

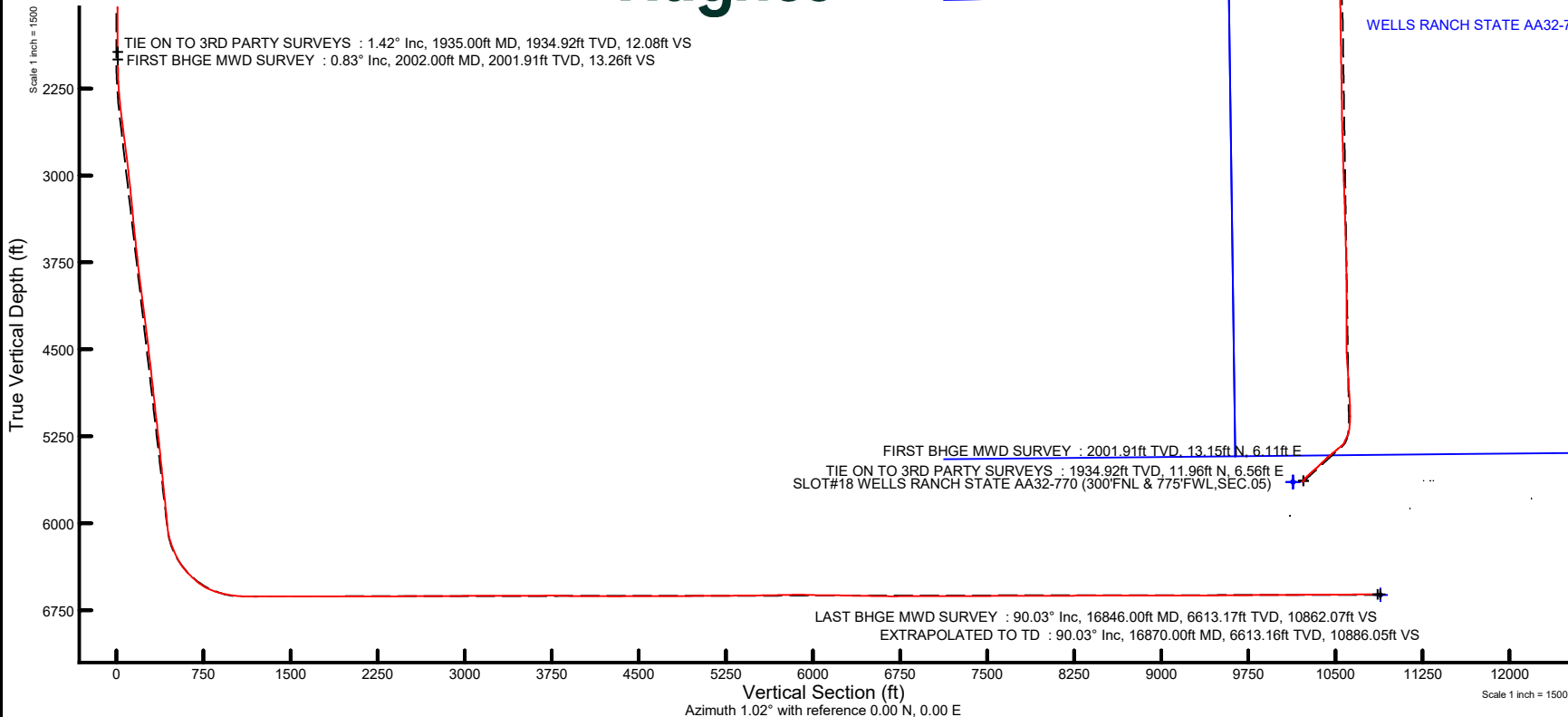
NOBLE ENERGY, INC

Location: COLORADO Slot: SLOT#18 WELLS RANCH STATE AA32-770 (300'FNL & 775'FWL,SEC.05)
Field: WELD COUNTY (NOBLE NAD 83 GRID) Well: WELLS RANCH STATE AA32-770
Facility: SEC.05-T05N-R63W Wellbore: WELLS RANCH STATE AA32-770 AWB

Location Information

Facility Name			Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
SEC.05-T05N-R63W			3287281.420	1402554.910	40°26'1.7736"N	104°28'4.6884"W
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
SLOT#18 WELLS RANCH STATE AA32-770 (300'FNL & 775'FWL,SEC.05)	389.38	148.31	3287429.721	1402944.274	40°26'5.6040"N	104°28'2.7120"W
RIG (307) (RKB) to Ground level (At Slot: SLOT#18 WELLS RANCH STATE AA32-770 (300'FNL & 775'FWL,SEC.05))					4704ft	
Mean Sea Level to Ground level (At Slot: SLOT#18 WELLS RANCH STATE AA32-770 (300'FNL & 775'FWL,SEC.05))					0ft	
RIG (307) (RKB) to Mean Sea Level					4704ft	

Plot reference wellpath is WELLS RANCH STATE AA32-770 AWP	Grid System: NAD83 / Lambert Colorado SP, Northern Zone (501), US feet
True vertical depths are referenced to RIG (307) (RKB)	North Reference: Grid north
Reference wellpath measured depths are referenced to RIG (307) (RKB)	Scale: True distance
RIG (307) (RKB) to Mean Sea Level: 4704 feet	Coordinates are in feet referenced to Slot
Mean Sea Level to Ground level (At Slot: SLOT#18 WELLS RANCH STATE AA32-770 (300'FNL & 775'FWL,SEC.05)): 0 feet	Depths are in feet
Offset wellpath MDs are referenced to each path's default MD datum	Created by: manajohj on 2019-11-19; Database: WA_DENVER



REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Well	WELLS RANCH STATE AA32-770
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API/Legal	
Facility	SEC.05-T05N-R63W	Wellbore	WELLS RANCH STATE AA32-770 AWB
Slot	SLOT#18 WELLS RANCH STATE AA32-770 (300'FNL & 775'FWL,SEC.05)		

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	0.999962	Report Generated	11/19/2019 at 9:05:44 AM
Convergence at slot	0.67° East	Database	WA_DENVER

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	389.38	148.31	3287429.72	1402944.27	40°26'5.6040"N	104°28'2.7120"W
Facility Reference Pt			3287281.42	1402554.91	40°26'1.7736"N	104°28'4.6884"W
Field Reference Pt			3000000.00	4454105.15	48°46'34.3150"N	105°30'0.0000"W

WELLPATH DATUM			
Calculation method	Minimum curvature	RIG (30') (RKB) to Facility Vertical Datum	4704.00ft
Horizontal Reference Pt	Slot	RIG (30') (RKB) to Mean Sea Level	4704.00ft
Vertical Reference Pt	RIG (30') (RKB)	RIG (30') (RKB) to Ground Level at Slot (SLOT#18 WELLS RANCH STATE AA32-770 (300'FNL & 775'FWL,SEC.05))	4704.00ft
MD Reference Pt	RIG (30') (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	1.02°

REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Well	WELLS RANCH STATE AA32-770
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API/Legal	
Facility	SEC.05-T05N-R63W	Wellbore	WELLS RANCH STATE AA32-770 AWB
Slot	SLOT#18 WELLS RANCH STATE AA32-770 (300'FNL & 775'FWL,SEC.05)		

WELLPATH DATA (180 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	84.060	0.00	-4704.00	0.00	0.00	0.00	40°26'5.6040"N	104°28'2.7120"W	0.00	0.00	0.00	0.00	
81.00	0.380	84.060	81.00	-4623.00	0.03	0.03	0.27	40°26'5.6042"N	104°28'2.7085"W	0.47	-101.22	0.47	0.00	
175.00	0.460	36.970	175.00	-4529.00	0.38	0.36	0.80	40°26'5.6075"N	104°28'2.7015"W	0.37	119.63	0.09	-50.10	
266.00	0.400	68.120	265.99	-4438.01	0.80	0.77	1.32	40°26'5.6115"N	104°28'2.6948"W	0.26	-154.36	-0.07	34.23	
361.00	0.180	19.700	360.99	-4343.01	1.07	1.04	1.68	40°26'5.6140"N	104°28'2.6902"W	0.33	59.11	-0.23	-50.97	
456.00	0.360	53.400	455.99	-4248.01	1.39	1.35	1.97	40°26'5.6172"N	104°28'2.6864"W	0.25	-51.38	0.19	35.47	
550.00	0.500	36.250	549.99	-4154.01	1.90	1.86	2.45	40°26'5.6221"N	104°28'2.6801"W	0.20	-165.40	0.15	-18.24	
647.00	0.180	6.420	646.99	-4057.01	2.40	2.35	2.71	40°26'5.6269"N	104°28'2.6766"W	0.37	32.52	-0.33	-30.75	
740.00	0.810	32.080	739.98	-3964.02	3.11	3.06	3.08	40°26'5.6338"N	104°28'2.6717"W	0.70	-34.67	0.68	27.59	
834.00	0.930	27.110	833.97	-3870.03	4.36	4.30	3.78	40°26'5.6460"N	104°28'2.6625"W	0.15	-149.08	0.13	-5.29	
929.00	0.800	21.350	928.96	-3775.04	5.68	5.60	4.37	40°26'5.6588"N	104°28'2.6546"W	0.16	-170.68	-0.14	-6.06	
1026.00	0.260	0.790	1025.96	-3678.04	6.53	6.45	4.62	40°26'5.6672"N	104°28'2.6513"W	0.58	55.51	-0.56	-21.20	
1119.00	0.830	41.340	1118.95	-3585.05	7.26	7.17	5.07	40°26'5.6743"N	104°28'2.6454"W	0.70	-175.44	0.61	43.60	
1213.00	0.230	29.230	1212.95	-3491.05	7.94	7.85	5.61	40°26'5.6809"N	104°28'2.6383"W	0.65	128.58	-0.64	-12.88	
1308.00	0.180	70.440	1307.95	-3396.05	8.16	8.06	5.85	40°26'5.6830"N	104°28'2.6352"W	0.16	-112.09	-0.05	43.38	
1403.00	0.310	350.900	1402.95	-3301.05	8.47	8.37	5.95	40°26'5.6860"N	104°28'2.6339"W	0.35	99.66	0.14	-83.73	
1497.00	0.480	51.020	1496.95	-3207.05	8.97	8.86	6.21	40°26'5.6909"N	104°28'2.6304"W	0.45	157.57	0.18	63.96	
1592.00	0.200	94.900	1591.94	-3112.06	9.22	9.10	6.69	40°26'5.6931"N	104°28'2.6242"W	0.38	-143.94	-0.29	46.19	
1687.00	0.210	345.060	1686.94	-3017.06	9.37	9.25	6.81	40°26'5.6947"N	104°28'2.6226"W	0.35	60.49	0.01	-115.62	
1782.00	0.410	19.080	1781.94	-2922.06	9.86	9.74	6.87	40°26'5.6995"N	104°28'2.6217"W	0.28	-54.61	0.21	35.81	
1876.00	0.910	346.020	1875.94	-2828.06	10.90	10.79	6.80	40°26'5.7098"N	104°28'2.6224"W	0.65	11.17	0.53	-35.17	
1935.00	1.420	350.060	1934.92	-2769.08	12.08	11.96	6.56	40°26'5.7214"N	104°28'2.6253"W	0.88	-149.48	0.86	6.85	TIE ON TO 3RD PARTY SURVEYS
2002.00	0.830	320.260	2001.91	-2702.09	13.26	13.15	6.11	40°26'5.7332"N	104°28'2.6310"W	1.21	142.84	-0.88	-44.48	FIRST BHGE MWD SURVEY
2097.00	0.640	51.540	2096.91	-2607.09	14.12	14.01	6.08	40°26'5.7417"N	104°28'2.6312"W	1.12	-18.72	-0.20	96.08	
2192.00	3.400	36.280	2191.84	-2512.16	16.75	16.61	8.17	40°26'5.7672"N	104°28'2.6039"W	2.93	-3.76	2.91	-16.06	
2286.00	5.720	34.750	2285.53	-2418.47	22.93	22.71	12.49	40°26'5.8269"N	104°28'2.5471"W	2.47	14.23	2.47	-1.63	
2381.00	7.430	38.080	2379.91	-2324.09	31.77	31.43	18.97	40°26'5.9124"N	104°28'2.4619"W	1.84	11.72	1.80	3.51	
2476.00	9.460	40.630	2473.87	-2230.13	42.68	42.20	27.85	40°26'6.0177"N	104°28'2.3455"W	2.17	65.18	2.14	2.68	
2570.00	9.980	46.490	2566.52	-2137.48	54.35	53.67	38.79	40°26'6.1298"N	104°28'2.2024"W	1.19	29.29	0.55	6.23	
2665.00	10.080	46.810	2660.07	-2043.93	65.92	65.02	50.82	40°26'6.2406"N	104°28'2.0451"W	0.12	-50.45	0.11	0.34	
2760.00	10.360	44.960	2753.57	-1950.43	77.86	76.76	62.91	40°26'6.3552"N	104°28'1.8869"W	0.45	125.29	0.29	-1.95	
2854.00	10.150	46.680	2846.06	-1857.94	89.74	88.42	74.91	40°26'6.4691"N	104°28'1.7300"W	0.39	142.93	-0.22	1.83	
2949.00	9.470	49.870	2939.68	-1764.32	100.73	99.20	86.98	40°26'6.5742"N	104°28'1.5723"W	0.92	-101.59	-0.72	3.36	
3043.00	9.360	45.910	3032.41	-1671.59	111.23	109.50	98.38	40°26'6.6747"N	104°28'1.4233"W	0.70	154.15	-0.12	-4.21	
3138.00	8.550	48.580	3126.25	-1577.75	121.47	119.55	109.23	40°26'6.7727"N	104°28'1.2816"W	0.96	87.31	-0.85	2.81	
3233.00	8.580	51.400	3220.19	-1483.81	130.75	128.65	120.06	40°26'6.8613"N	104°28'1.1401"W	0.44	-165.76	0.03	2.97	
3327.00	8.000	50.340	3313.21	-1390.79	139.49	137.19	130.58	40°26'6.9446"N	104°28'1.0028"W	0.64	-14.92	-0.62	-1.13	
3422.00	8.430	49.560	3407.23	-1296.77	148.41	145.93	140.96	40°26'7.0297"N	104°28'0.8672"W	0.47	-68.97	0.45	-0.82	
3516.00	8.540	47.710	3500.21	-1203.79	157.76	155.10	151.37	40°26'7.1191"N	104°28'0.7312"W	0.31	-79.61	0.12	-1.97	
3611.00	8.600	45.710	3594.15	-1109.85	167.64	164.80	161.67	40°26'7.2138"N	104°28'0.5965"W	0.32	-35.70	0.06	-2.11	
3706.00	8.680	45.330	3688.07	-1015.93	177.82	174.80	171.86	40°26'7.3114"N	104°28'0.4634"W	0.10	14.11	0.08	-0.40	
3801.00	9.740	46.900	3781.84	-922.16	188.55	185.33	182.82	40°26'7.4142"N	104°28'0.3200"W	1.15	-54.07	1.12	1.65	
3895.00	9.840	46.100	3874.47	-829.53	199.75	196.34	194.42	40°26'7.5216"N	104°28'0.1684"W	0.18	6.21	0.11	-0.85	
3990.00	10.370	46.420	3968.00	-736.00	211.49	207.86	206.46	40°26'7.6341"N	104°28'0.0109"W	0.56	-164.24	0.56	0.34	
4085.00	10.170	46.100	4061.48	-642.52	223.41	219.57	218.70	40°26'7.7484"N	104°27'59.8509"W	0.22	71.14	-0.21	-0.34	

REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Well	WELLS RANCH STATE AA32-770
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API/Legal	
Facility	SEC.05-T05N-R63W	Wellbore	WELLS RANCH STATE AA32-770 AWB
Slot	SLOT#18 WELLS RANCH STATE AA32-770 (300'FNL & 775'FWL,SEC.05)		

WELLPATH DATA (180 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	
4179.00	10.210	46.750	4153.99	-550.01	235.09	231.03	230.74	40°26'7.8602"N	104°27'59.6934"W	0.13	-153.88		0.04	0.69	
4274.00	9.950	46.010	4247.53	-456.47	246.77	242.50	242.78	40°26'7.9722"N	104°27'59.5360"W	0.31	138.93		-0.27	-0.78	
4368.00	9.810	46.730	4340.13	-363.87	258.10	253.63	254.46	40°26'8.0808"N	104°27'59.3834"W	0.20	-38.27		-0.15	0.77	
4463.00	9.860	46.500	4433.74	-270.26	269.46	264.78	266.25	40°26'8.1896"N	104°27'59.2292"W	0.07	-178.59		0.05	-0.24	
4558.00	9.590	46.460	4527.37	-176.63	280.71	275.83	277.88	40°26'8.2974"N	104°27'59.0770"W	0.28	77.69		-0.28	-0.04	
4652.00	9.790	51.030	4620.03	-83.97	291.34	286.25	289.77	40°26'8.3990"N	104°27'58.9217"W	0.85	-124.30		0.21	4.86	
4747.00	9.570	49.040	4713.68	9.68	301.81	296.50	302.02	40°26'8.4989"N	104°27'58.7619"W	0.42	122.08		-0.23	-2.09	
4842.00	9.380	50.950	4807.38	103.38	312.08	306.56	313.99	40°26'8.5969"N	104°27'58.6055"W	0.39	-53.65		-0.20	2.01	
4936.00	9.590	49.270	4900.10	196.10	322.22	316.49	325.88	40°26'8.6937"N	104°27'58.4503"W	0.37	-20.63		0.22	-1.79	
5031.00	9.630	49.180	4993.77	289.77	332.79	326.85	337.89	40°26'8.7947"N	104°27'58.2935"W	0.04	128.53		0.04	-0.09	
5126.00	9.500	50.180	5087.45	383.45	343.22	337.06	349.92	40°26'8.8942"N	104°27'58.1363"W	0.22	12.49		-0.14	1.05	
5220.00	9.800	50.570	5180.12	476.12	353.48	347.11	362.06	40°26'8.9921"N	104°27'57.9778"W	0.33	-168.11		0.32	0.41	
5315.00	9.280	49.890	5273.80	569.80	363.76	357.18	374.16	40°26'9.0902"N	104°27'57.8198"W	0.56	-175.50		-0.55	-0.72	
5410.00	9.060	49.780	5367.59	663.59	373.73	366.95	385.73	40°26'9.1854"N	104°27'57.6687"W	0.23	124.79		-0.23	-0.12	
5504.00	8.990	50.430	5460.42	756.42	383.39	376.40	397.04	40°26'9.2775"N	104°27'57.5210"W	0.13	95.60		-0.07	0.69	
5599.00	8.970	51.940	5554.26	850.26	392.89	385.70	408.60	40°26'9.3680"N	104°27'57.3702"W	0.25	61.41		-0.02	1.59	
5694.00	9.050	52.860	5648.09	944.09	402.17	394.78	420.38	40°26'9.4563"N	104°27'57.2164"W	0.17	-100.92		0.08	0.97	
5788.00	8.940	48.230	5740.93	1036.93	411.70	404.10	431.72	40°26'9.5472"N	104°27'57.0684"W	0.78	122.34		-0.12	-4.93	
5883.00	8.830	49.380	5834.79	1130.79	421.56	413.77	442.76	40°26'9.6414"N	104°27'56.9241"W	0.22	159.05		-0.12	1.21	
5978.00	8.190	51.110	5928.75	1224.75	430.74	422.76	453.57	40°26'9.7291"N	104°27'56.7831"W	0.73	-122.37		-0.67	1.82	
6073.00	7.980	48.640	6022.80	1318.80	439.53	431.37	463.78	40°26'9.8129"N	104°27'56.6497"W	0.43	-60.30		-0.22	-2.60	
6167.00	14.110	17.480	6115.09	1411.09	454.94	446.64	472.14	40°26'9.9628"N	104°27'56.5394"W	8.88	19.96	6.52		-33.15	
6262.00	22.260	25.110	6205.28	1501.28	482.52	474.03	483.27	40°26'10.2321"N	104°27'56.3913"W	8.92	13.36	8.58		8.03	
6356.00	29.040	28.400	6289.98	1585.98	519.08	510.26	501.70	40°26'10.5881"N	104°27'56.1475"W	7.37	-40.14	7.21		3.50	
6451.00	36.270	18.680	6369.96	1665.96	566.42	557.26	521.71	40°26'11.0501"N	104°27'55.8817"W	9.38	-46.49	7.61		-10.23	
6546.00	46.660	4.970	6441.20	1737.20	627.96	618.59	533.76	40°26'11.6547"N	104°27'55.7166"W	14.47	10.57	10.94		-14.43	
6641.00	49.220	5.600	6504.84	1800.84	698.29	688.81	540.26	40°26'12.3479"N	104°27'55.6219"W	2.74	-24.59	2.69		0.66	
6735.00	63.140	358.640	6557.07	1853.07	776.11	766.60	542.75	40°26'13.1162"N	104°27'55.5779"W	16.02	0.84	14.81		-7.40	
6830.00	73.710	358.800	6591.95	1887.95	864.26	854.80	540.79	40°26'13.9879"N	104°27'55.5900"W	11.13	-25.15	11.13		0.17	
6925.00	79.000	356.280	6614.36	1910.36	956.36	946.99	536.80	40°26'14.8993"N	104°27'55.6276"W	6.14	0.36	5.57		-2.65	
7019.00	85.380	356.320	6627.13	1923.13	1049.13	1039.87	530.80	40°26'15.8178"N	104°27'55.6913"W	6.79	2.81	6.79		0.04	
7114.00	89.660	356.530	6631.24	1927.24	1143.71	1134.58	524.88	40°26'16.7542"N	104°27'55.7535"W	4.51	-38.16	4.51		0.22	
7209.00	90.220	356.090	6631.34	1927.34	1238.39	1229.38	518.77	40°26'17.6916"N	104°27'55.8183"W	0.75	-92.79	0.59		-0.46	
7304.00	90.180	355.270	6631.01	1927.01	1332.98	1324.11	511.61	40°26'18.6285"N	104°27'55.8965"W	0.86	90.91	-0.04		-0.86	
7398.00	90.150	357.160	6630.74	1926.74	1426.64	1417.90	505.41	40°26'19.5559"N	104°27'55.9626"W	2.01	97.08	-0.03		2.01	
7493.00	89.970	358.610	6630.64	1926.64	1521.50	1512.83	501.90	40°26'20.4943"N	104°27'55.9936"W	1.54	85.98	-0.19		1.53	
7588.00	90.060	359.890	6630.61	1926.61	1616.45	1607.82	500.66	40°26'21.4331"N	104°27'55.9954"W	1.35	175.24	0.09		1.35	
7682.00	89.940	359.900	6630.61	1926.61	1710.43	1701.82	500.48	40°26'22.3619"N	104°27'55.9834"W	0.13	70.42	-0.13		0.01	
7777.00	90.310	0.940	6630.40	1926.40	1805.43	1796.82	501.18	40°26'23.3005"N	104°27'55.9601"W	1.16	-102.15	0.39		1.09	
7872.00	90.030	359.640	6630.12	1926.12	1900.42	1891.81	501.66	40°26'24.2391"N	104°27'55.9395"W	1.40	90.00	-0.29		-1.37	
7966.00	90.030	0.460	6630.07	1926.07	1994.40	1985.81	501.74	40°26'25.1678"N	104°27'55.9243"W	0.87	-93.90	0.00		0.87	
8061.00	90.000	0.020	6630.05	1926.05	2089.39	2080.81	502.14	40°26'26.1065"N	104°27'55.9048"W	0.46	57.09	-0.03		-0.46	
8155.00	90.220	0.360	6629.87	1925.87	2183.38	2174.81	502.45	40°26'27.0352"N	104°27'55.8866"W	0.43	-99.62	0.23		0.36	
8250.00	90.120	359.770	6629.59	1925.59	2278.37	2269.81	502.56	40°26'27.9739"N	104°27'55.8709"W	0.63	-87.40	-0.11		-0.62	
8345.00	90.180	358.450	6629.34	1925.34	2373.31	2364.80	501.08	40°26'28.9126"N	104°27'55.8756"W	1.39	-40.24	0.06		-1.39	

REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Well	WELLS RANCH STATE AA32-770
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API/Legal	
Facility	SEC.05-T05N-R63W	Wellbore	WELLS RANCH STATE AA32-770 AWB
Slot	SLOT#18 WELLS RANCH STATE AA32-770 (300'FNL & 775'FWL,SEC.05)		

WELLPATH DATA (180 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
8439.00	90.310	358.340	6628.93	1924.93	2467.21	2458.76	498.45	40°26'29.8413"N	104°27'55.8955"W	0.18	127.87	0.14	-0.12	
8534.00	90.030	358.700	6628.65	1924.65	2562.12	2553.73	496.00	40°26'30.7800"N	104°27'55.9129"W	0.48	79.69	-0.29	0.38	
8629.00	90.090	359.030	6628.55	1924.55	2657.06	2648.71	494.12	40°26'31.7187"N	104°27'55.9229"W	0.35	-60.72	0.06	0.35	
8723.00	90.460	358.370	6628.10	1924.10	2750.98	2742.68	491.98	40°26'32.6475"N	104°27'55.9363"W	0.80	-131.99	0.39	-0.70	
8818.00	90.280	358.170	6627.49	1923.49	2845.87	2837.64	489.12	40°26'33.5861"N	104°27'55.9591"W	0.28	54.46	-0.19	-0.21	
8912.00	90.680	358.730	6626.70	1922.70	2939.77	2931.60	486.57	40°26'34.5148"N	104°27'55.9778"W	0.73	-145.01	0.43	0.60	
9007.00	90.180	358.380	6625.99	1921.99	3034.68	3026.56	484.18	40°26'35.4534"N	104°27'55.9944"W	0.64	0.00	-0.53	-0.37	
9102.00	90.280	358.380	6625.61	1921.61	3129.58	3121.53	481.49	40°26'36.3920"N	104°27'56.0148"W	0.11	-90.00	0.11	0.00	
9196.00	90.280	357.830	6625.15	1921.15	3223.45	3215.47	478.38	40°26'37.3207"N	104°27'56.0409"W	0.59	101.04	0.00	-0.59	
9291.00	90.120	358.650	6624.82	1920.82	3318.34	3310.43	475.47	40°26'38.2592"N	104°27'56.0643"W	0.88	-93.65	-0.17	0.86	
9386.00	90.000	356.770	6624.72	1920.72	3413.18	3405.35	471.67	40°26'39.1976"N	104°27'56.0990"W	1.98	81.82	-0.13	-1.98	
9480.00	90.250	358.510	6624.51	1920.51	3507.01	3499.26	467.80	40°26'40.1260"N	104°27'56.1349"W	1.87	-90.00	0.27	1.85	
9575.00	90.250	358.450	6624.10	1920.10	3601.92	3594.23	465.28	40°26'41.0646"N	104°27'56.1532"W	0.06	-138.81	0.00	-0.06	
9670.00	90.090	358.310	6623.81	1919.81	3696.82	3689.19	462.59	40°26'42.0032"N	104°27'56.1736"W	0.22	90.00	-0.17	-0.15	
9764.00	90.090	358.540	6623.67	1919.67	3790.72	3783.15	460.01	40°26'42.9320"N	104°27'56.1928"W	0.24	-171.94	0.00	0.24	
9859.00	87.410	358.160	6625.74	1921.74	3885.59	3878.08	457.28	40°26'43.8703"N	104°27'56.2139"W	2.85	-4.42	-2.82	-0.40	
9954.00	89.480	358.000	6628.32	1924.32	3980.42	3972.99	454.09	40°26'44.8084"N	104°27'56.2407"W	2.19	40.29	2.18	-0.17	
10048.00	89.940	358.390	6628.79	1924.79	4074.30	4066.94	451.13	40°26'45.7371"N	104°27'56.2648"W	0.64	81.61	0.49	0.41	
10143.00	90.120	359.610	6628.74	1924.74	4169.24	4161.93	449.48	40°26'46.6758"N	104°27'56.2719"W	1.30	-160.29	0.19	1.28	
10238.00	89.450	359.370	6629.10	1925.10	4264.21	4256.92	448.63	40°26'47.6145"N	104°27'56.2685"W	0.75	-19.89	-0.71	-0.25	
10332.00	90.860	358.860	6628.85	1924.85	4358.15	4350.91	447.18	40°26'48.5433"N	104°27'56.2731"W	1.60	132.61	1.50	-0.54	
10427.00	90.400	359.360	6627.80	1923.80	4453.10	4445.89	445.70	40°26'49.4820"N	104°27'56.2779"W	0.72	167.47	-0.48	0.53	
10521.00	90.220	359.400	6627.29	1923.29	4547.06	4539.88	444.69	40°26'50.4109"N	104°27'56.2769"W	0.20	-103.64	-0.19	0.04	
10616.00	89.970	358.370	6627.13	1923.13	4641.99	4634.86	442.84	40°26'51.3496"N	104°27'56.2865"W	1.12	94.81	-0.26	-1.08	
10711.00	89.880	359.440	6627.26	1923.26	4736.92	4729.84	441.02	40°26'52.2883"N	104°27'56.2956"W	1.13	-74.20	-0.09	1.13	
10805.00	90.180	358.380	6627.21	1923.21	4830.86	4823.82	439.23	40°26'53.2171"N	104°27'56.3045"W	1.17	77.78	0.32	-1.13	
10900.00	90.520	359.950	6626.63	1922.63	4925.80	4918.81	437.85	40°26'54.1558"N	104°27'56.3081"W	1.69	-107.00	0.36	1.65	
10995.00	90.000	358.250	6626.20	1922.20	5020.75	5013.79	436.36	40°26'55.0945"N	104°27'56.3131"W	1.87	86.99	-0.55	-1.79	
11089.00	90.060	359.390	6626.15	1922.15	5114.67	5107.77	434.42	40°26'56.0233"N	104°27'56.3239"W	1.21	-50.94	0.06	1.21	
11184.00	90.620	358.700	6625.59	1921.59	5209.62	5202.76	432.84	40°26'56.9620"N	104°27'56.3301"W	0.94	70.72	0.59	-0.73	
11278.00	91.050	359.930	6624.22	1920.22	5303.56	5296.74	431.71	40°26'57.8908"N	104°27'56.3305"W	1.39	-108.60	0.46	1.31	
11373.00	90.710	358.920	6622.76	1918.76	5398.51	5391.72	430.76	40°26'58.8294"N	104°27'56.3285"W	1.12	131.08	-0.36	-1.06	
11468.00	90.370	359.310	6621.86	1917.86	5493.46	5486.70	429.29	40°26'59.7681"N	104°27'56.3331"W	0.54	-52.37	-0.36	0.41	
11562.00	90.740	358.830	6620.95	1916.95	5587.40	5580.69	427.77	40°27'0.6969"N	104°27'56.3387"W	0.64	-53.38	0.39	-0.51	
11657.00	91.260	358.130	6619.29	1915.29	5682.29	5675.64	425.25	40°27'1.6354"N	104°27'56.3569"W	0.92	83.59	0.55	-0.74	
11751.00	91.390	359.290	6617.12	1913.12	5776.19	5769.59	423.13	40°27'2.5639"N	104°27'56.3701"W	1.24	-135.50	0.14	1.23	
11846.00	90.250	358.170	6615.76	1911.76	5871.10	5864.55	421.03	40°27'3.5025"N	104°27'56.3830"W	1.68	143.11	-1.20	-1.18	
11941.00	87.600	0.160	6617.54	1913.54	5966.02	5959.51	419.64	40°27'4.4409"N	104°27'56.3866"W	3.49	-37.06	-2.79	2.09	
12035.00	90.370	358.070	6619.21	1915.21	6059.94	6053.47	418.19	40°27'5.3695"N	104°27'56.3912"W	3.69	147.37	2.95	-2.22	
12130.00	88.980	358.960	6619.75	1915.75	6154.84	6148.43	415.73	40°27'6.3081"N	104°27'56.4087"W	1.74	-111.09	-1.46	0.94	
12225.00	88.460	357.610	6621.87	1917.87	6249.71	6243.37	412.89	40°27'7.2464"N	104°27'56.4311"W	1.52	-70.74	-0.55	-1.42	
12319.00	88.890	356.380	6624.04	1920.04	6343.45	6337.21	407.96	40°27'8.1743"N	104°27'56.4807"W	1.39	73.45	0.46	-1.31	
12414.00	89.110	357.120	6625.70	1921.70	6438.17	6432.04	402.58	40°27'9.1119"N	104°27'56.5361"W	0.81	45.66	0.23	0.78	
12508.00	89.540	357.560	6626.81	1922.81	6531.97	6525.93	398.21	40°27'10.0401"N	104°27'56.5783"W	0.65	-151.36	0.46	0.47	
12603.00	88.460	356.970	6628.46	1924.46	6626.75	6620.81	393.68	40°27'10.9781"N	104°27'56.6226"W	1.30	12.91	-1.14	-0.62	

REFERENCE WELLPATH IDENTIFICATION				
Operator	NOBLE ENERGY, INC		Well	WELLS RANCH STATE AA32-770
Field	WELD COUNTY (NOBLE NAD 83 GRID)		API/Legal	
Facility	SEC.05-T05N-R63W		Wellbore	WELLS RANCH STATE AA32-770 AWB
Slot	SLOT#18 WELLS RANCH STATE AA32-770 (300'FNL & 775'FWL,SEC.05)			

WELLPATH DATA (180 stations) † = interpolated, ‡ = extrapolated station														
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
12698.00	90.990	357.550	6628.92	1924.92	6721.54	6715.69	389.14	40°27'11.9162"N	104°27'56.6670"W	2.73	-128.78	2.66	0.61	
12792.00	90.090	356.430	6628.03	1924.03	6815.30	6809.55	384.20	40°27'12.8442"N	104°27'56.7167"W	1.53	105.26	-0.96	-1.19	
12887.00	89.880	357.200	6628.06	1924.06	6910.04	6904.41	378.93	40°27'13.7820"N	104°27'56.7707"W	0.84	57.89	-0.22	0.81	
12982.00	90.520	358.220	6627.73	1923.73	7004.88	6999.33	375.13	40°27'14.7204"N	104°27'56.8055"W	1.27	-107.26	0.67	1.07	
13076.00	90.060	356.740	6627.25	1923.25	7098.70	7093.23	371.00	40°27'15.6487"N	104°27'56.8448"W	1.65	72.26	-0.49	-1.57	
13171.00	90.220	357.240	6627.02	1923.02	7193.46	7188.10	366.01	40°27'16.5867"N	104°27'56.8950"W	0.55	-171.63	0.17	0.53	
13265.00	89.540	357.140	6627.22	1923.22	7287.25	7281.99	361.40	40°27'17.5149"N	104°27'56.9404"W	0.73	61.32	-0.72	-0.11	
13360.00	90.180	358.310	6627.45	1923.45	7382.09	7376.91	357.63	40°27'18.4532"N	104°27'56.9749"W	1.40	-63.12	0.67	1.23	
13455.00	90.550	357.580	6626.84	1922.84	7476.96	7471.85	354.22	40°27'19.3917"N	104°27'57.0046"W	0.86	-93.43	0.39	-0.77	
13549.00	90.520	357.080	6625.97	1921.97	7570.76	7565.74	349.84	40°27'20.3199"N	104°27'57.0471"W	0.53	78.23	-0.03	-0.53	
13644.00	90.620	357.560	6625.02	1921.02	7665.55	7660.63	345.40	40°27'21.2580"N	104°27'57.0902"W	0.52	-172.88	0.11	0.51	
13739.00	90.220	357.510	6624.32	1920.32	7760.38	7755.54	341.32	40°27'22.1963"N	104°27'57.1287"W	0.42	114.19	-0.42	-0.05	
13834.00	89.910	358.200	6624.22	1920.22	7855.23	7850.47	337.76	40°27'23.1347"N	104°27'57.1604"W	0.80	-75.96	-0.33	0.73	
13928.00	89.970	357.960	6624.32	1920.32	7949.11	7944.42	334.61	40°27'24.0633"N	104°27'57.1870"W	0.26	-64.61	0.06	-0.26	
14023.00	90.250	357.370	6624.13	1920.13	8043.94	8039.34	330.74	40°27'25.0017"N	104°27'57.2227"W	0.69	102.06	0.29	-0.62	
14117.00	89.970	358.680	6623.95	1919.95	8137.81	8133.28	327.50	40°27'25.9303"N	104°27'57.2505"W	1.43	-84.84	-0.30	1.39	
14212.00	90.090	357.350	6623.90	1919.90	8232.68	8228.22	324.21	40°27'26.8688"N	104°27'57.2787"W	1.41	14.74	0.13	-1.40	
14307.00	90.280	357.400	6623.60	1919.60	8327.49	8323.12	319.86	40°27'27.8070"N	104°27'57.3207"W	0.21	90.00	0.20	0.05	
14402.00	90.280	357.770	6623.13	1919.13	8422.32	8418.04	315.86	40°27'28.7453"N	104°27'57.3581"W	0.39	-105.36	0.00	0.39	
14496.00	90.030	356.860	6622.88	1918.88	8516.12	8511.93	311.45	40°27'29.6735"N	104°27'57.4009"W	1.00	90.00	-0.27	-0.97	
14591.00	90.030	358.070	6622.83	1918.83	8610.93	8606.84	307.25	40°27'30.6118"N	104°27'57.4410"W	1.27	-90.00	0.00	1.27	
14686.00	90.030	357.580	6622.78	1918.78	8705.79	8701.77	303.65	40°27'31.5502"N	104°27'57.4733"W	0.52	1.55	0.00	-0.52	
14780.00	90.400	357.590	6622.43	1918.43	8799.62	8795.69	299.69	40°27'32.4786"N	104°27'57.5104"W	0.39	-176.63	0.39	0.01	
14875.00	90.060	357.570	6622.04	1918.04	8894.45	8890.60	295.68	40°27'33.4169"N	104°27'57.5479"W	0.36	99.46	-0.36	-0.02	
14969.00	90.030	357.750	6621.97	1917.97	8988.28	8984.52	291.84	40°27'34.3454"N	104°27'57.5834"W	0.19	-142.70	-0.03	0.19	
15064.00	89.820	357.590	6622.09	1918.09	9083.12	9079.44	287.97	40°27'35.2837"N	104°27'57.6190"W	0.28	121.69	-0.22	-0.17	
15159.00	89.320	358.400	6622.81	1918.81	9177.99	9174.38	284.65	40°27'36.2222"N	104°27'57.6477"W	1.00	16.70	-0.53	0.85	
15253.00	90.220	358.670	6623.18	1919.18	9271.90	9268.35	282.25	40°27'37.1509"N	104°27'57.6646"W	1.00	-88.48	0.96	0.29	
15348.00	90.250	357.540	6622.80	1918.80	9366.77	9363.29	279.11	40°27'38.0894"N	104°27'57.6909"W	1.19	34.04	0.03	-1.19	
15443.00	90.990	358.040	6621.77	1917.77	9461.61	9458.22	275.44	40°27'39.0278"N	104°27'57.7240"W	0.94	-104.50	0.78	0.53	
15537.00	90.620	356.610	6620.45	1916.45	9555.41	9552.10	271.06	40°27'39.9559"N	104°27'57.7666"W	1.57	109.81	-0.39	-1.52	
15632.00	90.220	357.720	6619.75	1915.75	9650.19	9646.98	266.36	40°27'40.8940"N	104°27'57.8131"W	1.24	-72.35	-0.42	1.17	
15727.00	90.430	357.060	6619.21	1915.21	9745.00	9741.88	262.03	40°27'41.8322"N	104°27'57.8547"W	0.73	133.15	0.22	-0.69	
15822.00	90.280	357.220	6618.62	1914.62	9839.78	9836.76	257.29	40°27'42.7702"N	104°27'57.9017"W	0.23	79.16	-0.16	0.17	
16011.00	90.370	357.690	6617.55	1913.55	10028.41	10025.57	248.90	40°27'44.6368"N	104°27'57.9818"W	0.25	90.00	0.05	0.25	
16106.00	90.370	358.250	6616.94	1912.94	10123.27	10120.51	245.54	40°27'45.5752"N	104°27'58.0110"W	0.59	-75.10	0.00	0.59	
16201.00	90.620	357.310	6616.12	1912.12	10218.12	10215.43	241.86	40°27'46.5136"N	104°27'58.0443"W	1.02	-153.44	0.26	-0.99	
16296.00	90.120	357.060	6615.50	1911.50	10312.90	10310.32	237.19	40°27'47.4516"N	104°27'58.0903"W	0.59	88.48	-0.53	-0.26	
16390.00	90.180	359.320	6615.26	1911.26	10406.78	10404.26	234.22	40°27'48.3802"N	104°27'58.1146"W	2.41	-80.17	0.06	2.40	
16485.00	90.490	357.530	6614.70	1910.70	10501.68	10499.22	231.61	40°27'49.3188"N	104°27'58.1340"W	1.91	-119.74	0.33	-1.88	
16580.00	90.250	357.110	6614.09	1910.09	10596.48	10594.12	227.17	40°27'50.2570"N	104°27'58.1772"W	0.51	85.81	-0.25	-0.44	
16675.00	90.310	357.930	6613.62	1909.62	10691.30	10689.02	223.06	40°27'51.1952"N	104°27'58.2161"W	0.87	173.99	0.06	0.86	
16769.00	90.120	357.950	6613.27	1909.27	10785.16	10782.96	219.68	40°27'52.1238"N	104°27'58.2456"W	0.20	98.39	-0.20	0.02	
16846.00	90.030	358.560	6613.17	1909.17	10862.07	10859.93	217.33	40°27'52.8845"N	104°27'58.2643"W	0.80	0.00	-0.12	0.79	LAST BHGE MWD SURVEY
16870.00	† 90.030	358.560	6613.16	1909.16	10886.05	10883.92	216.73	40°27'53.1217"N	104°27'58.2685"W	0.00		0.00	0.00	EXTRAPOLATED TO TD

REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY, INC	Well	WELLS RANCH STATE AA32-770
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API/Legal	
Facility	SEC.05-T05N-R63W	Wellbore	WELLS RANCH STATE AA32-770 AWB
Slot	SLOT#18 WELLS RANCH STATE AA32-770 (300'FNL & 775'FWL,SEC.05)		

TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
WELLS RANCH STATE AA32-789 SECTION 29	2.00	-1.33	-114.13	3287315.60	1402942.95	40°26'5.6040"N	104°28'4.1880"W	polygon
	2D Polygon: dimensions not calculated							
WELLS RANCH STATE AA32-789 SECTION 30	2.00	-1.33	-114.13	3287315.60	1402942.95	40°26'5.6040"N	104°28'4.1880"W	polygon
	2D Polygon: dimensions not calculated							
WELLS RANCH STATE AA32-789 SECTION 31	2.00	-1.33	-114.13	3287315.60	1402942.95	40°26'5.6040"N	104°28'4.1880"W	polygon
	2D Polygon: dimensions not calculated							
WELLS RANCH STATE AA32-789 SECTION 32	2.00	-1.33	-114.13	3287315.60	1402942.95	40°26'5.6040"N	104°28'4.1880"W	polygon
	2D Polygon: dimensions not calculated							
WELLS RANCH STATE AA32-770 BHL REV-1 (0'FNL & 1096'FWL,SEC.29)	6617.00	10886.71	193.16	3287622.87	1413830.55	40°27'53.1520"N	104°27'58.5730"W	point
WELLS RANCH STATE AA32-770 LP TPZ REV-1 (400'FSL & 1310'FWL,SEC.32)	6630.00	1076.14	522.23	3287951.93	1404020.37	40°26'16.1771"N	104°27'55.7966"W	point

WELLPATH COMPOSITION - Ref Wellbore: WELLS RANCH STATE AA32-770 AWB Ref Wellpath: WELLS RANCH STATE AA32-770 AWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore	Survey Date
0.00	1935.00	Gyrodata 2015 - GC+DROP+COND	3RD PARTY Gyrodata Surface Surveys <81' - 1935>	WELLS RANCH STATE AA32-770 AWB	11/17/2019
1935.00	16870.00	OWSG MWD rev2 + IFR1 + Multi-Station Correction	BH/ATC 8.5" Hole OWSG MWD Rev-2+IFR+MSA <2002'-16846>	WELLS RANCH STATE AA32-770 AWB	11/17/2019

REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Well	WELLS RANCH STATE AA32-770
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API/Legal	
Facility	SEC.05-T05N-R63W	Wellbore	WELLS RANCH STATE AA32-770 AWB
Slot	SLOT#18 WELLS RANCH STATE AA32-770 (300'FNL & 775'FWL,SEC.05)		

WELLPATH COMMENTS				
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
1935.00	1.420	350.060	1934.92	TIE ON TO 3RD PARTY SURVEYS
2002.00	0.830	320.260	2001.91	FIRST BHGE MWD SURVEY
16846.00	90.030	358.560	6613.17	LAST BHGE MWD SURVEY
16870.00	90.030	358.560	6613.16	EXTRAPOLATED TO TD