

NOBLE ENERGY, INC

Location: COLORADO

Slot: SLOT#38 VOGLER STATE D33-759 (1065'FSL & 1048'FWL, SEC.21)

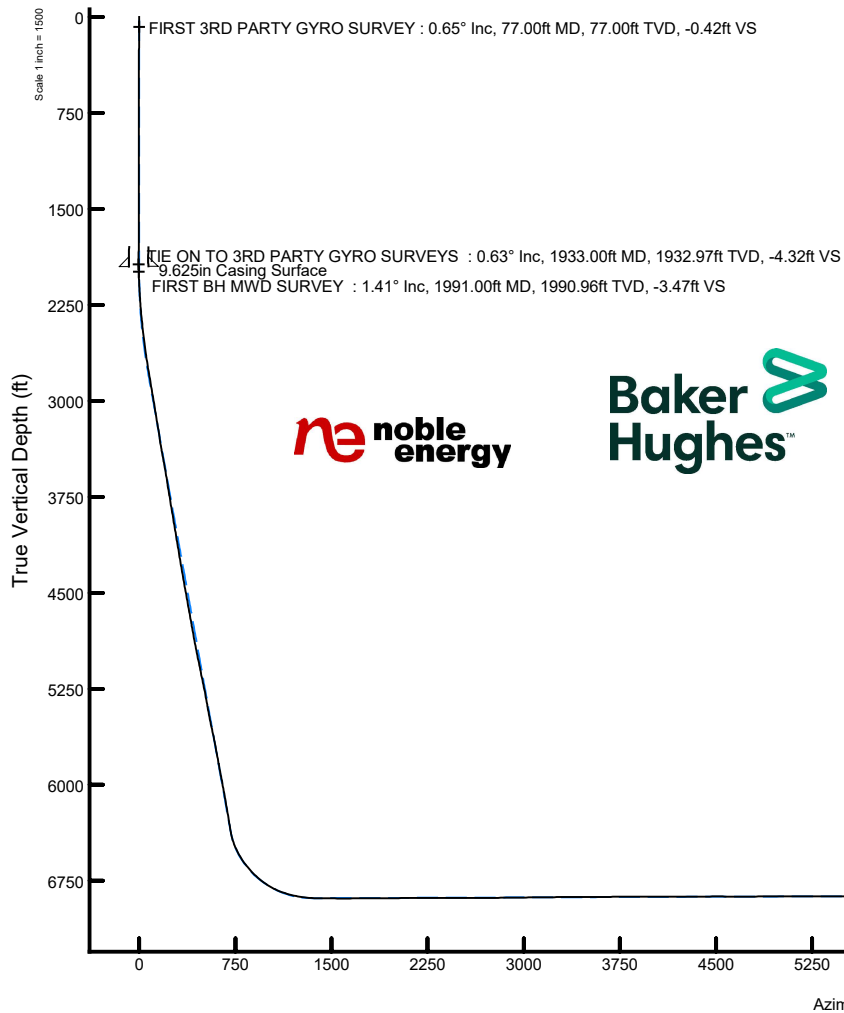
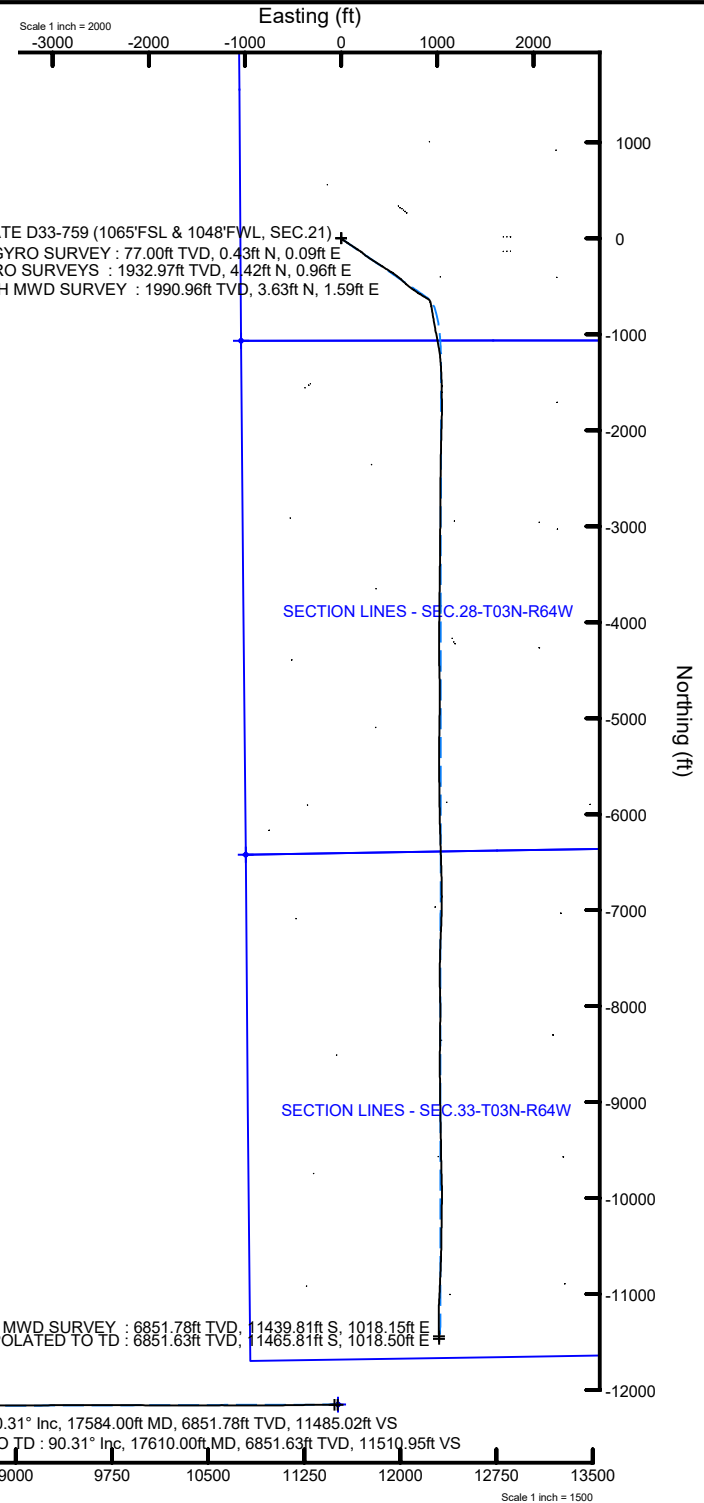
Field: WELD COUNTY (NOBLE NAD 83 GRID)

Well: VOGLER STATE D33-759

Facility: SEC.21-T03N-R64W

Wellbore: VOGLER STATE D33-759 AWB

Plot reference wellpath is VOGLER STATE D33-759 AWP	Grid System: NAD83 / Lambert Colorado SP, Northern Zone (501), US feet
True vertical depths are referenced to H&P 321 (4797'GL+30'KB@4827') (RKB)	North Reference: Grid north
Reference wellpath measured depths are referenced to H&P 321 (4797'GL+30'KB@4827') (RKB)	Scale: True distance
H&P 321 (4797'GL+30'KB@4827') (RKB) to Mean Sea Level: 4827 feet	Coordinates are in feet referenced to Slot
Mean Sea Level to Ground level (At Slot: SLOT#38 VOGLER STATE D33-759 (1065'FSL & 1048'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



REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Well	VOGLER STATE D33-759
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API/Legal	
Facility	SEC.21-T03N-R64W	Wellbore	VOGLER STATE D33-759 AWP
Slot	SLOT#38 VOGLER STATE D33-759 (1065'FSL & 1048'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 9:06:04 AM
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	491.52	384.20	3261995.19	1319509.98	40°12'23.9328"N	104°33'43.0416"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 (4797'GL+30'KB@4827') (RKB) to Facility Vertical Datum	4827.00ft
Horizontal Reference Pt	Slot	H&P 321 (4797'GL+30'KB@4827') (RKB) to Mean Sea Level	4827.00ft
Vertical Reference Pt	H&P 321 (4797'GL+30'KB@4827') (RKB)	H&P 321 (4797'GL+30'KB@4827') (RKB) to Ground Level at Slot (SLOT#38 VOGLER STATE D33-759 (1065'FSL & 1048'FWL, SEC.21))	4827.00ft
MD Reference Pt	H&P 321 (4797'GL+30'KB@4827') (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	174.86°

REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY, INC	Well	VOGLER STATE D33-759
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API/Legal	
Facility	SEC.21-T03N-R64W	Wellbore	VOGLER STATE D33-759 AWP
Slot	SLOT#38 VOGLER STATE D33-759 (1065'FSL & 1048'FWL, SEC.21)		

WELLPATH DATA (187 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	11.310	0.00	-4827.00	0.00	0.00	0.00	40°12'23.9328"N	104°33'43.0416"W	0.00	0.00	0.00	0.00	
77.00	0.650	11.310	77.00	-4750.00	-0.42	0.43	0.09	40°12'23.9370"N	104°33'43.0404"W	0.84	-169.55	0.84	0.00	FIRST 3RD PARTY GYRO SURVEY
175.00	0.290	357.770	174.99	-4652.01	-1.20	1.22	0.19	40°12'23.9448"N	104°33'43.0390"W	0.38	-14.14	-0.37	-13.82	
266.00	0.600	350.410	265.99	-4561.01	-1.90	1.92	0.10	40°12'23.9518"N	104°33'43.0401"W	0.35	-135.74	0.34	-8.09	
361.00	0.450	283.190	360.99	-4466.01	-2.52	2.50	-0.35	40°12'23.9575"N	104°33'43.0458"W	0.63	101.54	-0.16	-70.76	
455.00	0.560	332.800	454.99	-4372.01	-3.06	2.99	-0.92	40°12'23.9624"N	104°33'43.0530"W	0.46	164.68	0.12	52.78	
550.00	0.150	56.890	549.98	-4277.02	-3.55	3.47	-1.03	40°12'23.9672"N	104°33'43.0544"W	0.59	46.33	-0.43	88.52	
645.00	0.470	89.870	644.98	-4182.02	-3.57	3.54	-0.53	40°12'23.9678"N	104°33'43.0480"W	0.37	-153.90	0.34	34.72	
739.00	0.220	45.930	738.98	-4088.02	-3.65	3.67	-0.02	40°12'23.9690"N	104°33'43.0413"W	0.37	-162.93	-0.27	-46.74	
833.00	0.140	35.530	832.98	-3994.02	-3.85	3.88	0.18	40°12'23.9712"N	104°33'43.0388"W	0.09	123.44	-0.09	-11.06	
928.00	0.270	133.330	927.98	-3899.02	-3.77	3.83	0.41	40°12'23.9706"N	104°33'43.0358"W	0.34	171.58	0.14	102.95	
1022.00	0.100	148.190	1021.98	-3805.02	-3.53	3.60	0.61	40°12'23.9683"N	104°33'43.0332"W	0.19	65.49	-0.18	15.81	
1117.00	0.280	194.720	1116.98	-3710.02	-3.24	3.31	0.60	40°12'23.9654"N	104°33'43.0334"W	0.24	-129.32	0.19	48.98	
1211.00	0.250	125.450	1210.98	-3616.02	-2.89	2.97	0.71	40°12'23.9621"N	104°33'43.0321"W	0.32	-161.99	-0.03	-73.69	
1306.00	0.220	122.890	1305.98	-3521.02	-2.65	2.75	1.03	40°12'23.9599"N	104°33'43.0280"W	0.03	135.95	-0.03	-2.69	
1400.00	0.160	151.790	1399.98	-3427.02	-2.41	2.53	1.24	40°12'23.9577"N	104°33'43.0252"W	0.12	-119.31	-0.06	30.74	
1494.00	0.140	127.250	1493.98	-3333.02	-2.22	2.35	1.40	40°12'23.9559"N	104°33'43.0233"W	0.07	-153.11	-0.02	-26.11	
1589.00	0.330	345.200	1588.98	-3238.02	-2.41	2.54	1.42	40°12'23.9578"N	104°33'43.0230"W	0.47	-22.51	0.20	-149.53	
1683.00	0.480	337.950	1682.97	-3144.03	-3.05	3.17	1.20	40°12'23.9640"N	104°33'43.0257"W	0.17	-44.78	0.16	-7.71	
1778.00	0.640	325.060	1777.97	-3049.03	-3.89	3.97	0.75	40°12'23.9720"N	104°33'43.0314"W	0.21	158.87	0.17	-13.57	
1873.00	0.240	49.900	1872.97	-2954.03	-4.47	4.54	0.60	40°12'23.9776"N	104°33'43.0333"W	0.70	98.31	-0.42	89.31	
1933.00	0.630	126.070	1932.97	-2894.03	-4.32	4.42	0.96	40°12'23.9764"N	104°33'43.0286"W	1.03	38.18	0.65	126.95	TIE ON TO 3RD PARTY GYRO SURVEYS
1991.00	1.410	148.220	1990.96	-2836.04	-3.47	3.63	1.59	40°12'23.9685"N	104°33'43.0206"W	1.48	-12.32	1.34	38.19	FIRST BH MWD SURVEY
2085.00	3.110	141.450	2084.88	-2742.12	-0.31	0.65	3.79	40°12'23.9388"N	104°33'42.9927"W	1.83	-15.43	1.81	-7.20	
2180.00	4.390	136.880	2179.67	-2647.33	4.71	-4.02	7.88	40°12'23.8923"N	104°33'42.9406"W	1.38	-20.40	1.35	-4.81	
2275.00	6.520	130.040	2274.24	-2552.76	11.40	-10.14	14.50	40°12'23.8311"N	104°33'42.8561"W	2.34	-12.40	2.24	-7.20	
2369.00	8.840	126.740	2367.39	-2459.61	20.01	-17.90	24.37	40°12'23.7534"N	104°33'42.7299"W	2.51	-19.51	2.47	-3.51	
2463.00	10.520	123.510	2460.05	-2366.95	30.19	-26.96	37.32	40°12'23.6625"N	104°33'42.5643"W	1.88	3.04	1.79	-3.44	
2558.00	11.620	123.800	2553.28	-2273.72	41.62	-37.07	52.50	40°12'23.5610"N	104°33'42.3701"W	1.16	-9.99	1.16	0.31	
2652.00	12.640	122.980	2645.18	-2181.82	53.92	-47.93	68.99	40°12'23.4520"N	104°33'42.1590"W	1.10	-1.49	1.09	-0.87	
2747.00	15.400	122.710	2737.34	-2089.66	68.08	-60.41	88.33	40°12'23.3266"N	104°33'41.9115"W	2.91	-178.11	2.91	-0.28	
2841.00	15.320	122.700	2827.98	-1999.02	83.35	-73.86	109.28	40°12'23.1915"N	104°33'41.6433"W	0.09	22.66	-0.09	-0.01	
2936.00	15.480	122.950	2919.57	-1907.43	98.87	-87.54	130.48	40°12'23.0542"N	104°33'41.3719"W	0.18	151.05	0.17	0.26	
3031.00	15.050	123.870	3011.22	-1815.78	114.46	-101.31	151.36	40°12'22.9159"N	104°33'41.1047"W	0.52	177.74	-0.45	0.97	
3125.00	13.840	124.070	3102.25	-1724.75	129.24	-114.41	170.81	40°12'22.7844"N	104°33'40.8559"W	1.29	-7.21	-1.29	0.21	
3220.00	15.440	123.310	3194.16	-1632.84	144.29	-127.72	190.79	40°12'22.6508"N	104°33'40.6002"W	1.70	173.61	1.68	-0.80	
3315.00	12.110	125.090	3286.42	-1540.58	158.60	-140.39	209.52	40°12'22.5236"N	104°33'40.3605"W	3.53	30.82	-3.51	1.87	
3409.00	14.280	130.210	3377.93	-1449.07	173.21	-153.55	226.44	40°12'22.3918"N	104°33'40.1442"W	2.62	4.62	2.31	5.45	
3504.00	14.720	130.350	3469.91	-1357.09	190.15	-168.93	244.59	40°12'22.2380"N	104°33'39.9125"W	0.46	-96.42	0.46	0.15	
3598.00	14.630	125.150	3560.84	-1266.16	206.35	-183.49	263.40	40°12'22.0921"N	104°33'39.6720"W	1.40	-178.44	-0.10	-5.53	
3693.00	13.130	124.970	3653.07	-1173.93	221.06	-196.59	282.05	40°12'21.9607"N	104°33'39.4334"W	1.58	-8.14	-1.58	-0.19	
3787.00	15.530	123.690	3744.14	-1082.86	235.83	-209.69	301.27	40°12'21.8293"N	104°33'39.1875"W	2.58	-112.73	2.55	-1.36	
3882.00	15.350	122.010	3835.71	-991.29	251.40	-223.41	322.51	40°12'21.6915"N	104°33'38.9156"W	0.51	142.50	-0.19	-1.77	
3976.00	15.100	122.750	3926.41	-900.59	266.43	-236.63	343.36	40°12'21.5587"N	104°33'38.6487"W	0.34	165.54	-0.27	0.79	
4071.00	14.950	122.900	4018.16	-808.84	281.58	-249.98	364.06	40°12'21.4246"N	104°33'38.3838"W	0.16	-15.20	-0.16	0.16	

REFERENCE WELLPATH IDENTIFICATION				
Operator	NOBLE ENERGY, INC		Well	VOGLER STATE D33-759
Field	WELD COUNTY (NOBLE NAD 83 GRID)		API/Legal	
Facility	SEC.21-T03N-R64W		Wellbore	VOGLER STATE D33-759 AWP
Slot	SLOT#38 VOGLER STATE D33-759 (1065'FSL & 1048'FWL, SEC.21)			

WELLPATH DATA (187 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
4165.00	15.290	122.550	4108.91	-718.09	296.63	-263.23	384.69	40°12'21.2915"N	104°33'38.1198"W	0.37	45.20	0.36	-0.37	
4260.00	15.340	122.740	4200.53	-626.47	312.00	-276.77	405.81	40°12'21.1555"N	104°33'37.8493"W	0.07	-32.81	0.05	0.20	
4355.00	15.540	122.260	4292.10	-534.90	327.44	-290.36	427.14	40°12'21.0190"N	104°33'37.5763"W	0.25	1.05	0.21	-0.51	
4544.00	16.470	122.320	4473.78	-353.22	359.12	-318.19	471.20	40°12'20.7393"N	104°33'37.0124"W	0.49	99.64	0.49	0.03	
4638.00	16.460	122.530	4563.92	-263.08	375.36	-332.48	493.68	40°12'20.5958"N	104°33'36.7245"W	0.06	-20.11	-0.01	0.22	
4733.00	16.640	122.300	4654.99	-172.01	391.85	-346.98	516.53	40°12'20.4501"N	104°33'36.4320"W	0.20	164.02	0.19	-0.24	
4827.00	15.680	123.320	4745.27	-81.73	407.93	-361.15	538.52	40°12'20.3077"N	104°33'36.1506"W	1.06	66.87	-1.02	1.09	
4922.00	15.930	125.370	4836.68	9.68	424.39	-375.75	559.88	40°12'20.1612"N	104°33'35.8773"W	0.64	146.15	0.26	2.16	
5016.00	15.030	127.730	4927.27	100.27	441.06	-390.68	580.04	40°12'20.0116"N	104°33'35.6195"W	1.17	12.76	-0.96	2.51	
5111.00	17.250	129.420	5018.52	191.52	459.32	-407.16	600.66	40°12'19.8466"N	104°33'35.3560"W	2.39	160.90	2.34	1.78	
5205.00	15.160	132.210	5108.78	281.78	478.15	-424.27	620.54	40°12'19.6754"N	104°33'35.1022"W	2.37	-6.36	-2.22	2.97	
5300.00	16.240	131.780	5200.24	373.24	496.98	-441.47	639.64	40°12'19.5035"N	104°33'34.8583"W	1.14	-172.89	1.14	-0.45	
5489.00	13.220	130.130	5383.00	556.00	531.65	-537.80	675.88	40°12'19.1880"N	104°33'34.3956"W	1.61	11.04	-1.60	-0.87	
5584.00	15.500	131.790	5475.03	648.03	548.64	-488.48	693.66	40°12'19.0333"N	104°33'34.1686"W	2.44	6.63	2.40	1.75	
5678.00	16.660	132.260	5565.35	738.35	567.73	-505.91	713.00	40°12'18.8591"N	104°33'33.9218"W	1.24	-87.05	1.23	0.50	
5773.00	16.900	124.930	5656.32	829.32	586.65	-522.98	734.40	40°12'18.6882"N	104°33'33.6483"W	2.24	-90.12	0.25	-7.72	
5867.00	16.940	120.750	5746.25	919.25	603.47	-537.80	757.37	40°12'18.5393"N	104°33'33.3543"W	1.29	129.06	0.04	-4.45	
5962.00	16.370	123.310	5837.27	1010.27	619.91	-552.23	780.45	40°12'18.3943"N	104°33'33.0588"W	0.98	86.60	-0.60	2.69	
6057.00	16.420	125.570	5928.40	1101.40	636.99	-567.39	802.56	40°12'18.2421"N	104°33'32.7759"W	0.67	-60.46	0.05	2.38	
6151.00	16.860	122.990	6018.47	1191.47	654.07	-582.54	824.80	40°12'18.0901"N	104°33'32.4914"W	0.91	-138.69	0.47	-2.74	
6245.00	16.130	120.640	6108.60	1281.60	670.13	-596.62	847.47	40°12'17.9486"N	104°33'32.2011"W	1.05	15.89	-0.78	-2.50	
6340.00	16.520	121.030	6199.77	1372.77	685.81	-610.31	870.40	40°12'17.8109"N	104°33'31.9075"W	0.43	-171.94	0.41	0.41	
6434.00	15.020	120.210	6290.23	1463.23	700.75	-623.33	892.38	40°12'17.6800"N	104°33'31.6260"W	1.61	79.13	-1.60	-0.87	
6528.00	15.630	128.800	6380.90	1553.90	716.58	-637.39	912.78	40°12'17.5389"N	104°33'31.3651"W	2.50	74.93	0.65	9.14	
6623.00	22.050	161.480	6471.00	1644.00	742.91	-662.41	928.47	40°12'17.2900"N	104°33'31.1662"W	12.76	30.53	6.76	34.40	
6717.00	30.320	170.740	6555.32	1728.32	783.83	-702.65	937.91	40°12'16.8914"N	104°33'31.0500"W	9.79	-3.53	8.80	9.85	
6812.00	38.290	169.950	6633.73	1806.73	837.16	-755.38	946.92	40°12'16.3694"N	104°33'30.9411"W	8.40	1.74	8.39	-0.83	
6907.00	46.410	170.290	6703.88	1876.88	900.88	-818.38	957.88	40°12'15.7457"N	104°33'30.8086"W	8.55	2.40	8.55	0.36	
7001.00	53.950	170.680	6764.03	1937.03	972.82	-889.54	969.79	40°12'15.0414"N	104°33'30.6648"W	8.03	-8.34	8.02	0.41	
7096.00	63.330	169.150	6813.42	1986.42	1053.54	-969.30	984.04	40°12'14.2517"N	104°33'30.4921"W	9.97	-5.49	9.87	-1.61	
7190.00	73.460	168.140	6847.99	2020.99	1140.30	-1054.87	1001.25	40°12'13.4043"N	104°33'30.2820"W	10.82	25.17	10.78	-1.07	
7285.00	78.570	170.580	6870.94	2043.94	1232.03	-1145.43	1018.24	40°12'12.5076"N	104°33'30.0755"W	5.93	28.69	5.38	2.57	
7379.00	85.660	174.450	6883.83	2056.83	1324.98	-1237.68	1030.33	40°12'11.5949"N	104°33'29.9322"W	8.57	23.46	7.54	4.12	
7474.00	89.720	176.210	6887.66	2060.66	1419.88	-1332.26	1038.06	40°12'10.6594"N	104°33'29.8456"W	4.66	88.84	4.27	1.85	
7568.00	89.750	177.690	6888.10	2061.10	1513.81	-1426.13	1043.06	40°12'9.7314"N	104°33'29.7940"W	1.57	83.19	0.03	1.57	
7663.00	89.970	179.530	6888.33	2061.33	1608.61	-1521.09	1045.36	40°12'8.7927"N	104°33'29.7773"W	1.95	-51.62	0.23	1.94	
7758.00	90.770	178.520	6887.71	2060.71	1703.35	-1616.08	1046.98	40°12'7.8540"N	104°33'29.7695"W	1.36	117.99	0.84	-1.06	
7852.00	90.180	179.630	6886.94	2059.94	1797.09	-1710.06	1048.50	40°12'6.9252"N	104°33'29.7628"W	1.34	74.39	-0.63	1.18	
7946.00	90.370	180.310	6886.48	2059.48	1890.72	-1804.06	1048.54	40°12'5.9963"N	104°33'29.7750"W	0.75	93.09	0.20	0.72	
8041.00	90.310	181.420	6885.92	2058.92	1985.19	-1899.04	1047.11	40°12'5.0579"N	104°33'29.8065"W	1.17	97.94	-0.06	1.17	
8135.00	90.250	181.850	6885.46	2058.46	2078.54	-1993.00	1044.43	40°12'4.1297"N	104°33'29.8540"W	0.46	-103.63	-0.06	0.46	
8230.00	90.090	181.190	6885.18	2058.18	2172.89	-2087.97	1041.91	40°12'3.1916"N	104°33'29.8994"W	0.71	73.18	-0.17	-0.69	
8324.00	90.220	181.620	6884.93	2057.93	2266.28	-2181.94	1039.60	40°12'2.2632"N	104°33'29.9420"W	0.48	-83.66	0.14	0.46	
8419.00	90.250	181.350	6884.54	2057.54	2360.65	-2276.91	1037.14	40°12'1.3251"N	104°33'29.9867"W	0.29	-127.93	0.03	-0.28	
8513.00	89.720	180.670	6884.56	2057.56	2454.10	-2370.89	1035.48	40°12'0.3966"N	104°33'30.0209"W	0.92	-71.57	-0.56	-0.72	

REFERENCE WELLPATH IDENTIFICATION				
Operator	NOBLE ENERGY, INC		Well	VOGLER STATE D33-759
Field	WELD COUNTY (NOBLE NAD 83 GRID)		API/Legal	
Facility	SEC.21-T03N-R64W		Wellbore	VOGLER STATE D33-759 AWP
Slot	SLOT#38 VOGLER STATE D33-759 (1065'FSL & 1048'FWL, SEC.21)			

WELLPATH DATA (187 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	89.880	180.190	6884.89	2057.89	2547.66	-2464.89	1034.78	40°11'59.4678"N	104°33'30.0429"W	0.54	8.53	0.17	-0.51	
8702.00	90.280	180.250	6884.76	2057.76	2642.24	-2559.89	1034.41	40°11'58.5291"N	104°33'30.0606"W	0.43	41.71	0.42	0.06	
8796.00	90.740	180.660	6883.92	2056.92	2735.79	-2653.88	1033.67	40°11'57.6004"N	104°33'30.0831"W	0.66	-116.88	0.49	0.44	
8891.00	90.370	179.930	6883.00	2056.00	2830.36	-2748.87	1033.18	40°11'56.6618"N	104°33'30.1024"W	0.86	-45.00	-0.39	-0.77	
8985.00	90.430	179.870	6882.34	2055.34	2924.00	-2842.87	1033.34	40°11'55.7330"N	104°33'30.1131"W	0.09	45.91	0.06	-0.06	
9080.00	91.350	180.820	6880.87	2053.87	3018.55	-2937.86	1032.77	40°11'54.7944"N	104°33'30.1335"W	1.39	168.69	0.97	1.00	
9174.00	90.550	180.980	6879.31	2052.31	3112.01	-3031.83	1031.30	40°11'53.8660"N	104°33'30.1654"W	0.87	176.19	-0.85	0.17	
9269.00	90.400	180.990	6878.52	2051.52	3206.47	-3126.81	1029.66	40°11'52.9276"N	104°33'30.1994"W	0.16	-86.77	-0.16	0.01	
9364.00	90.490	179.390	6877.78	2050.78	3301.05	-3221.81	1029.35	40°11'51.9890"N	104°33'30.2165"W	1.69	110.90	0.09	-1.68	
9458.00	89.940	180.830	6877.43	2050.43	3394.65	-3315.80	1029.17	40°11'51.0602"N	104°33'30.2316"W	1.64	-40.46	-0.59	1.53	
9553.00	90.280	180.540	6877.25	2050.25	3489.16	-3410.80	1028.03	40°11'50.1216"N	104°33'30.2593"W	0.47	26.56	0.36	-0.31	
9647.00	90.620	180.710	6876.51	2049.51	3582.68	-3504.79	1027.01	40°11'49.1930"N	104°33'30.2854"W	0.40	174.47	0.36	0.18	
9742.00	90.310	180.740	6875.65	2048.74	3677.18	-3599.78	1025.80	40°11'48.2545"N	104°33'30.3138"W	0.33	-162.35	-0.33	0.03	
9836.00	90.090	180.670	6875.41	2048.41	3770.69	-3693.77	1024.65	40°11'47.3258"N	104°33'30.3416"W	0.25	90.00	-0.23	-0.07	
9931.00	90.090	180.680	6875.26	2048.26	3865.21	-3788.76	1023.53	40°11'46.3872"N	104°33'30.3690"W	0.01	20.56	0.00	0.01	
10025.00	90.250	180.740	6874.98	2047.98	3958.72	-3882.75	1022.36	40°11'45.4586"N	104°33'30.3969"W	0.18	-107.88	0.17	0.06	
10120.00	90.150	180.430	6874.65	2047.65	4053.24	-3977.75	1021.39	40°11'44.5200"N	104°33'30.4224"W	0.34	-29.36	-0.11	-0.33	
10215.00	90.310	180.340	6874.27	2047.27	4147.80	-4072.75	1020.75	40°11'43.5814"N	104°33'30.4436"W	0.19	-163.81	0.17	-0.09	
10309.00	90.000	180.250	6874.01	2047.01	4241.38	-4166.74	1020.27	40°11'42.6526"N	104°33'30.4627"W	0.34	-14.47	-0.33	-0.10	
10404.00	90.310	180.170	6873.76	2046.76	4335.96	-4261.74	1019.92	40°11'41.7139"N	104°33'30.4802"W	0.34	-92.91	0.33	-0.08	
10499.00	90.280	179.580	6873.27	2046.27	4430.60	-4356.74	1020.13	40°11'40.7752"N	104°33'30.4905"W	0.62	-118.97	-0.03	-0.62	
10593.00	89.970	179.020	6873.06	2046.06	4524.32	-4450.73	1021.28	40°11'39.8463"N	104°33'30.4886"W	0.68	-132.85	-0.33	-0.60	
10688.00	89.200	178.190	6873.75	2046.75	4619.11	-4545.70	1023.59	40°11'38.9076"N	104°33'30.4718"W	1.19	46.23	-0.81	-0.87	
10782.00	90.340	179.380	6874.13	2047.13	4712.88	-4639.68	1025.58	40°11'37.9788"N	104°33'30.4590"W	1.75	1.69	1.21	1.27	
10877.00	90.680	179.390	6873.28	2046.28	4807.58	-4734.67	1026.60	40°11'37.0400"N	104°33'30.4588"W	0.36	137.79	0.36	0.01	
10971.00	89.820	180.170	6872.87	2045.87	4901.24	-4828.66	1026.96	40°11'36.1112"N	104°33'30.4670"W	1.24	57.31	-0.91	0.83	
11066.00	90.680	181.510	6872.46	2045.46	4995.72	-4923.65	1025.57	40°11'35.1727"N	104°33'30.4980"W	1.68	-111.96	0.91	1.41	
11160.00	90.430	180.890	6871.55	2044.55	5089.14	-5017.62	1023.60	40°11'34.2443"N	104°33'30.5362"W	0.71	-149.04	-0.27	-0.66	
11254.00	90.030	180.650	6871.17	2044.17	5182.64	-5111.61	1022.34	40°11'33.3157"N	104°33'30.5653"W	0.50	153.44	-0.43	-0.26	
11349.00	89.750	180.790	6871.35	2044.35	5277.14	-5206.61	1021.15	40°11'32.3772"N	104°33'30.5937"W	0.33	-135.73	-0.29	0.15	
11443.00	89.350	180.400	6872.09	2045.09	5370.67	-5300.60	1020.17	40°11'31.4485"N	104°33'30.6191"W	0.59	-13.18	-0.43	-0.41	
11538.00	90.460	180.140	6872.25	2045.25	5465.24	-5395.60	1019.72	40°11'30.5098"N	104°33'30.6379"W	1.20	172.06	1.17	-0.27	
11632.00	89.600	180.260	6872.20	2045.20	5558.83	-5489.59	1019.39	40°11'29.5810"N	104°33'30.6550"W	0.92	-23.58	-0.91	0.13	
11726.00	92.280	179.090	6870.66	2043.66	5652.48	-5583.57	1019.93	40°11'28.6524"N	104°33'30.6610"W	3.11	-175.57	2.85	-1.24	
11821.00	89.570	178.880	6869.12	2042.12	5747.21	-5678.53	1021.61	40°11'27.7138"N	104°33'30.6523"W	2.86	94.29	-2.85	-0.22	
11915.00	89.540	179.280	6869.85	2042.85	5840.95	-5772.52	1023.12	40°11'26.7849"N	104°33'30.6457"W	0.43	12.47	-0.03	0.43	
12010.00	90.490	179.490	6869.83	2042.83	5935.66	-5867.51	1024.14	40°11'25.8462"N	104°33'30.6456"W	1.02	-104.04	1.00	0.22	
12104.00	90.460	179.370	6869.05	2042.05	6029.35	-5961.50	1025.07	40°11'24.9173"N	104°33'30.6464"W	0.13	-121.15	-0.03	-0.13	
12199.00	89.910	178.460	6868.74	2041.74	6124.11	-6056.49	1026.87	40°11'23.9785"N	104°33'30.6362"W	1.12	-49.40	-0.58	-0.96	
12293.00	90.090	178.250	6868.74	2041.74	6217.94	-6150.45	1029.57	40°11'23.0498"N	104°33'30.6143"W	0.29	6.01	0.19	-0.22	
12387.00	90.280	178.270	6868.44	2041.44	6311.77	-6244.40	1032.43	40°11'22.1211"N	104°33'30.5904"W	0.20	-162.90	0.20	0.02	
12482.00	90.150	178.230	6868.08	2041.08	6406.61	-6339.36	1035.33	40°11'21.1825"N	104°33'30.5660"W	0.14	-146.31	-0.14	-0.04	
12576.00	90.060	178.170	6867.91	2040.91	6500.45	-6433.31	1038.28	40°11'20.2538"N	104°33'30.5408"W	0.12	-135.00	-0.10	-0.06	
12670.00	90.030	178.140	6867.84	2040.84	6594.29	-6527.26	1041.31	40°11'19.3251"N	104°33'30.5146"W	0.05	40.03	-0.03	-0.03	
12764.00	90.280	178.350	6867.58	2040.58	6688.13	-6621.22	1044.18	40°11'18.3964"N	104°33'30.4904"W	0.35	82.57	0.27	0.22	

REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Well	VOGLER STATE D33-759
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API/Legal	
Facility	SEC.21-T03N-R64W	Wellbore	VOGLER STATE D33-759 AWB
Slot	SLOT#38 VOGLER STATE D33-759 (1065'FSL & 1048'FWL, SEC.21)		

WELLPATH DATA (187 stations)														
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	TVDSS [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Tooface [°]	Build Rate [°/100ft]	Turn Rate [°/100ft]	Comments
12859.00	90.370	179.040	6867.04	2040.04	6782.91	-6716.19	1046.35	40°11'17.4577"N	104°33'30.4755"W	0.73	75.38	0.09	0.73	
12953.00	90.430	179.270	6866.39	2039.39	6876.65	-6810.18	1047.73	40°11'16.5288"N	104°33'30.4705"W	0.25	96.84	0.06	0.24	
13047.00	90.250	180.770	6865.83	2038.83	6970.26	-6904.17	1047.70	40°11'15.6000"N	104°33'30.4838"W	1.61	148.39	-0.19	1.60	
13142.00	90.120	180.850	6865.52	2038.52	7064.75	-6999.16	1046.36	40°11'14.6615"N	104°33'30.5141"W	0.16	94.22	-0.14	0.08	
13237.00	90.030	182.070	6865.40	2038.40	7159.12	-7094.13	1043.94	40°11'13.7233"N	104°33'30.5583"W	1.29	50.62	-0.09	1.28	
13331.00	90.580	182.740	6864.90	2037.90	7252.30	-7188.05	1039.99	40°11'12.7957"N	104°33'30.6219"W	0.92	-145.01	0.59	0.71	
13426.00	90.280	182.530	6864.19	2037.19	7346.43	-7282.94	1035.63	40°11'11.8585"N	104°33'30.6912"W	0.39	-91.70	-0.32	-0.22	
13520.00	90.250	181.520	6863.75	2036.75	7439.69	-7376.88	1032.30	40°11'10.9306"N	104°33'30.7468"W	1.07	28.39	-0.03	-1.07	
13615.00	90.620	181.720	6863.03	2036.03	7534.03	-7471.84	1029.62	40°11'9.9925"N	104°33'30.7944"W	0.44	-101.48	0.39	0.21	
13709.00	90.370	180.490	6862.22	2035.22	7627.47	-7565.82	1027.81	40°11'9.0641"N	104°33'30.8306"W	1.34	79.69	-0.27	-1.31	
13804.00	90.430	180.820	6861.55	2034.55	7721.98	-7660.81	1026.72	40°11'8.1255"N	104°33'30.8576"W	0.35	-103.31	0.06	0.35	
13898.00	89.940	178.750	6861.25	2034.25	7815.63	-7754.80	1027.07	40°11'7.1967"N	104°33'30.8659"W	2.26	80.54	-0.52	-2.20	
13993.00	90.000	179.110	6861.30	2034.30	7910.39	-7809.79	1028.85	40°11'6.2579"N	104°33'30.8561"W	0.38	-59.57	0.06	0.38	
14087.00	90.370	178.480	6861.00	2034.00	8004.16	-7943.76	1030.82	40°11'5.3291"N	104°33'30.8435"W	0.78	95.35	0.39	-0.67	
14182.00	90.310	179.120	6860.43	2033.43	8098.94	-8038.74	1032.81	40°11'4.3904"N	104°33'30.8308"W	0.68	81.01	-0.06	0.67	
14276.00	90.680	181.460	6859.62	2032.62	8192.50	-8132.73	1032.34	40°11'3.4617"N	104°33'30.8498"W	2.52	-117.52	0.39	2.49	
14371.00	90.310	180.750	6858.80	2031.80	8286.94	-8227.71	1030.51	40°11'2.5234"N	104°33'30.8864"W	0.84	97.27	-0.39	-0.75	
14465.00	90.250	181.220	6858.34	2031.34	8380.40	-8321.69	1028.89	40°11'1.5948"N	104°33'30.9201"W	0.50	-84.01	-0.06	0.50	
14560.00	90.400	179.790	6857.80	2030.80	8474.93	-8416.68	1028.05	40°11'0.6562"N	104°33'30.9439"W	1.51	76.26	0.16	-1.51	
14654.00	90.620	180.690	6856.97	2029.97	8568.52	-8510.68	1027.66	40°10'59.7275"N	104°33'30.9618"W	0.99	-137.77	0.23	0.96	
14749.00	89.970	180.100	6856.48	2029.48	8663.07	-8605.67	1027.00	40°10'58.7889"N	104°33'30.9832"W	0.92	-87.55	-0.68	-0.62	
14843.00	90.000	179.400	6856.50	2029.50	8756.73	-8699.67	1027.41	40°10'57.8600"N	104°33'30.9908"W	0.75	-115.35	0.03	-0.74	
14937.00	89.910	179.210	6856.57	2029.57	8850.45	-8793.67	1028.55	40°10'56.9311"N	104°33'30.9889"W	0.22	73.30	-0.10	-0.20	
15032.00	90.000	179.510	6856.65	2029.65	8945.15	-8888.66	1029.62	40°10'55.9923"N	104°33'30.9883"W	0.33	-46.27	0.09	0.32	
15126.00	90.220	179.280	6856.47	2029.47	9038.86	-8982.65	1030.61	40°10'55.0634"N	104°33'30.9883"W	0.34	-103.63	0.23	-0.24	
15221.00	90.060	178.620	6856.24	2029.24	9133.62	-9077.64	1032.35	40°10'54.1246"N	104°33'30.9789"W	0.71	63.43	-0.17	-0.69	
15315.00	90.370	179.240	6855.88	2028.88	9227.38	-9171.62	1034.10	40°10'53.1958"N	104°33'30.9691"W	0.74	-127.12	0.33	0.66	
15410.00	90.090	178.870	6855.50	2028.50	9322.12	-9266.61	1035.67	40°10'52.2570"N	104°33'30.9620"W	0.49	-15.26	-0.29	-0.39	
15504.00	90.310	178.810	6855.17	2028.17	9415.90	-9360.59	1037.57	40°10'51.3281"N	104°33'30.9503"W	0.24	114.62	0.23	-0.06	
15599.00	90.090	179.290	6854.84	2027.84	9510.64	-9455.57	1039.15	40°10'50.3894"N	104°33'30.9430"W	0.56	-15.26	-0.23	0.51	
15693.00	90.310	179.230	6854.51	2027.51	9604.36	-9549.56	1040.36	40°10'49.4605"N	104°33'30.9402"W	0.24	-123.69	0.23	-0.06	
15788.00	89.750	178.390	6854.47	2027.47	9699.14	-9644.54	1042.34	40°10'48.5217"N	104°33'30.9278"W	1.06	58.67	-0.59	-0.88	
15882.00	90.030	178.850	6854.65	2027.65	9792.93	-9738.51	1044.60	40°10'47.5929"N	104°33'30.9115"W	0.57	-121.49	0.30	0.49	
15977.00	89.540	178.050	6855.00	2028.00	9887.75	-9833.48	1047.17	40°10'46.6543"N	104°33'30.8914"W	0.99	82.80	-0.52	-0.84	
16071.00	89.750	179.710	6855.58	2028.58	9981.51	-9927.46	1049.01	40°10'45.7254"N	104°33'30.8805"W	1.78	79.92	0.22	1.77	
16166.00	89.910	180.610	6855.87	2028.87	10076.10	-10022.45	1048.74	40°10'44.7868"N	104°33'30.8969"W	0.96	75.77	0.17	0.95	
16260.00	90.090	181.320	6855.87	2028.87	10169.57	-10116.44	1047.16	40°10'43.8582"N	104°33'30.9302"W	0.78	-111.80	0.19	0.76	
16355.00	89.690	180.320	6856.05	2029.05	10264.05	-10211.43	1045.80	40°10'42.9197"N	104°33'30.9607"W	1.13	45.96	-0.42	-1.05	
16449.00	90.280	180.930	6856.07	2029.07	10357.58	-10305.42	1044.77	40°10'41.9910"N	104°33'30.9868"W	0.90	-106.53	0.63	0.65	
16543.00	89.820	179.380	6855.99	2028.99	10451.17	-10399.42	1044.52	40°10'41.0622"N	104°33'31.0029"W	1.72	78.28	-0.49	-1.65	
16638.00	90.370	182.030	6855.83	2028.83	10545.67	-10494.40	1043.35	40°10'40.1238"N	104°33'31.0309"W	2.85	-145.20	0.58	2.79	
16733.00	89.780	181.620	6855.71	2028.71	10639.97	-10589.35	1040.32	40°10'39.1858"N	104°33'31.0829"W	0.76	37.57	-0.62	-0.43	
16827.00	89.910	181.720	6855.96	2028.96	10733.31	-10683.31	1037.59	40°10'38.2577"N	104°33'31.1310"W	0.17	96.13	0.14	0.11	
16922.00	89.780	182.930	6856.22	2029.22	10827.50	-10778.23	1033.73	40°10'37.3201"N	104°33'31.1937"W	1.28	-60.87	-0.14	1.27	
17017.00	90.120	182.320	6856.30	2029.30	10921.63	-10873.13	1029.38	40°10'36.3828"N	104°33'31.2627"W	0.74	62.24	0.36	-0.64	

REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY, INC	Well	VOGLER STATE D33-759
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API/Legal	
Facility	SEC.21-T03N-R64W	Wellbore	VOGLER STATE D33-759 AWB
Slot	SLOT#38 VOGLER STATE D33-759 (1065'FSL & 1048'FWL, SEC.21)		

WELLPATH DATA (187 stations) † = interpolated, ‡ = extrapolated station

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
17111.00	90.220	182.510	6856.02	2029.02	11014.81	-10967.05	1025.42	40°10'35.4552"N	104°33'31.3266"W	0.23	84.59	0.11	0.20	
17206.00	90.310	183.460	6855.59	2028.59	11108.86	-11061.92	1020.47	40°10'34.5183"N	104°33'31.4033"W	1.00	-68.52	0.09	1.00	
17301.00	91.450	180.560	6854.13	2027.13	11203.10	-11156.84	1017.14	40°10'33.5807"N	104°33'31.4592"W	3.28	-153.43	1.20	-3.05	
17395.00	90.490	180.080	6852.53	2025.53	11296.66	-11250.82	1016.62	40°10'32.6521"N	104°33'31.4788"W	1.14	-122.31	-1.02	-0.51	
17490.00	90.060	179.400	6852.08	2025.08	11391.31	-11345.82	1017.05	40°10'31.7133"N	104°33'31.4862"W	0.85	-30.96	-0.45	-0.72	
17584.00	90.310	179.250	6851.78	2024.78	11485.02	-11439.81	1018.15	40°10'30.7844"N	104°33'31.4848"W	0.31	0.00	0.27	-0.16	LAST BH MWD SURVEY
17610.00†	90.310	179.250	6851.63	2024.63	11510.95	-11465.81	1018.50	40°10'30.5275"N	104°33'31.4840"W	0.00		0.00	0.00	EXTRAPOLATED TO TD

HOLE & CASING SECTIONS - Ref Wellbore: VOGLER STATE D33-759 AWB Ref Wellpath: VOGLER STATE D33-759 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	1948.00	1918.00	30.00	1947.96	0.07	0.01	4.30	1.10
9.625in Casing Surface	30.00	1948.00	1918.00	30.00	1947.96	0.07	0.01	4.30	1.10
8.5in Open Hole	1948.00	17610.00	15662.00	1947.96	6851.63	4.30	1.10	-11465.81	1018.50

TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
VOGLER STATE D33-759 BHL REV-1 (200'FSL & 1980'FWL, SEC.33)	6850.00	-11468.05	1031.25	3263026.39	1308042.45	40°10'30.5040"N	104°33'31.3200"W	point
VOGLER STATE D33-759 TPZ REV-1 (200'FNL & 2078'FWL, SEC.28)	6886.00	-1264.11	1039.14	3263034.28	1318245.93	40°12'11.3328"N	104°33'29.8224"W	point
SECTION LINES - SEC.21-T03N-R64W	7001.00	4172.37	-1077.54	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	7001.00	-1066.38	-1040.74	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	7001.00	-6421.60	-992.06	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 D33-759 AWB Ref Wellpath: VOGLER STATE D33-759 AWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore	Survey Date
0.00	1933.00	Gyrodata 2015 - GC+DROP+COND	13.5" GYRODATA 2015 (GC+DROP+COND) <0' - 1933'>	VOGLER STATE D33-759 AWB	3/5/2020
1933.00	17610.00	OWSG MWD rev2 + IFR1 + Multi-Station Correction	8.5" OWSG REV.2 (IFR1+MSA) <1991' - 17584'>	VOGLER STATE D33-759 AWB	3/5/2020

REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Well	VOGLER STATE D33-759
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API/Legal	
Facility	SEC.21-T03N-R64W	Wellbore	VOGLER STATE D33-759 AWP
Slot	SLOT#38 VOGLER STATE D33-759 (1065'FSL & 1048'FWL, SEC.21)		

WELLPATH COMMENTS				
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
77.00	0.650	11.310	77.00	FIRST 3RD PARTY GYRO SURVEY
1933.00	0.630	126.070	1932.97	TIE ON TO 3RD PARTY GYRO SURVEYS
1991.00	1.410	148.220	1990.96	FIRST BH MWD SURVEY
17584.00	90.310	179.250	6851.78	LAST BH MWD SURVEY
17610.00	90.310	179.250	6851.63	EXTRAPOLATED TO TD