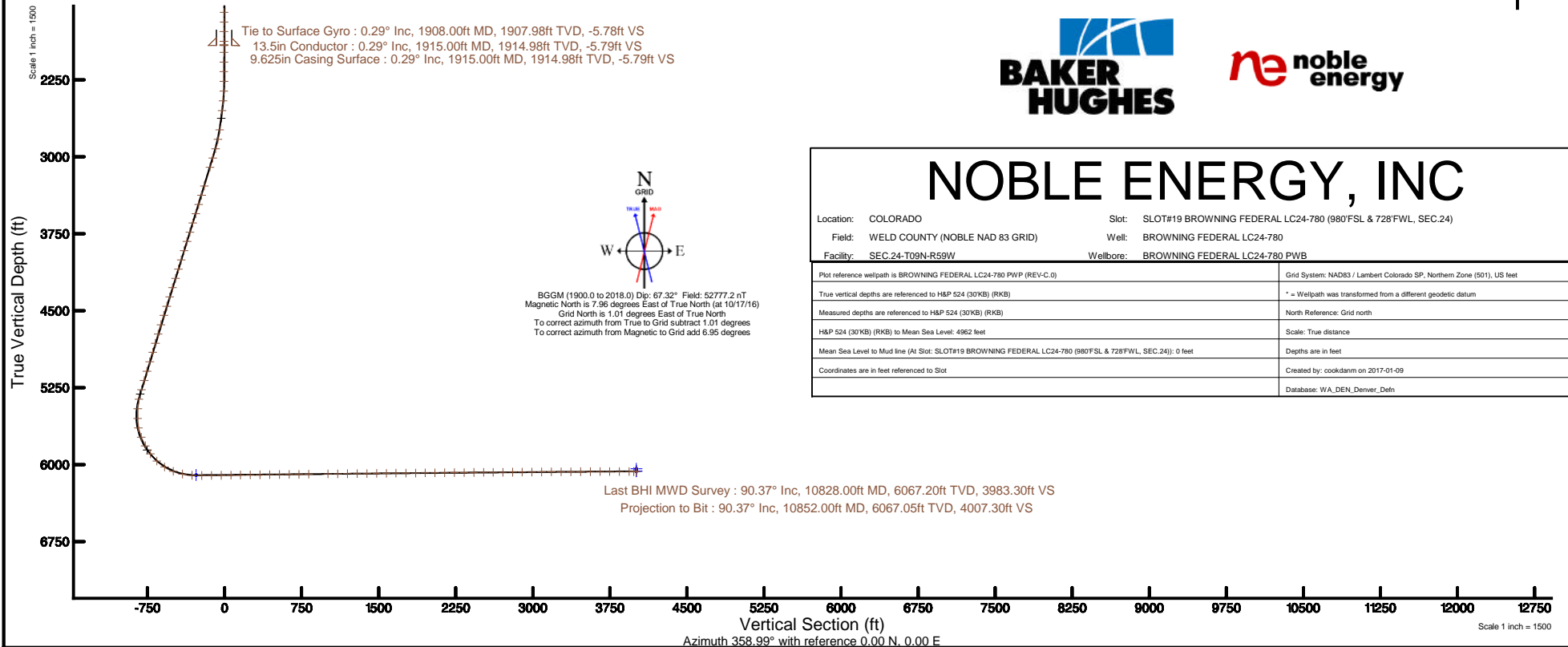


# NOBLE ENERGY, INC

Location:	COLORADO	Slot:	SLOT#19 BROWNING FEDERAL LC24-780 (980'FSL & 728'FWL, SEC.24)
Field:	WELD COUNTY (NOBLE NAD 83 GRID)	Well:	BROWNING FEDERAL LC24-780
Facility:	SEC.24-T09N-R59W	Wellbore:	BROWNING FEDERAL LC24-780 PWB
Plot reference wellpath is BROWNING FEDERAL LC24-780 PWP (REV-C.0)		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: 4962 feet		Scale: True distance	
Mean Sea Level to Mud line (At Slot: SLOT#19 BROWNING FEDERAL LC24-780 (980'FSL & 728'FWL, SEC.24)): 0 feet		Depths are in feet	
Coordinates are in feet referenced to Slot		Created by: cookdann on 2017-01-09	
		Database: WA_DEN_Denver_Defn	



### REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY, INC	Slot	SLOT#19 BROWNING FEDERAL LC24-780 (980'FSL & 728'FWL, SEC.24)
Area	COLORADO	Well	BROWNING FEDERAL LC24-780
Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	BROWNING FEDERAL LC24-780 AWB
Facility	SEC.24-T09N-R59W		

### REPORT SETUP INFORMATION

Projection System	NAD83 / Lambert Colorado SP, Northern Zone (501), US feet	Software System	WellArchitect® 5.0
North Reference	Grid	User	Cookdanm
Scale	0.999992	Report Generated	1/9/17 at 2:42:21 PM
Convergence at slot	1.02° East	Database/Source file	WA_DEN_Denver_Defn/BROWNING_FEDERAL_LC24-780_AWP.xml

### WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-4086.51	-3971.68	3434259.44	1513236.08	40°43'54.084"N	103°55'58.908"W
Facility Reference Pt			3438231.08	1517322.55	40°44'33.760"N	103°55'06.380"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	4962.00ft
Horizontal Reference Pt	Slot	H&P 524 (30'KB) (RKB) to Mean Sea Level	4962.00ft
Vertical Reference Pt	H&P 524 (30'KB) (RKB)	H&P 524 (30'KB) (RKB) to Mud Line at Slot (SLOT#19 BROWNING FEDERAL LC24-780 (980'FSL & 728'FWL, SEC.24))	4962.00ft
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	358.99°

REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Slot	SLOT#19 BROWNING FEDERAL LC24-780 (980'FSL & 728'FWL, SEC.24)
Area	COLORADO	Well	BROWNING FEDERAL LC24-780
Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	BROWNING FEDERAL LC24-780 AWB
Facility	SEC.24-T09N-R59W		

WELLPATH DATA (94 stations)										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
1908.00	0.290	261.450	1907.98	-5.78	-5.83	-2.46	40°43'54.027"N	103°55'58.941"W	0.04	Tie to Surface Gyro
1981.00	0.310	255.980	1980.98	-5.85	-5.90	-2.84	40°43'54.026"N	103°55'58.946"W	0.05	
2076.00	0.620	227.940	2075.98	-6.25	-6.31	-3.47	40°43'54.022"N	103°55'58.954"W	0.40	
2170.00	0.760	95.430	2169.97	-6.65	-6.71	-3.22	40°43'54.018"N	103°55'58.951"W	1.35	
2265.00	1.180	294.660	2264.97	-6.30	-6.36	-3.49	40°43'54.022"N	103°55'58.955"W	2.01	
2360.00	2.940	207.890	2359.92	-8.01	-8.11	-5.51	40°43'54.005"N	103°55'58.981"W	3.27	
2455.00	5.610	198.730	2454.65	-14.51	-14.66	-8.15	40°43'53.941"N	103°55'59.017"W	2.89	
2549.00	7.830	165.810	2548.03	-25.08	-25.22	-8.05	40°43'53.836"N	103°55'59.018"W	4.63	
2739.00	8.080	139.420	2736.26	-47.98	-47.92	3.81	40°43'53.610"N	103°55'58.869"W	1.91	
2834.00	13.310	173.000	2829.67	-64.03	-63.87	9.50	40°43'53.451"N	103°55'58.799"W	8.35	
2928.00	16.360	188.220	2920.56	-87.87	-87.73	8.92	40°43'53.216"N	103°55'58.812"W	5.24	
3023.00	16.910	189.690	3011.58	-114.65	-114.59	4.68	40°43'52.951"N	103°55'58.873"W	0.73	
3118.00	16.900	186.360	3102.48	-141.92	-141.93	0.83	40°43'52.682"N	103°55'58.930"W	1.02	
3307.00	16.880	188.150	3283.33	-196.26	-196.40	-6.10	40°43'52.145"N	103°55'59.032"W	0.28	
3401.00	17.060	187.200	3373.23	-223.38	-223.58	-9.77	40°43'51.877"N	103°55'59.086"W	0.35	
3496.00	17.680	185.070	3463.90	-251.51	-251.78	-12.79	40°43'51.599"N	103°55'59.132"W	0.93	
3590.00	17.630	181.600	3553.48	-279.93	-280.23	-14.45	40°43'51.318"N	103°55'59.160"W	1.12	
3685.00	17.650	177.700	3644.01	-308.70	-309.00	-14.27	40°43'51.034"N	103°55'59.164"W	1.24	
3779.00	17.560	173.890	3733.61	-337.07	-337.34	-12.19	40°43'50.753"N	103°55'59.144"W	1.23	
3874.00	17.710	167.690	3824.16	-365.52	-365.71	-7.58	40°43'50.472"N	103°55'59.090"W	1.98	
3969.00	17.640	163.990	3914.67	-393.59	-393.66	-0.53	40°43'50.195"N	103°55'59.005"W	1.18	
4063.00	17.390	168.450	4004.32	-421.16	-421.12	6.21	40°43'49.922"N	103°55'58.924"W	1.45	
4158.00	17.480	173.020	4094.96	-449.31	-449.19	10.78	40°43'49.644"N	103°55'58.871"W	1.44	
4252.00	17.520	174.400	4184.61	-477.45	-477.28	13.88	40°43'49.366"N	103°55'58.837"W	0.44	
4347.00	17.560	174.180	4275.19	-505.99	-505.77	16.73	40°43'49.084"N	103°55'58.807"W	0.08	
4442.00	17.560	169.640	4365.77	-534.41	-534.13	20.76	40°43'48.803"N	103°55'58.761"W	1.44	
4537.00	17.600	167.740	4456.33	-562.64	-562.26	26.39	40°43'48.525"N	103°55'58.694"W	0.61	
4631.00	17.520	168.420	4545.95	-590.49	-590.01	32.24	40°43'48.249"N	103°55'58.625"W	0.23	
4726.00	17.570	168.580	4636.54	-618.65	-618.07	37.95	40°43'47.971"N	103°55'58.557"W	0.07	
4821.00	16.750	168.300	4727.31	-646.20	-645.53	43.57	40°43'47.699"N	103°55'58.490"W	0.87	

REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Slot	SLOT#19 BROWNING FEDERAL LC24-780 (980'FSL & 728'FWL, SEC.24)
Area	COLORADO	Well	BROWNING FEDERAL LC24-780
Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	BROWNING FEDERAL LC24-780 AWB
Facility	SEC.24-T09N-R59W		

WELLPATH DATA (94 stations)										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
4915.00	16.390	179.360	4817.42	-672.78	-672.06	46.47	40°43'47.436"N	103°55'58.459"W	3.37	
5007.00	17.270	188.030	4905.50	-699.25	-698.57	44.70	40°43'47.175"N	103°55'58.488"W	2.89	
5104.00	17.000	187.370	4998.19	-727.50	-726.89	40.87	40°43'46.896"N	103°55'58.544"W	0.34	
5200.00	16.930	190.390	5090.02	-755.09	-754.56	36.55	40°43'46.623"N	103°55'58.607"W	0.92	
5294.00	16.930	186.530	5179.94	-782.07	-781.62	32.53	40°43'46.356"N	103°55'58.665"W	1.20	
5388.00	16.840	177.690	5269.91	-809.26	-808.83	31.52	40°43'46.088"N	103°55'58.684"W	2.73	
5483.00	12.470	164.880	5361.82	-832.98	-832.49	34.75	40°43'45.853"N	103°55'58.648"W	5.70	
5578.00	4.960	117.010	5455.75	-844.88	-844.29	41.10	40°43'45.736"N	103°55'58.568"W	10.36	
5672.00	7.700	89.730	5549.19	-846.88	-846.11	51.02	40°43'45.716"N	103°55'58.440"W	4.25	
5767.00	14.660	40.630	5642.51	-837.95	-836.92	65.26	40°43'45.804"N	103°55'58.253"W	11.80	
5862.00	23.750	25.170	5732.19	-811.72	-810.41	81.27	40°43'46.063"N	103°55'58.039"W	10.89	
5956.00	28.650	2.490	5816.71	-772.12	-770.65	90.33	40°43'46.455"N	103°55'57.912"W	11.77	
6051.00	37.540	348.640	5896.34	-720.74	-719.34	85.60	40°43'46.962"N	103°55'57.961"W	12.24	
6145.00	46.870	350.600	5965.89	-658.49	-657.28	74.33	40°43'47.577"N	103°55'58.094"W	10.02	
6240.00	58.440	354.930	6023.44	-583.55	-582.49	65.06	40°43'48.318"N	103°55'58.197"W	12.70	
6334.00	68.860	355.700	6065.11	-499.60	-498.65	58.21	40°43'49.147"N	103°55'58.266"W	11.11	
6429.00	78.310	354.990	6091.92	-408.77	-407.93	50.81	40°43'50.045"N	103°55'58.342"W	9.97	
6523.00	86.490	356.600	6104.34	-315.82	-315.09	44.00	40°43'50.963"N	103°55'58.409"W	8.87	
6618.00	90.680	359.240	6106.69	-220.89	-220.21	40.55	40°43'51.901"N	103°55'58.432"W	5.21	
6712.00	90.710	356.990	6105.55	-126.92	-126.27	37.46	40°43'52.830"N	103°55'58.450"W	2.39	
6807.00	90.830	356.070	6104.27	-32.01	-31.46	31.71	40°43'53.768"N	103°55'58.503"W	0.98	
6901.00	90.710	356.100	6103.01	61.86	62.31	25.29	40°43'54.695"N	103°55'58.565"W	0.13	
6995.00	90.680	357.120	6101.87	155.77	156.14	19.74	40°43'55.623"N	103°55'58.616"W	1.09	
7090.00	90.620	356.380	6100.79	250.69	250.98	14.35	40°43'56.561"N	103°55'58.664"W	0.78	
7185.00	90.800	355.460	6099.61	345.55	345.73	7.59	40°43'57.498"N	103°55'58.730"W	0.99	
7279.00	90.680	357.020	6098.40	439.43	439.52	1.43	40°43'58.426"N	103°55'58.789"W	1.66	
7374.00	90.830	359.190	6097.15	534.40	534.45	-1.71	40°43'59.364"N	103°55'58.808"W	2.29	
7468.00	90.710	0.300	6095.89	628.38	628.44	-2.13	40°44'00.293"N	103°55'58.791"W	1.19	
7563.00	90.680	0.330	6094.73	723.35	723.43	-1.61	40°44'01.231"N	103°55'58.763"W	0.04	
7658.00	90.650	0.620	6093.63	818.31	818.43	-0.82	40°44'02.170"N	103°55'58.731"W	0.31	

REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Slot	SLOT#19 BROWNING FEDERAL LC24-780 (980'FSL & 728'FWL, SEC.24)
Area	COLORADO	Well	BROWNING FEDERAL LC24-780
Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	BROWNING FEDERAL LC24-780 AWB
Facility	SEC.24-T09N-R59W		

WELLPATH DATA (94 stations)										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
7847.00	90.770	3.250	6091.29	1007.03	1007.29	5.56	40°44'04.035"N	103°55'58.605"W	1.39	
7942.00	90.590	3.820	6090.16	1101.72	1102.10	11.42	40°44'04.970"N	103°55'58.507"W	0.63	
8037.00	90.520	2.190	6089.24	1196.48	1196.96	16.40	40°44'05.907"N	103°55'58.420"W	1.72	
8132.00	90.680	1.630	6088.25	1291.35	1291.90	19.56	40°44'06.844"N	103°55'58.357"W	0.61	
8226.00	90.620	0.580	6087.18	1385.28	1385.88	21.38	40°44'07.772"N	103°55'58.312"W	1.12	
8321.00	90.620	359.400	6086.15	1480.26	1480.87	21.36	40°44'08.711"N	103°55'58.291"W	1.24	
8416.00	90.740	359.450	6085.02	1575.25	1575.86	20.41	40°44'09.649"N	103°55'58.281"W	0.14	
8510.00	90.680	358.970	6083.86	1669.24	1669.84	19.11	40°44'10.578"N	103°55'58.277"W	0.51	
8605.00	90.400	358.470	6082.96	1764.24	1764.81	16.99	40°44'11.517"N	103°55'58.282"W	0.60	
8700.00	90.520	357.200	6082.20	1859.21	1859.74	13.40	40°44'12.455"N	103°55'58.307"W	1.34	
8794.00	90.460	355.510	6081.40	1953.11	1953.54	7.42	40°44'13.383"N	103°55'58.363"W	1.80	
8889.00	90.620	354.870	6080.50	2047.89	2048.20	-0.54	40°44'14.319"N	103°55'58.445"W	0.69	
8984.00	90.490	354.830	6079.58	2142.64	2142.82	-9.07	40°44'15.256"N	103°55'58.534"W	0.14	
9079.00	90.620	354.110	6078.66	2237.34	2237.37	-18.22	40°44'16.191"N	103°55'58.631"W	0.77	
9174.00	90.490	355.230	6077.74	2332.07	2331.95	-27.05	40°44'17.127"N	103°55'58.724"W	1.19	
9268.00	90.620	355.460	6076.83	2425.87	2425.64	-34.68	40°44'18.054"N	103°55'58.802"W	0.28	
9363.00	90.370	354.820	6076.01	2520.65	2520.29	-42.72	40°44'18.991"N	103°55'58.884"W	0.72	
9458.00	90.340	352.930	6075.42	2615.27	2614.74	-52.86	40°44'19.926"N	103°55'58.994"W	1.99	
9552.00	90.430	352.580	6074.79	2708.71	2707.99	-64.71	40°44'20.849"N	103°55'59.127"W	0.38	
9647.00	90.400	353.840	6074.10	2803.22	2802.32	-75.95	40°44'21.783"N	103°55'59.251"W	1.33	
9741.00	90.520	355.470	6073.35	2896.95	2895.91	-84.70	40°44'22.709"N	103°55'59.343"W	1.74	
9836.00	90.620	358.160	6072.40	2991.87	2990.75	-89.98	40°44'23.647"N	103°55'59.390"W	2.83	
9931.00	90.280	0.340	6071.65	3086.86	3085.73	-91.22	40°44'24.585"N	103°55'59.385"W	2.32	
10025.00	90.250	1.780	6071.22	3180.79	3179.71	-89.48	40°44'25.514"N	103°55'59.340"W	1.53	
10120.00	90.250	1.530	6070.81	3275.69	3274.67	-86.74	40°44'26.451"N	103°55'59.283"W	0.26	
10215.00	90.400	1.210	6070.27	3370.61	3369.64	-84.47	40°44'27.389"N	103°55'59.232"W	0.37	
10309.00	90.370	1.200	6069.63	3464.53	3463.62	-82.49	40°44'28.317"N	103°55'59.184"W	0.03	
10404.00	90.370	1.480	6069.02	3559.45	3558.59	-80.27	40°44'29.255"N	103°55'59.134"W	0.29	
10499.00	90.280	1.410	6068.48	3654.36	3653.56	-77.87	40°44'30.193"N	103°55'59.081"W	0.12	
10593.00	90.090	0.210	6068.18	3748.31	3747.54	-76.55	40°44'31.121"N	103°55'59.042"W	1.29	

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Area	COLORADO	Well	BROWNING FEDERAL LC24-780
Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	BROWNING FEDERAL LC24-780 AWB
Facility	SEC.24-T09N-R59W		

WELLPATH DATA (94 stations)										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
10688.00	90.250	359.290	6067.90	3843.30	3842.54	-76.96	40°44'32.060"N	103°55'59.026"W	0.98	
10783.00	90.280	359.310	6067.46	3938.30	3937.53	-78.12	40°44'32.999"N	103°55'59.019"W	0.04	
10828.00	90.370	359.350	6067.20	3983.30	3982.53	-78.65	40°44'33.443"N	103°55'59.015"W	0.22	Last BHI MWD Survey
10852.00	90.370	359.350	6067.05	4007.30	4006.53	-78.92	40°44'33.680"N	103°55'59.013"W	0.00	Projection to Bit

HOLE & CASING SECTIONS									
- Ref Wellbore: BROWNING FEDERAL LC24-780 AWB					Ref Wellpath: BROWNING FEDERAL LC24-780 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 Conductor	30.00	1915.00	1885.00	30.00	1914.98	-0.02	0.00	-5.83	-2.50
9.625in Casing Surface	30.00	1915.00	1885.00	30.00	1914.98	-0.02	0.00	-5.83	-2.50
8.75in Open Hole	1915.00	10852.00	8937.00	1914.98	6067.05	-5.83	-2.50	4006.53	-78.92

REFERENCE WELLPATH IDENTIFICATION			
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Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	BROWNING FEDERAL LC24-780 AWB
Facility	SEC.24-T09N-R59W		

TARGETS								
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
SEC.24-T09N-R59W	81.00	4086.10	3971.38	3438230.78	1517322.14	40°44'33.756"N	103°55'06.384"W	polygon
BROWNING FEDERAL Hardline (330'Setback)	5997.00	0.69	38.79	3434298.23	1513236.76	40°43'54.084"N	103°55'58.404"W	polygon
BROWNING FEDERAL LC24-780 BHL REV-2 (330'FNL & 770'FWL, SEC.24)	6041.03	4007.05	-70.82	3434188.62	1517243.08	40°44'33.684"N	103°55'58.908"W	point
BROWNING FEDERAL LC24-780 BHL REV-1 (330'FNL & 770'FWL, SEC.24)	6064.00	4007.05	-70.82	3434188.62	1517243.08	40°44'33.684"N	103°55'58.908"W	point
BROWNING FEDERAL LC24-780 BHL REV-3 (330'FNL & 770'FWL, SEC.24)	6065.03	4007.05	-70.82	3434188.62	1517243.08	40°44'33.684"N	103°55'58.908"W	point
BROWNING FEDERAL LC24-780 LANDING POINT	6102.40	-275.00	45.00	3434304.43	1512961.08	40°43'51.359"N	103°55'58.387"W	point

WELLPATH COMPOSITION - Ref Wellbore: BROWNING FEDERAL LC24-780 AWB					Ref Wellpath: BROWNING FEDERAL LC24-780 AWP	
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment		Wellbore	
0.00	1908.00	Gyrodata standard - Drop gyro or Multi-shot	Gyrodata Surface surveys 13.5" Hole <78'-1908'>		BROWNING FEDERAL LC24-780 AWB	
1908.00	10828.00	OWSG MWD rev2 + IFR1 + Multi-Station Correction	BH/ATC OWSG MWD+IFR+MSA <1981'-10828'>		BROWNING FEDERAL LC24-780 AWB	
10828.00	10852.00	Blind Drilling (std)	Projection to bit		BROWNING FEDERAL LC24-780 AWB	

REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Slot	SLOT#19 BROWNING FEDERAL LC24-780 (980'FSL & 728'FWL, SEC.24)
Area	COLORADO	Well	BROWNING FEDERAL LC24-780
Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	BROWNING FEDERAL LC24-780 AWB
Facility	SEC.24-T09N-R59W		

WELLPATH COMMENTS					
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment	
1908.00	0.290	261.450	1907.98	Tie to Surface Gyro	
10828.00	90.370	359.350	6067.20	Last BHI MWD Survey	
10852.00	90.370	359.350	6067.05	Projection to Bit	