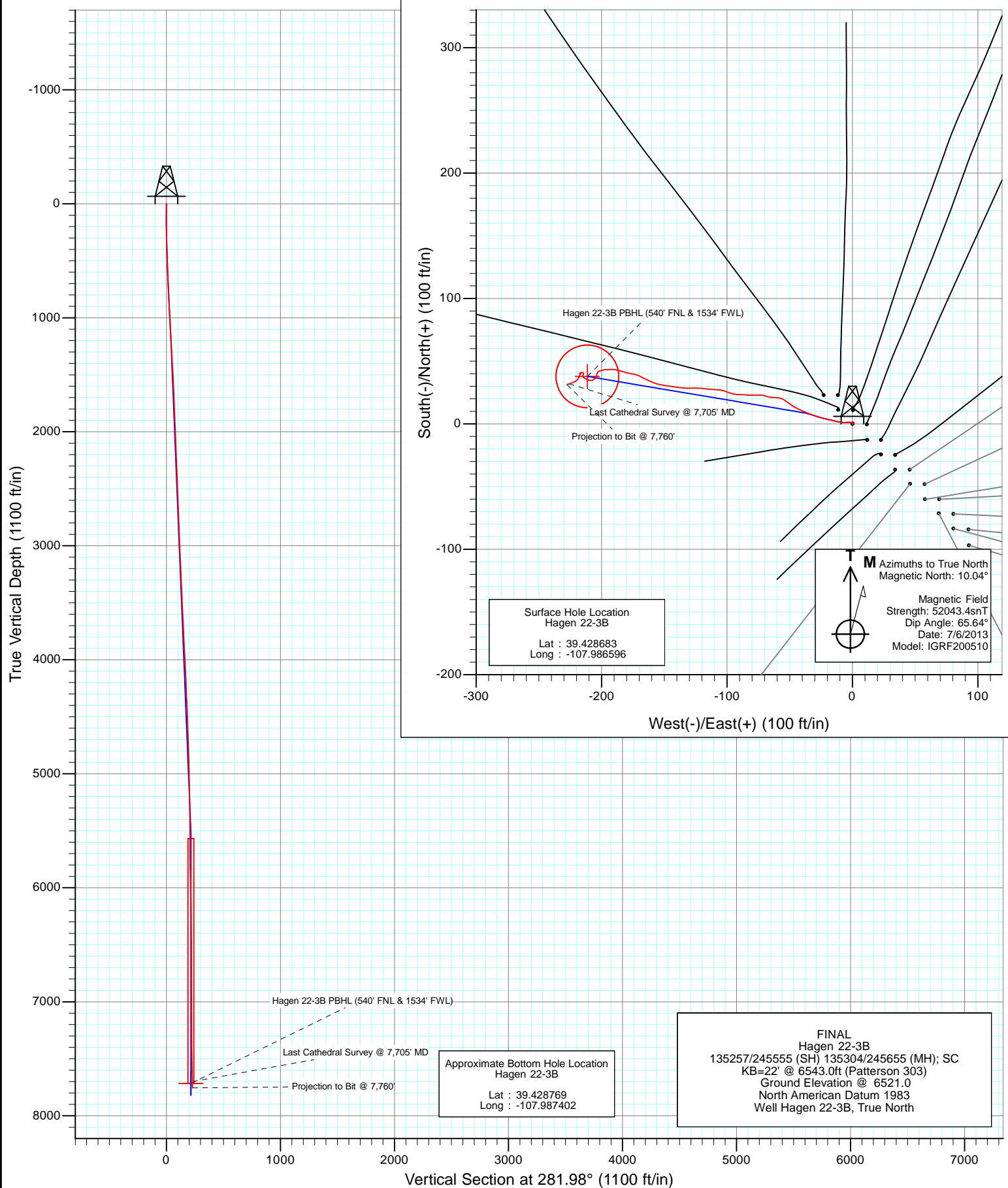


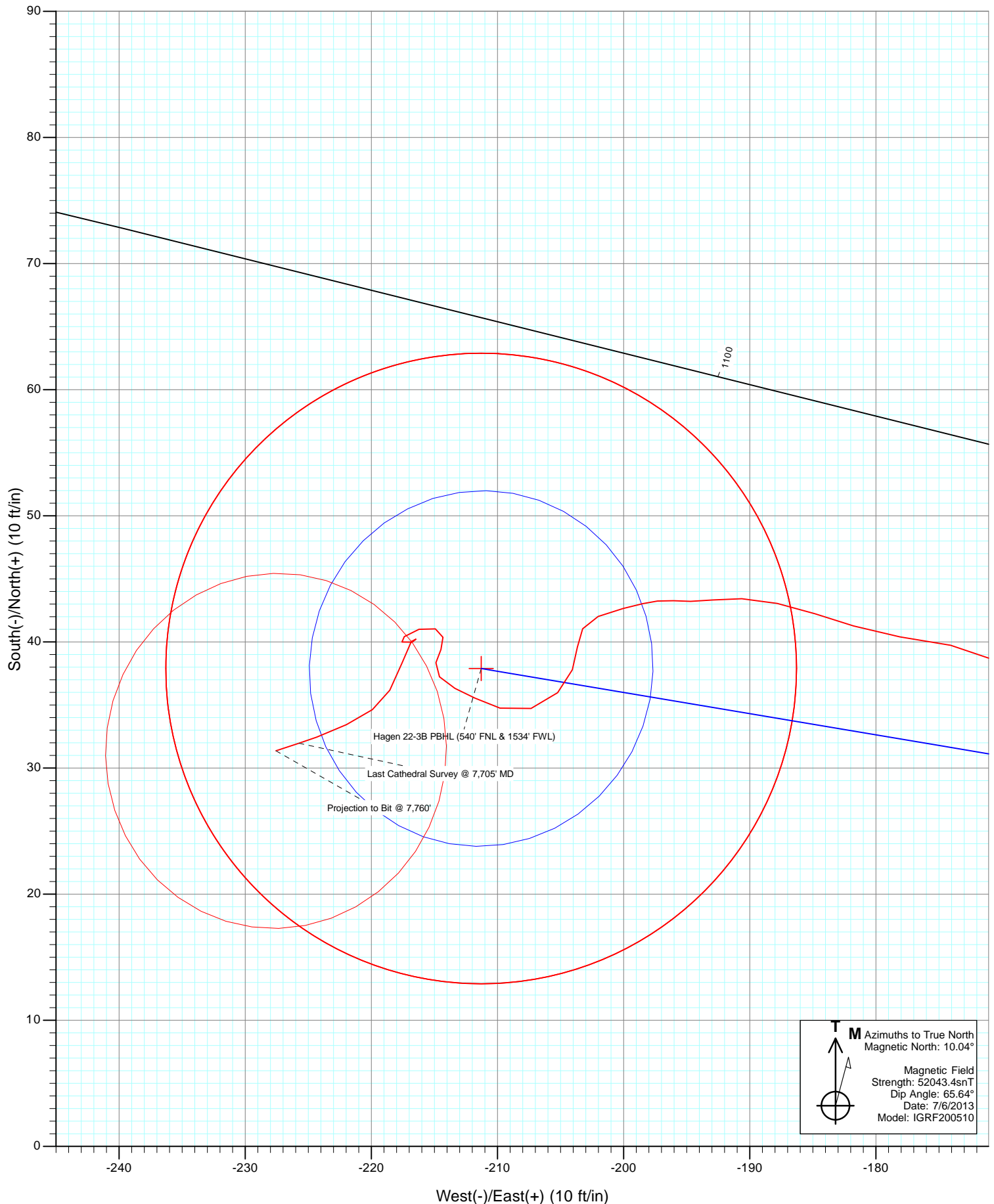


Project: S. Piceance (Parachute)
Site: PC-22 Pad NENW 2 7S 95W
Well: Hagen 22-3B
Wellbore: OH
Design: FINAL



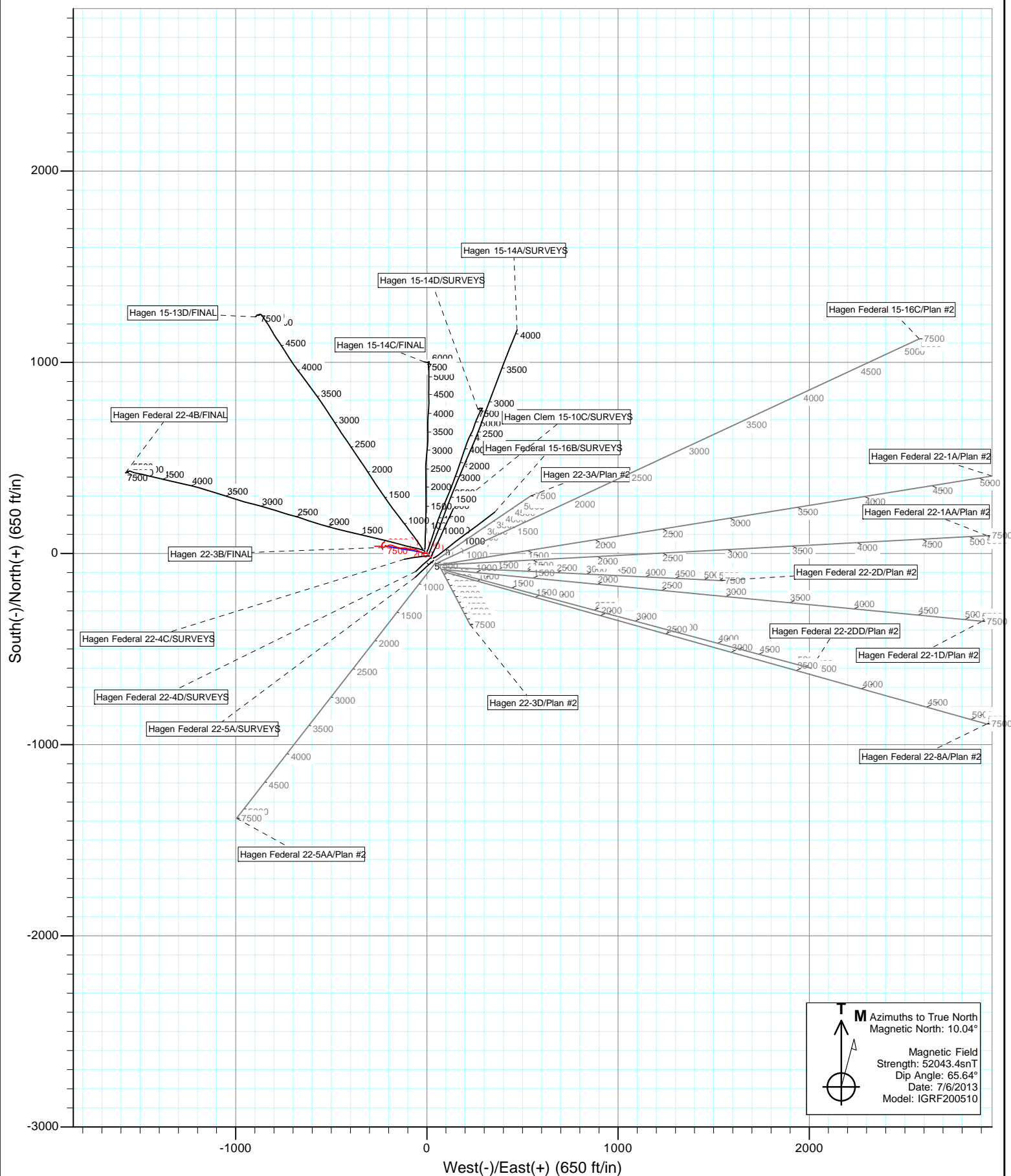


Project: S. Piceance (Parachute)
Site: PC-22 Pad NENW 2 7S 95W
Well: Hagen 22-3B
Wellbore: OH
Design: FINAL





Project: S. Piceance (Parachute)
Site: PC-22 Pad NENW 2 7S 95W
Well: Hagen 22-3B
Design: FINAL



Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Hagen 22-3B
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 22-3B	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 22-3B					
Well Position	+N/-S	0.0 ft	Northing:	1,590,642.84 ft	Latitude:	39.428683
	+E/-W	0.0 ft	Easting:	2,297,702.61 ft	Longitude:	-107.986596
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)
	IGRF200510	7/6/2013	10.04	65.64	52,043

Design	FINAL				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.0	0.0	0.0	281.98	

Survey Program	Date	7/17/2013			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
110.0	7,760.0	Survey #1 (OH)	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		
110.0	1.00	51.20	110.0	0.6	0.7	-0.6	0.91	0.91		
141.0	0.90	34.90	141.0	1.0	1.1	-0.9	0.93	-0.32		
171.0	0.40	308.90	171.0	1.2	1.2	-0.9	3.20	-1.67		
202.0	0.90	270.00	202.0	1.3	0.8	-0.5	2.06	1.61		
232.0	1.10	269.70	232.0	1.3	0.3	0.0	0.67	0.67		
262.0	1.10	263.80	262.0	1.3	-0.3	0.5	0.38	0.00		
293.0	1.20	264.70	293.0	1.2	-0.9	1.1	0.33	0.32		
324.0	1.50	271.30	324.0	1.2	-1.6	1.8	1.09	0.97		
354.0	1.70	275.10	354.0	1.2	-2.5	2.7	0.75	0.67		
385.0	1.80	267.00	384.9	1.2	-3.4	3.6	0.86	0.32		
478.0	1.80	267.00	477.9	1.1	-6.3	6.4	0.00	0.00		
570.0	2.30	280.10	569.8	1.3	-9.6	9.6	0.74	0.54		

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Hagen 22-3B
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 22-3B	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
661.0	2.30	284.90	660.8	2.1	-13.1	13.3	0.21	0.00	
753.0	2.50	282.40	752.7	3.0	-16.9	17.1	0.25	0.22	
845.0	2.70	282.50	844.6	3.9	-21.0	21.3	0.22	0.22	
937.0	3.20	286.60	936.5	5.1	-25.5	26.0	0.59	0.54	
995.0	3.20	287.20	994.4	6.1	-28.6	29.3	0.06	0.00	
1,071.0	3.50	290.20	1,070.2	7.5	-32.8	33.7	0.46	0.39	
1,162.0	3.30	294.10	1,161.1	9.5	-37.8	39.0	0.34	-0.22	
1,254.0	3.30	293.20	1,252.9	11.7	-42.7	44.2	0.06	0.00	
1,345.0	3.10	304.90	1,343.8	14.1	-47.1	49.0	0.75	-0.22	
1,436.0	3.60	305.00	1,434.6	17.1	-51.5	53.9	0.55	0.55	
1,528.0	2.50	299.10	1,526.5	19.8	-55.6	58.5	1.24	-1.20	
1,620.0	2.60	273.50	1,618.4	20.9	-59.4	62.5	1.23	0.11	
1,712.0	2.50	273.70	1,710.3	21.1	-63.5	66.5	0.11	-0.11	
1,803.0	2.20	284.00	1,801.2	21.7	-67.2	70.2	0.57	-0.33	
1,894.0	1.80	289.00	1,892.2	22.6	-70.2	73.4	0.48	-0.44	
1,986.0	2.50	267.40	1,984.1	23.0	-73.6	76.8	1.15	0.76	
2,077.0	2.30	268.50	2,075.0	22.8	-77.4	80.5	0.23	-0.22	
2,169.0	2.30	274.40	2,167.0	22.9	-81.1	84.1	0.26	0.00	
2,261.0	2.30	273.60	2,258.9	23.2	-84.8	87.7	0.03	0.00	
2,352.0	2.50	272.60	2,349.8	23.4	-88.6	91.5	0.22	0.22	
2,444.0	1.80	270.60	2,441.8	23.5	-92.0	94.9	0.77	-0.76	
2,535.0	2.30	285.50	2,532.7	24.0	-95.2	98.1	0.80	0.55	
2,627.0	2.20	290.00	2,624.6	25.1	-98.7	101.7	0.22	-0.11	
2,719.0	2.10	290.50	2,716.6	26.3	-101.9	105.1	0.11	-0.11	
2,811.0	2.50	276.30	2,808.5	27.1	-105.5	108.8	0.75	0.43	
2,902.0	2.40	272.30	2,899.4	27.4	-109.4	112.7	0.22	-0.11	
2,994.0	2.50	275.30	2,991.3	27.6	-113.3	116.5	0.18	0.11	
3,085.0	2.30	277.80	3,082.2	28.1	-117.1	120.3	0.25	-0.22	
3,176.0	2.00	273.00	3,173.2	28.4	-120.5	123.7	0.38	-0.33	
3,268.0	2.80	271.00	3,265.1	28.5	-124.3	127.5	0.87	0.87	
3,359.0	2.60	269.90	3,356.0	28.6	-128.6	131.7	0.23	-0.22	
3,450.0	2.50	270.60	3,446.9	28.6	-132.6	135.7	0.12	-0.11	
3,542.0	2.90	275.20	3,538.8	28.8	-137.0	140.0	0.49	0.43	
3,633.0	2.80	282.20	3,629.7	29.5	-141.4	144.5	0.40	-0.11	
3,725.0	2.60	275.00	3,721.6	30.1	-145.7	148.8	0.43	-0.22	
3,816.0	2.20	279.10	3,812.5	30.6	-149.5	152.6	0.48	-0.44	
3,908.0	2.90	281.80	3,904.4	31.4	-153.5	156.7	0.77	0.76	
3,999.0	2.90	290.20	3,995.3	32.6	-157.9	161.3	0.47	0.00	
4,091.0	2.80	296.10	4,087.2	34.4	-162.1	165.7	0.34	-0.11	
4,182.0	2.80	296.60	4,178.1	36.4	-166.1	170.0	0.03	0.00	
4,274.0	2.80	296.80	4,270.0	38.4	-170.1	174.4	0.01	0.00	
4,365.0	2.50	279.40	4,360.9	39.7	-174.1	178.5	0.94	-0.33	
4,457.0	2.60	279.50	4,452.8	40.4	-178.1	182.6	0.11	0.11	
4,549.0	2.10	287.70	4,544.7	41.3	-181.8	186.4	0.65	-0.54	
4,641.0	1.90	287.60	4,636.7	42.2	-184.8	189.6	0.22	-0.22	
4,732.0	2.00	283.20	4,727.6	43.1	-187.8	192.7	0.20	0.11	
4,823.0	1.60	270.30	4,818.6	43.4	-190.6	195.5	0.62	-0.44	
4,915.0	1.30	264.10	4,910.5	43.3	-192.9	197.7	0.37	-0.33	
5,006.0	0.90	269.40	5,001.5	43.2	-194.7	199.4	0.45	-0.44	
5,097.0	0.80	275.60	5,092.5	43.3	-196.0	200.7	0.15	-0.11	
5,189.0	0.80	262.70	5,184.5	43.2	-197.3	202.0	0.20	0.00	
5,280.0	0.70	256.10	5,275.5	43.0	-198.5	203.1	0.15	-0.11	
5,372.0	1.30	256.50	5,367.5	42.7	-200.0	204.5	0.65	0.65	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Hagen 22-3B
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 22-3B	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
5,464.0	1.30	247.60	5,459.4	42.0	-202.0	206.3	0.22	0.00	
5,555.0	0.80	205.60	5,550.4	41.0	-203.2	207.3	0.97	-0.55	
5,573.7	0.85	201.12	5,569.1	40.8	-203.4	207.4	0.45	0.29	Hagen 22-3B TGT
5,647.0	1.10	188.20	5,642.4	39.6	-203.7	207.4	0.45	0.34	
5,739.0	1.20	196.80	5,734.4	37.8	-204.1	207.5	0.22	0.11	
5,830.0	1.60	224.40	5,825.4	36.0	-205.2	208.2	0.85	0.44	
5,921.0	1.60	254.20	5,916.3	34.7	-207.3	210.0	0.90	0.00	
6,013.0	1.60	287.40	6,008.3	34.8	-209.8	212.4	0.99	0.00	
6,104.0	1.10	297.80	6,099.3	35.5	-211.8	214.5	0.61	-0.55	
6,196.0	1.10	293.70	6,191.3	36.3	-213.4	216.3	0.09	0.00	
6,287.0	0.90	323.40	6,282.3	37.2	-214.6	217.6	0.60	-0.22	
6,379.0	0.70	15.20	6,374.2	38.4	-214.9	218.2	0.78	-0.22	
6,471.0	0.70	26.70	6,466.2	39.4	-214.5	218.0	0.15	0.00	
6,562.0	0.60	349.60	6,557.2	40.4	-214.3	218.0	0.47	-0.11	
6,653.0	0.70	291.00	6,648.2	41.0	-214.9	218.8	0.71	0.11	
6,745.0	1.00	253.40	6,740.2	41.0	-216.2	220.0	0.67	0.33	
6,836.0	0.70	228.20	6,831.2	40.4	-217.4	221.0	0.52	-0.33	
6,927.0	0.30	100.10	6,922.2	40.0	-217.6	221.1	1.01	-0.44	
7,019.0	0.70	87.10	7,014.2	40.0	-216.8	220.3	0.45	0.43	
7,111.0	0.40	308.60	7,106.2	40.2	-216.5	220.1	1.12	-0.33	
7,202.0	0.50	197.50	7,197.2	40.0	-216.8	220.4	0.82	0.11	
7,294.0	1.80	204.80	7,289.2	38.3	-217.6	220.8	1.42	1.41	
7,385.0	1.20	203.60	7,380.1	36.2	-218.5	221.3	0.66	-0.66	
7,476.0	1.50	236.40	7,471.1	34.6	-219.9	222.3	0.90	0.33	
7,567.0	1.50	243.40	7,562.1	33.4	-222.0	224.1	0.20	0.00	
7,659.0	1.70	250.60	7,654.0	32.5	-224.3	226.2	0.31	0.22	
7,705.0	2.00	251.50	7,700.0	32.0	-225.7	227.5	0.66	0.65	Last Cathedral Survey @ 7,705' MD - Hagen 22-
7,760.0	2.00	251.50	7,755.0	31.4	-227.6	229.1	0.00	0.00	Projection to Bit @ 7,760'

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Hagen 22-3B TGT	0.00	0.00	5,569.0	37.9	-211.3	1,590,686.50	2,297,492.43	39.428787	-107.987344
- hit/miss target									
- Shape									
- actual wellpath misses target center by 8.4ft at 5573.7ft MD (5569.1 TVD, 40.8 N, -203.4 E)									
- Point									
Hagen 22-3B PBHL (54C	0.00	0.00	7,716.0	37.9	-211.3	1,590,686.50	2,297,492.43	39.428787	-107.987344
- actual wellpath misses target center by 22.3ft at 7705.0ft MD (7700.0 TVD, 32.0 N, -225.7 E)									
- Circle (radius 25.0)									

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
7,705.0	7,700.0	32.0	-225.7	Last Cathedral Survey @ 7,705' MD	
7,760.0	7,755.0	31.4	-227.6	Projection to Bit @ 7,760'	

Checked By: _____ Approved By: _____ Date: _____