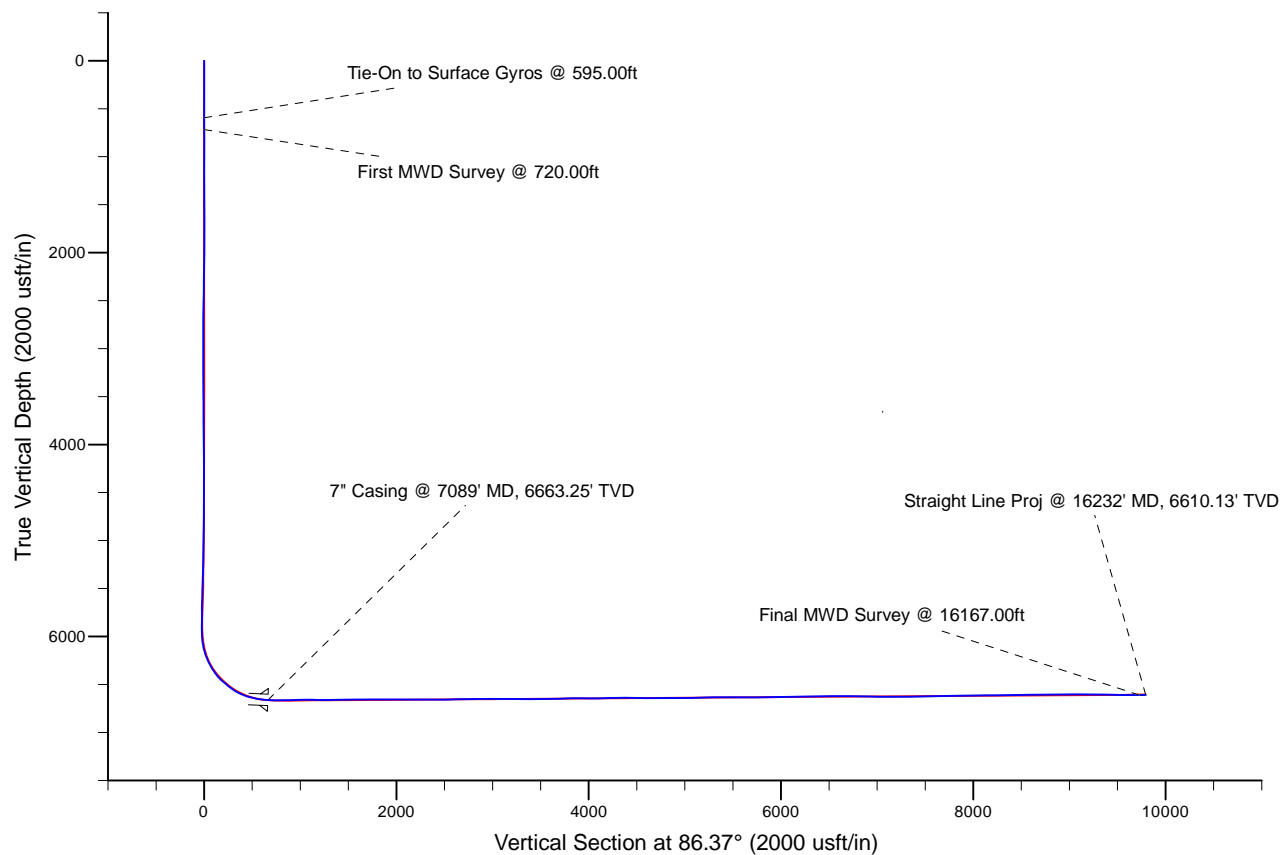
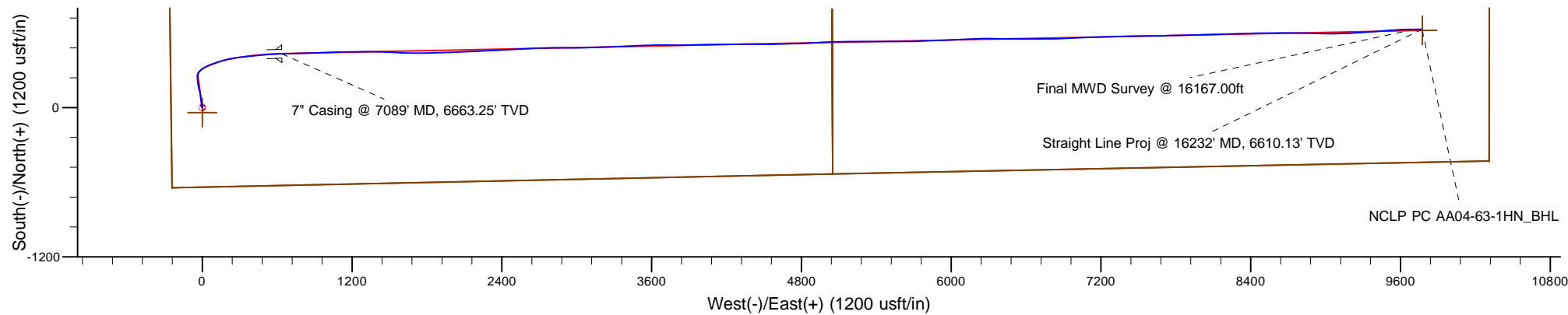


Project: Weld County, CO (NAD 83)
 Site: Sec. 4-T6N-R63W (NCLP PC AA04 Pads)
 Well: NCLP PC AA04-63-1HN
 Wellbore: Plan A
 Design: Final Surveys

Noble Energy

HALLIBURTON
 Sperry Drilling



LEGEND

- NCLP PC AA04-63-1HN, Plan A, A0 - PROPOSAL V0
- Final Surveys

Platted SHL: 637' FSL, 250' FWL
 Platted Lat/Long: 40.51028 N, 104.45032 W
 Location: Sec. 4-T6N-R63W

7" Casing: ~1058.02' FSL, ~893.2' FWL
 Lat/Long: 40.511447 N, 104.448008 W
 State Planes - CO Northern: 1,430,895.59' N, 3,292,502.24' E
 Location: Sec. 4-T6N-R63W

BHL: ~1070.89' FSL, ~537.32' FEL
 Lat/Long: 40.511689 N, 104.415143 W
 State Planes - CO Northern: 1,431,093.96' N, 3,301,638.57' E
 Location: Sec. 3-T6N-R63W

WELL DETAILS: NCLP PC AA04-63-1HN

Ground Level: 4710.00
 RKB=30 @ 4740.00usft (H&P 321)

Created By: Fred Hartmann
 Created On: 01/27/2014

Noble Energy

Weld County, CO (NAD 83)

Sec. 4-T6N-R63W (NCLP PC AA04 Pads)

NCLP PC AA04-63-1HN

Design: Final Surveys

Sperry Drilling Services

Final Survey Report

27 January, 2014

Well Coordinates: 1,430,463.03 N, 3,291,864.37 E (40° 30' 37.01" N, 104° 27' 01.15" W)

Ground Level: 4,710.00 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 NCLP PC AA04-63-1HN

RKB=30 @ 4740.00usft (H&P 321)

N

Grid

Dec-Deg - API - US Survey Feet - Custom

HALLIBURTON

Design Report for NCLP PC AA04-63-1HN - Final 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
250.00	0.40	140.31	250.00	-0.67	0.56	0.51	0.16
500.00	0.40	299.51	500.00	-0.91	0.36	0.30	0.31
595.00	0.90	65.31	594.99	-0.44	0.74	0.72	1.24
Tie-On to Surface Gyros @ 595.00ft							
720.00	0.44	132.91	719.98	-0.35	1.99	1.96	0.67
First MWD Survey @ 720.00ft							
811.00	0.29	310.20	810.98	-0.44	2.07	2.04	0.80
903.00	0.09	267.34	902.98	-0.30	1.82	1.80	0.25
996.00	0.17	29.41	995.98	-0.18	1.81	1.80	0.25
1,087.00	1.08	358.88	1,086.98	0.79	1.86	1.91	1.03
1,181.00	1.60	1.99	1,180.95	2.99	1.89	2.08	0.56
1,365.00	1.42	4.51	1,364.89	7.83	2.16	2.65	0.10
1,458.00	1.74	10.64	1,457.85	10.37	2.51	3.16	0.39
1,550.00	1.49	8.51	1,549.82	12.92	2.95	3.76	0.28
1,642.00	1.10	6.74	1,641.79	14.98	3.23	4.17	0.43
1,733.00	1.16	10.87	1,732.77	16.76	3.50	4.56	0.11
1,826.00	0.86	244.26	1,825.77	17.38	3.05	4.15	1.95
1,919.00	1.02	218.20	1,918.75	16.42	1.91	2.95	0.49
2,014.00	0.65	241.65	2,013.74	15.50	0.91	1.89	0.52
2,201.00	1.10	241.08	2,200.72	14.13	-1.59	-0.69	0.24
2,296.00	1.00	240.62	2,295.71	13.28	-3.11	-2.26	0.11
2,390.00	0.92	269.75	2,389.69	12.88	-4.58	-3.76	0.52
2,454.00	0.38	257.44	2,453.69	12.83	-5.30	-4.48	0.87
2,517.00	0.77	320.68	2,516.69	13.11	-5.77	-4.93	1.09
2,612.00	0.92	306.68	2,611.68	14.06	-6.79	-5.89	0.27
2,707.00	0.94	290.33	2,706.66	14.79	-8.13	-7.18	0.28
2,801.00	1.23	328.77	2,800.65	15.92	-9.38	-8.35	0.81
2,896.00	0.20	61.60	2,895.64	16.87	-9.76	-8.67	1.32
2,991.00	0.28	66.67	2,990.64	17.04	-9.40	-8.30	0.09
3,086.00	0.28	167.13	3,085.64	16.91	-9.14	-8.05	0.45
3,181.00	0.41	188.67	3,180.64	16.34	-9.14	-8.08	0.19
3,275.00	0.25	117.30	3,274.64	15.92	-9.01	-7.98	0.43
3,370.00	0.47	116.39	3,369.63	15.65	-8.47	-7.46	0.23
3,465.00	0.94	83.05	3,464.63	15.57	-7.35	-6.35	0.64
3,559.00	0.26	98.40	3,558.62	15.63	-6.37	-5.37	0.74
3,654.00	0.68	149.18	3,653.62	15.12	-5.87	-4.90	0.58
3,749.00	0.43	148.40	3,748.61	14.33	-5.40	-4.48	0.26
3,843.00	0.39	143.95	3,842.61	13.77	-5.02	-4.14	0.05
3,938.00	0.81	154.38	3,937.61	12.90	-4.54	-3.72	0.45
4,033.00	0.68	160.63	4,032.60	11.77	-4.07	-3.31	0.16
4,128.00	0.84	151.61	4,127.59	10.62	-3.55	-2.87	0.21
4,223.00	0.99	148.30	4,222.58	9.31	-2.78	-2.19	0.17
4,318.00	1.51	143.74	4,317.55	7.60	-1.61	-1.13	0.56
4,413.00	0.89	166.22	4,412.53	5.88	-0.70	-0.32	0.81
4,512.00	0.84	150.46	4,511.52	4.50	-0.16	0.13	0.24
4,570.00	0.62	211.32	4,569.52	3.86	-0.11	0.14	1.32
4,665.00	3.26	342.09	4,664.47	5.99	-1.21	-0.83	3.89
4,760.00	4.90	344.25	4,759.23	12.47	-3.14	-2.34	1.73
4,855.00	6.50	349.46	4,853.76	21.66	-5.23	-3.84	1.77

Design Report for NCLP PC AA04-63-1HN - Final Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
4,949.00	7.23	354.66	4,947.08	32.78	-6.75	-4.66	1.02
5,044.00	9.93	354.41	5,041.01	46.89	-8.10	-5.12	2.84
5,139.00	11.14	350.75	5,134.41	64.10	-10.38	-6.30	1.45
5,234.00	11.95	349.96	5,227.49	82.84	-13.57	-8.29	0.87
5,329.00	14.80	353.70	5,319.90	104.59	-16.61	-9.95	3.13
5,424.00	14.85	348.17	5,411.74	128.57	-20.44	-12.26	1.49
5,519.00	12.27	344.17	5,504.09	150.20	-25.69	-16.13	2.89
5,614.00	13.09	347.39	5,596.77	170.41	-30.79	-19.94	1.14
5,708.00	14.32	352.18	5,688.10	192.32	-34.70	-22.45	1.78
5,803.00	12.54	356.36	5,780.50	214.25	-36.95	-23.31	2.13
5,898.00	13.67	355.31	5,873.02	235.73	-38.53	-23.52	1.22
5,924.00	12.86	353.97	5,898.33	241.67	-39.08	-23.69	3.33
5,992.00	12.02	3.08	5,964.74	256.27	-39.50	-23.18	3.14
6,040.00	11.73	13.15	6,011.72	266.01	-38.12	-21.19	4.35
6,087.00	13.77	26.65	6,057.57	275.67	-34.52	-16.99	7.65
6,135.00	18.34	38.86	6,103.69	286.66	-27.21	-9.00	11.79
6,182.00	21.73	45.76	6,147.85	298.49	-16.34	2.60	8.78
6,230.00	21.88	55.36	6,192.43	309.78	-2.61	17.02	7.43
6,277.00	24.42	61.03	6,235.65	319.47	13.10	33.31	7.18
6,325.00	27.71	65.12	6,278.76	328.97	31.91	52.69	7.81
6,372.00	32.13	68.13	6,319.49	338.23	53.44	74.76	9.93
6,420.00	34.45	69.20	6,359.61	347.81	77.98	99.85	4.99
6,467.00	38.51	69.44	6,397.40	357.67	104.12	126.56	8.64
6,515.00	44.45	71.14	6,433.34	368.36	134.04	157.11	12.59
6,561.00	49.13	72.99	6,464.83	378.66	165.93	189.59	10.59
6,609.00	50.07	77.26	6,495.95	388.03	201.25	225.43	7.05
6,656.00	52.16	80.78	6,525.46	394.98	237.16	261.70	7.33
6,704.00	55.50	81.21	6,553.78	401.04	275.42	300.27	7.00
6,751.00	60.48	83.14	6,578.69	406.45	314.89	340.01	11.15
6,799.00	65.75	84.29	6,600.39	411.12	357.43	382.76	11.18
6,846.00	70.21	84.06	6,618.00	415.55	400.77	426.29	9.50
6,894.00	74.23	84.07	6,632.66	420.27	446.22	471.95	8.38
6,941.00	77.64	84.96	6,644.08	424.63	491.60	517.51	7.48
6,989.00	80.30	86.28	6,653.26	428.22	538.57	564.61	6.16
7,045.00	85.08	87.87	6,660.38	431.05	594.02	620.13	8.99
7,089.00	87.45	88.16	6,663.25	432.57	637.90	664.02	5.44
7" Casing @ 7089' MD, 6663.25' TVD							
7,131.00	89.72	88.44	6,664.29	433.82	679.86	705.98	5.44
7,225.00	90.49	88.09	6,664.11	436.66	773.82	799.93	0.90
7,320.00	90.43	87.94	6,663.35	439.95	868.76	894.88	0.17
7,415.00	90.31	87.78	6,662.74	443.50	963.69	989.85	0.21
7,510.00	89.97	89.28	6,662.50	445.94	1,058.66	1,084.78	1.62
7,605.00	90.03	88.38	6,662.50	447.88	1,153.64	1,179.69	0.95
7,700.00	89.69	89.06	6,662.74	450.00	1,248.61	1,274.61	0.80
7,794.00	91.97	90.62	6,661.37	450.26	1,342.59	1,368.42	2.94
7,889.00	91.54	91.31	6,658.47	448.66	1,437.53	1,463.07	0.86
7,984.00	90.83	93.33	6,656.50	444.82	1,532.43	1,557.53	2.25
8,079.00	88.86	92.56	6,656.76	439.94	1,627.30	1,651.90	2.23
8,173.00	88.95	89.43	6,658.55	438.30	1,721.26	1,745.56	3.33
8,268.00	91.20	88.53	6,658.43	440.00	1,816.23	1,840.46	2.55
8,363.00	89.29	88.25	6,658.02	442.66	1,911.19	1,935.39	2.03

Design Report for NCLP PC AA04-63-1HN - Final Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
8,458.00	90.92	88.00	6,657.85	445.77	2,006.14	2,030.34	1.74
8,553.00	90.86	87.81	6,656.37	449.25	2,101.06	2,125.30	0.21
8,647.00	88.98	87.47	6,656.51	453.12	2,194.98	2,219.27	2.03
8,742.00	88.31	87.27	6,658.75	457.47	2,289.85	2,314.23	0.74
8,837.00	90.49	86.70	6,659.75	462.47	2,384.71	2,409.21	2.37
8,932.00	91.60	86.75	6,658.01	467.90	2,479.54	2,504.19	1.17
9,026.00	90.58	87.00	6,656.23	473.02	2,573.38	2,598.17	1.12
9,121.00	91.69	87.39	6,654.34	477.67	2,668.24	2,693.14	1.24
9,216.00	90.46	89.38	6,652.56	480.34	2,763.18	2,788.06	2.46
9,311.00	89.69	90.38	6,652.44	480.54	2,858.18	2,882.88	1.33
9,406.00	90.15	89.71	6,652.57	480.47	2,953.18	2,977.68	0.86
9,500.00	90.68	88.81	6,651.89	481.68	3,047.17	3,071.56	1.11
9,595.00	89.54	88.02	6,651.71	484.31	3,142.13	3,166.50	1.46
9,690.00	89.11	87.72	6,652.83	487.84	3,237.06	3,261.46	0.55
9,785.00	88.46	87.66	6,654.84	491.67	3,331.96	3,356.41	0.69
9,880.00	90.12	88.09	6,656.02	495.19	3,426.88	3,451.37	1.81
9,975.00	92.87	87.03	6,653.54	499.23	3,521.75	3,546.30	3.10
10,070.00	92.28	88.96	6,649.27	502.55	3,616.59	3,641.16	2.12
10,165.00	90.62	90.30	6,646.87	503.17	3,711.55	3,735.97	2.25
10,256.00	90.95	90.85	6,645.62	502.25	3,802.54	3,826.72	0.70
10,348.00	89.26	88.22	6,645.45	503.00	3,894.53	3,918.57	3.40
10,440.00	88.74	88.62	6,647.06	505.54	3,986.48	4,010.49	0.71
10,531.00	91.70	88.92	6,646.71	507.49	4,077.45	4,101.40	3.27
10,624.00	92.04	88.54	6,643.67	509.55	4,170.37	4,194.27	0.55
10,715.00	90.92	89.95	6,641.32	510.75	4,261.33	4,285.13	1.98
10,807.00	90.80	90.59	6,639.94	510.31	4,353.32	4,376.90	0.71
10,898.00	88.83	90.57	6,640.24	509.39	4,444.31	4,467.65	2.16
10,991.00	88.15	89.26	6,642.69	509.53	4,537.27	4,560.44	1.59
11,083.00	89.54	88.58	6,644.54	511.26	4,629.24	4,652.33	1.68
11,175.00	90.65	88.43	6,644.39	513.66	4,721.20	4,744.26	1.22
11,268.00	90.37	87.50	6,643.56	516.97	4,814.14	4,837.22	1.04
11,360.00	89.35	86.98	6,643.78	521.40	4,906.03	4,929.21	1.24
11,452.00	90.49	86.58	6,643.91	526.56	4,997.88	5,021.20	1.31
11,546.00	92.25	88.82	6,641.67	530.34	5,091.77	5,115.14	3.03
11,637.00	92.90	89.66	6,637.58	531.54	5,182.67	5,205.93	1.17
11,729.00	89.94	90.43	6,635.30	531.47	5,274.63	5,297.70	3.32
11,820.00	89.60	90.09	6,635.66	531.06	5,365.63	5,388.49	0.53
11,913.00	90.65	90.39	6,635.46	530.67	5,458.63	5,481.28	1.17
12,007.00	91.02	89.47	6,634.09	530.78	5,552.62	5,575.09	1.05
12,101.00	88.40	89.17	6,634.57	531.90	5,646.60	5,668.95	2.81
12,194.00	89.17	88.10	6,636.54	534.11	5,739.55	5,761.86	1.42
12,289.00	90.65	87.50	6,636.69	537.76	5,834.48	5,856.82	1.68
12,384.00	91.39	87.77	6,635.00	541.68	5,929.38	5,951.79	0.83
12,479.00	91.33	87.32	6,632.74	545.75	6,024.27	6,046.74	0.48
12,573.00	92.38	87.58	6,629.70	549.93	6,118.12	6,140.67	1.15
12,668.00	90.71	88.25	6,627.14	553.38	6,213.02	6,235.60	1.89
12,763.00	91.33	90.13	6,625.45	554.72	6,307.99	6,330.46	2.08
12,858.00	91.33	90.83	6,623.24	553.93	6,402.96	6,425.19	0.74
12,957.00	89.97	89.99	6,622.12	553.22	6,501.95	6,523.94	1.61
13,052.00	89.88	90.54	6,622.24	552.78	6,596.95	6,618.72	0.59
13,147.00	89.17	89.28	6,623.03	552.93	6,691.94	6,713.53	1.52

Design Report for NCLP PC AA04-63-1HN - Final Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
13,242.00	88.71	89.73	6,624.79	553.75	6,786.92	6,808.37	0.68
13,337.00	88.21	88.13	6,627.34	555.52	6,881.87	6,903.24	1.76
13,432.00	88.98	87.62	6,629.67	559.04	6,976.77	6,998.17	0.97
13,527.00	90.89	86.68	6,629.78	563.77	7,071.65	7,093.16	2.24
13,622.00	90.52	87.97	6,628.61	568.20	7,166.54	7,188.14	1.41
13,716.00	88.71	88.61	6,629.24	571.01	7,260.49	7,282.08	2.04
13,811.00	90.52	89.03	6,629.88	572.96	7,355.46	7,376.99	1.96
13,906.00	92.35	89.43	6,627.50	574.24	7,450.42	7,471.83	1.97
14,001.00	91.82	88.93	6,624.04	575.60	7,545.35	7,566.65	0.77
14,096.00	91.05	89.67	6,621.66	576.76	7,640.31	7,661.50	1.12
14,191.00	90.28	87.72	6,620.56	578.92	7,735.27	7,756.41	2.21
14,286.00	90.92	88.65	6,619.57	581.93	7,830.22	7,851.36	1.19
14,381.00	91.11	89.55	6,617.88	583.42	7,925.19	7,946.23	0.97
14,476.00	90.49	88.06	6,616.56	585.40	8,020.16	8,041.13	1.70
14,571.00	90.37	87.99	6,615.84	588.68	8,115.10	8,136.09	0.15
14,666.00	90.59	87.79	6,615.05	592.17	8,210.03	8,231.05	0.31
14,760.00	90.03	88.25	6,614.54	595.42	8,303.97	8,325.01	0.77
14,855.00	92.01	88.96	6,612.85	597.73	8,398.92	8,419.92	2.21
14,950.00	91.85	89.74	6,609.65	598.81	8,493.86	8,514.74	0.84
15,045.00	91.39	90.14	6,606.96	598.91	8,588.82	8,609.51	0.64
15,140.00	89.35	89.32	6,606.35	599.36	8,683.82	8,704.34	2.31
15,234.00	89.51	90.07	6,607.29	599.86	8,777.81	8,798.18	0.82
15,329.00	91.48	91.41	6,606.46	598.63	8,872.79	8,892.89	2.51
15,424.00	90.25	91.66	6,605.03	596.09	8,967.74	8,987.49	1.32
15,519.00	89.75	89.32	6,605.03	595.28	9,062.73	9,082.24	2.52
15,613.00	90.12	88.54	6,605.14	597.03	9,156.72	9,176.15	0.92
15,708.00	89.35	87.10	6,605.58	600.64	9,251.64	9,271.11	1.72
15,803.00	88.86	84.36	6,607.06	607.72	9,346.36	9,366.08	2.93
15,898.00	89.35	85.59	6,608.54	616.04	9,440.98	9,461.04	1.39
15,993.00	88.55	85.99	6,610.29	623.01	9,535.71	9,556.02	0.94
16,088.00	89.78	88.45	6,611.67	627.62	9,630.58	9,650.99	2.89
16,167.00	90.93	88.76	6,611.18	629.54	9,709.55	9,729.93	1.51
Final MWD Survey @ 16167.00ft							
16,232.00	90.93	88.76	6,610.13	630.94	9,774.53	9,794.86	0.00
Straight Line Proj @ 16232' MD, 6610.13' TVD							

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
595.00	594.99	-0.44	0.74	Tie-On to Surface Gyros @ 595.00ft
720.00	719.98	-0.35	1.99	First MWD Survey @ 720.00ft
16,167.00	6,611.18	629.54	9,709.55	Final MWD Survey @ 16167.00ft
16,232.00	6,610.13	630.94	9,774.53	Straight Line Proj @ 16232' MD, 6610.13' TVD

Design Report for NCLP PC AA04-63-1HN - Final Surveys

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/_S (usft)	Origin +E/-W (usft)	Start TVD (usft)
Target	NCLP PC AA04-63-1HN_BHL	86.37	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
250.00	595.00	Surface Gyros	Flexi-Shot
720.00	7,045.00	MWD Surveys - Intermediate	MWD+IFR1+MS_WY
7,131.00	16,167.00	MWD Surveys - Lateral	MWD+IFR1+MS_WY

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
7,089.00	6,663.25	7" Casing @ 7089' MD, 6663.25' TVD	7	8-3/4

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
Sec. 4-T6N-R63W_46'	0.00	0.00	0.00	-40.06	0.47	1,430,422.97	3,291,864.84	40.510170	-104.450320
- actual wellpath misses target center by 40.07usft at 0.11usft MD (0.11 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1			0.00	4,210.91	154.49	1,434,633.74	3,292,019.32		
Point 2			0.00	-144.02	216.88	1,430,278.95	3,292,081.71		
Point 3			0.00	-33.48	5,050.45	1,430,389.49	3,296,915.12		
Point 4			0.00	70.50	9,850.70	1,430,493.47	3,301,715.21		
Point 5			0.00	4,324.23	9,854.02	1,434,747.06	3,301,718.53		
Point 6			0.00	4,270.97	5,032.02	1,434,693.80	3,296,896.69		
Point 7			0.00	4,210.91	154.49	1,434,633.74	3,292,019.32		
Sec. 4-T6N-R63W_SL	0.00	0.00	0.00	-40.06	0.47	1,430,422.97	3,291,864.84	40.510170	-104.450320
- actual wellpath misses target center by 40.07usft at 0.11usft MD (0.11 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1			0.00	4,670.92	-305.53	1,435,093.74	3,291,559.32		
Point 2			0.00	-604.04	-243.14	1,429,818.95	3,291,621.71		
Point 3			0.00	-493.50	5,050.45	1,429,929.49	3,296,915.12		
Point 4			0.00	4,730.99	5,032.02	1,435,153.80	3,296,896.69		
Point 5			0.00	-493.50	5,050.45	1,429,929.49	3,296,915.12		
Point 6			0.00	-389.51	10,310.71	1,430,033.47	3,302,175.21		
Point 7			0.00	4,784.25	10,314.03	1,435,207.06	3,302,178.53		
Point 8			0.00	4,730.99	5,032.02	1,435,153.80	3,296,896.69		
Point 9			0.00	4,670.92	-305.53	1,435,093.74	3,291,559.32		
NCLP PC AA04-63-1H	0.00	0.00	0.00	0.00	0.00	1,430,463.03	3,291,864.37	40.510280	-104.450320
- actual wellpath hits target center									
- Point									
NCLP PC AA04-63-1H	0.00	0.00	6,606.55	620.47	9,775.52	1,431,083.48	3,301,639.56	40.511660	-104.415140
- actual wellpath misses target center by 11.12usft at 16232.00usft MD (6610.13 TVD, 630.94 N, 9774.53 E)									
- Point									
NCLP PC AA04-63-1H	0.00	0.00	6,665.85	435.00	654.00	1,430,898.02	3,292,518.34	40.511453	-104.447950
- actual wellpath misses target center by 2.78usft at 7105.22usft MD (6663.85 TVD, 433.08 N, 654.10 E)									
- Point									

Design Report for NCLP PC AA04-63-1HN - Final Surveys

Directional Difficulty Index

Average Dogleg over Survey:	1.73 °/100usft	Maximum Dogleg over Survey:	12.59 °/100usft at 6,515.00 usft
Net Tortosity applicable to Plans:	1.08 °/100usft	Directional Difficulty Index:	6.843

Audit Info

North Reference Sheet for Sec. 4-T6N-R63W (NCLP PC AA04 Pads) - NCLP PC
AA04-63-1HN

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

Vertical Depths are relative to RKB=30 @ 4740.00usft (H&P 321). Northing and Easting are relative to NCLP PC AA04-63-1HN

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: 0.99996708

Grid Coordinates of Well: 1,430,463.03 usft N, 3,291,864.37 usft E

Geographical Coordinates of Well: 40° 30' 37.01" N, 104° 27' 01.15" W

Grid Convergence at Surface is: 0.68°

Based upon Minimum Curvature type calculations, at a Measured Depth of 16,232.00usft
the Bottom Hole Displacement is 9,794.87usft in the Direction of 86.31° (Grid).

Magnetic Convergence at surface is: -7.73° (15 November 2013, , BGGM2013)

