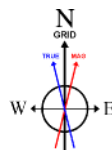


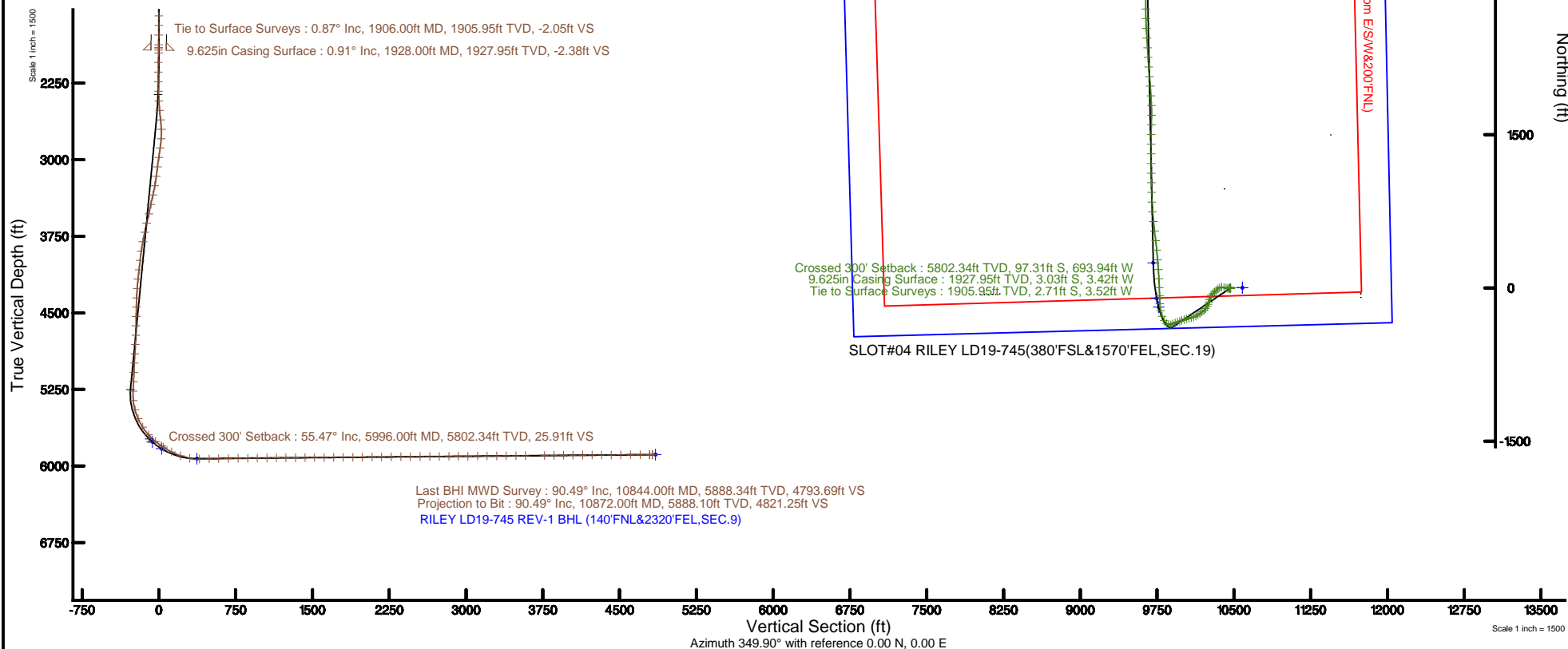
# NOBLE ENERGY, INC

Location: COLORADO Slot: SLOT#04 RILEY LD19-745(380°FSL&1570°FEL,SEC.19)  
 Field: WELD COUNTY (NOBLE NAD 83 GRID) Well: RILEY LD19-745  
 Facility: SEC.19-T09N-R58W Wellbore: RILEY LD19-745 PWB

Plot reference wellpath is RILEY LD19-745 (REV-A.0) PWB	Grid System: NAD83 / Lambert Colorado SP, Northern Zone (501), US feet
True vertical depths are referenced to H&P 524 (30KB) (RKB)	* = Wellpath was transformed from a different geodetic datum
Measured depths are referenced to H&P 524 (30KB) (RKB)	North Reference: Grid north
H&P 524 (30KB) (RKB) to Mean Sea Level: 4850 feet	Scale: True distance
Mean Sea Level to Ground level (At Slot: SLOT#04 RILEY LD19-745(380°FSL&1570°FEL,SEC.19)): 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: ingnjmr on 2016-11-07
	Database: WA_DEN_Denver_Defn



BGGM (1900.0 to 2018.0) Dip: 67.31° Field: 52777.6 nT  
 Magnetic North is 7.96 degrees East of True North (at 10/1/2016)  
 Grid North is 1.03 degrees East of True North  
 To correct azimuth from True to Grid subtract 1.03 degrees  
 To correct azimuth from Magnetic to Grid add 6.93 degrees



### REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY, INC	Slot	SLOT#04 RILEY LD19-745(380'FSL&1570'FEL,SEC.19)
Area	COLORADO	Well	RILEY LD19-745
Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	RILEY LD19-745 AWB
Facility	SEC.19-T09N-R58W		

### REPORT SETUP INFORMATION

Projection System	NAD83 / Lambert Colorado SP, Northern Zone (501), US feet	Software System	WellArchitect® 5.0
North Reference	Grid	User	Ingmjmr
Scale	0.999992	Report Generated	11/7/2016 at 9:05:36 AM
Convergence at slot	1.04° East	Database/Source file	WA_DEN_Denver_Defn/RILEY_LD19-745_AWP.xml

### WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-2.05	-113.62	3442512.71	1512858.60	40°43'48.900"N	103°54'11.808"W
Facility Reference Pt			3442626.33	1512860.65	40°43'48.900"N	103°54'10.332"W
Field Reference Pt			3000000.00	4454105.15	48°46'34.315"N	105°30'00.000"W

### WELLPATH DATUM

Calculation method	Minimum curvature	H&P 524 (30'KB) (RKB) to Facility Vertical Datum	4850.00ft
Horizontal Reference Pt	Slot	H&P 524 (30'KB) (RKB) to Mean Sea Level	4850.00ft
Vertical Reference Pt	H&P 524 (30'KB) (RKB)	H&P 524 (30'KB) (RKB) to Ground Level at Slot (SLOT#04 RILEY LD19-745 (380'FSL&1570'FEL,SEC.19))	4850.00ft
MD Reference Pt	H&P 524 (30'KB) (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	349.90°

### REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY, INC	Slot	SLOT#04 RILEY LD19-745(380'FSL&1570'FEL,SEC.19)
Area	COLORADO	Well	RILEY LD19-745
Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	RILEY LD19-745 AWB
Facility	SEC.19-T09N-R58W		

### WELLPATH DATA (97 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
1906.00	0.870	153.590	1905.95	-2.05	-2.71	-3.52	40°43'48.874"N	103°54'11.854"W	0.46	Tie to Surface Surveys
1954.00	1.040	186.850	1953.94	-2.82	-3.47	-3.41	40°43'48.866"N	103°54'11.853"W	1.19	
2048.00	1.000	202.570	2047.93	-4.32	-5.07	-3.83	40°43'48.851"N	103°54'11.859"W	0.30	
2143.00	2.200	258.500	2142.89	-5.07	-6.20	-5.93	40°43'48.840"N	103°54'11.887"W	1.93	
2237.00	3.940	272.520	2236.76	-4.40	-6.42	-10.93	40°43'48.839"N	103°54'11.951"W	2.00	
2332.00	6.060	273.240	2331.39	-2.53	-5.99	-19.20	40°43'48.844"N	103°54'12.059"W	2.23	
2426.00	8.240	278.770	2424.65	0.79	-4.69	-30.81	40°43'48.859"N	103°54'12.209"W	2.43	
2521.00	11.150	287.280	2518.29	7.22	-0.92	-46.31	40°43'48.899"N	103°54'12.410"W	3.41	
2616.00	13.580	288.600	2611.08	16.80	5.37	-65.66	40°43'48.965"N	103°54'12.659"W	2.57	
2710.00	13.680	267.350	2702.49	23.55	8.38	-87.23	40°43'48.998"N	103°54'12.939"W	5.30	
2805.00	13.860	243.700	2794.83	21.83	2.81	-108.67	40°43'48.947"N	103°54'13.219"W	5.89	
2899.00	13.420	225.970	2886.22	12.59	-9.76	-126.62	40°43'48.826"N	103°54'13.455"W	4.46	
2994.00	13.350	222.340	2978.64	-0.24	-25.53	-141.93	40°43'48.673"N	103°54'13.657"W	0.89	
3088.00	13.430	225.270	3070.09	-13.06	-41.24	-157.00	40°43'48.521"N	103°54'13.857"W	0.73	
3183.00	13.680	230.180	3162.45	-24.90	-56.20	-173.46	40°43'48.376"N	103°54'14.074"W	1.24	
3278.00	15.110	216.020	3254.49	-39.06	-73.41	-189.38	40°43'48.208"N	103°54'14.285"W	3.99	
3372.00	14.280	198.450	3345.46	-57.74	-94.33	-200.26	40°43'48.004"N	103°54'14.431"W	4.80	
3467.00	13.510	194.650	3437.68	-78.11	-116.18	-206.77	40°43'47.789"N	103°54'14.520"W	1.26	
3562.00	13.590	196.810	3530.04	-98.14	-137.60	-212.81	40°43'47.578"N	103°54'14.604"W	0.54	
3656.00	15.040	202.250	3621.12	-118.29	-159.46	-220.62	40°43'47.364"N	103°54'14.710"W	2.10	
3750.00	15.020	209.620	3711.91	-137.97	-181.34	-231.26	40°43'47.150"N	103°54'14.854"W	2.03	
3845.00	15.040	216.350	3803.67	-155.93	-201.97	-244.65	40°43'46.948"N	103°54'15.032"W	1.84	
3940.00	14.970	226.950	3895.45	-171.10	-220.28	-260.92	40°43'46.770"N	103°54'15.248"W	2.89	
4034.00	15.000	235.680	3986.26	-182.69	-235.43	-279.84	40°43'46.624"N	103°54'15.497"W	2.40	
4129.00	14.970	234.690	4078.03	-192.96	-249.45	-300.01	40°43'46.489"N	103°54'15.763"W	0.27	
4223.00	14.900	234.960	4168.86	-203.23	-263.41	-319.81	40°43'46.355"N	103°54'16.023"W	0.11	
4318.00	14.880	243.500	4260.68	-211.82	-275.86	-340.73	40°43'46.235"N	103°54'16.298"W	2.31	
4413.00	14.490	252.600	4352.59	-216.78	-284.86	-362.99	40°43'46.150"N	103°54'16.589"W	2.46	
4507.00	14.540	255.260	4443.59	-219.23	-291.38	-385.63	40°43'46.090"N	103°54'16.884"W	0.71	
4602.00	14.500	253.500	4535.56	-221.52	-297.79	-408.56	40°43'46.031"N	103°54'17.184"W	0.47	

REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Slot	SLOT#04 RILEY LD19-745(380'FSL&1570'FEL,SEC.19)
Area	COLORADO	Well	RILEY LD19-745
Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	RILEY LD19-745 AWB
Facility	SEC.19-T09N-R58W		

WELLPATH DATA (97 stations) † = interpolated/extrapolated station										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
4696.00	14.420	257.900	4626.58	-223.24	-303.59	-431.29	40°43'45.977"N	103°54'17.480"W	1.17	
4790.00	14.550	253.900	4717.59	-224.88	-309.31	-454.08	40°43'45.925"N	103°54'17.777"W	1.07	
4885.00	14.510	247.240	4809.56	-228.73	-317.23	-476.52	40°43'45.851"N	103°54'18.071"W	1.76	
4979.00	14.600	244.050	4900.55	-234.55	-326.97	-498.03	40°43'45.758"N	103°54'18.352"W	0.86	
5073.00	14.380	251.560	4991.57	-239.48	-335.85	-519.76	40°43'45.674"N	103°54'18.637"W	2.01	
5168.00	14.490	251.010	5083.57	-243.02	-343.44	-542.19	40°43'45.603"N	103°54'18.930"W	0.19	
5262.00	14.540	248.680	5174.57	-247.14	-351.56	-564.30	40°43'45.527"N	103°54'19.219"W	0.62	
5357.00	13.570	247.160	5266.72	-251.91	-360.22	-585.68	40°43'45.445"N	103°54'19.498"W	1.09	
5451.00	13.540	283.720	5358.27	-249.90	-361.90	-606.57	40°43'45.432"N	103°54'19.770"W	8.97	
5546.00	18.400	318.370	5449.78	-232.58	-348.01	-627.40	40°43'45.573"N	103°54'20.037"W	11.04	
5640.00	26.270	325.560	5536.67	-200.92	-319.72	-649.05	40°43'45.857"N	103°54'20.312"W	8.85	
5735.00	31.970	339.530	5619.73	-156.94	-278.74	-669.78	40°43'46.265"N	103°54'20.571"W	9.30	
5829.00	42.650	350.350	5694.46	-100.40	-223.81	-683.88	40°43'46.810"N	103°54'20.742"W	13.30	
5924.00	51.170	356.850	5759.34	-31.32	-154.97	-691.32	40°43'47.492"N	103°54'20.822"W	10.26	
5996.00†	55.466	357.921	5802.34	25.91	-97.31	-693.94	40°43'48.062"N	103°54'20.843"W	6.08	Crossed 300' Setback
6019.00	56.840	358.240	5815.15	44.82	-78.22	-694.58	40°43'48.251"N	103°54'20.847"W	6.08	
6113.00	62.830	357.950	5862.36	125.23	2.97	-697.29	40°43'49.053"N	103°54'20.863"W	6.38	
6208.00	70.540	357.220	5899.94	211.62	90.07	-700.98	40°43'49.914"N	103°54'20.891"W	8.15	
6302.00	80.440	356.110	5923.46	301.88	180.80	-706.28	40°43'50.812"N	103°54'20.938"W	10.59	
6397.00	90.580	355.200	5930.89	395.98	275.11	-713.45	40°43'51.745"N	103°54'21.009"W	10.72	
6492.00	90.860	354.130	5929.69	490.65	369.69	-722.29	40°43'52.681"N	103°54'21.102"W	1.16	
6586.00	91.020	353.190	5928.15	584.43	463.11	-732.66	40°43'53.605"N	103°54'21.215"W	1.01	
6681.00	90.950	353.560	5926.52	679.24	557.46	-743.62	40°43'54.540"N	103°54'21.335"W	0.40	
6775.00	90.950	353.610	5924.96	773.03	650.86	-754.12	40°43'55.464"N	103°54'21.450"W	0.05	
6870.00	90.890	355.440	5923.43	867.71	745.41	-763.19	40°43'56.400"N	103°54'21.545"W	1.93	
6964.00	91.020	357.200	5921.87	961.10	839.20	-769.22	40°43'57.328"N	103°54'21.602"W	1.88	
7059.00	90.430	358.770	5920.66	1055.15	934.13	-772.56	40°43'58.266"N	103°54'21.623"W	1.77	
7154.00	90.400	358.420	5919.98	1149.05	1029.09	-774.89	40°43'59.205"N	103°54'21.631"W	0.37	
7248.00	90.520	359.030	5919.22	1241.94	1123.07	-776.98	40°44'00.133"N	103°54'21.636"W	0.66	
7343.00	90.490	0.010	5918.38	1335.59	1218.06	-777.78	40°44'01.072"N	103°54'21.625"W	1.03	

REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Slot	SLOT#04 RILEY LD19-745(380'FSL&1570'FEL,SEC.19)
Area	COLORADO	Well	RILEY LD19-745
Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	RILEY LD19-745 AWB
Facility	SEC.19-T09N-R58W		

WELLPATH DATA (97 stations)										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
7437.00	90.490	0.400	5917.58	1428.07	1312.06	-777.44	40°44'02.001"N	103°54'21.598"W	0.41	
7532.00	90.400	359.660	5916.84	1521.59	1407.05	-777.39	40°44'02.939"N	103°54'21.575"W	0.78	
7627.00	90.430	0.920	5916.15	1615.03	1502.05	-776.91	40°44'03.878"N	103°54'21.547"W	1.33	
7722.00	90.520	1.490	5915.37	1708.18	1597.02	-774.91	40°44'04.815"N	103°54'21.499"W	0.61	
7816.00	90.520	0.970	5914.51	1800.34	1691.00	-772.89	40°44'05.744"N	103°54'21.451"W	0.55	
7911.00	90.400	357.680	5913.75	1894.04	1785.97	-774.01	40°44'06.682"N	103°54'21.443"W	3.47	
8005.00	90.620	356.360	5912.91	1987.31	1879.84	-778.90	40°44'07.610"N	103°54'21.485"W	1.42	
8100.00	90.430	355.420	5912.04	2081.79	1974.59	-785.71	40°44'08.548"N	103°54'21.551"W	1.01	
8194.00	90.550	355.390	5911.24	2175.35	2068.29	-793.24	40°44'09.475"N	103°54'21.627"W	0.13	
8289.00	90.520	355.760	5910.35	2269.88	2163.00	-800.57	40°44'10.412"N	103°54'21.700"W	0.39	
8384.00	90.490	356.660	5909.51	2364.30	2257.79	-806.85	40°44'11.349"N	103°54'21.759"W	0.95	
8478.00	90.520	356.560	5908.69	2457.65	2351.62	-812.40	40°44'12.277"N	103°54'21.810"W	0.11	
8573.00	90.580	355.990	5907.77	2552.06	2446.41	-818.58	40°44'13.215"N	103°54'21.868"W	0.60	
8667.00	90.580	356.900	5906.82	2645.44	2540.22	-824.40	40°44'14.143"N	103°54'21.921"W	0.97	
8762.00	90.520	358.550	5905.91	2739.55	2635.14	-828.17	40°44'15.081"N	103°54'21.948"W	1.74	
8857.00	90.490	0.280	5905.07	2833.24	2730.13	-829.14	40°44'16.020"N	103°54'21.939"W	1.82	
8952.00	90.370	0.500	5904.36	2926.64	2825.13	-828.50	40°44'16.958"N	103°54'21.908"W	0.26	
9046.00	90.580	358.990	5903.58	3019.25	2919.12	-828.92	40°44'17.887"N	103°54'21.892"W	1.62	
9141.00	90.520	359.390	5902.67	3113.00	3014.10	-830.26	40°44'18.825"N	103°54'21.887"W	0.43	
9236.00	90.770	358.720	5901.60	3206.79	3109.08	-831.83	40°44'19.764"N	103°54'21.885"W	0.75	
9330.00	90.490	358.210	5900.57	3299.73	3203.04	-834.34	40°44'20.693"N	103°54'21.896"W	0.62	
9425.00	90.520	357.690	5899.73	3393.79	3297.98	-837.74	40°44'21.631"N	103°54'21.918"W	0.55	
9520.00	90.430	358.840	5898.94	3487.77	3392.93	-840.62	40°44'22.570"N	103°54'21.933"W	1.21	
9614.00	90.490	358.820	5898.19	3580.63	3486.91	-842.54	40°44'23.499"N	103°54'21.936"W	0.07	
9804.00	90.460	2.580	5896.61	3767.23	3676.85	-840.22	40°44'25.375"N	103°54'21.861"W	1.98	
9899.00	90.550	2.270	5895.77	3859.96	3771.77	-836.20	40°44'26.312"N	103°54'21.787"W	0.34	
9993.00	90.520	1.410	5894.90	3951.92	3865.71	-833.18	40°44'27.239"N	103°54'21.726"W	0.92	
10088.00	90.400	0.220	5894.13	4045.20	3960.70	-831.83	40°44'28.177"N	103°54'21.686"W	1.26	
10183.00	90.520	359.110	5893.37	4138.82	4055.69	-832.38	40°44'29.116"N	103°54'21.671"W	1.18	
10277.00	90.340	358.940	5892.67	4231.62	4149.67	-833.98	40°44'30.045"N	103°54'21.670"W	0.26	

## REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY, INC	Slot	SLOT#04 RILEY LD19-745(380'FSL&1570'FEL,SEC.19)
Area	COLORADO	Well	RILEY LD19-745
Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	RILEY LD19-745 AWB
Facility	SEC.19-T09N-R58W		

## WELLPATH DATA (97 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
10371.00	90.550	358.290	5891.93	4324.53	4243.64	-836.25	40°44'30.974"N	103°54'21.678"W	0.73	
10466.00	90.430	356.330	5891.12	4418.73	4338.53	-840.71	40°44'31.912"N	103°54'21.713"W	2.07	
10560.00	90.490	355.860	5890.37	4512.18	4432.31	-847.11	40°44'32.839"N	103°54'21.775"W	0.50	
10655.00	90.340	356.280	5889.68	4606.63	4527.08	-853.63	40°44'33.777"N	103°54'21.837"W	0.47	
10750.00	90.400	357.870	5889.07	4700.88	4621.95	-858.47	40°44'34.715"N	103°54'21.878"W	1.67	
10844.00	90.490	0.060	5888.34	4793.69	4715.93	-860.17	40°44'35.644"N	103°54'21.878"W	2.33	Last BHI MWD Survey
10872.00	90.490	0.060	5888.10	4821.25	4743.93	-860.14	40°44'35.920"N	103°54'21.871"W	0.00	Projection to Bit

## HOLE & CASING SECTIONS - Ref Wellbore: RILEY LD19-745 AWB Ref Wellpath: RILEY LD19-745 AWP

String/Diameter	Start MD [ft]	End MD [ft]	Interval [ft]	Start TVD [ft]	End TVD [ft]	Start N/S [ft]	Start E/W [ft]	End N/S [ft]	End E/W [ft]
13.5in Open Hole	30.00	1928.00	1898.00	30.00	1927.95	0.04	-0.04	-3.03	-3.42
9.625in Casing Surface	30.00	1928.00	1898.00	30.00	1927.95	0.04	-0.04	-3.03	-3.42
8.5in Open Hole	1928.00	10872.00	8944.00	1927.95	5888.10	-3.03	-3.42	4743.93	-860.14

REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Slot	SLOT#04 RILEY LD19-745(380'FSL&1570'FEL,SEC.19)
Area	COLORADO	Well	RILEY LD19-745
Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	RILEY LD19-745 AWB
Facility	SEC.19-T09N-R58W		

TARGETS								
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
RILEY LD19-715 SECTION 09	0.00	2.04	113.61	3442626.32	1512860.64	40°43'48.900"N	103°54'10.332"W	polygon
RILEY LD19-745 Top of Nio ((191'FSL&2274'FEL,SEC.9)	5764.00	-189.10	-704.04	3441808.68	1512669.51	40°43'47.157"N	103°54'20.995"W	point
RILEY LD19-745 Cross 300' Hardline (300'FSL&2297'FEL,SEC.9)	5830.09	-101.94	-723.07	3441789.65	1512756.67	40°43'48.021"N	103°54'21.222"W	point
RILEY LD19-745 REV-1 BHL (140'FNL&2320'FEL,SEC.9)	5888.00	4776.45	-850.95	3441661.77	1517635.01	40°44'36.240"N	103°54'21.744"W	point
RILEY LD19-715 HARDLINE (300'From E/S/W&200'FNL)	5900.00	2.04	113.61	3442626.32	1512860.64	40°43'48.900"N	103°54'10.332"W	polygon
RILEY LD19-745 Landing Point (624'FSL&2326'FEL,SEC.9)	5927.57	244.43	-756.19	3441756.53	1513103.03	40°43'51.449"N	103°54'21.572"W	point

WELLPATH COMPOSITION - Ref Wellbore: RILEY LD19-745 AWB					Ref Wellpath: RILEY LD19-745 AWP	
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment		Wellbore	
0.00	1906.00	Gyrodata standard - Drop gyro or Multi-shot	Gyrodata Surveys 13.5"Hole <79'-1906'>		RILEY LD19-745 AWB	
1906.00	10844.00	OWSG MWD rev2 + IFR1 + Multi-Station Correction	BHI/ATC 8.5" Hole OWSG MWD+IFR+MSA <1954'-10844'>		RILEY LD19-745 AWB	
10844.00	10872.00	Blind Drilling (std)	Projection to bit		RILEY LD19-745 AWB	

REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Slot	SLOT#04 RILEY LD19-745(380'FSL&1570'FEL,SEC.19)
Area	COLORADO	Well	RILEY LD19-745
Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	RILEY LD19-745 AWB
Facility	SEC.19-T09N-R58W		

WELLPATH COMMENTS					
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment	
1906.00	0.870	153.590	1905.95	Tie to Surface Surveys	
5996.00	55.466	357.921	5802.34	Crossed 300' Setback	
10844.00	90.490	0.060	5888.34	Last BHI MWD Survey	
10872.00	90.490	0.060	5888.10	Projection to Bit	