

Bill Barrett Corp

Weld County, CO (NAD 1983)

Sec. 35-T6N-R62W

Dutch Lake 23-35H

Plan B

Design: Sperry Final Survey

Sperry Drilling Services Standard Report

20 February, 2013

Well Coordinates: 1,408,994.82 N, 3,334,566.39 E (40° 26' 59.52" N, 104° 17' 52.11" W)

Ground Level: 4,673.00 ft

Local Coordinate Origin:

Centered on Well Dutch Lake 23-35H

Viewing Datum:

RKB 16' @ 4689.00ft (Xtreme 15)

TVDs to System:

N

North Reference:

Grid

Unit System:

API - US Survey Feet - Custom

Geodetic Scale Factor Applied

Version: 2003.16 Build: 43I

HALLIBURTON

SPERRY-SUN DRILLING SERVICES									
CERTIFIED SURVEY WORK SHEET									
OPERATOR:	Bill Barrett Corp.				SSDS Job Number :		CA-MJ-9939823		
WELL:	Dutch Lake 23-35H				Start Date of Job :		01/21/13		
FIELD:	Briggsdale				End Date of Job :		02/19/13		
RIG:	Xtreme #15				Lead Directional Driller:		Justin Lee Groom		
LEGALS:	Sec. 35 - T6N - R62W						Milo Spethman		
COUNTY:	Weld				Other SSDS DD's :		Robble Arnold		
STATE:	Colorado								
CAL. METHOD:	Minimum Curvature				SSDS MWD Engineers :		John Tiberend		
MAG. DECL. APPLIED:	7.68° Grid						Cody Wurdeman		
VERTICAL SEC. DIR. :	90.69°								

	Main Hole >>>>>>	1st Side Track >>>>>>	2nd Side Track >>>>>>	3rd Side Track >>>>>>	4th Side Track >>>>>>
Surface	0.00	Tie On	7586.00	Tie On	
First Survey Depth		Gyro			
Last Survey Depth		Gyro			
9-5/8" Surface Csg. Shoe	829.00				
First Survey Depth		MWD			
Last Survey Depth		MWD			
KOP Depth/Sidetrack MD					
7" Intermediate Csg Shoe	6381.00		7648.00	KOP-ST1	KOP-ST2
First Survey Depth	935.00	MWD	7660.00	MWD	MWD
Last Survey Depth	10542.00	MWD	10638.00	MWD	MWD
BH Extrapolation to TD	10604.00	T.D.	10600.00	T.D.	T.D.

The following Sperry-Sun Drilling Services personnel certify this information is accurate to the best of our knowledge:

Print Name : Justin Lee Groom	Print Name: John Tiberend	Print Name :
Sign Name :	Sign Name :	Sign Name :
Print Name : Milo Spethman	Print Name : Cody Wurdeman	Print Name :
Sign Name :	Sign Name :	Sign Name :

TieOn Tie On to Surface Casing (Assumed Vertical), Tie On to existing MWD Survey (prior drilled hole)

MWD Sperry Sun Drilling Services (SSDS) Measurement While Drilling (MWD) Survey's

MS Multi-Shot Survey's ; Provided by third party vendor.

ESS Sperry Sun Drilling Services (SSDS) Electronic Survey System (ESS) Survey's

Gyro Gyro Survey's ; Provided by third party vendor, or by Sperry Sun Drilling Services (SSDS)

SS Single Shot (SS) Survey's ; Provided by Sperry Sun Drilling Services (SSDS) or third party vendor.

Design Report for Dutch Lake 23-35H - Sperry Final Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
829.00	0.00	0.000	829.00	0.00	0.00	0.00	0.00
Tie-On (Assumed Vertical) @ 829.00' MD							
935.00	0.25	63.670	935.00	0.10	0.21	0.21	0.24
First Sperry MWD Survey (Orig Hole) @ 935.00' MD							
1,029.00	0.49	53.010	1,029.00	0.44	0.71	0.71	0.26
1,122.00	0.53	47.280	1,122.00	0.97	1.35	1.33	0.07
1,216.00	0.63	38.320	1,215.99	1.67	1.99	1.97	0.14
1,310.00	0.96	50.590	1,309.98	2.57	2.91	2.88	0.39
1,403.00	1.18	53.660	1,402.97	3.63	4.29	4.24	0.24
1,497.00	1.40	300.210	1,496.95	4.79	4.07	4.02	2.30
1,587.00	2.54	268.530	1,586.90	5.29	1.13	1.07	1.71
1,690.00	3.12	260.970	1,689.78	4.79	-3.92	-3.98	0.67
1,775.00	3.11	276.010	1,774.65	4.67	-8.50	-8.55	0.96
1,861.00	4.79	258.680	1,860.45	4.21	-14.34	-14.39	2.38
1,946.00	6.64	254.770	1,945.02	2.22	-22.56	-22.59	2.22
2,032.00	7.65	245.360	2,030.36	-1.47	-32.56	-32.54	1.79
2,117.00	8.62	245.180	2,114.50	-6.51	-43.49	-43.40	1.14
2,203.00	8.92	247.530	2,199.49	-11.76	-55.50	-55.35	0.54
2,288.00	9.47	250.600	2,283.40	-16.60	-68.18	-67.98	0.87
2,374.00	8.60	250.380	2,368.34	-21.11	-80.91	-80.65	1.01
2,459.00	10.40	251.810	2,452.17	-25.64	-94.19	-93.87	2.14
2,544.00	11.86	252.370	2,535.57	-30.68	-109.80	-109.42	1.72
2,630.00	11.11	253.920	2,619.84	-35.65	-126.19	-125.75	0.94
2,715.00	10.67	254.910	2,703.31	-39.97	-141.65	-141.16	0.56
2,801.00	10.28	252.910	2,787.88	-44.30	-156.67	-156.13	0.62
2,886.00	9.70	252.530	2,871.59	-48.68	-170.76	-170.15	0.69
2,972.00	9.57	246.190	2,956.38	-53.74	-184.21	-183.54	1.24
3,057.00	10.38	250.080	3,040.09	-59.20	-197.87	-197.14	1.24
3,143.00	9.31	248.370	3,124.83	-64.40	-211.62	-210.83	1.29
3,228.00	9.86	244.790	3,208.64	-70.04	-224.60	-223.74	0.95
3,314.00	9.47	252.340	3,293.42	-75.32	-238.00	-237.07	1.54
3,400.00	9.95	251.950	3,378.19	-79.77	-251.81	-250.83	0.56
3,485.00	12.00	257.470	3,461.63	-83.96	-267.42	-266.38	2.71
3,570.00	12.48	259.990	3,544.70	-87.47	-285.09	-284.01	0.84
3,656.00	11.02	254.900	3,628.90	-91.23	-302.18	-301.05	2.08
3,742.00	10.98	254.620	3,713.32	-95.54	-318.01	-316.83	0.08
3,828.00	10.34	251.900	3,797.84	-100.11	-333.24	-332.01	0.95
3,913.00	9.73	247.380	3,881.54	-105.25	-347.12	-345.83	1.17
3,999.00	10.43	248.970	3,966.21	-110.84	-361.10	-359.73	0.88
4,085.00	9.17	248.330	4,050.95	-116.16	-374.73	-373.30	1.47
4,170.00	10.10	257.740	4,134.76	-120.24	-388.31	-386.83	2.15
4,256.00	9.62	255.400	4,219.49	-123.66	-402.63	-401.11	0.73
4,342.00	8.90	250.950	4,304.37	-127.64	-415.88	-414.30	1.18
4,427.00	8.08	244.730	4,388.44	-132.34	-427.49	-425.86	1.45
4,513.00	7.59	239.970	4,473.63	-137.76	-437.88	-436.18	0.95
4,599.00	9.01	244.900	4,558.73	-143.46	-448.89	-447.13	1.85
4,684.00	8.06	243.360	4,642.79	-148.95	-460.25	-458.41	1.15
4,770.00	5.79	244.700	4,728.16	-153.51	-469.56	-467.67	2.65
4,855.00	3.79	248.060	4,812.86	-156.39	-476.04	-474.12	2.37
4,940.00	0.53	258.510	4,897.78	-157.52	-479.03	-477.09	3.85

Design Report for Dutch Lake 23-35H - Sperry Final Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
5,026.00	0.11	245.280	4,983.78	-157.63	-479.50	-477.56	0.49
5,111.00	0.22	51.810	5,068.78	-157.57	-479.44	-477.50	0.39
5,196.00	0.09	131.730	5,153.78	-157.51	-479.27	-477.33	0.26
5,281.00	0.17	198.300	5,238.78	-157.68	-479.26	-477.32	0.19
5,367.00	0.47	217.750	5,324.78	-158.08	-479.51	-477.57	0.37
5,452.00	0.86	197.490	5,409.78	-158.96	-479.92	-477.96	0.53
5,537.00	1.02	189.950	5,494.76	-160.31	-480.24	-478.27	0.24
5,580.00	0.83	206.660	5,537.76	-160.97	-480.44	-478.46	0.76
5,622.00	0.66	195.090	5,579.76	-161.47	-480.64	-478.66	0.54
5,665.00	2.87	106.620	5,622.74	-162.02	-479.68	-477.68	6.81
5,707.00	7.14	102.700	5,664.57	-162.90	-476.12	-474.12	10.19
5,750.00	9.07	104.080	5,707.13	-164.31	-470.23	-468.21	4.51
5,793.00	9.81	104.160	5,749.55	-166.03	-463.39	-461.35	1.72
5,835.00	10.11	99.190	5,790.92	-167.49	-456.28	-454.22	2.17
5,878.00	12.82	94.300	5,833.06	-168.45	-447.79	-445.73	6.69
5,920.00	17.62	90.730	5,873.57	-168.88	-436.78	-434.71	11.64
5,963.00	22.68	91.000	5,913.93	-169.11	-421.98	-419.90	11.77
6,006.00	27.94	90.440	5,952.79	-169.33	-403.60	-401.53	12.25
6,048.00	33.44	87.850	5,988.89	-168.98	-382.18	-380.11	13.47
6,091.00	38.65	85.970	6,023.65	-167.59	-356.93	-354.88	12.39
6,134.00	42.46	87.170	6,056.32	-165.93	-329.03	-327.00	9.04
6,176.00	46.15	89.770	6,086.37	-165.16	-299.71	-297.69	9.79
6,219.00	49.04	91.550	6,115.37	-165.54	-267.97	-265.95	7.38
6,261.00	52.73	91.530	6,141.86	-166.42	-235.40	-233.37	8.79
6,304.00	55.81	91.700	6,166.97	-167.40	-200.51	-198.47	7.17
6,358.00	59.34	92.730	6,195.92	-169.17	-154.97	-152.92	6.73
6,401.00	64.80	91.790	6,216.05	-170.66	-117.03	-114.95	12.84
6,443.00	69.79	90.550	6,232.26	-171.44	-78.30	-76.22	12.19
6,486.00	71.03	89.160	6,246.67	-171.34	-37.79	-35.72	4.19
6,529.00	73.15	89.050	6,259.90	-170.70	3.12	5.18	4.94
6,571.00	75.42	90.820	6,271.27	-170.66	43.54	45.60	6.76
6,614.00	79.34	93.690	6,280.67	-172.32	85.46	87.53	11.20
6,657.00	83.71	95.410	6,287.00	-175.69	127.84	129.96	10.91
6,705.00	90.28	97.620	6,289.52	-181.13	175.44	177.61	14.44
6,734.00	93.20	97.340	6,288.64	-184.90	204.17	206.39	10.12
6,819.00	93.20	96.720	6,283.89	-195.29	288.40	290.74	0.73
6,904.00	93.95	94.590	6,278.59	-203.65	372.82	375.25	2.65
6,989.00	92.59	92.950	6,273.74	-209.23	457.49	459.99	2.50
7,074.00	92.56	90.510	6,269.93	-211.79	542.36	544.88	2.87
7,159.00	92.22	89.910	6,266.38	-212.10	627.29	629.80	0.81
7,245.00	91.57	89.070	6,263.54	-211.34	713.23	715.74	1.23
7,330.00	90.77	88.440	6,261.80	-209.49	798.20	800.67	1.20
7,415.00	92.13	88.500	6,259.65	-207.22	883.14	885.58	1.60
7,500.00	90.92	87.750	6,257.39	-204.44	968.06	970.46	1.67
7,586.00	89.17	85.950	6,257.32	-199.72	1,053.92	1,056.26	2.92
Tie-On ST1 to Original Hole @ 7586.00' MD							
7,660.00	88.31	86.620	6,258.95	-194.92	1,127.75	1,130.02	1.47
First Sperry MWD Survey (ST1) @ 7660.00' MD							
7,702.00	86.55	93.880	6,260.83	-195.11	1,169.67	1,171.95	17.77
7,745.00	89.69	96.540	6,262.24	-199.01	1,212.46	1,214.78	9.57
7,788.00	90.99	95.420	6,261.99	-203.49	1,255.23	1,257.59	3.99

Design Report for Dutch Lake 23-35H - Sperry Final Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
7,830.00	90.55	94.130	6,261.42	-206.98	1,297.08	1,299.48	3.24
7,873.00	89.35	92.710	6,261.46	-209.55	1,340.00	1,342.43	4.32
7,958.00	90.43	91.390	6,261.63	-212.59	1,424.94	1,427.41	2.01
8,044.00	90.25	89.210	6,261.11	-213.04	1,510.93	1,513.40	2.54
8,129.00	90.83	88.910	6,260.31	-211.64	1,595.92	1,598.36	0.77
8,214.00	90.52	87.670	6,259.31	-209.11	1,680.87	1,683.28	1.50
8,299.00	89.29	87.400	6,259.45	-205.45	1,765.79	1,768.15	1.48
8,384.00	89.69	87.390	6,260.21	-201.59	1,850.70	1,853.00	0.47
8,470.00	90.62	87.170	6,259.98	-197.51	1,936.60	1,938.85	1.11
8,555.00	91.17	87.700	6,258.65	-193.71	2,021.51	2,023.70	0.90
8,598.00	90.06	87.780	6,258.19	-192.01	2,064.47	2,066.64	2.59
8,683.00	89.72	87.810	6,258.35	-188.74	2,149.41	2,151.53	0.40
8,768.00	89.01	85.440	6,259.29	-183.74	2,234.25	2,236.30	2.91
8,853.00	89.35	84.690	6,260.51	-176.42	2,318.92	2,320.88	0.97
8,938.00	89.85	85.440	6,261.10	-169.11	2,403.60	2,405.47	1.06
9,024.00	90.55	87.600	6,260.80	-163.89	2,489.44	2,491.24	2.64
9,109.00	90.77	89.340	6,259.82	-161.62	2,574.40	2,576.17	2.06
9,194.00	89.54	89.500	6,259.59	-160.76	2,659.39	2,661.14	1.46
9,279.00	89.97	89.090	6,259.96	-159.72	2,744.39	2,746.12	0.70
9,365.00	90.62	90.970	6,259.51	-159.76	2,830.38	2,832.10	2.31
9,450.00	90.15	92.500	6,258.94	-162.34	2,915.34	2,917.09	1.88
9,535.00	90.31	93.560	6,258.60	-166.83	3,000.22	3,002.01	1.26
9,578.00	89.75	91.490	6,258.58	-168.72	3,043.17	3,044.99	4.99
9,620.00	89.01	90.490	6,259.03	-169.45	3,085.16	3,086.98	2.96
9,706.00	90.59	90.580	6,259.33	-170.25	3,171.16	3,172.98	1.84
9,791.00	90.80	89.250	6,258.30	-170.13	3,256.15	3,257.97	1.58
9,876.00	89.97	89.470	6,257.73	-169.18	3,341.14	3,342.94	1.01
9,961.00	89.04	87.790	6,258.47	-167.14	3,426.11	3,427.88	2.26
10,046.00	90.22	86.910	6,259.02	-163.21	3,511.01	3,512.73	1.73
10,089.00	90.77	86.700	6,258.64	-160.82	3,553.94	3,555.63	1.37
10,174.00	91.45	86.440	6,257.00	-155.73	3,638.78	3,640.39	0.86
10,259.00	91.45	86.880	6,254.85	-150.78	3,723.60	3,725.15	0.52
10,344.00	92.96	86.840	6,251.58	-146.13	3,808.41	3,809.90	1.78
10,430.00	92.87	87.590	6,247.20	-141.96	3,894.20	3,895.63	0.88
10,538.00	90.62	88.530	6,243.91	-138.30	4,002.08	4,003.46	2.26
Last Sperry MWD Survey (ST1) @ 10538.00' MD							
10,600.00	90.62	88.530	6,243.24	-136.71	4,064.05	4,065.41	0.00
Straight Line Projection to TD (ST1) @ 10600.00' MD							

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Comment
829.00	829.00	0.00	0.00	Tie-On (Assumed Vertical) @ 829.00' MD
935.00	935.00	0.10	0.21	First Sperry MWD Survey (Orig Hole) @ 935.00' MD
7,586.00	6,257.32	-199.72	1,053.92	Tie-On ST1 to Original Hole @ 7586.00' MD
7,660.00	6,258.95	-194.92	1,127.75	First Sperry MWD Survey (ST1) @ 7660.00' MD
10,538.00	6,243.91	-138.30	4,002.08	Last Sperry MWD Survey (ST1) @ 10538.00' MD
10,600.00	6,243.24	-136.71	4,064.05	Straight Line Projection to TD (ST1) @ 10600.00' MD

Design Report for Dutch Lake 23-35H - Sperry Final Survey

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/-S (ft)	Origin +E/-W (ft)	Start TVD (ft)
Target	Dutch Lake 23-35H_BHL Tgt	90.692	Slot	0.00	0.00	0.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
829.00	7,586.00	Sperry MWD Surveys (Orig Hole)	MWD
7,586.00	10,600.00	Sperry MWD Surveys ST1	MWD

Targets

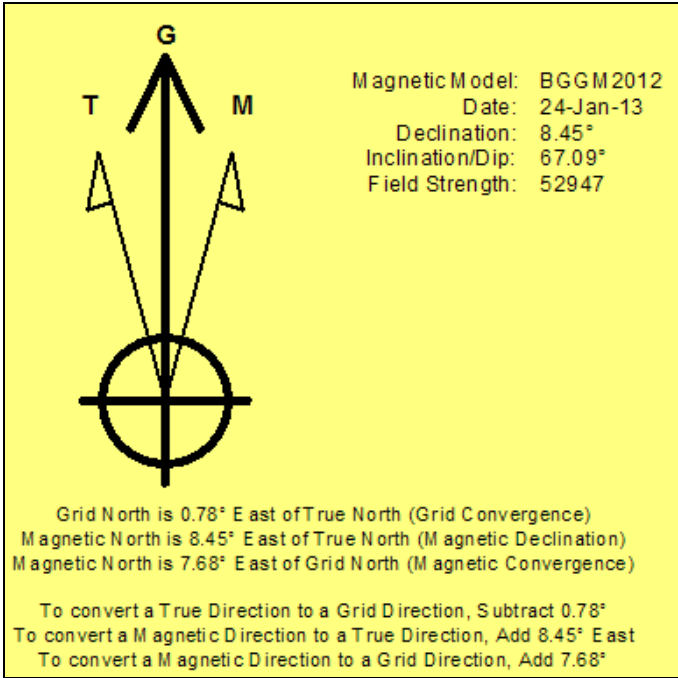
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Dutch Lake 23-35H_	0.00	359.21	6,254.00	-48.95	4,050.55	1,408,945.88	3,338,616.78	40° 26' 58.492 N	104° 16' 59.729 W
- actual wellpath misses target center by 88.73ft at 10588.63ft MD (6243.37 TVD, -137.00 N, 4052.69 E)									
- Point									
Dutch Lake 23-35H_	0.00	359.22	0.00	0.00	0.00	1,408,994.82	3,334,566.38	40° 26' 59.521 N	104° 17' 52.109 W
- actual wellpath misses target center by 829.00ft at 829.00ft MD (829.00 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1				4,657.30	581.33	1,409,576.13	3,339,223.51		
Point 2				2,081.35	536.95	1,409,531.75	3,336,647.66		
Point 3				-495.15	492.45	1,409,487.26	3,334,071.25		
Point 4				-557.55	-4,789.97	1,404,205.03	3,334,008.85		
Point 5				4,763.59	-4,517.73	1,404,477.26	3,339,329.80		
Point 6				4,657.30	581.33	1,409,576.13	3,339,223.51		
Dutch Lake 23-35H_	0.00	359.22	0.00	0.00	0.00	1,408,994.82	3,334,566.38	40° 26' 59.521 N	104° 17' 52.109 W
- actual wellpath misses target center by 829.00ft at 829.00ft MD (829.00 TVD, 0.00 N, 0.00 E)									
- Point									
Dutch Lake 23-35H_	0.00	359.22	0.00	0.00	0.00	1,408,994.82	3,334,566.38	40° 26' 59.521 N	104° 17' 52.109 W
- actual wellpath misses target center by 829.00ft at 829.00ft MD (829.00 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1				4,068.76	-28.82	1,408,966.00	3,338,635.00		
Point 2				2,081.36	-63.08	1,408,931.75	3,336,647.66		
Point 3				100.33	-97.65	1,408,897.18	3,334,666.71		
Point 4				42.48	-4,189.95	1,404,805.03	3,334,608.86		
Point 5				4,163.57	-3,917.69	1,405,077.27	3,338,729.80		
Point 6				4,068.76	-28.82	1,408,966.00	3,338,635.00		
Dutch Lake 23-35H :	0.00	0.00	6,252.00	-154.46	4,050.55	1,408,840.37	3,338,616.78	40° 26' 57.449 N	104° 16' 59.747 W
- actual wellpath misses target center by 19.41ft at 10585.95ft MD (6243.39 TVD, -137.07 N, 4050.01 E)									
- Point									

North Reference Sheet for Sec. 35-T6N-R62W - Dutch Lake 23-35H - Plan B

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to Grid North Reference.
 Vertical Depths are relative to RKB 16' @ 4689.00ft (Xtreme 15). Northing and Easting are relative to Dutch Lake 23-35H
 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° 30' 0.000 W°, Longitude Origin:0° 0' 0.000 E°, Latitude Origin:40° 47' 0.000 N°
 False Easting: 3,000,000.00ft, False Northing: 1,000,000.00ft, Scale Reduction: 0.99996287

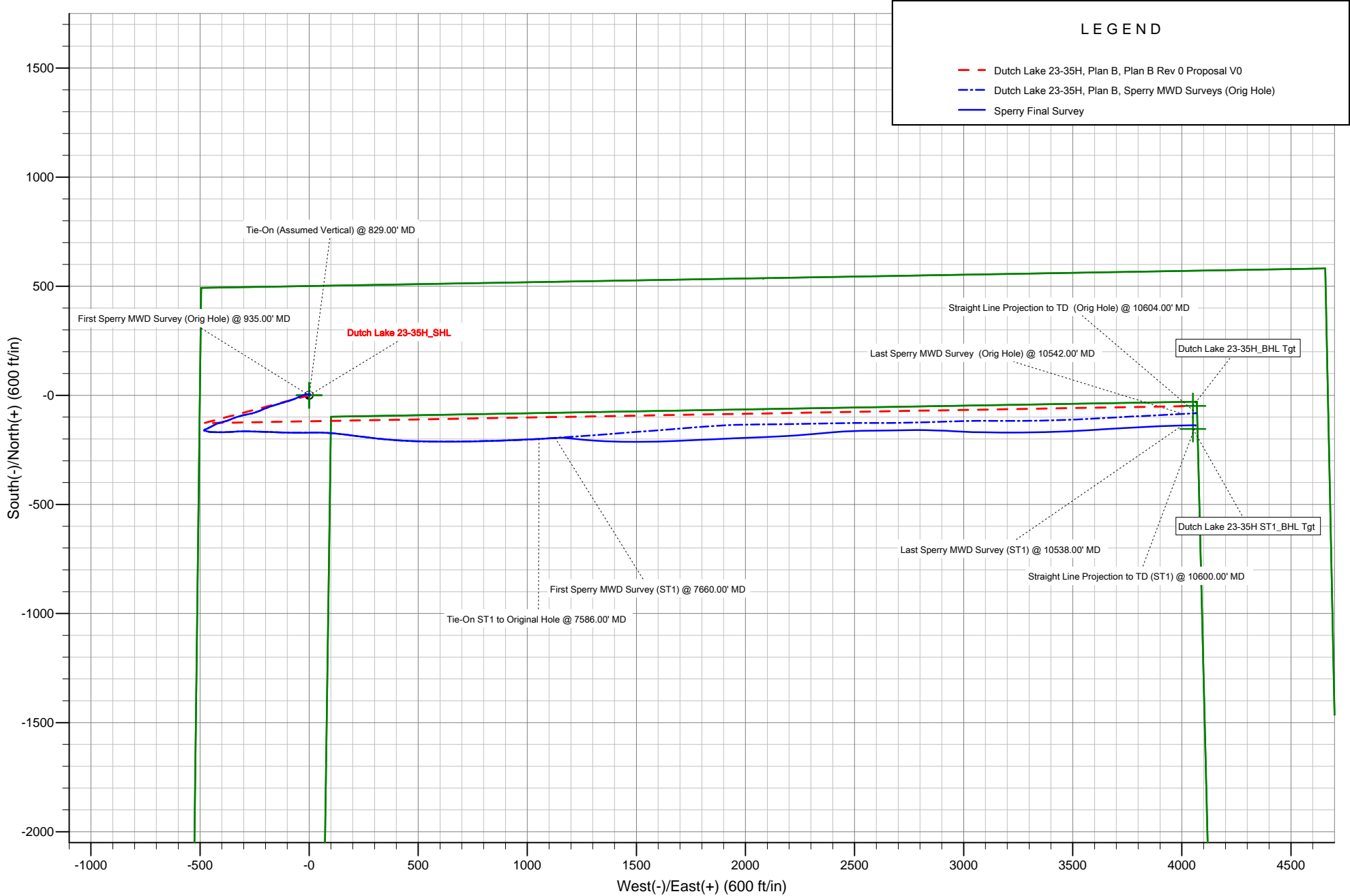
Grid Coordinates of Well: 1,408,994.82 ft N, 3,334,566.39 ft E
 Geographical Coordinates of Well: 40° 26' 59.52" N, 104° 17' 52.11" W
 Grid Convergence at Surface is: 0.78°

Based upon Minimum Curvature type calculations, at a Measured Depth of 10,600.00ft
 the Bottom Hole Displacement is 4,066.35ft in the Direction of 91.93° (Grid).
 Magnetic Convergence at surface is: -7.68° (24 January 2013, , BGGM2012)



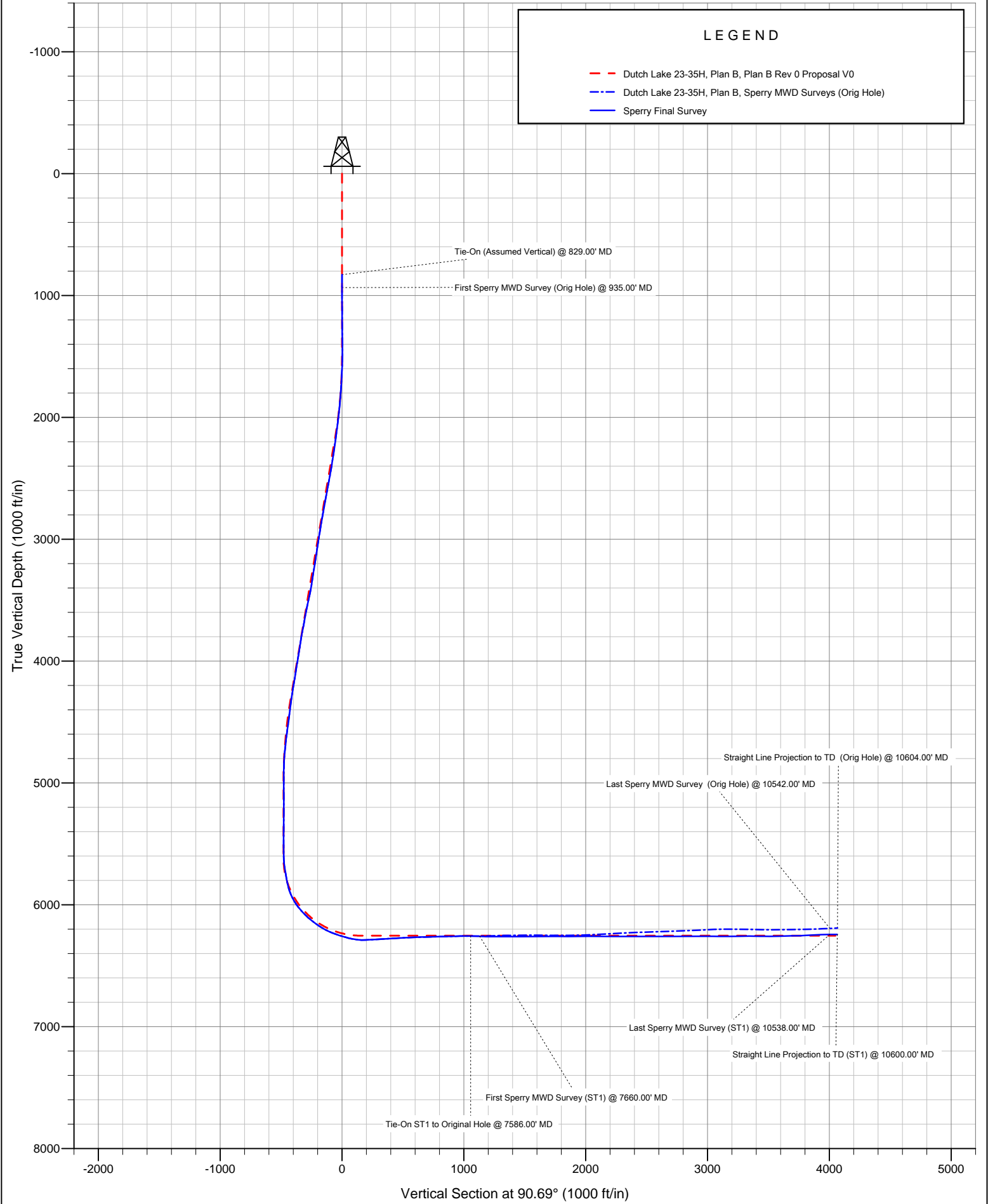
Project: Weld County, CO (NAD 1983)
Site: Sec. 35-T6N-R62W
Well: Dutch Lake 23-35H

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