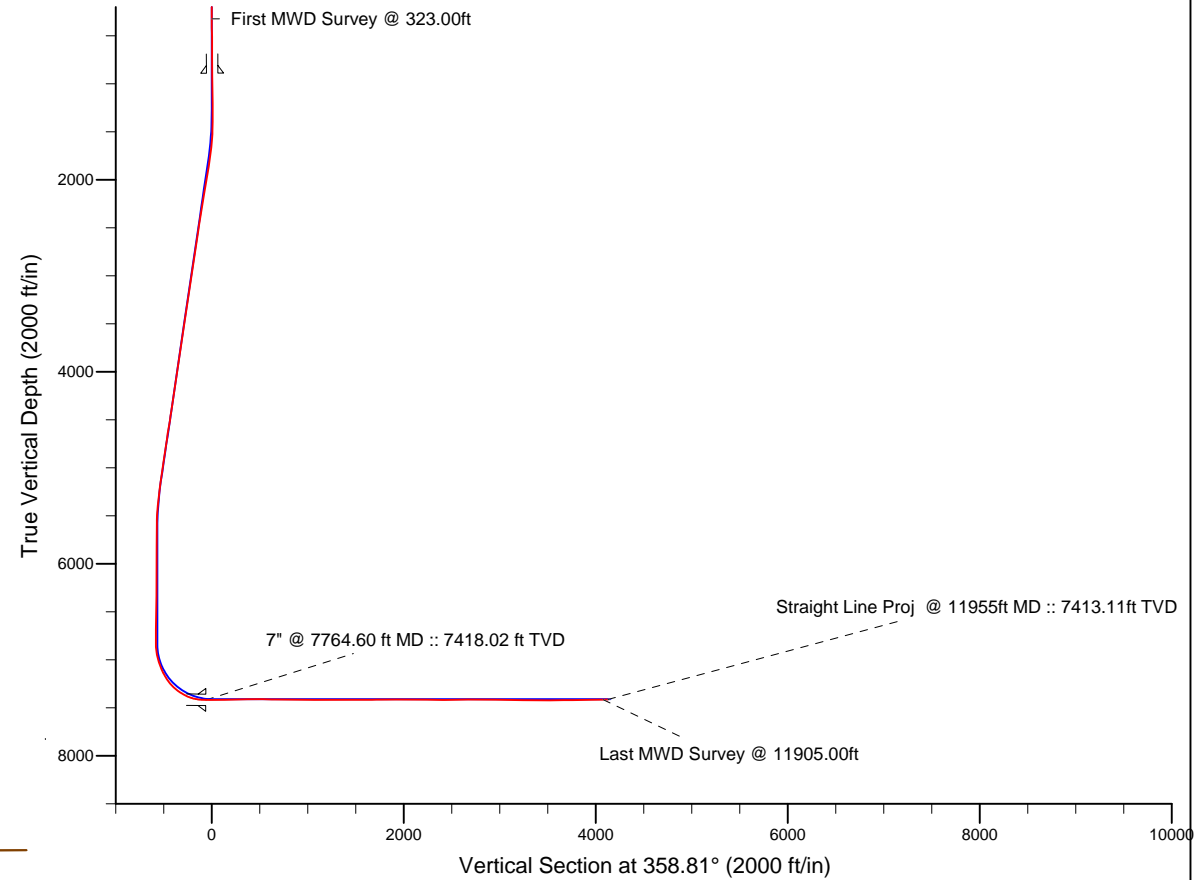
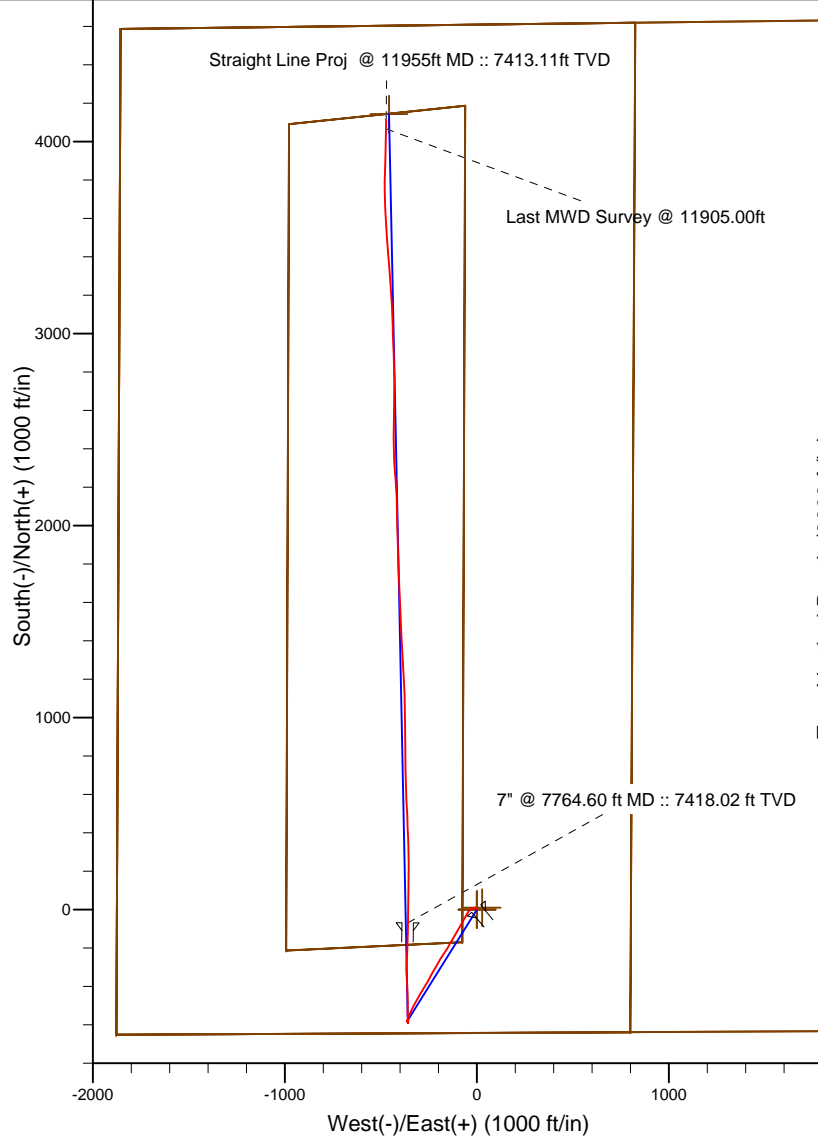


Project: Weld County, CO (NAD 83)
 Site: Sec. 36-T3N-R66W
 Well: USA Fed 29C-36HZ
 Wellbore: Plan B
 Design: Actual Field Surveys



LEGEND

USA Fed 29C-36HZ, Plan B, Rev B0 Proposal V0

Actual Field Surveys

7" Casing: ~575.24' FSL, ~1516.24' FWL
 Lat/Long: 40.176235 N, -104.729569 E
 State Planes - CO Northern: 1,307,980.33' N, 3,215,278.52' E
 Location: Sec. 36-T3N-R66W

BHL: ~485.675' FNL, ~1384.59' FWL
 Lat/Long: 40.187727 N, -104.729976 E
 State Planes - CO Northern: 1,312,165.60' N, 3,215,128.44' E
 Location: Sec. 36-T3N-R66W

WELL DETAILS: USA Fed 29C-36HZ	
Ground Level: 5003.00	
RKB = 13 @ 5016.00ft (Ensign 132)	
Design: Actual Field Surveys (USA Fed 29C-36HZ/Plan B)	
Created By: Clint Eshelman	Date: 07/31/2013
Reviewed: _____	Date: _____

Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 36-T3N-R66W

USA Fed 29C-36HZ

Plan B

Design: Actual Field Surveys

Sperry Drilling Services Standard Report

31 July, 2013

Well Coordinates: 1,308,052.08 N, 3,215,636.99 E (40° 10' 35.12" N, 104° 43' 41.82" W)

Ground Level: 5,003.00 ft

Local Coordinate Origin:

Centered on Well USA Fed 29C-36HZ

Viewing Datum:

RKB = 13 @ 5016.00ft (Ensign 132)

TVDs to System:

N

North Reference:

True

Unit System:

API - US Survey Feet - Custom

Geodetic Scale Factor Applied

Version: 2003.16 Build: 43I

HALLIBURTON

Design Report for USA Fed 29C-36HZ - 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
323.00	0.57	322.08	322.99	1.27	-0.99	1.29	0.18
First MWD Survey @ 323.00ft							
415.00	0.34	342.83	414.99	1.89	-1.35	1.92	0.30
507.00	0.28	11.05	506.99	2.37	-1.39	2.40	0.18
601.00	0.14	11.21	600.99	2.71	-1.32	2.74	0.15
725.00	0.62	347.68	724.99	3.51	-1.43	3.54	0.40
818.00	0.66	322.34	817.98	4.43	-1.87	4.47	0.30
891.00	0.70	320.53	890.98	5.11	-2.41	5.15	0.06
9 5/8"							
975.00	0.84	312.21	974.97	5.92	-3.19	5.98	0.21
1,249.00	1.21	312.68	1,248.92	9.23	-6.81	9.37	0.14
1,341.00	3.11	275.36	1,340.86	10.12	-10.00	10.32	2.47
1,432.00	4.65	255.86	1,431.65	9.45	-16.04	9.78	2.21
1,524.00	6.65	242.65	1,523.20	6.09	-24.39	6.59	2.58
1,616.00	7.84	230.04	1,614.47	-0.39	-33.93	0.31	2.15
1,708.00	8.86	219.98	1,705.50	-9.85	-43.29	-8.95	1.93
1,799.00	9.77	207.49	1,795.31	-22.07	-51.36	-21.00	2.43
1,891.00	11.21	209.58	1,885.77	-36.77	-59.38	-35.53	1.62
1,986.00	11.35	209.07	1,978.93	-52.97	-68.48	-51.54	0.18
2,081.00	11.03	208.76	2,072.13	-69.11	-77.39	-67.49	0.34
2,176.00	10.59	209.39	2,165.44	-84.68	-86.05	-82.88	0.48
2,271.00	10.05	209.93	2,258.91	-99.47	-94.47	-97.49	0.58
2,366.00	11.23	209.92	2,352.27	-114.68	-103.22	-112.51	1.24
2,556.00	9.06	212.22	2,539.29	-143.37	-120.43	-140.84	1.16
2,651.00	10.54	207.51	2,632.90	-157.41	-128.43	-154.70	1.77
2,746.00	9.16	209.29	2,726.50	-171.71	-136.14	-168.84	1.49
2,842.00	10.74	210.38	2,821.05	-186.09	-144.40	-183.05	1.66
2,937.00	10.74	212.42	2,914.39	-201.20	-153.63	-197.96	0.40
3,032.00	10.80	212.55	3,007.72	-216.17	-163.16	-212.74	0.07
3,127.00	10.65	212.76	3,101.06	-231.06	-172.70	-227.42	0.16
3,222.00	10.51	214.31	3,194.44	-245.60	-182.33	-241.76	0.33
3,317.00	9.35	213.18	3,288.02	-259.21	-191.44	-255.18	1.24
3,412.00	10.41	208.97	3,381.61	-273.18	-199.82	-268.97	1.35
3,508.00	9.61	210.67	3,476.15	-287.66	-208.11	-283.28	0.89
3,698.00	9.78	207.72	3,663.43	-315.59	-223.71	-310.87	0.28
3,793.00	8.46	208.58	3,757.23	-328.87	-230.80	-324.00	1.40
3,888.00	9.93	210.03	3,851.01	-342.10	-238.25	-337.07	1.57
3,983.00	8.78	210.49	3,944.74	-355.44	-246.03	-350.25	1.21
4,078.00	9.67	206.31	4,038.51	-368.84	-253.24	-363.50	1.17
4,173.00	10.58	210.46	4,132.03	-383.51	-261.20	-378.00	1.23
4,269.00	10.95	210.40	4,226.34	-398.97	-270.28	-393.27	0.39
4,364.00	10.61	212.39	4,319.67	-414.14	-279.53	-408.24	0.53
4,459.00	9.28	212.11	4,413.24	-428.01	-288.29	-421.93	1.40
4,554.00	10.58	208.96	4,506.81	-442.13	-296.58	-435.87	1.48
4,649.00	10.47	209.48	4,600.22	-457.27	-305.05	-450.84	0.15
4,744.00	9.46	210.14	4,693.78	-471.54	-313.22	-464.93	1.07
4,839.00	10.30	207.98	4,787.37	-485.79	-321.13	-479.02	0.97
4,934.00	9.92	208.87	4,880.90	-500.46	-329.06	-493.52	0.43
5,030.00	9.06	208.79	4,975.58	-514.32	-336.69	-507.22	0.90

Design Report for USA Fed 29C-36HZ - Actual Field Surveys

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
5,125.00	9.54	200.45	5,069.34	-528.26	-343.05	-521.02	1.50
5,220.00	8.40	200.80	5,163.17	-542.12	-348.26	-534.77	1.20
5,315.00	7.54	202.46	5,257.26	-554.37	-353.11	-546.91	0.94
5,410.00	6.40	206.13	5,351.55	-564.88	-357.82	-557.33	1.29
5,505.00	4.42	204.66	5,446.12	-572.96	-361.68	-565.33	2.09
5,600.00	2.57	199.62	5,540.94	-578.30	-363.92	-570.61	1.97
5,695.00	0.48	160.74	5,635.91	-580.68	-364.51	-572.98	2.33
5,790.00	0.10	151.52	5,730.90	-581.13	-364.34	-573.44	0.40
5,885.00	0.10	134.93	5,825.90	-581.26	-364.24	-573.57	0.03
5,980.00	0.11	135.87	5,920.90	-581.38	-364.12	-573.70	0.01
6,076.00	0.37	153.44	6,016.90	-581.73	-363.91	-574.04	0.28
6,171.00	0.58	123.94	6,111.90	-582.27	-363.38	-574.60	0.33
6,266.00	0.59	129.26	6,206.90	-582.85	-362.60	-575.19	0.06
6,361.00	0.68	126.50	6,301.89	-583.49	-361.77	-575.85	0.10
6,456.00	0.78	159.14	6,396.88	-584.43	-361.08	-576.81	0.44
6,551.00	1.02	151.75	6,491.87	-585.78	-360.45	-578.17	0.28
6,646.00	0.89	148.18	6,586.86	-587.15	-359.67	-579.56	0.15
6,741.00	0.71	151.42	6,681.85	-588.30	-358.99	-580.71	0.20
6,836.00	0.68	145.77	6,776.84	-589.28	-358.40	-581.71	0.08
6,888.00	0.83	20.32	6,828.84	-589.18	-358.09	-581.62	2.58
6,931.00	3.63	8.78	6,871.80	-587.54	-357.78	-579.99	6.56
6,973.00	7.10	2.26	6,913.61	-583.63	-357.47	-576.08	8.38
7,026.00	13.29	355.59	6,965.75	-574.28	-357.81	-566.72	11.87
7,074.00	17.13	355.24	7,012.06	-561.73	-358.82	-554.16	8.00
7,122.00	20.46	357.07	7,057.50	-546.30	-359.84	-538.71	7.04
7,170.00	23.21	0.76	7,102.05	-528.46	-360.14	-520.87	6.40
7,217.00	26.70	0.40	7,144.66	-508.64	-359.94	-501.05	7.43
7,265.00	31.86	358.83	7,186.51	-485.17	-360.13	-477.59	10.87
7,312.00	36.83	358.47	7,225.30	-458.67	-360.76	-451.08	10.58
7,360.00	41.93	358.54	7,262.39	-428.24	-361.55	-420.63	10.63
7,407.00	47.76	357.25	7,295.70	-395.13	-362.79	-387.51	12.55
7,455.00	54.04	356.37	7,325.96	-357.96	-364.87	-350.30	13.16
7,502.00	59.09	359.24	7,351.85	-318.78	-366.34	-311.11	11.89
7,550.00	63.94	2.89	7,374.74	-276.62	-365.53	-268.97	12.11
7,598.00	70.32	3.22	7,393.39	-232.48	-363.17	-224.89	13.31
7,630.00	75.39	2.52	7,402.82	-201.95	-361.64	-194.40	15.98
7,661.00	79.31	0.85	7,409.61	-171.73	-360.76	-164.20	13.69
7,693.00	83.33	0.92	7,414.44	-140.10	-360.27	-132.59	12.56
7,732.00	88.30	1.06	7,417.28	-101.23	-359.60	-93.74	12.75
7,764.60	89.10	0.72	7,418.02	-68.64	-359.09	-61.17	2.67
7" @ 7764.60 ft MD :: 7418.02 ft TVD							
7,786.00	89.63	0.50	7,418.26	-47.24	-358.86	-39.78	2.67
7,881.00	91.05	1.31	7,417.69	47.74	-357.36	55.15	1.72
7,976.00	90.87	1.31	7,416.10	142.70	-355.19	150.05	0.19
8,071.00	91.30	359.39	7,414.30	237.68	-354.61	244.99	2.07
8,166.00	91.30	358.37	7,412.15	332.64	-356.46	339.97	1.07
8,261.00	90.99	357.30	7,410.25	427.55	-360.05	434.93	1.17
8,356.00	89.07	358.33	7,410.20	522.47	-363.67	529.91	2.29
8,451.00	88.08	356.75	7,412.56	617.35	-367.75	624.86	1.96
8,546.00	89.57	358.14	7,414.51	712.23	-371.98	719.81	2.14
8,641.00	90.06	0.32	7,414.82	807.22	-373.26	814.80	2.35

Design Report for USA Fed 29C-36HZ - Actual Field Surveys

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
8,736.00	89.81	359.86	7,414.92	902.22	-373.11	909.77	0.55
8,831.00	89.26	359.12	7,415.70	997.21	-373.96	1,004.76	0.97
8,927.00	88.64	358.50	7,417.45	1,093.17	-375.95	1,100.74	0.91
9,022.00	90.43	357.16	7,418.23	1,188.09	-379.55	1,195.72	2.35
9,117.00	90.62	356.98	7,417.36	1,282.97	-384.40	1,290.67	0.28
9,212.00	90.19	356.91	7,416.68	1,377.83	-389.47	1,385.62	0.46
9,307.00	89.94	356.44	7,416.58	1,472.67	-394.98	1,480.55	0.56
9,402.00	90.31	358.33	7,416.37	1,567.56	-399.31	1,575.52	2.03
9,497.00	90.00	357.10	7,416.11	1,662.49	-403.10	1,670.50	1.34
9,592.00	91.11	357.63	7,415.19	1,757.38	-407.46	1,765.46	1.29
9,687.00	90.56	358.93	7,413.81	1,852.33	-410.32	1,860.45	1.49
9,782.00	89.69	358.70	7,413.60	1,947.30	-412.28	1,955.45	0.95
9,877.00	89.26	358.45	7,414.47	2,042.27	-414.64	2,050.44	0.52
9,973.00	90.56	358.19	7,414.62	2,138.23	-417.46	2,146.43	1.38
10,068.00	88.83	355.33	7,415.13	2,233.06	-422.83	2,241.36	3.52
10,163.00	88.64	356.74	7,417.22	2,327.81	-429.39	2,336.22	1.50
10,258.00	90.38	358.66	7,418.04	2,422.72	-433.20	2,431.19	2.73
10,353.00	91.11	1.50	7,416.80	2,517.70	-433.07	2,526.15	3.09
10,448.00	90.74	1.41	7,415.27	2,612.66	-430.66	2,621.04	0.40
10,543.00	90.43	359.89	7,414.30	2,707.64	-429.58	2,715.98	1.63
10,733.00	89.01	357.57	7,415.23	2,897.58	-433.79	2,905.96	1.43
10,828.00	89.38	358.14	7,416.56	2,992.50	-437.35	3,000.94	0.72
10,923.00	89.26	357.87	7,417.69	3,087.44	-440.66	3,095.92	0.31
11,018.00	89.01	357.18	7,419.12	3,182.34	-444.76	3,190.89	0.77
11,113.00	88.70	355.60	7,421.02	3,277.12	-450.74	3,285.78	1.69
11,208.00	89.51	355.31	7,422.50	3,371.81	-458.26	3,380.60	0.91
11,303.00	90.12	355.67	7,422.81	3,466.52	-465.73	3,475.44	0.75
11,399.00	90.62	356.28	7,422.19	3,562.28	-472.47	3,571.32	0.82
11,494.00	90.68	357.62	7,421.11	3,657.14	-477.53	3,666.26	1.41
11,589.00	90.56	359.92	7,420.09	3,752.10	-479.57	3,761.25	2.42
11,684.00	90.93	1.64	7,418.85	3,847.08	-478.27	3,856.18	1.85
11,779.00	90.93	1.28	7,417.31	3,942.04	-475.85	3,951.07	0.38
11,905.00	91.61	0.86	7,414.52	4,067.98	-473.50	4,076.94	0.63
Last MWD Survey @ 11905.00ft							
11,955.00	91.61	0.86	7,413.11	4,117.96	-472.75	4,126.89	0.00
Straight Line Proj @ 11955ft MD :: 7413.11ft TVD							

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
323.00	322.99	1.27	-0.99	First MWD Survey @ 323.00ft
11,905.00	7,414.52	4,067.98	-473.50	Last MWD Survey @ 11905.00ft
11,955.00	7,413.11	4,117.96	-472.75	Straight Line Proj @ 11955ft MD :: 7413.11ft TVD

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (ft)
				+N/-S (ft)	+E/-W (ft)	
User	No Target (Freehand)	358.81	Slot	0.00	0.00	0.00

Design Report for USA Fed 29C-36HZ - Actual Field Surveys

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
323.00	7,732.00	Sperry MWD Surveys Vertical/Build	MWD+IFR1+SC
7,786.00	11,905.00	Sperry MWD Surveys Lateral	MWD+IFR1+SC

Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
891.00	890.98	9 5/8"	9-5/8	13-1/2
7,764.60	7,418.02	7" @ 7764.60 ft MD :: 7418.02 ft TVD	7	8-3/4

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
USA Fed 29C-36HZ - actual wellpath misses target center by 29.92ft at 11955.00ft MD (7413.11 TVD, 4117.96 N, -472.75 E) - Point	0.00	0.00	7,411.00	4,143.53	-457.37	1,312,191.31	3,215,143.60	40.187797	-104.729921
USA Fed 29C-36HZ - actual wellpath hits target center - Polygon	0.00	0.00	0.00	0.00	0.00	1,308,052.09	3,215,636.99	40.176423	-104.728284
Point 1				-978.68	4,091.93	1,312,135.17	3,214,622.78		
Point 2				-60.77	4,187.71	1,312,238.93	3,215,539.78		
Point 3				-75.62	-169.92	1,307,881.52	3,215,562.85		
Point 4				-993.07	-213.00	1,307,830.46	3,214,645.85		
Point 5				-978.68	4,091.93	1,312,135.17	3,214,622.78		
USA Fed 29C-36HZ - actual wellpath misses target center by 30.01ft at 0.00ft MD (0.00 TVD, 0.00 N, 0.00 E) - Polygon	0.00	0.00	0.00	10.94	27.94	1,308,063.27	3,215,664.83	40.176453	-104.728184
Point 1				-1,855.44	4,587.15	1,312,622.72	3,213,741.78		
Point 2				825.74	4,619.61	1,312,678.51	3,216,422.46		
Point 3				799.57	-638.29	1,307,420.81	3,216,442.05		
Point 4				-1,877.97	-651.72	1,307,384.08	3,213,764.84		
Point 5				-1,855.44	4,587.15	1,312,622.72	3,213,741.78		
USA Fed 29C-36HZ - actual wellpath hits target center - Polygon	0.00	0.00	0.00	0.00	0.00	1,308,052.09	3,215,636.99	40.176423	-104.728284
Point 1				-1,855.44	4,587.15	1,312,622.72	3,213,741.78		
Point 2				825.17	4,619.21	1,312,678.11	3,216,421.89		
Point 3				3,505.80	4,651.28	1,312,733.50	3,219,102.03		
Point 4				3,491.13	2,013.53	1,310,095.84	3,219,110.31		
Point 5				3,475.50	-624.58	1,307,457.80	3,219,117.64		
Point 6				799.32	-637.95	1,307,421.15	3,216,441.79		
Point 7				-1,877.96	-651.72	1,307,384.08	3,213,764.85		
Point 8				-1,866.48	1,967.79	1,310,003.48	3,213,753.53		
Point 9				-1,855.44	4,587.15	1,312,622.72	3,213,741.78		
USA Fed 29C-36HZ - actual wellpath hits target center - Point	0.00	0.00	0.00	0.00	0.00	1,308,052.09	3,215,636.99	40.176423	-104.728284

North Reference Sheet for Sec. 36-T3N-R66W - USA Fed 29C-36HZ - Plan B

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

Vertical Depths are relative to RKB = 13 @ 5016.00ft (Ensign 132). Northing and Easting are relative to USA Fed 29C-36HZ

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: 0.99995768

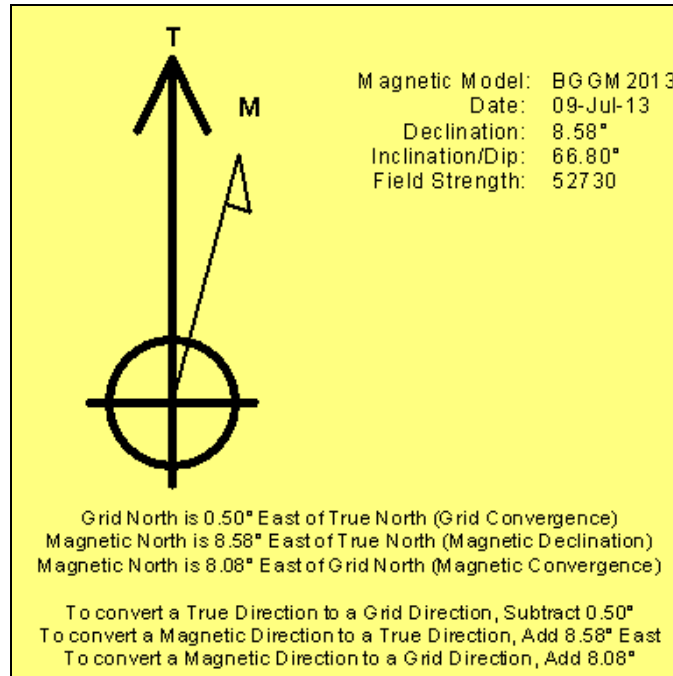
Grid Coordinates of Well: 1,308,052.08 ft N, 3,215,636.99 ft E

Geographical Coordinates of Well: 40° 10' 35.12" N, 104° 43' 41.82" W

Grid Convergence at Surface is: 0.50°

Based upon Minimum Curvature type calculations, at a Measured Depth of 11,955.00ft
the Bottom Hole Displacement is 4,145.01ft in the Direction of 353.45° (True).

Magnetic Convergence at surface is: -8.08° (9 July 2013, , BGGM2013)



Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 36-T3N-R66W

USA Fed 29C-36HZ

Plan B

Design: Actual Field Surveys

Sperry Drilling Services Geodetic Report

31 July, 2013

Well Coordinates: 1,308,052.08 N, 3,215,636.99 E (40° 10' 35.12" N, 104° 43' 41.82" W)

Ground Level: 5,003.00 ft

Local Coordinate Origin:	Centered on Well USA Fed 29C-36HZ
Viewing Datum:	RKB = 13 @ 5016.00ft (Ensign 132)
TVDs to System:	N
North Reference:	True
Unit System:	API - US Survey Feet - Custom
Geodetic Scale Factor Applied	
Version: 2003.16 Build: 431	

HALLIBURTON

Design Report for USA Fed 29C-36HZ - Actual Field Surveys

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	Local Coordinates		Geographic Coordinates		UTM Coordinates	
				+N/-S (ft)	+E/-W (ft)	Latitude (ft)	Longitude (ft)	Northing (ft)	Easting (ft)
0.00	0.00	0.00	0.00	0.00	0.00	40.176423	-104.728284	1,308,052.08	3,215,636.99
323.00	0.57	322.08	322.99	1.27	-0.99	40.176426	-104.728288	1,308,053.34	3,215,635.99
415.00	0.34	342.83	414.99	1.89	-1.35	40.176428	-104.728289	1,308,053.96	3,215,635.62
507.00	0.28	11.05	506.99	2.37	-1.39	40.176429	-104.728289	1,308,054.44	3,215,635.58
601.00	0.14	11.21	600.99	2.71	-1.32	40.176430	-104.728289	1,308,054.78	3,215,635.64
725.00	0.62	347.68	724.99	3.51	-1.43	40.176433	-104.728289	1,308,055.58	3,215,635.52
818.00	0.66	322.34	817.98	4.43	-1.87	40.176435	-104.728291	1,308,056.50	3,215,635.08
891.00	0.70	320.53	890.98	5.11	-2.41	40.176437	-104.728293	1,308,057.17	3,215,634.53
975.00	0.84	312.21	974.97	5.92	-3.19	40.176439	-104.728295	1,308,057.97	3,215,633.74
1,249.00	1.21	312.68	1,248.92	9.23	-6.81	40.176448	-104.728308	1,308,061.25	3,215,630.10
1,341.00	3.11	275.36	1,340.86	10.12	-10.00	40.176451	-104.728320	1,308,062.11	3,215,626.89
1,432.00	4.65	255.86	1,431.65	9.45	-16.04	40.176449	-104.728341	1,308,061.39	3,215,620.87
1,524.00	6.65	242.65	1,523.20	6.09	-24.39	40.176440	-104.728371	1,308,057.96	3,215,612.55
1,616.00	7.84	230.04	1,614.47	-0.39	-33.93	40.176422	-104.728405	1,308,051.40	3,215,603.06
1,708.00	8.86	219.98	1,705.50	-9.85	-43.29	40.176396	-104.728439	1,308,041.86	3,215,593.78
1,799.00	9.77	207.49	1,795.31	-22.07	-51.36	40.176362	-104.728468	1,308,029.57	3,215,585.82
1,891.00	11.21	209.58	1,885.77	-36.77	-59.38	40.176322	-104.728496	1,308,014.80	3,215,577.93
1,986.00	11.35	209.07	1,978.93	-52.97	-68.48	40.176278	-104.728529	1,307,998.52	3,215,568.97
2,081.00	11.03	208.76	2,072.13	-69.11	-77.39	40.176233	-104.728561	1,307,982.31	3,215,560.20
2,176.00	10.59	209.39	2,165.44	-84.68	-86.05	40.176190	-104.728592	1,307,966.66	3,215,551.68
2,271.00	10.05	209.93	2,258.91	-99.47	-94.47	40.176150	-104.728622	1,307,951.80	3,215,543.39
2,366.00	11.23	209.92	2,352.27	-114.68	-103.22	40.176108	-104.728653	1,307,936.52	3,215,534.77
2,556.00	9.06	212.22	2,539.29	-143.37	-120.43	40.176029	-104.728715	1,307,907.68	3,215,517.82
2,651.00	10.54	207.51	2,632.90	-157.41	-128.43	40.175991	-104.728744	1,307,893.57	3,215,509.94
2,746.00	9.16	209.29	2,726.50	-171.71	-136.14	40.175952	-104.728771	1,307,879.21	3,215,502.35
2,842.00	10.74	210.38	2,821.05	-186.09	-144.40	40.175912	-104.728801	1,307,864.75	3,215,494.21
2,937.00	10.74	212.42	2,914.39	-201.20	-153.63	40.175871	-104.728834	1,307,849.57	3,215,485.12
3,032.00	10.80	212.55	3,007.72	-216.17	-163.16	40.175830	-104.728868	1,307,834.51	3,215,475.72
3,127.00	10.65	212.76	3,101.06	-231.06	-172.70	40.175789	-104.728902	1,307,819.54	3,215,466.31
3,222.00	10.51	214.31	3,194.44	-245.60	-182.33	40.175749	-104.728936	1,307,804.92	3,215,456.80
3,317.00	9.35	213.18	3,288.02	-259.21	-191.44	40.175711	-104.728969	1,307,791.23	3,215,447.82
3,412.00	10.41	208.97	3,381.61	-273.18	-199.82	40.175673	-104.728999	1,307,777.19	3,215,439.56
3,508.00	9.61	210.67	3,476.15	-287.66	-208.11	40.175633	-104.729029	1,307,762.64	3,215,431.40
3,698.00	9.78	207.72	3,663.43	-315.59	-223.71	40.175557	-104.729085	1,307,734.58	3,215,416.04
3,793.00	8.46	208.58	3,757.23	-328.87	-230.80	40.175520	-104.729110	1,307,721.23	3,215,409.06
3,888.00	9.93	210.03	3,851.01	-342.10	-238.25	40.175484	-104.729137	1,307,707.94	3,215,401.74
3,983.00	8.78	210.49	3,944.74	-355.44	-246.03	40.175447	-104.729164	1,307,694.54	3,215,394.07
4,078.00	9.67	206.31	4,038.51	-368.84	-253.24	40.175410	-104.729190	1,307,681.07	3,215,386.98
4,173.00	10.58	210.46	4,132.03	-383.51	-261.20	40.175370	-104.729219	1,307,666.33	3,215,379.15
4,269.00	10.95	210.40	4,226.34	-398.97	-270.28	40.175328	-104.729251	1,307,650.80	3,215,370.20
4,364.00	10.61	212.39	4,319.67	-414.14	-279.53	40.175286	-104.729284	1,307,635.55	3,215,361.08
4,459.00	9.28	212.11	4,413.24	-428.01	-288.29	40.175248	-104.729316	1,307,621.60	3,215,352.45

Design Report for USA Fed 29C-36HZ - Actual Field Surveys

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	Local Coordinates		Geographic Coordinates		UTM Coordinates	
				+N/-S (ft)	+E/-W (ft)	Latitude (ft)	Longitude (ft)	Northing (ft)	Easting (ft)
4,554.00	10.58	208.96	4,506.81	-442.13	-296.58	40.175209	-104.729345	1,307,607.41	3,215,344.28
4,649.00	10.47	209.48	4,600.22	-457.27	-305.05	40.175168	-104.729376	1,307,592.19	3,215,335.94
4,744.00	9.46	210.14	4,693.78	-471.54	-313.22	40.175129	-104.729405	1,307,577.86	3,215,327.89
4,839.00	10.30	207.98	4,787.37	-485.79	-321.13	40.175089	-104.729433	1,307,563.54	3,215,320.11
4,934.00	9.92	208.87	4,880.90	-500.46	-329.06	40.175049	-104.729462	1,307,548.80	3,215,312.31
5,030.00	9.06	208.79	4,975.58	-514.32	-336.69	40.175011	-104.729489	1,307,534.87	3,215,304.80
5,125.00	9.54	200.45	5,069.34	-528.26	-343.05	40.174973	-104.729512	1,307,520.88	3,215,298.56
5,220.00	8.40	200.80	5,163.17	-542.12	-348.26	40.174935	-104.729530	1,307,506.98	3,215,293.47
5,315.00	7.54	202.46	5,257.26	-554.37	-353.11	40.174901	-104.729548	1,307,494.69	3,215,288.73
5,410.00	6.40	206.13	5,351.55	-564.88	-357.82	40.174872	-104.729564	1,307,484.13	3,215,284.11
5,505.00	4.42	204.66	5,446.12	-572.96	-361.68	40.174850	-104.729578	1,307,476.02	3,215,280.32
5,600.00	2.57	199.62	5,540.94	-578.30	-363.92	40.174836	-104.729586	1,307,470.67	3,215,278.13
5,695.00	0.48	160.74	5,635.91	-580.68	-364.51	40.174829	-104.729588	1,307,468.28	3,215,277.56
5,790.00	0.10	151.52	5,730.90	-581.13	-364.34	40.174828	-104.729588	1,307,467.83	3,215,277.74
5,885.00	0.10	134.93	5,825.90	-581.26	-364.24	40.174827	-104.729587	1,307,467.70	3,215,277.84
5,980.00	0.11	135.87	5,920.90	-581.38	-364.12	40.174827	-104.729587	1,307,467.58	3,215,277.96
6,076.00	0.37	153.44	6,016.90	-581.73	-363.91	40.174826	-104.729586	1,307,467.24	3,215,278.16
6,171.00	0.58	123.94	6,111.90	-582.27	-363.38	40.174825	-104.729584	1,307,466.70	3,215,278.71
6,266.00	0.59	129.26	6,206.90	-582.85	-362.60	40.174823	-104.729582	1,307,466.13	3,215,279.49
6,361.00	0.68	126.50	6,301.89	-583.49	-361.77	40.174821	-104.729579	1,307,465.49	3,215,280.33
6,456.00	0.78	159.14	6,396.88	-584.43	-361.08	40.174819	-104.729576	1,307,464.56	3,215,281.02
6,551.00	1.02	151.75	6,491.87	-585.78	-360.45	40.174815	-104.729574	1,307,463.21	3,215,281.66
6,646.00	0.89	148.18	6,586.86	-587.15	-359.67	40.174811	-104.729571	1,307,461.85	3,215,282.46
6,741.00	0.71	151.42	6,681.85	-588.30	-358.99	40.174808	-104.729569	1,307,460.71	3,215,283.14
6,836.00	0.68	145.77	6,776.84	-589.28	-358.40	40.174805	-104.729567	1,307,459.73	3,215,283.75
6,888.00	0.83	20.32	6,828.84	-589.18	-358.09	40.174806	-104.729565	1,307,459.83	3,215,284.05
6,931.00	3.63	8.78	6,871.80	-587.54	-357.78	40.174810	-104.729564	1,307,461.47	3,215,284.35
6,973.00	7.10	2.26	6,913.61	-583.63	-357.47	40.174821	-104.729563	1,307,465.39	3,215,284.62
7,026.00	13.29	355.59	6,965.75	-574.28	-357.81	40.174847	-104.729564	1,307,474.74	3,215,284.20
7,074.00	17.13	355.24	7,012.06	-561.73	-358.82	40.174881	-104.729568	1,307,487.28	3,215,283.08
7,122.00	20.46	357.07	7,057.50	-546.30	-359.84	40.174923	-104.729572	1,307,502.70	3,215,281.93
7,170.00	23.21	0.76	7,102.05	-528.46	-360.14	40.174972	-104.729573	1,307,520.53	3,215,281.47
7,217.00	26.70	0.40	7,144.66	-508.64	-359.94	40.175027	-104.729572	1,307,540.36	3,215,281.50
7,265.00	31.86	358.83	7,186.51	-485.17	-360.13	40.175091	-104.729573	1,307,563.82	3,215,281.11
7,312.00	36.83	358.47	7,225.30	-458.67	-360.76	40.175164	-104.729575	1,307,590.31	3,215,280.25
7,360.00	41.93	358.54	7,262.39	-428.24	-361.55	40.175247	-104.729578	1,307,620.74	3,215,279.19
7,407.00	47.76	357.25	7,295.70	-395.13	-362.79	40.175338	-104.729582	1,307,653.83	3,215,277.67
7,455.00	54.04	356.37	7,325.96	-357.96	-364.87	40.175440	-104.729590	1,307,690.98	3,215,275.26
7,502.00	59.09	359.24	7,351.85	-318.78	-366.34	40.175548	-104.729595	1,307,730.14	3,215,273.45
7,550.00	63.94	2.89	7,374.74	-276.62	-365.53	40.175664	-104.729592	1,307,772.30	3,215,273.89
7,598.00	70.32	3.22	7,393.39	-232.48	-363.17	40.175785	-104.729584	1,307,816.46	3,215,275.87
7,630.00	75.39	2.52	7,402.82	-201.95	-361.64	40.175869	-104.729578	1,307,847.00	3,215,277.13

Design Report for USA Fed 29C-36HZ - Actual Field Surveys

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	Local Coordinates		Geographic Coordinates		UTM Coordinates	
				+N/-S (ft)	+E/-W (ft)	Latitude (ft)	Longitude (ft)	Northing (ft)	Easting (ft)
7,661.00	79.31	0.85	7,409.61	-171.73	-360.76	40.175952	-104.729575	1,307,877.23	3,215,277.75
7,693.00	83.33	0.92	7,414.44	-140.10	-360.27	40.176038	-104.729573	1,307,908.86	3,215,277.97
7,732.00	88.30	1.06	7,417.28	-101.23	-359.60	40.176145	-104.729571	1,307,947.74	3,215,278.30
7,764.60	89.10	0.72	7,418.02	-68.64	-359.09	40.176235	-104.729569	1,307,980.33	3,215,278.52
7,786.00	89.63	0.50	7,418.26	-47.24	-358.86	40.176293	-104.729568	1,308,001.72	3,215,278.57
7,881.00	91.05	1.31	7,417.69	-47.74	-357.36	40.176554	-104.729563	1,308,096.71	3,215,279.24
7,976.00	90.87	1.31	7,416.10	142.70	-355.19	40.176815	-104.729555	1,308,191.69	3,215,280.59
8,071.00	91.30	359.39	7,414.30	237.68	-354.61	40.177075	-104.729553	1,308,286.66	3,215,280.34
8,166.00	91.30	358.37	7,412.15	332.64	-356.46	40.177336	-104.729560	1,308,381.59	3,215,277.66
8,261.00	90.99	357.30	7,410.25	427.55	-360.05	40.177597	-104.729572	1,308,476.47	3,215,273.24
8,356.00	89.07	358.33	7,410.20	522.47	-363.67	40.177857	-104.729585	1,308,571.35	3,215,268.79
8,451.00	88.08	356.75	7,412.56	617.35	-367.75	40.178118	-104.729600	1,308,666.19	3,215,263.89
8,546.00	89.57	358.14	7,414.51	712.23	-371.98	40.178378	-104.729615	1,308,761.02	3,215,258.83
8,641.00	90.06	0.32	7,414.82	807.22	-373.26	40.178639	-104.729620	1,308,855.99	3,215,256.73
8,736.00	89.81	359.86	7,414.92	902.22	-373.11	40.178900	-104.729619	1,308,950.98	3,215,256.05
8,831.00	89.26	359.12	7,415.70	997.21	-373.96	40.179160	-104.729622	1,309,045.96	3,215,254.38
8,927.00	88.64	358.50	7,417.45	1,093.17	-375.95	40.179424	-104.729629	1,309,141.90	3,215,251.55
9,022.00	90.43	357.16	7,418.23	1,188.09	-379.55	40.179684	-104.729642	1,309,236.78	3,215,247.13
9,117.00	90.62	356.98	7,417.36	1,282.97	-384.40	40.179945	-104.729660	1,309,331.60	3,215,241.45
9,212.00	90.19	356.91	7,416.68	1,377.83	-389.47	40.180205	-104.729678	1,309,426.41	3,215,235.56
9,307.00	89.94	356.44	7,416.58	1,472.67	-394.98	40.180465	-104.729698	1,309,521.20	3,215,229.23
9,402.00	90.31	358.33	7,416.37	1,567.56	-399.31	40.180726	-104.729713	1,309,616.05	3,215,224.07
9,497.00	90.00	357.10	7,416.11	1,662.49	-403.10	40.180986	-104.729727	1,309,710.93	3,215,219.45
9,592.00	91.11	357.63	7,415.19	1,757.38	-407.46	40.181247	-104.729742	1,309,805.78	3,215,214.26
9,687.00	90.56	358.93	7,413.81	1,852.33	-410.32	40.181508	-104.729752	1,309,900.69	3,215,210.58
9,782.00	89.69	358.70	7,413.60	1,947.30	-412.28	40.181768	-104.729759	1,309,995.64	3,215,207.79
9,877.00	89.26	358.45	7,414.47	2,042.27	-414.64	40.182029	-104.729768	1,310,090.58	3,215,204.61
9,973.00	90.56	358.19	7,414.62	2,138.23	-417.46	40.182292	-104.729778	1,310,186.51	3,215,200.96
10,068.00	88.83	355.33	7,415.13	2,233.06	-422.83	40.182553	-104.729797	1,310,281.29	3,215,194.76
10,163.00	88.64	356.74	7,417.22	2,327.81	-429.39	40.182813	-104.729821	1,310,375.97	3,215,187.37
10,258.00	90.38	358.66	7,418.04	2,422.72	-433.20	40.183073	-104.729834	1,310,470.84	3,215,182.73
10,353.00	91.11	1.50	7,416.80	2,517.70	-433.07	40.183334	-104.729834	1,310,565.81	3,215,182.04
10,448.00	90.74	1.41	7,415.27	2,612.66	-430.66	40.183595	-104.729825	1,310,660.78	3,215,183.63
10,543.00	90.43	359.89	7,414.30	2,707.64	-429.58	40.183855	-104.729821	1,310,755.77	3,215,183.88
10,733.00	89.01	357.57	7,415.23	2,897.58	-433.79	40.184377	-104.729837	1,310,945.65	3,215,178.01
10,828.00	89.38	358.14	7,416.56	2,992.50	-437.35	40.184637	-104.729849	1,311,040.54	3,215,173.63
10,923.00	89.26	357.87	7,417.69	3,087.44	-440.66	40.184898	-104.729861	1,311,135.44	3,215,169.50
11,018.00	89.01	357.18	7,419.12	3,182.34	-444.76	40.185158	-104.729876	1,311,230.29	3,215,164.57
11,113.00	88.70	355.60	7,421.02	3,277.12	-450.74	40.185419	-104.729897	1,311,325.02	3,215,157.77
11,208.00	89.51	355.31	7,422.50	3,371.81	-458.26	40.185679	-104.729924	1,311,419.64	3,215,149.42
11,303.00	90.12	355.67	7,422.81	3,466.52	-465.73	40.185939	-104.729951	1,311,514.27	3,215,141.12
11,399.00	90.62	356.28	7,422.19	3,562.28	-472.47	40.186201	-104.729975	1,311,609.97	3,215,133.55

Design Report for USA Fed 29C-36HZ - Actual Field Surveys

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	Local Coordinates		Geographic Coordinates		UTM Coordinates	
				+N/-S (ft)	+E/-W (ft)	Latitude (ft)	Longitude (ft)	Northing (ft)	Easting (ft)
11,494.00	90.68	357.62	7,421.11	3,657.14	-477.53	40.186462	-104.729993	1,311,704.77	3,215,127.67
11,589.00	90.56	359.92	7,420.09	3,752.10	-479.57	40.186722	-104.730000	1,311,799.71	3,215,124.81
11,684.00	90.93	1.64	7,418.85	3,847.08	-478.27	40.186983	-104.729996	1,311,894.70	3,215,125.27
11,779.00	90.93	1.28	7,417.31	3,942.04	-475.85	40.187244	-104.729987	1,311,989.67	3,215,126.87
11,905.00	91.61	0.86	7,414.52	4,067.98	-473.50	40.187590	-104.729979	1,312,115.62	3,215,128.12
11,955.00	91.61	0.86	7,413.11	4,117.96	-472.75	40.187727	-104.729976	1,312,165.60	3,215,128.44

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
323.00	322.99	1.27	-0.99	First MWD Survey @ 323.00ft
11,905.00	7,414.52	4,067.98	-473.50	Last MWD Survey @ 11905.00ft
11,955.00	7,413.11	4,117.96	-472.75	Straight Proj @ 11905ft MD :: 7413.11ft TVD

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (ft)
				+N/_S (ft)	+E/-W (ft)	
User	No Target (Freehand)	358.81	Slot	0.00	0.00	0.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
323.00	7,732.00	Sperry MWD Surveys Vertical/Build	MWD+IFR1+SC
7,786.00	11,905.00	Sperry MWD Surveys Lateral	MWD+IFR1+SC

Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
891.00	890.98	9 5/8"	9-5/8	13-1/2
7,764.60	7,418.02	7" @ 7764.60 ft MD :: 7418.02 ft TVD	7	8-3/4

Design Report for USA Fed 29C-36HZ - Actual Field Surveys

Targets for Plan B

Shape	Target Name	TVD (ft)	Northing (ft)	Easting (ft)	+N/-S ft	+E/-W ft	Created	Updated
Point	USA Fed 29C-36HZ_BHL	7,411.00	1,312,191.31	3,215,143.60	4,143.53	-457.37	7/1/2013	7/9/2013
Polygon	USA Fed 29C-36HZ_LD	0.00	1,308,052.09	3,215,636.99	0.00	0.00	7/1/2013	7/8/2013
Polygon	USA Fed 29C-36HZ_HSU	0.00	1,308,063.27	3,215,664.83	10.94	27.94	7/8/2013	7/8/2013
Polygon	USA Fed 29C-36HZ_Sec	0.00	1,308,052.09	3,215,636.99	0.00	0.00	7/1/2013	7/8/2013
Point	USA Fed 29C-36HZ_SHL	0.00	1,308,052.09	3,215,636.99	0.00	0.00	7/1/2013	7/1/2013

North Reference Sheet for Sec. 36-T3N-R66W - USA Fed 29C-36HZ - Plan B

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

Vertical Depths are relative to RKB = 13 @ 5016.00ft (Ensign 132). Northing and Easting are relative to USA Fed 29C-36HZ

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: 0.99995768

Grid Coordinates of Well: 1,308,052.08 ft N, 3,215,636.99 ft E

Geographical Coordinates of Well: 40° 10' 35.12" N, 104° 43' 41.82" W

Grid Convergence at Surface is: 0.50°

Based upon Minimum Curvature type calculations, at a Measured Depth of 11,955.00ft

the Bottom Hole Displacement is 4,145.01ft in the Direction of 353.45° (True).

Magnetic Convergence at surface is: -8.08° (9 July 2013, , BGGM2013)

