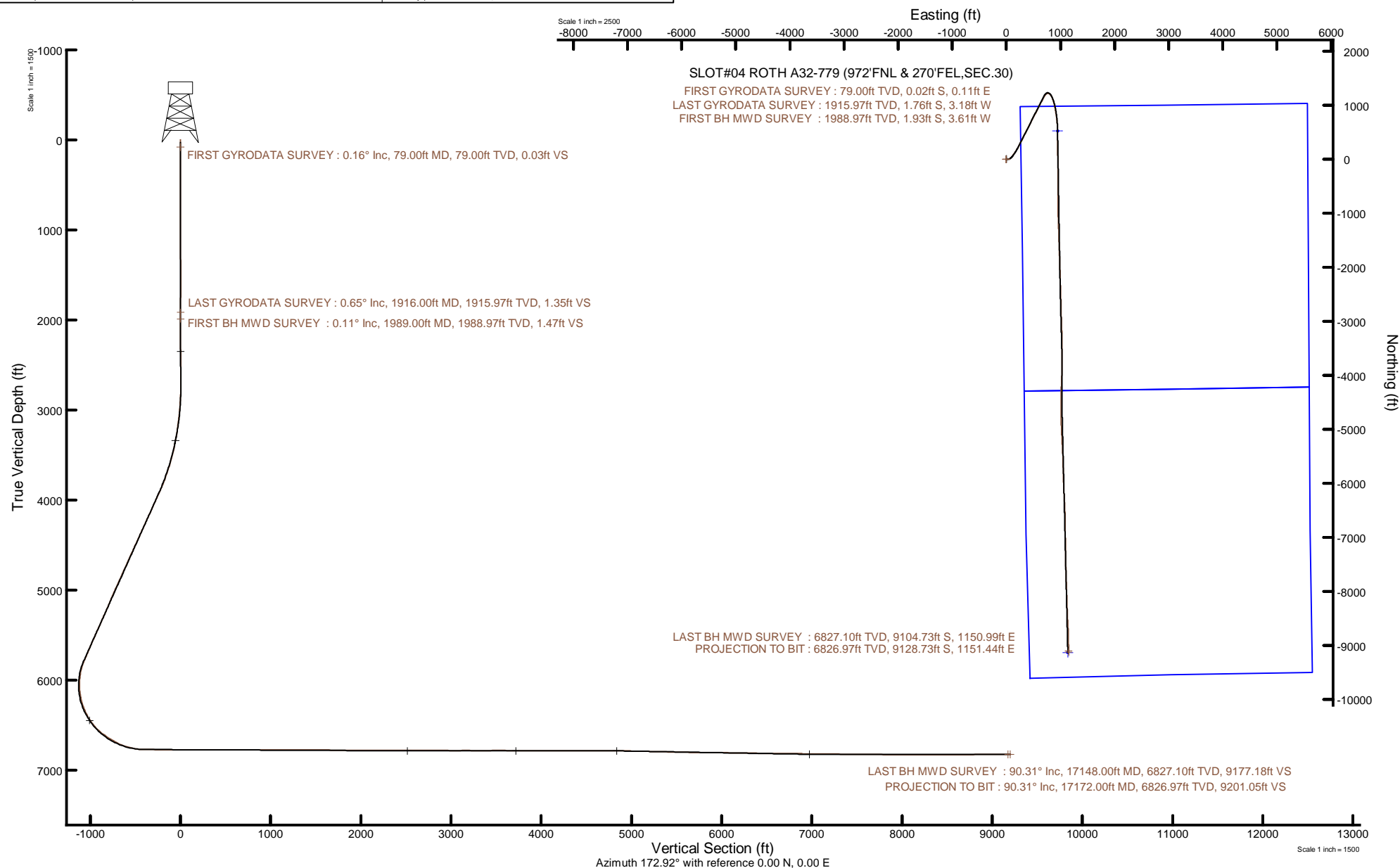


Location:	COLORADO	Slot:	SLOT#04 ROTH A32-779 (972°FNL & 270°FEL, SEC.30)
Field:	WELD COUNTY (NOBLE NAD 83 GRID)	Well:	ROTH A32-779
Facility:	SEC.30-T06N-R64W	Wellbore:	ROTH A32-779 PWB
Plot reference wellpath is ROTH A32-779 PWP Rev-A-0		Grid System: NAD83 / Lambert Colorado SP, Northern Zone (501), US feet	
True vertical depths are referenced to H&P 517 (30) (KB)		North Reference: Grid north	
Reference wellpath measured depths are referenced to H&P 517 (30) (KB)		Scale: True distance	
H&P 517 (30) (KB) to Mean Sea Level: 4728 feet		Coordinates are in feet referenced to Slot	
Mean Sea Level to Mud line (At Slot: SLOT#04 ROTH A32-779 (972°FNL & 270°FEL, SEC.30)): 0 feet		Depths are in feet	
Offset wellpath MDs are referenced to each path's default MD datum		Created by: painsret on 2021-10-27; Database: WellArchitectDB	



REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY, INC	Well	ROTH A32-779
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API	0512351328
Facility	SEC.30-T06N-R64W	Wellbore	ROTH A32-779 AWB
Slot	SLOT#04 ROTH A32-779 (972'FNL & 270'FEL,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	Painsetr
Scale	0.999964	Report Generated	10/27/2021 at 7:32:09 PM
Convergence at slot	0.59° East	Database	WellArchitectDB

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	47.36	-0.49	3254695.69	1412297.57	40.4615500°	-104.5846600°
Facility Reference Pt			3254696.18	1412250.21	40.4614200°	-104.5846600°
Field Reference Pt			3000000.00	4454105.15	48.7761986°	-105.5000000°

WELLPATH DATUM

Calculation method	Minimum curvature	H&P 517 (30') (KB) to Facility Vertical Datum	4728.00ft
Horizontal Reference Pt	Slot	H&P 517 (30') (KB) to Mean Sea Level	4728.00ft
Vertical Reference Pt	H&P 517 (30') (KB)	H&P 517 (30') (KB) to Mud Line at Slot (SLOT#04 ROTH A32-779 (972'FNL & 270'FEL,SEC.30))	4728.00ft
MD Reference Pt	H&P 517 (30') (KB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	172.92°

REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY, INC	Well	ROTH A32-779
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API	0512351328
Facility	SEC.30-T06N-R64W	Wellbore	ROTH A32-779 AWB
Slot	SLOT#04 ROTH A32-779 (972'FNL & 270'FEL,SEC.30)		

WELLPATH DATA (184 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
0.00	0.000	99.980	0.00	0.00	0.00	0.00	3254695.69	1412297.57	40.4615500	-104.5846600	0.00	
79.00	0.160	99.980	79.00	0.03	-0.02	0.11	3254695.80	1412297.55	40.4615499	-104.5846596	0.20	FIRST GYRODATA SURVEY
173.00	0.230	153.270	173.00	0.25	-0.21	0.32	3254696.01	1412297.36	40.4615494	-104.5846588	0.20	
264.00	0.430	115.860	264.00	0.61	-0.52	0.71	3254696.40	1412297.05	40.4615485	-104.5846575	0.31	
327.00	0.090	12.810	327.00	0.69	-0.58	0.94	3254696.63	1412296.99	40.4615484	-104.5846567	0.73	
421.00	0.290	289.230	421.00	0.51	-0.43	0.73	3254696.42	1412297.14	40.4615488	-104.5846574	0.31	
516.00	0.370	162.360	516.00	0.71	-0.64	0.59	3254696.28	1412296.93	40.4615482	-104.5846579	0.62	
610.00	0.050	159.250	610.00	1.05	-0.97	0.70	3254696.39	1412296.60	40.4615473	-104.5846575	0.34	
705.00	0.100	169.400	705.00	1.17	-1.09	0.73	3254696.42	1412296.48	40.4615470	-104.5846574	0.05	
800.00	0.170	10.730	800.00	1.12	-1.03	0.77	3254696.46	1412296.54	40.4615471	-104.5846573	0.28	
894.00	0.210	45.270	893.99	0.88	-0.77	0.92	3254696.61	1412296.80	40.4615479	-104.5846567	0.13	
989.00	0.200	198.800	988.99	0.92	-0.81	0.99	3254696.68	1412296.76	40.4615478	-104.5846565	0.42	
1083.00	0.240	164.110	1082.99	1.27	-1.15	0.99	3254696.68	1412296.42	40.4615468	-104.5846565	0.15	
1178.00	0.360	220.760	1177.99	1.66	-1.57	0.85	3254696.54	1412296.00	40.4615457	-104.5846570	0.32	
1272.00	0.370	225.390	1271.99	2.05	-2.01	0.44	3254696.13	1412295.56	40.4615445	-104.5846585	0.03	
1367.00	0.330	245.910	1366.99	2.31	-2.33	-0.03	3254695.66	1412295.24	40.4615436	-104.5846602	0.14	
1462.00	0.340	242.220	1461.99	2.49	-2.58	-0.53	3254695.16	1412294.99	40.4615429	-104.5846620	0.03	
1556.00	0.230	220.930	1555.99	2.72	-2.85	-0.90	3254694.79	1412294.72	40.4615422	-104.5846633	0.16	
1651.00	0.340	262.080	1650.99	2.85	-3.03	-1.30	3254694.39	1412294.54	40.4615417	-104.5846648	0.24	
1745.00	0.780	333.580	1744.98	2.25	-2.50	-1.86	3254693.83	1412295.07	40.4615432	-104.5846668	0.79	
1840.00	0.450	293.720	1839.98	1.45	-1.77	-2.49	3254693.20	1412295.80	40.4615452	-104.5846690	0.55	
1916.00	0.650	255.320	1915.97	1.35	-1.76	-3.18	3254692.51	1412295.81	40.4615453	-104.5846715	0.54	LAST GYRODATA SURVEY
1989.00	0.110	200.900	1988.97	1.47	-1.93	-3.61	3254692.08	1412295.64	40.4615448	-104.5846730	0.81	FIRST BH MWD SURVEY
2084.00	0.040	89.260	2083.97	1.55	-2.01	-3.61	3254692.08	1412295.56	40.4615446	-104.5846730	0.14	
2179.00	0.280	96.600	2178.97	1.61	-2.04	-3.34	3254692.35	1412295.53	40.4615445	-104.5846721	0.25	
2273.00	2.080	89.190	2272.95	1.85	-2.04	-1.41	3254694.28	1412295.53	40.4615444	-104.5846651	1.92	
2368.00	4.090	92.280	2367.80	2.59	-2.15	3.70	3254699.39	1412295.42	40.4615440	-104.5846468	2.12	
2462.00	5.360	90.750	2461.48	3.73	-2.34	11.44	3254707.13	1412295.23	40.4615432	-104.5846190	1.36	
2557.00	6.560	89.340	2555.97	4.95	-2.34	21.31	3254716.99	1412295.23	40.4615430	-104.5845835	1.27	
2651.00	6.570	86.980	2649.35	5.93	-1.99	32.04	3254727.73	1412295.58	40.4615436	-104.5845449	0.29	

REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY, INC	Well	ROTH A32-779
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API	0512351328
Facility	SEC.30-T06N-R64W	Wellbore	ROTH A32-779 AWB
Slot	SLOT#04 ROTH A32-779 (972'FNL & 270'FEL,SEC.30)		

WELLPATH DATA (184 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
2746.00	6.460	69.080	2743.75	5.04	0.20	42.46	3254738.15	1412297.77	40.4615494	-104.5845074	2.13	
2841.00	6.560	55.350	2838.14	1.25	5.20	51.92	3254747.61	1412302.77	40.4615628	-104.5844732	1.64	
2935.00	8.220	54.240	2931.36	-4.46	12.18	61.79	3254757.48	1412309.75	40.4615817	-104.5844375	1.77	
3030.00	9.580	53.650	3025.21	-11.59	20.83	73.67	3254769.36	1412318.40	40.4616051	-104.5843945	1.43	
3124.00	12.150	44.780	3117.52	-21.52	32.49	86.94	3254782.63	1412330.06	40.4616367	-104.5843464	3.25	
3218.00	11.490	43.420	3209.53	-33.59	46.31	100.34	3254796.03	1412343.88	40.4616743	-104.5842977	0.76	
3313.00	13.980	35.080	3302.19	-48.12	62.58	113.45	3254809.13	1412360.15	40.4617186	-104.5842500	3.25	
3407.00	15.000	35.140	3393.20	-65.54	81.82	126.97	3254822.66	1412379.39	40.4617710	-104.5842007	1.09	
3502.00	18.020	35.290	3484.28	-85.50	103.87	142.54	3254838.23	1412401.44	40.4618311	-104.5841439	3.18	
3596.00	20.750	33.600	3572.94	-108.88	129.62	160.16	3254855.84	1412427.18	40.4619012	-104.5840797	2.96	
3691.00	23.710	32.630	3660.87	-136.34	159.72	179.78	3254875.46	1412457.29	40.4619833	-104.5840080	3.14	
3785.00	23.290	31.100	3747.07	-165.48	191.55	199.57	3254895.25	1412489.12	40.4620701	-104.5839358	0.79	
3879.00	26.800	27.990	3832.23	-197.45	226.19	219.12	3254914.80	1412523.75	40.4621646	-104.5838642	3.99	
3974.00	28.740	26.770	3916.28	-233.95	265.50	239.46	3254935.14	1412563.06	40.4622719	-104.5837897	2.13	
4069.00	29.010	25.300	3999.47	-272.37	306.72	259.59	3254955.27	1412604.27	40.4623845	-104.5837158	0.80	
4163.00	28.410	28.680	4081.92	-309.76	346.94	280.06	3254975.74	1412644.50	40.4624943	-104.5836407	1.84	
4258.00	28.830	25.290	4165.32	-347.45	387.48	300.70	3254996.38	1412685.04	40.4626050	-104.5835651	1.77	
4352.00	28.440	27.220	4247.82	-385.08	427.88	320.62	3255016.30	1412725.43	40.4627153	-104.5834920	1.07	
4447.00	28.600	28.490	4331.29	-422.27	467.98	341.81	3255037.49	1412765.53	40.4628248	-104.5834143	0.66	
4541.00	28.810	25.360	4413.75	-459.68	508.23	362.25	3255057.92	1412805.78	40.4629347	-104.5833394	1.61	
4636.00	28.490	26.920	4497.12	-497.78	549.11	382.31	3255077.98	1412846.66	40.4630463	-104.5832658	0.86	
4731.00	28.490	26.710	4580.61	-535.40	589.56	402.75	3255098.42	1412887.10	40.4631567	-104.5831908	0.11	
4825.00	28.630	25.880	4663.17	-572.92	629.84	422.66	3255118.33	1412927.39	40.4632668	-104.5831178	0.45	
4920.00	28.760	27.120	4746.51	-610.92	670.66	443.01	3255138.68	1412968.21	40.4633782	-104.5830431	0.64	
5014.00	28.570	27.710	4828.99	-648.08	710.69	463.77	3255159.44	1413008.23	40.4634875	-104.5829670	0.36	
5109.00	28.690	27.420	4912.37	-685.53	751.04	484.83	3255180.51	1413048.58	40.4635977	-104.5828899	0.19	
5203.00	28.760	25.360	4994.81	-723.21	791.51	504.91	3255200.58	1413089.05	40.4637081	-104.5828162	1.06	
5298.00	26.590	28.140	5078.94	-759.87	830.91	524.73	3255220.40	1413128.45	40.4638157	-104.5827435	2.66	
5392.00	27.110	28.580	5162.80	-794.46	868.27	544.90	3255240.57	1413165.81	40.4639177	-104.5826697	0.59	
5487.00	28.270	25.350	5246.93	-831.04	907.61	564.89	3255260.56	1413205.15	40.4640251	-104.5825964	2.00	

REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY, INC	Well	ROTH A32-779
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API	0512351328
Facility	SEC.30-T06N-R64W	Wellbore	ROTH A32-779 AWB
Slot	SLOT#04 ROTH A32-779 (972'FNL & 270'FEL,SEC.30)		

WELLPATH DATA (184 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
5582.00	28.080	27.910	5330.67	-868.34	947.71	584.99	3255280.65	1413245.24	40.4641346	-104.5825226	1.29	
5676.00	28.190	26.940	5413.57	-904.87	987.05	605.40	3255301.07	1413284.58	40.4642420	-104.5824478	0.50	
5770.00	28.420	27.250	5496.33	-941.74	1026.73	625.70	3255321.37	1413324.26	40.4643503	-104.5823734	0.29	
5865.00	27.770	28.620	5580.13	-978.38	1066.25	646.65	3255342.32	1413363.78	40.4644582	-104.5822966	0.96	
5959.00	27.860	27.440	5663.27	-1014.26	1104.97	667.26	3255362.93	1413402.50	40.4645639	-104.5822211	0.59	
6054.00	28.460	28.190	5747.03	-1051.03	1144.62	688.19	3255383.85	1413442.15	40.4646721	-104.5821445	0.73	
6148.00	23.550	32.570	5831.49	-1083.80	1180.21	708.89	3255404.55	1413477.74	40.4647692	-104.5820687	5.61	
6243.00	15.860	44.300	5920.90	-1106.56	1205.54	728.21	3255423.87	1413503.07	40.4648382	-104.5819984	9.06	
6338.00	16.030	68.460	6012.34	-1117.94	1219.67	749.50	3255445.16	1413517.19	40.4648764	-104.5819213	6.94	
6432.00	15.810	97.510	6102.88	-1117.96	1222.76	774.31	3255469.97	1413520.29	40.4648842	-104.5818321	8.40	
6527.00	16.510	127.990	6194.29	-1105.12	1212.74	797.82	3255493.48	1413510.27	40.4648560	-104.5817479	8.86	
6621.00	20.940	141.900	6283.34	-1081.24	1191.28	818.73	3255514.39	1413488.81	40.4647965	-104.5816736	6.66	
6716.00	26.670	153.830	6370.27	-1046.50	1158.74	838.64	3255534.29	1413456.27	40.4647066	-104.5816033	7.85	
6811.00	34.770	160.050	6451.89	-999.85	1114.06	857.32	3255552.98	1413411.59	40.4645835	-104.5815378	9.15	
6906.00	42.830	165.520	6525.89	-941.31	1057.22	874.67	3255570.33	1413354.75	40.4644270	-104.5814776	9.21	
7000.00	51.690	168.110	6589.63	-872.73	990.06	890.29	3255585.94	1413287.59	40.4642422	-104.5814239	9.64	
7095.00	56.310	169.860	6645.45	-796.07	914.63	904.93	3255600.59	1413212.17	40.4640347	-104.5813741	5.09	
7189.00	62.820	171.700	6693.05	-715.13	834.68	917.87	3255613.52	1413132.21	40.4638149	-104.5813306	7.13	
7283.00	69.940	172.020	6730.69	-629.08	749.47	930.05	3255625.70	1413047.01	40.4635807	-104.5812900	7.58	
7378.00	77.650	174.520	6757.18	-537.93	658.95	940.69	3255636.35	1412956.49	40.4633319	-104.5812551	8.50	
7473.00	85.990	179.210	6770.69	-444.23	565.16	945.79	3255641.44	1412862.71	40.4630744	-104.5812403	10.05	
7567.00	89.660	181.710	6774.26	-351.14	471.26	945.03	3255640.69	1412768.81	40.4628166	-104.5812465	4.72	
7662.00	89.720	179.000	6774.78	-256.95	376.27	944.44	3255640.10	1412673.82	40.4625559	-104.5812522	2.85	
7756.00	89.690	178.960	6775.26	-163.47	282.28	946.12	3255641.77	1412579.84	40.4622979	-104.5812496	0.05	
7851.00	89.540	179.470	6775.90	-69.05	187.30	947.42	3255643.07	1412484.86	40.4620372	-104.5812485	0.56	
7945.00	89.850	178.990	6776.40	24.38	93.31	948.68	3255644.34	1412390.87	40.4617792	-104.5812475	0.61	
8040.00	89.510	179.140	6776.93	118.83	-1.68	950.23	3255645.89	1412295.89	40.4615184	-104.5812454	0.39	
8135.00	90.120	179.320	6777.24	213.26	-96.67	951.51	3255647.16	1412200.90	40.4612577	-104.5812444	0.67	
8230.00	90.150	179.060	6777.01	307.69	-191.66	952.85	3255648.51	1412105.92	40.4609969	-104.5812431	0.28	
8324.00	89.850	180.510	6777.01	401.01	-285.66	953.21	3255648.86	1412011.92	40.4607389	-104.5812453	1.58	

REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY, INC	Well	ROTH A32-779
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API	0512351328
Facility	SEC.30-T06N-R64W	Wellbore	ROTH A32-779 AWB
Slot	SLOT#04 ROTH A32-779 (972'FNL & 270'FEL,SEC.30)		

WELLPATH DATA (184 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
8419.00	90.000	179.960	6777.14	495.23	-380.66	952.82	3255648.47	1411916.93	40.4604782	-104.5812503	0.60	
8514.00	90.060	180.660	6777.09	589.44	-475.65	952.30	3255647.96	1411821.93	40.4602174	-104.5812556	0.74	
8608.00	89.940	179.840	6777.09	682.67	-569.65	951.89	3255647.54	1411727.94	40.4599594	-104.5812606	0.88	
8703.00	89.880	180.850	6777.24	776.88	-664.65	951.32	3255646.97	1411632.95	40.4596987	-104.5812662	1.07	
8797.00	90.030	179.860	6777.31	870.08	-758.65	950.74	3255646.39	1411538.95	40.4594407	-104.5812718	1.07	
8891.00	90.060	180.740	6777.24	963.30	-852.64	950.24	3255645.90	1411444.96	40.4591828	-104.5812771	0.94	
8986.00	89.780	176.330	6777.37	1057.82	-947.59	952.67	3255648.33	1411350.02	40.4589221	-104.5812719	4.65	
9080.00	89.720	178.660	6777.78	1151.52	-1041.49	956.78	3255652.43	1411256.12	40.4586642	-104.5812606	2.48	
9175.00	89.910	177.730	6778.08	1246.11	-1136.44	959.77	3255655.43	1411161.17	40.4584035	-104.5812534	1.00	
9269.00	89.940	177.870	6778.21	1339.77	-1230.37	963.38	3255659.03	1411067.24	40.4581456	-104.5812439	0.15	
9364.00	89.660	177.950	6778.54	1434.41	-1325.31	966.85	3255662.50	1410972.31	40.4578849	-104.5812350	0.31	
9458.00	89.850	177.980	6778.94	1528.04	-1419.25	970.18	3255665.84	1410878.38	40.4576270	-104.5812265	0.20	
9553.00	89.600	178.290	6779.40	1622.65	-1514.20	973.28	3255668.93	1410783.43	40.4573663	-104.5812189	0.42	
9647.00	89.880	177.980	6779.82	1716.26	-1608.15	976.34	3255671.99	1410689.49	40.4571084	-104.5812115	0.44	
9742.00	89.690	178.180	6780.18	1810.87	-1703.09	979.52	3255675.17	1410594.54	40.4568477	-104.5812036	0.29	
9836.00	89.260	178.190	6781.04	1904.47	-1797.04	982.50	3255678.15	1410500.60	40.4565897	-104.5811964	0.46	
9931.00	89.230	177.760	6782.29	1999.09	-1891.97	985.85	3255681.50	1410405.67	40.4563291	-104.5811878	0.45	
10025.00	89.940	178.470	6782.97	2092.70	-1985.92	988.94	3255684.60	1410311.73	40.4560711	-104.5811802	1.07	
10120.00	90.090	178.450	6782.95	2187.26	-2080.88	991.50	3255687.15	1410216.77	40.4558104	-104.5811746	0.16	
10215.00	89.940	178.330	6782.92	2281.83	-2175.85	994.17	3255689.82	1410121.81	40.4555497	-104.5811685	0.20	
10404.00	89.850	177.970	6783.27	2470.04	-2364.75	1000.27	3255695.92	1409932.91	40.4550310	-104.5811536	0.20	
10498.00	90.030	178.700	6783.37	2563.62	-2458.71	1003.00	3255698.65	1409838.96	40.4547731	-104.5811473	0.80	
10593.00	89.750	177.970	6783.55	2658.19	-2553.67	1005.76	3255701.41	1409744.00	40.4545123	-104.5811409	0.82	
10688.00	89.660	178.100	6784.04	2752.81	-2648.61	1009.02	3255704.67	1409649.06	40.4542517	-104.5811328	0.17	
10782.00	90.000	178.850	6784.32	2846.37	-2742.57	1011.52	3255707.17	1409555.10	40.4539937	-104.5811273	0.88	
10877.00	89.780	178.740	6784.50	2940.87	-2837.55	1013.52	3255709.17	1409460.13	40.4537329	-104.5811236	0.26	
10971.00	89.970	178.250	6784.71	3034.42	-2931.52	1015.98	3255711.64	1409366.16	40.4534749	-104.5811183	0.56	
11066.00	90.250	177.890	6784.53	3129.04	-3026.47	1019.18	3255714.83	1409271.22	40.4532142	-104.5811103	0.48	
11160.00	89.540	177.960	6784.70	3222.68	-3120.40	1022.59	3255718.24	1409177.29	40.4529563	-104.5811016	0.76	
11255.00	89.880	178.290	6785.18	3317.29	-3215.35	1025.70	3255721.35	1409082.34	40.4526956	-104.5810939	0.50	

REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY, INC	Well	ROTH A32-779
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API	0512351328
Facility	SEC.30-T06N-R64W	Wellbore	ROTH A32-779 AWB
Slot	SLOT#04 ROTH A32-779 (972'FNL & 270'FEL,SEC.30)		

WELLPATH DATA (184 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
11350.00	90.430	180.240	6784.92	3411.70	-3310.34	1026.91	3255722.56	1408987.36	40.4524349	-104.5810931	2.13	
11445.00	90.580	180.110	6784.08	3505.93	-3405.33	1026.62	3255722.27	1408892.37	40.4521741	-104.5810977	0.21	
11539.00	89.050	179.580	6784.39	3599.24	-3499.33	1026.88	3255722.53	1408798.37	40.4519161	-104.5811003	1.72	
11634.00	89.080	179.920	6785.94	3693.56	-3594.32	1027.29	3255722.94	1408703.39	40.4516554	-104.5811023	0.36	
11728.00	90.120	179.570	6786.59	3786.89	-3688.31	1027.71	3255723.36	1408609.40	40.4513974	-104.5811043	1.17	
11822.00	90.220	179.590	6786.31	3880.25	-3782.31	1028.40	3255724.05	1408515.41	40.4511394	-104.5811053	0.11	
11917.00	89.750	180.150	6786.34	3974.55	-3877.31	1028.62	3255724.27	1408420.41	40.4508786	-104.5811081	0.77	
12012.00	90.150	183.190	6786.42	4068.43	-3972.26	1025.85	3255721.50	1408325.47	40.4506181	-104.5811216	3.23	
12106.00	89.880	182.860	6786.40	4160.97	-4066.13	1020.89	3255716.54	1408231.60	40.4503606	-104.5811429	0.45	
12200.00	89.600	181.760	6786.82	4253.71	-4160.05	1017.10	3255712.75	1408137.68	40.4501029	-104.5811600	1.21	
12295.00	89.750	181.740	6787.36	4347.58	-4255.00	1014.20	3255709.85	1408042.73	40.4498424	-104.5811740	0.16	
12389.00	89.540	182.490	6787.95	4440.37	-4348.93	1010.73	3255706.38	1407948.80	40.4495847	-104.5811899	0.83	
12484.00	90.550	179.030	6787.87	4534.47	-4443.91	1009.47	3255705.12	1407853.83	40.4493240	-104.5811980	3.79	
12578.00	90.400	180.050	6787.09	4627.84	-4537.90	1010.22	3255705.87	1407759.84	40.4490660	-104.5811988	1.10	
12673.00	90.030	178.930	6786.74	4722.21	-4632.90	1011.07	3255706.72	1407664.85	40.4488053	-104.5811993	1.24	
12767.00	89.970	180.230	6786.74	4815.57	-4726.89	1011.76	3255707.41	1407570.86	40.4485473	-104.5812003	1.38	
12862.00	88.950	180.420	6787.63	4909.77	-4821.88	1011.22	3255706.87	1407475.87	40.4482865	-104.5812058	1.09	
12956.00	88.120	175.630	6790.04	5003.34	-4915.77	1014.46	3255710.11	1407381.99	40.4480288	-104.5811976	5.17	
13051.00	88.800	177.380	6792.59	5098.12	-5010.55	1020.24	3255715.90	1407287.21	40.4477684	-104.5811804	1.98	
13145.00	88.770	177.910	6794.58	5191.78	-5104.45	1024.11	3255719.76	1407193.31	40.4475106	-104.5811700	0.56	
13239.00	88.520	177.380	6796.80	5285.43	-5198.35	1027.97	3255723.62	1407099.42	40.4472528	-104.5811596	0.62	
13334.00	88.740	176.550	6799.08	5380.17	-5293.19	1033.00	3255728.65	1407004.59	40.4469923	-104.5811451	0.90	
13428.00	89.010	177.440	6800.92	5473.91	-5387.04	1037.92	3255733.57	1406910.74	40.4467346	-104.5811309	0.99	
13523.00	88.520	177.030	6802.97	5568.62	-5481.90	1042.50	3255738.15	1406815.88	40.4464741	-104.5811179	0.67	
13617.00	88.920	178.770	6805.07	5662.23	-5575.81	1045.95	3255741.60	1406721.97	40.4462162	-104.5811091	1.90	
13712.00	88.950	178.750	6806.84	5756.72	-5670.78	1048.00	3255743.65	1406627.01	40.4459555	-104.5811052	0.04	
13806.00	89.420	177.650	6808.17	5850.31	-5764.72	1050.96	3255746.60	1406533.07	40.4456976	-104.5810981	1.27	
13901.00	89.750	178.370	6808.86	5944.94	-5859.66	1054.25	3255749.90	1406438.14	40.4454369	-104.5810898	0.83	
13995.00	89.630	178.860	6809.37	6038.47	-5953.63	1056.53	3255752.18	1406344.17	40.4451789	-104.5810851	0.54	
14090.00	89.230	178.270	6810.31	6133.00	-6048.59	1058.90	3255754.55	1406249.21	40.4449182	-104.5810801	0.75	

REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY, INC	Well	ROTH A32-779
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API	0512351328
Facility	SEC.30-T06N-R64W	Wellbore	ROTH A32-779 AWB
Slot	SLOT#04 ROTH A32-779 (972'FNL & 270'FEL,SEC.30)		

WELLPATH DATA (184 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
14184.00	88.830	176.640	6811.91	6226.69	-6142.48	1063.08	3255758.73	1406155.32	40.4446604	-104.5810686	1.79	
14279.00	89.260	177.670	6813.49	6321.42	-6237.35	1067.79	3255763.44	1406060.46	40.4443998	-104.5810552	1.17	
14374.00	89.010	176.200	6814.92	6416.17	-6332.20	1072.87	3255768.52	1405965.61	40.4441394	-104.5810405	1.57	
14468.00	89.750	177.230	6815.94	6509.96	-6426.04	1078.26	3255773.91	1405871.78	40.4438816	-104.5810246	1.35	
14563.00	89.450	178.240	6816.60	6604.62	-6520.96	1082.01	3255777.66	1405776.86	40.4436210	-104.5810147	1.11	
14657.00	89.480	178.970	6817.48	6698.15	-6614.93	1084.30	3255779.95	1405682.89	40.4433630	-104.5810100	0.78	
14752.00	89.350	178.490	6818.45	6792.66	-6709.90	1086.41	3255782.05	1405587.93	40.4431023	-104.5810059	0.52	
14847.00	89.320	179.680	6819.55	6887.10	-6804.88	1087.92	3255783.57	1405492.95	40.4428416	-104.5810040	1.25	
14941.00	89.350	179.410	6820.64	6980.46	-6898.87	1088.67	3255784.32	1405398.96	40.4425836	-104.5810048	0.29	
15036.00	89.600	178.750	6821.52	7074.91	-6993.86	1090.19	3255785.84	1405303.98	40.4423228	-104.5810029	0.74	
15131.00	89.140	179.280	6822.56	7169.37	-7088.84	1091.83	3255787.48	1405209.01	40.4420621	-104.5810006	0.74	
15225.00	89.050	178.450	6824.04	7262.85	-7182.80	1093.69	3255789.34	1405115.04	40.4418041	-104.5809974	0.89	
15319.00	89.380	179.140	6825.33	7356.34	-7276.77	1095.67	3255791.31	1405021.08	40.4415461	-104.5809938	0.81	
15414.00	89.350	179.800	6826.39	7450.72	-7371.76	1096.54	3255792.19	1404926.09	40.4412854	-104.5809942	0.70	
15509.00	89.200	179.070	6827.59	7545.09	-7466.75	1097.48	3255793.13	1404831.11	40.4410246	-104.5809943	0.78	
15603.00	89.380	178.660	6828.75	7638.58	-7560.72	1099.34	3255794.99	1404737.14	40.4407666	-104.5809911	0.48	
15697.00	89.750	178.950	6829.47	7732.08	-7654.70	1101.30	3255796.95	1404643.16	40.4405086	-104.5809876	0.50	
15792.00	90.030	177.810	6829.65	7826.65	-7749.66	1103.99	3255799.64	1404548.21	40.4402479	-104.5809815	1.24	
15887.00	89.570	177.200	6829.98	7921.34	-7844.57	1108.12	3255803.77	1404453.30	40.4399873	-104.5809702	0.80	
15981.00	90.030	178.430	6830.31	8015.00	-7938.50	1111.71	3255807.36	1404359.38	40.4397294	-104.5809608	1.40	
16075.00	89.940	178.100	6830.33	8108.59	-8032.46	1114.55	3255810.20	1404265.42	40.4394714	-104.5809541	0.36	
16170.00	90.180	178.370	6830.23	8203.18	-8127.41	1117.48	3255813.13	1404170.47	40.4392107	-104.5809471	0.38	
16265.00	89.110	178.650	6830.82	8297.72	-8222.38	1119.95	3255815.60	1404075.51	40.4389500	-104.5809417	1.16	
16359.00	89.820	177.290	6831.70	8391.35	-8316.31	1123.28	3255818.93	1403981.58	40.4386921	-104.5809333	1.63	
16454.00	90.000	177.770	6831.85	8486.04	-8411.22	1127.37	3255823.02	1403886.67	40.4384315	-104.5809221	0.54	
16549.00	90.340	177.300	6831.57	8580.73	-8506.13	1131.46	3255827.11	1403791.76	40.4381708	-104.5809110	0.61	
16643.00	90.490	177.370	6830.89	8674.45	-8600.03	1135.83	3255831.48	1403697.87	40.4379130	-104.5808988	0.18	
16738.00	90.590	176.800	6829.99	8769.20	-8694.90	1140.66	3255836.31	1403603.00	40.4376525	-104.5808849	0.61	
16832.00	90.370	178.230	6829.20	8862.89	-8788.81	1144.74	3255840.38	1403509.10	40.4373946	-104.5808738	1.54	
16927.00	90.220	178.960	6828.71	8957.42	-8883.78	1147.07	3255842.71	1403414.14	40.4371339	-104.5808690	0.78	

REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY, INC	Well	ROTH A32-779
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API	0512351328
Facility	SEC.30-T06N-R64W	Wellbore	ROTH A32-779 AWB
Slot	SLOT#04 ROTH A32-779 (972'FNL & 270'FEL,SEC.30)		

WELLPATH DATA (184 stations) † = interpolated, ‡ = extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
17021.00	90.430	178.950	6828.18	9050.90	-8977.76	1148.78	3255844.43	1403320.16	40.4368759	-104.5808663	0.22	
17115.00	90.580	179.070	6827.35	9144.36	-9071.74	1150.40	3255846.05	1403226.18	40.4366178	-104.5808640	0.20	
17148.00	90.310	178.910	6827.10	9177.18	-9104.73	1150.99	3255846.63	1403193.19	40.4365273	-104.5808631	0.95	LAST BH MWD SURVEY
17172.00‡	90.310	178.910	6826.97	9201.05	-9128.73	1151.44	3255847.09	1403169.19	40.4364614	-104.5808624	0.00	PROJECTION TO BIT

TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
SEC.29-T06N-R64W	-8.00	1442.72	4150.41	3258845.94	1413740.23	40.4653913	-104.5696913	polygon
2D Polygon: dimensions not calculated								
SEC.32-T06N-R64W	-8.00	1442.72	4150.41	3258845.94	1413740.23	40.4653913	-104.5696913	polygon
2D Polygon: dimensions not calculated								
ROTH A32-779 TPZ REV-1(460'FNL & 683'FWL,SEC.29)	6773.00	522.73	946.28	3255641.94	1412820.28	40.4629579	-104.5812401	point
ROTH A32-779 BHL REV-1 (460'FSL & 711'FWL,SEC.32)	6827.00	-9132.00	1134.65	3255830.30	1403165.92	40.4364529	-104.5809228	point

REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY, INC	Well	ROTH A32-779
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API	0512351328
Facility	SEC.30-T06N-R64W	Wellbore	ROTH A32-779 AWB
Slot	SLOT#04 ROTH A32-779 (972'FNL & 270'FEL,SEC.30)		

WELLPATH COMPOSITION - Ref Wellbore: ROTH A32-779 AWB Ref Wellpath: ROTH A32-779 AWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore	Survey Date
0.00	1916.00	Gyrodatta 2015 - GC+DROP+COND	Gyrodatta 2015 - GC+DROP+COND 13-1/2" <79 - 1916>	ROTH A32-779 AWB	10/5/2021
1916.00	17172.00	OWSG MWD rev2 (MS+IFR1)	OWSG MWD rev2 (MS+IFR1) 8-1/2" <1989 - 17148>	ROTH A32-779 AWB	10/20/2021

REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY, INC	Well	ROTH A32-779
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API	0512351328
Facility	SEC.30-T06N-R64W	Wellbore	ROTH A32-779 AWB
Slot	SLOT#04 ROTH A32-779 (972'FNL & 270'FEL,SEC.30)		

WELLPATH COMMENTS

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
79.00	0.160	99.980	79.00	FIRST GYRODATA SURVEY
1916.00	0.650	255.320	1915.97	LAST GYRODATA SURVEY
1989.00	0.110	200.900	1988.97	FIRST BH MWD SURVEY
17148.00	90.310	178.910	6827.10	LAST BH MWD SURVEY
17172.00	90.310	178.910	6826.97	PROJECTION TO BIT