

# HIGHLANDS NATURAL RESOURCES

Location: COLORADO Slot: SLOT#02 WILDHORSE 5-64 15-16-1BHZ (2460'FSL & 440'FEL, SEC.15)  
Field: ARAPAHOE COUNTY Well: WILDHORSE 5-64 15-16-1BHZ  
Facility: SEC.15-T05S-R64W Wellbore: WILDHORSE 5-64 15-16-1BHZ PWB

Plot reference wellpath is WILDHORSE 5-64 15-16-1BHZ PWB (REV-F.0)

True vertical depths are referenced to TRUE 33 (5938'GL +27'KB) (RKB)

Measured depths are referenced to TRUE 33 (5938'GL +27'KB) (RKB)

TRUE 33 (5938'GL +27'KB) (RKB) to Mean Sea Level: 5963 feet

Mean Sea Level to Ground level (At Slot: SLOT#02 WILDHORSE 5-64 15-16-1BHZ (2460'FSL & 440'FEL, SEC.15)): 0 feet

Coordinates are in feet referenced to Slot

Grid System: NAD83 / Lambert Colorado SP, Central Zone (502), US feet

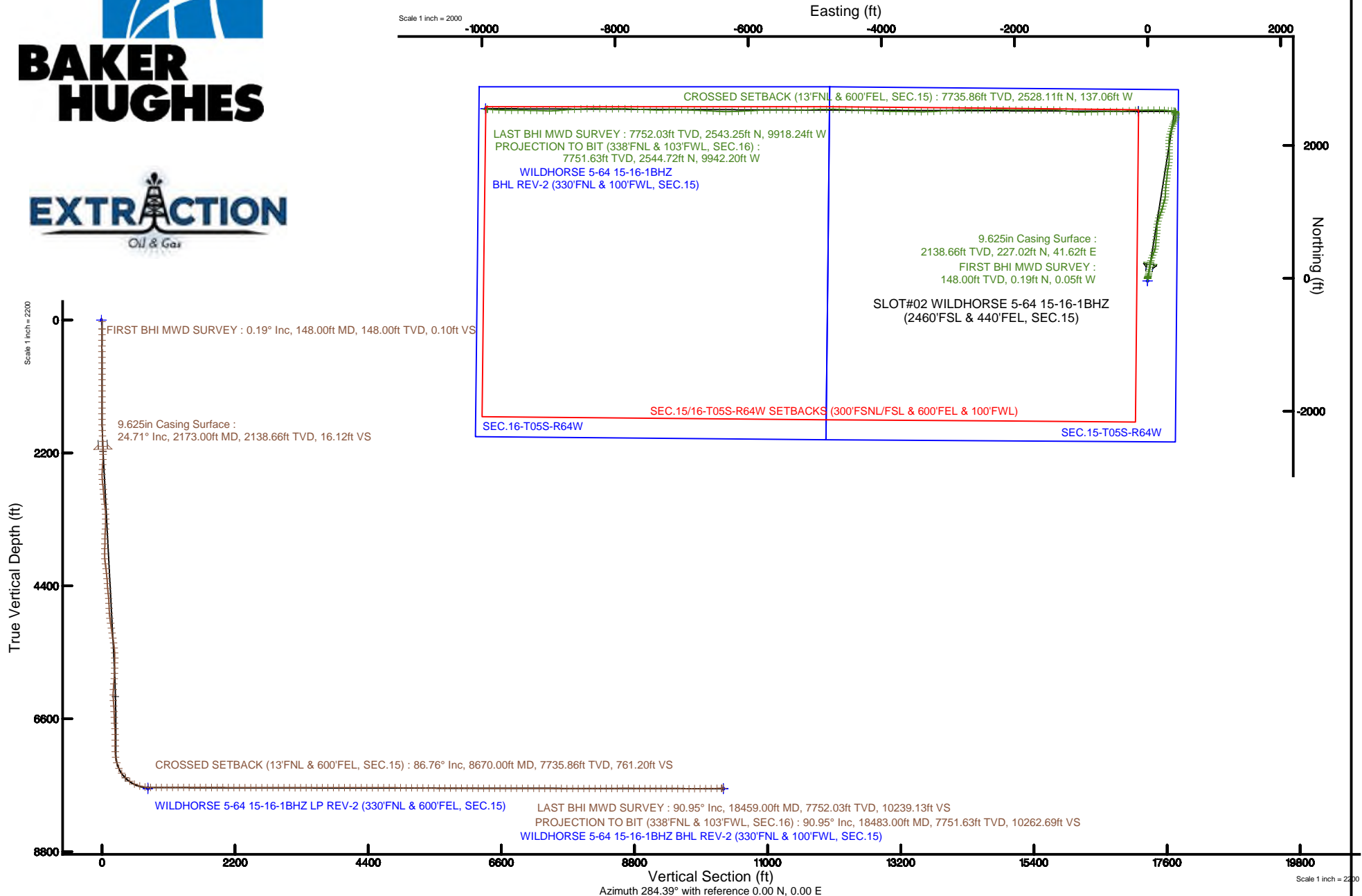
North Reference: Grid north

Scale: True distance

Depths are in feet

Created by: ingmjmr on 2017-09-08

Database: WA\_DEN\_Denver\_Deln





# Actual Wellpath Report

WILDHORSE 5-64 15-16-1BHZ AWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	HIGHLANDS NATURAL RESOURCES	Slot	SLOT#02 WILDHORSE 5-64 15-16-1BHZ (2460'FSL & 440'FEL, SEC.15)
Area	COLORADO	Well	WILDHORSE 5-64 15-16-1BHZ
Field	ARAPAHOE COUNTY	Wellbore	WILDHORSE 5-64 15-16-1BHZ AWP
Facility	SEC.15-T05S-R64W		

REPORT SETUP INFORMATION			
Projection System	NAD83 / Lambert Colorado SP, Central Zone (502), US feet	Software System	WellArchitect® 5.1
North Reference	Grid	User	Ingmjmr
Scale	0.999976	Report Generated	9/8/2017 at 3:23:03 PM
Convergence at slot	0.61° East	Database/Source file	WA_DEN_Denver_Defn/WILDHORSE_5-64_15-16-1BHZ_AWP.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	40.08	0.42	3272988.03	1650357.18	39°36'54.090"N	104°31'51.557"W
Facility Reference Pt			3272987.61	1650317.11	39°36'53.694"N	104°31'51.568"W
Field Reference Pt			3272987.61	1650317.11	39°36'53.694"N	104°31'51.568"W

WELLPATH DATUM			
Calculation method	Minimum curvature	TRUE 33 (5938'GL +27'KB) (RKB) to Facility Vertical Datum	5963.00ft
Horizontal Reference Pt	Slot	TRUE 33 (5938'GL +27'KB) (RKB) to Mean Sea Level	5963.00ft
Vertical Reference Pt	TRUE 33 (5938'GL +27'KB) (RKB)	TRUE 33 (5938'GL +27'KB) (RKB) to Ground Level at Slot (SLOT#02 WILDHORSE 5-64 15-16-1BHZ (2460'FSL & 440'FEL, SEC.15))	5963.00ft
MD Reference Pt	TRUE 33 (5938'GL +27'KB) (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	284.39°



# Actual Wellpath Report

WILDHORSE 5-64 15-16-1BHZ AWP

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Field	ARAPAHOE COUNTY	Wellbore	WILDHORSE 5-64 15-16-1BHZ AWB
Facility	SEC.15-T05S-R64W		

## WELLPATH DATA (199 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
0.00†	0.000	344.200	0.00	0.00	0.00	0.00	39°36'54.090"N	104°31'51.557"W	0.00	
27.00	0.000	344.200	27.00	0.00	0.00	0.00	39°36'54.090"N	104°31'51.557"W	0.00	
148.00	0.190	344.200	148.00	0.10	0.19	-0.05	39°36'54.092"N	104°31'51.557"W	0.16	FIRST BHI MWD SURVEY
242.00	0.380	43.610	242.00	0.03	0.57	0.12	39°36'54.096"N	104°31'51.555"W	0.35	
335.00	0.280	62.550	335.00	-0.29	0.90	0.53	39°36'54.099"N	104°31'51.550"W	0.16	
428.00	0.390	23.220	428.00	-0.51	1.29	0.86	39°36'54.103"N	104°31'51.546"W	0.27	
522.00	0.440	334.230	521.99	-0.33	1.91	0.83	39°36'54.109"N	104°31'51.546"W	0.37	
615.00	0.470	2.630	614.99	-0.02	2.61	0.69	39°36'54.116"N	104°31'51.548"W	0.24	
708.00	0.460	348.260	707.99	0.22	3.36	0.63	39°36'54.123"N	104°31'51.548"W	0.13	
802.00	0.570	344.630	801.98	0.62	4.18	0.43	39°36'54.131"N	104°31'51.551"W	0.12	
895.00	0.310	340.180	894.98	0.99	4.86	0.22	39°36'54.138"N	104°31'51.553"W	0.28	
988.00	0.170	102.500	987.98	1.00	5.07	0.27	39°36'54.140"N	104°31'51.553"W	0.46	
1082.00	0.460	18.190	1081.98	0.83	5.40	0.53	39°36'54.143"N	104°31'51.549"W	0.50	
1175.00	1.540	22.260	1174.96	0.64	6.91	1.12	39°36'54.158"N	104°31'51.542"W	1.16	
1269.00	3.010	17.940	1268.89	0.31	10.43	2.36	39°36'54.193"N	104°31'51.525"W	1.57	
1363.00	4.800	13.340	1362.67	0.23	16.60	4.02	39°36'54.254"N	104°31'51.503"W	1.93	
1458.00	6.380	16.010	1457.21	0.15	25.54	6.40	39°36'54.342"N	104°31'51.472"W	1.69	
1553.00	9.180	14.680	1551.33	-0.03	37.95	9.77	39°36'54.464"N	104°31'51.427"W	2.95	
1647.00	12.430	10.880	1643.65	0.55	55.14	13.58	39°36'54.634"N	104°31'51.376"W	3.54	
1742.00	15.190	9.030	1735.89	2.34	77.48	17.47	39°36'54.854"N	104°31'51.323"W	2.94	
1837.00	17.380	7.720	1827.08	5.15	103.84	21.33	39°36'55.114"N	104°31'51.270"W	2.34	
1932.00	19.790	8.430	1917.12	8.47	133.81	25.59	39°36'55.410"N	104°31'51.212"W	2.55	
2027.00	22.580	9.830	2005.69	11.60	167.69	31.06	39°36'55.744"N	104°31'51.137"W	2.98	
2121.00	25.420	9.980	2091.55	14.59	205.35	37.64	39°36'56.115"N	104°31'51.048"W	3.02	
2204.00	24.290	11.360	2166.86	16.86	239.64	44.09	39°36'56.454"N	104°31'50.961"W	1.53	
2267.00	26.020	13.840	2223.89	17.68	265.76	49.95	39°36'56.711"N	104°31'50.882"W	3.22	
2362.00	27.170	18.270	2308.84	16.42	306.59	61.74	39°36'57.113"N	104°31'50.726"W	2.41	
2457.00	30.000	23.070	2392.27	11.36	349.06	77.85	39°36'57.531"N	104°31'50.514"W	3.83	
2551.00	29.950	20.200	2473.70	5.45	392.70	95.16	39°36'57.961"N	104°31'50.287"W	1.53	
2646.00	30.520	15.880	2555.79	2.42	438.16	109.95	39°36'58.409"N	104°31'50.092"W	2.37	



# Actual Wellpath Report

WILDHORSE 5-64 15-16-1BHZ AWP

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## REFERENCE WELLPATH IDENTIFICATION

Operator	HIGHLANDS NATURAL RESOURCES	Slot	SLOT#02 WILDHORSE 5-64 15-16-1BHZ (2460'FSL & 440'FEL, SEC.15)
Area	COLORADO	Well	WILDHORSE 5-64 15-16-1BHZ
Field	ARAPAHOE COUNTY	Wellbore	WILDHORSE 5-64 15-16-1BHZ AWB
Facility	SEC.15-T05S-R64W		

## WELLPATH DATA (199 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
2741.00	30.570	7.800	2637.64	4.57	485.32	119.84	39°36'58.873"N	104°31'49.959"W	4.32	
2836.00	29.910	1.090	2719.73	12.80	532.95	123.57	39°36'59.344"N	104°31'49.905"W	3.62	
2930.00	29.710	5.960	2801.31	21.61	579.56	126.43	39°36'59.804"N	104°31'49.862"W	2.58	
3025.00	29.890	7.670	2883.75	27.83	626.43	132.03	39°37'00.267"N	104°31'49.784"W	0.91	
3120.00	29.980	4.850	2966.08	34.54	673.54	137.20	39°37'00.732"N	104°31'49.712"W	1.48	
3215.00	29.940	0.590	3048.39	44.13	720.90	139.45	39°37'01.200"N	104°31'49.677"W	2.24	
3310.00	29.580	0.900	3130.86	55.26	768.06	140.06	39°37'01.665"N	104°31'49.662"W	0.41	
3404.00	30.150	13.120	3212.46	61.20	814.29	145.79	39°37'02.122"N	104°31'49.583"W	6.49	
3499.00	30.230	14.990	3294.57	61.49	860.62	157.39	39°37'02.578"N	104°31'49.428"W	0.99	
3594.00	29.960	14.410	3376.77	61.23	906.70	169.48	39°37'03.033"N	104°31'49.268"W	0.42	
3689.00	29.810	23.230	3459.17	57.59	951.40	184.71	39°37'03.473"N	104°31'49.067"W	4.63	
3784.00	30.090	21.440	3541.49	51.05	995.26	202.73	39°37'03.904"N	104°31'48.831"W	0.99	
3878.00	30.250	15.620	3622.77	47.65	1040.01	217.72	39°37'04.345"N	104°31'48.633"W	3.12	
3973.00	30.120	13.730	3704.89	47.41	1086.21	229.82	39°37'04.800"N	104°31'48.472"W	1.01	
4068.00	29.340	17.590	3787.40	46.39	1131.56	242.51	39°37'05.247"N	104°31'48.304"W	2.18	
4163.00	30.210	15.720	3869.86	44.54	1176.75	256.02	39°37'05.692"N	104°31'48.125"W	1.34	
4258.00	30.030	7.370	3952.06	46.89	1223.36	265.55	39°37'06.152"N	104°31'47.997"W	4.41	
4353.00	30.200	0.850	4034.26	55.40	1270.83	268.95	39°37'06.621"N	104°31'47.947"W	3.45	
4447.00	29.790	1.200	4115.67	66.26	1317.82	269.79	39°37'07.085"N	104°31'47.930"W	0.47	
4542.00	30.320	4.430	4197.91	75.80	1365.32	272.14	39°37'07.554"N	104°31'47.893"W	1.79	
4637.00	30.210	6.840	4279.96	83.09	1412.96	276.84	39°37'08.024"N	104°31'47.827"W	1.28	
4732.00	30.190	8.270	4362.07	88.78	1460.33	283.12	39°37'08.492"N	104°31'47.740"W	0.76	
4827.00	30.420	6.830	4444.09	94.50	1507.85	289.42	39°37'08.961"N	104°31'47.653"W	0.80	
4922.00	30.230	2.040	4526.10	102.78	1555.64	293.13	39°37'09.433"N	104°31'47.599"W	2.55	
5016.00	29.740	5.930	4607.53	111.28	1602.48	296.38	39°37'09.895"N	104°31'47.551"W	2.13	
5111.00	29.900	11.650	4689.97	115.88	1649.12	303.60	39°37'10.355"N	104°31'47.453"W	3.00	
5206.00	30.280	12.030	4772.16	118.00	1695.73	313.37	39°37'10.815"N	104°31'47.321"W	0.45	
5301.00	30.290	5.570	4854.22	122.66	1743.02	320.69	39°37'11.281"N	104°31'47.221"W	3.43	
5396.00	30.290	2.020	4936.26	131.47	1790.81	323.86	39°37'11.753"N	104°31'47.174"W	1.88	
5491.00	30.190	359.720	5018.33	142.66	1838.64	324.59	39°37'12.226"N	104°31'47.158"W	1.22	



# Actual Wellpath Report

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## REFERENCE WELLPATH IDENTIFICATION

Operator	HIGHLANDS NATURAL RESOURCES	Slot	SLOT#02 WILDHORSE 5-64 15-16-1BHZ (2460'FSL & 440'FEL, SEC.15)
Area	COLORADO	Well	WILDHORSE 5-64 15-16-1BHZ
Field	ARAPAHOE COUNTY	Wellbore	WILDHORSE 5-64 15-16-1BHZ AWB
Facility	SEC.15-T05S-R64W		

## WELLPATH DATA (199 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
5585.00	30.230	0.130	5099.57	154.48	1885.94	324.53	39°37'12.693"N	104°31'47.153"W	0.22	
5680.00	30.210	0.250	5181.66	166.21	1933.75	324.69	39°37'13.166"N	104°31'47.144"W	0.07	
5775.00	30.000	357.510	5263.85	178.95	1981.38	323.76	39°37'13.637"N	104°31'47.150"W	1.46	
5870.00	29.390	358.500	5346.37	192.23	2028.41	322.12	39°37'14.102"N	104°31'47.164"W	0.82	
5965.00	29.630	3.180	5429.06	203.18	2075.17	322.81	39°37'14.564"N	104°31'47.149"W	2.44	
6059.00	29.610	9.040	5510.79	209.87	2121.32	327.75	39°37'15.019"N	104°31'47.080"W	3.08	
6154.00	29.610	16.120	5593.41	211.35	2167.05	337.96	39°37'15.470"N	104°31'46.943"W	3.68	
6249.00	27.610	15.830	5676.81	210.09	2210.78	350.48	39°37'15.901"N	104°31'46.777"W	2.11	
6344.00	25.140	16.220	5761.91	208.90	2251.35	362.12	39°37'16.301"N	104°31'46.623"W	2.61	
6438.00	23.890	19.920	5847.44	206.43	2288.42	374.18	39°37'16.666"N	104°31'46.463"W	2.11	
6533.00	21.010	24.590	5935.24	201.56	2322.00	387.83	39°37'16.996"N	104°31'46.284"W	3.56	
6628.00	18.050	30.040	6024.77	194.57	2350.23	402.29	39°37'17.274"N	104°31'46.096"W	3.66	
6723.00	16.710	26.590	6115.43	187.72	2375.19	415.77	39°37'17.519"N	104°31'45.920"W	1.78	
6818.00	15.190	14.870	6206.80	184.73	2399.44	425.08	39°37'17.757"N	104°31'45.798"W	3.74	
6913.00	13.770	356.220	6298.83	188.15	2422.76	427.53	39°37'17.988"N	104°31'45.763"W	5.11	
7007.00	12.260	351.490	6390.41	195.53	2443.80	425.32	39°37'18.196"N	104°31'45.789"W	1.96	
7102.00	10.690	12.620	6483.55	199.73	2462.38	425.75	39°37'18.379"N	104°31'45.781"W	4.69	
7197.00	8.600	358.230	6577.22	201.98	2478.08	427.45	39°37'18.534"N	104°31'45.757"W	3.34	
7292.00	6.500	338.260	6671.40	207.13	2490.18	425.24	39°37'18.654"N	104°31'45.783"W	3.51	
7386.00	4.700	322.420	6764.96	213.30	2498.18	420.92	39°37'18.734"N	104°31'45.837"W	2.51	
7481.00	2.490	332.450	6859.77	217.75	2503.09	417.59	39°37'18.783"N	104°31'45.879"W	2.41	
7576.00	2.260	24.860	6954.69	218.78	2506.62	417.43	39°37'18.817"N	104°31'45.881"W	2.22	
7671.00	0.280	300.660	7049.67	218.67	2508.44	418.02	39°37'18.835"N	104°31'45.873"W	2.37	
7766.00	0.030	82.280	7144.67	218.87	2508.56	417.84	39°37'18.837"N	104°31'45.875"W	0.32	
7861.00	8.090	287.820	7239.35	225.53	2510.61	411.49	39°37'18.857"N	104°31'45.956"W	8.54	
7955.00	16.070	288.630	7331.20	245.14	2516.80	392.83	39°37'18.921"N	104°31'46.194"W	8.49	
8050.00	26.290	268.370	7419.78	278.60	2520.42	359.21	39°37'18.960"N	104°31'46.623"W	13.09	
8145.00	34.750	276.740	7501.58	325.76	2523.00	311.19	39°37'18.991"N	104°31'47.236"W	9.95	
8240.00	45.340	274.790	7574.20	386.08	2529.02	250.46	39°37'19.056"N	104°31'48.012"W	11.22	
8335.00	54.590	270.890	7635.26	457.21	2532.45	177.90	39°37'19.098"N	104°31'48.938"W	10.23	



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## REFERENCE WELLPATH IDENTIFICATION

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Field	ARAPAHOE COUNTY	Wellbore	WILDHORSE 5-64 15-16-1BHZ AWB
Facility	SEC.15-T05S-R64W		

## WELLPATH DATA (199 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
8430.00	66.040	268.600	7682.23	536.90	2531.99	95.52	39°37'19.102"N	104°31'49.991"W	12.23	
8524.00	75.350	269.870	7713.28	622.43	2530.84	6.91	39°37'19.100"N	104°31'51.124"W	9.99	
8619.00	82.840	268.540	7731.24	712.39	2529.53	-86.30	39°37'19.097"N	104°31'52.315"W	8.00	
8670.00†	86.764	268.254	7735.86	761.20	2528.11	-137.06	39°37'19.088"N	104°31'52.964"W	7.71	CROSSED SETBACK (13'FNL & 600'FEL, SEC.15)
8714.00	90.150	268.010	7737.04	803.42	2526.67	-181.01	39°37'19.079"N	104°31'53.525"W	7.71	
8809.00	89.940	266.140	7736.97	894.11	2521.83	-275.88	39°37'19.041"N	104°31'54.738"W	1.98	
8904.00	89.910	265.220	7737.09	984.09	2514.67	-370.61	39°37'18.980"N	104°31'55.950"W	0.97	
8998.00	89.880	269.900	7737.26	1074.03	2510.67	-464.50	39°37'18.950"N	104°31'57.150"W	4.98	
9093.00	90.090	270.870	7737.29	1166.21	2511.31	-559.50	39°37'18.967"N	104°31'58.364"W	1.04	
9188.00	90.060	267.010	7737.16	1257.76	2509.55	-654.46	39°37'18.959"N	104°31'59.578"W	4.06	
9283.00	89.910	269.730	7737.19	1349.06	2506.85	-749.41	39°37'18.943"N	104°32'00.792"W	2.87	
9378.00	90.000	268.800	7737.26	1440.76	2505.63	-844.41	39°37'18.941"N	104°32'02.006"W	0.98	
9472.00	89.820	268.230	7737.41	1531.18	2503.20	-938.37	39°37'18.926"N	104°32'03.207"W	0.64	
9567.00	89.780	269.740	7737.74	1622.76	2501.51	-1033.36	39°37'18.920"N	104°32'04.421"W	1.59	
9662.00	89.780	274.540	7738.11	1715.57	2505.06	-1128.26	39°37'18.965"N	104°32'05.633"W	5.05	
9757.00	90.090	278.830	7738.22	1809.68	2516.12	-1222.59	39°37'19.084"N	104°32'06.837"W	4.53	
9852.00	89.970	276.160	7738.17	1903.99	2528.51	-1316.77	39°37'19.216"N	104°32'08.039"W	2.81	
9946.00	89.720	271.440	7738.42	1996.36	2534.73	-1410.54	39°37'19.288"N	104°32'09.236"W	5.03	
10041.00	89.940	269.720	7738.70	2088.61	2535.70	-1505.53	39°37'19.307"N	104°32'10.450"W	1.83	
10136.00	89.850	268.060	7738.88	2180.15	2533.86	-1600.51	39°37'19.299"N	104°32'11.664"W	1.75	
10231.00	89.750	270.350	7739.21	2271.82	2532.54	-1695.49	39°37'19.296"N	104°32'12.878"W	2.41	
10326.00	89.690	270.580	7739.67	2364.03	2533.31	-1790.49	39°37'19.313"N	104°32'14.092"W	0.25	
10421.00	89.820	270.860	7740.08	2456.33	2534.50	-1885.48	39°37'19.335"N	104°32'15.305"W	0.32	
10515.00	89.780	270.630	7740.41	2547.68	2535.72	-1979.47	39°37'19.357"N	104°32'16.506"W	0.25	
10610.00	89.850	270.600	7740.71	2639.94	2536.74	-2074.47	39°37'19.377"N	104°32'17.720"W	0.08	
10705.00	90.000	270.580	7740.84	2732.20	2537.72	-2169.46	39°37'19.397"N	104°32'18.934"W	0.16	
10800.00	89.850	269.260	7740.96	2824.18	2537.59	-2264.46	39°37'19.405"N	104°32'20.148"W	1.40	
10895.00	89.880	269.400	7741.19	2915.92	2536.48	-2359.45	39°37'19.404"N	104°32'21.362"W	0.15	
10989.00	89.850	269.330	7741.41	3006.70	2535.44	-2453.44	39°37'19.404"N	104°32'22.563"W	0.08	
11084.00	89.910	269.970	7741.61	3098.57	2534.86	-2548.44	39°37'19.408"N	104°32'23.777"W	0.68	



# Actual Wellpath Report

WILDHORSE 5-64 15-16-1BHZ AWP

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## REFERENCE WELLPATH IDENTIFICATION

Operator	HIGHLANDS NATURAL RESOURCES	Slot	SLOT#02 WILDHORSE 5-64 15-16-1BHZ (2460'FSL & 440'FEL, SEC.15)
Area	COLORADO	Well	WILDHORSE 5-64 15-16-1BHZ
Field	ARAPAHOE COUNTY	Wellbore	WILDHORSE 5-64 15-16-1BHZ AWB
Facility	SEC.15-T05S-R64W		

## WELLPATH DATA (199 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
11179.00	89.940	271.940	7741.73	3190.97	2536.44	-2643.42	39°37'19.433"N	104°32'24.991"W	2.07	
11272.00	89.880	268.250	7741.88	3281.07	2536.59	-2736.41	39°37'19.445"N	104°32'26.179"W	3.97	
11367.00	90.280	267.510	7741.74	3372.15	2533.08	-2831.34	39°37'19.420"N	104°32'27.392"W	0.89	
11462.00	90.430	266.980	7741.16	3462.93	2528.51	-2926.23	39°37'19.385"N	104°32'28.606"W	0.58	
11556.00	89.970	265.750	7740.83	3552.31	2522.55	-3020.04	39°37'19.336"N	104°32'29.805"W	1.40	
11651.00	90.310	266.240	7740.59	3642.45	2515.92	-3114.81	39°37'19.280"N	104°32'31.017"W	0.63	
11746.00	90.150	267.640	7740.21	3733.08	2510.85	-3209.67	39°37'19.240"N	104°32'32.230"W	1.48	
11841.00	89.940	268.440	7740.14	3824.23	2507.60	-3304.61	39°37'19.217"N	104°32'33.444"W	0.87	
11936.00	89.850	270.040	7740.31	3915.92	2506.34	-3399.60	39°37'19.215"N	104°32'34.658"W	1.69	
12030.00	90.030	271.610	7740.41	4007.30	2507.69	-3493.59	39°37'19.238"N	104°32'35.859"W	1.68	
12125.00	89.720	271.050	7740.62	4099.84	2509.90	-3588.56	39°37'19.270"N	104°32'37.072"W	0.67	
12220.00	89.820	270.660	7741.00	4192.20	2511.31	-3683.55	39°37'19.294"N	104°32'38.285"W	0.42	
12315.00	89.660	270.670	7741.43	4284.48	2512.42	-3778.54	39°37'19.314"N	104°32'39.499"W	0.17	
12410.00	89.820	270.500	7741.86	4376.74	2513.39	-3873.54	39°37'19.334"N	104°32'40.713"W	0.25	
12505.00	90.030	272.340	7741.99	4469.31	2515.74	-3968.50	39°37'19.367"N	104°32'41.926"W	1.95	
12600.00	90.030	272.970	7741.94	4562.32	2520.14	-4063.40	39°37'19.420"N	104°32'43.138"W	0.66	
12694.00	90.150	272.600	7741.79	4654.40	2524.71	-4157.29	39°37'19.475"N	104°32'44.337"W	0.41	
12789.00	89.910	272.830	7741.74	4747.43	2529.21	-4252.18	39°37'19.529"N	104°32'45.549"W	0.35	
12884.00	89.820	270.210	7741.96	4840.03	2531.73	-4347.14	39°37'19.564"N	104°32'46.763"W	2.76	
12979.00	89.570	273.000	7742.47	4932.67	2534.39	-4442.09	39°37'19.600"N	104°32'47.976"W	2.95	
13074.00	89.540	272.610	7743.21	5025.73	2539.04	-4536.97	39°37'19.656"N	104°32'49.187"W	0.41	
13168.00	89.350	271.790	7744.12	5117.60	2542.65	-4630.90	39°37'19.702"N	104°32'50.387"W	0.90	
13263.00	89.750	269.920	7744.86	5209.95	2544.06	-4725.88	39°37'19.725"N	104°32'51.601"W	2.01	
13358.00	89.420	268.660	7745.55	5301.67	2542.89	-4820.87	39°37'19.724"N	104°32'52.815"W	1.37	
13453.00	89.380	269.130	7746.55	5393.21	2541.05	-4915.85	39°37'19.715"N	104°32'54.029"W	0.50	
13548.00	89.720	267.360	7747.29	5484.45	2538.15	-5010.80	39°37'19.696"N	104°32'55.242"W	1.90	
13642.00	89.940	267.470	7747.57	5574.35	2533.91	-5104.70	39°37'19.664"N	104°32'56.443"W	0.26	
13737.00	89.970	268.810	7747.65	5665.56	2530.82	-5199.65	39°37'19.644"N	104°32'57.657"W	1.41	
13832.00	89.850	271.820	7747.80	5757.69	2531.34	-5294.63	39°37'19.659"N	104°32'58.870"W	3.17	
13927.00	89.750	270.970	7748.13	5850.26	2533.66	-5389.60	39°37'19.691"N	104°33'00.084"W	0.90	





# Actual Wellpath Report

WILDHORSE 5-64 15-16-1BHZ AWP

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## REFERENCE WELLPATH IDENTIFICATION

Operator	HIGHLANDS NATURAL RESOURCES	Slot	SLOT#02 WILDHORSE 5-64 15-16-1BHZ (2460'FSL & 440'FEL, SEC.15)
Area	COLORADO	Well	WILDHORSE 5-64 15-16-1BHZ
Field	ARAPAHOE COUNTY	Wellbore	WILDHORSE 5-64 15-16-1BHZ AWB
Facility	SEC.15-T05S-R64W		

## WELLPATH DATA (199 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
14021.00	89.910	270.290	7748.41	5941.55	2534.69	-5483.60	39°37'19.711"N	104°33'01.285"W	0.74	
14116.00	89.750	269.780	7748.69	6033.59	2534.75	-5578.60	39°37'19.722"N	104°33'02.499"W	0.56	
14211.00	89.660	269.820	7749.18	6125.52	2534.42	-5673.60	39°37'19.728"N	104°33'03.713"W	0.10	
14306.00	89.720	267.840	7749.69	6217.03	2532.48	-5768.57	39°37'19.719"N	104°33'04.927"W	2.09	
14400.00	89.780	265.840	7750.10	6306.65	2527.30	-5862.42	39°37'19.677"N	104°33'06.127"W	2.13	
14495.00	89.750	267.140	7750.49	6397.05	2521.48	-5957.24	39°37'19.629"N	104°33'07.339"W	1.37	
14590.00	89.750	267.440	7750.91	6487.84	2516.99	-6052.13	39°37'19.595"N	104°33'08.552"W	0.32	
14685.00	89.910	268.440	7751.19	6578.95	2513.57	-6147.07	39°37'19.571"N	104°33'09.766"W	1.07	
14780.00	89.660	267.880	7751.54	6670.16	2510.52	-6242.02	39°37'19.551"N	104°33'10.980"W	0.65	
14875.00	89.780	270.570	7752.01	6761.84	2509.24	-6337.00	39°37'19.548"N	104°33'12.194"W	2.83	
14969.00	89.880	272.300	7752.29	6853.44	2511.59	-6430.97	39°37'19.581"N	104°33'13.394"W	1.84	
15064.00	90.030	273.130	7752.36	6946.48	2516.09	-6525.86	39°37'19.635"N	104°33'14.606"W	0.89	
15159.00	89.910	273.230	7752.41	7039.66	2521.36	-6620.71	39°37'19.697"N	104°33'15.817"W	0.16	
15254.00	89.850	272.540	7752.61	7132.75	2526.14	-6715.59	39°37'19.754"N	104°33'17.029"W	0.73	
15349.00	90.000	272.350	7752.73	7225.69	2530.20	-6810.51	39°37'19.803"N	104°33'18.242"W	0.25	
15443.00	89.820	272.310	7752.88	7317.62	2534.02	-6904.43	39°37'19.851"N	104°33'19.441"W	0.20	
15538.00	89.910	270.390	7753.11	7410.16	2536.26	-6999.40	39°37'19.883"N	104°33'20.655"W	2.02	
15633.00	89.880	269.590	7753.28	7502.17	2536.24	-7094.40	39°37'19.892"N	104°33'21.869"W	0.84	
15727.00	89.820	269.060	7753.53	7592.94	2535.13	-7188.39	39°37'19.891"N	104°33'23.070"W	0.57	
15822.00	89.750	268.920	7753.88	7684.53	2533.46	-7283.37	39°37'19.884"N	104°33'24.284"W	0.16	
15917.00	89.820	271.120	7754.24	7776.55	2533.49	-7378.37	39°37'19.894"N	104°33'25.498"W	2.32	
16011.00	90.060	271.930	7754.34	7868.19	2535.99	-7472.33	39°37'19.929"N	104°33'26.698"W	0.90	
16106.00	89.970	272.510	7754.31	7961.05	2539.67	-7567.26	39°37'19.975"N	104°33'27.911"W	0.62	
16201.00	90.060	273.040	7754.29	8054.10	2544.27	-7662.15	39°37'20.030"N	104°33'29.123"W	0.57	
16296.00	90.060	272.250	7754.19	8147.11	2548.66	-7757.05	39°37'20.083"N	104°33'30.335"W	0.83	
16390.00	90.180	271.040	7753.99	8238.79	2551.35	-7851.01	39°37'20.119"N	104°33'31.535"W	1.29	
16485.00	90.280	269.660	7753.61	8330.95	2551.93	-7946.00	39°37'20.135"N	104°33'32.749"W	1.46	
16580.00	90.000	268.510	7753.38	8422.58	2550.42	-8040.99	39°37'20.130"N	104°33'33.963"W	1.25	
16674.00	90.150	271.290	7753.26	8513.58	2550.25	-8134.98	39°37'20.137"N	104°33'35.164"W	2.96	
16769.00	90.120	272.480	7753.03	8606.32	2553.38	-8229.92	39°37'20.178"N	104°33'36.377"W	1.25	





# Actual Wellpath Report

WILDHORSE 5-64 15-16-1BHZ AWP

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## REFERENCE WELLPATH IDENTIFICATION

Operator	HIGHLANDS NATURAL RESOURCES	Slot	SLOT#02 WILDHORSE 5-64 15-16-1BHZ (2460'FSL & 440'FEL, SEC.15)
Area	COLORADO	Well	WILDHORSE 5-64 15-16-1BHZ
Field	ARAPAHOE COUNTY	Wellbore	WILDHORSE 5-64 15-16-1BHZ AWB
Facility	SEC.15-T05S-R64W		

## WELLPATH DATA (199 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
16864.00	89.970	269.420	7752.96	8698.71	2554.95	-8324.90	39°37'20.203"N	104°33'37.590"W	3.22	
16958.00	89.600	267.480	7753.31	8789.08	2552.41	-8418.86	39°37'20.188"N	104°33'38.791"W	2.10	
17053.00	89.570	265.770	7754.00	8879.55	2546.82	-8513.69	39°37'20.142"N	104°33'40.004"W	1.80	
17148.00	89.720	267.450	7754.59	8970.00	2541.20	-8608.52	39°37'20.096"N	104°33'41.217"W	1.78	
17242.00	89.570	267.730	7755.17	9059.99	2537.25	-8702.43	39°37'20.067"N	104°33'42.417"W	0.34	
17337.00	89.540	264.500	7755.91	9150.18	2530.81	-8797.20	39°37'20.013"N	104°33'43.629"W	3.40	
17432.00	90.250	266.090	7756.08	9239.95	2523.02	-8891.88	39°37'19.946"N	104°33'44.840"W	1.83	
17526.00	89.780	269.540	7756.06	9330.02	2519.44	-8985.79	39°37'19.920"N	104°33'46.041"W	3.70	
17621.00	89.940	272.440	7756.29	9422.43	2521.08	-9080.77	39°37'19.946"N	104°33'47.254"W	3.06	
17716.00	89.690	271.710	7756.60	9515.24	2524.52	-9175.70	39°37'19.989"N	104°33'48.467"W	0.81	
17810.00	89.660	270.460	7757.13	9606.71	2526.30	-9269.68	39°37'20.017"N	104°33'49.667"W	1.33	
17905.00	89.910	271.120	7757.48	9699.04	2527.61	-9364.67	39°37'20.039"N	104°33'50.881"W	0.74	
18000.00	90.220	269.250	7757.38	9791.13	2527.92	-9459.67	39°37'20.052"N	104°33'52.095"W	2.00	
18095.00	90.180	270.080	7757.05	9883.01	2527.36	-9554.67	39°37'20.056"N	104°33'53.309"W	0.87	
18189.00	90.950	272.660	7756.12	9974.58	2529.61	-9648.63	39°37'20.088"N	104°33'54.509"W	2.86	
18284.00	90.800	272.460	7754.67	10067.55	2533.85	-9743.52	39°37'20.139"N	104°33'55.721"W	0.26	
18379.00	90.860	273.220	7753.29	10160.61	2538.56	-9838.39	39°37'20.196"N	104°33'56.933"W	0.80	
18459.00	90.950	273.510	7752.03	10239.13	2543.25	-9918.24	39°37'20.250"N	104°33'57.953"W	0.38	LAST BHI MWD SURVEY
18483.00	90.950	273.510	7751.63	10262.69	2544.72	-9942.20	39°37'20.267"N	104°33'58.259"W	0.00	PROJECTION TO BIT (338'FNL & 103'FWL, SEC.16)

## HOLE & CASING SECTIONS - Ref Wellbore: WILDHORSE 5-64 15-16-1BHZ AWB Ref Wellpath: WILDHORSE 5-64 15-16-1BHZ 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]
9.625in Casing Surface	27.00	2173.00	2146.00	27.00	2138.66	0.00	0.00	227.02	41.62
8.5in Open Hole	2173.00	18483.00	16310.00	2138.66	7751.63	227.02	41.62	2544.72	-9942.20



# Actual Wellpath Report

WILDHORSE 5-64 15-16-1BHZ AWP

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## REFERENCE WELLPATH IDENTIFICATION

Operator	HIGHLANDS NATURAL RESOURCES	Slot	SLOT#02 WILDHORSE 5-64 15-16-1BHZ (2460'FSL & 440'FEL, SEC.15)
Area	COLORADO	Well	WILDHORSE 5-64 15-16-1BHZ
Field	ARAPAHOE COUNTY	Wellbore	WILDHORSE 5-64 15-16-1BHZ AWB
Facility	SEC.15-T05S-R64W		

## TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
SEC.15-T05S-R64W	-1.00	-40.08	-0.42	3272987.61	1650317.10	39°36'53.694"N	104°31'51.568"W	polygon
SEC.16-T05S-R64W	-1.00	-40.08	-0.42	3272987.61	1650317.10	39°36'53.694"N	104°31'51.568"W	polygon
WILDHORSE 5-64 15-16-1BHZ LP REV-2 (330'FNL & 600'FEL, SEC.15)	7741.00	2512.49	-138.08	3272849.95	1652869.60	39°37'18.934"N	104°31'52.979"W	point
WILDHORSE 5-64 15-16-1BHZ BHL (330'FNL & 100'FWL, SEC.15)	7751.00	2552.20	-9944.52	3263043.76	1652909.31	39°37'20.341"N	104°33'58.288"W	point
WILDHORSE 5-64 15-16-1BHZ LP (330'FNL & 600'FEL, SEC.15)	7751.00	2512.45	-138.08	3272849.95	1652869.56	39°37'18.934"N	104°31'52.979"W	point
WILDHORSE 5-64 15-16-1BHZ BHL REV-2 (330'FNL & 100'FWL, SEC.15)	7758.00	2552.18	-9944.55	3263043.73	1652909.29	39°37'20.341"N	104°33'58.288"W	point
WILDHORSE 5-64 15-16-1BHZ BHL REV-1 (330'FNL & 100'FWL, SEC.15)	7763.00	2552.18	-9944.55	3263043.73	1652909.29	39°37'20.341"N	104°33'58.288"W	point
WILDHORSE 5-64 15-16-1BHZ LP REV-1 (330'FNL & 600'FEL, SEC.15)	7763.00	2512.49	-138.08	3272849.95	1652869.60	39°37'18.934"N	104°31'52.979"W	point
SEC.15/16-T05S-R64W SETBACKS (300'FSNL/FSL & 600'FEL & 100'FWL)	7827.00	-40.08	-0.42	3272987.61	1650317.10	39°36'53.694"N	104°31'51.568"W	polygon

## WELLPATH COMPOSITION - Ref Wellbore: WILDHORSE 5-64 15-16-1BHZ AWB Ref Wellpath: WILDHORSE 5-64 15-16-1BHZ AWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
27.00	2121.00	Custom BHI NaviTrak (Standard Rotating) (Rockies 0.03Gt model)	BAKER NAVI+SR+ROCKIES <148-2121>	WILDHORSE 5-64 15-16-1BHZ AWB
2121.00	18459.00	Custom BHI AutoTrak Curve (Short) (Rockies 0.03Gt model)	BHI ATCURVE +SHORT+ROCKIES <2204-18459>	WILDHORSE 5-64 15-16-1BHZ AWB
18459.00	18483.00	Blind Drilling (std)	Projection to bit	WILDHORSE 5-64 15-16-1BHZ AWB



# Actual Wellpath Report

WILDHORSE 5-64 15-16-1BHZ AWP

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## REFERENCE WELLPATH IDENTIFICATION

Operator	HIGHLANDS NATURAL RESOURCES	Slot	SLOT#02 WILDHORSE 5-64 15-16-1BHZ (2460'FSL & 440'FEL, SEC.15)
Area	COLORADO	Well	WILDHORSE 5-64 15-16-1BHZ
Field	ARAPAHOE COUNTY	Wellbore	WILDHORSE 5-64 15-16-1BHZ AWB
Facility	SEC.15-T05S-R64W		

## WELLPATH COMMENTS

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
148.00	0.190	344.200	148.00	FIRST BHI MWD SURVEY
8670.00	86.764	268.254	7735.86	CROSSED SETBACK (13'FNL & 600'FEL, SEC.15)
18459.00	90.950	273.510	7752.03	LAST BHI MWD SURVEY
18483.00	90.950	273.510	7751.63	PROJECTION TO BIT (338'FNL & 103'FWL, SEC.16)