

Conoco Phillips Company

Arapahoe County, Colorado

Sec. 11-T4S-R65W

Prosper Farms 4-65 11-12 1H

Plan C

Design: Actual Field Surveys

Sperry Drilling Services

Standard Report

21 October, 2014

Well Coordinates: 1,689,671.94 N, 3,242,040.78 E (39° 43' 25.70" N, 104° 38' 22.24" W)

Ground Level: 5,654.20 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 Prosper Farms 4-65 11-12 1H

KB 24 ft @ 5678.20usft (H & P 280)

N

True

API - US Survey Feet - Custom

HALLIBURTON

Design Report for Prosper Farms 4-65 11-12 1H - Actual Field Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
2,194.50	0.31	69.47	2,194.41	-9.90	14.68	14.79	0.11
Tie-On to Gyro Surveys @ 2194.50 ft							
2,311.00	0.75	15.57	2,310.91	-9.06	15.18	15.28	0.53
First Sperry MWD Survey @ 2311.00 ft							
2,405.00	0.50	18.90	2,404.90	-8.08	15.47	15.57	0.27
2,500.00	1.30	335.35	2,499.89	-6.71	15.16	15.24	1.05
2,594.00	1.74	330.17	2,593.86	-4.50	14.00	14.06	0.49
2,688.00	1.92	336.80	2,687.81	-1.81	12.67	12.69	0.30
2,783.00	1.11	298.98	2,782.78	0.09	11.24	11.24	1.31
2,877.00	1.10	293.70	2,876.76	0.90	9.62	9.61	0.11
2,972.00	1.11	281.62	2,971.74	1.45	7.88	7.87	0.24
3,066.00	1.06	284.58	3,065.72	1.85	6.15	6.13	0.08
3,161.00	1.11	290.24	3,160.71	2.39	4.44	4.41	0.12
3,255.00	0.79	286.30	3,254.69	2.89	2.96	2.93	0.35
3,350.00	0.88	300.09	3,349.68	3.44	1.70	1.66	0.23
3,444.00	0.83	297.52	3,443.67	4.12	0.47	0.42	0.07
3,539.00	0.39	284.04	3,538.67	4.51	-0.45	-0.51	0.48
3,633.00	0.39	357.76	3,632.67	4.91	-0.77	-0.83	0.50
3,727.00	0.56	14.28	3,726.66	5.67	-0.67	-0.74	0.23
3,822.00	0.65	24.05	3,821.66	6.62	-0.34	-0.42	0.14
3,916.00	0.87	30.47	3,915.65	7.72	0.24	0.15	0.25
4,011.00	0.39	109.48	4,010.65	8.23	0.91	0.81	0.93
4,105.00	0.45	139.08	4,104.64	7.85	1.45	1.36	0.24
4,200.00	0.31	113.44	4,199.64	7.46	1.93	1.84	0.23
4,294.00	0.41	114.90	4,293.64	7.22	2.47	2.39	0.11
4,389.00	0.48	84.11	4,388.64	7.12	3.18	3.09	0.26
4,483.00	0.62	137.38	4,482.63	6.78	3.91	3.83	0.54
4,578.00	1.05	144.61	4,577.62	5.69	4.76	4.70	0.47
4,672.00	1.45	160.44	4,671.60	3.87	5.66	5.61	0.56
4,767.00	1.03	163.07	4,766.58	1.92	6.31	6.29	0.45
4,861.00	1.13	217.35	4,860.56	0.38	6.00	5.99	1.05
4,956.00	1.18	227.41	4,955.54	-1.03	4.71	4.72	0.22
5,050.00	1.37	222.88	5,049.52	-2.51	3.23	3.26	0.23
5,145.00	0.36	177.09	5,144.51	-3.64	2.47	2.52	1.21
5,239.00	0.55	191.25	5,238.51	-4.38	2.40	2.45	0.23
5,334.00	1.02	214.00	5,333.50	-5.52	1.84	1.90	0.58
5,429.00	0.12	279.99	5,428.49	-6.21	1.27	1.34	1.03
5,523.00	0.09	335.77	5,522.49	-6.12	1.14	1.21	0.11
5,617.00	0.32	288.48	5,616.49	-5.97	0.86	0.93	0.28
5,712.00	0.50	299.11	5,711.49	-5.69	0.25	0.31	0.20
5,806.00	0.64	283.46	5,805.48	-5.36	-0.62	-0.56	0.22
5,901.00	0.72	296.52	5,900.48	-4.97	-1.67	-1.61	0.18
5,995.00	1.33	28.83	5,994.47	-3.76	-1.67	-1.63	1.64
6,090.00	1.43	27.94	6,089.44	-1.74	-0.59	-0.57	0.11
6,184.00	1.65	36.40	6,183.41	0.38	0.76	0.76	0.34
6,278.00	1.53	48.43	6,277.37	2.31	2.51	2.48	0.38
6,373.00	1.10	97.29	6,372.35	3.03	4.36	4.32	1.22
6,467.00	1.06	146.30	6,466.33	2.19	5.74	5.71	0.95
6,562.00	1.05	153.51	6,561.32	0.68	6.61	6.60	0.14

Design Report for Prosper Farms 4-65 11-12 1H - Actual Field Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
6,656.00	0.94	133.72	6,655.30	-0.62	7.55	7.56	0.38
6,750.00	0.88	131.60	6,749.29	-1.63	8.65	8.67	0.07
6,845.00	0.77	243.74	6,844.28	-2.40	8.62	8.65	1.44
6,939.00	0.91	258.94	6,938.27	-2.82	7.33	7.36	0.28
7,034.00	0.66	250.10	7,033.27	-3.15	6.07	6.11	0.29
7,097.00	0.67	256.18	7,096.26	-3.36	5.37	5.41	0.11
7,128.00	0.48	251.26	7,127.26	-3.45	5.07	5.11	0.63
7,160.00	0.72	95.11	7,159.26	-3.51	5.15	5.19	3.67
7,191.00	3.68	94.42	7,190.23	-3.60	6.33	6.37	9.55
7,223.00	6.73	94.58	7,222.10	-3.83	9.23	9.27	9.53
7,254.00	9.77	93.86	7,252.77	-4.16	13.66	13.71	9.81
7,286.00	12.31	93.45	7,284.18	-4.54	19.78	19.83	7.94
7,317.00	14.09	91.99	7,314.36	-4.87	26.85	26.90	5.84
7,349.00	16.26	89.49	7,345.24	-4.97	35.22	35.28	7.08
7,381.00	18.98	89.36	7,375.74	-4.87	44.91	44.96	8.50
7,412.00	21.60	90.32	7,404.81	-4.85	55.66	55.71	8.52
7,443.00	24.33	90.76	7,433.35	-4.96	67.75	67.80	8.82
7,475.00	26.71	91.45	7,462.23	-5.23	81.53	81.59	7.50
7,506.00	29.29	91.35	7,489.60	-5.59	96.08	96.14	8.32
7,538.00	32.40	89.61	7,517.07	-5.71	112.48	112.54	10.11
7,569.00	35.22	87.09	7,542.82	-5.20	129.72	129.77	10.16
7,601.00	38.44	86.12	7,568.43	-4.06	148.86	148.90	10.22
7,632.00	41.64	86.71	7,592.16	-2.82	168.77	168.79	10.39
7,664.00	44.84	88.53	7,615.47	-1.92	190.66	190.67	10.73
7,695.00	47.97	90.26	7,636.85	-1.69	213.11	213.11	10.87
7,727.00	50.67	91.61	7,657.70	-2.09	237.37	237.38	9.02
7,758.00	53.58	92.46	7,676.74	-2.96	261.82	261.84	9.63
7,790.00	56.91	91.96	7,694.97	-3.98	288.09	288.12	10.49
7,821.00	59.80	90.98	7,711.24	-4.65	314.47	314.50	9.70
7,853.00	62.76	90.05	7,726.61	-4.90	342.53	342.56	9.59
7,884.00	66.18	89.72	7,739.97	-4.84	370.50	370.53	11.07
7,916.00	69.52	89.90	7,752.04	-4.74	400.13	400.16	10.45
7,947.00	72.45	90.23	7,762.13	-4.78	429.44	429.46	9.51
7,978.00	75.27	90.52	7,770.75	-4.97	459.21	459.24	9.14
8,010.00	77.75	90.95	7,778.22	-5.37	490.32	490.35	7.86
8,041.00	79.88	91.20	7,784.23	-5.94	520.73	520.76	6.92
8,073.00	82.20	90.90	7,789.21	-6.52	552.33	552.37	7.31
8,104.00	84.37	90.47	7,792.84	-6.89	583.11	583.15	7.13
8,136.00	86.30	90.25	7,795.44	-7.09	615.00	615.04	6.07
8,167.00	88.15	90.21	7,796.94	-7.21	645.97	646.01	5.97
8,199.00	90.31	90.71	7,797.37	-7.47	677.96	678.00	6.93
8,230.00	91.54	90.91	7,796.87	-7.91	708.95	709.00	4.02
8,286.00	91.85	91.07	7,795.21	-8.88	764.92	764.97	0.62
8,380.00	90.56	91.27	7,793.24	-10.80	858.88	858.94	1.39
8,473.00	90.31	90.48	7,792.53	-12.22	951.86	951.94	0.89
8,567.00	90.80	90.78	7,791.62	-13.25	1,045.85	1,045.93	0.61
8,660.00	89.51	90.42	7,791.37	-14.22	1,138.84	1,138.93	1.44
8,755.00	89.57	90.72	7,792.13	-15.17	1,233.84	1,233.93	0.32
8,849.00	89.63	90.96	7,792.79	-16.55	1,327.82	1,327.93	0.26
8,944.00	89.57	91.11	7,793.45	-18.26	1,422.81	1,422.92	0.17
9,038.00	89.57	91.34	7,794.16	-20.27	1,516.78	1,516.91	0.24

Design Report for Prosper Farms 4-65 11-12 1H - Actual Field Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
9,133.00	89.81	91.76	7,794.67	-22.84	1,611.74	1,611.90	0.51
9,227.00	89.38	90.88	7,795.33	-25.01	1,705.72	1,705.89	1.04
9,322.00	89.63	90.09	7,796.15	-25.81	1,800.71	1,800.89	0.87
9,416.00	89.69	90.52	7,796.71	-26.31	1,894.71	1,894.88	0.46
9,511.00	90.62	90.43	7,796.46	-27.10	1,989.70	1,989.88	0.98
9,605.00	90.62	90.82	7,795.44	-28.12	2,083.69	2,083.88	0.41
9,700.00	91.11	90.96	7,794.00	-29.60	2,178.67	2,178.86	0.54
9,795.00	90.49	90.86	7,792.68	-31.11	2,273.65	2,273.85	0.66
9,889.00	91.17	91.43	7,791.32	-32.99	2,367.62	2,367.84	0.94
9,984.00	90.06	90.67	7,790.30	-34.73	2,462.59	2,462.83	1.42
10,078.00	90.68	90.95	7,789.69	-36.06	2,556.58	2,556.83	0.72
10,173.00	91.48	91.59	7,787.90	-38.16	2,651.54	2,651.80	1.08
10,267.00	90.12	90.68	7,786.59	-40.02	2,745.51	2,745.79	1.74
10,361.00	90.25	91.04	7,786.28	-41.43	2,839.50	2,839.79	0.41
10,456.00	89.63	90.51	7,786.38	-42.72	2,934.49	2,934.79	0.86
10,550.00	89.81	90.66	7,786.84	-43.68	3,028.48	3,028.79	0.25
10,645.00	89.81	91.05	7,787.16	-45.10	3,123.47	3,123.78	0.41
10,740.00	90.19	91.18	7,787.16	-46.94	3,218.45	3,218.78	0.42
10,834.00	89.88	89.83	7,787.10	-47.77	3,312.45	3,312.78	1.47
10,928.00	90.18	90.23	7,787.05	-47.82	3,406.45	3,406.77	0.53
11,023.00	90.18	90.37	7,786.75	-48.32	3,501.44	3,501.77	0.15
11,117.00	90.62	90.40	7,786.10	-48.95	3,595.44	3,595.77	0.47
11,212.00	90.37	90.85	7,785.27	-49.99	3,690.43	3,690.76	0.54
11,306.00	90.19	90.16	7,784.82	-50.82	3,784.42	3,784.76	0.76
11,401.00	90.31	90.65	7,784.40	-51.49	3,879.42	3,879.76	0.53
11,495.00	91.11	91.21	7,783.24	-53.01	3,973.40	3,973.75	1.04
11,590.00	90.49	90.73	7,781.91	-54.62	4,068.38	4,068.74	0.83
11,684.00	89.57	88.65	7,781.86	-54.11	4,162.37	4,162.72	2.42
11,779.00	90.06	89.04	7,782.17	-52.20	4,257.35	4,257.67	0.66
11,873.00	90.12	89.57	7,782.02	-51.06	4,351.34	4,351.64	0.57
11,968.00	89.63	89.88	7,782.23	-50.60	4,446.34	4,446.63	0.61
12,062.00	90.37	89.76	7,782.23	-50.31	4,540.34	4,540.62	0.80
12,157.00	90.06	89.91	7,781.87	-50.03	4,635.34	4,635.60	0.36
12,251.00	90.19	90.53	7,781.67	-50.39	4,729.34	4,729.60	0.67
12,346.00	91.11	90.78	7,780.59	-51.48	4,824.32	4,824.59	1.00
12,440.00	91.05	90.86	7,778.82	-52.82	4,918.30	4,918.58	0.11
12,535.00	91.92	91.74	7,776.35	-54.98	5,013.24	5,013.54	1.30
12,629.00	91.36	91.71	7,773.66	-57.81	5,107.16	5,107.48	0.60
12,724.00	91.11	91.47	7,771.62	-60.44	5,202.10	5,202.45	0.36
12,818.00	91.36	91.35	7,769.59	-62.75	5,296.05	5,296.42	0.29
12,913.00	91.36	91.08	7,767.34	-64.77	5,391.00	5,391.39	0.28
13,007.00	91.30	90.77	7,765.15	-66.29	5,484.96	5,485.36	0.34
13,102.00	92.78	91.66	7,761.77	-68.30	5,579.88	5,580.29	1.82
13,197.00	91.79	91.28	7,757.98	-70.73	5,674.77	5,675.21	1.12
13,292.00	91.73	91.85	7,755.07	-73.33	5,769.69	5,770.15	0.60
13,386.00	90.68	91.58	7,753.09	-76.14	5,863.62	5,864.11	1.15
13,481.00	90.31	90.51	7,752.27	-77.87	5,958.60	5,959.11	1.19
13,575.00	89.94	89.65	7,752.06	-78.00	6,052.60	6,053.10	1.00
13,670.00	90.74	90.60	7,751.50	-78.21	6,147.60	6,148.09	1.31
13,765.00	90.43	90.67	7,750.53	-79.26	6,242.59	6,243.09	0.33
13,859.00	90.00	91.92	7,750.18	-81.39	6,336.56	6,337.08	1.41

Design Report for Prosper Farms 4-65 11-12 1H - Actual Field Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
13,954.00	90.49	92.96	7,749.77	-85.43	6,431.47	6,432.03	1.21
14,049.00	89.51	91.68	7,749.77	-89.28	6,526.39	6,526.99	1.70
14,144.00	89.94	90.57	7,750.23	-91.14	6,621.37	6,621.98	1.25
14,239.00	89.88	90.31	7,750.38	-91.87	6,716.37	6,716.98	0.28
14,333.00	89.75	90.23	7,750.68	-92.31	6,810.36	6,810.98	0.16
14,428.00	89.69	90.43	7,751.14	-92.86	6,905.36	6,905.98	0.22
14,523.00	90.12	90.66	7,751.30	-93.77	7,000.36	7,000.98	0.51
14,577.00	91.17	91.06	7,750.69	-94.58	7,054.35	7,054.97	2.08
Final Sperry MWD Survey @ 14577.00 ft							
14,645.00	91.17	91.06	7,749.31	-95.83	7,122.32	7,122.96	0.00
Straight Line Projection to TD @ 14645.00 ft							

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
2,194.50	2,194.41	-9.90	14.68	Tie-On to Gyro Surveys @ 2194.50 ft
2,311.00	2,310.91	-9.06	15.18	First Sperry MWD Survey @ 2311.00 ft
14,577.00	7,750.69	-94.58	7,054.35	Final Sperry MWD Survey @ 14577.00 ft
14,645.00	7,749.31	-95.83	7,122.32	Straight Line Projection to TD @ 14645.00 ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (usft)
				+N/_S (usft)	+E/-W (usft)	
Target	Prosper Farms 4-65 11-12 1H_Rev C0_BHL Tgt	90.68	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
99.50	2,194.50	Surface_Gyros	NS-GYRO-MS
2,311.00	14,577.00	Vertical-Build-Lateral_Sperry MWD Surveys	MWD
14,645.00	14,645.00	Projection to Bit_BLIND	Blind

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
2,200.00	2,199.91	9 5/8"	9-5/8	13-1/2

Design Report for Prosper Farms 4-65 11-12 1H - Actual Field 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
Prosper Farms 4-65 11	0.00	0.00	0.20	0.01	0.00	1,689,671.94	3,242,040.78	39° 43' 25.700 N	104° 38' 22.240 W
- actual wellpath misses target center by 2194.28usft at 2194.50usft MD (2194.41 TVD, -9.90 N, 14.68 E)									
- Polygon									
Point 1			0.20	612.62	4,925.56	1,690,331.19	3,246,960.29		
Point 2			0.20	-4,673.27	4,931.36	1,685,045.62	3,247,016.16		
Point 3			0.20	-4,756.59	10,193.86	1,685,012.15	3,252,279.19		
Point 4			0.20	525.29	10,192.59	1,690,293.75	3,252,227.89		
Point 5			0.20	612.62	4,925.56	1,690,331.19	3,246,960.29		
Point 6			0.20	662.78	-343.69	1,690,331.44	3,241,690.83		
Point 7			0.20	-4,607.09	-393.00	1,685,061.36	3,241,691.44		
Point 8			0.20	-4,673.27	4,931.36	1,685,045.62	3,247,016.16		
Prosper Farms 4-65 11	0.00	0.00	0.20	0.01	0.00	1,689,671.94	3,242,040.78	39° 43' 25.700 N	104° 38' 22.240 W
- actual wellpath misses target center by 2194.28usft at 2194.50usft MD (2194.41 TVD, -9.90 N, 14.68 E)									
- Polygon									
Point 1			0.20	-4,296.59	9,733.86	1,685,467.77	3,251,814.85		
Point 2			0.20	65.29	9,732.59	1,689,829.42	3,251,772.27		
Point 3			0.20	152.62	4,925.56	1,689,871.21	3,246,964.65		
Point 4			0.20	202.78	116.31	1,689,875.82	3,242,155.17		
Point 5			0.20	-4,147.09	67.00	1,685,525.70	3,242,147.06		
Point 6			0.20	-4,213.27	4,931.36	1,685,505.59	3,247,011.80		
AMOCO-WESTAN-FIS	0.00	0.00	-34.10	1,325.03	281.02	1,690,999.56	3,242,309.24	39° 43' 38.795 N	104° 38' 18.643 W
- actual wellpath misses target center by 2611.37usft at 2194.50usft MD (2194.41 TVD, -9.90 N, 14.68 E)									
- Circle (radius 500.00)									
Prosper Farms 4-65 11	0.00	0.00	7,715.00	-83.99	7,105.68	1,689,655.25	3,249,146.90	39° 43' 24.860 N	104° 36' 51.300 W
- actual wellpath misses target center by 36.51usft at 14628.85usft MD (7749.63 TVD, -95.53 N, 7106.17 E)									
- Point									

Directional Difficulty Index

Average Dogleg over Survey:	1.15 °/100usft	Maximum Dogleg over Survey:	11.07 °/100usft at 7,884.00 usft
Net Tortousity applicable to Plans:	0.53 °/100usft	Directional Difficulty Index:	6.360

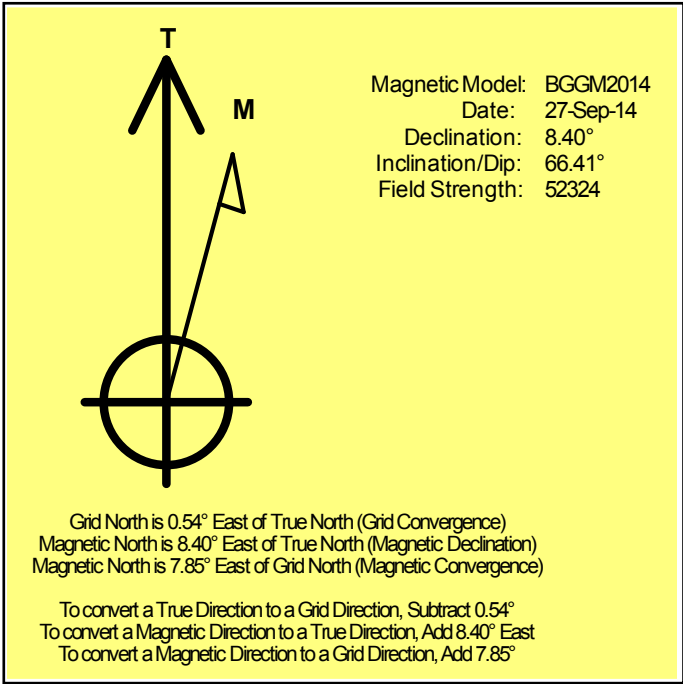
Audit Info

North Reference Sheet for Sec. 11-T4S-R65W - Prosper Farms 4-65 11-12 1H -
Plan C

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 @ 5678.20usft (H & P 280). Northing and Easting are relative to Prosper Farms 4-65 11-12 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: 1,689,671.94 usft N, 3,242,040.78 usft E
Geographical Coordinates of Well: 39° 43' 25.70" N, 104° 38' 22.24" W
Grid Convergence at Surface is: 0.54°

Based upon Minimum Curvature type calculations, at a Measured Depth of 14,645.00usft
the Bottom Hole Displacement is 7,122.96usft in the Direction of 90.77° (True).
Magnetic Convergence at surface is: -7.85° (27 September 2014, , BGGM2014)



Project: Arapahoe County, Colorado

Site: Sec. 11-T4S-R65W

Well: Prosper Farms 4-65 11-12 1H

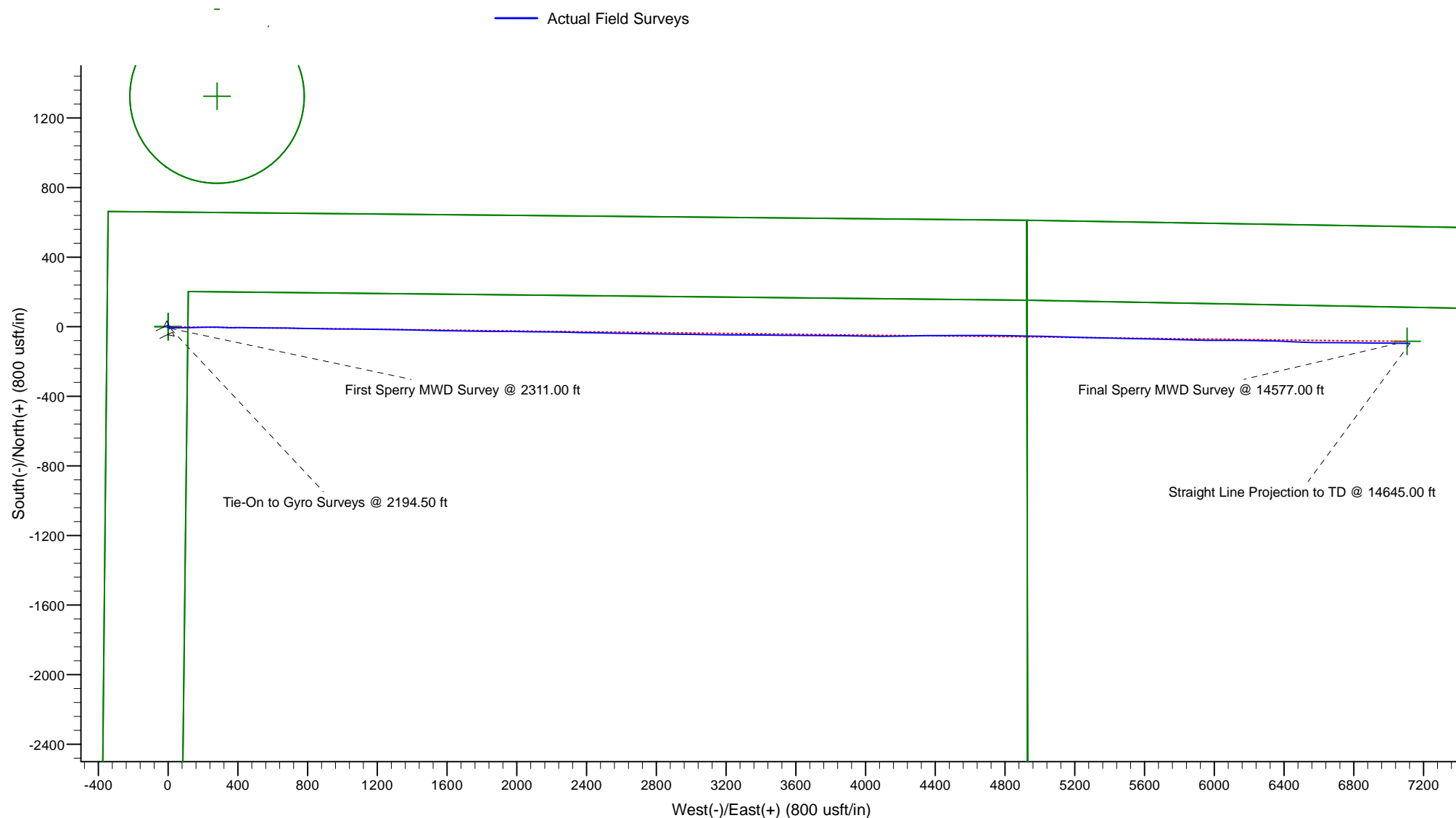
Conoco Phillips Company

HALLIBURTON

Sperry Drilling

LEGEND

- Prosper Farms 4-65 11-12 1H, Plan C
- Prosper Farms 4-65 11-12 1H, Plan C, Surface_Gyros
- Actual Field Surveys



LEGEND

- Prosper Farms 4-65 11-12 1H, Plan C
- Prosper Farms 4-65 11-12 1H, Plan C, Surface_Gyros
- Actual Field Surveys

