

NOBLE ENERGY, INC

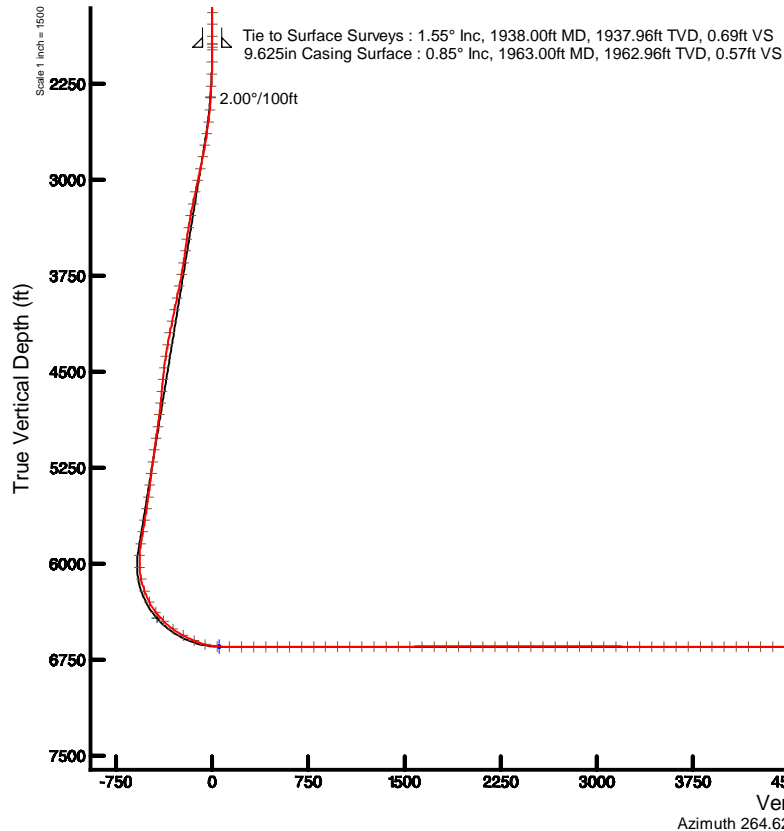
Location: COLORADO Slot: SLOT#18 LARSON A23-668(698'FNL&275'FEL,SEC.24)
Field: WELD COUNTY (NOBLE NAD 83 GRID) Well: LARSON A23-668
Facility: SEC.24-T06N-R64W Wellbore: LARSON A23-668 PWB

Plot reference wellpath is LARSON A23-668 (REV-A.0) PWP

True vertical depths are referenced to RIG (30'KB) (RKB)	Grid System: NAD83 / Lambert Colorado SP, Northern Zone (501), US feet
Measured depths are referenced to RIG (30'KB) (RKB)	* = Wellpath was transformed from a different geodetic datum
RIG (30'KB) (RKB) to Mean Sea Level: 4682 feet	North Reference: Grid north
Mean Sea Level to Ground level (At Slot: SLOT#18 LARSON A23-668(698'FNL&275'FEL,SEC.24)): 0 feet	Scale: True distance
Coordinates are in feet referenced to Slot	Depths are in feet
	Created by: guenaler on 2018-08-07
	Database: WA_DEN_Denver_Defn

Location Information

Facility Name			Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
SEC.24-T06N-R64W			3281075.203	1414828.232	40°28'03.756"N	104°29'23.136"W
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
SLOT#18 LARSON A23-668(698'FNL&275'FEL,SEC.24)	3427.97	-41.84	3281033.367	1418256.068	40°28'37.632"N	104°29'23.172"W
RIG (30'KB) (RKB) to Ground level (At Slot: SLOT#18 LARSON A23-668(698'FNL&275'FEL,SEC.24))					4682ft	
Mean Sea Level to Ground level (At Slot: SLOT#18 LARSON A23-668(698'FNL&275'FEL,SEC.24))					0ft	
RIG (30'KB) (RKB) to Mean Sea Level					4682ft	



Survey Program

Start MD (ft)	End MD (ft)	Tool	Model	Log Name/Comment	Wellbore
30.00	17427.16	OWSG MWD rev2	OWSG MWD rev2 + IFR1 + Multi-Station Correction		LARSON A23-668 PWB

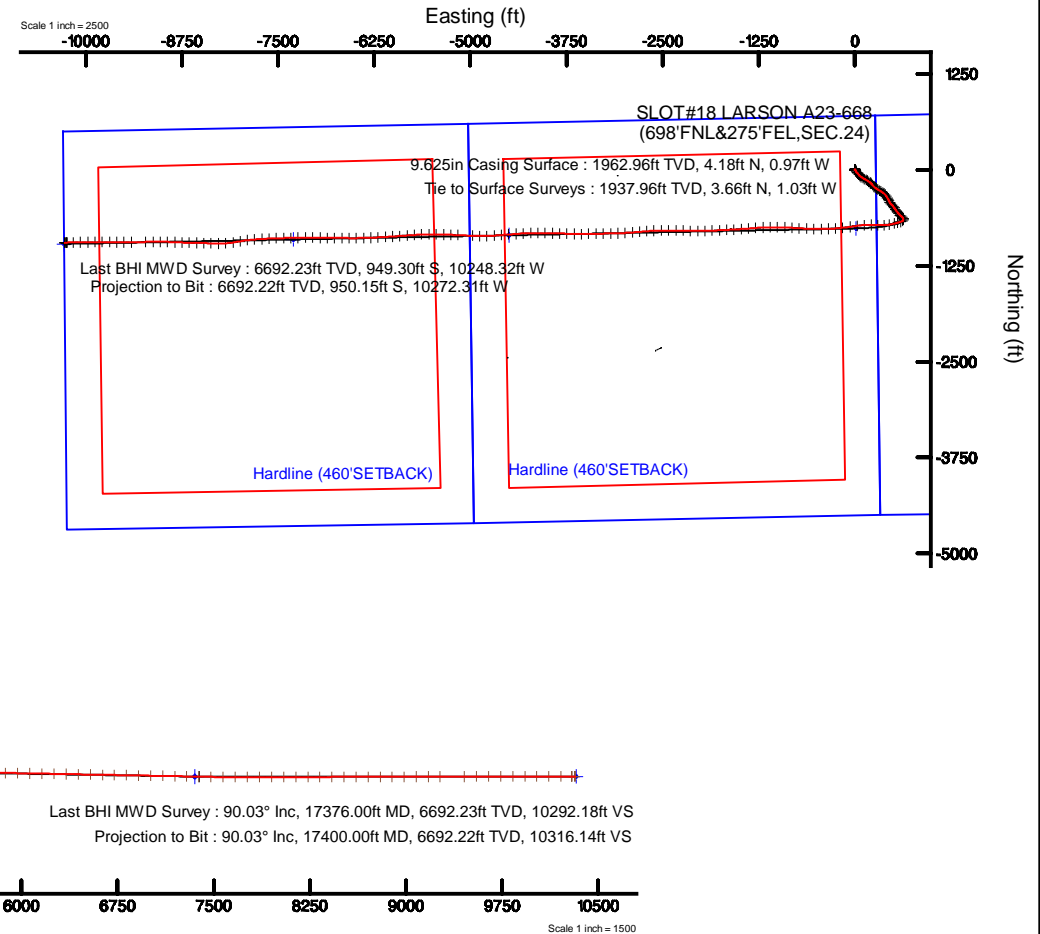
Comments

SURFACE LOCATION: NENE

40.47712N

104.48977W

API: 05-123-45094





Actual Wellpath Report

LARSON A23-668 AWP

Page 1 of 11



REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Slot	SLOT#18 LARSON A23-668(698'FNL&275'FEL,SEC.24)
Area	COLORADO	Well	LARSON A23-668
Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	LARSON A23-668 AWB
Facility	SEC.24-T06N-R64W		

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	0.999965	Report Generated	8/7/2018 at 9:43:03 AM
Convergence at slot	0.66° East	Database/Source file	WA_DEN_Denver_Defn/LARSON_A23-668_AWP.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	3427.97	-41.84	3281033.37	1418256.07	40°28'37.632"N	104°29'23.172"W
Facility Reference Pt			3281075.20	1414828.23	40°28'03.756"N	104°29'23.136"W
Field Reference Pt			3000000.00	4454105.15	48°46'34.315"N	105°30'00.000"W

WELLPATH DATUM			
Calculation method	Minimum curvature	RIG (30'KB) (RKB) to Facility Vertical Datum	4682.00ft
Horizontal Reference Pt	Slot	RIG (30'KB) (RKB) to Mean Sea Level	4682.00ft
Vertical Reference Pt	RIG (30'KB) (RKB)	RIG (30'KB) (RKB) to Ground Level at Slot (SLOT#18 LARSON A23-668 (698'FNL&275'FEL,SEC.24))	4682.00ft
MD Reference Pt	RIG (30'KB) (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	264.62°



Actual Wellpath Report
LARSON A23-668 AWP
Page 2 of 11



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Area	COLORADO	Well	LARSON A23-668
Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	LARSON A23-668 AWB
Facility	SEC.24-T06N-R64W		

WELLPATH DATA (185 stations)										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
0.00	0.000	56.050	0.00	0.00	0.00	0.00	40°28'37.632"N	104°29'23.172"W	0.00	
85.00	0.290	56.050	85.00	-0.19	0.12	0.18	40°28'37.633"N	104°29'23.170"W	0.34	
181.00	0.280	243.410	181.00	-0.18	0.15	0.17	40°28'37.633"N	104°29'23.170"W	0.59	
272.00	0.100	193.130	272.00	0.05	-0.03	-0.05	40°28'37.632"N	104°29'23.173"W	0.25	
367.00	0.210	57.610	367.00	-0.08	-0.01	0.08	40°28'37.632"N	104°29'23.171"W	0.31	
461.00	0.280	156.280	461.00	-0.31	-0.13	0.32	40°28'37.631"N	104°29'23.168"W	0.40	
556.00	0.100	245.440	556.00	-0.30	-0.38	0.34	40°28'37.628"N	104°29'23.168"W	0.31	
650.00	0.060	173.190	650.00	-0.22	-0.46	0.27	40°28'37.627"N	104°29'23.169"W	0.11	
745.00	0.170	272.880	745.00	-0.09	-0.50	0.13	40°28'37.627"N	104°29'23.170"W	0.20	
839.00	0.180	289.690	839.00	0.19	-0.45	-0.14	40°28'37.628"N	104°29'23.174"W	0.06	
934.00	0.370	251.320	934.00	0.62	-0.49	-0.58	40°28'37.627"N	104°29'23.180"W	0.27	
1028.00	0.450	240.270	1027.99	1.25	-0.78	-1.18	40°28'37.624"N	104°29'23.187"W	0.12	
1123.00	0.160	249.210	1122.99	1.72	-1.01	-1.63	40°28'37.622"N	104°29'23.193"W	0.31	
1217.00	0.180	312.830	1216.99	1.94	-0.95	-1.86	40°28'37.623"N	104°29'23.196"W	0.19	
1312.00	0.130	14.690	1311.99	2.01	-0.75	-1.94	40°28'37.625"N	104°29'23.197"W	0.17	
1406.00	0.220	331.920	1405.99	2.04	-0.49	-2.00	40°28'37.627"N	104°29'23.198"W	0.16	
1501.00	0.370	44.840	1500.99	1.87	-0.11	-1.87	40°28'37.631"N	104°29'23.196"W	0.39	
1595.00	0.430	32.790	1594.99	1.42	0.40	-1.47	40°28'37.636"N	104°29'23.191"W	0.11	
1690.00	0.050	57.820	1689.99	1.17	0.73	-1.24	40°28'37.639"N	104°29'23.188"W	0.41	
1784.00	0.410	6.970	1783.99	1.06	1.08	-1.16	40°28'37.643"N	104°29'23.187"W	0.40	
1878.00	1.070	359.050	1877.98	0.92	2.29	-1.14	40°28'37.655"N	104°29'23.186"W	0.71	
1938.00	1.550	8.090	1937.96	0.69	3.66	-1.03	40°28'37.668"N	104°29'23.185"W	0.87	Tie to Surface Surveys
1982.00	0.330	352.150	1981.95	0.55	4.37	-0.97	40°28'37.675"N	104°29'23.184"W	2.81	
2077.00	1.920	135.220	2076.94	-0.45	3.51	0.12	40°28'37.667"N	104°29'23.170"W	2.31	
2171.00	5.760	151.570	2170.71	-3.29	-1.75	3.47	40°28'37.614"N	104°29'23.127"W	4.21	
2266.00	7.370	149.430	2265.09	-7.76	-11.19	8.84	40°28'37.520"N	104°29'23.059"W	1.71	
2360.00	7.990	151.920	2358.24	-12.84	-22.15	14.98	40°28'37.411"N	104°29'22.981"W	0.75	
2455.00	9.730	145.380	2452.11	-19.31	-34.58	22.65	40°28'37.288"N	104°29'22.884"W	2.11	
2550.00	11.800	136.170	2545.44	-29.28	-48.20	33.94	40°28'37.152"N	104°29'22.740"W	2.83	
2644.00	14.490	138.430	2636.97	-42.20	-63.93	48.41	40°28'36.995"N	104°29'22.555"W	2.91	



Actual Wellpath Report
LARSON A23-668 AWP
Page 3 of 11



REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Slot	SLOT#18 LARSON A23-668(698'FNL&275'FEL,SEC.24)
Area	COLORADO	Well	LARSON A23-668
Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	LARSON A23-668 AWB
Facility	SEC.24-T06N-R64W		

WELLPATH DATA (185 stations)										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
2738.00	14.500	134.600	2727.98	-56.71	-80.99	64.59	40°28'36.824"N	104°29'22.348"W	1.02	
2833.00	14.730	126.950	2819.91	-73.29	-96.61	82.71	40°28'36.668"N	104°29'22.116"W	2.04	
2928.00	14.520	121.020	2911.84	-91.81	-110.00	102.57	40°28'36.534"N	104°29'21.861"W	1.59	
3022.00	14.710	117.460	3002.80	-111.32	-121.58	123.26	40°28'36.417"N	104°29'21.595"W	0.98	
3117.00	13.940	116.990	3094.85	-131.12	-132.34	144.16	40°28'36.308"N	104°29'21.326"W	0.82	
3211.00	13.970	120.490	3186.07	-149.88	-143.23	164.02	40°28'36.198"N	104°29'21.071"W	0.90	
3306.00	14.000	124.730	3278.26	-167.96	-155.60	183.35	40°28'36.074"N	104°29'20.823"W	1.08	
3401.00	13.390	131.590	3370.56	-184.26	-169.45	201.02	40°28'35.935"N	104°29'20.596"W	1.82	
3495.00	12.730	140.130	3462.14	-197.56	-184.62	215.80	40°28'35.783"N	104°29'20.407"W	2.17	
3590.00	14.120	143.280	3554.54	-209.51	-201.95	229.44	40°28'35.611"N	104°29'20.233"W	1.65	
3684.00	14.040	134.110	3645.73	-222.89	-219.07	244.49	40°28'35.440"N	104°29'20.041"W	2.37	
3779.00	14.070	127.630	3737.89	-238.82	-234.15	261.91	40°28'35.289"N	104°29'19.818"W	1.66	
3873.00	14.070	123.990	3829.07	-256.01	-247.51	280.43	40°28'35.155"N	104°29'19.580"W	0.94	
3968.00	13.950	119.750	3921.25	-274.30	-259.65	299.95	40°28'35.033"N	104°29'19.329"W	1.09	
4062.00	14.540	119.830	4012.36	-293.21	-271.14	320.02	40°28'34.917"N	104°29'19.071"W	0.63	
4156.00	14.470	121.940	4103.37	-312.19	-283.22	340.22	40°28'34.795"N	104°29'18.812"W	0.57	
4251.00	14.390	125.960	4195.37	-330.49	-296.43	359.85	40°28'34.662"N	104°29'18.560"W	1.06	
4345.00	14.430	130.920	4286.42	-347.36	-310.97	378.16	40°28'34.517"N	104°29'18.325"W	1.31	
4439.00	14.290	139.130	4377.49	-362.19	-327.41	394.60	40°28'34.352"N	104°29'18.114"W	2.17	
4534.00	14.090	146.170	4469.60	-374.50	-345.89	408.71	40°28'34.168"N	104°29'17.935"W	1.83	
4628.00	14.200	150.960	4560.75	-384.58	-365.47	420.68	40°28'33.973"N	104°29'17.783"W	1.25	
4723.00	14.170	152.630	4652.85	-393.61	-385.98	431.68	40°28'33.770"N	104°29'17.643"W	0.43	
4817.00	14.350	152.350	4743.96	-402.34	-406.52	442.37	40°28'33.565"N	104°29'17.508"W	0.21	
4912.00	14.260	147.810	4836.02	-412.08	-426.85	454.07	40°28'33.363"N	104°29'17.360"W	1.18	
5006.00	14.380	140.810	4927.10	-423.80	-445.70	467.62	40°28'33.175"N	104°29'17.187"W	1.85	
5101.00	14.270	135.230	5019.15	-437.79	-463.15	483.32	40°28'33.001"N	104°29'16.987"W	1.46	
5195.00	13.700	141.130	5110.37	-451.29	-480.05	498.46	40°28'32.833"N	104°29'16.793"W	1.63	
5290.00	14.280	145.830	5202.56	-463.14	-498.50	512.10	40°28'32.649"N	104°29'16.619"W	1.34	
5384.00	14.360	142.810	5293.64	-474.87	-517.38	525.66	40°28'32.461"N	104°29'16.447"W	0.80	
5479.00	14.340	144.690	5385.67	-486.95	-536.36	539.58	40°28'32.271"N	104°29'16.269"W	0.49	



Actual Wellpath Report

LARSON A23-668 AWP



REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Slot	SLOT#18 LARSON A23-668(698'FNL&275'FEL,SEC.24)
Area	COLORADO	Well	LARSON A23-668
Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	LARSON A23-668 AWB
Facility	SEC.24-T06N-R64W		

WELLPATH DATA (185 stations)										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
5573.00	14.390	143.150	5476.73	-498.86	-555.21	553.31	40°28'32.084"N	104°29'16.094"W	0.41	
5668.00	14.440	138.930	5568.75	-511.93	-573.58	568.18	40°28'31.900"N	104°29'15.905"W	1.11	
5762.00	14.410	135.460	5659.78	-526.16	-590.76	584.08	40°28'31.729"N	104°29'15.702"W	0.92	
5856.00	14.170	132.010	5750.88	-541.34	-606.80	600.83	40°28'31.569"N	104°29'15.487"W	0.94	
5951.00	14.130	135.790	5843.00	-556.48	-622.89	617.56	40°28'31.408"N	104°29'15.273"W	0.97	
6045.00	8.790	156.360	5935.13	-565.94	-637.71	628.45	40°28'31.260"N	104°29'15.134"W	7.07	
6140.00	9.240	193.020	6029.03	-565.80	-651.80	629.65	40°28'31.121"N	104°29'15.121"W	5.96	
6234.00	14.450	231.320	6121.13	-553.59	-666.52	618.77	40°28'30.977"N	104°29'15.264"W	9.75	
6329.00	19.870	253.090	6211.96	-527.82	-678.64	594.02	40°28'30.860"N	104°29'15.586"W	8.76	
6423.00	27.880	254.730	6297.84	-490.46	-689.09	557.48	40°28'30.760"N	104°29'16.060"W	8.55	
6517.00	37.020	254.850	6377.08	-440.81	-702.30	508.86	40°28'30.635"N	104°29'16.691"W	9.72	
6612.00	45.140	260.870	6448.66	-378.90	-715.15	447.88	40°28'30.515"N	104°29'17.482"W	9.50	
6707.00	54.490	267.030	6509.93	-306.47	-722.51	375.83	40°28'30.451"N	104°29'18.416"W	11.01	
6801.00	61.950	271.850	6559.42	-226.95	-723.16	296.01	40°28'30.453"N	104°29'19.448"W	9.05	
6895.00	67.170	272.410	6599.79	-142.83	-720.00	211.22	40°28'30.494"N	104°29'20.545"W	5.58	
6990.00	75.050	266.220	6630.54	-53.36	-721.18	121.47	40°28'30.492"N	104°29'21.707"W	10.33	
7084.00	86.240	261.690	6645.81	39.21	-730.99	29.41	40°28'30.406"N	104°29'22.899"W	12.82	
7179.00	89.880	261.900	6649.02	134.03	-744.54	-64.55	40°28'30.283"N	104°29'24.117"W	3.84	
7273.00	89.910	263.780	6649.20	227.98	-756.26	-157.81	40°28'30.177"N	104°29'25.325"W	2.00	
7367.00	90.000	265.870	6649.27	321.97	-764.73	-251.42	40°28'30.104"N	104°29'26.538"W	2.23	
7462.00	90.000	267.480	6649.27	416.91	-770.24	-346.26	40°28'30.060"N	104°29'27.766"W	1.69	
7556.00	89.970	269.290	6649.29	510.70	-772.89	-440.22	40°28'30.045"N	104°29'28.982"W	1.93	
7651.00	90.090	271.760	6649.24	605.19	-772.02	-535.21	40°28'30.064"N	104°29'30.211"W	2.60	
7745.00	89.940	273.090	6649.22	698.32	-768.04	-629.12	40°28'30.114"N	104°29'31.425"W	1.42	
7840.00	90.150	273.760	6649.14	792.20	-762.37	-723.95	40°28'30.181"N	104°29'32.652"W	0.74	
7934.00	90.250	272.700	6648.82	885.14	-757.07	-817.80	40°28'30.243"N	104°29'33.865"W	1.13	
8029.00	90.250	271.900	6648.40	979.28	-753.26	-912.72	40°28'30.292"N	104°29'35.093"W	0.84	
8123.00	90.180	270.690	6648.05	1072.65	-751.14	-1006.69	40°28'30.323"N	104°29'36.308"W	1.29	
8218.00	90.250	269.390	6647.69	1167.22	-751.07	-1101.69	40°28'30.335"N	104°29'37.537"W	1.37	
8312.00	90.220	267.540	6647.31	1261.00	-753.59	-1195.65	40°28'30.320"N	104°29'38.754"W	1.97	



Actual Wellpath Report

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Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	LARSON A23-668 AWB
Facility	SEC.24-T06N-R64W		

WELLPATH DATA (185 stations)										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
8406.00	90.030	266.230	6647.10	1354.93	-758.70	-1289.51	40°28'30.280"N	104°29'39.969"W	1.41	
8501.00	89.970	264.990	6647.10	1449.91	-765.97	-1384.23	40°28'30.219"N	104°29'41.195"W	1.31	
8595.00	90.150	266.260	6647.00	1543.89	-773.14	-1477.96	40°28'30.159"N	104°29'42.409"W	1.36	
8690.00	90.180	266.840	6646.73	1638.84	-778.85	-1572.78	40°28'30.113"N	104°29'43.637"W	0.61	
8784.00	90.060	266.340	6646.53	1732.78	-784.45	-1666.62	40°28'30.068"N	104°29'44.852"W	0.55	
8879.00	90.060	267.430	6646.43	1827.71	-789.61	-1761.47	40°28'30.028"N	104°29'46.080"W	1.15	
8973.00	90.000	267.940	6646.38	1921.57	-793.40	-1855.40	40°28'30.001"N	104°29'47.296"W	0.55	
9068.00	90.000	268.260	6646.38	2016.40	-796.55	-1950.34	40°28'29.980"N	104°29'48.525"W	0.34	
9163.00	90.060	269.070	6646.34	2111.16	-798.77	-2045.32	40°28'29.969"N	104°29'49.754"W	0.85	
9257.00	90.220	272.250	6646.11	2204.63	-797.69	-2139.30	40°28'29.990"N	104°29'50.970"W	3.39	
9352.00	89.780	272.350	6646.11	2298.78	-793.87	-2234.22	40°28'30.038"N	104°29'52.197"W	0.47	
9446.00	90.030	270.670	6646.26	2392.10	-791.40	-2328.19	40°28'30.073"N	104°29'53.413"W	1.81	
9541.00	89.970	270.050	6646.26	2486.62	-790.80	-2423.18	40°28'30.090"N	104°29'54.642"W	0.66	
9635.00	89.910	268.780	6646.36	2580.29	-791.76	-2517.18	40°28'30.091"N	104°29'55.858"W	1.35	
9730.00	90.090	267.040	6646.36	2675.13	-795.22	-2612.11	40°28'30.067"N	104°29'57.087"W	1.84	
9824.00	89.910	265.130	6646.36	2769.09	-801.64	-2705.89	40°28'30.014"N	104°29'58.301"W	2.04	
9919.00	89.850	264.830	6646.56	2864.09	-809.95	-2800.52	40°28'29.943"N	104°29'59.527"W	0.32	
10013.00	89.850	265.310	6646.80	2958.09	-818.03	-2894.17	40°28'29.873"N	104°30'00.740"W	0.51	
10108.00	90.090	267.200	6646.85	3053.05	-824.24	-2988.97	40°28'29.823"N	104°30'01.967"W	2.01	
10203.00	89.910	268.210	6646.85	3147.91	-828.04	-3083.89	40°28'29.795"N	104°30'03.196"W	1.08	
10297.00	90.000	268.680	6646.93	3241.70	-830.59	-3177.85	40°28'29.781"N	104°30'04.412"W	0.51	
10392.00	89.910	269.200	6647.00	3336.43	-832.35	-3272.84	40°28'29.774"N	104°30'05.642"W	0.56	
10486.00	89.820	269.140	6647.22	3430.13	-833.71	-3366.83	40°28'29.771"N	104°30'06.858"W	0.12	
10581.00	90.030	268.430	6647.35	3524.88	-835.72	-3461.80	40°28'29.762"N	104°30'08.087"W	0.78	
10675.00	89.880	269.210	6647.42	3618.63	-837.66	-3555.78	40°28'29.753"N	104°30'09.303"W	0.84	
10770.00	89.970	272.170	6647.55	3713.09	-836.52	-3650.77	40°28'29.775"N	104°30'10.532"W	3.12	
10864.00	90.000	271.920	6647.57	3806.30	-833.16	-3744.71	40°28'29.818"N	104°30'11.747"W	0.27	
10959.00	89.780	271.970	6647.75	3900.52	-829.94	-3839.65	40°28'29.861"N	104°30'12.975"W	0.24	
11053.00	89.880	270.820	6648.03	3993.87	-827.65	-3933.62	40°28'29.894"N	104°30'14.191"W	1.23	
11148.00	89.970	271.040	6648.16	4088.29	-826.11	-4028.61	40°28'29.920"N	104°30'15.420"W	0.25	



Actual Wellpath Report

LARSON A23-668 AWP



REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Slot	SLOT#18 LARSON A23-668(698'FNL&275'FEL,SEC.24)
Area	COLORADO	Well	LARSON A23-668
Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	LARSON A23-668 AWB
Facility	SEC.24-T06N-R64W		

WELLPATH DATA (185 stations)										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
11243.00	90.030	270.130	6648.16	4182.78	-825.14	-4123.60	40°28'29.940"N	104°30'16.649"W	0.96	
11337.00	89.850	268.890	6648.26	4276.43	-825.94	-4217.60	40°28'29.942"N	104°30'17.865"W	1.33	
11432.00	89.720	266.480	6648.61	4371.29	-829.78	-4312.51	40°28'29.915"N	104°30'19.093"W	2.54	
11527.00	90.030	265.510	6648.82	4466.26	-836.41	-4407.28	40°28'29.860"N	104°30'20.321"W	1.07	
11621.00	90.060	265.170	6648.75	4560.25	-844.05	-4500.97	40°28'29.795"N	104°30'21.534"W	0.36	
11715.00	89.850	265.560	6648.82	4654.24	-851.65	-4594.66	40°28'29.730"N	104°30'22.747"W	0.47	
11810.00	89.080	266.650	6649.71	4749.21	-858.10	-4689.43	40°28'29.677"N	104°30'23.975"W	1.40	
11905.00	89.480	268.090	6650.90	4844.09	-862.46	-4784.32	40°28'29.644"N	104°30'25.203"W	1.57	
11999.00	89.450	271.490	6651.78	4937.69	-862.80	-4878.31	40°28'29.651"N	104°30'26.419"W	3.62	
12094.00	89.110	271.900	6652.97	5031.96	-859.99	-4973.26	40°28'29.689"N	104°30'27.647"W	0.56	
12282.00	89.350	272.730	6655.50	5218.25	-852.40	-5161.08	40°28'29.785"N	104°30'30.076"W	0.46	
12376.00	89.320	272.410	6656.59	5311.34	-848.18	-5254.98	40°28'29.837"N	104°30'31.291"W	0.34	
12470.00	89.170	271.730	6657.83	5404.54	-844.79	-5348.91	40°28'29.881"N	104°30'32.506"W	0.74	
12565.00	89.110	271.020	6659.25	5498.87	-842.51	-5443.87	40°28'29.914"N	104°30'33.734"W	0.75	
12660.00	89.230	270.260	6660.63	5593.33	-841.45	-5538.86	40°28'29.935"N	104°30'34.963"W	0.81	
12754.00	89.260	266.860	6661.87	5687.09	-843.81	-5632.81	40°28'29.922"N	104°30'36.179"W	3.62	
12849.00	88.860	265.980	6663.43	5782.03	-849.74	-5727.61	40°28'29.874"N	104°30'37.406"W	1.02	
12944.00	88.980	265.720	6665.22	5876.99	-856.62	-5822.34	40°28'29.817"N	104°30'38.633"W	0.30	
13038.00	88.710	265.870	6667.11	5970.95	-863.51	-5916.07	40°28'29.759"N	104°30'39.847"W	0.33	
13133.00	88.890	266.310	6669.10	6065.90	-869.98	-6010.83	40°28'29.705"N	104°30'41.074"W	0.50	
13227.00	89.010	266.190	6670.83	6159.84	-876.13	-6104.61	40°28'29.655"N	104°30'42.288"W	0.18	
13322.00	88.710	266.760	6672.72	6254.78	-881.97	-6199.41	40°28'29.608"N	104°30'43.515"W	0.68	
13416.00	89.020	267.970	6674.58	6348.65	-886.29	-6293.29	40°28'29.575"N	104°30'44.731"W	1.33	
13511.00	88.830	268.590	6676.36	6443.44	-889.14	-6388.23	40°28'29.557"N	104°30'45.960"W	0.68	
13606.00	88.980	269.360	6678.18	6538.15	-890.84	-6483.20	40°28'29.551"N	104°30'47.189"W	0.83	
13700.00	88.950	270.660	6679.87	6631.71	-890.82	-6577.18	40°28'29.562"N	104°30'48.405"W	1.38	
13795.00	88.920	270.910	6681.64	6726.15	-889.52	-6672.15	40°28'29.585"N	104°30'49.633"W	0.27	
13889.00	89.010	270.320	6683.34	6819.62	-888.51	-6766.13	40°28'29.605"N	104°30'50.849"W	0.63	
13984.00	88.860	270.120	6685.10	6914.15	-888.15	-6861.12	40°28'29.619"N	104°30'52.078"W	0.26	
14078.00	88.890	271.160	6686.95	7007.61	-887.10	-6955.09	40°28'29.640"N	104°30'53.294"W	1.11	



Actual Wellpath Report

LARSON A23-668 AWP



REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Slot	SLOT#18 LARSON A23-668(698'FNL&275'FEL,SEC.24)
Area	COLORADO	Well	LARSON A23-668
Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	LARSON A23-668 AWB
Facility	SEC.24-T06N-R64W		

WELLPATH DATA (185 stations)										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
14173.00	88.740	270.720	6688.91	7102.02	-885.54	-7050.06	40°28'29.666"N	104°30'54.522"W	0.49	
14268.00	88.890	269.710	6690.88	7196.54	-885.19	-7145.04	40°28'29.680"N	104°30'55.751"W	1.07	
14362.00	88.800	269.010	6692.77	7290.20	-886.24	-7239.01	40°28'29.680"N	104°30'56.967"W	0.75	
14457.00	88.860	268.590	6694.71	7384.93	-888.22	-7333.97	40°28'29.670"N	104°30'58.196"W	0.45	
14551.00	88.710	268.390	6696.71	7478.69	-890.70	-7427.92	40°28'29.656"N	104°30'59.412"W	0.27	
14646.00	89.970	267.910	6697.80	7573.51	-893.77	-7522.86	40°28'29.636"N	104°31'00.641"W	1.42	
14740.00	90.000	267.170	6697.82	7667.38	-897.80	-7616.77	40°28'29.607"N	104°31'01.857"W	0.79	
14835.00	90.030	266.680	6697.80	7762.31	-902.90	-7711.63	40°28'29.567"N	104°31'03.085"W	0.52	
14929.00	89.850	265.010	6697.90	7856.28	-909.71	-7805.38	40°28'29.510"N	104°31'04.299"W	1.79	
15024.00	90.310	263.670	6697.77	7951.28	-919.08	-7899.92	40°28'29.428"N	104°31'05.524"W	1.49	
15118.00	89.910	260.040	6697.58	8045.15	-932.39	-7992.95	40°28'29.306"N	104°31'06.729"W	3.89	
15213.00	90.120	260.230	6697.56	8139.86	-948.67	-8086.55	40°28'29.156"N	104°31'07.943"W	0.30	
15308.00	90.250	266.940	6697.25	8234.79	-959.28	-8180.90	40°28'29.061"N	104°31'09.165"W	7.06	
15402.00	90.000	270.880	6697.05	8328.51	-961.07	-8274.86	40°28'29.054"N	104°31'10.381"W	4.20	
15497.00	90.180	271.570	6696.90	8422.88	-959.03	-8369.84	40°28'29.084"N	104°31'11.610"W	0.75	
15591.00	90.150	271.570	6696.63	8516.19	-956.46	-8463.80	40°28'29.120"N	104°31'12.825"W	0.03	
15685.00	90.220	271.800	6696.32	8609.47	-953.69	-8557.76	40°28'29.157"N	104°31'14.040"W	0.26	
15780.00	90.150	270.860	6696.02	8703.82	-951.49	-8652.74	40°28'29.189"N	104°31'15.269"W	0.99	
15875.00	90.220	272.280	6695.71	8798.12	-948.89	-8747.70	40°28'29.226"N	104°31'16.497"W	1.50	
15969.00	90.180	273.100	6695.38	8891.19	-944.48	-8841.59	40°28'29.279"N	104°31'17.711"W	0.87	
16064.00	90.150	271.810	6695.11	8985.30	-940.41	-8936.50	40°28'29.330"N	104°31'18.939"W	1.36	
16158.00	90.250	270.670	6694.78	9078.67	-938.37	-9030.48	40°28'29.360"N	104°31'20.155"W	1.22	
16253.00	90.220	269.310	6694.39	9173.26	-938.39	-9125.48	40°28'29.370"N	104°31'21.384"W	1.43	
16347.00	90.060	268.140	6694.16	9267.01	-940.48	-9219.45	40°28'29.360"N	104°31'22.600"W	1.26	
16536.00	89.970	269.220	6694.11	9455.54	-944.83	-9408.40	40°28'29.338"N	104°31'25.045"W	0.57	
16631.00	90.150	270.140	6694.01	9550.17	-945.36	-9503.40	40°28'29.343"N	104°31'26.275"W	0.99	
16725.00	90.310	270.660	6693.64	9643.69	-944.71	-9597.39	40°28'29.359"N	104°31'27.491"W	0.58	
16820.00	90.060	270.480	6693.33	9738.18	-943.76	-9692.39	40°28'29.379"N	104°31'28.720"W	0.32	
16914.00	90.000	269.850	6693.28	9831.74	-943.49	-9786.39	40°28'29.392"N	104°31'29.936"W	0.67	
17009.00	90.370	269.590	6692.97	9926.36	-943.96	-9881.38	40°28'29.398"N	104°31'31.165"W	0.48	



Actual Wellpath Report

LARSON A23-668 AWP



REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Slot	SLOT#18 LARSON A23-668(698'FNL&275'FEL,SEC.24)
Area	COLORADO	Well	LARSON A23-668
Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	LARSON A23-668 AWB
Facility	SEC.24-T06N-R64W		

WELLPATH DATA (185 stations)										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
17103.00	90.250	269.950	6692.46	10019.98	-944.33	-9975.38	40°28'29.404"N	104°31'32.381"W	0.40	
17198.00	90.000	269.360	6692.26	10114.61	-944.91	-10070.38	40°28'29.409"N	104°31'33.611"W	0.67	
17292.00	90.000	268.470	6692.26	10208.35	-946.69	-10164.36	40°28'29.401"N	104°31'34.827"W	0.95	
17376.00	90.030	267.970	6692.23	10292.18	-949.30	-10248.32	40°28'29.385"N	104°31'35.914"W	0.60	Last BHI MWD Survey
17400.00	90.030	267.970	6692.22	10316.14	-950.15	-10272.31	40°28'29.379"N	104°31'36.224"W	0.00	Projection to Bit

HOLE & CASING SECTIONS - Ref Wellbore: LARSON A23-668 AWB Ref Wellpath: LARSON A23-668 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	1963.00	1933.00	30.00	1962.96	0.01	0.02	4.18	-0.97
9.625in Casing Surface	30.00	1963.00	1933.00	30.00	1962.96	0.01	0.02	4.18	-0.97
8.5in Open Hole	1963.00	17376.00	15413.00	1962.96	6692.23	4.18	-0.97	-949.30	-10248.32



Actual Wellpath Report

LARSON A23-668 AWP



REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Slot	SLOT#18 LARSON A23-668(698'FNL&275'FEL,SEC.24)
Area	COLORADO	Well	LARSON A23-668
Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	LARSON A23-668 AWB
Facility	SEC.24-T06N-R64W		

TARGETS								
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
LARSON A23-639 Section 23	6.00	-3198.46	39.22	3281072.59	1415057.73	40°28'06.024"N	104°29'23.136"W	polygon
LARSON A23-639 Section 24	6.00	-3198.46	39.22	3281072.59	1415057.73	40°28'06.024"N	104°29'23.136"W	polygon
LARSON AA19-618 SECTION 19	6.00	-3427.96	41.84	3281075.20	1414828.23	40°28'03.756"N	104°29'23.136"W	polygon
LARSON AA19-618 SECTION 19 HARDLINE (460'SETBACK)	6.00	-3427.96	41.84	3281075.20	1414828.23	40°28'03.756"N	104°29'23.136"W	polygon
LARSON A23-668 LANDING POINT	6647.00	-765.00	15.00	3281048.37	1417491.10	40°28'30.071"N	104°29'23.091"W	point
LARSON A23-668 TARGET 1	6647.00	-853.80	-4500.00	3276533.53	1417402.30	40°28'29.698"N	104°30'21.523"W	point
LARSON A23-668 REV-1 BHL(1462'FNL&0'FWL,SEC.23)	6692.00	-967.54	-10280.76	3270752.99	1417288.57	40°28'29.208"N	104°31'36.336"W	point
LARSON A23-668 TARGET 2	6694.00	-908.86	-7300.00	3273733.64	1417347.24	40°28'29.463"N	104°30'57.760"W	point
LARSON A23-639 SECTION 23 Hardline (460'SETBACK)	7006.00	-3198.46	39.22	3281072.59	1415057.73	40°28'06.024"N	104°29'23.136"W	polygon
LARSON A23-639 SECTION 24 Hardline (460'SETBACK)	7006.00	-3198.46	39.22	3281072.59	1415057.73	40°28'06.024"N	104°29'23.136"W	polygon



Actual Wellpath Report

LARSON A23-668 AWP



REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY, INC	Slot	SLOT#18 LARSON A23-668(698'FNL&275'FEL,SEC.24)
Area	COLORADO	Well	LARSON A23-668
Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	LARSON A23-668 AWB
Facility	SEC.24-T06N-R64W		

WELLPATH COMPOSITION - Ref Wellbore: LARSON A23-668 AWB Ref Wellpath: LARSON A23-668 AWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
0.00	1938.00	BHI Generic gyro - continuous (Standard)	BHI GYRO <85-1938>	LARSON A23-668 AWB
1938.00	17376.00	OWSG MWD rev2 + IFR1 + Multi-Station Correction	OWSG MWD REV2+IFR1+MSC <1982-17376'>	LARSON A23-668 AWB
17376.00	17400.00	Blind Drilling (std)	Projection to bit	LARSON A23-668 AWB



Actual Wellpath Report

LARSON A23-668 AWP



REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Slot	SLOT#18 LARSON A23-668(698'FNL&275'FEL,SEC.24)
Area	COLORADO	Well	LARSON A23-668
Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	LARSON A23-668 AWB
Facility	SEC.24-T06N-R64W		

WELLPATH COMMENTS				
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
1938.00	1.550	8.090	1937.96	Tie to Surface Surveys
17376.00	90.030	267.970	6692.23	Last BHI MWD Survey
17400.00	90.030	267.970	6692.22	Projection to Bit

COMMENTS	
<div>Wellpath general comments</div> <div>SURFACE LOCATION: NENE</div> <div>40.47712N</div> <div>104.48977W</div> <div>API: 05-123-45094</div>	