

Noble Energy

Weld County, CO (NAD 83)

Sec. 1-T4N-R65W (C06-32-A / G01-08-A/ C06-33-A)

Coalview G02-65-1HN

Original Wellbore

Design: Actual Surveys

05-123-39922

Sperry Drilling Services

Final Survey Report

16 October, 2014

Well Coordinates: 1,368,370.88 N, 3,249,952.92 E (40° 20' 28.00" N, 104° 36' 11.88" W)

Ground Level: 4,828.00 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 Coalview G02-65-1HN

RKB=24' @ 4852.00usft (H&P 343)

N

Grid

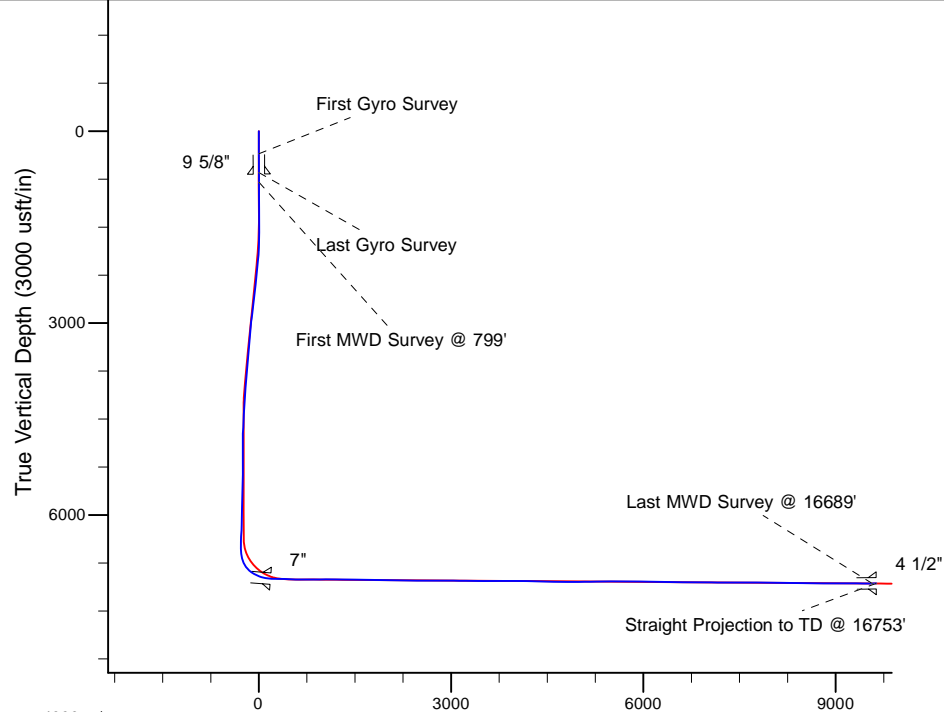
Dec-Deg - API - US Survey Feet - Custom

HALLIBURTON

Project: Weld County, CO (NAD 83)
Site: Sec. 1-T4N-R65W (C06-32-A / G01-08-A/ C06-33-A)
Well: Coalview G02-65-1HN
Wellbore: Original Wellbore
Design: Actual Surveys

Noble Energy

HALLIBURTON
Sperry Drilling



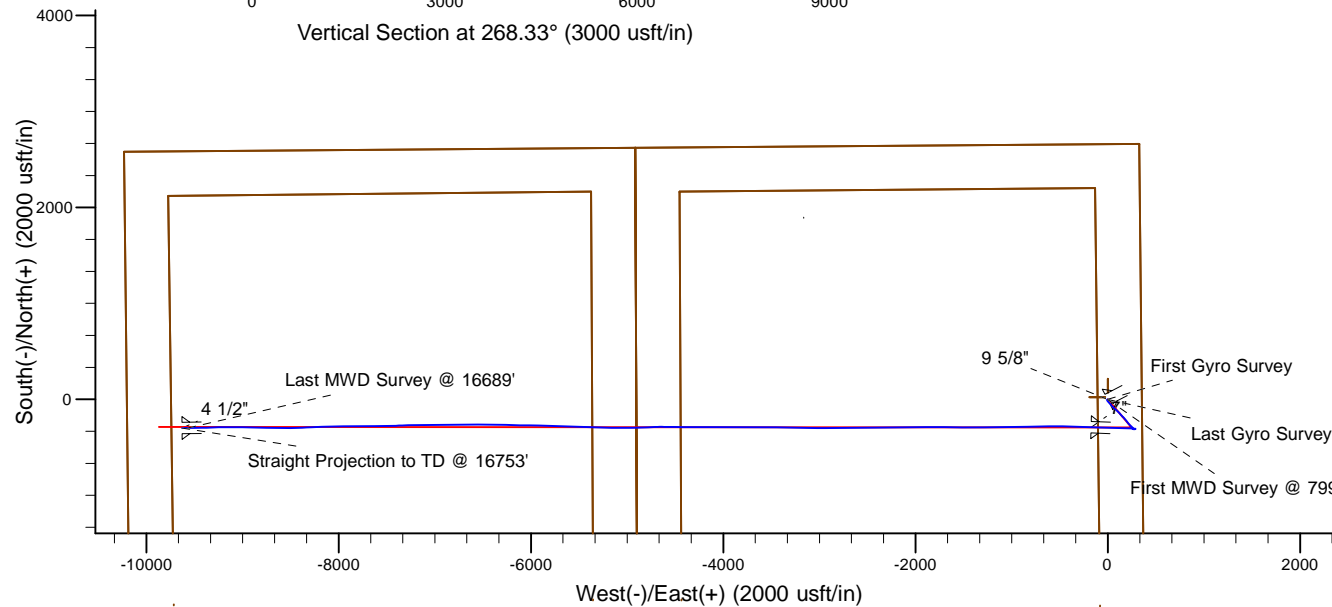
Platted SHL: 2607 FSL, 351 FEL
Platted Lat/Long: 40.34111 N, 104.60330 W
Location: Sec. 1-T4N-R65W

~7" Casing: 2957 FNL, 524 FEL
Lat/Long: 40.340315 N, 104.603935 W
State Planes - CO Northern: 1368079.53 N, 3249778.77 E
Location: Sec. 1-T4N-R65W

Platted BHL: 2310 FSL, 335 FWL
Lat/Long: 40.34059 N, 104.63871 W
State Planes - CO Northern: 1368083.62 N, 3240084.62 E
Location: Sec. Sec. 2-T4N-R65W

LEGEND

Coalview G02-65-1HN, Original Wellbore, Rev A0 Proposal V0
Actual Surveys



WELL DETAILS: Coalview G02-65-1HN

Ground Level: 4828.00
RKB=24' @ 4852.00usft (H&P 343)

Created By: Amanda Marchand
Created On: 10/16/2014

Design Report for Coalview G02-65-1HN - 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
356.00	0.10	276.86	356.00	0.04	-0.31	0.31	0.03
First Gyro Survey							
650.00	0.60	246.86	649.99	-0.54	-1.98	1.99	0.18
Last Gyro Survey							
799.00	0.50	211.84	798.99	-1.40	-3.04	3.08	0.23
First MWD Survey @ 799'							
891.00	0.57	210.68	890.98	-2.13	-3.48	3.54	0.08
984.00	0.53	235.21	983.98	-2.77	-4.07	4.15	0.25
1,076.00	0.35	236.50	1,075.98	-3.17	-4.66	4.75	0.20
1,195.00	0.40	223.24	1,194.97	-3.67	-5.25	5.35	0.08
1,288.00	0.56	215.07	1,287.97	-4.28	-5.73	5.85	0.19
1,380.00	0.80	200.23	1,379.96	-5.25	-6.21	6.36	0.32
1,474.00	0.87	195.79	1,473.95	-6.56	-6.63	6.82	0.10
1,567.00	1.83	174.94	1,566.93	-8.72	-6.69	6.94	1.14
1,661.00	2.83	164.41	1,660.85	-12.45	-5.94	6.29	1.15
1,754.00	4.25	145.39	1,753.67	-17.49	-3.36	3.87	1.96
1,845.00	5.30	140.91	1,844.36	-23.53	1.20	-0.52	1.22
1,937.00	6.17	135.77	1,935.89	-30.37	7.33	-6.45	1.10
2,030.00	7.47	137.09	2,028.23	-38.38	14.94	-13.81	1.41
2,122.00	8.30	134.62	2,119.36	-47.43	23.73	-22.34	0.97
2,214.00	9.48	141.34	2,210.26	-58.01	33.19	-31.49	1.71
2,307.00	8.60	138.42	2,302.10	-69.19	42.59	-40.56	1.07
2,400.00	9.03	133.59	2,394.01	-79.42	52.49	-50.16	0.92
2,493.00	8.57	129.79	2,485.91	-88.89	63.10	-60.49	0.80
2,585.00	8.50	130.40	2,576.89	-97.68	73.55	-70.68	0.12
2,678.00	9.60	134.96	2,668.74	-107.62	84.27	-81.10	1.41
2,771.00	10.01	134.66	2,760.38	-118.78	95.51	-92.01	0.44
2,862.00	10.16	134.47	2,849.97	-129.96	106.86	-103.03	0.17
2,957.00	10.06	134.39	2,943.50	-141.63	118.77	-114.60	0.11
3,052.00	8.58	144.33	3,037.25	-153.20	128.83	-124.32	2.30
3,146.00	8.36	138.56	3,130.22	-164.02	137.44	-132.61	0.93
3,241.00	8.62	133.73	3,224.18	-174.11	147.16	-142.03	0.80
3,336.00	6.72	135.21	3,318.33	-182.98	156.22	-150.83	2.01
3,430.00	7.41	138.85	3,411.61	-191.45	164.08	-158.44	0.87
3,525.00	7.07	137.65	3,505.86	-200.38	172.05	-166.15	0.39
3,619.00	7.44	136.71	3,599.10	-209.09	180.12	-173.96	0.41
3,714.00	5.87	142.07	3,693.46	-217.40	187.33	-180.92	1.78
3,808.00	7.33	139.04	3,786.84	-225.72	194.21	-187.56	1.60
3,903.00	8.11	141.94	3,880.98	-235.57	202.32	-195.38	0.92
3,998.00	8.49	142.89	3,974.98	-246.44	210.68	-203.42	0.43
4,092.00	7.93	143.04	4,068.02	-257.15	218.77	-211.19	0.60
4,186.00	6.27	135.67	4,161.29	-266.01	226.25	-218.42	2.01
4,280.00	5.65	133.73	4,254.79	-272.88	233.18	-225.14	0.69
4,374.00	4.60	136.15	4,348.41	-278.80	239.14	-230.92	1.14
4,469.00	3.98	134.20	4,443.14	-283.84	244.14	-235.78	0.67
4,564.00	3.78	132.59	4,537.92	-288.26	248.81	-240.32	0.24
4,659.00	2.85	135.27	4,632.76	-292.06	252.78	-244.17	0.99
4,753.00	3.17	136.56	4,726.63	-295.60	256.21	-247.50	0.35
4,848.00	2.25	154.14	4,821.53	-299.19	258.83	-250.01	1.29

Design Report for Coalview G02-65-1HN - Actual Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
4,943.00	1.52	219.08	4,916.49	-301.85	258.85	-249.95	2.23
5,038.00	1.88	211.24	5,011.44	-304.16	257.24	-248.29	0.45
5,133.00	0.63	152.42	5,106.42	-305.95	256.68	-247.67	1.73
5,228.00	0.87	130.45	5,201.41	-306.88	257.47	-248.43	0.39
5,322.00	0.87	127.24	5,295.40	-307.78	258.58	-249.52	0.05
5,511.00	1.01	108.58	5,484.38	-309.18	261.30	-252.19	0.18
5,605.00	1.20	100.63	5,578.36	-309.62	263.05	-253.93	0.26
5,700.00	1.59	109.19	5,673.33	-310.24	265.28	-256.14	0.46
5,794.00	1.45	99.18	5,767.30	-310.86	267.68	-258.52	0.32
5,887.00	1.31	95.54	5,860.27	-311.15	269.90	-260.73	0.18
5,982.00	1.33	92.90	5,955.25	-311.31	272.08	-262.91	0.07
6,076.00	1.56	86.24	6,049.22	-311.28	274.45	-265.28	0.30
6,171.00	1.76	79.14	6,144.18	-310.92	277.17	-268.01	0.30
6,265.00	2.09	80.82	6,238.12	-310.37	280.28	-271.13	0.36
6,360.00	2.41	81.78	6,333.05	-309.81	283.97	-274.84	0.34
6,454.00	2.02	65.54	6,426.98	-308.84	287.43	-278.33	0.78
6,549.00	1.21	328.25	6,521.96	-307.30	288.43	-279.37	2.61
6,644.00	6.62	276.03	6,616.71	-305.87	282.45	-273.43	6.27
6,692.00	12.87	274.01	6,664.00	-305.20	274.36	-265.36	13.04
6,739.00	18.60	274.59	6,709.22	-304.24	261.66	-252.69	12.20
6,787.00	25.84	275.09	6,753.62	-302.69	243.58	-234.67	15.09
6,833.00	32.59	273.80	6,793.75	-300.98	221.21	-212.36	14.74
6,881.00	39.40	270.20	6,832.57	-300.07	193.04	-184.23	14.85
6,928.00	46.96	271.28	6,866.82	-299.63	160.91	-152.12	16.16
6,976.00	55.33	270.61	6,896.90	-299.03	123.57	-114.81	17.47
7,022.00	60.34	271.58	6,921.38	-298.28	84.65	-75.93	11.04
7,070.00	65.14	272.47	6,943.36	-296.76	42.02	-33.36	10.13
7,116.00	69.60	272.42	6,961.06	-294.95	-0.39	8.97	9.70
7,164.00	74.36	271.43	6,975.90	-293.42	-46.00	54.52	10.11
7,211.00	79.92	269.73	6,986.36	-292.97	-91.80	100.28	12.34
7,250.00	83.48	271.36	6,991.99	-292.60	-130.38	138.84	10.02
7,357.00	88.52	272.63	6,999.45	-288.88	-237.02	245.32	4.86
7,404.00	87.90	272.68	7,000.92	-286.70	-283.94	292.17	1.32
7,498.00	88.71	271.30	7,003.70	-283.44	-377.84	385.93	1.70
7,592.00	88.34	270.23	7,006.12	-282.19	-471.80	479.81	1.20
7,686.00	89.78	269.94	7,007.66	-282.05	-565.79	573.75	1.56
7,781.00	88.95	268.87	7,008.71	-283.03	-660.77	668.73	1.43
7,875.00	90.37	269.83	7,009.27	-284.10	-754.76	762.71	1.82
7,969.00	90.34	269.13	7,008.69	-284.95	-848.76	856.69	0.75
8,064.00	90.92	268.12	7,007.65	-287.23	-943.72	951.68	1.23
8,158.00	89.75	268.46	7,007.10	-290.04	-1,037.68	1,045.68	1.30
8,253.00	89.32	270.28	7,007.87	-291.08	-1,132.66	1,140.65	1.97
8,348.00	89.91	269.07	7,008.51	-291.62	-1,227.66	1,235.62	1.42
8,443.00	88.80	270.36	7,009.57	-292.09	-1,322.65	1,330.59	1.79
8,538.00	88.92	268.90	7,011.46	-292.71	-1,417.62	1,425.54	1.54
8,633.00	89.75	270.86	7,012.57	-292.91	-1,512.61	1,520.49	2.24
8,728.00	89.20	270.87	7,013.44	-291.47	-1,607.60	1,615.40	0.58
8,822.00	90.00	270.56	7,014.09	-290.30	-1,701.59	1,709.31	0.91
8,917.00	89.01	270.80	7,014.91	-289.17	-1,796.57	1,804.23	1.07
9,012.00	89.72	269.64	7,015.97	-288.81	-1,891.56	1,899.17	1.43
9,107.00	87.87	269.51	7,017.97	-289.51	-1,986.54	1,994.12	1.95

Design Report for Coalview G02-65-1HN - Actual Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
9,202.00	87.32	268.82	7,021.95	-290.89	-2,081.44	2,089.03	0.93
9,296.00	88.03	268.50	7,025.77	-293.09	-2,175.34	2,182.95	0.83
9,391.00	89.85	270.27	7,027.52	-294.11	-2,270.31	2,277.91	2.67
9,486.00	91.14	269.18	7,026.70	-294.57	-2,365.30	2,372.87	1.78
9,580.00	91.05	269.93	7,024.91	-295.30	-2,459.28	2,466.83	0.80
9,675.00	89.75	269.88	7,024.24	-295.45	-2,554.28	2,561.79	1.37
9,770.00	90.74	269.11	7,023.84	-296.29	-2,649.27	2,656.77	1.32
9,865.00	89.66	269.37	7,023.50	-297.55	-2,744.26	2,751.75	1.17
9,960.00	88.98	269.71	7,024.63	-298.31	-2,839.25	2,846.73	0.80
10,054.00	89.48	269.11	7,025.90	-299.28	-2,933.23	2,940.70	0.83
10,149.00	89.01	270.76	7,027.15	-299.39	-3,028.22	3,035.65	1.81
10,244.00	89.11	271.60	7,028.71	-297.43	-3,123.19	3,130.52	0.89
10,338.00	88.98	271.58	7,030.27	-294.83	-3,217.14	3,224.36	0.14
10,432.00	88.64	270.05	7,032.22	-293.49	-3,311.11	3,318.24	1.67
10,527.00	89.85	271.43	7,033.48	-292.26	-3,406.09	3,413.15	1.93
10,622.00	90.92	269.17	7,032.84	-291.76	-3,501.08	3,508.08	2.63
10,717.00	88.70	269.70	7,033.15	-292.70	-3,596.06	3,603.06	2.40
10,809.00	89.94	271.18	7,034.25	-291.99	-3,688.05	3,694.99	2.10
10,902.00	90.62	270.32	7,033.79	-290.78	-3,781.04	3,787.90	1.18
10,995.00	89.66	271.34	7,033.56	-289.43	-3,874.03	3,880.81	1.51
11,088.00	89.97	269.87	7,033.86	-288.45	-3,967.02	3,973.73	1.62
11,181.00	90.68	269.55	7,033.34	-288.92	-4,060.02	4,066.70	0.84
11,275.00	88.95	270.03	7,033.64	-289.26	-4,154.01	4,160.67	1.91
11,368.00	88.64	269.48	7,035.60	-289.66	-4,246.99	4,253.62	0.68
11,459.00	88.24	269.86	7,038.07	-290.18	-4,337.95	4,344.56	0.61
11,551.00	88.95	270.92	7,040.33	-289.56	-4,429.92	4,436.47	1.39
11,644.00	88.92	270.76	7,042.06	-288.20	-4,522.90	4,529.37	0.18
11,736.00	88.77	271.17	7,043.91	-286.65	-4,614.86	4,621.25	0.47
11,828.00	88.92	268.17	7,045.77	-287.18	-4,706.83	4,713.20	3.26
11,921.00	89.11	267.47	7,047.37	-290.71	-4,799.75	4,806.18	0.78
12,014.00	90.68	268.42	7,047.54	-294.05	-4,892.69	4,899.17	1.97
12,107.00	90.86	269.55	7,046.29	-295.69	-4,985.66	4,992.16	1.23
12,199.00	90.83	269.23	7,044.93	-296.67	-5,077.65	5,084.13	0.35
12,292.00	90.74	270.16	7,043.66	-297.17	-5,170.64	5,177.09	1.00
12,385.00	92.59	270.91	7,040.95	-296.30	-5,263.59	5,269.98	2.15
12,476.00	90.55	272.03	7,038.46	-293.97	-5,354.52	5,360.80	2.56
12,571.00	89.82	272.77	7,038.15	-289.99	-5,449.43	5,455.56	1.09
12,666.00	89.48	273.56	7,038.73	-284.74	-5,544.29	5,550.22	0.91
12,761.00	88.77	272.76	7,040.18	-279.51	-5,639.13	5,644.87	1.13
12,856.00	89.26	271.19	7,041.82	-276.23	-5,734.05	5,739.66	1.73
12,951.00	89.81	271.07	7,042.59	-274.36	-5,829.03	5,834.55	0.59
13,046.00	90.28	270.66	7,042.51	-272.93	-5,924.02	5,929.45	0.66
13,140.00	89.20	270.87	7,042.94	-271.67	-6,018.01	6,023.37	1.17
13,235.00	90.65	270.74	7,043.06	-270.34	-6,113.00	6,118.28	1.53
13,330.00	87.69	272.51	7,044.44	-267.65	-6,207.94	6,213.10	3.63
13,425.00	88.43	270.93	7,047.66	-264.80	-6,302.84	6,307.87	1.84
13,519.00	89.75	270.20	7,049.15	-263.87	-6,396.82	6,401.79	1.60
13,613.00	88.92	270.92	7,050.24	-262.95	-6,490.80	6,495.71	1.17
13,708.00	89.54	269.82	7,051.52	-262.34	-6,585.79	6,590.64	1.33
13,802.00	89.41	268.78	7,052.38	-263.49	-6,679.78	6,684.62	1.11
13,896.00	89.26	269.41	7,053.47	-264.97	-6,773.76	6,778.60	0.69

Design Report for Coalview G02-65-1HN - Actual Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
13,991.00	90.19	270.54	7,053.93	-265.01	-6,868.76	6,873.56	1.54
14,086.00	89.32	269.93	7,054.33	-264.62	-6,963.75	6,968.50	1.12
14,181.00	89.78	269.32	7,055.08	-265.24	-7,058.75	7,063.48	0.80
14,276.00	90.06	268.49	7,055.21	-267.06	-7,153.73	7,158.47	0.92
14,370.00	89.78	269.05	7,055.34	-269.08	-7,247.71	7,252.47	0.67
14,464.00	90.68	266.85	7,054.96	-272.44	-7,341.64	7,346.46	2.53
14,559.00	89.57	268.89	7,054.76	-275.97	-7,436.57	7,441.45	2.44
14,653.00	89.75	269.78	7,055.32	-277.06	-7,530.56	7,535.43	0.97
14,748.00	89.07	268.03	7,056.29	-278.88	-7,625.53	7,630.42	1.98
14,842.00	89.69	270.02	7,057.31	-280.47	-7,719.51	7,724.40	2.22
14,937.00	91.69	271.47	7,056.17	-279.24	-7,814.49	7,819.30	2.60
15,032.00	88.89	269.33	7,055.69	-278.58	-7,909.47	7,914.22	3.71
15,126.00	88.31	267.94	7,057.98	-280.82	-8,003.41	8,008.19	1.60
15,220.00	88.12	267.62	7,060.91	-284.45	-8,097.29	8,102.14	0.40
15,315.00	88.83	268.36	7,063.44	-287.79	-8,192.20	8,197.10	1.08
15,409.00	89.60	267.84	7,064.73	-290.90	-8,286.14	8,291.09	0.99
15,504.00	90.46	266.54	7,064.68	-295.56	-8,381.02	8,386.07	1.64
15,598.00	88.86	269.28	7,065.23	-298.99	-8,474.94	8,480.06	3.38
15,693.00	89.75	270.25	7,066.39	-299.38	-8,569.94	8,575.02	1.39
15,787.00	89.38	271.38	7,067.10	-298.04	-8,663.92	8,668.92	1.26
15,882.00	90.31	271.47	7,067.36	-295.68	-8,758.89	8,763.79	0.98
15,977.00	90.28	271.01	7,066.87	-293.62	-8,853.87	8,858.66	0.49
16,071.00	90.18	271.10	7,066.49	-291.89	-8,947.85	8,952.55	0.14
16,166.00	89.85	270.27	7,066.47	-290.75	-9,042.84	9,047.47	0.94
16,261.00	89.29	269.84	7,067.18	-290.66	-9,137.84	9,142.43	0.74
16,355.00	89.14	268.88	7,068.47	-291.71	-9,231.82	9,236.40	1.03
16,450.00	89.08	268.17	7,069.94	-294.16	-9,326.78	9,331.39	0.75
16,545.00	89.51	269.28	7,071.11	-296.27	-9,421.75	9,426.38	1.25
16,639.00	90.40	269.39	7,071.19	-297.36	-9,515.74	9,520.36	0.95
16,689.00	90.93	269.36	7,070.61	-297.91	-9,565.73	9,570.35	1.06
Last MWD Survey @ 16689'							
16,753.00	90.93	269.36	7,069.57	-298.62	-9,629.72	9,634.33	0.00
Straight Projection to TD @ 16753'							

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
356.00	356.00	0.04	-0.31	First Gyro Survey
650.00	649.99	-0.54	-1.98	Last Gyro Survey
799.00	798.99	-1.40	-3.04	First MWD Survey @ 799'
16,689.00	7,070.61	-297.91	-9,565.73	Last MWD Survey @ 16689'
16,753.00	7,069.57	-298.62	-9,629.72	Straight Projection to TD @ 16753'

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (usft)
				+N/-S (usft)	+E/-W (usft)	
Target	Coalview G02-65-1HN BHL	268.33	Slot	0.00	0.00	0.00

Design Report for Coalview G02-65-1HN - Actual Surveys

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
356.00	650.00	Noble Flexishot Surveys	Flexi-Shot
799.00	7,250.00	Intermediate Surveys	MWD+IFR1+MS_WY
7,357.00	16,753.00	Production Surveys	MWD+IFR1+MS_WY

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
673.00	672.99	9 5/8"	9-5/8	13-1/16
7,294.00	6,996.19	7"	7	8-3/4
16,753.00	7,069.57	4 1/2"	4-1/2	6-1/8

Wellbore Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
Coalview G02-66-1HN	0.00	0.00	0.00	21.87	-0.22	1,368,392.74	3,249,952.70	40.341170	-104.603300
- actual wellpath misses target center by 21.87usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1				0.00	2,641.04	327.31	1,371,033.67	3,250,279.99	
Point 2				0.00	2,558.21	-10,233.63	1,370,950.84	3,239,719.50	
Point 3				0.00	-2,621.93	-10,175.01	1,365,770.92	3,239,778.11	
Point 4				0.00	-2,570.15	-4,894.94	1,365,822.70	3,245,057.96	
Point 5				0.00	2,603.07	-4,915.56	1,370,995.70	3,245,037.34	
Point 6				0.00	-2,570.15	-4,894.94	1,365,822.70	3,245,057.96	
Point 7				0.00	-2,633.90	377.93	1,365,758.95	3,250,330.61	
Point 8				0.00	2,641.04	327.31	1,371,033.67	3,250,279.99	
Coalview G02-66-1HN	0.00	0.00	0.00	21.87	-0.22	1,368,392.74	3,249,952.70	40.341170	-104.603300
- actual wellpath misses target center by 21.87usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1				0.00	2,181.02	-132.71	1,370,573.67	3,249,819.99	
Point 2				0.00	-2,173.88	-82.09	1,366,218.95	3,249,870.61	
Point 3				0.00	-2,110.13	-4,434.92	1,366,282.70	3,245,517.96	
Point 4				0.00	2,143.05	-4,455.54	1,370,535.70	3,245,497.34	
Coalview G02-65-1HN	0.00	0.00	0.00	0.00	0.00	1,368,370.88	3,249,952.92	40.341110	-104.603300
- actual wellpath hits target center									
- Point									
Coalview G02-66-1HN	0.00	0.00	0.00	21.87	-0.22	1,368,392.74	3,249,952.70	40.341170	-104.603300
- actual wellpath misses target center by 21.87usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1				0.00	2,143.05	-5,375.58	1,370,535.70	3,244,577.34	
Point 2				0.00	-2,110.13	-5,354.96	1,366,282.70	3,244,597.96	
Point 3				0.00	-2,161.91	-9,714.99	1,366,230.92	3,240,238.11	
Point 4				0.00	2,098.19	-9,773.61	1,370,490.84	3,240,179.50	
Coalview G02-65-1HN	0.00	0.00	7,074.00	-287.27	-9,868.71	1,368,083.62	3,240,084.62	40.340590	-104.638710
- actual wellpath misses target center by 239.30usft at 16753.00usft MD (7069.57 TVD, -298.62 N, -9629.72 E)									
- Point									

Directional Difficulty Index

Average Dogleg over Survey:	1.58 °/100usft	Maximum Dogleg over Survey:	17.47 °/100usft at 6,976.00 usft
Net Tortousity applicable to Plans:	0.94 °/100usft	Directional Difficulty Index:	6.815

Design Report for Coalview G02-65-1HN - Actual Surveys

Audit Info

North Reference Sheet for Sec. 1-T4N-R65W (C06-32-A / G01-08-A/ C06-33-A) - Coalview G02-65-1HN - Original Wellbore

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

Vertical Depths are relative to RKB=24' @ 4852.00usft (H&P 343). Northing and Easting are relative to Coalview G02-65-1HN

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: 0.99995809

Grid Coordinates of Well: 1,368,370.88 usft N, 3,249,952.92 usft E

Geographical Coordinates of Well: 40° 20' 28.00" N, 104° 36' 11.88" W

Grid Convergence at Surface is: 0.58°

Based upon Minimum Curvature type calculations, at a Measured Depth of 16,753.00usft the Bottom Hole Displacement is 9,634.35usft in the Direction of 268.22° (Grid).

Magnetic Convergence at surface is: -7.84° (22 September 2014, , BGGM2014)

