

# Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 9-T2N-R65W

Thomason 2N-9HZ

Plan B Rev 0

Design: Actual Field Surveys

## Sperry Drilling Services

# Standard Report

30 October, 2012

Well Coordinates: 1,297,453.71 N, 3,232,762.30 E (40° 08' 48.86" N, 104° 40' 02.48" W)

Ground Level: 4,880.00 ft

Local Coordinate Origin:

Centered on Well Thomason 2N-9HZ

Viewing Datum:

RKB=16ft @ 4896.00ft (Xtreme 22)

TVDs to System:

N

North Reference:

True

Unit System:

API - US Survey Feet - Custom

Geodetic Scale Factor Applied

Version: 2003.16 Build: 43I

**HALLIBURTON**

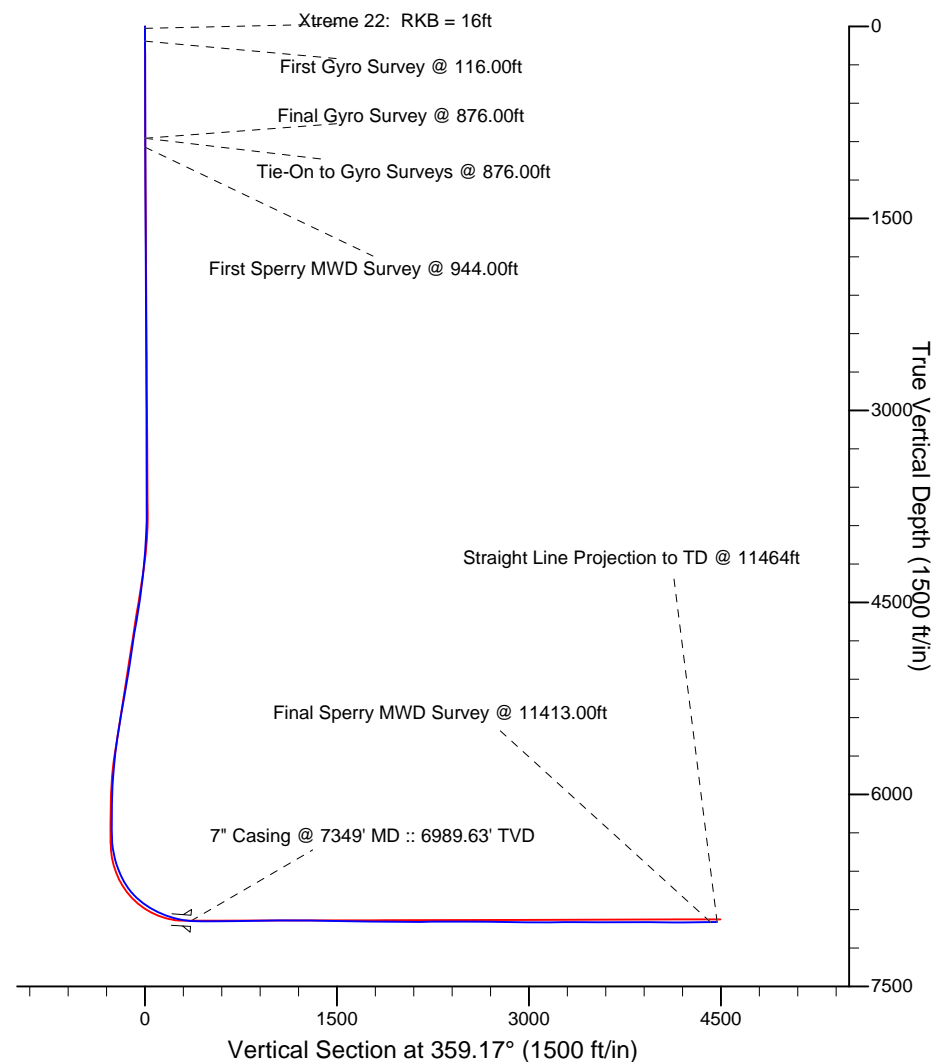
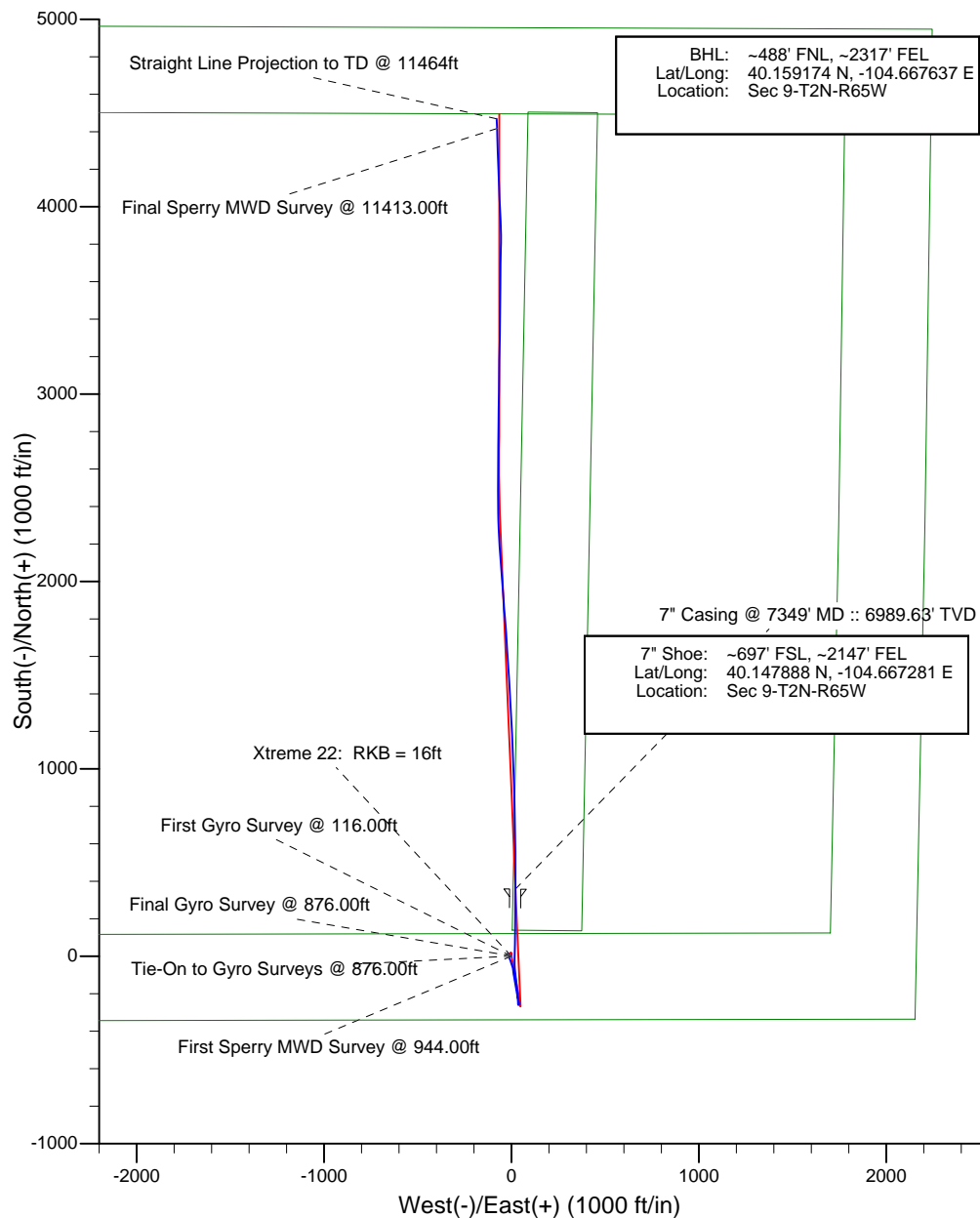
Project: Weld County, CO (NAD 83)  
Site: Sec. 9-T2N-R65W  
Well: Thomason 2N-9HZ



**HALLIBURTON**  
Sperry Drilling

# LEGEND

- Thomason 2N-9HZ, Plan B Rev 0, Plan B Rev 0 Proposal V0
- Actual Field Surveys



**Design Report for Thomason 2N-9HZ - Actual Field Surveys**

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16.00	0.00	0.00	16.00	0.00	0.00	0.00	0.00
<b>Xtreme 22: RKB = 16ft</b>							
116.00	0.26	15.16	116.00	0.22	0.06	0.22	0.26
<b>First Gyro Survey @ 116.00ft</b>							
216.00	0.44	331.18	216.00	0.77	-0.07	0.78	0.31
316.00	0.24	142.30	316.00	0.95	-0.12	0.95	0.68
416.00	0.43	55.72	416.00	0.99	0.31	0.99	0.48
516.00	0.08	23.60	515.99	1.27	0.65	1.26	0.36
616.00	0.12	240.34	615.99	1.28	0.59	1.27	0.19
716.00	0.51	117.56	715.99	1.02	0.89	1.01	0.58
816.00	0.44	6.59	815.99	1.20	1.33	1.18	0.78
876.00	0.37	349.20	875.99	1.62	1.32	1.60	0.23
<b>Tie-On to Gyro Surveys @ 876.00ft - Final Gyro Survey @ 876.00ft</b>							
944.00	0.32	308.70	943.99	1.95	1.13	1.93	0.36
<b>First Sperry MWD Survey @ 944.00ft</b>							
1,005.00	0.32	330.01	1,004.99	2.20	0.91	2.19	0.19
1,095.00	0.51	305.02	1,094.99	2.65	0.46	2.64	0.29
1,186.00	0.70	286.65	1,185.98	3.04	-0.40	3.05	0.30
1,275.00	0.83	298.12	1,274.97	3.50	-1.49	3.52	0.23
1,366.00	0.87	293.57	1,365.96	4.09	-2.71	4.13	0.09
1,637.00	1.39	286.22	1,636.91	5.83	-7.75	5.94	0.20
1,909.00	1.16	299.52	1,908.84	8.11	-13.31	8.30	0.14
2,180.00	0.25	204.40	2,179.82	8.92	-15.94	9.15	0.45
2,437.00	0.49	191.98	2,436.82	7.34	-16.40	7.57	0.10
2,694.00	1.08	38.18	2,693.81	8.16	-15.13	8.38	0.60
2,952.00	0.28	119.60	2,951.79	9.76	-13.08	9.95	0.42
3,209.00	0.95	40.26	3,208.78	11.08	-11.16	11.24	0.37
3,466.00	0.93	296.34	3,465.76	13.63	-11.65	13.80	0.58
3,724.00	1.79	279.18	3,723.68	15.20	-17.51	15.46	0.37
3,809.00	1.34	214.42	3,808.65	14.60	-19.38	14.87	2.02
3,895.00	2.56	161.30	3,894.61	11.95	-19.33	12.22	2.39
3,981.00	3.10	157.51	3,980.50	7.98	-17.83	8.24	0.66
4,067.00	4.52	159.34	4,066.31	2.66	-15.74	2.89	1.66
4,152.00	5.14	158.54	4,151.01	-4.02	-13.17	-3.83	0.73
4,238.00	5.98	156.46	4,236.60	-11.71	-9.97	-11.57	1.00
4,324.00	6.45	156.23	4,322.10	-20.24	-6.23	-20.15	0.55
4,410.00	7.94	160.54	4,407.42	-30.26	-2.31	-30.22	1.84
4,495.00	8.92	161.20	4,491.50	-42.03	1.77	-42.06	1.16
4,581.00	9.57	166.79	4,576.38	-55.31	5.56	-55.38	1.29
4,666.00	10.08	169.30	4,660.14	-69.49	8.55	-69.61	0.78
4,752.00	9.15	173.22	4,744.93	-83.68	10.76	-83.83	1.32
4,838.00	8.20	173.87	4,829.95	-96.57	12.22	-96.73	1.11
4,924.00	8.83	169.40	4,915.00	-109.15	14.09	-109.35	1.06
5,009.00	8.51	172.02	4,999.03	-121.80	16.16	-122.02	0.60
5,095.00	9.53	167.51	5,083.96	-135.05	18.58	-135.30	1.44
5,181.00	10.49	168.68	5,168.65	-149.68	21.66	-149.97	1.14
5,267.00	10.09	170.91	5,253.27	-164.79	24.39	-165.13	0.66
5,352.00	9.68	170.62	5,337.01	-179.19	26.73	-179.56	0.49
5,438.00	9.56	172.19	5,421.80	-193.40	28.88	-193.80	0.34

**Design Report for Thomason 2N-9HZ - Actual Field Surveys**

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
5,524.00	8.94	169.35	5,506.68	-207.05	31.08	-207.47	0.90
5,610.00	8.70	165.67	5,591.66	-219.91	33.93	-220.38	0.71
5,695.00	6.20	168.02	5,675.94	-230.63	36.47	-231.14	2.96
5,781.00	6.05	163.42	5,761.45	-239.52	38.73	-240.06	0.60
5,867.00	4.38	169.24	5,847.09	-247.09	40.64	-247.65	2.03
5,953.00	3.42	179.62	5,932.89	-252.88	41.27	-253.45	1.38
6,038.00	2.16	195.84	6,017.79	-256.96	40.85	-257.52	1.74
6,124.00	1.14	218.59	6,103.76	-259.19	39.87	-259.74	1.39
6,210.00	0.66	292.95	6,189.75	-259.66	38.88	-260.20	1.34
6,295.00	0.90	271.01	6,274.74	-259.46	37.76	-259.98	0.45
6,381.00	2.69	342.58	6,360.70	-257.52	36.48	-258.02	2.97
6,426.00	8.15	354.97	6,405.48	-253.33	35.89	-253.83	12.34
6,467.00	9.94	354.63	6,445.97	-246.92	35.30	-247.40	4.37
6,510.00	13.01	0.41	6,488.11	-238.38	34.99	-238.86	7.62
6,552.00	16.53	358.13	6,528.71	-227.68	34.83	-228.16	8.49
6,595.00	19.72	357.40	6,569.58	-214.31	34.30	-214.79	7.44
6,638.00	22.73	353.70	6,609.66	-198.80	33.06	-199.26	7.66
6,683.00	25.87	352.88	6,650.66	-180.42	30.88	-180.84	7.02
6,724.00	30.07	353.45	6,686.87	-161.33	28.60	-161.72	10.26
6,769.00	35.03	353.75	6,724.79	-137.27	25.91	-137.63	11.03
6,810.00	39.37	353.47	6,757.44	-112.64	23.15	-112.97	10.59
6,852.00	43.81	353.89	6,788.84	-84.94	20.08	-85.22	10.59
6,894.00	47.20	357.05	6,818.28	-55.09	17.74	-55.34	9.69
6,935.00	52.26	0.35	6,844.77	-23.83	17.07	-24.07	13.78
6,981.00	57.09	1.71	6,871.37	13.68	17.75	13.43	10.77
7,024.00	60.72	1.09	6,893.57	50.49	18.65	50.21	8.53
7,067.00	64.84	1.07	6,913.23	88.71	19.37	88.42	9.58
7,110.00	67.44	0.57	6,930.63	128.03	19.93	127.73	6.14
7,152.00	68.66	0.34	6,946.33	166.98	20.24	166.67	2.95
7,196.00	71.28	359.52	6,961.39	208.32	20.19	208.00	6.21
7,238.00	75.49	0.26	6,973.40	248.55	20.11	248.24	10.16
7,280.00	80.58	0.55	6,982.11	289.63	20.40	289.30	12.14
7,305.00	83.18	0.54	6,985.64	314.37	20.64	314.04	10.40
7,349.00	86.40	0.28	6,989.63	358.18	20.95	357.84	7.33
<b>7" Casing @ 7349' MD :: 6989.63' TVD</b>							
7,389.00	89.32	0.05	6,991.13	398.15	21.07	397.81	7.33
7,432.00	88.95	0.46	6,991.78	441.15	21.26	440.79	1.28
7,517.00	90.80	359.73	6,991.96	526.14	21.40	525.78	2.34
7,603.00	91.17	359.36	6,990.48	612.13	20.72	611.76	0.61
7,689.00	90.00	359.15	6,989.61	698.11	19.60	697.76	1.38
7,774.00	89.94	358.38	6,989.65	783.09	17.77	782.75	0.91
7,860.00	91.17	358.08	6,988.82	869.05	15.11	868.74	1.47
7,946.00	91.55	358.13	6,986.78	954.97	12.27	954.70	0.45
8,032.00	90.56	357.95	6,985.19	1,040.91	9.33	1,040.66	1.17
8,118.00	89.63	358.34	6,985.05	1,126.86	6.55	1,126.65	1.17
8,203.00	89.07	356.86	6,986.01	1,211.78	2.99	1,211.61	1.86
8,289.00	89.63	356.96	6,986.99	1,297.65	-1.65	1,297.54	0.66
8,375.00	88.45	356.34	6,988.43	1,383.49	-6.67	1,383.44	1.55
8,460.00	89.32	355.93	6,990.09	1,468.28	-12.40	1,468.30	1.13
8,546.00	89.38	356.52	6,991.06	1,554.08	-18.06	1,554.18	0.69
8,631.00	89.88	357.07	6,991.61	1,638.95	-22.82	1,639.11	0.87

**Design Report for Thomason 2N-9HZ - Actual Field Surveys**

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
8,717.00	88.52	356.08	6,992.81	1,724.78	-27.95	1,725.01	1.96
8,803.00	89.13	354.63	6,994.57	1,810.48	-34.92	1,810.80	1.83
8,889.00	89.44	355.98	6,995.65	1,896.18	-41.95	1,896.59	1.61
8,974.00	89.69	356.03	6,996.29	1,980.97	-47.88	1,981.46	0.30
9,060.00	89.94	355.98	6,996.57	2,066.76	-53.87	2,067.33	0.30
9,146.00	90.56	355.69	6,996.20	2,152.54	-60.11	2,153.18	0.80
9,232.00	90.43	356.85	6,995.45	2,238.35	-65.71	2,239.07	1.36
9,318.00	90.37	358.36	6,994.85	2,324.27	-69.30	2,325.03	1.76
9,403.00	89.63	359.69	6,994.85	2,409.25	-70.75	2,410.03	1.79
9,489.00	90.00	359.66	6,995.13	2,495.25	-71.24	2,496.02	0.43
9,575.00	89.51	0.43	6,995.50	2,581.25	-71.17	2,582.01	1.06
9,660.00	90.06	0.75	6,995.82	2,666.25	-70.29	2,666.98	0.75
9,746.00	89.13	0.68	6,996.42	2,752.24	-69.22	2,752.95	1.08
9,832.00	88.95	0.68	6,997.86	2,838.22	-68.20	2,838.91	0.21
9,918.00	88.64	0.75	6,999.67	2,924.19	-67.13	2,924.86	0.37
10,003.00	90.12	0.49	7,000.59	3,009.18	-66.21	3,009.82	1.77
10,089.00	90.06	0.67	7,000.46	3,095.17	-65.34	3,095.80	0.22
10,175.00	90.56	0.85	6,999.99	3,181.17	-64.20	3,181.76	0.62
10,260.00	90.93	1.00	6,998.89	3,266.15	-62.82	3,266.71	0.47
10,346.00	89.81	1.10	6,998.33	3,352.13	-61.25	3,352.66	1.31
10,432.00	89.69	0.63	6,998.71	3,438.12	-59.95	3,438.63	0.56
10,517.00	89.69	0.55	6,999.17	3,523.11	-59.07	3,523.60	0.09
10,603.00	89.69	0.29	6,999.63	3,609.11	-58.44	3,609.58	0.30
10,689.00	90.25	0.57	6,999.68	3,695.11	-57.80	3,695.56	0.73
10,774.00	90.93	1.46	6,998.80	3,780.09	-56.29	3,780.51	1.32
10,860.00	89.94	359.27	6,998.15	3,866.08	-55.74	3,866.48	2.79
10,946.00	88.58	357.40	6,999.26	3,952.03	-58.24	3,952.46	2.69
11,032.00	89.26	357.09	7,000.88	4,037.91	-62.38	4,038.39	0.87
11,117.00	90.06	357.73	7,001.39	4,122.82	-66.22	4,123.35	1.21
11,203.00	90.68	358.17	7,000.83	4,208.77	-69.29	4,209.33	0.88
11,289.00	90.86	357.95	6,999.67	4,294.71	-72.20	4,295.30	0.33
11,374.00	90.74	358.02	6,998.49	4,379.65	-75.19	4,380.28	0.16
11,413.00	91.18	357.81	6,997.83	4,418.62	-76.61	4,419.26	1.25
<b>Final Sperry MWD Survey @ 11413.00ft</b>							
11,464.00	91.18	357.81	6,996.78	4,469.57	-78.56	4,470.24	0.00
<b>Straight Line Projection to TD @ 11464ft</b>							

**Design Annotations**

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
16.00	16.00	0.00	0.00	Xtreme 22: RKB = 16ft
116.00	116.00	0.22	0.06	First Gyro Survey @ 116.00ft
876.00	875.99	1.62	1.32	Tie-On to Gyro Surveys @ 876.00ft
876.00	875.99	1.62	1.32	Final Gyro Survey @ 876.00ft
944.00	943.99	1.95	1.13	First Sperry MWD Survey @ 944.00ft
11,413.00	6,997.83	4,418.62	-76.61	Final Sperry MWD Survey @ 11413.00ft
11,464.00	6,996.78	4,469.57	-78.56	Straight Line Projection to TD @ 11464ft

## Design Report for Thomason 2N-9HZ - Actual Field Surveys

### Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/_S (ft)	Origin +E/-W (ft)	Start TVD (ft)
Target	Thomason 2N-9HZ_BHL ReLoc	359.17	Slot	0.00	0.00	0.00

### Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
16.00	876.00	Surface Gyros	NS-GYRO-MS
944.00	7,305.00	Sperry MWD Surveys - Vert/Build	MWD+SC
7,389.00	11,413.00	Sperry MWD Surveys - Lateral	MWD+SC

### Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,349.00	6,989.63	7" Casing @ 7349' MD :: 6989.63' TVD	7	8-3/4

## Design Report for Thomason 2N-9HZ - Actual Field Surveys

### 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
Thomason 2N-9HZ_ - actual wellpath hits target center - Point	0.00	0.00	0.00	0.00	0.00	1,297,453.71	3,232,762.30	40.146905	-104.667356
Thomason 2N-9HZ_ - actual wellpath misses target center by 35.27ft at 11464.00ft MD (6996.78 TVD, 4469.57 N, -78.56 E) - Point	0.00	0.00	6,977.00	4,495.43	-65.00	1,301,948.14	3,232,655.09	40.159245	-104.667589
Thomason 2N-9HZ_ - actual wellpath misses target center by 14.30ft at 9493.70ft MD (6995.13 TVD, 2499.95 N, -71.26 E) - Point	0.00	0.00	6,982.27	2,500.00	-65.00	1,299,952.89	3,232,673.83	40.153767	-104.667589
Thomason 2N-9HZ_ - actual wellpath hits target center - Polygon Point 1 Point 2 Point 3 Point 4	0.00	0.00	0.00	0.00	0.00	1,297,453.71	3,232,762.30	40.146905	-104.667356
				4.79	139.93	1,297,593.67	3,232,765.77		
				375.79	136.45	1,297,593.68	3,233,136.77		
				459.50	4,502.43	1,301,960.07	3,233,179.48		
				88.50	4,505.91	1,301,960.06	3,232,808.48		
Thomason 2N-9HZ_ - actual wellpath hits target center - Polygon Point 1 Point 2 Point 3 Point 4 Point 5 Point 6 Point 7 Point 8	0.00	0.00	0.00	0.00	0.00	1,297,453.71	3,232,762.30	40.146905	-104.667356
				2,153.51	-335.26	1,297,138.70	3,234,918.77		
				-459.69	-339.72	1,297,109.70	3,232,305.84		
				-3,085.76	-344.20	1,297,080.57	3,229,680.03		
				-3,033.58	2,289.87	1,299,714.90	3,229,707.48		
				-3,046.30	4,966.24	1,302,390.92	3,229,669.63		
				-400.14	4,957.30	1,302,406.83	3,232,315.65		
				2,245.83	4,948.50	1,302,422.87	3,234,961.47		
				2,206.37	2,293.03	1,299,767.26	3,234,946.95		
Thomason 2N-9HZ_ - actual wellpath hits target center - Polygon Point 1 Point 2 Point 3 Point 4 Point 5 Point 6 Point 7 Point 8	0.00	0.00	0.00	0.00	0.00	1,297,453.71	3,232,762.30	40.146905	-104.667356
				1,702.63	123.99	1,297,593.68	3,234,463.62		
				-453.08	120.31	1,297,569.76	3,232,308.13		
				-2,621.85	116.61	1,297,545.69	3,230,139.58		
				-2,603.55	2,290.17	1,299,719.24	3,230,137.47		
				-2,589.25	4,504.67	1,301,933.68	3,230,130.97		
				-403.89	4,497.29	1,301,946.82	3,232,316.21		
				1,778.95	4,490.03	1,301,960.06	3,234,498.94		
				1,746.25	2,292.81	1,299,762.72	3,234,486.87		
Thomason 2N-9HZ_ - actual wellpath misses target center by 192.03ft at 11464.00ft MD (6996.78 TVD, 4469.57 N, -78.56 E) - Point	0.00	0.00	6,977.00	4,495.43	110.69	1,301,949.80	3,232,830.76	40.159245	-104.666960

## North Reference Sheet for Sec. 9-T2N-R65W - Thomason 2N-9HZ - Plan B Rev 0

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to True North Reference.

Vertical Depths are relative to RKB=16ft @ 4896.00ft (Xtreme 22). Northing and Easting are relative to Thomason 2N-9HZ

Coordinate System is US State Plane 1983, Colorado Northern Zone using datum North American Datum 1983, ellipsoid GRS 1980

Projection method is Lambert Conformal Conic (2 parallel)

Central Meridian is -105.500000°, Longitude Origin:0.000000°, Latitude Origin:40.783333°

False Easting: 3,000,000.00ft, False Northing: 1,000,000.00ft, Scale Reduction: 0.99995848

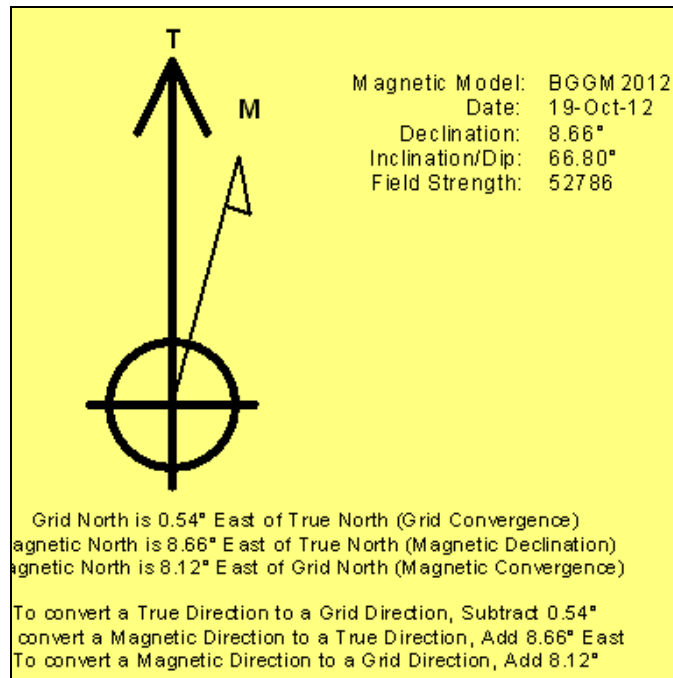
Grid Coordinates of Well: 1,297,453.71 ft N, 3,232,762.30 ft E

Geographical Coordinates of Well: 40° 08' 48.86" N, 104° 40' 02.48" W

Grid Convergence at Surface is: 0.54°

Based upon Minimum Curvature type calculations, at a Measured Depth of 11,464.00ft  
the Bottom Hole Displacement is 4,470.26ft in the Direction of 358.99° (True).

Magnetic Convergence at surface is: -8.12° (19 October 2012, , BGGM2012)





# **Anadarko Petroleum Corp.**

**Weld County, CO (NAD 83)**

**Sec. 9-T2N-R65W**

**Thomason 2N-9HZ**

**Plan B Rev 0**

**Design: Actual Field Surveys**

## **Survey Report - Geographic**

**30 October, 2012**

# Halliburton Company

## Survey Report - Geographic

<b>Company:</b>	Anadarko Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Thomason 2N-9HZ
<b>Project:</b>	Weld County, CO (NAD 83)	<b>TVD Reference:</b>	RKB=16ft @ 4896.00ft (Xtreme 22)
<b>Site:</b>	Sec. 9-T2N-R65W	<b>MD Reference:</b>	RKB=16ft @ 4896.00ft (Xtreme 22)
<b>Well:</b>	Thomason 2N-9HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Plan B Rev 0	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Actual Field Surveys	<b>Database:</b>	EDM 2003.16 Single User Db

<b>Project</b>	Weld County, CO (NAD 83)		
<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

Site	Sec. 9-T2N-R65W				
Site Position:		Northing:	1,297,400.69ft	Latitude:	40.146712
From:	Lat/Long	Easting:	3,234,593.37 ft	Longitude:	-104.660808
Position Uncertainty:	0.00 ft	Slot Radius:	"	Grid Convergence:	0.54 °

Well	Thomason 2N-9HZ					
Well Position	+N-S	0.00 ft	Northing:	1,297,453.71 ft	Latitude:	40.146905
	+E-W	0.00 ft	Easting:	3,232,762.30 ft	Longitude:	-104.667356
Position Uncertainty		3.28 ft	Wellhead Elevation:	ft	Ground Level:	4,880.00 ft

<b>Wellbore</b>	Plan B Rev 0				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	BGGM2012	2012-10-19	8.66	66.80	52,786

Design		Actual Field Surveys			
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N-S (ft)	+E-W (ft)	Direction (°)	
	0.00	0.00	0.00	359.17	

<b>Survey Program</b>	<b>Date</b>	2012-10-30			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
16.00	876.00	Surface Gyros (Plan B Rev 0)	NS-GYRO-MS	North sensing gyrocompassing m/s	
944.00	7,305.00	Sperry MWD Surveys - Vert/Build (Plan B	MWD+SC	Fixed:v2:standard dec & axial correction	
7,389.00	11,413.00	Sperry MWD Surveys - Lateral (Plan B Re	MWD+SC	Fixed:v2:standard dec & axial correction	

# Halliburton Company

## Survey Report - Geographic

<b>Company:</b>	Anadarko Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Thomason 2N-9HZ
<b>Project:</b>	Weld County, CO (NAD 83)	<b>TVD Reference:</b>	RKB=16ft @ 4896.00ft (Xtreme 22)
<b>Site:</b>	Sec. 9-T2N-R65W	<b>MD Reference:</b>	RKB=16ft @ 4896.00ft (Xtreme 22)
<b>Well:</b>	Thomason 2N-9HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Plan B Rev 0	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Actual Field Surveys	<b>Database:</b>	EDM 2003.16 Single User Db

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (ft)	Map Easting (ft)	Latitude	Longitude	
0.00	0.00	0.00	0.00	0.00	0.00	1,297,453.71	3,232,762.30	40.146905	-104.667356	
16.00	0.00	0.00	16.00	0.00	0.00	1,297,453.71	3,232,762.30	40.146905	-104.667356	
Xtreme 22: RKB = 16ft										
116.00	0.26	15.16	116.00	0.22	0.06	1,297,453.93	3,232,762.35	40.146906	-104.667356	
First Gyro Survey @ 116.00ft										
216.00	0.44	331.18	216.00	0.77	-0.07	1,297,454.48	3,232,762.22	40.146907	-104.667356	
316.00	0.24	142.30	316.00	0.95	-0.12	1,297,454.65	3,232,762.16	40.146908	-104.667356	
416.00	0.43	55.72	416.00	0.99	0.31	1,297,454.70	3,232,762.60	40.146908	-104.667355	
516.00	0.08	23.60	515.99	1.27	0.65	1,297,454.98	3,232,762.94	40.146908	-104.667354	
616.00	0.12	240.34	615.99	1.28	0.59	1,297,454.99	3,232,762.87	40.146908	-104.667354	
716.00	0.51	117.56	715.99	1.02	0.89	1,297,454.74	3,232,763.18	40.146908	-104.667353	
816.00	0.44	6.59	815.99	1.20	1.33	1,297,454.92	3,232,763.62	40.146908	-104.667351	
876.00	0.37	349.20	875.99	1.62	1.32	1,297,455.34	3,232,763.60	40.146909	-104.667351	
Tie-On to Gyro Surveys @ 876.00ft - Final Gyro Survey @ 876.00ft										
944.00	0.32	308.70	943.99	1.95	1.13	1,297,455.67	3,232,763.41	40.146910	-104.667352	
First Sperry MWD Survey @ 944.00ft										
1,005.00	0.32	330.01	1,004.99	2.20	0.91	1,297,455.92	3,232,763.19	40.146911	-104.667353	
1,095.00	0.51	305.02	1,094.99	2.65	0.46	1,297,456.36	3,232,762.73	40.146912	-104.667354	
1,186.00	0.70	286.65	1,185.98	3.04	-0.40	1,297,456.75	3,232,761.87	40.146913	-104.667357	
1,275.00	0.83	298.12	1,274.97	3.50	-1.49	1,297,457.20	3,232,760.77	40.146915	-104.667361	
1,366.00	0.87	293.57	1,365.96	4.09	-2.71	1,297,457.77	3,232,759.55	40.146916	-104.667366	
1,637.00	1.39	286.22	1,636.91	5.83	-7.75	1,297,459.47	3,232,754.49	40.146921	-104.667384	
1,909.00	1.16	299.52	1,908.84	8.11	-13.31	1,297,461.69	3,232,748.91	40.146927	-104.667404	
2,180.00	0.25	204.40	2,179.82	8.92	-15.94	1,297,462.48	3,232,746.27	40.146929	-104.667413	
2,437.00	0.49	191.98	2,436.82	7.34	-16.40	1,297,460.89	3,232,745.83	40.146925	-104.667415	
2,694.00	1.08	38.18	2,693.81	8.16	-15.13	1,297,461.73	3,232,747.09	40.146927	-104.667410	
2,952.00	0.28	119.60	2,951.79	9.76	-13.08	1,297,463.35	3,232,749.12	40.146932	-104.667403	
3,209.00	0.95	40.26	3,208.78	11.08	-11.16	1,297,464.68	3,232,751.03	40.146935	-104.667396	
3,466.00	0.93	296.34	3,465.76	13.63	-11.65	1,297,467.23	3,232,750.52	40.146942	-104.667398	
3,724.00	1.79	279.18	3,723.68	15.20	-17.51	1,297,468.75	3,232,744.65	40.146947	-104.667419	
3,809.00	1.34	214.42	3,808.65	14.60	-19.38	1,297,468.12	3,232,742.78	40.146945	-104.667425	
3,895.00	2.56	161.30	3,894.61	11.95	-19.33	1,297,465.47	3,232,742.85	40.146938	-104.667425	
3,981.00	3.10	157.51	3,980.50	7.98	-17.83	1,297,461.52	3,232,744.40	40.146927	-104.667420	
4,067.00	4.52	159.34	4,066.31	2.66	-15.74	1,297,456.22	3,232,746.53	40.146912	-104.667412	
4,152.00	5.14	158.54	4,151.01	-4.02	-13.17	1,297,449.57	3,232,749.17	40.146894	-104.667403	
4,238.00	5.98	156.46	4,236.60	-11.71	-9.97	1,297,441.91	3,232,752.44	40.146873	-104.667392	
4,324.00	6.45	156.23	4,322.10	-20.24	-6.23	1,297,433.41	3,232,756.26	40.146849	-104.667378	
4,410.00	7.94	160.54	4,407.42	-30.26	-2.31	1,297,423.43	3,232,760.28	40.146822	-104.667364	
4,495.00	8.92	161.20	4,491.50	-42.03	1.77	1,297,411.70	3,232,764.46	40.146790	-104.667350	
4,581.00	9.57	166.79	4,576.38	-55.31	5.56	1,297,398.46	3,232,768.37	40.146753	-104.667336	
4,666.00	10.08	169.30	4,660.14	-69.49	8.55	1,297,384.30	3,232,771.50	40.146714	-104.667325	
4,752.00	9.15	173.22	4,744.93	-83.68	10.76	1,297,370.14	3,232,773.84	40.146675	-104.667318	
4,838.00	8.20	173.87	4,829.95	-96.57	12.22	1,297,357.26	3,232,775.42	40.146640	-104.667312	
4,924.00	8.83	169.40	4,915.00	-109.15	14.09	1,297,344.70	3,232,777.41	40.146605	-104.667306	
5,009.00	8.51	172.02	4,999.03	-121.80	16.16	1,297,332.08	3,232,779.60	40.146571	-104.667298	
5,095.00	9.53	167.51	5,083.96	-135.05	18.58	1,297,318.85	3,232,782.15	40.146534	-104.667290	
5,181.00	10.49	168.68	5,168.65	-149.68	21.66	1,297,304.25	3,232,785.36	40.146494	-104.667279	
5,267.00	10.09	170.91	5,253.27	-164.79	24.39	1,297,289.16	3,232,788.23	40.146453	-104.667269	
5,352.00	9.68	170.62	5,337.01	-179.19	26.73	1,297,274.78	3,232,790.71	40.146413	-104.667260	
5,438.00	9.56	172.19	5,421.80	-193.40	28.88	1,297,260.59	3,232,792.99	40.146374	-104.667253	
5,524.00	8.94	169.35	5,506.68	-207.05	31.08	1,297,246.97	3,232,795.32	40.146337	-104.667245	
5,610.00	8.70	165.67	5,591.66	-219.91	33.93	1,297,234.13	3,232,798.29	40.146301	-104.667235	
5,695.00	6.20	168.02	5,675.94	-230.63	36.47	1,297,223.44	3,232,800.93	40.146272	-104.667226	
5,781.00	6.05	163.42	5,761.45	-239.52	38.73	1,297,214.57	3,232,803.27	40.146247	-104.667217	
5,867.00	4.38	169.24	5,847.09	-247.09	40.64	1,297,207.02	3,232,805.25	40.146227	-104.667211	

# Halliburton Company

## Survey Report - Geographic

<b>Company:</b>	Anadarko Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Thomason 2N-9HZ
<b>Project:</b>	Weld County, CO (NAD 83)	<b>TVD Reference:</b>	RKB=16ft @ 4896.00ft (Xtreme 22)
<b>Site:</b>	Sec. 9-T2N-R65W	<b>MD Reference:</b>	RKB=16ft @ 4896.00ft (Xtreme 22)
<b>Well:</b>	Thomason 2N-9HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Plan B Rev 0	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Actual Field Surveys	<b>Database:</b>	EDM 2003.16 Single User Db

### Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (ft)	Map Easting (ft)	Latitude	Longitude
5,953.00	3.42	179.62	5,932.89	-252.88	41.27	1,297,201.24	3,232,805.93	40.146211	-104.667208
6,038.00	2.16	195.84	6,017.79	-256.96	40.85	1,297,197.16	3,232,805.55	40.146200	-104.667210
6,124.00	1.14	218.59	6,103.76	-259.19	39.87	1,297,194.92	3,232,804.60	40.146193	-104.667213
6,210.00	0.66	292.95	6,189.75	-259.66	38.88	1,297,194.43	3,232,803.61	40.146192	-104.667217
6,295.00	0.90	271.01	6,274.74	-259.46	37.76	1,297,194.63	3,232,802.49	40.146193	-104.667221
6,381.00	2.69	342.58	6,360.70	-257.52	36.48	1,297,196.55	3,232,801.19	40.146198	-104.667226
6,426.00	8.15	354.97	6,405.48	-253.33	35.89	1,297,200.73	3,232,800.56	40.146210	-104.667228
6,467.00	9.94	354.63	6,445.97	-246.92	35.30	1,297,207.15	3,232,799.91	40.146227	-104.667230
6,510.00	13.01	0.41	6,488.11	-238.38	34.99	1,297,215.68	3,232,799.52	40.146251	-104.667231
6,552.00	16.53	358.13	6,528.71	-227.68	34.83	1,297,226.38	3,232,799.26	40.146280	-104.667231
6,595.00	19.72	357.40	6,569.58	-214.31	34.30	1,297,239.74	3,232,798.60	40.146317	-104.667233
6,638.00	22.73	353.70	6,609.66	-198.80	33.06	1,297,255.23	3,232,797.22	40.146359	-104.667238
6,683.00	25.87	352.88	6,650.66	-180.42	30.88	1,297,273.60	3,232,794.87	40.146410	-104.667246
6,724.00	30.07	353.45	6,686.87	-161.33	28.60	1,297,292.67	3,232,792.41	40.146462	-104.667254
6,769.00	35.03	353.75	6,724.79	-137.27	25.91	1,297,316.69	3,232,789.49	40.146528	-104.667263
6,810.00	39.37	353.47	6,757.44	-112.64	23.15	1,297,341.29	3,232,786.50	40.146596	-104.667273
6,852.00	43.81	353.89	6,788.84	-84.94	20.08	1,297,368.96	3,232,783.18	40.146672	-104.667284
6,894.00	47.20	357.05	6,818.28	-55.09	17.74	1,297,398.80	3,232,780.56	40.146754	-104.667293
6,935.00	52.26	0.35	6,844.77	-23.83	17.07	1,297,430.04	3,232,779.59	40.146840	-104.667295
6,981.00	57.09	1.71	6,871.37	13.68	17.75	1,297,467.56	3,232,779.92	40.146942	-104.667292
7,024.00	60.72	1.09	6,893.57	50.49	18.65	1,297,504.37	3,232,780.47	40.147044	-104.667289
7,067.00	64.84	1.07	6,913.23	88.71	19.37	1,297,542.60	3,232,780.83	40.147148	-104.667287
7,110.00	67.44	0.57	6,930.63	128.03	19.93	1,297,581.91	3,232,781.02	40.147256	-104.667285
7,152.00	68.66	0.34	6,946.33	166.98	20.24	1,297,620.87	3,232,780.97	40.147363	-104.667284
7,196.00	71.28	359.52	6,961.39	208.32	20.19	1,297,662.20	3,232,780.53	40.147477	-104.667284
7,238.00	75.49	0.26	6,973.40	248.55	20.11	1,297,702.43	3,232,780.07	40.147587	-104.667284
7,280.00	80.58	0.55	6,982.11	289.63	20.40	1,297,743.50	3,232,779.98	40.147700	-104.667283
7,305.00	83.18	0.54	6,985.64	314.37	20.64	1,297,768.25	3,232,779.98	40.147768	-104.667282
7,349.00	86.40	0.28	6,989.63	358.18	20.95	1,297,812.06	3,232,779.89	40.147888	-104.667281
<b>7" Casing @ 7349' MD :: 6989.63' TVD</b>									
7,389.00	89.32	0.05	6,991.13	398.15	21.07	1,297,852.03	3,232,779.63	40.147998	-104.667281
7,432.00	88.95	0.46	6,991.78	441.15	21.26	1,297,895.02	3,232,779.41	40.148116	-104.667280
7,517.00	90.80	359.73	6,991.96	526.14	21.40	1,297,980.01	3,232,778.76	40.148349	-104.667279
7,603.00	91.17	359.36	6,990.48	612.13	20.72	1,298,065.98	3,232,777.27	40.148585	-104.667282
7,689.00	90.00	359.15	6,989.61	698.11	19.60	1,298,151.95	3,232,775.34	40.148821	-104.667286
7,774.00	89.94	358.38	6,989.65	783.09	17.77	1,298,236.90	3,232,772.71	40.149055	-104.667292
7,860.00	91.17	358.08	6,988.82	869.05	15.11	1,298,322.82	3,232,769.25	40.149290	-104.667302
7,946.00	91.55	358.13	6,986.78	954.97	12.27	1,298,408.72	3,232,765.60	40.149526	-104.667312
8,032.00	90.56	357.95	6,985.19	1,040.91	9.33	1,298,494.62	3,232,761.85	40.149762	-104.667323
8,118.00	89.63	358.34	6,985.05	1,126.86	6.55	1,298,580.54	3,232,758.26	40.149998	-104.667333
8,203.00	89.07	356.86	6,986.01	1,211.78	2.99	1,298,665.41	3,232,753.91	40.150231	-104.667345
8,289.00	89.63	356.96	6,986.99	1,297.65	-1.65	1,298,751.23	3,232,748.46	40.150467	-104.667362
8,375.00	88.45	356.34	6,988.43	1,383.49	-6.67	1,298,837.02	3,232,742.63	40.150703	-104.667380
8,460.00	89.32	355.93	6,990.09	1,468.28	-12.40	1,298,921.74	3,232,736.11	40.150935	-104.667400
8,546.00	89.38	356.52	6,991.06	1,554.08	-18.06	1,299,007.49	3,232,729.64	40.151171	-104.667421
8,631.00	89.88	357.07	6,991.61	1,638.95	-22.82	1,299,092.30	3,232,724.09	40.151404	-104.667438
8,717.00	88.52	356.08	6,992.81	1,724.78	-27.95	1,299,178.08	3,232,718.15	40.151639	-104.667456
8,803.00	89.13	354.63	6,994.57	1,810.48	-34.92	1,299,263.71	3,232,710.39	40.151875	-104.667481
8,889.00	89.44	355.98	6,995.65	1,896.18	-41.95	1,299,349.34	3,232,702.54	40.152110	-104.667506
8,974.00	89.69	356.03	6,996.29	1,980.97	-47.88	1,299,434.06	3,232,695.83	40.152343	-104.667527
9,060.00	89.94	355.98	6,996.57	2,066.76	-53.87	1,299,519.79	3,232,689.03	40.152578	-104.667549
9,146.00	90.56	355.69	6,996.20	2,152.54	-60.11	1,299,605.50	3,232,681.98	40.152814	-104.667571
9,232.00	90.43	356.85	6,995.45	2,238.35	-65.71	1,299,691.25	3,232,675.58	40.153049	-104.667591
9,318.00	90.37	358.36	6,994.85	2,324.27	-69.30	1,299,777.13	3,232,671.18	40.153285	-104.667604
9,403.00	89.63	359.69	6,994.85	2,409.25	-70.75	1,299,862.09	3,232,668.93	40.153518	-104.667609

# Halliburton Company

## Survey Report - Geographic

<b>Company:</b>	Anadarko Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Thomason 2N-9HZ
<b>Project:</b>	Weld County, CO (NAD 83)	<b>TVD Reference:</b>	RKB=16ft @ 4896.00ft (Xtreme 22)
<b>Site:</b>	Sec. 9-T2N-R65W	<b>MD Reference:</b>	RKB=16ft @ 4896.00ft (Xtreme 22)
<b>Well:</b>	Thomason 2N-9HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Plan B Rev 0	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Actual Field Surveys	<b>Database:</b>	EDM 2003.16 Single User Db

### Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (ft)	Map Easting (ft)	Latitude	Longitude
9,489.00	90.00	359.66	6,995.13	2,495.25	-71.24	1,299,948.08	3,232,667.64	40.153754	-104.667611
9,575.00	89.51	0.43	6,995.50	2,581.25	-71.17	1,300,034.07	3,232,666.90	40.153991	-104.667611
9,660.00	90.06	0.75	6,995.82	2,666.25	-70.29	1,300,119.07	3,232,666.98	40.154224	-104.667607
9,746.00	89.13	0.68	6,996.42	2,752.24	-69.22	1,300,205.06	3,232,667.24	40.154460	-104.667604
9,832.00	88.95	0.68	6,997.86	2,838.22	-68.20	1,300,291.04	3,232,667.45	40.154696	-104.667600
9,918.00	88.64	0.75	6,999.67	2,924.19	-67.13	1,300,377.02	3,232,667.72	40.154932	-104.667596
10,003.00	90.12	0.49	7,000.59	3,009.18	-66.21	1,300,462.01	3,232,667.84	40.155165	-104.667593
10,089.00	90.06	0.67	7,000.46	3,095.17	-65.34	1,300,548.01	3,232,667.91	40.155401	-104.667590
10,175.00	90.56	0.85	6,999.99	3,181.17	-64.20	1,300,634.00	3,232,668.24	40.155637	-104.667586
10,260.00	90.93	1.00	6,998.89	3,266.15	-62.82	1,300,718.99	3,232,668.81	40.155871	-104.667581
10,346.00	89.81	1.10	6,998.33	3,352.13	-61.25	1,300,804.98	3,232,669.58	40.156107	-104.667575
10,432.00	89.69	0.63	6,998.71	3,438.12	-59.95	1,300,890.97	3,232,670.07	40.156343	-104.667570
10,517.00	89.69	0.55	6,999.17	3,523.11	-59.07	1,300,975.97	3,232,670.15	40.156576	-104.667567
10,603.00	89.69	0.29	6,999.63	3,609.11	-58.44	1,301,061.96	3,232,669.97	40.156812	-104.667565
10,689.00	90.25	0.57	6,999.68	3,695.11	-57.80	1,301,147.96	3,232,669.81	40.157048	-104.667563
10,774.00	90.93	1.46	6,998.80	3,780.09	-56.29	1,301,232.94	3,232,670.52	40.157281	-104.667557
10,860.00	89.94	359.27	6,998.15	3,866.08	-55.74	1,301,318.93	3,232,670.26	40.157517	-104.667555
10,946.00	88.58	357.40	6,999.26	3,952.03	-58.24	1,301,404.85	3,232,666.95	40.157753	-104.667564
11,032.00	89.26	357.09	7,000.88	4,037.91	-62.38	1,301,490.69	3,232,662.01	40.157989	-104.667579
11,117.00	90.06	357.73	7,001.39	4,122.82	-66.22	1,301,575.56	3,232,657.38	40.158222	-104.667593
11,203.00	90.68	358.17	7,000.83	4,208.77	-69.29	1,301,661.46	3,232,653.49	40.158458	-104.667604
11,289.00	90.86	357.95	6,999.67	4,294.71	-72.20	1,301,747.37	3,232,649.77	40.158694	-104.667614
11,374.00	90.74	358.02	6,998.49	4,379.65	-75.19	1,301,832.28	3,232,645.99	40.158927	-104.667625
11,413.00	91.18	357.81	6,997.83	4,418.62	-76.61	1,301,871.23	3,232,644.20	40.159034	-104.667630
<b>Final Sperry MWD Survey @ 11413.00ft</b>									
11,464.00	91.18	357.81	6,996.78	4,469.57	-78.56	1,301,922.16	3,232,641.78	40.159174	-104.667637
<b>Straight Line Projection to TD @ 11464ft</b>									

# Halliburton Company

## Survey Report - Geographic

<b>Company:</b>	Anadarko Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Thomason 2N-9HZ
<b>Project:</b>	Weld County, CO (NAD 83)	<b>TVD Reference:</b>	RKB=16ft @ 4896.00ft (Xtreme 22)
<b>Site:</b>	Sec. 9-T2N-R65W	<b>MD Reference:</b>	RKB=16ft @ 4896.00ft (Xtreme 22)
<b>Well:</b>	Thomason 2N-9HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Plan B Rev 0	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Actual Field Surveys	<b>Database:</b>	EDM 2003.16 Single User Db

### 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
Thomason 2N-9HZ_S - actual wellpath hits target center - Point	0.00	0.00	0.00	0.00	0.00	1,297,453.71	3,232,762.30	40.146905	-104.667356
Thomason 2N-9HZ_B - actual wellpath misses target center by 35.27ft at 11464.00ft MD (6996.78 TVD, 4469.57 N, -78.56 E) - Point	0.00	0.00	6,977.00	4,495.43	-65.00	1,301,948.14	3,232,655.09	40.159245	-104.667589
Thomason 2N-9HZ_V - actual wellpath misses target center by 14.30ft at 9493.70ft MD (6995.13 TVD, 2499.95 N, -71.26 E) - Point	0.00	0.00	6,982.27	2,500.00	-65.00	1,299,952.89	3,232,673.83	40.153767	-104.667589
Thomason 2N-9HZ_L - actual wellpath hits target center - Polygon	0.00	0.00	0.00	0.00	0.00	1,297,453.71	3,232,762.30	40.146905	-104.667356
Point 1			0.00	139.93	4.79	1,297,593.67	3,232,765.77		
Point 2			0.00	136.45	375.79	1,297,593.68	3,233,136.77		
Point 3			0.00	4,502.43	459.50	1,301,960.07	3,233,179.48		
Point 4			0.00	4,505.91	88.50	1,301,960.06	3,232,808.48		
Thomason 2N-9HZ_S - actual wellpath hits target center - Polygon	0.00	0.00	0.00	0.00	0.00	1,297,453.71	3,232,762.30	40.146905	-104.667356
Point 1			0.00	-335.26	2,153.51	1,297,138.70	3,234,918.77		
Point 2			0.00	-339.72	-459.69	1,297,109.70	3,232,305.84		
Point 3			0.00	-344.20	-3,085.76	1,297,080.57	3,229,680.03		
Point 4			0.00	2,289.87	-3,033.58	1,299,714.90	3,229,707.48		
Point 5			0.00	4,966.24	-3,046.30	1,302,390.92	3,229,669.63		
Point 6			0.00	4,957.30	-400.14	1,302,406.83	3,232,315.65		
Point 7			0.00	4,948.50	2,245.83	1,302,422.87	3,234,961.47		
Point 8			0.00	2,293.03	2,206.37	1,299,767.26	3,234,946.95		
Thomason 2N-9HZ_S - actual wellpath hits target center - Polygon	0.00	0.00	0.00	0.00	0.00	1,297,453.71	3,232,762.30	40.146905	-104.667356
Point 1			0.00	123.99	1,702.63	1,297,593.68	3,234,463.62		
Point 2			0.00	120.31	-453.08	1,297,569.76	3,232,308.13		
Point 3			0.00	116.61	-2,621.85	1,297,545.69	3,230,139.58		
Point 4			0.00	2,290.17	-2,603.55	1,299,719.24	3,230,137.47		
Point 5			0.00	4,504.67	-2,589.25	1,301,933.68	3,230,130.97		
Point 6			0.00	4,497.29	-403.89	1,301,946.82	3,232,316.21		
Point 7			0.00	4,490.03	1,778.95	1,301,960.06	3,234,498.94		
Point 8			0.00	2,292.81	1,746.25	1,299,762.72	3,234,486.87		
Thomason 2N-9HZ_B - actual wellpath misses target center by 192.03ft at 11464.00ft MD (6996.78 TVD, 4469.57 N, -78.56 E) - Point	0.00	0.00	6,977.00	4,495.43	110.69	1,301,949.80	3,232,830.76	40.159245	-104.666960

### Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,349.00	6,989.63	7" Casing @ 7349' MD :: 6989.63' TVD	7	8-3/4

# Halliburton Company

## Survey Report - Geographic

<b>Company:</b>	Anadarko Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Thomason 2N-9HZ
<b>Project:</b>	Weld County, CO (NAD 83)	<b>TVD Reference:</b>	RKB=16ft @ 4896.00ft (Xtreme 22)
<b>Site:</b>	Sec. 9-T2N-R65W	<b>MD Reference:</b>	RKB=16ft @ 4896.00ft (Xtreme 22)
<b>Well:</b>	Thomason 2N-9HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Plan B Rev 0	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Actual Field Surveys	<b>Database:</b>	EDM 2003.16 Single User Db

Targets									
Target Name	- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	
- Shape		(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)	
									Latitude Longitude
Thomason 2N-9HZ_S		0.00	0.00	0.00	0.00	0.00	1,297,453.71	3,232,762.30	40.146905 -104.667356
- actual wellpath hits target center									
- Point									
Thomason 2N-9HZ_B		0.00	0.00	6,977.00	4,495.43	-65.00	1,301,948.14	3,232,655.09	40.159245 -104.667589
- actual wellpath misses target center by 35.27ft at 11464.00ft MD (6996.78 TVD, 4469.57 N, -78.56 E)									
- Point									
Thomason 2N-9HZ_V		0.00	0.00	6,982.27	2,500.00	-65.00	1,299,952.89	3,232,673.83	40.153767 -104.667589
- actual wellpath misses target center by 14.30ft at 9493.70ft MD (6995.13 TVD, 2499.95 N, -71.26 E)									
- Point									
Thomason 2N-9HZ_L		0.00	0.00	0.00	0.00	0.00	1,297,453.71	3,232,762.30	40.146905 -104.667356
- actual wellpath hits target center									
- Polygon									
Point 1				0.00	139.93	4.79	1,297,593.67	3,232,765.77	
Point 2				0.00	136.45	375.79	1,297,593.68	3,233,136.77	
Point 3				0.00	4,502.43	459.50	1,301,960.07	3,233,179.48	
Point 4				0.00	4,505.91	88.50	1,301,960.06	3,232,808.48	
Thomason 2N-9HZ_S		0.00	0.00	0.00	0.00	0.00	1,297,453.71	3,232,762.30	40.146905 -104.667356
- actual wellpath hits target center									
- Polygon									
Point 1				0.00	-335.26	2,153.51	1,297,138.70	3,234,918.77	
Point 2				0.00	-339.72	-459.69	1,297,109.70	3,232,305.84	
Point 3				0.00	-344.20	-3,085.76	1,297,080.57	3,229,680.03	
Point 4				0.00	2,289.87	-3,033.58	1,299,714.90	3,229,707.48	
Point 5				0.00	4,966.24	-3,046.30	1,302,390.92	3,229,669.63	
Point 6				0.00	4,957.30	-400.14	1,302,406.83	3,232,315.65	
Point 7				0.00	4,948.50	2,245.83	1,302,422.87	3,234,961.47	
Point 8				0.00	2,293.03	2,206.37	1,299,767.26	3,234,946.95	
Thomason 2N-9HZ_S		0.00	0.00	0.00	0.00	0.00	1,297,453.71	3,232,762.30	40.146905 -104.667356
- actual wellpath hits target center									
- Polygon									
Point 1				0.00	123.99	1,702.63	1,297,593.68	3,234,463.62	
Point 2				0.00	120.31	-453.08	1,297,569.76	3,232,308.13	
Point 3				0.00	116.61	-2,621.85	1,297,545.69	3,230,139.58	
Point 4				0.00	2,290.17	-2,603.55	1,299,719.24	3,230,137.47	
Point 5				0.00	4,504.67	-2,589.25	1,301,933.68	3,230,130.97	
Point 6				0.00	4,497.29	-403.89	1,301,946.82	3,232,316.21	
Point 7				0.00	4,490.03	1,778.95	1,301,960.06	3,234,498.94	
Point 8				0.00	2,292.81	1,746.25	1,299,762.72	3,234,486.87	
Thomason 2N-9HZ_B		0.00	0.00	6,977.00	4,495.43	110.69	1,301,949.80	3,232,830.76	40.159245 -104.666960
- actual wellpath misses target center by 192.03ft at 11464.00ft MD (6996.78 TVD, 4469.57 N, -78.56 E)									
- Point									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
7,349.00	6,989.63	7" Casing @ 7349' MD :: 6989.63' TVD	7	8-3/4	

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	



# Halliburton Company

## Survey Report - Geographic

<b>Company:</b>	Anadarko Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Thomason 2N-9HZ
<b>Project:</b>	Weld County, CO (NAD 83)	<b>TVD Reference:</b>	RKB=16ft @ 4896.00ft (Xtreme 22)
<b>Site:</b>	Sec. 9-T2N-R65W	<b>MD Reference:</b>	RKB=16ft @ 4896.00ft (Xtreme 22)
<b>Well:</b>	Thomason 2N-9HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Plan B Rev 0	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Actual Field Surveys	<b>Database:</b>	EDM 2003.16 Single User Db

### Targets

Target Name	- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N-S (ft)	+E-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Thomason 2N-9HZ_S	- actual wellpath hits target center	0.00	0.00	0.00	0.00	0.00	1,297,453.71	3,232,762.30	40.146905	-104.667356
Thomason 2N-9HZ_B	- actual wellpath misses target center by 35.27ft at 11464.00ft MD (6996.78 TVD, 4469.57 N, -78.56 E)	0.00	0.00	6,977.00	4,495.43	-65.00	1,301,948.14	3,232,655.09	40.159245	-104.667589
Thomason 2N-9HZ_V	- actual wellpath misses target center by 14.30ft at 9493.70ft MD (6995.13 TVD, 2499.95 N, -71.26 E)	0.00	0.00	6,982.27	2,500.00	-65.00	1,299,952.89	3,232,673.83	40.153767	-104.667589
Thomason 2N-9HZ_L	- actual wellpath hits target center	0.00	0.00	0.00	0.00	0.00	1,297,453.71	3,232,762.30	40.146905	-104.667356
- Polygon										
Point 1				0.00	139.93	4.79	1,297,593.67	3,232,765.77		
Point 2				0.00	136.45	375.79	1,297,593.68	3,233,136.77		
Point 3				0.00	4,502.43	459.50	1,301,960.07	3,233,179.48		
Point 4				0.00	4,505.91	88.50	1,301,960.06	3,232,808.48		
Thomason 2N-9HZ_S	- actual wellpath hits target center	0.00	0.00	0.00	0.00	0.00	1,297,453.71	3,232,762.30	40.146905	-104.667356
- Polygon										
Point 1				0.00	-335.26	2,153.51	1,297,138.70	3,234,918.77		
Point 2				0.00	-339.72	-459.69	1,297,109.70	3,232,305.84		
Point 3				0.00	-344.20	-3,085.76	1,297,080.57	3,229,680.03		
Point 4				0.00	2,289.87	-3,033.58	1,299,714.90	3,229,707.48		
Point 5				0.00	4,966.24	-3,046.30	1,302,390.92	3,229,669.63		
Point 6				0.00	4,957.30	-400.14	1,302,406.83	3,232,315.65		
Point 7				0.00	4,948.50	2,245.83	1,302,422.87	3,234,961.47		
Point 8				0.00	2,293.03	2,206.37	1,299,767.26	3,234,946.95		
Thomason 2N-9HZ_S	- actual wellpath hits target center	0.00	0.00	0.00	0.00	0.00	1,297,453.71	3,232,762.30	40.146905	-104.667356
- Polygon										
Point 1				0.00	123.99	1,702.63	1,297,593.68	3,234,463.62		
Point 2				0.00	120.31	-453.08	1,297,569.76	3,232,308.13		
Point 3				0.00	116.61	-2,621.85	1,297,545.69	3,230,139.58		
Point 4				0.00	2,290.17	-2,603.55	1,299,719.24	3,230,137.47		
Point 5				0.00	4,504.67	-2,589.25	1,301,933.68	3,230,130.97		
Point 6				0.00	4,497.29	-403.89	1,301,946.82	3,232,316.21		
Point 7				0.00	4,490.03	1,778.95	1,301,960.06	3,234,498.94		
Point 8				0.00	2,292.81	1,746.25	1,299,762.72	3,234,486.87		
Thomason 2N-9HZ_B	- actual wellpath misses target center by 192.03ft at 11464.00ft MD (6996.78 TVD, 4469.57 N, -78.56 E)	0.00	0.00	6,977.00	4,495.43	110.69	1,301,949.80	3,232,830.76	40.159245	-104.666960
- Point										

### Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,349.00	6,989.63	7" Casing @ 7349' MD :: 6989.63' TVD	7	8-3/4
16.00	16.00	0.00	0.00	Xtreme 22: RKB = 16ft
116.00	116.00	0.22	0.06	First Gyro Survey @ 116.00ft
876.00	875.99	1.62	1.32	Tie-On to Gyro Surveys @ 876.00ft
876.00	875.99	1.62	1.32	Final Gyro Survey @ 876.00ft
944.00	943.99	1.95	1.13	First Sperry MWD Survey @ 944.00ft
11,413.00	6,997.83	4,418.62	-76.61	Final Sperry MWD Survey @ 11413.00ft



# Halliburton Company

## Survey Report - Geographic

<b>Company:</b>	Anadarko Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Thomason 2N-9HZ
<b>Project:</b>	Weld County, CO (NAD 83)	<b>TVD Reference:</b>	RKB=16ft @ 4896.00ft (Xtreme 22)
<b>Site:</b>	Sec. 9-T2N-R65W	<b>MD Reference:</b>	RKB=16ft @ 4896.00ft (Xtreme 22)
<b>Well:</b>	Thomason 2N-9HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Plan B Rev 0	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Actual Field Surveys	<b>Database:</b>	EDM 2003.16 Single User Db

### 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
Thomason 2N-9HZ_S - actual wellpath hits target center - Point	0.00	0.00	0.00	0.00	0.00	1,297,453.71	3,232,762.30	40.146905	-104.667356
Thomason 2N-9HZ_B - actual wellpath misses target center by 35.27ft at 11464.00ft MD (6996.78 TVD, 4469.57 N, -78.56 E) - Point	0.00	0.00	6,977.00	4,495.43	-65.00	1,301,948.14	3,232,655.09	40.159245	-104.667589
Thomason 2N-9HZ_V - actual wellpath misses target center by 14.30ft at 9493.70ft MD (6995.13 TVD, 2499.95 N, -71.26 E) - Point	0.00	0.00	6,982.27	2,500.00	-65.00	1,299,952.89	3,232,673.83	40.153767	-104.667589
Thomason 2N-9HZ_L - actual wellpath hits target center - Polygon	0.00	0.00	0.00	0.00	0.00	1,297,453.71	3,232,762.30	40.146905	-104.667356
Point 1			0.00	139.93	4.79	1,297,593.67	3,232,765.77		
Point 2			0.00	136.45	375.79	1,297,593.68	3,233,136.77		
Point 3			0.00	4,502.43	459.50	1,301,960.07	3,233,179.48		
Point 4			0.00	4,505.91	88.50	1,301,960.06	3,232,808.48		
Thomason 2N-9HZ_S - actual wellpath hits target center - Polygon	0.00	0.00	0.00	0.00	0.00	1,297,453.71	3,232,762.30	40.146905	-104.667356
Point 1			0.00	-335.26	2,153.51	1,297,138.70	3,234,918.77		
Point 2			0.00	-339.72	-459.69	1,297,109.70	3,232,305.84		
Point 3			0.00	-344.20	-3,085.76	1,297,080.57	3,229,680.03		
Point 4			0.00	2,289.87	-3,033.58	1,299,714.90	3,229,707.48		
Point 5			0.00	4,966.24	-3,046.30	1,302,390.92	3,229,669.63		
Point 6			0.00	4,957.30	-400.14	1,302,406.83	3,232,315.65		
Point 7			0.00	4,948.50	2,245.83	1,302,422.87	3,234,961.47		
Point 8			0.00	2,293.03	2,206.37	1,299,767.26	3,234,946.95		
Thomason 2N-9HZ_S - actual wellpath hits target center - Polygon	0.00	0.00	0.00	0.00	0.00	1,297,453.71	3,232,762.30	40.146905	-104.667356
Point 1			0.00	123.99	1,702.63	1,297,593.68	3,234,463.62		
Point 2			0.00	120.31	-453.08	1,297,569.76	3,232,308.13		
Point 3			0.00	116.61	-2,621.85	1,297,545.69	3,230,139.58		
Point 4			0.00	2,290.17	-2,603.55	1,299,719.24	3,230,137.47		
Point 5			0.00	4,504.67	-2,589.25	1,301,933.68	3,230,130.97		
Point 6			0.00	4,497.29	-403.89	1,301,946.82	3,232,316.21		
Point 7			0.00	4,490.03	1,778.95	1,301,960.06	3,234,498.94		
Point 8			0.00	2,292.81	1,746.25	1,299,762.72	3,234,486.87		
Thomason 2N-9HZ_B - actual wellpath misses target center by 192.03ft at 11464.00ft MD (6996.78 TVD, 4469.57 N, -78.56 E) - Point	0.00	0.00	6,977.00	4,495.43	110.69	1,301,949.80	3,232,830.76	40.159245	-104.666960

### Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,349.00	6,989.63	7" Casing @ 7349' MD :: 6989.63' TVD	7	8-3/4
11,464.00	6,996.78	4,469.57 -78.56 Straight Line Projection to TD @ 11464ft		

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

**Halliburton Company**  
Survey Report - Geographic

<b>Company:</b>	Anadarko Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Thomason 2N-9HZ
<b>Project:</b>	Weld County, CO (NAD 83)	<b>TVD Reference:</b>	RKB=16ft @ 4896.00ft (Xtreme 22)
<b>Site:</b>	Sec. 9-T2N-R65W	<b>MD Reference:</b>	RKB=16ft @ 4896.00ft (Xtreme 22)
<b>Well:</b>	Thomason 2N-9HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Plan B Rev 0	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Actual Field Surveys	<b>Database:</b>	EDM 2003.16 Single User Db