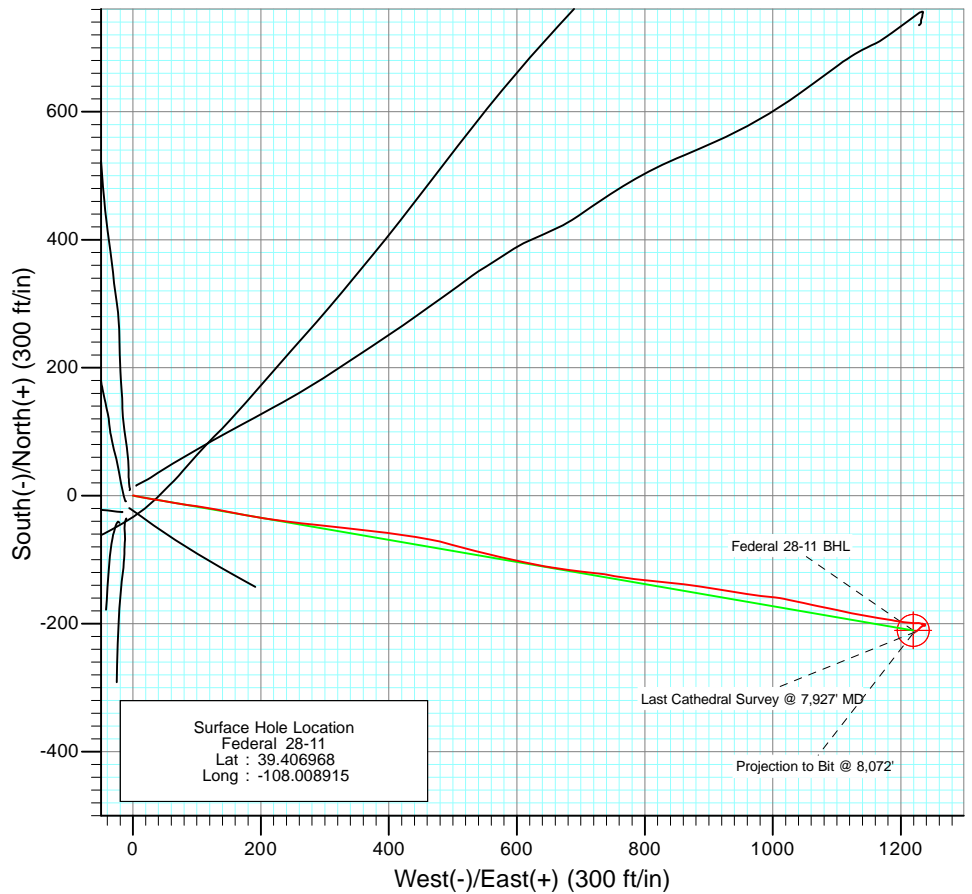
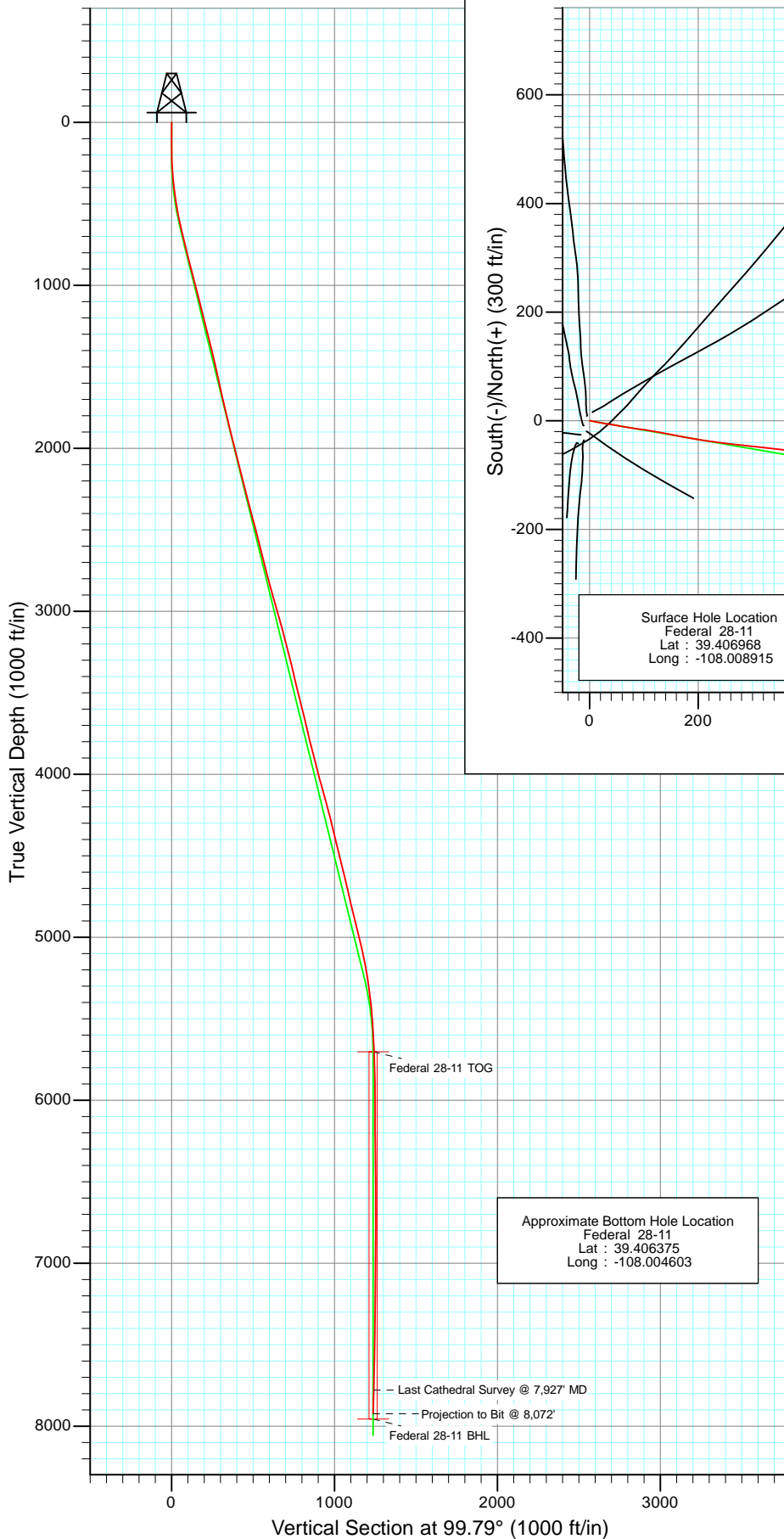




Project: S. Piceance (Parachute)
 Site: PL 28 Pad (S28-T7S-R95W)
 Well: Federal 28-11
 Wellbore: DD
 Design: FINAL



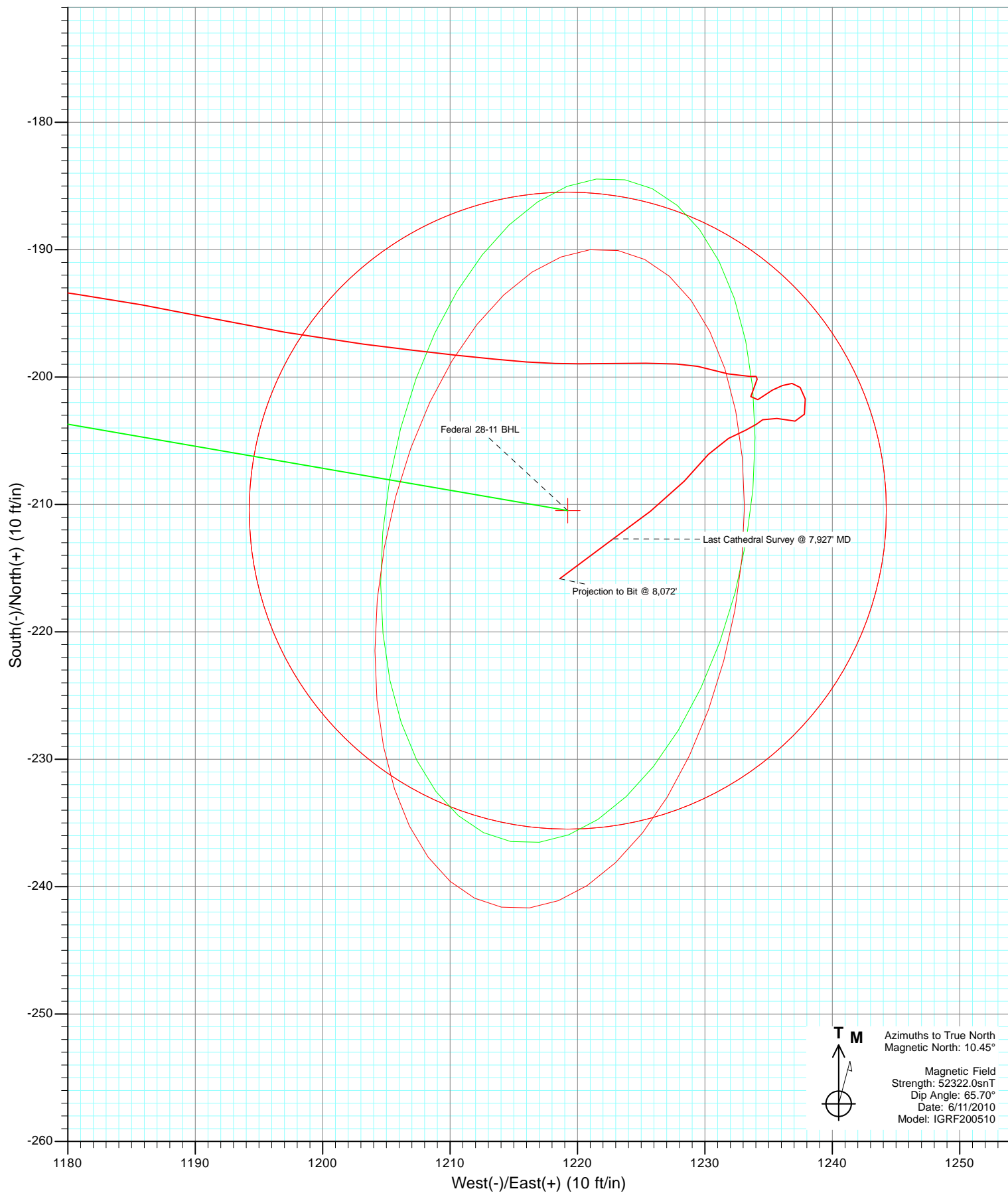
Azimuths to True North
 Magnetic North: 10.45°

Magnetic Field
 Strength: 52322.0snT
 Dip Angle: 65.70°
 Date: 6/11/2010
 Model: IGRF200510

DD Federal 28-11 115433/114855 (SH): 115499/115255 (MH): SC					
WELL @ 7186.0ft (Original Well Elev) North American Datum 1983 Well Federal 28-11, True North					
Target Federal 28-11 BHL	Azimuth 99.790	Origin Type Slot	N/S 99.790	E/W 0.0	From TVD 0.0
Name Federal 28-11 TOG	TVD 5702.0	+N/-S -210.5	+E/-W 1219.2	Latitude 39.406390	Longitude -108.004600
Federal 28-11 BHL	7956.0	-210.5	1219.2	39.406390	-108.004600

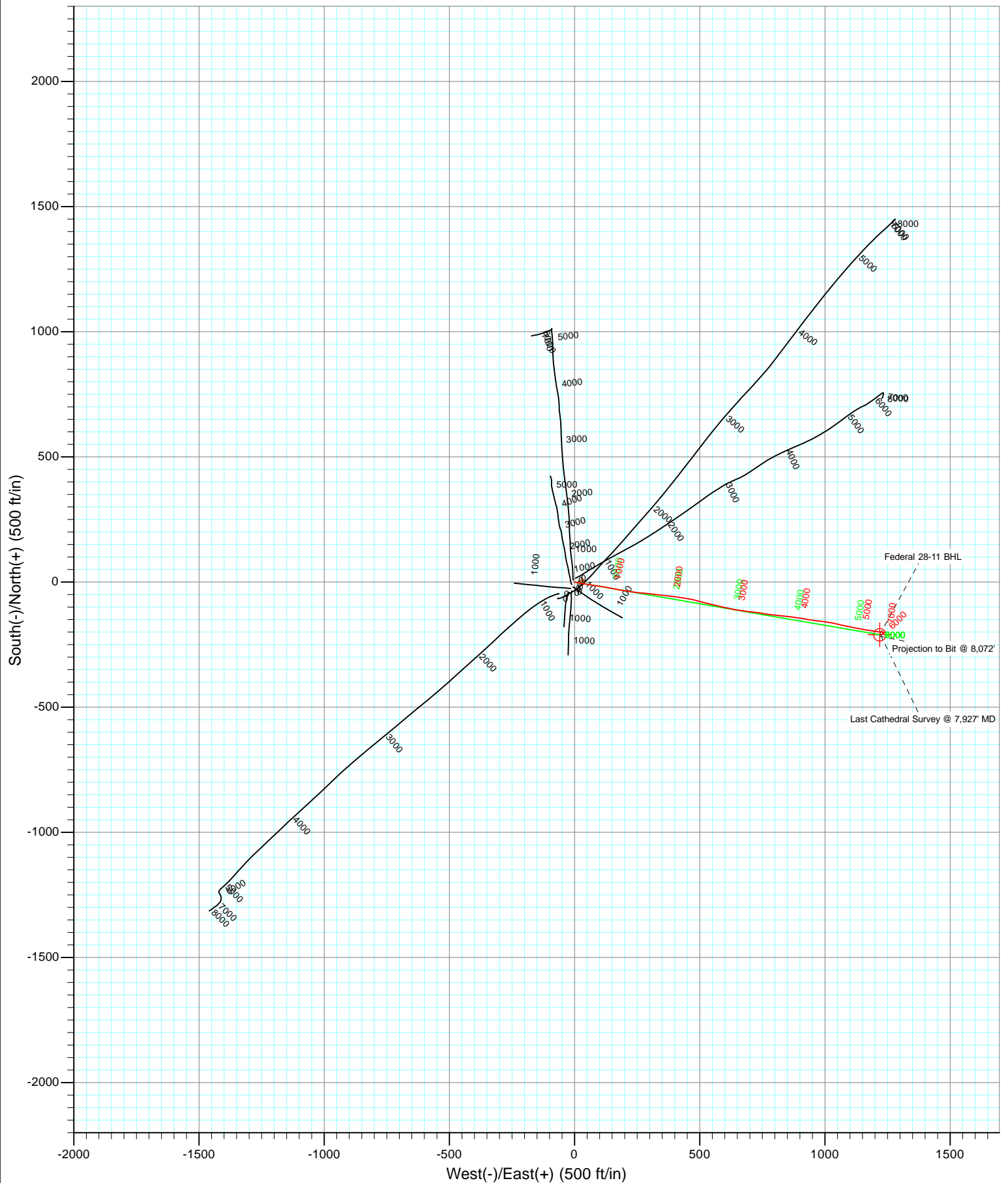


Project: S. Piceance (Parachute)
Site: PL 28 Pad (S28-T7S-R95W)
Well: Federal 28-11
Wellbore: DD
Design: FINAL





Project: S. Piceance (Parachute)
Site: PL 28 Pad (S28-T7S-R95W)
Well: Federal 28-11
Wellbore: DD
Design: FINAL



Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Federal 28-11
Project:	S. Piceance (Parachute)	TVD Reference:	WELL @ 7186.0ft (Original Well Elev)
Site:	PL 28 Pad (S28-T7S-R95W)	MD Reference:	WELL @ 7186.0ft (Original Well Elev)
Well:	Federal 28-11	North Reference:	True
Wellbore:	DD	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		PL 28 Pad (S28-T7S-R95W)			
Site Position:		Northing:	1,582,914.36 ft	Latitude:	39.406980
From:	Lat/Long	Easting:	2,291,178.00 ft	Longitude:	-108.008930
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.58 °

Well		Federal 28-11				
Well Position	+N/-S	0.0 ft	Northing:	1,582,909.86 ft	Latitude:	39.406968
	+E/-W	0.0 ft	Easting:	2,291,182.11 ft	Longitude:	-108.008915
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	7,164.0 ft

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	6/11/2010	10.45	65.70	52,322

Design	DD				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(ft)	(ft)	(ft)	(°)	
	0.0	0.0	0.0	99.79	

Survey Program	Date	11/22/2011			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
125.0	1,210.0	Survey #1 (DD)	MWD	Geolink MWD	
1,325.0	8,072.0	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		
125.0	0.40	72.80	125.0	0.1	0.4	0.4	0.32	0.32		
156.0	0.60	79.90	156.0	0.2	0.7	0.6	0.67	0.65		
187.0	1.10	97.70	187.0	0.2	1.1	1.1	1.81	1.61		
217.0	1.80	100.30	217.0	0.1	1.9	1.8	2.34	2.33		
248.0	2.50	101.80	248.0	-0.2	3.0	3.0	2.27	2.26		
278.0	3.50	102.90	277.9	-0.5	4.6	4.6	3.34	3.33		
309.0	4.30	101.80	308.8	-1.0	6.6	6.7	2.59	2.58		
340.0	5.10	101.70	339.7	-1.5	9.1	9.2	2.58	2.58		
371.0	5.80	100.60	370.6	-2.0	12.0	12.2	2.28	2.26		
402.0	6.50	99.80	401.4	-2.6	15.3	15.5	2.27	2.26		
495.0	9.10	100.30	493.6	-4.8	27.7	28.1	2.80	2.80		

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Federal 28-11
Project:	S. Piceance (Parachute)	TVD Reference:	WELL @ 7186.0ft (Original Well Elev)
Site:	PL 28 Pad (S28-T7S-R95W)	MD Reference:	WELL @ 7186.0ft (Original Well Elev)
Well:	Federal 28-11	North Reference:	True
Wellbore:	DD	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
586.0	11.30	99.90	583.1	-7.7	43.6	44.2	2.42	2.42	
678.0	13.30	99.70	673.0	-11.0	62.9	63.8	2.17	2.17	
770.0	14.50	99.10	762.3	-14.6	84.7	85.9	1.31	1.30	
862.0	14.70	97.20	851.3	-17.9	107.6	109.1	0.56	0.22	
953.0	13.90	100.70	939.5	-21.4	129.8	131.6	1.29	-0.88	
1,045.0	13.40	102.00	1,028.9	-25.6	151.1	153.3	0.64	-0.54	
1,136.0	14.40	100.00	1,117.2	-29.8	172.6	175.1	1.22	1.10	
1,210.0	15.10	99.50	1,188.8	-33.0	191.1	194.0	0.96	0.95	Last Cathedral Survey @ 1,210' MD
1,325.0	13.75	98.45	1,300.2	-37.5	219.4	222.6	1.20	-1.17	
1,420.0	13.58	97.66	1,392.5	-40.6	241.6	245.0	0.27	-0.18	
1,516.0	13.18	96.26	1,485.9	-43.3	263.7	267.2	0.54	-0.42	
1,611.0	13.01	95.20	1,578.4	-45.4	285.1	288.7	0.31	-0.18	
1,707.0	12.35	96.70	1,672.1	-47.6	306.1	309.7	0.77	-0.69	
1,801.0	12.79	96.43	1,763.8	-50.0	326.4	330.1	0.47	0.47	
1,897.0	13.62	96.17	1,857.3	-52.4	348.2	352.0	0.87	0.86	
1,991.0	13.97	97.31	1,948.6	-55.0	370.4	374.4	0.47	0.37	
2,086.0	14.81	96.43	2,040.6	-57.8	393.9	398.0	0.91	0.88	
2,181.0	14.06	97.58	2,132.6	-60.7	417.4	421.6	0.85	-0.79	
2,276.0	14.72	100.30	2,224.6	-64.4	440.7	445.2	0.99	0.69	
2,372.0	13.80	99.42	2,317.7	-68.4	464.0	468.9	0.98	-0.96	
2,467.0	15.51	105.13	2,409.6	-73.6	487.4	492.9	2.35	1.80	
2,562.0	14.55	104.26	2,501.3	-79.9	511.3	517.4	1.04	-1.01	
2,657.0	14.24	106.19	2,593.3	-86.1	534.1	540.9	0.60	-0.33	
2,753.0	13.80	101.97	2,686.5	-91.7	556.6	564.1	1.16	-0.46	
2,848.0	15.03	103.38	2,778.5	-96.9	579.7	587.7	1.35	1.29	
2,943.0	15.86	101.71	2,870.0	-102.4	604.4	613.0	0.99	0.87	
3,039.0	15.38	102.23	2,962.5	-107.8	629.6	638.8	0.52	-0.50	
3,134.0	15.95	98.01	3,054.0	-112.3	654.9	664.4	1.34	0.60	
3,229.0	14.94	97.75	3,145.5	-115.7	679.9	689.7	1.07	-1.06	
3,325.0	13.97	97.22	3,238.5	-118.9	703.7	713.7	1.02	-1.01	
3,419.0	13.58	95.99	3,329.8	-121.4	725.9	736.0	0.52	-0.41	
3,515.0	13.32	101.97	3,423.2	-124.9	748.0	758.3	1.47	-0.27	
3,610.0	14.11	95.64	3,515.5	-128.3	770.2	780.8	1.78	0.83	
3,705.0	14.41	97.22	3,607.5	-130.9	793.4	804.2	0.52	0.32	
3,800.0	12.79	97.05	3,699.9	-133.7	815.6	826.5	1.71	-1.71	
3,896.0	14.02	94.24	3,793.3	-135.9	837.8	848.7	1.45	1.28	
3,991.0	14.63	97.22	3,885.3	-138.2	861.1	872.1	1.01	0.64	
4,086.0	14.19	99.42	3,977.3	-141.6	884.5	895.7	0.74	-0.46	
4,181.0	15.69	98.45	4,069.1	-145.4	908.7	920.2	1.60	1.58	
4,277.0	15.21	99.42	4,161.6	-149.4	934.0	945.8	0.57	-0.50	
4,372.0	14.50	98.89	4,253.5	-153.3	958.0	970.1	0.76	-0.75	
4,468.0	13.93	97.22	4,346.5	-156.6	981.4	993.7	0.73	-0.59	
4,563.0	13.05	95.64	4,438.9	-159.1	1,003.4	1,015.8	1.00	-0.93	
4,658.0	14.11	103.29	4,531.2	-162.8	1,025.3	1,038.1	2.19	1.12	
4,754.0	14.06	101.79	4,624.4	-167.9	1,048.1	1,061.4	0.38	-0.05	
4,849.0	12.96	102.94	4,716.7	-172.6	1,069.8	1,083.6	1.19	-1.16	
4,944.0	13.01	100.12	4,809.3	-176.9	1,090.7	1,104.9	0.67	0.05	
5,040.0	13.89	103.20	4,902.7	-181.4	1,112.6	1,127.2	1.18	0.92	
5,136.0	13.84	99.77	4,995.9	-186.0	1,135.1	1,150.2	0.86	-0.05	
5,231.0	12.83	100.30	5,088.3	-189.8	1,156.7	1,172.1	1.07	-1.06	
5,326.0	10.20	97.31	5,181.4	-192.8	1,175.4	1,191.1	2.84	-2.77	
5,421.0	8.31	101.79	5,275.2	-195.2	1,190.5	1,206.3	2.13	-1.99	
5,517.0	7.16	97.31	5,370.3	-197.4	1,203.2	1,219.2	1.35	-1.20	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Federal 28-11
Project:	S. Piceance (Parachute)	TVD Reference:	WELL @ 7186.0ft (Original Well Elev)
Site:	PL 28 Pad (S28-T7S-R95W)	MD Reference:	WELL @ 7186.0ft (Original Well Elev)
Well:	Federal 28-11	North Reference:	True
Wellbore:	DD	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
5,613.0	5.10	95.55	5,465.7	-198.6	1,213.4	1,229.5	2.15	-2.15	
5,708.0	3.08	89.14	5,560.5	-199.0	1,220.1	1,236.2	2.18	-2.13	
5,802.0	3.30	89.84	5,654.3	-198.9	1,225.4	1,241.3	0.24	0.23	
5,897.0	1.63	100.67	5,749.2	-199.2	1,229.4	1,245.4	1.82	-1.76	
5,993.0	1.32	107.59	5,845.2	-199.7	1,231.8	1,247.9	0.37	-0.32	
6,088.0	0.83	79.47	5,940.2	-199.9	1,233.5	1,249.6	0.74	-0.52	
6,183.0	0.44	199.26	6,035.2	-200.2	1,234.1	1,250.2	1.17	-0.41	
6,306.0	0.92	200.41	6,158.2	-201.5	1,233.6	1,249.9	0.39	0.39	
6,402.0	1.14	59.17	6,254.2	-201.8	1,234.2	1,250.5	2.03	0.23	
6,497.0	0.53	52.14	6,349.2	-201.0	1,235.3	1,251.5	0.65	-0.64	
6,592.0	0.53	79.65	6,444.2	-200.7	1,236.1	1,252.2	0.27	0.00	
6,687.0	0.40	74.20	6,539.2	-200.5	1,236.8	1,252.9	0.14	-0.14	
6,783.0	0.62	142.05	6,635.2	-200.8	1,237.5	1,253.6	0.62	0.23	
6,878.0	0.62	170.44	6,730.2	-201.7	1,237.9	1,254.2	0.32	0.00	
6,974.0	0.83	193.20	6,826.1	-202.9	1,237.8	1,254.3	0.37	0.22	
7,070.0	0.70	283.90	6,922.1	-203.5	1,237.1	1,253.7	1.14	-0.14	
7,165.0	1.05	274.50	7,017.1	-203.2	1,235.7	1,252.2	0.40	0.37	
7,260.0	0.35	236.18	7,112.1	-203.3	1,234.5	1,251.1	0.85	-0.74	
7,355.0	0.40	232.58	7,207.1	-203.7	1,234.0	1,250.7	0.06	0.05	
7,450.0	0.75	245.06	7,302.1	-204.2	1,233.2	1,250.0	0.39	0.37	
7,546.0	1.05	244.09	7,398.1	-204.8	1,231.9	1,248.7	0.31	0.31	
7,641.0	1.41	222.38	7,493.1	-206.1	1,230.3	1,247.4	0.61	0.38	
7,737.0	1.98	221.50	7,589.0	-208.2	1,228.4	1,245.9	0.59	0.59	
7,832.0	2.33	234.07	7,684.0	-210.5	1,225.7	1,243.7	0.62	0.37	
7,927.0	2.07	233.19	7,778.9	-212.7	1,222.8	1,241.2	0.28	-0.27	Last Cathedral Survey @ 7,927' MD
8,072.0	2.07	233.19	7,923.8	-215.8	1,218.6	1,237.6	0.00	0.00	Projection to Bit @ 8,072'

Targets									
Target Name	- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	
- Shape									Latitude Longitude
Federal 28-11 TOG		0.00	0.00	5,702.0	-210.5	1,219.2	1,582,665.79	2,292,395.08	39.406390 -108.004600
- actual wellpath misses target center by 14.3ft at 5849.4ft MD (5701.7 TVD, -199.0 N, 1227.7 E)									
- Point									
Federal 28-11 BHL		0.00	0.00	7,956.0	-210.5	1,219.2	1,582,665.79	2,292,395.08	39.406390 -108.004600
- actual wellpath misses target center by 32.6ft at 8072.0ft MD (7923.8 TVD, -215.8 N, 1218.6 E)									
- Circle (radius 25.0)									

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
1,210.0	1,188.8	-33.0	191.1	Last Cathedral Survey @ 1,210' MD	
7,927.0	7,778.9	-212.7	1,222.8	Last Cathedral Survey @ 7,927' MD	
8,072.0	7,923.8	-215.8	1,218.6	Projection to Bit @ 8,072'	

Checked By: _____	Approved By: _____	Date: _____
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