

Project: Weld County, CO (NAD 83)
 Site: Sec. 25-T6N-R63W - NW/SW (Wells Ranch AA26 PAD)
 Well: Wells Ranch AA26-63-1HN
 Wellbore: Plan B
 Design: Final Surveys

Noble Energy



Platted SHL: 1674' FSL, 153' FWL
 Platted Lat/Long: 40.45474° N, 104.39410° W
 Location: Sec. 25-T6N-R63W

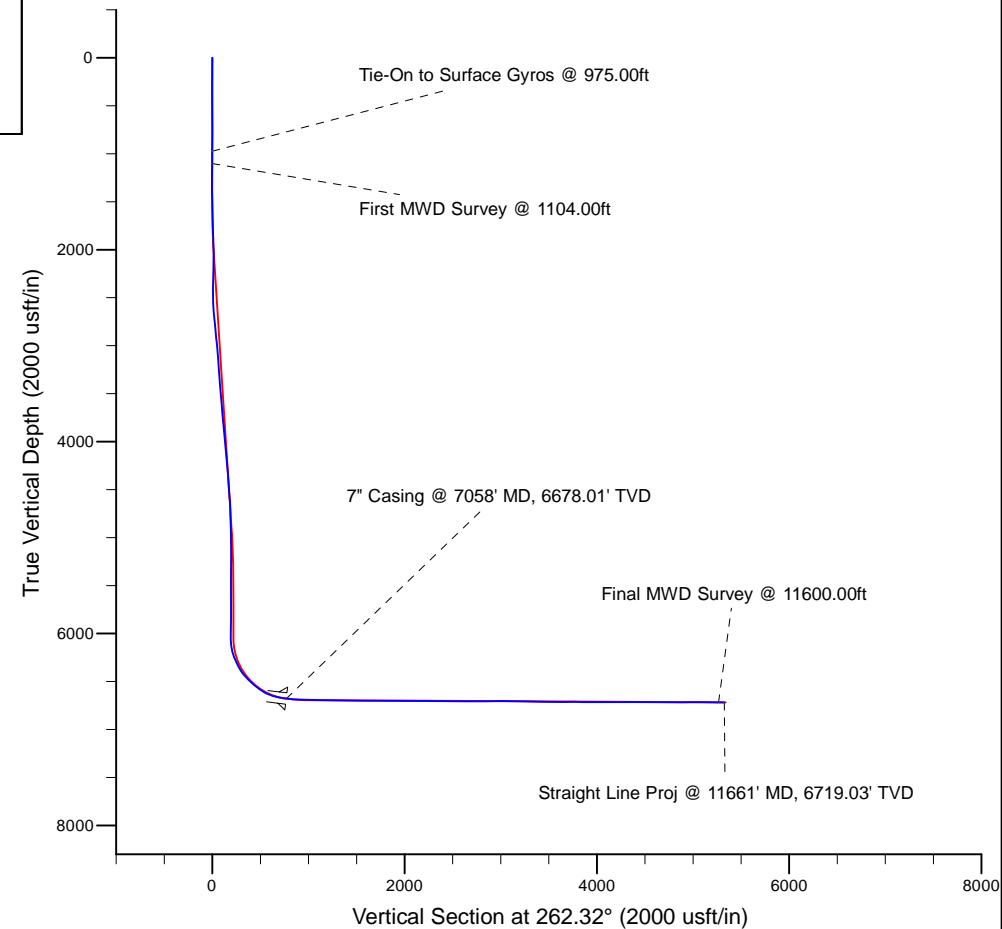
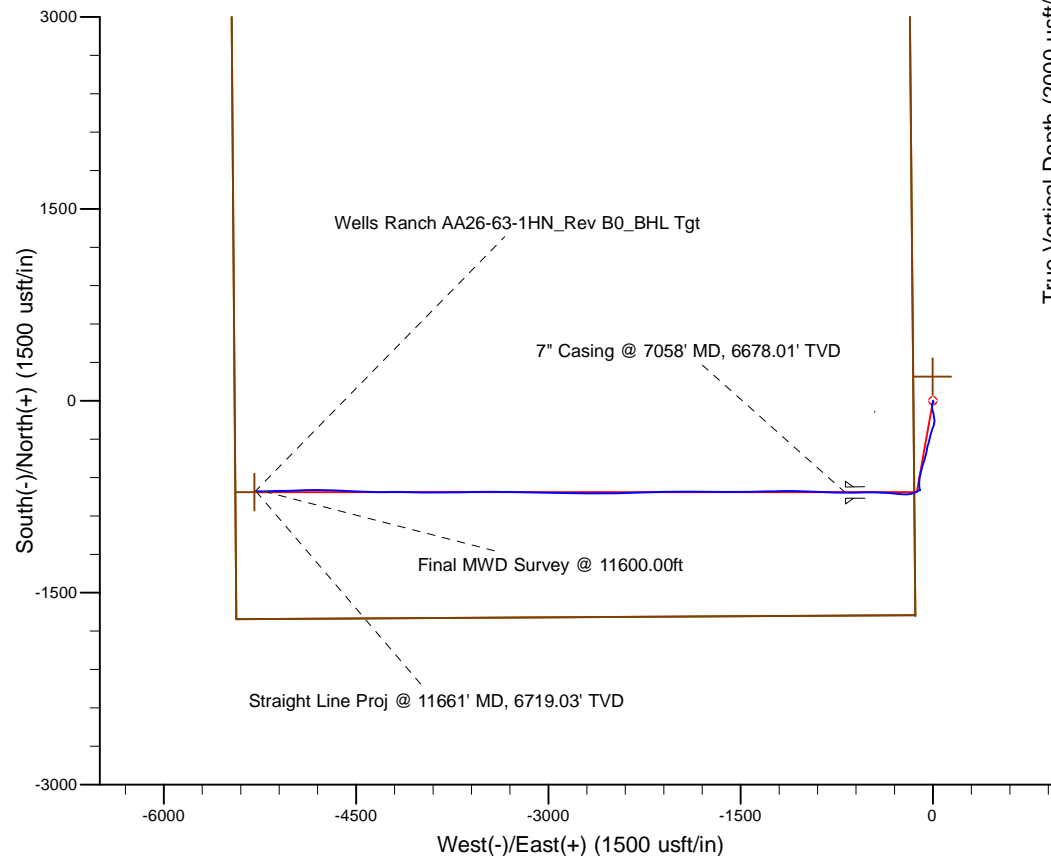
7" Casing: ~959.84' FSL, ~534.00' FEL
 Lat/Long: 40° 27' 10.058 N, 104° 23' 47.674 W
 State Planes - CO Northern: 1,409,703.70' N, 3,307,067.72' E
 Location: Sec. 26-T6N-R63W

BHL: ~998.18' FSL, ~160.82' FWL
 Lat/Long: 40° 27' 10.718 N, 104° 24' 47.179 W
 State Planes - CO Northern: 1,409,713.67' N, 3,302,467.32' E
 Location: Sec. 26-T6N-R63W

LEGEND

Wells Ranch AA26-63-1HN, Plan B, Rev B0 Proposal V0

Final Surveys



WELL DETAILS: Wells Ranch AA26-63-1HN	
Ground Level:	4792.00
RKB 24 ft. @ 4816.00usft (H&P 322)	
Created By:	Fred Hartmann
Created On:	11/13/2013

Noble Energy

Weld County, CO (NAD 83)

Sec. 25-T6N-R63W - NW/SW (Wells Ranch AA26 PAD)

Wells Ranch AA26-63-1HN - A6

Design: Final Surveys

Sperry Drilling Services

Final Survey Report

13 November, 2013

Well Coordinates: 1,410,421.17 N, 3,307,747.92 E (40° 27' 17.06" N, 104° 23' 38.76" W)

Ground Level: 4,792.00 usft

Local Coordinate Origin:

Centered on Well Wells Ranch AA26-63-1HN - Slot A6

Viewing Datum:

RKB 24 ft. @ 4816.00usft (H&P 322)

TVDs to System:

N

North Reference:

Grid

Unit System:

API - US Survey Feet - Custom

Geodetic Scale Factor Applied

Version: 5000.1 Build: 70

HALLIBURTON

Design Report for Wells Ranch AA26-63-1HN - Final Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
250.00	0.50	135.40	250.00	-0.78	0.77	-0.66	0.20
500.00	0.90	197.30	499.98	-3.43	0.95	-0.48	0.32
750.00	1.10	185.90	749.94	-7.69	0.12	0.91	0.11
975.00	1.00	121.00	974.91	-10.85	1.58	-0.11	0.50
Tie-On to Surface Gyros @ 975.00ft							
1,104.00	1.33	154.00	1,103.89	-12.77	3.20	-1.46	0.57
First MWD Survey @ 1104.00ft							
1,197.00	0.43	51.36	1,196.88	-13.53	3.95	-2.10	1.60
1,290.00	0.48	55.28	1,289.88	-13.09	4.54	-2.75	0.06
1,383.00	0.84	281.57	1,382.87	-12.73	4.19	-2.45	1.31
1,476.00	0.57	289.46	1,475.86	-12.44	3.09	-1.40	0.31
1,571.00	1.85	229.72	1,570.84	-13.27	1.47	0.32	1.72
1,666.00	2.86	215.76	1,665.76	-16.19	-1.08	3.24	1.22
1,760.00	4.13	199.44	1,759.59	-21.28	-3.58	6.39	1.70
1,855.00	5.59	194.11	1,854.25	-29.00	-5.85	9.67	1.61
1,950.00	7.75	187.39	1,948.60	-39.84	-7.80	13.06	2.41
2,045.00	9.93	173.31	2,042.48	-54.33	-7.67	14.86	3.22
2,140.00	12.27	166.42	2,135.70	-72.28	-4.34	13.97	2.83
2,235.00	13.43	163.18	2,228.32	-92.65	1.22	11.18	1.44
2,330.00	12.64	168.29	2,320.87	-113.39	6.52	8.70	1.47
2,425.00	11.15	171.98	2,413.83	-132.67	9.91	7.91	1.76
2,519.00	11.71	177.04	2,505.97	-151.19	11.67	8.64	1.22
2,614.00	12.17	188.14	2,598.92	-170.74	10.75	12.17	2.46
2,709.00	12.67	198.68	2,691.71	-190.52	6.00	19.52	2.44
2,804.00	12.29	199.02	2,784.47	-209.95	-0.63	28.69	0.41
2,899.00	11.53	198.61	2,877.42	-228.51	-6.96	37.44	0.80
2,994.00	13.02	198.08	2,970.25	-247.68	-13.31	46.30	1.57
3,089.00	12.06	195.28	3,062.98	-267.43	-19.25	54.82	1.20
3,183.00	12.74	192.95	3,154.79	-287.00	-24.16	62.31	0.90
3,278.00	11.30	193.23	3,247.70	-306.27	-28.64	69.32	1.52
3,373.00	10.17	193.29	3,341.04	-323.49	-32.69	75.64	1.19
3,468.00	11.63	199.79	3,434.33	-340.67	-37.87	83.06	2.01
3,562.00	13.79	191.21	3,526.03	-360.58	-43.25	91.06	3.05
3,657.00	13.88	189.42	3,618.27	-382.92	-47.32	98.08	0.46
3,752.00	14.21	191.60	3,710.43	-405.59	-51.53	105.28	0.66
3,847.00	13.76	194.08	3,802.61	-427.97	-56.62	113.32	0.79
3,942.00	13.30	198.74	3,894.98	-449.28	-62.88	122.37	1.25
4,036.00	12.29	199.31	3,986.65	-468.96	-69.66	131.73	1.08
4,131.00	12.90	195.69	4,079.36	-488.71	-75.87	140.52	1.05
4,226.00	12.19	195.13	4,172.09	-508.60	-81.36	148.62	0.76
4,321.00	11.11	196.79	4,265.13	-527.05	-86.62	156.30	1.19
4,416.00	12.36	194.41	4,358.15	-545.66	-91.80	163.91	1.41
4,510.00	12.30	191.60	4,449.98	-565.21	-96.31	171.00	0.64
4,605.00	12.33	193.16	4,542.79	-585.00	-100.66	177.95	0.35
4,700.00	11.21	188.18	4,635.80	-604.02	-104.28	184.09	1.59
4,795.00	9.43	185.33	4,729.26	-620.91	-106.32	188.36	1.95
4,890.00	7.54	181.54	4,823.21	-634.89	-107.21	191.12	2.07
4,985.00	5.96	180.52	4,917.55	-646.05	-107.42	192.82	1.67
5,080.00	5.65	184.37	5,012.07	-655.65	-107.82	194.50	0.52

Design Report for Wells Ranch AA26-63-1HN - Final Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
5,175.00	4.39	178.08	5,106.70	-663.94	-108.06	195.84	1.45
5,270.00	3.29	169.29	5,201.49	-670.26	-107.43	196.06	1.31
5,365.00	2.80	165.99	5,296.35	-675.19	-106.36	195.66	0.55
5,460.00	1.80	167.75	5,391.27	-678.90	-105.48	195.29	1.06
5,555.00	1.86	159.89	5,486.23	-681.80	-104.63	194.84	0.27
5,650.00	2.55	181.37	5,581.16	-685.36	-104.15	194.84	1.12
5,745.00	1.79	171.30	5,676.09	-688.94	-103.98	195.14	0.89
5,840.00	1.32	162.80	5,771.05	-691.45	-103.43	194.94	0.55
5,935.00	1.14	138.94	5,866.03	-693.21	-102.49	194.23	0.57
6,002.00	1.13	112.45	5,933.02	-693.97	-101.44	193.30	0.78
6,023.00	0.94	108.35	5,954.02	-694.10	-101.09	192.96	0.97
6,118.00	0.74	146.33	6,049.01	-694.85	-100.01	191.99	0.61
6,165.00	5.72	239.79	6,095.93	-696.29	-101.86	194.03	12.37
6,213.00	9.78	242.26	6,143.48	-699.39	-107.54	200.07	8.48
6,260.00	14.83	244.34	6,189.38	-703.86	-116.50	209.54	10.78
6,308.00	20.37	243.64	6,235.12	-710.23	-129.53	223.31	11.55
6,355.00	24.47	245.61	6,278.56	-717.88	-145.74	240.39	8.87
6,403.00	26.65	254.11	6,321.87	-724.94	-165.15	260.58	8.88
6,450.00	29.98	262.92	6,363.26	-729.28	-186.96	282.77	11.35
6,498.00	34.81	269.05	6,403.79	-730.98	-212.58	308.39	12.16
6,545.00	41.34	273.29	6,440.78	-730.31	-241.53	336.99	14.96
6,593.00	46.25	276.50	6,475.42	-727.44	-274.60	369.38	11.22
6,640.00	48.42	276.89	6,507.27	-723.41	-308.93	402.86	4.66
6,688.00	49.35	274.51	6,538.83	-719.82	-344.91	438.03	4.21
6,735.00	53.07	273.28	6,568.27	-717.35	-381.45	473.92	8.17
6,783.00	57.29	271.97	6,595.68	-715.55	-420.80	512.68	9.07
6,830.00	62.05	270.20	6,619.40	-714.80	-461.35	552.76	10.64
6,878.00	68.85	270.39	6,639.34	-714.57	-504.98	595.97	14.17
6,925.00	74.44	268.33	6,654.13	-715.08	-549.57	640.23	12.60
6,973.00	78.51	268.65	6,665.36	-716.31	-596.21	686.61	8.50
7,012.00	81.88	269.09	6,672.00	-717.07	-634.63	724.79	8.71
7,058.00	83.10	269.83	6,678.01	-717.50	-680.23	770.04	3.10
7" Casing @ 7058' MD, 6678.01' TVD							
7,141.00	85.31	271.17	6,686.39	-716.77	-762.80	851.77	3.10
7,236.00	89.11	272.77	6,691.01	-713.51	-857.61	945.29	4.34
7,331.00	89.04	272.36	6,692.54	-709.26	-952.50	1,038.76	0.44
7,426.00	88.61	271.84	6,694.49	-705.78	-1,047.42	1,132.36	0.71
7,521.00	89.66	269.61	6,695.93	-704.57	-1,142.39	1,226.32	2.59
7,616.00	88.03	268.00	6,697.84	-706.55	-1,237.34	1,320.69	2.41
7,710.00	88.80	269.49	6,700.44	-708.61	-1,331.28	1,414.06	1.78
7,806.00	90.49	268.88	6,701.04	-709.98	-1,427.27	1,509.36	1.87
7,900.00	90.28	269.64	6,700.40	-711.19	-1,521.26	1,602.67	0.84
7,995.00	89.44	270.42	6,700.64	-711.14	-1,616.25	1,696.81	1.21
8,090.00	88.06	270.81	6,702.71	-710.12	-1,711.22	1,790.79	1.51
8,185.00	90.03	270.94	6,704.29	-708.67	-1,806.19	1,884.72	2.08
8,280.00	91.82	269.28	6,702.76	-708.49	-1,901.17	1,978.82	2.57
8,374.00	88.74	268.98	6,702.30	-709.92	-1,995.15	2,072.14	3.29
8,469.00	89.48	268.78	6,703.77	-711.77	-2,090.12	2,166.51	0.81
8,564.00	89.63	268.81	6,704.51	-713.77	-2,185.10	2,260.90	0.16
8,659.00	89.78	268.29	6,705.00	-716.18	-2,280.06	2,355.34	0.57
8,754.00	89.75	268.74	6,705.39	-718.64	-2,375.03	2,449.78	0.47

Design Report for Wells Ranch AA26-63-1HN - Final Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
8,849.00	89.41	268.63	6,706.09	-720.82	-2,470.00	2,544.19	0.38
8,944.00	89.51	268.97	6,706.98	-722.81	-2,564.98	2,638.58	0.37
9,038.00	90.03	269.13	6,707.36	-724.37	-2,658.96	2,731.93	0.58
9,133.00	90.77	270.75	6,706.70	-724.46	-2,753.96	2,826.09	1.87
9,228.00	91.54	272.24	6,704.78	-721.99	-2,848.90	2,919.85	1.77
9,323.00	90.55	271.58	6,703.05	-718.82	-2,943.83	3,013.50	1.25
9,418.00	87.63	271.35	6,704.56	-716.39	-3,038.78	3,107.27	3.08
9,513.00	87.44	270.47	6,708.64	-714.89	-3,133.68	3,201.12	0.95
9,608.00	89.17	271.12	6,711.45	-713.57	-3,228.62	3,295.03	1.95
9,703.00	89.48	270.75	6,712.57	-712.02	-3,323.60	3,388.96	0.51
9,798.00	89.88	270.64	6,713.10	-710.87	-3,418.60	3,482.94	0.44
9,893.00	89.91	269.44	6,713.28	-710.80	-3,513.59	3,577.08	1.26
9,987.00	89.57	267.83	6,713.70	-713.04	-3,607.56	3,670.50	1.75
10,082.00	90.28	270.65	6,713.83	-714.30	-3,702.54	3,764.80	3.06
10,177.00	89.48	268.43	6,714.03	-715.06	-3,797.53	3,859.04	2.48
10,272.00	89.38	269.37	6,714.97	-716.88	-3,892.51	3,953.41	1.00
10,367.00	90.15	271.60	6,715.36	-716.08	-3,987.50	4,047.44	2.48
10,461.00	90.37	271.42	6,714.94	-713.60	-4,081.47	4,140.23	0.30
10,556.00	90.15	270.52	6,714.50	-712.00	-4,176.45	4,234.14	0.98
10,651.00	89.75	269.27	6,714.59	-712.17	-4,271.45	4,328.31	1.38
10,746.00	89.72	270.63	6,715.03	-712.25	-4,366.45	4,422.47	1.43
10,841.00	89.91	272.44	6,715.33	-709.71	-4,461.41	4,516.24	1.92
10,936.00	89.94	273.59	6,715.46	-704.71	-4,556.27	4,609.58	1.21
11,031.00	88.43	273.21	6,716.81	-699.08	-4,651.09	4,702.80	1.64
11,126.00	90.59	270.30	6,717.62	-696.17	-4,746.03	4,796.50	3.81
11,220.00	91.26	268.75	6,716.10	-696.95	-4,840.01	4,889.74	1.80
11,315.00	91.14	268.22	6,714.11	-699.46	-4,934.96	4,984.17	0.57
11,410.00	88.64	268.29	6,714.30	-702.35	-5,029.91	5,078.65	2.63
11,506.00	88.64	268.57	6,716.58	-704.98	-5,125.84	5,174.08	0.29
11,600.00	89.29	269.27	6,718.27	-706.75	-5,219.81	5,267.44	1.02
Final MWD Survey @ 11600.00ft							
11,661.00	89.29	269.27	6,719.03	-707.53	-5,280.80	5,327.98	0.00
Straight Line Proj @ 11661' MD, 6719.03' TVD							

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
975.00	974.91	-10.85	1.58	Tie-On to Surface Gyros @ 975.00ft
1,104.00	1,103.89	-12.77	3.20	First MWD Survey @ 1104.00ft
11,600.00	6,718.27	-706.75	-5,219.81	Final MWD Survey @ 11600.00ft
11,661.00	6,719.03	-707.53	-5,280.80	Straight Line Proj @ 11661' MD, 6719.03' TVD

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (usft)
				+N/_S (usft)	+E/-W (usft)	
Target	Wells Ranch AA26-63-1HN_Rev B0_BHL Tgt	262.32	Slot	0.00	0.00	0.00

Design Report for Wells Ranch AA26-63-1HN - Final Surveys

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
250.00	975.00	Vaughn ESS Surveys	Flexi-Shot
1,104.00	7,012.00	Sperry MWD Surveys - Vert/Build	MWD+IFR1+MS_WY
7,141.00	11,600.00	Sperry MWD Surveys - Lateral	MWD+IFR1+MS+sag

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
7,058.00	6,678.01	7" Casing @ 7058' MD, 6678.01' TVD	7	8-3/4

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
NW/SW (Wells Ranch	0.00	0.00	1.00	189.43	-2.36	1,410,610.60	3,307,745.56	40° 27' 18.936 N	104° 23' 38.760 W
- actual wellpath misses target center by 189.45usft at 0.40usft MD (0.40 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1			1.00	-1,896.14	-5,431.73	1,408,714.53	3,302,314.03		
Point 2			1.00	-1,863.48	-135.41	1,408,747.19	3,307,610.16		
Point 3			1.00	3,451.71	-182.19	1,414,062.18	3,307,563.38		
Point 4			1.00	3,415.48	-5,471.76	1,414,025.95	3,302,274.00		
NW/SW (Wells Ranch	0.00	0.00	1.00	189.43	-2.36	1,410,610.60	3,307,745.56	40° 27' 18.936 N	104° 23' 38.760 W
- actual wellpath misses target center by 189.45usft at 0.40usft MD (0.40 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1			1.00	-1,403.48	324.59	1,409,207.17	3,308,070.14		
Point 2			1.00	-1,337.18	4,678.23	1,409,273.47	3,312,423.62		
Point 3			1.00	3,047.32	4,649.94	1,413,657.81	3,312,395.33		
Point 4			1.00	2,990.21	277.81	1,413,600.70	3,308,023.36		
NW/SW (Wells Ranch	0.00	0.00	1.00	189.43	-2.36	1,410,610.60	3,307,745.56	40° 27' 18.936 N	104° 23' 38.760 W
- actual wellpath misses target center by 189.45usft at 0.40usft MD (0.40 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1			1.00	-1,863.48	-135.41	1,408,747.19	3,307,610.16		
Point 2			1.00	-1,797.18	5,138.23	1,408,813.48	3,312,883.60		
Point 3			1.00	3,507.32	5,109.94	1,414,117.79	3,312,855.31		
Point 4			1.00	3,451.71	-182.19	1,414,062.18	3,307,563.38		
NW/SW (Wells Ranch	0.00	0.00	1.00	189.43	-2.36	1,410,610.60	3,307,745.56	40° 27' 18.936 N	104° 23' 38.760 W
- actual wellpath misses target center by 189.45usft at 0.40usft MD (0.40 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1			1.00	-1,436.14	-4,971.73	1,409,174.51	3,302,774.01		
Point 2			1.00	-1,403.48	-595.41	1,409,207.17	3,307,150.17		
Point 3			1.00	2,990.21	-642.19	1,413,600.70	3,307,103.40		
Point 4			1.00	2,958.48	-5,008.01	1,413,568.97	3,302,737.74		
Wells Ranch AA26-63-	0.00	0.00	6,718.17	-713.98	-5,293.18	1,409,707.22	3,302,454.94	40° 27' 10.656 N	104° 24' 47.340 W
- actual wellpath misses target center by 13.98usft at 11661.00usft MD (6719.03 TVD, -707.53 N, -5280.80 E)									
- Point									

Directional Difficulty Index

Average Dogleg over Survey:	1.97 °/100usft	Maximum Dogleg over Survey:	14.96 °/100usft at 6,545.00 usft
Net Tortousity applicable to Plans:	1.00 °/100usft	Directional Difficulty Index:	6.373

Audit Info

North Reference Sheet for Sec. 25-T6N-R63W - NW/SW (Wells Ranch AA26 PAD) - Wells Ranch AA26-63-1HN -

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. @ 4816.00usft (H&P 322). Northing and Easting are relative to Wells Ranch AA26-63-1HN - Slot A6

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: 3,000,000.00usft, False Northing: 1,000,000.00usft, Scale Reduction: 0.99996317

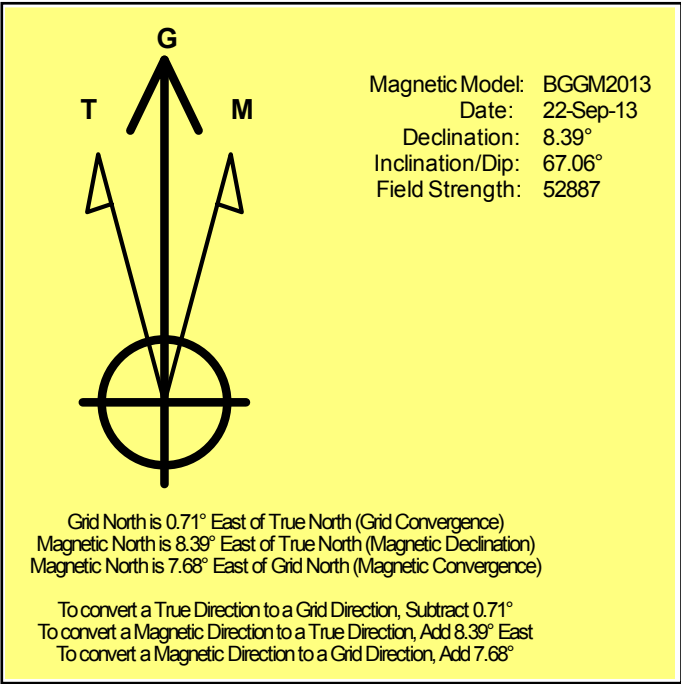
Grid Coordinates of Well: 1,410,421.17 usft N, 3,307,747.92 usft E

Geographical Coordinates of Well: 40° 27' 17.06" N, 104° 23' 38.76" W

Grid Convergence at Surface is: 0.71°

Based upon Minimum Curvature type calculations, at a Measured Depth of 11,661.00usft the Bottom Hole Displacement is 5,327.99usft in the Direction of 262.37° (Grid).

Magnetic Convergence at surface is: -7.68° (22 September 2013, , BGGM2013)



Noble Energy

Weld County, CO (NAD 83)

Sec. 25-T6N-R63W - NW/SW (Wells Ranch AA26 PAD)

Wells Ranch AA26-63-1HN - A6

Design: Final Surveys

Sperry Drilling Services

Geodetic Report

13 November, 2013

Well Coordinates: 1,410,421.17 N, 3,307,747.92 E (40° 27' 17.06" N, 104° 23' 38.76" W)

Ground Level: 4,792.00 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 Wells Ranch AA26-63-1HN - Slot A6

RKB 24 ft. @ 4816.00usft (H&P 322)

N

Grid

API - US Survey Feet - Custom

HALLIBURTON

Design Report for Wells Ranch AA26-63-1HN - Final Surveys

Measured			Vertical	Local Coordinates		Geographic Coordinates		UTM Coordinates	
Depth (usft)	Inclination (°)	Azimuth (°)	Depth (usft)	+N/-S (usft)	+E/-W (usft)	Latitude (usft)	Longitude (usft)	Northing (usft)	Easting (usft)
0.00	0.00	0.00	0.00	0.00	0.00	40° 27' 17.064 N	104° 23' 38.760 W	1,410,421.17	3,307,747.92
250.00	0.50	135.40	250.00	-0.78	0.77	40° 27' 17.056 N	104° 23' 38.750 W	1,410,420.40	3,307,748.69
500.00	0.90	197.30	499.98	-3.43	0.95	40° 27' 17.030 N	104° 23' 38.748 W	1,410,417.75	3,307,748.87
750.00	1.10	185.90	749.94	-7.69	0.12	40° 27' 16.988 N	104° 23' 38.760 W	1,410,413.48	3,307,748.04
975.00	1.00	121.00	974.91	-10.85	1.58	40° 27' 16.957 N	104° 23' 38.741 W	1,410,410.33	3,307,749.50
1,104.00	1.33	154.00	1,103.89	-12.77	3.20	40° 27' 16.937 N	104° 23' 38.721 W	1,410,408.40	3,307,751.12
1,197.00	0.43	51.36	1,196.88	-13.53	3.95	40° 27' 16.930 N	104° 23' 38.711 W	1,410,407.65	3,307,751.87
1,290.00	0.48	55.28	1,289.88	-13.09	4.54	40° 27' 16.934 N	104° 23' 38.703 W	1,410,408.09	3,307,752.46
1,383.00	0.84	281.57	1,382.87	-12.73	4.19	40° 27' 16.938 N	104° 23' 38.708 W	1,410,408.45	3,307,752.11
1,476.00	0.57	289.46	1,475.86	-12.44	3.09	40° 27' 16.941 N	104° 23' 38.722 W	1,410,408.74	3,307,751.01
1,571.00	1.85	229.72	1,570.84	-13.27	1.47	40° 27' 16.933 N	104° 23' 38.743 W	1,410,407.90	3,307,749.39
1,666.00	2.86	215.76	1,665.76	-16.19	-1.08	40° 27' 16.904 N	104° 23' 38.777 W	1,410,404.99	3,307,746.84
1,760.00	4.13	199.44	1,759.59	-21.28	-3.58	40° 27' 16.854 N	104° 23' 38.810 W	1,410,399.89	3,307,744.34
1,855.00	5.59	194.11	1,854.25	-29.00	-5.85	40° 27' 16.778 N	104° 23' 38.840 W	1,410,392.18	3,307,742.07
1,950.00	7.75	187.39	1,948.60	-39.84	-7.80	40° 27' 16.671 N	104° 23' 38.867 W	1,410,381.34	3,307,740.12
2,045.00	9.93	173.31	2,042.48	-54.33	-7.67	40° 27' 16.528 N	104° 23' 38.868 W	1,410,366.85	3,307,740.25
2,140.00	12.27	166.42	2,135.70	-72.28	-4.34	40° 27' 16.350 N	104° 23' 38.828 W	1,410,348.90	3,307,743.58
2,235.00	13.43	163.18	2,228.32	-92.65	1.22	40° 27' 16.148 N	104° 23' 38.759 W	1,410,328.53	3,307,749.14
2,330.00	12.64	168.29	2,320.87	-113.39	6.52	40° 27' 15.943 N	104° 23' 38.694 W	1,410,307.79	3,307,754.44
2,425.00	11.15	171.98	2,413.83	-132.67	9.91	40° 27' 15.752 N	104° 23' 38.653 W	1,410,288.51	3,307,757.83
2,519.00	11.71	177.04	2,505.97	-151.19	11.67	40° 27' 15.569 N	104° 23' 38.633 W	1,410,269.99	3,307,759.59
2,614.00	12.17	188.14	2,598.92	-170.74	10.75	40° 27' 15.376 N	104° 23' 38.648 W	1,410,250.44	3,307,758.67
2,709.00	12.67	198.68	2,691.71	-190.52	6.00	40° 27' 15.181 N	104° 23' 38.713 W	1,410,230.66	3,307,753.92
2,804.00	12.29	199.02	2,784.47	-209.95	-0.63	40° 27' 14.990 N	104° 23' 38.802 W	1,410,211.23	3,307,747.29
2,899.00	11.53	198.61	2,877.42	-228.51	-6.96	40° 27' 14.807 N	104° 23' 38.887 W	1,410,192.68	3,307,740.96
2,994.00	13.02	198.08	2,970.25	-247.68	-13.31	40° 27' 14.618 N	104° 23' 38.972 W	1,410,173.51	3,307,734.61
3,089.00	12.06	195.28	3,062.98	-267.43	-19.25	40° 27' 14.424 N	104° 23' 39.052 W	1,410,153.76	3,307,728.67
3,183.00	12.74	192.95	3,154.79	-287.00	-24.16	40° 27' 14.231 N	104° 23' 39.119 W	1,410,134.18	3,307,723.76
3,278.00	11.30	193.23	3,247.70	-306.27	-28.64	40° 27' 14.041 N	104° 23' 39.180 W	1,410,114.92	3,307,719.29
3,373.00	10.17	193.29	3,341.04	-323.49	-32.69	40° 27' 13.872 N	104° 23' 39.235 W	1,410,097.69	3,307,715.23
3,468.00	11.63	199.79	3,434.33	-340.67	-37.87	40° 27' 13.703 N	104° 23' 39.305 W	1,410,080.52	3,307,710.06
3,562.00	13.79	191.21	3,526.03	-360.58	-43.25	40° 27' 13.507 N	104° 23' 39.378 W	1,410,060.61	3,307,704.67
3,657.00	13.88	189.42	3,618.27	-382.92	-47.32	40° 27' 13.286 N	104° 23' 39.434 W	1,410,038.26	3,307,700.60
3,752.00	14.21	191.60	3,710.43	-405.59	-51.53	40° 27' 13.063 N	104° 23' 39.492 W	1,410,015.60	3,307,696.40
3,847.00	13.76	194.08	3,802.61	-427.97	-56.62	40° 27' 12.842 N	104° 23' 39.561 W	1,409,993.22	3,307,691.30
3,942.00	13.30	198.74	3,894.98	-449.28	-62.88	40° 27' 12.632 N	104° 23' 39.646 W	1,409,971.92	3,307,685.04
4,036.00	12.29	199.31	3,986.65	-468.96	-69.66	40° 27' 12.439 N	104° 23' 39.737 W	1,409,952.23	3,307,678.26
4,131.00	12.90	195.69	4,079.36	-488.71	-75.87	40° 27' 12.244 N	104° 23' 39.820 W	1,409,932.48	3,307,672.05
4,226.00	12.19	195.13	4,172.09	-508.60	-81.36	40° 27' 12.049 N	104° 23' 39.894 W	1,409,912.59	3,307,666.56
4,321.00	11.11	196.79	4,265.13	-527.05	-86.62	40° 27' 11.867 N	104° 23' 39.965 W	1,409,894.15	3,307,661.30
4,416.00	12.36	194.41	4,358.15	-545.66	-91.80	40° 27' 11.684 N	104° 23' 40.035 W	1,409,875.54	3,307,656.13
4,510.00	12.30	191.60	4,449.98	-565.21	-96.31	40° 27' 11.491 N	104° 23' 40.097 W	1,409,855.99	3,307,651.61

Design Report for Wells Ranch AA26-63-1HN - Final Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Geographic Coordinates		UTM Coordinates	
				+N/-S (usft)	+E/-W (usft)	Latitude (usft)	Longitude (usft)	Northing (usft)	Easting (usft)
4,605.00	12.33	193.16	4,542.79	-585.00	-100.66	40° 27' 11.296 N	104° 23' 40.156 W	1,409,836.20	3,307,647.27
4,700.00	11.21	188.18	4,635.80	-604.02	-104.28	40° 27' 11.109 N	104° 23' 40.206 W	1,409,817.18	3,307,643.64
4,795.00	9.43	185.33	4,729.26	-620.91	-106.32	40° 27' 10.942 N	104° 23' 40.235 W	1,409,800.29	3,307,641.61
4,890.00	7.54	181.54	4,823.21	-634.89	-107.21	40° 27' 10.804 N	104° 23' 40.249 W	1,409,786.31	3,307,640.72
4,985.00	5.96	180.52	4,917.55	-646.05	-107.42	40° 27' 10.694 N	104° 23' 40.254 W	1,409,775.15	3,307,640.50
5,080.00	5.65	184.37	5,012.07	-655.65	-107.82	40° 27' 10.599 N	104° 23' 40.260 W	1,409,765.55	3,307,640.10
5,175.00	4.39	178.08	5,106.70	-663.94	-108.06	40° 27' 10.517 N	104° 23' 40.265 W	1,409,757.26	3,307,639.87
5,270.00	3.29	169.29	5,201.49	-670.26	-107.43	40° 27' 10.455 N	104° 23' 40.258 W	1,409,750.94	3,307,640.50
5,365.00	2.80	165.99	5,296.35	-675.19	-106.36	40° 27' 10.406 N	104° 23' 40.245 W	1,409,746.01	3,307,641.57
5,460.00	1.80	167.75	5,391.27	-678.90	-105.48	40° 27' 10.369 N	104° 23' 40.234 W	1,409,742.30	3,307,642.44
5,555.00	1.86	159.89	5,486.23	-681.80	-104.63	40° 27' 10.340 N	104° 23' 40.223 W	1,409,739.40	3,307,643.29
5,650.00	2.55	181.37	5,581.16	-685.36	-104.15	40° 27' 10.305 N	104° 23' 40.218 W	1,409,735.84	3,307,643.77
5,745.00	1.79	171.30	5,676.09	-688.94	-103.98	40° 27' 10.269 N	104° 23' 40.216 W	1,409,732.26	3,307,643.94
5,840.00	1.32	162.80	5,771.05	-691.45	-103.43	40° 27' 10.245 N	104° 23' 40.209 W	1,409,729.75	3,307,644.49
5,935.00	1.14	138.94	5,866.03	-693.21	-102.49	40° 27' 10.227 N	104° 23' 40.198 W	1,409,727.99	3,307,645.44
6,002.00	1.13	112.45	5,933.02	-693.97	-101.44	40° 27' 10.220 N	104° 23' 40.184 W	1,409,727.23	3,307,646.48
6,023.00	0.94	108.35	5,954.02	-694.10	-101.09	40° 27' 10.218 N	104° 23' 40.179 W	1,409,727.10	3,307,646.84
6,118.00	0.74	146.33	6,049.01	-694.85	-100.01	40° 27' 10.211 N	104° 23' 40.166 W	1,409,726.35	3,307,647.92
6,165.00	5.72	239.79	6,095.93	-696.29	-101.86	40° 27' 10.197 N	104° 23' 40.190 W	1,409,724.91	3,307,646.06
6,213.00	9.78	242.26	6,143.48	-699.39	-107.54	40° 27' 10.167 N	104° 23' 40.264 W	1,409,721.81	3,307,640.38
6,260.00	14.83	244.34	6,189.38	-703.86	-116.50	40° 27' 10.124 N	104° 23' 40.380 W	1,409,717.35	3,307,631.42
6,308.00	20.37	243.64	6,235.12	-710.23	-129.53	40° 27' 10.062 N	104° 23' 40.550 W	1,409,710.97	3,307,618.39
6,355.00	24.47	245.61	6,278.56	-717.88	-145.74	40° 27' 9.989 N	104° 23' 40.761 W	1,409,703.32	3,307,602.19
6,403.00	26.65	254.11	6,321.87	-724.94	-165.15	40° 27' 9.921 N	104° 23' 41.013 W	1,409,696.26	3,307,582.77
6,450.00	29.98	262.92	6,363.26	-729.28	-186.96	40° 27' 9.881 N	104° 23' 41.296 W	1,409,691.92	3,307,560.97
6,498.00	34.81	269.05	6,403.79	-730.98	-212.58	40° 27' 9.867 N	104° 23' 41.628 W	1,409,690.22	3,307,535.35
6,545.00	41.34	273.29	6,440.78	-730.31	-241.53	40° 27' 9.878 N	104° 23' 42.002 W	1,409,690.89	3,307,506.40
6,593.00	46.25	276.50	6,475.42	-727.44	-274.60	40° 27' 9.910 N	104° 23' 42.429 W	1,409,693.76	3,307,473.33
6,640.00	48.42	276.89	6,507.27	-723.41	-308.93	40° 27' 9.954 N	104° 23' 42.873 W	1,409,697.79	3,307,439.01
6,688.00	49.35	274.51	6,538.83	-719.82	-344.91	40° 27' 9.994 N	104° 23' 43.337 W	1,409,701.38	3,307,403.03
6,735.00	53.07	273.28	6,568.27	-717.35	-381.45	40° 27' 10.023 N	104° 23' 43.810 W	1,409,703.86	3,307,366.49
6,783.00	57.29	271.97	6,595.68	-715.55	-420.80	40° 27' 10.046 N	104° 23' 44.318 W	1,409,705.65	3,307,327.13
6,830.00	62.05	270.20	6,619.40	-714.80	-461.35	40° 27' 10.058 N	104° 23' 44.843 W	1,409,706.40	3,307,286.59
6,878.00	68.85	270.39	6,639.34	-714.57	-504.98	40° 27' 10.066 N	104° 23' 45.407 W	1,409,706.63	3,307,242.96
6,925.00	74.44	268.33	6,654.13	-715.08	-549.57	40° 27' 10.066 N	104° 23' 45.984 W	1,409,706.12	3,307,198.37
6,973.00	78.51	268.65	6,665.36	-716.31	-596.21	40° 27' 10.060 N	104° 23' 46.587 W	1,409,704.89	3,307,151.73
7,012.00	81.88	269.09	6,672.00	-717.07	-634.63	40° 27' 10.057 N	104° 23' 47.084 W	1,409,704.13	3,307,113.32
7,058.00	83.10	269.83	6,678.01	-717.50	-680.23	40° 27' 10.058 N	104° 23' 47.674 W	1,409,703.70	3,307,067.72
7,141.00	85.31	271.17	6,686.39	-716.77	-762.80	40° 27' 10.076 N	104° 23' 48.742 W	1,409,704.43	3,306,985.15
7,236.00	89.11	272.77	6,691.01	-713.51	-857.61	40° 27' 10.119 N	104° 23' 49.968 W	1,409,707.69	3,306,890.35
7,331.00	89.04	272.36	6,692.54	-709.26	-952.50	40° 27' 10.173 N	104° 23' 51.195 W	1,409,711.94	3,306,795.46
7,426.00	88.61	271.84	6,694.49	-705.78	-1,047.42	40° 27' 10.219 N	104° 23' 52.422 W	1,409,715.42	3,306,700.54

Design Report for Wells Ranch AA26-63-1HN - Final Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Geographic Coordinates		UTM Coordinates	
				+N/-S (usft)	+E/-W (usft)	Latitude (usft)	Longitude (usft)	Northing (usft)	Easting (usft)
7,521.00	89.66	269.61	6,695.93	-704.57	-1,142.39	40° 27' 10.243 N	104° 23' 53.650 W	1,409,716.63	3,306,605.57
7,616.00	88.03	268.00	6,697.84	-706.55	-1,237.34	40° 27' 10.235 N	104° 23' 54.878 W	1,409,714.65	3,306,510.62
7,710.00	88.80	269.49	6,700.44	-708.61	-1,331.28	40° 27' 10.226 N	104° 23' 56.094 W	1,409,712.59	3,306,416.69
7,806.00	90.49	268.88	6,701.04	-709.98	-1,427.27	40° 27' 10.224 N	104° 23' 57.336 W	1,409,711.22	3,306,320.71
7,900.00	90.28	269.64	6,700.40	-711.19	-1,521.26	40° 27' 10.224 N	104° 23' 58.551 W	1,409,710.01	3,306,226.72
7,995.00	89.44	270.42	6,700.64	-711.14	-1,616.25	40° 27' 10.236 N	104° 23' 59.780 W	1,409,710.06	3,306,131.73
8,090.00	88.06	270.81	6,702.71	-710.12	-1,711.22	40° 27' 10.258 N	104° 24' 1.008 W	1,409,711.08	3,306,036.76
8,185.00	90.03	270.94	6,704.29	-708.67	-1,806.19	40° 27' 10.284 N	104° 24' 2.237 W	1,409,712.53	3,305,941.79
8,280.00	91.82	269.28	6,702.76	-708.49	-1,901.17	40° 27' 10.297 N	104° 24' 3.465 W	1,409,712.71	3,305,846.82
8,374.00	88.74	268.98	6,702.30	-709.92	-1,995.15	40° 27' 10.294 N	104° 24' 4.681 W	1,409,711.28	3,305,752.84
8,469.00	89.48	268.78	6,703.77	-711.77	-2,090.12	40° 27' 10.288 N	104° 24' 5.910 W	1,409,709.43	3,305,657.88
8,564.00	89.63	268.81	6,704.51	-713.77	-2,185.10	40° 27' 10.280 N	104° 24' 7.138 W	1,409,707.43	3,305,562.91
8,659.00	89.78	268.29	6,705.00	-716.18	-2,280.06	40° 27' 10.267 N	104° 24' 8.367 W	1,409,705.03	3,305,467.94
8,754.00	89.75	268.74	6,705.39	-718.64	-2,375.03	40° 27' 10.255 N	104° 24' 9.596 W	1,409,702.56	3,305,372.98
8,849.00	89.41	268.63	6,706.09	-720.82	-2,470.00	40° 27' 10.245 N	104° 24' 10.825 W	1,409,700.38	3,305,278.01
8,944.00	89.51	268.97	6,706.98	-722.81	-2,564.98	40° 27' 10.237 N	104° 24' 12.053 W	1,409,698.39	3,305,183.04
9,038.00	90.03	269.13	6,707.36	-724.37	-2,658.96	40° 27' 10.233 N	104° 24' 13.269 W	1,409,696.84	3,305,089.05
9,133.00	90.77	270.75	6,706.70	-724.46	-2,753.96	40° 27' 10.244 N	104° 24' 14.498 W	1,409,696.74	3,304,994.06
9,228.00	91.54	272.24	6,704.78	-721.99	-2,848.90	40° 27' 10.280 N	104° 24' 15.726 W	1,409,699.21	3,304,899.12
9,323.00	90.55	271.58	6,703.05	-718.82	-2,943.83	40° 27' 10.322 N	104° 24' 16.953 W	1,409,702.38	3,304,804.20
9,418.00	87.63	271.35	6,704.56	-716.39	-3,038.78	40° 27' 10.358 N	104° 24' 18.181 W	1,409,704.81	3,304,709.25
9,513.00	87.44	270.47	6,708.64	-714.89	-3,133.68	40° 27' 10.385 N	104° 24' 19.408 W	1,409,706.31	3,304,614.36
9,608.00	89.17	271.12	6,711.45	-713.57	-3,228.62	40° 27' 10.409 N	104° 24' 20.636 W	1,409,707.63	3,304,519.42
9,703.00	89.48	270.75	6,712.57	-712.02	-3,323.60	40° 27' 10.436 N	104° 24' 21.864 W	1,409,709.18	3,304,424.44
9,798.00	89.88	270.64	6,713.10	-710.87	-3,418.60	40° 27' 10.459 N	104° 24' 23.093 W	1,409,710.33	3,304,329.45
9,893.00	89.91	269.44	6,713.28	-710.80	-3,513.59	40° 27' 10.471 N	104° 24' 24.321 W	1,409,710.40	3,304,234.46
9,987.00	89.57	267.83	6,713.70	-713.04	-3,607.56	40° 27' 10.461 N	104° 24' 25.537 W	1,409,708.16	3,304,140.49
10,082.00	90.28	270.65	6,713.83	-714.30	-3,702.54	40° 27' 10.460 N	104° 24' 26.766 W	1,409,706.90	3,304,045.51
10,177.00	89.48	268.43	6,714.03	-715.06	-3,797.53	40° 27' 10.464 N	104° 24' 27.995 W	1,409,706.14	3,303,950.53
10,272.00	89.38	269.37	6,714.97	-716.88	-3,892.51	40° 27' 10.457 N	104° 24' 29.223 W	1,409,704.32	3,303,855.55
10,367.00	90.15	271.60	6,715.36	-716.08	-3,987.50	40° 27' 10.477 N	104° 24' 30.452 W	1,409,705.12	3,303,760.57
10,461.00	90.37	271.42	6,714.94	-713.60	-4,081.47	40° 27' 10.513 N	104° 24' 31.667 W	1,409,707.60	3,303,666.61
10,556.00	90.15	270.52	6,714.50	-712.00	-4,176.45	40° 27' 10.540 N	104° 24' 32.895 W	1,409,709.21	3,303,571.62
10,651.00	89.75	269.27	6,714.59	-712.17	-4,271.45	40° 27' 10.550 N	104° 24' 34.124 W	1,409,709.03	3,303,476.63
10,746.00	89.72	270.63	6,715.03	-712.25	-4,366.45	40° 27' 10.561 N	104° 24' 35.353 W	1,409,708.95	3,303,381.64
10,841.00	89.91	272.44	6,715.33	-709.71	-4,461.41	40° 27' 10.597 N	104° 24' 36.581 W	1,409,711.49	3,303,286.68
10,936.00	89.94	273.59	6,715.46	-704.71	-4,556.27	40° 27' 10.658 N	104° 24' 37.807 W	1,409,716.49	3,303,191.82
11,031.00	88.43	273.21	6,716.81	-699.08	-4,651.09	40° 27' 10.725 N	104° 24' 39.033 W	1,409,722.12	3,303,097.00
11,126.00	90.59	270.30	6,717.62	-696.17	-4,746.03	40° 27' 10.766 N	104° 24' 40.260 W	1,409,725.03	3,303,002.07
11,220.00	91.26	268.75	6,716.10	-696.95	-4,840.01	40° 27' 10.769 N	104° 24' 41.476 W	1,409,724.25	3,302,908.09
11,315.00	91.14	268.22	6,714.11	-699.46	-4,934.96	40° 27' 10.756 N	104° 24' 42.704 W	1,409,721.74	3,302,813.15
11,410.00	88.64	268.29	6,714.30	-702.35	-5,029.91	40° 27' 10.739 N	104° 24' 43.933 W	1,409,718.85	3,302,718.20

Design Report for Wells Ranch AA26-63-1HN - Final Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Geographic Coordinates		UTM Coordinates	
				+N/-S (usft)	+E/-W (usft)	Latitude (usft)	Longitude (usft)	Northing (usft)	Easting (usft)
11,506.00	88.64	268.57	6,716.58	-704.98	-5,125.84	40° 27' 10.725 N	104° 24' 45.174 W	1,409,716.22	3,302,622.27
11,600.00	89.29	269.27	6,718.27	-706.75	-5,219.81	40° 27' 10.718 N	104° 24' 46.390 W	1,409,714.45	3,302,528.30
11,661.00	89.29	269.27	6,719.03	-707.53	-5,280.80	40° 27' 10.718 N	104° 24' 47.179 W	1,409,713.67	3,302,467.32

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
975.00	974.91	-10.85	1.58	Tie-On to Surface Gyros @ 975.00ft
1,104.00	1,103.89	-12.77	3.20	First MWD Survey @ 1104.00ft
11,600.00	6,718.27	-706.75	-5,219.81	Final MWD Survey @ 11600.00ft
11,661.00	6,719.03	-707.53	-5,280.80	Straight Line Proj @ 11661' MD, 6719.03' TVD

Vertical Section Information

	Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (usft)
					+N/_S (usft)	+E/-W (usft)	
Target		Wells Ranch AA26-63-1HN_Rev B0_BHL Tgt	262.32	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
250.00	975.00	Vaughn ESS Surveys	Flexi-Shot
1,104.00	7,012.00	Sperry MWD Surveys - Vert/Build	MWD+IFR1+MS_WY
7,141.00	11,600.00	Sperry MWD Surveys - Lateral	MWD+IFR1+MS+sag

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
7,058.00	6,678.01	7" Casing @ 7058' MD, 6678.01' TVD	7	8-3/4

Design Report for Wells Ranch AA26-63-1HN - Final Surveys

Design Targets

Shape	Target Name	TVD ()	Northing ()	Easting ()	+N/-S	+E/-W	Created	Updated
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Directional Difficulty Index

Average Dogleg over Survey:	1.97 °/100usft	Maximum Dogleg over Survey:	14.96 °/100usft at 6,545.00 usft
Net Tortousity applicable to Plans:	1.00 °/100usft	Directional Difficulty Index:	6.373

Audit Info

North Reference Sheet for Sec. 25-T6N-R63W - NW/SW (Wells Ranch AA26 PAD) - Wells Ranch AA26-63-1HN

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. @ 4816.00usft (H&P 322). Northing and Easting are relative to Wells Ranch AA26-63-1HN - Slot A6

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: 3,000,000.00usft, False Northing: 1,000,000.00usft, Scale Reduction: 0.99996317

Grid Coordinates of Well: 1,410,421.17 usft N, 3,307,747.92 usft E

Geographical Coordinates of Well: 40° 27' 17.06" N, 104° 23' 38.76" W

Grid Convergence at Surface is: 0.71°

Based upon Minimum Curvature type calculations, at a Measured Depth of 11,661.00usft

the Bottom Hole Displacement is 5,327.99usft in the Direction of 262.37° (Grid).

Magnetic Convergence at surface is: -7.68° (22 September 2013, , BGGM2013)

