

Noble Energy

Weld County, CO (NAD 83)

Sec. 26-T11N-R61W

Cox PC GK26-99HZ

Design: MWD Survey

Sperry Drilling Services

Final Survey Report

29 December, 2010

Well Coordinates: 1,569,410.44 N, 3,369,033.56 E (40° 53' 19.61" N, 104° 09' 55.08" W)

Ground Level: 5,122.00 ft

Local Coordinate Origin:

Centered on Well Cox PC GK26-99HZ

Viewing Datum:

RKB 24' @ 5146.00ft (H&P 315)

TVDs to System:

N

North Reference:

Grid

Unit System:

API - US Survey Feet - Custom

Geodetic Scale Factor Applied

Version: 2003.16 Build: 43I

HALLIBURTON

Design Report for Cox PC GK26-99HZ - MWD Survey

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
1,540.00	0.66	349.81	1,539.97	8.73	-1.57	7.04	0.04
First MWD Survey							
1,634.00	0.67	351.06	1,633.96	9.81	-1.75	7.90	0.02
1,729.00	0.68	355.37	1,728.95	10.92	-1.88	8.74	0.05
1,823.00	0.55	351.77	1,822.95	11.92	-1.99	9.50	0.14
1,918.00	0.51	355.39	1,917.94	12.79	-2.09	10.16	0.05
2,012.00	0.51	5.96	2,011.94	13.62	-2.08	10.71	0.10
2,107.00	1.40	91.61	2,106.93	14.01	-0.88	10.09	1.53
2,202.00	1.28	73.57	2,201.90	14.28	1.30	8.66	0.46
2,296.00	1.25	57.25	2,295.88	15.13	3.17	7.85	0.38
2,391.00	1.10	150.83	2,390.87	14.90	4.49	6.72	1.81
2,485.00	1.01	162.95	2,484.85	13.32	5.17	5.15	0.26
2,580.00	0.83	189.40	2,579.84	11.84	5.30	4.05	0.48
2,664.00	0.14	136.69	2,663.83	9.55	5.20	2.59	0.27
2,958.00	0.94	158.23	2,957.82	8.76	5.57	1.78	0.86
3,053.00	0.96	136.78	3,052.81	7.45	6.40	0.29	0.37
3,147.00	0.99	135.19	3,146.80	6.30	7.51	-1.31	0.04
3,242.00	0.98	125.73	3,241.78	5.24	8.75	-2.94	0.17
3,337.00	0.87	139.32	3,336.77	4.22	9.88	-4.46	0.26
3,431.00	1.07	130.41	3,430.76	3.11	11.02	-6.05	0.27
3,526.00	1.92	137.82	3,525.72	1.36	12.76	-8.52	0.92
3,620.00	3.03	129.51	3,619.64	-1.39	15.73	-12.57	1.24
3,715.00	5.81	134.81	3,714.34	-6.38	21.08	-19.88	2.95
3,810.00	4.96	133.57	3,808.92	-12.60	27.47	-28.79	0.90
3,904.00	3.28	155.65	3,902.68	-17.85	31.52	-35.32	2.43
3,999.00	5.29	143.27	3,997.42	-23.83	35.26	-42.12	2.32
4,093.00	7.75	135.30	4,090.80	-31.81	42.31	-52.70	2.78
4,188.00	8.21	135.24	4,184.88	-41.18	51.60	-65.88	0.48
4,282.00	7.36	136.12	4,278.01	-50.29	60.50	-78.59	0.91
4,377.00	6.97	137.41	4,372.27	-58.92	68.61	-90.40	0.44
4,472.00	6.61	142.04	4,466.61	-67.47	75.88	-101.53	0.69
4,566.00	6.16	142.37	4,560.02	-75.73	82.29	-111.83	0.48
4,661.00	6.59	128.24	4,654.44	-83.14	89.68	-122.29	1.71
4,756.00	6.05	126.66	4,748.86	-89.51	97.98	-132.71	0.60
4,850.00	7.22	131.12	4,842.23	-96.35	106.40	-143.54	1.36
4,945.00	6.63	131.07	4,936.54	-103.88	115.03	-154.99	0.62
5,039.00	5.87	131.59	5,029.98	-110.63	122.72	-165.22	0.81
5,133.00	6.00	133.86	5,123.48	-117.23	129.86	-174.94	0.29
5,227.00	7.02	135.74	5,216.87	-124.75	137.41	-185.59	1.11
5,322.00	5.79	137.36	5,311.27	-132.43	144.71	-196.16	1.31
5,417.00	6.54	129.56	5,405.73	-139.40	152.12	-206.33	1.18
5,511.00	6.72	134.88	5,499.10	-146.69	160.15	-217.18	0.68
5,631.00	7.25	131.85	5,618.21	-156.70	170.76	-231.76	0.54
5,662.00	6.84	132.07	5,648.97	-159.24	173.59	-235.56	1.33
5,757.00	6.32	130.21	5,743.35	-166.41	181.78	-246.45	0.59
5,851.00	5.87	130.08	5,836.82	-172.84	189.41	-256.42	0.48
5,946.00	4.91	129.38	5,931.40	-178.55	196.27	-265.33	1.01
6,040.00	4.24	135.25	6,025.10	-183.57	201.83	-272.82	0.87
6,103.00	4.30	135.98	6,087.92	-186.92	205.11	-277.50	0.13

Design Report for Cox PC GK26-99HZ - MWD Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
6,166.00	1.11	140.32	6,150.84	-189.09	207.14	-280.47	5.07
6,198.00	2.18	312.07	6,182.84	-188.92	206.89	-280.17	10.26
6,229.00	4.19	321.40	6,213.79	-187.64	205.74	-278.46	6.67
6,261.00	7.27	320.69	6,245.62	-185.16	203.73	-275.30	9.63
6,292.00	10.15	321.08	6,276.26	-181.52	200.77	-270.66	9.29
6,324.00	12.55	317.85	6,307.64	-176.74	196.66	-264.41	7.76
6,355.00	14.60	316.97	6,337.77	-171.39	191.74	-257.16	6.65
6,387.00	17.84	314.58	6,368.49	-165.00	185.49	-248.24	10.34
6,418.00	20.96	314.66	6,397.73	-157.77	178.16	-237.95	10.06
6,450.00	24.36	314.50	6,427.25	-149.12	169.38	-225.64	10.63
6,481.00	27.32	315.06	6,455.15	-139.60	159.80	-212.14	9.58
6,513.00	29.13	314.16	6,483.34	-128.97	149.02	-197.02	5.81
6,544.00	31.54	313.69	6,510.10	-118.11	137.74	-181.37	7.81
6,576.00	34.89	313.18	6,536.87	-106.07	125.01	-163.84	10.51
6,607.00	36.63	315.89	6,562.02	-93.36	112.11	-145.75	7.59
6,639.00	40.03	314.93	6,587.12	-79.23	98.18	-125.93	10.79
6,670.00	43.83	313.02	6,610.18	-64.86	83.26	-105.23	12.93
6,702.00	46.62	311.47	6,632.72	-49.60	66.45	-82.52	9.37
6,733.00	49.71	309.62	6,653.39	-34.59	48.89	-59.44	10.91
6,765.00	53.65	308.07	6,673.23	-18.86	29.34	-34.39	12.88
6,796.00	57.76	307.42	6,690.69	-3.18	9.09	-8.86	13.37
6,828.00	62.71	306.39	6,706.58	13.49	-13.12	18.78	15.72
6,859.00	67.37	305.37	6,719.65	29.95	-35.89	46.70	15.33
6,891.00	71.88	304.58	6,730.79	47.14	-60.46	76.44	14.28
6,922.00	76.87	303.92	6,739.14	63.93	-85.13	105.99	16.23
6,954.00	81.78	302.89	6,745.07	81.24	-111.38	137.04	15.67
6,969.00	83.85	302.48	6,746.94	89.27	-123.90	151.71	14.06
7,087.00	89.01	302.06	6,754.29	152.13	-223.45	267.63	4.39
7,151.00	89.81	302.66	6,754.95	186.38	-277.51	330.66	1.56
7,183.00	89.81	303.74	6,755.05	203.90	-304.28	362.25	3.37
7,215.00	90.80	305.21	6,754.88	222.02	-330.66	393.95	5.54
7,247.00	91.05	305.26	6,754.36	240.48	-356.80	425.70	0.80
7,311.00	91.11	307.26	6,753.16	278.32	-408.39	489.32	3.13
7,374.00	90.74	309.15	6,752.14	317.28	-457.89	552.15	3.06
7,438.00	91.17	310.81	6,751.07	358.39	-506.92	616.08	2.68
7,502.00	90.74	312.14	6,750.01	400.77	-554.86	680.07	2.18
7,565.00	90.06	313.09	6,749.57	443.43	-601.22	743.06	1.85
7,629.00	90.25	314.12	6,749.39	487.56	-647.57	807.05	1.64
7,693.00	88.83	312.94	6,749.91	531.64	-693.96	871.03	2.88
7,788.00	88.64	314.23	6,752.01	597.12	-762.76	965.98	1.37
7,851.00	89.94	314.59	6,752.79	641.20	-807.76	1,028.93	2.14
7,914.00	90.68	316.47	6,752.45	686.16	-851.89	1,091.83	3.21
7,978.00	90.62	316.36	6,751.72	732.51	-896.01	1,155.66	0.20
8,043.00	91.05	316.43	6,750.77	779.57	-940.83	1,220.49	0.67
8,106.00	91.17	315.94	6,749.55	825.02	-984.44	1,283.34	0.80
8,170.00	91.54	315.21	6,748.04	870.72	-1,029.23	1,347.22	1.28
8,234.00	92.84	316.25	6,745.59	916.51	-1,073.87	1,411.06	2.60
8,297.00	92.42	315.26	6,742.70	961.59	-1,117.78	1,473.88	1.71
8,361.00	90.49	316.56	6,741.08	1,007.54	-1,162.29	1,537.73	3.64
8,425.00	90.68	317.53	6,740.42	1,054.38	-1,205.90	1,601.51	1.54
8,489.00	89.14	317.59	6,740.52	1,101.61	-1,249.09	1,665.24	2.41

Design Report for Cox PC GK26-99HZ - MWD Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
8,552.00	89.63	317.77	6,741.20	1,148.19	-1,291.50	1,727.97	0.83
8,616.00	90.06	317.63	6,741.37	1,195.53	-1,334.57	1,791.69	0.71
8,680.00	89.07	316.56	6,741.86	1,242.40	-1,378.14	1,855.46	2.28
8,744.00	89.01	316.05	6,742.93	1,288.67	-1,422.35	1,919.30	0.80
8,808.00	89.32	315.78	6,743.86	1,334.64	-1,466.87	1,983.17	0.64
8,872.00	89.69	315.26	6,744.42	1,380.30	-1,511.71	2,047.07	1.00
8,935.00	89.57	314.40	6,744.82	1,424.71	-1,556.39	2,110.00	1.38
8,999.00	89.44	313.30	6,745.38	1,469.05	-1,602.54	2,173.98	1.73
9,063.00	90.12	313.52	6,745.62	1,513.03	-1,649.03	2,237.97	1.12
9,127.00	90.68	312.56	6,745.18	1,556.71	-1,695.81	2,301.96	1.74
9,190.00	91.61	312.22	6,743.92	1,599.17	-1,742.33	2,364.95	1.57
9,253.00	92.29	311.68	6,741.77	1,641.26	-1,789.15	2,427.91	1.38
9,317.00	91.30	312.15	6,739.77	1,683.99	-1,836.75	2,491.87	1.71
9,381.00	92.10	311.57	6,737.87	1,726.68	-1,884.40	2,555.84	1.54
9,445.00	91.36	312.20	6,735.94	1,769.39	-1,932.02	2,619.81	1.52
9,508.00	89.51	312.21	6,735.46	1,811.71	-1,978.69	2,682.81	2.94
9,572.00	90.19	311.78	6,735.63	1,854.53	-2,026.25	2,746.80	1.26
9,636.00	90.87	311.31	6,735.03	1,896.97	-2,074.15	2,810.79	1.29
9,700.00	91.42	311.03	6,733.76	1,939.09	-2,122.31	2,874.77	0.96
9,763.00	90.62	311.01	6,732.63	1,980.44	-2,169.84	2,937.74	1.27
9,827.00	91.17	310.57	6,731.63	2,022.24	-2,218.29	3,001.71	1.10
9,890.00	90.43	310.60	6,730.76	2,063.22	-2,266.13	3,064.67	1.18
9,954.00	91.17	310.19	6,729.86	2,104.69	-2,314.86	3,128.63	1.32
10,018.00	90.37	310.28	6,729.00	2,146.03	-2,363.72	3,192.58	1.26
10,082.00	91.11	310.41	6,728.18	2,187.46	-2,412.49	3,256.54	1.17
10,145.00	88.95	310.51	6,728.14	2,228.34	-2,460.42	3,319.50	3.43
10,209.00	89.26	309.84	6,729.14	2,269.62	-2,509.32	3,383.44	1.15
10,272.00	89.81	309.34	6,729.65	2,309.77	-2,557.86	3,446.37	1.18
10,336.00	90.00	308.97	6,729.76	2,350.18	-2,607.49	3,510.27	0.65
10,399.00	90.74	309.26	6,729.35	2,389.92	-2,656.37	3,573.17	1.26
10,463.00	91.73	308.78	6,727.97	2,430.21	-2,706.08	3,637.05	1.72
10,527.00	90.43	309.19	6,726.77	2,470.46	-2,755.82	3,700.92	2.13
10,590.00	89.57	309.13	6,726.77	2,510.25	-2,804.67	3,763.83	1.37
10,654.00	90.62	309.13	6,726.66	2,550.63	-2,854.31	3,827.72	1.64
10,718.00	89.14	309.38	6,726.79	2,591.13	-2,903.87	3,891.63	2.35
10,782.00	89.38	308.59	6,727.62	2,631.39	-2,953.61	3,955.51	1.29
10,846.00	89.94	307.88	6,728.00	2,671.00	-3,003.88	4,019.35	1.41
10,910.00	89.26	308.11	6,728.45	2,710.39	-3,054.32	4,083.16	1.12
10,974.00	88.64	308.99	6,729.62	2,750.27	-3,104.36	4,147.01	1.68
11,038.00	87.72	308.67	6,731.65	2,790.38	-3,154.19	4,210.86	1.52
11,102.00	88.02	310.30	6,734.03	2,831.05	-3,203.55	4,274.73	2.59
11,165.00	88.52	311.29	6,735.93	2,872.19	-3,251.22	4,337.68	1.76
11,230.00	90.56	311.54	6,736.46	2,915.18	-3,299.96	4,402.67	3.16
11,294.00	91.17	310.36	6,735.49	2,957.12	-3,348.30	4,466.64	2.08
11,358.00	90.37	311.02	6,734.63	2,998.84	-3,396.82	4,530.60	1.62
11,422.00	91.17	310.64	6,733.77	3,040.68	-3,445.24	4,594.58	1.38
11,486.00	91.67	309.67	6,732.18	3,081.94	-3,494.14	4,658.51	1.70
11,550.00	91.85	310.16	6,730.22	3,122.99	-3,543.20	4,722.42	0.82
11,614.00	92.66	310.00	6,727.70	3,164.16	-3,592.13	4,786.32	1.29
11,680.00	93.21	309.33	6,724.32	3,206.23	-3,642.87	4,852.16	1.31

Final MWD Survey

Design Report for Cox PC GK26-99HZ - MWD Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
11,720.00	93.21	309.33	6,722.08	3,231.55	-3,673.76	4,892.05	0.00

Survey Projection to TD - Estimated BHL: 704' FNL, 1213' FWL

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,540.00	1,539.97	8.73	-1.57	First MWD Survey
11,680.00	6,724.32	3,206.23	-3,642.87	Final MWD Survey
11,720.00	6,722.08	3,231.55	-3,673.76	Survey Projection to TD
11,720.00	6,722.08	3,231.55	-3,673.76	Estimated BHL: 704' FNL, 1213' FWL

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	+N/-S (ft)	+E/-W (ft)	Start TVD (ft)
Target	Cox PC GK26-99HZ BH Tgt	312.34	Slot	0.00	0.00	0.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
0.00	11,720.00	Sperry MWD Surveys	MWD

Targets

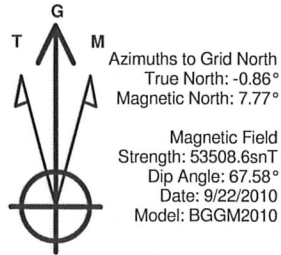
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Cox PC GK26-99HZ	0.00	0.00	0.00	0.00	0.00	1,569,410.44	3,369,033.56	40° 53' 19.608 N	104° 9' 55.080 W
- actual wellpath hits target center									
- Polygon									
Point 1				624.26	4,079.58	1,573,490.10	3,369,657.83		
Point 2				632.87	-1,258.52	1,568,151.90	3,369,666.44		
Point 3				-4,853.58	-1,267.75	1,568,142.67	3,364,179.88		
Point 4				-4,891.56	3,894.99	1,573,305.51	3,364,141.90		
Cox PC GK26-99HZ	0.00	0.00	6,720.00	3,305.28	-3,627.54	1,572,715.78	3,365,405.95	40° 53' 52.800 N	104° 10' 41.664 W
- actual wellpath misses target center by 87.05ft at 11720.00ft MD (6722.08 TVD, 3231.55 N, -3673.76 E)									
- Point									
Cox PC GK26-99HZ	0.00	0.00	0.00	0.00	0.00	1,569,410.44	3,369,033.56	40° 53' 19.608 N	104° 9' 55.080 W
- actual wellpath hits target center									
- Polygon									
Point 1				24.26	3,479.58	1,572,890.09	3,369,057.82		
Point 2				32.87	-658.52	1,568,751.91	3,369,066.43		
Point 3				-4,253.58	-667.75	1,568,742.68	3,364,779.90		
Point 4				-4,291.56	3,294.99	1,572,705.50	3,364,741.91		

Project: Weld County, CO (NAD 83)
 Site: Sec. 26-T11N-R61W
 Well: Cox PC GK26-99HZ

Noble Energy

HALLIBURTON

Sperry Drilling

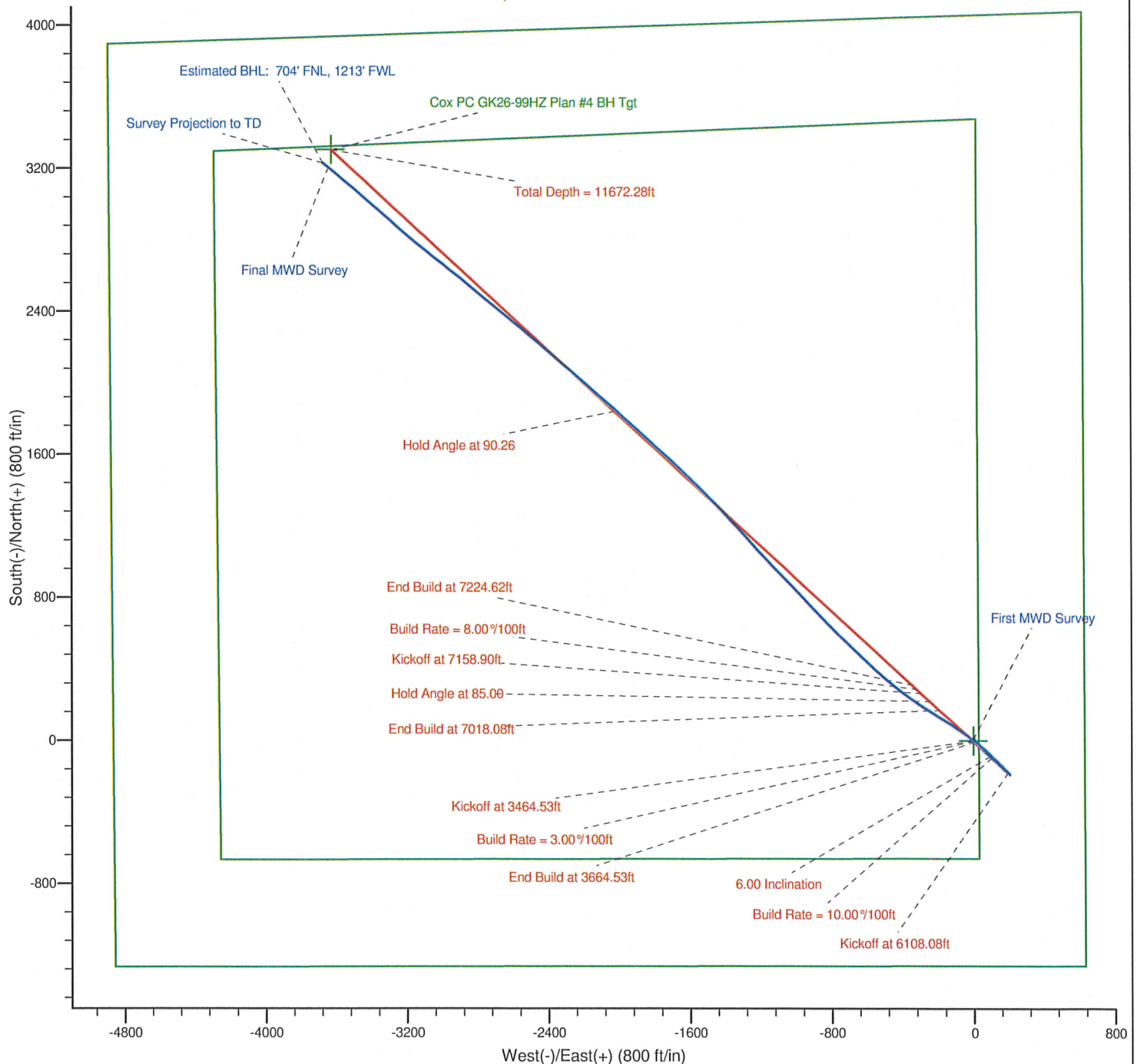


LEGEND

- Cox PC GK26-99HZ,
- MWD Survey

Halliburton Energy Services, Inc. ("Halliburton") recently completed directional drilling and MWD operations at the Cox PC GK26-99HZ well located at Weld County, CO. At the conclusion of the job Halliburton performed a final survey on the well. Noble Energy has requested that Halliburton provide them the distances from BHL to section lines from that final survey to allow Noble Energy to meet its requirements under Colorado law. These distances are generated by a mathematical algorithm based on rough data collected after the well is drilled. Halliburton considers it to be a rough estimate only and it is not to be relied upon in any application where accurate data is required. In consideration for Halliburton releasing this data to Noble Energy, Noble Energy agrees to release Halliburton from any consequences of it or anyone else relying on such data.

Permitted BHL: 630' FNL, 1260' FWL

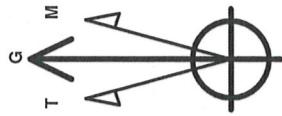


Noble Energy

Project: Weld County, CO (NAD 83)
Site: Sec. 26-T11N-R61W
Well: Cox PC GK26-99HZ

HALLIBURTON

Sperry Drilling



Azimuths to Grid North
True North: -0.86°
Magnetic North: 7.77°
Magnetic Field
Strength: 53508.6snT
Dip Angle: 67.58°
Date: 9/22/2010
Model: BGGM2010

LEGEND

— Cox PC GK26-99HZ,
— MWD Survey

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