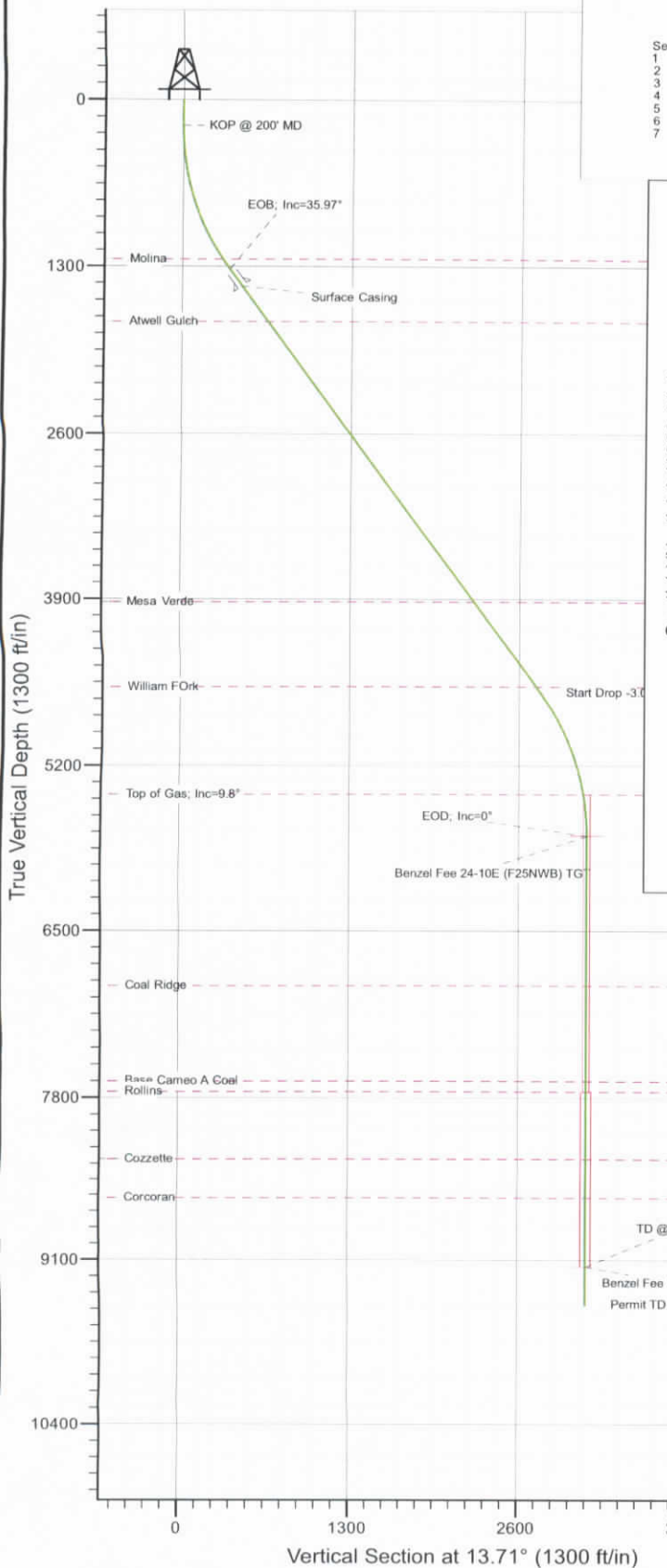
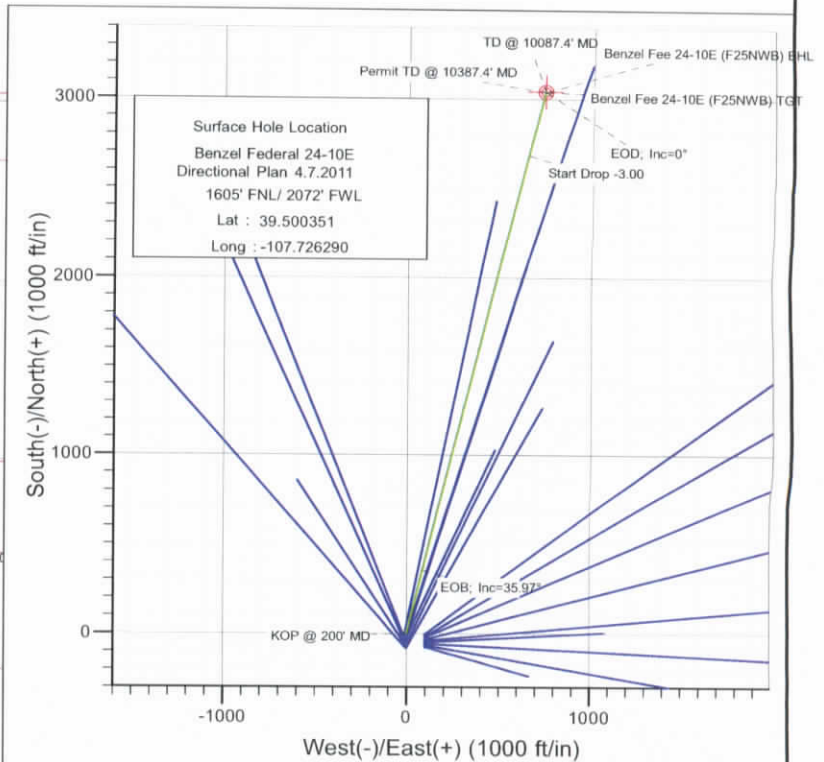




Project: Mamm Creek  
 Site: F25NWB Pad  
 Well: Benzel Federal 24-10E (F25NWB Pad) Directional Plan 4.6.2011  
 Wellbore: DD  
 Design: Plan #1



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	1398.9	35.97	13.71	1321.7	353.7	86.3	3.00	13.71	364.1	
4	5485.5	35.97	13.71	4629.2	2685.5	655.2	0.00	0.00	2764.3	
5	6684.4	0.00	0.00	5750.9	3039.2	741.5	3.00	180.00	3128.4	Benzel Fee 24-10E (F25NWB) TGT
6	10087.4	0.00	0.00	9153.9	3039.2	741.5	0.00	0.00	3128.4	Benzel Fee 24-10E (F25NWB) BHL
7	10387.4	0.00	0.00	9453.9	3039.2	741.5	0.00	0.00	3128.4	



FORMATION TOP DETAILS		
TVDPATH	MDPATH	Formation
1243.9	1304.4	Molina
1729.9	1903.3	Atwell Gulch
3924.9	4615.3	Mesa Verde
4588.9	5435.7	William Fork
5425.9	6357.8	Top of Gas; Inc=9.8°
6928.9	7862.4	Coal Ridge
7669.9	8603.4	Base Cameo A Coal
7751.9	8685.4	Rollins
8281.9	9215.4	Cozzette
8603.9	9537.4	Corcoran



Azimuths to True North  
 Magnetic North: 10.26°  
 Magnetic Field  
 Strength: 52308.3nT  
 Dip Angle: 65.80°  
 Date: 4/6/2011  
 Model: IGRF2010

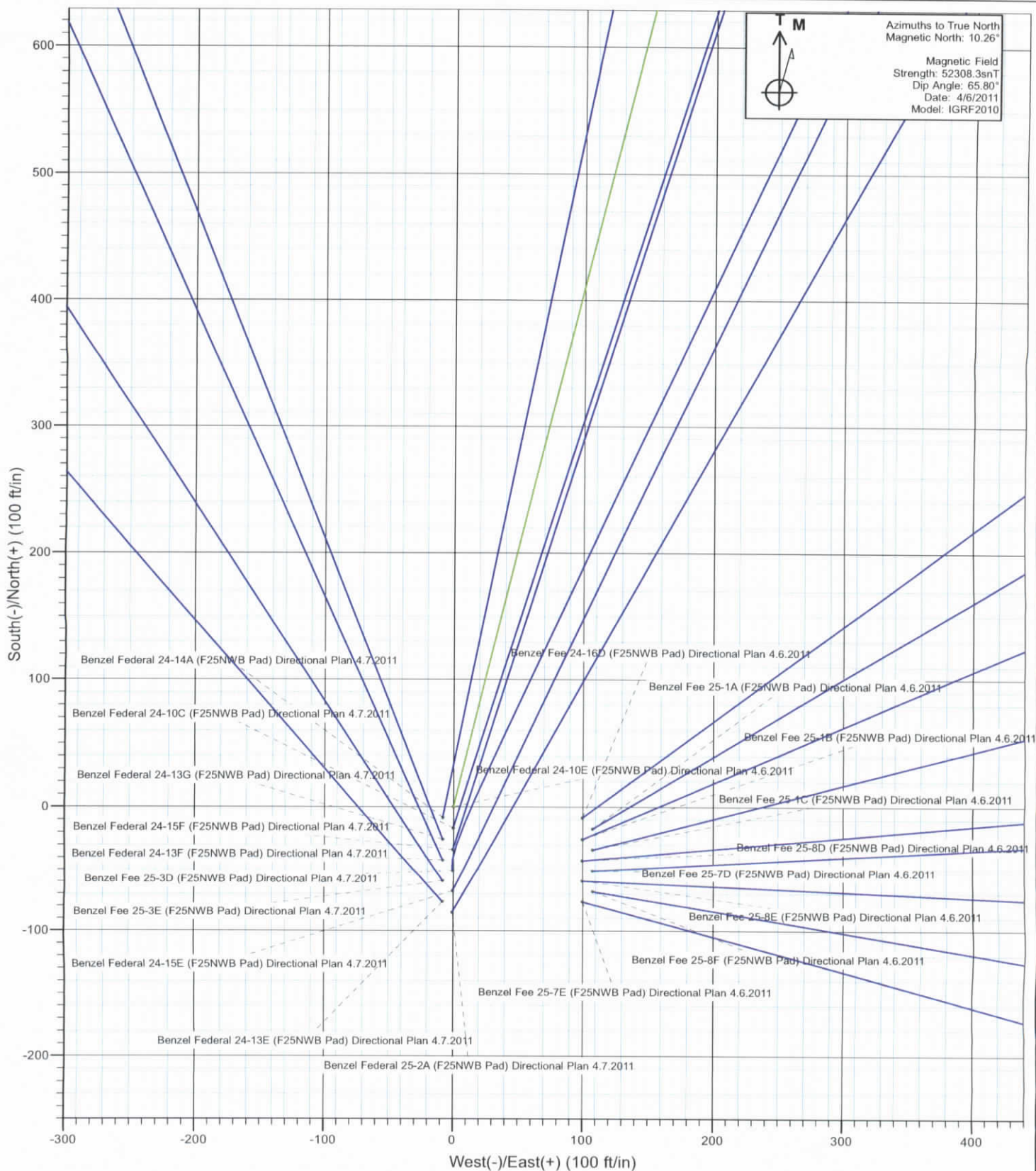
Plan #1  
 Benzel Federal 24-10E (F25NWB Pad) Directional Plan 4.6.2011  
 115XXX: BH

KBE @ 5851.9ft (Original Well Elev)  
 North American Datum 1983  
 Well Benzel Federal 24-10E (F25NWB Pad) Directional Plan 4.6.2011, True North

Type	Target	Azimuth	Origin	Type	N/S	E/W	From
Target	Benzel Fee 24-10E (F25NWB) BHL	13.71	Slot	0.0	0.0	0.0	0.0
Name	Benzel Fee 24-10E (F25NWB) TGT	TVD	+N/-S	+E/-W	Latitude	Longitude	
		5750.9	3039.2	741.5	39.508695	-107.723662	
	Benzel Fee 24-10E (F25NWB) BHL	9153.9	3039.2	741.5	39.508695	-107.723662	

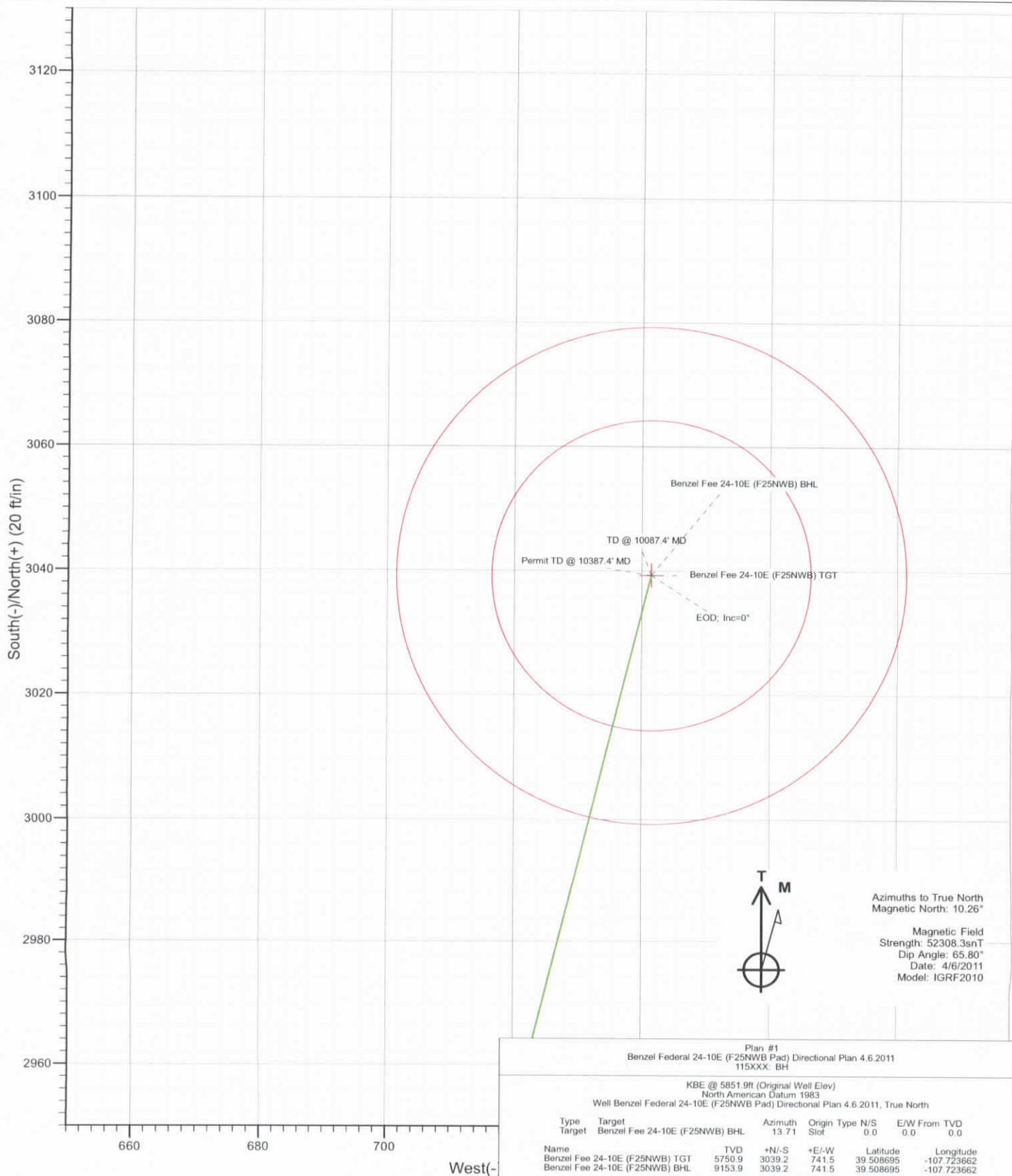


Project: Mamm Creek  
Site: F25NWB Pad  
Well: Benzel Federal 24-10E (F25NWB Pad) Directional Plan 4.6.2011  
Wellbore: DD  
Design: Plan #1





Project: Mamm Creek  
 Site: F25NWB Pad  
 Well: Benzel Federal 24-10E (F25NWB Pad) Directional Plan 4.6.2011  
 Wellbore: DD  
 Design: Plan #1



Plan #1  
 Benzel Federal 24-10E (F25NWB Pad) Directional Plan 4.6.2011  
 115XXX: BH

KBE @ 5851.9ft (Original Well Elev)  
 North American Datum 1983  
 Well Benzel Federal 24-10E (F25NWB Pad) Directional Plan 4.6.2011, True North

Type	Target	Azimuth	Origin	Type	N/S	E/W From	TVD
Target	Benzel Fee 24-10E (F25NWB) BHL	13.71	Slot	0.0	0.0	0.0	
Name		TVD	+N/-S	+E/-W	Latitude	Longitude	
Benzel Fee 24-10E (F25NWB) TGT		5750.9	3039.2	741.5	39.508695	-107.723662	
Benzel Fee 24-10E (F25NWB) BHL		9153.9	3039.2	741.5	39.508695	-107.723662	

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	EDM 5000.1 US Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Benzel Federal 24-10E (F25NWB Pad) Dire
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	KBE @ 5851.9ft (Original Well Elev)
<b>Project:</b>	Mamm Creek	<b>MD Reference:</b>	KBE @ 5851.9ft (Original Well Elev)
<b>Site:</b>	F25NWB Pad	<b>North Reference:</b>	True
<b>Well:</b>	Benzel Federal 24-10E (F25NWB Pad) Directional Plan	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DD		
<b>Design:</b>	Plan #1		

Project	Mamm Creek		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Central Zone		

Site	F25NWB Pad				
Site Position:		Northing:	1,614,821.30 ft	Latitude:	39.500328
From:	Lat/Long	Easting:	2,371,946.03 ft	Longitude:	-107.725936
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.40 °

Well	Benzel Federal 24-10E (F25NWB Pad) Directional Plan 4.6.2011					
Well Position	+N/-S	0.0 ft	Northing:	1,614,832.12 ft	Latitude:	39.500351
	+E/-W	0.0 ft	Easting:	2,371,846.37 ft	Longitude:	-107.726290
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	5,829.9 ft

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	4/6/2011	10.26	65.80	52,308

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	13.71

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	
1,398.9	35.97	13.71	1,321.7	353.7	86.3	3.00	3.00	0.00	13.71	
5,485.5	35.97	13.71	4,629.2	2,685.5	655.2	0.00	0.00	0.00	0.00	
6,684.4	0.00	0.00	5,750.9	3,039.2	741.5	3.00	-3.00	0.00	180.00	Benzel Fee 24-10E (F
10,087.4	0.00	0.00	9,153.9	3,039.2	741.5	0.00	0.00	0.00	0.00	Benzel Fee 24-10E (F
10,387.4	0.00	0.00	9,453.9	3,039.2	741.5	0.00	0.00	0.00	0.00	



# Cathedral Energy Services

## Planning Report

<b>Database:</b>	EDM 5000.1 US Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Benzel Federal 24-10E (F25NWB Pad) Dire
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	KBE @ 5851.9ft (Original Well Elev)
<b>Project:</b>	Mamm Creek	<b>MD Reference:</b>	KBE @ 5851.9ft (Original Well Elev)
<b>Site:</b>	F25NWB Pad	<b>North Reference:</b>	True
<b>Well:</b>	Benzel Federal 24-10E (F25NWB Pad) Directional Plan	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DD		
<b>Design:</b>	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' MD
300.0	3.00	13.71	300.0	2.5	0.6	2.6	3.00	3.00	
400.0	6.00	13.71	399.6	10.2	2.5	10.5	3.00	3.00	
500.0	9.00	13.71	498.8	22.8	5.6	23.5	3.00	3.00	
600.0	12.00	13.71	597.1	40.5	9.9	41.7	3.00	3.00	
700.0	15.00	13.71	694.3	63.2	15.4	65.1	3.00	3.00	
800.0	18.00	13.71	790.2	90.8	22.2	93.5	3.00	3.00	
900.0	21.00	13.71	884.4	123.2	30.1	126.9	3.00	3.00	
1,000.0	24.00	13.71	976.8	160.4	39.1	165.1	3.00	3.00	
1,100.0	27.00	13.71	1,067.1	202.2	49.3	208.2	3.00	3.00	
1,200.0	30.00	13.71	1,154.9	248.6	60.6	255.9	3.00	3.00	
1,300.0	33.00	13.71	1,240.2	299.3	73.0	308.1	3.00	3.00	
1,304.4	33.13	13.71	1,243.9	301.7	73.6	310.5	3.00	3.00	Molina
1,398.9	35.97	13.71	1,321.7	353.7	86.3	364.1	3.00	3.00	EOB; Inc=35.97°
1,400.0	35.97	13.71	1,322.6	354.4	86.5	364.8	0.00	0.00	
1,500.0	35.97	13.71	1,403.5	411.4	100.4	423.5	0.00	0.00	
1,560.0	35.97	13.71	1,452.1	445.7	108.7	458.7	0.00	0.00	Surface Casing
1,600.0	35.97	13.71	1,484.5	468.5	114.3	482.2	0.00	0.00	
1,700.0	35.97	13.71	1,565.4	525.5	128.2	540.9	0.00	0.00	
1,800.0	35.97	13.71	1,646.3	582.6	142.1	599.7	0.00	0.00	
1,900.0	35.97	13.71	1,727.3	639.7	156.1	658.4	0.00	0.00	
1,903.3	35.97	13.71	1,729.9	641.5	156.5	660.3	0.00	0.00	Atwell Gulch
2,000.0	35.97	13.71	1,808.2	696.7	170.0	717.1	0.00	0.00	
2,100.0	35.97	13.71	1,889.1	753.8	183.9	775.9	0.00	0.00	
2,200.0	35.97	13.71	1,970.1	810.8	197.8	834.6	0.00	0.00	
2,300.0	35.97	13.71	2,051.0	867.9	211.7	893.3	0.00	0.00	
2,400.0	35.97	13.71	2,131.9	924.9	225.7	952.1	0.00	0.00	
2,500.0	35.97	13.71	2,212.9	982.0	239.6	1,010.8	0.00	0.00	
2,600.0	35.97	13.71	2,293.8	1,039.1	253.5	1,069.5	0.00	0.00	
2,700.0	35.97	13.71	2,374.7	1,096.1	267.4	1,128.3	0.00	0.00	
2,800.0	35.97	13.71	2,455.7	1,153.2	281.3	1,187.0	0.00	0.00	
2,900.0	35.97	13.71	2,536.6	1,210.2	295.3	1,245.7	0.00	0.00	
3,000.0	35.97	13.71	2,617.5	1,267.3	309.2	1,304.5	0.00	0.00	
3,100.0	35.97	13.71	2,698.5	1,324.4	323.1	1,363.2	0.00	0.00	
3,200.0	35.97	13.71	2,779.4	1,381.4	337.0	1,421.9	0.00	0.00	
3,300.0	35.97	13.71	2,860.4	1,438.5	350.9	1,480.7	0.00	0.00	
3,400.0	35.97	13.71	2,941.3	1,495.5	364.9	1,539.4	0.00	0.00	
3,500.0	35.97	13.71	3,022.2	1,552.6	378.8	1,598.1	0.00	0.00	
3,600.0	35.97	13.71	3,103.2	1,609.7	392.7	1,656.9	0.00	0.00	
3,700.0	35.97	13.71	3,184.1	1,666.7	406.6	1,715.6	0.00	0.00	
3,800.0	35.97	13.71	3,265.0	1,723.8	420.6	1,774.3	0.00	0.00	
3,900.0	35.97	13.71	3,346.0	1,780.8	434.5	1,833.1	0.00	0.00	
4,000.0	35.97	13.71	3,426.9	1,837.9	448.4	1,891.8	0.00	0.00	
4,100.0	35.97	13.71	3,507.8	1,895.0	462.3	1,950.5	0.00	0.00	
4,200.0	35.97	13.71	3,588.8	1,952.0	476.2	2,009.3	0.00	0.00	
4,300.0	35.97	13.71	3,669.7	2,009.1	490.2	2,068.0	0.00	0.00	
4,400.0	35.97	13.71	3,750.6	2,066.1	504.1	2,126.7	0.00	0.00	
4,500.0	35.97	13.71	3,831.6	2,123.2	518.0	2,185.5	0.00	0.00	
4,600.0	35.97	13.71	3,912.5	2,180.2	531.9	2,244.2	0.00	0.00	
4,615.3	35.97	13.71	3,924.9	2,189.0	534.1	2,253.2	0.00	0.00	Mesa Verde

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	EDM 5000.1 US Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Benzel Federal 24-10E (F25NWB Pad) Dire
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	KBE @ 5851.9ft (Original Well Elev)
<b>Project:</b>	Mamm Creek	<b>MD Reference:</b>	KBE @ 5851.9ft (Original Well Elev)
<b>Site:</b>	F25NWB Pad	<b>North Reference:</b>	True
<b>Well:</b>	Benzel Federal 24-10E (F25NWB Pad) Directional Plan	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DD		
<b>Design:</b>	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
4,700.0	35.97	13.71	3,993.4	2,237.3	545.8	2,302.9	0.00	0.00	
4,800.0	35.97	13.71	4,074.4	2,294.4	559.8	2,361.7	0.00	0.00	
4,900.0	35.97	13.71	4,155.3	2,351.4	573.7	2,420.4	0.00	0.00	
5,000.0	35.97	13.71	4,236.2	2,408.5	587.6	2,479.1	0.00	0.00	
5,100.0	35.97	13.71	4,317.2	2,465.5	601.5	2,537.9	0.00	0.00	
5,200.0	35.97	13.71	4,398.1	2,522.6	615.4	2,596.6	0.00	0.00	
5,300.0	35.97	13.71	4,479.1	2,579.7	629.4	2,655.3	0.00	0.00	
5,400.0	35.97	13.71	4,560.0	2,636.7	643.3	2,714.1	0.00	0.00	
5,435.7	35.97	13.71	4,588.9	2,657.1	648.3	2,735.0	0.00	0.00	William FORk
5,485.5	35.97	13.71	4,629.2	2,685.5	655.2	2,764.3	0.00	0.00	Start Drop -3.00
5,500.0	35.53	13.71	4,641.0	2,693.7	657.2	2,772.7	3.00	-3.00	
5,600.0	32.53	13.71	4,723.8	2,748.1	670.5	2,828.7	3.00	-3.00	
5,700.0	29.53	13.71	4,809.5	2,798.2	682.7	2,880.3	3.00	-3.00	
5,800.0	26.53	13.71	4,897.8	2,843.8	693.8	2,927.2	3.00	-3.00	
5,900.0	23.53	13.71	4,988.3	2,884.9	703.8	2,969.6	3.00	-3.00	
6,000.0	20.53	13.71	5,081.0	2,921.4	712.7	3,007.1	3.00	-3.00	
6,100.0	17.53	13.71	5,175.6	2,953.1	720.5	3,039.7	3.00	-3.00	
6,200.0	14.53	13.71	5,271.7	2,979.9	727.0	3,067.3	3.00	-3.00	
6,300.0	11.53	13.71	5,369.1	3,001.8	732.4	3,089.8	3.00	-3.00	
6,357.8	9.80	13.71	5,425.9	3,012.2	734.9	3,100.5	3.00	-3.00	Top of Gas; Inc=9.8°
6,400.0	8.53	13.71	5,467.5	3,018.7	736.5	3,107.3	3.00	-3.00	
6,500.0	5.53	13.71	5,566.8	3,030.6	739.4	3,119.5	3.00	-3.00	
6,600.0	2.53	13.71	5,666.5	3,037.4	741.0	3,126.5	3.00	-3.00	
6,684.4	0.00	0.00	5,750.9	3,039.2	741.5	3,128.4	3.00	-3.00	EOD; Inc=0° - Benzel Fee 24-10E (F25NWB) T
6,700.0	0.00	0.00	5,766.5	3,039.2	741.5	3,128.4	0.00	0.00	
6,800.0	0.00	0.00	5,866.5	3,039.2	741.5	3,128.4	0.00	0.00	
6,900.0	0.00	0.00	5,966.5	3,039.2	741.5	3,128.4	0.00	0.00	
7,000.0	0.00	0.00	6,066.5	3,039.2	741.5	3,128.4	0.00	0.00	
7,100.0	0.00	0.00	6,166.5	3,039.2	741.5	3,128.4	0.00	0.00	
7,200.0	0.00	0.00	6,266.5	3,039.2	741.5	3,128.4	0.00	0.00	
7,300.0	0.00	0.00	6,366.5	3,039.2	741.5	3,128.4	0.00	0.00	
7,400.0	0.00	0.00	6,466.5	3,039.2	741.5	3,128.4	0.00	0.00	
7,500.0	0.00	0.00	6,566.5	3,039.2	741.5	3,128.4	0.00	0.00	
7,600.0	0.00	0.00	6,666.5	3,039.2	741.5	3,128.4	0.00	0.00	
7,700.0	0.00	0.00	6,766.5	3,039.2	741.5	3,128.4	0.00	0.00	
7,800.0	0.00	0.00	6,866.5	3,039.2	741.5	3,128.4	0.00	0.00	
7,862.4	0.00	0.00	6,928.9	3,039.2	741.5	3,128.4	0.00	0.00	Coal Ridge
7,900.0	0.00	0.00	6,966.5	3,039.2	741.5	3,128.4	0.00	0.00	
8,000.0	0.00	0.00	7,066.5	3,039.2	741.5	3,128.4	0.00	0.00	
8,100.0	0.00	0.00	7,166.5	3,039.2	741.5	3,128.4	0.00	0.00	
8,200.0	0.00	0.00	7,266.5	3,039.2	741.5	3,128.4	0.00	0.00	
8,300.0	0.00	0.00	7,366.5	3,039.2	741.5	3,128.4	0.00	0.00	
8,400.0	0.00	0.00	7,466.5	3,039.2	741.5	3,128.4	0.00	0.00	
8,500.0	0.00	0.00	7,566.5	3,039.2	741.5	3,128.4	0.00	0.00	
8,600.0	0.00	0.00	7,666.5	3,039.2	741.5	3,128.4	0.00	0.00	
8,603.4	0.00	0.00	7,669.9	3,039.2	741.5	3,128.4	0.00	0.00	Base Cameo A Coal
8,685.4	0.00	0.00	7,751.9	3,039.2	741.5	3,128.4	0.00	0.00	Rollins
8,700.0	0.00	0.00	7,766.5	3,039.2	741.5	3,128.4	0.00	0.00	
8,800.0	0.00	0.00	7,866.5	3,039.2	741.5	3,128.4	0.00	0.00	
8,900.0	0.00	0.00	7,966.5	3,039.2	741.5	3,128.4	0.00	0.00	
9,000.0	0.00	0.00	8,066.5	3,039.2	741.5	3,128.4	0.00	0.00	
9,100.0	0.00	0.00	8,166.5	3,039.2	741.5	3,128.4	0.00	0.00	

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	EDM 5000.1 US Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Benzel Federal 24-10E (F25NWB Pad) Dire
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	KBE @ 5851.9ft (Original Well Elev)
<b>Project:</b>	Mamm Creek	<b>MD Reference:</b>	KBE @ 5851.9ft (Original Well Elev)
<b>Site:</b>	F25NWB Pad	<b>North Reference:</b>	True
<b>Well:</b>	Benzel Federal 24-10E (F25NWB Pad) Directional Plar	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DD		
<b>Design:</b>	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
9,200.0	0.00	0.00	8,266.5	3,039.2	741.5	3,128.4	0.00	0.00	
9,215.4	0.00	0.00	8,281.9	3,039.2	741.5	3,128.4	0.00	0.00	Cozzette
9,300.0	0.00	0.00	8,366.5	3,039.2	741.5	3,128.4	0.00	0.00	
9,400.0	0.00	0.00	8,466.5	3,039.2	741.5	3,128.4	0.00	0.00	
9,500.0	0.00	0.00	8,566.5	3,039.2	741.5	3,128.4	0.00	0.00	
9,537.4	0.00	0.00	8,603.9	3,039.2	741.5	3,128.4	0.00	0.00	Corcoran
9,600.0	0.00	0.00	8,666.5	3,039.2	741.5	3,128.4	0.00	0.00	
9,700.0	0.00	0.00	8,766.5	3,039.2	741.5	3,128.4	0.00	0.00	
9,800.0	0.00	0.00	8,866.5	3,039.2	741.5	3,128.4	0.00	0.00	
9,900.0	0.00	0.00	8,966.5	3,039.2	741.5	3,128.4	0.00	0.00	
10,000.0	0.00	0.00	9,066.5	3,039.2	741.5	3,128.4	0.00	0.00	
10,087.4	0.00	0.00	9,153.9	3,039.2	741.5	3,128.4	0.00	0.00	TD @ 10087.4' MD - Benzel Fee 24-10E (F25N
10,100.0	0.00	0.00	9,166.5	3,039.2	741.5	3,128.4	0.00	0.00	
10,200.0	0.00	0.00	9,266.5	3,039.2	741.5	3,128.4	0.00	0.00	
10,300.0	0.00	0.00	9,366.5	3,039.2	741.5	3,128.4	0.00	0.00	
10,387.4	0.00	0.00	9,453.9	3,039.2	741.5	3,128.4	0.00	0.00	Permit TD @ 10387.4' 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									
Benzel Fee 24-10E (F25	0.00	0.00	9,153.9	3,039.2	741.5	1,617,852.28	2,372,662.11	39.508695	-107.723662
- plan hits target center									
- Circle (radius 40.0)									
Benzel Fee 24-10E (F25	0.00	0.00	5,750.9	3,039.2	741.5	1,617,852.28	2,372,662.11	39.508695	-107.723662
- plan hits target center									
- Circle (radius 25.0)									

### Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,560.0	1,452.1	Surface Casing	0.000	0.000



# Cathedral Energy Services

## Planning Report

<b>Database:</b>	EDM 5000.1 US Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Benzel Federal 24-10E (F25NWB Pad) Dire
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	KBE @ 5851.9ft (Original Well Elev)
<b>Project:</b>	Mamm Creek	<b>MD Reference:</b>	KBE @ 5851.9ft (Original Well Elev)
<b>Site:</b>	F25NWB Pad	<b>North Reference:</b>	True
<b>Well:</b>	Benzel Federal 24-10E (F25NWB Pad) Directional Plan	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DD		
<b>Design:</b>	Plan #1		

### Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,304.4	1,243.9	Molina		0.00	
1,903.3	1,729.9	Atwell Gulch		0.00	
4,615.3	3,924.9	Mesa Verde		0.00	
5,435.7	4,588.9	William Fork		0.00	
6,357.8	5,425.9	Top of Gas; Inc=9.8°		0.00	
7,862.4	6,928.9	Coal Ridge		0.00	
8,603.4	7,669.9	Base Cameo A Coal		0.00	
8,685.4	7,751.9	Rollins		0.00	
9,215.4	8,281.9	Cozzette		0.00	
9,537.4	8,603.9	Corcoran		0.00	

### 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' MD
1,398.9	1,321.7	353.7	86.3	EOB; Inc=35.97°
5,485.5	4,629.2	2,685.5	655.2	Start Drop -3.00
6,684.4	5,750.9	3,039.2	741.5	EOD; Inc=0°
10,087.4	9,153.9	3,039.2	741.5	TD @ 10087.4' MD
10,387.4	9,453.9	3,039.2	741.5	Permit TD @ 10387.4' MD