



FINAL  
 Ione 2A-2H  
 135055 213155; AT  
 KB=13' @ 5059.0ft (Ensign 124)  
 Ground Elevation @ 5046.0  
 North American Datum 1983  
 Well Ione 2A-2H, True North

**M** Azimuths to True North  
 Magnetic North: 8.59°  
 Magnetic Field  
 Strength: 52816.6snT  
 Dip Angle: 66.81°  
 Date: 4/23/2013  
 Model: IGRF2010

Last Cathedral Survey @ 11,823' MD  
 Projection to Bit @ 11,873' MD  
 Ione 2A-2H PBHL P4

# Cathedral Energy Services

## Survey Report

<b>Company:</b> EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b> Well lone 2A-2H
<b>Project:</b> DJ Wattenberg	<b>TVD Reference:</b> KB=13' @ 5059.0ft (Ensign 124)
<b>Site:</b> S2-T2N-R66W (lone.)	<b>MD Reference:</b> KB=13' @ 5059.0ft (Ensign 124)
<b>Well:</b> lone 2A-2H	<b>North Reference:</b> True
<b>Wellbore:</b> HZ	<b>Survey Calculation Method:</b> Minimum Curvature
<b>Design:</b> FINAL	<b>Database:</b> USA EDM 5000 Multi Users DB

<b>Project</b> DJ Wattenberg		
<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		

<b>Site</b> S2-T2N-R66W (lone.)				
<b>Site Position:</b>	<b>Northing:</b>	1,306,798.50 ft	<b>Latitude:</b>	40.173110
<b>From:</b> Lat/Long	<b>Easting:</b>	3,209,901.52 ft	<b>Longitude:</b>	-104.748870
<b>Position Uncertainty:</b> 0.0 ft	<b>Slot Radius:</b>	13.200 in	<b>Grid Convergence:</b>	0.49 °

<b>Well</b> lone 2A-2H				
<b>Well Position</b>	<b>+N/-S</b>	0.0 ft	<b>Northing:</b>	1,306,798.47 ft
	<b>+E/-W</b>	0.0 ft	<b>Easting:</b>	3,209,901.52 ft
			<b>Longitude:</b>	-104.748870
<b>Position Uncertainty</b>		0.0 ft	<b>Wellhead Elevation:</b>	ft
			<b>Ground Level:</b>	5,046.0 ft

<b>Wellbore</b> HZ					
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	4/23/2013	8.59	66.81	52,817

<b>Design</b> FINAL				
<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>	<b>Direction (°)</b>
	0.0	0.0	0.0	180.00

<b>Survey Program</b>		<b>Date</b> 5/6/2013
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>
141.0	11,873.0	Survey #1 (HZ)
		<b>Tool Name</b>
		MWD
		<b>Description</b>
		Geolink MWD

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
141.0	0.10	175.10	141.0	-0.1	0.0	0.1	0.07	0.07	
233.0	1.10	295.50	233.0	0.2	-0.8	-0.2	1.25	1.09	
326.0	1.80	294.80	326.0	1.2	-2.9	-1.2	0.75	0.75	
419.0	2.50	296.50	418.9	2.7	-6.1	-2.7	0.76	0.75	
513.0	3.60	291.00	512.8	4.7	-10.6	-4.7	1.21	1.17	
606.0	4.00	292.80	605.6	7.0	-16.4	-7.0	0.45	0.43	
699.0	5.00	293.10	698.3	9.8	-23.1	-9.8	1.08	1.08	
792.0	6.20	291.10	790.8	13.2	-31.5	-13.2	1.31	1.29	
885.0	6.90	291.90	883.2	17.1	-41.4	-17.1	0.76	0.75	
969.0	6.90	291.10	966.6	20.8	-50.7	-20.8	0.11	0.00	
1,019.0	6.50	292.30	1,016.3	23.0	-56.2	-23.0	0.85	-0.80	
1,112.0	10.20	295.40	1,108.3	28.5	-68.5	-28.5	4.01	3.98	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well lone 2A-2H
<b>Project:</b>	DJ Wattenberg	<b>TD Reference:</b>	KB=13' @ 5059.0ft (Ensign 124)
<b>Site:</b>	S2-T2N-R66W (lone.)	<b>MVD Reference:</b>	KB=13' @ 5059.0ft (Ensign 124)
<b>Well:</b>	lone 2A-2H	<b>North Reference:</b>	True
<b>Wellbore:</b>	HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	USA EDM 5000 Multi Users DB

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
1,205.0	11.60	295.20	1,199.6	36.0	-84.4	-36.0	1.51	1.51	
1,298.0	12.70	285.40	1,290.5	42.7	-102.7	-42.7	2.51	1.18	
1,391.0	12.80	283.60	1,381.2	47.8	-122.6	-47.8	0.44	0.11	
1,484.0	14.30	289.50	1,471.6	54.1	-143.4	-54.1	2.19	1.61	
1,577.0	13.60	288.70	1,561.9	61.4	-164.6	-61.4	0.78	-0.75	
1,670.0	13.90	296.40	1,652.2	69.9	-185.0	-69.9	1.99	0.32	
1,763.0	12.20	289.70	1,742.8	78.2	-204.2	-78.2	2.44	-1.83	
1,856.0	12.10	287.50	1,833.7	84.4	-222.8	-84.4	0.51	-0.11	
1,949.0	11.50	293.30	1,924.8	91.0	-240.6	-91.0	1.43	-0.65	
2,045.0	11.30	292.00	2,018.9	98.3	-258.1	-98.3	0.34	-0.21	
2,140.0	10.70	291.80	2,112.1	105.1	-274.9	-105.1	0.63	-0.63	
2,235.0	12.40	292.50	2,205.2	112.3	-292.5	-112.3	1.80	1.79	
2,330.0	12.00	292.30	2,298.1	119.9	-311.1	-119.9	0.42	-0.42	
2,425.0	13.70	293.20	2,390.7	128.1	-330.6	-128.1	1.80	1.79	
2,520.0	13.10	292.50	2,483.1	136.7	-350.8	-136.7	0.65	-0.63	
2,615.0	11.60	291.20	2,575.9	144.2	-369.7	-144.2	1.61	-1.58	
2,710.0	11.60	292.00	2,669.0	151.3	-387.5	-151.3	0.17	0.00	
2,806.0	13.10	293.40	2,762.7	159.2	-406.4	-159.2	1.59	1.56	
2,901.0	14.50	290.60	2,855.0	167.7	-427.4	-167.7	1.63	1.47	
2,996.0	13.80	287.40	2,947.1	175.2	-449.4	-175.2	1.10	-0.74	
3,091.0	13.30	285.40	3,039.5	181.5	-470.7	-181.5	0.72	-0.53	
3,186.0	13.90	286.20	3,131.8	187.6	-492.2	-187.6	0.66	0.63	
3,281.0	13.50	296.90	3,224.1	195.8	-513.0	-195.8	2.70	-0.42	
3,375.0	12.20	293.20	3,315.8	204.7	-532.0	-204.7	1.64	-1.38	
3,470.0	11.30	291.60	3,408.8	212.1	-549.8	-212.1	1.01	-0.95	
3,565.0	11.90	297.20	3,501.8	220.0	-567.2	-220.0	1.34	0.63	
3,660.0	13.10	294.80	3,594.6	229.0	-585.7	-229.0	1.38	1.26	
3,755.0	13.10	292.20	3,687.1	237.6	-605.4	-237.6	0.62	0.00	
3,850.0	14.60	295.60	3,779.3	246.8	-626.2	-246.8	1.80	1.58	
3,945.0	12.20	293.00	3,871.8	255.9	-646.2	-255.9	2.60	-2.53	
4,040.0	14.20	291.90	3,964.2	264.2	-666.3	-264.2	2.12	2.11	
4,136.0	12.40	287.80	4,057.7	271.7	-687.0	-271.7	2.12	-1.87	
4,231.0	14.70	294.40	4,150.0	279.8	-707.7	-279.8	2.91	2.42	
4,326.0	14.10	294.10	4,242.0	289.5	-729.3	-289.5	0.64	-0.63	
4,421.0	13.70	294.30	4,334.3	298.9	-750.1	-298.9	0.42	-0.42	
4,516.0	11.70	292.10	4,426.9	307.1	-769.3	-307.1	2.17	-2.11	
4,611.0	12.00	288.80	4,519.9	313.9	-787.5	-313.9	0.78	0.32	
4,706.0	13.50	289.10	4,612.6	320.7	-807.4	-320.7	1.58	1.58	
4,800.0	12.00	288.50	4,704.2	327.4	-827.0	-327.4	1.60	-1.60	
4,895.0	14.60	288.80	4,796.7	334.4	-847.7	-334.4	2.74	2.74	
4,990.0	13.50	288.40	4,888.8	341.8	-869.6	-341.8	1.16	-1.16	
5,085.0	11.80	286.10	4,981.5	348.0	-889.4	-348.0	1.87	-1.79	
5,180.0	13.90	289.60	5,074.1	354.5	-909.5	-354.5	2.36	2.21	
5,275.0	12.10	288.70	5,166.7	361.5	-929.7	-361.5	1.91	-1.89	
5,370.0	10.70	287.30	5,259.8	367.3	-947.5	-367.3	1.50	-1.47	
5,466.0	9.60	285.60	5,354.3	372.1	-963.8	-372.1	1.19	-1.15	
5,561.0	8.60	294.80	5,448.1	377.2	-977.8	-377.2	1.86	-1.05	
5,655.0	7.10	296.10	5,541.2	382.7	-989.4	-382.7	1.61	-1.60	
5,750.0	7.60	291.20	5,635.5	387.6	-1,000.6	-387.6	0.84	0.53	
5,845.0	6.30	289.60	5,729.8	391.6	-1,011.3	-391.6	1.38	-1.37	
5,941.0	7.60	280.30	5,825.1	394.5	-1,022.5	-394.5	1.79	1.35	
6,035.0	7.00	292.50	5,918.3	397.8	-1,033.9	-397.8	1.76	-0.64	
6,130.0	5.90	290.60	6,012.7	401.8	-1,043.9	-401.8	1.18	-1.16	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well lone 2A-2H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KB=13' @ 5059.0ft (Ensign 124)
<b>Site:</b>	S2-T2N-R66W (lone.)	<b>MD Reference:</b>	KB=13' @ 5059.0ft (Ensign 124)
<b>Well:</b>	lone 2A-2H	<b>North Reference:</b>	True
<b>Wellbore:</b>	HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	USA EDM 5000 Multi Users DB

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
6,225.0	4.70	289.50	6,107.3	404.8	-1,052.1	-404.8	1.27	-1.26	
6,320.0	4.00	288.30	6,202.0	407.1	-1,058.9	-407.1	0.74	-0.74	
6,416.0	3.50	283.40	6,297.8	408.9	-1,065.0	-408.9	0.62	-0.52	
6,511.0	2.20	287.60	6,392.7	410.1	-1,069.5	-410.1	1.39	-1.37	
6,606.0	1.70	292.90	6,487.7	411.2	-1,072.5	-411.2	0.56	-0.53	
6,701.0	1.20	298.50	6,582.6	412.2	-1,074.7	-412.2	0.55	-0.53	
6,792.0	0.70	311.30	6,673.6	413.0	-1,076.0	-413.0	0.59	-0.55	
6,827.0	0.70	320.30	6,708.6	413.3	-1,076.3	-413.3	0.31	0.00	
6,859.0	1.40	210.70	6,740.6	413.1	-1,076.6	-413.1	5.51	2.19	
6,891.0	6.00	195.30	6,772.5	411.2	-1,077.2	-411.2	14.58	14.37	
6,922.0	8.90	192.10	6,803.3	407.3	-1,078.2	-407.3	9.45	9.35	
6,954.0	12.30	193.20	6,834.7	401.5	-1,079.5	-401.5	10.64	10.62	
6,986.0	15.30	188.80	6,865.8	394.0	-1,080.9	-394.0	9.93	9.37	
7,017.0	18.70	183.70	6,895.4	385.0	-1,081.8	-385.0	11.97	10.97	
7,049.0	21.20	180.40	6,925.5	374.1	-1,082.2	-374.1	8.57	7.81	
7,080.0	24.40	179.50	6,954.1	362.1	-1,082.2	-362.1	10.38	10.32	
7,112.0	27.60	180.20	6,982.8	348.1	-1,082.2	-348.1	10.05	10.00	
7,144.0	30.80	180.10	7,010.8	332.5	-1,082.2	-332.5	10.00	10.00	
7,176.0	33.70	181.30	7,037.8	315.4	-1,082.4	-315.4	9.28	9.07	
7,207.0	36.10	181.60	7,063.2	297.7	-1,082.9	-297.7	7.76	7.74	
7,239.0	39.70	180.30	7,088.5	278.0	-1,083.2	-278.0	11.52	11.25	
7,271.0	43.60	178.30	7,112.4	256.8	-1,082.9	-256.8	12.87	12.19	
7,302.0	46.40	174.80	7,134.3	234.9	-1,081.6	-234.9	12.05	9.03	
7,334.0	49.90	174.70	7,155.7	211.2	-1,079.4	-211.2	10.94	10.94	
7,366.0	52.40	175.60	7,175.7	186.4	-1,077.3	-186.4	8.11	7.81	
7,397.0	55.70	175.90	7,193.9	161.3	-1,075.4	-161.3	10.67	10.65	
7,429.0	57.90	176.80	7,211.5	134.6	-1,073.7	-134.6	7.27	6.87	
7,461.0	60.80	177.70	7,227.8	107.1	-1,072.4	-107.1	9.38	9.06	
7,492.0	62.70	178.20	7,242.4	79.8	-1,071.4	-79.8	6.29	6.13	
7,524.0	64.10	179.70	7,256.8	51.2	-1,070.9	-51.2	6.06	4.37	
7,556.0	68.70	180.00	7,269.6	21.9	-1,070.8	-21.9	14.40	14.37	
7,587.0	72.10	179.60	7,280.0	-7.3	-1,070.7	7.3	11.03	10.97	
7,619.0	76.00	179.60	7,288.8	-38.1	-1,070.5	38.1	12.19	12.19	
7,651.0	78.50	178.90	7,295.8	-69.3	-1,070.1	69.3	8.10	7.81	
7,683.0	82.90	180.20	7,301.0	-100.8	-1,069.9	100.8	14.32	13.75	
7,702.0	87.00	180.20	7,302.7	-119.8	-1,069.9	119.8	21.58	21.58	
7,765.0	91.20	181.00	7,303.7	-182.7	-1,070.6	182.7	6.79	6.67	
7,861.0	89.40	181.00	7,303.2	-278.7	-1,072.3	278.7	1.87	-1.87	
7,956.0	89.70	180.60	7,303.9	-373.7	-1,073.6	373.7	0.53	0.32	
8,051.0	87.20	179.70	7,306.5	-468.7	-1,073.8	468.7	2.80	-2.63	
8,146.0	87.10	179.70	7,311.2	-563.5	-1,073.3	563.5	0.11	-0.11	
8,241.0	86.70	179.10	7,316.3	-658.4	-1,072.4	658.4	0.76	-0.42	
8,335.0	87.50	179.70	7,321.1	-752.3	-1,071.4	752.3	1.06	0.85	
8,430.0	87.70	179.40	7,325.1	-847.2	-1,070.6	847.2	0.38	0.21	
8,525.0	87.40	179.20	7,329.1	-942.1	-1,069.5	942.1	0.38	-0.32	
8,620.0	86.80	178.50	7,333.9	-1,036.9	-1,067.6	1,036.9	0.97	-0.63	
8,715.0	88.20	179.30	7,338.1	-1,131.8	-1,065.7	1,131.8	1.70	1.47	
8,810.0	88.80	180.60	7,340.6	-1,226.8	-1,065.7	1,226.8	1.51	0.63	
8,905.0	89.50	180.00	7,342.0	-1,321.8	-1,066.2	1,321.8	0.97	0.74	
9,050.0	88.50	181.30	7,344.5	-1,466.7	-1,067.8	1,466.7	1.13	-0.69	
9,095.0	87.30	181.00	7,346.2	-1,511.7	-1,068.7	1,511.7	2.75	-2.67	
9,190.0	87.10	180.90	7,350.8	-1,606.6	-1,070.3	1,606.6	0.24	-0.21	
9,285.0	88.70	180.40	7,354.3	-1,701.5	-1,071.3	1,701.5	1.76	1.68	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well lone 2A-2H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KB=13' @ 5059.0ft (Ensign 124)
<b>Site:</b>	S2-T2N-R66W (lone.)	<b>MD Reference:</b>	KB=13' @ 5059.0ft (Ensign 124)
<b>Well:</b>	lone 2A-2H	<b>North Reference:</b>	True
<b>Wellbore:</b>	HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	USA EDM 5000 Multi Users DB

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
9,380.0	88.60	180.10	7,356.5	-1,796.5	-1,071.8	1,796.5	0.33	-0.11	
9,475.0	88.80	179.70	7,358.7	-1,891.5	-1,071.6	1,891.5	0.47	0.21	
9,570.0	89.50	179.60	7,360.1	-1,986.4	-1,071.0	1,986.4	0.74	0.74	
9,665.0	90.30	179.10	7,360.2	-2,081.4	-1,069.9	2,081.4	0.99	0.84	
9,760.0	90.70	179.20	7,359.4	-2,176.4	-1,068.5	2,176.4	0.43	0.42	
9,855.0	91.10	178.70	7,357.9	-2,271.4	-1,066.8	2,271.4	0.67	0.42	
9,950.0	91.20	180.40	7,356.0	-2,366.4	-1,066.0	2,366.4	1.79	0.11	
10,045.0	92.00	180.10	7,353.4	-2,461.3	-1,066.5	2,461.3	0.90	0.84	
10,140.0	92.10	180.90	7,350.0	-2,556.3	-1,067.3	2,556.3	0.85	0.11	
10,236.0	91.60	181.80	7,346.9	-2,652.2	-1,069.5	2,652.2	1.07	-0.52	
10,331.0	90.80	182.00	7,344.9	-2,747.1	-1,072.7	2,747.1	0.87	-0.84	
10,426.0	89.20	182.40	7,344.9	-2,842.0	-1,076.3	2,842.0	1.74	-1.68	
10,520.0	89.70	183.40	7,345.8	-2,935.9	-1,081.1	2,935.9	1.19	0.53	
10,615.0	88.70	183.00	7,347.1	-3,030.7	-1,086.4	3,030.7	1.13	-1.05	
10,710.0	88.90	182.90	7,349.1	-3,125.6	-1,091.3	3,125.6	0.24	0.21	
10,805.0	89.60	181.70	7,350.3	-3,220.5	-1,095.1	3,220.5	1.46	0.74	
10,900.0	89.70	182.00	7,350.9	-3,315.5	-1,098.2	3,315.5	0.33	0.11	
10,995.0	88.30	181.30	7,352.6	-3,410.4	-1,100.9	3,410.4	1.65	-1.47	
11,091.0	88.20	181.00	7,355.5	-3,506.3	-1,102.8	3,506.3	0.33	-0.10	
11,186.0	88.30	180.70	7,358.4	-3,601.3	-1,104.2	3,601.3	0.33	0.11	
11,281.0	88.30	179.90	7,361.2	-3,696.2	-1,104.7	3,696.2	0.84	0.00	
11,376.0	87.90	179.50	7,364.4	-3,791.2	-1,104.2	3,791.2	0.60	-0.42	
11,470.0	88.60	180.30	7,367.3	-3,885.1	-1,104.1	3,885.1	1.13	0.74	
11,565.0	89.10	179.00	7,369.2	-3,980.1	-1,103.5	3,980.1	1.47	0.53	
11,660.0	90.70	179.30	7,369.3	-4,075.1	-1,102.1	4,075.1	1.71	1.68	
11,755.0	90.10	178.60	7,368.7	-4,170.1	-1,100.3	4,170.1	0.97	-0.63	
11,823.0	89.80	177.80	7,368.7	-4,238.1	-1,098.2	4,238.1	1.26	-0.44	Last Cathedral Survey @ 11,823' MD
11,873.0	89.60	177.20	7,369.0	-4,288.0	-1,096.0	4,288.0	1.26	-0.40	Projection to Bit @ 11,873' MD

# Cathedral Energy Services

## Survey Report

<b>Company:</b> EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b> Well lone 2A-2H
<b>Project:</b> DJ Wattenberg	<b>TVD Reference:</b> KB=13' @ 5059.0ft (Ensign 124)
<b>Site:</b> S2-T2N-R66W (lone.)	<b>MD Reference:</b> KB=13' @ 5059.0ft (Ensign 124)
<b>Well:</b> lone 2A-2H	<b>North Reference:</b> True
<b>Wellbore:</b> HZ	<b>Survey Calculation Method:</b> Minimum Curvature
<b>Design:</b> FINAL	<b>Database:</b> USA EDM 5000 Multi Users DB

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									
lone 2A-2H PBHL P4 - actual wellpath misses target center by 52.1ft at 11873.0ft MD (7369.0 TVD, -4288.0 N, -1096.0 E) - Point	0.00	0.00	7,370.0	-4,329.5	-1,064.6	1,302,460.11	3,208,873.67	40.161225	-104.752679
lone 2A-2H 7800' TGT - actual wellpath misses target center by 6.2ft at 7755.4ft MD (7303.8 TVD, -173.1 N, -1070.4 E) - Point	0.00	0.00	7,310.0	-173.0	-1,071.2	1,306,616.42	3,208,831.82	40.172635	-104.752703
lone 2A-2H LP - actual wellpath misses target center by 3.6ft at 7774.3ft MD (7303.5 TVD, -192.0 N, -1070.8 E) - Point	0.00	0.00	7,307.0	-192.0	-1,071.4	1,306,597.41	3,208,831.79	40.172583	-104.752704
lone 2A-2H 9700' TGT - actual wellpath misses target center by 31.6ft at 9656.2ft MD (7360.3 TVD, -2072.6 N, -1070.1 E) - Point	0.00	0.00	7,355.0	-2,073.0	-1,101.2	1,304,716.23	3,208,817.92	40.167419	-104.752810
lone 2A-2H PBHL (460'   - actual wellpath misses target center by 32.8ft at 11873.0ft MD (7369.0 TVD, -4288.0 N, -1096.0 E) - Point	0.00	0.00	7,370.0	-4,320.3	-1,101.2	1,302,468.96	3,208,836.96	40.161250	-104.752810
lone 2A-2H PBHL P2 - actual wellpath misses target center by 89.7ft at 11873.0ft MD (7369.0 TVD, -4288.0 N, -1096.0 E) - Point	0.00	0.00	7,296.0	-4,329.5	-1,064.6	1,302,460.11	3,208,873.67	40.161225	-104.752679
lone 2A-2H PBHL (460'   - actual wellpath misses target center by 80.0ft at 11873.0ft MD (7369.0 TVD, -4288.0 N, -1096.0 E) - Point	0.00	0.00	7,296.0	-4,320.3	-1,101.2	1,302,468.96	3,208,836.96	40.161250	-104.752810
lone 2A-2H 10,200' TGT - actual wellpath misses target center by 39.5ft at 10156.9ft MD (7349.4 TVD, -2573.1 N, -1067.6 E) - Point	0.00	0.00	7,370.0	-2,573.0	-1,101.2	1,304,216.25	3,208,822.16	40.166047	-104.752810
lone 2A-2H 8200' TGT - actual wellpath misses target center by 28.0ft at 8155.1ft MD (7311.7 TVD, -572.6 N, -1073.3 E) - Point	0.00	0.00	7,310.0	-573.0	-1,101.2	1,306,216.18	3,208,805.22	40.171537	-104.752811
lone 2A-2H 9100' TGT - actual wellpath misses target center by 25.4ft at 9057.1ft MD (7344.7 TVD, -1473.8 N, -1068.0 E) - Point	0.00	0.00	7,355.0	-1,473.0	-1,091.2	1,305,316.30	3,208,822.84	40.169066	-104.752775
lone 2A-2H PBHL P3 - actual wellpath misses target center by 98.0ft at 11873.0ft MD (7369.0 TVD, -4288.0 N, -1096.0 E) - Point	0.00	0.00	7,286.0	-4,329.5	-1,064.6	1,302,460.11	3,208,873.67	40.161225	-104.752679

Design Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(ft)	(ft)	+N/-S (ft)	+E/-W (ft)	
11,823.0	7,368.7	-4,238.1	-1,098.2	Last Cathedral Survey @ 11,823' MD
11,873.0	7,369.0	-4,288.0	-1,096.0	Projection to Bit @ 11,873' MD

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_