

NOBLE ENERGY, INC

Location: COLORADO

Slot: SLOT#37 VOGLER STATE D33-769 (1065'FSL & 1010'FWL, SEC.21)

Field: WELD COUNTY (NOBLE NAD 83 GRID)

Well: VOGLER STATE D33-769

Facility: SEC.21-T03N-R64W

Wellbore: VOGLER STATE D33-769 AWB

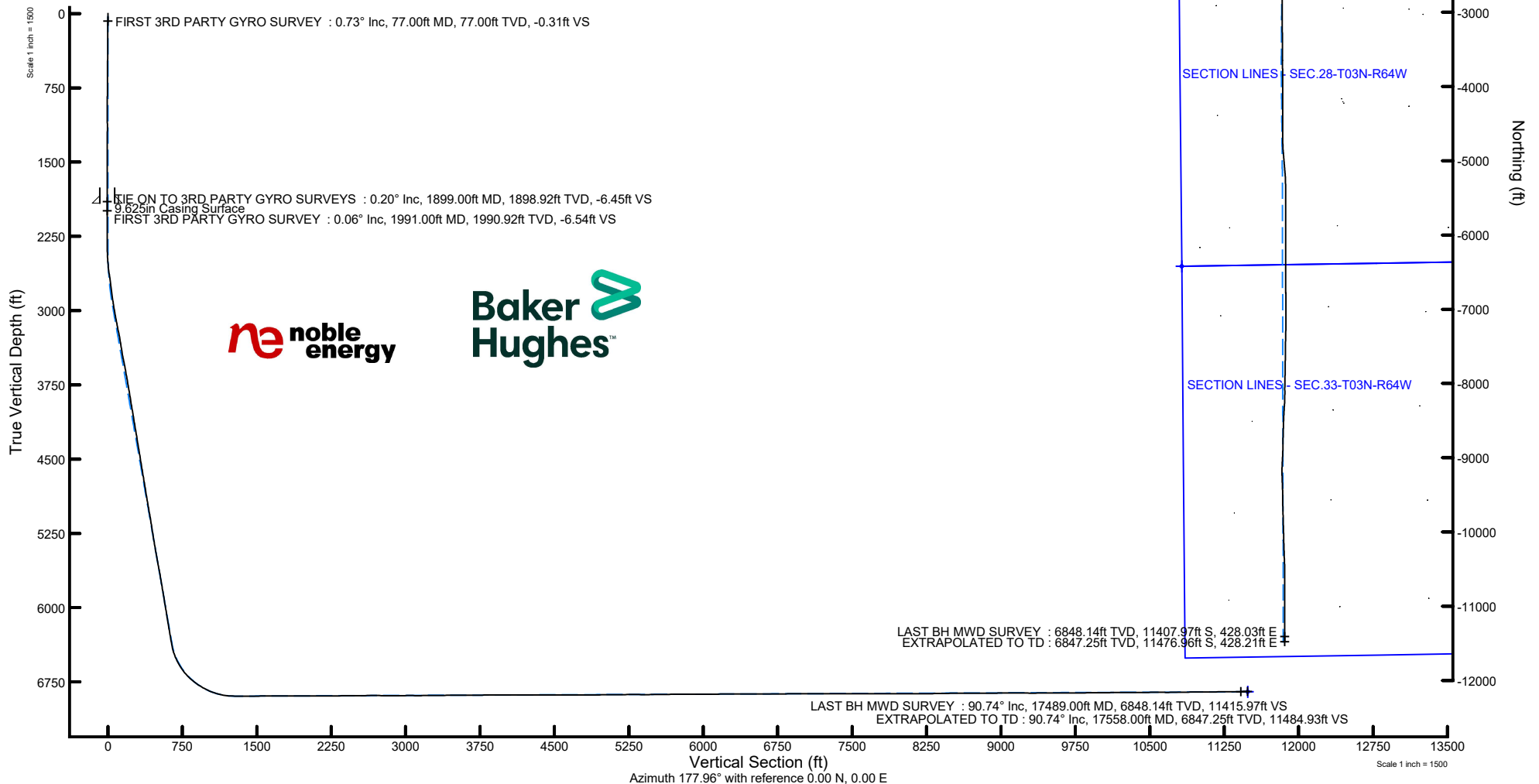
Plot reference wellpath is VOGLER STATE D33-769 AWP	Grid System: NAD83 / Lambert Colorado SP, Northern Zone (501), US feet
True vertical depths are referenced to H&P 321 (4796'GL+30'KB@4826') (RKB)	North Reference: Grid north
Reference wellpath measured depths are referenced to H&P 321 (4796'GL+30'KB@4826') (RKB)	Scale: True distance
H&P 321 (4796'GL+30'KB@4826') (RKB) to Mean Sea Level: 4826 feet	Coordinates are in feet referenced to Slot
Mean Sea Level to Ground level (At Slot: SLOT#37 VOGLER STATE D33-769 (1065'FSL & 1010'FWL, SEC.21)): 0 feet	Depths are in feet
Offset wellpath MDs are referenced to each path's default MD datum	Created by: manajohj on 2020-03-13; Database: WA, NOBLE

SLOT#37 VOGLER STATE D33-769 (1065'FSL & 1010'FWL, SEC.21)

FIRST 3RD PARTY GYRO SURVEY : 77.00ft TVD, 0.32ft N, 0.37ft E

TIE ON TO 3RD PARTY GYRO SURVEYS : 1898.92ft TVD, 6.72ft N, 7.48ft E

FIRST BH MWD SURVEY : 1990.92ft TVD, 6.82ft N, 7.57ft E



REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Well	VOGLER STATE D33-769
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API/Legal	
Facility	SEC.21-T03N-R64W	Wellbore	VOGLER STATE D33-769 AWP
Slot	SLOT#37 VOGLER STATE D33-769 (1065'FSL & 1010'FWL, SEC.21)		

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	3/13/2020 at 1:21:42 PM
Convergence at slot	0.61° 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	491.48	346.21	3261957.20	1319509.94	40°12'23.9364"N	104°33'43.5312"W
Facility Reference Pt			3261611.01	1319018.48	40°12'19.1160"N	104°33'48.0600"W
Field Reference Pt			3000000.00	4454105.15	48°46'34.3150"N	105°30'0.0000"W

WELLPATH DATUM			
Calculation method	Minimum curvature	H&P 321 (4796'GL+30'KB@4826') (RKB) to Facility Vertical Datum	4826.00ft
Horizontal Reference Pt	Slot	H&P 321 (4796'GL+30'KB@4826') (RKB) to Mean Sea Level	4826.00ft
Vertical Reference Pt	H&P 321 (4796'GL+30'KB@4826') (RKB)	H&P 321 (4796'GL+30'KB@4826') (RKB) to Ground Level at Slot (SLOT#37 VOGLER STATE D33-769 (1065'FSL & 1010'FWL, SEC.21))	4826.00ft
MD Reference Pt	H&P 321 (4796'GL+30'KB@4826') (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	177.96°

REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY, INC	Well	VOGLER STATE D33-769
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API/Legal	
Facility	SEC.21-T03N-R64W	Wellbore	VOGLER STATE D33-769 AWP
Slot	SLOT#37 VOGLER STATE D33-769 (1065'FSL & 1010'FWL, SEC.21)		

WELLPATH DATA (180 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	TVDSS [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Toothface [°]	Build Rate [°/100ft]	Turn Rate [°/100ft]	Comments
0.00	0.000	48.510	0.00	-4826.00	0.00	0.00	0.00	40°12'23.9364"N	104°33'43.5312"W	0.00	0.00	0.00	0.00	
77.00	0.730	48.510	77.00	-4749.00	-0.31	0.32	0.37	40°12'23.9396"N	104°33'43.5264"W	0.95	52.70	0.95	0.00	FIRST 3RD PARTY GYRO SURVEY
175.00	0.960	63.990	174.99	-4651.01	-1.04	1.10	1.57	40°12'23.9471"N	104°33'43.5108"W	0.33	-76.28	0.23	15.80	
266.00	0.970	61.750	265.97	-4560.03	-1.69	1.80	2.94	40°12'23.9539"N	104°33'43.4931"W	0.04	128.40	0.01	-2.46	
361.00	0.880	69.900	360.96	-4465.04	-2.27	2.43	4.33	40°12'23.9599"N	104°33'43.4751"W	0.17	-35.51	-0.09	8.58	
455.00	1.000	65.130	454.95	-4371.05	-2.81	3.02	5.75	40°12'23.9657"N	104°33'43.4567"W	0.15	-167.35	0.13	-5.07	
550.00	0.880	63.370	549.94	-4276.06	-3.44	3.70	7.16	40°12'23.9722"N	104°33'43.4385"W	0.13	-113.27	-0.13	-1.85	
645.00	0.810	36.500	644.93	-4181.07	-4.27	4.56	8.21	40°12'23.9806"N	104°33'43.4248"W	0.42	-158.57	-0.07	-28.28	
739.00	0.360	2.640	738.92	-4087.08	-5.08	5.39	8.62	40°12'23.9888"N	104°33'43.4194"W	0.58	150.53	-0.48	-36.02	
833.00	0.180	73.500	832.92	-3993.08	-5.41	5.73	8.77	40°12'23.9921"N	104°33'43.4174"W	0.37	-151.30	-0.19	75.38	
928.00	0.240	303.310	927.92	-3898.08	-5.57	5.88	8.75	40°12'23.9936"N	104°33'43.4176"W	0.40	-165.40	0.06	-137.04	
1022.00	0.140	163.510	1021.92	-3804.08	-5.57	5.88	8.62	40°12'23.9936"N	104°33'43.4193"W	0.38	145.62	-0.11	-148.72	
1117.00	0.080	210.280	1116.92	-3709.08	-5.40	5.71	8.62	40°12'23.9919"N	104°33'43.4194"W	0.11	-169.74	-0.06	49.23	
1211.00	0.180	45.080	1210.92	-3615.08	-5.45	5.76	8.69	40°12'23.9924"N	104°33'43.4184"W	0.27	-170.17	0.11	-175.74	
1306.00	0.050	272.820	1305.92	-3520.08	-5.55	5.87	8.75	40°12'23.9935"N	104°33'43.4176"W	0.23	-112.08	-0.14	-139.22	
1400.00	0.070	202.190	1399.92	-3426.08	-5.50	5.82	8.69	40°12'23.9930"N	104°33'43.4184"W	0.08	104.28	0.02	-75.14	
1494.00	0.160	281.380	1493.92	-3332.08	-5.48	5.79	8.54	40°12'23.9927"N	104°33'43.4204"W	0.17	122.19	0.10	84.24	
1589.00	0.220	5.590	1588.92	-3237.08	-5.69	6.00	8.43	40°12'23.9948"N	104°33'43.4218"W	0.27	-125.73	0.06	88.64	
1683.00	0.180	337.020	1682.92	-3143.08	-6.01	6.31	8.39	40°12'23.9979"N	104°33'43.4223"W	0.11	-91.29	-0.04	-30.39	
1778.00	0.410	271.760	1777.92	-3048.08	-6.17	6.46	7.99	40°12'23.9994"N	104°33'43.4274"W	0.39	134.99	0.24	-68.69	
1873.00	0.290	317.870	1872.92	-2953.08	-6.38	6.65	7.49	40°12'24.0013"N	104°33'43.4338"W	0.31	148.97	-0.13	48.54	
1899.00	0.200	58.460	1898.92	-2927.08	-6.45	6.72	7.48	40°12'24.0020"N	104°33'43.4339"W	1.47	-169.66	-0.35	386.88	TIE ON TO 3RD PARTY GYRO SURVEYS
1991.00	0.060	285.560	1990.92	-2835.08	-6.54	6.82	7.57	40°12'24.0030"N	104°33'43.4327"W	0.27	-155.05	-0.15	-144.46	FIRST BH MWD SURVEY
2085.00	0.030	188.030	2084.92	-2741.08	-6.53	6.81	7.52	40°12'24.0029"N	104°33'43.4333"W	0.08	-105.53	-0.03	-103.76	
2180.00	0.220	90.050	2179.92	-2646.08	-6.50	6.78	7.70	40°12'24.0026"N	104°33'43.4310"W	0.24	156.97	0.20	-103.14	
2275.00	0.910	241.590	2274.91	-2551.09	-6.16	6.42	7.22	40°12'23.9991"N	104°33'43.4373"W	1.17	166.10	0.73	159.52	
2369.00	0.220	311.390	2368.91	-2457.09	-5.95	6.19	6.43	40°12'23.9969"N	104°33'43.4475"W	0.91	-132.00	-0.73	74.26	
2558.00	6.380	180.850	2557.53	-2268.47	4.30	-4.08	6.00	40°12'23.8954"N	104°33'43.4544"W	3.45	-45.11	3.26	-69.07	
2652.00	9.010	165.790	2650.68	-2175.32	16.71	-16.45	7.73	40°12'23.7731"N	104°33'43.4338"W	3.50	-114.22	2.80	-16.02	
2747.00	8.310	132.390	2744.66	-2081.34	28.80	-28.29	14.63	40°12'23.6553"N	104°33'43.3465"W	5.27	59.23	-0.74	-35.16	
2841.00	10.040	146.370	2837.46	-1988.54	40.53	-39.70	24.19	40°12'23.5416"N	104°33'43.2249"W	2.99	-67.18	1.84	14.87	
2936.00	10.740	138.640	2930.91	-1895.09	54.44	-53.24	34.62	40°12'23.4067"N	104°33'43.0922"W	1.64	91.71	0.74	-8.14	
3031.00	11.250	157.990	3024.19	-1801.81	70.00	-68.48	43.95	40°12'23.2552"N	104°33'42.9741"W	3.90	46.21	0.54	20.37	
3220.00	11.770	160.590	3209.39	-1616.61	105.73	-103.75	57.26	40°12'22.9052"N	104°33'42.8073"W	0.39	172.14	0.28	1.38	
3314.00	10.480	161.570	3301.63	-1524.37	123.08	-120.90	63.15	40°12'22.7351"N	104°33'42.7338"W	1.39	129.87	-1.37	1.04	
3409.00	8.550	181.590	3395.34	-1430.66	138.42	-136.17	65.69	40°12'22.5840"N	104°33'42.7032"W	4.00	-26.46	-2.03	21.07	
3504.00	11.650	174.170	3488.86	-1337.14	155.05	-152.77	66.47	40°12'22.4198"N	104°33'42.6954"W	3.53	-98.03	3.26	-7.81	
3598.00	12.320	145.100	3580.89	-1245.11	172.96	-170.46	73.18	40°12'22.2444"N	104°33'42.6114"W	6.39	118.08	0.71	-30.93	
3693.00	11.850	149.740	3673.79	-1152.21	190.07	-187.19	83.89	40°12'22.0779"N	104°33'42.4756"W	1.14	-109.03	-0.49	4.88	
3787.00	11.430	142.150	3765.86	-1060.14	206.13	-202.88	94.47	40°12'21.9217"N	104°33'42.3414"W	1.69	130.97	-0.45	-8.07	
3882.00	11.300	142.920	3859.00	-967.00	221.38	-217.74	105.86	40°12'21.7737"N	104°33'42.1966"W	0.21	69.22	-0.14	0.81	
3976.00	11.390	144.090	3951.16	-874.84	236.63	-232.61	116.85	40°12'21.6257"N	104°33'42.0569"W	0.26	-172.02	0.10	1.24	
4071.00	11.320	144.040	4044.30	-781.70	252.16	-247.75	127.83	40°12'21.4749"N	104°33'41.9175"W	0.07	-64.38	-0.07	-0.05	
4165.00	11.510	142.120	4136.45	-689.55	267.42	-262.62	139.01	40°12'21.3268"N	104°33'41.7755"W	0.45	124.62	0.20	-2.04	
4260.00	11.330	143.470	4229.56	-596.44	282.79	-277.60	150.38	40°12'21.1776"N	104°33'41.6310"W	0.34	-50.32	-0.19	1.42	

REFERENCE WELLPATH IDENTIFICATION			
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Field	WELD COUNTY (NOBLE NAD 83 GRID)	API/Legal	
Facility	SEC.21-T03N-R64W	Wellbore	VOGLER STATE D33-769 AWB
Slot	SLOT#37 VOGLER STATE D33-769 (1065'FSL & 1010'FWL, SEC.21)		

WELLPATH DATA (180 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
4355.00	11.480	142.570	4322.69	-503.31	298.19	-292.61	161.68	40°12'21.0281"N	104°33'41.4874"W	0.24	133.98	0.16	-0.95	
4449.00	11.300	143.530	4414.84	-411.16	313.41	-307.44	172.84	40°12'20.8804"N	104°33'41.3456"W	0.28	-140.48	-0.19	1.02	
4544.00	11.220	143.190	4508.01	-317.99	328.68	-322.33	183.91	40°12'20.7321"N	104°33'41.2050"W	0.11	21.39	-0.08	-0.36	
4638.00	11.490	143.720	4600.17	-225.83	343.94	-337.20	194.93	40°12'20.5840"N	104°33'41.0650"W	0.31	-179.73	0.29	0.56	
4732.00	11.080	143.710	4692.35	-133.65	359.14	-352.02	205.82	40°12'20.4364"N	104°33'40.9267"W	0.44	1.33	-0.44	-0.01	
4827.00	11.600	143.770	4785.50	-40.50	374.59	-367.09	216.86	40°12'20.2864"N	104°33'40.7864"W	0.55	170.33	0.55	0.06	
4921.00	10.860	144.440	4877.70	51.70	389.79	-381.91	227.60	40°12'20.1388"N	104°33'40.6500"W	0.80	-25.87	-0.79	0.71	
5016.00	11.880	142.060	4970.83	144.83	405.17	-396.91	238.82	40°12'19.9894"N	104°33'40.5075"W	1.18	91.37	1.07	-2.51	
5111.00	11.920	148.420	5063.79	237.79	421.63	-412.98	249.97	40°12'19.8295"N	104°33'40.3660"W	1.38	-177.00	0.04	6.69	
5205.00	9.970	147.830	5156.08	330.08	437.12	-428.14	259.38	40°12'19.6787"N	104°33'40.2467"W	2.08	-48.97	-2.07	-0.63	
5300.00	10.630	143.870	5249.55	423.55	451.49	-442.17	268.93	40°12'19.5390"N	104°33'40.1256"W	1.02	30.07	0.69	-4.17	
5394.00	11.660	146.780	5341.78	515.78	466.80	-457.12	279.25	40°12'19.3902"N	104°33'39.9947"W	1.25	139.11	1.10	3.10	
5489.00	10.510	152.490	5435.00	609.00	482.83	-472.84	288.51	40°12'19.2339"N	104°33'39.8775"W	1.67	87.49	-1.21	6.01	
5584.00	10.910	165.880	5528.36	702.36	499.45	-489.25	294.70	40°12'19.0711"N	104°33'39.7999"W	2.65	-81.85	0.42	14.09	
5678.00	11.640	151.980	5620.57	794.57	516.68	-506.25	301.33	40°12'18.9024"N	104°33'39.7168"W	2.99	-98.04	0.78	-14.79	
5773.00	11.530	145.660	5713.63	887.63	533.32	-522.55	311.19	40°12'18.7403"N	104°33'39.5920"W	1.34	-137.78	-0.12	-6.65	
5867.00	11.100	143.600	5805.81	979.81	548.73	-537.59	321.86	40°12'18.5906"N	104°33'39.4565"W	0.63	39.96	-0.46	-2.19	
5962.00	11.390	144.820	5898.98	1072.98	564.14	-552.62	332.69	40°12'18.4410"N	104°33'39.3190"W	0.39	-124.91	0.31	1.28	
6056.00	11.160	143.080	5991.17	1165.17	579.37	-567.48	343.50	40°12'18.2930"N	104°33'39.1817"W	0.44	10.99	-0.24	-1.85	
6151.00	11.200	143.120	6084.37	1258.37	594.49	-582.21	354.56	40°12'18.1463"N	104°33'39.0411"W	0.04	88.82	0.04	0.04	
6245.00	11.290	149.350	6176.57	1350.57	610.06	-597.42	364.73	40°12'17.9949"N	104°33'38.9122"W	1.30	-98.22	0.10	6.63	
6340.00	11.210	145.720	6269.74	1443.74	626.03	-613.06	374.67	40°12'17.8394"N	104°33'38.7862"W	0.75	-57.98	-0.08	-3.82	
6434.00	11.440	143.910	6361.91	1535.91	641.49	-628.14	385.31	40°12'17.6892"N	104°33'38.6511"W	0.45	52.99	0.24	-1.93	
6528.00	17.800	166.370	6452.89	1626.89	663.32	-649.67	394.20	40°12'17.4755"N	104°33'38.5395"W	8.95	23.17	6.77	23.89	
6623.00	26.680	174.590	6540.76	1714.76	698.92	-685.10	399.65	40°12'17.1249"N	104°33'38.4741"W	9.88	6.95	9.35	8.65	
6717.00	35.240	176.390	6621.29	1795.29	747.19	-733.26	403.35	40°12'16.6485"N	104°33'38.4330"W	9.16	-24.51	9.11	1.91	
6812.00	44.490	170.500	6694.16	1868.16	807.74	-793.60	410.59	40°12'16.0516"N	104°33'38.3479"W	10.51	7.44	9.74	-6.20	
6907.00	52.960	171.880	6756.77	1930.77	878.58	-864.10	421.46	40°12'15.3538"N	104°33'38.2175"W	8.98	24.75	8.92	1.45	
7001.00	60.150	175.660	6808.56	1982.56	956.74	-942.00	429.86	40°12'14.5831"N	104°33'38.1199"W	8.35	31.69	7.65	4.02	
7096.00	68.850	181.320	6849.44	2023.44	1042.35	-1027.59	431.96	40°12'13.7371"N	104°33'38.1045"W	10.62	23.78	9.16	5.96	
7190.00	76.680	184.840	6877.28	2051.28	1131.68	-1117.15	427.08	40°12'12.8527"N	104°33'38.1796"W	9.06	9.44	8.33	3.74	
7285.00	86.460	186.460	6891.19	2065.19	1224.69	-1210.55	417.83	40°12'11.9307"N	104°33'38.3116"W	10.43	-49.23	10.29	1.71	
7379.00	90.220	182.110	6893.91	2067.91	1318.04	-1304.21	410.81	40°12'11.0060"N	104°33'38.4148"W	6.11	-87.85	4.00	-4.63	
7474.00	90.250	181.310	6893.53	2067.53	1412.83	-1399.17	407.98	40°12'10.0680"N	104°33'38.4643"W	0.84	156.80	0.03	-0.84	
7568.00	90.180	181.340	6893.17	2067.17	1506.67	-1493.14	405.80	40°12'9.1396"N	104°33'38.5051"W	0.08	-71.56	-0.07	0.03	
7663.00	90.310	180.950	6892.77	2066.77	1601.52	-1588.12	403.90	40°12'8.2013"N	104°33'38.5426"W	0.43	108.44	0.14	-0.41	
7758.00	90.250	181.130	6892.30	2066.30	1696.38	-1683.11	402.18	40°12'7.2629"N	104°33'38.5777"W	0.20	100.05	-0.06	0.19	
7852.00	90.000	182.540	6892.10	2066.10	1790.17	-1777.05	399.17	40°12'6.3348"N	104°33'38.6294"W	1.52	71.82	-0.27	1.50	
7946.00	90.220	183.210	6891.92	2065.92	1883.82	-1870.94	394.46	40°12'5.4076"N	104°33'38.7029"W	0.75	3.81	0.23	0.71	
8041.00	90.520	183.230	6891.30	2065.30	1978.42	-1965.78	389.12	40°12'4.4710"N	104°33'38.7846"W	0.32	100.62	0.32	0.02	
8135.00	90.000	186.000	6890.88	2064.88	2071.77	-2059.47	381.56	40°12'3.5460"N	104°33'38.8949"W	3.00	-94.20	-0.55	2.95	
8230.00	89.820	183.550	6891.03	2065.03	2166.09	-2154.13	373.65	40°12'2.6114"N	104°33'39.0097"W	2.59	-68.46	-0.19	-2.58	
8324.00	89.970	183.170	6891.20	2065.20	2259.67	-2247.97	368.14	40°12'1.6848"N	104°33'39.0935"W	0.43	-63.52	0.16	-0.40	
8419.00	91.170	180.760	6890.25	2064.25	2354.43	-2342.90	364.88	40°12'0.7471"N	104°33'39.1484"W	2.83	-94.68	1.26	-2.54	
8513.00	90.520	172.920	6888.86	2062.86	2448.33	-2436.67	370.06	40°11'59.8199"N	104°33'39.0945"W	8.37	-122.55	-0.69	-8.34	

REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY, INC	Well	VOGLER STATE D33-769
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API/Legal	
Facility	SEC.21-T03N-R64W	Wellbore	VOGLER STATE D33-769 AWP
Slot	SLOT#37 VOGLER STATE D33-769 (1065'FSL & 1010'FWL, SEC.21)		

WELLPATH DATA (180 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
8607.00	90.220	172.450	6888.26	2062.26	2541.93	-2529.91	382.03	40°11'58.8974"N	104°33'38.9530"W	0.59	91.18	-0.32	-0.50	
8702.00	90.120	177.290	6887.97	2061.97	2636.76	-2624.50	390.52	40°11'57.9618"N	104°33'38.8565"W	5.10	107.70	-0.11	5.09	
8796.00	89.820	178.230	6888.02	2062.02	2730.76	-2718.42	394.19	40°11'57.0333"N	104°33'38.8220"W	1.05	101.66	-0.32	1.00	
8891.00	89.420	180.170	6888.65	2062.65	2825.73	-2813.41	395.52	40°11'56.0946"N	104°33'38.8178"W	2.09	-11.10	-0.42	2.04	
8985.00	90.490	179.960	6888.73	2062.73	2919.66	-2907.41	395.41	40°11'55.1657"N	104°33'38.8320"W	1.16	-176.82	1.14	-0.22	
9080.00	90.310	179.950	6888.06	2062.06	3014.60	-3002.40	395.49	40°11'54.2270"N	104°33'38.8441"W	0.19	-125.82	-0.19	-0.01	
9174.00	89.480	178.800	6888.24	2062.24	3108.57	-3096.40	396.51	40°11'53.2981"N	104°33'38.8437"W	1.51	48.72	-0.88	-1.22	
9269.00	91.630	181.250	6887.32	2061.32	3203.49	-3191.38	396.47	40°11'52.3596"N	104°33'38.8572"W	3.43	-113.93	2.26	2.58	
9364.00	89.910	177.380	6886.04	2060.04	3298.44	-3286.34	397.61	40°11'51.4211"N	104°33'38.8555"W	4.46	77.31	-1.81	-4.07	
9458.00	90.520	180.090	6885.69	2059.69	3392.42	-3380.31	399.68	40°11'50.4923"N	104°33'38.8416"W	2.96	-100.62	0.65	2.88	
9553.00	90.490	179.930	6884.85	2058.85	3487.35	-3475.30	399.67	40°11'49.5536"N	104°33'38.8548"W	0.17	111.63	-0.03	-0.17	
9647.00	90.030	181.090	6884.42	2058.42	3581.26	-3569.30	398.83	40°11'48.6249"N	104°33'38.8784"W	1.33	-88.61	-0.49	1.23	
9742.00	90.090	178.610	6884.32	2058.32	3676.20	-3664.29	399.08	40°11'47.6863"N	104°33'38.8881"W	2.61	48.10	0.06	-2.61	
9836.00	91.050	179.680	6883.39	2057.39	3770.17	-3758.27	400.48	40°11'46.7574"N	104°33'38.8829"W	1.53	-175.64	1.02	1.14	
9931.00	90.000	179.600	6882.52	2056.52	3865.12	-3853.27	401.08	40°11'45.8187"N	104°33'38.8881"W	1.11	116.57	-1.11	-0.08	
10025.00	89.600	180.400	6882.85	2056.85	3959.06	-3947.26	401.08	40°11'44.8899"N	104°33'38.9010"W	0.95	-62.10	-0.43	0.85	
10120.00	90.680	178.360	6882.81	2056.81	4054.03	-4042.25	402.11	40°11'43.9511"N	104°33'38.9007"W	2.43	90.74	1.14	-2.15	
10215.00	90.650	180.630	6881.51	2055.51	4148.98	-4137.24	402.94	40°11'43.0125"N	104°33'38.9029"W	2.39	-160.31	-0.03	2.39	
10309.00	88.890	180.000	6881.89	2055.89	4242.89	-4231.23	402.43	40°11'42.0837"N	104°33'38.9224"W	1.99	-10.04	-1.87	-0.67	
10404.00	91.600	179.520	6881.48	2055.48	4337.84	-4326.22	402.83	40°11'41.1451"N	104°33'38.9302"W	2.90	162.41	2.85	-0.51	
10499.00	89.170	180.290	6880.84	2054.84	4432.77	-4421.21	402.98	40°11'40.2064"N	104°33'38.9411"W	2.68	-57.87	-2.56	0.81	
10593.00	89.660	179.510	6881.80	2055.80	4526.71	-4515.20	403.15	40°11'39.2776"N	104°33'38.9518"W	0.98	22.71	0.52	-0.83	
10688.00	90.520	179.870	6881.65	2055.65	4621.67	-4610.20	403.66	40°11'38.3388"N	104°33'38.9582"W	0.98	128.25	0.91	0.38	
10782.00	89.850	180.720	6881.35	2055.35	4715.59	-4704.20	403.18	40°11'37.4101"N	104°33'38.9773"W	1.15	-85.29	-0.71	0.90	
10971.00	90.340	174.770	6881.04	2055.04	4904.50	-4892.96	410.61	40°11'35.5440"N	104°33'38.9072"W	3.16	72.05	0.26	-3.15	
11066.00	90.680	175.820	6880.19	2054.19	4999.39	-4987.64	418.40	40°11'34.6077"N	104°33'38.8198"W	1.16	-89.99	0.36	1.11	
11160.00	90.680	174.690	6879.08	2053.08	5093.28	-5081.31	426.18	40°11'33.6812"N	104°33'38.7324"W	1.20	115.38	0.00	-1.20	
11254.00	90.310	175.470	6878.26	2052.26	5187.16	-5174.96	434.24	40°11'32.7550"N	104°33'38.6413"W	0.92	93.21	-0.39	0.83	
11349.00	90.150	178.320	6877.88	2051.88	5282.13	-5269.81	439.38	40°11'31.8172"N	104°33'38.5879"W	3.00	123.58	-0.17	3.00	
11443.00	89.380	179.480	6878.27	2052.27	5376.11	-5363.79	441.19	40°11'30.8884"N	104°33'38.5775"W	1.48	9.07	-0.82	1.23	
11538.00	91.260	179.780	6877.74	2051.74	5471.07	-5458.78	441.80	40°11'29.9497"N	104°33'38.5826"W	2.00	164.34	1.98	0.32	
11632.00	89.690	180.220	6876.96	2050.96	5565.00	-5552.77	441.80	40°11'29.0209"N	104°33'38.5954"W	1.73	-6.55	-1.67	0.47	
11726.00	91.780	179.980	6875.75	2049.75	5658.92	-5646.76	441.64	40°11'28.0922"N	104°33'38.6103"W	2.24	173.79	2.22	-0.26	
11821.00	89.850	180.190	6874.40	2048.40	5753.84	-5741.75	441.50	40°11'27.1536"N	104°33'38.6251"W	2.04	-82.00	-2.03	0.22	
11915.00	89.940	179.550	6874.57	2048.57	5847.79	-5835.75	441.71	40°11'26.2247"N	104°33'38.6352"W	0.69	15.95	0.10	-0.68	
12010.00	90.430	179.690	6874.27	2048.27	5942.75	-5930.74	442.34	40°11'25.2859"N	104°33'38.6400"W	0.54	98.03	0.52	0.15	
12104.00	90.310	180.540	6873.66	2047.66	6036.68	-6024.74	442.15	40°11'24.3571"N	104°33'38.6553"W	0.91	-104.42	-0.13	0.90	
12199.00	90.220	180.190	6873.22	2047.22	6131.59	-6119.74	441.55	40°11'23.4185"N	104°33'38.6761"W	0.38	12.53	-0.09	-0.37	
12293.00	90.490	180.250	6872.64	2046.64	6225.52	-6213.73	441.19	40°11'22.4897"N	104°33'38.6935"W	0.29	-103.72	0.29	0.06	
12387.00	90.280	179.390	6872.01	2046.01	6319.47	-6307.73	441.48	40°11'21.5608"N	104°33'38.7026"W	0.94	147.77	-0.22	-0.91	
12482.00	89.820	179.680	6871.92	2045.92	6414.43	-6402.73	442.25	40°11'20.6221"N	104°33'38.7056"W	0.57	59.04	-0.48	0.31	
12576.00	89.910	179.830	6872.15	2046.15	6508.38	-6496.73	442.65	40°11'19.6932"N	104°33'38.7132"W	0.19	-35.43	0.10	0.16	
12670.00	90.430	179.460	6871.87	2045.87	6602.34	-6590.72	443.24	40°11'18.7643"N	104°33'38.7186"W	0.68	118.87	0.55	-0.39	
12764.00	90.000	180.240	6871.51	2045.51	6696.29	-6684.72	443.48	40°11'17.8354"N	104°33'38.7282"W	0.95	-56.98	-0.46	0.83	
12859.00	90.520	179.440	6871.08	2045.08	6791.23	-6779.72	443.75	40°11'16.8967"N	104°33'38.7378"W	1.00	-108.43	0.55	-0.84	

REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Well	VOGLER STATE D33-769
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API/Legal	
Facility	SEC.21-T03N-R64W	Wellbore	VOGLER STATE D33-769 AWB
Slot	SLOT#37 VOGLER STATE D33-769 (1065'FSL & 1010'FWL, SEC.21)		

WELLPATH DATA (180 stations) † = interpolated, ‡ = extrapolated station														
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	TVDSS [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Toothface [°]	Build Rate [°/100ft]	Turn Rate [°/100ft]	Comments
13047.00	90.370	178.990	6869.62	2043.62	6979.18	-6967.69	446.32	40°11'15.0389"N	104°33'38.7302"W	0.25	110.66	-0.08	-0.24	
13142.00	89.940	180.130	6869.37	2043.37	7074.14	-7062.69	447.05	40°11'14.1002"N	104°33'38.7338"W	1.28	82.57	-0.45	1.20	
13236.00	90.030	180.820	6869.39	2043.39	7168.05	-7156.69	446.27	40°11'13.1714"N	104°33'38.7567"W	0.74	108.44	0.10	0.73	
13331.00	89.910	181.180	6869.44	2043.44	7262.92	-7251.67	444.61	40°11'12.2330"N	104°33'38.7910"W	0.40	-18.43	-0.13	0.38	
13425.00	90.120	181.110	6869.41	2043.41	7356.77	-7345.65	442.74	40°11'11.3045"N	104°33'38.8280"W	0.24	94.13	0.22	-0.07	
13520.00	90.060	181.940	6869.27	2043.27	7451.59	-7440.62	440.21	40°11'10.3664"N	104°33'38.8736"W	0.88	-95.22	-0.06	0.87	
13614.00	89.880	179.970	6869.31	2043.31	7545.45	-7534.60	438.64	40°11'9.4379"N	104°33'38.9066"W	2.10	94.89	-0.19	-2.10	
13803.00	89.750	181.490	6869.93	2043.93	7734.22	-7723.58	436.23	40°11'7.5708"N	104°33'38.9634"W	0.81	-86.69	-0.07	0.80	
13898.00	89.820	180.280	6870.28	2044.28	7829.10	-7818.56	434.77	40°11'6.6323"N	104°33'38.9952"W	1.28	51.73	0.07	-1.27	
13992.00	90.680	181.370	6869.87	2043.87	7922.98	-7912.55	433.41	40°11'5.7037"N	104°33'39.0255"W	1.48	-176.63	0.91	1.16	
14087.00	90.340	181.350	6869.03	2043.03	8017.81	-8007.52	431.16	40°11'4.7655"N	104°33'39.0675"W	0.36	-104.76	-0.36	-0.02	
14182.00	89.850	179.490	6868.87	2042.87	8112.71	-8102.51	430.46	40°11'3.8269"N	104°33'39.0894"W	2.02	83.79	-0.52	-1.96	
14276.00	90.060	181.420	6868.94	2042.94	8206.62	-8196.51	429.72	40°11'2.8982"N	104°33'39.1119"W	2.07	73.44	0.22	2.05	
14371.00	90.800	183.910	6868.23	2042.23	8301.29	-8291.39	425.30	40°11'1.9611"N	104°33'39.1817"W	2.73	-70.76	0.78	2.62	
14465.00	90.950	183.480	6866.79	2040.79	8394.81	-8385.19	419.24	40°11'1.0349"N	104°33'39.2726"W	0.48	-100.73	0.16	-0.46	
14560.00	90.620	181.740	6865.49	2039.49	8489.48	-8480.07	414.92	40°11'0.0977"N	104°33'39.3412"W	1.86	40.91	-0.35	-1.83	
14654.00	90.920	182.000	6864.23	2038.23	8583.25	-8574.02	411.85	40°10'59.1698"N	104°33'39.3936"W	0.42	-163.02	0.32	0.28	
14748.00	89.970	181.710	6863.50	2037.50	8677.03	-8667.96	408.81	40°10'58.2418"N	104°33'39.4456"W	1.06	-90.00	-1.01	-0.31	
14843.00	89.970	181.570	6863.55	2037.55	8771.83	-8762.92	406.09	40°10'57.3037"N	104°33'39.4936"W	0.15	-81.92	0.00	-0.15	
14937.00	90.180	180.090	6863.43	2037.43	8865.71	-8856.91	404.73	40°10'56.3751"N	104°33'39.5239"W	1.59	88.49	0.22	-1.57	
15032.00	90.250	182.760	6863.07	2037.07	8960.53	-8951.87	402.36	40°10'55.4370"N	104°33'39.5673"W	2.81	152.53	0.07	2.81	
15126.00	90.000	182.890	6862.86	2036.86	9054.19	-9045.76	397.73	40°10'54.5097"N	104°33'39.6398"W	0.30	-70.59	-0.27	0.14	
15221.00	90.310	182.010	6862.61	2036.61	9148.90	-9140.67	393.67	40°10'53.5723"N	104°33'39.7051"W	0.98	-102.54	0.33	-0.93	
15315.00	89.420	178.010	6862.83	2036.83	9242.81	-9234.65	393.65	40°10'52.6436"N	104°33'39.7181"W	4.36	-7.83	-0.95	-4.26	
15410.00	90.220	177.900	6863.13	2037.13	9337.81	-9329.59	397.04	40°10'51.7052"N	104°33'39.6874"W	0.85	68.46	0.84	-0.12	
15504.00	90.370	178.280	6862.64	2036.64	9431.81	-9423.53	400.18	40°10'50.7765"N	104°33'39.6599"W	0.43	93.09	0.16	0.40	
15599.00	90.250	180.500	6862.13	2036.13	9526.77	-9518.52	401.19	40°10'49.8378"N	104°33'39.6598"W	2.34	-93.56	-0.13	2.34	
15693.00	90.090	177.930	6861.85	2035.85	9620.74	-9612.50	402.48	40°10'48.9090"N	104°33'39.6560"W	2.74	57.99	-0.17	-2.73	
15788.00	90.340	178.330	6861.49	2035.49	9715.74	-9707.45	405.58	40°10'47.9704"N	104°33'39.6290"W	0.50	78.93	0.26	0.42	
15882.00	90.430	178.790	6860.86	2034.86	9809.73	-9801.42	407.94	40°10'47.0416"N	104°33'39.6114"W	0.50	-80.79	0.10	0.49	
16071.00	90.550	178.050	6859.25	2033.25	9998.72	-9990.34	413.15	40°10'45.1743"N	104°33'39.5701"W	0.40	72.71	0.06	-0.39	
16166.00	90.830	178.950	6858.10	2032.10	10093.71	-10085.30	415.64	40°10'44.2357"N	104°33'39.5510"W	0.99	-103.77	0.29	0.95	
16260.00	90.580	177.930	6856.94	2030.94	10187.70	-10179.26	418.19	40°10'43.3070"N	104°33'39.5308"W	1.12	122.43	-0.27	-1.09	
16354.00	89.970	178.890	6856.49	2030.49	10281.69	-10273.22	420.80	40°10'42.3782"N	104°33'39.5101"W	1.21	-81.09	-0.65	1.02	
16449.00	90.310	176.720	6856.26	2030.26	10376.68	-10368.14	424.44	40°10'41.4399"N	104°33'39.4761"W	2.31	86.29	0.36	-2.28	
16543.00	90.400	178.110	6855.68	2029.68	10470.68	-10462.04	428.68	40°10'40.5116"N	104°33'39.4343"W	1.48	98.10	0.10	1.48	
16638.00	90.000	180.920	6855.35	2029.35	10565.63	-10557.03	429.48	40°10'39.5729"N	104°33'39.4369"W	2.99	-103.80	-0.42	2.96	
16733.00	89.720	179.780	6855.58	2029.58	10660.55	-10652.02	428.90	40°10'38.6342"N	104°33'39.4574"W	1.24	-9.02	-0.29	-1.20	
16827.00	90.980	179.580	6855.01	2029.01	10754.50	-10746.02	429.43	40°10'37.7054"N	104°33'39.4634"W	1.36	136.00	1.34	-0.21	
17017.00	90.400	180.140	6852.72	2026.72	10944.38	-10936.00	429.89	40°10'35.8280"N	104°33'39.4834"W	0.42	77.16	-0.31	0.29	
17206.00	90.580	180.930	6851.10	2025.10	11133.18	-11124.99	428.13	40°10'33.9608"N	104°33'39.5319"W	0.43	-81.72	0.10	0.42	
17300.00	90.740	179.830	6850.02	2024.02	11227.09	-11218.98	427.51	40°10'33.0321"N	104°33'39.5527"W	1.18	178.32	0.17	-1.17	
17395.00	90.400	179.840	6849.07	2023.07	11322.03	-11313.97	427.78	40°10'32.0933"N	104°33'39.5622"W	0.36	1.69	-0.36	0.01	
17489.00	90.740	179.850	6848.14	2022.14	11415.97	-11407.97	428.03	40°10'31.1645"N	104°33'39.5717"W	0.36	0.00	0.36	0.01	LAST BH MWD SURVEY
17558.00†	90.740	179.850	6847.25	2021.25	11484.93	-11476.96	428.21	40°10'30.4827"N	104°33'39.5788"W	0.00		0.00	0.00	EXTRAPOLATED TO TD

REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Well	VOGLER STATE D33-769
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API/Legal	
Facility	SEC.21-T03N-R64W	Wellbore	VOGLER STATE D33-769 AWB
Slot	SLOT#37 VOGLER STATE D33-769 (1065'FSL & 1010'FWL, SEC.21)		

HOLE & CASING SECTIONS - Ref Wellbore: VOGLER STATE D33-769 AWB Ref Wellpath: VOGLER STATE D33-769 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	1915.00	1885.00	30.00	1914.92	0.05	0.06	6.75	7.52
9.625in Casing Surface	30.00	1915.00	1885.00	30.00	1914.92	0.05	0.06	6.75	7.52
8.5in Open Hole	1915.00	17558.00	15643.00	1914.92	6847.25	6.75	7.52	-11476.96	428.21

TARGETS								
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
VOGLER STATE D33-769 BHL REV-1 (200'FSL & 1320'FWL, SEC.33)	6850.00	-11478.65	409.82	3262367.00	1308031.81	40°10'30.4680"N	104°33'39.8160"W	point
VOGLER STATE D33-769 TPZ REV-1 (200'FNL & 1418'FWL, SEC.28)	6894.00	-1264.88	417.04	3262374.22	1318245.12	40°12'11.3940"N	104°33'38.3292"W	point
SECTION LINES - SEC.21-T03N-R64W	7000.00	4172.41	-1039.55	3260917.70	1323682.16	40°13'5.2741"N	104°33'56.3622"W	polygon
	2D Polygon: dimensions not calculated							
SECTION LINES - SEC.28-T03N-R64W	7000.00	-1066.34	-1002.75	3260954.50	1318443.65	40°12'13.5040"N	104°33'56.5993"W	polygon
	2D Polygon: dimensions not calculated							
SECTION LINES - SEC.33-T03N-R64W	7000.00	-6421.56	-954.07	3261003.17	1313088.67	40°11'20.5817"N	104°33'56.6991"W	polygon
	2D Polygon: dimensions not calculated							

WELLPATH COMPOSITION - Ref Wellbore: VOGLER STATE D33-769 AWB Ref Wellpath: VOGLER STATE D33-769 AWP					
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore	Survey Date
0.00	1899.00	Gyrodata 2015 - GC+DROP+COND	13.5" GYRODATA 2015 (GC+DROP+COND) <0' - 1899'>	VOGLER STATE D33-769 AWB	2/25/2020
1899.00	17558.00	OWSG MWD rev2 + IFR1 + Multi-Station Correction	8.5" OWSG MWD REV.2 (IFR1+MSA) <1991' - 17489'>	VOGLER STATE D33-769 AWB	2/25/2020

REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Well	VOGLER STATE D33-769
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API/Legal	
Facility	SEC.21-T03N-R64W	Wellbore	VOGLER STATE D33-769 AWP
Slot	SLOT#37 VOGLER STATE D33-769 (1065'FSL & 1010'FWL, SEC.21)		

WELLPATH COMMENTS				
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
77.00	0.730	48.510	77.00	FIRST 3RD PARTY GYRO SURVEY
1899.00	0.200	58.460	1898.92	TIE ON TO 3RD PARTY GYRO SURVEYS
1991.00	0.060	285.560	1990.92	FIRST BH MWD SURVEY
17489.00	90.740	179.850	6848.14	LAST BH MWD SURVEY
17558.00	90.740	179.850	6847.25	EXTRAPOLATED TO TD