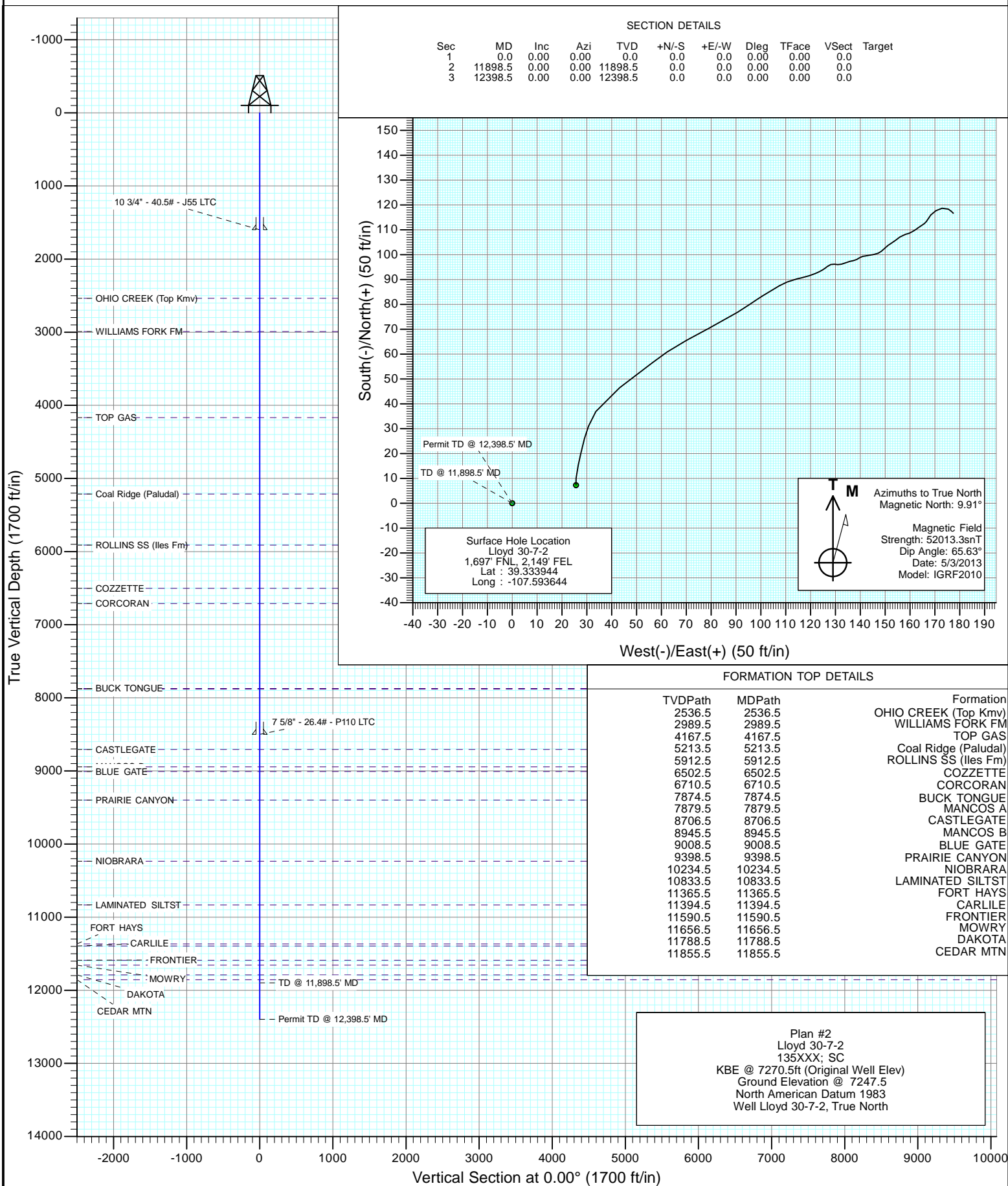




Project: Divide Creek (Groundhog Gulch)
Site: NGG30NE Pad (30-8S-91W)
Well: Lloyd 30-7-2
Wellbore: OH (vert)
Design: Plan #2



Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Lloyd 30-7-2
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KBE @ 7270.5ft (Original Well Elev)
Project:	Divide Creek (Groundhog Gulch)	MD Reference:	KBE @ 7270.5ft (Original Well Elev)
Site:	NGG30NE Pad (30-8S-91W)	North Reference:	True
Well:	Lloyd 30-7-2	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH (vert)		
Design:	Plan #2		

Project	Divide Creek (Groundhog Gulch)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Central Zone		

Site		NGG30NE Pad (30-8S-91W)			
Site Position:		Northing:	1,553,353.17 ft	Latitude:	39.333961
From:	Lat/Long	Easting:	2,407,894.75 ft	Longitude:	-107.593556
Position Uncertainty:	0.0 ft	Slot Radius:	0.000 in	Grid Convergence:	-1.32 °

Well	Lloyd 30-7-2					
Well Position	+N/-S	0.0 ft	Northing:	1,553,347.50 ft	Latitude:	39.333944
	+E/-W	0.0 ft	Easting:	2,407,869.60 ft	Longitude:	-107.593644
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	7,247.5 ft

Wellbore	OH (vert)				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	IGRF2010	5/3/2013	9.91	65.63	52,013

Design	Plan #2			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.0	0.0	0.0	0.00

Plan Sections										
Measured Depth	Inclination	Azimuth	Vertical Depth	+N/-S	+E/-W	Dogleg Rate	Build Rate	Turn Rate	TFO	Target
(ft)	(°)	(°)	(ft)	(ft)	(ft)	(°/100ft)	(°/100ft)	(°/100ft)	(°)	
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
11,898.5	0.00	0.00	11,898.5	0.0	0.0	0.00	0.00	0.00	0.00	
12,398.5	0.00	0.00	12,398.5	0.0	0.0	0.00	0.00	0.00	0.00	

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Well:	Lloyd 30-7-2	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH (vert)		
Design:	Plan #2		

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	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	10 3/4" - 40.5# - J55 LTC
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	
2,536.5	0.00	0.00	2,536.5	0.0	0.0	0.0	0.00	0.00	OHIO CREEK (Top Kmv)
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	
2,989.5	0.00	0.00	2,989.5	0.0	0.0	0.0	0.00	0.00	WILLIAMS FORK FM
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	
4,167.5	0.00	0.00	4,167.5	0.0	0.0	0.0	0.00	0.00	TOP GAS
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	
4,700.0	0.00	0.00	4,700.0	0.0	0.0	0.0	0.00	0.00	
4,800.0	0.00	0.00	4,800.0	0.0	0.0	0.0	0.00	0.00	

Cathedral Energy Services

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Site:	NGG30NE Pad (30-8S-91W)	North Reference:	True
Well:	Lloyd 30-7-2	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH (vert)		
Design:	Plan #2		

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	0.00	0.00	4,900.0	0.0	0.0	0.0	0.00	0.00	
5,000.0	0.00	0.00	5,000.0	0.0	0.0	0.0	0.00	0.00	
5,100.0	0.00	0.00	5,100.0	0.0	0.0	0.0	0.00	0.00	
5,200.0	0.00	0.00	5,200.0	0.0	0.0	0.0	0.00	0.00	
5,213.5	0.00	0.00	5,213.5	0.0	0.0	0.0	0.00	0.00	Coal Ridge (Paludal)
5,300.0	0.00	0.00	5,300.0	0.0	0.0	0.0	0.00	0.00	
5,400.0	0.00	0.00	5,400.0	0.0	0.0	0.0	0.00	0.00	
5,500.0	0.00	0.00	5,500.0	0.0	0.0	0.0	0.00	0.00	
5,600.0	0.00	0.00	5,600.0	0.0	0.0	0.0	0.00	0.00	
5,700.0	0.00	0.00	5,700.0	0.0	0.0	0.0	0.00	0.00	
5,800.0	0.00	0.00	5,800.0	0.0	0.0	0.0	0.00	0.00	
5,900.0	0.00	0.00	5,900.0	0.0	0.0	0.0	0.00	0.00	
5,912.5	0.00	0.00	5,912.5	0.0	0.0	0.0	0.00	0.00	ROLLINS SS (Iles Fm)
6,000.0	0.00	0.00	6,000.0	0.0	0.0	0.0	0.00	0.00	
6,100.0	0.00	0.00	6,100.0	0.0	0.0	0.0	0.00	0.00	
6,200.0	0.00	0.00	6,200.0	0.0	0.0	0.0	0.00	0.00	
6,300.0	0.00	0.00	6,300.0	0.0	0.0	0.0	0.00	0.00	
6,400.0	0.00	0.00	6,400.0	0.0	0.0	0.0	0.00	0.00	
6,500.0	0.00	0.00	6,500.0	0.0	0.0	0.0	0.00	0.00	
6,502.5	0.00	0.00	6,502.5	0.0	0.0	0.0	0.00	0.00	COZZETTE
6,600.0	0.00	0.00	6,600.0	0.0	0.0	0.0	0.00	0.00	
6,700.0	0.00	0.00	6,700.0	0.0	0.0	0.0	0.00	0.00	
6,710.5	0.00	0.00	6,710.5	0.0	0.0	0.0	0.00	0.00	CORCORAN
6,800.0	0.00	0.00	6,800.0	0.0	0.0	0.0	0.00	0.00	
6,900.0	0.00	0.00	6,900.0	0.0	0.0	0.0	0.00	0.00	
7,000.0	0.00	0.00	7,000.0	0.0	0.0	0.0	0.00	0.00	
7,100.0	0.00	0.00	7,100.0	0.0	0.0	0.0	0.00	0.00	
7,200.0	0.00	0.00	7,200.0	0.0	0.0	0.0	0.00	0.00	
7,300.0	0.00	0.00	7,300.0	0.0	0.0	0.0	0.00	0.00	
7,400.0	0.00	0.00	7,400.0	0.0	0.0	0.0	0.00	0.00	
7,500.0	0.00	0.00	7,500.0	0.0	0.0	0.0	0.00	0.00	
7,600.0	0.00	0.00	7,600.0	0.0	0.0	0.0	0.00	0.00	
7,700.0	0.00	0.00	7,700.0	0.0	0.0	0.0	0.00	0.00	
7,800.0	0.00	0.00	7,800.0	0.0	0.0	0.0	0.00	0.00	
7,874.5	0.00	0.00	7,874.5	0.0	0.0	0.0	0.00	0.00	BUCK TONGUE
7,879.5	0.00	0.00	7,879.5	0.0	0.0	0.0	0.00	0.00	MANCOSA
7,900.0	0.00	0.00	7,900.0	0.0	0.0	0.0	0.00	0.00	
8,000.0	0.00	0.00	8,000.0	0.0	0.0	0.0	0.00	0.00	
8,100.0	0.00	0.00	8,100.0	0.0	0.0	0.0	0.00	0.00	
8,200.0	0.00	0.00	8,200.0	0.0	0.0	0.0	0.00	0.00	
8,300.0	0.00	0.00	8,300.0	0.0	0.0	0.0	0.00	0.00	
8,400.0	0.00	0.00	8,400.0	0.0	0.0	0.0	0.00	0.00	
8,500.0	0.00	0.00	8,500.0	0.0	0.0	0.0	0.00	0.00	7 5/8" - 26.4# - P110 LTC
8,600.0	0.00	0.00	8,600.0	0.0	0.0	0.0	0.00	0.00	
8,700.0	0.00	0.00	8,700.0	0.0	0.0	0.0	0.00	0.00	
8,706.5	0.00	0.00	8,706.5	0.0	0.0	0.0	0.00	0.00	CASTLEGATE
8,800.0	0.00	0.00	8,800.0	0.0	0.0	0.0	0.00	0.00	
8,900.0	0.00	0.00	8,900.0	0.0	0.0	0.0	0.00	0.00	
8,945.5	0.00	0.00	8,945.5	0.0	0.0	0.0	0.00	0.00	MANCOS B
9,000.0	0.00	0.00	9,000.0	0.0	0.0	0.0	0.00	0.00	
9,008.5	0.00	0.00	9,008.5	0.0	0.0	0.0	0.00	0.00	BLUE GATE
9,100.0	0.00	0.00	9,100.0	0.0	0.0	0.0	0.00	0.00	

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Site:	NGG30NE Pad (30-8S-91W)	North Reference:	True
Well:	Lloyd 30-7-2	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH (vert)		
Design:	Plan #2		

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	9,200.0	0.0	0.0	0.0	0.00	0.00	
9,300.0	0.00	0.00	9,300.0	0.0	0.0	0.0	0.00	0.00	
9,398.5	0.00	0.00	9,398.5	0.0	0.0	0.0	0.00	0.00	PRAIRIE CANYON
9,400.0	0.00	0.00	9,400.0	0.0	0.0	0.0	0.00	0.00	
9,500.0	0.00	0.00	9,500.0	0.0	0.0	0.0	0.00	0.00	
9,600.0	0.00	0.00	9,600.0	0.0	0.0	0.0	0.00	0.00	
9,700.0	0.00	0.00	9,700.0	0.0	0.0	0.0	0.00	0.00	
9,800.0	0.00	0.00	9,800.0	0.0	0.0	0.0	0.00	0.00	
9,900.0	0.00	0.00	9,900.0	0.0	0.0	0.0	0.00	0.00	
10,000.0	0.00	0.00	10,000.0	0.0	0.0	0.0	0.00	0.00	
10,100.0	0.00	0.00	10,100.0	0.0	0.0	0.0	0.00	0.00	
10,200.0	0.00	0.00	10,200.0	0.0	0.0	0.0	0.00	0.00	
10,234.5	0.00	0.00	10,234.5	0.0	0.0	0.0	0.00	0.00	NIOBRARA
10,300.0	0.00	0.00	10,300.0	0.0	0.0	0.0	0.00	0.00	
10,400.0	0.00	0.00	10,400.0	0.0	0.0	0.0	0.00	0.00	
10,500.0	0.00	0.00	10,500.0	0.0	0.0	0.0	0.00	0.00	
10,600.0	0.00	0.00	10,600.0	0.0	0.0	0.0	0.00	0.00	
10,700.0	0.00	0.00	10,700.0	0.0	0.0	0.0	0.00	0.00	
10,800.0	0.00	0.00	10,800.0	0.0	0.0	0.0	0.00	0.00	
10,833.5	0.00	0.00	10,833.5	0.0	0.0	0.0	0.00	0.00	LAMINATED SILTST
10,900.0	0.00	0.00	10,900.0	0.0	0.0	0.0	0.00	0.00	
11,000.0	0.00	0.00	11,000.0	0.0	0.0	0.0	0.00	0.00	
11,100.0	0.00	0.00	11,100.0	0.0	0.0	0.0	0.00	0.00	
11,200.0	0.00	0.00	11,200.0	0.0	0.0	0.0	0.00	0.00	
11,300.0	0.00	0.00	11,300.0	0.0	0.0	0.0	0.00	0.00	
11,365.5	0.00	0.00	11,365.5	0.0	0.0	0.0	0.00	0.00	FORT HAYS
11,394.5	0.00	0.00	11,394.5	0.0	0.0	0.0	0.00	0.00	CARLILE
11,400.0	0.00	0.00	11,400.0	0.0	0.0	0.0	0.00	0.00	
11,500.0	0.00	0.00	11,500.0	0.0	0.0	0.0	0.00	0.00	
11,590.5	0.00	0.00	11,590.5	0.0	0.0	0.0	0.00	0.00	FRONTIER
11,600.0	0.00	0.00	11,600.0	0.0	0.0	0.0	0.00	0.00	
11,656.5	0.00	0.00	11,656.5	0.0	0.0	0.0	0.00	0.00	MOWRY
11,700.0	0.00	0.00	11,700.0	0.0	0.0	0.0	0.00	0.00	
11,788.5	0.00	0.00	11,788.5	0.0	0.0	0.0	0.00	0.00	DAKOTA
11,800.0	0.00	0.00	11,800.0	0.0	0.0	0.0	0.00	0.00	
11,855.5	0.00	0.00	11,855.5	0.0	0.0	0.0	0.00	0.00	CEDAR MTN
11,898.5	0.00	0.00	11,898.5	0.0	0.0	0.0	0.00	0.00	TD @ 11,898.5' MD
11,900.0	0.00	0.00	11,900.0	0.0	0.0	0.0	0.00	0.00	
12,000.0	0.00	0.00	12,000.0	0.0	0.0	0.0	0.00	0.00	
12,100.0	0.00	0.00	12,100.0	0.0	0.0	0.0	0.00	0.00	
12,200.0	0.00	0.00	12,200.0	0.0	0.0	0.0	0.00	0.00	
12,300.0	0.00	0.00	12,300.0	0.0	0.0	0.0	0.00	0.00	
12,398.5	0.00	0.00	12,398.5	0.0	0.0	0.0	0.00	0.00	Permit TD @ 12,398.5' MD

Cathedral Energy Services

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Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KBE @ 7270.5ft (Original Well Elev)
Project:	Divide Creek (Groundhog Gulch)	MD Reference:	KBE @ 7270.5ft (Original Well Elev)
Site:	NGG30NE Pad (30-8S-91W)	North Reference:	True
Well:	Lloyd 30-7-2	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH (vert)		
Design:	Plan #2		

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,600.0	1,600.0	10 3/4" - 40.5# - J55 LTC		
8,500.0	8,500.0	7 5/8" - 26.4# - P110 LTC		

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,536.5	2,536.5	OHIO CREEK (Top Kmv)			
2,989.5	2,989.5	WILLIAMS FORK FM			
4,167.5	4,167.5	TOP GAS			
5,213.5	5,213.5	Coal Ridge (Paludal)			
5,912.5	5,912.5	ROLLINS SS (Iles Fm)			
6,502.5	6,502.5	COZZETTE			
6,710.5	6,710.5	CORCORAN			
7,874.5	7,874.5	BUCK TONGUE			
7,879.5	7,879.5	MANCOS A			
8,706.5	8,706.5	CASTLEGATE			
8,945.5	8,945.5	MANCOS B			
9,008.5	9,008.5	BLUE GATE			
9,398.5	9,398.5	PRAIRIE CANYON			
10,234.5	10,234.5	NIOBRARA			
10,833.5	10,833.5	LAMINATED SILTST			
11,365.5	11,365.5	FORT HAYS			
11,394.5	11,394.5	CARLILE			
11,590.5	11,590.5	FRONTIER			
11,656.5	11,656.5	MOWRY			
11,788.5	11,788.5	DAKOTA			
11,855.5	11,855.5	CEDAR MTN			

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
11,898.5	11,898.5	0.0	0.0	TD @ 11,898.5' MD
12,398.5	12,398.5	0.0	0.0	Permit TD @ 12,398.5' MD

EnCana Oil & Gas (USA) Inc

Divide Creek (Groundhog Gulch)

NGG30NE Pad (30-8S-91W)

Lloyd 30-7-2

OH (vert)

Plan #2

Anticollision Report

03 May, 2013

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lloyd 30-7-2
Project:	Divide Creek (Groundhog Gulch)	TVD Reference:	KBE @ 7270.5ft (Original Well Elev)
Reference Site:	NGG30NE Pad (30-8S-91W)	MD Reference:	KBE @ 7270.5ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Lloyd 30-7-2	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH (vert)	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Reference	Plan #2		
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 500.0ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program		Date	5/3/2013		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	12,398.5	Plan #2 (OH (vert))	MWD	Geolink MWD	

Summary						
Site Name	Reference	Offset	Distance		Separation	Warning
	Measured	Measured	Between	Between		
	Depth	Depth	Centres	Ellipses		
Offset Well - Wellbore - Design	(ft)	(ft)	(ft)	(ft)	Factor	
NGG30NE Pad (30-8S-91W)						
Groundhog Gulch Unit 30-7 - Vh - Vh	7,294.4	23.9	26.8	14.0	2.101	CC
Groundhog Gulch Unit 30-7 - Vh - Vh	7,400.0	129.4	26.8	13.7	2.049	ES
Groundhog Gulch Unit 30-7 - Vh - Vh	7,500.0	229.3	27.3	13.8	2.027	SF

Cathedral Energy Services

Anticollision Report

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Reference Site:	NGG30NE Pad (30-8S-91W)	MD Reference:	KBE @ 7270.5ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Lloyd 30-7-2	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH (vert)	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design NGG30NE Pad (30-8S-91W) - Groundhog Gulch Unit 30-7 - Vh - Vh													Offset Site Error: 0.0 ft	
Survey Program: 93-SS, 93-MWD, 93-MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
6,800.0	6,800.0	0.0	0.0	11.8	0.0	74.19	7.3	25.7	471.3	459.4	11.83	39.842		
6,900.0	6,900.0	0.0	0.0	12.0	0.0	74.19	7.3	25.7	371.5	359.5	12.00	30.948		
7,000.0	7,000.0	0.0	0.0	12.2	0.0	74.19	7.3	25.7	271.8	259.6	12.18	22.322		
7,100.0	7,100.0	0.0	0.0	12.4	0.0	74.19	7.3	25.7	172.6	160.2	12.35	13.972		
7,200.0	7,200.0	0.0	0.0	12.5	0.0	74.19	7.3	25.7	75.4	62.9	12.53	6.020		
7,294.4	7,294.4	23.9	23.9	12.7	0.0	74.13	7.3	25.7	26.8	14.0	12.73	2.101 CC		
7,300.0	7,300.0	29.5	29.5	12.7	0.1	74.10	7.3	25.7	26.8	14.0	12.75	2.098		
7,400.0	7,400.0	129.4	129.4	12.9	0.2	72.59	8.0	25.6	26.8	13.7	13.10	2.049 ES		
7,500.0	7,500.0	229.3	229.3	13.0	0.4	70.08	9.3	25.6	27.3	13.8	13.45	2.027 SF		
7,600.0	7,600.0	329.2	329.2	13.2	0.6	66.95	11.0	25.9	28.1	14.3	13.80	2.037		
7,700.0	7,700.0	429.2	429.1	13.4	0.8	63.46	13.1	26.2	29.3	15.1	14.16	2.069		
7,800.0	7,800.0	529.1	529.0	13.6	0.9	59.78	15.5	26.6	30.8	16.3	14.51	2.123		
7,900.0	7,900.0	629.0	628.9	13.7	1.1	56.33	18.1	27.1	32.6	17.7	14.86	2.193		
8,000.0	8,000.0	728.9	728.8	13.9	1.3	53.36	20.6	27.7	34.6	19.3	15.21	2.272		
8,100.0	8,100.0	828.8	828.7	14.1	1.5	50.64	23.3	28.4	36.7	21.2	15.56	2.360		
8,200.0	8,200.0	928.7	928.5	14.3	1.7	48.05	26.2	29.1	39.1	23.2	15.91	2.460		
8,300.0	8,300.0	1,028.7	1,028.5	14.4	1.8	45.95	29.0	29.9	41.7	25.4	16.26	2.563		
8,400.0	8,400.0	1,128.7	1,128.4	14.6	2.0	44.54	31.4	30.9	44.1	27.5	16.61	2.657		
8,500.0	8,500.0	1,228.8	1,228.4	14.8	2.2	43.51	33.7	32.0	46.5	29.5	16.95	2.743		
8,600.0	8,600.0	1,328.8	1,328.4	15.0	2.4	42.72	35.8	33.1	48.8	31.5	17.30	2.818		
8,700.0	8,700.0	1,428.8	1,428.4	15.1	2.6	42.13	37.7	34.1	50.9	33.2	17.65	2.884		
8,800.0	8,800.0	1,528.8	1,528.3	15.3	2.7	41.80	39.5	35.4	53.1	35.1	18.00	2.948		
8,900.0	8,900.0	1,628.7	1,628.3	15.5	2.9	41.71	41.2	36.7	55.2	36.9	18.34	3.012		
9,000.0	9,000.0	1,728.7	1,728.2	15.7	3.1	41.82	42.8	38.3	57.5	38.8	18.69	3.075		
9,100.0	9,100.0	1,828.6	1,828.1	15.8	3.3	42.11	44.3	40.0	59.7	40.7	19.04	3.137		
9,200.0	9,200.0	1,928.6	1,928.1	16.0	3.4	42.57	45.7	42.0	62.0	42.6	19.39	3.200		
9,300.0	9,300.0	2,028.5	2,027.9	16.2	3.6	43.16	47.0	44.0	64.4	44.7	19.74	3.262		
9,400.0	9,400.0	2,128.3	2,127.7	16.4	3.8	43.69	48.4	46.2	67.0	46.9	20.09	3.335		
9,500.0	9,500.0	2,228.0	2,227.4	16.5	4.0	44.12	50.1	48.6	69.9	49.4	20.43	3.419		
9,600.0	9,600.0	2,327.8	2,327.1	16.7	4.2	44.47	52.1	51.1	73.0	52.2	20.78	3.513		
9,700.0	9,700.0	2,427.5	2,426.8	16.9	4.4	44.73	54.3	53.8	76.4	55.3	21.13	3.617		
9,800.0	9,800.0	2,527.2	2,526.4	17.1	4.6	44.92	56.7	56.6	80.1	58.7	21.48	3.731		
9,900.0	9,900.0	2,627.2	2,626.3	17.2	4.7	45.21	59.1	59.5	83.9	62.1	21.83	3.846		
10,000.0	10,000.0	2,727.1	2,726.2	17.4	4.9	45.73	61.2	62.8	87.7	65.5	22.18	3.955		
10,100.0	10,100.0	2,826.8	2,825.7	17.6	5.1	46.32	63.2	66.2	91.6	69.1	22.52	4.068		
10,200.0	10,200.0	2,926.4	2,925.3	17.8	5.3	46.90	65.5	69.9	95.9	73.0	22.87	4.193		
10,300.0	10,300.0	3,025.6	3,024.3	17.9	5.5	47.55	67.9	74.2	100.7	77.5	23.22	4.336		
10,400.0	10,400.0	3,124.6	3,123.2	18.1	5.7	48.34	70.5	79.2	106.2	82.7	23.57	4.507		
10,500.0	10,500.0	3,224.4	3,222.8	18.3	5.9	49.09	73.3	84.6	112.2	88.2	23.91	4.690		
10,600.0	10,600.0	3,324.2	3,322.4	18.5	6.1	49.64	76.4	89.9	118.2	93.9	24.26	4.870		
10,700.0	10,700.0	3,424.5	3,422.5	18.6	6.3	50.02	79.6	94.9	124.0	99.4	24.61	5.038		
10,800.0	10,800.0	3,524.9	3,522.8	18.8	6.5	50.28	82.6	99.4	129.4	104.4	24.96	5.182		
10,900.0	10,900.0	3,624.4	3,622.2	19.0	6.7	50.57	85.4	103.8	134.6	109.3	25.31	5.319		
11,000.0	11,000.0	3,724.2	3,721.8	19.2	6.9	50.97	88.2	108.7	140.2	114.5	25.66	5.463		
11,100.0	11,100.0	3,826.0	3,823.4	19.3	7.0	51.59	90.1	113.6	145.1	119.1	26.01	5.579		
11,200.0	11,200.0	3,925.8	3,923.2	19.5	7.2	52.29	91.1	117.9	149.1	122.7	26.36	5.656		
11,300.0	11,300.0	4,026.5	4,023.7	19.7	7.4	52.85	92.5	122.1	153.3	126.6	26.71	5.738		
11,400.0	11,400.0	4,127.6	4,124.8	19.9	7.6	53.06	94.0	125.0	156.5	129.4	27.06	5.783		
11,500.0	11,500.0	4,228.0	4,225.2	20.0	7.8	53.08	95.8	127.5	159.5	132.1	27.41	5.819		
11,600.0	11,600.0	4,329.9	4,327.0	20.2	8.0	53.48	96.1	129.8	161.6	133.8	27.76	5.819		
11,700.0	11,700.0	4,428.8	4,425.9	20.4	8.1	53.94	96.1	132.0	163.3	135.2	28.11	5.810		
11,800.0	11,800.0	4,527.7	4,524.7	20.6	8.3	54.26	96.9	134.7	166.0	137.5	28.46	5.834		

CC - Min centre to center distance or convergent 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 Lloyd 30-7-2
Project:	Divide Creek (Groundhog Gulch)	TVD Reference:	KBE @ 7270.5ft (Original Well Elev)
Reference Site:	NGG30NE Pad (30-8S-91W)	MD Reference:	KBE @ 7270.5ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Lloyd 30-7-2	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH (vert)	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design NGG30NE Pad (30-8S-91W) - Groundhog Gulch Unit 30-7 - Vh - Vh													Offset Site Error:	0.0 ft
Survey Program: 93-SS, 93-MWD, 93-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
11,900.0	11,900.0	4,629.5	4,626.6	20.7	8.5	54.54	97.6	137.1	168.3	139.5	28.81	5.844		
12,000.0	12,000.0	4,730.3	4,727.3	20.9	8.7	54.70	98.1	138.6	169.8	140.6	29.16	5.823		
12,100.0	12,100.0	4,829.2	4,826.2	21.1	8.8	54.75	99.0	140.0	171.5	142.0	29.51	5.813		
12,200.0	12,200.0	4,931.1	4,928.2	21.3	9.0	54.86	99.4	141.2	172.7	142.8	29.86	5.782		
12,300.0	12,300.0	5,030.0	5,027.0	21.4	9.2	55.06	99.6	142.6	173.9	143.7	30.21	5.758		
12,398.5	12,398.5	5,128.3	5,125.3	21.6	9.4	55.25	99.8	143.9	175.2	144.6	30.55	5.735		

Cathedral Energy Services

Anticollision Report

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Reference Site:	NGG30NE Pad (30-8S-91W)	MD Reference:	KBE @ 7270.5ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Lloyd 30-7-2	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH (vert)	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Reference Depths are relative to KBE @ 7270.5ft (Original Well Elev)

Offset Depths are relative to Offset Datum

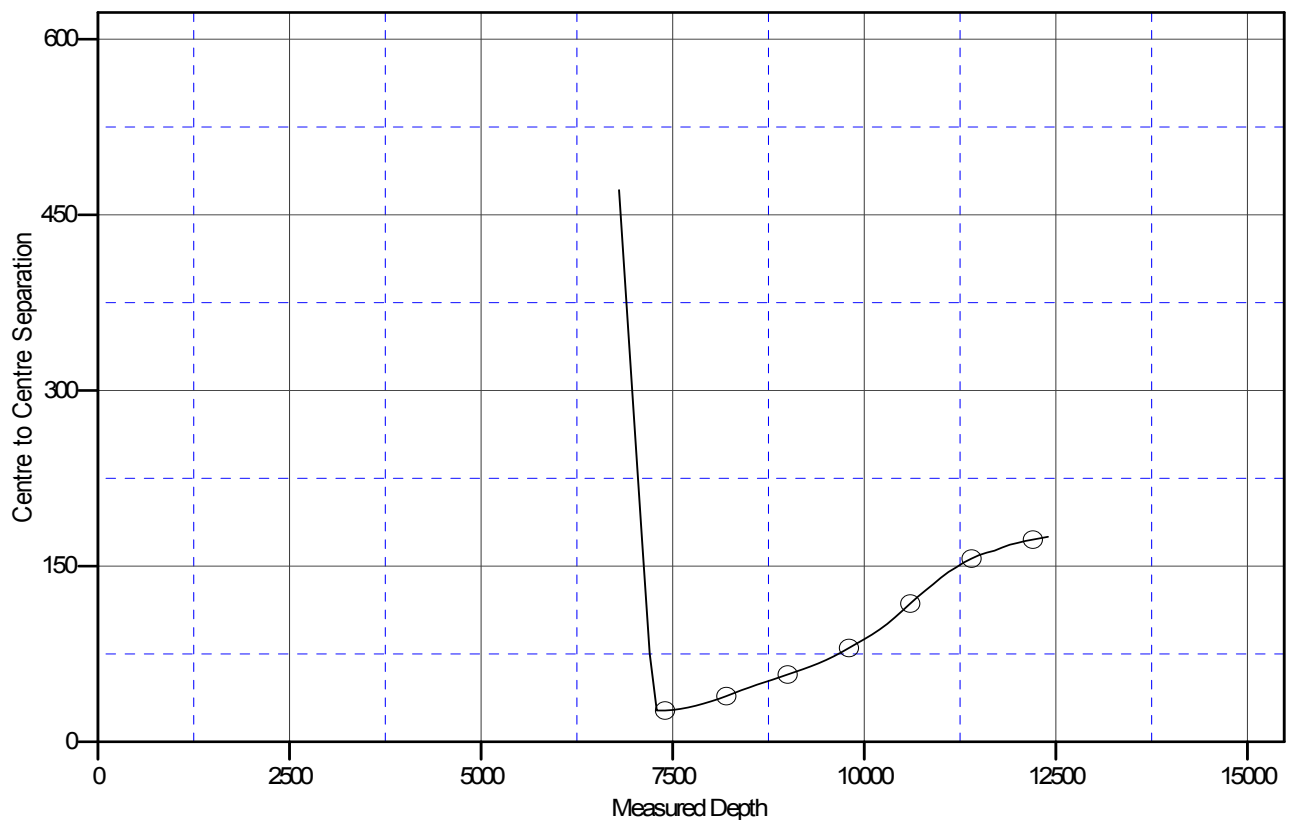
Central Meridian is -105.500000 °

Coordinates are relative to: Lloyd 30-7-2

Coordinate System is US State Plane 1983, Colorado Central Zone

Grid Convergence at Surface is: -1.32°

Ladder Plot



LEGEND

—○— Groundhog Gulch Unit30-7, Vh, Vh V0