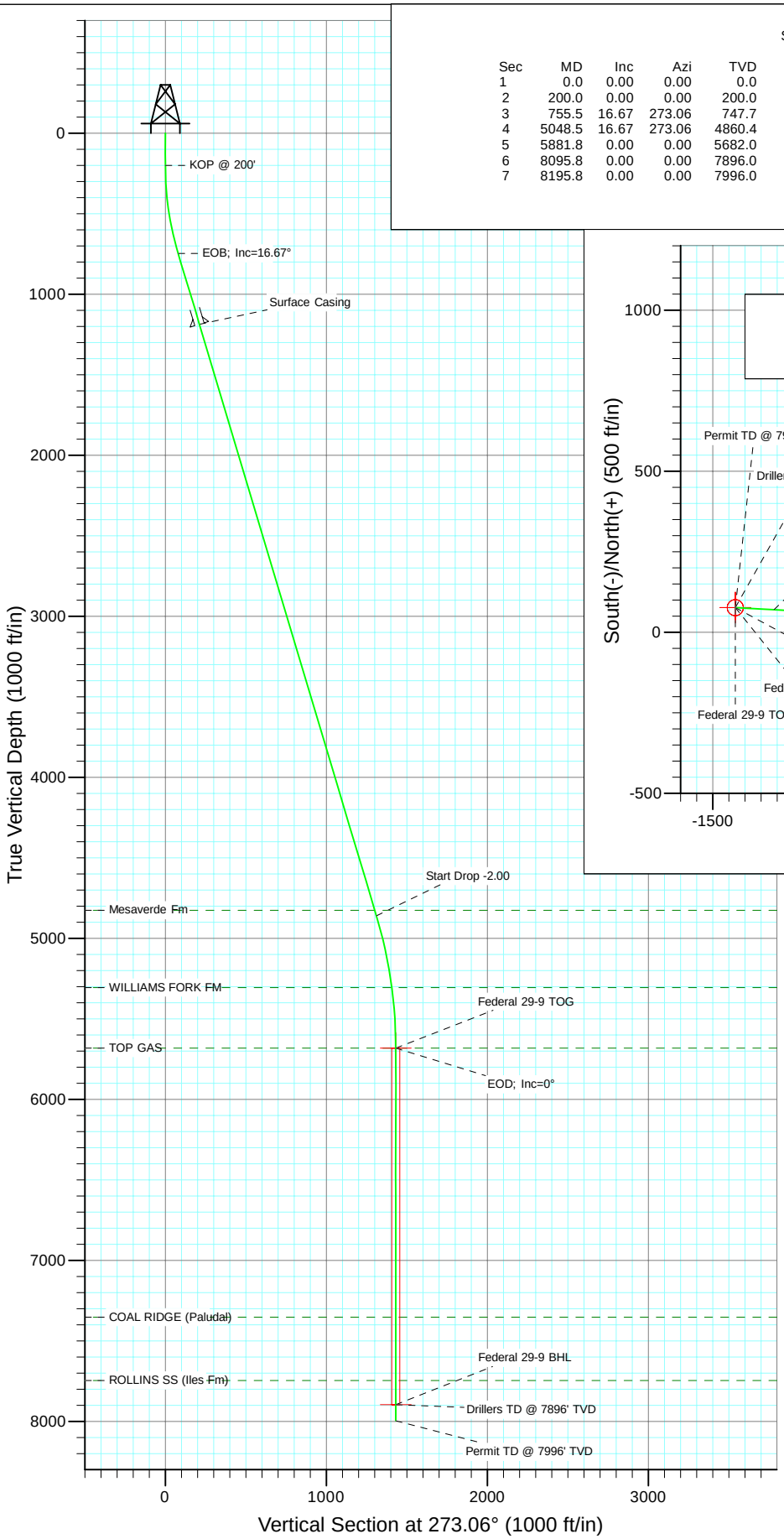
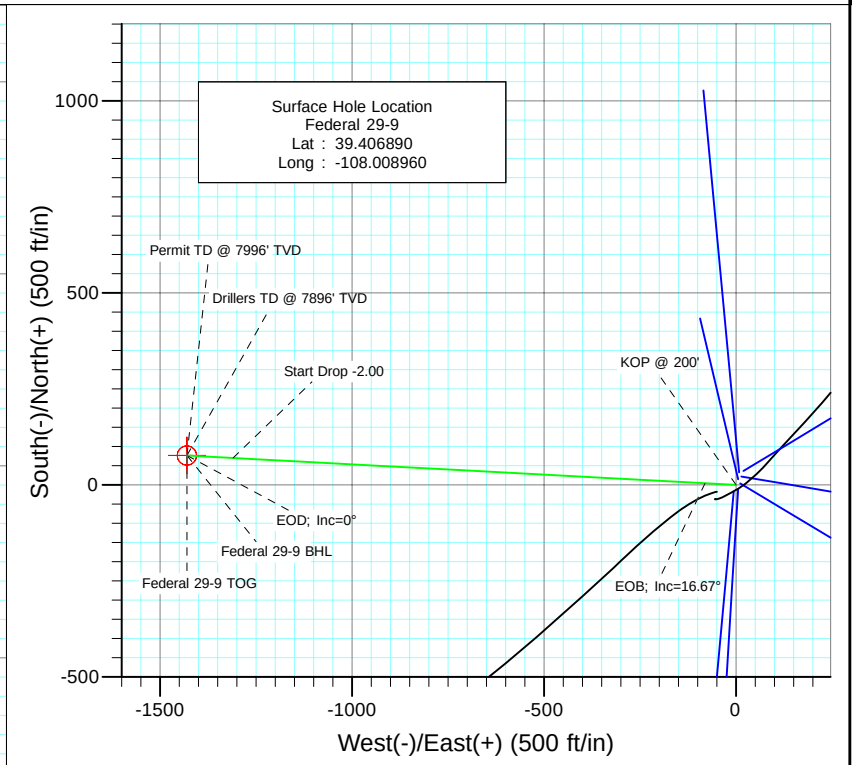
Project: S. Piceance
Site: PL 28 Pad (S28-T7S-R95W)
Well: Federal 29-9
Wellbore: DD
Design: Plan #1

CATHEDRAL

SECTION DETAILS

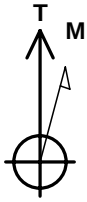
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0	
3	755.5	16.67	273.06	747.7	4.3	-80.1	3.00	273.06	80.2	
4	5048.5	16.67	273.06	4860.4	70.1	-1309.6	0.00	0.00	1311.4	
5	5881.8	0.00	0.00	5682.0	76.5	-1429.7	2.00	180.00	1431.8	Federal 29-9 TOG
6	8095.8	0.00	0.00	7896.0	76.5	-1429.7	0.00	0.00	1431.8	Federal 29-9 BHL
7	8195.8	0.00	0.00	7996.0	76.5	-1429.7	0.00	0.00	1431.8	





FORMATION TOP DETAILS

TVDPath	MDPath	Formation
4826.0	5012.6	Mesaverde Fm
5306.0	5504.8	WILLIAMS FORK FM
5682.0	5881.8	TOP GAS
7353.0	7552.8	COAL RIDGE (Paludal)
7746.0	7945.8	ROLLINS SS (Iles Fm)



Azimuths to True North
Magnetic North: 10.45°

Magnetic Field
Strength: 52321.9snT
Dip Angle: 65.70°
Date: 6/11/2010
Model: IGRF200510

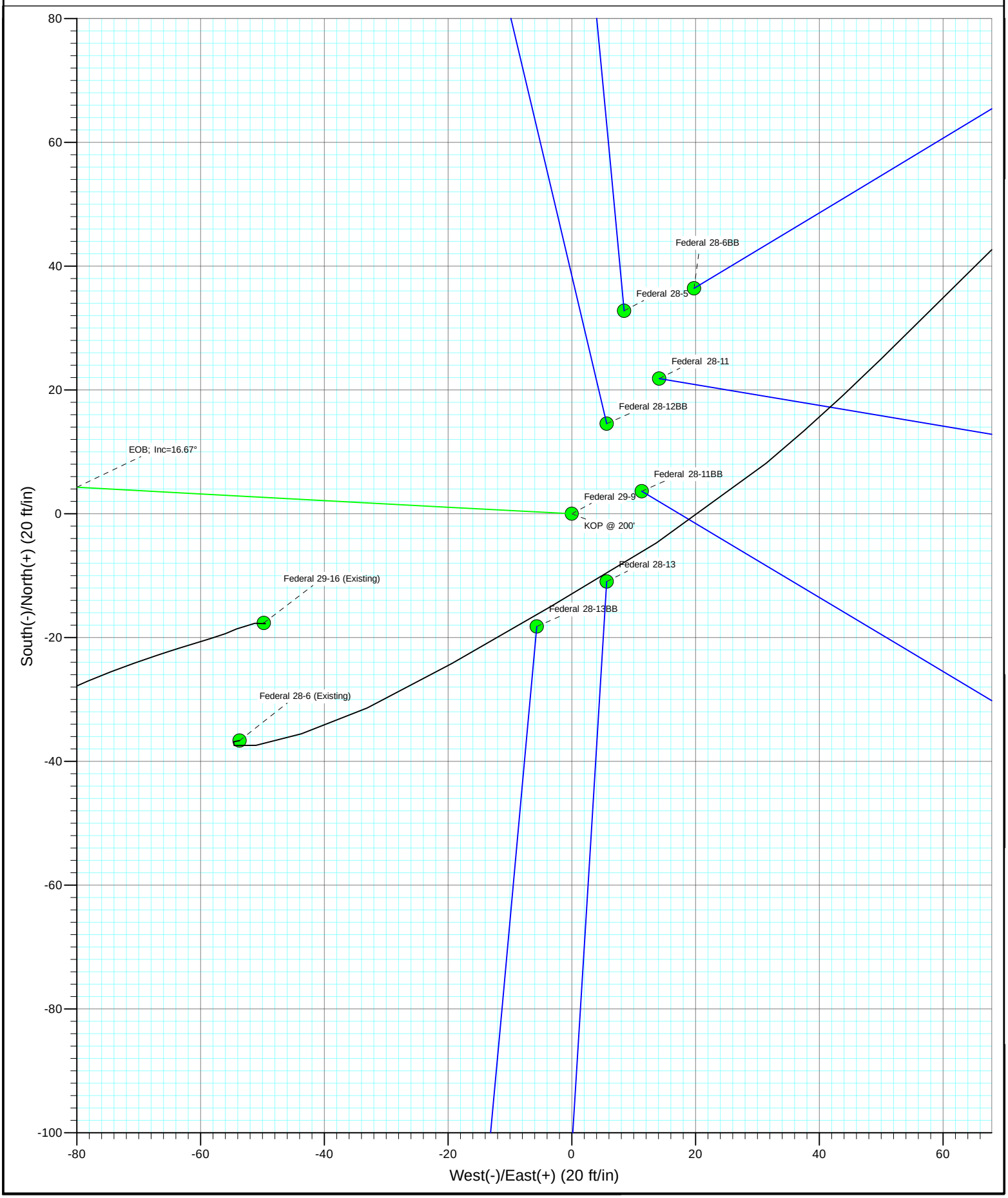
Plan #1
Federal 29-9
Job #10xxx: KR

WELL @ 7186.0ft (Original Well Elev)
North American Datum 1983
Well Federal 29-9, True North

Type	Target	Azimuth	Origin Type	N/S	E/W From	TVD
Target	Federal 29-9 BHL	273.06	Slot	0.0	0.0	0.0

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
Federal 29-9 BHL	7896.0	76.5	-1429.7	39.407100	-108.014020

Project: S. Piceance
Site: PL 28 Pad (S28-T7S-R95W)
Well: Federal 29-9
Wellbore: DD
Design: Plan #1



Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	**Local Co-ordinate Reference:**	Well Federal 29-9
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	WELL @ 7186.0ft (Original Well Elev)
Project:	S. Piceance	**MD Reference:**	WELL @ 7186.0ft (Original Well Elev)
Site:	PL 28 Pad (S28-T7S-R95W)	**North Reference:**	True
Well:	Federal 29-9	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Project S. Piceance, 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 PL 28 Pad (S28-T7S-R95W)

Site Position:		**Northing:**	1,582,914.36 ft	**Latitude:**	39.406980
From:	Lat/Long	**Easting:**	2,291,178.00 ft	**Longitude:**	-108.008930
Position Uncertainty:	0.0 ft	**Slot Radius:**	13.200 in	**Grid Convergence:**	-1.58 °

Well Federal 29-9

Well Position	**+N/-S**	0.0 ft	**Northing:**	1,582,881.81 ft	**Latitude:**	39.406890
	+E/-W	0.0 ft	**Easting:**	2,291,168.62 ft	**Longitude:**	-108.008960
Position Uncertainty		0.0 ft	**Wellhead Elevation:**	ft	**Ground Level:**	7,164.0 ft

Wellbore DD

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	6/11/2010	10.45	65.70	52,322

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	273.06

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	
755.5	16.67	273.06	747.7	4.3	-80.1	3.00	3.00	0.00	273.06	
5,048.5	16.67	273.06	4,860.4	70.1	-1,309.6	0.00	0.00	0.00	0.00	
5,881.8	0.00	0.00	5,682.0	76.5	-1,429.7	2.00	-2.00	0.00	180.00	Federal 29-9 TOG
8,095.8	0.00	0.00	7,896.0	76.5	-1,429.7	0.00	0.00	0.00	0.00	Federal 29-9 BHL
8,195.8	0.00	0.00	7,996.0	76.5	-1,429.7	0.00	0.00	0.00	0.00	

Database:	EDM 5000.1 US Multi Users DB	**Local Co-ordinate Reference:**	Well Federal 29-9
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	WELL @ 7186.0ft (Original Well Elev)
Project:	S. Piceance	**MD Reference:**	WELL @ 7186.0ft (Original Well Elev)
Site:	PL 28 Pad (S28-T7S-R95W)	**North Reference:**	True
Well:	Federal 29-9	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	DD		
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	273.06	300.0	0.1	-2.6	2.6	3.00	3.00	
400.0	6.00	273.06	399.6	0.6	-10.4	10.5	3.00	3.00	
500.0	9.00	273.06	498.8	1.3	-23.5	23.5	3.00	3.00	
600.0	12.00	273.06	597.1	2.2	-41.7	41.7	3.00	3.00	
700.0	15.00	273.06	694.3	3.5	-65.0	65.1	3.00	3.00	
755.5	16.67	273.06	747.7	4.3	-80.1	80.2	3.00	3.00	EOB; Inc=16.67°
800.0	16.67	273.06	790.3	5.0	-92.8	93.0	0.00	0.00	
900.0	16.67	273.06	886.1	6.5	-121.5	121.7	0.00	0.00	
1,000.0	16.67	273.06	981.9	8.0	-150.1	150.3	0.00	0.00	
1,100.0	16.67	273.06	1,077.7	9.6	-178.8	179.0	0.00	0.00	
1,200.0	16.67	273.06	1,173.5	11.1	-207.4	207.7	0.00	0.00	
1,215.0	16.67	273.06	1,187.9	11.3	-211.7	212.0	0.00	0.00	Surface Casing
1,300.0	16.67	273.06	1,269.3	12.6	-236.0	236.4	0.00	0.00	
1,400.0	16.67	273.06	1,365.1	14.2	-264.7	265.1	0.00	0.00	
1,500.0	16.67	273.06	1,460.9	15.7	-293.3	293.7	0.00	0.00	
1,600.0	16.67	273.06	1,556.7	17.2	-322.0	322.4	0.00	0.00	
1,700.0	16.67	273.06	1,652.5	18.8	-350.6	351.1	0.00	0.00	
1,800.0	16.67	273.06	1,748.3	20.3	-379.2	379.8	0.00	0.00	
1,900.0	16.67	273.06	1,844.1	21.8	-407.9	408.5	0.00	0.00	
2,000.0	16.67	273.06	1,939.9	23.4	-436.5	437.1	0.00	0.00	
2,100.0	16.67	273.06	2,035.7	24.9	-465.1	465.8	0.00	0.00	
2,200.0	16.67	273.06	2,131.5	26.4	-493.8	494.5	0.00	0.00	
2,300.0	16.67	273.06	2,227.3	28.0	-522.4	523.2	0.00	0.00	
2,400.0	16.67	273.06	2,323.1	29.5	-551.1	551.9	0.00	0.00	
2,500.0	16.67	273.06	2,418.9	31.0	-579.7	580.5	0.00	0.00	
2,600.0	16.67	273.06	2,514.7	32.6	-608.3	609.2	0.00	0.00	
2,700.0	16.67	273.06	2,610.5	34.1	-637.0	637.9	0.00	0.00	
2,800.0	16.67	273.06	2,706.3	35.6	-665.6	666.6	0.00	0.00	
2,900.0	16.67	273.06	2,802.1	37.2	-694.3	695.3	0.00	0.00	
3,000.0	16.67	273.06	2,897.9	38.7	-722.9	723.9	0.00	0.00	
3,100.0	16.67	273.06	2,993.7	40.2	-751.5	752.6	0.00	0.00	
3,200.0	16.67	273.06	3,089.5	41.8	-780.2	781.3	0.00	0.00	
3,300.0	16.67	273.06	3,185.3	43.3	-808.8	810.0	0.00	0.00	
3,400.0	16.67	273.06	3,281.1	44.8	-837.5	838.7	0.00	0.00	
3,500.0	16.67	273.06	3,376.9	46.4	-866.1	867.3	0.00	0.00	
3,600.0	16.67	273.06	3,472.7	47.9	-894.7	896.0	0.00	0.00	
3,700.0	16.67	273.06	3,568.5	49.4	-923.4	924.7	0.00	0.00	
3,800.0	16.67	273.06	3,664.3	51.0	-952.0	953.4	0.00	0.00	
3,900.0	16.67	273.06	3,760.1	52.5	-980.6	982.0	0.00	0.00	
4,000.0	16.67	273.06	3,855.9	54.0	-1,009.3	1,010.7	0.00	0.00	
4,100.0	16.67	273.06	3,951.7	55.6	-1,037.9	1,039.4	0.00	0.00	
4,200.0	16.67	273.06	4,047.5	57.1	-1,066.6	1,068.1	0.00	0.00	
4,300.0	16.67	273.06	4,143.3	58.6	-1,095.2	1,096.8	0.00	0.00	
4,400.0	16.67	273.06	4,239.1	60.2	-1,123.8	1,125.4	0.00	0.00	
4,500.0	16.67	273.06	4,334.9	61.7	-1,152.5	1,154.1	0.00	0.00	
4,600.0	16.67	273.06	4,430.7	63.2	-1,181.1	1,182.8	0.00	0.00	
4,700.0	16.67	273.06	4,526.5	64.8	-1,209.8	1,211.5	0.00	0.00	
4,800.0	16.67	273.06	4,622.3	66.3	-1,238.4	1,240.2	0.00	0.00	
4,900.0	16.67	273.06	4,718.1	67.8	-1,267.0	1,268.8	0.00	0.00	

Database:	EDM 5000.1 US Multi Users DB	**Local Co-ordinate Reference:**	Well Federal 29-9
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	WELL @ 7186.0ft (Original Well Elev)
Project:	S. Piceance	**MD Reference:**	WELL @ 7186.0ft (Original Well Elev)
Site:	PL 28 Pad (S28-T7S-R95W)	**North Reference:**	True
Well:	Federal 29-9	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	DD		
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
5,000.0	16.67	273.06	4,813.9	69.4	-1,295.7	1,297.5	0.00	0.00	
5,012.6	16.67	273.06	4,826.0	69.6	-1,299.3	1,301.1	0.00	0.00	Mesaverde Fm
5,048.5	16.67	273.06	4,860.4	70.1	-1,309.6	1,311.4	0.00	0.00	Start Drop -2.00
5,100.0	15.64	273.06	4,909.8	70.9	-1,323.9	1,325.8	2.00	-2.00	
5,200.0	13.64	273.06	5,006.6	72.2	-1,349.1	1,351.0	2.00	-2.00	
5,300.0	11.64	273.06	5,104.1	73.4	-1,370.9	1,372.9	2.00	-2.00	
5,400.0	9.64	273.06	5,202.4	74.4	-1,389.4	1,391.4	2.00	-2.00	
5,500.0	7.64	273.06	5,301.3	75.2	-1,404.4	1,406.4	2.00	-2.00	
5,504.8	7.54	273.06	5,306.0	75.2	-1,405.0	1,407.0	2.00	-2.00	WILLIAMS FORK FM
5,600.0	5.64	273.06	5,400.6	75.8	-1,415.9	1,417.9	2.00	-2.00	
5,700.0	3.64	273.06	5,500.3	76.2	-1,424.0	1,426.0	2.00	-2.00	
5,800.0	1.64	273.06	5,600.2	76.5	-1,428.6	1,430.6	2.00	-2.00	
5,881.8	0.00	0.00	5,682.0	76.5	-1,429.7	1,431.8	2.00	-2.00	EOD; Inc=0° - TOP GAS - Federal 29-9 TOG
5,900.0	0.00	0.00	5,700.2	76.5	-1,429.7	1,431.8	0.00	0.00	
6,000.0	0.00	0.00	5,800.2	76.5	-1,429.7	1,431.8	0.00	0.00	
6,100.0	0.00	0.00	5,900.2	76.5	-1,429.7	1,431.8	0.00	0.00	
6,200.0	0.00	0.00	6,000.2	76.5	-1,429.7	1,431.8	0.00	0.00	
6,300.0	0.00	0.00	6,100.2	76.5	-1,429.7	1,431.8	0.00	0.00	
6,400.0	0.00	0.00	6,200.2	76.5	-1,429.7	1,431.8	0.00	0.00	
6,500.0	0.00	0.00	6,300.2	76.5	-1,429.7	1,431.8	0.00	0.00	
6,600.0	0.00	0.00	6,400.2	76.5	-1,429.7	1,431.8	0.00	0.00	
6,700.0	0.00	0.00	6,500.2	76.5	-1,429.7	1,431.8	0.00	0.00	
6,800.0	0.00	0.00	6,600.2	76.5	-1,429.7	1,431.8	0.00	0.00	
6,900.0	0.00	0.00	6,700.2	76.5	-1,429.7	1,431.8	0.00	0.00	
7,000.0	0.00	0.00	6,800.2	76.5	-1,429.7	1,431.8	0.00	0.00	
7,100.0	0.00	0.00	6,900.2	76.5	-1,429.7	1,431.8	0.00	0.00	
7,200.0	0.00	0.00	7,000.2	76.5	-1,429.7	1,431.8	0.00	0.00	
7,300.0	0.00	0.00	7,100.2	76.5	-1,429.7	1,431.8	0.00	0.00	
7,400.0	0.00	0.00	7,200.2	76.5	-1,429.7	1,431.8	0.00	0.00	
7,500.0	0.00	0.00	7,300.2	76.5	-1,429.7	1,431.8	0.00	0.00	
7,552.8	0.00	0.00	7,353.0	76.5	-1,429.7	1,431.8	0.00	0.00	COAL RIDGE (Paludal)
7,600.0	0.00	0.00	7,400.2	76.5	-1,429.7	1,431.8	0.00	0.00	
7,700.0	0.00	0.00	7,500.2	76.5	-1,429.7	1,431.8	0.00	0.00	
7,800.0	0.00	0.00	7,600.2	76.5	-1,429.7	1,431.8	0.00	0.00	
7,900.0	0.00	0.00	7,700.2	76.5	-1,429.7	1,431.8	0.00	0.00	
7,945.8	0.00	0.00	7,746.0	76.5	-1,429.7	1,431.8	0.00	0.00	ROLLINS SS (Iles Fm)
8,000.0	0.00	0.00	7,800.2	76.5	-1,429.7	1,431.8	0.00	0.00	
8,095.8	0.00	0.00	7,896.0	76.5	-1,429.7	1,431.8	0.00	0.00	Drillers TD @ 7896' TVD - Federal 29-9 BHL
8,100.0	0.00	0.00	7,900.2	76.5	-1,429.7	1,431.8	0.00	0.00	
8,195.8	0.00	0.00	7,996.0	76.5	-1,429.7	1,431.8	0.00	0.00	Permit TD @ 7996' TVD

Database:	EDM 5000.1 US Multi Users DB	**Local Co-ordinate Reference:**	Well Federal 29-9
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	WELL @ 7186.0ft (Original Well Elev)
Project:	S. Piceance	**MD Reference:**	WELL @ 7186.0ft (Original Well Elev)
Site:	PL 28 Pad (S28-T7S-R95W)	**North Reference:**	True
Well:	Federal 29-9	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Federal 29-9 BHL - plan hits target center - Circle (radius 25.0)	0.00	0.00	7,896.0	76.5	-1,429.7	1,582,997.81	2,289,741.54	39.407100	-108.014020
Federal 29-9 TOG - plan hits target center - Point	0.00	0.00	5,682.0	76.5	-1,429.7	1,582,997.81	2,289,741.54	39.407100	-108.014020

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,215.0	1,187.9	Surface Casing	0.000	0.000

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
5,012.6	4,826.0	Mesaverde Fm			
5,504.8	5,306.0	WILLIAMS FORK FM			
5,881.8	5,682.0	TOP GAS			
7,552.8	7,353.0	COAL RIDGE (Paludal)			
7,945.8	7,746.0	ROLLINS SS (Iles Fm)			

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
200.0	200.0	0.0	0.0	KOP @ 200'
755.5	747.7	4.3	-80.1	EOB; Inc=16.67°
5,048.5	4,860.4	70.1	-1,309.6	Start Drop -2.00
5,881.8	5,682.0	76.5	-1,429.7	EOD; Inc=0°
8,095.8	7,896.0	76.5	-1,429.7	Drillers TD @ 7896' TVD
8,195.8	7,996.0	76.5	-1,429.7	Permit TD @ 7996' TVD

EnCana Oil & Gas (USA) Inc

S. Piceance
PL 28 Pad (S28-T7S-R95W)
Federal 29-9
DD
Plan #1

Anticollision Report

26 July, 2010

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Federal 29-9
Project:	S. Piceance	**TVD Reference:**	WELL @ 7186.0ft (Original Well Elev)
Reference Site:	PL 28 Pad (S28-T7S-R95W)	**MD Reference:**	WELL @ 7186.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Federal 29-9	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Reference Plan #1

Filter type:	GLOBAL FILTER APPLIED: All wellpaths within 200'+ 100/1000 of reference		
Interpolation Method:	MD Interval 100.0ft	**Error Model:**	Systematic Ellipse
Depth Range:	Unlimited	**Scan Method:**	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 100.0ft	**Error Surface:**	Elliptical Conic
Warning Levels Evaluated at:	2.00 **Sigma**		

Survey Tool Program **Date** 7/26/2010

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	8,195.8	Plan #1 (DD)	MWD	Geolink MWD

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
PL 28 Pad (S28-T7S-R95W)						
Federal 28-11 - DD - Plan #1	200.0	200.0	26.0	25.4	41.888	CC, ES
Federal 28-11 - DD - Plan #1	300.0	299.2	28.7	27.8	29.327	SF
Federal 28-11BB - DD - Plan #1	200.0	200.0	11.9	11.3	19.114	CC, ES
Federal 28-11BB - DD - Plan #1	300.0	299.3	16.3	15.3	16.761	SF
Federal 28-12BB - DD - Plan #1	200.0	200.0	15.6	15.0	25.157	CC, ES
Federal 28-12BB - DD - Plan #1	300.0	299.2	18.6	17.6	19.003	SF
Federal 28-13 - DD - Plan #1	200.0	200.0	12.3	11.7	19.799	CC, ES
Federal 28-13 - DD - Plan #1	300.0	299.3	15.9	14.9	16.250	SF
Federal 28-13BB - DD - Plan #1	333.6	333.5	18.5	17.4	16.632	CC, ES
Federal 28-13BB - DD - Plan #1	400.0	399.6	19.4	18.0	14.154	SF
Federal 28-5 - DD - Plan #1	200.0	200.0	33.9	33.3	54.515	CC, ES
Federal 28-5 - DD - Plan #1	400.0	395.8	46.1	44.7	33.578	SF
Federal 28-6 (Existing) - DD - Schlumberger Surveys	553.6	554.8	30.5	28.2	13.181	CC, ES, SF
Federal 28-6BB - DD - Plan #1	200.0	200.0	41.5	40.8	66.712	CC, ES
Federal 28-6BB - DD - Plan #1	400.0	394.4	56.6	55.3	42.092	SF
Federal 29-16 (Existing) - DD - Schlumberger surveys	678.1	672.7	25.3	22.4	8.754	CC, ES
Federal 29-16 (Existing) - DD - Schlumberger surveys	700.0	694.1	25.7	22.6	8.431	SF

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Federal 29-9
Project:	S. Piceance	**TVD Reference:**	WELL @ 7186.0ft (Original Well Elev)
Reference Site:	PL 28 Pad (S28-T7S-R95W)	**MD Reference:**	WELL @ 7186.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Federal 29-9	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design PL 28 Pad (S28-T7S-R95W) - Federal 28-11 - DD - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	32.88	21.9	14.1	26.0				
100.0	100.0	100.0	100.0	0.1	0.1	32.88	21.9	14.1	26.0	25.8	0.27	95.591	
200.0	200.0	200.0	200.0	0.3	0.3	32.88	21.9	14.1	26.0	25.4	0.62	41.888	CC, ES
300.0	300.0	299.2	299.1	0.5	0.5	128.99	21.4	16.7	28.7	27.8	0.98	29.327	SF
400.0	399.6	396.8	396.4	0.7	0.7	146.94	20.2	24.1	39.9	38.5	1.35	29.547	
500.0	498.8	491.3	490.2	1.0	1.0	160.40	18.2	36.0	62.4	60.7	1.69	36.851	
600.0	597.1	581.4	578.9	1.4	1.3	168.05	15.6	51.6	95.9	93.9	2.01	47.663	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Federal 29-9
Project:	S. Piceance	**TVD Reference:**	WELL @ 7186.0ft (Original Well Elev)
Reference Site:	PL 28 Pad (S28-T7S-R95W)	**MD Reference:**	WELL @ 7186.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Federal 29-9	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design PL 28 Pad (S28-T7S-R95W) - Federal 28-11BB - DD - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	72.12	3.6	11.3	11.9				
100.0	100.0	100.0	100.0	0.1	0.1	72.12	3.6	11.3	11.9	11.6	0.27	43.619	
200.0	200.0	200.0	200.0	0.3	0.3	72.12	3.6	11.3	11.9	11.3	0.62	19.114	CC, ES
300.0	300.0	299.3	299.3	0.5	0.5	169.20	2.3	13.5	16.3	15.3	0.97	16.761	SF
400.0	399.6	397.2	396.8	0.7	0.7	-179.05	-1.6	20.0	30.7	29.4	1.32	23.222	
500.0	498.8	492.1	490.9	1.0	1.0	-173.31	-7.8	30.4	55.2	53.6	1.67	33.152	
600.0	597.1	582.8	580.2	1.4	1.3	-170.50	-16.0	44.1	89.3	87.3	2.01	44.499	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Federal 29-9
Project:	S. Piceance	**TVD Reference:**	WELL @ 7186.0ft (Original Well Elev)
Reference Site:	PL 28 Pad (S28-T7S-R95W)	**MD Reference:**	WELL @ 7186.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Federal 29-9	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design PL 28 Pad (S28-T7S-R95W) - Federal 28-12BB - DD - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	21.19	14.6	5.7	15.6				
100.0	100.0	100.0	100.0	0.1	0.1	21.19	14.6	5.7	15.6	15.4	0.27	57.410	
200.0	200.0	200.0	200.0	0.3	0.3	21.19	14.6	5.7	15.6	15.0	0.62	25.157	CC, ES
300.0	300.0	299.2	299.2	0.5	0.5	111.16	17.1	5.1	18.6	17.6	0.98	19.003	SF
400.0	399.6	398.2	397.9	0.7	0.7	116.65	24.3	3.4	27.5	26.1	1.38	19.944	
500.0	498.8	497.3	496.6	1.0	0.9	124.63	32.6	1.4	40.1	38.2	1.83	21.933	
600.0	597.1	595.7	594.6	1.4	1.1	132.71	40.9	-0.6	56.5	54.2	2.30	24.522	
700.0	694.3	693.1	691.7	1.8	1.4	139.54	49.0	-2.5	77.4	74.6	2.78	27.794	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Federal 29-9
Project:	S. Piceance	**TVD Reference:**	WELL @ 7186.0ft (Original Well Elev)
Reference Site:	PL 28 Pad (S28-T7S-R95W)	**MD Reference:**	WELL @ 7186.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Federal 29-9	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design PL 28 Pad (S28-T7S-R95W) - Federal 28-13 - DD - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	152.65	-10.9	5.7	12.3				
100.0	100.0	100.0	100.0	0.1	0.1	152.65	-10.9	5.7	12.3	12.0	0.27	45.182	
200.0	200.0	200.0	200.0	0.3	0.3	152.65	-10.9	5.7	12.3	11.7	0.62	19.799	CC, ES
300.0	300.0	299.3	299.3	0.5	0.5	-123.64	-13.5	5.5	15.9	14.9	0.98	16.250	SF
400.0	399.6	397.8	397.5	0.7	0.7	-128.01	-21.1	5.0	26.7	25.4	1.37	19.526	
500.0	498.8	494.8	493.6	1.0	1.0	-130.44	-33.6	4.3	44.8	43.0	1.82	24.600	
600.0	597.1	589.5	586.8	1.4	1.3	-131.55	-50.4	3.2	70.0	67.6	2.35	29.727	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Federal 29-9
Project:	S. Piceance	**TVD Reference:**	WELL @ 7186.0ft (Original Well Elev)
Reference Site:	PL 28 Pad (S28-T7S-R95W)	**MD Reference:**	WELL @ 7186.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Federal 29-9	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design PL 28 Pad (S28-T7S-R95W) - Federal 28-13BB - DD - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-162.76	-18.2	-5.7	19.1				
100.0	100.0	100.0	100.0	0.1	0.1	-162.76	-18.2	-5.7	19.1	18.8	0.27	70.034	
200.0	200.0	200.0	200.0	0.3	0.3	-162.76	-18.2	-5.7	19.1	18.4	0.62	30.689	
300.0	300.0	300.0	300.0	0.5	0.5	-83.67	-18.2	-5.7	18.6	17.6	0.98	19.005	
333.6	333.5	333.5	333.5	0.6	0.5	-90.00	-18.2	-5.7	18.5	17.4	1.11	16.632	CC, ES
400.0	399.6	399.6	399.6	0.7	0.7	-107.31	-18.2	-5.7	19.4	18.0	1.37	14.154	SF
500.0	498.8	497.8	497.7	1.0	0.8	-131.17	-20.7	-5.9	28.2	26.4	1.76	16.002	
600.0	597.1	594.7	594.3	1.4	1.0	-141.21	-28.1	-6.6	46.5	44.3	2.17	21.414	
700.0	694.3	689.6	688.5	1.8	1.3	-144.23	-40.0	-7.6	72.2	69.6	2.65	27.269	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Federal 29-9
Project:	S. Piceance	**TVD Reference:**	WELL @ 7186.0ft (Original Well Elev)
Reference Site:	PL 28 Pad (S28-T7S-R95W)	**MD Reference:**	WELL @ 7186.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Federal 29-9	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design PL 28 Pad (S28-T7S-R95W) - Federal 28-5 - DD - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	14.49	32.8	8.5	33.9				
100.0	100.0	100.0	100.0	0.1	0.1	14.49	32.8	8.5	33.9	33.6	0.27	124.405	
200.0	200.0	200.0	200.0	0.3	0.3	14.49	32.8	8.5	33.9	33.3	0.62	54.515	CC, ES
300.0	300.0	298.2	298.2	0.5	0.5	103.93	35.3	8.2	36.8	35.9	0.98	37.732	
400.0	399.6	395.8	395.5	0.7	0.7	109.40	42.8	7.5	46.1	44.7	1.37	33.578	SF
500.0	498.8	492.1	491.0	1.0	1.0	114.69	55.0	6.4	62.0	60.1	1.84	33.705	
600.0	597.1	586.4	583.8	1.4	1.3	118.56	71.6	4.8	84.6	82.2	2.40	35.302	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Federal 29-9
Project:	S. Piceance	**TVD Reference:**	WELL @ 7186.0ft (Original Well Elev)
Reference Site:	PL 28 Pad (S28-T7S-R95W)	**MD Reference:**	WELL @ 7186.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Federal 29-9	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design PL 28 Pad (S28-T7S-R95W) - Federal 28-6 (Existing) - DD - Schlumberger Surveys

Offset Site Error: 0.0 ft

Survey Program: 141-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-124.30	-36.6	-53.7	65.0				
100.0	100.0	99.4	99.4	0.1	0.1	-124.14	-36.7	-54.2	65.4	65.2	0.28	230.668	
200.0	200.0	200.0	200.0	0.3	0.3	-124.05	-37.1	-54.9	66.3	65.7	0.62	106.583	
300.0	300.0	302.6	302.6	0.5	0.5	-40.33	-37.6	-52.4	62.5	61.6	0.98	63.778	
400.0	399.6	404.3	404.0	0.7	0.7	-50.15	-35.9	-45.0	50.5	49.1	1.37	36.706	
500.0	498.8	503.2	502.1	1.0	1.0	-76.82	-31.7	-33.7	34.6	32.7	1.92	18.012	
553.6	551.6	554.8	553.0	1.2	1.1	-105.24	-28.0	-26.3	30.5	28.2	2.31	13.181	CC, ES, SF
600.0	597.1	598.3	595.8	1.4	1.3	-132.63	-24.1	-19.2	34.6	32.2	2.47	14.045	
700.0	694.3	689.0	684.6	1.8	1.6	-165.67	-14.7	-3.0	65.4	62.8	2.57	25.389	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Federal 29-9
Project:	S. Piceance	**TVD Reference:**	WELL @ 7186.0ft (Original Well Elev)
Reference Site:	PL 28 Pad (S28-T7S-R95W)	**MD Reference:**	WELL @ 7186.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Federal 29-9	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design PL 28 Pad (S28-T7S-R95W) - Federal 28-6BB - DD - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	28.50	36.4	19.8	41.5				
100.0	100.0	100.0	100.0	0.1	0.1	28.50	36.4	19.8	41.5	41.2	0.27	152.241	
200.0	200.0	200.0	200.0	0.3	0.3	28.50	36.4	19.8	41.5	40.8	0.62	66.712	CC, ES
300.0	300.0	297.9	297.9	0.5	0.5	119.93	37.7	21.9	44.9	44.0	0.97	46.103	
400.0	399.6	394.4	394.1	0.7	0.7	129.69	41.5	28.2	56.6	55.3	1.35	42.092	SF
500.0	498.8	488.2	487.1	1.0	1.0	138.82	47.6	38.4	78.2	76.5	1.72	45.482	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Federal 29-9
Project:	S. Piceance	**TVD Reference:**	WELL @ 7186.0ft (Original Well Elev)
Reference Site:	PL 28 Pad (S28-T7S-R95W)	**MD Reference:**	WELL @ 7186.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Federal 29-9	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design PL 28 Pad (S28-T7S-R95W) - Federal 29-16 (Existing) - DD - Schlumberger surveys

Offset Site Error: 0.0 ft

Survey Program: 110-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-109.51	-17.6	-49.8	52.8				
100.0	100.0	100.2	100.2	0.1	0.1	-109.69	-17.7	-49.6	52.6	52.4	0.28	190.646	
172.0	172.0	172.0	172.0	0.3	0.3	-109.85	-17.8	-49.4	52.5	52.0	0.52	100.243	
200.0	200.0	199.9	199.9	0.3	0.3	-109.82	-17.8	-49.4	52.5	51.9	0.62	84.531	
300.0	300.0	299.3	299.3	0.5	0.5	-23.63	-17.7	-50.1	50.7	49.8	0.97	52.286	
400.0	399.6	398.6	398.6	0.7	0.7	-26.97	-17.8	-52.0	45.5	44.1	1.33	34.286	
500.0	498.8	497.5	497.5	1.0	0.8	-35.99	-18.8	-54.7	37.1	35.4	1.72	21.595	
600.0	597.1	595.9	595.7	1.4	1.0	-55.50	-20.4	-59.2	28.6	26.4	2.27	12.618	
678.1	673.1	672.7	672.4	1.7	1.2	-83.48	-21.7	-63.6	25.3	22.4	2.89	8.754	CC, ES
700.0	694.3	694.1	693.7	1.8	1.2	-92.64	-22.2	-65.0	25.7	22.6	3.04	8.431	SF
800.0	790.3	792.0	791.1	2.3	1.5	-123.15	-25.6	-74.6	35.6	32.0	3.54	10.043	
900.0	886.1	890.4	888.5	2.9	1.7	-134.39	-31.2	-87.5	50.8	46.8	4.01	12.670	
1,000.0	981.9	989.0	985.5	3.4	2.1	-137.75	-39.0	-102.6	66.9	62.3	4.60	14.549	
1,100.0	1,077.7	1,087.6	1,082.2	3.9	2.4	-137.69	-48.9	-119.8	83.1	77.8	5.34	15.556	
1,200.0	1,173.5	1,185.7	1,177.6	4.5	2.9	-135.71	-61.2	-139.0	99.6	93.4	6.23	16.001	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Federal 29-9
Project:	S. Piceance	**TVD Reference:**	WELL @ 7186.0ft (Original Well Elev)
Reference Site:	PL 28 Pad (S28-T7S-R95W)	**MD Reference:**	WELL @ 7186.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Federal 29-9	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to WELL @ 7186.0ft (Original Well Elev)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: Federal 29-9
Coordinate System is US State Plane 1983, Colorado Central Zone
Grid Convergence at Surface is: -1.58°