

NOBLE ENERGY, INC

Location: COLORADO Slot: SLOT#03 GUTTERSEN STATE DD30 -766 (450'FSL & 2576'FWL,SEC.30)
Field: WELD COUNTY (NOBLE NAD 83 GRID) Well: GUTTERSEN STATE DD30 -766
Facility: SEC.30-T03N-R63W Wellbore: GUTTERSEN STATE DD30 -766 AWP

Location Information

Facility Name			Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
SEC.30-T03N-R63W			3284561.516	1313836.085	40°11'25.4040"N	104°28'53.0400"W
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
SLOT#03 GUTTERSEN STATE DD30 -766 (450'FSL & 2576'FWL,SEC.30)	-2.78	75.47	3284636.983	1313833.309	40°11'25.3680"N	104°28'52.0680"W
RIG (30') (RKB) to Mud line (At Slot: SLOT#03 GUTTERSEN STATE DD30 -766 (450'FSL & 2576'FWL,SEC.30))					4823ft	
Mean Sea Level to Mud line (At Slot: SLOT#03 GUTTERSEN STATE DD30 -766 (450'FSL & 2576'FWL,SEC.30))					0ft	
RIG (30') (RKB) to Mean Sea Level					4823ft	

Plot reference wellpath is GUTTERSEN STATE DD30 -766 AWP	Grid System: NAD83 / Lambert Colorado SP, Northern Zone (501), US feet
True vertical depths are referenced to RIG (30') (RKB)	North Reference: Grid north
Reference wellpath measured depths are referenced to RIG (30') (RKB)	Scale: True distance
RIG (30') (RKB) to Mean Sea Level: 4823 feet	Coordinates are in feet referenced to Slot
Mean Sea Level to Mud line (At Slot: SLOT#03 GUTTERSEN STATE DD30 -766 (450'FSL & 2576'FWL,SEC.30)): 0 feet	Depths are in feet
Offset wellpath MDs are referenced to each path's default MD datum	Created by: manajohj on 2020-01-07; Database: WA_NOBLE

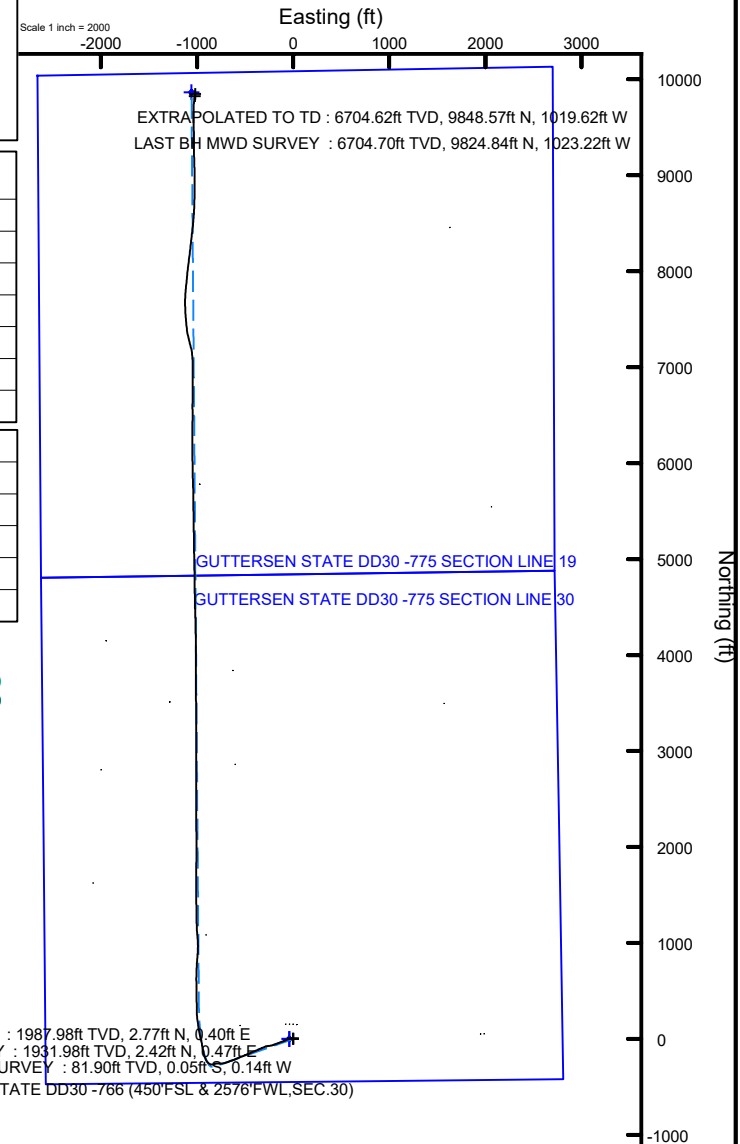
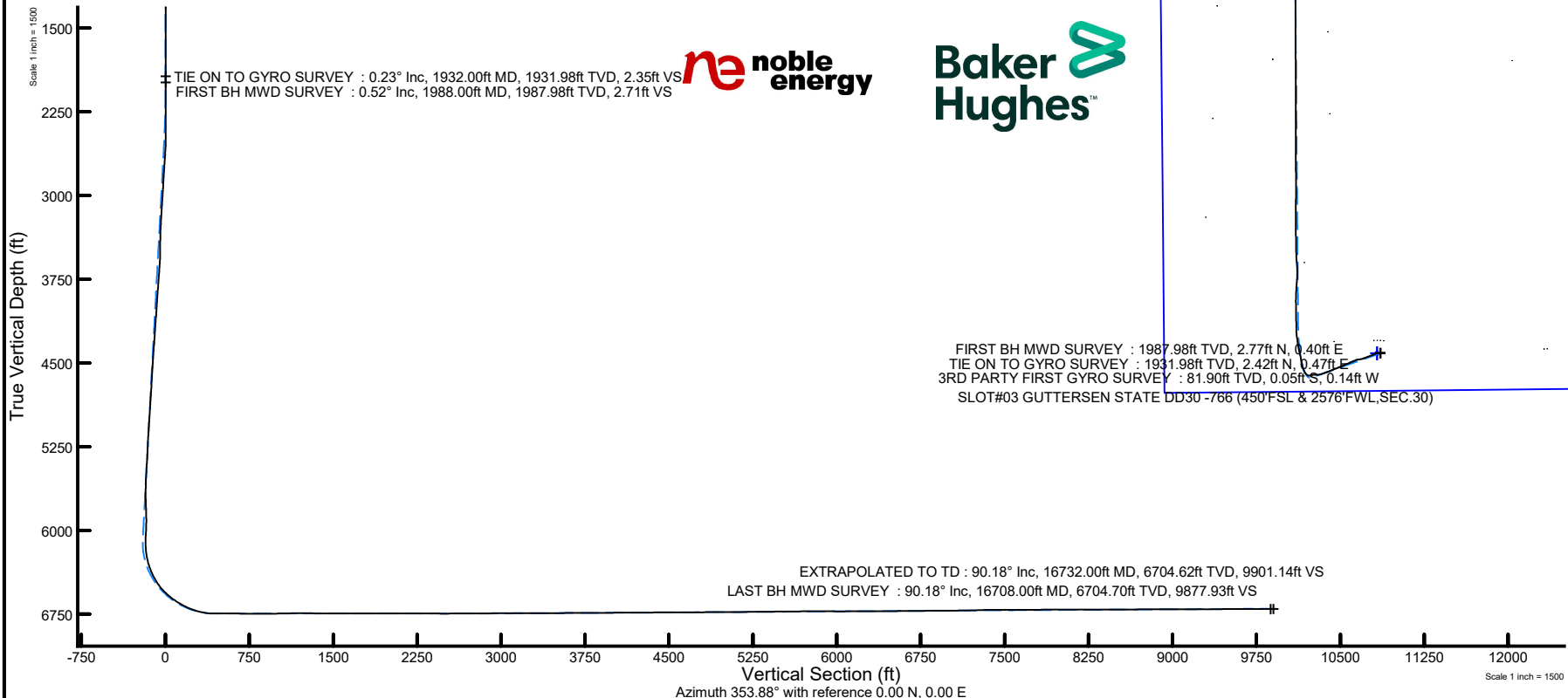
TIE ON TO GYRO SURVEY : 0.23° Inc, 1932.00ft MD, 1931.98ft TVD, 2.35ft VS
FIRST BH MWD SURVEY : 0.52° Inc, 1988.00ft MD, 1987.98ft TVD, 2.71ft VS

noble energy

Baker Hughes

FIRST BH MWD SURVEY : 1987.98ft TVD, 2.77ft N, 0.40ft E
TIE ON TO GYRO SURVEY : 1931.98ft TVD, 2.42ft N, 0.47ft E
3RD PARTY FIRST GYRO SURVEY : 81.90ft TVD, 0.05ft S, 0.14ft W
SLOT#03 GUTTERSEN STATE DD30 -766 (450'FSL & 2576'FWL,SEC.30)

EXTRAPOLATED TO TD : 90.18° Inc, 16732.00ft MD, 6704.62ft TVD, 9901.14ft VS
LAST BH MWD SURVEY : 90.18° Inc, 16708.00ft MD, 6704.70ft TVD, 9877.93ft VS



REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Well	GUTTERSEN STATE DD30 -766
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API/Legal	
Facility	SEC.30-T03N-R63W	Wellbore	GUTTERSEN STATE DD30 -766 AWB
Slot	SLOT#03 GUTTERSEN STATE DD30 -766 (450'FSL & 2576'FWL,SEC.30)		

REPORT SETUP INFORMATION			
Projection System	NAD83 / Lambert Colorado SP, Northern Zone (501), US feet	Software System	WellArchitect® 6.0
North Reference	Grid	User	Manajohj
Scale	0.999957	Report Generated	1/7/2020 at 10:34:28 AM
Convergence at slot	0.66° East	Database	WA_NOBLE

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-2.78	75.47	3284636.98	1313833.31	40°11'25.3680"N	104°28'52.0680"W
Facility Reference Pt			3284561.52	1313836.09	40°11'25.4040"N	104°28'53.0400"W
Field Reference Pt			3000000.00	4454105.15	48°46'34.3150"N	105°30'0.0000"W

WELLPATH DATUM			
Calculation method	Minimum curvature	RIG (30') (RKB) to Facility Vertical Datum	4823.00ft
Horizontal Reference Pt	Slot	RIG (30') (RKB) to Mean Sea Level	4823.00ft
Vertical Reference Pt	RIG (30') (RKB)	RIG (30') (RKB) to Mud Line at Slot (SLOT#03 GUTTERSEN STATE DD30 -766 (450'FSL & 2576'FWL,SEC.30))	4823.00ft
MD Reference Pt	RIG (30') (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	353.88°

REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Well	GUTTERSEN STATE DD30 -766
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API/Legal	
Facility	SEC.30-T03N-R63W	Wellbore	GUTTERSEN STATE DD30 -766 AWB
Slot	SLOT#03 GUTTERSEN STATE DD30 -766 (450'FSL & 2576'FWL,SEC.30)		

WELLPATH DATA (175 stations)														
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	TVDSS [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Toolface [°]	Build Rate [°/100ft]	Turn Rate [°/100ft]	Comments
0.00	0.000	248.980	0.00	-4823.00	0.00	0.00	0.00	40°11'25.3680"N	104°28'52.0680"W	0.00	0.00	0.00	0.00	
81.90	0.210	248.980	81.90	-4741.10	-0.04	-0.05	-0.14	40°11'25.3675"N	104°28'52.0698"W	0.26	145.25	0.26	0.00	3RD PARTY FIRST GYRO SURVEY
176.30	0.130	281.260	176.30	-4646.70	-0.05	-0.09	-0.41	40°11'25.3671"N	104°28'52.0733"W	0.13	-9.04	-0.08	34.19	
267.30	0.400	275.150	267.30	-4555.70	0.04	-0.05	-0.82	40°11'25.3676"N	104°28'52.0786"W	0.30	118.29	0.30	-6.71	
361.80	0.600	357.500	361.80	-4461.20	0.60	0.48	-1.17	40°11'25.3729"N	104°28'52.0831"W	0.71	-166.37	0.21	87.14	
456.10	0.150	261.680	456.09	-4366.91	1.09	0.95	-1.32	40°11'25.3776"N	104°28'52.0848"W	0.67	147.85	-0.48	-101.61	
550.70	0.430	38.830	550.69	-4272.31	1.33	1.21	-1.22	40°11'25.3801"N	104°28'52.0835"W	0.58	158.45	0.30	144.98	
645.30	0.170	128.960	645.29	-4177.71	1.49	1.40	-0.89	40°11'25.3819"N	104°28'52.0792"W	0.49	15.04	-0.27	95.27	
739.80	0.360	136.960	739.79	-4083.21	1.15	1.09	-0.57	40°11'25.3789"N	104°28'52.0752"W	0.20	-155.71	0.20	8.47	
834.40	0.150	80.340	834.39	-3988.61	0.92	0.90	-0.25	40°11'25.3769"N	104°28'52.0711"W	0.32	-54.83	-0.22	-59.85	
928.90	0.310	48.810	928.89	-3894.11	1.07	1.09	0.06	40°11'25.3787"N	104°28'52.0670"W	0.21	-89.20	0.17	-33.37	
1023.40	0.340	25.350	1023.39	-3799.61	1.46	1.51	0.38	40°11'25.3829"N	104°28'52.0629"W	0.14	-109.76	0.03	-24.83	
1118.00	0.320	6.100	1117.99	-3705.01	1.96	2.03	0.53	40°11'25.3880"N	104°28'52.0609"W	0.12	-169.60	-0.02	-20.35	
1212.50	0.170	356.630	1212.49	-3610.51	2.36	2.43	0.55	40°11'25.3919"N	104°28'52.0606"W	0.16	-160.78	-0.16	-10.02	
1307.00	0.180	213.960	1306.99	-3516.01	2.38	2.44	0.45	40°11'25.3921"N	104°28'52.0618"W	0.35	-166.02	0.01	-150.97	
1401.80	0.050	167.510	1401.79	-3421.21	2.23	2.28	0.38	40°11'25.3905"N	104°28'52.0628"W	0.16	141.47	-0.14	-49.00	
1496.30	0.050	270.440	1496.29	-3326.71	2.19	2.24	0.35	40°11'25.3901"N	104°28'52.0632"W	0.08	-170.77	0.00	108.92	
1590.70	0.130	103.210	1590.69	-3232.31	2.16	2.22	0.41	40°11'25.3899"N	104°28'52.0624"W	0.19	122.72	0.08	-177.15	
1685.30	0.110	142.080	1685.28	-3137.72	2.05	2.12	0.57	40°11'25.3889"N	104°28'52.0603"W	0.09	175.19	-0.02	41.09	
1780.00	0.130	313.200	1779.98	-3043.02	2.05	2.12	0.55	40°11'25.3889"N	104°28'52.0606"W	0.25	142.87	0.02	180.70	
1874.70	0.080	354.880	1874.68	-2948.32	2.20	2.26	0.46	40°11'25.3903"N	104°28'52.0617"W	0.09	13.77	-0.05	44.01	
1932.00	0.230	3.900	1931.98	-2891.02	2.35	2.42	0.47	40°11'25.3918"N	104°28'52.0616"W	0.26	-38.32	0.26	15.74	TIE ON TO GYRO SURVEY
1988.00	0.520	341.500	1987.98	-2835.02	2.71	2.77	0.40	40°11'25.3953"N	104°28'52.0625"W	0.57	133.06	0.52	-40.00	FIRST BH MWD SURVEY
2083.00	0.380	25.710	2082.98	-2740.02	3.40	3.46	0.40	40°11'25.4022"N	104°28'52.0624"W	0.38	-138.37	-0.15	46.54	
2177.00	1.410	257.650	2176.97	-2646.03	3.54	3.50	-0.60	40°11'25.4026"N	104°28'52.0752"W	1.78	3.74	1.10	-136.23	
2272.00	4.950	260.330	2271.81	-2551.19	3.16	2.56	-5.78	40°11'25.3939"N	104°28'52.1421"W	3.73	18.94	3.73	2.82	
2367.00	7.760	267.340	2366.22	-2456.78	3.29	1.57	-16.23	40°11'25.3854"N	104°28'52.2769"W	3.06	-12.81	2.96	7.38	
2461.00	10.310	264.120	2459.05	-2363.95	3.71	0.41	-30.94	40°11'25.3756"N	104°28'52.4666"W	2.76	-48.36	2.71	-3.43	
2555.00	12.350	254.280	2551.22	-2271.78	2.07	-3.17	-48.99	40°11'25.3422"N	104°28'52.6997"W	2.98	-93.64	2.17	-10.47	
2649.00	12.360	246.150	2643.05	-2179.95	-2.68	-9.96	-67.87	40°11'25.2772"N	104°28'52.9439"W	1.85	20.27	0.01	-8.65	
2744.00	13.470	247.900	2735.64	-2087.36	-8.82	-18.24	-87.42	40°11'25.1977"N	104°28'53.1971"W	1.24	144.85	1.17	1.84	
2839.00	13.240	248.610	2828.07	-1994.93	-14.73	-26.37	-107.80	40°11'25.1197"N	104°28'53.4609"W	0.30	136.72	-0.24	0.75	
2934.00	12.980	249.710	2920.60	-1902.40	-20.21	-34.04	-127.94	40°11'25.0462"N	104°28'53.7215"W	0.38	-2.17	-0.27	1.16	
3122.00	14.280	249.510	3103.30	-1719.70	-31.14	-49.47	-169.46	40°11'24.8984"N	104°28'54.2588"W	0.69	177.99	0.69	-0.11	
3217.00	13.870	249.570	3195.45	-1627.55	-36.86	-57.55	-191.11	40°11'24.8210"N	104°28'54.5389"W	0.43	109.89	-0.43	0.06	
3311.00	13.680	251.920	3286.74	-1536.26	-41.95	-64.93	-212.23	40°11'24.7505"N	104°28'54.8122"W	0.63	89.80	-0.20	2.50	
3406.00	13.810	259.740	3379.03	-1443.97	-45.10	-70.44	-234.07	40°11'24.6985"N	104°28'55.0943"W	1.96	76.22	0.14	8.23	
3500.00	14.150	264.600	3470.25	-1352.75	-45.76	-73.52	-256.55	40°11'24.6707"N	104°28'55.3844"W	1.30	-89.22	0.36	5.17	
3594.00	14.410	254.250	3561.36	-1261.64	-47.58	-77.78	-279.25	40°11'24.6312"N	104°28'55.6775"W	2.73	-99.69	0.28	-11.01	
3689.00	14.210	246.420	3653.42	-1169.58	-53.06	-85.65	-301.32	40°11'24.5559"N	104°28'55.9630"W	2.05	53.94	-0.21	-8.24	
3784.00	14.380	247.350	3745.48	-1077.52	-59.91	-94.86	-322.89	40°11'24.4673"N	104°28'56.2423"W	0.30	-167.45	0.18	0.98	
3878.00	13.710	246.720	3836.67	-986.33	-66.52	-103.75	-343.89	40°11'24.3818"N	104°28'56.5143"W	0.73	-165.27	-0.71	-0.67	
3972.00	13.190	246.120	3928.09	-894.91	-73.08	-112.50	-363.93	40°11'24.2977"N	104°28'56.7738"W	0.57	105.16	-0.55	-0.64	
4067.00	13.110	247.480	4020.60	-802.40	-79.43	-121.01	-383.80	40°11'24.2158"N	104°28'57.0310"W	0.34	-60.66	-0.08	1.43	
4161.00	13.230	246.560	4112.13	-710.87	-85.64	-129.37	-403.51	40°11'24.1354"N	104°28'57.2862"W	0.26	128.65	0.13	-0.98	

REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Well	GUTTERSEN STATE DD30 -766
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API/Legal	
Facility	SEC.30-T03N-R63W	Wellbore	GUTTERSEN STATE DD30 -766 AWB
Slot	SLOT#03 GUTTERSEN STATE DD30 -766 (450'FSL & 2576'FWL,SEC.30)		

WELLPATH DATA (175 stations)														
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	TVDSS [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Toolface [°]	Build Rate [°/100ft]	Turn Rate [°/100ft]	Comments
4256.00	13.120	247.170	4204.63	-618.37	-91.98	-137.88	-423.42	40°11'24.0536"N	104°28'57.5441"W	0.19	-76.24	-0.12	0.64	
4351.00	13.170	246.300	4297.14	-525.86	-98.35	-146.42	-443.27	40°11'23.9715"N	104°28'57.8010"W	0.21	113.23	0.05	-0.92	
4445.00	13.100	247.030	4388.68	-434.32	-104.67	-154.88	-462.88	40°11'23.8901"N	104°28'58.0550"W	0.19	106.38	-0.07	0.78	
4539.00	13.040	247.960	4480.24	-342.76	-110.67	-163.01	-482.52	40°11'23.8119"N	104°28'58.3092"W	0.23	-93.83	-0.06	0.99	
4634.00	13.030	247.230	4572.80	-250.20	-116.68	-171.18	-502.33	40°11'23.7335"N	104°28'58.5657"W	0.17	143.10	-0.01	-0.77	
4729.00	12.560	248.870	4665.44	-157.56	-122.43	-179.05	-521.84	40°11'23.6579"N	104°28'58.8182"W	0.63	0.61	-0.49	1.73	
4823.00	12.980	248.890	4757.11	-65.89	-127.80	-186.54	-541.22	40°11'23.5862"N	104°28'59.0690"W	0.45	-150.69	0.45	0.02	
4918.00	11.690	245.250	4849.92	26.92	-133.64	-194.41	-559.92	40°11'23.5105"N	104°28'59.3111"W	1.58	24.82	-1.36	-3.83	
5012.00	12.420	246.810	4941.85	118.85	-139.65	-202.38	-577.86	40°11'23.4338"N	104°28'59.5434"W	0.85	27.64	0.78	1.66	
5107.00	13.040	248.240	5034.51	211.51	-145.54	-210.37	-597.20	40°11'23.3570"N	104°28'59.7938"W	0.73	-137.58	0.65	1.51	
5201.00	12.830	247.370	5126.13	303.13	-151.37	-218.32	-616.68	40°11'23.2807"N	104°29'0.0460"W	0.30	131.03	-0.22	-0.93	
5296.00	11.880	252.990	5218.93	395.93	-156.21	-225.24	-635.77	40°11'23.2144"N	104°29'0.2930"W	1.61	-9.27	-1.00	5.92	
5390.00	13.150	252.080	5310.69	487.69	-160.23	-231.36	-655.20	40°11'23.1562"N	104°29'0.5442"W	1.37	-101.03	1.35	-0.97	
5485.00	12.960	246.240	5403.24	580.24	-165.67	-238.98	-675.23	40°11'23.0832"N	104°29'0.8034"W	1.40	70.96	-0.20	-6.15	
5579.00	13.480	251.920	5494.75	671.75	-171.13	-246.62	-695.30	40°11'23.0099"N	104°29'1.0631"W	1.49	101.50	0.55	6.04	
5674.00	13.280	257.510	5587.18	764.18	-174.64	-252.42	-716.48	40°11'22.9550"N	104°29'1.3368"W	1.38	77.12	-0.21	5.88	
5768.00	13.730	264.170	5678.58	855.58	-175.78	-255.89	-738.12	40°11'22.8499"N	104°29'1.6161"W	1.72	108.29	0.48	7.09	
5862.00	13.240	272.410	5770.00	947.00	-174.13	-256.57	-759.97	40°11'22.9189"N	104°29'1.8978"W	2.11	-24.84	-0.52	8.77	
5957.00	13.930	271.090	5862.34	1039.34	-171.08	-255.89	-782.27	40°11'22.9281"N	104°29'2.1851"W	0.80	-90.42	0.73	-1.39	
6051.00	14.250	258.240	5953.54	1130.54	-170.80	-258.04	-804.92	40°11'22.9095"N	104°29'2.4772"W	3.34	-118.64	0.34	-13.67	
6146.00	13.270	249.090	6045.82	1222.82	-174.74	-264.31	-826.55	40°11'22.8499"N	104°29'2.7569"W	2.51	102.91	-1.03	-9.63	
6240.00	13.100	271.770	6137.40	1314.40	-176.03	-267.84	-847.29	40°11'22.8175"N	104°29'3.0246"W	5.47	83.37	-0.18	24.13	
6335.00	15.930	300.910	6229.48	1406.48	-166.69	-260.80	-869.27	40°11'22.8895"N	104°29'3.3067"W	8.14	53.64	2.98	30.67	
6430.00	21.550	318.450	6319.48	1496.48	-144.59	-241.01	-892.07	40°11'23.0876"N	104°29'3.5975"W	8.32	59.85	5.92	18.46	
6524.00	27.770	336.960	6404.99	1581.99	-109.48	-207.86	-912.14	40°11'23.4175"N	104°29'3.8512"W	10.48	36.53	6.62	19.69	
6619.00	35.680	346.500	6485.79	1662.79	-60.73	-160.45	-927.30	40°11'23.8877"N	104°29'4.0396"W	9.84	10.29	8.33	10.04	
6713.00	46.140	349.110	6556.73	1733.73	0.40	-100.34	-940.14	40°11'24.4831"N	104°29'4.1961"W	11.27	-7.94	11.13	2.78	
6808.00	53.620	347.820	6617.91	1794.91	72.67	-29.23	-954.70	40°11'25.1874"N	104°29'4.3732"W	7.94	5.64	7.87	-1.36	
6902.00	62.170	348.770	6667.82	1844.82	151.84	48.68	-970.81	40°11'25.9590"N	104°29'4.5693"W	9.14	10.67	9.10	1.01	
6997.00	69.450	350.230	6706.72	1883.72	238.19	133.83	-986.56	40°11'26.8022"N	104°29'4.7597"W	7.79	28.45	7.66	1.54	
7092.00	78.120	354.980	6733.24	1910.24	329.27	224.19	-998.20	40°11'27.6964"N	104°29'4.8964"W	10.31	24.38	9.13	5.00	
7186.00	89.140	359.930	6743.66	1920.66	422.33	317.34	-1002.30	40°11'28.6174"N	104°29'4.9354"W	12.84	-71.74	11.72	5.27	
7280.00	89.850	357.780	6744.49	1921.49	515.97	411.31	-1004.17	40°11'29.5461"N	104°29'4.9457"W	2.41	90.00	0.76	-2.29	
7375.00	89.850	0.300	6744.74	1921.74	610.58	506.29	-1005.77	40°11'30.4848"N	104°29'4.9522"W	2.65	-108.88	0.00	2.65	
7469.00	89.320	358.750	6745.42	1922.42	704.12	600.28	-1006.54	40°11'31.4137"N	104°29'4.9484"W	1.74	79.69	-0.56	-1.65	
7564.00	90.060	2.810	6745.93	1922.93	798.41	695.25	-1005.25	40°11'32.3520"N	104°29'4.9177"W	4.34	166.76	0.78	4.27	
7658.00	89.380	2.970	6746.39	1923.39	891.25	789.13	-1000.51	40°11'33.2791"N	104°29'4.8428"W	0.74	46.29	-0.72	0.17	
7752.00	91.540	5.230	6745.64	1922.64	983.74	882.88	-993.79	40°11'34.2046"N	104°29'4.7424"W	3.33	-91.73	2.30	2.40	
7847.00	91.350	359.220	6743.24	1920.24	1077.66	977.73	-990.11	40°11'35.1415"N	104°29'4.6809"W	6.33	-100.20	-0.20	-6.33	
7941.00	90.430	354.130	6741.78	1918.78	1171.51	1071.53	-995.56	40°11'36.0690"N	104°29'4.7373"W	5.50	107.90	-0.98	-5.41	
8035.00	89.290	357.660	6742.01	1919.01	1265.43	1165.27	-1002.29	40°11'36.9960"N	104°29'4.8102"W	3.95	81.75	-1.21	3.76	
8130.00	89.720	0.620	6742.83	1919.83	1360.02	1260.25	-1003.71	40°11'37.9347"N	104°29'4.8145"W	3.15	-88.93	0.45	3.12	
8224.00	89.780	357.430	6743.24	1920.24	1453.63	1354.22	-1005.31	40°11'38.8635"N	104°29'4.8213"W	3.39	84.92	0.06	-3.39	
8319.00	90.030	0.240	6743.40	1920.40	1548.27	1449.19	-1007.24	40°11'39.8021"N	104°29'4.8321"W	2.97	-98.97	0.26	2.96	
8413.00	89.910	359.480	6743.45	1920.45	1641.75	1543.19	-1007.47	40°11'40.7310"N	104°29'4.8212"W	0.82	82.24	-0.13	-0.81	

REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Well	GUTTERSEN STATE DD30 -766
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API/Legal	
Facility	SEC.30-T03N-R63W	Wellbore	GUTTERSEN STATE DD30 -766 AWB
Slot	SLOT#03 GUTTERSEN STATE DD30 -766 (450'FSL & 2576'FWL,SEC.30)		

WELLPATH DATA (175 stations)														
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	TVDSS [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Toolface [°]	Build Rate [°/100ft]	Turn Rate [°/100ft]	Comments
8508.00	89.970	359.920	6743.55	1920.55	1736.26	1638.19	-1007.97	40°11'41.6697"N	104°29'4.8136"W	0.47	93.37	0.06	0.46	
8603.00	89.940	0.430	6743.62	1920.62	1830.69	1733.19	-1007.68	40°11'42.6084"N	104°29'4.7959"W	0.54	18.12	-0.03	0.54	
8698.00	90.490	0.610	6743.26	1920.26	1925.05	1828.18	-1006.82	40°11'43.5470"N	104°29'4.7707"W	0.61	147.77	0.58	0.19	
8792.00	90.030	0.900	6742.84	1919.84	2018.38	1922.17	-1005.58	40°11'44.4756"N	104°29'4.7409"W	0.58	-90.00	-0.49	0.31	
8887.00	90.030	0.020	6742.79	1919.79	2112.75	2017.17	-1004.81	40°11'45.4142"N	104°29'4.7171"W	0.93	-96.34	0.00	-0.93	
8981.00	89.910	358.940	6742.84	1919.84	2206.30	2111.16	-1005.67	40°11'46.3431"N	104°29'4.7142"W	1.16	-170.76	-0.13	-1.15	
9076.00	89.050	358.800	6743.70	1920.70	2300.94	2206.14	-1007.54	40°11'47.2818"N	104°29'4.7243"W	0.92	72.47	-0.91	-0.15	
9170.00	89.660	0.730	6744.76	1921.76	2394.43	2300.13	-1007.93	40°11'48.2106"N	104°29'4.7154"W	2.15	-59.74	0.65	2.05	
9265.00	89.940	0.250	6745.09	1922.09	2488.80	2395.12	-1007.11	40°11'49.1492"N	104°29'4.6909"W	0.58	-33.49	0.29	-0.51	
9359.00	90.620	359.800	6744.63	1921.63	2582.26	2489.12	-1007.07	40°11'50.0780"N	104°29'4.6765"W	0.87	-169.08	0.72	-0.48	
9454.00	89.480	359.580	6744.55	1921.55	2676.77	2584.12	-1007.59	40°11'51.0168"N	104°29'4.6691"W	1.22	39.33	-1.20	-0.23	
9548.00	90.310	0.260	6744.72	1921.72	2770.25	2678.12	-1007.72	40°11'51.9456"N	104°29'4.6570"W	1.14	-18.61	0.88	0.72	
9643.00	91.260	359.940	6743.42	1920.42	2864.68	2773.11	-1007.55	40°11'52.8842"N	104°29'4.6408"W	1.06	-156.46	1.00	-0.34	
9737.00	90.250	359.500	6742.18	1919.18	2958.18	2867.10	-1008.01	40°11'53.8130"N	104°29'4.6329"W	1.17	114.55	-1.07	-0.47	
9832.00	89.880	0.310	6742.07	1919.07	3052.66	2962.09	-1008.17	40°11'54.7517"N	104°29'4.6209"W	0.94	-28.85	-0.39	0.85	
9926.00	90.860	359.770	6741.46	1918.46	3146.11	3056.09	-1008.10	40°11'55.6805"N	104°29'4.6062"W	1.19	175.54	1.04	-0.57	
10021.00	89.320	359.890	6741.31	1918.31	3240.60	3151.09	-1008.39	40°11'56.6193"N	104°29'4.5958"W	1.63	-25.20	-1.62	0.13	
10116.00	90.340	359.410	6741.60	1918.60	3335.11	3246.08	-1008.97	40°11'57.5580"N	104°29'4.5892"W	1.19	93.73	1.07	-0.51	
10211.00	90.310	359.870	6741.06	1918.06	3429.63	3341.08	-1009.56	40°11'58.4968"N	104°29'4.5829"W	0.49	46.33	-0.03	0.48	
10305.00	90.520	0.090	6740.38	1917.38	3523.10	3435.08	-1009.60	40°11'59.4256"N	104°29'4.5695"W	0.32	-106.31	0.22	0.23	
10400.00	90.280	359.270	6739.71	1916.71	3617.61	3530.07	-1010.13	40°12'0.3643"N	104°29'4.5623"W	0.90	95.71	-0.25	-0.86	
10495.00	90.250	359.570	6739.27	1916.27	3712.16	3625.07	-1011.09	40°12'1.3031"N	104°29'4.5606"W	0.32	-163.30	-0.03	0.32	
10589.00	90.150	359.540	6738.95	1915.95	3805.70	3719.06	-1011.82	40°12'2.2320"N	104°29'4.5562"W	0.11	70.66	-0.11	-0.03	
10684.00	90.550	0.680	6738.37	1915.37	3900.14	3814.06	-1011.64	40°12'3.1707"N	104°29'4.5398"W	1.27	-97.06	0.42	1.20	
10778.00	90.400	359.470	6737.59	1914.59	3993.59	3908.05	-1011.51	40°12'4.0995"N	104°29'4.5244"W	1.30	95.36	-0.16	-1.29	
10873.00	90.370	359.790	6736.95	1913.95	4088.11	4003.05	-1012.13	40°12'5.0382"N	104°29'4.5182"W	0.34	48.58	-0.03	0.34	
10968.00	90.520	359.960	6736.21	1913.21	4182.59	4098.05	-1012.33	40°12'5.9769"N	104°29'4.5069"W	0.24	-105.94	0.16	0.18	
11062.00	90.340	359.330	6735.50	1912.50	4276.11	4192.04	-1012.92	40°12'6.9058"N	104°29'4.5005"W	0.70	-106.70	-0.19	-0.67	
11156.00	90.280	359.130	6735.00	1912.00	4369.70	4286.03	-1014.18	40°12'7.8347"N	104°29'4.5029"W	0.22	-113.26	-0.06	-0.21	
11251.00	89.820	358.060	6734.91	1911.91	4464.37	4381.00	-1016.51	40°12'8.7734"N	104°29'4.5189"W	1.23	-6.20	-0.48	-1.13	
11346.00	90.280	358.010	6734.83	1911.83	4559.12	4475.95	-1019.77	40°12'9.7119"N	104°29'4.5469"W	0.49	70.50	0.48	-0.05	
11440.00	90.680	359.140	6734.04	1911.04	4652.80	4569.91	-1022.10	40°12'10.6407"N	104°29'4.5632"W	1.28	-145.84	0.43	1.20	
11535.00	90.400	358.950	6733.15	1910.15	4747.41	4664.89	-1023.69	40°12'11.5794"N	104°29'4.5696"W	0.36	79.99	-0.29	-0.20	
11630.00	90.460	359.290	6732.43	1909.43	4842.02	4759.88	-1025.15	40°12'12.5182"N	104°29'4.5743"W	0.36	-104.04	0.06	0.36	
11819.00	90.400	359.050	6731.02	1908.02	5030.21	4948.86	-1027.88	40°12'14.3858"N	104°29'4.5817"W	0.13	-124.29	-0.03	-0.13	
11913.00	90.250	358.830	6730.48	1907.48	5123.84	5042.84	-1029.62	40°12'15.3147"N	104°29'4.5903"W	0.28	71.07	-0.16	-0.23	
12008.00	90.370	359.180	6729.97	1906.97	5218.46	5137.82	-1031.27	40°12'16.2534"N	104°29'4.5975"W	0.39	-19.13	0.13	0.37	
12197.00	90.860	359.010	6727.94	1904.94	5406.66	5326.79	-1034.26	40°12'18.1210"N	104°29'4.6081"W	0.27	144.69	0.26	-0.09	
12291.00	90.620	359.180	6726.73	1903.73	5500.27	5420.77	-1035.74	40°12'19.0498"N	104°29'4.6134"W	0.31	99.24	-0.26	0.18	
12386.00	90.550	359.610	6725.76	1902.76	5594.82	5515.76	-1036.74	40°12'19.9885"N	104°29'4.6123"W	0.46	90.00	-0.07	0.45	
12481.00	90.550	359.780	6724.84	1901.84	5689.33	5610.75	-1037.25	40°12'20.9273"N	104°29'4.6048"W	0.18	-121.39	0.00	0.18	
12575.00	89.720	358.420	6724.62	1901.62	5782.94	5704.74	-1038.73	40°12'21.8561"N	104°29'4.6099"W	1.69	-56.31	-0.88	-1.45	
12670.00	90.340	357.490	6724.57	1901.57	5877.70	5799.67	-1042.12	40°12'22.7946"N	104°29'4.6396"W	1.18	118.67	0.65	-0.98	
12765.00	89.230	359.520	6724.93	1901.93	5972.38	5894.63	-1044.60	40°12'23.7333"N	104°29'4.6575"W	2.44	-32.09	-1.17	2.14	
12859.00	90.490	358.730	6725.16	1902.16	6065.99	5988.62	-1046.03	40°12'24.6621"N	104°29'4.6622"W	1.58	110.90	1.34	-0.84	

REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Well	GUTTERSEN STATE DD30 -766
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API/Legal	
Facility	SEC.30-T03N-R63W	Wellbore	GUTTERSEN STATE DD30 -766 AWB
Slot	SLOT#03 GUTTERSEN STATE DD30 -766 (450'FSL & 2576'FWL,SEC.30)		

WELLPATH DATA (175 stations) † = interpolated, ‡ = extrapolated station														Comments
MD (ft)	Inclination (°)	Azimuth (°)	TVD (ft)	TVDSS (ft)	Vert Sect (ft)	North (ft)	East (ft)	Latitude	Longitude	DLS (°/100ft)	Toolface (°)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
12954.00	89.940	0.170	6724.80	1901.80	6160.53	6083.61	-1046.94	40°12'25.6009"N	104°29'4.6599"W	1.62	-34.00	-0.58	1.52	
13048.00	90.370	359.880	6724.55	1901.55	6253.99	6177.61	-1046.90	40°12'26.5297"N	104°29'4.6455"W	0.55	109.44	0.46	-0.31	
13143.00	90.310	0.050	6723.98	1900.98	6348.46	6272.61	-1046.96	40°12'27.4684"N	104°29'4.6322"W	0.19	28.44	-0.06	0.18	
13332.00	90.550	0.180	6722.57	1899.57	6536.34	6461.60	-1046.58	40°12'29.3359"N	104°29'4.5994"W	0.14	-119.74	0.13	0.07	
13426.00	90.310	359.760	6721.86	1898.86	6629.80	6555.60	-1046.63	40°12'30.2647"N	104°29'4.5862"W	0.51	49.55	-0.26	-0.45	
13521.00	90.830	0.370	6720.92	1897.92	6724.24	6650.60	-1046.52	40°12'31.2034"N	104°29'4.5708"W	0.84	-122.69	0.55	0.64	
13710.00	90.400	359.700	6718.89	1895.89	6912.14	6839.58	-1046.41	40°12'33.0708"N	104°29'4.5414"W	0.42	75.68	-0.23	-0.35	
13805.00	90.520	0.170	6718.12	1895.12	7006.61	6934.58	-1046.51	40°12'34.0095"N	104°29'4.5288"W	0.51	101.56	0.13	0.49	
13888.00	90.340	1.050	6717.50	1894.50	7089.04	7017.57	-1045.63	40°12'34.8246"N	104°29'4.5051"W	1.08	-88.11	-0.22	1.06	
13983.00	90.520	355.530	6716.79	1893.79	7183.72	7112.49	-1048.46	40°12'35.7677"N	104°29'4.5277"W	5.81	-75.85	0.19	-5.81	
14078.00	92.860	346.170	6713.98	1890.98	7278.43	7206.13	-1063.54	40°12'36.6947"N	104°29'4.7082"W	10.15	-166.01	2.46	-9.85	
14172.00	90.250	345.520	6711.43	1888.43	7371.46	7297.23	-1086.52	40°12'37.5975"N	104°29'4.9909"W	2.86	91.21	-2.78	-0.69	
14267.00	90.090	352.990	6711.15	1888.15	7466.09	7390.50	-1104.22	40°12'38.5211"N	104°29'5.2052"W	7.86	88.06	-0.17	7.86	
14361.00	90.150	354.760	6710.95	1887.95	7560.08	7483.96	-1114.25	40°12'39.4458"N	104°29'5.3207"W	1.88	90.77	0.06	1.88	
14456.00	90.120	356.990	6710.73	1887.73	7655.02	7578.71	-1121.08	40°12'40.3828"N	104°29'5.3948"W	2.35	85.97	-0.03	2.35	
14551.00	90.310	359.690	6710.37	1887.37	7749.72	7673.66	-1123.83	40°12'41.3213"N	104°29'5.4162"W	2.85	90.64	0.20	2.84	
14645.00	90.250	4.960	6709.91	1886.91	7842.67	7767.55	-1120.02	40°12'42.2486"N	104°29'5.3532"W	5.61	127.24	-0.06	5.61	
14740.00	90.060	5.210	6709.65	1886.65	7935.86	7862.17	-1111.60	40°12'43.1827"N	104°29'5.2308"W	0.33	77.01	-0.20	0.26	
14834.00	90.150	5.600	6709.48	1886.48	8027.96	7955.76	-1102.75	40°12'44.1064"N	104°29'5.1028"W	0.43	93.65	0.10	0.41	
14929.00	90.060	7.010	6709.31	1886.31	8120.74	8050.18	-1092.31	40°12'45.0383"N	104°29'4.9544"W	1.49	73.30	-0.09	1.48	
15023.00	90.120	7.210	6709.16	1886.16	8212.24	8143.46	-1080.68	40°12'45.9587"N	104°29'4.7907"W	0.22	-88.21	0.06	0.21	
15117.00	90.150	6.250	6708.94	1885.94	8303.89	8236.81	-1069.66	40°12'46.8798"N	104°29'4.6349"W	1.02	79.51	0.03	-1.02	
15212.00	90.250	6.790	6708.61	1885.61	8396.59	8331.19	-1058.88	40°12'47.8113"N	104°29'4.4820"W	0.58	-90.00	0.11	0.57	
15306.00	90.250	6.150	6708.20	1885.20	8488.33	8424.59	-1048.28	40°12'48.7330"N	104°29'4.3317"W	0.68	-90.00	0.00	-0.68	
15401.00	90.250	5.200	6707.78	1884.78	8581.32	8519.12	-1038.89	40°12'49.6660"N	104°29'4.1966"W	1.00	-97.08	0.00	-1.00	
15495.00	90.060	3.670	6707.53	1884.53	8673.73	8612.84	-1031.62	40°12'50.5912"N	104°29'4.0891"W	1.64	-86.99	-0.20	-1.63	
15590.00	90.180	1.390	6707.33	1884.33	8767.64	8707.74	-1027.43	40°12'51.5285"N	104°29'4.0211"W	2.40	-109.09	0.13	-2.40	
15684.00	90.090	1.130	6707.11	1884.11	8860.86	8801.72	-1025.36	40°12'52.4569"N	104°29'3.9805"W	0.29	-113.20	-0.10	-0.28	
15779.00	89.940	0.780	6707.08	1884.08	8955.14	8896.70	-1023.78	40°12'53.3953"N	104°29'3.9461"W	0.40	-72.92	-0.16	-0.37	
15873.00	90.490	358.990	6706.73	1883.73	9048.62	8990.70	-1023.97	40°12'54.3241"N	104°29'3.9347"W	1.99	-99.39	0.59	-1.90	
15968.00	90.280	357.720	6706.09	1883.09	9143.33	9085.66	-1026.69	40°12'55.2627"N	104°29'3.9558"W	1.35	96.27	-0.22	-1.34	
16062.00	90.180	358.630	6705.71	1882.71	9237.06	9179.61	-1029.69	40°12'56.1914"N	104°29'3.9805"W	0.97	84.03	-0.11	0.97	
16157.00	90.250	359.300	6705.36	1882.36	9331.69	9274.59	-1031.40	40°12'57.1302"N	104°29'3.9886"W	0.71	180.00	0.07	0.71	
16251.00	90.120	359.300	6705.05	1882.05	9425.27	9368.58	-1032.55	40°12'58.0591"N	104°29'3.9895"W	0.14	85.91	-0.14	0.00	
16345.00	90.150	359.720	6704.83	1881.83	9518.81	9462.58	-1033.35	40°12'58.9879"N	104°29'3.9860"W	0.45	-96.12	0.03	0.45	
16440.00	90.120	359.440	6704.61	1881.61	9613.34	9557.57	-1034.05	40°12'59.9267"N	104°29'3.9810"W	0.30	-88.52	-0.03	-0.29	
16535.00	90.150	358.280	6704.38	1881.38	9707.98	9652.55	-1035.94	40°13'0.8655"N	104°29'3.9913"W	1.22	94.15	0.03	-1.22	
16629.00	89.630	5.450	6704.56	1881.56	9801.01	9746.44	-1032.88	40°13'1.7929"N	104°29'3.9380"W	7.65	80.13	-0.55	7.63	
16708.00	90.180	8.610	6704.70	1881.70	9877.93	9824.84	-1023.22	40°13'2.5664"N	104°29'3.8019"W	4.06	0.00	0.70	4.00	LAST BH MWD SURVEY
16732.00†	90.180	8.610	6704.62	1881.62	9901.14	9848.57	-1019.62	40°13'2.8005"N	104°29'3.7520"W	0.00		0.00	0.00	EXTRAPOLATED TO TD

REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Well	GUTTERSEN STATE DD30 -766
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API/Legal	
Facility	SEC.30-T03N-R63W	Wellbore	GUTTERSEN STATE DD30 -766 AWB
Slot	SLOT#03 GUTTERSEN STATE DD30 -766 (450'FSL & 2576'FWL,SEC.30)		

TARGETS								
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
GUTTERSEN STATE DD30 -775 SECTION LINE 19	-1.00	-0.45	-39.11	3284597.87	1313832.86	40°11'25.3680"N	104°28'52.5720"W	polygon
	2D Polygon: dimensions not calculated							
GUTTERSEN STATE DD30 -775 SECTION LINE 30	-1.00	-0.45	-39.11	3284597.87	1313832.86	40°11'25.3680"N	104°28'52.5720"W	polygon
	2D Polygon: dimensions not calculated							
GUTTERSEN STATE DD30 -766 BHL REV-1 (200'FNL & 1600'FWL,SEC.19)	6700.72	9865.77	-1057.25	3283579.78	1323698.64	40°13'2.9748"N	104°29'4.2346"W	point
GUTTERSEN STATE DD30 -766 TPZ REV-1 (800'FSL & 1600'FWL,SEC.30)	6745.00	341.84	-980.43	3283656.60	1314175.14	40°11'28.8570"N	104°29'4.6500"W	point

WELLPATH COMPOSITION - Ref Wellbore: GUTTERSEN STATE DD30 -766 AWB					Ref Wellpath: GUTTERSEN STATE DD30 -766 AWP	
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment		Wellbore	Survey Date
0.00	1932.00	Gyrodata 2015 - GC+DROP+OH	3rd Party Surface Gyros <81.9'-1932'>		GUTTERSEN STATE DD30 -766 AWB	11/12/2019
1932.00	16732.00	OWSG MWD rev2 + IFR1 + Multi-Station Correction	BH/ATC 8.5" Hole OWSG MWD+IFR+MSA <1988'-16708'>		GUTTERSEN STATE DD30 -766 AWB	11/12/2019

REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Well	GUTTERSEN STATE DD30 -766
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API/Legal	
Facility	SEC.30-T03N-R63W	Wellbore	GUTTERSEN STATE DD30 -766 AWB
Slot	SLOT#03 GUTTERSEN STATE DD30 -766 (450'FSL & 2576'FWL,SEC.30)		

WELLPATH COMMENTS				
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
81.90	0.210	248.980	81.90	3RD PARTY FIRST GYRO SURVEY
1932.00	0.230	3.900	1931.98	TIE ON TO GYRO SURVEY
1988.00	0.520	341.500	1987.98	FIRST BH MWD SURVEY
16708.00	90.180	8.610	6704.70	LAST BH MWD SURVEY
16732.00	90.180	8.610	6704.62	EXTRAPOLATED TO TD