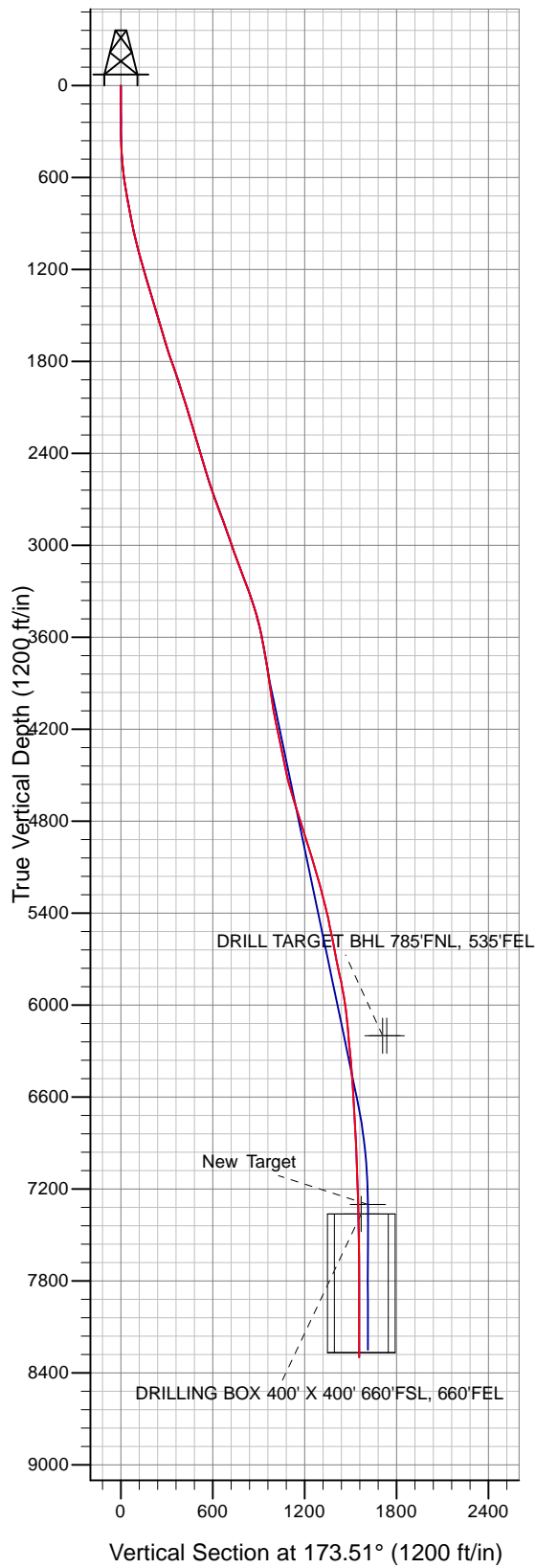


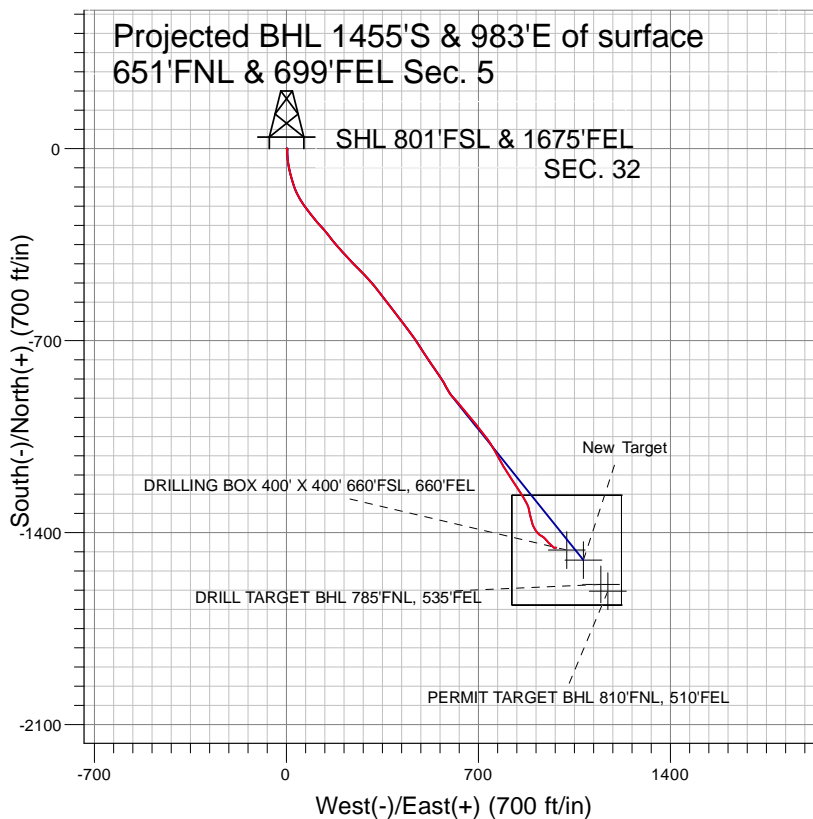
Well Name: **Brown 41-5**

Surface Location: Ray Nelson/Brown Pad Sec.32-T2N-R68W  
 North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone  
 Ground Elevation: 4980.0

+N/-S+E/-W Northing Easting Latitude Longitude Slot  
 0.0 0.0 1275955.63 133266.61 40° 5' 23.665 N 105° 1' 25.243 W  
 Original Well Elev WELL @ 4993.0ft (Original Well Elev)



## EnCana Oil & Gas Weld County CO



### LEGEND

- △ Brown 41-5, Wellbore #1, Drill plan tied to survey V0
- Wellbore #1
- Survey #1

## Final Survey Plot

Projected Final Survey -  
 8328'MD & 7866.76'TVD @ 2170.10'  
 VS  
 0.5 deg Inc 310.60 deg AZ

Project: SEC.32-T2N-R68W  
 Site: Ray Nelson/Brown Pad Sec.32-T2N-R68W  
 Well: Brown 41-5  
 Plan: Wellbore #1



# **EnCana Oil & Gas Weld County CO**

**SEC.32-T2N-R68W**

**Ray Nelson/Brown Pad Sec.32-T2N-R68W**

**Brown 41-5**

**Wellbore #1**

**Survey: Survey #1**

## **Standard Survey Report**

**27 October, 2010**

<b>Company:</b>	EnCana Oil & Gas Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Brown 41-5
<b>Project:</b>	SEC.32-T2N-R68W	<b>TVD Reference:</b>	WELL @ 4993.0ft (Original Well Elev)
<b>Site:</b>	Ray Nelson/Brown Pad Sec.32-T2N-R68W	<b>MD Reference:</b>	WELL @ 4993.0ft (Original Well Elev)
<b>Well:</b>	Brown 41-5	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	EDM den0-adp01 Server Data

<b>Project</b>	SEC.32-T2N-R68W, Weld County, Colorado		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

<b>Site</b>	Ray Nelson/Brown Pad Sec.32-T2N-R68W		
<b>Site Position:</b>		<b>Northing:</b>	1,275,978.53ft
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,133,246.49ft
<b>Position Uncertainty:</b>	0.0 ft	<b>Slot Radius:</b>	"
		<b>Latitude:</b>	40° 5' 23.892 N
		<b>Longitude:</b>	105° 1' 25.500 W
		<b>Grid Convergence:</b>	0.31 °

<b>Well</b>	Brown 41-5		
<b>Well Position</b>	<b>+N/-S</b>	0.0 ft	<b>Northing:</b>
	<b>+E/-W</b>	0.0 ft	<b>Easting:</b>
<b>Position Uncertainty</b>	0.0 ft	<b>Wellhead Elevation:</b>	ft
		<b>Latitude:</b>	40° 5' 23.665 N
		<b>Longitude:</b>	105° 1' 25.243 W
		<b>Ground Level:</b>	4,980.0ft

<b>Wellbore</b>	Wellbore #1		
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>
	IGRF200510	12/31/2009	9.13
			<b>Dip Angle (°)</b>
			66.81
			<b>Field Strength (nT)</b>
			53,111

<b>Design</b>	Wellbore #1		
<b>Audit Notes:</b>			
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL
		<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>
	0.0	0.0	0.0
			<b>Direction (°)</b>
			173.51

<b>Survey Program</b>	<b>Date</b>	10/27/2010		
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
41.0	8,565.0	Survey #1 (Wellbore #1)	MWD	MWD - Standard

<b>Survey</b>									
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Vertical Section (ft)</b>	<b>Dogleg Rate (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Turn Rate (°/100ft)</b>
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
41.0	0.50	97.80	41.0	0.0	0.2	0.0	1.22	1.22	0.00
104.0	0.50	82.90	104.0	0.0	0.7	0.1	0.21	0.00	-23.65
166.0	0.70	98.10	166.0	0.0	1.4	0.2	0.41	0.32	24.52
228.0	0.70	101.50	228.0	-0.2	2.1	0.4	0.07	0.00	5.48
290.0	0.50	112.80	290.0	-0.4	2.7	0.7	0.37	-0.32	18.23
351.0	1.30	177.40	351.0	-1.2	3.0	1.5	1.93	1.31	105.90
443.0	3.20	184.70	442.9	-4.8	2.8	5.0	2.08	2.07	7.93
520.0	5.20	178.50	519.7	-10.4	2.8	10.6	2.66	2.60	-8.05
609.0	7.80	177.40	608.1	-20.5	3.1	20.7	2.92	2.92	-1.24
695.0	10.20	176.60	693.0	-33.9	3.9	34.1	2.79	2.79	-0.93
782.0	10.40	173.00	778.6	-49.4	5.3	49.6	0.77	0.23	-4.14
816.0	10.80	169.10	812.1	-55.5	6.2	55.9	2.42	1.18	-11.47

<b>Company:</b>	EnCana Oil & Gas Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Brown 41-5
<b>Project:</b>	SEC.32-T2N-R68W	<b>TVD Reference:</b>	WELL @ 4993.0ft (Original Well Elev)
<b>Site:</b>	Ray Nelson/Brown Pad Sec.32-T2N-R68W	<b>MD Reference:</b>	WELL @ 4993.0ft (Original Well Elev)
<b>Well:</b>	Brown 41-5	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	EDM den0-adp01 Server Data

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)	
930.0	11.20	167.10	924.0	-76.8	10.7	77.5	0.48	0.35	-1.75	
1,017.0	13.50	166.70	1,009.0	-94.9	15.0	96.0	2.65	2.64	-0.46	
1,104.0	16.00	164.60	1,093.1	-116.4	20.5	118.0	2.94	2.87	-2.41	
1,191.0	16.50	159.40	1,176.6	-139.5	28.0	141.8	1.77	0.57	-5.98	
1,279.0	17.80	154.50	1,260.7	-163.4	38.2	166.6	2.21	1.48	-5.57	
1,366.0	17.80	149.00	1,343.5	-186.8	50.8	191.3	1.93	0.00	-6.32	
1,453.0	18.60	143.80	1,426.2	-209.4	65.8	215.5	2.08	0.92	-5.98	
1,541.0	19.50	143.30	1,509.4	-232.5	82.9	240.3	1.04	1.02	-0.57	
1,628.0	19.30	139.80	1,591.4	-255.1	100.8	264.8	1.36	-0.23	-4.02	
1,716.0	20.60	138.30	1,674.2	-277.7	120.5	289.6	1.59	1.48	-1.70	
1,803.0	22.20	139.00	1,755.2	-301.6	141.5	315.6	1.86	1.84	0.80	
1,890.0	22.50	143.50	1,835.6	-327.4	162.2	343.6	2.00	0.34	5.17	
1,977.0	21.80	138.60	1,916.2	-352.9	182.8	371.3	2.27	-0.80	-5.63	
2,065.0	20.50	136.50	1,998.3	-376.3	204.2	397.0	1.71	-1.48	-2.39	
2,152.0	21.80	138.50	2,079.4	-399.5	225.4	422.4	1.71	1.49	2.30	
2,239.0	21.10	135.60	2,160.4	-422.7	247.0	448.0	1.46	-0.80	-3.33	
2,327.0	20.60	134.60	2,242.6	-444.9	269.1	472.5	0.70	-0.57	-1.14	
2,414.0	21.20	136.70	2,323.9	-467.1	290.8	497.0	1.10	0.69	2.41	
2,500.0	19.70	139.50	2,404.5	-489.5	310.9	521.5	2.08	-1.74	3.26	
2,588.0	19.00	142.60	2,487.5	-512.1	329.2	546.1	1.41	-0.80	3.52	
2,675.0	19.70	140.70	2,569.6	-534.7	347.1	570.6	1.08	0.80	-2.18	
2,762.0	22.70	143.60	2,650.7	-559.6	366.4	597.4	3.65	3.45	3.33	
2,850.0	23.60	143.00	2,731.6	-587.3	387.1	627.3	1.06	1.02	-0.68	
2,937.0	23.70	141.40	2,811.3	-614.9	408.5	657.2	0.75	0.11	-1.84	
3,024.0	22.40	142.60	2,891.4	-641.7	429.4	686.2	1.59	-1.49	1.38	
3,112.0	21.50	144.60	2,973.0	-668.2	449.0	714.7	1.33	-1.02	2.27	
3,199.0	21.60	144.00	3,053.9	-694.2	467.6	742.6	0.28	0.11	-0.69	
3,286.0	23.20	146.90	3,134.3	-721.5	486.4	771.8	2.23	1.84	3.33	
3,373.0	24.10	147.90	3,214.0	-750.9	505.2	803.2	1.13	1.03	1.15	
3,461.0	21.70	146.40	3,295.1	-779.6	523.7	833.9	2.81	-2.73	-1.70	
3,548.0	20.30	144.00	3,376.3	-805.3	541.5	861.3	1.89	-1.61	-2.76	
3,635.0	17.80	145.30	3,458.5	-828.4	557.9	886.2	2.91	-2.87	1.49	
3,722.0	14.40	150.10	3,542.1	-848.7	570.9	907.8	4.19	-3.91	5.52	
3,810.0	10.80	151.90	3,628.0	-865.5	580.3	925.6	4.11	-4.09	2.05	
3,897.0	11.20	151.10	3,713.4	-880.1	588.2	940.9	0.49	0.46	-0.92	
3,984.0	10.80	144.70	3,798.8	-894.1	597.0	955.9	1.48	-0.46	-7.36	
4,072.0	9.50	137.20	3,885.4	-906.2	606.7	969.0	2.10	-1.48	-8.52	
4,159.0	9.80	136.00	3,971.2	-916.8	616.7	980.6	0.42	0.34	-1.38	
4,246.0	11.60	140.20	4,056.7	-928.8	627.4	993.8	2.25	2.07	4.83	
4,334.0	12.80	140.10	4,142.7	-943.1	639.4	1,009.4	1.36	1.36	-0.11	
4,421.0	14.90	143.30	4,227.2	-959.5	652.2	1,027.1	2.57	2.41	3.68	
4,508.0	13.90	137.70	4,311.4	-976.2	665.9	1,045.2	1.97	-1.15	-6.44	
4,596.0	12.80	138.70	4,397.0	-991.3	679.5	1,061.8	1.28	-1.25	1.14	
4,683.0	15.30	143.60	4,481.4	-1,007.8	692.7	1,079.7	3.18	2.87	5.63	
4,770.0	17.00	141.80	4,565.0	-1,027.0	707.3	1,100.4	2.04	1.95	-2.07	
4,857.0	19.50	141.80	4,647.6	-1,048.4	724.2	1,123.6	2.87	2.87	0.00	
4,945.0	20.50	146.90	4,730.3	-1,072.9	741.7	1,149.9	2.28	1.14	5.80	
5,032.0	18.90	149.30	4,812.2	-1,097.8	757.2	1,176.4	2.06	-1.84	2.76	
5,119.0	19.00	151.80	4,894.5	-1,122.4	771.1	1,202.4	0.94	0.11	2.87	
5,206.0	17.90	151.10	4,977.0	-1,146.5	784.2	1,227.9	1.29	-1.26	-0.80	
5,294.0	17.90	147.60	5,060.8	-1,169.8	798.0	1,252.6	1.22	0.00	-3.98	
5,381.0	19.50	146.90	5,143.2	-1,193.3	813.1	1,277.6	1.86	1.84	-0.80	
5,468.0	16.70	146.90	5,225.9	-1,215.9	827.9	1,301.7	3.22	-3.22	0.00	
5,555.0	16.00	146.40	5,309.4	-1,236.4	841.3	1,323.6	0.82	-0.80	-0.57	

<b>Company:</b>	EnCana Oil & Gas Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Brown 41-5
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<b>Site:</b>	Ray Nelson/Brown Pad Sec.32-T2N-R68W	<b>MD Reference:</b>	WELL @ 4993.0ft (Original Well Elev)
<b>Well:</b>	Brown 41-5	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	EDM den0-adp01 Server Data

### 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)
5,642.0	14.30	148.50	5,393.3	-1,255.5	853.6	1,344.0	2.05	-1.95	2.41
5,730.0	12.20	149.00	5,479.0	-1,272.7	864.1	1,362.3	2.39	-2.39	0.57
5,817.0	12.30	152.10	5,564.0	-1,288.8	873.1	1,379.3	0.76	0.11	3.56
5,904.0	11.80	158.50	5,649.1	-1,305.3	880.7	1,396.5	1.64	-0.57	7.36
5,992.0	11.20	169.60	5,735.3	-1,322.1	885.6	1,413.7	2.60	-0.68	12.61
6,079.0	12.90	168.50	5,820.4	-1,339.9	889.0	1,431.8	1.97	1.95	-1.26
6,166.0	10.10	168.20	5,905.7	-1,356.9	892.5	1,449.1	3.22	-3.22	-0.34
6,254.0	9.10	152.90	5,992.4	-1,370.6	897.3	1,463.3	3.10	-1.14	-17.39
6,341.0	6.30	149.40	6,078.6	-1,380.9	902.8	1,474.1	3.26	-3.22	-4.02
6,429.0	5.50	154.00	6,166.2	-1,388.8	907.1	1,482.5	1.06	-0.91	5.23
6,492.4	6.05	144.03	6,229.2	-1,394.2	910.4	1,488.3	1.80	0.87	-15.73
<b>DRILL TARGET BHL 785'FNL, 535'FEL</b>									
6,496.6	6.10	143.43	6,233.4	-1,394.6	910.7	1,488.7	1.80	1.01	-14.13
<b>PERMIT TARGET BHL 810'FNL, 510'FEL</b>									
6,516.0	6.30	140.80	6,252.7	-1,396.3	912.0	1,490.4	1.80	1.05	-13.58
6,603.0	7.40	137.10	6,339.1	-1,404.1	918.8	1,499.0	1.36	1.26	-4.25
6,691.0	5.60	122.40	6,426.5	-1,410.5	926.3	1,506.2	2.77	-2.05	-16.70
6,778.0	5.50	118.80	6,513.1	-1,414.8	933.5	1,511.3	0.42	-0.11	-4.14
6,865.0	5.40	133.80	6,599.7	-1,419.6	940.2	1,516.9	1.64	-0.11	17.24
6,953.0	5.00	138.80	6,687.4	-1,425.4	945.7	1,523.2	0.69	-0.45	5.68
7,040.0	4.00	138.90	6,774.1	-1,430.5	950.2	1,528.8	1.15	-1.15	0.11
7,127.0	3.50	135.50	6,860.9	-1,434.7	954.0	1,533.4	0.63	-0.57	-3.91
7,215.0	3.10	134.50	6,948.8	-1,438.3	957.6	1,537.4	0.46	-0.45	-1.14
7,302.0	2.80	132.90	7,035.7	-1,441.4	960.8	1,540.8	0.36	-0.34	-1.84
7,389.0	2.50	134.40	7,122.6	-1,444.2	963.7	1,543.9	0.35	-0.34	1.72
7,477.0	2.10	138.30	7,210.5	-1,446.7	966.2	1,546.7	0.49	-0.45	4.43
7,564.0	1.90	131.70	7,297.4	-1,448.9	968.3	1,549.1	0.35	-0.23	-7.59
7,570.3	1.88	132.17	7,303.7	-1,449.0	968.5	1,549.2	0.35	-0.24	7.55
<b>New Target</b>									
7,631.0	1.74	137.18	7,364.4	-1,450.3	969.8	1,550.7	0.35	-0.23	8.24
<b>DRILLING BOX 400' X 400' 660'FSL, 660'FEL</b>									
7,651.0	1.70	139.00	7,384.4	-1,450.8	970.2	1,551.2	0.35	-0.22	9.12
7,739.0	1.30	127.40	7,472.4	-1,452.4	971.9	1,553.0	0.57	-0.45	-13.18
7,913.0	0.90	120.00	7,646.3	-1,454.3	974.7	1,555.2	0.24	-0.23	-4.25
8,088.0	0.80	89.70	7,821.3	-1,454.9	977.1	1,556.1	0.26	-0.06	-17.31
8,263.0	0.60	103.40	7,996.3	-1,455.1	979.2	1,556.6	0.15	-0.11	7.83
8,437.0	0.80	68.90	8,170.3	-1,454.9	981.2	1,556.6	0.26	0.11	-19.83
8,513.0	0.80	90.50	8,246.3	-1,454.7	982.2	1,556.5	0.39	0.00	28.42
8,565.0	0.80	90.50	8,298.3	-1,454.7	982.9	1,556.6	0.00	0.00	0.00

<b>Company:</b>	EnCana Oil & Gas Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Brown 41-5
<b>Project:</b>	SEC.32-T2N-R68W	<b>TVD Reference:</b>	WELL @ 4993.0ft (Original Well Elev)
<b>Site:</b>	Ray Nelson/Brown Pad Sec.32-T2N-R68W	<b>MD Reference:</b>	WELL @ 4993.0ft (Original Well Elev)
<b>Well:</b>	Brown 41-5	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	EDM den0-adp01 Server Data

Wellbore Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
- Shape									
PERMIT TARGET BH	0.00	0.00	6,200.0	-1,613.6	1,171.5	1,274,348.42	3,134,446.71	40° 5' 7.719 N	105° 1' 10.171 W
- survey misses target center by 342.2ft at 6499.3ft MD (6236.1 TVD, -1394.8 N, 910.9 E)									
- Point									
DRILL TARGET BHL	0.00	0.00	6,200.0	-1,588.6	1,146.5	1,274,373.28	3,134,421.58	40° 5' 7.966 N	105° 1' 10.492 W
- survey misses target center by 307.2ft at 6494.7ft MD (6231.5 TVD, -1394.4 N, 910.6 E)									
- Point									
New Target	0.00	0.00	7,300.0	-1,500.1	1,082.7	1,274,461.44	3,134,357.30	40° 5' 8.840 N	105° 1' 11.313 W
- survey misses target center by 125.2ft at 7570.3ft MD (7303.7 TVD, -1449.0 N, 968.5 E)									
- Point									
DRILLING BOX 400' X	0.00	0.00	7,363.0	-1,463.6	1,021.5	1,274,497.60	3,134,295.91	40° 5' 9.201 N	105° 1' 12.100 W
- survey misses target center by 53.3ft at 7631.0ft MD (7364.4 TVD, -1450.3 N, 969.8 E)									
- Rectangle (sides W400.0 H400.0 D905.0)									

Checked By: _____	Approved By: _____	Date: _____
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