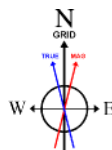


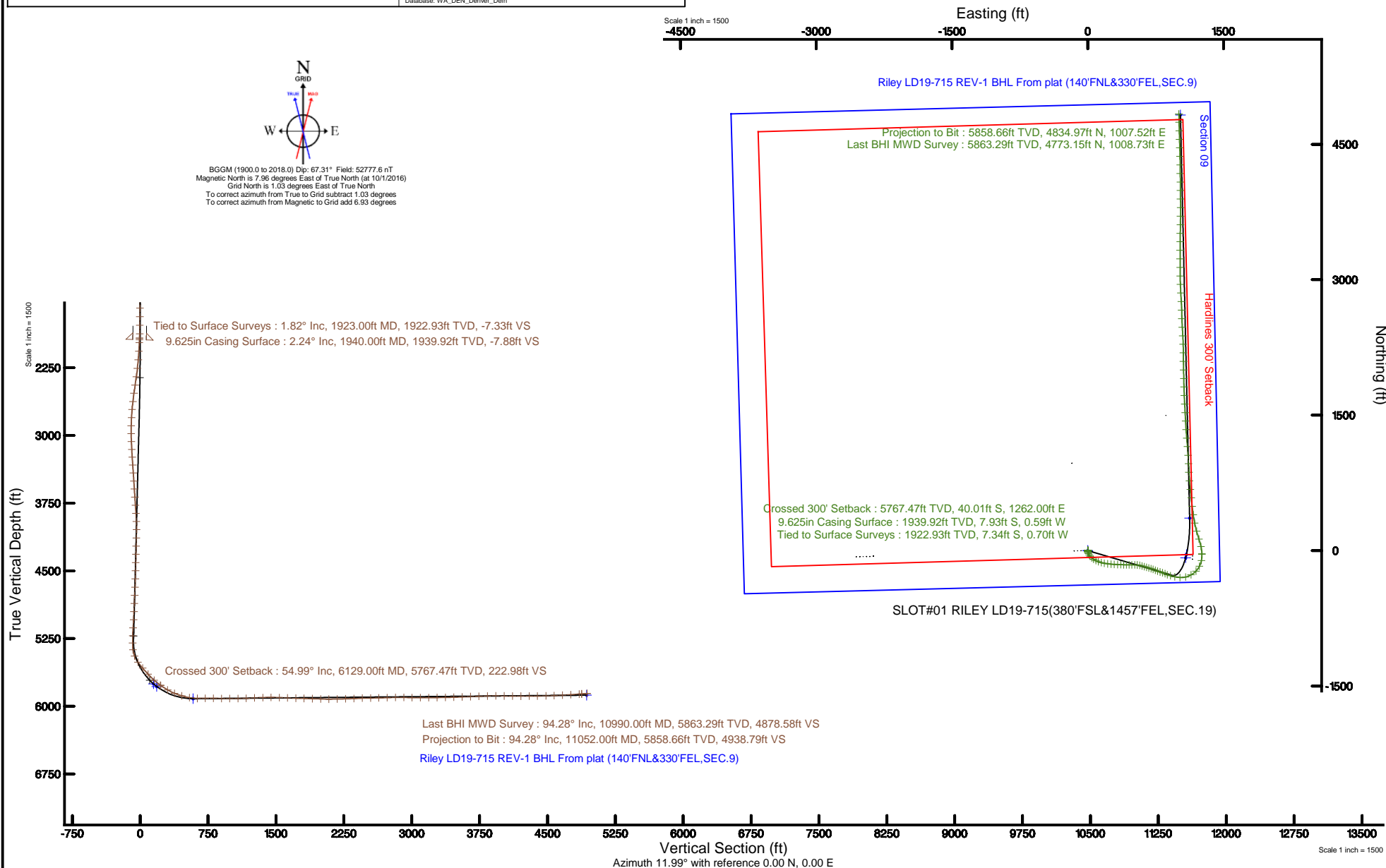
# NOBLE ENERGY, INC

Location: COLORADO Slot: SLOT#01 RILEY LD19-715(380'FSL&1457'FEL,SEC.19)  
 Field: WELD COUNTY (NOBLE NAD 83 GRID) Well: RILEY LD19-715  
 Facility: SEC.19-T09N-R58W Wellbore: RILEY LD19-715 PWB

Plot reference wellpath is RILEY LD19-715 (REV-A.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#01 RILEY LD19-715(380'FSL&1457'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#01 RILEY LD19-715(380'FSL&1457'FEL,SEC.19)
Area	COLORADO	Well	RILEY LD19-715
Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	RILEY LD19-715 AWP
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 9:17:25 AM
Convergence at slot	1.04° East	Database/Source file	WA_DEN_Denver_Defn/RILEY_LD19-715_AWP.xml

### WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-0.01	-0.01	3442626.32	1512860.64	40°43'48.900"N	103°54'10.332"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#01 RILEY LD19-715 (380'FSL&1457'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	11.99°

### REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY, INC	Slot	SLOT#01 RILEY LD19-715(380'FSL&1457'FEL,SEC.19)
Area	COLORADO	Well	RILEY LD19-715
Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	RILEY LD19-715 AWP
Facility	SEC.19-T09N-R58W		

### WELLPATH DATA (100 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
1923.00	1.820	172.340	1922.93	-7.33	-7.34	-0.70	40°43'48.827"N	103°54'10.343"W	0.71	Tied to Surface Surveys
1974.00	3.100	162.260	1973.88	-9.29	-9.46	-0.17	40°43'48.806"N	103°54'10.336"W	2.64	
2069.00	3.990	166.640	2068.70	-14.51	-15.12	1.38	40°43'48.750"N	103°54'10.318"W	0.98	
2163.00	5.960	160.950	2162.34	-21.64	-22.92	3.73	40°43'48.673"N	103°54'10.289"W	2.16	
2258.00	7.810	156.210	2256.65	-31.11	-33.49	7.94	40°43'48.568"N	103°54'10.237"W	2.04	
2352.00	10.670	150.030	2349.43	-42.76	-46.87	14.87	40°43'48.434"N	103°54'10.150"W	3.22	
2447.00	13.180	140.720	2442.38	-56.08	-62.88	26.12	40°43'48.274"N	103°54'10.008"W	3.32	
2541.00	15.580	131.140	2533.44	-68.94	-79.48	42.42	40°43'48.107"N	103°54'09.800"W	3.59	
2636.00	17.260	122.980	2624.57	-80.21	-95.55	63.85	40°43'47.945"N	103°54'09.525"W	3.00	
2730.00	18.960	116.970	2713.92	-89.15	-110.07	89.16	40°43'47.797"N	103°54'09.200"W	2.68	
2825.00	20.410	110.490	2803.38	-95.59	-122.87	118.44	40°43'47.665"N	103°54'08.823"W	2.76	
2920.00	20.830	105.900	2892.30	-99.19	-133.30	150.20	40°43'47.556"N	103°54'08.413"W	1.76	
3014.00	22.290	100.460	2979.73	-99.86	-141.11	183.81	40°43'47.473"N	103°54'07.978"W	2.63	
3109.00	23.210	95.960	3067.34	-97.41	-146.33	220.15	40°43'47.415"N	103°54'07.507"W	2.07	
3204.00	23.170	95.100	3154.67	-93.21	-149.93	257.39	40°43'47.373"N	103°54'07.025"W	0.36	
3298.00	22.400	93.030	3241.33	-88.20	-152.52	293.69	40°43'47.341"N	103°54'06.554"W	1.18	
3393.00	22.750	92.950	3329.05	-82.50	-154.43	330.11	40°43'47.315"N	103°54'06.081"W	0.37	
3487.00	20.990	92.150	3416.29	-76.76	-155.99	365.09	40°43'47.294"N	103°54'05.627"W	1.90	
3582.00	19.500	90.410	3505.41	-70.67	-156.75	397.95	40°43'47.280"N	103°54'05.201"W	1.69	
3676.00	18.320	90.680	3594.34	-64.63	-157.03	428.41	40°43'47.272"N	103°54'04.805"W	1.26	
3771.00	18.440	90.710	3684.49	-58.76	-157.40	458.36	40°43'47.263"N	103°54'04.416"W	0.13	
3865.00	18.660	90.370	3773.61	-52.83	-157.68	488.27	40°43'47.255"N	103°54'04.028"W	0.26	
3960.00	18.750	90.880	3863.59	-46.83	-158.01	518.73	40°43'47.246"N	103°54'03.632"W	0.20	
4055.00	17.140	94.120	3953.97	-41.97	-159.25	547.96	40°43'47.229"N	103°54'03.253"W	1.99	
4149.00	16.250	104.360	4044.03	-40.62	-163.51	574.53	40°43'47.182"N	103°54'02.909"W	3.26	
4244.00	16.080	106.810	4135.27	-42.27	-170.61	600.00	40°43'47.108"N	103°54'02.580"W	0.74	
4338.00	16.110	107.270	4225.59	-44.57	-178.25	624.91	40°43'47.028"N	103°54'02.258"W	0.14	
4433.00	15.980	107.020	4316.89	-46.93	-185.99	650.00	40°43'46.947"N	103°54'01.934"W	0.15	
4528.00	15.690	107.330	4408.28	-49.27	-193.64	674.77	40°43'46.867"N	103°54'01.614"W	0.32	
4622.00	15.490	107.390	4498.82	-51.64	-201.18	698.88	40°43'46.788"N	103°54'01.303"W	0.21	

### REFERENCE WELLPATH IDENTIFICATION

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Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	RILEY LD19-715 AWP
Facility	SEC.19-T09N-R58W		

### WELLPATH DATA (100 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
4716.00	15.390	107.470	4589.43	-54.01	-208.68	722.76	40°43'46.710"N	103°54'00.995"W	0.11	
4811.00	16.920	110.550	4680.68	-57.27	-217.31	747.73	40°43'46.620"N	103°54'00.672"W	1.85	
4905.00	16.600	111.220	4770.68	-61.46	-226.98	773.05	40°43'46.520"N	103°54'00.346"W	0.40	
4999.00	18.040	108.460	4860.42	-65.26	-236.44	799.38	40°43'46.422"N	103°54'00.006"W	1.76	
5094.00	17.200	110.010	4950.96	-68.88	-245.91	826.53	40°43'46.323"N	103°53'59.656"W	1.01	
5188.00	17.960	111.910	5040.57	-73.31	-256.07	853.04	40°43'46.218"N	103°53'59.314"W	1.01	
5283.00	17.070	113.210	5131.17	-78.55	-267.03	879.44	40°43'46.105"N	103°53'58.973"W	1.02	
5377.00	27.520	105.320	5218.04	-82.51	-278.24	913.17	40°43'45.988"N	103°53'58.538"W	11.54	
5472.00	35.870	101.720	5298.81	-83.66	-289.72	961.68	40°43'45.866"N	103°53'57.911"W	9.01	
5566.00	39.720	94.560	5373.11	-79.64	-297.70	1018.63	40°43'45.777"N	103°53'57.173"W	6.20	
5661.00	43.070	77.060	5444.61	-61.98	-292.84	1080.73	40°43'45.814"N	103°53'56.365"W	12.65	
5755.00	46.730	60.520	5511.41	-25.66	-268.72	1142.04	40°43'46.042"N	103°53'55.564"W	12.99	
5850.00	46.020	43.660	5577.20	26.53	-226.81	1195.94	40°43'46.446"N	103°53'54.854"W	12.85	
5944.00	43.660	26.940	5644.09	86.89	-173.22	1234.13	40°43'46.969"N	103°53'54.345"W	12.77	
6039.00	47.270	11.240	5710.91	153.69	-109.54	1255.87	40°43'47.594"N	103°53'54.048"W	12.35	
6129.00†	54.990	359.483	5767.47	222.98	-40.01	1262.00	40°43'48.280"N	103°53'53.952"W	13.28	Crossed 300' Setback
6134.00	55.450	358.900	5770.32	226.98	-35.90	1261.94	40°43'48.320"N	103°53'53.952"W	13.28	
6228.00	62.850	347.030	5818.62	302.91	43.87	1251.77	40°43'49.110"N	103°53'54.065"W	13.38	
6323.00	70.140	342.110	5856.50	380.11	127.73	1228.52	40°43'49.943"N	103°53'54.347"W	9.02	
6417.00	75.390	344.770	5884.35	458.95	213.76	1202.97	40°43'50.797"N	103°53'54.659"W	6.20	
6512.00	80.310	348.700	5904.35	542.92	304.11	1181.70	40°43'51.694"N	103°53'54.914"W	6.57	
6607.00	89.450	351.840	5912.82	630.72	397.26	1165.75	40°43'52.617"N	103°53'55.099"W	10.17	
6701.00	90.990	353.580	5912.46	719.45	490.50	1153.82	40°43'53.540"N	103°53'55.232"W	2.47	
6796.00	89.230	353.790	5912.27	809.64	584.92	1143.37	40°43'54.475"N	103°53'55.346"W	1.87	
6890.00	89.380	353.660	5913.41	898.90	678.35	1133.10	40°43'55.400"N	103°53'55.458"W	0.21	
6985.00	89.750	355.310	5914.13	989.49	772.90	1123.97	40°43'56.335"N	103°53'55.554"W	1.78	
7079.00	90.740	357.400	5913.73	1080.01	866.70	1117.99	40°43'57.263"N	103°53'55.610"W	2.46	
7174.00	91.970	357.450	5911.49	1171.93	961.58	1113.72	40°43'58.201"N	103°53'55.643"W	1.30	
7269.00	92.650	356.210	5907.66	1263.55	1056.35	1108.48	40°43'59.139"N	103°53'55.689"W	1.49	
7365.00	91.880	355.520	5903.86	1355.70	1152.03	1101.56	40°44'00.085"N	103°53'55.756"W	1.08	

### REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY, INC	Slot	SLOT#01 RILEY LD19-715(380'FSL&1457'FEL,SEC.19)
Area	COLORADO	Well	RILEY LD19-715
Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	RILEY LD19-715 AWP
Facility	SEC.19-T09N-R58W		

### WELLPATH DATA (100 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
7459.00	90.000	354.850	5902.32	1445.67	1245.68	1093.67	40°44'01.012"N	103°53'55.837"W	2.12	
7554.00	87.870	356.710	5904.09	1536.87	1340.40	1086.68	40°44'01.949"N	103°53'55.905"W	2.98	
7648.00	87.970	356.670	5907.50	1627.48	1434.18	1081.26	40°44'02.876"N	103°53'55.954"W	0.11	
7743.00	88.340	356.910	5910.56	1719.11	1528.98	1075.94	40°44'03.814"N	103°53'56.000"W	0.46	
7837.00	88.680	356.910	5913.00	1809.84	1622.81	1070.87	40°44'04.742"N	103°53'56.044"W	0.36	
7932.00	88.120	357.740	5915.65	1901.71	1717.67	1066.44	40°44'05.680"N	103°53'56.079"W	1.05	
8027.00	87.880	358.390	5918.97	1993.86	1812.56	1063.24	40°44'06.618"N	103°53'56.099"W	0.73	
8121.00	90.120	359.070	5920.61	2085.34	1906.51	1061.15	40°44'07.546"N	103°53'56.104"W	2.49	
8216.00	90.890	358.930	5919.77	2177.90	2001.49	1059.50	40°44'08.485"N	103°53'56.103"W	0.82	
8311.00	91.630	358.900	5917.68	2270.42	2096.45	1057.70	40°44'09.423"N	103°53'56.104"W	0.78	
8405.00	92.840	359.390	5914.02	2361.99	2190.37	1056.30	40°44'10.351"N	103°53'56.100"W	1.39	
8500.00	91.790	358.360	5910.18	2454.44	2285.27	1054.43	40°44'11.289"N	103°53'56.102"W	1.55	
8594.00	90.340	356.870	5908.43	2545.48	2379.17	1050.52	40°44'12.218"N	103°53'56.131"W	2.21	
8689.00	91.020	356.690	5907.31	2637.14	2474.01	1045.18	40°44'13.156"N	103°53'56.178"W	0.74	
8784.00	92.310	357.660	5904.55	2728.94	2568.85	1040.50	40°44'14.093"N	103°53'56.217"W	1.70	
8878.00	90.770	359.170	5902.02	2820.28	2662.78	1037.91	40°44'15.022"N	103°53'56.228"W	2.29	
8973.00	88.800	356.350	5902.38	2912.35	2757.69	1034.19	40°44'15.960"N	103°53'56.254"W	3.62	
9068.00	89.480	356.450	5903.80	3003.85	2852.49	1028.23	40°44'16.898"N	103°53'56.310"W	0.72	
9163.00	90.120	358.160	5904.13	3095.74	2947.38	1023.76	40°44'17.836"N	103°53'56.345"W	1.92	
9257.00	90.250	359.250	5903.83	3187.22	3041.35	1021.64	40°44'18.765"N	103°53'56.351"W	1.17	
9352.00	90.490	359.560	5903.22	3279.94	3136.35	1020.65	40°44'19.703"N	103°53'56.341"W	0.41	
9447.00	91.140	0.090	5901.86	3372.80	3231.34	1020.36	40°44'20.642"N	103°53'56.323"W	0.88	
9541.00	91.630	0.130	5899.59	3464.76	3325.31	1020.54	40°44'21.570"N	103°53'56.299"W	0.52	
9636.00	92.560	0.690	5896.12	3557.76	3420.24	1021.22	40°44'22.508"N	103°53'56.267"W	1.14	
9730.00	91.480	0.980	5892.81	3649.93	3514.17	1022.59	40°44'23.436"N	103°53'56.228"W	1.19	
9825.00	92.120	0.990	5889.82	3743.13	3609.11	1024.22	40°44'24.373"N	103°53'56.184"W	0.67	
9920.00	92.340	0.710	5886.13	3836.27	3704.03	1025.63	40°44'25.311"N	103°53'56.144"W	0.37	
10015.00	89.660	359.750	5884.47	3929.26	3799.00	1026.01	40°44'26.249"N	103°53'56.116"W	3.00	
10110.00	88.920	359.220	5885.65	4022.00	3893.99	1025.16	40°44'27.188"N	103°53'56.105"W	0.96	
10204.00	89.230	359.440	5887.16	4113.70	3987.97	1024.06	40°44'28.116"N	103°53'56.097"W	0.40	

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Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	RILEY LD19-715 AWP
Facility	SEC.19-T09N-R58W		

WELLPATH DATA (100 stations)										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
10298.00	89.910	359.520	5887.87	4205.47	4081.96	1023.21	40°44'29.045"N	103°53'56.086"W	0.73	
10393.00	90.340	359.580	5887.66	4298.24	4176.96	1022.46	40°44'29.984"N	103°53'56.074"W	0.46	
10487.00	91.170	359.220	5886.42	4389.97	4270.95	1021.48	40°44'30.912"N	103°53'56.065"W	0.96	
10582.00	91.260	358.360	5884.41	4482.44	4365.90	1019.47	40°44'31.851"N	103°53'56.068"W	0.91	
10677.00	91.970	358.610	5881.73	4574.77	4460.83	1016.96	40°44'32.789"N	103°53'56.079"W	0.79	
10771.00	93.020	358.220	5877.64	4666.06	4554.70	1014.36	40°44'33.717"N	103°53'56.090"W	1.19	
10866.00	93.760	358.390	5872.02	4758.20	4649.50	1011.56	40°44'34.654"N	103°53'56.105"W	0.80	
10960.00	94.190	358.870	5865.50	4849.44	4743.24	1009.31	40°44'35.581"N	103°53'56.112"W	0.68	
10990.00	94.280	358.880	5863.29	4878.58	4773.15	1008.73	40°44'35.876"N	103°53'56.112"W	0.30	Last BHI MWD Survey
11052.00	94.280	358.880	5858.66	4938.79	4834.97	1007.52	40°44'36.487"N	103°53'56.114"W	0.00	Projection to Bit

HOLE & CASING SECTIONS - Ref Wellbore: RILEY LD19-715 AWP      Ref Wellpath: RILEY LD19-715 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	1940.00	1910.00	30.00	1939.92	0.00	-0.01	-7.93	-0.59
9.625in Casing Surface	30.00	1940.00	1910.00	30.00	1939.92	0.00	-0.01	-7.93	-0.59
8.5in Open Hole	1940.00	11052.00	9112.00	1939.92	5858.66	-7.93	-0.59	4834.97	1007.52

REFERENCE WELLPATH IDENTIFICATION			
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Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	RILEY LD19-715 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	0.00	0.00	3442626.32	1512860.64	40°43'48.900"N	103°54'10.332"W	polygon
RILEY LD19-715 Top of Nio (300'FSL&376'FEL,SEC.9)	5751.00	-79.95	1081.47	3443707.78	1512780.69	40°43'47.917"N	103°53'56.306"W	point
RILEY LD19-715 Cross 300' Hardline (300'FSL&376'FEL,SEC.9)	5780.55	-44.75	1090.31	3443716.62	1512815.89	40°43'48.264"N	103°53'56.183"W	point
Riley LD19-715 REV-1 BHL From plat (140'FNL&330'FEL,SEC.9)	5877.00	4824.83	1024.46	3443650.77	1517685.42	40°44'36.384"N	103°53'55.896"W	point
RILEY LD19-715 HARDLINE (300'From E/S/W&200'FNL)	5900.00	0.00	0.00	3442626.32	1512860.64	40°43'48.900"N	103°54'10.332"W	polygon
RILEY LD19-715 Landing Point (739'FSL&331'FEL,SEC.9)	5916.00	359.05	1126.01	3443752.32	1513219.69	40°43'52.246"N	103°53'55.624"W	point

WELLPATH COMPOSITION - Ref Wellbore: RILEY LD19-715 AWP					Ref Wellpath: RILEY LD19-715 AWP	
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment		Wellbore	
0.00	1923.00	Gyrodata standard - Drop gyro or Multi-shot	GYRODATA SURVEYS 13.5" Hole <79'-1923'>		RILEY LD19-715 AWP	
1923.00	10990.00	OWSG MWD rev2 + IFR1 + Multi-Station Correction	BHI/Ontrak OWSG MWD+IFR+MSA 8.5" Hole <1974'-10990'>		RILEY LD19-715 AWP	
10990.00	11052.00	Blind Drilling (std)	Projection to bit		RILEY LD19-715 AWP	

REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Slot	SLOT#01 RILEY LD19-715(380'FSL&1457'FEL,SEC.19)
Area	COLORADO	Well	RILEY LD19-715
Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	RILEY LD19-715 AWP
Facility	SEC.19-T09N-R58W		

WELLPATH COMMENTS					
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment	
1923.00	1.820	172.340	1922.93	Tied to Surface Surveys	
6129.00	54.990	359.483	5767.47	Crossed 300' Setback	
10990.00	94.280	358.880	5863.29	Last BHI MWD Survey	
11052.00	94.280	358.880	5858.66	Projection to Bit	