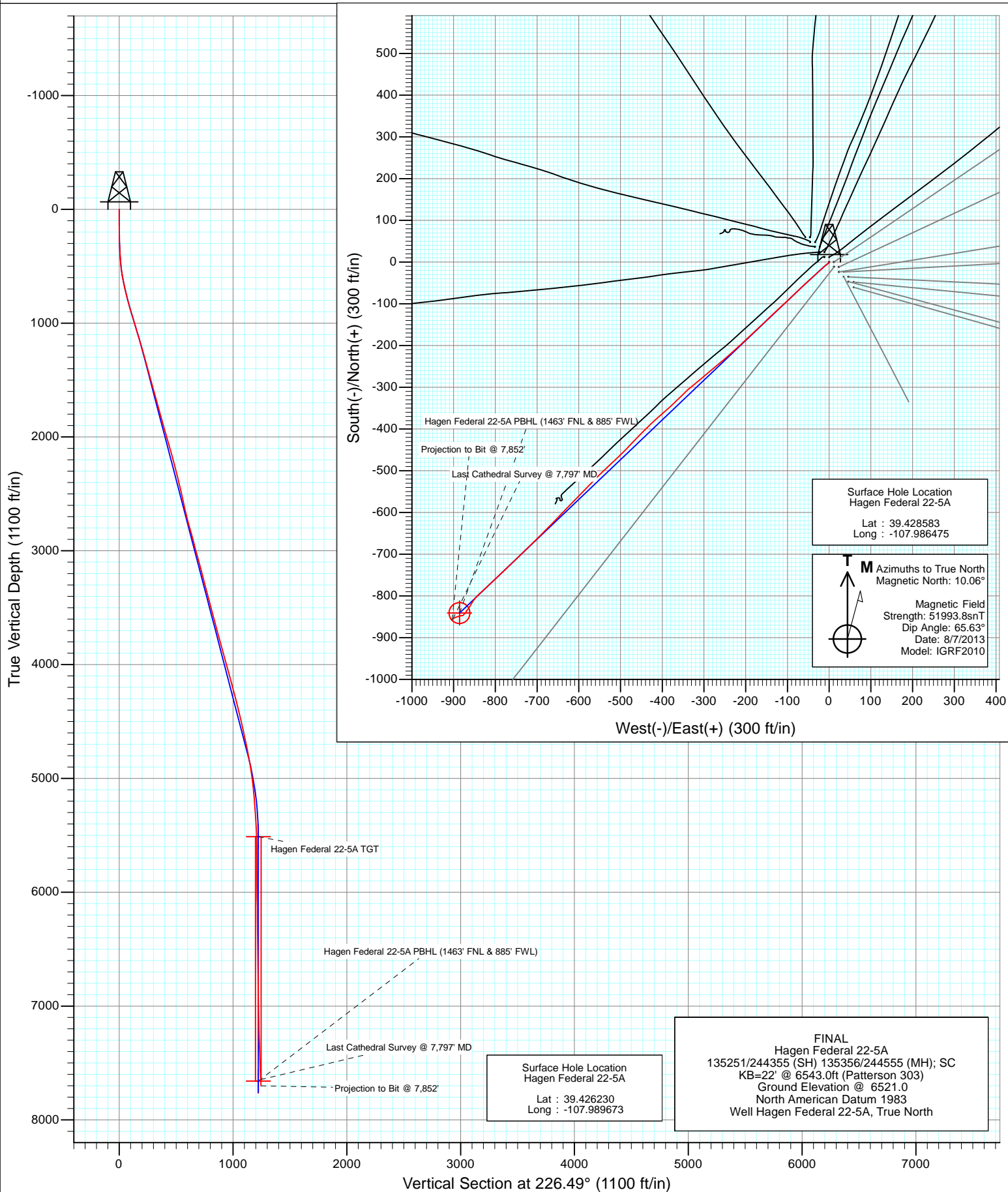


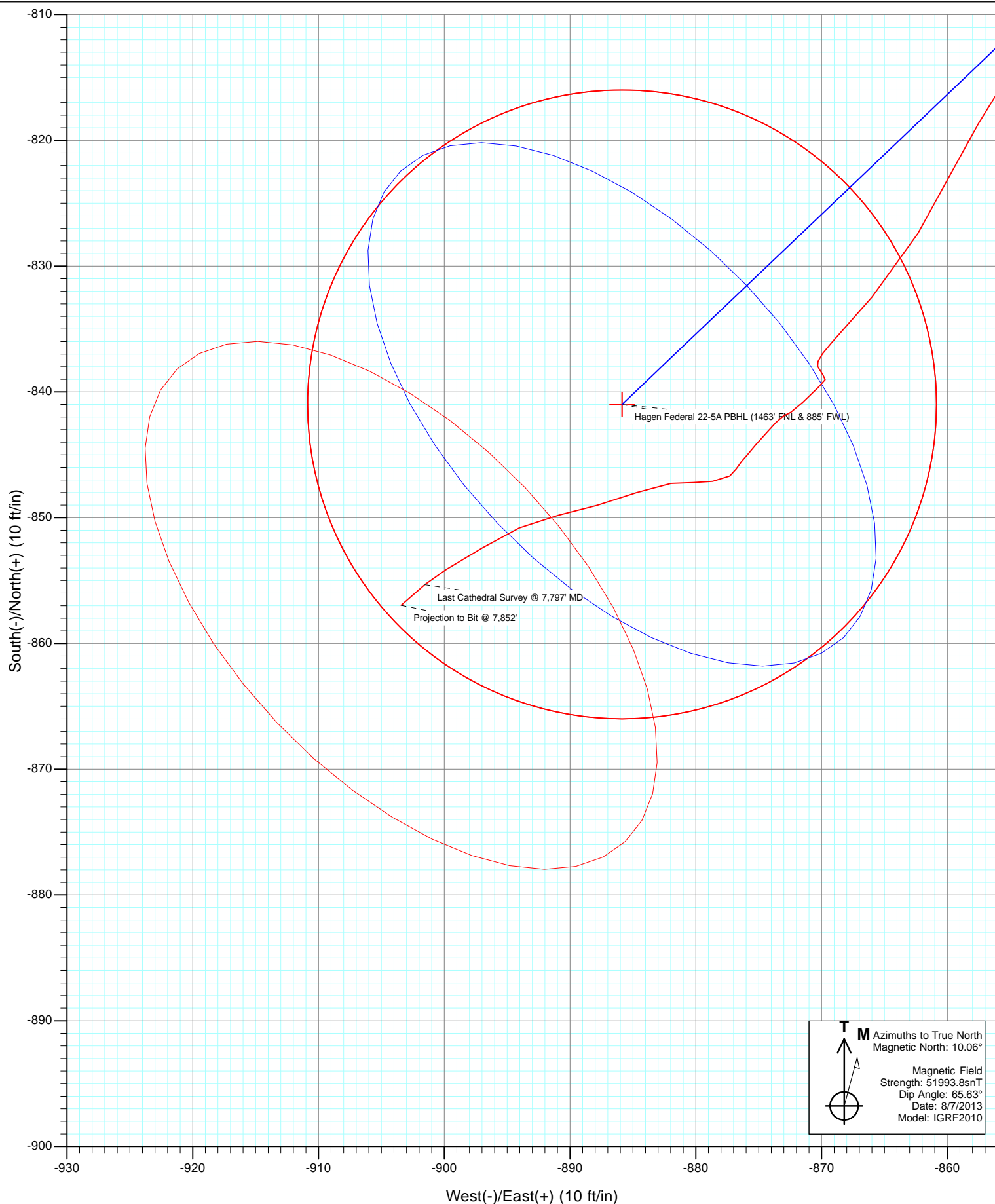


Project: S. Piceance (Parachute)  
Site: PC-22 Pad NENW 2 7S 95W  
Well: Hagen Federal 22-5A  
Wellbore: OH  
Design: FINAL



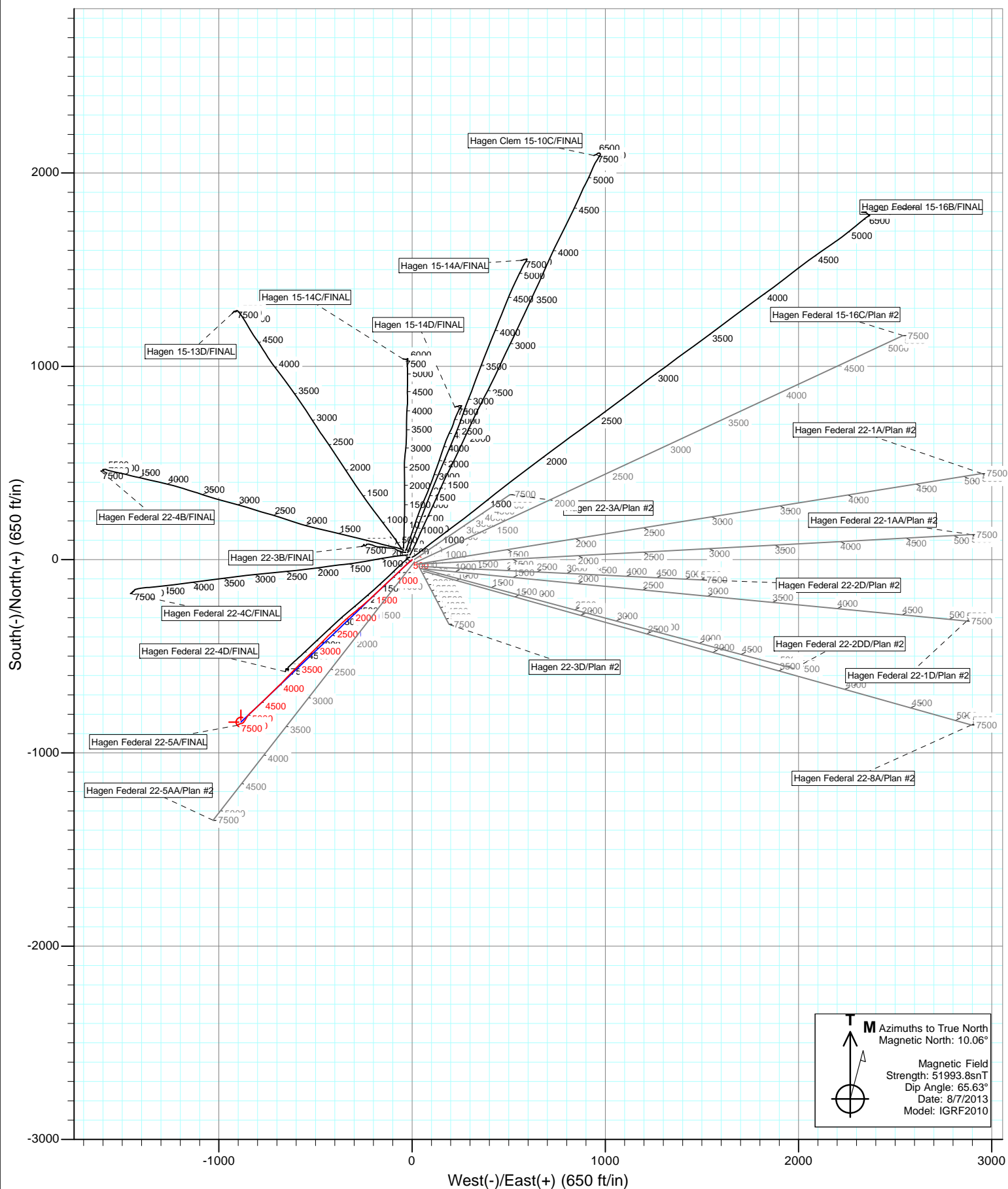


Project: S. Piceance (Parachute)  
Site: PC-22 Pad NENW 2 7S 95W  
Well: Hagen Federal 22-5A  
Wellbore: OH  
Design: FINAL





Project: S. Piceance (Parachute)  
Site: PC-22 Pad NENW 2 7S 95W  
Well: Hagen Federal 22-5A  
Wellbore: OH  
Design: FINAL



# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Hagen Federal 22-5A
<b>Project:</b>	S. Piceance (Parachute)	<b>TVD Reference:</b>	KB=22' @ 6543.0ft (Patterson 303)
<b>Site:</b>	PC-22 Pad NENW 2 7S 95W	<b>MD Reference:</b>	KB=22' @ 6543.0ft (Patterson 303)
<b>Well:</b>	Hagen Federal 22-5A	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	USA EDM 5000 Multi Users DB

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

<b>Site</b>	PC-22 Pad NENW 2 7S 95W			
<b>Site Position:</b>		<b>Northing:</b>	1,590,596.09 ft	<b>Latitude:</b> 39.428560
<b>From:</b>	Lat/Long	<b>Easting:</b>	2,297,773.66 ft	<b>Longitude:</b> -107.986340
<b>Position Uncertainty:</b>	0.0 ft	<b>Slot Radius:</b>	13.200 in	<b>Grid Convergence:</b> -1.57 °

<b>Well</b>	Hagen Federal 22-5A			
<b>Well Position</b>	<b>+N/-S</b>	0.0 ft	<b>Northing:</b>	1,590,605.50 ft
	<b>+E/-W</b>	0.0 ft	<b>Easting:</b>	2,297,735.77 ft
<b>Position Uncertainty</b>		0.0 ft	<b>Wellhead Elevation:</b>	ft
			<b>Ground Level:</b>	6,521.0 ft

<b>Wellbore</b>	OH				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	8/7/2013	10.06	65.63	51,994

<b>Design</b>	FINAL			
<b>Audit Notes:</b>				
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b> 0.0
<b>Vertical Section:</b>	<b>Depth From (TVD)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	226.49

<b>Survey Program</b>	<b>Date</b>	8/14/2013		
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
110.0	7,852.0	Survey #1 (OH)	Geolink MWD	Geolink MWD

<b>Survey</b>									
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Vertical Section (ft)</b>	<b>Dogleg Rate (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Formations / Comments</b>
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
110.0	0.30	171.70	110.0	-0.3	0.0	0.2	0.27	0.27	
141.0	0.40	174.70	141.0	-0.5	0.1	0.3	0.33	0.32	
171.0	0.60	174.70	171.0	-0.7	0.1	0.4	0.67	0.67	
202.0	0.40	202.50	202.0	-1.0	0.1	0.6	1.00	-0.65	
232.0	0.70	217.60	232.0	-1.2	-0.1	0.9	1.10	1.00	
263.0	0.90	215.20	263.0	-1.6	-0.3	1.3	0.65	0.65	
293.0	1.60	230.40	293.0	-2.0	-0.8	2.0	2.56	2.33	
324.0	2.50	233.50	324.0	-2.7	-1.7	3.1	2.92	2.90	
355.0	2.70	232.50	354.9	-3.6	-2.8	4.5	0.66	0.65	
386.0	3.30	234.10	385.9	-4.5	-4.1	6.1	1.95	1.94	
416.0	3.80	232.60	415.8	-5.6	-5.6	7.9	1.70	1.67	
447.0	4.50	231.30	446.8	-7.0	-7.4	10.2	2.28	2.26	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Hagen Federal 22-5A
<b>Project:</b>	S. Piceance (Parachute)	<b>TVD Reference:</b>	KB=22' @ 6543.0ft (Patterson 303)
<b>Site:</b>	PC-22 Pad NENW 2 7S 95W	<b>MD Reference:</b>	KB=22' @ 6543.0ft (Patterson 303)
<b>Well:</b>	Hagen Federal 22-5A	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	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
478.0	5.60	230.80	477.6	-8.7	-9.5	12.9	3.55	3.55	
509.0	6.50	228.30	508.5	-10.9	-12.0	16.2	3.02	2.90	
539.0	7.80	227.00	538.2	-13.4	-14.7	19.9	4.37	4.33	
570.0	9.00	227.30	568.9	-16.5	-18.0	24.4	3.87	3.87	
601.0	9.80	227.40	599.5	-19.9	-21.8	29.5	2.58	2.58	
692.0	12.90	228.00	688.7	-31.9	-35.0	47.4	3.41	3.41	
784.0	14.80	227.10	778.0	-46.8	-51.3	69.4	2.08	2.07	
876.0	16.00	226.70	866.7	-63.5	-69.1	93.8	1.31	1.30	
968.0	16.60	226.10	955.0	-81.3	-87.8	119.7	0.68	0.65	
999.0	16.90	226.60	984.7	-87.5	-94.3	128.6	1.07	0.97	
1,155.0	17.00	227.80	1,133.9	-118.4	-127.6	174.1	0.23	0.06	
1,247.0	15.60	225.90	1,222.2	-136.0	-146.5	199.9	1.63	-1.52	
1,338.0	15.70	226.50	1,309.8	-153.0	-164.2	224.4	0.21	0.11	
1,430.0	15.70	226.90	1,398.4	-170.1	-182.3	249.3	0.12	0.00	
1,522.0	15.10	227.20	1,487.1	-186.7	-200.2	273.8	0.66	-0.65	
1,614.0	14.80	226.60	1,576.0	-203.0	-217.5	297.5	0.37	-0.33	
1,706.0	16.10	229.00	1,664.7	-219.4	-235.7	322.0	1.57	1.41	
1,797.0	15.80	230.20	1,752.2	-235.6	-254.7	347.0	0.49	-0.33	
1,889.0	15.60	229.60	1,840.7	-251.6	-273.8	371.8	0.28	-0.22	
1,980.0	15.80	229.60	1,928.3	-267.6	-292.5	396.4	0.22	0.22	
2,071.0	15.90	231.00	2,015.9	-283.5	-311.6	421.2	0.43	0.11	
2,163.0	15.90	229.90	2,104.4	-299.5	-331.1	446.3	0.33	0.00	
2,254.0	14.90	225.40	2,192.1	-315.8	-348.9	470.5	1.71	-1.10	
2,345.0	14.80	225.80	2,280.0	-332.1	-365.6	493.8	0.16	-0.11	
2,437.0	13.80	228.30	2,369.2	-347.6	-382.2	516.5	1.28	-1.09	
2,528.0	12.70	228.80	2,457.8	-361.4	-397.9	537.4	1.22	-1.21	
2,620.0	12.40	227.20	2,547.6	-374.8	-412.7	557.3	0.50	-0.33	
2,712.0	13.20	227.40	2,637.3	-388.6	-427.7	577.7	0.87	0.87	
2,803.0	14.20	224.40	2,725.7	-403.6	-443.2	599.3	1.35	1.10	
2,895.0	15.80	224.00	2,814.6	-420.7	-459.7	623.0	1.74	1.74	
2,986.0	15.10	224.70	2,902.3	-438.0	-476.7	647.3	0.80	-0.77	
3,078.0	14.80	224.00	2,991.2	-455.0	-493.3	671.0	0.38	-0.33	
3,170.0	15.70	226.20	3,079.9	-472.0	-510.4	695.2	1.16	0.98	
3,261.0	14.60	228.10	3,167.8	-488.2	-527.9	719.0	1.33	-1.21	
3,353.0	14.90	224.80	3,256.7	-504.4	-544.8	742.4	0.97	0.33	
3,445.0	14.30	224.70	3,345.8	-520.8	-561.1	765.6	0.65	-0.65	
3,537.0	15.10	224.20	3,434.7	-537.5	-577.5	788.9	0.88	0.87	
3,628.0	14.20	224.30	3,522.8	-554.0	-593.6	811.9	0.99	-0.99	
3,720.0	15.70	224.00	3,611.7	-571.0	-610.1	835.6	1.63	1.63	
3,812.0	15.40	224.90	3,700.3	-588.6	-627.4	860.2	0.42	-0.33	
3,903.0	15.10	223.70	3,788.1	-605.7	-644.1	884.2	0.48	-0.33	
3,994.0	14.70	223.00	3,876.0	-622.8	-660.1	907.5	0.48	-0.44	
4,086.0	15.70	225.10	3,964.8	-640.1	-676.9	931.6	1.24	1.09	
4,178.0	15.40	225.80	4,053.4	-657.4	-694.5	956.3	0.38	-0.33	
4,269.0	15.50	225.80	4,141.2	-674.3	-711.9	980.5	0.11	0.11	
4,360.0	15.00	224.90	4,229.0	-691.1	-728.9	1,004.4	0.61	-0.55	
4,451.0	14.10	225.80	4,317.0	-707.2	-745.2	1,027.3	1.02	-0.99	
4,543.0	13.70	226.70	4,406.3	-722.5	-761.1	1,049.4	0.49	-0.43	
4,634.0	12.80	225.70	4,494.9	-736.9	-776.2	1,070.3	1.02	-0.99	
4,726.0	12.50	226.60	4,584.7	-750.8	-790.7	1,090.4	0.39	-0.33	
4,817.0	12.30	227.60	4,673.6	-764.1	-805.0	1,109.9	0.32	-0.22	
4,908.0	11.10	226.00	4,762.7	-776.8	-818.5	1,128.4	1.37	-1.32	
5,000.0	10.00	227.30	4,853.1	-788.3	-830.7	1,145.2	1.22	-1.20	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Hagen Federal 22-5A
<b>Project:</b>	S. Piceance (Parachute)	<b>TVD Reference:</b>	KB=22' @ 6543.0ft (Patterson 303)
<b>Site:</b>	PC-22 Pad NENW 2 7S 95W	<b>MD Reference:</b>	KB=22' @ 6543.0ft (Patterson 303)
<b>Well:</b>	Hagen Federal 22-5A	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	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
5,092.0	8.40	226.30	4,943.9	-798.4	-841.4	1,159.9	1.75	-1.74	
5,184.0	7.00	218.00	5,035.1	-807.5	-849.8	1,172.2	1.94	-1.52	
5,275.0	5.20	213.10	5,125.6	-815.3	-855.4	1,181.7	2.06	-1.98	
5,367.0	4.00	207.00	5,217.3	-821.6	-859.2	1,188.8	1.41	-1.30	
5,459.0	4.20	210.80	5,309.0	-827.4	-862.3	1,195.1	0.37	0.22	
5,550.0	3.70	221.30	5,399.8	-832.5	-866.0	1,201.2	0.96	-0.55	
5,642.0	2.40	222.00	5,491.7	-836.1	-869.2	1,206.1	1.41	-1.41	
5,733.0	0.60	155.20	5,582.7	-838.0	-870.3	1,208.1	2.45	-1.98	
5,825.0	0.40	137.00	5,674.7	-838.6	-869.9	1,208.3	0.28	-0.22	
5,916.0	0.20	192.70	5,765.7	-839.0	-869.7	1,208.4	0.36	-0.22	
6,007.0	0.90	228.60	5,856.7	-839.7	-870.3	1,209.3	0.82	0.77	
6,099.0	1.20	224.30	5,948.6	-840.8	-871.5	1,210.9	0.34	0.33	
6,190.0	0.40	247.50	6,039.6	-841.6	-872.4	1,212.2	0.93	-0.88	
6,282.0	0.40	239.50	6,131.6	-841.9	-873.0	1,212.8	0.06	0.00	
6,373.0	0.60	222.50	6,222.6	-842.4	-873.6	1,213.6	0.27	0.22	
6,465.0	0.80	222.20	6,314.6	-843.3	-874.4	1,214.7	0.22	0.22	
6,556.0	0.80	222.60	6,405.6	-844.2	-875.2	1,216.0	0.01	0.00	
6,648.0	0.50	215.40	6,497.6	-845.0	-875.9	1,217.0	0.34	-0.33	
6,739.0	0.40	225.80	6,588.6	-845.5	-876.4	1,217.7	0.14	-0.11	
6,831.0	0.50	208.30	6,680.6	-846.1	-876.8	1,218.4	0.18	0.11	
6,922.0	0.50	236.60	6,771.6	-846.7	-877.3	1,219.2	0.27	0.00	
7,014.0	1.30	259.10	6,863.6	-847.1	-878.7	1,220.5	0.93	0.87	
7,105.0	0.70	280.10	6,954.6	-847.2	-880.2	1,221.7	0.76	-0.66	
7,197.0	1.50	261.70	7,046.6	-847.3	-882.0	1,223.0	0.94	0.87	
7,288.0	2.10	250.60	7,137.5	-848.0	-884.7	1,225.5	0.76	0.66	
7,380.0	2.00	253.70	7,229.4	-849.0	-887.8	1,228.4	0.16	-0.11	
7,471.0	2.00	257.30	7,320.4	-849.8	-890.9	1,231.2	0.14	0.00	
7,563.0	2.10	247.00	7,412.3	-850.8	-894.0	1,234.2	0.41	0.11	
7,654.0	2.10	236.50	7,503.3	-852.4	-897.0	1,237.4	0.42	0.00	
7,746.0	2.10	241.60	7,595.2	-854.1	-899.8	1,240.7	0.20	0.00	
7,797.0	2.60	228.90	7,646.2	-855.3	-901.5	1,242.7	1.41	0.98	Last Cathedral Survey @ 7,797' MD
7,852.0	2.60	228.90	7,701.1	-857.0	-903.4	1,245.2	0.00	0.00	Projection to Bit @ 7,852'

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Hagen Federal 22-5A
<b>Project:</b>	S. Piceance (Parachute)	<b>TVD Reference:</b>	KB=22' @ 6543.0ft (Patterson 303)
<b>Site:</b>	PC-22 Pad NENW 2 7S 95W	<b>MD Reference:</b>	KB=22' @ 6543.0ft (Patterson 303)
<b>Well:</b>	Hagen Federal 22-5A	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	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 Federal 22-5A PE	0.00	0.00	7,659.0	-841.0	-885.9	1,589,789.07	2,296,827.23	39.426274	-107.989611
- actual wellpath misses target center by 24.8ft at 7797.0ft MD (7646.2 TVD, -855.3 N, -901.5 E)									
- Circle (radius 25.0)									
Hagen Federal 22-5A TC	0.00	0.00	5,512.0	-841.0	-885.9	1,589,789.07	2,296,827.23	39.426274	-107.989611
- actual wellpath misses target center by 16.7ft at 5662.6ft MD (5512.3 TVD, -836.7 N, -869.7 E)									
- Point									

Design Annotations					
Measured Depth	Vertical Depth	Local Coordinates			
(ft)	(ft)	+N/-S	+E/-W		
		(ft)	(ft)	Comment	
7,797.0	7,646.2	-855.3	-901.5	Last Cathedral Survey @ 7,797' MD	
7,852.0	7,701.1	-857.0	-903.4	Projection to Bit @ 7,852'	

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_