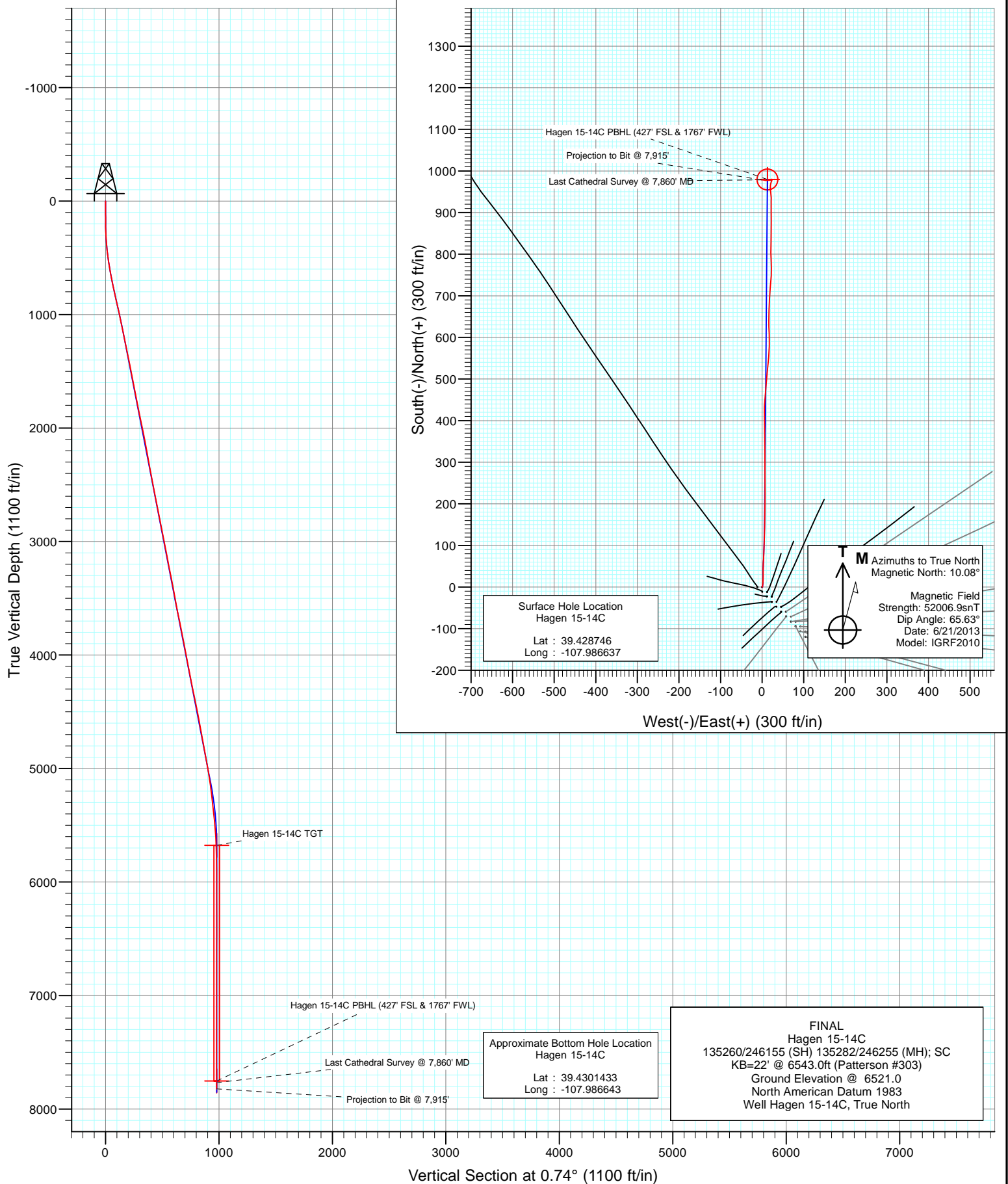


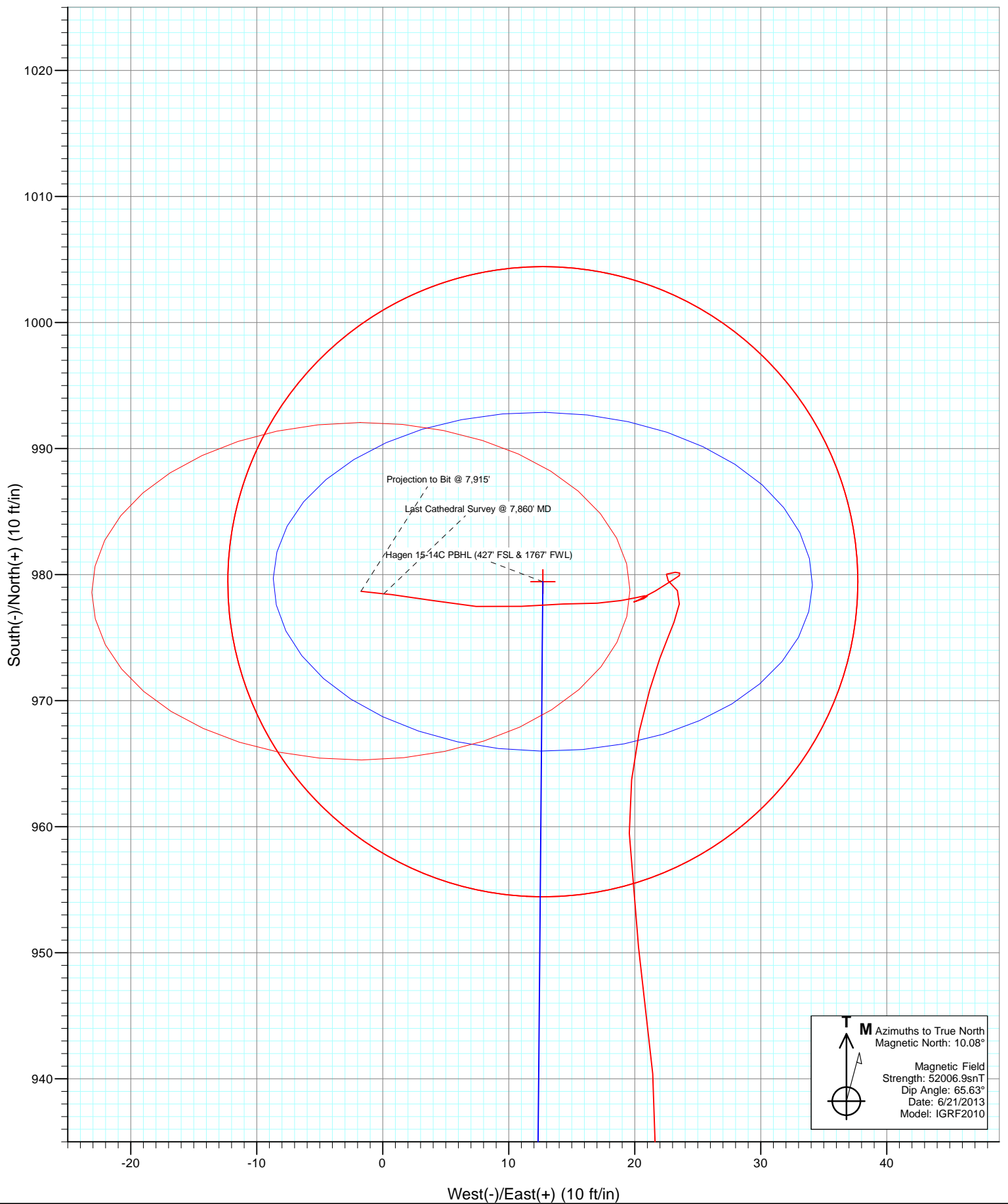


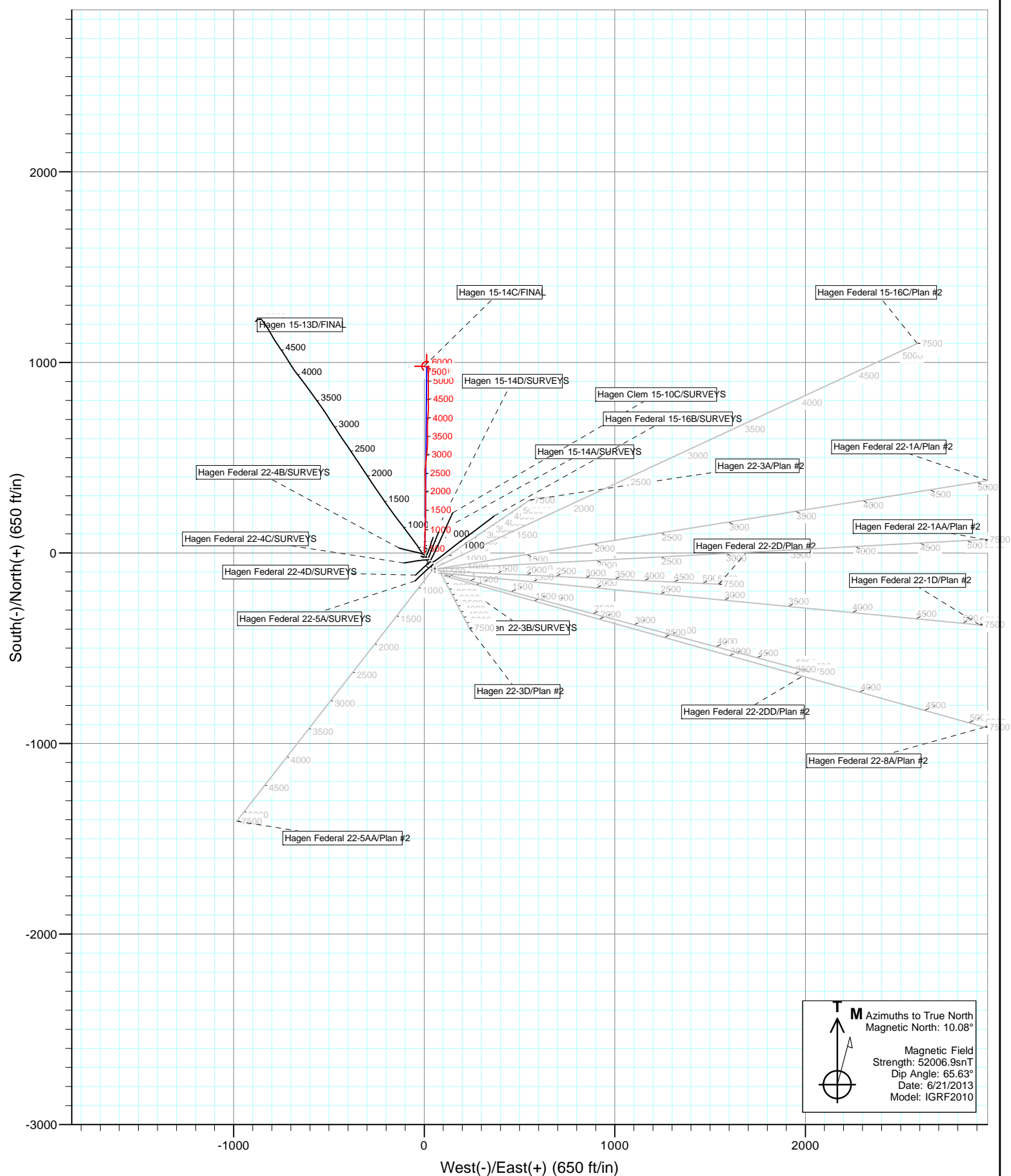
Project: S. Piceance (Parachute)
Site: PC-22 Pad NENW 2 7S 95W
Well: Hagen 15-14C
Wellbore: OH
Design: FINAL





Project: S. Piceance (Parachute)
Site: PC-22 Pad NENW 2 7S 95W
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Wellbore: OH
Design: FINAL





Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Hagen 15-14C
Project:	S. Piceance (Parachute)	TVD Reference:	KB=22' @ 6543.0ft (Patterson #303)
Site:	PC-22 Pad NENW 2 7S 95W	MD Reference:	KB=22' @ 6543.0ft (Patterson #303)
Well:	Hagen 15-14C	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	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	PC-22 Pad NENW 2 7S 95W			
Site Position:		Northing:	1,590,596.09 ft	Latitude: 39.428560
From:	Lat/Long	Easting:	2,297,773.66 ft	Longitude: -107.986340
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence: -1.57 °

Well	Hagen 15-14C			
Well Position	+N/-S	0.0 ft	Northing:	1,590,666.09 ft
	+E/-W	0.0 ft	Easting:	2,297,691.66 ft
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft	Ground Level: 6,521.0 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/21/2013	10.08	65.63	52,007

Design	FINAL			
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	0.74

Survey Program	Date	6/27/2013			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
113.0	235.0	Survey #1 (OH)	Geolink MWD	Geolink MWD	
265.0	633.0	Survey #2 (OH)	Gyro	Gyro	
664.0	1,000.0	Survey #3 (OH)	Geolink MWD	Geolink MWD	
1,071.0	7,915.0	Survey #4 (OH)	Geolink 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	
113.0	0.40	44.50	113.0	0.3	0.3	0.3	0.35	0.35	
143.0	0.50	35.00	143.0	0.5	0.4	0.5	0.41	0.33	
174.0	0.40	27.00	174.0	0.7	0.6	0.7	0.38	-0.32	
204.0	0.50	36.40	204.0	0.9	0.7	0.9	0.41	0.33	
235.0	1.20	12.90	235.0	1.3	0.8	1.3	2.48	2.26	
265.0	1.64	13.87	265.0	2.0	1.0	2.0	1.47	1.47	
296.0	2.46	10.09	296.0	3.1	1.2	3.1	2.68	2.65	
326.0	3.18	8.31	325.9	4.6	1.5	4.6	2.42	2.40	
357.0	4.00	5.61	356.9	6.5	1.7	6.5	2.70	2.65	

Cathedral Energy Services

Survey Report

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Site:	PC-22 Pad NENW 2 7S 95W	MD Reference:	KB=22' @ 6543.0ft (Patterson #303)
Well:	Hagen 15-14C	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	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
398.0	5.12	2.77	397.7	9.7	1.9	9.8	2.79	2.73	
419.0	5.55	3.08	418.6	11.7	2.0	11.7	2.05	2.05	
450.0	6.00	0.50	449.5	14.8	2.1	14.8	1.68	1.45	
480.0	7.00	0.60	479.3	18.2	2.1	18.2	3.33	3.33	
511.0	8.10	0.50	510.0	22.3	2.2	22.3	3.55	3.55	
542.0	8.90	0.30	540.7	26.9	2.2	26.9	2.58	2.58	
572.0	9.90	1.50	570.3	31.8	2.3	31.8	3.40	3.33	
603.0	10.40	2.40	600.8	37.2	2.5	37.2	1.69	1.61	
633.0	10.60	359.94	630.3	42.7	2.6	42.7	1.64	0.67	
664.0	11.27	2.19	660.7	48.6	2.7	48.6	2.56	2.16	
756.0	12.20	2.30	750.8	67.3	3.4	67.3	1.01	1.01	
848.0	12.20	2.40	840.7	86.7	4.2	86.7	0.02	0.00	
939.0	12.50	1.60	929.6	106.1	4.9	106.2	0.38	0.33	
1,000.0	12.20	1.00	989.2	119.2	5.2	119.2	0.53	-0.49	Last Cathedral Survey @ 1,000' MD
1,071.0	11.80	1.40	1,058.7	133.9	5.5	134.0	0.58	-0.56	
1,162.0	11.80	2.80	1,147.7	152.5	6.2	152.6	0.31	0.00	
1,254.0	12.00	2.30	1,237.8	171.5	7.0	171.6	0.24	0.22	
1,345.0	11.20	358.20	1,326.9	189.8	7.1	189.8	1.26	-0.88	
1,436.0	11.40	359.90	1,416.1	207.6	6.9	207.7	0.43	0.22	
1,528.0	11.30	0.40	1,506.3	225.7	6.9	225.8	0.15	-0.11	
1,620.0	10.90	0.10	1,596.6	243.4	7.0	243.5	0.44	-0.43	
1,712.0	10.50	359.40	1,687.0	260.5	6.9	260.6	0.46	-0.43	
1,803.0	12.10	359.50	1,776.3	278.3	6.7	278.4	1.76	1.76	
1,894.0	11.80	359.90	1,865.3	297.2	6.6	297.2	0.34	-0.33	
1,986.0	11.60	0.20	1,955.4	315.8	6.7	315.9	0.23	-0.22	
2,077.0	10.60	359.50	2,044.7	333.3	6.6	333.4	1.11	-1.10	
2,169.0	10.50	359.20	2,135.1	350.2	6.4	350.2	0.12	-0.11	
2,261.0	10.40	358.60	2,225.6	366.9	6.1	366.9	0.16	-0.11	
2,352.0	11.00	0.30	2,315.0	383.8	5.9	383.8	0.74	0.66	
2,444.0	10.70	359.10	2,405.4	401.1	5.9	401.1	0.41	-0.33	
2,535.0	10.20	357.40	2,494.9	417.6	5.4	417.6	0.65	-0.55	
2,627.0	10.40	2.70	2,585.4	434.0	5.4	434.0	1.05	0.22	
2,719.0	10.70	5.00	2,675.8	450.8	6.5	450.9	0.56	0.33	
2,811.0	12.40	4.80	2,765.9	469.2	8.1	469.2	1.85	1.85	
2,902.0	11.90	5.00	2,854.9	488.2	9.7	488.3	0.55	-0.55	
2,994.0	11.50	5.10	2,945.0	506.8	11.4	506.9	0.44	-0.43	
3,085.0	10.90	5.60	3,034.3	524.4	13.0	524.5	0.67	-0.66	
3,176.0	10.20	5.90	3,123.7	541.0	14.7	541.1	0.77	-0.77	
3,268.0	10.90	4.40	3,214.2	557.8	16.2	557.9	0.82	0.76	
3,359.0	11.40	0.80	3,303.5	575.3	17.0	575.5	0.94	0.55	
3,450.0	10.80	0.50	3,392.8	592.9	17.2	593.0	0.66	-0.66	
3,542.0	10.00	357.30	3,483.2	609.5	16.9	609.6	1.07	-0.87	
3,633.0	10.60	358.80	3,572.8	625.7	16.3	625.9	0.72	0.66	
3,725.0	11.90	1.20	3,663.0	643.7	16.3	643.8	1.50	1.41	
3,816.0	11.30	0.80	3,752.1	662.0	16.7	662.1	0.67	-0.66	
3,908.0	10.60	1.60	3,842.5	679.4	17.0	679.6	0.78	-0.76	
3,999.0	11.20	3.80	3,931.8	696.6	17.8	696.8	0.80	0.66	
4,090.0	11.00	4.50	4,021.1	714.1	19.1	714.3	0.27	-0.22	
4,182.0	10.30	5.10	4,111.5	731.0	20.5	731.2	0.77	-0.76	
4,274.0	11.00	3.80	4,202.0	748.0	21.8	748.2	0.80	0.76	
4,365.0	12.30	358.40	4,291.1	766.3	22.1	766.6	1.86	1.43	
4,457.0	11.60	358.00	4,381.1	785.4	21.6	785.6	0.77	-0.76	
4,549.0	10.90	358.60	4,471.3	803.3	21.0	803.5	0.77	-0.76	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Hagen 15-14C
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Site:	PC-22 Pad NENW 2 7S 95W	MD Reference:	KB=22' @ 6543.0ft (Patterson #303)
Well:	Hagen 15-14C	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	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
4,641.0	10.90	2.40	4,561.7	820.7	21.2	820.9	0.78	0.00	
4,732.0	10.60	1.30	4,651.1	837.7	21.7	837.9	0.40	-0.33	
4,823.0	10.00	359.80	4,740.6	853.9	21.9	854.2	0.72	-0.66	
4,915.0	10.80	359.60	4,831.1	870.5	21.8	870.8	0.87	0.87	
5,006.0	10.20	0.20	4,920.6	887.1	21.8	887.3	0.67	-0.66	
5,097.0	9.50	359.10	5,010.2	902.7	21.7	902.9	0.80	-0.77	
5,189.0	8.40	0.60	5,101.1	917.0	21.6	917.2	1.22	-1.20	
5,280.0	7.20	1.00	5,191.3	929.4	21.8	929.6	1.32	-1.32	
5,372.0	6.60	355.10	5,282.6	940.4	21.4	940.6	1.01	-0.65	
5,464.0	6.00	351.80	5,374.0	950.4	20.3	950.6	0.76	-0.65	
5,555.0	5.50	359.40	5,464.6	959.5	19.6	959.7	1.00	-0.55	
5,647.0	4.70	12.80	5,556.2	967.6	20.4	967.8	1.55	-0.87	
5,739.0	2.80	20.80	5,648.0	973.3	22.0	973.6	2.14	-2.07	
5,830.0	1.10	22.80	5,739.0	976.2	23.1	976.4	1.87	-1.87	
5,921.0	0.80	7.50	5,830.0	977.7	23.5	977.9	0.43	-0.33	
6,013.0	0.60	330.30	5,921.9	978.7	23.4	978.9	0.53	-0.22	
6,104.0	0.80	307.30	6,012.9	979.5	22.7	979.7	0.37	0.22	
6,196.0	0.50	71.40	6,104.9	980.0	22.5	980.2	1.26	-0.33	
6,287.0	0.40	86.90	6,195.9	980.2	23.2	980.4	0.17	-0.11	
6,379.0	0.10	150.90	6,287.9	980.1	23.6	980.4	0.40	-0.33	
6,471.0	0.20	207.00	6,379.9	979.9	23.5	980.1	0.18	0.11	
6,562.0	0.70	244.70	6,470.9	979.5	23.0	979.8	0.61	0.55	
6,653.0	1.30	234.00	6,561.9	978.7	21.6	978.9	0.69	0.66	
6,745.0	0.80	254.90	6,653.9	977.9	20.2	978.1	0.68	-0.54	
6,836.0	0.50	76.50	6,744.9	977.8	19.9	978.0	1.43	-0.33	
6,927.0	0.50	67.40	6,835.9	978.1	20.7	978.3	0.09	0.00	
7,019.0	0.10	318.10	6,927.9	978.3	21.0	978.5	0.59	-0.43	
7,111.0	0.20	253.70	7,019.9	978.3	20.8	978.5	0.20	0.11	
7,202.0	0.60	259.90	7,110.9	978.2	20.2	978.4	0.44	0.44	
7,294.0	1.00	259.20	7,202.9	977.9	18.9	978.1	0.43	0.43	
7,385.0	1.40	266.40	7,293.8	977.7	17.0	977.9	0.47	0.44	
7,476.0	2.00	270.10	7,384.8	977.7	14.3	977.8	0.67	0.66	
7,567.0	2.20	263.90	7,475.7	977.5	11.0	977.5	0.33	0.22	
7,659.0	2.30	275.70	7,567.7	977.5	7.4	977.5	0.51	0.11	
7,751.0	2.10	280.10	7,659.6	978.0	3.9	977.9	0.28	-0.22	
7,842.0	2.00	275.90	7,750.5	978.4	0.7	978.3	0.20	-0.11	
7,860.0	1.90	276.40	7,768.5	978.5	0.1	978.4	0.56	-0.56	Last Cathedral Survey @ 7,860' MD
7,915.0	1.90	276.40	7,823.5	978.7	-1.7	978.6	0.00	0.00	Projection to Bit @ 7,915'

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Hagen 15-14C
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Site:	PC-22 Pad NENW 2 7S 95W	MD Reference:	KB=22' @ 6543.0ft (Patterson #303)
Well:	Hagen 15-14C	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
- Shape									
Hagen 15-14C TGT	0.00	0.00	5,677.0	979.4	12.7	1,591,644.82	2,297,731.17	39.431435	-107.986592
- actual wellpath misses target center by 10.9ft at 5768.1ft MD (5677.0 TVD, 974.5 N, 22.5 E)									
- Point									
Hagen 15-14C PBHL (4'	0.00	0.00	7,753.0	979.4	12.7	1,591,644.82	2,297,731.17	39.431435	-107.986592
- actual wellpath misses target center by 12.1ft at 7844.0ft MD (7752.6 TVD, 978.4 N, 0.6 E)									
- Circle (radius 25.0)									

Design Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(ft)	(ft)	+N/-S (ft)	+E/-W (ft)	
1,000.0	989.2	119.2	5.2	Last Cathedral Survey @ 1,000' MD
7,860.0	7,768.5	978.5	0.1	Last Cathedral Survey @ 7,860' MD
7,915.0	7,823.5	978.7	-1.7	Projection to Bit @ 7,915'

Checked By: _____ Approved By: _____ Date: _____