

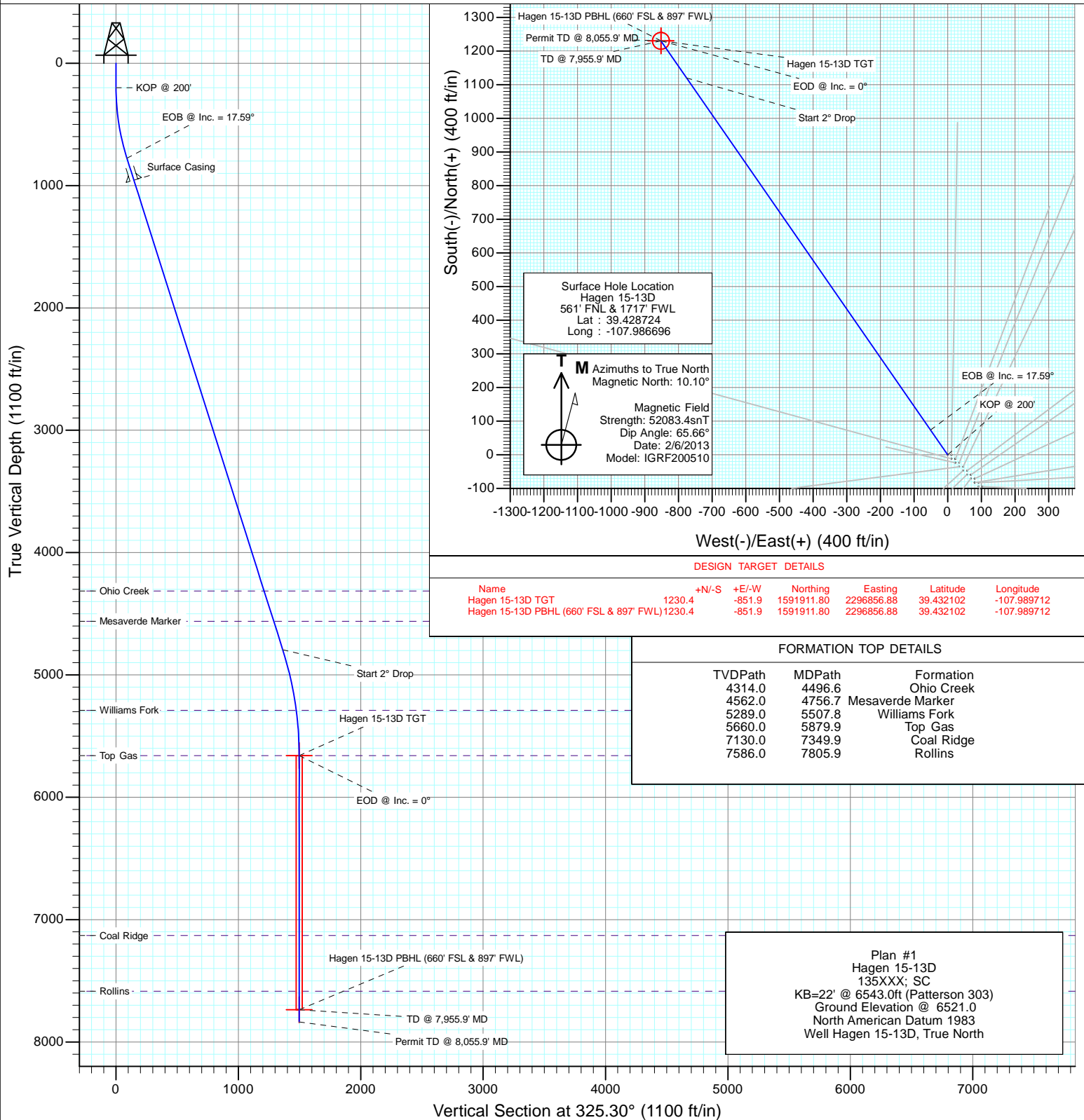


Project: S. Piceance (Parachute)
Site: PC-22 Pad NENW 2 7S 95W
Well: Hagen 15-13D
Wellbore: OH
Design: Plan #1



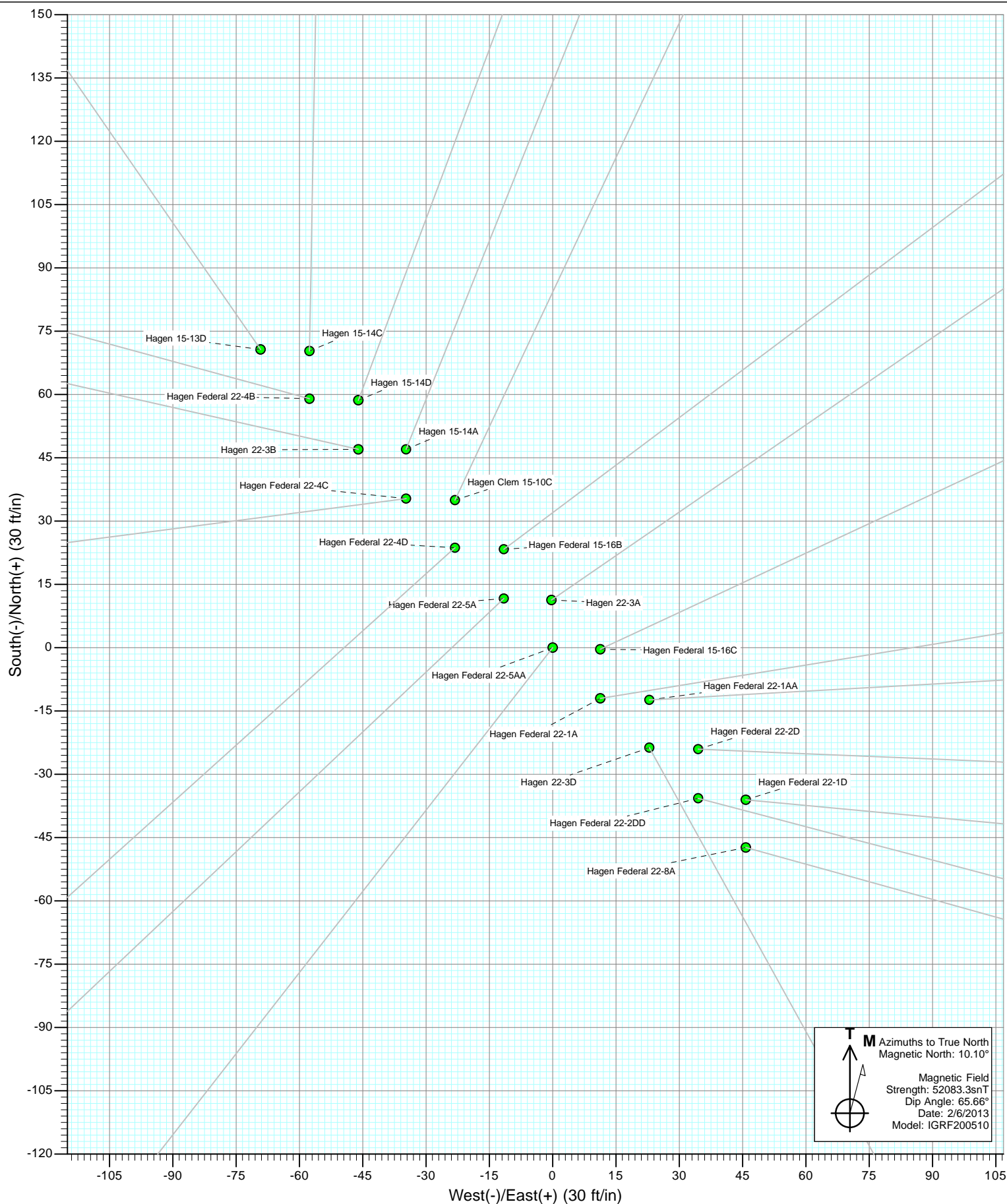
SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	V Sect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0	
3	786.2	17.59	325.30	777.1	73.4	-50.8	3.00	325.30	89.3	
4	5000.5	17.59	325.30	4794.4	1120.3	-775.7	0.00	0.00	1362.6	
5	5879.9	0.00	0.00	5660.0	1230.4	-851.9	2.00	180.00	1496.5	Hagen 15-13D TGT
6	7955.9	0.00	0.00	7736.0	1230.4	-851.9	0.00	0.00	1496.5	Hagen 15-13D PBHL (660' FSL & 897' FWL)
7	8055.9	0.00	0.00	7836.0	1230.4	-851.9	0.00	0.00	1496.5	





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





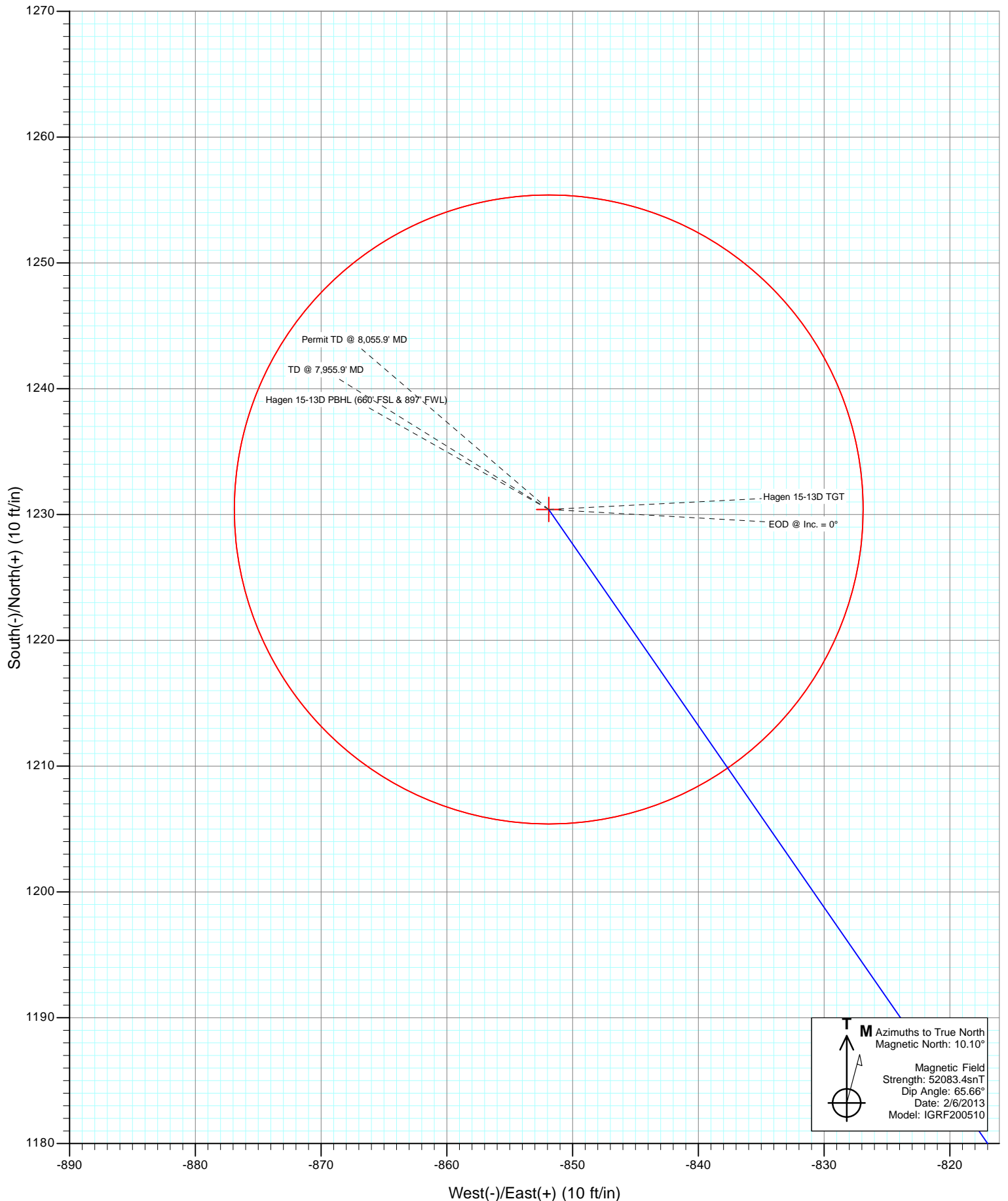
Project: S. Piceance (Parachute)
Site: PC-22 Pad NENW 2 7S 95W



T Azimuths to True North
Magnetic North: 10.10°
Magnetic Field
Strength: 52083.3snT
Dip Angle: 65.66°
Date: 2/6/2013
Model: IGRF200510



Project: S. Piceance (Parachute)
Site: PC-22 Pad NENW 2 7S 95W
Well: Hagen 15-13D
Wellbore: OH
Design: Plan #1



Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Hagen 15-13D
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB=22' @ 6543.0ft (Patterson 303)
Project:	S. Piceance (Parachute)	MD Reference:	KB=22' @ 6543.0ft (Patterson 303)
Site:	PC-22 Pad NENW 2 7S 95W	North Reference:	True
Well:	Hagen 15-13D	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

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 15-13D					
Well Position	+N/-S	0.0 ft	Northing:	1,590,658.54 ft	Latitude:	39.428724
	+E/-W	0.0 ft	Easting:	2,297,674.78 ft	Longitude:	-107.986696
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	2/6/2013	10.10	65.66	52,083

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	325.30

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.00	0.00	
786.2	17.59	325.30	777.1	73.4	-50.8	3.00	3.00	0.00	325.30	
5,000.5	17.59	325.30	4,794.4	1,120.3	-775.7	0.00	0.00	0.00	0.00	
5,879.9	0.00	0.00	5,660.0	1,230.4	-851.9	2.00	-2.00	0.00	180.00	Hagen 15-13D TGT
7,955.9	0.00	0.00	7,736.0	1,230.4	-851.9	0.00	0.00	0.00	0.00	Hagen 15-13D PBHL
8,055.9	0.00	0.00	7,836.0	1,230.4	-851.9	0.00	0.00	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Hagen 15-13D
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB=22' @ 6543.0ft (Patterson 303)
Project:	S. Piceance (Parachute)	MD Reference:	KB=22' @ 6543.0ft (Patterson 303)
Site:	PC-22 Pad NENW 2 7S 95W	North Reference:	True
Well:	Hagen 15-13D	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	KOP @ 200'
300.0	3.00	325.30	300.0	2.2	-1.5	2.6	3.00	3.00	
400.0	6.00	325.30	399.6	8.6	-6.0	10.5	3.00	3.00	
500.0	9.00	325.30	498.8	19.3	-13.4	23.5	3.00	3.00	
600.0	12.00	325.30	597.1	34.3	-23.8	41.7	3.00	3.00	
700.0	15.00	325.30	694.3	53.5	-37.0	65.1	3.00	3.00	
786.2	17.59	325.30	777.1	73.4	-50.8	89.3	3.00	3.00	EOB @ Inc. = 17.59°
800.0	17.59	325.30	790.2	76.8	-53.2	93.4	0.00	0.00	
900.0	17.59	325.30	885.5	101.7	-70.4	123.6	0.00	0.00	
1,000.0	17.59	325.30	980.8	126.5	-87.6	153.9	0.00	0.00	
1,100.0	17.59	325.30	1,076.2	151.3	-104.8	184.1	0.00	0.00	
1,200.0	17.59	325.30	1,171.5	176.2	-122.0	214.3	0.00	0.00	
1,300.0	17.59	325.30	1,266.8	201.0	-139.2	244.5	0.00	0.00	
1,400.0	17.59	325.30	1,362.1	225.9	-156.4	274.7	0.00	0.00	
1,500.0	17.59	325.30	1,457.5	250.7	-173.6	304.9	0.00	0.00	
1,600.0	17.59	325.30	1,552.8	275.6	-190.8	335.2	0.00	0.00	
1,700.0	17.59	325.30	1,648.1	300.4	-208.0	365.4	0.00	0.00	
1,800.0	17.59	325.30	1,743.5	325.2	-225.2	395.6	0.00	0.00	
1,900.0	17.59	325.30	1,838.8	350.1	-242.4	425.8	0.00	0.00	
2,000.0	17.59	325.30	1,934.1	374.9	-259.6	456.0	0.00	0.00	
2,100.0	17.59	325.30	2,029.4	399.8	-276.8	486.2	0.00	0.00	
2,200.0	17.59	325.30	2,124.8	424.6	-294.0	516.4	0.00	0.00	
2,300.0	17.59	325.30	2,220.1	449.4	-311.2	546.7	0.00	0.00	
2,400.0	17.59	325.30	2,315.4	474.3	-328.4	576.9	0.00	0.00	
2,500.0	17.59	325.30	2,410.7	499.1	-345.6	607.1	0.00	0.00	
2,600.0	17.59	325.30	2,506.1	524.0	-362.8	637.3	0.00	0.00	
2,700.0	17.59	325.30	2,601.4	548.8	-380.0	667.5	0.00	0.00	
2,800.0	17.59	325.30	2,696.7	573.7	-397.2	697.7	0.00	0.00	
2,900.0	17.59	325.30	2,792.0	598.5	-414.4	727.9	0.00	0.00	
3,000.0	17.59	325.30	2,887.4	623.3	-431.6	758.2	0.00	0.00	
3,100.0	17.59	325.30	2,982.7	648.2	-448.8	788.4	0.00	0.00	
3,200.0	17.59	325.30	3,078.0	673.0	-466.0	818.6	0.00	0.00	
3,300.0	17.59	325.30	3,173.3	697.9	-483.2	848.8	0.00	0.00	
3,400.0	17.59	325.30	3,268.7	722.7	-500.4	879.0	0.00	0.00	
3,500.0	17.59	325.30	3,364.0	747.5	-517.6	909.2	0.00	0.00	
3,600.0	17.59	325.30	3,459.3	772.4	-534.8	939.5	0.00	0.00	
3,700.0	17.59	325.30	3,554.6	797.2	-552.0	969.7	0.00	0.00	
3,800.0	17.59	325.30	3,650.0	822.1	-569.2	999.9	0.00	0.00	
3,900.0	17.59	325.30	3,745.3	846.9	-586.4	1,030.1	0.00	0.00	
4,000.0	17.59	325.30	3,840.6	871.8	-603.6	1,060.3	0.00	0.00	
4,100.0	17.59	325.30	3,936.0	896.6	-620.8	1,090.5	0.00	0.00	
4,200.0	17.59	325.30	4,031.3	921.4	-638.0	1,120.7	0.00	0.00	
4,300.0	17.59	325.30	4,126.6	946.3	-655.2	1,151.0	0.00	0.00	
4,400.0	17.59	325.30	4,221.9	971.1	-672.4	1,181.2	0.00	0.00	
4,496.6	17.59	325.30	4,314.0	995.1	-689.0	1,210.4	0.00	0.00	Ohio Creek
4,500.0	17.59	325.30	4,317.3	996.0	-689.6	1,211.4	0.00	0.00	
4,600.0	17.59	325.30	4,412.6	1,020.8	-706.8	1,241.6	0.00	0.00	
4,700.0	17.59	325.30	4,507.9	1,045.7	-724.0	1,271.8	0.00	0.00	
4,756.7	17.59	325.30	4,562.0	1,059.8	-733.7	1,289.0	0.00	0.00	Mesaverde Marker
4,800.0	17.59	325.30	4,603.2	1,070.5	-741.2	1,302.0	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Hagen 15-13D
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB=22' @ 6543.0ft (Patterson 303)
Project:	S. Piceance (Parachute)	MD Reference:	KB=22' @ 6543.0ft (Patterson 303)
Site:	PC-22 Pad NENW 2 7S 95W	North Reference:	True
Well:	Hagen 15-13D	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
4,900.0	17.59	325.30	4,698.6	1,095.3	-758.4	1,332.3	0.00	0.00	
5,000.5	17.59	325.30	4,794.4	1,120.3	-775.7	1,362.6	0.00	0.00	Start 2° Drop
5,100.0	15.60	325.30	4,889.7	1,143.7	-791.8	1,391.0	2.00	-2.00	
5,200.0	13.60	325.30	4,986.5	1,164.4	-806.2	1,416.2	2.00	-2.00	
5,300.0	11.60	325.30	5,084.1	1,182.3	-818.6	1,438.0	2.00	-2.00	
5,400.0	9.60	325.30	5,182.4	1,197.4	-829.1	1,456.4	2.00	-2.00	
5,500.0	7.60	325.30	5,281.2	1,209.7	-837.6	1,471.4	2.00	-2.00	
5,507.8	7.44	325.30	5,289.0	1,210.6	-838.2	1,472.4	2.00	-2.00	Williams Fork
5,600.0	5.60	325.30	5,380.6	1,219.2	-844.1	1,482.9	2.00	-2.00	
5,700.0	3.60	325.30	5,480.2	1,225.8	-848.7	1,490.9	2.00	-2.00	
5,800.0	1.60	325.30	5,580.1	1,229.5	-851.3	1,495.4	2.00	-2.00	
5,879.9	0.00	0.00	5,660.0	1,230.4	-851.9	1,496.5	2.00	-2.00	EOD @ Inc. = 0° - Top Gas
5,900.0	0.00	0.00	5,680.1	1,230.4	-851.9	1,496.5	0.00	0.00	
6,000.0	0.00	0.00	5,780.1	1,230.4	-851.9	1,496.5	0.00	0.00	
6,100.0	0.00	0.00	5,880.1	1,230.4	-851.9	1,496.5	0.00	0.00	
6,200.0	0.00	0.00	5,980.1	1,230.4	-851.9	1,496.5	0.00	0.00	
6,300.0	0.00	0.00	6,080.1	1,230.4	-851.9	1,496.5	0.00	0.00	
6,400.0	0.00	0.00	6,180.1	1,230.4	-851.9	1,496.5	0.00	0.00	
6,500.0	0.00	0.00	6,280.1	1,230.4	-851.9	1,496.5	0.00	0.00	
6,600.0	0.00	0.00	6,380.1	1,230.4	-851.9	1,496.5	0.00	0.00	
6,700.0	0.00	0.00	6,480.1	1,230.4	-851.9	1,496.5	0.00	0.00	
6,800.0	0.00	0.00	6,580.1	1,230.4	-851.9	1,496.5	0.00	0.00	
6,900.0	0.00	0.00	6,680.1	1,230.4	-851.9	1,496.5	0.00	0.00	
7,000.0	0.00	0.00	6,780.1	1,230.4	-851.9	1,496.5	0.00	0.00	
7,100.0	0.00	0.00	6,880.1	1,230.4	-851.9	1,496.5	0.00	0.00	
7,200.0	0.00	0.00	6,980.1	1,230.4	-851.9	1,496.5	0.00	0.00	
7,300.0	0.00	0.00	7,080.1	1,230.4	-851.9	1,496.5	0.00	0.00	
7,349.9	0.00	0.00	7,130.0	1,230.4	-851.9	1,496.5	0.00	0.00	Coal Ridge
7,400.0	0.00	0.00	7,180.1	1,230.4	-851.9	1,496.5	0.00	0.00	
7,500.0	0.00	0.00	7,280.1	1,230.4	-851.9	1,496.5	0.00	0.00	
7,600.0	0.00	0.00	7,380.1	1,230.4	-851.9	1,496.5	0.00	0.00	
7,700.0	0.00	0.00	7,480.1	1,230.4	-851.9	1,496.5	0.00	0.00	
7,800.0	0.00	0.00	7,580.1	1,230.4	-851.9	1,496.5	0.00	0.00	
7,805.9	0.00	0.00	7,586.0	1,230.4	-851.9	1,496.5	0.00	0.00	Rollins
7,900.0	0.00	0.00	7,680.1	1,230.4	-851.9	1,496.5	0.00	0.00	
7,955.9	0.00	0.00	7,736.0	1,230.4	-851.9	1,496.5	0.00	0.00	TD @ 7,955.9' MD
8,000.0	0.00	0.00	7,780.1	1,230.4	-851.9	1,496.5	0.00	0.00	
8,055.9	0.00	0.00	7,836.0	1,230.4	-851.9	1,496.5	0.00	0.00	Permit TD @ 8,055.9' MD

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									
Hagen 15-13D TGT	0.00	0.00	5,660.0	1,230.4	-851.9	1,591,911.80	2,296,856.88	39.432102	-107.989712
- plan hits target center									
- Point									
Hagen 15-13D PBHL (6'	0.00	0.00	7,736.0	1,230.4	-851.9	1,591,911.80	2,296,856.88	39.432102	-107.989712
- plan hits target center									
- Circle (radius 25.0)									

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Hagen 15-13D
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Project:	S. Piceance (Parachute)	MD Reference:	KB=22' @ 6543.0ft (Patterson 303)
Site:	PC-22 Pad NENW 2 7S 95W	North Reference:	True
Well:	Hagen 15-13D	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,496.6	4,314.0	Ohio Creek			
4,756.7	4,562.0	Mesaverde Marker			
5,507.8	5,289.0	Williams Fork			
5,879.9	5,660.0	Top Gas			
7,349.9	7,130.0	Coal Ridge			
7,805.9	7,586.0	Rollins			

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
200.0	200.0	0.0	0.0	KOP @ 200'
786.2	777.1	73.4	-50.8	EOB @ Inc. = 17.59°
5,000.5	4,794.4	1,120.3	-775.7	Start 2° Drop
5,879.9	5,660.0	1,230.4	-851.9	EOD @ Inc. = 0°
7,955.9	7,736.0	1,230.4	-851.9	TD @ 7,955.9' MD
8,055.9	7,836.0	1,230.4	-851.9	Permit TD @ 8,055.9' MD