

Conoco Phillips Company

Arapahoe County, Colorado

Sec. 10-T4S-R65W

Sky Ranch 4-65 9-10 1H

Plan B

Design: Actual Field Surveys

Sperry Drilling Services

Standard Report

07 October, 2014

Well Coordinates: 1,689,668.40 N, 3,241,340.69 E (39° 43' 25.73" N, 104° 38' 31.20" W)

Ground Level: 5,674.40 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 Sky Ranch 4-65 9-10 1H

KB 24 ft @ 5698.40usft (H&P 280)

N

True

API - US Survey Feet - Custom

HALLIBURTON

Design Report for Sky Ranch 4-65 9-10 1H - Actual Field Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
2,126.00	0.12	43.28	2,125.94	8.76	9.13	-9.14	0.05
Tie-On to Gyro Surveys @ 2126.00 ft							
2,311.00	0.41	323.89	2,310.94	9.44	8.87	-8.88	0.22
First Sperry MWD Survey @ 2311.00 ft							
2,405.00	1.27	222.16	2,404.93	8.94	7.98	-7.98	1.50
2,500.00	1.65	222.32	2,499.90	7.15	6.35	-6.36	0.40
2,594.00	1.61	231.46	2,593.86	5.32	4.40	-4.41	0.28
2,689.00	1.78	231.75	2,688.82	3.58	2.20	-2.20	0.18
2,784.00	1.62	230.82	2,783.78	1.81	0.00	0.00	0.17
2,878.00	0.66	236.05	2,877.76	0.67	-1.48	1.48	1.03
2,973.00	0.48	81.68	2,972.75	0.43	-1.54	1.54	1.17
3,068.00	0.62	103.89	3,067.75	0.36	-0.65	0.64	0.27
3,162.00	0.70	76.68	3,161.74	0.37	0.41	-0.41	0.34
3,256.00	0.47	73.80	3,255.74	0.61	1.34	-1.34	0.25
3,351.00	0.45	231.04	3,350.74	0.48	1.42	-1.42	0.95
3,445.00	0.80	234.87	3,444.73	-0.13	0.60	-0.60	0.37
3,540.00	0.28	273.75	3,539.73	-0.49	-0.18	0.18	0.64
3,634.00	0.36	24.06	3,633.73	-0.21	-0.29	0.29	0.56
3,729.00	0.43	46.04	3,728.72	0.31	0.09	-0.09	0.17
3,823.00	0.53	49.07	3,822.72	0.84	0.67	-0.68	0.11
3,918.00	0.79	37.92	3,917.72	1.65	1.41	-1.41	0.30
4,012.00	0.66	32.32	4,011.71	2.61	2.10	-2.10	0.16
4,106.00	1.00	30.34	4,105.70	3.78	2.80	-2.80	0.36
4,201.00	0.22	230.28	4,200.69	4.38	3.08	-3.08	1.27
4,295.00	1.00	240.64	4,294.69	3.86	2.23	-2.23	0.83
4,390.00	0.62	227.93	4,389.68	3.11	1.12	-1.12	0.44
4,484.00	0.31	235.45	4,483.67	2.63	0.53	-0.54	0.34
4,579.00	0.57	202.29	4,578.67	2.04	0.14	-0.15	0.37
4,673.00	1.09	189.37	4,672.66	0.73	-0.18	0.18	0.58
4,768.00	0.62	172.24	4,767.65	-0.67	-0.26	0.26	0.56
4,862.00	0.45	108.03	4,861.65	-1.29	0.16	-0.16	0.62
4,957.00	0.26	19.31	4,956.65	-1.20	0.59	-0.59	0.54
5,051.00	0.17	303.94	5,050.65	-0.92	0.54	-0.54	0.29
5,145.00	0.25	335.05	5,144.65	-0.66	0.34	-0.34	0.15
5,240.00	0.45	50.91	5,239.64	-0.24	0.54	-0.54	0.48
5,334.00	0.62	53.93	5,333.64	0.30	1.24	-1.24	0.18
5,429.00	0.69	30.29	5,428.63	1.09	1.94	-1.95	0.29
5,523.00	0.68	37.15	5,522.63	2.03	2.57	-2.57	0.09
5,618.00	0.12	64.65	5,617.62	2.52	3.00	-3.00	0.61
5,712.00	0.25	64.77	5,711.62	2.65	3.27	-3.27	0.14
5,807.00	0.52	56.31	5,806.62	2.97	3.82	-3.82	0.29
5,902.00	0.56	275.31	5,901.62	3.26	3.71	-3.72	1.07
5,996.00	1.00	329.83	5,995.61	4.01	2.84	-2.85	0.87
6,091.00	0.52	254.70	6,090.61	4.61	2.01	-2.02	1.05
6,185.00	0.28	243.13	6,184.60	4.39	1.40	-1.40	0.27
6,280.00	0.47	132.33	6,279.60	4.03	1.48	-1.48	0.66
6,375.00	0.70	110.03	6,374.60	3.57	2.31	-2.31	0.34
6,469.00	0.94	134.13	6,468.59	2.83	3.40	-3.41	0.44
6,564.00	1.19	219.58	6,563.58	1.53	3.33	-3.34	1.53

Design Report for Sky Ranch 4-65 9-10 1H - Actual Field Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
6,658.00	1.24	207.24	6,657.55	-0.13	2.25	-2.25	0.28
6,753.00	0.72	186.47	6,752.54	-1.63	1.71	-1.71	0.65
6,847.00	0.75	159.33	6,846.53	-2.80	1.86	-1.86	0.37
6,942.00	0.78	162.15	6,941.53	-3.99	2.28	-2.27	0.05
7,036.00	0.77	137.78	7,035.52	-5.07	2.90	-2.89	0.35
7,130.00	0.64	131.01	7,129.51	-5.88	3.72	-3.71	0.16
7,162.00	0.56	118.26	7,161.51	-6.07	3.99	-3.98	0.48
7,193.00	0.43	231.59	7,192.51	-6.22	4.03	-4.03	2.68
7,225.00	3.38	265.94	7,224.49	-6.36	3.00	-2.99	9.48
7,256.00	6.88	272.30	7,255.36	-6.35	0.23	-0.22	11.42
7,288.00	10.90	277.72	7,286.97	-5.87	-4.69	4.69	12.82
7,319.00	13.49	278.27	7,317.27	-4.95	-11.17	11.17	8.36
7,351.00	16.16	277.77	7,348.20	-3.81	-19.28	19.28	8.35
7,382.00	18.90	276.10	7,377.75	-2.70	-28.54	28.55	8.99
7,414.00	21.91	275.49	7,407.74	-1.57	-39.64	39.65	9.43
7,445.00	24.69	273.31	7,436.21	-0.65	-51.87	51.87	9.39
7,477.00	27.52	271.90	7,464.95	-0.02	-65.93	65.93	9.05
7,508.00	29.84	269.86	7,492.14	0.20	-80.80	80.80	8.12
7,539.00	32.15	270.07	7,518.71	0.19	-96.77	96.77	7.46
7,571.00	33.33	269.34	7,545.63	0.10	-114.07	114.07	3.89
7,602.00	35.02	268.36	7,571.28	-0.25	-131.48	131.48	5.73
7,634.00	36.09	268.18	7,597.31	-0.81	-150.08	150.08	3.36
7,665.00	38.12	270.50	7,622.03	-1.02	-168.78	168.78	7.95
7,696.00	40.64	272.11	7,645.99	-0.56	-188.44	188.44	8.77
7,728.00	43.68	272.98	7,669.71	0.40	-209.89	209.89	9.67
7,760.00	45.93	273.26	7,692.41	1.62	-232.41	232.40	7.06
7,791.00	50.97	273.81	7,712.97	3.06	-255.55	255.55	16.31
7,823.00	55.55	272.61	7,732.11	4.49	-281.15	281.14	14.62
7,854.00	60.18	271.70	7,748.59	5.47	-307.37	307.37	15.14
7,886.00	63.59	270.89	7,763.67	6.10	-335.59	335.58	10.89
7,917.00	65.86	269.40	7,776.90	6.17	-363.62	363.61	8.52
7,948.00	68.03	268.60	7,789.04	5.67	-392.13	392.13	7.39
7,980.00	71.18	267.87	7,800.19	4.74	-422.11	422.10	10.07
8,011.00	73.45	267.42	7,809.61	3.53	-451.62	451.61	7.45
8,043.00	75.26	267.20	7,818.24	2.08	-482.40	482.39	5.69
8,074.00	77.68	267.33	7,825.49	0.65	-512.50	512.50	7.82
8,106.00	80.88	267.71	7,831.44	-0.71	-543.91	543.91	10.07
8,137.00	83.32	268.10	7,835.70	-1.84	-574.59	574.59	7.97
8,169.00	85.61	268.65	7,838.79	-2.74	-606.43	606.43	7.36
8,200.00	88.02	268.71	7,840.51	-3.45	-637.37	637.37	7.78
8,232.00	88.83	269.22	7,841.39	-4.03	-669.35	669.35	2.99
8,287.00	88.58	269.48	7,842.64	-4.65	-724.33	724.34	0.66
8,381.00	89.38	270.76	7,844.31	-4.46	-818.32	818.32	1.61
8,475.00	89.07	270.90	7,845.58	-3.09	-912.30	912.30	0.36
8,570.00	90.25	271.47	7,846.14	-1.13	-1,007.27	1,007.27	1.38
8,664.00	89.88	271.53	7,846.04	1.33	-1,101.24	1,101.24	0.40
8,759.00	88.70	270.84	7,847.21	3.30	-1,196.21	1,196.21	1.44
8,853.00	89.01	270.98	7,849.09	4.79	-1,290.18	1,290.17	0.36
8,948.00	89.75	270.70	7,850.12	6.18	-1,385.16	1,385.16	0.83
9,042.00	89.20	269.34	7,850.98	6.21	-1,479.16	1,479.15	1.56
9,137.00	90.25	270.16	7,851.44	5.80	-1,574.15	1,574.15	1.40

Design Report for Sky Ranch 4-65 9-10 1H - Actual Field Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
9,231.00	89.38	269.44	7,851.74	5.47	-1,668.15	1,668.14	1.20
9,326.00	89.38	268.95	7,852.77	4.14	-1,763.13	1,763.13	0.52
9,420.00	89.69	269.34	7,853.53	2.73	-1,857.12	1,857.12	0.53
9,514.00	89.57	268.94	7,854.14	1.32	-1,951.11	1,951.11	0.44
9,608.00	90.25	269.60	7,854.29	0.13	-2,045.10	2,045.10	1.01
9,702.00	90.06	269.75	7,854.03	-0.41	-2,139.10	2,139.10	0.26
9,797.00	89.51	270.08	7,854.39	-0.55	-2,234.10	2,234.10	0.68
9,892.00	90.37	270.30	7,854.49	-0.23	-2,329.09	2,329.09	0.93
9,986.00	89.38	269.98	7,854.69	0.00	-2,423.09	2,423.09	1.11
10,081.00	90.12	270.36	7,855.11	0.28	-2,518.09	2,518.09	0.88
10,175.00	89.51	269.97	7,855.41	0.55	-2,612.09	2,612.09	0.77
10,269.00	89.20	270.35	7,856.47	0.81	-2,706.08	2,706.08	0.52
10,364.00	89.07	269.46	7,857.90	0.65	-2,801.07	2,801.07	0.95
10,458.00	88.14	269.29	7,860.19	-0.37	-2,895.04	2,895.03	1.01
10,552.00	89.07	269.55	7,862.48	-1.32	-2,989.00	2,989.00	1.03
10,647.00	88.52	270.27	7,864.48	-1.47	-3,083.98	3,083.98	0.95
10,741.00	89.20	270.60	7,866.35	-0.76	-3,177.96	3,177.96	0.80
10,836.00	88.95	270.43	7,867.88	0.10	-3,272.94	3,272.94	0.32
10,930.00	89.69	270.62	7,869.00	0.96	-3,366.93	3,366.93	0.81
11,025.00	89.32	269.67	7,869.82	1.20	-3,461.93	3,461.92	1.07
11,119.00	89.26	268.84	7,870.98	-0.03	-3,555.91	3,555.91	0.89
11,214.00	89.14	269.22	7,872.31	-1.63	-3,650.89	3,650.89	0.42
11,308.00	89.57	270.04	7,873.37	-2.24	-3,744.88	3,744.88	0.98
11,402.00	90.00	269.25	7,873.72	-2.82	-3,838.87	3,838.87	0.96
11,497.00	88.95	269.71	7,874.59	-3.68	-3,933.86	3,933.87	1.21
11,591.00	89.32	270.34	7,876.01	-3.64	-4,027.85	4,027.85	0.78
11,686.00	89.88	270.64	7,876.67	-2.83	-4,122.85	4,122.85	0.67
11,780.00	89.32	270.05	7,877.33	-2.27	-4,216.84	4,216.84	0.87
11,875.00	88.76	269.88	7,878.92	-2.32	-4,311.83	4,311.83	0.62
11,969.00	89.44	269.90	7,880.40	-2.50	-4,405.82	4,405.82	0.72
12,063.00	89.81	270.09	7,881.01	-2.51	-4,499.81	4,499.81	0.44
12,158.00	88.58	269.60	7,882.35	-2.77	-4,594.80	4,594.80	1.39
12,252.00	88.89	269.40	7,884.42	-3.59	-4,688.77	4,688.78	0.39
12,347.00	89.20	270.00	7,886.01	-4.09	-4,783.76	4,783.76	0.71
12,441.00	89.32	269.93	7,887.22	-4.14	-4,877.75	4,877.75	0.15
12,536.00	90.00	270.13	7,887.79	-4.09	-4,972.75	4,972.75	0.75
12,630.00	88.33	269.85	7,889.15	-4.11	-5,066.74	5,066.74	1.80
12,725.00	88.52	269.69	7,891.77	-4.49	-5,161.70	5,161.70	0.26
12,819.00	88.89	269.99	7,893.89	-4.75	-5,255.67	5,255.68	0.51
12,938.00	90.37	270.39	7,894.66	-4.36	-5,374.67	5,374.67	1.29
13,032.00	89.44	270.54	7,894.81	-3.60	-5,468.66	5,468.66	1.00
13,127.00	88.95	270.07	7,896.15	-3.09	-5,563.65	5,563.65	0.71
13,221.00	89.81	270.51	7,897.17	-2.62	-5,657.64	5,657.64	1.03
13,316.00	89.57	270.31	7,897.68	-1.94	-5,752.64	5,752.64	0.33
13,411.00	88.46	269.71	7,899.31	-1.92	-5,847.62	5,847.62	1.33
13,505.00	89.69	270.57	7,900.83	-1.69	-5,941.61	5,941.61	1.60
13,600.00	88.08	270.85	7,902.68	-0.51	-6,036.58	6,036.58	1.72
13,694.00	87.10	270.86	7,906.63	0.89	-6,130.49	6,130.48	1.04
13,789.00	87.28	271.04	7,911.29	2.46	-6,225.36	6,225.35	0.27
13,884.00	87.04	270.80	7,916.00	3.99	-6,320.23	6,320.22	0.36
13,978.00	88.02	270.63	7,920.05	5.16	-6,414.13	6,414.13	1.06

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Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
14,073.00	87.96	270.53	7,923.38	6.12	-6,509.07	6,509.06	0.12
14,167.00	89.51	270.17	7,925.45	6.69	-6,603.04	6,603.03	1.69
14,262.00	89.38	268.85	7,926.38	5.88	-6,698.03	6,698.02	1.40
14,356.00	89.44	269.20	7,927.34	4.28	-6,792.01	6,792.01	0.38
14,451.00	88.95	269.97	7,928.68	3.59	-6,887.00	6,886.99	0.96
14,546.00	89.69	269.91	7,929.81	3.49	-6,981.99	6,981.99	0.78
14,640.00	89.57	268.52	7,930.41	2.21	-7,075.98	7,075.97	1.48
14,735.00	89.75	269.19	7,930.98	0.31	-7,170.96	7,170.96	0.73
14,831.00	90.25	269.64	7,930.98	-0.67	-7,266.95	7,266.95	0.70
14,925.00	90.31	270.18	7,930.52	-0.82	-7,360.95	7,360.95	0.58
15,020.00	90.43	271.25	7,929.90	0.37	-7,455.94	7,455.94	1.13
15,115.00	89.81	270.29	7,929.70	1.64	-7,550.93	7,550.93	1.20
15,210.00	90.56	269.04	7,929.40	1.09	-7,645.93	7,645.92	1.53
15,304.00	89.88	269.14	7,929.04	-0.41	-7,739.91	7,739.91	0.73
15,399.00	90.12	269.66	7,929.04	-1.40	-7,834.91	7,834.91	0.60
15,494.00	88.95	269.16	7,929.81	-2.38	-7,929.90	7,929.90	1.34
15,588.00	88.39	268.92	7,931.99	-3.95	-8,023.86	8,023.86	0.65
15,683.00	89.14	269.00	7,934.04	-5.68	-8,118.82	8,118.82	0.79
15,778.00	89.26	269.10	7,935.36	-7.25	-8,213.80	8,213.80	0.16
15,873.00	89.51	269.81	7,936.38	-8.16	-8,308.79	8,308.79	0.79
15,967.00	90.31	270.76	7,936.53	-7.69	-8,402.78	8,402.79	1.32
16,062.00	89.57	270.10	7,936.63	-6.98	-8,497.78	8,497.78	1.04
16,156.00	89.01	269.23	7,937.79	-7.53	-8,591.77	8,591.77	1.10
16,251.00	88.64	269.38	7,939.74	-8.68	-8,686.74	8,686.75	0.42
16,346.00	89.14	269.71	7,941.58	-9.43	-8,781.72	8,781.73	0.63
16,440.00	87.84	269.47	7,944.06	-10.10	-8,875.69	8,875.69	1.41
16,535.00	88.39	269.35	7,947.19	-11.08	-8,970.63	8,970.64	0.59
16,629.00	89.01	269.92	7,949.32	-11.68	-9,064.60	9,064.61	0.90
16,724.00	88.27	269.41	7,951.57	-12.24	-9,159.57	9,159.58	0.95
16,819.00	89.07	269.75	7,953.78	-12.93	-9,254.54	9,254.55	0.91
16,913.00	89.32	269.34	7,955.10	-13.68	-9,348.53	9,348.54	0.51
17,008.00	88.89	269.55	7,956.58	-14.60	-9,443.51	9,443.52	0.50
17,103.00	89.57	269.50	7,957.86	-15.39	-9,538.50	9,538.51	0.72
17,197.00	90.00	269.65	7,958.21	-16.08	-9,632.50	9,632.51	0.48
17,235.00	90.43	269.87	7,958.07	-16.24	-9,670.50	9,670.51	1.27
Final Sperry MWD Survey @ 17235.00 ft							
17,305.00	90.43	269.87	7,957.54	-16.40	-9,740.50	9,740.51	0.00
Straight Line Projection to TD @ 17305.00 ft							

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
2,126.00	2,125.94	8.76	9.13	Tie-On to Gyro Surveys @ 2126.00 ft
2,311.00	2,310.94	9.44	8.87	First Sperry MWD Survey @ 2311.00 ft
17,235.00	7,958.07	-16.24	-9,670.50	Final Sperry MWD Survey @ 17235.00 ft
17,305.00	7,957.54	-16.40	-9,740.50	Straight Line Projection to TD @ 17305.00 ft

Design Report for Sky Ranch 4-65 9-10 1H - Actual Field Surveys

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/-S (usft)	Origin +E/-W (usft)	Start TVD (usft)
Target	Sky Ranch 4-65 9-10 1H_Rev B0_BHL Tgt	269.94	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
80.00	2,126.00	Gyro Surveys	NS-GYRO-MS
2,311.00	17,235.00	Vertical, Build, & Lateral_Sperry MWD	MWD
17,305.00	17,305.00	Projection to TD_Blind	Blind

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
2,217.00	2,216.94	9 5/8"	9-5/8	13-1/2

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
Sky Ranch 4-65 9-10 1	0.00	0.00	0.00	0.01	0.00	1,689,668.41	3,241,340.69	39° 43' 25.730 N	104° 38' 31.200 W
- actual wellpath misses target center by 2125.98usft at 2126.00usft MD (2125.94 TVD, 8.76 N, 9.13 E)									
- Polygon									
Point 1				0.00	-4,150.17	-152.78	1,685,517.00	3,241,227.12	
Point 2				0.00	199.70	-103.62	1,689,867.12	3,241,235.19	
Point 3				0.00	204.18	-4,931.14	1,689,826.01	3,236,407.87	
Point 4				0.00	196.81	-7,575.19	1,689,793.67	3,233,764.02	
Point 5				0.00	188.62	-9,759.23	1,689,764.85	3,231,580.17	
Point 6				0.00	-2,010.53	-9,767.33	1,687,565.73	3,231,592.84	
Point 7				0.00	-4,210.77	-9,775.43	1,685,365.52	3,231,605.52	
Point 8				0.00	-4,208.34	-4,940.61	1,685,413.62	3,236,440.07	
Sky Ranch 4-65 9-10 1	0.00	0.00	0.00	0.01	0.00	1,689,668.41	3,241,340.69	39° 43' 25.730 N	104° 38' 31.200 W
- actual wellpath misses target center by 2125.98usft at 2126.00usft MD (2125.94 TVD, 8.76 N, 9.13 E)									
- Polygon									
Point 1				0.00	664.18	-4,931.14	1,690,285.98	3,236,403.52	
Point 2				0.00	-4,668.34	-4,940.61	1,684,953.64	3,236,444.42	
Point 3				0.00	-4,610.17	307.22	1,685,061.37	3,241,691.44	
Point 4				0.00	659.70	356.38	1,690,331.44	3,241,690.82	
Point 5				0.00	664.18	-4,931.14	1,690,285.98	3,236,403.52	
Point 6				0.00	656.81	-7,575.19	1,690,253.64	3,233,759.68	
Point 7				0.00	648.62	-10,219.23	1,690,220.48	3,231,115.84	
Point 8				0.00	-2,010.53	-10,227.33	1,687,561.39	3,231,132.86	
Point 9				0.00	-4,670.77	-10,235.43	1,684,901.20	3,231,149.88	
Point 10				0.00	-4,668.34	-4,940.61	1,684,953.64	3,236,444.42	
AMOCO-WESTAN-FIE	0.00	0.00	-13.90	1,321.96	981.08	1,690,999.56	3,242,309.24	39° 43' 38.795 N	104° 38' 18.643 W
- actual wellpath misses target center by 2692.23usft at 2126.00usft MD (2125.94 TVD, 8.76 N, 9.13 E)									
- Circle (radius 500.00)									
Sky Ranch 4-65 9-10 1	0.00	0.00	7,948.00	-10.16	-9,741.31	1,689,566.24	3,231,599.96	39° 43' 25.612 N	104° 40' 35.872 W
- actual wellpath misses target center by 11.43usft at 17305.00usft MD (7957.54 TVD, -16.40 N, -9740.50 E)									
- Point									

Design Report for Sky Ranch 4-65 9-10 1H - Actual Field Surveys

Directional Difficulty Index

Average Dogleg over Survey:	1.14 °/100usft	Maximum Dogleg over Survey:	16.31 °/100usft at 7,791.00 usft
Net Tortousity applicable to Plans:	0.62 °/100usft	Directional Difficulty Index:	6.623

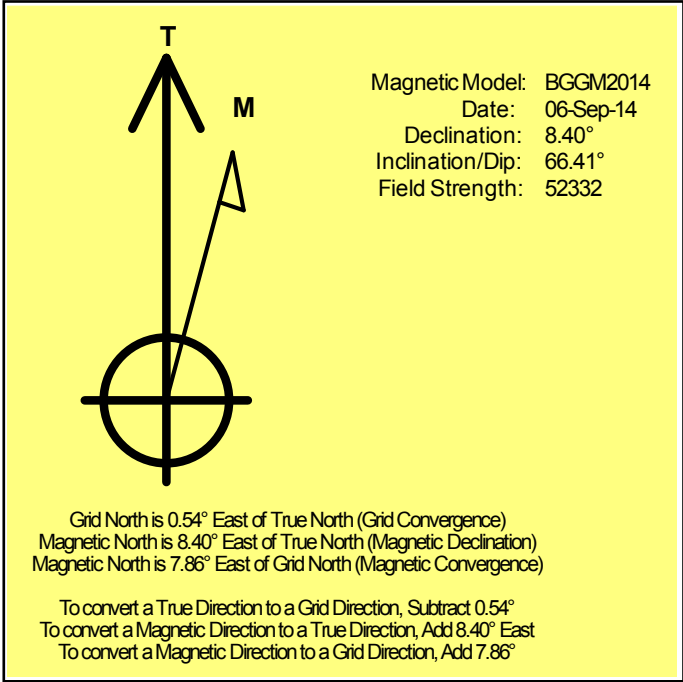
Audit Info

North Reference Sheet for Sec. 10-T4S-R65W - Sky Ranch 4-65 9-10 1H - Plan B

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to True North Reference .
Vertical Depths are relative to KB 24 ft @ 5698.40usft (H&P 280). Northing and Easting are relative to Sky Ranch 4-65 9-10 1H
Coordinate System is US State Plane 1983, Colorado Central Zone using datum North American Datum 1983, ellipsoid GRS 1980
Projection method is Lambert Conformal Conic (2 parallel)
Central Meridian is 105° 30' 0.000 W°, Longitude Origin:0° 0' 0.000 E°, Latitude Origin:39° 45' 0.000 N°
False Easting: 3,000,000.00usft, False Northing: 1,000,000.00usft, Scale Reduction: 0.99999492

Grid Coordinates of Well: 1,689,668.40 usft N, 3,241,340.69 usft E
Geographical Coordinates of Well: 39° 43' 25.73" N, 104° 38' 31.20" W
Grid Convergence at Surface is: 0.54°

Based upon Minimum Curvature type calculations, at a Measured Depth of 17,305.00usft
the Bottom Hole Displacement is 9,740.51usft in the Direction of 269.90° (True).
Magnetic Convergence at surface is: -7.86° (6 September 2014, , BGGM2014)



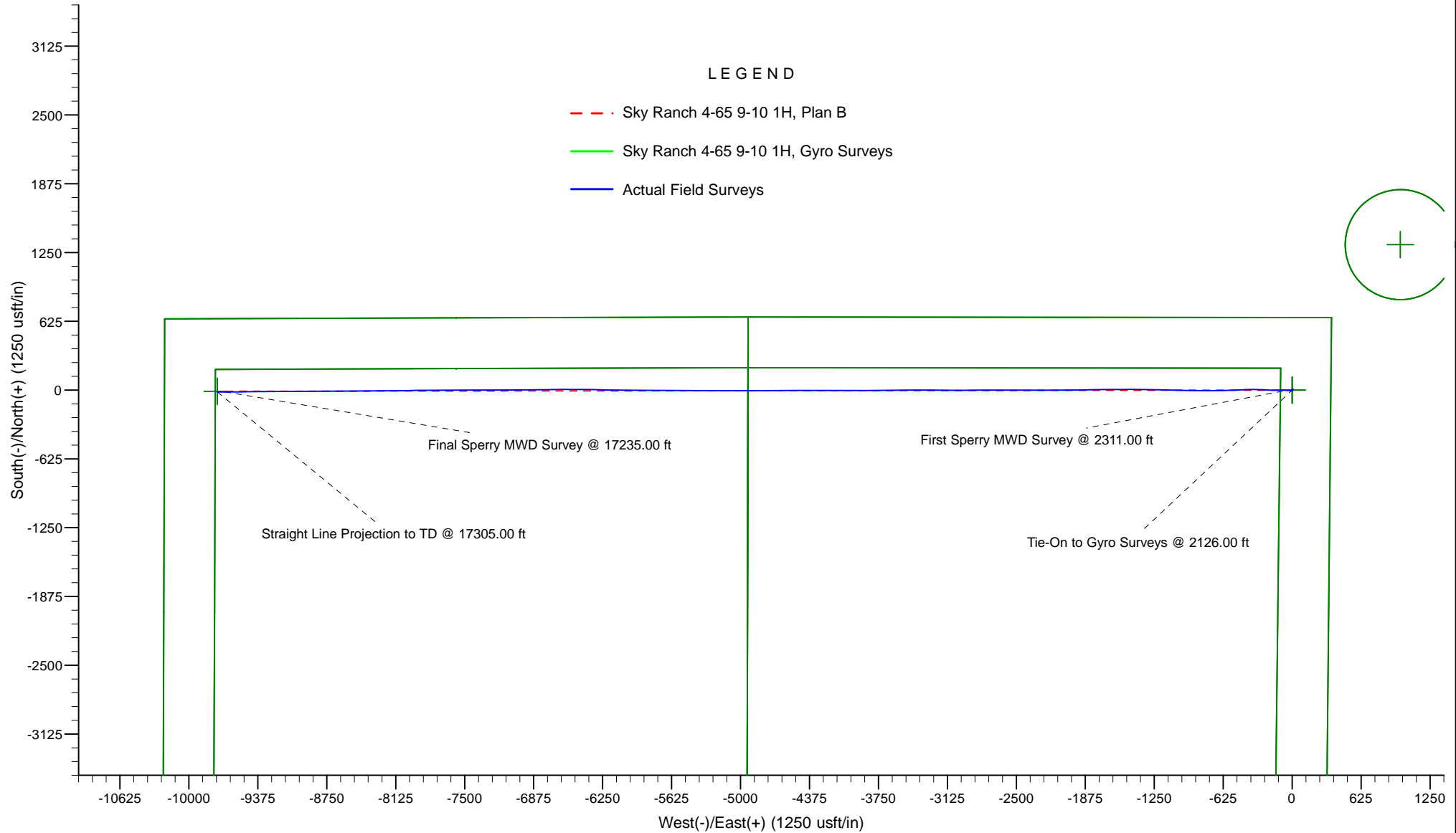
Project: Arapahoe County, Colorado

Site: Sec. 10-T4S-R65W
Well: Sky Ranch 4-65 9-10 1H

Conoco Phillips Company

HALLIBURTON

Sperry Drilling



Project: Arapahoe County, Colorado

Site: Sec. 10-T4S-R65W

Well: Sky Ranch 4-65 9-10 1H

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