



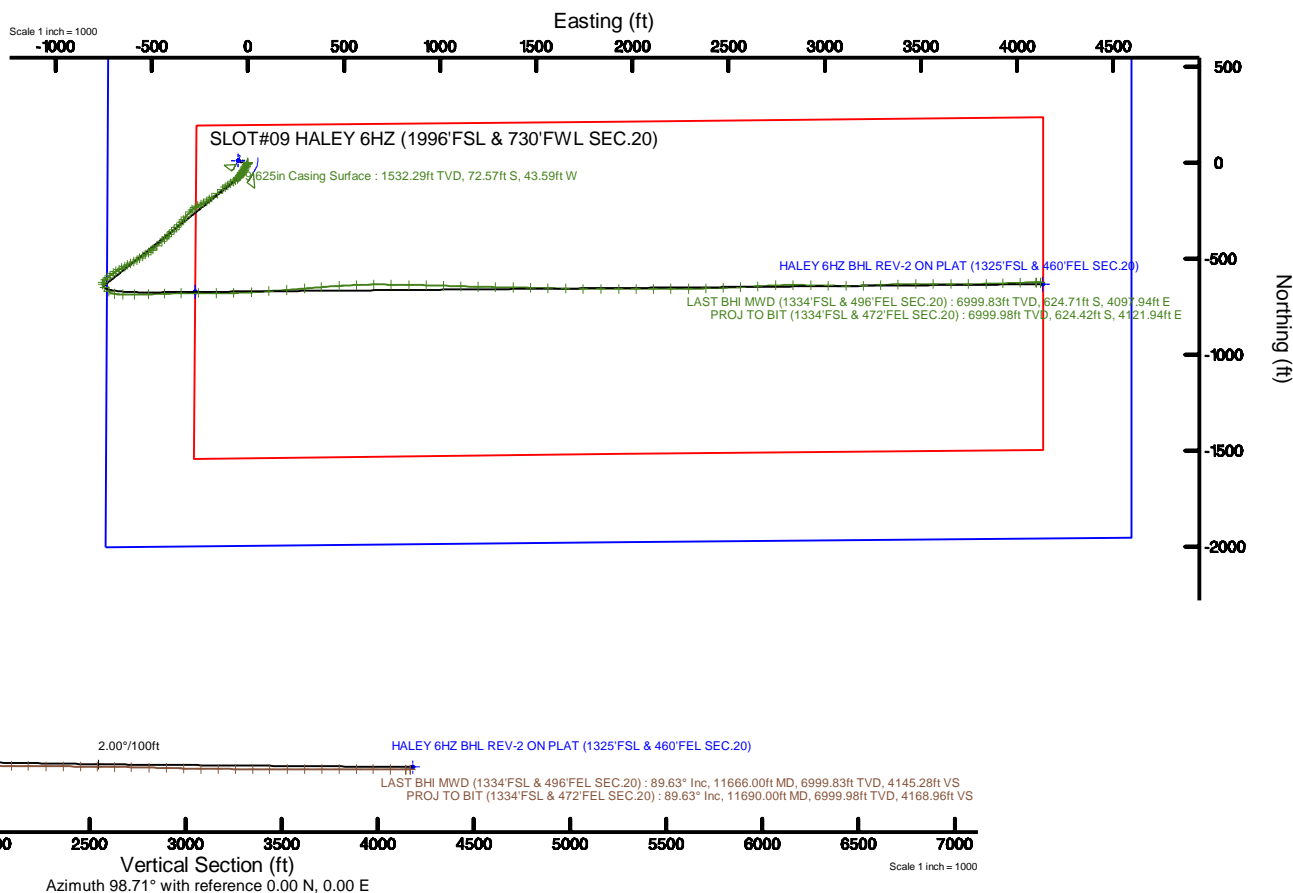
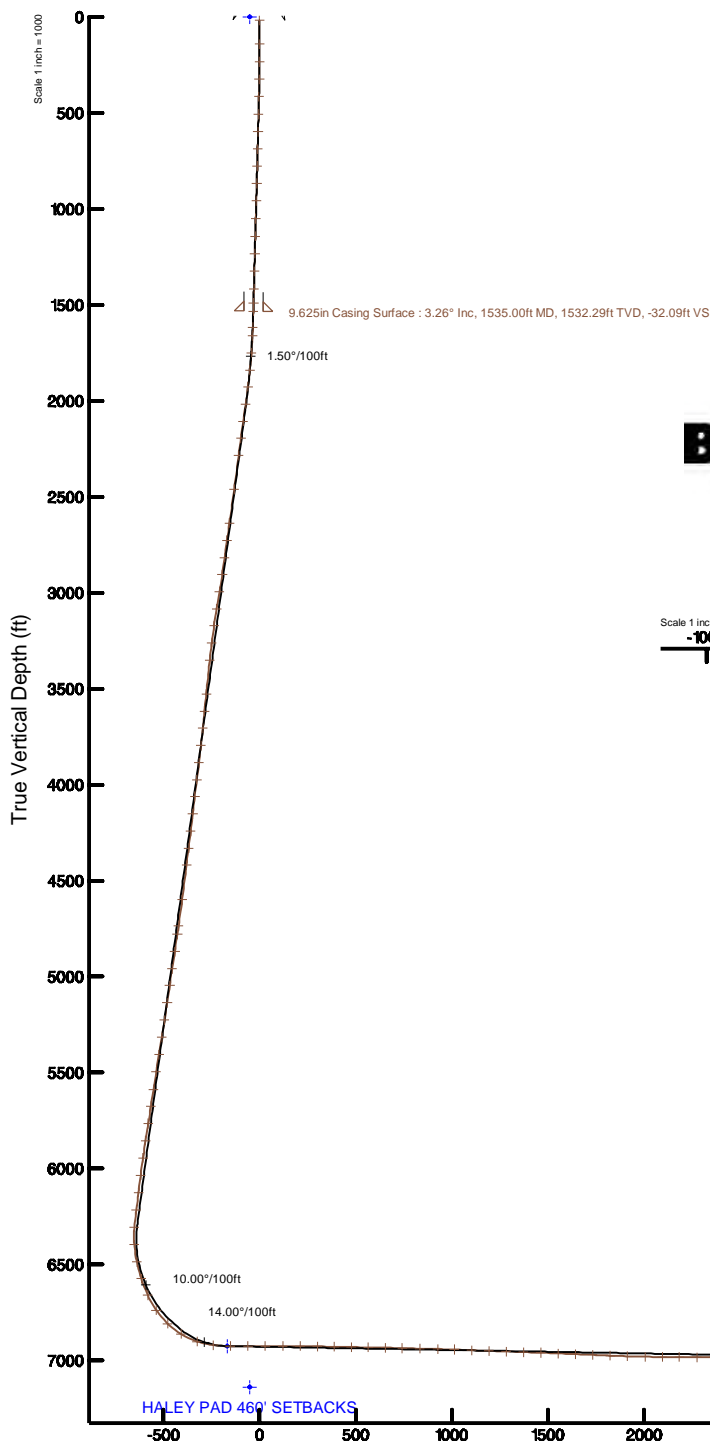
CUB CREEK ENERGY, LLC

Location: COLORADO Slot: SLOT#09 HALEY 6HZ (1996'FSL & 730'FWL SEC.20)
Field: WELD COUNTY (NAD83, TRUE NORTH) Well: HALEY 6HZ
Facility: SEC.20-T3N-R68W Wellbore: HALEY 6HZ PWB

Plot reference wellpath is HALEY6HZ REV-B.0 PWP	Grid System: NAD83 / Lambert Colorado SP, Northern Zone (501), US feet
True vertical depths are referenced to XTREME 18 (17) (RKB)	* = Wellpath was transformed from a different geodetic datum
Measured depths are referenced to XTREME 18 (17) (RKB)	North Reference: True north
XTREME 18 (17) (RKB) to Mean Sea Level: 5095 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: SLOT#09 HALEY 6HZ (1996'FSL & 730'FWL SEC.20)): 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: wagnjam on 2017-06-09
	Database: WellArchitectDB

Location Information

Facility Name			Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
SEC.20-T3N-R68W			3130169.738	1319454.236	40°12'33.696"N	105°02'02.148"W
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
SLOT#09 HALEY 6HZ (1996'FSL & 730'FWL SEC.20)	-10.93	50.28	3130220.068	1319443.571	40°12'33.588"N	105°02'01.500"W
XTREME 18 (17) (RKB) to Mud line (At Slot: SLOT#09 HALEY 6HZ (1996'FSL & 730'FWL SEC.20))					5009ft	
Mean Sea Level to Mud line (At Slot: SLOT#09 HALEY 6HZ (1996'FSL & 730'FWL SEC.20))					0ft	
XTREME 18 (17) (RKB) to Mean Sea Level					5009ft	





Actual Wellpath Report

HALEY 6HZ AWP

Page 1 of 8



REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#09 HALEY 6HZ (1996'FSL & 730'FWL SEC.20)
Area	COLORADO	Well	HALEY 6HZ
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	HALEY 6HZ AWB
Facility	SEC.20-T3N-R68W		

REPORT SETUP INFORMATION

Projection System	NAD83 / Lambert Colorado SP, Northern Zone (501), US feet	Software System	WellArchitect® 5.0
North Reference	True	User	Wagnjam
Scale	0.999957	Report Generated	6/9/2017 at 9:53:26 PM
Convergence at slot	0.31° East	Database/Source file	WellArchitectDB/HALEY_6HZ_AWP.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-10.93	50.28	3130220.07	1319443.57	40°12'33.588"N	105°02'01.500"W
Facility Reference Pt			3130169.74	1319454.24	40°12'33.696"N	105°02'02.148"W
Field Reference Pt			3133072.77	1341057.53	40°16'07.032"N	105°01'23.232"W

WELLPATH DATUM

Calculation method	Minimum curvature	XTREME 18 (17") (RKB) to Facility Vertical Datum	5095.00ft
Horizontal Reference Pt	Slot	XTREME 18 (17") (RKB) to Mean Sea Level	5095.00ft
Vertical Reference Pt	XTREME 18 (17") (RKB)	XTREME 18 (17") (RKB) to Mud Line at Slot (SLOT#09 HALEY 6HZ (1996'FSL & 730'FWL SEC.20))	5095.00ft
MD Reference Pt	XTREME 18 (17") (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	98.71°



Actual Wellpath Report

HALEY 6HZ AWP

Page 2 of 8



REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#09 HALEY 6HZ (1996'FSL & 730'FWL SEC.20)
Area	COLORADO	Well	HALEY 6HZ
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	HALEY 6HZ AWB
Facility	SEC.20-T3N-R68W		

WELLPATH DATA (127 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
0.00†	0.000	167.730	0.00	0.00	0.00	0.00	0.00	
17.00	0.000	167.730	17.00	0.00	0.00	0.00	0.00	
141.00	0.620	167.730	141.00	0.24	-0.66	0.14	0.50	
233.00	1.710	207.620	232.98	-0.03	-2.36	-0.39	1.41	
324.00	2.940	209.150	323.90	-1.28	-5.60	-2.15	1.35	
415.00	3.620	212.140	414.75	-3.24	-10.07	-4.82	0.77	
507.00	4.040	207.290	506.55	-5.43	-15.41	-7.85	0.58	
598.00	4.260	209.390	597.31	-7.64	-21.20	-10.98	0.29	
689.00	4.240	210.940	688.06	-10.11	-27.03	-14.37	0.13	
778.00	4.250	206.090	776.81	-12.34	-32.82	-17.51	0.40	
868.00	4.460	208.020	866.55	-14.49	-38.90	-20.62	0.28	
960.00	4.030	212.280	958.30	-16.96	-44.79	-24.03	0.58	
1052.00	3.790	214.300	1050.09	-19.57	-50.04	-27.47	0.30	
1144.00	3.720	216.020	1141.89	-22.25	-54.96	-30.94	0.14	
1235.00	3.020	214.500	1232.73	-24.65	-59.33	-34.03	0.78	
1327.00	3.350	215.390	1324.59	-26.91	-63.52	-36.96	0.36	
1419.00	3.080	216.510	1416.45	-29.27	-67.69	-39.99	0.30	
1492.00	2.850	215.310	1489.35	-31.00	-70.75	-42.20	0.33	
1619.00	4.100	223.920	1616.11	-35.03	-76.60	-47.18	1.06	
1665.00	4.330	225.650	1661.99	-37.02	-79.00	-49.56	0.57	
1753.00	6.170	234.460	1749.62	-42.40	-84.07	-55.78	2.28	
1844.00	7.870	234.830	1839.93	-50.40	-90.50	-64.86	1.87	
1932.00	9.420	235.790	1926.93	-60.01	-98.02	-75.74	1.77	
2023.00	11.470	234.940	2016.42	-72.00	-107.40	-89.30	2.26	
2115.00	11.170	233.080	2106.63	-84.84	-118.01	-103.91	0.51	
2205.00	11.120	232.230	2194.93	-96.91	-128.56	-117.74	0.19	
2296.00	10.870	229.130	2284.26	-108.51	-139.55	-131.17	0.71	
2476.00	11.170	234.040	2460.94	-131.92	-160.90	-158.12	0.55	
2655.00	11.120	235.020	2636.57	-156.73	-180.97	-186.29	0.11	
2747.00	11.070	232.980	2726.85	-169.31	-191.38	-200.61	0.43	



Actual Wellpath Report

HALEY 6HZ AWP

Page 3 of 8



REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#09 HALEY 6HZ (1996'FSL & 730'FWL SEC.20)
Area	COLORADO	Well	HALEY 6HZ
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	HALEY 6HZ AWP
Facility	SEC.20-T3N-R68W		

WELLPATH DATA (127 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
2838.00	11.050	232.840	2816.16	-181.48	-201.91	-214.54	0.04	
2928.00	10.820	243.520	2904.53	-194.39	-210.88	-228.98	2.26	
3019.00	11.310	243.310	2993.84	-208.64	-218.70	-244.59	0.54	
3111.00	10.910	243.100	3084.12	-223.07	-226.69	-260.42	0.44	
3201.00	11.190	237.620	3172.45	-236.58	-235.22	-275.39	1.21	
3291.00	10.850	228.610	3260.80	-248.59	-245.50	-289.12	1.95	
3382.00	11.120	221.320	3350.14	-258.82	-257.75	-301.34	1.55	
3563.00	11.240	218.940	3527.70	-277.10	-284.58	-323.95	0.26	
3655.00	11.180	218.300	3617.95	-286.02	-298.56	-335.12	0.15	
3745.00	11.010	219.870	3706.26	-294.78	-312.00	-346.03	0.39	
3836.00	11.390	225.100	3795.53	-304.60	-325.01	-357.97	1.19	
3928.00	11.260	226.380	3885.74	-315.48	-337.62	-370.91	0.31	
4018.00	11.310	227.790	3974.00	-326.41	-349.61	-383.80	0.31	
4107.00	11.150	225.020	4061.30	-337.01	-361.56	-396.36	0.63	
4199.00	11.020	224.350	4151.58	-347.40	-374.13	-408.79	0.20	
4291.00	11.180	225.840	4241.86	-357.91	-386.64	-421.34	0.36	
4381.00	11.070	229.370	4330.17	-368.80	-398.34	-434.16	0.77	
4472.00	11.560	225.150	4419.40	-379.91	-410.46	-447.25	1.06	
4656.00	11.020	229.390	4599.85	-402.32	-434.91	-473.67	0.54	
4794.00	11.850	233.440	4735.11	-420.89	-451.94	-495.07	0.84	
4839.00	11.710	233.070	4779.16	-427.34	-457.43	-502.43	0.35	
4931.00	11.650	234.320	4869.25	-440.50	-468.46	-517.44	0.28	
5023.00	11.850	236.540	4959.33	-454.14	-479.09	-532.86	0.54	
5111.00	11.370	236.700	5045.53	-467.28	-488.83	-547.65	0.55	
5203.00	11.130	236.300	5135.76	-480.57	-498.74	-562.62	0.27	
5295.00	11.190	240.690	5226.02	-494.16	-508.03	-577.79	0.93	
5387.00	11.160	243.370	5316.28	-508.46	-516.39	-593.53	0.57	
5479.00	11.070	243.940	5406.55	-522.97	-524.26	-609.43	0.15	
5571.00	11.200	242.260	5496.82	-537.42	-532.30	-625.27	0.38	
5663.00	11.210	238.730	5587.07	-551.45	-541.10	-640.82	0.75	



Actual Wellpath Report

HALEY 6HZ AWP

Page 4 of 8



REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#09 HALEY 6HZ (1996'FSL & 730'FWL SEC.20)
Area	COLORADO	Well	HALEY 6HZ
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	HALEY 6HZ AWB
Facility	SEC.20-T3N-R68W		

WELLPATH DATA (127 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
5753.00	11.170	240.370	5675.36	-564.99	-549.95	-655.88	0.36	
5845.00	11.130	241.280	5765.62	-579.03	-558.63	-671.41	0.20	
5935.00	11.210	238.670	5853.92	-592.63	-567.35	-686.50	0.57	
6027.00	11.130	235.000	5944.17	-605.89	-577.09	-701.41	0.78	
6119.00	11.210	231.620	6034.43	-618.40	-587.74	-715.70	0.72	
6211.00	11.180	224.780	6124.69	-629.74	-599.62	-728.99	1.44	
6303.00	11.120	227.620	6214.95	-640.56	-611.93	-741.83	0.60	
6395.00	9.620	227.000	6305.44	-650.90	-623.16	-754.00	1.63	
6487.00	8.780	149.970	6396.56	-651.27	-634.52	-756.12	12.44	
6579.00	15.220	140.770	6486.51	-637.89	-649.97	-744.95	7.28	
6671.00	21.480	131.060	6573.81	-614.67	-670.41	-724.59	7.55	
6763.00	24.000	97.870	6659.00	-581.59	-684.09	-693.22	14.03	
6854.00	35.280	91.440	6737.98	-536.86	-687.30	-648.46	12.86	
6946.00	46.140	88.870	6807.62	-477.65	-687.31	-588.56	11.94	
7036.00	58.870	89.070	6862.29	-407.41	-686.04	-517.31	14.15	
7129.00	71.750	87.470	6901.06	-324.50	-683.44	-433.03	13.94	
7217.00	83.240	88.570	6920.08	-240.22	-680.49	-347.32	13.11	
7307.00	90.120	91.040	6925.29	-151.52	-680.19	-257.53	8.12	
7399.00	90.060	89.750	6925.15	-60.49	-680.83	-165.53	1.40	
7491.00	90.090	88.420	6925.03	30.22	-679.36	-73.55	1.45	
7583.00	89.690	87.010	6925.20	120.52	-675.69	18.38	1.59	
7675.00	89.720	86.270	6925.68	210.49	-670.30	110.22	0.80	
7767.00	88.920	85.690	6926.77	300.22	-663.85	201.98	1.07	
7859.00	88.920	85.020	6928.50	389.71	-656.40	293.66	0.73	
7949.00	89.010	85.450	6930.13	477.22	-648.93	383.34	0.49	
8040.00	88.890	86.320	6931.80	565.93	-642.40	474.09	0.96	
8132.00	88.830	87.710	6933.63	656.00	-637.61	565.94	1.51	
8220.00	88.460	89.370	6935.71	742.59	-635.37	653.89	1.93	
8312.00	88.740	91.430	6937.96	833.59	-636.01	745.85	2.26	
8405.00	88.520	90.670	6940.18	925.73	-637.71	838.81	0.85	



Actual Wellpath Report

HALEY 6HZ AWP

Page 5 of 8



REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#09 HALEY 6HZ (1996'FSL & 730'FWL SEC.20)
Area	COLORADO	Well	HALEY 6HZ
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	HALEY 6HZ AWP
Facility	SEC.20-T3N-R68W		

WELLPATH DATA (127 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
8493.00	88.030	91.200	6942.83	1012.88	-639.15	926.76	0.82	
8584.00	87.440	91.670	6946.42	1103.08	-641.42	1017.65	0.83	
8675.00	88.030	91.990	6950.02	1193.35	-644.33	1108.54	0.74	
8765.00	88.000	91.500	6953.14	1282.63	-647.07	1198.44	0.55	
8855.00	88.000	91.010	6956.28	1371.82	-649.04	1288.36	0.54	
8946.00	88.000	90.850	6959.46	1461.92	-650.51	1379.30	0.18	
9037.00	87.540	91.380	6963.00	1552.06	-652.28	1470.21	0.77	
9128.00	87.470	91.440	6966.96	1642.23	-654.52	1561.10	0.10	
9219.00	87.510	91.190	6970.94	1732.39	-656.60	1651.98	0.28	
9311.00	87.970	90.600	6974.57	1823.46	-658.04	1743.90	0.81	
9402.00	87.940	89.940	6977.82	1913.42	-658.47	1834.84	0.73	
9495.00	88.950	89.720	6980.34	2005.27	-658.19	1927.81	1.11	
9585.00	89.420	89.850	6981.62	2094.17	-657.86	2017.80	0.54	
9675.00	89.600	89.820	6982.39	2183.08	-657.60	2107.79	0.20	
9767.00	89.380	90.010	6983.21	2274.00	-657.46	2199.79	0.32	
9859.00	89.600	89.430	6984.03	2364.86	-657.01	2291.78	0.67	
9949.00	89.600	88.620	6984.66	2453.58	-655.48	2381.77	0.90	
10040.00	89.540	87.880	6985.34	2543.06	-652.70	2472.72	0.82	
10130.00	89.080	87.440	6986.42	2631.38	-649.03	2562.64	0.71	
10220.00	88.890	86.550	6988.02	2719.49	-644.31	2652.50	1.01	
10312.00	88.650	87.980	6989.99	2809.64	-639.92	2744.37	1.58	
10403.00	88.610	90.050	6992.17	2899.31	-638.36	2835.33	2.27	
10494.00	88.580	91.330	6994.40	2989.39	-639.45	2926.29	1.41	
10586.00	88.980	91.270	6996.36	3080.60	-641.54	3018.25	0.44	
10677.00	89.750	90.250	6997.37	3170.72	-642.75	3109.23	1.40	
10768.00	89.720	88.230	6997.79	3260.47	-641.54	3200.22	2.22	
10859.00	89.820	87.130	6998.15	3349.79	-637.85	3291.14	1.21	
10949.00	89.910	88.350	6998.37	3438.14	-634.31	3381.07	1.36	
11041.00	89.850	90.130	6998.56	3528.88	-633.09	3473.06	1.94	
11132.00	89.880	90.120	6998.77	3618.86	-633.28	3564.06	0.03	



Actual Wellpath Report

HALEY 6HZ AWP

Page 6 of 8



REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#09 HALEY 6HZ (1996'FSL & 730'FWL SEC.20)
Area	COLORADO	Well	HALEY 6HZ
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	HALEY 6HZ AWB
Facility	SEC.20-T3N-R68W		

WELLPATH DATA (127 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
11224.00	89.850	89.880	6998.99	3709.80	-633.28	3656.06	0.26	
11314.00	90.310	89.660	6998.87	3798.70	-632.92	3746.06	0.57	
11406.00	89.970	88.920	6998.64	3889.46	-631.78	3838.05	0.89	
11495.00	89.660	87.780	6998.93	3977.01	-629.22	3927.01	1.33	
11585.00	89.750	88.460	6999.39	4065.47	-626.27	4016.96	0.76	
11666.00	89.630	89.330	6999.83	4145.28	-624.71	4097.94	1.08	LAST BHI MWD (1334'FSL & 496'FEL SEC.20)
11690.00	89.630	89.330	6999.98	4168.96	-624.42	4121.94	0.00	PROJ TO BIT (1334'FSL & 472'FEL SEC.20)

HOLE & CASING SECTIONS - Ref Wellbore: HALEY 6HZ AWB Ref Wellpath: HALEY 6HZ 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	17.00	1545.00	1528.00	17.00	1542.27	0.00	0.00	-73.02	-43.96
9.625in Casing Surface	17.00	1535.00	1518.00	17.00	1532.29	0.00	0.00	-72.57	-43.59
8.5in Open Hole	1545.00	11690.00	10145.00	1542.27	6999.98	-73.02	-43.96	-624.42	4121.94



Actual Wellpath Report

HALEY 6HZ AWP

Page 7 of 8



REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#09 HALEY 6HZ (1996'FSL & 730'FWL SEC.20)
Area	COLORADO	Well	HALEY 6HZ
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	HALEY 6HZ AWB
Facility	SEC.20-T3N-R68W		

TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
SEC.20-3N-68W	-1.00	10.93	-50.28	3130169.74	1319454.24	40°12'33.696"N	105°02'02.148"W	polygon
HALEY 6HZ BHL REV-1 ON PLAT (1325'FSL & 460'FEL SEC.20)	6900.00	-633.54	4133.84	3134356.99	1318831.81	40°12'27.324"N	105°01'08.220"W	point
HALEY 6HZ EP REV-1 ON PLAT (1325'FSL & 460'FWL SEC.20)	6900.00	-673.95	-273.73	3129949.90	1318768.22	40°12'26.928"N	105°02'05.028"W	point
HALEY 6HZ EP REV-2 ON PLAT (1325'FSL & 460'FWL SEC.20)	6925.00	-673.95	-273.73	3129949.90	1318768.22	40°12'26.928"N	105°02'05.028"W	point
HALEY 6HZ BHL REV-2 ON PLAT (1325'FSL & 460'FEL SEC.20)	6987.50	-633.54	4133.84	3134356.99	1318831.81	40°12'27.324"N	105°01'08.220"W	point
HALEY PAD 460' SETBACKS	7139.00	10.93	-50.28	3130169.74	1319454.24	40°12'33.696"N	105°02'02.148"W	polygon

WELLPATH COMPOSITION - Ref Wellbore: HALEY 6HZ AWB Ref Wellpath: HALEY 6HZ AWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
17.00	1492.00	Custom BHI NaviTrak (Standard Rotating+Axial Corr) (Rockies 0.03Gt model)	BHI NAVITRAK 13.5"(STD ROTATING, AXIAL, ROCKIES GT)<141-1492>	HALEY 6HZ AWB
1492.00	11666.00	Custom BHI AutoTrak Curve (Short) (Rockies 0.03Gt model)	BHI ATC 8.5" MONO (SHORT, ROCKIES GT)<1619-11666>	HALEY 6HZ AWB
11666.00	11690.00	Blind Drilling (std)	Projection to bit	HALEY 6HZ AWB



Actual Wellpath Report

HALEY 6HZ AWP

Page 8 of 8



REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#09 HALEY 6HZ (1996'FSL & 730'FWL SEC.20)
Area	COLORADO	Well	HALEY 6HZ
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	HALEY 6HZ AWB
Facility	SEC.20-T3N-R68W		

WELLPATH COMMENTS

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
11666.00	89.630	89.330	6999.83	LAST BHI MWD (1334'FSL & 496'FEL SEC.20)
11690.00	89.630	89.330	6999.98	PROJ TO BIT (1334'FSL & 472'FEL SEC.20)