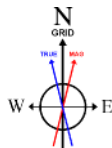


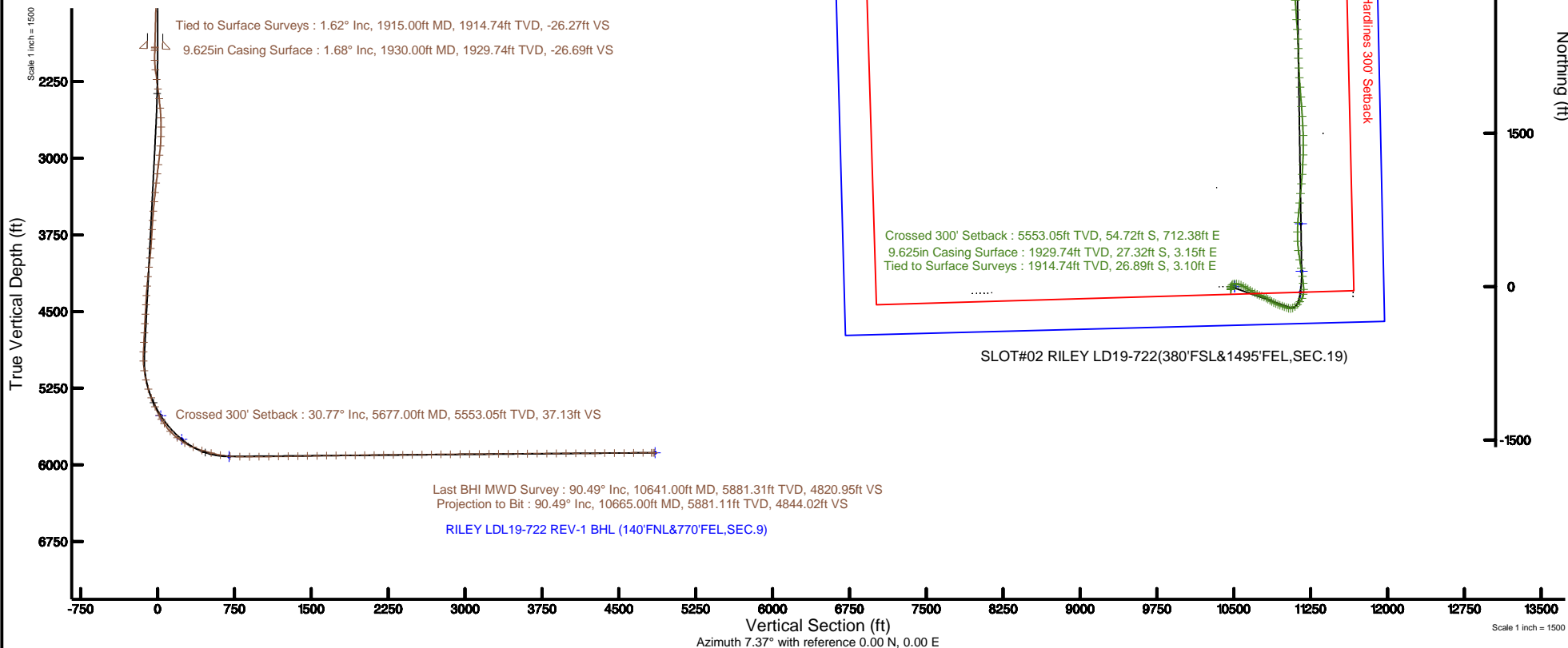
# NOBLE ENERGY, INC

Location: COLORADO Slot: SLOT#02 RILEY LD19-722(380°FSL&1495°FEL,SEC.19)  
 Field: WELD COUNTY (NOBLE NAD 83 GRID) Well: RILEY LD19-722  
 Facility: SEC.19-T09N-R58W Wellbore: RILEY LD19-722 PWB

Plot reference wellpath is RILEY LD19-722 (REV-B.0) PWB	Grid System: NAD83 / Lambert Colorado SP, Northern Zone (501), US feet
True vertical depths are referenced to H&P 524 (30'KB) (RKB)	* = Wellpath was transformed from a different geodetic datum
Measured depths are referenced to H&P 524 (30'KB) (RKB)	North Reference: Grid north
H&P 524 (30'KB) (RKB) to Mean Sea Level: 4850 feet	Scale: True distance
Mean Sea Level to Ground level (At Slot: SLOT#02 RILEY LD19-722(380°FSL&1495°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#02 RILEY LD19-722(380'FSL&1495'FEL,SEC.19)
Area	COLORADO	Well	RILEY LD19-722
Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	RILEY LD19-722 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 9:14:29 AM
Convergence at slot	1.04° East	Database/Source file	WA_DEN_Denver_Defn/RILEY_LD19-722_AWP.xml

## WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-0.70	-38.80	3442587.53	1512859.95	40°43'48.900"N	103°54'10.836"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#02 RILEY LD19-722 (380'FSL&1495'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	7.37°

### REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY, INC	Slot	SLOT#02 RILEY LD19-722(380'FSL&1495'FEL,SEC.19)
Area	COLORADO	Well	RILEY LD19-722
Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	RILEY LD19-722 AWB
Facility	SEC.19-T09N-R58W		

### WELLPATH DATA (96 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
1915.00	1.620	173.430	1914.74	-26.27	-26.89	3.10	40°43'48.634"N	103°54'10.802"W	0.08	Tied to Surface Surveys
1948.00	1.760	171.710	1947.73	-27.21	-27.86	3.22	40°43'48.624"N	103°54'10.801"W	0.45	
2042.00	1.190	35.300	2041.72	-27.74	-28.49	4.00	40°43'48.618"N	103°54'10.791"W	2.92	
2137.00	7.610	11.210	2136.39	-20.59	-21.51	5.79	40°43'48.686"N	103°54'10.766"W	6.89	
2231.00	7.400	7.030	2229.59	-8.32	-9.39	7.74	40°43'48.806"N	103°54'10.738"W	0.62	
2326.00	7.320	6.730	2323.80	3.85	2.69	9.20	40°43'48.925"N	103°54'10.716"W	0.09	
2421.00	7.220	29.110	2418.06	15.45	13.92	12.81	40°43'49.035"N	103°54'10.666"W	2.96	
2515.00	8.880	57.000	2511.16	25.64	23.03	21.78	40°43'49.124"N	103°54'10.548"W	4.46	
2610.00	11.010	84.790	2604.78	32.37	27.85	36.97	40°43'49.169"N	103°54'10.349"W	5.46	
2704.00	13.260	96.190	2696.69	34.55	27.51	56.63	40°43'49.162"N	103°54'10.094"W	3.49	
2799.00	15.080	105.700	2788.81	32.98	22.99	79.37	40°43'49.113"N	103°54'09.800"W	3.10	
2893.00	15.710	113.430	2879.45	27.69	14.62	102.82	40°43'49.026"N	103°54'09.497"W	2.28	
2988.00	15.710	122.010	2970.91	18.77	2.68	125.53	40°43'48.904"N	103°54'09.205"W	2.44	
3083.00	15.670	121.870	3062.37	8.08	-10.91	147.33	40°43'48.766"N	103°54'08.925"W	0.06	
3177.00	15.700	121.690	3152.87	-2.42	-24.29	168.93	40°43'48.630"N	103°54'08.648"W	0.06	
3272.00	15.890	121.160	3244.28	-12.96	-37.77	191.00	40°43'48.493"N	103°54'08.364"W	0.25	
3366.00	15.800	120.370	3334.71	-23.15	-50.90	213.05	40°43'48.359"N	103°54'08.081"W	0.25	
3461.00	15.850	118.400	3426.11	-32.85	-63.61	235.62	40°43'48.230"N	103°54'07.791"W	0.57	
3556.00	15.810	114.950	3517.51	-41.42	-75.24	258.77	40°43'48.111"N	103°54'07.493"W	0.99	
3650.00	15.910	111.330	3607.93	-48.39	-85.33	282.38	40°43'48.007"N	103°54'07.189"W	1.06	
3744.00	13.670	110.310	3698.81	-53.99	-93.87	304.80	40°43'47.918"N	103°54'06.900"W	2.40	
3839.00	13.720	111.930	3791.11	-59.33	-101.98	325.78	40°43'47.835"N	103°54'06.629"W	0.41	
3934.00	13.690	116.720	3883.41	-65.89	-111.24	346.27	40°43'47.739"N	103°54'06.365"W	1.19	
4028.00	13.280	123.650	3974.83	-74.36	-122.22	365.20	40°43'47.627"N	103°54'06.122"W	1.77	
4123.00	13.500	122.250	4067.24	-83.85	-134.19	383.66	40°43'47.506"N	103°54'05.885"W	0.41	
4217.00	13.430	121.160	4158.66	-92.87	-145.69	402.28	40°43'47.389"N	103°54'05.646"W	0.28	
4312.00	13.510	118.090	4251.05	-101.25	-156.62	421.51	40°43'47.278"N	103°54'05.399"W	0.76	
4407.00	13.440	113.370	4343.44	-108.22	-166.23	441.43	40°43'47.179"N	103°54'05.142"W	1.16	
4501.00	13.590	110.820	4434.83	-113.80	-174.49	461.78	40°43'47.094"N	103°54'04.880"W	0.65	
4596.00	13.530	110.650	4527.19	-118.94	-182.37	482.61	40°43'47.012"N	103°54'04.611"W	0.08	

### REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY, INC	Slot	SLOT#02 RILEY LD19-722(380'FSL&1495'FEL,SEC.19)
Area	COLORADO	Well	RILEY LD19-722
Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	RILEY LD19-722 AWB
Facility	SEC.19-T09N-R58W		

### WELLPATH DATA (96 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
4690.00	13.580	110.010	4618.57	-123.88	-190.03	503.27	40°43'46.933"N	103°54'04.345"W	0.17	
4784.00	13.530	108.870	4709.95	-128.49	-197.36	524.05	40°43'46.857"N	103°54'04.076"W	0.29	
4879.00	14.390	107.660	4802.14	-132.81	-204.53	545.81	40°43'46.782"N	103°54'03.795"W	0.96	
4973.00	13.550	110.110	4893.36	-137.33	-211.86	567.28	40°43'46.706"N	103°54'03.518"W	1.09	
5067.00	11.970	85.200	4985.11	-137.70	-214.84	587.35	40°43'46.673"N	103°54'03.258"W	6.04	
5162.00	13.290	64.450	5077.85	-129.69	-209.30	607.03	40°43'46.724"N	103°54'03.002"W	4.94	
5256.00	18.120	54.590	5168.33	-113.87	-196.16	628.71	40°43'46.850"N	103°54'02.717"W	5.85	
5351.00	21.290	45.170	5257.78	-90.20	-175.43	652.99	40°43'47.051"N	103°54'02.397"W	4.71	
5445.00	23.380	36.470	5344.75	-60.41	-148.39	676.19	40°43'47.314"N	103°54'02.089"W	4.16	
5540.00	24.910	26.260	5431.47	-24.99	-115.27	696.26	40°43'47.637"N	103°54'01.821"W	4.68	
5634.00	28.240	11.270	5515.63	15.99	-75.66	709.38	40°43'48.026"N	103°54'01.641"W	7.94	
5677.00†	30.768	5.238	5553.05	37.13	-54.72	712.38	40°43'48.233"N	103°54'01.597"W	9.07	Crossed 300' Setback
5729.00	34.140	359.090	5596.94	64.88	-26.87	713.36	40°43'48.508"N	103°54'01.578"W	9.07	
5824.00	42.750	353.390	5671.30	122.68	31.95	709.21	40°43'49.089"N	103°54'01.618"W	9.79	
5918.00	53.020	352.070	5734.25	190.03	101.01	700.34	40°43'49.773"N	103°54'01.717"W	10.97	
6013.00	60.420	350.870	5786.35	266.35	179.49	688.53	40°43'50.551"N	103°54'01.852"W	7.86	
6107.00	67.510	350.730	5827.58	347.25	262.81	675.03	40°43'51.376"N	103°54'02.008"W	7.54	
6202.00	73.940	352.970	5858.93	433.61	351.53	662.36	40°43'52.255"N	103°54'02.152"W	7.12	
6297.00	75.410	357.090	5884.04	523.09	442.79	654.44	40°43'53.158"N	103°54'02.233"W	4.46	
6391.00	79.910	0.650	5904.13	613.88	534.56	652.65	40°43'54.065"N	103°54'02.235"W	6.05	
6486.00	86.120	4.150	5915.68	707.76	628.71	656.62	40°43'54.994"N	103°54'02.161"W	7.49	
6580.00	88.860	5.300	5919.80	801.56	722.29	664.35	40°43'55.917"N	103°54'02.039"W	3.16	
6675.00	90.370	5.580	5920.44	896.50	816.85	673.36	40°43'56.850"N	103°54'01.900"W	1.62	
6769.00	90.580	5.320	5919.66	990.44	910.43	682.29	40°43'57.773"N	103°54'01.762"W	0.36	
6864.00	90.890	5.100	5918.44	1085.36	1005.02	690.91	40°43'58.706"N	103°54'01.628"W	0.40	
6958.00	90.830	4.200	5917.03	1179.25	1098.70	698.53	40°43'59.630"N	103°54'01.507"W	0.96	
7053.00	90.950	2.830	5915.55	1274.02	1193.51	704.36	40°44'00.566"N	103°54'01.409"W	1.45	
7148.00	90.950	1.490	5913.98	1368.61	1288.43	707.94	40°44'01.503"N	103°54'01.340"W	1.41	
7242.00	90.890	0.290	5912.47	1462.00	1382.40	709.40	40°44'02.431"N	103°54'01.299"W	1.28	
7337.00	90.860	358.380	5911.02	1556.05	1477.38	708.29	40°44'03.370"N	103°54'01.291"W	2.01	

### REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY, INC	Slot	SLOT#02 RILEY LD19-722(380'FSL&1495'FEL,SEC.19)
Area	COLORADO	Well	RILEY LD19-722
Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	RILEY LD19-722 AWB
Facility	SEC.19-T09N-R58W		

### WELLPATH DATA (96 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
7432.00	90.830	357.100	5909.62	1649.70	1572.30	704.55	40°44'04.308"N	103°54'01.318"W	1.35	
7526.00	90.710	356.640	5908.36	1742.11	1666.15	699.42	40°44'05.236"N	103°54'01.362"W	0.51	
7621.00	90.680	355.190	5907.20	1835.21	1760.90	692.65	40°44'06.173"N	103°54'01.428"W	1.53	
7716.00	90.620	355.350	5906.13	1928.09	1855.57	684.82	40°44'07.110"N	103°54'01.508"W	0.18	
7810.00	90.620	356.010	5905.11	2020.14	1949.29	677.74	40°44'08.037"N	103°54'01.578"W	0.70	
7905.00	90.680	357.080	5904.03	2113.44	2044.11	672.01	40°44'08.975"N	103°54'01.630"W	1.13	
7999.00	90.620	356.840	5902.96	2205.89	2137.97	667.03	40°44'09.903"N	103°54'01.672"W	0.26	
8094.00	90.520	357.730	5902.02	2299.41	2232.86	662.53	40°44'10.841"N	103°54'01.709"W	0.94	
8189.00	90.550	359.540	5901.13	2393.30	2327.83	660.26	40°44'11.780"N	103°54'01.716"W	1.91	
8283.00	90.520	357.020	5900.25	2486.11	2421.77	657.44	40°44'12.709"N	103°54'01.730"W	2.68	
8378.00	90.520	355.180	5899.39	2579.27	2516.55	650.98	40°44'13.646"N	103°54'01.792"W	1.94	
8472.00	90.650	356.000	5898.43	2671.28	2610.26	643.75	40°44'14.573"N	103°54'01.864"W	0.88	
8567.00	90.620	356.220	5897.38	2764.45	2705.04	637.31	40°44'15.511"N	103°54'01.926"W	0.23	
8662.00	90.580	357.730	5896.38	2857.88	2799.90	632.30	40°44'16.449"N	103°54'01.968"W	1.59	
8756.00	90.460	358.800	5895.53	2950.69	2893.85	629.45	40°44'17.378"N	103°54'01.983"W	1.15	
8851.00	90.460	359.730	5894.77	3044.74	2988.84	628.23	40°44'18.316"N	103°54'01.977"W	0.98	
8946.00	90.400	359.860	5894.06	3138.91	3083.83	627.89	40°44'19.255"N	103°54'01.959"W	0.15	
9041.00	90.460	0.520	5893.34	3233.16	3178.83	628.21	40°44'20.193"N	103°54'01.933"W	0.70	
9135.00	90.400	0.690	5892.64	3326.50	3272.82	629.20	40°44'21.122"N	103°54'01.898"W	0.19	
9230.00	90.550	0.530	5891.85	3420.84	3367.81	630.21	40°44'22.060"N	103°54'01.862"W	0.23	
9325.00	90.400	1.160	5891.06	3515.22	3462.80	631.61	40°44'22.998"N	103°54'01.822"W	0.68	
9419.00	90.400	0.530	5890.41	3608.60	3556.79	633.00	40°44'23.926"N	103°54'01.782"W	0.67	
9514.00	90.460	0.770	5889.69	3702.95	3651.78	634.08	40°44'24.865"N	103°54'01.746"W	0.26	
9609.00	90.400	1.000	5888.98	3797.34	3746.76	635.54	40°44'25.803"N	103°54'01.704"W	0.25	
9703.00	90.430	1.770	5888.30	3890.82	3840.73	637.82	40°44'26.731"N	103°54'01.653"W	0.82	
9798.00	90.370	2.080	5887.64	3985.39	3935.68	641.01	40°44'27.668"N	103°54'01.589"W	0.33	
9893.00	90.400	2.830	5887.00	4080.04	4030.59	645.08	40°44'28.605"N	103°54'01.514"W	0.79	
9987.00	90.400	3.210	5886.34	4173.76	4124.45	650.03	40°44'29.532"N	103°54'01.428"W	0.40	
10082.00	90.430	2.860	5885.65	4268.49	4219.32	655.06	40°44'30.468"N	103°54'01.340"W	0.37	
10177.00	90.460	2.290	5884.91	4363.15	4314.22	659.33	40°44'31.405"N	103°54'01.263"W	0.60	

REFERENCE WELLPATH IDENTIFICATION			
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Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	RILEY LD19-722 AWB
Facility	SEC.19-T09N-R58W		

WELLPATH DATA (96 stations)										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
10271.00	90.370	0.910	5884.23	4456.67	4408.18	661.95	40°44'32.332"N	103°54'01.206"W	1.47	
10366.00	90.460	0.440	5883.55	4551.02	4503.17	663.07	40°44'33.271"N	103°54'01.170"W	0.50	
10460.00	90.460	357.880	5882.79	4644.05	4597.15	661.69	40°44'34.199"N	103°54'01.166"W	2.72	
10555.00	90.460	355.840	5882.03	4737.45	4692.00	656.49	40°44'35.137"N	103°54'01.211"W	2.15	
10641.00	90.490	351.380	5881.31	4820.95	4777.44	646.92	40°44'35.983"N	103°54'01.315"W	5.19	Last BHI MWD Survey
10665.00	90.490	351.380	5881.11	4844.02	4801.16	643.32	40°44'36.218"N	103°54'01.356"W	0.00	Projection to Bit

HOLE & CASING SECTIONS - Ref Wellbore: RILEY LD19-722 AWB      Ref Wellpath: RILEY LD19-722 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	1930.00	1900.00	30.00	1929.74	-0.01	0.00	-27.32	3.15
9.625in Casing Surface	30.00	1930.00	1900.00	30.00	1929.74	-0.01	0.00	-27.32	3.15
8.5in Open Hole	1930.00	10665.00	8735.00	1929.74	5881.11	-27.32	3.15	4801.16	643.32

REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Slot	SLOT#02 RILEY LD19-722(380'FSL&1495'FEL,SEC.19)
Area	COLORADO	Well	RILEY LD19-722
Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	RILEY LD19-722 AWP
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	0.69	38.79	3442626.32	1512860.64	40°43'48.900"N	103°54'10.332"W	polygon
RILEY LDL19-722 Cross 300' Hardline REV-2 (300'FSL&815'FEL,SEC.9)	5519.87	-55.55	681.44	3443268.96	1512804.40	40°43'48.230"N	103°54'01.999"W	point
RILEY LDL19-722 TOP OF NIO REV-2(529'FSL&798'FEL,SEC.9)	5750.00	148.73	693.38	3443280.90	1513008.68	40°43'50.246"N	103°54'01.796"W	point
RILEY LDL19-722 REV-1 BHL (140'FNL&770'FEL,SEC.9)	5881.00	4813.93	622.79	<b>3443210.31</b>	<b>1517673.83</b>	40°44'36.348"N	103°54'01.620"W	point
RILEY LD19-715 HARDLINE (300'From E/S/W&200'FNL)	5900.00	0.69	38.79	3442626.32	1512860.64	40°43'48.900"N	103°54'10.332"W	polygon
RILEY LDL19-722 LANDING POINT REV-2 (996'FSL&805'FEL,SEC.9)	5917.64	615.61	686.39	3443273.91	1513475.56	40°43'54.860"N	103°54'01.778"W	point

WELLPATH COMPOSITION - Ref Wellbore: RILEY LD19-722 AWP				Ref Wellpath: RILEY LD19-722 AWP	
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore	
0.00	1915.00	Gyrodata standard - Drop gyro or Multi-shot	Surface Gyro <1915'>	RILEY LD19-722 AWP	
1915.00	10641.00	OWSG MWD rev2 + IFR1 + Multi-Station Correction	BHI/ OWSG MWD +IFR+MSA 8.5" Hole <1948'-10641'>	RILEY LD19-722 AWP	
10641.00	10665.00	Blind Drilling (std)	Projection to bit	RILEY LD19-722 AWP	



# Actual Wellpath Report

RILEY LD19-722 AWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Slot	SLOT#02 RILEY LD19-722(380'FSL&1495'FEL,SEC.19)
Area	COLORADO	Well	RILEY LD19-722
Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	RILEY LD19-722 AWB
Facility	SEC.19-T09N-R58W		

WELLPATH COMMENTS					
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment	
1915.00	1.620	173.430	1914.74	Tied to Surface Surveys	
5677.00	30.768	5.238	5553.05	Crossed 300' Setback	
10641.00	90.490	351.380	5881.31	Last BHI MWD Survey	
10665.00	90.490	351.380	5881.11	Projection to Bit	