

NOBLE ENERGY, INC

Location: COLORADO

Slot: SLOT#41 VOGLER STATE D33-728 (1080'FSL & 2444'FEL, SEC.21)

Field: WELD COUNTY (NOBLE NAD 83 GRID)

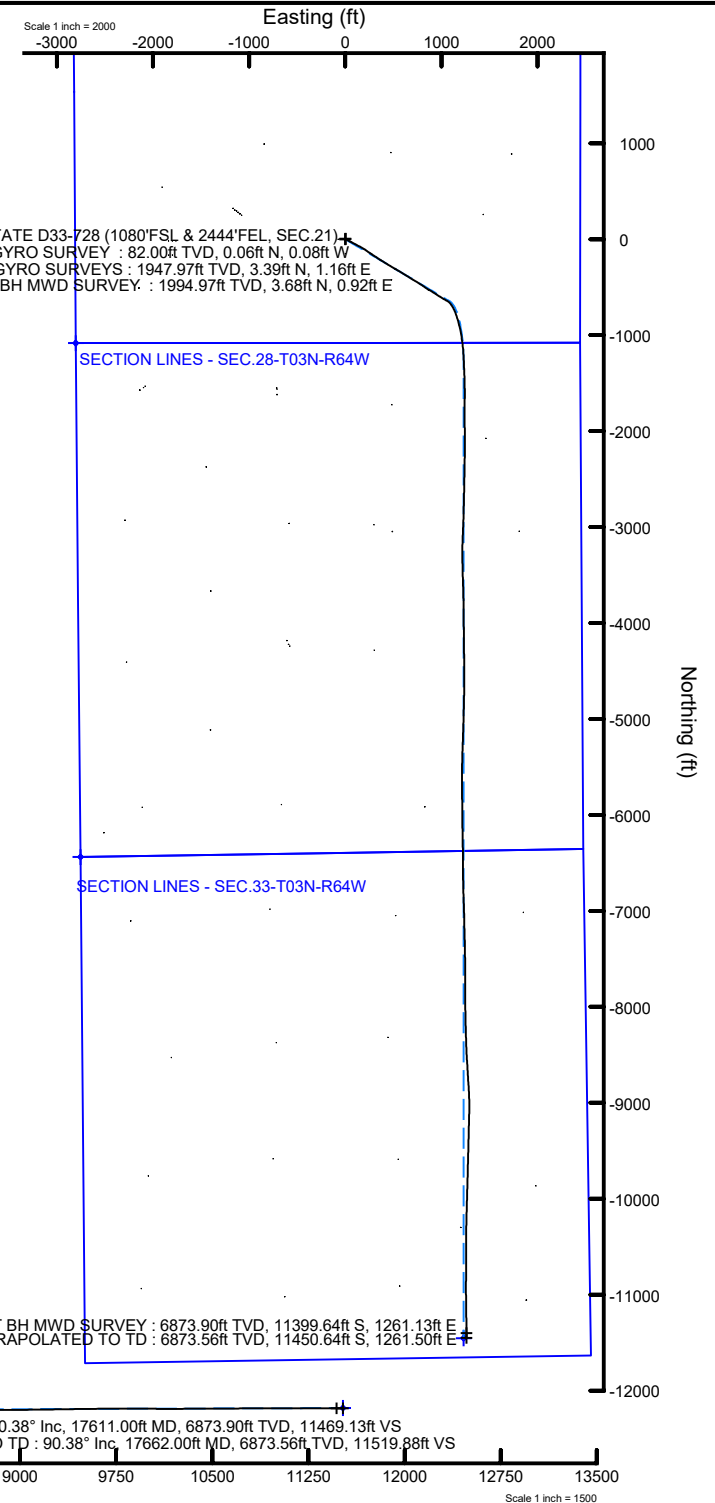
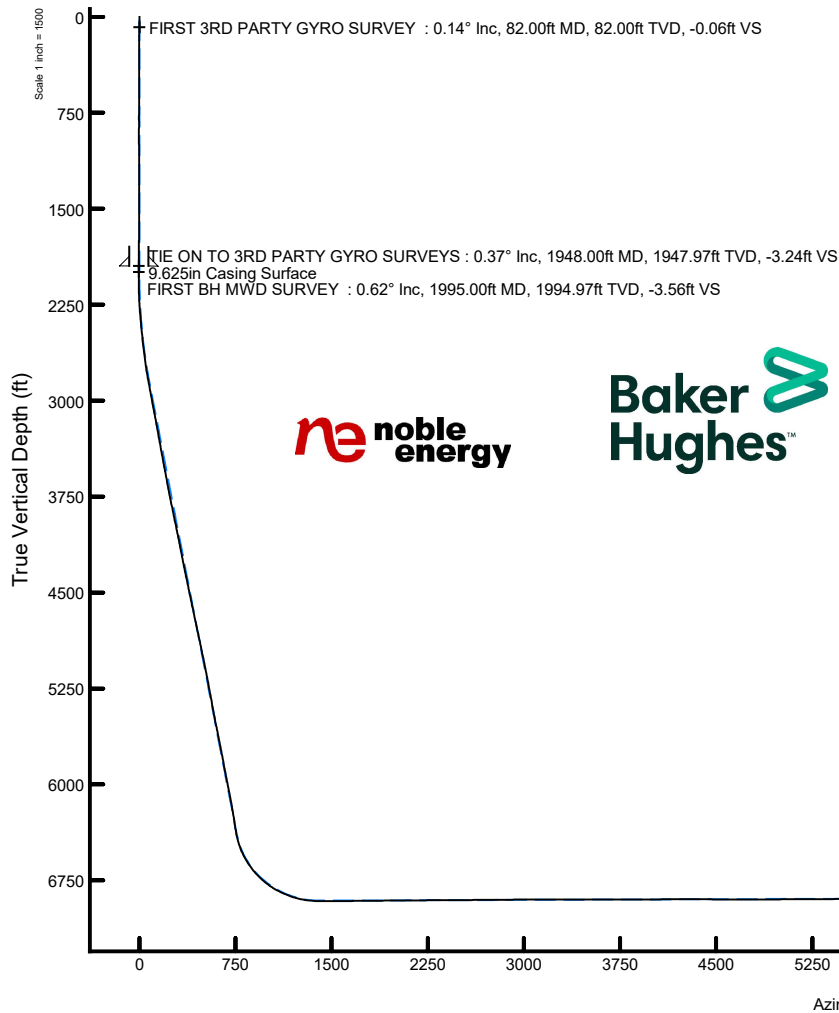
Well: VOGLER STATE D33-728

Facility: SEC.21-T03N-R64W

Wellbore: VOGLER STATE D33-728 AWB

Plot reference wellpath is VOGLER STATE D33-728 AWP	Grid System: NAD83 / Lambert Colorado SP, Northern Zone (501), US feet
True vertical depths are referenced to H&P 517 (4829'GL+30'KB@4859') (RKB)	North Reference: Grid north
Reference wellpath measured depths are referenced to H&P 517 (4829'GL+30'KB@4859') (RKB)	Scale: True distance
H&P 517 (4829'GL+30'KB@4859') (RKB) to Mean Sea Level: 4859 feet	Coordinates are in feet referenced to Slot
Mean Sea Level to Ground level (At Slot: SLOT#41 VOGLER STATE D33-728 (1080'FSL & 2444'FEL, SEC.21)): 0 feet	Depths are in feet
Offset wellpath MDs are referenced to each path's default MD datum	Created by: manajohj on 2020-03-12; Database: WA, NOBLE

SLOT#41 VOGLER STATE D33-728 (1080'FSL & 2444'FEL, SEC.21)
FIRST 3RD PARTY GYRO SURVEY : 82.00ft TVD, 0.06ft N, 0.08ft W
TIE ON TO 3RD PARTY GYRO SURVEYS : 1947.97ft TVD, 3.39ft N, 1.16ft E
FIRST BH MWD SURVEY : 1994.97ft TVD, 3.68ft N, 0.92ft E



REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Well	VOGLER STATE D33-728
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API/Legal	
Facility	SEC.21-T03N-R64W	Wellbore	VOGLER STATE D33-728 AWP
Slot	SLOT#41 VOGLER STATE D33-728 (1080'FSL & 2444'FEL, 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	3/12/2020 at 11:02:35 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	508.48	2146.36	3263757.27	1319526.94	40°12'23.9155"N	104°33'20.3288"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 517 (4829'GL+30'KB@4859') (RKB) to Facility Vertical Datum	4859.00ft
Horizontal Reference Pt	Slot	H&P 517 (4829'GL+30'KB@4859') (RKB) to Mean Sea Level	4859.00ft
Vertical Reference Pt	H&P 517 (4829'GL+30'KB@4859') (RKB)	H&P 517 (4829'GL+30'KB@4859') (RKB) to Ground Level at Slot (SLOT#41 VOGLER STATE D33-728 (1080'FSL & 2444'FEL, SEC.21))	4859.00ft
MD Reference Pt	H&P 517 (4829'GL+30'KB@4859') (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	173.86°

REFERENCE WELLPATH IDENTIFICATION				
Operator	NOBLE ENERGY, INC		Well	VOGLER STATE D33-728
Field	WELD COUNTY (NOBLE NAD 83 GRID)		API/Legal	
Facility	SEC.21-T03N-R64W		Wellbore	VOGLER STATE D33-728 AWP
Slot	SLOT#41 VOGLER STATE D33-728 (1080'FSL & 2444'FEL, 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
0.00	0.000	304.220	0.00	-4859.00	0.00	0.00	0.00	40°12'23.9155"N	104°33'20.3288"W	0.00	0.00	0.00	0.00	
82.00	0.140	304.220	82.00	-4777.00	-0.06	0.06	-0.08	40°12'23.9161"N	104°33'20.3299"W	0.17	132.92	0.17	0.00	FIRST 3RD PARTY GYRO SURVEY
176.00	0.190	44.490	176.00	-4683.00	-0.24	0.23	-0.07	40°12'23.9178"N	104°33'20.3297"W	0.27	-4.73	0.05	106.67	
268.00	0.730	40.990	268.00	-4591.00	-0.73	0.78	0.42	40°12'23.9232"N	104°33'20.3232"W	0.59	-132.72	0.59	-3.80	
331.00	0.610	329.820	330.99	-4528.01	-1.31	1.38	0.52	40°12'23.9290"N	104°33'20.3219"W	1.25	164.50	-0.19	-112.97	
425.00	0.280	98.710	424.99	-4434.01	-1.71	1.77	0.49	40°12'23.9330"N	104°33'20.3222"W	0.87	-62.57	-0.35	137.12	
520.00	0.480	67.320	519.99	-4339.01	-1.76	1.89	1.09	40°12'23.9341"N	104°33'20.3145"W	0.30	56.22	0.21	-33.04	
615.00	0.490	69.030	614.99	-4244.01	-1.98	2.19	1.84	40°12'23.9370"N	104°33'20.3048"W	0.02	-140.67	0.01	1.80	
709.00	0.380	343.160	708.98	-4150.02	-2.39	2.63	2.12	40°12'23.9413"N	104°33'20.3011"W	0.64	-176.12	-0.12	-91.35	
804.00	0.060	192.420	803.98	-4055.02	-2.65	2.89	2.02	40°12'23.9438"N	104°33'20.3024"W	0.46	96.40	-0.34	-158.67	
894.00	0.360	279.290	893.98	-3965.02	-2.68	2.89	1.73	40°12'23.9438"N	104°33'20.3061"W	0.40	-160.54	0.33	96.52	
993.00	0.130	186.080	992.98	-3866.02	-2.66	2.82	1.41	40°12'23.9433"N	104°33'20.3102"W	0.39	81.57	-0.23	-94.15	
1088.00	0.250	236.690	1087.98	-3771.02	-2.46	2.60	1.23	40°12'23.9411"N	104°33'20.3126"W	0.21	-129.51	0.13	53.27	
1183.00	0.300	147.190	1182.98	-3676.02	-2.14	2.28	1.19	40°12'23.9379"N	104°33'20.3132"W	0.41	-168.03	0.05	-94.21	
1278.00	0.240	354.190	1277.98	-3581.02	-2.12	2.27	1.30	40°12'23.9378"N	104°33'20.3117"W	0.55	147.01	-0.06	-161.05	
1372.00	0.450	124.320	1371.98	-3487.02	-2.07	2.26	1.59	40°12'23.9376"N	104°33'20.3080"W	0.67	-172.92	0.22	138.44	
1467.00	0.200	115.300	1466.98	-3392.02	-1.75	1.98	2.05	40°12'23.9348"N	104°33'20.3022"W	0.27	-173.27	-0.26	-9.49	
1562.00	0.370	305.660	1561.98	-3297.02	-1.86	2.08	1.95	40°12'23.9359"N	104°33'20.3034"W	0.60	131.96	0.18	-178.57	
1656.00	0.290	6.060	1655.98	-3203.02	-2.30	2.50	1.72	40°12'23.9400"N	104°33'20.3062"W	0.36	139.32	-0.09	64.26	
1751.00	0.200	36.320	1750.98	-3108.02	-2.66	2.87	1.85	40°12'23.9437"N	104°33'20.3046"W	0.16	-123.23	-0.09	31.85	
1846.00	0.320	304.610	1845.97	-3013.03	-2.95	3.15	1.73	40°12'23.9465"N	104°33'20.3061"W	0.40	-76.82	0.13	-96.54	
1940.00	0.380	282.870	1939.97	-2919.03	-3.22	3.37	1.21	40°12'23.9487"N	104°33'20.3128"W	0.15	105.12	0.06	-23.13	
1948.00	0.370	290.500	1947.97	-2911.03	-3.24	3.39	1.16	40°12'23.9489"N	104°33'20.3134"W	0.64	83.69	-0.12	95.37	TIE ON TO 3RD PARTY GYRO SURVEYS
1995.00	0.620	337.810	1994.97	-2864.03	-3.56	3.68	0.92	40°12'23.9517"N	104°33'20.3164"W	0.98	130.52	0.53	100.66	FIRST BH MWD SURVEY
2090.00	1.490	89.890	2089.96	-2769.04	-3.92	4.15	1.96	40°12'23.9563"N	104°33'20.3030"W	1.91	40.99	0.92	117.98	
2184.00	3.770	115.870	2183.86	-2675.14	-2.15	2.81	5.96	40°12'23.9426"N	104°33'20.2515"W	2.68	15.40	2.43	27.64	
2279.00	6.520	122.450	2278.47	-2580.53	2.87	-1.45	13.33	40°12'23.8998"N	104°33'20.1572"W	2.96	-1.84	2.89	6.93	
2374.00	8.320	122.050	2372.67	-2486.33	10.48	-7.99	23.71	40°12'23.8340"N	104°33'20.0244"W	1.90	-0.28	1.89	-0.42	
2468.00	9.320	122.020	2465.55	-2393.45	19.39	-15.64	35.92	40°12'23.7572"N	104°33'19.8680"W	1.06	-21.32	1.06	-0.03	
2563.00	11.360	118.030	2559.01	-2299.99	29.40	-24.11	50.71	40°12'23.6719"N	104°33'19.6786"W	2.27	-0.38	2.15	-4.20	
2657.00	12.680	117.990	2650.95	-2208.05	40.38	-33.31	67.99	40°12'23.5792"N	104°33'19.4571"W	1.40	-1.56	1.40	-0.04	
2752.00	14.730	117.770	2743.24	-2115.76	52.97	-43.83	87.88	40°12'23.4732"N	104°33'19.2022"W	2.16	-0.14	2.16	-0.23	
2847.00	18.640	117.740	2834.22	-2024.78	68.18	-56.53	112.02	40°12'23.3452"N	104°33'18.8929"W	4.12	163.62	4.12	-0.03	
2942.00	18.020	118.330	2924.40	-1934.60	84.96	-70.57	138.39	40°12'23.2036"N	104°33'18.5550"W	0.68	-1.19	-0.65	0.62	
3036.00	18.170	118.320	3013.75	-1845.25	101.48	-84.42	164.09	40°12'23.0641"N	104°33'18.2256"W	0.16	138.10	0.16	-0.01	
3131.00	16.870	122.470	3104.34	-1754.66	118.46	-98.85	188.76	40°12'22.9189"N	104°33'17.9097"W	1.90	169.14	-1.37	4.37	
3226.00	15.780	123.240	3195.51	-1663.49	135.26	-113.33	211.19	40°12'22.7734"N	104°33'17.6225"W	1.17	72.59	-1.15	0.81	
3320.00	15.890	124.480	3285.94	-1573.06	151.74	-127.62	232.49	40°12'22.6300"N	104°33'17.3500"W	0.38	158.09	0.12	1.32	
3415.00	15.030	125.820	3377.51	-1481.49	168.44	-142.19	253.20	40°12'22.4838"N	104°33'17.0851"W	0.98	-32.58	-0.91	1.41	
3509.00	16.330	122.910	3468.01	-1390.99	184.92	-156.50	274.18	40°12'22.3401"N	104°33'16.8167"W	1.62	-0.52	1.38	-3.10	
3604.00	16.970	122.890	3559.02	-1299.98	202.06	-171.29	297.03	40°12'22.1916"N	104°33'16.5242"W	0.67	176.22	0.67	-0.02	
3699.00	15.700	123.200	3650.19	-1208.81	218.94	-185.86	319.43	40°12'22.0453"N	104°33'16.2375"W	1.34	20.04	-1.34	0.33	
3793.00	17.120	124.950	3740.36	-1118.64	236.10	-200.75	341.42	40°12'21.8959"N	104°33'15.9563"W	1.60	-32.92	1.51	1.86	
3888.00	18.690	121.830	3830.76	-1028.24	254.65	-216.79	365.81	40°12'21.7348"N	104°33'15.6441"W	1.94	130.17	1.65	-3.28	
3983.00	18.530	122.430	3920.79	-938.21	273.43	-232.91	391.49	40°12'21.5728"N	104°33'15.3154"W	0.26	-119.49	-0.17	0.63	

REFERENCE WELLPATH IDENTIFICATION				
Operator	NOBLE ENERGY, INC		Well	VOGLER STATE D33-728
Field	WELD COUNTY (NOBLE NAD 83 GRID)		API/Legal	
Facility	SEC.21-T03N-R64W		Wellbore	VOGLER STATE D33-728 AWP
Slot	SLOT#41 VOGLER STATE D33-728 (1080'FSL & 2444'FEL, 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
4077.00	18.290	121.050	4009.98	-849.02	291.65	-248.53	416.73	40°12'21.4158"N	104°33'14.9922"W	0.53	-99.49	-0.26	-1.47	
4172.00	18.260	120.460	4100.19	-758.81	309.54	-263.76	442.33	40°12'21.2626"N	104°33'14.6644"W	0.20	-14.52	-0.03	-0.62	
4267.00	18.770	120.050	4190.27	-668.73	327.43	-278.96	468.39	40°12'21.1096"N	104°33'14.3307"W	0.55	158.73	0.54	-0.43	
4361.00	18.590	120.270	4279.32	-579.68	345.26	-294.09	494.42	40°12'20.9574"N	104°33'13.9973"W	0.21	-13.11	-0.19	0.23	
4456.00	19.330	119.750	4369.16	-489.84	363.46	-309.52	521.15	40°12'20.8021"N	104°33'13.6549"W	0.80	59.69	0.78	-0.55	
4550.00	19.420	120.210	4457.84	-401.16	381.84	-325.10	548.16	40°12'20.6453"N	104°33'13.3089"W	0.19	120.08	0.10	0.49	
4645.00	19.170	121.550	4547.50	-311.50	400.74	-341.21	575.10	40°12'20.4833"N	104°33'12.9639"W	0.54	177.43	-0.26	1.41	
4739.00	18.330	121.670	4636.51	-222.49	419.23	-357.05	600.83	40°12'20.3241"N	104°33'12.6345"W	0.89	37.26	-0.89	0.13	
4834.00	18.830	122.840	4726.56	-132.44	438.04	-373.21	626.43	40°12'20.1617"N	104°33'12.3068"W	0.66	-15.04	0.53	1.23	
4929.00	19.160	122.570	4816.39	-42.61	457.43	-389.91	652.45	40°12'19.9939"N	104°33'11.9738"W	0.36	170.50	0.35	-0.28	
5024.00	18.120	123.130	4906.40	47.40	476.53	-406.38	677.96	40°12'19.8285"N	104°33'11.6473"W	1.11	-17.93	-1.09	0.59	
5118.00	18.840	122.410	4995.56	136.56	495.24	-422.50	703.01	40°12'19.6665"N	104°33'11.3266"W	0.80	-77.59	0.77	-0.77	
5213.00	19.280	117.320	5085.36	226.36	513.44	-437.92	729.90	40°12'19.5113"N	104°33'10.9823"W	1.81	143.15	0.46	-5.36	
5307.00	17.300	122.480	5174.61	315.61	530.73	-452.55	755.48	40°12'19.3640"N	104°33'10.6546"W	2.72	-178.75	-2.11	5.49	
5402.00	16.520	122.420	5265.50	406.50	547.96	-467.38	778.80	40°12'19.2150"N	104°33'10.3561"W	0.82	160.39	-0.82	-0.06	
5497.00	15.760	123.420	5356.75	497.75	564.60	-481.73	800.97	40°12'19.0709"N	104°33'10.0724"W	0.85	8.65	-0.80	1.05	
5592.00	16.430	123.780	5448.03	589.03	581.43	-496.30	822.90	40°12'18.9246"N	104°33'9.7917"W	0.71	-6.71	0.71	0.38	
5686.00	17.210	123.470	5538.01	679.01	598.83	-511.36	845.55	40°12'18.7734"N	104°33'9.5019"W	0.84	-31.40	0.83	-0.33	
5781.00	17.680	122.530	5628.64	769.64	616.80	-526.87	869.44	40°12'18.6176"N	104°33'9.1962"W	0.58	-70.11	0.49	-0.99	
5875.00	17.820	121.300	5718.16	859.16	634.46	-542.02	893.76	40°12'18.4654"N	104°33'8.8848"W	0.43	-104.24	0.15	-1.31	
5970.00	17.800	121.040	5808.61	949.61	652.07	-557.06	918.63	40°12'18.3141"N	104°33'8.5664"W	0.09	138.49	-0.02	-0.27	
6065.00	17.340	122.420	5899.18	1040.18	669.67	-572.14	943.02	40°12'18.1626"N	104°33'8.2541"W	0.65	154.83	-0.48	1.45	
6160.00	16.920	123.100	5989.97	1130.97	687.24	-587.28	966.55	40°12'18.0105"N	104°33'7.9530"W	0.49	24.48	-0.44	0.72	
6254.00	17.010	123.240	6079.87	1220.87	704.62	-602.28	989.51	40°12'17.8598"N	104°33'7.6592"W	0.11	-126.98	0.10	0.15	
6349.00	16.520	120.890	6170.84	1311.84	721.57	-616.83	1012.72	40°12'17.7135"N	104°33'7.3620"W	0.88	-137.72	-0.52	-2.47	
6443.00	15.740	118.220	6261.14	1402.14	736.81	-629.72	1035.43	40°12'17.5838"N	104°33'7.0712"W	1.14	-104.71	-0.83	-2.84	
6538.00	15.680	117.350	6352.59	1493.59	751.16	-641.72	1058.18	40°12'17.4629"N	104°33'6.7796"W	0.26	58.35	-0.06	-0.92	
6633.00	19.740	133.510	6443.12	1584.12	770.49	-658.68	1081.24	40°12'17.2928"N	104°33'6.4847"W	6.67	43.07	4.27	17.01	
6727.00	26.510	146.480	6529.58	1670.58	801.27	-687.15	1104.38	40°12'17.0091"N	104°33'6.1904"W	8.97	25.97	7.20	13.80	
6822.00	34.510	153.180	6611.38	1752.38	845.36	-728.92	1128.28	40°12'16.5938"N	104°33'5.8882"W	9.14	30.40	8.42	7.05	
6916.00	41.470	159.190	6685.44	1826.44	900.47	-781.86	1151.39	40°12'16.0682"N	104°33'5.5977"W	8.38	28.65	7.40	6.39	
7011.00	49.260	164.690	6752.16	1893.16	966.56	-846.10	1172.11	40°12'15.4312"N	104°33'5.3395"W	9.17	15.89	8.20	5.79	
7106.00	58.000	167.600	6808.45	1949.45	1042.28	-920.31	1190.30	40°12'14.6960"N	104°33'5.1153"W	9.52	17.56	9.20	3.06	
7200.00	65.900	170.320	6852.62	1993.62	1124.87	-1001.67	1206.10	40°12'13.8904"N	104°33'4.9229"W	8.78	14.88	8.40	2.89	
7295.00	73.970	172.540	6885.19	2026.19	1213.94	-1089.84	1219.34	40°12'13.0178"N	104°33'4.7645"W	8.77	23.84	8.49	2.34	
7389.00	82.280	176.220	6904.53	2045.53	1305.83	-1181.29	1228.29	40°12'12.1131"N	104°33'4.6617"W	9.63	14.03	8.84	3.91	
7484.00	89.140	177.930	6911.63	2052.63	1400.36	-1275.84	1233.12	40°12'11.1783"N	104°33'4.6125"W	7.44	-16.20	7.22	1.80	
7579.00	90.310	177.590	6912.09	2053.09	1495.13	-1370.76	1236.83	40°12'10.2400"N	104°33'4.5778"W	1.28	64.80	1.23	-0.36	
7673.00	90.550	178.100	6911.38	2052.38	1588.90	-1464.69	1240.36	40°12'9.3114"N	104°33'4.5452"W	0.60	87.11	0.26	0.54	
7768.00	90.620	179.490	6910.41	2051.41	1683.54	-1559.67	1242.36	40°12'8.3728"N	104°33'4.5325"W	1.46	89.99	0.07	1.46	
7863.00	90.620	180.550	6909.38	2050.38	1777.99	-1654.66	1242.33	40°12'7.4341"N	104°33'4.5460"W	1.12	-111.25	0.00	1.12	
7957.00	90.550	180.370	6908.42	2049.42	1871.36	-1748.65	1241.57	40°12'6.5054"N	104°33'4.5687"W	0.21	-120.85	-0.07	-0.19	
8052.00	90.120	179.650	6907.87	2048.87	1965.81	-1843.65	1241.56	40°12'5.5667"N	104°33'4.5820"W	0.88	-2.29	-0.45	-0.76	
8147.00	90.370	179.640	6907.46	2048.46	2060.33	-1938.65	1242.15	40°12'4.6279"N	104°33'4.5876"W	0.26	-51.11	0.26	-0.01	
8241.00	90.620	179.330	6906.65	2047.65	2153.87	-2032.64	1242.99	40°12'3.6991"N	104°33'4.5896"W	0.42	70.90	0.27	-0.33	

REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY, INC	Well	VOGLER STATE D33-728
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API/Legal	
Facility	SEC.21-T03N-R64W	Wellbore	VOGLER STATE D33-728 AWP
Slot	SLOT#41 VOGLER STATE D33-728 (1080'FSL & 2444'FEL, 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
8336.00	90.800	179.850	6905.47	2046.47	2248.39	-2127.63	1243.67	40°12'2.7603"N	104°33'4.5940"W	0.58	118.69	0.19	0.55	
8430.00	90.280	180.800	6904.59	2045.59	2341.79	-2221.62	1243.14	40°12'1.8316"N	104°33'4.6138"W	1.15	-160.02	-0.55	1.01	
8525.00	90.060	180.720	6904.30	2045.30	2436.10	-2316.61	1241.88	40°12'0.8931"N	104°33'4.6431"W	0.25	33.45	-0.23	-0.08	
8620.00	90.620	181.090	6903.74	2044.74	2530.38	-2411.60	1240.38	40°11'59.9547"N	104°33'4.6756"W	0.71	-132.88	0.59	0.39	
8715.00	90.490	180.950	6902.82	2043.82	2624.64	-2506.58	1238.69	40°11'59.0163"N	104°33'4.7104"W	0.20	92.49	-0.14	-0.15	
8809.00	90.470	181.410	6902.03	2043.03	2717.87	-2600.56	1236.75	40°11'58.0879"N	104°33'4.7484"W	0.49	-173.66	-0.02	0.49	
8904.00	90.380	181.400	6901.33	2042.33	2812.04	-2695.52	1234.42	40°11'57.1497"N	104°33'4.7915"W	0.10	90.00	-0.09	-0.01	
8999.00	90.380	181.440	6900.70	2041.70	2906.22	-2790.49	1232.07	40°11'56.2115"N	104°33'4.8349"W	0.04	-26.56	0.00	0.04	
9093.00	90.440	181.410	6900.02	2041.02	2999.40	-2884.46	1229.73	40°11'55.2832"N	104°33'4.8780"W	0.07	64.53	0.06	-0.03	
9188.00	90.840	182.250	6898.96	2039.96	3093.47	-2979.41	1226.70	40°11'54.3454"N	104°33'4.9301"W	0.98	-178.13	0.42	0.88	
9282.00	89.920	182.220	6898.34	2039.34	3186.47	-3073.33	1223.03	40°11'53.4176"N	104°33'4.9903"W	0.98	-59.04	-0.98	-0.03	
9377.00	90.040	182.020	6898.37	2039.37	3280.48	-3168.27	1219.52	40°11'52.4799"N	104°33'5.0487"W	0.25	-95.17	0.13	-0.21	
9472.00	89.850	179.920	6898.46	2039.46	3374.75	-3263.25	1217.91	40°11'51.5415"N	104°33'5.0825"W	2.22	-90.00	-0.20	-2.21	
9567.00	89.850	179.290	6898.71	2039.71	3469.27	-3358.24	1218.56	40°11'50.6028"N	104°33'5.0872"W	0.66	-112.67	0.00	-0.66	
9661.00	89.520	178.500	6899.23	2040.23	3562.91	-3452.22	1220.37	40°11'49.6739"N	104°33'5.0768"W	0.91	-37.78	-0.35	-0.84	
9756.00	89.920	178.190	6899.69	2040.69	3657.61	-3547.18	1223.12	40°11'48.7353"N	104°33'5.0545"W	0.53	2.73	0.42	-0.33	
9851.00	90.130	178.200	6899.65	2040.65	3752.34	-3642.14	1226.11	40°11'47.7967"N	104°33'5.0290"W	0.22	51.84	0.22	0.01	
9945.00	90.350	178.480	6899.26	2040.26	3846.05	-3736.10	1228.83	40°11'46.8680"N	104°33'5.0069"W	0.38	95.26	0.23	0.30	
10040.00	90.280	179.240	6898.74	2039.74	3940.69	-3831.08	1230.72	40°11'45.9293"N	104°33'4.9956"W	0.80	90.00	-0.07	0.80	
10135.00	90.280	179.940	6898.27	2039.27	4035.22	-3926.07	1231.40	40°11'44.9905"N	104°33'5.0000"W	0.74	-78.34	0.00	0.74	
10229.00	90.410	179.310	6897.71	2038.71	4128.74	-4020.07	1232.02	40°11'44.0616"N	104°33'5.0050"W	0.68	-151.82	0.14	-0.67	
10324.00	90.130	179.160	6897.26	2038.26	4223.32	-4115.06	1233.29	40°11'43.1228"N	104°33'5.0018"W	0.33	109.65	-0.29	-0.16	
10418.00	89.980	179.580	6897.17	2038.17	4316.89	-4209.05	1234.32	40°11'42.1939"N	104°33'5.0014"W	0.47	-136.58	-0.16	0.45	
10513.00	89.420	179.050	6897.67	2038.67	4411.45	-4304.04	1235.46	40°11'41.2552"N	104°33'4.9999"W	0.81	59.93	-0.59	-0.56	
10607.00	89.640	179.430	6898.44	2039.44	4505.04	-4398.03	1236.70	40°11'40.3263"N	104°33'4.9968"W	0.47	20.93	0.23	0.40	
10702.00	89.980	179.560	6898.75	2039.75	4599.58	-4493.03	1237.54	40°11'39.3875"N	104°33'4.9991"W	0.38	97.77	0.36	0.14	
10796.00	89.950	179.780	6898.81	2039.81	4693.10	-4587.02	1238.08	40°11'38.4586"N	104°33'5.0050"W	0.24	82.52	-0.03	0.23	
10891.00	90.130	181.150	6898.74	2039.74	4787.46	-4682.02	1237.31	40°11'37.5200"N	104°33'5.0281"W	1.45	84.64	0.19	1.44	
10986.00	90.160	181.470	6898.50	2039.50	4881.66	-4776.99	1235.14	40°11'36.5818"N	104°33'5.0691"W	0.34	-77.01	0.03	0.34	
11081.00	90.190	181.340	6898.21	2039.21	4975.84	-4871.96	1232.81	40°11'35.6436"N	104°33'5.1123"W	0.14	-161.57	0.03	-0.14	
11175.00	90.160	181.330	6897.93	2038.93	5069.04	-4965.94	1230.62	40°11'34.7152"N	104°33'5.1534"W	0.03	56.89	-0.03	-0.01	
11270.00	90.310	181.560	6897.54	2038.54	5163.21	-5060.91	1228.22	40°11'33.7770"N	104°33'5.1974"W	0.29	66.32	0.16	0.24	
11459.00	90.560	182.130	6896.10	2037.10	5350.37	-5249.80	1222.14	40°11'31.9111"N	104°33'5.3018"W	0.33	-160.64	0.13	0.30	
11553.00	90.190	182.000	6895.49	2036.49	5443.41	-5343.74	1218.75	40°11'30.9832"N	104°33'5.3584"W	0.42	-95.12	-0.39	-0.14	
11648.00	90.130	181.330	6895.22	2036.22	5537.53	-5438.70	1215.99	40°11'30.0452"N	104°33'5.4071"W	0.71	-135.59	-0.06	-0.71	
11743.00	89.640	180.850	6895.41	2036.41	5631.77	-5533.68	1214.18	40°11'29.1068"N	104°33'5.4434"W	0.72	-33.23	-0.52	-0.51	
11837.00	90.220	180.470	6895.53	2036.53	5725.11	-5627.67	1213.10	40°11'28.1782"N	104°33'5.4703"W	0.74	-59.46	0.62	-0.40	
11932.00	90.810	179.470	6894.67	2035.67	5819.57	-5722.67	1213.15	40°11'27.2395"N	104°33'5.4828"W	1.22	-133.26	0.62	-1.05	
12027.00	89.850	178.450	6894.12	2035.12	5914.19	-5817.65	1214.88	40°11'26.3007"N	104°33'5.4737"W	1.47	81.51	-1.01	-1.07	
12121.00	89.950	179.120	6894.29	2035.29	6007.84	-5911.63	1216.87	40°11'25.3719"N	104°33'5.4609"W	0.72	98.47	0.11	0.71	
12216.00	89.880	179.590	6894.43	2035.43	6102.40	-6006.62	1217.94	40°11'24.4331"N	104°33'5.4603"W	0.50	-31.61	-0.07	0.49	
12311.00	90.010	179.510	6894.52	2035.52	6196.94	-6101.62	1218.68	40°11'23.4943"N	104°33'5.4637"W	0.16	-81.87	0.14	-0.08	
12405.00	90.070	179.090	6894.46	2035.46	6290.51	-6195.61	1219.83	40°11'22.5654"N	104°33'5.4619"W	0.45	-39.81	0.06	-0.45	
12500.00	90.250	178.940	6894.19	2035.19	6385.13	-6290.60	1221.47	40°11'21.6267"N	104°33'5.4539"W	0.25	84.29	0.19	-0.16	
12595.00	90.280	179.240	6893.75	2034.75	6479.73	-6385.58	1222.98	40°11'20.6879"N	104°33'5.4476"W	0.32	-117.90	0.03	0.32	

REFERENCE WELLPATH IDENTIFICATION				
Operator	NOBLE ENERGY, INC		Well	VOGLER STATE D33-728
Field	WELD COUNTY (NOBLE NAD 83 GRID)		API/Legal	
Facility	SEC.21-T03N-R64W		Wellbore	VOGLER STATE D33-728 AWB
Slot	SLOT#41 VOGLER STATE D33-728 (1080'FSL & 2444'FEL, 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
12689.00	90.190	179.070	6893.36	2034.36	6573.33	-6479.57	1224.36	40°11'19.7590"N	104°33'5.4427"W	0.20	70.65	-0.10	-0.18	
12783.00	90.650	180.380	6892.68	2033.68	6666.83	-6573.57	1224.81	40°11'18.8302"N	104°33'5.4498"W	1.48	-99.83	0.49	1.39	
12878.00	90.350	178.650	6891.85	2032.85	6761.36	-6668.56	1225.62	40°11'17.8914"N	104°33'5.4526"W	1.85	72.47	-0.32	-1.82	
12973.00	90.410	178.840	6891.22	2032.22	6856.02	-6763.53	1227.70	40°11'16.9527"N	104°33'5.4388"W	0.21	-100.37	0.06	0.20	
13067.00	90.280	178.130	6890.65	2031.65	6949.71	-6857.50	1230.18	40°11'16.0240"N	104°33'5.4198"W	0.77	-47.73	-0.14	-0.76	
13162.00	90.380	178.020	6890.10	2031.10	7044.45	-6952.44	1233.37	40°11'15.0854"N	104°33'5.3917"W	0.16	70.20	0.11	-0.12	
13257.00	90.560	178.520	6889.32	2030.32	7139.17	-7047.39	1236.24	40°11'14.1469"N	104°33'5.3679"W	0.56	78.87	0.19	0.53	
13351.00	90.680	179.130	6888.31	2029.31	7232.81	-7141.37	1238.17	40°11'13.2181"N	104°33'5.3560"W	0.66	-95.24	0.13	0.65	
13446.00	90.590	178.150	6887.25	2028.25	7327.47	-7236.33	1240.42	40°11'12.2794"N	104°33'5.3400"W	1.04	77.47	-0.09	-1.03	
13540.00	90.750	178.870	6886.16	2027.16	7421.16	-7330.29	1242.87	40°11'11.3507"N	104°33'5.3215"W	0.78	47.29	0.17	0.77	
13635.00	90.870	179.000	6884.81	2025.81	7515.77	-7425.27	1244.63	40°11'10.4120"N	104°33'5.3118"W	0.19	157.07	0.13	0.14	
13729.00	90.350	179.220	6883.81	2024.81	7609.37	-7519.25	1246.09	40°11'9.4832"N	104°33'5.3060"W	0.60	110.23	-0.55	0.23	
13824.00	90.280	179.410	6883.29	2024.29	7703.94	-7614.24	1247.23	40°11'8.5444"N	104°33'5.3044"W	0.21	65.34	-0.07	0.20	
13919.00	90.560	180.020	6882.59	2023.59	7798.45	-7709.24	1247.70	40°11'7.6057"N	104°33'5.3114"W	0.71	-53.84	0.29	0.64	
14013.00	90.750	179.760	6881.52	2022.52	7891.92	-7803.23	1247.88	40°11'6.6768"N	104°33'5.3221"W	0.34	178.78	0.20	-0.28	
14108.00	90.280	179.770	6880.66	2021.66	7986.41	-7898.23	1248.27	40°11'5.7381"N	104°33'5.3301"W	0.49	-174.29	-0.49	0.01	
14203.00	89.980	179.740	6880.45	2021.45	8080.91	-7993.23	1248.68	40°11'4.7993"N	104°33'5.3380"W	0.32	-100.82	-0.32	-0.03	
14297.00	89.850	179.060	6880.59	2021.59	8174.47	-8087.22	1249.66	40°11'3.8704"N	104°33'5.3383"W	0.74	-103.76	-0.14	-0.72	
14392.00	89.730	178.570	6880.94	2021.94	8269.12	-8182.20	1251.63	40°11'2.9317"N	104°33'5.3261"W	0.53	-71.57	-0.13	-0.52	
14486.00	89.790	178.390	6881.33	2022.33	8362.81	-8276.17	1254.12	40°11'2.0029"N	104°33'5.3069"W	0.20	-102.38	0.06	-0.19	
14581.00	89.700	177.980	6881.75	2022.75	8457.54	-8371.12	1257.13	40°11'1.0644"N	104°33'5.2812"W	0.44	-107.11	-0.09	-0.43	
14676.00	89.540	177.460	6882.38	2023.38	8552.32	-8466.04	1260.91	40°11'0.1260"N	104°33'5.2456"W	0.57	-120.64	-0.17	-0.55	
14771.00	88.930	176.430	6883.65	2024.65	8647.17	-8560.89	1265.97	40°10'59.1882"N	104°33'5.1934"W	1.26	3.73	-0.64	-1.08	
14865.00	89.390	176.460	6885.03	2026.03	8741.07	-8654.70	1271.80	40°10'58.2606"N	104°33'5.1313"W	0.49	22.44	0.49	0.03	
14960.00	89.850	176.650	6885.66	2026.66	8835.96	-8749.53	1277.51	40°10'57.3229"N	104°33'5.0708"W	0.52	-90.00	0.48	0.20	
15054.00	89.850	176.170	6885.91	2026.91	8929.87	-8843.34	1283.39	40°10'56.3953"N	104°33'5.0079"W	0.51	77.08	0.00	-0.51	
15244.00	90.710	179.920	6884.98	2025.98	9119.32	-9033.20	1289.87	40°10'54.5186"N	104°33'4.9506"W	2.02	88.87	0.45	1.97	
15338.00	90.740	181.460	6883.79	2024.79	9212.65	-9127.18	1288.74	40°10'53.5900"N	104°33'4.9781"W	1.64	39.09	0.03	1.64	
15433.00	90.900	181.590	6882.43	2023.43	9306.79	-9222.13	1286.21	40°10'52.6520"N	104°33'5.0238"W	0.22	-104.04	0.17	0.14	
15528.00	90.840	181.350	6880.99	2021.99	9400.94	-9317.09	1283.78	40°10'51.7139"N	104°33'5.0683"W	0.26	-42.13	-0.06	-0.25	
15623.00	91.050	181.160	6879.42	2020.42	9495.14	-9412.06	1281.70	40°10'50.7758"N	104°33'5.1082"W	0.30	147.53	0.22	-0.20	
15717.00	90.500	181.510	6878.15	2019.15	9588.33	-9506.02	1279.51	40°10'49.8475"N	104°33'5.1493"W	0.69	60.02	-0.59	0.37	
15812.00	90.650	181.770	6877.19	2018.19	9682.45	-9600.98	1276.79	40°10'48.9095"N	104°33'5.1974"W	0.32	-111.61	0.16	0.27	
15907.00	90.440	181.240	6876.29	2017.29	9776.60	-9695.94	1274.29	40°10'47.9714"N	104°33'5.2427"W	0.60	131.85	-0.22	-0.56	
16001.00	90.010	181.720	6875.92	2016.92	9869.77	-9789.91	1271.87	40°10'47.0431"N	104°33'5.2869"W	0.69	-158.09	-0.46	0.51	
16096.00	89.140	181.370	6876.63	2017.63	9963.92	-9884.87	1269.30	40°10'46.1050"N	104°33'5.3330"W	0.99	77.66	-0.92	-0.37	
16191.00	89.210	181.690	6877.99	2018.99	10058.06	-9979.83	1266.77	40°10'45.1670"N	104°33'5.3787"W	0.34	-8.23	0.07	0.34	
16285.00	90.040	181.570	6878.61	2019.61	10151.19	-10073.79	1264.09	40°10'44.2388"N	104°33'5.4261"W	0.89	30.65	0.88	-0.13	
16380.00	90.310	181.730	6878.32	2019.32	10245.32	-10168.75	1261.36	40°10'43.3008"N	104°33'5.4744"W	0.33	-77.80	0.28	0.17	
16474.00	90.470	180.990	6877.68	2018.68	10338.51	-10262.72	1259.13	40°10'42.3724"N	104°33'5.5161"W	0.81	-128.16	0.17	-0.79	
16569.00	90.250	180.710	6877.08	2018.08	10432.80	-10357.70	1257.72	40°10'41.4340"N	104°33'5.5474"W	0.37	-108.43	-0.23	-0.29	
16664.00	90.100	180.260	6876.79	2017.79	10527.17	-10452.70	1256.91	40°10'40.4953"N	104°33'5.5708"W	0.50	-25.94	-0.16	-0.47	
16759.00	90.470	180.080	6876.32	2017.32	10621.59	-10547.70	1256.63	40°10'39.5567"N	104°33'5.5875"W	0.43	94.51	0.39	-0.19	
16853.00	90.440	180.460	6875.57	2016.57	10715.00	-10641.69	1256.19	40°10'38.6279"N	104°33'5.6062"W	0.41	-109.38	-0.03	0.40	
16948.00	90.250	179.920	6875.00	2016.00	10809.42	-10736.69	1255.87	40°10'37.6892"N	104°33'5.6233"W	0.60	123.69	-0.20	-0.57	

REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY, INC	Well	VOGLER STATE D33-728
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API/Legal	
Facility	SEC.21-T03N-R64W	Wellbore	VOGLER STATE D33-728 AWB
Slot	SLOT#41 VOGLER STATE D33-728 (1080'FSL & 2444'FEL, 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
17043.00	90.010	180.280	6874.78	2015.78	10903.86	-10831.69	1255.71	40°10'36.7505"N	104°33'5.6386"W	0.46	-48.95	-0.25	0.38	
17138.00	90.280	179.970	6874.54	2015.54	10998.29	-10926.69	1255.50	40°10'35.8118"N	104°33'5.6543"W	0.43	-32.90	0.28	-0.33	
17233.00	90.620	179.750	6873.80	2014.80	11092.77	-11021.69	1255.73	40°10'34.8731"N	104°33'5.6644"W	0.43	-141.57	0.36	-0.23	
17327.00	89.700	179.020	6873.54	2014.54	11186.33	-11115.68	1256.74	40°10'33.9442"N	104°33'5.6644"W	1.25	-90.00	-0.98	-0.78	
17422.00	89.700	178.830	6874.03	2015.03	11280.96	-11210.66	1258.52	40°10'33.0054"N	104°33'5.6545"W	0.20	48.18	0.00	-0.20	
17611.00	90.380	179.590	6873.90	2014.90	11469.13	-11399.64	1261.13	40°10'31.1378"N	104°33'5.6470"W	0.54	0.00	0.36	0.40	LAST BH MWD SURVEY
17662.00‡	90.380	179.590	6873.56	2014.56	11519.88	-11450.64	1261.50	40°10'30.6338"N	104°33'5.6493"W	0.00		0.00	0.00	EXTRAPOLATED TO TD

HOLE & CASING SECTIONS - Ref Wellbore: VOGLER STATE D33-728 AWB Ref Wellpath: VOGLER STATE D33-728 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	1947.97	0.01	-0.01	3.39	1.16
9.625in Casing Surface	30.00	1948.00	1918.00	30.00	1947.97	0.01	-0.01	3.39	1.16
8.5in Open Hole	1948.00	17662.00	15714.00	1947.97	6873.56	3.39	1.16	-11450.64	1261.50

TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
VOGLER STATE D33-728 BHL REV-1 (200'FSL & 1320'FEL, SEC.33)	6872.00	-11453.16	1231.47	3264988.68	1308074.29	40°10'30.6120"N	104°33'6.0365"W	point
VOGLER STATE D33-728 TPZ REV-1	6908.00	-1278.78	1230.31	3264987.53	1318248.21	40°12'11.1496"N	104°33'4.6490"W	point
SECTION LINES - SEC.21-T03N-R64W	7033.00	4155.41	-2839.70	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	7033.00	-1083.33	-2802.90	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	7033.00	-6438.55	-2754.23	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 D33-728 AWB Ref Wellpath: VOGLER STATE D33-728 AWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore	Survey Date
0.00	1948.00	Gyrodata 2015 - GC+DROP+COND	13.5" GYRODATA (GC+DROP+COND) <0° - 1948">	VOGLER STATE D33-728 AWB	3/5/2020
1948.00	17662.00	OWSG MWD rev2 + IFR1 + Multi-Station Correction	8.5" OWSG MWD REV.2 (IFR1+MSA) <1995' - 17611">	VOGLER STATE D33-728 AWB	3/5/2020

REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Well	VOGLER STATE D33-728
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API/Legal	
Facility	SEC.21-T03N-R64W	Wellbore	VOGLER STATE D33-728 AWB
Slot	SLOT#41 VOGLER STATE D33-728 (1080'FSL & 2444'FEL, SEC.21)		

WELLPATH COMMENTS				
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
82.00	0.140	304.220	82.00	FIRST 3RD PARTY GYRO SURVEY
1948.00	0.370	290.500	1947.97	TIE ON TO 3RD PARTY GYRO SURVEYS
1995.00	0.620	337.810	1994.97	FIRST BH MWD SURVEY
17611.00	90.380	179.590	6873.90	LAST BH MWD SURVEY
17662.00	90.380	179.590	6873.56	EXTRAPOLATED TO TD