

NOBLE ENERGY, INC

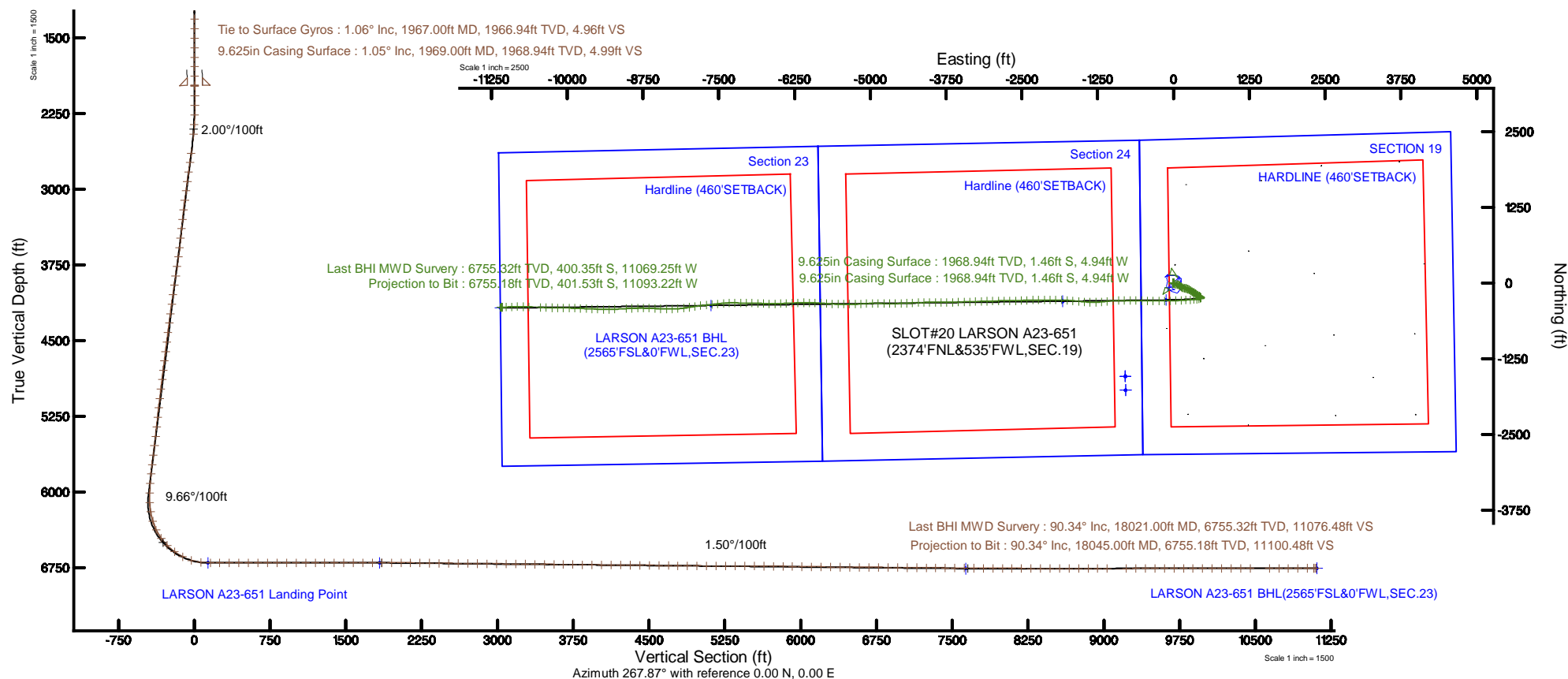
Location: COLORADO	Slot: SLOT#20 LARSON A23-651 (2374\FNL&535\FWL,SEC.19)	
Field: WELD COUNTY (NOBLE NAD 83 GRID)	Well: LARSON A23-651	
Facility: SEC.19-T06N-R63W	Wellbore: LARSON A23-651 PWB	

Plot reference wellpath is LARSON A23-651 (REV-A.0) PWP	Grid System: NAD83 / Lambert Colorado SP, Northern Zone (501), US feet
True vertical depths are referenced to H&P 517 (30'KB) (RKB)	North Reference: Grid north
Measured depths are referenced to H&P 517 (30'KB) (RKB)	Scale: True distance
H&P 517 (30'KB) (RKB) to Mean Sea Level: 4679 feet	Depths are in feet
Mean Sea Level to Ground level (At Slot: SLOT#20 LARSON A23-651 (2374'FNL&535'FWL,SEC.19)): 0 feet	Created by: amurtime on 2018-06-15
Coordinates are in feet referenced to Slot	Database: WA DENVER

Survey Program					
Start MD (ft)	End MD (ft)	Tool	Model	Log Name/Comment	Wellbore
30.00	18054.13	OWSG MWD rev2	OWSG MWD rev2 + IFR1 + Multi-Station Correction		LARSON A23-651 PWB

Comments	
SURFACE LOCATION: SWNW	
40.47254N	
104.48685W	
API: 05-123-45512	

Location Information						
Facility Name			Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
SEC.19-T06N-R63W			3282103.737	1414428.283	40°27'59.688"N	104°29'09.888"W
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
SLOT#20 LARSON A23-651 (2374°FNL&535°FWL,SEC.19)	2168.74	-239.04	3281864.702	1416596.936	40°28'21.144"N	104°29'12.660"W
H&P 517 (30KB) (RKB) to Ground level (At Slot: SLOT#20 LARSON A23-651 (2374°FNL&535°FWL,SEC.19))					4679ft	
Mean Sea Level to Ground level (At Slot: SLOT#20 LARSON A23-651 (2374°FNL&535°FWL,SEC.19))					0ft	
H&P 517 (30KB) (RKB) to Mean Sea Level					4679ft	



REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Slot	SLOT#20 LARSON A23-651 (2374'FNL&535'FWL,SEC.19)
Area	COLORADO	Well	LARSON A23-651
Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	LARSON A23-651 AWB
Facility	SEC.19-T06N-R63W		

REPORT SETUP INFORMATION			
Projection System	NAD83 / Lambert Colorado SP, Northern Zone (501), US feet	Software System	WellArchitect® 5.0
North Reference	Grid	User	Guenaler
Scale	0.999964	Report Generated	6/18/2018 at 3:25:04 PM
Convergence at slot	0.66° East	Database/Source file	WA_DEN_Denver_Defn/LARSON_A23-651_AWP.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	2168.74	-239.04	3281864.70	1416596.94	40°28'21.144"N	104°29'12.660"W
Facility Reference Pt			3282103.74	1414428.28	40°27'59.688"N	104°29'09.888"W
Field Reference Pt			3000000.00	4454105.15	48°46'34.315"N	105°30'00.000"W

WELLPATH DATUM			
Calculation method	Minimum curvature	H&P 517 (30'KB) (RKB) to Facility Vertical Datum	4679.00ft
Horizontal Reference Pt	Slot	H&P 517 (30'KB) (RKB) to Mean Sea Level	4679.00ft
Vertical Reference Pt	H&P 517 (30'KB) (RKB)	H&P 517 (30'KB) (RKB) to Ground Level at Slot (SLOT#20 LARSON A23-651 (2374'FNL&535'FWL,SEC.19))	4679.00ft
MD Reference Pt	H&P 517 (30'KB) (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	267.87°



Actual Wellpath Report
LARSON A23-651 AWP
Page 2 of 11



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Area	COLORADO	Well	LARSON A23-651
Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	LARSON A23-651 AWB
Facility	SEC.19-T06N-R63W		

WELLPATH DATA (191 stations)										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
0.00	0.000	280.540	0.00	0.00	0.00	0.00	40°28'21.144"N	104°29'12.660"W	0.00	
85.00	0.140	280.540	85.00	0.10	0.02	-0.10	40°28'21.144"N	104°29'12.661"W	0.16	
181.00	0.560	43.990	181.00	-0.12	0.38	0.11	40°28'21.148"N	104°29'12.659"W	0.67	
276.00	0.130	4.780	276.00	-0.47	0.82	0.44	40°28'21.152"N	104°29'12.654"W	0.49	
367.00	0.210	224.480	367.00	-0.36	0.80	0.33	40°28'21.152"N	104°29'12.656"W	0.35	
461.00	0.170	158.750	461.00	-0.28	0.55	0.26	40°28'21.149"N	104°29'12.657"W	0.22	
556.00	0.220	307.630	556.00	-0.19	0.53	0.17	40°28'21.149"N	104°29'12.658"W	0.40	
650.00	0.280	296.620	649.99	0.15	0.74	-0.18	40°28'21.151"N	104°29'12.662"W	0.08	
745.00	0.280	281.470	744.99	0.58	0.89	-0.62	40°28'21.153"N	104°29'12.668"W	0.08	
839.00	0.450	249.440	838.99	1.16	0.81	-1.19	40°28'21.152"N	104°29'12.675"W	0.28	
934.00	0.270	221.000	933.99	1.66	0.51	-1.68	40°28'21.149"N	104°29'12.682"W	0.26	
1029.00	0.170	189.640	1028.99	1.84	0.20	-1.85	40°28'21.146"N	104°29'12.684"W	0.16	
1124.00	0.460	231.430	1123.99	2.18	-0.17	-2.17	40°28'21.143"N	104°29'12.688"W	0.37	
1218.00	0.460	188.640	1217.99	2.55	-0.78	-2.53	40°28'21.137"N	104°29'12.693"W	0.36	
1312.00	0.460	163.260	1311.98	2.53	-1.52	-2.47	40°28'21.129"N	104°29'12.692"W	0.21	
1407.00	0.440	154.310	1406.98	2.29	-2.21	-2.21	40°28'21.122"N	104°29'12.689"W	0.08	
1502.00	0.570	172.960	1501.98	2.10	-3.01	-1.99	40°28'21.114"N	104°29'12.686"W	0.22	
1596.00	0.310	193.040	1595.97	2.13	-3.72	-1.99	40°28'21.107"N	104°29'12.686"W	0.32	
1691.00	0.220	356.050	1690.97	2.20	-3.79	-2.06	40°28'21.107"N	104°29'12.687"W	0.55	
1785.00	0.700	300.670	1784.97	2.69	-3.32	-2.57	40°28'21.112"N	104°29'12.694"W	0.64	
1879.00	1.010	313.220	1878.96	3.75	-2.46	-3.66	40°28'21.120"N	104°29'12.708"W	0.38	
1967.00	1.060	303.270	1966.94	4.96	-1.48	-4.91	40°28'21.130"N	104°29'12.724"W	0.21	Tie to Surface Gyros
1981.00	0.970	295.260	1980.94	5.17	-1.36	-5.13	40°28'21.131"N	104°29'12.727"W	1.20	
2076.00	0.070	355.610	2075.94	5.89	-0.96	-5.86	40°28'21.135"N	104°29'12.736"W	0.99	
2171.00	0.040	300.040	2170.94	5.92	-0.88	-5.89	40°28'21.136"N	104°29'12.736"W	0.06	
2265.00	1.910	123.030	2264.92	4.67	-1.72	-4.61	40°28'21.128"N	104°29'12.720"W	2.07	
2360.00	4.410	123.710	2359.77	0.41	-4.61	-0.24	40°28'21.098"N	104°29'12.664"W	2.63	
2455.00	6.850	121.080	2454.30	-7.29	-9.56	7.65	40°28'21.049"N	104°29'12.562"W	2.58	
2644.00	8.080	104.150	2641.72	-29.48	-18.63	30.19	40°28'20.957"N	104°29'12.272"W	1.33	
2739.00	8.330	101.760	2735.75	-42.57	-21.66	43.40	40°28'20.925"N	104°29'12.102"W	0.45	



Actual Wellpath Report

LARSON A23-651 AWP



REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Slot	SLOT#20 LARSON A23-651 (2374'FNL&535'FWL,SEC.19)
Area	COLORADO	Well	LARSON A23-651
Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	LARSON A23-651 AWB
Facility	SEC.19-T06N-R63W		

WELLPATH DATA (191 stations)										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
2833.00	8.300	101.500	2828.76	-55.77	-24.40	56.71	40°28'20.896"N	104°29'11.930"W	0.05	
2928.00	8.210	108.830	2922.78	-68.77	-27.96	69.85	40°28'20.860"N	104°29'11.760"W	1.11	
3022.00	8.280	113.540	3015.81	-81.14	-32.83	82.41	40°28'20.810"N	104°29'11.599"W	0.72	
3117.00	8.260	114.870	3109.82	-93.38	-38.43	94.87	40°28'20.754"N	104°29'11.438"W	0.20	
3211.00	7.420	121.270	3202.94	-104.47	-44.42	106.19	40°28'20.693"N	104°29'11.293"W	1.29	
3306.00	8.190	132.530	3297.07	-114.40	-52.18	116.42	40°28'20.615"N	104°29'11.161"W	1.80	
3400.00	8.200	129.920	3390.11	-124.14	-61.01	126.49	40°28'20.527"N	104°29'11.032"W	0.40	
3495.00	8.170	131.450	3484.14	-134.06	-69.83	136.75	40°28'20.439"N	104°29'10.901"W	0.23	
3589.00	8.140	117.690	3577.20	-144.68	-77.34	147.65	40°28'20.363"N	104°29'10.761"W	2.07	
3684.00	8.310	101.440	3671.23	-157.19	-81.83	160.34	40°28'20.317"N	104°29'10.598"W	2.45	
3778.00	8.330	101.040	3764.25	-170.42	-84.48	173.68	40°28'20.290"N	104°29'10.425"W	0.07	
3873.00	8.320	99.240	3858.24	-183.86	-86.90	187.22	40°28'20.264"N	104°29'10.251"W	0.27	
3967.00	8.270	101.470	3951.26	-197.10	-89.34	200.55	40°28'20.239"N	104°29'10.078"W	0.35	
4062.00	8.120	105.380	4045.29	-210.14	-92.47	213.72	40°28'20.206"N	104°29'09.909"W	0.61	
4157.00	8.270	106.220	4139.32	-223.02	-96.16	226.75	40°28'20.168"N	104°29'09.740"W	0.20	
4251.00	8.180	111.950	4232.36	-235.55	-100.55	239.44	40°28'20.123"N	104°29'09.577"W	0.88	
4346.00	8.700	115.760	4326.33	-248.07	-106.20	252.18	40°28'20.066"N	104°29'09.413"W	0.80	
4440.00	8.740	123.210	4419.24	-260.18	-113.20	264.56	40°28'19.996"N	104°29'09.254"W	1.20	
4535.00	8.710	124.330	4513.15	-271.85	-121.21	276.54	40°28'19.915"N	104°29'09.100"W	0.18	
4630.00	8.410	123.210	4607.09	-283.30	-129.07	288.29	40°28'19.836"N	104°29'08.949"W	0.36	
4724.00	8.430	121.290	4700.07	-294.66	-136.42	299.93	40°28'19.762"N	104°29'08.800"W	0.30	
4819.00	8.510	122.260	4794.04	-306.28	-143.78	311.83	40°28'19.688"N	104°29'08.647"W	0.17	
4913.00	8.570	123.440	4887.00	-317.71	-151.36	323.55	40°28'19.612"N	104°29'08.496"W	0.20	
5007.00	8.560	121.480	4979.95	-329.24	-158.87	335.36	40°28'19.536"N	104°29'08.344"W	0.31	
5102.00	8.430	123.770	5073.91	-340.77	-166.43	347.18	40°28'19.460"N	104°29'08.193"W	0.38	
5196.00	7.990	127.550	5166.94	-351.38	-174.24	358.09	40°28'19.382"N	104°29'08.053"W	0.74	
5291.00	8.300	129.680	5260.98	-361.57	-182.65	368.60	40°28'19.298"N	104°29'07.918"W	0.46	
5385.00	8.000	123.930	5354.04	-371.91	-190.63	379.25	40°28'19.218"N	104°29'07.781"W	0.92	
5480.00	7.830	123.390	5448.13	-382.53	-197.88	390.14	40°28'19.145"N	104°29'07.642"W	0.20	
5574.00	8.120	123.930	5541.22	-393.10	-205.11	400.99	40°28'19.072"N	104°29'07.502"W	0.32	



Actual Wellpath Report

LARSON A23-651 AWP



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Operator	NOBLE ENERGY, INC	Slot	SLOT#20 LARSON A23-651 (2374'FNL&535'FWL,SEC.19)
Area	COLORADO	Well	LARSON A23-651
Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	LARSON A23-651 AWB
Facility	SEC.19-T06N-R63W		

WELLPATH DATA (191 stations)										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
5669.00	7.990	111.440	5635.29	-404.58	-211.27	412.70	40°28'19.010"N	104°29'07.352"W	1.84	
5763.00	8.090	112.760	5728.37	-416.57	-216.22	424.88	40°28'18.960"N	104°29'07.195"W	0.22	
5858.00	8.190	130.330	5822.43	-427.63	-223.18	436.21	40°28'18.889"N	104°29'07.049"W	2.61	
5952.00	7.840	143.170	5915.51	-436.22	-232.65	445.16	40°28'18.795"N	104°29'06.935"W	1.94	
6046.00	4.960	148.970	6008.92	-441.83	-241.26	451.10	40°28'18.709"N	104°29'06.859"W	3.14	
6141.00	5.340	210.070	6103.60	-441.46	-248.61	451.00	40°28'18.637"N	104°29'06.862"W	5.52	
6235.00	10.330	248.010	6196.75	-431.19	-255.56	440.98	40°28'18.569"N	104°29'06.992"W	7.38	
6330.00	16.580	258.130	6289.11	-409.80	-261.55	419.79	40°28'18.512"N	104°29'07.267"W	7.01	
6424.00	26.120	260.990	6376.56	-375.96	-267.56	386.15	40°28'18.457"N	104°29'07.703"W	10.21	
6519.00	35.950	264.860	6457.87	-327.23	-273.35	337.60	40°28'18.405"N	104°29'08.332"W	10.55	
6613.00	44.060	267.530	6529.82	-266.88	-277.24	277.36	40°28'18.373"N	104°29'09.112"W	8.82	
6708.00	53.090	266.590	6592.61	-195.73	-280.93	206.30	40°28'18.345"N	104°29'10.032"W	9.53	
6803.00	62.940	266.590	6642.87	-115.27	-285.71	125.96	40°28'18.307"N	104°29'11.073"W	10.37	
6897.00	73.100	266.850	6678.00	-28.24	-290.69	39.05	40°28'18.267"N	104°29'12.198"W	10.81	
6991.00	83.370	268.110	6697.15	63.66	-294.71	-52.76	40°28'18.238"N	104°29'13.386"W	11.00	
7086.00	89.970	270.140	6702.66	158.42	-296.15	-147.53	40°28'18.234"N	104°29'14.613"W	7.27	
7180.00	89.940	270.550	6702.74	252.33	-295.58	-241.53	40°28'18.251"N	104°29'15.829"W	0.44	
7275.00	90.150	270.750	6702.66	347.22	-294.51	-336.52	40°28'18.272"N	104°29'17.058"W	0.31	
7370.00	90.180	270.420	6702.39	442.11	-293.54	-431.52	40°28'18.292"N	104°29'18.287"W	0.35	
7464.00	89.880	270.490	6702.34	536.02	-292.79	-525.52	40°28'18.310"N	104°29'19.503"W	0.33	
7559.00	89.940	270.980	6702.49	630.90	-291.57	-620.51	40°28'18.333"N	104°29'20.731"W	0.52	
7653.00	90.030	271.110	6702.51	724.76	-289.86	-714.49	40°28'18.361"N	104°29'21.947"W	0.17	
7748.00	90.120	269.960	6702.39	819.65	-288.97	-809.49	40°28'18.380"N	104°29'23.176"W	1.21	
7842.00	90.180	270.340	6702.14	913.58	-288.72	-903.49	40°28'18.393"N	104°29'24.392"W	0.41	
7937.00	89.690	265.690	6702.25	1008.55	-292.01	-998.40	40°28'18.371"N	104°29'25.621"W	4.92	
8032.00	89.910	263.040	6702.58	1103.36	-301.34	-1092.93	40°28'18.290"N	104°29'26.845"W	2.80	
8126.00	90.400	264.530	6702.33	1197.12	-311.52	-1186.38	40°28'18.200"N	104°29'28.056"W	1.67	
8220.00	90.060	268.060	6701.95	1291.07	-317.59	-1280.17	40°28'18.150"N	104°29'29.270"W	3.77	
8315.00	90.000	273.060	6701.90	1385.93	-316.66	-1375.13	40°28'18.170"N	104°29'30.499"W	5.26	
8410.00	90.000	274.430	6701.90	1480.43	-310.46	-1469.93	40°28'18.242"N	104°29'31.724"W	1.44	



Actual Wellpath Report

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Area	COLORADO	Well	LARSON A23-651
Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	LARSON A23-651 AWB
Facility	SEC.19-T06N-R63W		

WELLPATH DATA (191 stations)										
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8504.00	90.090	275.920	6701.83	1573.67	-301.98	-1563.54	40°28'18.336"N	104°29'32.934"W	1.59	
8599.00	90.060	274.650	6701.70	1667.87	-293.23	-1658.13	40°28'18.433"N	104°29'34.157"W	1.34	
8694.00	90.340	272.900	6701.37	1762.37	-286.97	-1752.92	40°28'18.506"N	104°29'35.382"W	1.87	
8788.00	90.370	272.170	6700.79	1856.05	-282.82	-1846.83	40°28'18.557"N	104°29'36.597"W	0.78	
8883.00	89.450	270.880	6700.94	1950.86	-280.29	-1941.79	40°28'18.593"N	104°29'37.825"W	1.67	
8978.00	89.540	269.800	6701.77	2045.76	-279.72	-2036.79	40°28'18.609"N	104°29'39.054"W	1.14	
9072.00	89.320	268.960	6702.71	2139.72	-280.74	-2130.77	40°28'18.610"N	104°29'40.270"W	0.92	
9166.00	89.260	269.780	6703.87	2233.68	-281.77	-2224.76	40°28'18.610"N	104°29'41.486"W	0.87	
9261.00	89.200	268.750	6705.15	2328.65	-282.99	-2319.74	40°28'18.609"N	104°29'42.715"W	1.09	
9356.00	89.260	268.270	6706.43	2423.63	-285.46	-2414.70	40°28'18.595"N	104°29'43.944"W	0.51	
9450.00	89.450	266.840	6707.49	2517.62	-289.47	-2508.61	40°28'18.566"N	104°29'45.160"W	1.53	
9544.00	89.290	268.570	6708.52	2611.61	-293.24	-2602.52	40°28'18.539"N	104°29'46.376"W	1.85	
9639.00	89.260	269.880	6709.72	2706.58	-294.52	-2697.51	40°28'18.537"N	104°29'47.605"W	1.38	
9733.00	89.510	269.570	6710.73	2800.52	-294.97	-2791.50	40°28'18.543"N	104°29'48.821"W	0.42	
9828.00	89.540	268.840	6711.52	2895.49	-296.29	-2886.49	40°28'18.541"N	104°29'50.050"W	0.77	
9922.00	89.510	268.610	6712.30	2989.48	-298.38	-2980.46	40°28'18.530"N	104°29'51.266"W	0.25	
10017.00	89.450	268.120	6713.16	3084.47	-301.09	-3075.42	40°28'18.514"N	104°29'52.495"W	0.52	
10112.00	89.380	268.160	6714.13	3179.46	-304.18	-3170.36	40°28'18.494"N	104°29'53.724"W	0.08	
10206.00	89.420	268.320	6715.11	3273.46	-307.06	-3264.31	40°28'18.476"N	104°29'54.940"W	0.18	
10301.00	89.450	268.390	6716.05	3368.45	-309.79	-3359.27	40°28'18.460"N	104°29'56.169"W	0.08	
10396.00	89.420	268.000	6716.99	3463.44	-312.78	-3454.22	40°28'18.441"N	104°29'57.398"W	0.41	
10491.00	89.290	268.030	6718.06	3558.44	-316.07	-3549.15	40°28'18.419"N	104°29'58.627"W	0.14	
10585.00	89.480	268.710	6719.07	3652.43	-318.75	-3643.11	40°28'18.403"N	104°29'59.843"W	0.75	
10680.00	89.350	270.750	6720.04	3747.37	-319.19	-3738.10	40°28'18.409"N	104°30'01.072"W	2.15	
10774.00	89.260	270.130	6721.18	3841.27	-318.47	-3832.09	40°28'18.427"N	104°30'02.288"W	0.67	
10869.00	89.380	269.620	6722.30	3936.20	-318.68	-3927.08	40°28'18.435"N	104°30'03.517"W	0.55	
10963.00	89.780	268.960	6722.99	4030.17	-319.84	-4021.07	40°28'18.434"N	104°30'04.733"W	0.82	
11057.00	89.480	268.770	6723.60	4124.15	-321.71	-4115.05	40°28'18.426"N	104°30'05.949"W	0.38	
11152.00	89.320	267.690	6724.59	4219.14	-324.64	-4210.00	40°28'18.408"N	104°30'07.178"W	1.15	
11247.00	89.510	266.590	6725.56	4314.13	-329.38	-4304.87	40°28'18.372"N	104°30'08.406"W	1.17	



Actual Wellpath Report

LARSON A23-651 AWP



REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Slot	SLOT#20 LARSON A23-651 (2374'FNL&535'FWL,SEC.19)
Area	COLORADO	Well	LARSON A23-651
Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	LARSON A23-651 AWB
Facility	SEC.19-T06N-R63W		

WELLPATH DATA (191 stations)										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
11341.00	89.480	267.330	6726.39	4408.11	-334.36	-4398.74	40°28'18.333"N	104°30'09.621"W	0.79	
11436.00	89.350	268.900	6727.36	4503.11	-337.49	-4493.68	40°28'18.313"N	104°30'10.850"W	1.66	
11530.00	89.350	268.890	6728.43	4597.08	-339.30	-4587.65	40°28'18.305"N	104°30'12.066"W	0.01	
11625.00	89.260	270.450	6729.58	4692.03	-339.85	-4682.64	40°28'18.310"N	104°30'13.296"W	1.64	
11719.00	89.260	271.260	6730.80	4785.89	-338.45	-4776.62	40°28'18.335"N	104°30'14.511"W	0.86	
11814.00	89.380	270.500	6731.92	4880.75	-336.99	-4871.60	40°28'18.360"N	104°30'15.740"W	0.81	
11908.00	89.750	269.770	6732.64	4974.68	-336.77	-4965.60	40°28'18.372"N	104°30'16.956"W	0.87	
12003.00	89.320	267.680	6733.41	5069.66	-338.88	-5060.57	40°28'18.362"N	104°30'18.185"W	2.25	
12097.00	89.600	266.330	6734.29	5163.64	-343.79	-5154.43	40°28'18.324"N	104°30'19.400"W	1.47	
12192.00	90.460	269.020	6734.24	5258.63	-347.64	-5249.35	40°28'18.296"N	104°30'20.629"W	2.97	
12286.00	90.150	269.440	6733.74	5352.60	-348.91	-5343.34	40°28'18.294"N	104°30'21.845"W	0.56	
12381.00	90.090	270.090	6733.54	5447.55	-349.30	-5438.33	40°28'18.301"N	104°30'23.074"W	0.69	
12475.00	89.480	271.600	6733.90	5541.42	-347.91	-5532.32	40°28'18.325"N	104°30'24.290"W	1.73	
12570.00	89.080	272.590	6735.09	5636.15	-344.44	-5627.25	40°28'18.370"N	104°30'25.518"W	1.12	
12664.00	89.170	273.540	6736.53	5729.76	-339.41	-5721.10	40°28'18.430"N	104°30'26.731"W	1.02	
12760.00	89.320	273.140	6737.79	5825.31	-333.82	-5816.93	40°28'18.495"N	104°30'27.970"W	0.44	
12854.00	89.140	272.460	6739.05	5918.95	-329.23	-5910.81	40°28'18.551"N	104°30'29.184"W	0.75	
12949.00	89.350	271.040	6740.31	6013.73	-326.33	-6005.75	40°28'18.590"N	104°30'30.412"W	1.51	
13043.00	89.260	269.210	6741.45	6107.64	-326.12	-6099.74	40°28'18.603"N	104°30'31.628"W	1.95	
13138.00	89.200	267.690	6742.72	6202.63	-328.69	-6194.70	40°28'18.588"N	104°30'32.857"W	1.60	
13233.00	89.110	267.640	6744.12	6297.62	-332.56	-6289.61	40°28'18.560"N	104°30'34.086"W	0.11	
13327.00	89.350	267.580	6745.39	6391.61	-336.48	-6383.52	40°28'18.532"N	104°30'35.302"W	0.26	
13422.00	89.480	267.730	6746.36	6486.60	-340.37	-6478.43	40°28'18.504"N	104°30'36.530"W	0.21	
13516.00	90.000	268.480	6746.78	6580.60	-343.48	-6572.38	40°28'18.483"N	104°30'37.746"W	0.97	
13611.00	89.820	272.150	6746.93	6675.49	-342.96	-6667.36	40°28'18.499"N	104°30'38.975"W	3.87	
13705.00	89.480	272.860	6747.51	6769.19	-338.85	-6761.27	40°28'18.550"N	104°30'40.189"W	0.84	
13800.00	89.420	271.840	6748.42	6863.89	-334.95	-6856.18	40°28'18.599"N	104°30'41.417"W	1.08	
13895.00	89.260	270.500	6749.51	6958.72	-333.01	-6951.15	40°28'18.629"N	104°30'42.645"W	1.42	
13990.00	89.970	269.670	6750.15	7053.65	-332.87	-7046.15	40°28'18.640"N	104°30'43.874"W	1.15	
14084.00	89.600	272.350	6750.51	7147.50	-331.21	-7140.13	40°28'18.667"N	104°30'45.090"W	2.88	



Actual Wellpath Report

LARSON A23-651 AWP



REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Slot	SLOT#20 LARSON A23-651 (2374'FNL&535'FWL,SEC.19)
Area	COLORADO	Well	LARSON A23-651
Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	LARSON A23-651 AWB
Facility	SEC.19-T06N-R63W		

WELLPATH DATA (191 stations)										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
14179.00	89.480	271.650	6751.27	7242.25	-327.90	-7235.07	40°28'18.710"N	104°30'46.318"W	0.75	
14273.00	89.480	267.190	6752.12	7336.19	-328.85	-7329.03	40°28'18.711"N	104°30'47.534"W	4.74	
14367.00	89.450	265.350	6753.00	7430.14	-334.97	-7422.83	40°28'18.661"N	104°30'48.748"W	1.96	
14462.00	89.450	262.720	6753.91	7524.92	-344.84	-7517.30	40°28'18.574"N	104°30'49.972"W	2.77	
14556.00	89.510	264.330	6754.76	7618.64	-355.44	-7610.69	40°28'18.480"N	104°30'51.182"W	1.71	
14651.00	89.660	265.480	6755.45	7713.51	-363.87	-7705.31	40°28'18.407"N	104°30'52.407"W	1.22	
14746.00	89.780	263.320	6755.92	7808.33	-373.14	-7799.85	40°28'18.325"N	104°30'53.632"W	2.28	
14840.00	89.600	261.170	6756.43	7901.87	-385.83	-7892.99	40°28'18.210"N	104°30'54.839"W	2.30	
14935.00	89.780	261.090	6756.94	7996.21	-400.47	-7986.85	40°28'18.076"N	104°30'56.055"W	0.21	
15029.00	89.630	262.300	6757.42	8089.66	-414.05	-8079.86	40°28'17.952"N	104°30'57.260"W	1.30	
15124.00	89.780	265.360	6757.91	8184.41	-424.26	-8174.30	40°28'17.861"N	104°30'58.484"W	3.22	
15218.00	89.970	269.520	6758.12	8278.39	-428.46	-8268.18	40°28'17.830"N	104°30'59.699"W	4.43	
15313.00	89.910	271.230	6758.22	8373.29	-427.84	-8363.18	40°28'17.847"N	104°31'00.928"W	1.80	
15407.00	90.030	272.240	6758.27	8467.08	-424.99	-8457.13	40°28'17.885"N	104°31'02.143"W	1.08	
15502.00	89.850	272.930	6758.37	8561.76	-420.70	-8552.03	40°28'17.938"N	104°31'03.371"W	0.75	
15597.00	90.000	272.410	6758.49	8656.42	-416.28	-8646.93	40°28'17.992"N	104°31'04.598"W	0.57	
15691.00	89.910	271.320	6758.56	8750.19	-413.22	-8740.88	40°28'18.033"N	104°31'05.813"W	1.16	
15786.00	90.000	268.320	6758.64	8845.13	-413.52	-8835.87	40°28'18.040"N	104°31'07.042"W	3.16	
15880.00	90.220	267.430	6758.46	8939.13	-417.00	-8929.80	40°28'18.016"N	104°31'08.258"W	0.98	
15975.00	90.030	266.900	6758.25	9034.12	-421.70	-9024.69	40°28'17.980"N	104°31'09.486"W	0.59	
16164.00	90.090	266.170	6758.05	9223.07	-433.13	-9213.34	40°28'17.887"N	104°31'11.929"W	0.39	
16258.00	90.150	269.630	6757.86	9317.05	-436.57	-9307.26	40°28'17.864"N	104°31'13.144"W	3.68	
16353.00	89.940	272.350	6757.78	9411.90	-434.93	-9402.24	40°28'17.890"N	104°31'14.373"W	2.87	
16447.00	90.120	272.700	6757.73	9505.59	-430.79	-9496.15	40°28'17.941"N	104°31'15.587"W	0.42	
16542.00	90.090	272.630	6757.56	9600.26	-426.37	-9591.04	40°28'17.995"N	104°31'16.814"W	0.08	
16636.00	90.000	272.010	6757.48	9693.98	-422.57	-9684.97	40°28'18.043"N	104°31'18.029"W	0.67	
16731.00	90.000	272.260	6757.48	9788.71	-419.03	-9779.90	40°28'18.089"N	104°31'19.257"W	0.26	
16825.00	90.090	272.400	6757.41	9882.43	-415.20	-9873.82	40°28'18.137"N	104°31'20.472"W	0.18	
16920.00	89.970	271.380	6757.36	9977.19	-412.07	-9968.77	40°28'18.178"N	104°31'21.700"W	1.08	
17014.00	90.120	270.210	6757.29	10071.07	-410.77	-10062.76	40°28'18.201"N	104°31'22.915"W	1.25	



Actual Wellpath Report

LARSON A23-651 AWP



REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY, INC	Slot	SLOT#20 LARSON A23-651 (2374'FNL&535'FWL,SEC.19)
Area	COLORADO	Well	LARSON A23-651
Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	LARSON A23-651 AWB
Facility	SEC.19-T06N-R63W		

WELLPATH DATA (191 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
17108.00	90.090	270.380	6757.11	10164.99	-410.28	-10156.76	40°28'18.216"N	104°31'24.132"W	0.18	
17203.00	90.120	271.260	6756.94	10259.86	-408.92	-10251.75	40°28'18.240"N	104°31'25.360"W	0.93	
17298.00	90.000	272.100	6756.84	10354.65	-406.14	-10346.70	40°28'18.278"N	104°31'26.589"W	0.89	
17392.00	90.090	272.710	6756.77	10448.35	-402.19	-10440.62	40°28'18.327"N	104°31'27.803"W	0.66	
17581.00	90.120	271.900	6756.42	10636.79	-394.59	-10629.47	40°28'18.422"N	104°31'30.245"W	0.43	
17676.00	90.090	270.950	6756.25	10731.60	-392.23	-10724.44	40°28'18.456"N	104°31'31.474"W	1.00	
17770.00	90.150	269.900	6756.05	10825.51	-391.53	-10818.43	40°28'18.473"N	104°31'32.690"W	1.12	
17864.00	90.000	267.900	6755.93	10919.49	-393.34	-10912.41	40°28'18.466"N	104°31'33.906"W	2.13	
17959.00	90.310	267.270	6755.67	11014.49	-397.34	-11007.32	40°28'18.436"N	104°31'35.135"W	0.74	
18021.00	90.340	267.170	6755.32	11076.48	-400.35	-11069.25	40°28'18.413"N	104°31'35.936"W	0.17	Last BHI MWD Survery
18045.00	90.340	267.170	6755.18	11100.48	-401.53	-11093.22	40°28'18.404"N	104°31'36.247"W	0.00	Projection to Bit

HOLE & CASING SECTIONS - Ref Wellbore: LARSON A23-651 AWB Ref Wellpath: LARSON A23-651 AWP

String/Diameter	Start MD [ft]	End MD [ft]	Interval [ft]	Start TVD [ft]	End TVD [ft]	Start N/S [ft]	Start E/W [ft]	End N/S [ft]	End E/W [ft]
13.5in Open Hole	30.00	1969.00	1939.00	30.00	1968.94	0.00	-0.01	-1.46	-4.94
9.625in Casing Surface	30.00	1969.00	1939.00	30.00	1968.94	0.00	-0.01	-1.46	-4.94
8.5in Open Hole	1969.00	18045.00	16076.00	1968.94	6755.18	-1.46	-4.94	-401.53	-11093.22



Actual Wellpath Report

LARSON A23-651 AWP



REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Slot	SLOT#20 LARSON A23-651 (2374'FNL&535'FWL,SEC.19)
Area	COLORADO	Well	LARSON A23-651
Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	LARSON A23-651 AWB
Facility	SEC.19-T06N-R63W		

TARGETS								
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
LARSON A23-639 Section 23	3.00	-1539.27	-792.14	3281072.59	1415057.73	40°28'06.024"N	104°29'23.136"W	polygon
LARSON A23-639 Section 24	3.00	-1539.27	-792.14	3281072.59	1415057.73	40°28'06.024"N	104°29'23.136"W	polygon
LARSON AA19-618 SECTION 19	3.00	-1768.77	-789.53	3281075.20	1414828.23	40°28'03.756"N	104°29'23.136"W	polygon
LARSON AA19-618 SECTION 19 HARDLINE (460'SETBACK)	3.00	-1768.77	-789.53	3281075.20	1414828.23	40°28'03.756"N	104°29'23.136"W	polygon
LARSON A23-651 Landing Point	6702.00	-280.00	-125.00	3281739.71	1416316.95	40°28'18.391"N	104°29'14.319"W	point
LARSON A23-651 Target 1	6702.00	-300.47	-1824.88	3280039.89	1416296.48	40°28'18.380"N	104°29'36.315"W	point
LARSON A23-651 BHL(2565'FSL&0'FWL,SEC.23)	6756.20	-412.16	-11100.02	3270765.10	1416184.79	40°28'18.300"N	104°31'36.336"W	point
LARSON A23-651 Target 2	6759.00	-370.30	-7624.00	3274240.99	1416226.65	40°28'18.334"N	104°30'51.356"W	point
LARSON A23-639 SECTION 23 Hardline (460'SETBACK)	7003.00	-1539.27	-792.14	3281072.59	1415057.73	40°28'06.024"N	104°29'23.136"W	polygon
LARSON A23-639 SECTION 24 Hardline (460'SETBACK)	7003.00	-1539.27	-792.14	3281072.59	1415057.73	40°28'06.024"N	104°29'23.136"W	polygon



Actual Wellpath Report

LARSON A23-651 AWP

Page 10 of 11



REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Slot	SLOT#20 LARSON A23-651 (2374'FNL&535'FWL,SEC.19)
Area	COLORADO	Well	LARSON A23-651
Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	LARSON A23-651 AWB
Facility	SEC.19-T06N-R63W		

WELLPATH COMPOSITION - Ref Wellbore: LARSON A23-651 AWB Ref Wellpath: LARSON A23-651 AWP				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
0.00	1967.00	Gyrodata relative depth - Drop gyro or Multi-shot	Third Party 13.5" Surface Surveys <85'-1967'>	LARSON A23-651 AWB
1967.00	18021.00	OWSG MWD rev2 + IFR1 + Multi-Station Correction	BH/ATC 8.5" OWSG MWD+IFR1+MSA <1981'-18021'>	LARSON A23-651 AWB
18021.00	18045.00	Blind Drilling (std)	Projection to bit	LARSON A23-651 AWB



Actual Wellpath Report

LARSON A23-651 AWP

Page 11 of 11



REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Slot	SLOT#20 LARSON A23-651 (2374'FNL&535'FWL,SEC.19)
Area	COLORADO	Well	LARSON A23-651
Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	LARSON A23-651 AWB
Facility	SEC.19-T06N-R63W		

WELLPATH COMMENTS				
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
1967.00	1.060	303.270	1966.94	Tie to Surface Gyros
18021.00	90.340	267.170	6755.32	Last BHI MWD Survery
18045.00	90.340	267.170	6755.18	Projection to Bit

COMMENTS
<div>Wellpath general comments</div> <div>SURFACE LOCATION: SWNW</div> <div>40.47254N</div> <div>104.48685W</div> <div>API: 05-123-45512</div>