

# NOBLE ENERGY, INC

Location: COLORADO Slot: SLOT#09 STARS FEDERAL LD17-770 (285'FSL & 1128'FWL,SEC.05)  
Field: WELD COUNTY (NOBLE NAD 83 GRID) Well: STARS FEDERAL LD17-770  
Facility: SEC.05-T09N-R58W Wellbore: STARS FEDERAL LD17-770 PWB

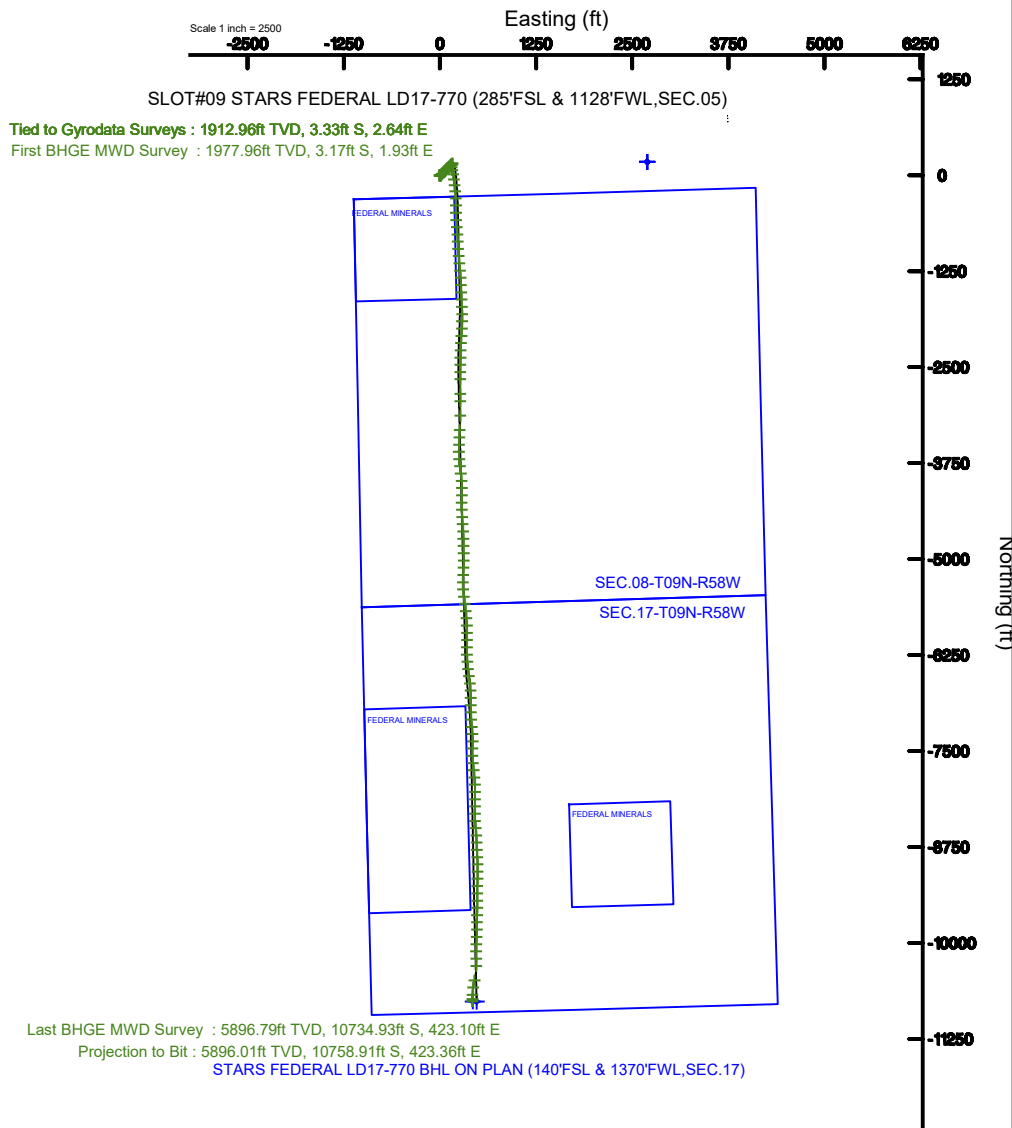
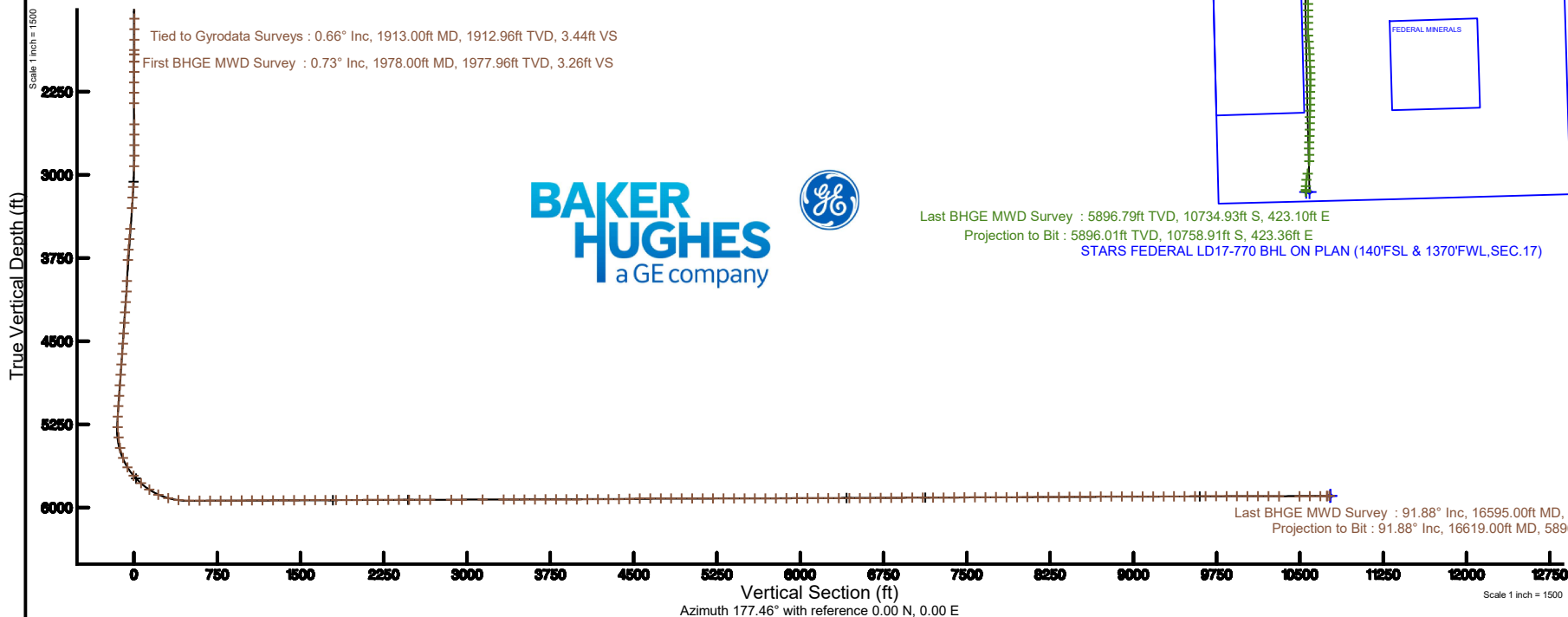
Plot reference wellpath is STARS FEDERAL LD17-770 (REV-A.0) PWP	Grid System: NAD83 / Lambert Colorado SP, Northern Zone (501), US feet
True vertical depths are referenced to RIG (307) (RKB)	North Reference: Grid north
Measured depths are referenced to RIG (307) (RKB)	Scale: True distance
RIG (307) (RKB) to Mean Sea Level: 4864 feet	Depths are in feet
Mean Sea Level to Mud line (At Slot: SLOT#09 STARS FEDERAL LD17-770 (285'FSL & 1128'FWL,SEC.05)): 0 feet	Created by: doddanna on 2019-08-28
Coordinates are in feet referenced to Slot	Database: WellArchitectDB2

## Location Information

Facility Name			Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
SEC.05-T09N-R58W			3448481.809	1533139.636	40°47'06.196"N	103°52'46.476"W
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
SLOT#09 STARS FEDERAL LD17-770 (285'FSL & 1128'FWL,SEC.05)	-4365.65	-3615.72	3444896.096	1528773.996	40°46'25.716"N	103°53'37.500"W
RIG (307) (RKB) to Mud line (At Slot: SLOT#09 STARS FEDERAL LD17-770 (285'FSL & 1128'FWL,SEC.05))					4864ft	
Mean Sea Level to Mud line (At Slot: SLOT#09 STARS FEDERAL LD17-770 (285'FSL & 1128'FWL,SEC.05))					0ft	
RIG (307) (RKB) to Mean Sea Level					4864ft	

## Survey Program

Start MD (ft)	End MD (ft)	Tool	Model	Log Name/Comment	Wellbore
30.00	16612.24	OWSG MWD rev2	OWSG MWD rev2 + IFR1 + Multi-Station Correction		STARS FEDERAL LD17-770 PWB



REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Slot	SLOT#09 STARS FEDERAL LD17-770 (285'FSL & 1128'FWL, SEC.05)
Area	COLORADO	Well	STARS FEDERAL LD17-770
Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	STARS FEDERAL LD17-770 AWP
Facility	SEC.05-T09N-R58W		

REPORT SETUP INFORMATION			
Projection System	NAD83 / Lambert Colorado SP, Northern Zone (501), US feet	Software System	WellArchitect® 5.1
North Reference	Grid	User	Doddanna
Scale	0.999998	Report Generated	8/28/2019 at 12:44:02 PM
Convergence at slot	1.04° East	Database/Source file	WellArchitectDB2/STARS_FEDERAL_LD17-770_AWP.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-4365.65	-3615.72	3444866.10	1528774.00	40°46'25.716"N	103°53'37.500"W
Facility Reference Pt			3448481.81	1533139.64	40°47'08.196"N	103°52'49.476"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') (RKB) to Facility Vertical Datum	4864.00ft
Horizontal Reference Pt	Slot	RIG (30') (RKB) to Mean Sea Level	4864.00ft
Vertical Reference Pt	RIG (30') (RKB)	RIG (30') (RKB) to Mud Line at Slot (SLOT#09 STARS FEDERAL LD17-770 (285'FSL & 1128'FWL, SEC.05))	4864.00ft
MD Reference Pt	RIG (30') (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	177.46°

REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Slot	SLOT#09 STARS FEDERAL LD17-770 (285'FSL & 1128'FWL,SEC.05)
Area	COLORADO	Well	STARS FEDERAL LD17-770
Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	STARS FEDERAL LD17-770 AWB
Facility	SEC.05-T09N-R58W		

WELLPATH DATA (171 stations)										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
0.00	0.000	87.390	0.00	0.00	0.00	0.00	40°46'25.716"N	103°53'37.500"W	0.00	
82.00	0.500	87.390	82.00	0.00	0.02	0.36	40°46'25.716"N	103°53'37.495"W	0.61	
177.00	0.290	77.020	177.00	-0.04	0.09	1.01	40°46'25.717"N	103°53'37.487"W	0.23	
268.00	0.250	58.420	268.00	-0.18	0.24	1.40	40°46'25.718"N	103°53'37.482"W	0.11	
363.00	0.340	205.060	363.00	-0.03	0.10	1.46	40°46'25.717"N	103°53'37.481"W	0.60	
457.00	0.390	70.940	456.99	0.12	-0.05	1.64	40°46'25.715"N	103°53'37.479"W	0.72	
552.00	0.770	92.860	551.99	0.09	0.02	2.58	40°46'25.716"N	103°53'37.466"W	0.46	
646.00	0.690	134.890	645.98	0.57	-0.41	3.62	40°46'25.711"N	103°53'37.453"W	0.56	
741.00	0.360	135.050	740.98	1.21	-1.02	4.23	40°46'25.705"N	103°53'37.445"W	0.35	
836.00	0.150	145.280	835.98	1.53	-1.34	4.51	40°46'25.702"N	103°53'37.442"W	0.23	
930.00	0.380	143.040	929.98	1.90	-1.69	4.77	40°46'25.698"N	103°53'37.438"W	0.24	
1024.00	0.300	25.830	1023.98	1.94	-1.71	5.07	40°46'25.698"N	103°53'37.435"W	0.62	
1119.00	0.390	176.340	1118.97	2.04	-1.81	5.19	40°46'25.697"N	103°53'37.433"W	0.70	
1213.00	0.100	261.650	1212.97	2.37	-2.14	5.13	40°46'25.694"N	103°53'37.434"W	0.42	
1308.00	0.460	222.390	1307.97	2.65	-2.44	4.79	40°46'25.691"N	103°53'37.438"W	0.41	
1402.00	0.490	171.510	1401.97	3.31	-3.11	4.60	40°46'25.684"N	103°53'37.441"W	0.44	
1497.00	0.220	241.290	1496.97	3.80	-3.60	4.50	40°46'25.680"N	103°53'37.442"W	0.49	
1591.00	0.330	256.430	1590.97	3.93	-3.75	4.08	40°46'25.678"N	103°53'37.448"W	0.14	
1686.00	0.290	246.990	1685.97	4.07	-3.91	3.59	40°46'25.677"N	103°53'37.454"W	0.07	
1781.00	0.160	345.630	1780.97	4.02	-3.88	3.34	40°46'25.677"N	103°53'37.458"W	0.37	
1875.00	0.490	301.640	1874.96	3.67	-3.54	2.96	40°46'25.681"N	103°53'37.462"W	0.42	
1913.00	0.660	305.100	1912.96	3.44	-3.33	2.64	40°46'25.683"N	103°53'37.466"W	0.46	Tied to Gyrodata Surveys
1978.00	0.730	261.460	1977.96	3.26	-3.17	1.93	40°46'25.684"N	103°53'37.476"W	0.80	First BHGE MWD Survey
2072.00	0.500	275.620	2071.95	3.26	-3.22	0.93	40°46'25.684"N	103°53'37.489"W	0.29	
2166.00	0.890	319.120	2165.95	2.63	-2.63	0.04	40°46'25.690"N	103°53'37.500"W	0.67	
2260.00	1.150	282.450	2259.93	1.81	-1.88	-1.36	40°46'25.698"N	103°53'37.518"W	0.73	
2355.00	0.700	182.490	2354.92	2.14	-2.25	-2.31	40°46'25.694"N	103°53'37.531"W	1.52	
2544.00	0.850	177.390	2543.91	4.70	-4.80	-2.30	40°46'25.669"N	103°53'37.531"W	0.09	
2638.00	0.810	87.660	2637.90	5.40	-5.47	-1.60	40°46'25.662"N	103°53'37.522"W	1.25	
2733.00	0.650	53.140	2732.89	5.09	-5.12	-0.50	40°46'25.665"N	103°53'37.508"W	0.48	

REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Slot	SLOT#09 STARS FEDERAL LD17-770 (285'FSL & 1128'FWL,SEC.05)
Area	COLORADO	Well	STARS FEDERAL LD17-770
Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	STARS FEDERAL LD17-770 AWB
Facility	SEC.05-T09N-R58W		

WELLPATH DATA (171 stations)										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
2827.00	1.080	57.980	2826.88	4.36	-4.33	0.68	40°46'25.673"N	103°53'37.492"W	0.46	
2922.00	3.210	43.850	2921.81	2.08	-1.94	3.28	40°46'25.696"N	103°53'37.458"W	2.29	
3111.00	6.730	58.770	3110.08	-6.89	7.62	16.42	40°46'25.788"N	103°53'37.285"W	1.97	
3206.00	6.410	59.190	3204.45	-12.07	13.22	25.73	40°46'25.842"N	103°53'37.162"W	0.34	
3301.00	6.250	48.430	3298.88	-17.84	19.37	34.16	40°46'25.901"N	103°53'37.052"W	1.26	
3490.00	6.670	42.870	3486.68	-32.02	34.24	49.32	40°46'26.045"N	103°53'36.851"W	0.40	
3584.00	6.430	41.120	3580.06	-39.66	42.21	56.50	40°46'26.123"N	103°53'36.756"W	0.33	
3678.00	6.370	41.150	3673.48	-47.24	50.10	63.39	40°46'26.200"N	103°53'36.664"W	0.06	
3773.00	5.210	43.040	3767.99	-54.07	57.22	69.80	40°46'26.269"N	103°53'36.579"W	1.24	
3962.00	1.610	31.200	3956.63	-62.29	65.77	77.04	40°46'26.352"N	103°53'36.483"W	1.93	
4057.00	3.980	27.210	4051.51	-66.26	69.84	79.24	40°46'26.392"N	103°53'36.454"W	2.50	
4152.00	6.310	32.220	4146.12	-73.41	77.19	83.53	40°46'26.464"N	103°53'36.396"W	2.50	
4246.00	5.050	51.950	4239.67	-80.06	84.11	89.54	40°46'26.531"N	103°53'36.317"W	2.45	
4341.00	5.380	45.340	4334.27	-85.48	89.82	96.00	40°46'26.586"N	103°53'36.231"W	0.72	
4436.00	6.140	46.990	4428.79	-91.76	96.42	102.88	40°46'26.650"N	103°53'36.140"W	0.82	
4530.00	6.150	42.840	4522.25	-98.56	103.54	109.98	40°46'26.719"N	103°53'36.046"W	0.47	
4624.00	5.960	47.050	4615.73	-105.26	110.55	116.98	40°46'26.787"N	103°53'35.954"W	0.51	
4719.00	6.210	42.290	4710.19	-112.10	117.72	124.05	40°46'26.857"N	103°53'35.860"W	0.59	
4813.00	6.090	43.850	4803.65	-119.14	125.07	130.92	40°46'26.928"N	103°53'35.769"W	0.22	
4908.00	6.140	43.700	4898.11	-126.13	132.38	137.92	40°46'26.999"N	103°53'35.676"W	0.06	
5003.00	5.890	43.290	4992.59	-133.04	139.60	144.78	40°46'27.069"N	103°53'35.586"W	0.27	
5097.00	6.160	51.050	5086.07	-139.40	146.28	152.01	40°46'27.134"N	103°53'35.490"W	0.91	
5192.00	5.940	43.720	5180.54	-145.82	153.04	159.37	40°46'27.199"N	103°53'35.393"W	0.84	
5287.00	4.430	139.070	5275.29	-146.35	153.82	165.18	40°46'27.206"N	103°53'35.317"W	8.14	
5381.00	8.800	223.480	5368.81	-138.49	145.84	162.60	40°46'27.128"N	103°53'35.353"W	10.05	
5476.00	12.970	204.920	5462.11	-123.97	130.89	153.10	40°46'26.982"N	103°53'35.480"W	5.68	
5571.00	20.670	171.410	5553.18	-97.74	104.55	151.11	40°46'26.722"N	103°53'35.512"W	12.73	
5665.00	31.790	163.180	5637.39	-57.11	64.30	160.78	40°46'26.322"N	103°53'35.395"W	12.42	
5760.00	40.480	170.700	5714.08	-2.10	9.79	173.04	40°46'25.782"N	103°53'35.249"W	10.26	
5854.00	48.550	173.960	5781.06	63.47	-55.47	181.69	40°46'25.135"N	103°53'35.152"W	8.92	

REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Slot	SLOT#09 STARS FEDERAL LD17-770 (285'FSL & 1128'FWL,SEC.05)
Area	COLORADO	Well	STARS FEDERAL LD17-770
Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	STARS FEDERAL LD17-770 AWB
Facility	SEC.05-T09N-R58W		

WELLPATH DATA (171 stations)										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
5949.00	56.040	174.010	5839.12	138.44	-130.17	189.56	40°46'24.396"N	103°53'35.067"W	7.88	
6043.00	65.970	173.960	5884.63	220.41	-211.83	198.17	40°46'23.588"N	103°53'34.975"W	10.56	
6138.00	75.440	176.060	5915.99	309.88	-301.05	205.91	40°46'22.705"N	103°53'34.895"W	10.18	
6232.00	83.920	180.070	5932.82	402.25	-393.37	208.98	40°46'21.792"N	103°53'34.877"W	9.95	
6327.00	89.720	179.460	5938.09	496.99	-488.19	209.37	40°46'20.856"N	103°53'34.894"W	6.14	
6422.00	90.180	177.570	5938.17	591.97	-583.15	211.83	40°46'19.917"N	103°53'34.884"W	2.05	
6516.00	90.090	173.870	5937.95	685.91	-676.87	218.85	40°46'18.990"N	103°53'34.815"W	3.94	
6611.00	90.220	175.240	5937.69	780.78	-771.44	227.86	40°46'18.054"N	103°53'34.721"W	1.45	
6705.00	90.250	179.120	5937.31	874.76	-865.31	232.49	40°46'17.126"N	103°53'34.683"W	4.13	
6800.00	90.220	175.780	5936.92	969.75	-960.20	236.71	40°46'16.187"N	103°53'34.650"W	3.52	
6894.00	90.370	173.790	5936.43	1063.64	-1053.80	245.26	40°46'15.261"N	103°53'34.561"W	2.12	
6989.00	90.220	176.270	5935.94	1158.55	-1148.44	253.49	40°46'14.325"N	103°53'34.476"W	2.62	
7084.00	90.250	174.540	5935.55	1253.48	-1243.13	261.10	40°46'13.388"N	103°53'34.400"W	1.82	
7178.00	90.370	176.130	5935.05	1347.41	-1336.81	268.74	40°46'12.461"N	103°53'34.322"W	1.70	
7273.00	90.220	178.180	5934.56	1442.41	-1431.69	273.46	40°46'11.523"N	103°53'34.284"W	2.16	
7367.00	90.490	177.900	5933.97	1536.40	-1525.63	276.67	40°46'10.594"N	103°53'34.264"W	0.41	
7462.00	90.120	176.890	5933.47	1631.40	-1620.53	280.99	40°46'09.656"N	103°53'34.230"W	1.13	
7556.00	90.460	176.840	5932.99	1725.39	-1714.39	286.13	40°46'08.728"N	103°53'34.185"W	0.37	
7651.00	90.060	179.430	5932.56	1820.37	-1809.33	289.22	40°46'07.789"N	103°53'34.168"W	2.76	
7745.00	90.250	180.950	5932.31	1914.26	-1903.33	288.91	40°46'06.861"N	103°53'34.194"W	1.63	
7840.00	90.180	182.510	5931.95	2009.00	-1998.28	286.04	40°46'05.923"N	103°53'34.253"W	1.64	
7935.00	90.150	184.630	5931.68	2103.45	-2093.09	280.13	40°46'04.987"N	103°53'34.353"W	2.23	
8029.00	90.090	183.750	5931.48	2196.80	-2186.84	273.26	40°46'04.062"N	103°53'34.464"W	0.94	
8123.00	90.180	181.030	5931.26	2290.45	-2280.75	269.34	40°46'03.135"N	103°53'34.537"W	2.90	
8218.00	90.120	180.860	5931.01	2385.27	-2375.73	267.77	40°46'02.197"N	103°53'34.580"W	0.19	
8312.00	90.310	180.720	5930.66	2479.11	-2469.72	266.48	40°46'01.269"N	103°53'34.619"W	0.25	
8407.00	90.060	180.070	5930.35	2573.98	-2564.72	265.82	40°46'00.331"N	103°53'34.650"W	0.73	
8501.00	90.150	180.060	5930.18	2667.89	-2658.72	265.71	40°45'59.402"N	103°53'34.673"W	0.10	
8690.00	90.150	179.850	5929.68	2856.71	-2847.72	265.86	40°45'57.535"N	103°53'34.716"W	0.11	
8785.00	90.180	179.490	5929.41	2951.63	-2942.72	266.41	40°45'56.596"N	103°53'34.731"W	0.38	

REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Slot	SLOT#09 STARS FEDERAL LD17-770 (285'FSL & 1128'FWL,SEC.05)
Area	COLORADO	Well	STARS FEDERAL LD17-770
Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	STARS FEDERAL LD17-770 AWB
Facility	SEC.05-T09N-R58W		

WELLPATH DATA (171 stations)										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
8974.00	90.220	180.800	5928.75	3140.42	-3131.71	265.93	40°45'54.729"N	103°53'34.782"W	0.69	
9163.00	90.370	183.550	5927.78	3328.76	-3320.55	258.76	40°45'52.865"N	103°53'34.919"W	1.46	
9257.00	90.090	184.230	5927.40	3422.17	-3414.34	252.38	40°45'51.939"N	103°53'35.024"W	0.78	
9352.00	89.970	181.440	5927.35	3516.74	-3509.21	247.68	40°45'51.003"N	103°53'35.108"W	2.94	
9447.00	90.090	179.420	5927.30	3611.61	-3604.20	246.97	40°45'50.064"N	103°53'35.139"W	2.13	
9541.00	90.150	175.830	5927.10	3705.59	-3698.11	250.87	40°45'49.136"N	103°53'35.111"W	3.82	
9636.00	90.030	172.190	5926.95	3800.40	-3792.57	260.78	40°45'48.201"N	103°53'35.004"W	3.83	
9730.00	90.090	173.750	5926.85	3894.11	-3885.86	272.28	40°45'47.277"N	103°53'34.877"W	1.66	
9825.00	89.970	174.630	5926.81	3988.96	-3980.37	281.90	40°45'46.342"N	103°53'34.774"W	0.93	
9919.00	90.280	179.010	5926.60	4082.93	-4074.20	287.11	40°45'45.414"N	103°53'34.728"W	4.67	
10015.00	90.220	182.610	5926.18	4178.75	-4170.18	285.75	40°45'44.466"N	103°53'34.769"W	3.75	
10110.00	90.250	180.160	5925.79	4273.52	-4265.14	283.46	40°45'43.528"N	103°53'34.821"W	2.58	
10204.00	91.170	177.940	5924.63	4367.47	-4359.12	285.02	40°45'42.600"N	103°53'34.823"W	2.56	
10299.00	92.160	176.460	5921.87	4462.42	-4453.96	289.66	40°45'41.662"N	103°53'34.785"W	1.87	
10392.00	91.050	175.730	5919.26	4555.36	-4546.70	295.99	40°45'40.744"N	103°53'34.724"W	1.43	
10486.00	90.060	176.740	5918.35	4649.33	-4640.49	302.16	40°45'39.817"N	103°53'34.666"W	1.50	
10581.00	89.970	179.080	5918.33	4744.32	-4735.42	305.62	40°45'38.878"N	103°53'34.644"W	2.46	
10675.00	90.090	178.930	5918.28	4838.28	-4829.41	307.25	40°45'37.949"N	103°53'34.645"W	0.20	
10769.00	89.820	178.600	5918.35	4932.26	-4923.39	309.28	40°45'37.021"N	103°53'34.640"W	0.45	
10864.00	90.220	180.470	5918.32	5027.19	-5018.38	310.05	40°45'36.082"N	103°53'34.653"W	2.01	
10959.00	89.750	182.030	5918.34	5121.98	-5113.35	307.98	40°45'35.144"N	103°53'34.702"W	1.72	
11053.00	89.880	184.190	5918.65	5215.52	-5207.21	302.88	40°45'34.218"N	103°53'34.790"W	2.30	
11148.00	90.430	180.640	5918.39	5310.15	-5302.11	298.88	40°45'33.281"N	103°53'34.865"W	3.78	
11242.00	90.280	176.670	5917.81	5404.11	-5396.06	301.08	40°45'32.352"N	103°53'34.858"W	4.23	
11337.00	90.090	171.760	5917.50	5498.92	-5490.55	310.66	40°45'31.417"N	103°53'34.756"W	5.17	
11431.00	89.750	171.670	5917.63	5592.45	-5583.57	324.20	40°45'30.496"N	103°53'34.602"W	0.37	
11526.00	90.370	173.420	5917.53	5687.10	-5677.76	336.53	40°45'29.563"N	103°53'34.464"W	1.95	
11620.00	90.090	175.180	5917.15	5780.95	-5771.29	345.86	40°45'28.637"N	103°53'34.365"W	1.90	
11715.00	90.180	178.070	5916.93	5875.93	-5866.12	351.45	40°45'27.699"N	103°53'34.314"W	3.04	
11810.00	90.150	178.920	5916.66	5970.91	-5961.08	353.95	40°45'26.761"N	103°53'34.304"W	0.90	

REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Slot	SLOT#09 STARS FEDERAL LD17-770 (285'FSL & 1128'FWL,SEC.05)
Area	COLORADO	Well	STARS FEDERAL LD17-770
Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	STARS FEDERAL LD17-770 AWB
Facility	SEC.05-T09N-R58W		

WELLPATH DATA (171 stations)										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
11904.00	89.970	181.370	5916.56	6064.80	-6055.08	353.71	40°45'25.832"N	103°53'34.330"W	2.61	
11999.00	90.490	181.810	5916.18	6159.56	-6150.04	351.08	40°45'24.894"N	103°53'34.386"W	0.72	
12093.00	89.940	178.480	5915.82	6253.44	-6244.02	350.84	40°45'23.966"N	103°53'34.411"W	3.59	
12188.00	90.180	175.310	5915.72	6348.42	-6338.87	355.98	40°45'23.028"N	103°53'34.367"W	3.35	
12282.00	90.030	172.410	5915.55	6442.23	-6432.32	366.04	40°45'22.103"N	103°53'34.258"W	3.09	
12377.00	90.340	171.910	5915.24	6536.82	-6526.43	378.99	40°45'21.171"N	103°53'34.112"W	0.62	
12471.00	90.400	173.890	5914.64	6630.52	-6619.71	390.61	40°45'20.247"N	103°53'33.983"W	2.11	
12565.00	90.550	177.000	5913.86	6724.44	-6713.39	398.08	40°45'19.320"N	103°53'33.908"W	3.31	
12660.00	90.490	179.670	5913.00	6819.42	-6808.34	400.84	40°45'18.382"N	103°53'33.895"W	2.81	
12754.00	90.710	180.460	5912.01	6913.32	-6902.34	400.73	40°45'17.453"N	103°53'33.918"W	0.87	
12849.00	90.280	178.120	5911.19	7008.26	-6997.32	401.91	40°45'16.515"N	103°53'33.925"W	2.50	
12944.00	90.400	176.420	5910.63	7103.25	-7092.20	406.43	40°45'15.576"N	103°53'33.889"W	1.79	
13038.00	90.340	173.290	5910.02	7197.14	-7185.81	414.86	40°45'14.650"N	103°53'33.802"W	3.33	
13132.00	90.090	175.590	5909.67	7291.00	-7279.36	423.97	40°45'13.724"N	103°53'33.705"W	2.46	
13227.00	90.150	181.170	5909.47	7385.95	-7374.29	426.65	40°45'12.786"N	103°53'33.693"W	5.87	
13321.00	90.490	183.320	5908.94	7479.62	-7468.21	422.97	40°45'11.859"N	103°53'33.763"W	2.32	
13416.00	90.680	178.020	5907.97	7574.43	-7563.16	421.86	40°45'10.921"N	103°53'33.799"W	5.58	
13510.00	90.150	174.170	5907.29	7668.38	-7656.92	428.26	40°45'09.993"N	103°53'33.738"W	4.13	
13605.00	90.030	173.370	5907.14	7763.19	-7751.36	438.57	40°45'09.059"N	103°53'33.627"W	0.85	
13699.00	89.880	174.370	5907.22	7857.00	-7844.82	448.61	40°45'08.133"N	103°53'33.518"W	1.08	
13794.00	90.550	177.350	5906.86	7951.95	-7939.56	455.46	40°45'07.196"N	103°53'33.452"W	3.22	
13888.00	90.120	179.610	5906.31	8045.93	-8033.52	457.96	40°45'06.268"N	103°53'33.441"W	2.45	
13983.00	90.120	180.190	5906.11	8140.84	-8128.52	458.12	40°45'05.329"N	103°53'33.461"W	0.61	
14077.00	90.520	181.500	5905.59	8234.67	-8222.51	456.74	40°45'04.401"N	103°53'33.502"W	1.46	
14171.00	89.910	179.930	5905.23	8328.52	-8316.50	455.56	40°45'03.472"N	103°53'33.539"W	1.79	
14266.00	91.720	176.760	5903.88	8423.48	-8411.43	458.31	40°45'02.534"N	103°53'33.526"W	3.84	
14361.00	90.340	174.290	5902.17	8518.40	-8506.12	465.72	40°45'01.597"N	103°53'33.452"W	2.98	
14455.00	90.000	175.980	5901.89	8612.32	-8599.77	473.69	40°45'00.670"N	103°53'33.370"W	1.83	
14549.00	90.180	179.860	5901.75	8706.30	-8693.69	477.10	40°44'59.742"N	103°53'33.348"W	4.13	
14644.00	90.860	176.780	5900.88	8801.27	-8788.64	479.88	40°44'58.804"N	103°53'33.334"W	3.32	

REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Slot	SLOT#09 STARS FEDERAL LD17-770 (285'FSL & 1128'FWL,SEC.05)
Area	COLORADO	Well	STARS FEDERAL LD17-770
Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	STARS FEDERAL LD17-770 AWB
Facility	SEC.05-T09N-R58W		

WELLPATH DATA (171 stations)										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
14738.00	90.060	175.870	5900.13	8895.25	-8882.44	485.91	40°44'57.876"N	103°53'33.278"W	1.29	
14832.00	90.060	178.670	5900.03	8989.24	-8976.32	490.39	40°44'56.947"N	103°53'33.242"W	2.98	
14927.00	89.970	181.750	5900.01	9084.12	-9071.31	490.04	40°44'56.009"N	103°53'33.269"W	3.24	
15021.00	89.720	179.810	5900.26	9177.96	-9165.30	488.76	40°44'55.081"N	103°53'33.308"W	2.08	
15116.00	90.710	182.100	5899.90	9272.77	-9260.28	487.17	40°44'54.143"N	103°53'33.351"W	2.63	
15210.00	89.780	180.840	5899.50	9366.54	-9354.24	484.76	40°44'53.215"N	103°53'33.404"W	1.67	
15305.00	90.250	178.060	5899.48	9461.47	-9449.23	485.68	40°44'52.276"N	103°53'33.415"W	2.97	
15400.00	90.120	181.580	5899.17	9556.37	-9544.21	485.97	40°44'51.338"N	103°53'33.433"W	3.71	
15494.00	90.280	181.180	5898.84	9650.15	-9638.18	483.71	40°44'50.410"N	103°53'33.485"W	0.46	
15588.00	90.120	180.620	5898.51	9743.98	-9732.17	482.23	40°44'49.481"N	103°53'33.526"W	0.62	
15683.00	89.880	180.480	5898.51	9838.84	-9827.17	481.32	40°44'48.543"N	103°53'33.560"W	0.29	
15778.00	90.520	183.160	5898.18	9933.56	-9922.11	478.30	40°44'47.606"N	103°53'33.622"W	2.90	
15873.00	89.690	181.090	5898.01	10028.24	-10017.04	474.78	40°44'46.668"N	103°53'33.690"W	2.35	
15967.00	90.000	182.210	5898.26	10121.98	-10111.00	472.08	40°44'45.741"N	103°53'33.747"W	1.24	
16062.00	89.720	176.550	5898.49	10216.89	-10205.95	473.10	40°44'44.802"N	103°53'33.756"W	5.97	
16156.00	89.510	181.710	5899.13	10310.82	-10299.91	474.53	40°44'43.874"N	103°53'33.760"W	5.49	
16346.00	90.520	192.960	5899.08	10497.70	-10488.05	450.31	40°44'42.020"N	103°53'34.119"W	5.94	
16440.00	90.430	188.230	5898.30	10589.21	-10580.42	433.03	40°44'41.110"N	103°53'34.365"W	5.03	
16535.00	90.120	182.560	5897.84	10683.26	-10674.95	424.11	40°44'40.178"N	103°53'34.503"W	5.98	
16595.00	91.880	179.370	5896.79	10743.13	-10734.93	423.10	40°44'39.585"N	103°53'34.530"W	6.07	Last BHGE MWD Survey
16619.00	91.880	179.370	5896.01	10767.10	-10758.91	423.36	40°44'39.348"N	103°53'34.532"W	0.00	Projection to Bit



REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Slot	SLOT#09 STARS FEDERAL LD17-770 (285'FSL & 1128'FWL,SEC.05)
Area	COLORADO	Well	STARS FEDERAL LD17-770
Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	STARS FEDERAL LD17-770 AWB
Facility	SEC.05-T09N-R58W		

TARGETS								
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
SEC.08-T09N-R58W	40.00	172.87	2695.04	3447561.13	1528946.86	40°46'26.940"N	103°53'02.436"W	polygon
SEC.17-T09N-R58W	40.00	172.87	2695.04	3447561.13	1528946.86	40°46'26.940"N	103°53'02.436"W	polygon
STARS FEDERAL LD17-720 SEC.17 FEDERAL MINERALS 1	40.00	172.87	2695.04	3447561.13	1528946.86	40°46'26.940"N	103°53'02.436"W	polygon
STARS FEDERAL LD17-720 SEC.17 FEDERAL MINERALS 2	40.00	172.87	2695.04	3447561.13	1528946.86	40°46'26.940"N	103°53'02.436"W	polygon
STARS FEDERAL LD17-720 SEC.8 FEDERAL MINERALS	40.00	172.87	2695.04	3447561.13	1528946.86	40°46'26.940"N	103°53'02.436"W	polygon
STARS FEDERAL LD17-770 BHL ON PLAN (140'FSL & 1370'FWL,SEC.17)	5895.09	-10764.46	477.79	3445343.88	1518009.57	40°44'39.284"N	103°53'33.827"W	point
STARS FEDERAL LD17-770 BHL ON Plat (140'FSL & 1320'FWL,SEC.17)	5896.09	-10763.73	427.79	3445293.89	1518010.31	40°44'39.300"N	103°53'34.476"W	point

WELLPATH COMPOSITION - Ref Wellbore: STARS FEDERAL LD17-770 AWB					Ref Wellpath: STARS FEDERAL LD17-770 AWP	
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment		Wellbore	
0.00	1913.00	Gyrodatta standard - Drop gyro or Multi-shot	3rd Party Surface Gyros <82'-1913'>		STARS FEDERAL LD17-770 AWB	
1913.00	16595.00	OWSG MWD rev2 + IFR1 + Multi-Station Correction	BH/ATC 8.5" OWSG MWD rev2+IFR1+MSA <1978'-16595'>		STARS FEDERAL LD17-770 AWB	
16595.00	16619.00	Blind Drilling (std)	Projection to bit		STARS FEDERAL LD17-770 AWB	

REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Slot	SLOT#09 STARS FEDERAL LD17-770 (285'FSL & 1128'FWL,SEC.05)
Area	COLORADO	Well	STARS FEDERAL LD17-770
Field	WELD COUNTY (NOBLE NAD 83 GRID)	Wellbore	STARS FEDERAL LD17-770 AWB
Facility	SEC.05-T09N-R58W		

WELLPATH COMMENTS				
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
1913.00	0.660	305.100	1912.96	Tied to Gyrodata Surveys
1978.00	0.730	261.460	1977.96	First BHGE MWD Survey
16595.00	91.880	179.370	5896.79	Last BHGE MWD Survey
16619.00	91.880	179.370	5896.01	Projection to Bit