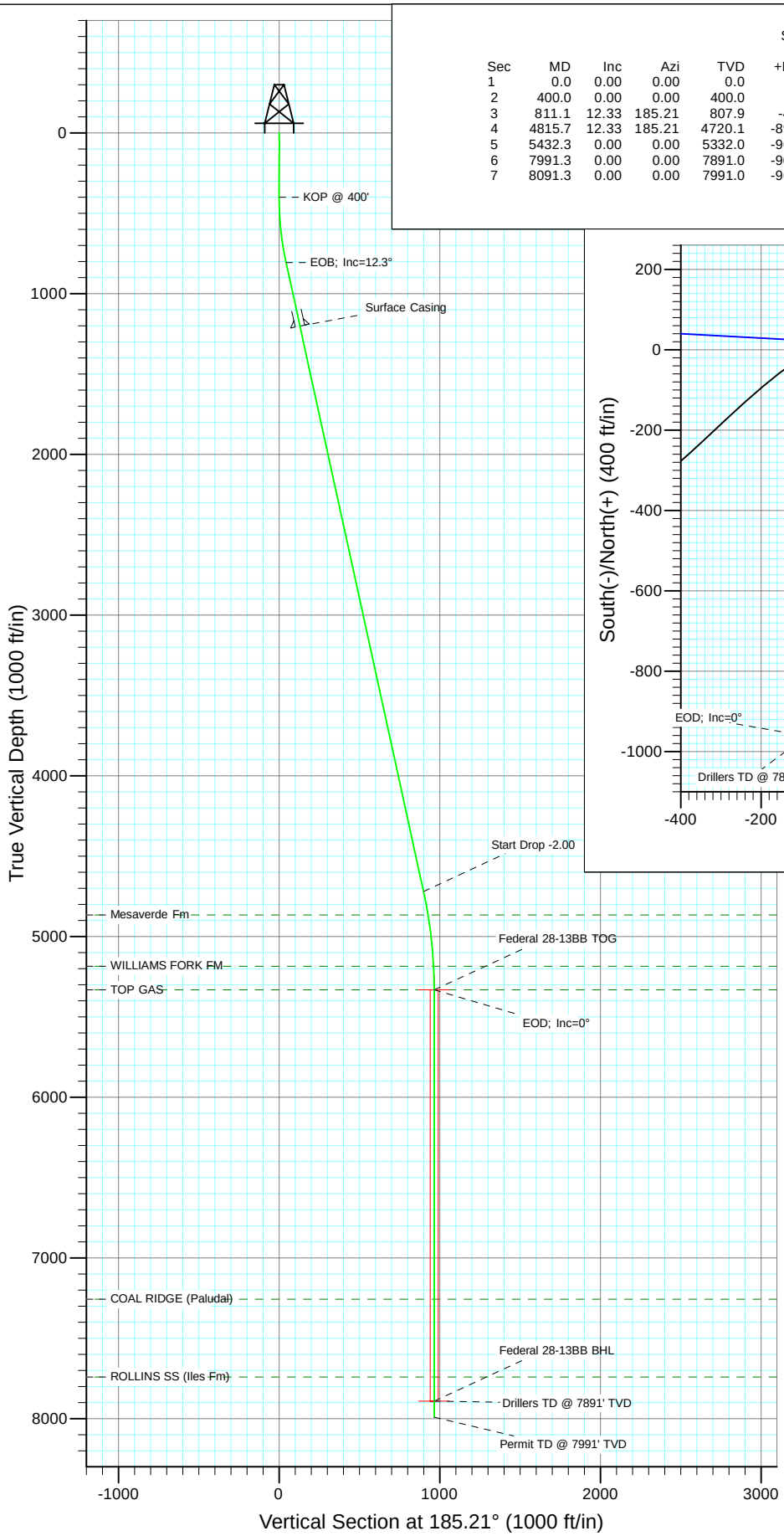
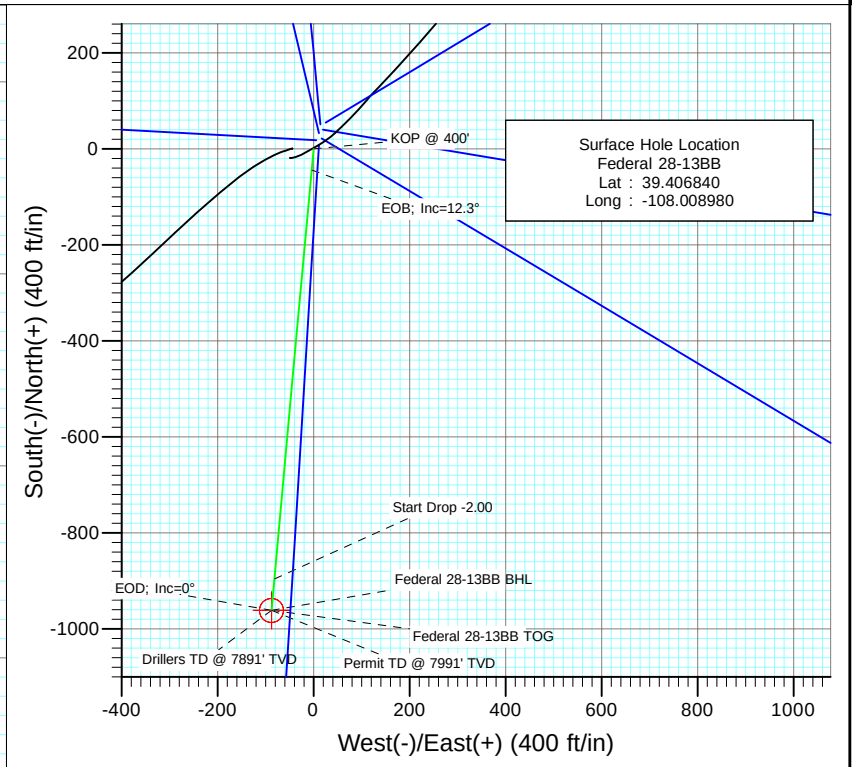
Project: S. Piceance
Site: PL 28 Pad (S28-T7S-R95W)
Well: Federal 28-13BB
Wellbore: DD
Design: Plan #1

CATHEDRAL

SECTION DETAILS

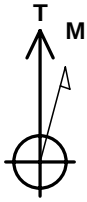
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.0	
3	811.1	12.33	185.21	807.9	-43.9	-4.0	3.00	185.21	44.1	
4	4815.7	12.33	185.21	4720.1	-895.7	-81.6	0.00	0.00	899.4	
5	5432.3	0.00	0.00	5332.0	-961.6	-87.6	2.00	180.00	965.5	Federal 28-13BB TOG
6	7991.3	0.00	0.00	7891.0	-961.6	-87.6	0.00	0.00	965.5	Federal 28-13BB BHL
7	8091.3	0.00	0.00	7991.0	-961.6	-87.6	0.00	0.00	965.5	





FORMATION TOP DETAILS

TVDPath	MDPath	Formation
4866.0	4964.3	Mesaverde Fm
5185.0	5285.3	WILLIAMS FORK FM
5332.0	5432.3	TOP GAS
7257.0	7357.3	COAL RIDGE (Paludal)
7741.0	7841.3	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

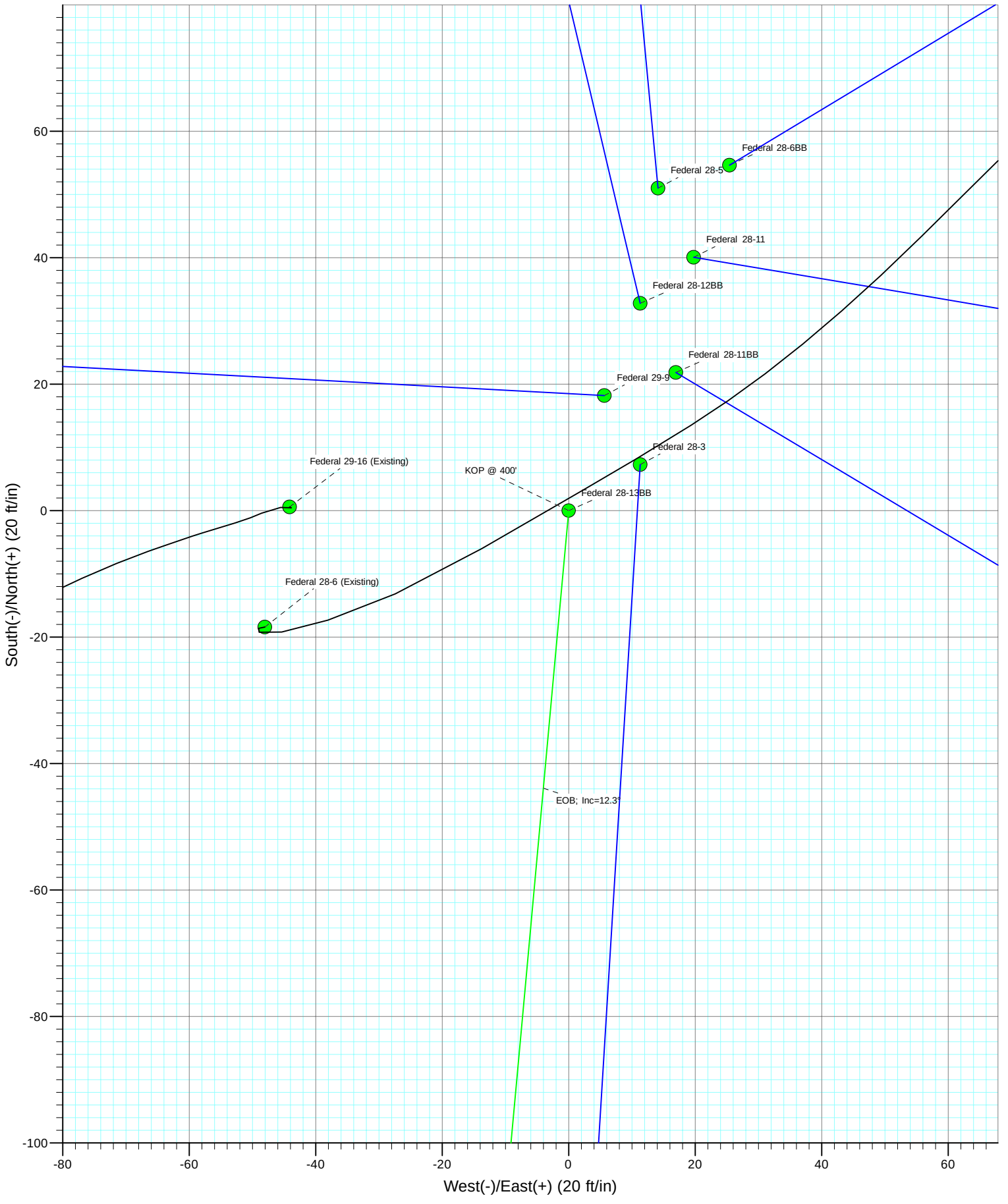
Plan #1
Federal 28-13BB
Job #10xxx: KR

WELL @ 7186.0ft (Original Well Elev)
North American Datum 1983
Well Federal 28-13BB, True North

Type	Target	Azimuth	Origin Type	N/S	E/W From	TVD
Target	Federal 28-13BB BHL	185.21	Slot	0.0	0.0	0.0

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
Federal 28-13BB BHL	7891.0	-961.6	-87.6	39.404200	-108.009290

Project: S. Piceance
Site: PL 28 Pad (S28-T7S-R95W)
Well: Federal 28-13BB
Wellbore: DD
Design: Plan #1



Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	**Local Co-ordinate Reference:**	Well Federal 28-13BB
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 28-13BB	**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 28-13BB					
Well Position	**+N/-S**	0.0 ft	**Northing:**	1,582,863.77 ft	**Latitude:**	39.406840
	+E/-W	0.0 ft	**Easting:**	2,291,162.47 ft	**Longitude:**	-108.008980
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	185.21

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	
400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.00	0.00	
811.1	12.33	185.21	807.9	-43.9	-4.0	3.00	3.00	0.00	185.21	
4,815.7	12.33	185.21	4,720.1	-895.7	-81.6	0.00	0.00	0.00	0.00	
5,432.3	0.00	0.00	5,332.0	-961.6	-87.6	2.00	-2.00	0.00	180.00	Federal 28-13BB TOC
7,991.3	0.00	0.00	7,891.0	-961.6	-87.6	0.00	0.00	0.00	0.00	Federal 28-13BB BHL
8,091.3	0.00	0.00	7,991.0	-961.6	-87.6	0.00	0.00	0.00	0.00	

Database:	EDM 5000.1 US Multi Users DB	**Local Co-ordinate Reference:**	Well Federal 28-13BB
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 28-13BB	**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	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	KOP @ 400'
500.0	3.00	185.21	500.0	-2.6	-0.2	2.6	3.00	3.00	
600.0	6.00	185.21	599.6	-10.4	-0.9	10.5	3.00	3.00	
700.0	9.00	185.21	698.8	-23.4	-2.1	23.5	3.00	3.00	
800.0	12.00	185.21	797.1	-41.6	-3.8	41.7	3.00	3.00	
811.1	12.33	185.21	807.9	-43.9	-4.0	44.1	3.00	3.00	EOB; Inc=12.3°
900.0	12.33	185.21	894.8	-62.8	-5.7	63.1	0.00	0.00	
1,000.0	12.33	185.21	992.5	-84.1	-7.7	84.4	0.00	0.00	
1,100.0	12.33	185.21	1,090.2	-105.3	-9.6	105.8	0.00	0.00	
1,200.0	12.33	185.21	1,187.9	-126.6	-11.5	127.1	0.00	0.00	
1,215.0	12.33	185.21	1,202.5	-129.8	-11.8	130.3	0.00	0.00	Surface Casing
1,300.0	12.33	185.21	1,285.6	-147.9	-13.5	148.5	0.00	0.00	
1,400.0	12.33	185.21	1,383.2	-169.2	-15.4	169.9	0.00	0.00	
1,500.0	12.33	185.21	1,480.9	-190.4	-17.3	191.2	0.00	0.00	
1,600.0	12.33	185.21	1,578.6	-211.7	-19.3	212.6	0.00	0.00	
1,700.0	12.33	185.21	1,676.3	-233.0	-21.2	233.9	0.00	0.00	
1,800.0	12.33	185.21	1,774.0	-254.2	-23.2	255.3	0.00	0.00	
1,900.0	12.33	185.21	1,871.7	-275.5	-25.1	276.7	0.00	0.00	
2,000.0	12.33	185.21	1,969.4	-296.8	-27.0	298.0	0.00	0.00	
2,100.0	12.33	185.21	2,067.1	-318.1	-29.0	319.4	0.00	0.00	
2,200.0	12.33	185.21	2,164.8	-339.3	-30.9	340.7	0.00	0.00	
2,300.0	12.33	185.21	2,262.5	-360.6	-32.9	362.1	0.00	0.00	
2,400.0	12.33	185.21	2,360.2	-381.9	-34.8	383.5	0.00	0.00	
2,500.0	12.33	185.21	2,457.9	-403.1	-36.7	404.8	0.00	0.00	
2,600.0	12.33	185.21	2,555.5	-424.4	-38.7	426.2	0.00	0.00	
2,700.0	12.33	185.21	2,653.2	-445.7	-40.6	447.5	0.00	0.00	
2,800.0	12.33	185.21	2,750.9	-467.0	-42.5	468.9	0.00	0.00	
2,900.0	12.33	185.21	2,848.6	-488.2	-44.5	490.2	0.00	0.00	
3,000.0	12.33	185.21	2,946.3	-509.5	-46.4	511.6	0.00	0.00	
3,100.0	12.33	185.21	3,044.0	-530.8	-48.4	533.0	0.00	0.00	
3,200.0	12.33	185.21	3,141.7	-552.0	-50.3	554.3	0.00	0.00	
3,300.0	12.33	185.21	3,239.4	-573.3	-52.2	575.7	0.00	0.00	
3,400.0	12.33	185.21	3,337.1	-594.6	-54.2	597.0	0.00	0.00	
3,500.0	12.33	185.21	3,434.8	-615.9	-56.1	618.4	0.00	0.00	
3,600.0	12.33	185.21	3,532.5	-637.1	-58.0	639.8	0.00	0.00	
3,700.0	12.33	185.21	3,630.2	-658.4	-60.0	661.1	0.00	0.00	
3,800.0	12.33	185.21	3,727.9	-679.7	-61.9	682.5	0.00	0.00	
3,900.0	12.33	185.21	3,825.5	-700.9	-63.9	703.8	0.00	0.00	
4,000.0	12.33	185.21	3,923.2	-722.2	-65.8	725.2	0.00	0.00	
4,100.0	12.33	185.21	4,020.9	-743.5	-67.7	746.6	0.00	0.00	
4,200.0	12.33	185.21	4,118.6	-764.8	-69.7	767.9	0.00	0.00	
4,300.0	12.33	185.21	4,216.3	-786.0	-71.6	789.3	0.00	0.00	
4,400.0	12.33	185.21	4,314.0	-807.3	-73.5	810.6	0.00	0.00	
4,500.0	12.33	185.21	4,411.7	-828.6	-75.5	832.0	0.00	0.00	
4,600.0	12.33	185.21	4,509.4	-849.8	-77.4	853.4	0.00	0.00	
4,700.0	12.33	185.21	4,607.1	-871.1	-79.4	874.7	0.00	0.00	
4,800.0	12.33	185.21	4,704.8	-892.4	-81.3	896.1	0.00	0.00	
4,815.7	12.33	185.21	4,720.1	-895.7	-81.6	899.4	0.00	0.00	Start Drop -2.00

Database:	EDM 5000.1 US Multi Users DB	**Local Co-ordinate Reference:**	Well Federal 28-13BB
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 28-13BB	**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
4,900.0	10.65	185.21	4,802.7	-912.4	-83.1	916.2	2.00	-2.00	
4,964.3	9.36	185.21	4,866.0	-923.6	-84.1	927.4	2.00	-2.00	Mesaverde Fm
5,000.0	8.65	185.21	4,901.3	-929.1	-84.6	933.0	2.00	-2.00	
5,100.0	6.65	185.21	5,000.4	-942.4	-85.8	946.3	2.00	-2.00	
5,200.0	4.65	185.21	5,099.9	-952.2	-86.7	956.1	2.00	-2.00	
5,285.3	2.94	185.21	5,185.0	-957.8	-87.3	961.8	2.00	-2.00	WILLIAMS FORK FM
5,300.0	2.65	185.21	5,199.7	-958.5	-87.3	962.5	2.00	-2.00	
5,400.0	0.65	185.21	5,299.7	-961.4	-87.6	965.4	2.00	-2.00	
5,432.3	0.00	0.00	5,332.0	-961.6	-87.6	965.5	2.00	-2.00	EOD; Inc=0° - TOP GAS - Federal 28-13BB TO
5,500.0	0.00	0.00	5,399.7	-961.6	-87.6	965.5	0.00	0.00	
5,600.0	0.00	0.00	5,499.7	-961.6	-87.6	965.5	0.00	0.00	
5,700.0	0.00	0.00	5,599.7	-961.6	-87.6	965.5	0.00	0.00	
5,800.0	0.00	0.00	5,699.7	-961.6	-87.6	965.5	0.00	0.00	
5,900.0	0.00	0.00	5,799.7	-961.6	-87.6	965.5	0.00	0.00	
6,000.0	0.00	0.00	5,899.7	-961.6	-87.6	965.5	0.00	0.00	
6,100.0	0.00	0.00	5,999.7	-961.6	-87.6	965.5	0.00	0.00	
6,200.0	0.00	0.00	6,099.7	-961.6	-87.6	965.5	0.00	0.00	
6,300.0	0.00	0.00	6,199.7	-961.6	-87.6	965.5	0.00	0.00	
6,400.0	0.00	0.00	6,299.7	-961.6	-87.6	965.5	0.00	0.00	
6,500.0	0.00	0.00	6,399.7	-961.6	-87.6	965.5	0.00	0.00	
6,600.0	0.00	0.00	6,499.7	-961.6	-87.6	965.5	0.00	0.00	
6,700.0	0.00	0.00	6,599.7	-961.6	-87.6	965.5	0.00	0.00	
6,800.0	0.00	0.00	6,699.7	-961.6	-87.6	965.5	0.00	0.00	
6,900.0	0.00	0.00	6,799.7	-961.6	-87.6	965.5	0.00	0.00	
7,000.0	0.00	0.00	6,899.7	-961.6	-87.6	965.5	0.00	0.00	
7,100.0	0.00	0.00	6,999.7	-961.6	-87.6	965.5	0.00	0.00	
7,200.0	0.00	0.00	7,099.7	-961.6	-87.6	965.5	0.00	0.00	
7,300.0	0.00	0.00	7,199.7	-961.6	-87.6	965.5	0.00	0.00	
7,357.3	0.00	0.00	7,257.0	-961.6	-87.6	965.5	0.00	0.00	COAL RIDGE (Paludal)
7,400.0	0.00	0.00	7,299.7	-961.6	-87.6	965.5	0.00	0.00	
7,500.0	0.00	0.00	7,399.7	-961.6	-87.6	965.5	0.00	0.00	
7,600.0	0.00	0.00	7,499.7	-961.6	-87.6	965.5	0.00	0.00	
7,700.0	0.00	0.00	7,599.7	-961.6	-87.6	965.5	0.00	0.00	
7,800.0	0.00	0.00	7,699.7	-961.6	-87.6	965.5	0.00	0.00	
7,841.3	0.00	0.00	7,741.0	-961.6	-87.6	965.5	0.00	0.00	ROLLINS SS (Iles Fm)
7,900.0	0.00	0.00	7,799.7	-961.6	-87.6	965.5	0.00	0.00	
7,991.3	0.00	0.00	7,891.0	-961.6	-87.6	965.5	0.00	0.00	Drillers TD @ 7891' TVD - Federal 28-13BB BH
8,000.0	0.00	0.00	7,899.7	-961.6	-87.6	965.5	0.00	0.00	
8,091.3	0.00	0.00	7,991.0	-961.6	-87.6	965.5	0.00	0.00	Permit TD @ 7991' TVD

Database:	EDM 5000.1 US Multi Users DB	**Local Co-ordinate Reference:**	Well Federal 28-13BB
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 28-13BB	**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 28-13BB TOG - plan hits target center - Point	0.00	0.00	5,332.0	-961.6	-87.6	1,581,904.99	2,291,048.35	39.404200	-108.009290
Federal 28-13BB BHL - plan hits target center - Circle (radius 25.0)	0.00	0.00	7,891.0	-961.6	-87.6	1,581,904.99	2,291,048.35	39.404200	-108.009290

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,215.0	1,202.5	Surface Casing	0.000	0.000

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,964.3	4,866.0	Mesaverde Fm			
5,285.3	5,185.0	WILLIAMS FORK FM			
5,432.3	5,332.0	TOP GAS			
7,357.3	7,257.0	COAL RIDGE (Paludal)			
7,841.3	7,741.0	ROLLINS SS (Iles Fm)			

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
400.0	400.0	0.0	0.0	KOP @ 400'
811.1	807.9	-43.9	-4.0	EOB; Inc=12.3°
4,815.7	4,720.1	-895.7	-81.6	Start Drop -2.00
5,432.3	5,332.0	-961.6	-87.6	EOD; Inc=0°
7,991.3	7,891.0	-961.6	-87.6	Drillers TD @ 7891' TVD
8,091.3	7,991.0	-961.6	-87.6	Permit TD @ 7991' TVD

EnCana Oil & Gas (USA) Inc

S. Piceance
PL 28 Pad (S28-T7S-R95W)
Federal 28-13BB
DD
Plan #1

Anticollision Report

26 July, 2010

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Federal 28-13BB
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 28-13BB	**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:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
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 1,010.8ft	**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	8,091.3	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	44.7	44.1	71.918	CC, ES
Federal 28-11 - DD - Plan #1	500.0	495.6	57.9	56.1	32.832	SF
Federal 28-11BB - DD - Plan #1	200.0	200.0	27.7	27.0	44.521	CC, ES
Federal 28-11BB - DD - Plan #1	500.0	497.2	39.3	37.5	22.276	SF
Federal 28-12BB - DD - Plan #1	200.0	200.0	34.7	34.1	55.813	CC, ES
Federal 28-12BB - DD - Plan #1	500.0	496.3	54.0	52.3	32.319	SF
Federal 28-3 - DD - Plan #1	374.3	374.5	10.8	9.6	8.515	CC, ES
Federal 28-3 - DD - Plan #1	400.0	400.1	11.1	9.8	8.100	SF
Federal 28-5 - DD - Plan #1	200.0	200.0	52.9	52.3	85.181	CC, ES
Federal 28-5 - DD - Plan #1	500.0	489.8	77.3	75.6	46.592	SF
Federal 28-6 (Existing) - DD - Schlumberger Surveys	614.2	617.5	12.2	9.8	5.136	CC, ES, SF
Federal 28-6BB - DD - Plan #1	200.0	200.0	60.3	59.6	96.996	CC, ES
Federal 28-6BB - DD - Plan #1	500.0	489.8	82.5	80.8	49.061	SF
Federal 29-16 (Existing) - DD - Schlumberger surveys	171.8	171.8	43.7	43.2	83.633	CC
Federal 29-16 (Existing) - DD - Schlumberger surveys	200.0	199.9	43.8	43.1	70.434	ES
Federal 29-16 (Existing) - DD - Schlumberger surveys	700.0	695.4	60.6	58.1	24.331	SF
Federal 29-9 - DD - Plan #1	333.5	333.6	18.5	17.4	16.635	CC, ES
Federal 29-9 - DD - Plan #1	400.0	399.8	19.4	18.0	14.183	SF

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Federal 28-13BB
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 28-13BB	**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	26.27	40.1	19.8	44.7				
100.0	100.0	100.0	100.0	0.1	0.1	26.27	40.1	19.8	44.7	44.4	0.27	164.122	
200.0	200.0	200.0	200.0	0.3	0.3	26.27	40.1	19.8	44.7	44.1	0.62	71.918	CC, ES
300.0	300.0	299.2	299.2	0.5	0.5	29.38	39.6	22.3	45.5	44.5	0.98	46.574	
400.0	400.0	397.9	397.6	0.7	0.7	37.91	38.4	29.9	48.7	47.3	1.36	35.764	
500.0	500.0	495.6	494.4	0.8	1.0	-137.42	36.3	42.3	57.9	56.1	1.76	32.832	SF
600.0	599.6	591.5	588.8	1.0	1.3	-130.49	33.5	59.2	75.3	73.1	2.20	34.217	
700.0	698.8	686.2	681.0	1.3	1.7	-126.46	29.9	80.3	99.8	97.1	2.68	37.233	
800.0	797.1	782.0	774.1	1.6	2.2	-125.25	26.2	102.8	128.4	125.1	3.23	39.749	
900.0	894.8	877.3	866.6	2.0	2.6	-125.83	22.4	125.1	158.7	154.9	3.83	41.430	
1,000.0	992.5	972.6	959.1	2.4	3.0	-126.29	18.7	147.5	189.1	184.6	4.45	42.493	
1,100.0	1,090.2	1,067.8	1,051.7	2.8	3.4	-126.62	14.9	169.8	219.4	214.4	5.08	43.216	
1,200.0	1,187.9	1,163.1	1,144.2	3.2	3.9	-126.87	11.2	192.2	249.8	244.1	5.71	43.733	
1,300.0	1,285.6	1,258.4	1,236.7	3.6	4.3	-127.07	7.5	214.6	280.2	273.8	6.35	44.117	
1,400.0	1,383.2	1,353.6	1,329.3	4.0	4.7	-127.23	3.7	236.9	310.6	303.6	6.99	44.412	
1,500.0	1,480.9	1,448.9	1,421.8	4.4	5.2	-127.36	0.0	259.3	341.0	333.3	7.64	44.643	
1,600.0	1,578.6	1,544.2	1,514.3	4.8	5.6	-127.47	-3.8	281.6	371.4	363.1	8.28	44.830	
1,700.0	1,676.3	1,639.4	1,606.9	5.2	6.1	-127.56	-7.5	304.0	401.8	392.8	8.93	44.983	
1,800.0	1,774.0	1,734.7	1,699.4	5.6	6.5	-127.64	-11.3	326.3	432.1	422.6	9.58	45.110	
1,900.0	1,871.7	1,830.0	1,791.9	6.0	6.9	-127.71	-15.0	348.7	462.5	452.3	10.23	45.217	
2,000.0	1,969.4	1,925.2	1,884.5	6.4	7.4	-127.77	-18.8	371.0	492.9	482.1	10.88	45.308	
2,100.0	2,067.1	2,020.5	1,977.0	6.8	7.8	-127.82	-22.5	393.4	523.3	511.8	11.53	45.387	
2,200.0	2,164.8	2,115.8	2,069.5	7.2	8.2	-127.87	-26.2	415.7	553.7	541.5	12.18	45.456	
2,300.0	2,262.5	2,211.0	2,162.1	7.6	8.7	-127.92	-30.0	438.1	584.1	571.3	12.83	45.516	
2,400.0	2,360.2	2,306.3	2,254.6	8.0	9.1	-127.95	-33.7	460.5	614.5	601.0	13.49	45.569	
2,500.0	2,457.9	2,401.6	2,347.1	8.4	9.6	-127.99	-37.5	482.8	644.9	630.8	14.14	45.617	
2,600.0	2,555.5	2,496.8	2,439.7	8.9	10.0	-128.02	-41.2	505.2	675.3	660.5	14.79	45.659	
2,700.0	2,653.2	2,592.1	2,532.2	9.3	10.4	-128.05	-45.0	527.5	705.7	690.2	15.44	45.697	
2,800.0	2,750.9	2,687.4	2,624.7	9.7	10.9	-128.08	-48.7	549.9	736.1	720.0	16.10	45.731	
2,900.0	2,848.6	2,782.7	2,717.3	10.1	11.3	-128.10	-52.4	572.2	766.5	749.7	16.75	45.763	
3,000.0	2,946.3	2,877.9	2,809.8	10.5	11.7	-128.12	-56.2	594.6	796.9	779.5	17.40	45.791	
3,100.0	3,044.0	2,973.2	2,902.3	10.9	12.2	-128.14	-59.9	616.9	827.3	809.2	18.06	45.817	
3,200.0	3,141.7	3,068.5	2,994.9	11.3	12.6	-128.16	-63.7	639.3	857.7	839.0	18.71	45.841	
3,300.0	3,239.4	3,163.7	3,087.4	11.7	13.1	-128.18	-67.4	661.6	888.1	868.7	19.36	45.863	
3,400.0	3,337.1	3,259.0	3,179.9	12.1	13.5	-128.20	-71.2	684.0	918.5	898.4	20.02	45.884	
3,500.0	3,434.8	3,354.3	3,272.5	12.5	13.9	-128.21	-74.9	706.4	948.9	928.2	20.67	45.903	
3,600.0	3,532.5	3,449.5	3,365.0	13.0	14.4	-128.23	-78.6	728.7	979.3	957.9	21.32	45.920	
3,700.0	3,630.2	3,544.8	3,457.5	13.4	14.8	-128.24	-82.4	751.1	1,009.6	987.7	21.98	45.937	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Federal 28-13BB
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 28-13BB	**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	37.80	21.9	17.0	27.7				
100.0	100.0	100.0	100.0	0.1	0.1	37.80	21.9	17.0	27.7	27.4	0.27	101.598	
200.0	200.0	200.0	200.0	0.3	0.3	37.80	21.9	17.0	27.7	27.0	0.62	44.521	CC, ES
300.0	300.0	299.7	299.7	0.5	0.5	43.08	20.5	19.2	28.1	27.1	0.98	28.719	
400.0	400.0	398.9	398.6	0.7	0.7	57.36	16.5	25.8	30.7	29.4	1.36	22.502	
500.0	500.0	497.2	496.0	0.8	1.0	-113.74	10.0	36.8	39.3	37.5	1.76	22.276	SF
600.0	599.6	594.2	591.4	1.0	1.3	-106.52	1.1	51.7	54.6	52.3	2.21	24.722	
700.0	698.8	689.6	684.2	1.3	1.8	-103.64	-10.2	70.5	75.3	72.5	2.73	27.529	
800.0	797.1	785.9	777.2	1.6	2.2	-103.40	-23.1	92.2	99.7	96.4	3.36	29.700	
900.0	894.8	882.6	870.5	2.0	2.7	-105.03	-36.1	114.0	125.0	121.0	4.05	30.847	
1,000.0	992.5	979.3	963.8	2.4	3.2	-106.18	-49.2	135.8	150.4	145.6	4.77	31.531	
1,100.0	1,090.2	1,076.0	1,057.1	2.8	3.7	-107.00	-62.2	157.6	175.8	170.3	5.50	31.976	
1,200.0	1,187.9	1,172.7	1,150.4	3.2	4.1	-107.62	-75.3	179.4	201.2	195.0	6.23	32.282	
1,300.0	1,285.6	1,269.4	1,243.7	3.6	4.6	-108.09	-88.3	201.2	226.7	219.7	6.97	32.503	
1,400.0	1,383.2	1,366.1	1,337.0	4.0	5.1	-108.47	-101.3	223.0	252.1	244.4	7.72	32.668	
1,500.0	1,480.9	1,462.8	1,430.3	4.4	5.6	-108.78	-114.4	244.8	277.6	269.1	8.47	32.795	
1,600.0	1,578.6	1,559.5	1,523.6	4.8	6.1	-109.04	-127.4	266.6	303.1	293.9	9.21	32.895	
1,700.0	1,676.3	1,656.2	1,616.9	5.2	6.5	-109.26	-140.4	288.4	328.6	318.6	9.96	32.975	
1,800.0	1,774.0	1,752.9	1,710.2	5.6	7.0	-109.44	-153.5	310.2	354.1	343.3	10.72	33.041	
1,900.0	1,871.7	1,849.5	1,803.5	6.0	7.5	-109.60	-166.5	332.0	379.6	368.1	11.47	33.096	
2,000.0	1,969.4	1,946.2	1,896.8	6.4	8.0	-109.75	-179.5	353.8	405.0	392.8	12.22	33.143	
2,100.0	2,067.1	2,042.9	1,990.1	6.8	8.5	-109.87	-192.6	375.6	430.5	417.6	12.97	33.182	
2,200.0	2,164.8	2,139.6	2,083.4	7.2	9.0	-109.98	-205.6	397.4	456.0	442.3	13.73	33.217	
2,300.0	2,262.5	2,236.3	2,176.7	7.6	9.4	-110.08	-218.6	419.2	481.5	467.1	14.48	33.246	
2,400.0	2,360.2	2,333.0	2,270.0	8.0	9.9	-110.17	-231.7	441.0	507.0	491.8	15.24	33.272	
2,500.0	2,457.9	2,429.7	2,363.3	8.4	10.4	-110.25	-244.7	462.8	532.5	516.5	15.99	33.295	
2,600.0	2,555.5	2,526.4	2,456.5	8.9	10.9	-110.32	-257.7	484.6	558.0	541.3	16.75	33.316	
2,700.0	2,653.2	2,623.1	2,549.8	9.3	11.4	-110.39	-270.8	506.4	583.5	566.0	17.51	33.334	
2,800.0	2,750.9	2,719.8	2,643.1	9.7	11.9	-110.45	-283.8	528.2	609.0	590.8	18.26	33.350	
2,900.0	2,848.6	2,816.5	2,736.4	10.1	12.3	-110.50	-296.8	550.0	634.5	615.5	19.02	33.365	
3,000.0	2,946.3	2,913.2	2,829.7	10.5	12.8	-110.56	-309.9	571.8	660.0	640.3	19.77	33.378	
3,100.0	3,044.0	3,009.8	2,923.0	10.9	13.3	-110.60	-322.9	593.6	685.6	665.0	20.53	33.391	
3,200.0	3,141.7	3,106.5	3,016.3	11.3	13.8	-110.65	-336.0	615.4	711.1	689.8	21.29	33.402	
3,300.0	3,239.4	3,203.2	3,109.6	11.7	14.3	-110.69	-349.0	637.2	736.6	714.5	22.04	33.412	
3,400.0	3,337.1	3,299.9	3,202.9	12.1	14.8	-110.73	-362.0	659.0	762.1	739.3	22.80	33.421	
3,500.0	3,434.8	3,396.6	3,296.2	12.5	15.2	-110.76	-375.1	680.8	787.6	764.0	23.56	33.430	
3,600.0	3,532.5	3,493.3	3,389.5	13.0	15.7	-110.80	-388.1	702.6	813.1	788.8	24.32	33.438	
3,700.0	3,630.2	3,590.0	3,482.8	13.4	16.2	-110.83	-401.1	724.4	838.6	813.5	25.07	33.446	
3,800.0	3,727.9	3,686.7	3,576.1	13.8	16.7	-110.86	-414.2	746.2	864.1	838.3	25.83	33.453	
3,900.0	3,825.5	3,783.4	3,669.4	14.2	17.2	-110.89	-427.2	768.1	889.6	863.0	26.59	33.459	
4,000.0	3,923.2	3,880.1	3,762.7	14.6	17.7	-110.92	-440.2	789.9	915.1	887.8	27.35	33.465	
4,100.0	4,020.9	3,976.8	3,856.0	15.0	18.1	-110.94	-453.3	811.7	940.6	912.5	28.10	33.471	
4,200.0	4,118.6	4,073.5	3,949.3	15.4	18.6	-110.96	-466.3	833.5	966.1	937.3	28.86	33.476	
4,300.0	4,216.3	4,170.1	4,042.6	15.8	19.1	-110.99	-479.3	855.3	991.6	962.0	29.62	33.481	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Federal 28-13BB
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 28-13BB	**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	19.02	32.8	11.3	34.7				
100.0	100.0	100.0	100.0	0.1	0.1	19.02	32.8	11.3	34.7	34.4	0.27	127.368	
200.0	200.0	200.0	200.0	0.3	0.3	19.02	32.8	11.3	34.7	34.1	0.62	55.813	CC, ES
300.0	300.0	298.4	298.4	0.5	0.5	16.91	35.3	10.7	36.9	35.9	0.97	38.057	
400.0	400.0	396.9	396.6	0.7	0.7	12.03	42.4	9.0	43.5	42.2	1.32	32.960	
500.0	500.0	496.3	495.6	0.8	0.9	-177.40	50.7	7.1	54.0	52.3	1.67	32.319	SF
600.0	599.6	595.0	593.9	1.0	1.1	179.78	59.0	5.1	69.9	67.9	2.01	34.736	
700.0	698.8	692.7	691.2	1.3	1.4	178.10	67.2	3.2	91.1	88.7	2.35	38.799	
800.0	797.1	789.1	787.3	1.6	1.6	177.16	75.3	1.3	117.4	114.7	2.67	43.888	
900.0	894.8	884.7	882.6	2.0	1.8	176.65	83.3	-0.6	146.7	143.7	3.01	48.669	
1,000.0	992.5	980.3	977.8	2.4	2.0	176.32	91.3	-2.5	176.1	172.7	3.36	52.453	
1,100.0	1,090.2	1,075.9	1,073.0	2.8	2.2	176.08	99.4	-4.4	205.5	201.8	3.70	55.533	
1,200.0	1,187.9	1,171.5	1,168.3	3.2	2.4	175.91	107.4	-6.3	234.9	230.8	4.04	58.089	
1,300.0	1,285.6	1,267.0	1,263.5	3.6	2.7	175.77	115.4	-8.2	264.3	259.9	4.39	60.244	
1,400.0	1,383.2	1,362.6	1,358.7	4.0	2.9	175.66	123.4	-10.1	293.7	288.9	4.73	62.084	
1,500.0	1,480.9	1,458.2	1,453.9	4.4	3.1	175.57	131.4	-12.0	323.0	318.0	5.07	63.675	
1,600.0	1,578.6	1,553.8	1,549.2	4.8	3.3	175.49	139.5	-13.9	352.4	347.0	5.42	65.063	
1,700.0	1,676.3	1,649.4	1,644.4	5.2	3.5	175.43	147.5	-15.8	381.8	376.1	5.76	66.285	
1,800.0	1,774.0	1,745.0	1,739.6	5.6	3.8	175.37	155.5	-17.7	411.2	405.1	6.10	67.369	
1,900.0	1,871.7	1,840.5	1,834.8	6.0	4.0	175.33	163.5	-19.6	440.6	434.2	6.45	68.337	
2,000.0	1,969.4	1,936.1	1,930.1	6.4	4.2	175.28	171.5	-21.5	470.0	463.2	6.79	69.207	
2,100.0	2,067.1	2,031.7	2,025.3	6.8	4.4	175.25	179.6	-23.3	499.4	492.3	7.14	69.992	
2,200.0	2,164.8	2,127.3	2,120.5	7.2	4.6	175.22	187.6	-25.2	528.8	521.3	7.48	70.705	
2,300.0	2,262.5	2,222.9	2,215.7	7.6	4.9	175.19	195.6	-27.1	558.2	550.4	7.82	71.356	
2,400.0	2,360.2	2,318.4	2,311.0	8.0	5.1	175.16	203.6	-29.0	587.6	579.4	8.17	71.951	
2,500.0	2,457.9	2,414.0	2,406.2	8.4	5.3	175.14	211.6	-30.9	617.0	608.5	8.51	72.498	
2,600.0	2,555.5	2,509.6	2,501.4	8.9	5.5	175.12	219.7	-32.8	646.4	637.5	8.85	73.003	
2,700.0	2,653.2	2,605.2	2,596.7	9.3	5.7	175.10	227.7	-34.7	675.8	666.6	9.20	73.469	
2,800.0	2,750.9	2,700.8	2,691.9	9.7	6.0	175.08	235.7	-36.6	705.2	695.6	9.54	73.902	
2,900.0	2,848.6	2,796.4	2,787.1	10.1	6.2	175.06	243.7	-38.5	734.5	724.7	9.89	74.305	
3,000.0	2,946.3	2,891.9	2,882.3	10.5	6.4	175.05	251.7	-40.4	763.9	753.7	10.23	74.680	
3,100.0	3,044.0	2,987.5	2,977.6	10.9	6.6	175.03	259.8	-42.3	793.3	782.8	10.57	75.032	
3,200.0	3,141.7	3,083.1	3,072.8	11.3	6.8	175.02	267.8	-44.2	822.7	811.8	10.92	75.360	
3,300.0	3,239.4	3,178.7	3,168.0	11.7	7.1	175.01	275.8	-46.1	852.1	840.9	11.26	75.669	
3,400.0	3,337.1	3,274.3	3,263.2	12.1	7.3	174.99	283.8	-48.0	881.5	869.9	11.61	75.960	
3,500.0	3,434.8	3,369.9	3,358.5	12.5	7.5	174.98	291.8	-49.9	910.9	899.0	11.95	76.233	
3,600.0	3,532.5	3,465.4	3,453.7	13.0	7.7	174.97	299.9	-51.8	940.3	928.0	12.29	76.492	
3,700.0	3,630.2	3,561.0	3,548.9	13.4	7.9	174.96	307.9	-53.6	969.7	957.1	12.64	76.736	
3,800.0	3,727.9	3,656.6	3,644.1	13.8	8.2	174.96	315.9	-55.5	999.1	986.1	12.98	76.967	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Federal 28-13BB
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 28-13BB	**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 28-3 - 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	57.18	7.3	11.3	13.4				
100.0	100.0	100.0	100.0	0.1	0.1	57.18	7.3	11.3	13.4	13.2	0.27	49.395	
200.0	200.0	200.0	200.0	0.3	0.3	57.18	7.3	11.3	13.4	12.8	0.62	21.645	
300.0	300.0	300.3	300.3	0.5	0.5	67.30	4.7	11.1	12.1	11.1	0.98	12.360	
374.3	374.3	374.5	374.3	0.6	0.7	93.51	-0.7	10.8	10.8	9.6	1.27	8.515	CC, ES
400.0	400.0	400.1	399.7	0.7	0.7	106.53	-3.2	10.7	11.1	9.8	1.37	8.100	SF
500.0	500.0	499.2	497.9	0.8	1.0	-41.95	-16.0	9.9	16.9	15.2	1.74	9.733	
600.0	599.6	597.7	594.8	1.0	1.4	-27.32	-33.9	8.8	25.9	23.8	2.09	12.356	
700.0	698.8	695.7	690.1	1.3	1.8	-20.68	-56.6	7.4	35.5	33.1	2.45	14.518	
800.0	797.1	793.2	783.7	1.6	2.3	-17.11	-83.9	5.7	45.4	42.6	2.81	16.178	
900.0	894.8	891.2	876.4	2.0	2.9	-14.64	-115.7	3.8	56.8	53.6	3.17	17.910	
1,000.0	992.5	990.5	970.0	2.4	3.4	-12.85	-148.6	1.7	68.9	65.4	3.53	19.519	
1,100.0	1,090.2	1,089.7	1,063.7	2.8	4.0	-11.61	-181.4	-0.3	81.1	77.2	3.89	20.851	
1,200.0	1,187.9	1,189.0	1,157.3	3.2	4.6	-10.69	-214.3	-2.3	93.3	89.1	4.25	21.971	
1,300.0	1,285.6	1,288.2	1,250.9	3.6	5.2	-9.98	-247.1	-4.3	105.5	100.9	4.60	22.924	
1,400.0	1,383.2	1,387.4	1,344.5	4.0	5.8	-9.42	-280.0	-6.3	117.8	112.8	4.96	23.745	
1,500.0	1,480.9	1,486.7	1,438.2	4.4	6.4	-8.96	-312.9	-8.3	130.0	124.7	5.32	24.459	
1,600.0	1,578.6	1,585.9	1,531.8	4.8	7.0	-8.58	-345.7	-10.3	142.3	136.6	5.67	25.085	
1,700.0	1,676.3	1,685.2	1,625.4	5.2	7.6	-8.27	-378.6	-12.4	154.5	148.5	6.03	25.639	
1,800.0	1,774.0	1,784.4	1,719.0	5.6	8.2	-8.00	-411.5	-14.4	166.8	160.4	6.38	26.132	
1,900.0	1,871.7	1,883.7	1,812.6	6.0	8.8	-7.76	-444.3	-16.4	179.0	172.3	6.74	26.573	
2,000.0	1,969.4	1,982.9	1,906.3	6.4	9.4	-7.56	-477.2	-18.4	191.3	184.2	7.09	26.971	
2,100.0	2,067.1	2,082.1	1,999.9	6.8	10.0	-7.38	-510.0	-20.4	203.6	196.1	7.45	27.332	
2,200.0	2,164.8	2,181.4	2,093.5	7.2	10.6	-7.22	-542.9	-22.4	215.9	208.1	7.80	27.660	
2,300.0	2,262.5	2,280.6	2,187.1	7.6	11.2	-7.08	-575.8	-24.4	228.1	220.0	8.16	27.960	
2,400.0	2,360.2	2,379.9	2,280.8	8.0	11.8	-6.95	-608.6	-26.5	240.4	231.9	8.51	28.235	
2,500.0	2,457.9	2,479.1	2,374.4	8.4	12.4	-6.84	-641.5	-28.5	252.7	243.8	8.87	28.488	
2,600.0	2,555.5	2,578.4	2,468.0	8.9	13.0	-6.73	-674.3	-30.5	265.0	255.7	9.22	28.722	
2,700.0	2,653.2	2,677.6	2,561.6	9.3	13.6	-6.64	-707.2	-32.5	277.2	267.6	9.58	28.938	
2,800.0	2,750.9	2,776.8	2,655.2	9.7	14.2	-6.55	-740.1	-34.5	289.5	279.6	9.94	29.139	
2,900.0	2,848.6	2,876.1	2,748.9	10.1	14.8	-6.47	-772.9	-36.5	301.8	291.5	10.29	29.327	
3,000.0	2,946.3	2,975.3	2,842.5	10.5	15.4	-6.40	-805.8	-38.5	314.1	303.4	10.65	29.502	
3,100.0	3,044.0	3,074.6	2,936.1	10.9	16.0	-6.33	-838.7	-40.5	326.3	315.3	11.00	29.665	
3,200.0	3,141.7	3,173.8	3,029.7	11.3	16.6	-6.27	-871.5	-42.6	338.6	327.3	11.36	29.819	
3,300.0	3,239.4	3,273.0	3,123.4	11.7	17.2	-6.21	-904.4	-44.6	350.9	339.2	11.71	29.963	
3,400.0	3,337.1	3,372.3	3,217.0	12.1	17.8	-6.15	-937.2	-46.6	363.2	351.1	12.07	30.099	
3,500.0	3,434.8	3,471.5	3,310.6	12.5	18.4	-6.10	-970.1	-48.6	375.5	363.0	12.42	30.227	
3,600.0	3,532.5	3,570.8	3,404.2	13.0	19.0	-6.05	-1,003.0	-50.6	387.7	375.0	12.78	30.348	
3,700.0	3,630.2	3,670.0	3,497.8	13.4	19.6	-6.01	-1,035.8	-52.6	400.0	386.9	13.13	30.462	
3,800.0	3,727.9	3,769.3	3,591.5	13.8	20.2	-5.97	-1,068.7	-54.6	412.3	398.8	13.49	30.571	
3,900.0	3,825.5	3,868.5	3,685.1	14.2	20.8	-5.93	-1,101.5	-56.7	424.6	410.7	13.84	30.673	
4,000.0	3,923.2	3,967.7	3,778.7	14.6	21.4	-5.89	-1,134.4	-58.7	436.9	422.7	14.20	30.771	
4,100.0	4,020.9	4,067.0	3,872.3	15.0	22.0	-5.85	-1,167.3	-60.7	449.1	434.6	14.55	30.864	
4,200.0	4,118.6	4,166.2	3,966.0	15.4	22.6	-5.82	-1,200.1	-62.7	461.4	446.5	14.91	30.953	
4,300.0	4,216.3	4,265.5	4,059.6	15.8	23.2	-5.79	-1,233.0	-64.7	473.7	458.4	15.26	31.037	
4,400.0	4,314.0	4,364.7	4,153.2	16.2	23.8	-5.76	-1,265.9	-66.7	486.0	470.4	15.62	31.118	
4,500.0	4,411.7	4,464.0	4,246.8	16.7	24.4	-5.73	-1,298.7	-68.7	498.3	482.3	15.97	31.195	
4,600.0	4,509.4	4,563.2	4,340.4	17.1	25.0	-5.70	-1,331.6	-70.8	510.6	494.2	16.33	31.268	
4,700.0	4,607.1	4,662.4	4,434.1	17.5	25.6	-5.67	-1,364.4	-72.8	522.8	506.2	16.68	31.339	
4,800.0	4,704.8	4,761.7	4,527.7	17.9	26.2	-5.65	-1,397.3	-74.8	535.1	518.1	17.04	31.407	
4,900.0	4,802.7	4,860.8	4,621.2	18.3	26.8	-5.64	-1,430.1	-76.8	548.6	531.2	17.38	31.570	
5,000.0	4,901.3	4,973.0	4,727.3	18.6	27.4	-5.59	-1,466.5	-79.0	564.8	547.1	17.72	31.880	

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 28-13BB
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 28-13BB	**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 28-3 - 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
5,100.0	5,000.4	5,096.3	4,845.4	18.8	28.1	-5.54	-1,502.0	-81.2	580.7	562.6	18.06	32.155	
5,200.0	5,099.9	5,220.6	4,965.9	19.0	28.6	-5.48	-1,532.6	-83.1	595.7	577.3	18.38	32.403	
5,300.0	5,199.7	5,345.9	5,088.5	19.2	29.0	-5.42	-1,558.1	-84.6	609.8	591.1	18.69	32.625	
5,400.0	5,299.7	5,472.2	5,213.1	19.3	29.4	-5.35	-1,578.4	-85.9	623.1	604.1	18.99	32.818	
5,500.0	5,399.7	5,599.4	5,339.4	19.4	29.7	179.93	-1,593.3	-86.8	634.6	615.2	19.34	32.817	
5,600.0	5,499.7	5,727.6	5,467.3	19.5	29.9	179.98	-1,602.6	-87.4	641.9	622.1	19.73	32.538	
5,700.0	5,599.7	5,856.5	5,596.1	19.6	30.0	-180.00	-1,606.2	-87.6	644.7	624.5	20.12	32.038	
5,800.0	5,699.7	5,960.1	5,699.7	19.6	30.1	-180.00	-1,606.2	-87.6	644.7	624.2	20.48	31.484	
5,900.0	5,799.7	6,060.1	5,799.7	19.7	30.1	-180.00	-1,606.2	-87.6	644.7	623.9	20.83	30.957	
6,000.0	5,899.7	6,160.1	5,899.7	19.8	30.2	-180.00	-1,606.2	-87.6	644.7	623.5	21.17	30.448	
6,100.0	5,999.7	6,260.1	5,999.7	19.9	30.2	-180.00	-1,606.2	-87.6	644.7	623.2	21.52	29.954	
6,200.0	6,099.7	6,360.1	6,099.7	20.0	30.3	-180.00	-1,606.2	-87.6	644.7	622.8	21.87	29.477	
6,300.0	6,199.7	6,460.1	6,199.7	20.1	30.4	-180.00	-1,606.2	-87.6	644.7	622.5	22.22	29.014	
6,400.0	6,299.7	6,560.1	6,299.7	20.2	30.4	-180.00	-1,606.2	-87.6	644.7	622.1	22.57	28.566	
6,500.0	6,399.7	6,660.1	6,399.7	20.3	30.5	-180.00	-1,606.2	-87.6	644.7	621.8	22.92	28.132	
6,600.0	6,499.7	6,760.1	6,499.7	20.4	30.6	-180.00	-1,606.2	-87.6	644.7	621.4	23.27	27.710	
6,700.0	6,599.7	6,860.1	6,599.7	20.5	30.6	-180.00	-1,606.2	-87.6	644.7	621.1	23.61	27.301	
6,800.0	6,699.7	6,960.1	6,699.7	20.6	30.7	-180.00	-1,606.2	-87.6	644.7	620.7	23.96	26.904	
6,900.0	6,799.7	7,060.1	6,799.7	20.7	30.8	-180.00	-1,606.2	-87.6	644.7	620.4	24.31	26.518	
7,000.0	6,899.7	7,160.1	6,899.7	20.8	30.8	-180.00	-1,606.2	-87.6	644.7	620.0	24.66	26.143	
7,100.0	6,999.7	7,260.1	6,999.7	20.9	30.9	-180.00	-1,606.2	-87.6	644.7	619.7	25.01	25.778	
7,200.0	7,099.7	7,360.1	7,099.7	21.0	31.0	-180.00	-1,606.2	-87.6	644.7	619.3	25.36	25.424	
7,300.0	7,199.7	7,460.1	7,199.7	21.1	31.1	-180.00	-1,606.2	-87.6	644.7	619.0	25.71	25.079	
7,400.0	7,299.7	7,560.1	7,299.7	21.2	31.1	-180.00	-1,606.2	-87.6	644.7	618.6	26.06	24.743	
7,500.0	7,399.7	7,660.1	7,399.7	21.3	31.2	-180.00	-1,606.2	-87.6	644.7	618.3	26.40	24.416	
7,600.0	7,499.7	7,760.1	7,499.7	21.4	31.3	-180.00	-1,606.2	-87.6	644.7	617.9	26.75	24.098	
7,700.0	7,599.7	7,860.1	7,599.7	21.5	31.4	-180.00	-1,606.2	-87.6	644.7	617.6	27.10	23.788	
7,800.0	7,699.7	7,960.1	7,699.7	21.6	31.4	-180.00	-1,606.2	-87.6	644.7	617.2	27.45	23.485	
7,900.0	7,799.7	8,060.1	7,799.7	21.8	31.5	-180.00	-1,606.2	-87.6	644.7	616.9	27.80	23.191	
8,000.0	7,899.7	8,160.1	7,899.7	21.9	31.6	-180.00	-1,606.2	-87.6	644.7	616.5	28.15	22.903	
8,049.4	7,949.1	8,209.5	7,949.1	21.9	31.6	-180.00	-1,606.2	-87.6	644.7	616.4	28.32	22.764	
8,091.3	7,991.0	8,226.4	7,966.0	22.0	31.6	-180.00	-1,606.2	-87.6	645.2	616.8	28.42	22.699	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Federal 28-13BB
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 28-13BB	**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	15.48	51.0	14.1	52.9				
100.0	100.0	100.0	100.0	0.1	0.1	15.48	51.0	14.1	52.9	52.7	0.27	194.387	
200.0	200.0	200.0	200.0	0.3	0.3	15.48	51.0	14.1	52.9	52.3	0.62	85.181	CC, ES
300.0	300.0	297.4	297.3	0.5	0.5	14.57	53.5	13.9	55.3	54.4	0.97	57.240	
400.0	400.0	394.3	393.9	0.7	0.7	12.25	60.8	13.2	62.5	61.2	1.31	47.672	
500.0	500.0	489.8	488.6	0.8	1.0	-175.90	72.8	12.1	77.3	75.6	1.66	46.592	SF
600.0	599.6	582.3	579.8	1.0	1.3	-178.56	89.0	10.6	102.0	100.0	1.99	51.212	
700.0	698.8	675.7	671.1	1.3	1.6	179.50	108.2	8.8	135.0	132.7	2.32	58.256	
800.0	797.1	768.1	761.5	1.6	2.0	178.33	127.4	7.0	173.0	170.4	2.63	65.728	
900.0	894.8	859.3	850.7	2.0	2.4	177.62	146.3	5.2	214.0	211.0	2.96	72.279	
1,000.0	992.5	950.5	939.9	2.4	2.7	177.15	165.2	3.4	255.0	251.7	3.29	77.475	
1,100.0	1,090.2	1,041.6	1,029.1	2.8	3.1	176.80	184.1	1.6	296.0	292.4	3.62	81.720	
1,200.0	1,187.9	1,132.8	1,118.2	3.2	3.4	176.54	203.0	-0.1	337.1	333.1	3.95	85.253	
1,300.0	1,285.6	1,224.0	1,207.4	3.6	3.8	176.34	221.9	-1.9	378.1	373.8	4.29	88.239	
1,400.0	1,383.2	1,315.2	1,296.6	4.0	4.2	176.17	240.8	-3.7	419.2	414.5	4.62	90.794	
1,500.0	1,480.9	1,406.4	1,385.8	4.4	4.5	176.04	259.7	-5.4	460.2	455.3	4.95	93.005	
1,600.0	1,578.6	1,497.6	1,475.0	4.8	4.9	175.93	278.6	-7.2	501.3	496.0	5.28	94.938	
1,700.0	1,676.3	1,588.7	1,564.2	5.2	5.3	175.83	297.5	-9.0	542.3	536.7	5.61	96.642	
1,800.0	1,774.0	1,679.9	1,653.3	5.6	5.6	175.75	316.4	-10.8	583.4	577.4	5.94	98.154	
1,900.0	1,871.7	1,771.1	1,742.5	6.0	6.0	175.68	335.3	-12.5	624.4	618.2	6.28	99.506	
2,000.0	1,969.4	1,862.3	1,831.7	6.4	6.4	175.62	354.2	-14.3	665.5	658.9	6.61	100.722	
2,100.0	2,067.1	1,953.5	1,920.9	6.8	6.7	175.56	373.1	-16.1	706.5	699.6	6.94	101.821	
2,200.0	2,164.8	2,044.6	2,010.1	7.2	7.1	175.51	392.0	-17.8	747.6	740.3	7.27	102.820	
2,300.0	2,262.5	2,135.8	2,099.3	7.6	7.5	175.47	410.9	-19.6	788.7	781.1	7.60	103.731	
2,400.0	2,360.2	2,227.0	2,188.4	8.0	7.8	175.43	429.8	-21.4	829.7	821.8	7.93	104.565	
2,500.0	2,457.9	2,318.2	2,277.6	8.4	8.2	175.39	448.7	-23.2	870.8	862.5	8.27	105.332	
2,600.0	2,555.5	2,409.4	2,366.8	8.9	8.6	175.36	467.6	-24.9	911.8	903.2	8.60	106.040	
2,700.0	2,653.2	2,500.5	2,456.0	9.3	8.9	175.33	486.5	-26.7	952.9	944.0	8.93	106.695	
2,800.0	2,750.9	2,591.7	2,545.2	9.7	9.3	175.30	505.4	-28.5	994.0	984.7	9.26	107.303	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Federal 28-13BB
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 28-13BB	**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	-110.97	-18.4	-48.0	51.4				
100.0	100.0	99.5	99.5	0.1	0.1	-110.89	-18.5	-48.5	51.9	51.7	0.28	183.659	
200.0	200.0	200.1	200.1	0.3	0.3	-111.00	-18.9	-49.3	52.8	52.2	0.62	84.889	
300.0	300.0	302.4	302.4	0.5	0.5	-112.51	-19.4	-46.8	50.7	49.7	0.98	51.927	
400.0	400.0	404.6	404.3	0.7	0.7	-114.23	-17.7	-39.4	43.4	42.0	1.33	32.523	
500.0	500.0	505.5	504.3	0.8	1.0	63.96	-13.3	-27.8	29.9	28.2	1.68	17.748	
600.0	599.6	603.8	601.2	1.0	1.3	109.02	-5.3	-12.6	12.8	10.6	2.22	5.765	
614.2	613.7	617.5	614.6	1.1	1.4	126.21	-4.0	-10.2	12.2	9.8	2.37	5.136	CC, ES, SF
700.0	698.8	699.1	694.4	1.3	1.7	-171.48	4.6	4.5	29.1	26.4	2.66	10.920	
800.0	797.1	791.4	784.4	1.6	2.1	-159.42	15.3	22.2	63.8	60.8	2.99	21.325	
900.0	894.8	878.9	869.2	2.0	2.5	-157.18	28.4	39.5	104.9	101.6	3.38	31.030	
1,000.0	992.5	962.2	949.0	2.4	2.9	-156.57	44.5	56.9	150.3	146.5	3.78	39.798	
1,100.0	1,090.2	1,047.0	1,029.5	2.8	3.4	-156.25	63.1	75.8	198.3	194.1	4.18	47.439	
1,200.0	1,187.9	1,124.1	1,102.1	3.2	3.9	-156.13	82.0	93.6	248.9	244.3	4.56	54.561	
1,300.0	1,285.6	1,202.7	1,175.2	3.6	4.4	-156.14	103.7	112.7	302.3	297.3	4.95	61.045	
1,400.0	1,383.2	1,286.5	1,252.7	4.0	5.0	-156.01	127.3	134.0	356.7	351.3	5.36	66.493	
1,500.0	1,480.9	1,368.9	1,328.9	4.4	5.6	-155.69	149.7	155.9	410.9	405.1	5.77	71.184	
1,600.0	1,578.6	1,449.1	1,402.8	4.8	6.1	-155.56	172.5	177.1	466.0	459.8	6.17	75.556	
1,700.0	1,676.3	1,536.8	1,483.8	5.2	6.7	-155.53	197.7	199.6	520.8	514.3	6.57	79.245	
1,800.0	1,774.0	1,625.4	1,565.9	5.6	7.3	-155.58	222.7	221.4	575.0	568.0	6.98	82.381	
1,900.0	1,871.7	1,713.7	1,648.0	6.0	7.9	-155.65	247.3	242.7	628.6	621.2	7.39	85.038	
2,000.0	1,969.4	1,802.8	1,731.0	6.4	8.5	-155.70	271.5	264.0	681.6	673.8	7.80	87.344	
2,100.0	2,067.1	1,879.6	1,802.5	6.8	9.0	-155.73	292.5	282.5	734.7	726.5	8.20	89.629	
2,200.0	2,164.8	1,954.2	1,871.6	7.2	9.5	-155.72	313.5	301.2	788.9	780.3	8.59	91.889	
2,300.0	2,262.5	2,030.6	1,942.1	7.6	10.1	-155.71	335.6	320.8	844.0	835.1	8.97	94.109	
2,400.0	2,360.2	2,107.0	2,012.4	8.0	10.6	-155.73	358.5	340.1	899.8	890.4	9.35	96.230	
2,500.0	2,457.9	2,189.6	2,088.3	8.4	11.2	-155.79	383.7	360.9	955.9	946.2	9.75	98.093	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Federal 28-13BB
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 28-13BB	**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	24.96	54.6	25.4	60.3				
100.0	100.0	100.0	100.0	0.1	0.1	24.96	54.6	25.4	60.3	60.0	0.27	221.349	
200.0	200.0	200.0	200.0	0.3	0.3	24.96	54.6	25.4	60.3	59.6	0.62	96.996	CC, ES
300.0	300.0	297.4	297.3	0.5	0.5	26.23	55.9	27.6	62.4	61.4	0.97	64.393	
400.0	400.0	394.2	393.9	0.7	0.7	29.56	59.7	33.9	68.9	67.6	1.33	51.958	
500.0	500.0	489.8	488.7	0.8	1.0	-152.02	66.0	44.2	82.5	80.8	1.68	49.061	SF
600.0	599.6	583.0	580.4	1.0	1.3	-149.61	74.4	58.2	105.2	103.1	2.05	51.382	
700.0	698.8	672.7	667.9	1.3	1.7	-148.18	84.7	75.3	136.5	134.1	2.43	56.261	
800.0	797.1	761.7	753.8	1.6	2.1	-147.38	96.7	95.2	175.5	172.7	2.83	62.117	
900.0	894.8	852.4	841.2	2.0	2.6	-147.64	109.2	116.0	217.4	214.2	3.26	66.604	
1,000.0	992.5	943.2	928.7	2.4	3.0	-147.88	121.7	136.8	259.4	255.7	3.72	69.806	
1,100.0	1,090.2	1,034.0	1,016.1	2.8	3.5	-148.05	134.3	157.6	301.4	297.2	4.17	72.202	
1,200.0	1,187.9	1,124.7	1,103.6	3.2	3.9	-148.18	146.8	178.4	343.4	338.7	4.64	74.052	
1,300.0	1,285.6	1,215.5	1,191.0	3.6	4.4	-148.29	159.3	199.1	385.4	380.3	5.10	75.519	
1,400.0	1,383.2	1,306.2	1,278.5	4.0	4.8	-148.37	171.8	219.9	427.4	421.8	5.57	76.707	
1,500.0	1,480.9	1,397.0	1,365.9	4.4	5.3	-148.43	184.4	240.7	469.3	463.3	6.04	77.687	
1,600.0	1,578.6	1,487.7	1,453.4	4.8	5.7	-148.49	196.9	261.5	511.3	504.8	6.51	78.507	
1,700.0	1,676.3	1,578.5	1,540.9	5.2	6.2	-148.54	209.4	282.3	553.3	546.3	6.99	79.204	
1,800.0	1,774.0	1,669.3	1,628.3	5.6	6.7	-148.58	221.9	303.0	595.3	587.8	7.46	79.803	
1,900.0	1,871.7	1,760.0	1,715.8	6.0	7.1	-148.61	234.5	323.8	637.3	629.4	7.93	80.323	
2,000.0	1,969.4	1,850.8	1,803.2	6.4	7.6	-148.65	247.0	344.6	679.3	670.9	8.41	80.778	
2,100.0	2,067.1	1,941.5	1,890.7	6.8	8.1	-148.67	259.5	365.4	721.3	712.4	8.88	81.180	
2,200.0	2,164.8	2,032.3	1,978.1	7.2	8.5	-148.70	272.0	386.2	763.2	753.9	9.36	81.538	
2,300.0	2,262.5	2,123.1	2,065.6	7.6	9.0	-148.72	284.5	407.0	805.2	795.4	9.84	81.857	
2,400.0	2,360.2	2,213.8	2,153.0	8.0	9.4	-148.74	297.1	427.7	847.2	836.9	10.31	82.145	
2,500.0	2,457.9	2,304.6	2,240.5	8.4	9.9	-148.76	309.6	448.5	889.2	878.4	10.79	82.404	
2,600.0	2,555.5	2,395.3	2,327.9	8.9	10.4	-148.77	322.1	469.3	931.2	919.9	11.27	82.641	
2,700.0	2,653.2	2,486.1	2,415.4	9.3	10.8	-148.79	334.6	490.1	973.2	961.4	11.75	82.856	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Federal 28-13BB
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 28-13BB	**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	-89.24	0.6	-44.1	44.1				
100.0	100.0	100.2	100.2	0.1	0.1	-89.37	0.5	-43.9	43.9	43.6	0.28	159.047	
171.8	171.8	171.8	171.8	0.3	0.3	-89.49	0.4	-43.7	43.7	43.2	0.52	83.633	CC
200.0	200.0	199.9	199.9	0.3	0.3	-89.47	0.4	-43.8	43.8	43.1	0.62	70.434	ES
300.0	300.0	299.4	299.4	0.5	0.5	-89.29	0.5	-44.5	44.5	43.5	0.97	45.867	
400.0	400.0	398.9	398.9	0.7	0.7	-89.51	0.4	-46.4	46.4	45.1	1.32	35.213	
500.0	500.0	498.4	498.4	0.8	0.8	87.01	-0.6	-49.1	48.9	47.2	1.67	29.249	
600.0	599.6	597.0	596.9	1.0	1.0	93.34	-2.2	-53.6	53.3	51.3	2.05	25.969	
700.0	698.8	695.4	695.1	1.3	1.2	102.82	-4.0	-59.4	60.6	58.1	2.49	24.331	SF
800.0	797.1	791.7	790.8	1.6	1.5	111.14	-7.3	-68.9	73.8	70.8	3.00	24.599	
900.0	894.8	889.1	887.2	2.0	1.7	116.62	-12.9	-81.7	91.2	87.7	3.56	25.597	
1,000.0	992.5	986.9	983.5	2.4	2.1	118.84	-20.6	-96.7	109.7	105.5	4.17	26.281	
1,100.0	1,090.2	1,084.4	1,079.1	2.8	2.4	119.10	-30.3	-113.6	128.7	123.8	4.86	26.500	
1,200.0	1,187.9	1,182.4	1,174.4	3.2	2.8	117.98	-42.6	-132.7	148.1	142.5	5.59	26.469	
1,300.0	1,285.6	1,281.2	1,269.9	3.6	3.3	116.18	-57.2	-153.3	167.4	161.0	6.38	26.252	
1,400.0	1,383.2	1,380.0	1,365.0	4.0	3.8	114.18	-73.7	-174.2	186.2	179.0	7.19	25.890	
1,500.0	1,480.9	1,476.6	1,457.3	4.4	4.3	111.84	-92.0	-196.0	205.3	197.3	8.04	25.546	
1,600.0	1,578.6	1,574.6	1,550.3	4.8	4.8	109.27	-112.4	-219.5	225.3	216.4	8.91	25.292	
1,700.0	1,676.3	1,670.0	1,640.4	5.2	5.4	106.91	-133.1	-242.9	245.8	236.0	9.80	25.091	
1,800.0	1,774.0	1,765.4	1,729.8	5.6	6.0	104.50	-155.1	-267.8	267.6	256.9	10.68	25.057	
1,900.0	1,871.7	1,861.2	1,818.7	6.0	6.7	101.92	-179.5	-293.7	290.1	278.5	11.58	25.051	
2,000.0	1,969.4	1,951.9	1,902.0	6.4	7.4	99.42	-204.2	-319.7	314.3	301.9	12.45	25.250	
2,100.0	2,067.1	2,042.0	1,983.9	6.8	8.1	97.01	-229.7	-347.5	340.9	327.6	13.30	25.636	
2,200.0	2,164.8	2,138.0	2,070.9	7.2	8.8	94.79	-256.7	-377.8	368.7	354.6	14.15	26.065	
2,300.0	2,262.5	2,237.3	2,161.5	7.6	9.5	92.99	-283.8	-408.0	396.1	381.1	15.00	26.411	
2,400.0	2,360.2	2,329.7	2,245.6	8.0	10.2	91.47	-309.4	-436.3	423.8	407.9	15.82	26.789	
2,500.0	2,457.9	2,416.6	2,324.1	8.4	11.0	90.05	-334.5	-464.0	452.9	436.3	16.62	27.256	
2,600.0	2,555.5	2,506.0	2,404.0	8.9	11.7	88.61	-361.2	-494.1	484.1	466.7	17.40	27.821	
2,700.0	2,653.2	2,602.5	2,490.3	9.3	12.5	87.25	-389.8	-526.5	515.5	497.3	18.20	28.326	
2,800.0	2,750.9	2,692.9	2,571.2	9.7	13.2	86.21	-415.8	-557.0	547.3	528.4	18.96	28.865	
2,900.0	2,848.6	2,782.9	2,651.8	10.1	14.0	85.34	-441.3	-588.0	580.0	560.2	19.73	29.389	
3,000.0	2,946.3	2,874.3	2,733.3	10.5	14.8	84.49	-467.5	-620.1	613.4	592.9	20.51	29.914	
3,100.0	3,044.0	2,972.3	2,820.6	10.9	15.6	83.65	-495.9	-654.3	646.7	625.4	21.30	30.367	
3,200.0	3,141.7	3,062.0	2,900.5	11.3	16.4	82.94	-522.1	-685.5	680.1	658.1	22.06	30.833	
3,300.0	3,239.4	3,154.4	2,982.6	11.7	17.2	82.24	-549.5	-718.2	714.1	691.3	22.81	31.302	
3,400.0	3,337.1	3,251.1	3,068.5	12.1	18.0	81.61	-577.7	-752.1	748.0	724.5	23.59	31.715	
3,500.0	3,434.8	3,354.0	3,160.5	12.5	18.8	81.05	-607.1	-787.7	781.3	757.0	24.37	32.060	
3,600.0	3,532.5	3,455.8	3,252.2	13.0	19.6	80.62	-635.2	-821.7	813.5	788.3	25.17	32.319	
3,700.0	3,630.2	3,550.5	3,337.6	13.4	20.4	80.23	-661.6	-853.1	845.4	819.5	25.95	32.578	
3,800.0	3,727.9	3,647.3	3,424.7	13.8	21.2	79.82	-689.3	-885.1	877.3	850.5	26.73	32.813	
3,900.0	3,825.5	3,745.3	3,512.8	14.2	22.0	79.38	-718.0	-917.0	908.8	881.3	27.52	33.029	
4,000.0	3,923.2	3,842.4	3,599.9	14.6	22.8	78.92	-747.2	-948.2	940.1	911.8	28.30	33.221	
4,100.0	4,020.9	3,933.6	3,681.7	15.0	23.6	78.47	-775.4	-977.3	971.3	942.3	29.04	33.444	
4,200.0	4,118.6	4,013.7	3,753.0	15.4	24.3	78.08	-800.5	-1,003.7	1,003.7	973.9	29.74	33.744	

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

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Federal 28-13BB
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 28-13BB	**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 29-9 - 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	17.24	18.2	5.7	19.1				
100.0	100.0	100.0	100.0	0.1	0.1	17.24	18.2	5.7	19.1	18.8	0.27	70.034	
200.0	200.0	200.0	200.0	0.3	0.3	17.24	18.2	5.7	19.1	18.4	0.62	30.689	
300.0	300.0	300.2	300.1	0.5	0.5	9.37	18.4	3.0	18.6	17.6	0.98	18.994	
333.5	333.5	333.6	333.5	0.5	0.6	3.06	18.5	1.0	18.5	17.4	1.11	16.635	CC, ES
400.0	400.0	399.8	399.4	0.7	0.7	-14.26	18.8	-4.8	19.4	18.0	1.37	14.183	SF
500.0	500.0	498.3	497.0	0.8	1.0	136.41	19.5	-17.6	28.2	26.4	1.76	16.005	
600.0	599.6	595.0	592.2	1.0	1.3	126.00	20.4	-35.0	46.5	44.3	2.17	21.410	
700.0	698.8	689.2	683.9	1.3	1.8	122.41	21.5	-56.6	72.2	69.5	2.65	27.262	
800.0	797.1	781.6	772.7	1.6	2.2	121.26	22.9	-81.9	104.2	101.0	3.20	32.600	
900.0	894.8	875.4	862.6	2.0	2.7	121.88	24.3	-108.8	138.8	134.9	3.81	36.408	
1,000.0	992.5	969.2	952.4	2.4	3.2	122.33	25.8	-135.7	173.4	168.9	4.45	38.985	
1,100.0	1,090.2	1,063.0	1,042.3	2.8	3.7	122.63	27.2	-162.5	208.0	202.9	5.09	40.828	
1,200.0	1,187.9	1,156.9	1,132.2	3.2	4.3	122.84	28.7	-189.4	242.6	236.8	5.75	42.203	
1,300.0	1,285.6	1,250.7	1,222.1	3.6	4.8	123.00	30.1	-216.3	277.2	270.8	6.41	43.262	
1,400.0	1,383.2	1,344.5	1,312.0	4.0	5.3	123.12	31.5	-243.1	311.8	304.7	7.07	44.101	
1,500.0	1,480.9	1,438.3	1,401.8	4.4	5.8	123.22	33.0	-270.0	346.4	338.7	7.74	44.780	
1,600.0	1,578.6	1,532.1	1,491.7	4.8	6.3	123.30	34.4	-296.9	381.0	372.6	8.40	45.341	
1,700.0	1,676.3	1,625.9	1,581.6	5.2	6.8	123.37	35.8	-323.7	415.6	406.6	9.07	45.811	
1,800.0	1,774.0	1,719.8	1,671.5	5.6	7.3	123.43	37.3	-350.6	450.2	440.5	9.74	46.211	
1,900.0	1,871.7	1,813.6	1,761.3	6.0	7.8	123.48	38.7	-377.5	484.9	474.4	10.42	46.554	
2,000.0	1,969.4	1,907.4	1,851.2	6.4	8.3	123.52	40.2	-404.3	519.5	508.4	11.09	46.852	
2,100.0	2,067.1	2,001.2	1,941.1	6.8	8.9	123.56	41.6	-431.2	554.1	542.3	11.76	47.114	
2,200.0	2,164.8	2,095.0	2,031.0	7.2	9.4	123.59	43.0	-458.1	588.7	576.3	12.43	47.345	
2,300.0	2,262.5	2,188.9	2,120.8	7.6	9.9	123.62	44.5	-484.9	623.3	610.2	13.11	47.550	
2,400.0	2,360.2	2,282.7	2,210.7	8.0	10.4	123.64	45.9	-511.8	657.9	644.2	13.78	47.734	
2,500.0	2,457.9	2,376.5	2,300.6	8.4	10.9	123.67	47.4	-538.7	692.6	678.1	14.46	47.900	
2,600.0	2,555.5	2,470.3	2,390.5	8.9	11.4	123.69	48.8	-565.5	727.2	712.0	15.13	48.050	
2,700.0	2,653.2	2,564.1	2,480.3	9.3	11.9	123.71	50.2	-592.4	761.8	746.0	15.81	48.186	
2,800.0	2,750.9	2,657.9	2,570.2	9.7	12.5	123.73	51.7	-619.3	796.4	779.9	16.49	48.310	
2,900.0	2,848.6	2,751.8	2,660.1	10.1	13.0	123.74	53.1	-646.2	831.0	813.9	17.16	48.424	
3,000.0	2,946.3	2,845.6	2,750.0	10.5	13.5	123.76	54.5	-673.0	865.6	847.8	17.84	48.529	
3,100.0	3,044.0	2,939.4	2,839.8	10.9	14.0	123.77	56.0	-699.9	900.3	881.7	18.51	48.626	
3,200.0	3,141.7	3,033.2	2,929.7	11.3	14.5	123.78	57.4	-726.8	934.9	915.7	19.19	48.715	
3,300.0	3,239.4	3,127.0	3,019.6	11.7	15.0	123.80	58.9	-753.6	969.5	949.6	19.87	48.798	
3,400.0	3,337.1	3,220.8	3,109.5	12.1	15.5	123.81	60.3	-780.5	1,004.1	983.6	20.54	48.876	

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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 28-13BB
Coordinate System is US State Plane 1983, Colorado Central Zone
Grid Convergence at Surface is: -1.58°