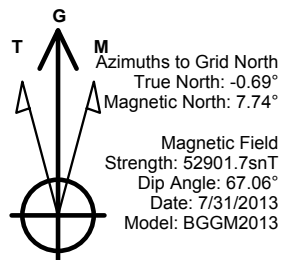


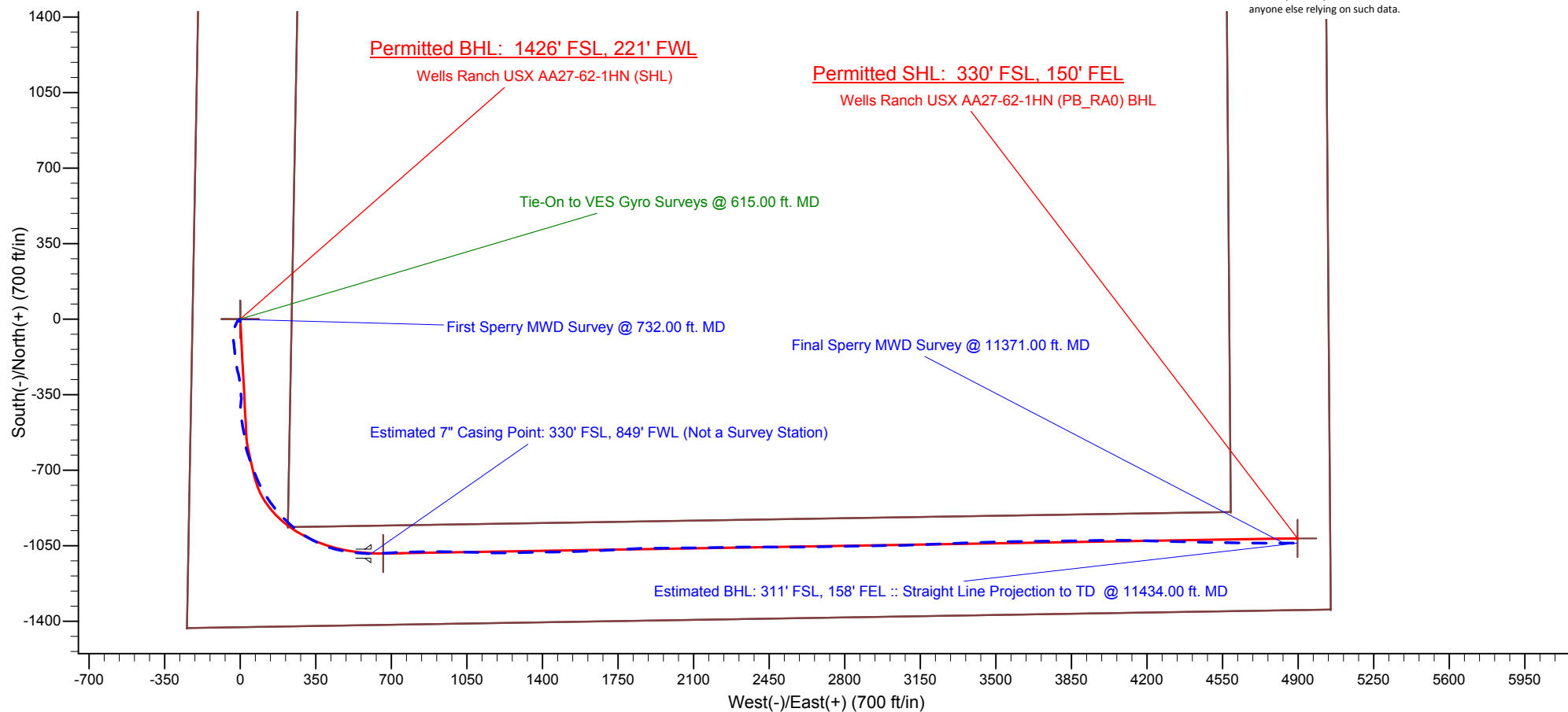
Noble Energy - H&P 322



LEGEND

- Wells Ranch USX AA27-62-1HN, Plan B
- - Vaughn ESS and Sperry MWD Survey

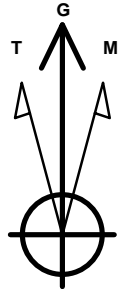
Halliburton Energy Services, Inc. ("Halliburton") recently completed directional drilling and MWD operations at the "Wells Ranch USX AA27-62-1HN" well located at Weld County, CO. At the conclusion of the job Halliburton performed a final survey on the well. Noble Energy has requested that Halliburton 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.



Project: Weld County, CO (NAD 83)
Site: Sec. 27-T6N-R63W
Well: Wells Ranch USX AA27-62-1HN

Noble Energy

HALLIBURTON
Sperry Drilling



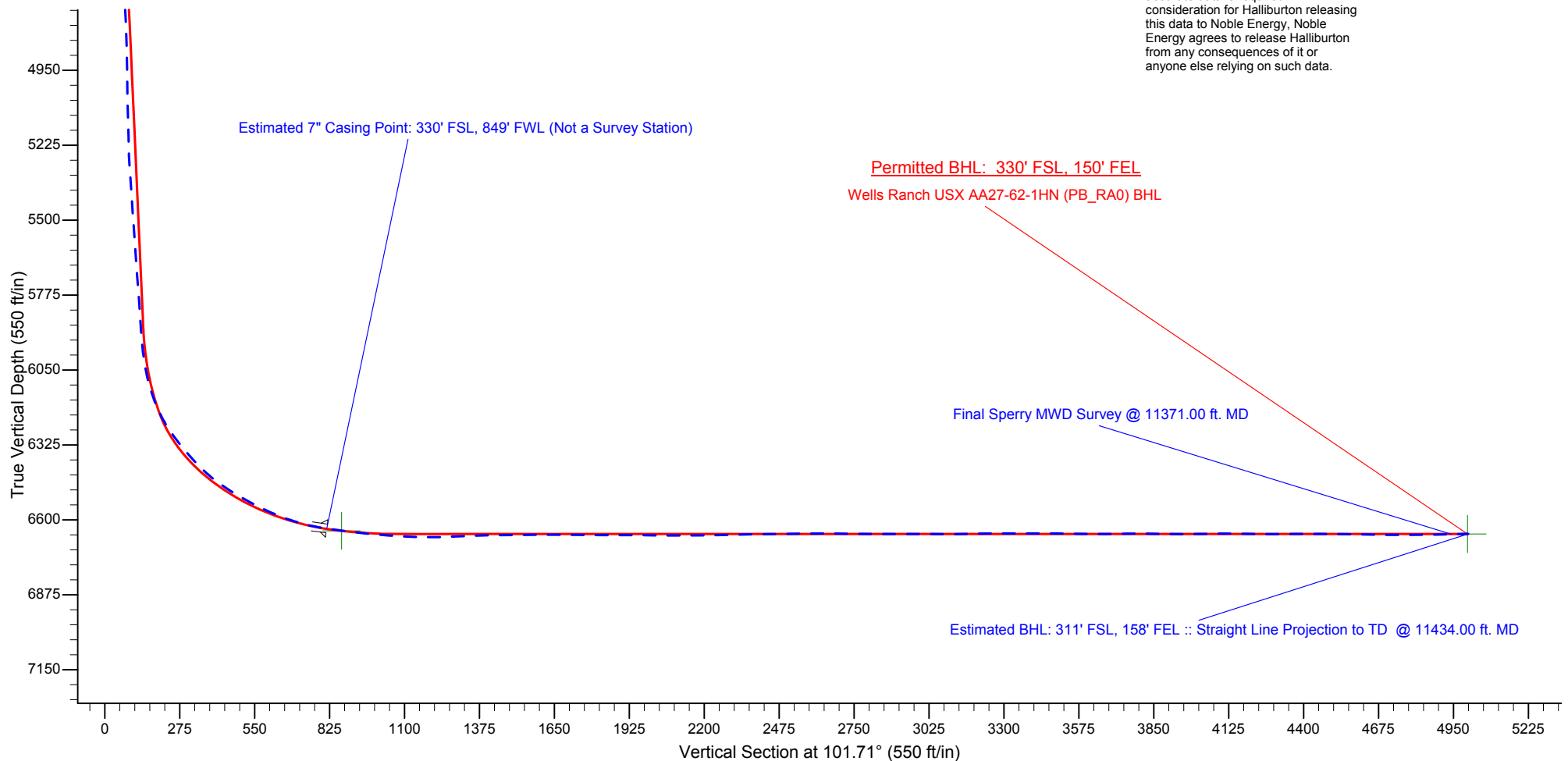
Azimuths to Grid North
True North: -0.69°
Magnetic North: 7.74°

Magnetic Field
Strength: 52901.7snT
Dip Angle: 67.06°
Date: 7/31/2013
Model: BGGM2013

LEGEND

- Wells Ranch USX AA27-62-1HN, Plan B
- - Vaughn ESS and Sperry MWD Survey

Halliburton Energy Services, Inc. ("Halliburton") recently completed directional drilling and MWD operations at the "Wells Ranch USX AA27-62-1HN" 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.



Noble Energy

Weld County, CO (NAD 83)

Sec. 27-T6N-R63W

Wells Ranch USX AA27-62-1HN

Design: Vaughn ESS and Sperry MWD Survey

Sperry Drilling Services

Final Survey Report

13 August, 2013

Well Coordinates: 1,410,059.46 N, 3,297,262.94 E (40° 27' 14.76" N, 104° 25' 54.44" W)

Ground Level: 4,794.00 ft

Local Coordinate Origin: Centered on Well Wells Ranch USX AA27-62-1HN -

Viewing Datum: RKB 24 ft. @ 4818.00ft (H&P 322)

TVDs to System: N

North Reference: Grid

Unit System: API - US Survey Feet - Custom

Geodetic Scale Factor Applied

Version: 2003.16 Build: 431

HALLIBURTON

Design Report for Wells Ranch USX AA27-62-1HN - Vaughn ESS and Sperry 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
281.00	0.10	7.90	281.00	0.24	0.03	-0.02	0.04
485.00	0.60	266.00	485.00	0.34	-1.01	-1.06	0.31
615.00	0.50	230.10	614.99	-0.07	-2.12	-2.06	0.27
Tie-On to VES Gyro Surveys @ 615.00 ft. MD							
732.00	0.32	259.47	731.99	-0.45	-2.83	-2.68	0.23
First Sperry MWD Survey @ 732.00 ft. MD							
825.00	0.29	241.06	824.99	-0.62	-3.30	-3.10	0.11
918.00	0.50	250.97	917.98	-0.86	-3.89	-3.63	0.24
1,011.00	0.62	242.76	1,010.98	-1.22	-4.72	-4.37	0.15
1,104.00	0.69	232.04	1,103.97	-1.80	-5.61	-5.12	0.15
1,197.00	0.88	153.94	1,196.97	-2.78	-5.73	-5.05	1.08
1,290.00	1.02	146.16	1,289.95	-4.11	-4.96	-4.02	0.20
1,480.00	0.99	150.07	1,479.93	-6.94	-3.20	-1.72	0.04
1,575.00	1.14	140.51	1,574.91	-8.38	-2.19	-0.44	0.24
1,670.00	1.18	133.52	1,669.89	-9.78	-0.88	1.13	0.15
1,765.00	0.43	11.56	1,764.88	-10.11	-0.10	1.96	1.53
1,860.00	0.19	257.66	1,859.88	-9.79	-0.18	1.81	0.56
1,954.00	0.64	311.43	1,953.88	-9.48	-0.72	1.22	0.58
2,049.00	1.25	332.32	2,048.87	-8.21	-1.60	0.10	0.73
2,144.00	0.33	333.37	2,143.86	-7.05	-2.21	-0.73	0.97
2,239.00	0.63	316.29	2,238.85	-6.43	-2.69	-1.33	0.35
2,334.00	0.98	300.54	2,333.84	-5.64	-3.75	-2.53	0.43
2,429.00	2.57	260.24	2,428.80	-5.58	-6.55	-5.28	2.03
2,524.00	2.36	238.83	2,523.71	-6.96	-10.32	-8.70	0.99
2,619.00	3.58	217.04	2,618.59	-10.34	-13.78	-11.40	1.73
2,714.00	5.46	202.57	2,713.29	-16.88	-17.31	-13.52	2.30
2,809.00	7.15	203.61	2,807.71	-26.47	-21.41	-15.59	1.78
2,903.00	8.10	199.38	2,900.88	-38.08	-25.95	-17.68	1.17
2,998.00	9.33	193.02	2,994.78	-51.90	-29.91	-18.75	1.64
3,093.00	9.18	184.39	3,088.55	-66.96	-32.22	-17.96	1.47
3,188.00	9.53	177.38	3,182.29	-82.37	-32.44	-15.04	1.25
3,283.00	9.86	174.43	3,275.93	-98.32	-31.29	-10.68	0.63
3,378.00	10.41	172.14	3,369.45	-114.92	-29.33	-5.39	0.72
3,473.00	7.32	177.06	3,463.31	-129.47	-27.84	-0.98	3.35
3,568.00	8.22	172.25	3,557.43	-142.24	-26.62	2.81	1.17
3,663.00	8.99	173.14	3,651.36	-156.34	-24.82	7.44	0.82
3,758.00	11.52	175.13	3,744.84	-173.16	-23.12	12.51	2.69
3,853.00	13.32	172.32	3,837.61	-193.46	-20.86	18.86	2.00
3,948.00	14.07	170.39	3,929.91	-215.69	-17.46	26.69	0.92
4,043.00	12.20	166.14	4,022.42	-236.83	-13.13	35.22	2.21
4,137.00	10.80	165.21	4,114.54	-254.99	-8.50	43.44	1.50
4,232.00	8.81	170.05	4,208.14	-270.76	-4.97	50.10	2.27
4,327.00	9.03	174.40	4,302.00	-285.35	-2.99	55.00	0.75
4,422.00	8.60	175.40	4,395.87	-299.85	-1.69	59.22	0.48
4,517.00	9.07	173.76	4,489.75	-314.37	-0.31	63.52	0.56
4,612.00	9.24	174.03	4,583.54	-329.40	1.30	68.15	0.18
4,707.00	8.14	174.06	4,677.44	-343.67	2.79	72.50	1.16
4,802.00	7.99	172.87	4,771.51	-356.91	4.30	76.67	0.24
4,897.00	8.35	182.46	4,865.55	-370.36	4.83	79.92	1.48

Design Report for Wells Ranch USX AA27-62-1HN - Vaughn ESS and Sperry MWD Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
4,992.00	9.09	187.67	4,959.45	-384.69	3.53	81.56	1.14
5,087.00	10.42	185.43	5,053.07	-400.68	1.71	83.02	1.46
5,182.00	10.29	180.85	5,146.53	-417.71	0.77	85.56	0.88
5,276.00	8.51	184.77	5,239.26	-433.04	0.07	87.99	2.01
5,371.00	10.18	164.45	5,333.02	-448.14	1.74	92.68	3.86
5,466.00	8.70	168.61	5,426.74	-463.27	5.41	99.35	1.71
5,561.00	10.60	170.19	5,520.39	-478.93	8.32	105.38	2.02
5,656.00	11.12	170.58	5,613.69	-496.57	11.30	111.88	0.55
5,751.00	11.07	169.21	5,706.91	-514.57	14.51	118.68	0.28
5,845.00	10.70	167.30	5,799.22	-531.95	18.12	125.74	0.55
5,940.00	11.51	175.95	5,892.45	-550.01	20.73	131.96	1.95
5,987.00	15.93	175.63	5,938.09	-561.12	21.55	135.02	9.41
6,035.00	19.32	171.16	5,983.84	-575.54	23.27	139.64	7.60
6,082.00	22.37	168.25	6,027.76	-591.98	26.29	145.93	6.85
6,130.00	25.96	164.50	6,071.54	-611.06	30.96	154.37	8.13
6,177.00	30.36	160.81	6,112.97	-632.20	37.62	165.18	10.06
6,225.00	34.82	160.73	6,153.41	-656.61	46.13	178.48	9.29
6,272.00	39.18	159.04	6,190.93	-683.15	55.88	193.41	9.52
6,320.00	44.33	159.04	6,226.73	-712.99	67.31	210.66	10.73
6,367.00	48.40	157.11	6,259.16	-744.53	80.02	229.51	9.15
6,415.00	49.21	153.00	6,290.78	-777.26	95.26	251.07	6.66
6,462.00	49.59	148.60	6,321.37	-808.40	112.66	274.44	7.15
6,510.00	49.62	144.78	6,352.49	-838.94	132.73	300.29	6.06
6,557.00	50.50	142.34	6,382.66	-867.92	154.14	327.13	4.40
6,605.00	52.06	139.04	6,412.69	-896.88	177.86	356.25	6.27
6,652.00	55.26	135.19	6,440.55	-924.59	203.63	387.11	9.48
6,700.00	58.30	132.03	6,466.84	-952.26	232.71	421.20	8.39
6,747.00	59.93	127.07	6,490.98	-977.92	263.81	456.85	9.70
6,794.00	61.78	122.99	6,513.88	-1,001.47	297.42	494.54	8.54
6,841.00	62.66	118.25	6,535.79	-1,022.63	333.19	533.87	9.12
6,889.00	64.47	114.25	6,557.17	-1,041.63	371.73	575.46	8.36
6,936.00	66.84	108.57	6,576.55	-1,057.23	411.58	617.65	12.11
6,984.00	70.37	102.02	6,594.08	-1,068.98	454.66	662.22	14.68
7,031.00	73.50	99.13	6,608.65	-1,077.17	498.58	706.88	8.86
7,079.00	77.35	95.22	6,620.73	-1,082.95	544.65	753.17	11.25
7,126.00	81.33	91.68	6,629.43	-1,085.72	590.74	798.86	11.25
7,142.00	81.82	90.39	6,631.77	-1,086.01	606.56	814.41	8.55
Estimated 7" Casing Point: 330' FSL, 849' FWL (Not a Survey Station)							
7,151.00	82.09	89.66	6,633.03	-1,086.01	615.47	823.14	8.55
7,234.00	83.18	86.29	6,643.68	-1,083.10	697.72	903.09	4.24
7,329.00	85.13	88.59	6,653.35	-1,078.88	792.13	994.67	3.16
7,423.00	86.49	89.67	6,660.22	-1,077.46	885.86	1,086.16	1.85
7,518.00	89.51	90.81	6,663.54	-1,077.86	980.79	1,179.19	3.40
7,613.00	92.74	92.08	6,661.67	-1,080.25	1,075.73	1,272.64	3.65
7,708.00	91.94	90.69	6,657.79	-1,082.55	1,170.62	1,366.02	1.69
7,803.00	90.15	88.69	6,656.06	-1,082.03	1,265.59	1,458.91	2.82
7,898.00	91.02	88.56	6,655.09	-1,079.75	1,360.56	1,551.44	0.93
7,993.00	89.82	89.79	6,654.39	-1,078.38	1,455.54	1,644.16	1.81
8,088.00	89.39	88.29	6,655.05	-1,076.79	1,550.52	1,736.84	1.64
8,183.00	89.57	87.36	6,655.91	-1,073.19	1,645.45	1,829.06	1.00
8,278.00	90.22	86.76	6,656.08	-1,068.32	1,740.32	1,920.97	0.93

Design Report for Wells Ranch USX AA27-62-1HN - Vaughn ESS and Sperry MWD Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
8,372.00	89.01	86.96	6,656.72	-1,063.17	1,834.18	2,011.83	1.30
8,467.00	90.28	90.20	6,657.30	-1,060.81	1,929.13	2,104.32	3.66
8,562.00	90.46	89.40	6,656.69	-1,060.48	2,024.13	2,197.28	0.86
8,657.00	91.67	89.35	6,654.93	-1,059.45	2,119.10	2,290.06	1.27
8,751.00	90.89	88.46	6,652.83	-1,057.65	2,213.06	2,381.70	1.26
8,846.00	90.65	89.35	6,651.55	-1,055.83	2,308.04	2,474.33	0.97
8,941.00	90.58	90.19	6,650.53	-1,055.45	2,403.03	2,567.26	0.89
9,036.00	89.66	90.39	6,650.33	-1,055.93	2,498.03	2,660.38	0.99
9,131.00	89.44	88.98	6,651.08	-1,055.41	2,593.02	2,753.29	1.50
9,226.00	89.85	89.18	6,651.66	-1,053.89	2,688.00	2,845.99	0.48
9,320.00	90.22	89.29	6,651.61	-1,052.63	2,782.00	2,937.77	0.41
9,415.00	89.26	88.58	6,652.04	-1,050.87	2,876.98	3,030.41	1.26
9,510.00	90.71	89.57	6,652.06	-1,049.33	2,971.96	3,123.10	1.85
9,605.00	91.02	88.40	6,650.63	-1,047.65	3,066.93	3,215.76	1.27
9,700.00	89.69	87.77	6,650.04	-1,044.47	3,161.88	3,308.08	1.55
9,795.00	90.40	87.51	6,649.97	-1,040.56	3,256.79	3,400.23	0.80
9,890.00	89.45	87.72	6,650.09	-1,036.61	3,351.71	3,492.36	1.02
9,985.00	89.17	88.65	6,651.23	-1,033.60	3,446.66	3,584.72	1.02
10,079.00	90.46	88.44	6,651.54	-1,031.21	3,540.62	3,676.25	1.39
10,174.00	90.65	89.60	6,650.62	-1,029.59	3,635.60	3,768.92	1.24
10,269.00	88.80	89.23	6,651.07	-1,028.62	3,730.59	3,861.73	1.99
10,364.00	89.91	89.57	6,652.14	-1,027.62	3,825.58	3,954.54	1.22
10,458.00	91.02	88.47	6,651.38	-1,026.02	3,919.56	4,046.24	1.66
10,553.00	89.78	89.84	6,650.72	-1,024.62	4,014.54	4,138.96	1.95
10,648.00	88.98	90.59	6,651.74	-1,024.97	4,109.54	4,232.04	1.15
10,743.00	90.77	91.86	6,651.95	-1,027.00	4,204.51	4,325.45	2.31
10,838.00	90.00	91.41	6,651.31	-1,029.71	4,299.47	4,418.98	0.94
10,933.00	89.35	91.14	6,651.85	-1,031.83	4,394.44	4,512.41	0.74
11,028.00	88.64	91.33	6,653.52	-1,033.88	4,489.40	4,605.81	0.77
11,123.00	89.44	90.75	6,655.11	-1,035.60	4,584.37	4,699.15	1.04
11,218.00	90.55	90.97	6,655.12	-1,037.03	4,679.36	4,792.45	1.19
11,313.00	90.65	89.82	6,654.12	-1,037.68	4,774.35	4,885.59	1.22
11,371.00	91.48	89.90	6,653.05	-1,037.54	4,832.34	4,942.35	1.44
Final Sperry MWD Survey @ 11371.00 ft. MD							
11,434.00	91.48	89.90	6,651.42	-1,037.43	4,895.32	5,003.99	0.00
Estimated BHL: 311' FSL, 158' FEL :: Straight Line Projection to TD @ 11434.00 ft. MD							

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
615.00	614.99	-0.07	-2.12	Tie-On to VES Gyro Surveys @ 615.00 ft. MD
732.00	731.99	-0.45	-2.83	First Sperry MWD Survey @ 732.00 ft. MD
7,142.00	6,631.77	-1,086.01	606.56	Estimated 7" Casing Point: 330' FSL, 849' FWL (Not a Survey Station)
11,371.00	6,653.05	-1,037.54	4,832.34	Final Sperry MWD Survey @ 11371.00 ft. MD
11,434.00	6,651.42	-1,037.43	4,895.32	Estimated BHL: 311' FSL, 158' FEL :: Straight Line Projection to TD @ 11434.00 ft. MD

Design Report for Wells Ranch USX AA27-62-1HN - Vaughn ESS and Sperry MWD Survey

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/-S (ft)	Origin +E/-W (ft)	Start TVD (ft)
Target	Wells Ranch USX AA27-62-1HN (PB_RA0) BHL	101.71	Slot	0.00	0.00	0.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
281.00	615.00	Vaughn ESS Surveys	Flexi-Shot
732.00	7,142.00	MWD Surveys	MWD
7,142.00	11,434.00	MWD Surveys	MWD

Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,142.00	6,631.77	7" Casing PT	7	8-3/4

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
Wells Ranch USX	0.00	0.00	0.00	0.00	0.00	1,410,059.46	3,297,262.94	40.454100	-104.431790
- actual wellpath hits target center									
- Polygon									
Point 1			-247.18	-1,431.19	1,408,628.33	3,297,015.77			
Point 2			5,051.27	-1,344.99	1,408,714.52	3,302,314.03			
Point 3			5,011.24	3,966.63	1,414,025.95	3,302,274.00			
Point 4			-150.21	3,922.15	1,413,981.47	3,297,112.74			
Point 5			-247.18	-1,431.19	1,408,628.33	3,297,015.77			
Wells Ranch USX	0.00	0.00	0.00	0.00	0.00	1,410,059.46	3,297,262.94	40.454100	-104.431790
- actual wellpath hits target center									
- Polygon									
Point 1			220.82	-963.19	1,409,096.31	3,297,483.75			
Point 2			4,587.77	-892.99	1,409,166.51	3,301,850.54			
Point 3			4,554.24	3,502.63	1,413,561.97	3,301,817.01			
Point 4			300.46	3,467.15	1,413,526.49	3,297,563.39			
Point 5			220.82	-963.19	1,409,096.31	3,297,483.75			
Wells Ranch USX	0.00	6,640.01	-1,085.50	662.00	1,408,974.00	3,297,924.92		40.451099	-104.429459
- actual wellpath hits target center									
- Point									
Wells Ranch USX	0.00	0.00	0.00	0.00	0.00	1,410,059.46	3,297,262.94	40.454100	-104.431790
- actual wellpath hits target center									
- Point									
Wells Ranch USX	0.00	6,652.00	-1,015.33	4,896.93	1,409,044.17	3,302,159.70		40.451150	-104.414240
- actual wellpath misses target center by 22.17ft at 11434.00ft MD (6651.42 TVD, -1037.43 N, 4895.32 E)									
- Point									

North Reference Sheet for Sec. 27-T6N-R63W - Wells Ranch USX AA27-62-1HN

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to Grid North Reference.
Vertical Depths are relative to RKB 24 ft. @ 4818.00ft (H&P 322). Northing and Easting are relative to Wells Ranch USX AA27-62-1HN - Slot A1
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: 3,000,000.00ft, False Northing: 1,000,000.00ft, Scale Reduction: 0.99996313

Grid Coordinates of Well: 1,410,059.46 ft N, 3,297,262.94 ft E
Geographical Coordinates of Well: 40° 27' 14.76" N, 104° 25' 54.44" W
Grid Convergence at Surface is: 0.69°

Based upon Minimum Curvature type calculations, at a Measured Depth of 11,434.00ft
the Bottom Hole Displacement is 5,004.04ft in the Direction of 101.97° (Grid).

Magnetic Convergence at surface is: -7.74° (31 July 2013, , BGGM2013)

