

# Noble Energy

Weld County, CO (NAD 83)

Sec. 20-T6N-R62W (Wells Ranch AE19 Pad)

Wells Ranch AE19-685

05-123-39894

Original Wellbore

Design: Original Wellbore

## Sperry Drilling Services

### Final Survey Report

10 December, 2014

Surface UWI : 05-123-39894

Well Coordinates: 1,419,044.28 N, 3,318,323.69 E (40° 28' 40.94" N, 104° 21' 20.52" W)

Ground Level: 4,841.00 usft

Local Coordinate Origin:

Centered on Well Wells Ranch AE19-685

Viewing Datum:

KB=30' @ 4871.00usft (H&P 321)

TVDs to System:

N

North Reference:

Grid

Unit System:

Dec-Deg - API - US Survey Feet - Custom

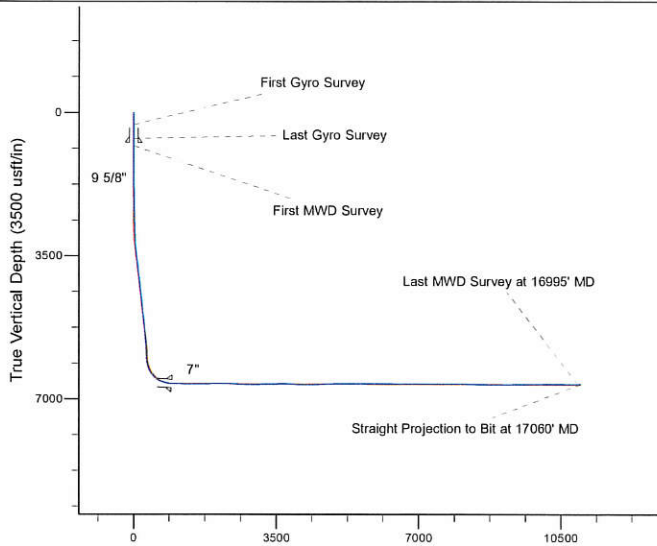
Geodetic Scale Factor Applied

Version: 5000.1 Build: 70

**HALLIBURTON**

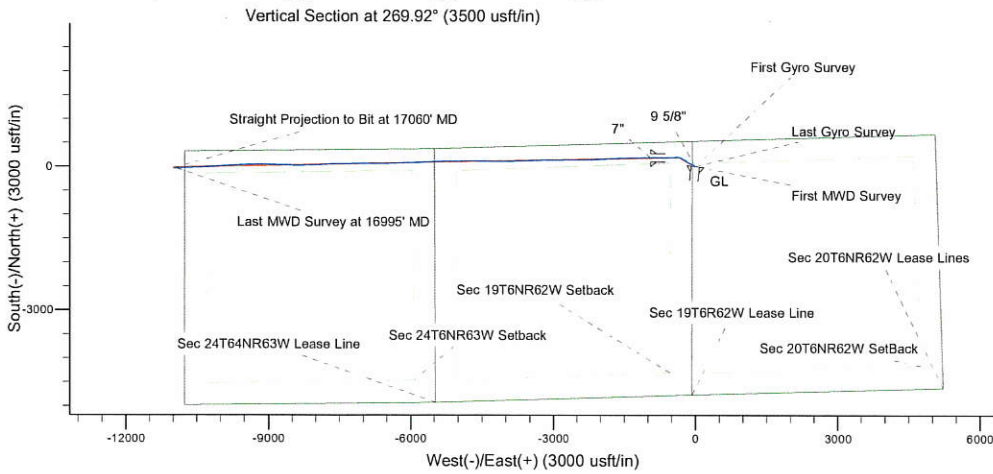
Project: Weld County, CO (NAD 83)  
 Site: Sec. 20-T6N-R62W (Wells Ranch AE19 Pad)  
 Well: Wells Ranch AE19-685  
 Wellbore: Original Wellbore  
 Design: Original Wellbore

# Noble Energy



Platted SHL:	538' FNL, 65' FWL
Platted Lat/Long:	40.47804 N, 104.35570 W
Location:	Sec. 20-T6N-R62W
-7" Casing: 306' FNL, 867' FEL	
Lat/Long:	40.478592 N, 104.359070 W
State Planes - CO Northern:	1419233.30 N, 3317383.75 E
Location:	Sec. 19-T6N-R62W
Platted BHL:	330' FNL, 235' FEL
Lat/Long:	40.478380 N, 104.395200 W
State Planes - CO Northern:	1419028.80 N, 3307334.54 E
Location:	Sec. 24-T6N-R63W

LEGEND	
	Wells Ranch AE19-685, Original Wellbore, Rev B0 V0
	Original Wellbore



WELL DETAILS: Wells Ranch AE19-685	
Ground Level:	4841.00
KB=30' @ 4871.00usft (H&P 321)	
Created By:	Amanda Marchand
Created On:	12/10/2014

**Design Report for Wells Ranch AE19-685 - Original Wellbore**

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
295.00	0.80	35.00	294.99	1.69	1.18	-1.18	0.27
<b>First Gyro Survey</b>							
633.00	1.00	348.30	632.95	6.51	1.94	-1.95	0.22
<b>Last Gyro Survey</b>							
811.00	0.29	80.83	810.94	8.10	2.07	-2.08	0.59
<b>First MWD Survey</b>							
902.00	0.26	97.08	901.94	8.11	2.50	-2.51	0.09
994.00	0.07	161.90	993.94	8.03	2.72	-2.73	0.26
1,087.00	0.44	221.84	1,086.94	7.71	2.50	-2.51	0.44
1,180.00	0.38	233.74	1,179.94	7.26	2.02	-2.03	0.11
1,364.00	0.41	172.33	1,363.93	6.25	1.61	-1.62	0.22
1,456.00	0.52	187.62	1,455.93	5.51	1.60	-1.61	0.18
1,548.00	0.59	180.06	1,547.93	4.62	1.54	-1.55	0.11
1,640.00	0.58	218.11	1,639.92	3.78	1.26	-1.26	0.41
1,828.00	0.22	287.57	1,827.92	3.14	0.33	-0.33	0.29
1,922.00	0.37	306.66	1,921.92	3.38	-0.09	0.09	0.19
2,016.00	0.49	330.93	2,015.92	3.91	-0.53	0.52	0.23
2,111.00	0.93	312.32	2,110.91	4.79	-1.30	1.29	0.52
2,206.00	1.22	285.30	2,205.89	5.57	-2.84	2.83	0.61
2,301.00	1.42	289.10	2,300.87	6.22	-4.93	4.92	0.23
2,396.00	1.68	283.02	2,395.83	6.92	-7.40	7.39	0.32
2,491.00	1.68	285.14	2,490.79	7.60	-10.10	10.09	0.07
2,585.00	1.51	296.71	2,584.75	8.52	-12.54	12.52	0.39
2,680.00	1.89	291.50	2,679.71	9.65	-15.11	15.10	0.43
2,775.00	1.74	290.65	2,774.66	10.74	-17.92	17.90	0.16
2,870.00	1.92	286.26	2,869.62	11.69	-20.80	20.78	0.24
2,965.00	2.78	314.21	2,964.54	13.74	-23.98	23.96	1.48
3,059.00	2.95	317.33	3,058.42	17.11	-27.25	27.23	0.25
3,154.00	4.55	311.96	3,153.21	21.43	-31.71	31.68	1.72
3,249.00	6.15	305.46	3,247.80	26.90	-38.66	38.62	1.80
3,344.00	7.73	304.20	3,342.10	33.44	-48.09	48.04	1.67
3,439.00	7.63	305.17	3,436.25	40.67	-58.53	58.47	0.17
3,534.00	7.64	297.64	3,530.41	47.23	-69.28	69.21	1.05
3,628.00	7.85	295.09	3,623.55	52.85	-80.62	80.55	0.43
3,723.00	8.12	296.66	3,717.63	58.61	-92.50	92.41	0.37
3,818.00	8.53	297.98	3,811.63	64.93	-104.71	104.62	0.48
3,912.00	7.73	297.78	3,904.68	71.15	-116.46	116.36	0.85
4,007.00	7.62	295.74	3,998.83	76.86	-127.79	127.68	0.31
4,101.00	7.06	294.30	4,092.06	81.94	-138.67	138.55	0.63
4,196.00	7.73	300.01	4,186.27	87.54	-149.52	149.40	1.05
4,291.00	8.25	305.65	4,280.35	94.71	-160.59	160.46	0.99
4,385.00	8.19	306.67	4,373.39	102.64	-171.44	171.30	0.17
4,480.00	8.12	310.65	4,467.43	111.05	-181.96	181.81	0.60
4,575.00	7.35	305.91	4,561.56	118.99	-191.97	191.81	1.05
4,675.00	6.53	300.02	4,660.83	125.58	-202.08	201.90	1.08
4,769.00	7.09	298.43	4,754.17	131.02	-211.81	211.62	0.63
4,864.00	7.19	296.46	4,848.43	136.46	-222.29	222.09	0.28
4,959.00	8.19	298.79	4,942.57	142.37	-233.54	233.34	1.10
5,148.00	7.15	296.26	5,129.88	154.05	-255.89	255.67	0.58

## Design Report for Wells Ranch AE19-685 - Original Wellbore

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
5,243.00	6.47	296.14	5,224.21	159.03	-265.99	265.77	0.72
5,338.00	5.71	300.02	5,318.67	163.75	-274.89	274.66	0.91
5,433.00	6.33	306.09	5,413.15	169.20	-283.22	282.98	0.93
5,528.00	6.20	303.67	5,507.58	175.13	-291.72	291.47	0.31
5,622.00	5.40	304.16	5,601.10	180.43	-299.60	299.35	0.85
5,717.00	4.56	303.60	5,695.74	185.03	-306.45	306.18	0.89
5,812.00	3.54	301.00	5,790.50	188.63	-312.11	311.84	1.09
5,903.00	1.21	296.83	5,881.42	190.51	-315.37	315.10	2.57
5,965.00	1.09	288.94	5,943.41	190.99	-316.51	316.24	0.32
6,000.00	0.83	274.46	5,978.40	191.12	-317.08	316.81	1.01
6,095.00	10.73	279.89	6,072.80	192.70	-326.50	326.23	10.43
6,190.00	14.79	272.74	6,165.44	194.80	-347.34	347.06	4.58
6,238.00	17.16	271.20	6,211.58	195.24	-360.54	360.26	5.02
6,284.00	21.58	271.46	6,254.97	195.60	-375.79	375.51	9.61
6,332.00	26.90	269.69	6,298.72	195.76	-395.48	395.21	11.19
6,379.00	30.25	268.72	6,339.99	195.44	-417.96	417.68	7.20
6,427.00	35.44	266.72	6,380.31	194.37	-443.96	443.68	11.04
6,474.00	40.72	266.72	6,417.29	192.72	-472.89	472.62	11.23
6,522.00	45.99	268.41	6,452.18	191.34	-505.80	505.53	11.24
6,569.00	49.82	268.40	6,483.68	190.37	-540.65	540.38	8.15
6,617.00	53.21	267.81	6,513.55	189.12	-578.20	577.93	7.13
6,663.00	58.55	267.88	6,539.34	187.69	-616.24	615.98	11.61
6,711.00	64.72	269.53	6,562.14	186.76	-658.44	658.18	13.20
6,758.00	71.28	270.94	6,579.73	186.95	-702.00	701.73	14.23
6,806.00	73.06	271.88	6,594.43	188.07	-747.68	747.41	4.15
6,853.00	74.40	271.47	6,607.60	189.39	-792.77	792.50	2.97
6,901.00	79.81	269.60	6,618.31	189.82	-839.54	839.27	11.89
6,948.00	85.25	269.56	6,624.41	189.48	-886.12	885.85	11.57
6,959.00	85.71	269.44	6,625.28	189.38	-897.09	896.82	4.32
7,037.00	86.15	269.71	6,630.82	188.81	-974.89	974.62	0.66
7,131.00	87.66	269.50	6,635.89	188.16	-1,068.75	1,068.48	1.62
7,226.00	90.71	270.08	6,637.24	187.81	-1,163.72	1,163.46	3.27
7,321.00	90.71	269.07	6,636.07	187.11	-1,258.71	1,258.45	1.06
7,416.00	90.86	269.78	6,634.76	186.15	-1,353.70	1,353.44	0.76
7,510.00	89.75	267.09	6,634.26	183.59	-1,447.65	1,447.39	3.10
7,605.00	89.26	266.15	6,635.08	177.99	-1,542.48	1,542.23	1.12
7,700.00	88.71	267.97	6,636.77	173.11	-1,637.34	1,637.09	2.00
7,794.00	90.31	268.12	6,637.57	169.91	-1,731.28	1,731.04	1.71
7,889.00	90.28	267.38	6,637.08	166.18	-1,826.20	1,825.97	0.78
7,984.00	89.85	264.79	6,636.97	159.69	-1,920.97	1,920.75	2.76
8,079.00	91.42	268.47	6,635.92	154.11	-2,015.78	2,015.56	4.21
8,174.00	92.41	268.90	6,632.75	151.93	-2,110.70	2,110.49	1.14
8,268.00	90.18	267.65	6,630.62	149.10	-2,204.63	2,204.42	2.72
8,363.00	90.89	269.69	6,629.74	146.90	-2,299.59	2,299.38	2.27
8,457.00	88.18	269.30	6,630.50	146.07	-2,393.58	2,393.37	2.91
8,552.00	87.17	269.49	6,634.35	145.06	-2,488.49	2,488.29	1.08
8,647.00	87.07	269.78	6,639.13	144.46	-2,583.37	2,583.16	0.32
8,742.00	87.38	269.56	6,643.72	143.91	-2,678.26	2,678.05	0.40
8,837.00	89.57	269.28	6,646.25	142.95	-2,773.21	2,773.01	2.32
8,932.00	90.22	269.24	6,646.43	141.73	-2,868.20	2,868.00	0.69
9,027.00	89.32	269.01	6,646.81	140.27	-2,963.19	2,962.99	0.98

**Design Report for Wells Ranch AE19-685 - Original Wellbore**

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
9,121.00	90.49	269.10	6,646.96	138.72	-3,057.18	3,056.98	1.25
9,216.00	92.07	269.26	6,644.84	137.37	-3,152.14	3,151.94	1.67
9,310.00	92.16	268.40	6,641.37	135.45	-3,246.06	3,245.86	0.92
9,405.00	92.83	268.55	6,637.24	132.92	-3,340.93	3,340.74	0.72
9,500.00	90.89	268.98	6,634.15	130.88	-3,435.86	3,435.67	2.09
9,595.00	91.39	268.82	6,632.26	129.05	-3,530.82	3,530.63	0.55
9,690.00	90.15	268.21	6,630.99	126.59	-3,625.78	3,625.59	1.45
9,785.00	88.89	267.53	6,631.78	123.06	-3,720.70	3,720.53	1.51
9,880.00	87.32	267.08	6,634.92	118.60	-3,815.54	3,815.37	1.72
9,974.00	85.98	268.46	6,640.42	114.94	-3,909.31	3,909.14	2.04
10,069.00	87.04	268.84	6,646.20	112.71	-4,004.10	4,003.94	1.19
10,164.00	88.09	269.38	6,650.24	111.24	-4,099.01	4,098.84	1.24
10,258.00	89.04	270.18	6,652.59	110.87	-4,192.97	4,192.81	1.32
10,353.00	90.15	270.77	6,653.26	111.66	-4,287.97	4,287.80	1.32
10,447.00	91.42	271.40	6,651.97	113.44	-4,381.94	4,381.77	1.51
10,542.00	92.13	271.21	6,649.03	115.60	-4,476.87	4,476.70	0.77
10,637.00	92.35	270.67	6,645.32	117.16	-4,571.78	4,571.61	0.61
10,731.00	92.99	270.04	6,640.94	117.74	-4,665.68	4,665.51	0.95
10,825.00	91.79	269.87	6,637.02	117.67	-4,759.59	4,759.42	1.29
10,920.00	92.07	268.88	6,633.82	116.63	-4,854.53	4,854.36	1.08
11,012.00	90.68	268.27	6,631.61	114.35	-4,946.47	4,946.31	1.65
11,104.00	90.74	268.44	6,630.47	111.71	-5,038.43	5,038.27	0.20
11,197.00	89.44	268.88	6,630.33	109.53	-5,131.40	5,131.24	1.48
11,288.00	90.55	270.34	6,630.33	108.91	-5,222.40	5,222.24	2.02
11,380.00	90.15	269.30	6,629.77	108.62	-5,314.39	5,314.23	1.21
11,472.00	89.75	269.03	6,629.85	107.28	-5,406.38	5,406.23	0.52
11,564.00	89.29	267.26	6,630.62	104.30	-5,498.33	5,498.17	1.99
11,655.00	89.17	265.41	6,631.85	98.49	-5,589.13	5,588.98	2.04
11,747.00	90.15	267.33	6,632.39	92.66	-5,680.94	5,680.80	2.34
11,839.00	90.15	268.84	6,632.15	89.59	-5,772.88	5,772.75	1.64
11,931.00	90.55	268.39	6,631.59	87.37	-5,864.85	5,864.72	0.65
12,024.00	89.97	268.00	6,631.17	84.44	-5,957.81	5,957.68	0.75
12,116.00	88.92	267.40	6,632.06	80.75	-6,049.73	6,049.61	1.31
12,208.00	88.92	266.63	6,633.79	75.96	-6,141.58	6,141.47	0.84
12,301.00	89.32	268.77	6,635.22	72.22	-6,234.49	6,234.38	2.34
12,393.00	90.34	269.10	6,635.49	70.51	-6,326.47	6,326.37	1.17
12,484.00	89.88	268.53	6,635.32	68.63	-6,417.45	6,417.35	0.80
12,579.00	89.75	268.86	6,635.63	66.47	-6,512.43	6,512.33	0.37
12,673.00	89.94	269.49	6,635.88	65.11	-6,606.42	6,606.32	0.70
12,766.00	89.88	269.48	6,636.03	64.28	-6,699.41	6,699.32	0.07
12,861.00	90.25	270.01	6,635.92	63.86	-6,794.41	6,794.32	0.68
12,956.00	90.18	270.34	6,635.56	64.15	-6,889.41	6,889.31	0.36
13,051.00	89.94	269.58	6,635.46	64.08	-6,984.41	6,984.31	0.84
13,145.00	89.54	268.89	6,635.89	62.82	-7,078.40	7,078.30	0.85
13,240.00	89.97	270.36	6,636.30	62.20	-7,173.39	7,173.30	1.61
13,335.00	89.60	269.36	6,636.65	61.97	-7,268.39	7,268.30	1.12
13,430.00	90.06	270.11	6,636.93	61.53	-7,363.39	7,363.30	0.93
13,525.00	89.60	268.85	6,637.22	60.67	-7,458.38	7,458.29	1.41
13,620.00	89.81	268.38	6,637.71	58.37	-7,553.35	7,553.26	0.54
13,714.00	89.85	266.90	6,637.98	54.50	-7,647.27	7,647.19	1.58
13,809.00	90.22	266.33	6,637.93	48.89	-7,742.11	7,742.03	0.72

**Design Report for Wells Ranch AE19-685 - Original Wellbore**

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
13,904.00	89.75	266.70	6,637.95	43.12	-7,836.93	7,836.86	0.63
13,998.00	90.71	266.57	6,637.57	37.60	-7,930.77	7,930.70	1.03
14,093.00	90.55	267.87	6,636.53	32.99	-8,025.65	8,025.59	1.38
14,187.00	87.29	267.83	6,638.30	29.47	-8,119.55	8,119.50	3.47
14,282.00	87.32	269.15	6,642.77	26.97	-8,214.41	8,214.36	1.39
14,376.00	89.14	270.89	6,645.67	27.00	-8,308.36	8,308.31	2.68
14,471.00	88.37	269.59	6,647.74	27.40	-8,403.33	8,403.28	1.59
14,566.00	89.85	271.01	6,649.21	27.90	-8,498.31	8,498.27	2.16
14,660.00	89.85	270.93	6,649.46	29.49	-8,592.30	8,592.25	0.09
14,754.00	89.63	270.88	6,649.88	30.97	-8,686.29	8,686.23	0.24
14,849.00	89.66	271.20	6,650.47	32.70	-8,781.27	8,781.21	0.34
14,944.00	89.51	271.63	6,651.16	35.04	-8,876.24	8,876.18	0.48
15,039.00	90.43	272.80	6,651.21	38.72	-8,971.16	8,971.10	1.57
15,134.00	90.34	271.75	6,650.57	42.49	-9,066.09	9,066.02	1.11
15,229.00	90.25	271.64	6,650.08	45.30	-9,161.04	9,160.97	0.15
15,323.00	90.71	271.65	6,649.30	47.99	-9,255.00	9,254.92	0.49
15,418.00	87.94	266.66	6,650.42	46.60	-9,349.94	9,349.87	6.01
15,512.00	88.98	266.74	6,652.94	41.19	-9,443.75	9,443.69	1.11
15,607.00	90.80	267.22	6,653.12	36.18	-9,538.62	9,538.56	1.98
15,702.00	90.74	266.34	6,651.85	30.85	-9,633.46	9,633.40	0.93
15,796.00	90.83	266.17	6,650.56	24.71	-9,727.25	9,727.20	0.20
15,891.00	91.14	265.58	6,648.93	17.87	-9,821.99	9,821.95	0.70
15,986.00	91.42	267.33	6,646.80	12.00	-9,916.78	9,916.75	1.87
16,081.00	92.03	266.39	6,643.94	6.80	-10,011.59	10,011.57	1.18
16,175.00	90.83	267.22	6,641.60	1.56	-10,105.41	10,105.40	1.55
16,270.00	91.63	267.43	6,639.56	-2.87	-10,200.29	10,200.28	0.87
16,365.00	90.06	267.79	6,638.16	-6.83	-10,295.19	10,295.19	1.70
16,460.00	90.62	267.67	6,637.59	-10.59	-10,390.11	10,390.12	0.60
16,555.00	88.36	267.47	6,638.44	-14.62	-10,485.02	10,485.03	2.39
16,650.00	88.61	267.37	6,640.95	-18.90	-10,579.89	10,579.91	0.28
16,744.00	89.11	267.50	6,642.82	-23.10	-10,673.78	10,673.80	0.55
16,839.00	89.85	267.60	6,643.68	-27.16	-10,768.68	10,768.71	0.79
16,934.00	90.65	268.21	6,643.27	-30.63	-10,863.62	10,863.65	1.06
16,995.00	91.39	268.14	6,642.18	-32.58	-10,924.58	10,924.61	1.22
<b>Last MWD Survey at 16995' MD</b>							
17,060.00	91.39	268.14	6,640.61	-34.69	-10,989.52	10,989.56	0.00
<b>Straight Projection to Bit at 17060' MD</b>							

**Design Annotations**

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
295.00	294.99	1.69	1.18	First Gyro Survey
633.00	632.95	6.51	1.94	Last Gyro Survey
811.00	810.94	8.10	2.07	First MWD Survey
16,995.00	6,642.18	-32.58	-10,924.58	Last MWD Survey at 16995' MD
17,060.00	6,640.61	-34.69	-10,989.52	Straight Projection to Bit at 17060' MD

**Design Report for Wells Ranch AE19-685 - Original Wellbore**

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/_S (usft)	Origin +E/-W (usft)	Start TVD (usft)
Target	Wells Ranch AE19-685_BHL	269.92	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
295.00	633.00	Surface Surveys	Flexi-Shot
811.00	6,959.00	Intermediate Surveys	MWD+IFR1+MS_WY
7,037.00	17,060.00	Production Surveys	MWD+IFR1+MS_WY

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
728.00	727.94	9 5/8"	9-5/8	13-3/4
7,002.00	6,628.41	7"	7	8-3/4

Wellbore Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Wells Ranch AE19-685 - hit/miss target - Shape - Point	0.00	0.00	6,628.23	182.30	-793.70	1,419,226.58	3,317,530.02	40.478568	-104.358544
- actual wellpath misses target center by 20.96usft at 6858.45usft MD (6609.03 TVD, 189.52 N, -798.03 E)									
Wells Ranch AE19-685 - hit/miss target - Shape - Point	0.00	0.00	6,649.18	-15.48	-10,989.54	1,419,028.80	3,307,334.54	40.478380	-104.395200
- actual wellpath misses target center by 21.01usft at 17059.19usft MD (6640.63 TVD, -34.66 N, -10988.71 E)									

Directional Difficulty Index

Average Dogleg over Survey:	1.49 °/100usft	Maximum Dogleg over Survey:	14.23 °/100usft at 6,758.00 usft
Net Tortousity applicable to Plans:	0.87 °/100usft	Directional Difficulty Index:	6.858

Audit Info

**North Reference Sheet for Sec. 20-T6N-R62W (Wells Ranch AE19 Pad) - Wells Ranch AE19-685 - Original Wellbore**

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to Grid North Reference.

Vertical Depths are relative to KB=30' @ 4871.00usft (H&P 321). Northing and Easting are relative to Wells Ranch AE19-685

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: 3,000,000.00usft, False Northing: 1,000,000.00usft, Scale Reduction: 0.99996469

Grid Coordinates of Well: 1,419,044.28 usft N, 3,318,323.69 usft E

Geographical Coordinates of Well: 40° 28' 40.94" N, 104° 21' 20.52" W

Grid Convergence at Surface is: 0.74°

Based upon Minimum Curvature type calculations, at a Measured Depth of 17,060.00usft

the Bottom Hole Displacement is 10,989.58usft in the Direction of 269.82° (Grid).

Magnetic Convergence at surface is: -7.54° (20 November 2014, , BGGM2014)

