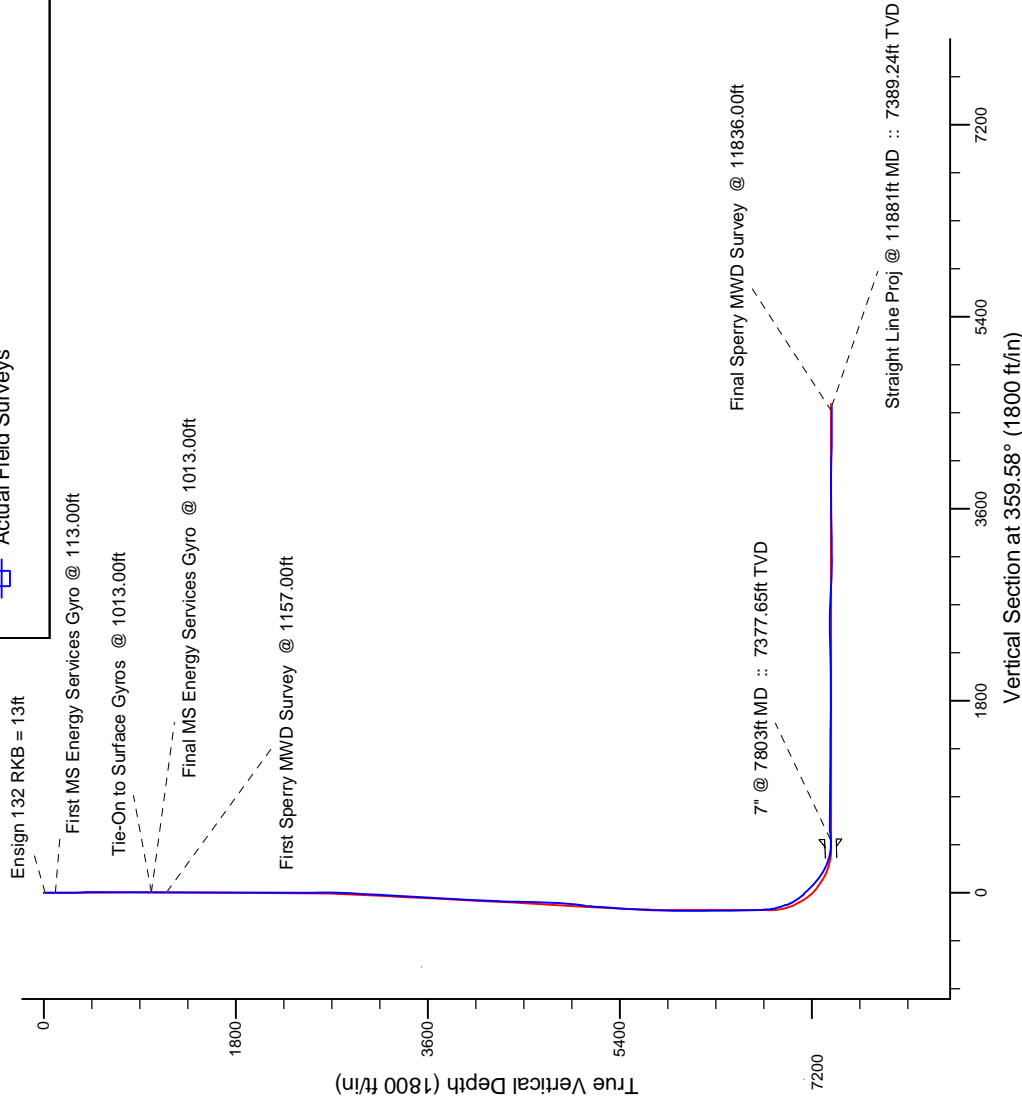
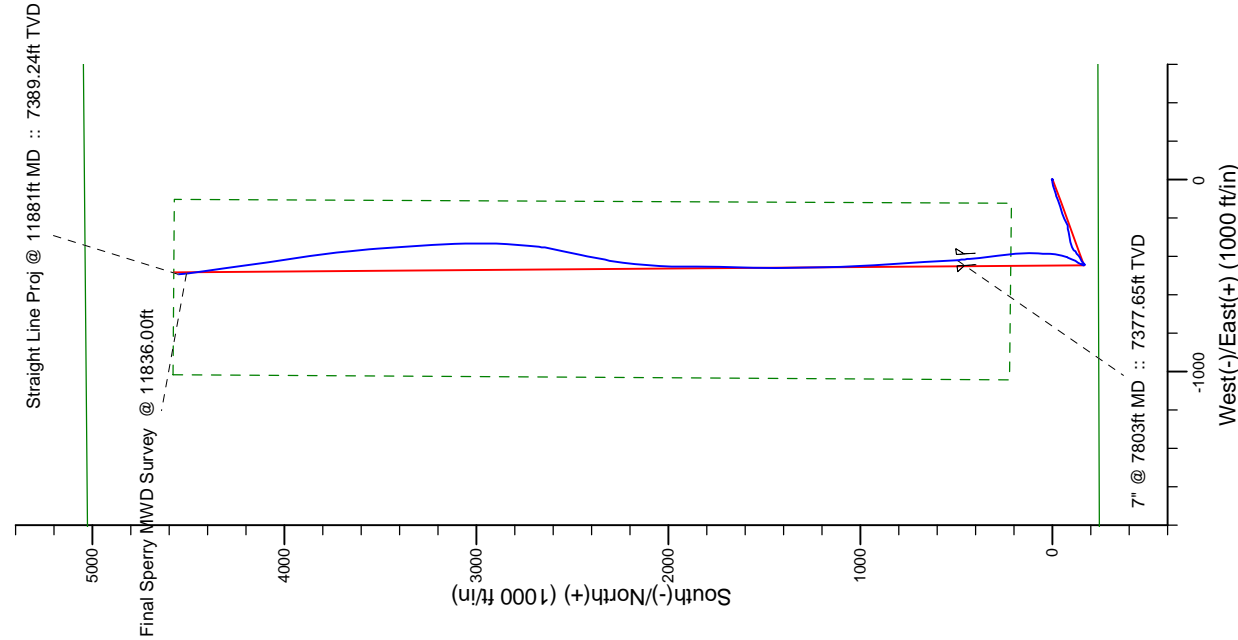


Project: Weld County, CO (NAD 83)
Site: Sec. 23-T2N-R66W
Well: Gobbler 28N-23HZ
Wellbore: Plan A Rev 0
Design: Actual Field Surveys



LEGEND

- Gobbler 28N-23HZ, Plan A Rev 0, Plan A Rev 0 - PROPOSAL V0
- Actual Field Surveys



7" Casing: ~739.25' FSL, ~2495.56' FEL
Lat/Long: 40.118510 N, -104.743888 E
State Planes - CO Northern: 1,286,918.62' N, 3,211,456.88' E
Location: Sec. 23-T2N-R66W

BHL: ~483.65' FNL, ~2592.20' FEL
Lat/Long: 40.129646 N, -104.744155 E
State Planes - CO Northern: 1,290,974.64' N, 3,211,347.56' E
Location: Sec. 23-T2N-R66W

WELL DETAILS: Gobbler 28N-23HZ
Ground Level: 5101.00
RKB=13 @ 5114.00ft (Ensign 132)

Design: Actual Field Surveys (Gobbler 28N-23HZ/Plan A Rev 0)
Created By: Clint Eshelman
Reviewed: _____
Date: 07/16/2013
Date: _____

Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 23-T2N-R66W

Gobbler 28N-23HZ

Plan A Rev 0

Design: Actual Field Surveys

Sperry Drilling Services Standard Report

16 July, 2013

Well Coordinates: 1,286,424.35 N, 3,211,878.89 E (40° 07' 01.71" N, 104° 44' 32.62" W)

Ground Level: 5,101.00 ft

Local Coordinate Origin:

Centered on Well Gobbler 28N-23HZ

Viewing Datum:

RKB=13 @ 5114.00ft (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 Gobbler 28N-23HZ - 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
13.00	0.00	0.00	13.00	0.00	0.00	0.00	0.00
Ensign 132 RKB = 13ft							
113.00	0.54	352.83	113.00	0.47	-0.06	0.47	0.54
First MS Energy Services Gyro @ 113.00ft							
213.00	0.55	24.41	212.99	1.37	0.08	1.37	0.30
313.00	0.54	36.78	312.99	2.19	0.56	2.18	0.12
413.00	0.47	59.84	412.99	2.77	1.20	2.76	0.21
513.00	0.58	35.51	512.98	3.39	1.85	3.37	0.25
613.00	0.27	336.32	612.98	4.02	2.05	4.00	0.50
713.00	0.30	59.34	712.98	4.37	2.18	4.35	0.38
813.00	0.13	75.67	812.98	4.53	2.51	4.51	0.18
913.00	0.07	259.24	912.98	4.54	2.56	4.52	0.20
1,013.00	0.42	221.67	1,012.98	4.26	2.26	4.24	0.37
Final MS Energy Services Gyro @ 1013.00ft - Tie-On to Surface Gyros @ 1013.00ft							
1,157.00	0.32	167.04	1,156.97	3.47	2.00	3.46	0.24
First Sperry MWD Survey @ 1157.00ft							
1,433.00	0.32	135.44	1,432.97	2.17	2.71	2.15	0.06
1,709.00	0.22	154.27	1,708.97	1.15	3.48	1.12	0.05
1,989.00	0.28	159.46	1,988.96	0.02	3.96	-0.01	0.02
2,276.00	0.20	234.92	2,275.96	-0.92	3.79	-0.95	0.10
2,465.00	0.28	313.66	2,464.96	-0.79	3.19	-0.82	0.16
2,560.00	3.46	291.07	2,559.90	0.40	0.34	0.39	3.37
2,656.00	4.99	264.19	2,655.64	1.02	-6.51	1.06	2.57
2,751.00	7.55	264.53	2,750.07	0.00	-16.84	0.13	2.70
2,847.00	9.34	250.86	2,845.03	-3.15	-30.48	-2.93	2.79
2,943.00	10.35	253.14	2,939.62	-8.21	-46.09	-7.87	1.13
3,039.00	8.99	253.75	3,034.25	-12.81	-61.55	-12.36	1.42
3,134.00	10.37	253.43	3,127.90	-17.33	-76.87	-16.76	1.45
3,230.00	11.00	247.46	3,222.23	-23.30	-93.61	-22.61	1.33
3,325.00	10.27	249.74	3,315.60	-29.71	-109.93	-28.90	0.89
3,421.00	9.24	250.76	3,410.21	-35.21	-125.23	-34.29	1.09
3,517.00	8.25	253.38	3,505.10	-39.72	-139.11	-38.70	1.11
3,612.00	9.55	256.47	3,598.95	-43.51	-153.30	-42.39	1.46
3,708.00	9.70	253.09	3,693.60	-47.73	-168.78	-46.49	0.61
3,898.00	10.16	241.90	3,880.77	-60.28	-198.88	-58.82	1.04
3,993.00	8.87	239.51	3,974.46	-67.94	-212.59	-66.38	1.42
4,089.00	8.62	248.82	4,069.35	-74.30	-225.67	-72.64	1.50
4,183.00	9.39	258.83	4,162.20	-78.33	-239.77	-76.57	1.85
4,279.00	8.95	257.77	4,256.97	-81.43	-254.75	-79.56	0.49
4,374.00	9.66	259.75	4,350.72	-84.41	-269.81	-82.43	0.82
4,470.00	9.22	261.36	4,445.42	-87.00	-285.34	-84.91	0.53
4,661.00	7.59	260.27	4,634.36	-91.43	-312.90	-89.13	0.86
4,757.00	9.43	256.41	4,729.30	-94.35	-326.80	-91.95	2.01
4,851.00	10.50	249.31	4,821.89	-99.19	-342.30	-96.67	1.73
4,946.00	11.63	240.43	4,915.13	-106.97	-358.73	-104.34	2.15
5,042.00	11.17	226.95	5,009.25	-118.10	-373.94	-115.35	2.81
5,137.00	6.42	227.25	5,103.10	-127.99	-384.57	-125.17	5.00
5,232.00	8.29	237.56	5,197.32	-135.27	-394.25	-132.37	2.40
5,327.00	7.56	237.18	5,291.42	-142.33	-405.28	-139.35	0.77

Design Report for Gobbler 28N-23HZ - Actual Field Surveys

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
5,423.00	7.12	237.94	5,386.63	-148.91	-415.63	-145.86	0.47
5,518.00	6.41	236.09	5,480.97	-154.99	-425.02	-151.87	0.78
5,614.00	5.49	237.75	5,576.45	-160.43	-433.35	-157.25	0.97
5,709.00	3.28	221.94	5,671.17	-164.88	-439.02	-161.66	2.63
5,804.00	2.81	214.81	5,766.03	-168.81	-442.16	-165.57	0.63
5,900.00	0.40	176.22	5,861.99	-171.08	-443.48	-167.83	2.61
5,996.00	0.56	66.96	5,957.99	-171.23	-443.03	-167.98	0.82
6,187.00	0.00	39.80	6,148.99	-170.87	-442.17	-167.62	0.29
6,474.00	1.09	1.13	6,435.97	-168.14	-442.12	-164.89	0.38
6,760.00	1.20	325.40	6,721.91	-162.95	-443.76	-159.70	0.25
6,809.00	1.09	332.75	6,770.90	-162.12	-444.27	-158.86	0.37
6,856.00	8.94	19.13	6,817.70	-158.26	-443.27	-155.01	17.50
6,904.00	18.52	26.43	6,864.27	-147.89	-438.65	-144.67	20.24
6,951.00	18.61	29.33	6,908.83	-134.66	-431.65	-131.50	1.97
7,000.00	20.00	28.69	6,955.07	-120.50	-423.80	-117.39	2.87
7,047.00	26.62	24.54	6,998.21	-103.85	-415.56	-100.80	14.50
7,095.00	33.44	23.61	7,039.75	-81.92	-405.78	-78.94	14.24
7,142.00	36.71	17.28	7,078.22	-56.63	-396.42	-53.72	10.40
7,191.00	40.00	9.11	7,116.66	-27.06	-389.57	-24.21	12.32
7,238.00	43.92	3.74	7,151.62	4.14	-386.11	6.97	11.30
7,286.00	47.31	0.05	7,185.19	38.41	-385.01	41.23	8.95
7,334.00	47.77	3.55	7,217.60	73.79	-383.89	76.60	5.46
7,382.00	51.17	2.76	7,248.79	110.21	-381.89	113.01	7.19
7,430.00	54.91	358.01	7,277.66	148.54	-381.67	151.34	11.10
7,478.00	59.05	355.82	7,303.81	188.72	-383.86	191.53	9.43
7,525.00	65.45	352.50	7,325.69	230.06	-388.12	232.90	14.98
7,573.00	68.33	354.18	7,344.53	273.91	-393.23	276.78	6.81
7,620.00	72.88	352.09	7,360.13	317.91	-398.54	320.82	10.55
7,668.00	79.09	352.06	7,371.75	364.01	-404.96	366.97	12.94
7,747.00	90.18	355.31	7,379.13	442.06	-413.58	445.08	14.62
7,803.00	92.84	356.06	7,377.65	497.87	-417.79	500.92	4.93
7" @ 7803ft MD :: 7377.65ft TVD							
7,829.00	94.07	356.41	7,376.09	523.77	-419.49	526.83	4.93
7,923.00	91.02	357.54	7,371.91	617.53	-424.44	620.63	3.46
8,018.00	88.21	355.89	7,372.55	712.36	-429.89	715.49	3.43
8,114.00	89.91	355.83	7,374.13	808.09	-436.82	811.27	1.77
8,210.00	89.20	356.11	7,374.87	903.85	-443.56	907.08	0.80
8,305.00	88.58	357.75	7,376.71	998.70	-448.65	1,001.96	1.85
8,401.00	90.37	357.44	7,377.59	1,094.60	-452.68	1,097.89	1.89
8,496.00	91.36	359.80	7,376.16	1,189.56	-454.97	1,192.86	2.69
8,687.00	89.48	358.50	7,374.76	1,380.52	-457.80	1,383.84	1.20
8,782.00	89.51	0.03	7,375.60	1,475.50	-459.02	1,478.83	1.61
8,878.00	89.91	1.61	7,376.08	1,571.49	-457.64	1,574.80	1.70
8,972.00	88.89	0.82	7,377.07	1,665.46	-455.65	1,668.76	1.37
9,099.00	89.23	0.92	7,379.15	1,792.43	-453.72	1,795.71	0.28
9,162.00	89.26	0.54	7,379.98	1,855.42	-452.92	1,858.69	0.60
9,258.00	89.91	1.20	7,380.67	1,951.40	-451.46	1,954.66	0.96
9,353.00	91.51	2.78	7,379.50	2,046.33	-448.16	2,049.56	2.37
9,482.00	91.14	5.89	7,376.51	2,174.91	-438.42	2,178.07	2.43
9,544.00	90.96	7.56	7,375.38	2,236.47	-431.16	2,239.57	2.71
9,640.00	90.31	10.99	7,374.31	2,331.20	-415.69	2,334.18	3.64

Design Report for Gobbler 28N-23HZ - Actual Field Surveys

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
9,735.00	90.40	10.57	7,373.72	2,424.52	-397.92	2,427.37	0.45
9,831.00	91.14	12.64	7,372.43	2,518.54	-378.61	2,521.25	2.29
9,927.00	89.78	10.75	7,371.66	2,612.54	-359.15	2,615.10	2.43
10,023.00	87.56	6.11	7,373.89	2,707.45	-345.09	2,709.90	5.36
10,119.00	87.44	4.03	7,378.08	2,802.97	-336.61	2,805.37	2.17
10,214.00	87.53	1.45	7,382.25	2,897.77	-332.08	2,900.12	2.71
10,310.00	87.71	359.90	7,386.24	2,993.67	-330.95	2,996.02	1.62
10,405.00	89.14	358.21	7,388.85	3,088.62	-332.51	3,090.97	2.33
10,501.00	90.03	356.44	7,389.54	3,184.51	-336.99	3,186.89	2.06
10,595.00	89.32	356.28	7,390.08	3,278.32	-342.96	3,280.74	0.77
10,690.00	91.39	356.65	7,389.49	3,373.13	-348.82	3,375.59	2.21
10,785.00	91.51	356.12	7,387.08	3,467.91	-354.81	3,470.42	0.57
10,880.00	90.28	354.95	7,385.60	3,562.60	-362.20	3,565.16	1.79
10,975.00	91.17	355.17	7,384.40	3,657.24	-370.38	3,659.86	0.97
11,071.00	89.91	352.51	7,383.49	3,752.67	-380.68	3,755.36	3.07
11,167.00	89.72	351.89	7,383.80	3,847.78	-393.71	3,850.57	0.68
11,262.00	89.63	351.56	7,384.34	3,941.79	-407.38	3,944.67	0.36
11,358.00	89.32	351.52	7,385.22	4,036.75	-421.50	4,039.73	0.33
11,453.00	88.64	351.66	7,386.91	4,130.71	-435.40	4,133.79	0.73
11,549.00	89.78	352.08	7,388.24	4,225.73	-448.97	4,228.91	1.27
11,645.00	89.63	351.26	7,388.73	4,320.72	-462.88	4,323.99	0.87
11,741.00	90.12	353.10	7,388.94	4,415.82	-475.94	4,419.19	1.98
11,836.00	89.75	353.29	7,389.05	4,510.15	-487.20	4,513.60	0.44
Final Sperry MWD Survey @ 11836.00ft							
11,881.00	89.75	353.29	7,389.24	4,554.84	-492.45	4,558.33	0.00
Straight Line Proj @ 11881ft MD :: 7389.24ft TVD							

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
13.00	13.00	0.00	0.00	Ensign 132 RKB = 13ft
113.00	113.00	0.47	-0.06	First MS Energy Services Gyro @ 113.00ft
1,013.00	1,012.98	4.26	2.26	Final MS Energy Services Gyro @ 1013.00ft
1,013.00	1,012.98	4.26	2.26	Tie-On to Surface Gyros @ 1013.00ft
1,157.00	1,156.97	3.47	2.00	First Sperry MWD Survey @ 1157.00ft
11,836.00	7,389.05	4,510.15	-487.20	Final Sperry MWD Survey @ 11836.00ft
11,881.00	7,389.24	4,554.84	-492.45	Straight Line Proj @ 11881ft MD :: 7389.24ft TVD

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (ft)
				+N/_S (ft)	+E/-W (ft)	
User	No Target (Freehand)	359.58	Slot	0.00	0.00	0.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
13.00	1,013.00	MS Energy Services - Surface Gyros	NS-GYRO-MS
1,157.00	7,747.00	MWD Surveys - Vert/Build	MWD+SC
7,829.00	11,836.00	MWD Surveys - Lateral	MWD+SC

Design Report for Gobbler 28N-23HZ - Actual Field Surveys**Casing Details**

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,803.00	7,377.65	7" @ 7803ft MD :: 7377.65ft 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
Gobbler 28N-23HZ_	0.00	0.00	0.00	0.00	0.00	,424.351715	1,878.886308	40.117143	-104.742394
- actual wellpath hits target center									
- Polygon									
Point 1			-1,016.74	4,581.84	1,290,997.15	3,210,823.08			
Point 2			-1,029.27	2,363.62	1,288,779.00	3,210,829.50			
Point 3			-1,042.05	222.03	1,286,637.46	3,210,835.02			
Point 4			-123.40	214.18	1,286,637.46	3,211,753.67			
Point 5			-112.71	2,432.59	1,288,855.79	3,211,745.40			
Point 6			-102.70	4,574.03	1,290,997.15	3,211,737.12			
Point 7			-1,016.74	4,581.84	1,290,997.15	3,210,823.08			
Gobbler 28N-23HZ_	0.00	0.00	0.00	0.00	0.00	,424.351715	1,878.886308	40.117143	-104.742394
- actual wellpath hits target center									
- Point									
Gobbler 28N-23HZ_	0.00	0.00	0.00	0.00	0.00	,424.351715	1,878.886308	40.117143	-104.742394
- actual wellpath hits target center									
- Polygon									
Point 1			-3,214.21	5,014.59	1,291,411.10	3,208,622.08			
Point 2			-3,230.28	2,382.43	1,288,779.00	3,208,628.50			
Point 3			-3,247.25	-249.81	1,286,146.82	3,208,634.02			
Point 4			-586.41	-241.91	1,286,177.45	3,211,294.59			
Point 5			2,073.94	-233.99	1,286,208.10	3,213,954.67			
Point 6			2,088.30	2,413.78	1,288,855.79	3,213,946.40			
Point 7			2,102.64	5,061.54	1,291,503.47	3,213,938.12			
Point 8			-555.22	5,037.98	1,291,457.20	3,211,280.67			
Point 9			-3,214.21	5,014.59	1,291,411.10	3,208,622.08			
Gobbler 28N-23HZ_	0.00	0.00	7,383.00	4,578.45	-480.13	,998.346966	1,359.680454	40.129711	-104.744111
- actual wellpath misses target center by 27.35ft at 11881.00ft MD (7389.24 TVD, 4554.84 N, -492.45 E)									
- Point									

North Reference Sheet for Sec. 23-T2N-R66W - Gobbler 28N-23HZ - Plan A 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=13 @ 5114.00ft (Ensign 132). Northing and Easting are relative to Gobbler 28N-23HZ

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: 3,000,000.000644ft, False Northing: 1,000,000.001308ft, Scale Reduction: 0.99995955

Grid Coordinates of Well: 1,286,424.351715 ft N, 3,211,878.886308 ft E

Geographical Coordinates of Well: 40° 07' 01.71" N, 104° 44' 32.62" W

Grid Convergence at Surface is: 0.49°

Based upon Minimum Curvature type calculations, at a Measured Depth of 11,881.00ft
the Bottom Hole Displacement is 4,581.39ft in the Direction of 353.83° (True).

Magnetic Convergence at surface is: -8.12° (27 June 2013, , BGGM2012)

