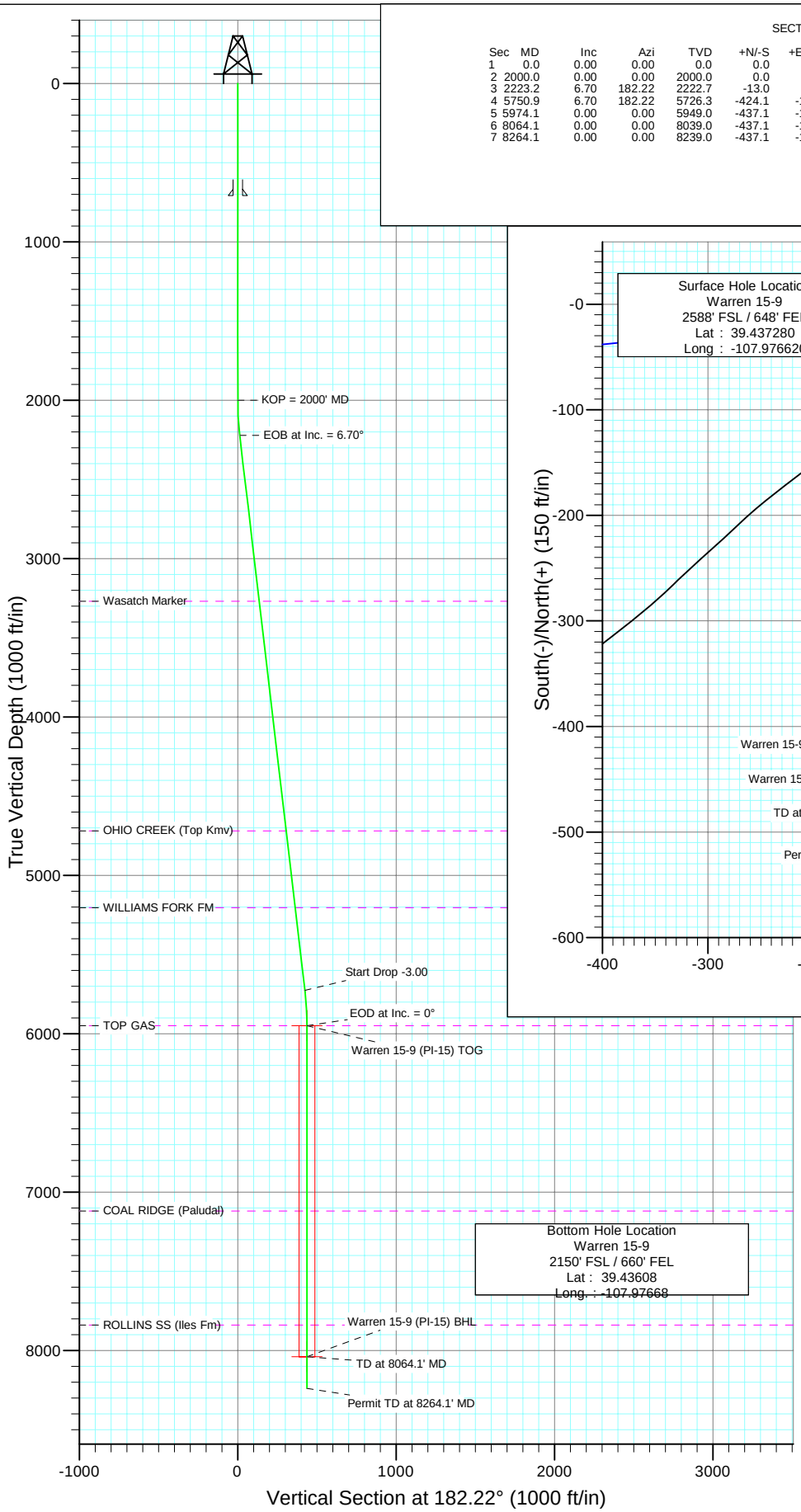
ENCANA

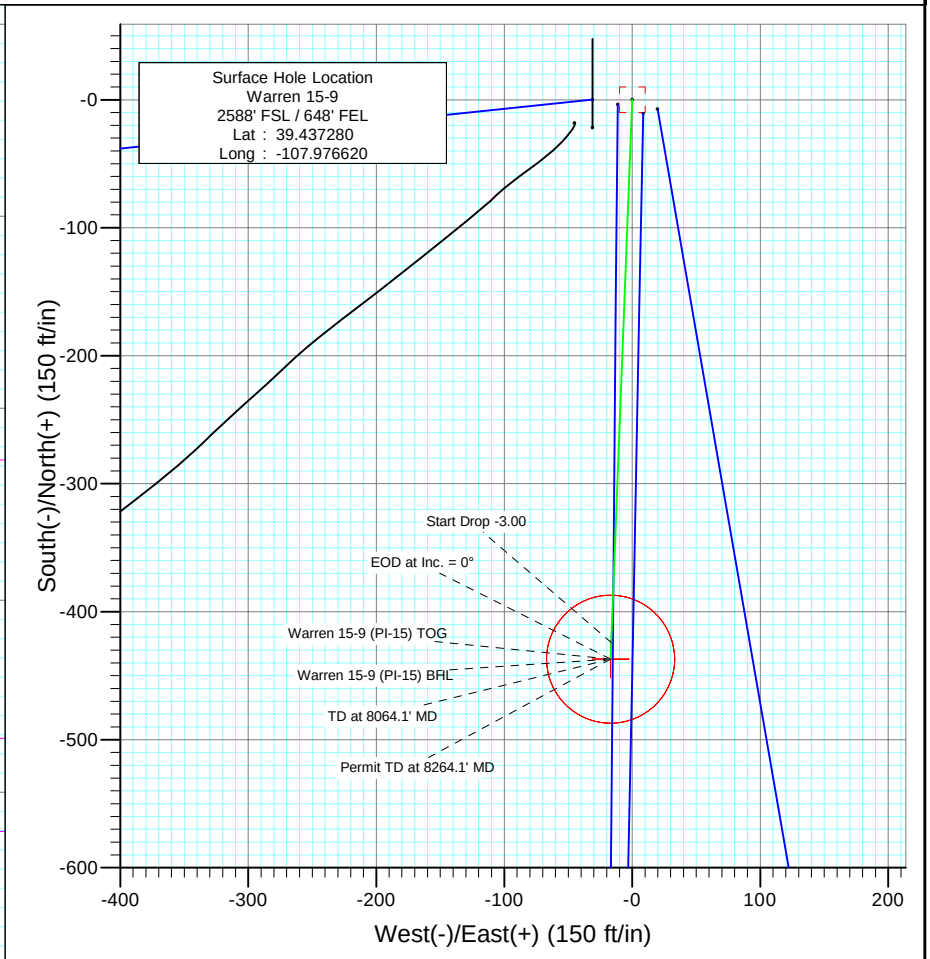
Project: S. Piceance
Site: NESE S15-T7S-R95W (PI 15 Pad)
Well: Warren 15-9
Wellbore: DD
Design: Plan #2

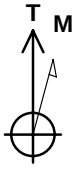
CATHEDRAL

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	2000.0	0.00	0.00	2000.0	0.0	0.0	0.00	0.00	0.0	
3	2223.2	6.70	182.22	2222.7	-13.0	-0.5	3.00	182.22	13.0	
4	5750.9	6.70	182.22	5726.3	-424.1	-16.4	0.00	0.00	424.4	
5	5974.1	0.00	0.00	5949.0	-437.1	-16.9	3.00	180.00	437.4	Warren 15-9 (PI-15) TOG
6	8064.1	0.00	0.00	8039.0	-437.1	-16.9	0.00	0.00	437.4	Warren 15-9 (PI-15) BHL
7	8264.1	0.00	0.00	8239.0	-437.1	-16.9	0.00	0.00	437.4	







Azimuths to True North
Magnetic North: 10.52°

Magnetic Field
Strength: 52407.3snT
Dip Angle: 65.75°
Date: 10/27/2009
Model: IGRF200510

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3269.0	3276.7	Wasatch Marker
4719.0	4736.7	OHIO CREEK (Top Kmv)
5204.0	5225.0	WILLIAMS FORK FM
5949.0	5974.1	TOP GAS
7119.0	7144.1	COAL RIDGE (Paludal)
7839.0	7864.1	ROLLINS SS (Iles Fm)

DESIGN DETAILS: Plan #2

95XXX; KR
KBE @ 6689.0ft (Nabors M11)

Target	Azimuth	Origin	N/S	E/W	From TVD
Warren 15-9 (PI-15) BHL	182.22	Slot	0.0	0.0	0.0

Planning Report

Database:	US EDM 2003.21 Multi User Db	**Local Co-ordinate Reference:**	Well Warren 15-9
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	KBE @ 6689.0ft (Nabors M11)
Project:	S. Piceance	**MD Reference:**	KBE @ 6689.0ft (Nabors M11)
Site:	NESE S15-T7S-R95W (PI 15 Pad)	**North Reference:**	True
Well:	Warren 15-9	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	DD		
Design:	Plan #2		

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	NESE S15-T7S-R95W (PI 15 Pad)				
Site Position:		**Northing:**	1,593,681.40 ft	**Latitude:**	39.437240
From:	Lat/Long	**Easting:**	2,300,607.26 ft	**Longitude:**	-107.976610
Position Uncertainty:	0.0 ft	**Slot Radius:**	in	**Grid Convergence:**	-1.56 °

Well	Warren 15-9					
Well Position	**+N/-S**	0.0 ft	**Northing:**	1,593,696.03 ft	**Latitude:**	39.437280
	+E/-W	0.0 ft	**Easting:**	2,300,604.84 ft	**Longitude:**	-107.976620
Position Uncertainty		0.0 ft	**Wellhead Elevation:**	ft	**Ground Level:**	6,676.0 ft

Wellbore	DD			
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF200510	10/27/2009	10.52	65.75	52,407

Design	Plan #2			
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	182.22

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	
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,223.2	6.70	182.22	2,222.7	-13.0	-0.5	3.00	3.00	0.00	182.22	
5,750.9	6.70	182.22	5,726.3	-424.1	-16.4	0.00	0.00	0.00	0.00	
5,974.1	0.00	0.00	5,949.0	-437.1	-16.9	3.00	-3.00	0.00	180.00	Warren 15-9 (PI-15) T
8,064.1	0.00	0.00	8,039.0	-437.1	-16.9	0.00	0.00	0.00	0.00	Warren 15-9 (PI-15) E
8,264.1	0.00	0.00	8,239.0	-437.1	-16.9	0.00	0.00	0.00	0.00	

Database:	US EDM 2003.21 Multi User Db	**Local Co-ordinate Reference:**	Well Warren 15-9
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	KBE @ 6689.0ft (Nabors M11)
Project:	S. Piceance	**MD Reference:**	KBE @ 6689.0ft (Nabors M11)
Site:	NESE S15-T7S-R95W (PI 15 Pad)	**North Reference:**	True
Well:	Warren 15-9	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	DD		
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	
708.0	0.00	0.00	708.0	0.0	0.0	0.0	0.00	0.00	Surface casing
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	
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	KOP = 2000' MD
2,100.0	3.00	182.22	2,100.0	-2.6	-0.1	2.6	3.00	3.00	
2,200.0	6.00	182.22	2,199.6	-10.5	-0.4	10.5	3.00	3.00	
2,223.2	6.70	182.22	2,222.7	-13.0	-0.5	13.0	3.00	3.00	EOB at Inc. = 6.70°
2,300.0	6.70	182.22	2,299.0	-22.0	-0.9	22.0	0.00	0.00	
2,400.0	6.70	182.22	2,398.3	-33.6	-1.3	33.6	0.00	0.00	
2,500.0	6.70	182.22	2,497.6	-45.3	-1.8	45.3	0.00	0.00	
2,600.0	6.70	182.22	2,596.9	-56.9	-2.2	57.0	0.00	0.00	
2,700.0	6.70	182.22	2,696.2	-68.6	-2.7	68.6	0.00	0.00	
2,800.0	6.70	182.22	2,795.6	-80.2	-3.1	80.3	0.00	0.00	
2,900.0	6.70	182.22	2,894.9	-91.9	-3.6	91.9	0.00	0.00	
3,000.0	6.70	182.22	2,994.2	-103.5	-4.0	103.6	0.00	0.00	
3,100.0	6.70	182.22	3,093.5	-115.2	-4.5	115.3	0.00	0.00	
3,200.0	6.70	182.22	3,192.8	-126.8	-4.9	126.9	0.00	0.00	
3,276.7	6.70	182.22	3,269.0	-135.8	-5.3	135.9	0.00	0.00	Wasatch Marker
3,300.0	6.70	182.22	3,292.1	-138.5	-5.4	138.6	0.00	0.00	
3,400.0	6.70	182.22	3,391.5	-150.1	-5.8	150.2	0.00	0.00	
3,500.0	6.70	182.22	3,490.8	-161.8	-6.3	161.9	0.00	0.00	
3,600.0	6.70	182.22	3,590.1	-173.4	-6.7	173.6	0.00	0.00	
3,700.0	6.70	182.22	3,689.4	-185.1	-7.2	185.2	0.00	0.00	
3,800.0	6.70	182.22	3,788.7	-196.7	-7.6	196.9	0.00	0.00	
3,900.0	6.70	182.22	3,888.1	-208.4	-8.1	208.6	0.00	0.00	
4,000.0	6.70	182.22	3,987.4	-220.0	-8.5	220.2	0.00	0.00	
4,100.0	6.70	182.22	4,086.7	-231.7	-9.0	231.9	0.00	0.00	
4,200.0	6.70	182.22	4,186.0	-243.3	-9.4	243.5	0.00	0.00	
4,300.0	6.70	182.22	4,285.3	-255.0	-9.9	255.2	0.00	0.00	
4,400.0	6.70	182.22	4,384.6	-266.7	-10.3	266.9	0.00	0.00	
4,500.0	6.70	182.22	4,484.0	-278.3	-10.8	278.5	0.00	0.00	
4,600.0	6.70	182.22	4,583.3	-290.0	-11.2	290.2	0.00	0.00	
4,700.0	6.70	182.22	4,682.6	-301.6	-11.7	301.8	0.00	0.00	
4,736.7	6.70	182.22	4,719.0	-305.9	-11.9	306.1	0.00	0.00	OHIO CREEK (Top Kmv)

Database:	US EDM 2003.21 Multi User Db	**Local Co-ordinate Reference:**	Well Warren 15-9
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	KBE @ 6689.0ft (Nabors M11)
Project:	S. Piceance	**MD Reference:**	KBE @ 6689.0ft (Nabors M11)
Site:	NESE S15-T7S-R95W (PI 15 Pad)	**North Reference:**	True
Well:	Warren 15-9	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	DD		
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
4,800.0	6.70	182.22	4,781.9	-313.3	-12.1	313.5	0.00	0.00	
4,900.0	6.70	182.22	4,881.2	-324.9	-12.6	325.2	0.00	0.00	
5,000.0	6.70	182.22	4,980.5	-336.6	-13.0	336.8	0.00	0.00	
5,100.0	6.70	182.22	5,079.9	-348.2	-13.5	348.5	0.00	0.00	
5,200.0	6.70	182.22	5,179.2	-359.9	-14.0	360.1	0.00	0.00	
5,225.0	6.70	182.22	5,204.0	-362.8	-14.1	363.1	0.00	0.00	WILLIAMS FORK FM
5,300.0	6.70	182.22	5,278.5	-371.5	-14.4	371.8	0.00	0.00	
5,400.0	6.70	182.22	5,377.8	-383.2	-14.9	383.5	0.00	0.00	
5,500.0	6.70	182.22	5,477.1	-394.8	-15.3	395.1	0.00	0.00	
5,600.0	6.70	182.22	5,576.5	-406.5	-15.8	406.8	0.00	0.00	
5,700.0	6.70	182.22	5,675.8	-418.1	-16.2	418.4	0.00	0.00	
5,750.9	6.70	182.22	5,726.3	-424.1	-16.4	424.4	0.00	0.00	Start Drop -3.00
5,800.0	5.22	182.22	5,775.2	-429.2	-16.6	429.5	3.00	-3.00	
5,900.0	2.22	182.22	5,874.9	-435.6	-16.9	436.0	3.00	-3.00	
5,974.1	0.00	182.22	5,949.0	-437.1	-16.9	437.4	3.00	-3.00	EOD at Inc. = 0° - TOP GAS - Warren 15-9 (PI-
6,000.0	0.00	0.00	5,974.9	-437.1	-16.9	437.4	0.00	0.00	
6,100.0	0.00	0.00	6,074.9	-437.1	-16.9	437.4	0.00	0.00	
6,200.0	0.00	0.00	6,174.9	-437.1	-16.9	437.4	0.00	0.00	
6,300.0	0.00	0.00	6,274.9	-437.1	-16.9	437.4	0.00	0.00	
6,400.0	0.00	0.00	6,374.9	-437.1	-16.9	437.4	0.00	0.00	
6,500.0	0.00	0.00	6,474.9	-437.1	-16.9	437.4	0.00	0.00	
6,600.0	0.00	0.00	6,574.9	-437.1	-16.9	437.4	0.00	0.00	
6,700.0	0.00	0.00	6,674.9	-437.1	-16.9	437.4	0.00	0.00	
6,800.0	0.00	0.00	6,774.9	-437.1	-16.9	437.4	0.00	0.00	
6,900.0	0.00	0.00	6,874.9	-437.1	-16.9	437.4	0.00	0.00	
7,000.0	0.00	0.00	6,974.9	-437.1	-16.9	437.4	0.00	0.00	
7,100.0	0.00	0.00	7,074.9	-437.1	-16.9	437.4	0.00	0.00	
7,144.1	0.00	0.00	7,119.0	-437.1	-16.9	437.4	0.00	0.00	COAL RIDGE (Paludal)
7,200.0	0.00	0.00	7,174.9	-437.1	-16.9	437.4	0.00	0.00	
7,300.0	0.00	0.00	7,274.9	-437.1	-16.9	437.4	0.00	0.00	
7,400.0	0.00	0.00	7,374.9	-437.1	-16.9	437.4	0.00	0.00	
7,500.0	0.00	0.00	7,474.9	-437.1	-16.9	437.4	0.00	0.00	
7,600.0	0.00	0.00	7,574.9	-437.1	-16.9	437.4	0.00	0.00	
7,700.0	0.00	0.00	7,674.9	-437.1	-16.9	437.4	0.00	0.00	
7,800.0	0.00	0.00	7,774.9	-437.1	-16.9	437.4	0.00	0.00	
7,864.1	0.00	0.00	7,839.0	-437.1	-16.9	437.4	0.00	0.00	ROLLINS SS (Iles Fm)
7,900.0	0.00	0.00	7,874.9	-437.1	-16.9	437.4	0.00	0.00	
8,000.0	0.00	0.00	7,974.9	-437.1	-16.9	437.4	0.00	0.00	
8,064.1	0.00	0.00	8,039.0	-437.1	-16.9	437.4	0.00	0.00	TD at 8064.1' MD - Warren 15-9 (PI-15) BHL
8,100.0	0.00	0.00	8,074.9	-437.1	-16.9	437.4	0.00	0.00	
8,200.0	0.00	0.00	8,174.9	-437.1	-16.9	437.4	0.00	0.00	
8,264.1	0.00	0.00	8,239.0	-437.1	-16.9	437.4	0.00	0.00	Permit TD at 8264.1' MD

Database:	US EDM 2003.21 Multi User Db	**Local Co-ordinate Reference:**	Well Warren 15-9
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	KBE @ 6689.0ft (Nabors M11)
Project:	S. Piceance	**MD Reference:**	KBE @ 6689.0ft (Nabors M11)
Site:	NESE S15-T7S-R95W (PI 15 Pad)	**North Reference:**	True
Well:	Warren 15-9	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	DD		
Design:	Plan #2		

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
Warren 15-9 (PI-15) TO(- plan hits target center - Point	0.00	0.00	5,949.0	-437.1	-16.9	1,593,259.58	2,300,575.98	39.436080	-107.976680
Warren 15-9 (PI-15) BHI - plan hits target center - Circle (radius 50.0)	0.00	0.00	8,039.0	-437.1	-16.9	1,593,259.58	2,300,575.98	39.436080	-107.976680

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
708.0	708.0	Surface casing	0.000	0.000

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,276.7	3,269.0	Wasatch Marker			
4,736.7	4,719.0	OHIO CREEK (Top Kmv)			
5,225.0	5,204.0	WILLIAMS FORK FM			
5,974.1	5,949.0	TOP GAS			
7,144.1	7,119.0	COAL RIDGE (Paludal)			
7,864.1	7,839.0	ROLLINS SS (Iles Fm)			

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
2,000.0	2,000.0	0.0	0.0	KOP = 2000' MD
2,223.2	2,222.7	-13.0	-0.5	EOB at Inc. = 6.70°
5,750.9	5,726.3	-424.1	-16.4	Start Drop -3.00
5,974.1	5,949.0	-437.1	-16.9	EOD at Inc. = 0°
8,064.1	8,039.0	-437.1	-16.9	TD at 8064.1' MD
8,264.1	8,239.0	-437.1	-16.9	Permit TD at 8264.1' MD

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Warren 15-9
Project:	S. Piceance	**TVD Reference:**	KBE @ 6689.0ft (Nabors M11)
Reference Site:	NESE S15-T7S-R95W (PI 15 Pad)	**MD Reference:**	KBE @ 6689.0ft (Nabors M11)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Warren 15-9	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	US EDM 2003.21 Multi User 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:	Stations	**Error Model:**	Systematic Ellipse
Depth Range:	0.0 to 99,999.0ft	**Scan Method:**	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,000.0ft	**Error Surface:**	Elliptical Conic
Warning Levels Evaluated at:	2.00 **Sigma**		

Survey Tool Program **Date** 10/27/2009

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	8,264.1	Plan #2 (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
NESE S15-T7S-R95W (PI 15 Pad)						
Clem Warren 15-34 (Existing) - Vh - Vh	2,150.2	2,156.1	30.9	23.4	4.120	CC, ES
Clem Warren 15-34 (Existing) - Vh - Vh	2,200.0	2,205.6	31.3	23.7	4.086	SF
Clem Warren15-33D (Existing) - DD - DD	130.1	135.7	48.4	48.0	116.164	CC, ES
Clem Warren15-33D (Existing) - DD - DD	5,100.0	5,001.7	989.4	968.8	48.052	SF
Warren 15-10BB - DD - Plan #2	200.0	200.0	31.1	30.4	47.595	CC, ES
Warren 15-10BB - DD - Plan #2	400.0	396.1	41.3	40.0	30.727	SF
Warren 15-9BB - DD - Plan #2	200.0	200.0	21.1	20.4	32.279	CC, ES
Warren 15-9BB - DD - Plan #2	8,100.0	8,154.9	540.1	511.1	18.626	SF
Warren Federal 15-16 - DD - Plan #2	200.0	200.0	13.8	13.2	21.183	CC, ES
Warren Federal 15-16 - DD - Plan #2	300.0	299.4	15.9	14.9	15.881	SF
Warren Federal 15-16BB - DD - Plan #2	200.0	200.0	11.9	11.2	18.185	CC, ES
Warren Federal 15-16BB - DD - Plan #2	300.0	299.7	12.9	11.9	12.844	SF