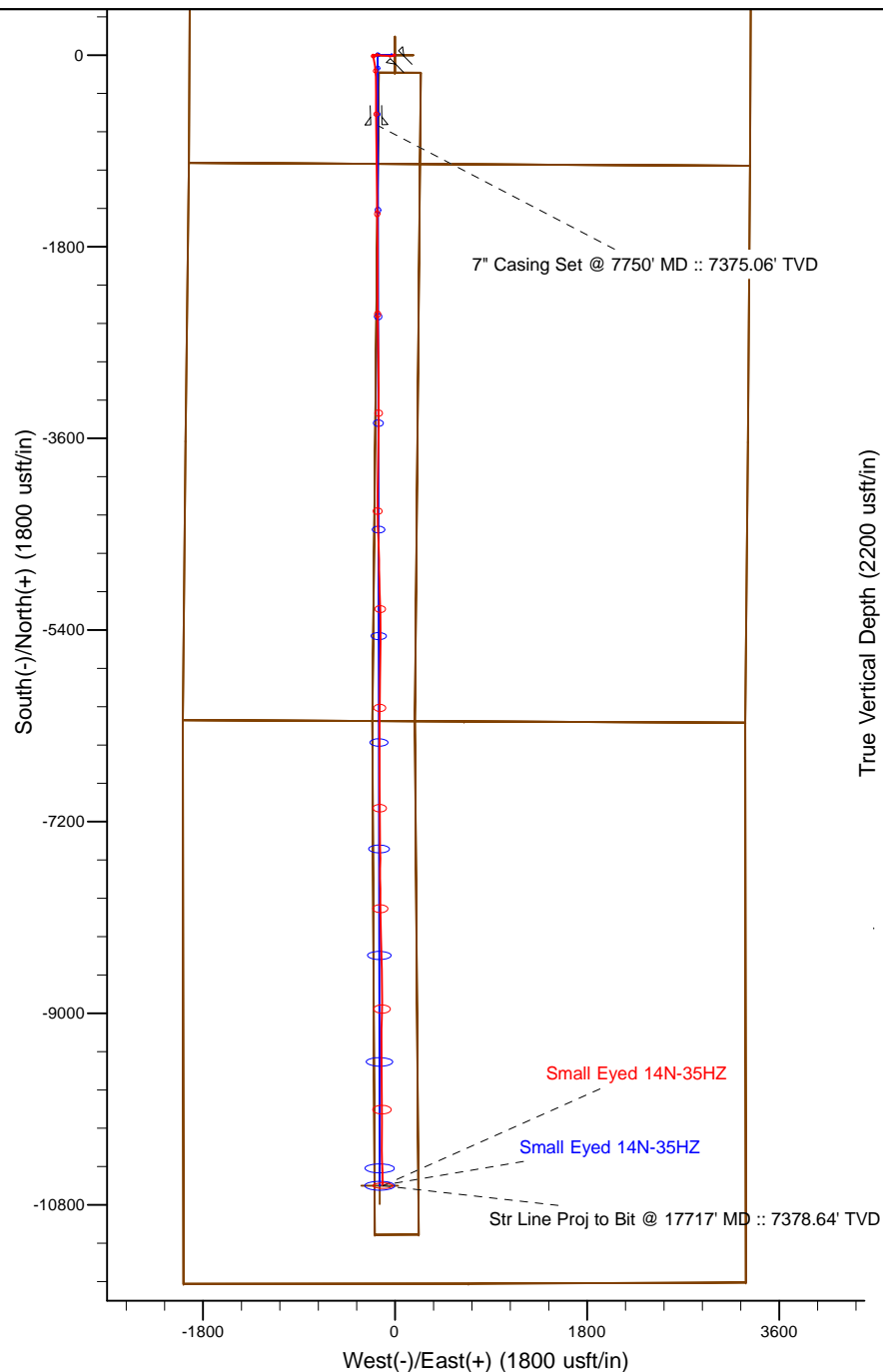
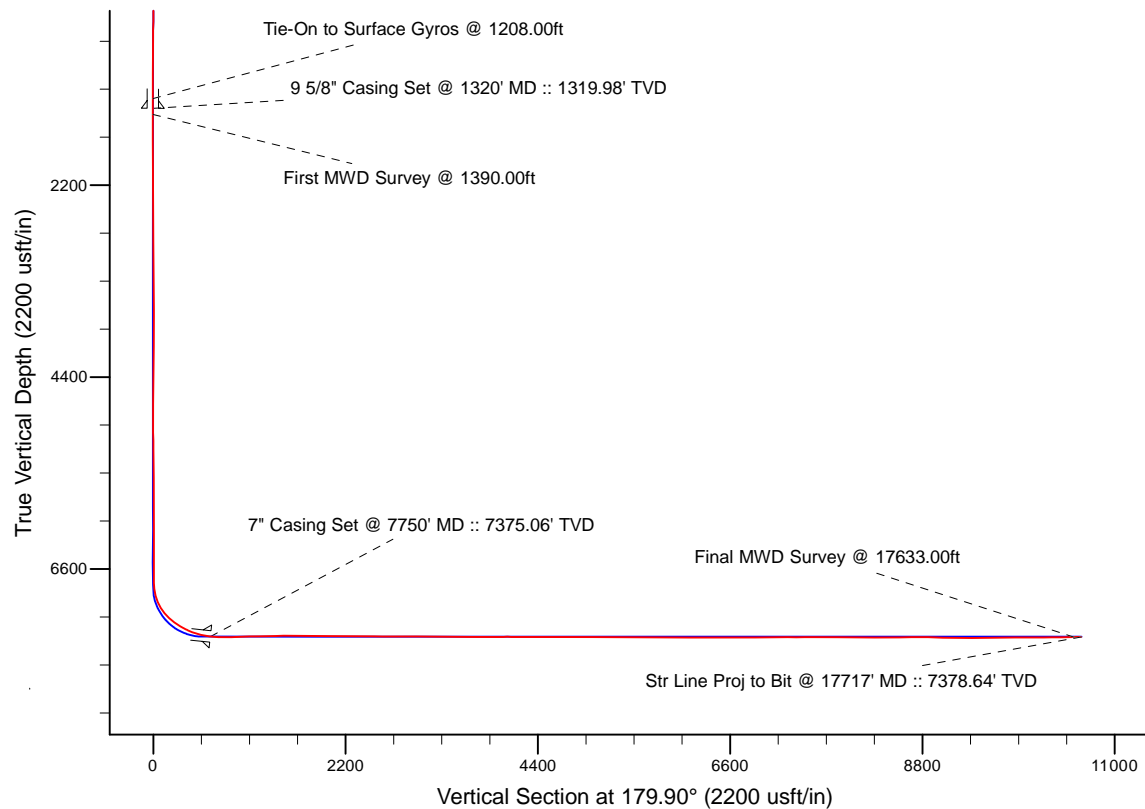


Project: Weld County, CO (NAD 83)
 Site: Sec. 23-T2N-R67W
 Well: Small Eyed 14N-35HZ
 Wellbore: Plan A
 Design: Actual Surveys



LEGEND

- Small Eyed 14N-35HZ, Plan A, Rev A0 V0
- Actual Surveys



7" Casing: ~365.07' FSL, ~1755.86' FWL
 Lat/Long: 40.117389 N, -104.861206 E
 State Planes - CO Northern: 1,286,252.39' N, 3,178,650.88' E
 Location: Sec. 23-T2N-R67W

BHL: ~920.17' FSL, ~1866.46' FWL
 Lat/Long: 40.090036 N, -104.860993 E
 State Planes - CO Northern: 1,276,288.86' N, 3,178,782.39' E
 Location: Sec. 35-T2N-R67W

WELL DETAILS: Small Eyed 14N-35HZ	
Ground Level:	4963.00
RKB = 25' @ 4988.00usft (H&P 308)	
Design: Actual Surveys (Small Eyed 14N-35HZ/Plan A)	
Created By: Clint Eshelman	Date: 9/10/2014
Reviewed: _____	Date: _____

Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 23-T2N-R67W

Small Eyed 14N-35HZ

Plan A

Design: Actual Surveys

Sperry Drilling Services

Standard Report

10 September, 2014

Well Coordinates: 1,286,907.80 N, 3,178,819.79 E (40° 07' 09.07" N, 104° 51' 38.11" W)

Ground Level: 4,963.00 usft

Local Coordinate Origin:

Centered on Well Small Eyed 14N-35HZ

Viewing Datum:

RKB = 25' @ 4988.00usft (H&P 308)

TVDs to System:

N

North Reference:

True

Unit System:

Dec-Deg - API - US Survey Feet - Custom

Geodetic Scale Factor Applied

Version: 5000.1 Build: 70

HALLIBURTON

Design Report for Small Eyed 14N-35HZ - Actual Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25.00	0.00	0.00	25.00	0.00	0.00	0.00	0.00
125.00	0.43	270.96	125.00	0.01	-0.38	-0.01	0.43
225.00	0.31	296.08	225.00	0.13	-0.99	-0.13	0.20
325.00	0.44	319.70	324.99	0.54	-1.48	-0.55	0.20
425.00	0.27	334.13	424.99	1.05	-1.84	-1.05	0.19
525.00	0.23	39.20	524.99	1.42	-1.81	-1.42	0.27
625.00	0.23	120.54	624.99	1.47	-1.51	-1.47	0.30
725.00	0.17	185.11	724.99	1.22	-1.35	-1.22	0.22
825.00	0.46	282.21	824.99	1.16	-1.76	-1.16	0.51
925.00	0.48	299.94	924.99	1.45	-2.51	-1.45	0.15
1,025.00	0.60	324.10	1,024.98	2.08	-3.18	-2.09	0.25
1,125.00	0.47	0.88	1,124.98	2.92	-3.48	-2.92	0.36
1,208.00	0.16	20.03	1,207.98	3.37	-3.44	-3.37	0.39
Tie-On to Surface Gyros @ 1208.00ft							
1,320.00	0.39	315.70	1,319.98	3.78	-3.65	-3.79	0.31
9 5/8" Casing Set @ 1320' MD :: 1319.98' TVD							
1,390.00	0.59	306.91	1,389.97	4.17	-4.10	-4.18	0.31
First MWD Survey @ 1390.00ft							
1,482.00	0.51	288.24	1,481.97	4.58	-4.87	-4.59	0.21
1,574.00	0.50	315.12	1,573.97	4.99	-5.54	-5.00	0.26
1,666.00	0.49	310.85	1,665.96	5.54	-6.12	-5.55	0.04
1,758.00	0.83	305.10	1,757.96	6.18	-6.96	-6.19	0.38
1,851.00	0.69	265.74	1,850.95	6.52	-8.07	-6.54	0.57
1,944.00	0.70	264.10	1,943.94	6.42	-9.20	-6.44	0.02
2,036.00	0.62	265.57	2,035.94	6.33	-10.25	-6.34	0.09
2,128.00	0.48	249.62	2,127.93	6.15	-11.11	-6.17	0.22
2,220.00	0.55	227.76	2,219.93	5.72	-11.80	-5.74	0.23
2,313.00	0.61	224.46	2,312.92	5.07	-12.48	-5.09	0.07
2,404.00	0.81	225.78	2,403.92	4.27	-13.28	-4.30	0.22
2,496.00	0.81	182.85	2,495.91	3.17	-13.77	-3.20	0.64
2,589.00	0.84	178.73	2,588.90	1.83	-13.79	-1.86	0.07
2,681.00	1.05	189.64	2,680.89	0.33	-13.92	-0.35	0.30
2,776.00	0.87	212.09	2,775.87	-1.14	-14.45	1.12	0.44
2,870.00	0.90	223.40	2,869.86	-2.28	-15.33	2.26	0.19
2,965.00	0.83	229.63	2,964.85	-3.27	-16.37	3.24	0.12
3,060.00	0.81	232.90	3,059.84	-4.12	-17.43	4.09	0.05
3,154.00	0.59	213.67	3,153.83	-4.92	-18.23	4.89	0.34
3,249.00	0.92	216.65	3,248.83	-5.94	-18.95	5.91	0.35
3,343.00	1.03	218.88	3,342.81	-7.21	-19.94	7.17	0.12
3,438.00	1.60	267.92	3,437.79	-7.92	-21.80	7.88	1.27
3,533.00	3.65	272.09	3,532.68	-7.86	-26.14	7.81	2.17
3,627.00	3.32	270.30	3,626.51	-7.73	-31.86	7.68	0.37
3,722.00	5.44	267.78	3,721.23	-7.89	-39.11	7.83	2.24
3,817.00	6.00	274.70	3,815.76	-7.66	-48.56	7.58	0.93
3,911.00	7.07	278.35	3,909.14	-6.42	-59.18	6.32	1.22
4,006.00	6.58	275.90	4,003.47	-5.01	-70.38	4.89	0.60
4,100.00	8.44	274.99	4,096.66	-3.86	-82.61	3.71	1.98
4,195.00	7.59	274.35	4,190.73	-2.77	-95.81	2.61	0.90
4,289.00	7.15	272.81	4,283.95	-2.02	-107.84	1.83	0.51

Design Report for Small Eyed 14N-35HZ - Actual Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
4,384.00	6.68	268.84	4,378.26	-1.84	-119.27	1.63	0.71
4,479.00	6.79	277.03	4,472.61	-1.26	-130.37	1.04	1.02
4,573.00	7.73	275.70	4,565.86	0.04	-142.17	-0.29	1.02
4,668.00	7.80	275.23	4,659.98	1.27	-154.95	-1.54	0.10
4,762.00	7.50	274.59	4,753.15	2.34	-167.42	-2.63	0.33
4,857.00	5.75	267.15	4,847.51	2.60	-178.35	-2.91	2.05
4,952.00	5.21	262.23	4,942.08	1.78	-187.38	-2.11	0.75
5,046.00	2.80	260.82	5,035.84	0.84	-193.88	-1.17	2.57
5,141.00	1.24	240.14	5,130.78	-0.05	-197.06	-0.30	1.79
5,235.00	1.00	188.74	5,224.76	-1.36	-198.06	1.02	1.06
5,330.00	0.62	179.47	5,319.75	-2.70	-198.19	2.35	0.42
5,424.00	0.50	189.26	5,413.75	-3.61	-198.25	3.26	0.16
5,519.00	0.66	172.73	5,508.75	-4.56	-198.24	4.22	0.24
5,614.00	0.59	186.57	5,603.74	-5.59	-198.23	5.24	0.17
5,708.00	0.22	161.91	5,697.74	-6.24	-198.23	5.90	0.43
5,803.00	0.15	134.50	5,792.74	-6.50	-198.09	6.16	0.12
5,898.00	0.26	239.08	5,887.74	-6.70	-198.18	6.36	0.35
5,992.00	0.30	254.72	5,981.74	-6.88	-198.60	6.53	0.09
6,087.00	0.31	243.71	6,076.73	-7.06	-199.07	6.71	0.06
6,181.00	0.38	239.66	6,170.73	-7.33	-199.57	6.98	0.08
6,276.00	0.64	260.78	6,265.73	-7.57	-200.36	7.22	0.33
6,370.00	0.65	267.62	6,359.72	-7.68	-201.42	7.32	0.08
6,465.00	0.57	264.76	6,454.72	-7.74	-202.42	7.39	0.09
6,559.00	0.53	250.97	6,548.71	-7.93	-203.30	7.57	0.15
6,654.00	0.49	257.39	6,643.71	-8.16	-204.11	7.80	0.07
6,749.00	0.46	274.67	6,738.71	-8.22	-204.89	7.86	0.15
6,796.00	1.75	172.02	6,785.70	-8.91	-204.98	8.55	4.05
6,843.00	6.89	167.81	6,832.55	-12.38	-204.28	12.02	10.95
6,890.00	12.74	170.79	6,878.84	-20.26	-202.86	19.90	12.49
6,938.00	17.21	168.27	6,925.20	-32.44	-200.56	32.09	9.41
6,985.00	21.30	167.05	6,969.56	-47.57	-197.24	47.23	8.74
7,032.00	26.61	169.47	7,012.50	-66.26	-193.40	65.92	11.49
7,079.00	32.10	171.74	7,053.45	-88.98	-189.68	88.65	11.92
7,127.00	38.65	173.55	7,092.57	-116.53	-186.16	116.20	13.82
7,174.00	43.11	175.12	7,128.10	-147.13	-183.14	146.81	9.74
7,222.00	46.47	176.02	7,162.16	-180.84	-180.54	180.53	7.12
7,269.00	50.39	177.24	7,193.34	-215.94	-178.48	215.62	8.56
7,316.00	54.40	178.65	7,222.01	-253.14	-177.16	252.83	8.86
7,363.00	57.51	179.73	7,248.32	-292.07	-176.61	291.76	6.89
7,411.00	61.17	179.96	7,272.80	-333.36	-176.50	333.05	7.64
7,458.00	64.46	180.23	7,294.27	-375.16	-176.58	374.85	7.02
7,506.00	67.55	180.71	7,313.78	-419.00	-176.94	418.69	6.50
7,553.00	70.11	180.45	7,330.75	-462.82	-177.38	462.51	5.47
7,600.00	73.35	179.65	7,345.49	-507.45	-177.42	507.14	7.08
7,647.00	76.06	178.51	7,357.88	-552.77	-176.69	552.46	6.22
7,707.00	81.47	177.97	7,369.57	-611.57	-174.88	611.27	9.06
7,750.00	83.86	178.72	7,375.06	-654.20	-173.64	653.90	5.81
7" Casing Set @ 7750' MD :: 7375.06' TVD							
7,830.00	88.30	180.09	7,380.53	-733.99	-172.82	733.68	5.81
7,925.00	89.97	180.32	7,381.96	-828.97	-173.16	828.67	1.77
8,019.00	91.33	179.92	7,380.90	-922.96	-173.35	922.66	1.51

Design Report for Small Eyed 14N-35HZ - Actual Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
8,114.00	91.88	179.54	7,378.24	-1,017.92	-172.90	1,017.62	0.70
8,208.00	91.57	179.41	7,375.41	-1,111.88	-172.04	1,111.58	0.36
8,302.00	90.83	179.18	7,373.44	-1,205.85	-170.89	1,205.55	0.82
8,397.00	91.73	178.91	7,371.32	-1,300.81	-169.30	1,300.51	0.99
8,492.00	91.45	179.38	7,368.68	-1,395.76	-167.89	1,395.47	0.58
8,586.00	91.30	179.18	7,366.43	-1,489.73	-166.71	1,489.44	0.27
8,681.00	90.25	179.18	7,365.14	-1,584.71	-165.35	1,584.42	1.11
8,775.00	88.80	180.53	7,365.92	-1,678.70	-165.11	1,678.41	2.11
8,869.00	88.86	179.69	7,367.84	-1,772.68	-165.29	1,772.39	0.90
8,963.00	89.11	179.80	7,369.50	-1,866.66	-164.87	1,866.37	0.29
9,058.00	89.60	180.09	7,370.57	-1,961.66	-164.78	1,961.37	0.60
9,152.00	89.66	180.16	7,371.18	-2,055.66	-164.99	2,055.37	0.10
9,246.00	90.52	179.51	7,371.03	-2,149.65	-164.71	2,149.36	1.15
9,340.00	89.20	179.68	7,371.26	-2,243.65	-164.05	2,243.36	1.42
9,434.00	89.66	179.66	7,372.20	-2,337.64	-163.51	2,337.35	0.49
9,529.00	90.58	179.53	7,372.00	-2,432.64	-162.84	2,432.35	0.98
9,623.00	88.70	179.12	7,372.59	-2,526.63	-161.73	2,526.34	2.05
9,717.00	89.23	179.18	7,374.29	-2,620.60	-160.34	2,620.32	0.57
9,811.00	89.51	178.76	7,375.32	-2,714.58	-158.65	2,714.30	0.54
9,906.00	90.62	178.66	7,375.21	-2,809.55	-156.51	2,809.28	1.17
10,000.00	89.48	179.02	7,375.13	-2,903.53	-154.60	2,903.26	1.27
10,092.00	90.34	179.59	7,375.28	-2,995.52	-153.49	2,995.25	1.12
10,183.00	89.04	179.82	7,375.77	-3,086.52	-153.02	3,086.25	1.45
10,275.00	89.63	180.25	7,376.84	-3,178.51	-153.08	3,178.24	0.79
10,367.00	89.78	180.25	7,377.31	-3,270.51	-153.48	3,270.24	0.16
10,458.00	90.28	179.44	7,377.26	-3,361.51	-153.23	3,361.24	1.05
10,550.00	88.98	180.20	7,377.86	-3,453.50	-152.94	3,453.23	1.64
10,641.00	89.32	180.64	7,379.21	-3,544.49	-153.61	3,544.22	0.61
10,733.00	90.52	180.54	7,379.33	-3,636.49	-154.56	3,636.21	1.31
10,825.00	89.60	181.87	7,379.24	-3,728.46	-156.49	3,728.18	1.76
10,917.00	90.52	181.59	7,379.14	-3,820.42	-159.27	3,820.14	1.05
11,009.00	89.88	181.21	7,378.82	-3,912.39	-161.52	3,912.10	0.81
11,101.00	90.37	180.57	7,378.62	-4,004.38	-162.95	4,004.09	0.88
11,194.00	89.32	180.06	7,378.87	-4,097.37	-163.46	4,097.08	1.26
11,287.00	89.32	179.70	7,379.98	-4,190.37	-163.26	4,190.08	0.39
11,379.00	89.97	179.57	7,380.55	-4,282.36	-162.68	4,282.07	0.72
11,471.00	90.77	178.52	7,379.95	-4,374.35	-161.14	4,374.06	1.43
11,563.00	89.20	178.43	7,379.98	-4,466.31	-158.69	4,466.03	1.71
11,656.00	89.66	177.69	7,380.90	-4,559.25	-155.55	4,558.97	0.94
11,747.00	89.75	177.32	7,381.37	-4,650.17	-151.59	4,649.89	0.42
11,839.00	89.17	179.44	7,382.24	-4,742.12	-148.98	4,741.85	2.39
11,932.00	89.66	179.05	7,383.19	-4,835.11	-147.76	4,834.84	0.67
12,024.00	90.37	179.31	7,383.16	-4,927.10	-146.44	4,926.83	0.82
12,115.00	90.37	178.39	7,382.57	-5,018.07	-144.62	5,017.81	1.01
12,206.00	90.40	177.35	7,381.96	-5,109.01	-141.23	5,108.75	1.14
12,299.00	90.34	179.02	7,381.36	-5,201.96	-138.29	5,201.71	1.80
12,390.00	90.86	179.87	7,380.41	-5,292.95	-137.41	5,292.70	1.09
12,482.00	89.69	179.28	7,379.97	-5,384.94	-136.72	5,384.69	1.42
12,574.00	89.20	179.91	7,380.86	-5,476.93	-136.07	5,476.69	0.87
12,665.00	89.14	180.55	7,382.18	-5,567.92	-136.44	5,567.68	0.71
12,758.00	89.20	180.75	7,383.52	-5,660.91	-137.49	5,660.66	0.22

Design Report for Small Eyed 14N-35HZ - Actual Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
12,852.00	89.41	181.11	7,384.66	-5,754.89	-139.02	5,754.63	0.44
12,946.00	89.17	180.46	7,385.83	-5,848.87	-140.31	5,848.62	0.74
13,040.00	89.45	179.84	7,386.96	-5,942.86	-140.55	5,942.61	0.72
13,134.00	90.09	181.06	7,387.34	-6,036.86	-141.29	6,036.60	1.47
13,228.00	89.69	180.70	7,387.52	-6,130.84	-142.74	6,130.59	0.57
13,322.00	90.03	181.24	7,387.75	-6,224.83	-144.33	6,224.57	0.68
13,417.00	89.78	179.93	7,387.91	-6,319.82	-145.30	6,319.56	1.40
13,510.00	90.00	179.48	7,388.08	-6,412.82	-144.82	6,412.56	0.54
13,604.00	90.58	180.18	7,387.61	-6,506.82	-144.54	6,506.56	0.97
13,699.00	90.00	179.76	7,387.13	-6,601.82	-144.49	6,601.55	0.75
13,793.00	89.63	178.76	7,387.43	-6,695.81	-143.28	6,695.55	1.13
13,887.00	89.91	180.09	7,387.81	-6,789.80	-142.33	6,789.54	1.45
13,981.00	90.65	180.89	7,387.35	-6,883.79	-143.14	6,883.53	1.16
14,076.00	90.83	179.92	7,386.12	-6,978.78	-143.81	6,978.52	1.04
14,170.00	91.60	180.02	7,384.13	-7,072.76	-143.76	7,072.50	0.83
14,265.00	90.22	179.72	7,382.62	-7,167.75	-143.54	7,167.48	1.49
14,359.00	89.48	179.49	7,382.87	-7,261.74	-142.89	7,261.48	0.82
14,454.00	90.31	178.78	7,383.04	-7,356.73	-141.46	7,356.47	1.15
14,549.00	90.98	178.78	7,381.97	-7,451.70	-139.44	7,451.45	0.71
14,643.00	90.12	180.06	7,381.07	-7,545.69	-138.49	7,545.44	1.64
14,738.00	89.54	180.35	7,381.35	-7,640.69	-138.83	7,640.43	0.68
14,832.00	90.06	179.50	7,381.68	-7,734.69	-138.70	7,734.43	1.06
14,926.00	88.86	179.69	7,382.57	-7,828.68	-138.04	7,828.43	1.29
15,020.00	88.52	180.15	7,384.71	-7,922.65	-137.91	7,922.40	0.61
15,114.00	89.72	179.66	7,386.16	-8,016.64	-137.75	8,016.39	1.38
15,208.00	89.94	179.04	7,386.44	-8,110.63	-136.69	8,110.38	0.70
15,302.00	90.22	178.42	7,386.31	-8,204.61	-134.60	8,204.36	0.72
15,397.00	89.88	178.43	7,386.22	-8,299.57	-131.99	8,299.33	0.36
15,491.00	89.81	176.67	7,386.48	-8,393.48	-127.97	8,393.25	1.87
15,586.00	91.30	178.29	7,385.56	-8,488.38	-123.80	8,488.15	2.32
15,680.00	90.65	179.87	7,383.96	-8,582.35	-122.29	8,582.13	1.82
15,775.00	91.05	179.59	7,382.55	-8,677.34	-121.84	8,677.11	0.51
15,869.00	89.29	179.81	7,382.27	-8,771.33	-121.35	8,771.11	1.89
15,963.00	89.85	180.08	7,382.97	-8,865.33	-121.26	8,865.11	0.66
16,057.00	88.15	181.06	7,384.61	-8,959.31	-122.19	8,959.08	2.09
16,151.00	88.65	181.29	7,387.24	-9,053.25	-124.12	9,053.02	0.59
16,245.00	88.67	181.01	7,389.44	-9,147.21	-126.01	9,146.97	0.30
16,339.00	88.92	180.39	7,391.41	-9,241.18	-127.15	9,240.94	0.71
16,433.00	89.54	179.91	7,392.68	-9,335.17	-127.40	9,334.93	0.83
16,528.00	90.28	178.98	7,392.83	-9,430.16	-126.48	9,429.93	1.25
16,623.00	90.74	179.94	7,391.98	-9,525.15	-125.58	9,524.92	1.12
16,717.00	91.36	179.64	7,390.26	-9,619.14	-125.24	9,618.90	0.73
16,812.00	91.70	178.84	7,387.72	-9,714.09	-123.98	9,713.86	0.91
16,907.00	90.86	179.64	7,385.60	-9,809.06	-122.72	9,808.83	1.22
17,002.00	90.99	179.70	7,384.07	-9,904.05	-122.17	9,903.82	0.15
17,097.00	89.32	180.84	7,383.81	-9,999.04	-122.62	9,998.81	2.13
17,192.00	89.48	180.33	7,384.80	-10,094.03	-123.59	10,093.80	0.56
17,287.00	89.91	179.88	7,385.31	-10,189.03	-123.76	10,188.79	0.66
17,382.00	90.25	178.96	7,385.18	-10,284.02	-122.80	10,283.79	1.03
17,477.00	90.65	178.50	7,384.43	-10,378.99	-120.70	10,378.77	0.64
17,572.00	91.48	178.84	7,382.67	-10,473.95	-118.49	10,473.73	0.94

Design Report for Small Eyed 14N-35HZ - Actual Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
17,633.00	91.59	178.23	7,381.03	-10,534.91	-116.93	10,534.69	1.01
Final MWD Survey @ 17633.00ft							
17,663.00	91.64	177.93	7,380.19	-10,564.88	-115.93	10,564.66	1.01
17,717.00	91.64	177.93	7,378.64	-10,618.82	-113.98	10,618.61	0.00
Str Line Proj to Bit @ 17717' MD :: 7378.64' TVD							

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,208.00	1,207.98	3.37	-3.44	Tie-On to Surface Gyros @ 1208.00ft
1,390.00	1,389.97	4.17	-4.10	First MWD Survey @ 1390.00ft
17,633.00	7,381.03	-10,534.91	-116.93	Final MWD Survey @ 17633.00ft
17,717.00	7,378.64	-10,618.82	-113.98	Str Line Proj to Bit @ 17717' MD :: 7378.64' TVD

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (usft)
				+N/_S (usft)	+E/-W (usft)	
User	No Target (Freehand)	179.90	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
25.00	1,208.00	MS Energy Gyros	NS-GYRO-MS
1,390.00	7,830.00	MWD Vertical/Build Surveys	MWD+IFR1+SC
7,925.00	17,663.00	MWD Lateral Surveys	MWD+IFR1+SC

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,320.00	1,319.98	9 5/8" Casing Set @ 1320' MD :: 1319.98' TVD	9-5/8	13-1/2
7,750.00	7,375.06	7" Casing Set @ 7750' MD :: 7375.06' TVD	7	8-3/4

Design Report for Small Eyed 14N-35HZ - Actual Surveys

Wellbore Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
SMALL EYED 14N-35I	0.00	0.00	0.00	0.01	0.00	1,286,907.80	3,178,819.79	40.119185	-104.860585
- actual wellpath misses target center by 0.01usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1				0.00	-162.48	-151.95	1,286,744.24	3,178,669.03	
Point 2				0.00	-164.95	242.23	1,286,744.61	3,179,063.20	
Point 3				0.00	-6,255.33	186.84	1,280,654.24	3,179,051.73	
Point 4				0.00	-11,078.70	221.55	1,275,831.44	3,179,121.21	
Point 5				0.00	-11,079.08	-189.97	1,275,828.09	3,178,709.72	
Point 6				0.00	-6,253.41	-210.79	1,280,653.29	3,178,654.11	
SMALL EYED 14N-35I	0.00	0.00	0.00	0.01	0.00	1,286,907.80	3,178,819.79	40.119185	-104.860585
- actual wellpath misses target center by 0.01usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Point									
SMALL EYED 14N-35I	0.00	0.00	0.00	0.01	0.00	1,286,907.80	3,178,819.79	40.119185	-104.860585
- actual wellpath misses target center by 0.01usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1				0.00	-6,244.84	-1,988.50	1,280,649.04	3,176,876.45	
Point 2				0.00	-6,257.55	646.87	1,280,655.34	3,179,511.74	
Point 3				0.00	-6,269.44	3,281.52	1,280,662.44	3,182,146.30	
Point 4				0.00	-11,527.79	3,287.07	1,275,404.48	3,182,189.77	
Point 5				0.00	-11,538.28	688.39	1,275,375.26	3,179,591.33	
Point 6				0.00	-11,540.80	-1,982.71	1,275,353.48	3,176,920.43	
SMALL EYED 14N-35I	0.00	0.00	0.00	0.01	0.00	1,286,907.80	3,178,819.79	40.119185	-104.860585
- actual wellpath misses target center by 0.01usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1				0.00	4,264.29	-1,902.85	1,291,158.09	3,176,886.32	
Point 2				0.00	4,242.19	720.30	1,291,154.91	3,179,509.46	
Point 3				0.00	4,223.73	3,350.29	1,291,155.41	3,182,139.41	
Point 4				0.00	1,589.20	3,339.47	1,288,520.98	3,182,147.58	
Point 5				0.00	-1,038.23	3,327.88	1,285,893.64	3,182,154.94	
Point 6				0.00	-1,010.41	-1,932.08	1,285,883.53	3,176,895.13	
Point 7				0.00	-1,038.23	3,327.88	1,285,893.64	3,182,154.94	
Point 8				0.00	-3,631.19	3,307.61	1,283,300.71	3,182,153.37	
Point 9				0.00	-6,269.44	3,281.52	1,280,662.44	3,182,146.30	
Point 10				0.00	-6,257.55	646.87	1,280,655.34	3,179,511.74	
Point 11				0.00	-6,244.84	-1,988.50	1,280,649.04	3,176,876.45	
Point 12				0.00	-3,621.96	-1,962.73	1,283,271.93	3,176,883.31	
Point 13				0.00	-1,010.41	-1,932.08	1,285,883.53	3,176,895.13	
SMALL EYED 14N-35I	0.00	0.00	7,377.00	-10,619.12	-143.53	1,276,288.35	3,178,752.84	40.090035	-104.861098
- actual wellpath misses target center by 29.59usft at 17716.28usft MD (7378.66 TVD, -10618.10 N, -114.01 E)									
- Point									

Directional Difficulty Index

Average Dogleg over Survey:	1.26 °/100usft	Maximum Dogleg over Survey:	13.82 °/100usft at 7,127.00 usft
Net Tortosity applicable to Plans:	0.55 °/100usft	Directional Difficulty Index:	6.763

Audit Info

North Reference Sheet for Sec. 23-T2N-R67W - Small Eyed 14N-35HZ - Plan A

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

Vertical Depths are relative to RKB = 25' @ 4988.00usft (H&P 308). Northing and Easting are relative to Small Eyed 14N-35HZ

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: 3,000,000.00usft, False Northing: 1,000,000.00usft, Scale Reduction: 0.99995947

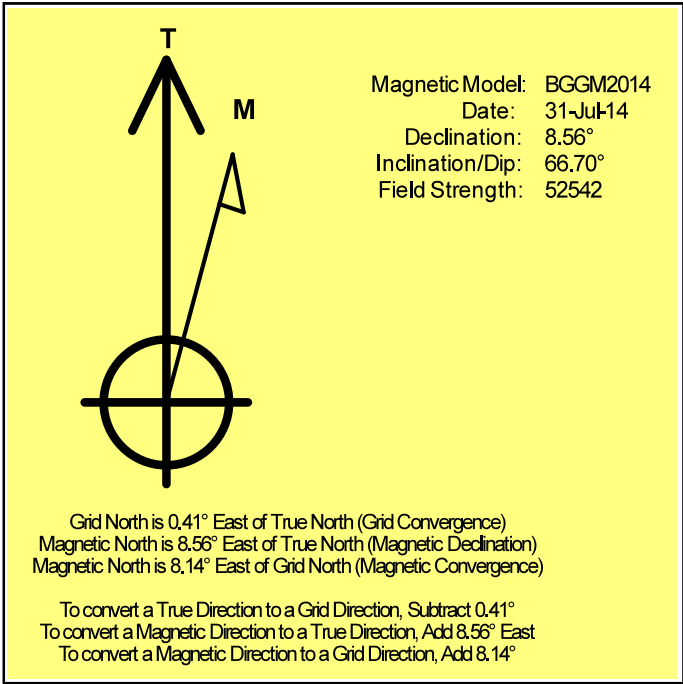
Grid Coordinates of Well: 1,286,907.80 usft N, 3,178,819.79 usft E

Geographical Coordinates of Well: 40° 07' 09.07" N, 104° 51' 38.11" W

Grid Convergence at Surface is: 0.41°

Based upon Minimum Curvature type calculations, at a Measured Depth of 17,717.00usft the Bottom Hole Displacement is 10,619.43usft in the Direction of 180.61° (True).

Magnetic Convergence at surface is: -8.14° (31 July 2014, , BGGM2014)



Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 23-T2N-R67W

Small Eyed 14N-35HZ

Plan A

Design: Actual Surveys

Sperry Drilling Services

Geodetic Report

10 September, 2014

Well Coordinates: 1,286,907.80 N, 3,178,819.79 E (40° 07' 09.07" N, 104° 51' 38.11" W)

Ground Level: 4,963.00 usft

Local Coordinate Origin:

Viewing Datum:

TVDs to System:

North Reference:

Unit System:

Geodetic Scale Factor Applied

Version: 5000.1 Build: 70

Centered on Well Small Eyed 14N-35HZ

RKB = 25' @ 4988.00usft (H&P 308)

N

True

Dec-Deg - API - US Survey Feet - Custom

HALLIBURTON

Design Report for Small Eyed 14N-35HZ - Actual Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Geographic Coordinates		UTM Coordinates	
				+N/-S (usft)	+E/-W (usft)	Latitude (usft)	Longitude (usft)	Northing (usft)	Easting (usft)
0.00	0.00	0.00	0.00	0.00	0.00	40.119185	-104.860585	1,286,907.80	3,178,819.79
25.00	0.00	0.00	25.00	0.00	0.00	40.119185	-104.860585	1,286,907.80	3,178,819.79
125.00	0.43	270.96	125.00	0.01	-0.38	40.119185	-104.860587	1,286,907.80	3,178,819.42
225.00	0.31	296.08	225.00	0.13	-0.99	40.119185	-104.860589	1,286,907.92	3,178,818.80
325.00	0.44	319.70	324.99	0.54	-1.48	40.119187	-104.860591	1,286,908.33	3,178,818.31
425.00	0.27	334.13	424.99	1.05	-1.84	40.119188	-104.860592	1,286,908.83	3,178,817.95
525.00	0.23	39.20	524.99	1.42	-1.81	40.119189	-104.860592	1,286,909.20	3,178,817.97
625.00	0.23	120.54	624.99	1.47	-1.51	40.119189	-104.860591	1,286,909.25	3,178,818.27
725.00	0.17	185.11	724.99	1.22	-1.35	40.119188	-104.860590	1,286,909.01	3,178,818.43
825.00	0.46	282.21	824.99	1.16	-1.76	40.119188	-104.860592	1,286,908.94	3,178,818.03
925.00	0.48	299.94	924.99	1.45	-2.51	40.119189	-104.860594	1,286,909.23	3,178,817.27
1,025.00	0.60	324.10	1,024.98	2.08	-3.18	40.119191	-104.860597	1,286,909.86	3,178,816.60
1,125.00	0.47	0.88	1,124.98	2.92	-3.48	40.119193	-104.860598	1,286,910.69	3,178,816.29
1,208.00	0.16	20.03	1,207.98	3.37	-3.44	40.119194	-104.860598	1,286,911.14	3,178,816.33
1,320.00	0.39	315.70	1,319.98	3.78	-3.65	40.119195	-104.860598	1,286,911.55	3,178,816.12
1,390.00	0.59	306.91	1,389.97	4.17	-4.10	40.119196	-104.860600	1,286,911.94	3,178,815.66
1,482.00	0.51	288.24	1,481.97	4.58	-4.87	40.119198	-104.860603	1,286,912.34	3,178,814.89
1,574.00	0.50	315.12	1,573.97	4.99	-5.54	40.119199	-104.860605	1,286,912.75	3,178,814.22
1,666.00	0.49	310.85	1,665.96	5.54	-6.12	40.119200	-104.860607	1,286,913.29	3,178,813.63
1,758.00	0.83	305.10	1,757.96	6.18	-6.96	40.119202	-104.860610	1,286,913.92	3,178,812.79
1,851.00	0.69	265.74	1,850.95	6.52	-8.07	40.119203	-104.860614	1,286,914.26	3,178,811.67
1,944.00	0.70	264.10	1,943.94	6.42	-9.20	40.119203	-104.860618	1,286,914.15	3,178,810.55
2,036.00	0.62	265.57	2,035.94	6.33	-10.25	40.119202	-104.860622	1,286,914.05	3,178,809.50
2,128.00	0.48	249.62	2,127.93	6.15	-11.11	40.119202	-104.860625	1,286,913.87	3,178,808.64
2,220.00	0.55	227.76	2,219.93	5.72	-11.80	40.119201	-104.860627	1,286,913.43	3,178,807.95
2,313.00	0.61	224.46	2,312.92	5.07	-12.48	40.119199	-104.860630	1,286,912.77	3,178,807.28
2,404.00	0.81	225.78	2,403.92	4.27	-13.28	40.119197	-104.860633	1,286,911.97	3,178,806.49
2,496.00	0.81	182.85	2,495.91	3.17	-13.77	40.119194	-104.860635	1,286,910.87	3,178,806.00
2,589.00	0.84	178.73	2,588.90	1.83	-13.79	40.119190	-104.860635	1,286,909.53	3,178,805.99
2,681.00	1.05	189.64	2,680.89	0.33	-13.92	40.119186	-104.860635	1,286,908.02	3,178,805.87
2,776.00	0.87	212.09	2,775.87	-1.14	-14.45	40.119182	-104.860637	1,286,906.55	3,178,805.36
2,870.00	0.90	223.40	2,869.86	-2.28	-15.33	40.119179	-104.860640	1,286,905.40	3,178,804.48
2,965.00	0.83	229.63	2,964.85	-3.27	-16.37	40.119176	-104.860644	1,286,904.41	3,178,803.45
3,060.00	0.81	232.90	3,059.84	-4.12	-17.43	40.119174	-104.860648	1,286,903.55	3,178,802.39
3,154.00	0.59	213.67	3,153.83	-4.92	-18.23	40.119172	-104.860650	1,286,902.74	3,178,801.60
3,249.00	0.92	216.65	3,248.83	-5.94	-18.95	40.119169	-104.860653	1,286,901.72	3,178,800.88
3,343.00	1.03	218.88	3,342.81	-7.21	-19.94	40.119165	-104.860657	1,286,900.45	3,178,799.91
3,438.00	1.60	267.92	3,437.79	-7.92	-21.80	40.119163	-104.860663	1,286,899.72	3,178,798.06
3,533.00	3.65	272.09	3,532.68	-7.86	-26.14	40.119163	-104.860679	1,286,899.75	3,178,793.71
3,627.00	3.32	270.30	3,626.51	-7.73	-31.86	40.119164	-104.860699	1,286,899.83	3,178,788.00
3,722.00	5.44	267.78	3,721.23	-7.89	-39.11	40.119163	-104.860725	1,286,899.62	3,178,780.75
3,817.00	6.00	274.70	3,815.76	-7.66	-48.56	40.119164	-104.860759	1,286,899.79	3,178,771.30

Design Report for Small Eyed 14N-35HZ - Actual Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Geographic Coordinates		UTM Coordinates	
				+N/-S (usft)	+E/-W (usft)	Latitude (usft)	Longitude (usft)	Northing (usft)	Easting (usft)
3,911.00	7.07	278.35	3,909.14	-6.42	-59.18	40.119167	-104.860797	1,286,900.95	3,178,760.67
4,006.00	6.58	275.90	4,003.47	-5.01	-70.38	40.119171	-104.860837	1,286,902.28	3,178,749.46
4,100.00	8.44	274.99	4,096.66	-3.86	-82.61	40.119174	-104.860881	1,286,903.34	3,178,737.22
4,195.00	7.59	274.35	4,190.73	-2.77	-95.81	40.119177	-104.860928	1,286,904.33	3,178,724.01
4,289.00	7.15	272.81	4,283.95	-2.02	-107.84	40.119180	-104.860971	1,286,905.00	3,178,711.98
4,384.00	6.68	268.84	4,378.26	-1.84	-119.27	40.119180	-104.861012	1,286,905.10	3,178,700.55
4,479.00	6.79	277.03	4,472.61	-1.26	-130.37	40.119182	-104.861051	1,286,905.59	3,178,689.44
4,573.00	7.73	275.70	4,565.86	0.04	-142.17	40.119185	-104.861094	1,286,906.82	3,178,677.63
4,668.00	7.80	275.23	4,659.98	1.27	-154.95	40.119189	-104.861139	1,286,907.95	3,178,664.84
4,762.00	7.50	274.59	4,753.15	2.34	-167.42	40.119191	-104.861184	1,286,908.93	3,178,652.37
4,857.00	5.75	267.15	4,847.51	2.60	-178.35	40.119192	-104.861223	1,286,909.11	3,178,641.43
4,952.00	5.21	262.23	4,942.08	1.78	-187.38	40.119190	-104.861255	1,286,908.22	3,178,632.41
5,046.00	2.80	260.82	5,035.84	0.84	-193.88	40.119187	-104.861278	1,286,907.23	3,178,625.93
5,141.00	1.24	240.14	5,130.78	-0.05	-197.06	40.119185	-104.861290	1,286,906.33	3,178,622.75
5,235.00	1.00	188.74	5,224.76	-1.36	-198.06	40.119181	-104.861293	1,286,905.01	3,178,621.75
5,330.00	0.62	179.47	5,319.75	-2.70	-198.19	40.119178	-104.861294	1,286,903.67	3,178,621.64
5,424.00	0.50	189.26	5,413.75	-3.61	-198.25	40.119175	-104.861294	1,286,902.76	3,178,621.59
5,519.00	0.66	172.73	5,508.75	-4.56	-198.24	40.119173	-104.861294	1,286,901.81	3,178,621.60
5,614.00	0.59	186.57	5,603.74	-5.59	-198.23	40.119170	-104.861294	1,286,900.78	3,178,621.62
5,708.00	0.22	161.91	5,697.74	-6.24	-198.23	40.119168	-104.861294	1,286,900.12	3,178,621.62
5,803.00	0.15	134.50	5,792.74	-6.50	-198.09	40.119167	-104.861294	1,286,899.87	3,178,621.77
5,898.00	0.26	239.08	5,887.74	-6.70	-198.18	40.119167	-104.861294	1,286,899.67	3,178,621.67
5,992.00	0.30	254.72	5,981.74	-6.88	-198.60	40.119166	-104.861295	1,286,899.49	3,178,621.25
6,087.00	0.31	243.71	6,076.73	-7.06	-199.07	40.119166	-104.861297	1,286,899.31	3,178,620.79
6,181.00	0.38	239.66	6,170.73	-7.33	-199.57	40.119165	-104.861299	1,286,899.03	3,178,620.29
6,276.00	0.64	260.78	6,265.73	-7.57	-200.36	40.119164	-104.861302	1,286,898.78	3,178,619.50
6,370.00	0.65	267.62	6,359.72	-7.68	-201.42	40.119164	-104.861305	1,286,898.67	3,178,618.45
6,465.00	0.57	264.76	6,454.72	-7.74	-202.42	40.119164	-104.861309	1,286,898.60	3,178,617.44
6,559.00	0.53	250.97	6,548.71	-7.93	-203.30	40.119163	-104.861312	1,286,898.41	3,178,616.56
6,654.00	0.49	257.39	6,643.71	-8.16	-204.11	40.119163	-104.861315	1,286,898.17	3,178,615.75
6,749.00	0.46	274.67	6,738.71	-8.22	-204.89	40.119162	-104.861318	1,286,898.10	3,178,614.98
6,796.00	1.75	172.02	6,785.70	-8.91	-204.98	40.119161	-104.861318	1,286,897.41	3,178,614.89
6,843.00	6.89	167.81	6,832.55	-12.38	-204.28	40.119151	-104.861316	1,286,893.95	3,178,615.61
6,890.00	12.74	170.79	6,878.84	-20.26	-202.86	40.119129	-104.861311	1,286,886.08	3,178,617.10
6,938.00	17.21	168.27	6,925.20	-32.44	-200.56	40.119096	-104.861302	1,286,873.91	3,178,619.48
6,985.00	21.30	167.05	6,969.56	-47.57	-197.24	40.119054	-104.861290	1,286,858.80	3,178,622.91
7,032.00	26.61	169.47	7,012.50	-66.26	-193.40	40.119003	-104.861277	1,286,840.15	3,178,626.89
7,079.00	32.10	171.74	7,053.45	-88.98	-189.68	40.118941	-104.861263	1,286,817.45	3,178,630.77
7,127.00	38.65	173.55	7,092.57	-116.53	-186.16	40.118865	-104.861251	1,286,789.93	3,178,634.49
7,174.00	43.11	175.12	7,128.10	-147.13	-183.14	40.118781	-104.861240	1,286,759.36	3,178,637.73
7,222.00	46.47	176.02	7,162.16	-180.84	-180.54	40.118689	-104.861231	1,286,725.67	3,178,640.57
7,269.00	50.39	177.24	7,193.34	-215.94	-178.48	40.118592	-104.861223	1,286,690.59	3,178,642.88

Design Report for Small Eyed 14N-35HZ - Actual Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Geographic Coordinates		UTM Coordinates	
				+N/-S (usft)	+E/-W (usft)	Latitude (usft)	Longitude (usft)	Northing (usft)	Easting (usft)
7,316.00	54.40	178.65	7,222.01	-253.14	-177.16	40.118490	-104.861219	1,286,653.40	3,178,644.47
7,363.00	57.51	179.73	7,248.32	-292.07	-176.61	40.118383	-104.861217	1,286,614.47	3,178,645.30
7,411.00	61.17	179.96	7,272.80	-333.36	-176.50	40.118270	-104.861216	1,286,573.19	3,178,645.70
7,458.00	64.46	180.23	7,294.27	-375.16	-176.58	40.118155	-104.861217	1,286,531.39	3,178,645.94
7,506.00	67.55	180.71	7,313.78	-419.00	-176.94	40.118035	-104.861218	1,286,487.55	3,178,645.89
7,553.00	70.11	180.45	7,330.75	-462.82	-177.38	40.117915	-104.861219	1,286,443.72	3,178,645.76
7,600.00	73.35	179.65	7,345.49	-507.45	-177.42	40.117792	-104.861220	1,286,399.10	3,178,646.05
7,647.00	76.06	178.51	7,357.88	-552.77	-176.69	40.117668	-104.861217	1,286,353.79	3,178,647.11
7,707.00	81.47	177.97	7,369.57	-611.57	-174.88	40.117506	-104.861211	1,286,295.00	3,178,649.34
7,750.00	83.86	178.72	7,375.06	-654.20	-173.64	40.117389	-104.861206	1,286,252.39	3,178,650.88
7,830.00	88.30	180.09	7,380.53	-733.99	-172.82	40.117170	-104.861203	1,286,172.61	3,178,652.28
7,925.00	89.97	180.32	7,381.96	-828.97	-173.16	40.116909	-104.861204	1,286,077.63	3,178,652.63
8,019.00	91.33	179.92	7,380.90	-922.96	-173.35	40.116651	-104.861205	1,285,983.64	3,178,653.11
8,114.00	91.88	179.54	7,378.24	-1,017.92	-172.90	40.116391	-104.861203	1,285,888.69	3,178,654.24
8,208.00	91.57	179.41	7,375.41	-1,111.88	-172.04	40.116133	-104.861200	1,285,794.75	3,178,655.78
8,302.00	90.83	179.18	7,373.44	-1,205.85	-170.89	40.115875	-104.861196	1,285,700.80	3,178,657.61
8,397.00	91.73	178.91	7,371.32	-1,300.81	-169.30	40.115614	-104.861191	1,285,605.85	3,178,659.88
8,492.00	91.45	179.38	7,368.68	-1,395.76	-167.89	40.115354	-104.861186	1,285,510.91	3,178,661.98
8,586.00	91.30	179.18	7,366.43	-1,489.73	-166.71	40.115096	-104.861181	1,285,416.96	3,178,663.84
8,681.00	90.25	179.18	7,365.14	-1,584.71	-165.35	40.114835	-104.861176	1,285,322.00	3,178,665.88
8,775.00	88.80	180.53	7,365.92	-1,678.70	-165.11	40.114577	-104.861176	1,285,228.02	3,178,666.80
8,869.00	88.86	179.69	7,367.84	-1,772.68	-165.29	40.114319	-104.861176	1,285,134.04	3,178,667.30
8,963.00	89.11	179.80	7,369.50	-1,866.66	-164.87	40.114061	-104.861175	1,285,040.07	3,178,668.39
9,058.00	89.60	180.09	7,370.57	-1,961.66	-164.78	40.113800	-104.861174	1,284,945.08	3,178,669.17
9,152.00	89.66	180.16	7,371.18	-2,055.66	-164.99	40.113542	-104.861175	1,284,851.09	3,178,669.64
9,246.00	90.52	179.51	7,371.03	-2,149.65	-164.71	40.113284	-104.861174	1,284,757.10	3,178,670.59
9,340.00	89.20	179.68	7,371.26	-2,243.65	-164.05	40.113026	-104.861172	1,284,663.11	3,178,671.93
9,434.00	89.66	179.66	7,372.20	-2,337.64	-163.51	40.112768	-104.861170	1,284,569.13	3,178,673.15
9,529.00	90.58	179.53	7,372.00	-2,432.64	-162.84	40.112507	-104.861167	1,284,474.14	3,178,674.51
9,623.00	88.70	179.12	7,372.59	-2,526.63	-161.73	40.112249	-104.861163	1,284,380.17	3,178,676.29
9,717.00	89.23	179.18	7,374.29	-2,620.60	-160.34	40.111991	-104.861158	1,284,286.21	3,178,678.36
9,811.00	89.51	178.76	7,375.32	-2,714.58	-158.65	40.111733	-104.861152	1,284,192.25	3,178,680.73
9,906.00	90.62	178.66	7,375.21	-2,809.55	-156.51	40.111473	-104.861145	1,284,097.30	3,178,683.55
10,000.00	89.48	179.02	7,375.13	-2,903.53	-154.60	40.111215	-104.861138	1,284,003.34	3,178,686.14
10,092.00	90.34	179.59	7,375.28	-2,995.52	-153.49	40.110962	-104.861134	1,283,911.36	3,178,687.91
10,183.00	89.04	179.82	7,375.77	-3,086.52	-153.02	40.110712	-104.861132	1,283,820.38	3,178,689.04
10,275.00	89.63	180.25	7,376.84	-3,178.51	-153.08	40.110460	-104.861133	1,283,728.39	3,178,689.65
10,367.00	89.78	180.25	7,377.31	-3,270.51	-153.48	40.110207	-104.861134	1,283,636.40	3,178,689.91
10,458.00	90.28	179.44	7,377.26	-3,361.51	-153.23	40.109958	-104.861133	1,283,545.41	3,178,690.81
10,550.00	88.98	180.20	7,377.86	-3,453.50	-152.94	40.109705	-104.861132	1,283,453.42	3,178,691.76
10,641.00	89.32	180.64	7,379.21	-3,544.49	-153.61	40.109455	-104.861134	1,283,362.43	3,178,691.75
10,733.00	90.52	180.54	7,379.33	-3,636.49	-154.56	40.109203	-104.861138	1,283,270.44	3,178,691.47

Design Report for Small Eyed 14N-35HZ - Actual Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Geographic Coordinates		UTM Coordinates	
				+N/-S (usft)	+E/-W (usft)	Latitude (usft)	Longitude (usft)	Northing (usft)	Easting (usft)
10,825.00	89.60	181.87	7,379.24	-3,728.46	-156.49	40.108950	-104.861145	1,283,178.45	3,178,690.20
10,917.00	90.52	181.59	7,379.14	-3,820.42	-159.27	40.108698	-104.861155	1,283,086.48	3,178,688.08
11,009.00	89.88	181.21	7,378.82	-3,912.39	-161.52	40.108445	-104.861163	1,282,994.50	3,178,686.50
11,101.00	90.37	180.57	7,378.62	-4,004.38	-162.95	40.108193	-104.861168	1,282,902.51	3,178,685.73
11,194.00	89.32	180.06	7,378.87	-4,097.37	-163.46	40.107938	-104.861170	1,282,809.52	3,178,685.89
11,287.00	89.32	179.70	7,379.98	-4,190.37	-163.26	40.107682	-104.861169	1,282,716.53	3,178,686.76
11,379.00	89.97	179.57	7,380.55	-4,282.36	-162.68	40.107430	-104.861167	1,282,624.54	3,178,688.01
11,471.00	90.77	178.52	7,379.95	-4,374.35	-161.14	40.107177	-104.861161	1,282,532.58	3,178,690.20
11,563.00	89.20	178.43	7,379.98	-4,466.31	-158.69	40.106925	-104.861153	1,282,440.64	3,178,693.31
11,656.00	89.66	177.69	7,380.90	-4,559.25	-155.55	40.106670	-104.861141	1,282,347.73	3,178,697.13
11,747.00	89.75	177.32	7,381.37	-4,650.17	-151.59	40.106420	-104.861127	1,282,256.85	3,178,701.75
11,839.00	89.17	179.44	7,382.24	-4,742.12	-148.98	40.106168	-104.861118	1,282,164.92	3,178,705.01
11,932.00	89.66	179.05	7,383.19	-4,835.11	-147.76	40.105912	-104.861113	1,282,071.95	3,178,706.91
12,024.00	90.37	179.31	7,383.16	-4,927.10	-146.44	40.105660	-104.861109	1,281,979.97	3,178,708.89
12,115.00	90.37	178.39	7,382.57	-5,018.07	-144.62	40.105410	-104.861102	1,281,889.01	3,178,711.37
12,206.00	90.40	177.35	7,381.96	-5,109.01	-141.23	40.105161	-104.861090	1,281,798.11	3,178,715.41
12,299.00	90.34	179.02	7,381.36	-5,201.96	-138.29	40.104905	-104.861080	1,281,705.19	3,178,719.02
12,390.00	90.86	179.87	7,380.41	-5,292.95	-137.41	40.104656	-104.861076	1,281,614.21	3,178,720.56
12,482.00	89.69	179.28	7,379.97	-5,384.94	-136.72	40.104403	-104.861074	1,281,522.23	3,178,721.91
12,574.00	89.20	179.91	7,380.86	-5,476.93	-136.07	40.104151	-104.861072	1,281,430.25	3,178,723.22
12,665.00	89.14	180.55	7,382.18	-5,567.92	-136.44	40.103901	-104.861073	1,281,339.26	3,178,723.51
12,758.00	89.20	180.75	7,383.52	-5,660.91	-137.49	40.103646	-104.861077	1,281,246.28	3,178,723.13
12,852.00	89.41	181.11	7,384.66	-5,754.89	-139.02	40.103388	-104.861082	1,281,152.29	3,178,722.28
12,946.00	89.17	180.46	7,385.83	-5,848.87	-140.31	40.103130	-104.861087	1,281,058.30	3,178,721.67
13,040.00	89.45	179.84	7,386.96	-5,942.86	-140.55	40.102872	-104.861088	1,280,964.32	3,178,722.10
13,134.00	90.09	181.06	7,387.34	-6,036.86	-141.29	40.102614	-104.861090	1,280,870.32	3,178,722.04
13,228.00	89.69	180.70	7,387.52	-6,130.84	-142.74	40.102356	-104.861096	1,280,776.33	3,178,721.27
13,322.00	90.03	181.24	7,387.75	-6,224.83	-144.33	40.102098	-104.861101	1,280,682.34	3,178,720.36
13,417.00	89.78	179.93	7,387.91	-6,319.82	-145.30	40.101837	-104.861105	1,280,587.35	3,178,720.08
13,510.00	90.00	179.48	7,388.08	-6,412.82	-144.82	40.101582	-104.861103	1,280,494.36	3,178,721.22
13,604.00	90.58	180.18	7,387.61	-6,506.82	-144.54	40.101324	-104.861102	1,280,400.37	3,178,722.18
13,699.00	90.00	179.76	7,387.13	-6,601.82	-144.49	40.101063	-104.861102	1,280,305.38	3,178,722.92
13,793.00	89.63	178.76	7,387.43	-6,695.81	-143.28	40.100805	-104.861097	1,280,211.40	3,178,724.81
13,887.00	89.91	180.09	7,387.81	-6,789.80	-142.33	40.100547	-104.861094	1,280,117.42	3,178,726.43
13,981.00	90.65	180.89	7,387.35	-6,883.79	-143.14	40.100289	-104.861097	1,280,023.43	3,178,726.30
14,076.00	90.83	179.92	7,386.12	-6,978.78	-143.81	40.100028	-104.861099	1,279,928.44	3,178,726.32
14,170.00	91.60	180.02	7,384.13	-7,072.76	-143.76	40.099770	-104.861099	1,279,834.47	3,178,727.04
14,265.00	90.22	179.72	7,382.62	-7,167.75	-143.54	40.099509	-104.861098	1,279,739.49	3,178,727.94
14,359.00	89.48	179.49	7,382.87	-7,261.74	-142.89	40.099251	-104.861096	1,279,645.51	3,178,729.27
14,454.00	90.31	178.78	7,383.04	-7,356.73	-141.46	40.098991	-104.861091	1,279,550.54	3,178,731.39
14,549.00	90.98	178.78	7,381.97	-7,451.70	-139.44	40.098730	-104.861084	1,279,455.58	3,178,734.09
14,643.00	90.12	180.06	7,381.07	-7,545.69	-138.49	40.098472	-104.861080	1,279,361.61	3,178,735.72

Design Report for Small Eyed 14N-35HZ - Actual Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Geographic Coordinates		UTM Coordinates	
				+N/-S (usft)	+E/-W (usft)	Latitude (usft)	Longitude (usft)	Northing (usft)	Easting (usft)
14,738.00	89.54	180.35	7,381.35	-7,640.69	-138.83	40.098211	-104.861081	1,279,266.62	3,178,736.07
14,832.00	90.06	179.50	7,381.68	-7,734.69	-138.70	40.097953	-104.861081	1,279,172.62	3,178,736.87
14,926.00	88.86	179.69	7,382.57	-7,828.68	-138.04	40.097695	-104.861079	1,279,078.64	3,178,738.21
15,020.00	88.52	180.15	7,384.71	-7,922.65	-137.91	40.097437	-104.861078	1,278,984.68	3,178,739.02
15,114.00	89.72	179.66	7,386.16	-8,016.64	-137.75	40.097179	-104.861078	1,278,890.70	3,178,739.85
15,208.00	89.94	179.04	7,386.44	-8,110.63	-136.69	40.096921	-104.861074	1,278,796.72	3,178,741.60
15,302.00	90.22	178.42	7,386.31	-8,204.61	-134.60	40.096663	-104.861066	1,278,702.76	3,178,744.36
15,397.00	89.88	178.43	7,386.22	-8,299.57	-131.99	40.096402	-104.861057	1,278,607.82	3,178,747.65
15,491.00	89.81	176.67	7,386.48	-8,393.48	-127.97	40.096145	-104.861043	1,278,513.95	3,178,752.35
15,586.00	91.30	178.29	7,385.56	-8,488.38	-123.80	40.095884	-104.861028	1,278,419.09	3,178,757.21
15,680.00	90.65	179.87	7,383.96	-8,582.35	-122.29	40.095626	-104.861022	1,278,325.13	3,178,759.40
15,775.00	91.05	179.59	7,382.55	-8,677.34	-121.84	40.095365	-104.861021	1,278,230.16	3,178,760.53
15,869.00	89.29	179.81	7,382.27	-8,771.33	-121.35	40.095107	-104.861019	1,278,136.17	3,178,761.70
15,963.00	89.85	180.08	7,382.97	-8,865.33	-121.26	40.094849	-104.861019	1,278,042.18	3,178,762.47
16,057.00	88.15	181.06	7,384.61	-8,959.31	-122.19	40.094591	-104.861022	1,277,948.20	3,178,762.21
16,151.00	88.65	181.29	7,387.24	-9,053.25	-124.12	40.094333	-104.861029	1,277,854.25	3,178,760.96
16,245.00	88.67	181.01	7,389.44	-9,147.21	-126.01	40.094076	-104.861036	1,277,760.29	3,178,759.75
16,339.00	88.92	180.39	7,391.41	-9,241.18	-127.15	40.093818	-104.861040	1,277,666.32	3,178,759.28
16,433.00	89.54	179.91	7,392.68	-9,335.17	-127.40	40.093560	-104.861041	1,277,572.33	3,178,759.71
16,528.00	90.28	178.98	7,392.83	-9,430.16	-126.48	40.093299	-104.861037	1,277,477.35	3,178,761.32
16,623.00	90.74	179.94	7,391.98	-9,525.15	-125.58	40.093038	-104.861034	1,277,382.37	3,178,762.90
16,717.00	91.36	179.64	7,390.26	-9,619.14	-125.24	40.092780	-104.861033	1,277,288.40	3,178,763.92
16,812.00	91.70	178.84	7,387.72	-9,714.09	-123.98	40.092519	-104.861028	1,277,193.46	3,178,765.87
16,907.00	90.86	179.64	7,385.60	-9,809.06	-122.72	40.092259	-104.861024	1,277,098.51	3,178,767.81
17,002.00	90.99	179.70	7,384.07	-9,904.05	-122.17	40.091998	-104.861022	1,277,003.53	3,178,769.04
17,097.00	89.32	180.84	7,383.81	-9,999.04	-122.62	40.091737	-104.861024	1,276,908.54	3,178,769.28
17,192.00	89.48	180.33	7,384.80	-10,094.03	-123.59	40.091476	-104.861027	1,276,813.55	3,178,768.99
17,287.00	89.91	179.88	7,385.31	-10,189.03	-123.76	40.091216	-104.861028	1,276,718.56	3,178,769.50
17,382.00	90.25	178.96	7,385.18	-10,284.02	-122.80	40.090955	-104.861024	1,276,623.58	3,178,771.15
17,477.00	90.65	178.50	7,384.43	-10,378.99	-120.70	40.090694	-104.861017	1,276,528.62	3,178,773.94
17,572.00	91.48	178.84	7,382.67	-10,473.95	-118.49	40.090434	-104.861009	1,276,433.69	3,178,776.83
17,633.00	91.59	178.23	7,381.03	-10,534.91	-116.93	40.090266	-104.861003	1,276,372.75	3,178,778.83
17,663.00	91.64	177.93	7,380.19	-10,564.88	-115.93	40.090184	-104.861000	1,276,342.78	3,178,780.05
17,717.00	91.64	177.93	7,378.64	-10,618.82	-113.98	40.090036	-104.860993	1,276,288.86	3,178,782.39

Design Report for Small Eyed 14N-35HZ - Actual Surveys

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,208.00	1,207.98	3.37	-3.44	Tie-On to Surface Gyros @ 1208.00ft
1,390.00	1,389.97	4.17	-4.10	First MWD Survey @ 1390.00ft
17,633.00	7,381.03	-10,534.91	-116.93	Final MWD Survey @ 17633.00ft
17,717.00	7,378.64	-10,618.82	-113.98	Str Line Proj to Bit @ 17717' MD :: 7378.64' TVD

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (usft)
				+N/_S (usft)	+E/-W (usft)	
User	No Target (Freehand)	179.90	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
25.00	1,208.00	MS Energy Gyros	NS-GYRO-MS
1,390.00	7,830.00	MWD Vertical/Build Surveys	MWD+IFR1+SC
7,925.00	17,663.00	MWD Lateral Surveys	MWD+IFR1+SC

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,320.00	1,319.98	9 5/8" Casing Set @ 1320' MD :: 1319.98' TVD	9-5/8	13-1/2
7,750.00	7,375.06	7" Casing Set @ 7750' MD :: 7375.06' TVD	7	8-3/4

Design Report for Small Eyed 14N-35HZ - Actual Surveys

Design Targets

Shape	Target Name	TVD ()	Northing ()	Easting ()	+N/-S	+E/-W	Created	Updated
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Directional Difficulty Index

Average Dogleg over Survey:	1.26 °/100usft	Maximum Dogleg over Survey:	13.82 °/100usft at 7,127.00 usft
Net Tortousity applicable to Plans:	0.55 °/100usft	Directional Difficulty Index:	6.763

Audit Info

North Reference Sheet for Sec. 23-T2N-R67W - Small Eyed 14N-35HZ - Plan A

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

Vertical Depths are relative to RKB = 25' @ 4988.00usft (H&P 308). Northing and Easting are relative to Small Eyed 14N-35HZ

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: 3,000,000.00usft, False Northing: 1,000,000.00usft, Scale Reduction: 0.99995947

Grid Coordinates of Well: 1,286,907.80 usft N, 3,178,819.79 usft E

Geographical Coordinates of Well: 40° 07' 09.07" N, 104° 51' 38.11" W

Grid Convergence at Surface is: 0.41°

Based upon Minimum Curvature type calculations, at a Measured Depth of 17,717.00usft

the Bottom Hole Displacement is 10,619.43usft in the Direction of 180.61° (True).

Magnetic Convergence at surface is: -8.14° (31 July 2014, , BGGM2014)

