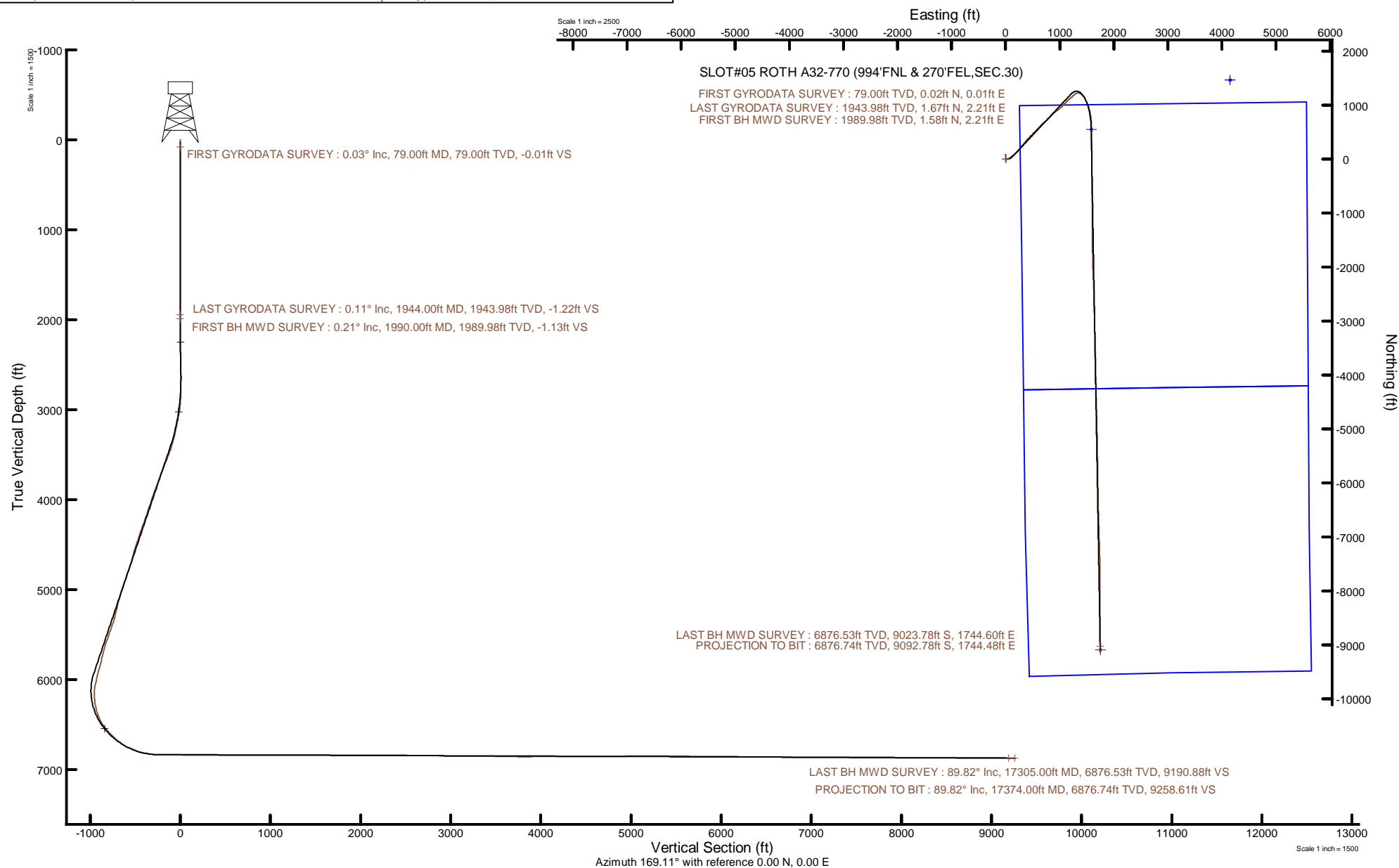


Location:	COLORADO	Slot:	SLOT#05 ROTH A32-770 (994'FNL & 270'FEL,SEC.30)
Field:	WELD COUNTY (NOBLE NAD 83 GRID)	Well:	ROTH A32-770
Facility:	SEC.30-T06N-R64W	Wellbore:	ROTH A32-770 PWB
Plot reference wellpath is ROTH A32-770 PWP Rev-A.0		Grid System: NAD83 / Lambert Colorado SP, Northern Zone (501), 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#05 ROTH A32-770 (994'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 2021-10-27; Database: WellArchitectIDB	



REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY, INC	Well	ROTH A32-770
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API	0512351333
Facility	SEC.30-T06N-R64W	Wellbore	ROTH A32-770 AWB
Slot	SLOT#05 ROTH A32-770 (994'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 12:42:42 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	25.50	-0.26	3254695.92	1412275.71	40.4614900°	-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#05 ROTH A32-770 (994'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	169.11°

REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY, INC	Well	ROTH A32-770
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API	0512351333
Facility	SEC.30-T06N-R64W	Wellbore	ROTH A32-770 AWB
Slot	SLOT#05 ROTH A32-770 (994'FNL & 270'FEL,SEC.30)		

WELLPATH DATA (183 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	42.140	0.00	0.00	0.00	0.00	3254695.92	1412275.71	40.4614900	-104.5846600	0.00	
79.00	0.030	42.140	79.00	-0.01	0.02	0.01	3254695.93	1412275.73	40.4614900	-104.5846599	0.04	FIRST GYRODATA SURVEY
173.00	0.710	50.280	173.00	-0.31	0.41	0.48	3254696.39	1412276.12	40.4614911	-104.5846583	0.72	
264.00	0.220	65.670	263.99	-0.62	0.84	1.07	3254696.99	1412276.55	40.4614923	-104.5846561	0.55	
358.00	0.130	168.380	357.99	-0.56	0.81	1.26	3254697.17	1412276.52	40.4614922	-104.5846555	0.30	
453.00	0.230	52.900	452.99	-0.53	0.82	1.43	3254697.35	1412276.53	40.4614922	-104.5846548	0.33	
547.00	0.130	93.490	546.99	-0.59	0.92	1.69	3254697.60	1412276.64	40.4614925	-104.5846539	0.17	
642.00	0.400	87.700	641.99	-0.51	0.93	2.13	3254698.04	1412276.64	40.4614925	-104.5846523	0.29	
737.00	0.320	127.980	736.99	-0.26	0.78	2.67	3254698.58	1412276.49	40.4614921	-104.5846504	0.27	
831.00	0.240	127.220	830.99	0.08	0.50	3.03	3254698.95	1412276.21	40.4614913	-104.5846491	0.09	
926.00	0.060	339.040	925.99	0.18	0.43	3.17	3254699.09	1412276.14	40.4614911	-104.5846486	0.31	
1020.00	0.160	259.770	1019.99	0.13	0.45	3.02	3254698.94	1412276.16	40.4614911	-104.5846491	0.17	
1115.00	0.230	194.270	1114.99	0.30	0.24	2.85	3254698.76	1412275.95	40.4614906	-104.5846498	0.23	
1209.00	0.250	191.340	1208.99	0.66	-0.14	2.76	3254698.68	1412275.57	40.4614895	-104.5846501	0.02	
1304.00	0.130	189.680	1303.99	0.95	-0.45	2.70	3254698.62	1412275.26	40.4614887	-104.5846503	0.13	
1398.00	0.060	293.910	1397.99	1.03	-0.54	2.64	3254698.55	1412275.18	40.4614885	-104.5846505	0.17	
1493.00	0.130	256.400	1492.99	1.00	-0.54	2.49	3254698.40	1412275.17	40.4614884	-104.5846511	0.09	
1587.00	0.190	306.290	1586.99	0.89	-0.48	2.26	3254698.17	1412275.24	40.4614886	-104.5846519	0.15	
1682.00	0.390	322.650	1681.99	0.49	-0.13	1.94	3254697.85	1412275.59	40.4614896	-104.5846530	0.23	
1777.00	0.790	2.840	1776.98	-0.44	0.79	1.77	3254697.69	1412276.50	40.4614921	-104.5846536	0.58	
1871.00	0.300	52.160	1870.98	-1.18	1.58	2.00	3254697.91	1412277.30	40.4614943	-104.5846528	0.68	
1944.00	0.110	117.010	1943.98	-1.22	1.67	2.21	3254698.13	1412277.38	40.4614945	-104.5846520	0.37	LAST GYRODATA SURVEY
1990.00	0.210	210.370	1989.98	-1.13	1.58	2.21	3254698.12	1412277.29	40.4614943	-104.5846520	0.53	FIRST BH MWD SURVEY
2085.00	0.160	110.860	2084.98	-0.93	1.38	2.24	3254698.16	1412277.09	40.4614937	-104.5846519	0.30	
2179.00	2.350	89.330	2178.95	-0.52	1.36	4.29	3254700.21	1412277.07	40.4614936	-104.5846445	2.34	
2274.00	3.160	89.630	2273.84	0.30	1.39	8.86	3254704.78	1412277.11	40.4614936	-104.5846281	0.85	
2369.00	4.960	91.450	2368.59	1.66	1.31	15.59	3254711.50	1412277.02	40.4614931	-104.5846039	1.90	
2463.00	6.070	89.770	2462.16	3.45	1.23	24.62	3254720.53	1412276.94	40.4614927	-104.5845715	1.19	
2558.00	5.950	90.040	2556.64	5.31	1.24	34.56	3254730.48	1412276.95	40.4614924	-104.5845357	0.13	
2652.00	7.700	78.890	2649.97	6.21	2.45	45.62	3254741.53	1412278.17	40.4614954	-104.5844960	2.33	

REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY, INC	Well	ROTH A32-770
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API	0512351333
Facility	SEC.30-T06N-R64W	Wellbore	ROTH A32-770 AWB
Slot	SLOT#05 ROTH A32-770 (994'FNL & 270'FEL,SEC.30)		

WELLPATH DATA (183 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	8.690	78.190	2744.00	6.07	5.15	58.89	3254754.80	1412280.86	40.4615025	-104.5844482	1.05	
2841.00	10.520	67.830	2836.68	4.28	9.84	73.79	3254769.70	1412285.55	40.4615149	-104.5843945	2.67	
2936.00	13.200	59.130	2929.66	-1.12	18.68	91.13	3254787.05	1412294.39	40.4615387	-104.5843318	3.38	
3031.00	15.350	44.860	3021.75	-11.91	33.16	109.32	3254805.23	1412308.88	40.4615779	-104.5842659	4.32	
3125.00	18.580	44.040	3111.64	-27.52	52.75	128.51	3254824.42	1412328.46	40.4616312	-104.5841962	3.45	
3219.00	20.850	44.830	3200.13	-45.54	75.39	150.72	3254846.63	1412351.10	40.4616926	-104.5841156	2.43	
3313.00	24.160	46.330	3286.96	-65.39	100.54	176.43	3254872.34	1412376.25	40.4617610	-104.5840223	3.57	
3408.00	27.530	48.420	3372.44	-87.12	128.54	206.93	3254902.84	1412404.25	40.4618370	-104.5839116	3.67	
3503.00	29.800	39.580	3455.83	-113.37	161.33	238.41	3254934.32	1412437.03	40.4619260	-104.5837973	5.06	
3597.00	29.790	35.570	3537.42	-144.32	198.33	266.88	3254962.78	1412474.03	40.4620268	-104.5836936	2.12	
3691.00	30.000	36.590	3618.91	-176.29	236.19	294.47	3254990.38	1412511.89	40.4621299	-104.5835931	0.59	
3880.00	30.660	41.430	3782.06	-237.68	310.27	354.53	3255050.43	1412585.97	40.4623316	-104.5833745	1.34	
3975.00	30.950	39.930	3863.66	-267.92	347.17	386.24	3255082.14	1412622.86	40.4624319	-104.5832592	0.86	
4069.00	30.880	41.770	3944.31	-297.82	383.69	417.83	3255113.72	1412659.39	40.4625313	-104.5831443	1.01	
4164.00	30.970	44.290	4025.81	-326.56	419.37	451.13	3255147.03	1412695.07	40.4626283	-104.5830233	1.37	
4258.00	30.730	46.970	4106.51	-353.15	453.08	485.58	3255181.48	1412728.77	40.4627198	-104.5828982	1.48	
4353.00	30.420	42.190	4188.32	-380.51	487.46	519.48	3255215.38	1412763.16	40.4628132	-104.5827751	2.58	
4448.00	30.540	42.290	4270.19	-409.42	523.14	551.88	3255247.77	1412798.83	40.4629102	-104.5826574	0.14	
4542.00	31.060	44.820	4350.93	-437.39	558.01	585.04	3255280.93	1412833.70	40.4630050	-104.5825369	1.48	
4637.00	30.790	44.490	4432.43	-465.01	592.74	619.35	3255315.25	1412868.43	40.4630993	-104.5824123	0.34	
4732.00	30.700	42.790	4514.08	-493.19	627.88	652.87	3255348.76	1412903.57	40.4631948	-104.5822906	0.92	
4826.00	29.170	50.800	4595.57	-518.27	659.98	686.94	3255382.83	1412935.67	40.4632820	-104.5821670	4.55	
4920.00	30.780	51.650	4676.99	-540.23	689.39	723.55	3255419.44	1412965.07	40.4633616	-104.5820343	1.77	
5015.00	30.040	44.020	4758.95	-565.12	721.58	759.15	3255455.04	1412997.27	40.4634490	-104.5819052	4.14	
5110.00	30.470	45.870	4841.01	-591.99	755.45	792.97	3255488.85	1413031.14	40.4635410	-104.5817824	1.08	
5204.00	30.490	42.270	4922.03	-619.35	789.70	826.12	3255522.00	1413065.38	40.4636340	-104.5816620	1.94	
5299.00	30.680	45.390	5003.82	-647.25	824.55	859.58	3255555.47	1413100.23	40.4637288	-104.5815404	1.68	
5393.00	28.880	46.070	5085.40	-672.94	857.15	893.01	3255588.89	1413132.83	40.4638173	-104.5814191	1.95	
5488.00	28.970	55.060	5168.59	-694.84	886.25	928.41	3255624.29	1413161.93	40.4638962	-104.5812908	4.57	
5582.00	29.770	54.890	5250.51	-713.68	912.71	966.16	3255662.04	1413188.39	40.4639677	-104.5811542	0.86	

REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY, INC	Well	ROTH A32-770
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API	0512351333
Facility	SEC.30-T06N-R64W	Wellbore	ROTH A32-770 AWB
Slot	SLOT#05 ROTH A32-770 (994'FNL & 270'FEL,SEC.30)		

WELLPATH DATA (183 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
5677.00	30.570	50.230	5332.65	-735.03	941.74	1004.03	3255699.90	1413217.41	40.4640463	-104.5810170	2.60	
5771.00	32.080	43.520	5412.97	-761.11	975.14	1039.60	3255735.48	1413250.82	40.4641370	-104.5808879	4.04	
5866.00	31.780	45.020	5493.60	-789.81	1011.12	1074.67	3255770.54	1413286.79	40.4642347	-104.5807606	0.89	
5960.00	31.830	45.810	5573.48	-817.29	1045.89	1109.95	3255805.83	1413321.57	40.4643292	-104.5806325	0.45	
6055.00	26.070	42.380	5656.58	-843.55	1078.80	1142.02	3255837.89	1413354.48	40.4644186	-104.5805160	6.31	
6149.00	24.640	50.360	5741.55	-865.33	1106.57	1171.04	3255866.91	1413382.24	40.4644940	-104.5804107	3.94	
6244.00	26.160	49.010	5827.37	-885.36	1132.94	1202.10	3255897.97	1413408.61	40.4645655	-104.5802981	1.71	
6339.00	26.390	46.660	5912.55	-907.19	1161.17	1233.26	3255929.13	1413436.84	40.4646421	-104.5801850	1.12	
6433.00	23.650	43.100	5997.73	-929.49	1189.28	1261.34	3255957.21	1413464.95	40.4647184	-104.5800831	3.32	
6528.00	23.290	56.460	6084.93	-947.94	1213.59	1290.04	3255985.90	1413489.26	40.4647843	-104.5799791	5.60	
6622.00	20.090	81.970	6172.46	-954.30	1226.14	1321.59	3256017.45	1413501.81	40.4648179	-104.5798652	10.50	
6717.00	21.950	100.330	6261.23	-947.05	1225.24	1355.25	3256051.12	1413500.90	40.4648144	-104.5797443	7.17	
6812.00	22.000	122.260	6349.48	-928.42	1212.53	1387.82	3256083.69	1413488.20	40.4647786	-104.5796277	8.59	
6907.00	29.410	133.180	6435.07	-897.30	1187.03	1419.94	3256115.80	1413462.69	40.4647077	-104.5795132	9.23	
7001.00	36.230	147.920	6514.14	-852.59	1147.59	1451.61	3256147.47	1413423.26	40.4645986	-104.5794009	11.13	
7095.00	43.180	154.740	6586.45	-795.43	1094.87	1480.14	3256176.00	1413370.54	40.4644531	-104.5793003	8.72	
7190.00	48.120	159.110	6652.85	-729.06	1032.38	1506.64	3256202.50	1413308.06	40.4642808	-104.5792074	6.15	
7284.00	55.350	158.880	6711.03	-656.45	963.53	1533.09	3256228.94	1413239.21	40.4640911	-104.5791150	7.69	
7379.00	62.790	167.210	6759.89	-575.56	885.67	1556.58	3256252.44	1413161.35	40.4638767	-104.5790334	10.85	
7473.00	71.090	171.080	6796.69	-489.17	800.81	1572.76	3256268.62	1413076.49	40.4636433	-104.5789784	9.61	
7568.00	78.460	176.210	6821.63	-397.89	709.80	1582.83	3256278.68	1412985.48	40.4633932	-104.5789457	9.34	
7663.00	85.900	179.300	6834.55	-304.92	615.83	1586.49	3256282.34	1412891.52	40.4631352	-104.5789360	8.47	
7757.00	89.970	179.670	6837.94	-212.54	521.92	1587.33	3256283.19	1412797.61	40.4628774	-104.5789365	4.35	
7852.00	89.600	179.410	6838.30	-119.11	426.92	1588.09	3256283.95	1412702.62	40.4626166	-104.5789373	0.48	
7946.00	89.410	179.110	6839.11	-26.59	332.93	1589.31	3256285.16	1412608.63	40.4623586	-104.5789365	0.38	
8041.00	89.260	179.480	6840.21	66.91	237.94	1590.48	3256286.33	1412513.65	40.4620979	-104.5789358	0.42	
8136.00	89.970	179.690	6840.85	160.32	142.95	1591.17	3256287.02	1412418.66	40.4618371	-104.5789369	0.78	
8231.00	89.720	178.760	6841.11	253.84	47.96	1592.45	3256288.31	1412323.67	40.4615764	-104.5789358	1.01	
8325.00	89.970	179.230	6841.36	346.44	-46.02	1594.10	3256289.95	1412229.69	40.4613184	-104.5789334	0.57	
8420.00	90.400	179.840	6841.05	439.87	-141.02	1594.87	3256290.72	1412134.70	40.4610576	-104.5789342	0.79	

REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY, INC	Well	ROTH A32-770
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API	0512351333
Facility	SEC.30-T06N-R64W	Wellbore	ROTH A32-770 AWB
Slot	SLOT#05 ROTH A32-770 (994'FNL & 270'FEL,SEC.30)		

WELLPATH DATA (183 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
8515.00	89.750	179.680	6840.93	533.24	-236.02	1595.27	3256291.12	1412039.70	40.4607969	-104.5789363	0.70	
8609.00	89.690	179.330	6841.39	625.69	-330.01	1596.08	3256291.93	1411945.71	40.4605388	-104.5789369	0.38	
8703.00	90.250	179.670	6841.44	718.15	-424.01	1596.90	3256292.76	1411851.72	40.4602808	-104.5789374	0.70	
8798.00	90.250	179.860	6841.02	811.51	-519.01	1597.29	3256293.14	1411756.73	40.4600201	-104.5789396	0.20	
8892.00	89.450	179.560	6841.27	903.90	-613.01	1597.77	3256293.62	1411662.73	40.4597621	-104.5789414	0.91	
8987.00	89.940	179.220	6841.77	997.37	-708.00	1598.78	3256294.63	1411567.74	40.4595013	-104.5789413	0.63	
9081.00	90.060	180.280	6841.77	1089.76	-802.00	1599.19	3256295.04	1411473.75	40.4592433	-104.5789433	1.13	
9176.00	89.910	178.550	6841.80	1183.22	-896.99	1600.16	3256296.01	1411378.76	40.4589825	-104.5789434	1.83	
9270.00	89.970	179.390	6841.90	1275.83	-990.97	1601.85	3256297.70	1411284.78	40.4587245	-104.5789408	0.90	
9365.00	89.850	180.320	6842.05	1369.16	-1085.97	1602.09	3256297.94	1411189.78	40.4584638	-104.5789435	0.99	
9459.00	90.000	180.130	6842.17	1461.40	-1179.97	1601.72	3256297.57	1411095.79	40.4582058	-104.5789483	0.26	
9553.00	90.090	179.800	6842.10	1553.71	-1273.97	1601.78	3256297.63	1411001.79	40.4579478	-104.5789516	0.36	
9648.00	89.780	179.670	6842.20	1647.08	-1368.97	1602.22	3256298.07	1410906.80	40.4576870	-104.5789536	0.35	
9743.00	90.220	179.920	6842.20	1740.43	-1463.97	1602.56	3256298.41	1410811.80	40.4574263	-104.5789559	0.53	
9837.00	89.630	180.100	6842.33	1832.74	-1557.97	1602.54	3256298.39	1410717.81	40.4571683	-104.5789595	0.66	
9931.00	89.820	178.240	6842.78	1925.29	-1651.95	1603.90	3256299.75	1410623.83	40.4569103	-104.5789581	1.99	
10026.00	90.120	178.080	6842.83	2019.10	-1746.90	1606.95	3256302.80	1410528.88	40.4566496	-104.5789507	0.36	
10121.00	90.250	178.710	6842.52	2112.86	-1841.86	1609.61	3256305.47	1410433.92	40.4563888	-104.5789447	0.68	
10215.00	90.250	178.900	6842.11	2205.51	-1935.84	1611.57	3256307.43	1410339.95	40.4561308	-104.5789411	0.20	
10310.00	88.890	177.390	6842.82	2299.32	-2030.78	1614.65	3256310.50	1410245.01	40.4558702	-104.5789336	2.14	
10405.00	89.880	178.010	6843.84	2393.25	-2125.70	1618.46	3256314.31	1410150.09	40.4556095	-104.5789235	1.23	
10499.00	89.600	177.340	6844.27	2486.20	-2219.62	1622.27	3256318.13	1410056.18	40.4553516	-104.5789133	0.77	
10594.00	88.860	177.280	6845.55	2580.22	-2314.51	1626.73	3256322.58	1409961.29	40.4550911	-104.5789008	0.78	
10689.00	89.410	178.160	6846.98	2674.14	-2409.42	1630.51	3256326.36	1409866.38	40.4548305	-104.5788908	1.09	
10783.00	89.010	179.080	6848.28	2766.83	-2503.38	1632.77	3256328.63	1409772.43	40.4545725	-104.5788861	1.07	
10878.00	89.450	178.540	6849.55	2860.47	-2598.35	1634.75	3256330.60	1409677.46	40.4543118	-104.5788826	0.73	
10972.00	89.450	178.770	6850.46	2953.16	-2692.32	1636.95	3256332.80	1409583.49	40.4540538	-104.5788782	0.24	
11067.00	89.480	179.200	6851.34	3046.75	-2787.30	1638.63	3256334.49	1409488.52	40.4537930	-104.5788757	0.45	
11161.00	89.820	178.620	6851.92	3139.37	-2881.29	1640.42	3256336.28	1409394.54	40.4535350	-104.5788728	0.72	
11256.00	89.170	178.680	6852.76	3233.05	-2976.25	1642.66	3256338.51	1409299.57	40.4532743	-104.5788683	0.69	

REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY, INC	Well	ROTH A32-770
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API	0512351333
Facility	SEC.30-T06N-R64W	Wellbore	ROTH A32-770 AWB
Slot	SLOT#05 ROTH A32-770 (994'FNL & 270'FEL,SEC.30)		

WELLPATH DATA (183 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
11351.00	89.850	178.760	6853.57	3326.71	-3071.23	1644.78	3256340.64	1409204.60	40.4530136	-104.5788642	0.72	
11445.00	89.780	179.050	6853.87	3419.34	-3165.21	1646.58	3256342.43	1409110.63	40.4527556	-104.5788612	0.32	
11540.00	88.460	178.190	6855.33	3513.02	-3260.17	1648.87	3256344.72	1409015.67	40.4524949	-104.5788566	1.66	
11634.00	88.580	178.620	6857.76	3605.76	-3354.10	1651.48	3256347.33	1408921.74	40.4522370	-104.5788507	0.47	
11729.00	89.600	178.620	6859.27	3699.44	-3449.06	1653.77	3256349.62	1408826.79	40.4519763	-104.5788460	1.07	
11823.00	89.290	178.440	6860.18	3792.16	-3543.02	1656.18	3256352.03	1408732.83	40.4517183	-104.5788408	0.38	
11918.00	91.170	179.330	6859.80	3885.78	-3638.00	1658.03	3256353.88	1408637.85	40.4514576	-104.5788377	2.19	
12012.00	91.020	179.250	6858.00	3978.28	-3731.97	1659.19	3256355.05	1408543.88	40.4511996	-104.5788371	0.18	
12107.00	90.650	179.040	6856.62	4071.82	-3826.95	1660.61	3256356.46	1408448.91	40.4509389	-104.5788355	0.45	
12201.00	90.000	178.690	6856.08	4164.45	-3920.93	1662.47	3256358.33	1408354.93	40.4506809	-104.5788323	0.79	
12296.00	89.820	179.010	6856.23	4258.08	-4015.91	1664.38	3256360.23	1408259.95	40.4504201	-104.5788290	0.39	
12390.00	90.180	178.640	6856.23	4350.73	-4109.89	1666.31	3256362.16	1408165.98	40.4501621	-104.5788256	0.55	
12485.00	90.280	178.810	6855.85	4444.40	-4204.87	1668.42	3256364.27	1408071.01	40.4499014	-104.5788216	0.21	
12579.00	90.000	178.730	6855.62	4537.06	-4298.85	1670.44	3256366.29	1407977.03	40.4496434	-104.5788178	0.31	
12674.00	89.940	178.630	6855.67	4630.74	-4393.82	1672.63	3256368.48	1407882.06	40.4493826	-104.5788135	0.12	
12768.00	90.150	178.630	6855.60	4723.44	-4487.80	1674.88	3256370.73	1407788.09	40.4491246	-104.5788089	0.22	
12863.00	90.060	178.930	6855.42	4817.09	-4582.77	1676.90	3256372.75	1407693.12	40.4488639	-104.5788052	0.33	
12957.00	90.490	178.500	6854.97	4909.77	-4676.75	1679.01	3256374.86	1407599.14	40.4486059	-104.5788012	0.65	
13051.00	90.490	178.520	6854.17	5002.51	-4770.71	1681.45	3256377.30	1407505.18	40.4483479	-104.5787959	0.02	
13146.00	89.660	178.420	6854.04	5096.24	-4865.68	1683.99	3256379.84	1407410.22	40.4480872	-104.5787903	0.88	
13240.00	90.060	178.340	6854.27	5189.01	-4959.64	1686.64	3256382.49	1407316.26	40.4478292	-104.5787843	0.43	
13335.00	90.740	178.660	6853.61	5282.74	-5054.60	1689.13	3256384.98	1407221.30	40.4475685	-104.5787789	0.79	
13429.00	89.570	178.100	6853.35	5375.50	-5148.56	1691.79	3256387.64	1407127.35	40.4473105	-104.5787728	1.38	
13524.00	90.000	179.460	6853.71	5469.15	-5243.54	1693.81	3256389.66	1407032.37	40.4470498	-104.5787691	1.50	
13618.00	89.750	179.260	6853.92	5561.65	-5337.53	1694.86	3256390.71	1406938.38	40.4467917	-104.5787689	0.34	
13713.00	89.260	178.910	6854.74	5655.21	-5432.52	1696.38	3256392.23	1406843.40	40.4465310	-104.5787670	0.63	
13807.00	89.200	179.150	6856.00	5747.79	-5526.50	1697.97	3256393.82	1406749.43	40.4462730	-104.5787647	0.26	
13902.00	89.750	179.640	6856.87	5841.26	-5621.49	1698.97	3256394.82	1406654.44	40.4460123	-104.5787647	0.78	
13996.00	89.510	178.970	6857.48	5933.77	-5715.48	1700.11	3256395.96	1406560.46	40.4457542	-104.5787641	0.76	
14091.00	89.410	179.230	6858.37	6027.33	-5810.46	1701.60	3256397.45	1406465.48	40.4454935	-104.5787623	0.29	

REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY, INC	Well	ROTH A32-770
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API	0512351333
Facility	SEC.30-T06N-R64W	Wellbore	ROTH A32-770 AWB
Slot	SLOT#05 ROTH A32-770 (994'FNL & 270'FEL,SEC.30)		

WELLPATH DATA (183 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
14185.00	89.570	179.170	6859.21	6119.87	-5904.45	1702.92	3256398.77	1406371.49	40.4452355	-104.5787611	0.18	
14280.00	89.660	178.940	6859.85	6213.44	-5999.43	1704.48	3256400.33	1406276.51	40.4449747	-104.5787590	0.26	
14375.00	89.350	179.170	6860.67	6307.01	-6094.42	1706.05	3256401.90	1406181.53	40.4447140	-104.5787569	0.41	
14469.00	89.480	179.100	6861.63	6399.57	-6188.40	1707.47	3256403.32	1406087.55	40.4444560	-104.5787553	0.16	
14564.00	89.320	178.640	6862.62	6493.19	-6283.38	1709.34	3256405.19	1405992.58	40.4441953	-104.5787521	0.51	
14658.00	89.660	178.830	6863.46	6585.86	-6377.35	1711.42	3256407.27	1405898.61	40.4439373	-104.5787482	0.41	
14753.00	89.660	178.510	6864.02	6679.54	-6472.32	1713.62	3256409.47	1405803.64	40.4436765	-104.5787438	0.34	
14847.00	89.630	178.740	6864.61	6772.24	-6566.29	1715.88	3256411.73	1405709.67	40.4434185	-104.5787392	0.25	
14942.00	89.140	178.120	6865.63	6865.98	-6661.25	1718.48	3256414.33	1405614.72	40.4431578	-104.5787334	0.83	
15037.00	89.170	177.680	6867.03	6959.85	-6756.18	1721.96	3256417.81	1405519.80	40.4428972	-104.5787244	0.46	
15131.00	89.630	178.360	6868.01	7052.71	-6850.11	1725.21	3256421.06	1405425.86	40.4426393	-104.5787163	0.87	
15226.00	89.660	178.410	6868.60	7146.47	-6945.07	1727.89	3256423.74	1405330.90	40.4423785	-104.5787102	0.06	
15320.00	89.820	178.800	6869.03	7239.18	-7039.05	1730.18	3256426.02	1405236.94	40.4421205	-104.5787055	0.45	
15415.00	89.940	178.710	6869.23	7332.83	-7134.02	1732.24	3256428.09	1405141.96	40.4418598	-104.5787016	0.16	
15509.00	89.510	178.170	6869.68	7425.59	-7227.99	1734.80	3256430.65	1405048.00	40.4416018	-104.5786959	0.73	
15604.00	89.630	178.090	6870.39	7519.41	-7322.93	1737.90	3256433.75	1404953.06	40.4413411	-104.5786883	0.15	
15698.00	89.660	177.940	6870.97	7612.27	-7416.88	1741.15	3256437.00	1404859.12	40.4410832	-104.5786802	0.16	
15793.00	89.510	178.290	6871.66	7706.10	-7511.82	1744.28	3256440.13	1404764.18	40.4408225	-104.5786725	0.40	
15888.00	89.660	180.260	6872.35	7799.60	-7606.81	1745.48	3256441.33	1404669.20	40.4405618	-104.5786717	2.08	
15982.00	89.780	180.310	6872.81	7891.81	-7700.80	1745.01	3256440.86	1404575.20	40.4403038	-104.5786769	0.14	
16076.00	89.850	180.170	6873.11	7984.05	-7794.80	1744.62	3256440.47	1404481.21	40.4400458	-104.5786818	0.17	
16171.00	89.970	180.450	6873.26	8077.23	-7889.80	1744.11	3256439.95	1404386.22	40.4397851	-104.5786872	0.32	
16266.00	90.060	180.070	6873.24	8170.44	-7984.80	1743.67	3256439.52	1404291.22	40.4395243	-104.5786923	0.41	
16360.00	89.780	180.220	6873.37	8262.70	-8078.80	1743.44	3256439.29	1404197.22	40.4392663	-104.5786967	0.34	
16455.00	89.750	180.070	6873.76	8355.94	-8173.80	1743.20	3256439.04	1404102.23	40.4390056	-104.5787011	0.16	
16644.00	89.850	179.720	6874.42	8541.60	-8362.80	1743.54	3256439.39	1403913.24	40.4384868	-104.5787069	0.19	
16739.00	89.750	179.580	6874.75	8635.00	-8457.79	1744.12	3256439.97	1403818.24	40.4382261	-104.5787083	0.18	
16833.00	89.970	179.690	6874.98	8727.41	-8551.79	1744.72	3256440.57	1403724.25	40.4379680	-104.5787097	0.26	
16927.00	89.850	179.970	6875.13	8819.77	-8645.79	1745.00	3256440.85	1403630.25	40.4377100	-104.5787122	0.32	
17022.00	89.630	179.470	6875.56	8913.15	-8740.79	1745.46	3256441.31	1403535.26	40.4374493	-104.5787141	0.58	

REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY, INC	Well	ROTH A32-770
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API	0512351333
Facility	SEC.30-T06N-R64W	Wellbore	ROTH A32-770 AWB
Slot	SLOT#05 ROTH A32-770 (994'FNL & 270'FEL,SEC.30)		

WELLPATH DATA (183 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	89.850	180.460	6875.98	9005.46	-8834.79	1745.52	3256441.37	1403441.27	40.4371913	-104.5787174	1.08	
17305.00	89.820	180.100	6876.53	9190.88	-9023.78	1744.60	3256440.45	1403252.28	40.4366726	-104.5787278	0.19	LAST BH MWD SURVEY
17374.00†	89.820	180.100	6876.74	9258.61	-9092.78	1744.48	3256440.33	1403183.28	40.4364832	-104.5787308	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	1464.57	4150.18	3258845.94	1413740.23	40.4653913	-104.5696913	polygon
2D Polygon: dimensions not calculated								
SEC.32-T06N-R64W	-8.00	1464.57	4150.18	3258845.94	1413740.23	40.4653913	-104.5696913	polygon
2D Polygon: dimensions not calculated								
ROTH A32-770 TPZ REV-1(460'FNL & 1320'FWL,SEC.29)	6837.00	551.09	1583.05	3256278.91	1412826.78	40.4629576	-104.5789508	point
ROTH A32-770 BHL REV-1 (460'FSL & 1327'FWL,SEC.32)	6875.00	-9093.77	1750.05	3256445.90	1403182.29	40.4364803	-104.5787108	point

WELLPATH COMPOSITION - Ref Wellbore: ROTH A32-770 AWB Ref Wellpath: ROTH A32-770 AWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore	Survey Date
0.00	1944.00	Gyrodata 2015 - GC+DROP+COND	Gyrodata 2015 - GC+DROP+COND 13-1/2" <79 - 1944>	ROTH A32-770 AWB	10/5/2021
1944.00	17374.00	OWSG MWD rev2 (MS+IFR1)	OWSG MWD rev2 (MS+IFR1) 8-1/2" <1990 - 17305>	ROTH A32-770 AWB	10/25/2021

REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY, INC	Well	ROTH A32-770
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API	0512351333
Facility	SEC.30-T06N-R64W	Wellbore	ROTH A32-770 AWB
Slot	SLOT#05 ROTH A32-770 (994'FNL & 270'FEL,SEC.30)		

WELLPATH COMMENTS

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
79.00	0.030	42.140	79.00	FIRST GYRODATA SURVEY
1944.00	0.110	117.010	1943.98	LAST GYRODATA SURVEY
1990.00	0.210	210.370	1989.98	FIRST BH MWD SURVEY
17305.00	89.820	180.100	6876.53	LAST BH MWD SURVEY
17374.00	89.820	180.100	6876.74	PROJECTION TO BIT