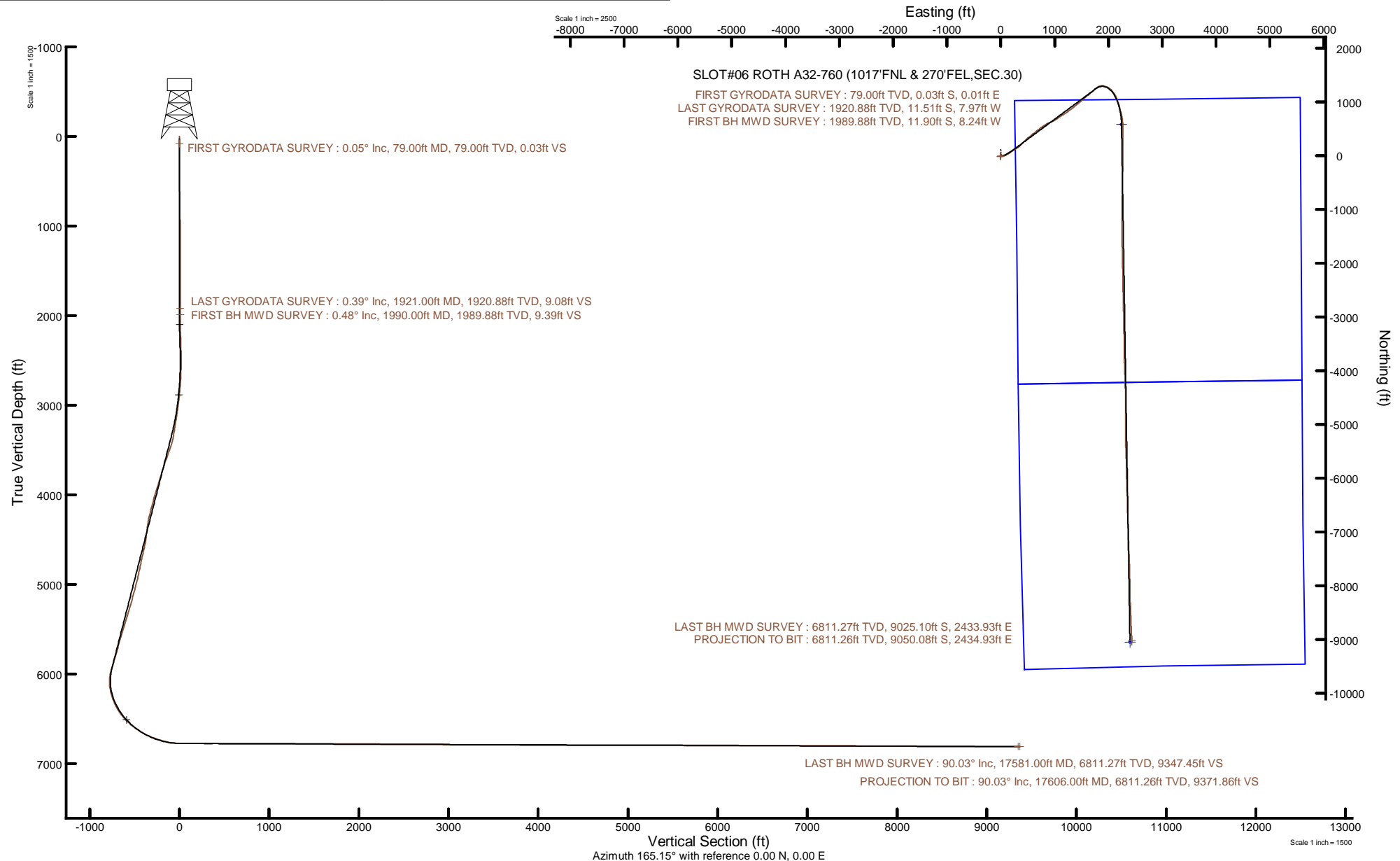


# NOBLE ENERGY, INC

Location: COLORADO Slot: SLOT#06 ROTH A32-760 (1017'FNL & 270'FEL,SEC.30)  
Field: WELD COUNTY (NOBLE NAD 83 GRID) Well: ROTH A32-760  
Facility: SEC.30-T06N-R64W Wellbore: ROTH A32-760 PWB



Plot reference wellpath is ROTH A32-760 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: 4727 feet	Coordinates are in feet referenced to Slot
Mean Sea Level to Mud line (At Slot: SLOT#06 ROTH A32-760 (1017'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: painsetr on 2021-11-02; Database: WellArchitectDB



## REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY, INC	Well	ROTH A32-760
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API	0512351330
Facility	SEC.30-T06N-R64W	Wellbore	ROTH A32-760 AWB
Slot	SLOT#06 ROTH A32-760 (1017'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	11/2/2021 at 7:37:01 AM
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	0.00	-0.00	3254696.18	1412250.21	40.4614200°	-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	4727.00ft
Horizontal Reference Pt	Slot	H&P 517 (30') (KB) to Mean Sea Level	4727.00ft
Vertical Reference Pt	H&P 517 (30') (KB)	H&P 517 (30') (KB) to Mud Line at Slot (SLOT#06 ROTH A32-760 (1017'FNL & 270'FEL,SEC.30))	4727.00ft
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	165.15°

## REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY, INC	Well	ROTH A32-760
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API	0512351330
Facility	SEC.30-T06N-R64W	Wellbore	ROTH A32-760 AWB
Slot	SLOT#06 ROTH A32-760 (1017'FNL & 270'FEL,SEC.30)		

## WELLPATH DATA (187 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	166.380	0.00	0.00	0.00	0.00	3254696.18	1412250.21	40.4614200	-104.5846600	0.00	
79.00	0.050	166.380	79.00	0.03	-0.03	0.01	3254696.19	1412250.18	40.4614199	-104.5846600	0.06	FIRST GYRODATA SURVEY
173.00	0.140	159.460	173.00	0.19	-0.18	0.06	3254696.24	1412250.03	40.4614195	-104.5846598	0.10	
264.00	0.110	202.200	264.00	0.37	-0.37	0.06	3254696.24	1412249.85	40.4614190	-104.5846598	0.10	
327.00	0.210	240.740	327.00	0.45	-0.48	-0.06	3254696.12	1412249.74	40.4614187	-104.5846602	0.22	
421.00	0.280	213.590	421.00	0.64	-0.75	-0.34	3254695.84	1412249.46	40.4614179	-104.5846612	0.14	
516.00	0.700	204.700	515.99	1.24	-1.47	-0.71	3254695.47	1412248.74	40.4614160	-104.5846626	0.45	
610.00	0.840	213.750	609.99	2.14	-2.57	-1.33	3254694.85	1412247.64	40.4614130	-104.5846649	0.20	
705.00	1.140	205.090	704.97	3.33	-4.00	-2.12	3254694.06	1412246.21	40.4614091	-104.5846678	0.35	
800.00	1.250	191.490	799.95	4.98	-5.88	-2.73	3254693.45	1412244.34	40.4614040	-104.5846700	0.32	
894.00	1.000	187.340	893.93	6.66	-7.69	-3.03	3254693.14	1412242.52	40.4613990	-104.5846712	0.28	
989.00	1.040	209.020	988.92	8.05	-9.27	-3.56	3254692.62	1412240.94	40.4613947	-104.5846731	0.41	
1083.00	0.900	218.810	1082.91	9.10	-10.59	-4.43	3254691.74	1412239.62	40.4613911	-104.5846763	0.23	
1178.00	0.530	208.600	1177.90	9.86	-11.56	-5.11	3254691.07	1412238.66	40.4613884	-104.5846788	0.41	
1272.00	0.510	245.460	1271.89	10.25	-12.11	-5.70	3254690.48	1412238.10	40.4613869	-104.5846809	0.35	
1367.00	0.410	258.140	1366.89	10.30	-12.36	-6.42	3254689.76	1412237.85	40.4613863	-104.5846835	0.15	
1462.00	0.250	246.540	1461.89	10.31	-12.51	-6.94	3254689.24	1412237.70	40.4613859	-104.5846854	0.18	
1556.00	0.430	295.370	1555.89	10.12	-12.44	-7.45	3254688.73	1412237.77	40.4613861	-104.5846872	0.35	
1651.00	0.360	333.300	1650.89	9.60	-12.02	-7.90	3254688.27	1412238.19	40.4613872	-104.5846889	0.28	
1745.00	0.430	355.980	1744.88	8.96	-11.41	-8.06	3254688.12	1412238.81	40.4613889	-104.5846894	0.18	
1840.00	0.160	137.860	1839.88	8.73	-11.15	-8.00	3254688.18	1412239.06	40.4613896	-104.5846892	0.59	
1921.00	0.390	189.310	1920.88	9.08	-11.51	-7.97	3254688.21	1412238.71	40.4613886	-104.5846891	0.39	LAST GYRODATA SURVEY
1990.00	0.480	235.530	1989.88	9.39	-11.90	-8.24	3254687.94	1412238.31	40.4613876	-104.5846901	0.51	FIRST BH MWD SURVEY
2085.00	1.910	91.290	2084.87	9.96	-12.16	-6.99	3254689.19	1412238.05	40.4613868	-104.5846856	2.44	
2179.00	3.760	90.350	2178.75	11.21	-12.22	-2.34	3254693.84	1412238.00	40.4613865	-104.5846689	1.97	
2274.00	6.590	90.760	2273.35	13.49	-12.31	6.23	3254702.41	1412237.91	40.4613860	-104.5846381	2.98	
2368.00	7.280	90.150	2366.66	16.48	-12.39	17.58	3254713.76	1412237.82	40.4613855	-104.5845973	0.74	
2463.00	10.980	74.470	2460.46	17.93	-9.99	32.32	3254728.50	1412240.23	40.4613917	-104.5845442	4.66	
2557.00	11.970	75.200	2552.58	17.84	-5.10	50.37	3254746.55	1412245.11	40.4614046	-104.5844792	1.06	
2652.00	14.530	66.050	2645.05	15.96	2.26	70.79	3254766.97	1412252.47	40.4614242	-104.5844055	3.48	

## REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY, INC	Well	ROTH A32-760
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API	0512351330
Facility	SEC.30-T06N-R64W	Wellbore	ROTH A32-760 AWB
Slot	SLOT#06 ROTH A32-760 (1017'FNL & 270'FEL,SEC.30)		

## WELLPATH DATA (187 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
2747.00	15.470	62.360	2736.81	11.27	12.97	92.91	3254789.08	1412263.19	40.4614530	-104.5843257	1.41	
2841.00	17.980	62.120	2826.83	5.22	25.57	116.84	3254813.02	1412275.79	40.4614869	-104.5842392	2.67	
2936.00	21.000	56.220	2916.38	-3.61	41.90	143.96	3254840.13	1412292.11	40.4615309	-104.5841411	3.79	
3031.00	22.360	55.630	3004.66	-15.18	61.57	173.03	3254869.20	1412311.78	40.4615841	-104.5840360	1.45	
3125.00	25.460	57.880	3090.59	-27.15	82.41	204.90	3254901.07	1412332.62	40.4616404	-104.5839206	3.44	
3219.00	26.550	56.740	3175.07	-39.79	104.67	239.58	3254935.75	1412354.88	40.4617005	-104.5837952	1.28	
3313.00	26.670	56.360	3259.11	-53.22	127.88	274.71	3254970.88	1412378.09	40.4617632	-104.5836681	0.22	
3408.00	29.170	57.750	3343.05	-67.01	152.05	312.05	3255008.22	1412402.26	40.4618285	-104.5835330	2.72	
3503.00	33.540	48.190	3424.21	-85.86	181.94	351.23	3255047.40	1412432.14	40.4619094	-104.5833911	6.96	
3597.00	34.520	44.340	3502.12	-111.28	218.30	389.21	3255085.38	1412468.51	40.4620081	-104.5832533	2.52	
3786.00	36.170	45.370	3656.28	-166.42	295.79	466.34	3255162.50	1412545.99	40.4622186	-104.5829732	0.93	
3880.00	36.150	50.460	3732.19	-191.79	332.94	507.47	3255203.63	1412583.14	40.4623194	-104.5828241	3.19	
3975.00	36.380	51.420	3808.78	-214.83	368.35	551.10	3255247.26	1412618.54	40.4624154	-104.5826659	0.64	
4069.00	36.130	51.280	3884.59	-237.27	403.06	594.52	3255290.67	1412653.26	40.4625094	-104.5825086	0.28	
4164.00	36.310	49.220	3961.23	-260.90	438.96	637.67	3255333.82	1412689.15	40.4626067	-104.5823522	1.30	
4258.00	36.120	54.570	4037.09	-282.82	473.20	681.33	3255377.48	1412723.40	40.4626995	-104.5821941	3.37	
4353.00	36.010	52.820	4113.88	-303.27	506.31	726.40	3255422.55	1412756.51	40.4627891	-104.5820309	1.09	
4448.00	35.980	54.080	4190.75	-323.92	539.56	771.25	3255467.39	1412789.75	40.4628791	-104.5818685	0.78	
4542.00	35.800	56.320	4266.90	-342.72	571.01	816.49	3255512.64	1412821.20	40.4629641	-104.5817047	1.41	
4637.00	36.150	65.930	4343.85	-356.20	597.87	865.23	3255561.38	1412848.06	40.4630364	-104.5815286	5.95	
4731.00	36.040	66.700	4419.80	-364.70	620.11	915.94	3255612.09	1412870.30	40.4630960	-104.5813455	0.50	
4826.00	36.080	63.940	4496.61	-374.25	643.46	966.75	3255662.89	1412893.65	40.4631587	-104.5811621	1.71	
5015.00	34.620	52.700	4650.92	-405.61	700.50	1059.55	3255755.69	1412950.69	40.4633126	-104.5808265	3.52	
5110.00	35.100	60.050	4728.91	-423.04	730.51	1104.70	3255800.84	1412980.69	40.4633937	-104.5806631	4.45	
5204.00	34.680	55.860	4806.02	-438.92	759.01	1150.26	3255846.40	1413009.20	40.4634706	-104.5804983	2.59	
5299.00	34.840	58.220	4884.07	-455.76	788.47	1195.70	3255891.83	1413038.66	40.4635502	-104.5803339	1.43	
5393.00	35.000	54.340	4961.16	-473.16	818.33	1240.43	3255936.57	1413068.52	40.4636309	-104.5801720	2.37	
5488.00	34.890	51.430	5039.04	-493.77	851.16	1283.82	3255979.95	1413101.34	40.4637197	-104.5800149	1.76	
5582.00	34.670	53.530	5116.25	-514.44	883.81	1326.34	3256022.47	1413133.99	40.4638081	-104.5798609	1.30	
5677.00	34.910	52.070	5194.27	-535.05	916.59	1369.51	3256065.64	1413166.76	40.4638969	-104.5797045	0.91	

### REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY, INC	Well	ROTH A32-760
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API	0512351330
Facility	SEC.30-T06N-R64W	Wellbore	ROTH A32-760 AWB
Slot	SLOT#06 ROTH A32-760 (1017'FNL & 270'FEL,SEC.30)		

### WELLPATH DATA (187 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
5771.00	34.690	48.830	5271.46	-557.46	950.73	1410.86	3256106.99	1413200.91	40.4639894	-104.5795547	1.98	
5866.00	34.800	49.920	5349.52	-581.01	985.98	1451.96	3256148.08	1413236.16	40.4640850	-104.5794057	0.66	
5960.00	34.880	49.430	5426.67	-604.11	1020.73	1492.90	3256189.02	1413270.91	40.4641792	-104.5792573	0.31	
6055.00	34.860	48.730	5504.62	-627.98	1056.31	1533.94	3256230.06	1413306.48	40.4642757	-104.5791084	0.42	
6149.00	34.690	50.710	5581.83	-651.00	1090.97	1574.83	3256270.95	1413341.14	40.4643696	-104.5789602	1.21	
6244.00	34.600	50.670	5659.99	-673.37	1125.18	1616.62	3256312.74	1413375.35	40.4644624	-104.5788087	0.10	
6339.00	34.670	50.210	5738.15	-695.94	1159.57	1658.25	3256354.36	1413409.74	40.4645556	-104.5786579	0.28	
6433.00	34.720	49.690	5815.44	-718.72	1194.00	1699.20	3256395.32	1413444.16	40.4646489	-104.5785094	0.32	
6528.00	34.940	47.730	5893.42	-742.88	1229.80	1739.96	3256436.08	1413479.96	40.4647460	-104.5783616	1.20	
6622.00	30.650	50.440	5972.42	-765.31	1263.18	1778.38	3256474.49	1413513.35	40.4648365	-104.5782223	4.82	
6717.00	30.910	67.590	6054.20	-778.67	1287.95	1819.68	3256515.79	1413538.12	40.4649033	-104.5780729	9.22	
6812.00	30.810	85.650	6135.93	-777.45	1299.13	1866.60	3256562.71	1413549.29	40.4649327	-104.5779039	9.72	
6907.00	31.110	101.210	6217.53	-762.21	1296.20	1915.01	3256611.12	1413546.36	40.4649232	-104.5777300	8.41	
7001.00	32.970	111.810	6297.27	-736.25	1281.96	1962.62	3256658.73	1413532.12	40.4648828	-104.5775595	6.29	
7095.00	35.780	124.100	6374.94	-700.20	1257.01	2009.19	3256705.29	1413507.18	40.4648130	-104.5773931	7.95	
7190.00	39.930	134.520	6450.01	-652.96	1220.01	2053.99	3256750.09	1413470.18	40.4647102	-104.5772335	8.01	
7284.00	45.340	144.690	6519.22	-595.57	1171.49	2094.90	3256791.00	1413421.65	40.4645758	-104.5770882	9.30	
7379.00	52.970	152.050	6581.35	-526.82	1110.28	2132.29	3256828.39	1413360.45	40.4644067	-104.5769562	9.93	
7473.00	58.040	160.520	6634.64	-450.39	1039.41	2163.23	3256859.33	1413289.58	40.4642113	-104.5768476	9.17	
7568.00	64.130	161.860	6680.55	-367.47	960.72	2190.00	3256886.10	1413210.90	40.4639946	-104.5767544	6.53	
7663.00	69.190	166.580	6718.20	-280.32	876.82	2213.64	3256909.73	1413127.00	40.4637636	-104.5766726	7.01	
7757.00	74.950	164.960	6747.12	-190.93	790.18	2235.64	3256931.73	1413040.36	40.4635252	-104.5765968	6.34	
7852.00	80.530	171.600	6767.31	-98.33	699.36	2254.42	3256950.51	1412949.55	40.4632754	-104.5765327	9.01	
7946.00	87.630	176.140	6777.00	-6.00	606.48	2264.37	3256960.46	1412856.67	40.4630202	-104.5765004	8.95	
8041.00	89.660	178.160	6779.25	86.89	511.63	2269.09	3256965.18	1412761.83	40.4627597	-104.5764870	3.01	
8136.00	90.090	179.860	6779.46	179.12	416.65	2270.73	3256966.82	1412666.85	40.4624990	-104.5764846	1.85	
8231.00	89.780	180.010	6779.57	270.98	321.65	2270.84	3256966.93	1412571.85	40.4622382	-104.5764878	0.36	
8325.00	90.150	179.910	6779.62	361.86	227.65	2270.90	3256967.00	1412477.86	40.4619802	-104.5764911	0.41	
8420.00	90.310	180.030	6779.24	453.70	132.65	2270.95	3256967.05	1412382.86	40.4617195	-104.5764945	0.21	
8514.00	90.490	180.860	6778.59	544.36	38.66	2270.22	3256966.32	1412288.87	40.4614615	-104.5765006	0.90	

### REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY, INC	Well	ROTH A32-760
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API	0512351330
Facility	SEC.30-T06N-R64W	Wellbore	ROTH A32-760 AWB
Slot	SLOT#06 ROTH A32-760 (1017'FNL & 270'FEL,SEC.30)		

### WELLPATH DATA (187 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
8609.00	89.660	181.350	6778.46	635.70	-56.32	2268.39	3256964.48	1412193.89	40.4612008	-104.5765107	1.01	
8703.00	89.970	180.840	6778.76	726.09	-150.31	2266.60	3256962.69	1412099.91	40.4609429	-104.5765207	0.63	
8798.00	90.090	181.320	6778.71	817.44	-245.29	2264.81	3256960.90	1412004.93	40.4606823	-104.5765307	0.52	
8892.00	90.000	180.550	6778.64	907.90	-339.28	2263.27	3256959.36	1411910.95	40.4604244	-104.5765397	0.82	
8987.00	90.030	181.270	6778.62	999.33	-434.26	2261.76	3256957.86	1411815.97	40.4601637	-104.5765487	0.76	
9081.00	89.880	180.850	6778.69	1089.73	-528.25	2260.02	3256956.12	1411721.99	40.4599058	-104.5765585	0.47	
9176.00	89.720	181.360	6779.02	1181.07	-623.23	2258.19	3256954.28	1411627.01	40.4596451	-104.5765686	0.56	
9270.00	89.660	181.530	6779.53	1271.29	-717.20	2255.82	3256951.91	1411533.04	40.4593873	-104.5765806	0.19	
9365.00	89.880	181.650	6779.91	1362.41	-812.16	2253.19	3256949.28	1411438.09	40.4591267	-104.5765937	0.26	
9459.00	89.780	181.030	6780.19	1452.68	-906.13	2250.99	3256947.08	1411344.12	40.4588689	-104.5766051	0.67	
9553.00	89.630	181.340	6780.67	1543.02	-1000.11	2249.04	3256945.14	1411250.14	40.4586110	-104.5766156	0.37	
9648.00	89.660	178.800	6781.26	1634.81	-1095.10	2248.93	3256945.02	1411155.15	40.4583503	-104.5766196	2.67	
9743.00	89.910	179.200	6781.62	1727.05	-1190.09	2250.59	3256946.68	1411060.17	40.4580895	-104.5766172	0.50	
9837.00	89.720	179.090	6781.92	1818.26	-1284.07	2251.99	3256948.08	1410966.19	40.4578315	-104.5766156	0.23	
9931.00	90.030	179.700	6782.13	1909.37	-1378.07	2252.98	3256949.07	1410872.20	40.4575735	-104.5766156	0.73	
10026.00	89.850	179.880	6782.23	2001.29	-1473.07	2253.33	3256949.42	1410777.20	40.4573127	-104.5766179	0.27	
10121.00	89.570	179.970	6782.71	2093.15	-1568.07	2253.45	3256949.55	1410682.21	40.4570520	-104.5766210	0.31	
10215.00	89.050	178.730	6783.84	2184.27	-1662.05	2254.52	3256950.61	1410588.23	40.4567940	-104.5766207	1.43	
10310.00	89.350	178.310	6785.17	2276.68	-1757.01	2256.97	3256953.07	1410493.27	40.4565333	-104.5766154	0.54	
10405.00	89.940	179.250	6785.76	2369.01	-1851.99	2259.00	3256955.09	1410398.30	40.4562725	-104.5766117	1.17	
10499.00	89.600	178.590	6786.13	2460.30	-1945.97	2260.77	3256956.86	1410304.32	40.4560145	-104.5766089	0.79	
10594.00	89.540	179.170	6786.85	2552.59	-2040.95	2262.62	3256958.72	1410209.35	40.4557538	-104.5766057	0.61	
10688.00	89.540	178.130	6787.60	2643.99	-2134.92	2264.84	3256960.93	1410115.38	40.4554958	-104.5766013	1.11	
10783.00	89.080	179.020	6788.74	2736.38	-2229.88	2267.20	3256963.29	1410020.42	40.4552351	-104.5765964	1.05	
10878.00	90.150	179.290	6789.38	2828.56	-2324.86	2268.60	3256964.69	1409925.44	40.4549743	-104.5765949	1.16	
10972.00	89.720	178.440	6789.49	2919.88	-2418.84	2270.46	3256966.56	1409831.46	40.4547163	-104.5765917	1.01	
11067.00	89.880	179.780	6789.82	3012.07	-2513.83	2271.94	3256968.03	1409736.48	40.4544556	-104.5765900	1.42	
11161.00	89.630	178.400	6790.22	3103.30	-2607.82	2273.43	3256969.52	1409642.50	40.4541976	-104.5765881	1.49	
11256.00	89.660	178.960	6790.81	3195.66	-2702.79	2275.62	3256971.71	1409547.53	40.4539368	-104.5765838	0.59	
11351.00	90.090	178.230	6791.02	3288.06	-2797.76	2277.95	3256974.04	1409452.56	40.4536761	-104.5765790	0.89	

### REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY, INC	Well	ROTH A32-760
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API	0512351330
Facility	SEC.30-T06N-R64W	Wellbore	ROTH A32-760 AWB
Slot	SLOT#06 ROTH A32-760 (1017'FNL & 270'FEL,SEC.30)		

### WELLPATH DATA (187 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
11445.00	89.690	179.050	6791.20	3379.46	-2891.73	2280.18	3256976.27	1409358.59	40.4534181	-104.5765745	0.97	
11540.00	89.780	178.880	6791.64	3471.72	-2986.71	2281.90	3256977.99	1409263.61	40.4531574	-104.5765719	0.20	
11634.00	89.290	178.510	6792.40	3563.10	-3080.69	2284.04	3256980.13	1409169.65	40.4528994	-104.5765677	0.65	
11729.00	89.200	178.240	6793.65	3655.57	-3175.64	2286.73	3256982.82	1409074.70	40.4526387	-104.5765616	0.30	
11823.00	89.820	179.730	6794.46	3746.84	-3269.62	2288.40	3256984.49	1408980.72	40.4523807	-104.5765591	1.72	
11918.00	89.660	179.020	6794.89	3838.93	-3364.61	2289.43	3256985.52	1408885.73	40.4521199	-104.5765589	0.77	
12012.00	89.880	178.980	6795.27	3930.19	-3458.60	2291.07	3256987.16	1408791.75	40.4518619	-104.5765566	0.24	
12107.00	89.970	179.450	6795.39	4022.35	-3553.59	2292.37	3256988.47	1408696.76	40.4516011	-104.5765554	0.50	
12201.00	90.120	179.340	6795.32	4113.46	-3647.58	2293.37	3256989.46	1408602.77	40.4513431	-104.5765554	0.20	
12296.00	90.000	179.220	6795.22	4205.58	-3742.57	2294.56	3256990.65	1408507.78	40.4510824	-104.5765547	0.18	
12390.00	89.450	178.300	6795.67	4296.94	-3836.55	2296.60	3256992.69	1408413.81	40.4508244	-104.5765509	1.14	
12485.00	89.820	178.510	6796.27	4389.41	-3931.51	2299.24	3256995.33	1408318.85	40.4505636	-104.5765449	0.45	
12579.00	89.940	177.120	6796.47	4481.12	-4025.44	2302.82	3256998.91	1408224.93	40.4503057	-104.5765356	1.48	
12674.00	89.720	177.120	6796.75	4574.06	-4120.32	2307.60	3257003.69	1408130.05	40.4500452	-104.5765220	0.23	
12768.00	89.940	178.250	6797.03	4665.82	-4214.24	2311.39	3257007.48	1408036.13	40.4497873	-104.5765118	1.22	
12863.00	89.750	179.320	6797.29	4758.14	-4309.22	2313.41	3257009.50	1407941.16	40.4495265	-104.5765081	1.14	
12957.00	90.000	179.580	6797.49	4849.23	-4403.21	2314.31	3257010.40	1407847.17	40.4492685	-104.5765084	0.38	
13052.00	89.690	179.600	6797.75	4941.23	-4498.21	2314.99	3257011.08	1407752.18	40.4490078	-104.5765095	0.33	
13146.00	90.030	179.860	6797.98	5032.20	-4592.21	2315.43	3257011.52	1407658.18	40.4487497	-104.5765115	0.46	
13240.00	89.850	179.830	6798.08	5123.13	-4686.21	2315.69	3257011.78	1407564.19	40.4484917	-104.5765141	0.19	
13335.00	89.720	179.340	6798.43	5215.13	-4781.20	2316.37	3257012.46	1407469.19	40.4482310	-104.5765151	0.53	
13429.00	89.820	179.470	6798.81	5306.23	-4875.20	2317.35	3257013.44	1407375.20	40.4479730	-104.5765152	0.17	
13524.00	90.000	179.380	6798.96	5398.30	-4970.19	2318.30	3257014.39	1407280.21	40.4477122	-104.5765153	0.21	
13618.00	90.430	180.110	6798.61	5489.27	-5064.19	2318.72	3257014.81	1407186.22	40.4474542	-104.5765173	0.90	
13713.00	89.970	179.390	6798.28	5581.20	-5159.19	2319.14	3257015.23	1407091.22	40.4471934	-104.5765194	0.90	
13807.00	90.460	180.310	6797.92	5672.12	-5253.19	2319.38	3257015.47	1406997.23	40.4469354	-104.5765220	1.11	
13902.00	90.090	179.940	6797.47	5763.89	-5348.18	2319.18	3257015.27	1406902.23	40.4466747	-104.5765263	0.55	
13996.00	89.820	176.540	6797.54	5855.44	-5442.13	2322.06	3257018.15	1406808.30	40.4464168	-104.5765194	3.63	
14091.00	89.880	177.980	6797.79	5948.32	-5537.01	2326.60	3257022.69	1406713.41	40.4461562	-104.5765067	1.52	
14185.00	89.570	177.870	6798.24	6040.00	-5630.95	2330.01	3257026.10	1406619.48	40.4458983	-104.5764980	0.35	



### REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY, INC	Well	ROTH A32-760
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API	0512351330
Facility	SEC.30-T06N-R64W	Wellbore	ROTH A32-760 AWB
Slot	SLOT#06 ROTH A32-760 (1017'FNL & 270'FEL,SEC.30)		

### WELLPATH DATA (187 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
14280.00	89.660	178.580	6798.88	6132.53	-5725.90	2332.95	3257029.04	1406524.53	40.4456376	-104.5764909	0.75	
14375.00	89.570	178.700	6799.52	6224.91	-5820.87	2335.20	3257031.29	1406429.56	40.4453768	-104.5764864	0.16	
14469.00	89.570	179.040	6800.22	6316.23	-5914.85	2337.06	3257033.15	1406335.59	40.4451188	-104.5764833	0.36	
14564.00	89.820	179.060	6800.73	6408.44	-6009.84	2338.63	3257034.72	1406240.60	40.4448581	-104.5764812	0.26	
14658.00	89.630	178.030	6801.18	6499.89	-6103.81	2341.02	3257037.11	1406146.64	40.4446001	-104.5764761	1.11	
14753.00	89.780	177.670	6801.67	6592.56	-6198.74	2344.58	3257040.67	1406051.71	40.4443394	-104.5764668	0.41	
14848.00	89.600	178.390	6802.18	6685.17	-6293.68	2347.85	3257043.94	1405956.77	40.4440787	-104.5764587	0.78	
14942.00	90.000	178.870	6802.51	6776.58	-6387.65	2350.10	3257046.19	1405862.81	40.4438207	-104.5764541	0.66	
15037.00	89.970	179.150	6802.54	6868.82	-6482.64	2351.74	3257047.83	1405767.82	40.4435600	-104.5764518	0.30	
15132.00	89.880	178.550	6802.66	6961.11	-6577.62	2353.65	3257049.73	1405672.85	40.4432992	-104.5764485	0.64	
15226.00	90.150	178.990	6802.64	7052.47	-6671.60	2355.66	3257051.75	1405578.87	40.4430412	-104.5764447	0.55	
15320.00	89.410	177.990	6803.00	7143.93	-6765.56	2358.14	3257054.23	1405484.91	40.4427833	-104.5764394	1.32	
15415.00	89.910	178.280	6803.56	7236.50	-6860.51	2361.23	3257057.32	1405389.97	40.4425226	-104.5764318	0.61	
15510.00	89.750	178.150	6803.84	7329.04	-6955.46	2364.19	3257060.28	1405295.02	40.4422619	-104.5764247	0.22	
15604.00	89.880	177.970	6804.15	7420.67	-7049.41	2367.37	3257063.46	1405201.08	40.4420039	-104.5764168	0.24	
15698.00	89.690	177.310	6804.50	7512.44	-7143.33	2371.24	3257067.33	1405107.16	40.4417460	-104.5764064	0.73	
15793.00	90.000	178.610	6804.76	7605.08	-7238.26	2374.63	3257070.71	1405012.23	40.4414853	-104.5763978	1.41	
15888.00	89.750	178.150	6804.96	7697.56	-7333.23	2377.31	3257073.40	1404917.27	40.4412246	-104.5763917	0.55	
15982.00	89.850	177.590	6805.29	7789.25	-7427.16	2380.80	3257076.89	1404823.34	40.4409667	-104.5763827	0.61	
16076.00	89.420	177.070	6805.89	7881.13	-7521.06	2385.18	3257081.27	1404729.45	40.4407089	-104.5763705	0.72	
16171.00	89.690	177.740	6806.63	7973.96	-7615.95	2389.48	3257085.57	1404634.55	40.4404483	-104.5763586	0.76	
16266.00	89.600	177.620	6807.22	8066.70	-7710.87	2393.33	3257089.42	1404539.63	40.4401876	-104.5763483	0.16	
16360.00	90.150	179.170	6807.42	8158.20	-7804.83	2395.96	3257092.05	1404445.68	40.4399296	-104.5763424	1.75	
16455.00	90.030	179.510	6807.27	8250.30	-7899.83	2397.06	3257093.14	1404350.69	40.4396689	-104.5763420	0.38	
16550.00	90.400	180.220	6806.92	8342.18	-7994.83	2397.28	3257093.37	1404255.69	40.4394081	-104.5763447	0.84	
16644.00	89.380	178.570	6807.10	8433.29	-8088.82	2398.27	3257094.36	1404161.71	40.4391501	-104.5763447	2.06	
16739.00	89.780	178.140	6807.79	8525.78	-8183.77	2401.00	3257097.09	1404066.75	40.4388894	-104.5763384	0.62	
16833.00	89.690	178.410	6808.23	8617.32	-8277.73	2403.83	3257099.92	1403972.80	40.4386314	-104.5763318	0.30	
16928.00	89.820	177.960	6808.63	8709.87	-8372.68	2406.84	3257102.93	1403877.85	40.4383707	-104.5763245	0.49	
17022.00	89.600	177.920	6809.11	8801.54	-8466.62	2410.22	3257106.30	1403783.92	40.4381128	-104.5763159	0.24	



## REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY, INC	Well	ROTH A32-760
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API	0512351330
Facility	SEC.30-T06N-R64W	Wellbore	ROTH A32-760 AWB
Slot	SLOT#06 ROTH A32-760 (1017'FNL & 270'FEL,SEC.30)		

## WELLPATH DATA (187 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
17116.00	89.630	177.400	6809.74	8893.31	-8560.54	2414.06	3257110.14	1403690.00	40.4378549	-104.5763057	0.55	
17211.00	89.630	177.810	6810.36	8986.07	-8655.45	2418.03	3257114.11	1403595.09	40.4375943	-104.5762949	0.43	
17306.00	89.750	178.030	6810.87	9078.72	-8750.39	2421.47	3257117.56	1403500.16	40.4373336	-104.5762861	0.26	
17400.00	89.780	176.760	6811.25	9170.58	-8844.29	2425.75	3257121.83	1403406.26	40.4370758	-104.5762743	1.35	
17495.00	90.090	177.610	6811.36	9263.49	-8939.17	2430.41	3257126.50	1403311.38	40.4368152	-104.5762611	0.95	
17581.00	90.030	177.700	6811.27	9347.45	-9025.10	2433.93	3257130.02	1403225.46	40.4365793	-104.5762516	0.13	LAST BH MWD SURVEY
17606.00‡	90.030	177.700	6811.26	9371.86	-9050.08	2434.93	3257131.02	1403200.48	40.4365107	-104.5762490	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	-9.00	1490.07	4149.92	3258845.94	1413740.23	40.4653913	-104.5696913	polygon
2D Polygon: dimensions not calculated								
SEC.32-T06N-R64W	-9.00	1490.07	4149.92	3258845.94	1413740.23	40.4653913	-104.5696913	polygon
2D Polygon: dimensions not calculated								
ROTH A32-760 TPZ REV-1(460'FNL & 1980'FWL,SEC.29)	6778.00	583.38	2242.76	3256938.86	1412833.57	40.4629574	-104.5765789	point
ROTH A32-760 BHL REV-1 (460'FSL & 1977'FWL,SEC.32)	6814.00	-9051.17	2399.42	3257095.50	1403199.40	40.4365087	-104.5763766	point

## REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY, INC	Well	ROTH A32-760
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API	0512351330
Facility	SEC.30-T06N-R64W	Wellbore	ROTH A32-760 AWB
Slot	SLOT#06 ROTH A32-760 (1017'FNL & 270'FEL,SEC.30)		

## WELLPATH COMPOSITION - Ref Wellbore: ROTH A32-760 AWB Ref Wellpath: ROTH A32-760 AWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore	Survey Date
0.00	1921.00	Gyrodatta 2015 - GC+DROP+COND	Gyrodatta 2015 - GC+DROP+COND 13-1/2" <79 - 1921>	ROTH A32-760 AWB	10/5/2021
1921.00	17606.00	OWSG MWD rev2 (MS+IFR1)	OWSG MWD rev2 (MS+IFR1) 8-1/2" <1990 - 17581>	ROTH A32-760 AWB	11/2/2021

## REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY, INC	Well	ROTH A32-760
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API	0512351330
Facility	SEC.30-T06N-R64W	Wellbore	ROTH A32-760 AWB
Slot	SLOT#06 ROTH A32-760 (1017'FNL & 270'FEL,SEC.30)		

## WELLPATH COMMENTS

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
79.00	0.050	166.380	79.00	FIRST GYRODATA SURVEY
1921.00	0.390	189.310	1920.88	LAST GYRODATA SURVEY
1990.00	0.480	235.530	1989.88	FIRST BH MWD SURVEY
17581.00	90.030	177.700	6811.27	LAST BH MWD SURVEY
17606.00	90.030	177.700	6811.26	PROJECTION TO BIT