



PROJECT DETAILS: DJ Wattenberg

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: Colorado Northern Zone
System Datum: Mean Sea Level
Local North: True

Project: DJ Wattenberg
Site: S26-T2N-R66W (Rodman Bruntz)
Well: Rodman Bruntz 2E-26H
Wellbore: Hz
Design: Plan #3



Azimuths to True North
Magnetic North: 8.55°

Magnetic Field
Strength: 52666.2snT
Dip Angle: 66.73°
Date: 10/1/2013
Model: BGGM2013

Scientific Drilling

WELL DETAILS: Rodman Bruntz 2E-26H

Ground Level: 5098.00
+N/-S +E/-W Northing Easting Latitude Longitude
0.00 0.00 1285597.28 3210712.37 40° 6' 53.640 N 104° 44' 47.724 W

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well Rodman Bruntz 2E-26H, True North
Vertical (TVD) Reference: WELL @ 5111.00ft (Original Well Elev)
Section (VS) Reference: Slot - (0.00N, 0.00E)
Measured Depth Reference: WELL @ 5111.00ft (Original Well Elev)
Calculation Method: Minimum Curvature

SITE DETAILS: S26-T2N-R66W (Rodman Bruntz)

Site Centre Latitude: 40° 6' 56.916 N
Longitude: 104° 45' 8.136 W

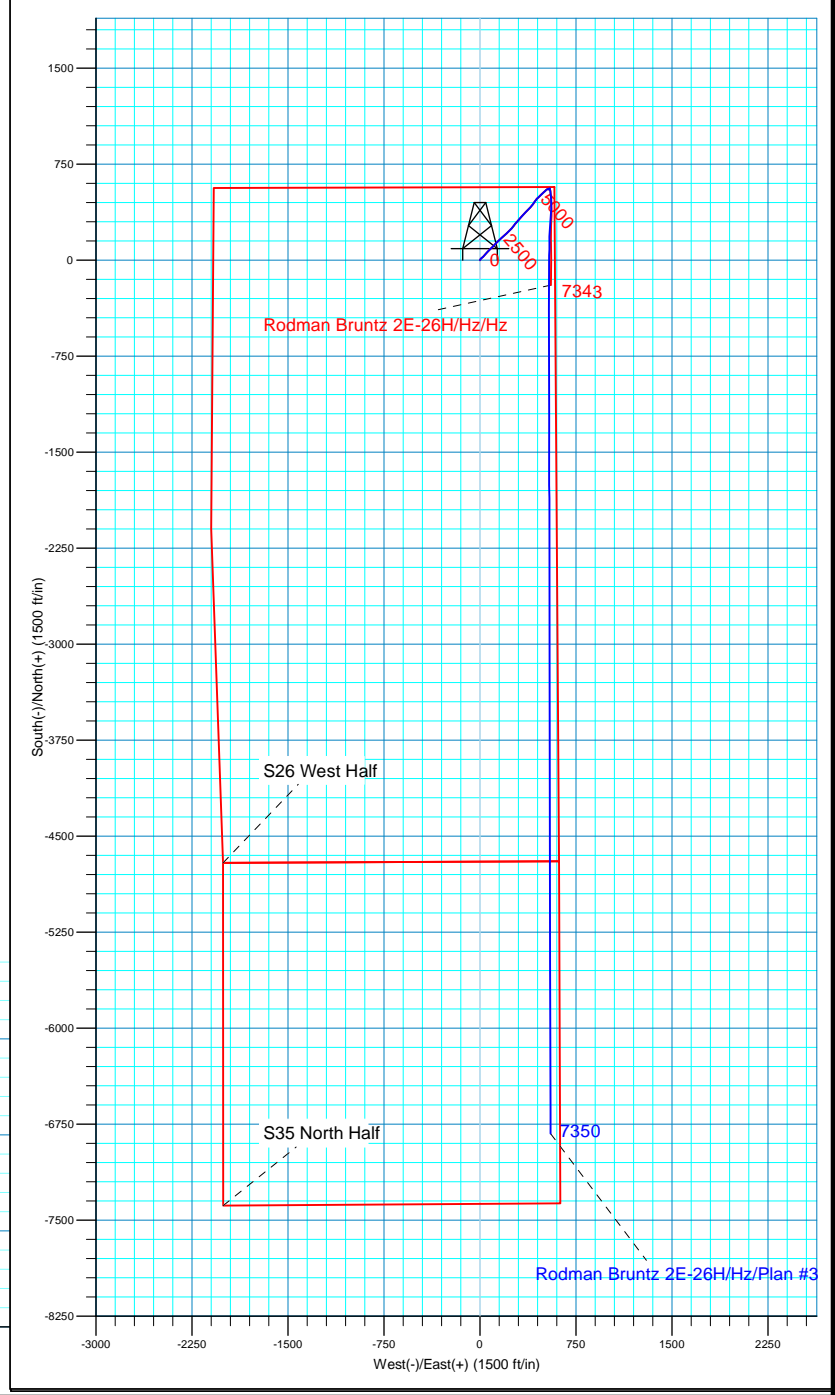
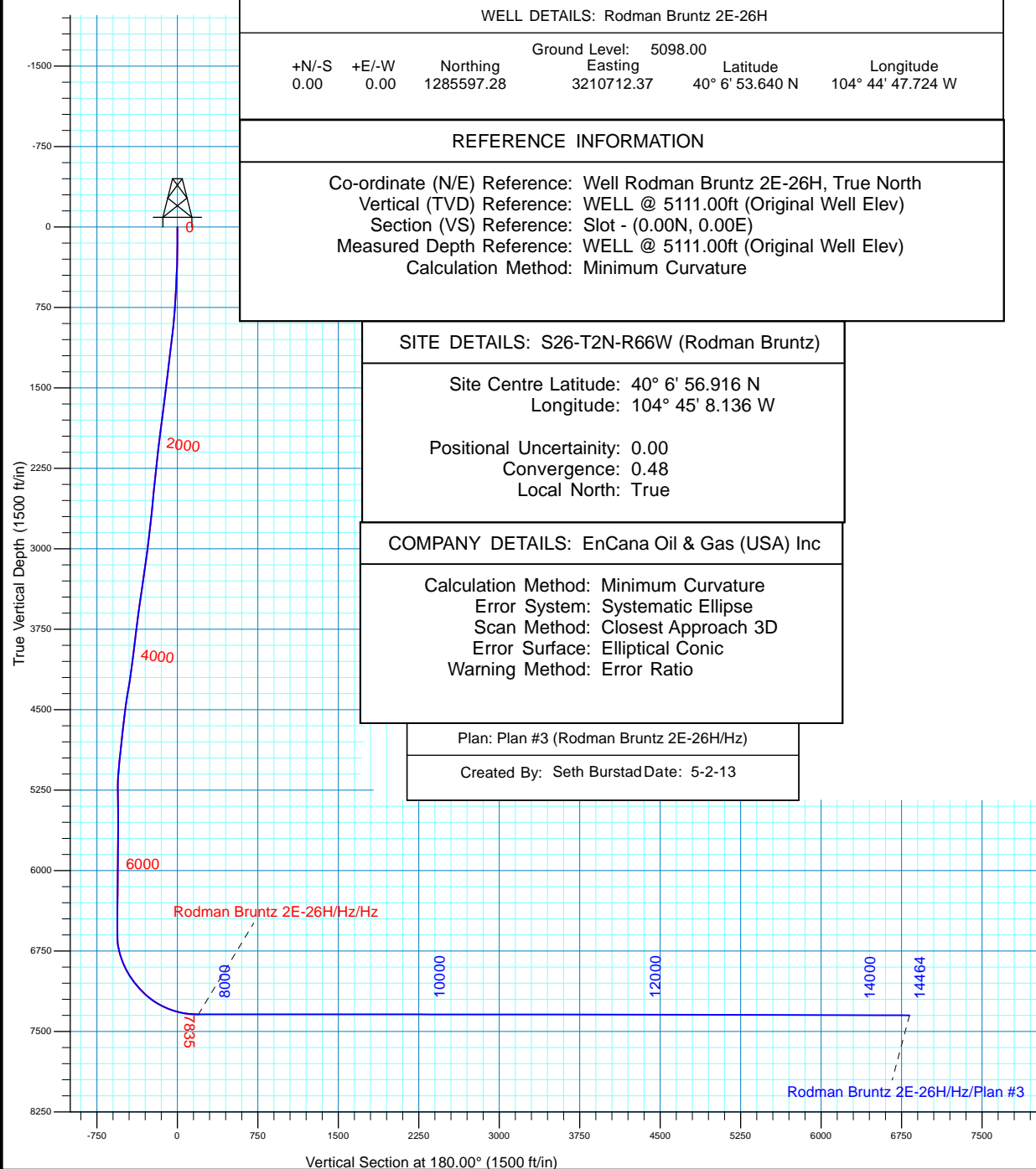
Positional Uncertainty: 0.00
Convergence: 0.48
Local North: True

COMPANY DETAILS: EnCana Oil & Gas (USA) Inc

Calculation Method: Minimum Curvature
Error System: Systematic Ellipse
Scan Method: Closest Approach 3D
Error Surface: Elliptical Conic
Warning Method: Error Ratio

Plan: Plan #3 (Rodman Bruntz 2E-26H/Hz)

Created By: Seth Burstad Date: 5-2-13





EnCana Oil & Gas (USA) Inc

DJ Wattenberg
S26-T2N-R66W (Rodman Bruntz)
Rodman Bruntz 2E-26H

Hz

Plan: Plan #3

Standard Planning Report

09 October, 2013





Database:	Casper District	Local Co-ordinate Reference:	Well Rodman Bruntz 2E-26H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 5111.00ft (Original Well Elev)
Project:	DJ Wattenberg	MD Reference:	WELL @ 5111.00ft (Original Well Elev)
Site:	S26-T2N-R66W (Rodman Bruntz)	North Reference:	True
Well:	Rodman Bruntz 2E-26H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #3		

Project	DJ Wattenberg		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site	S26-T2N-R66W (Rodman Bruntz)			
Site Position:		Northing:	1,285,915.36 usft	Latitude: 40° 6' 56.916 N
From:	Lat/Long	Easting:	3,209,123.83 usft	Longitude: 104° 45' 8.136 W
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence: 0.48 °

Well	Rodman Bruntz 2E-26H			
Well Position	+N/-S	-331.47 ft	Northing:	1,285,597.28 usft
	+E/-W	1,585.80 ft	Easting:	3,210,712.37 usft
Position Uncertainty		0.00 ft	Wellhead Elevation:	Latitude: 40° 6' 53.640 N
				Longitude: 104° 44' 47.724 W
				Ground Level: 5,098.00 ft

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2013	10/1/2013	8.55	66.73	52,666

Design	Plan #3			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	7,070.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	180.00

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
7,070.00	33.24	179.67	6,983.96	444.00	557.40	0.00	0.00	0.00	0.00	
7,085.00	34.60	179.50	6,996.41	435.63	557.46	9.09	9.07	-1.13	-4.06	
7,115.00	36.40	184.40	7,020.83	418.23	556.86	11.22	6.00	16.33	59.70	
7,148.75	36.40	184.40	7,048.00	398.26	555.32	0.00	0.00	0.00	0.00	
7,820.35	90.00	179.93	7,340.00	-179.17	539.26	8.00	7.98	-0.67	-5.55	
7,835.36	90.00	179.93	7,340.00	-194.18	539.28	0.00	0.00	0.00	0.00	Rodman Bruntz 2E-26H
14,464.11	89.83	179.87	7,350.00	-6,822.91	551.13	0.00	0.00	0.00	-160.82	Rodman Bruntz 2E-26H

Database:	Casper District	Local Co-ordinate Reference:	Well Rodman Bruntz 2E-26H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 5111.00ft (Original Well Elev)
Project:	DJ Wattenberg	MD Reference:	WELL @ 5111.00ft (Original Well Elev)
Site:	S26-T2N-R66W (Rodman Bruntz)	North Reference:	True
Well:	Rodman Bruntz 2E-26H	Survey Calculation Method:	Minimum Curvature
Wellbore:	H2		
Design:	Plan #3		

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)	Turn Rate (°/100ft)
7,070.00	33.24	179.67	6,983.96	444.00	557.40	-444.00	0.00	0.00	0.00
7,085.00	34.60	179.50	6,996.41	435.63	557.46	-435.63	9.09	9.07	-1.13
7,100.00	35.48	182.00	7,008.69	427.02	557.35	-427.02	11.22	5.83	16.69
7,115.00	36.40	184.40	7,020.83	418.23	556.86	-418.23	11.22	6.17	15.97
7,148.75	36.40	184.40	7,048.00	398.26	555.32	-398.26	0.00	0.00	0.00
7,200.00	40.48	183.79	7,088.13	366.49	553.05	-366.49	8.00	7.97	-1.19
7,300.00	48.46	182.85	7,159.44	296.61	549.04	-296.61	8.00	7.97	-0.94
7,400.00	56.43	182.11	7,220.34	217.47	545.64	-217.47	8.00	7.98	-0.73
7,410.35	57.26	182.05	7,226.00	208.81	545.33	-208.81	8.00	7.98	-0.66
Sharon Springs									
7,484.91	63.21	181.59	7,263.00	144.14	543.28	-144.14	8.00	7.98	-0.61
Niobrara									
7,500.00	64.42	181.50	7,269.66	130.61	542.91	-130.61	8.00	7.98	-0.57
7,600.00	72.40	180.97	7,306.42	37.72	540.92	-37.72	8.00	7.98	-0.53
7,700.00	80.39	180.49	7,329.93	-59.38	539.69	59.38	8.00	7.99	-0.49
7,735.60	83.23	180.32	7,335.00	-94.62	539.44	94.62	8.00	7.99	-0.47
B Chalk									
7,800.00	88.37	180.02	7,339.71	-158.82	539.25	158.82	8.00	7.99	-0.46
7,820.35	90.00	179.93	7,340.00	-179.17	539.26	179.17	8.00	7.99	-0.46
7,821.66	90.00	179.93	7,340.00	-180.48	539.26	180.48	0.00	0.00	0.00
LP @ 7350' TVD; 90°									
7,835.36	90.00	179.93	7,340.00	-194.18	539.28	194.18	0.00	0.00	0.00
7,900.00	90.00	179.93	7,340.00	-258.82	539.36	258.82	0.00	0.00	0.00
8,000.00	90.00	179.93	7,340.01	-358.82	539.49	358.82	0.00	0.00	0.00
8,100.00	89.99	179.93	7,340.02	-458.82	539.62	458.82	0.00	0.00	0.00
8,200.00	89.99	179.92	7,340.03	-558.82	539.75	558.82	0.00	0.00	0.00
8,300.00	89.99	179.92	7,340.05	-658.82	539.88	658.82	0.00	0.00	0.00
8,400.00	89.99	179.92	7,340.07	-758.82	540.02	758.82	0.00	0.00	0.00
8,500.00	89.98	179.92	7,340.10	-858.82	540.15	858.82	0.00	0.00	0.00
8,600.00	89.98	179.92	7,340.13	-958.82	540.29	958.82	0.00	0.00	0.00
8,700.00	89.98	179.92	7,340.17	-1,058.82	540.43	1,058.82	0.00	0.00	0.00
8,800.00	89.97	179.92	7,340.21	-1,158.82	540.57	1,158.82	0.00	0.00	0.00
8,900.00	89.97	179.92	7,340.26	-1,258.82	540.71	1,258.82	0.00	0.00	0.00
9,000.00	89.97	179.92	7,340.31	-1,358.82	540.86	1,358.82	0.00	0.00	0.00
9,100.00	89.97	179.92	7,340.36	-1,458.82	541.00	1,458.82	0.00	0.00	0.00
9,200.00	89.96	179.92	7,340.42	-1,558.82	541.15	1,558.82	0.00	0.00	0.00
9,300.00	89.96	179.91	7,340.49	-1,658.82	541.30	1,658.82	0.00	0.00	0.00
9,400.00	89.96	179.91	7,340.56	-1,758.82	541.45	1,758.82	0.00	0.00	0.00
9,500.00	89.96	179.91	7,340.63	-1,858.82	541.60	1,858.82	0.00	0.00	0.00
9,600.00	89.95	179.91	7,340.71	-1,958.82	541.75	1,958.82	0.00	0.00	0.00
9,700.00	89.95	179.91	7,340.79	-2,058.82	541.91	2,058.82	0.00	0.00	0.00
9,800.00	89.95	179.91	7,340.88	-2,158.82	542.07	2,158.82	0.00	0.00	0.00
9,900.00	89.95	179.91	7,340.97	-2,258.82	542.22	2,258.82	0.00	0.00	0.00
10,000.00	89.94	179.91	7,341.07	-2,358.82	542.38	2,358.82	0.00	0.00	0.00
10,100.00	89.94	179.91	7,341.17	-2,458.82	542.54	2,458.82	0.00	0.00	0.00
10,200.00	89.94	179.91	7,341.27	-2,558.82	542.71	2,558.82	0.00	0.00	0.00
10,300.00	89.94	179.91	7,341.38	-2,658.82	542.87	2,658.82	0.00	0.00	0.00
10,400.00	89.93	179.90	7,341.50	-2,758.82	543.04	2,758.82	0.00	0.00	0.00
10,500.00	89.93	179.90	7,341.62	-2,858.82	543.21	2,858.82	0.00	0.00	0.00
10,600.00	89.93	179.90	7,341.74	-2,958.82	543.37	2,958.82	0.00	0.00	0.00
10,700.00	89.93	179.90	7,341.87	-3,058.82	543.55	3,058.82	0.00	0.00	0.00
10,800.00	89.92	179.90	7,342.00	-3,158.82	543.72	3,158.82	0.00	0.00	0.00
10,900.00	89.92	179.90	7,342.14	-3,258.82	543.89	3,258.82	0.00	0.00	0.00
11,000.00	89.92	179.90	7,342.28	-3,358.82	544.07	3,358.82	0.00	0.00	0.00

Database:	Casper District	Local Co-ordinate Reference:	Well Rodman Bruntz 2E-26H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 5111.00ft (Original Well Elev)
Project:	DJ Wattenberg	MD Reference:	WELL @ 5111.00ft (Original Well Elev)
Site:	S26-T2N-R66W (Rodman Bruntz)	North Reference:	True
Well:	Rodman Bruntz 2E-26H	Survey Calculation Method:	Minimum Curvature
Wellbore:	H2		
Design:	Plan #3		

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)	Turn Rate (°/100ft)
11,100.00	89.91	179.90	7,342.43	-3,458.81	544.24	3,458.81	0.00	0.00	0.00
11,200.00	89.91	179.90	7,342.58	-3,558.81	544.42	3,558.81	0.00	0.00	0.00
11,300.00	89.91	179.90	7,342.73	-3,658.81	544.60	3,658.81	0.00	0.00	0.00
11,400.00	89.91	179.90	7,342.89	-3,758.81	544.79	3,758.81	0.00	0.00	0.00
11,500.00	89.90	179.89	7,343.06	-3,858.81	544.97	3,858.81	0.00	0.00	0.00
11,600.00	89.90	179.89	7,343.23	-3,958.81	545.15	3,958.81	0.00	0.00	0.00
11,700.00	89.90	179.89	7,343.40	-4,058.81	545.34	4,058.81	0.00	0.00	0.00
11,800.00	89.90	179.89	7,343.58	-4,158.81	545.53	4,158.81	0.00	0.00	0.00
11,900.00	89.89	179.89	7,343.76	-4,258.81	545.72	4,258.81	0.00	0.00	0.00
12,000.00	89.89	179.89	7,343.95	-4,358.81	545.91	4,358.81	0.00	0.00	0.00
12,100.00	89.89	179.89	7,344.14	-4,458.81	546.10	4,458.81	0.00	0.00	0.00
12,200.00	89.89	179.89	7,344.34	-4,558.81	546.30	4,558.81	0.00	0.00	0.00
12,300.00	89.88	179.89	7,344.54	-4,658.81	546.49	4,658.81	0.00	0.00	0.00
12,400.00	89.88	179.89	7,344.74	-4,758.81	546.69	4,758.81	0.00	0.00	0.00
12,500.00	89.88	179.89	7,344.95	-4,858.81	546.89	4,858.81	0.00	0.00	0.00
12,600.00	89.88	179.88	7,345.17	-4,958.81	547.09	4,958.81	0.00	0.00	0.00
12,700.00	89.87	179.88	7,345.39	-5,058.81	547.29	5,058.81	0.00	0.00	0.00
12,800.00	89.87	179.88	7,345.61	-5,158.81	547.50	5,158.81	0.00	0.00	0.00
12,900.00	89.87	179.88	7,345.84	-5,258.81	547.70	5,258.81	0.00	0.00	0.00
13,000.00	89.87	179.88	7,346.07	-5,358.81	547.91	5,358.81	0.00	0.00	0.00
13,100.00	89.86	179.88	7,346.31	-5,458.81	548.12	5,458.81	0.00	0.00	0.00
13,200.00	89.86	179.88	7,346.55	-5,558.81	548.33	5,558.81	0.00	0.00	0.00
13,300.00	89.86	179.88	7,346.80	-5,658.81	548.54	5,658.81	0.00	0.00	0.00
13,400.00	89.85	179.88	7,347.05	-5,758.81	548.76	5,758.81	0.00	0.00	0.00
13,500.00	89.85	179.88	7,347.30	-5,858.81	548.97	5,858.81	0.00	0.00	0.00
13,600.00	89.85	179.88	7,347.56	-5,958.80	549.19	5,958.80	0.00	0.00	0.00
13,700.00	89.85	179.87	7,347.83	-6,058.80	549.41	6,058.80	0.00	0.00	0.00
13,800.00	89.84	179.87	7,348.10	-6,158.80	549.63	6,158.80	0.00	0.00	0.00
13,900.00	89.84	179.87	7,348.37	-6,258.80	549.85	6,258.80	0.00	0.00	0.00
14,000.00	89.84	179.87	7,348.65	-6,358.80	550.07	6,358.80	0.00	0.00	0.00
14,100.00	89.84	179.87	7,348.93	-6,458.80	550.29	6,458.80	0.00	0.00	0.00
14,200.00	89.83	179.87	7,349.22	-6,558.80	550.52	6,558.80	0.00	0.00	0.00
14,300.00	89.83	179.87	7,349.51	-6,658.80	550.75	6,658.80	0.00	0.00	0.00
14,400.00	89.83	179.87	7,349.81	-6,758.80	550.98	6,758.80	0.00	0.00	0.00
14,464.11	89.83	179.87	7,350.00	-6,822.91	551.13	6,822.91	0.00	0.00	0.00

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Rodman Bruntz 2E-26H - hit/miss target - Shape	0.00	0.00	7,340.00	-194.18	539.28	1,285,407.69	3,211,253.28	40° 6' 51.721 N	104° 44' 40.783 W
Rodman Bruntz 2E-26H - plan hits target center - Point	0.00	0.00	7,350.00	-6,822.91	551.13	1,278,779.31	3,211,321.44	40° 5' 46.212 N	104° 44' 40.632 W

Database:	Casper District	Local Co-ordinate Reference:	Well Rodman Bruntz 2E-26H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 5111.00ft (Original Well Elev)
Project:	DJ Wattenberg	MD Reference:	WELL @ 5111.00ft (Original Well Elev)
Site:	S26-T2N-R66W (Rodman Bruntz)	North Reference:	True
Well:	Rodman Bruntz 2E-26H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #3		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,014.25	1,011.00	Base of Fox Hills				
4,844.93	4,786.00	Sussex				
5,010.99	4,950.00	Sussex Marker				
5,423.86	5,361.00	Shannon				
6,842.44	6,777.00	Teepee Buttes				
7,410.35	7,226.00	Sharon Springs				
7,484.91	7,263.00	Niobrara		0.00		
7,735.60	7,335.00	B Chalk		0.00		

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
200.00				KOP @ 200'	
1,200.00				EOB; Inc=10°	
4,670.00				Start Drop -1.00	
5,670.00				EOD; Inc=0°	
6,696.66				Start 8° build @ 6697' MD	
7,821.66	7,340.00	-180.48	539.26	LP @ 7350' TVD; 90°	
14,475.59				TD at 14475.59	