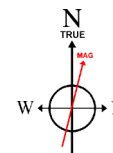


CUB CREEK ENERGY, LLC

Location: COLORADO Slot: SLOT#05 LITZENBERGER 9 (1928'FNL & 1109'FEL SEC.8)
Field: WELD COUNTY (NAD83, TRUE NORTH) Well: LITZENBERGER 9
Facility: SEC.08-T03N-R68W Wellbore: LITZENBERGER 9 PWB

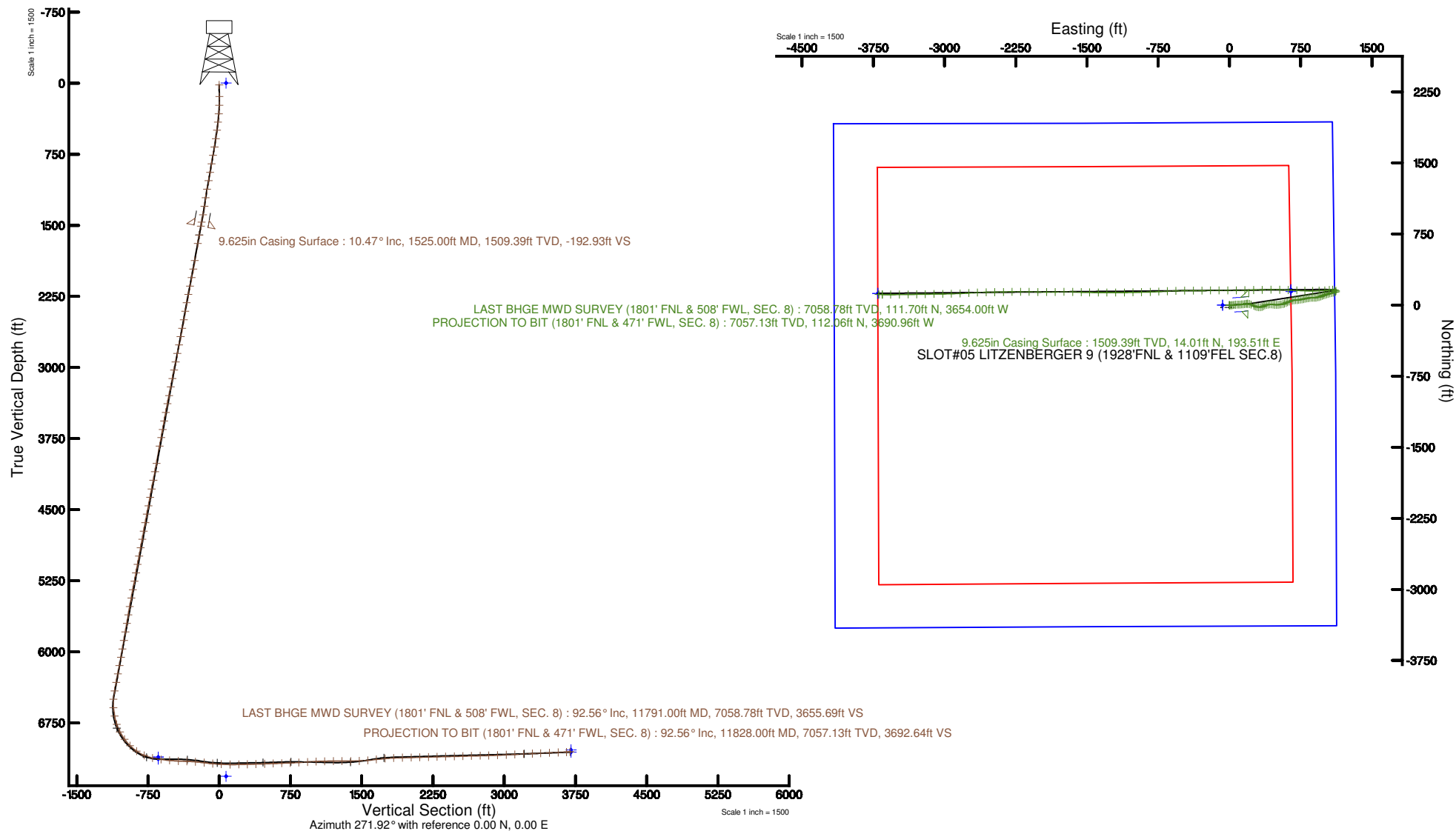
Plot reference wellpath is LITZENBERGER 9 PWB REV 8.0	Grid System: NAD83 (Lambert Colorado SP Northern Zone (501), US feet)
True vertical depths are referenced to XTREME 18 (17') (RKB)	North Reference: True north
Measured depths are referenced to XTREME 18 (17') (RKB)	Scale: True distance
XTREME 18 (17') (RKB) to Mean Sea Level: 5098 feet	Depths are in feet
Mean Sea Level to Mud line (At Slot: SLOT#05 LITZENBERGER 9 (1928'FNL & 1109'FEL SEC.8)) 0 feet	Created by: centripal on 2017-08-07
Coordinates are in feet referenced to Bit	Database: Damper



BGGM (1900.0 to 2018.0) Dip: 66.70° Field: 52306.2 nT
Magnetic North is 8.50 degrees East of True North (at 7/18/2017)

To correct azimuth from Magnetic to True add 8.50 degrees

**BAKER
HUGHES**
a GE company





Actual Wellpath Report

LITZENBERGER 9 AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#05 LITZENBERGER 9 (1928'FNL & 1109'FEL SEC.8)
Area	COLORADO	Well	LITZENBERGER 9
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	LITZENBERGER 9 AWP
Facility	SEC.08-T03N-R68W		

REPORT SETUP INFORMATION

Projection System	NAD83 / Lambert Colorado SP, Northern Zone (501), US feet	Software System	WellArchitect® 5.1
North Reference	True	User	Cantryat
Scale	0.999957	Report Generated	8/7/2017 at 10:26:01 AM
Convergence at slot	0.31° East	Database/Source file	Denver/LITZENBERGER_9_AWP.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	0.00	72.58	3133556.96	1331482.91	40°14'32.388"N	105°01'17.652"W
Facility Reference Pt			3133484.38	1331482.52	40°14'32.388"N	105°01'18.588"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	5098.00ft
Horizontal Reference Pt	Slot	XTREME 18 (17') (RKB) to Mean Sea Level	5098.00ft
Vertical Reference Pt	XTREME 18 (17') (RKB)	XTREME 18 (17') (RKB) to Mud Line at Slot (SLOT#05 LITZENBERGER 9 (1928'FNL & 1109'FEL SEC.8))	5098.00ft
MD Reference Pt	XTREME 18 (17') (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	271.92°



Actual Wellpath Report

LITZENBERGER 9 AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#05 LITZENBERGER 9 (1928'FNL & 1109'FEL SEC.8)
Area	COLORADO	Well	LITZENBERGER 9
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	LITZENBERGER 9 AWP
Facility	SEC.08-T03N-R68W		

WELLPATH DATA (130 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
0.00†	0.000	220.360	0.00	0.00	0.00	0.00	0.00	
17.00	0.000	220.360	17.00	0.00	0.00	0.00	0.00	
140.00	1.390	220.360	139.99	0.93	-1.14	-0.97	1.13	
232.00	1.460	86.650	231.98	0.45	-1.92	-0.52	2.85	
323.00	4.830	89.790	322.83	-4.53	-1.84	4.47	3.71	
411.00	6.450	89.300	410.40	-13.17	-1.76	13.12	1.84	
498.00	8.280	83.280	496.68	-24.25	-0.97	24.23	2.28	
588.00	7.920	82.360	585.78	-36.77	0.61	36.81	0.43	
676.00	9.540	82.260	672.76	-49.94	2.40	50.05	1.84	
765.00	10.520	86.840	760.40	-65.30	3.84	65.47	1.42	
857.00	9.800	87.920	850.95	-81.48	4.59	81.68	0.81	
947.00	9.250	88.170	939.71	-96.34	5.10	96.56	0.61	
1037.00	10.650	86.280	1028.36	-111.83	5.87	112.09	1.60	
1128.00	10.140	85.420	1117.86	-128.16	7.05	128.47	0.59	
1220.00	8.410	82.950	1208.66	-142.85	8.53	143.22	1.93	
1311.00	9.050	79.430	1298.60	-156.41	10.66	156.86	0.92	
1403.00	9.920	81.680	1389.34	-171.27	13.13	171.81	1.03	
1482.00	10.450	89.190	1467.10	-185.13	14.22	185.71	1.81	
1620.00	10.760	104.020	1602.77	-210.23	11.27	210.73	1.98	
1711.00	10.500	111.130	1692.21	-226.37	6.22	226.70	1.47	
1894.00	10.680	115.690	1872.10	-257.63	-7.14	257.54	0.47	
1986.00	11.110	111.740	1962.44	-273.77	-14.12	273.45	0.94	
2076.00	11.060	100.270	2050.77	-290.47	-18.87	290.00	2.45	
2168.00	10.930	95.290	2141.09	-307.91	-21.25	307.37	1.04	
2258.00	11.400	86.490	2229.39	-325.29	-21.49	324.75	1.96	
2347.00	11.280	74.360	2316.66	-342.34	-18.60	341.91	2.68	
2439.00	11.330	56.650	2406.91	-358.30	-11.21	358.13	3.76	
2530.00	11.280	62.210	2496.14	-373.33	-2.14	373.47	1.20	
2622.00	10.800	78.920	2586.46	-389.55	3.71	389.89	3.50	
2712.00	11.230	85.630	2674.81	-406.48	6.00	406.91	1.50	



Actual Wellpath Report

LITZENBERGER 9 AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#05 LITZENBERGER 9 (1928'FNL & 1109'FEL SEC.8)
Area	COLORADO	Well	LITZENBERGER 9
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	LITZENBERGER 9 AWB
Facility	SEC.08-T03N-R68W		

WELLPATH DATA (130 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
2800.00	11.360	85.460	2761.11	-423.61	7.34	424.09	0.15	
2892.00	11.150	92.860	2851.34	-441.51	7.61	442.01	1.59	
2984.00	10.820	97.500	2941.66	-459.00	6.04	459.46	1.03	
3072.00	11.230	95.530	3028.03	-475.77	4.14	476.17	0.63	
3163.00	11.220	92.950	3117.29	-493.46	2.83	493.84	0.55	
3253.00	11.170	83.230	3205.59	-510.84	3.40	511.24	2.10	
3345.00	10.880	79.020	3295.89	-528.11	6.11	528.61	0.93	
3434.00	11.290	83.690	3383.23	-544.92	8.67	545.52	1.11	
3526.00	11.200	79.620	3473.47	-562.56	11.27	563.26	0.87	
3618.00	11.290	65.720	3563.72	-579.38	16.58	580.26	2.94	
3710.00	11.250	63.700	3653.94	-595.36	24.26	596.51	0.43	
3798.00	11.440	69.240	3740.23	-610.98	31.16	612.37	1.26	
3890.00	11.350	70.440	3830.41	-627.82	37.42	629.43	0.28	
4075.00	10.220	73.360	4012.15	-660.32	48.22	662.31	0.68	
4165.00	10.940	80.650	4100.62	-676.27	51.89	678.39	1.69	
4257.00	11.050	90.020	4190.94	-693.64	53.31	695.82	1.94	
4349.00	10.890	85.550	4281.26	-711.09	53.98	713.30	0.94	
4440.00	10.840	81.090	4370.63	-728.04	55.97	730.32	0.93	
4530.00	10.920	80.870	4459.01	-744.72	58.63	747.10	0.10	
4621.00	10.650	80.990	4548.40	-761.43	61.32	763.92	0.30	
4713.00	10.960	79.050	4638.77	-778.31	64.31	780.90	0.52	
4803.00	10.720	76.660	4727.17	-794.72	67.87	797.44	0.57	
4891.00	10.770	78.470	4813.62	-810.61	71.40	813.46	0.39	
4982.00	10.590	81.870	4903.05	-827.12	74.28	830.07	0.72	
5072.00	10.580	84.190	4991.52	-843.45	76.29	846.48	0.47	
5161.00	10.740	86.630	5078.98	-859.80	77.60	862.89	0.54	
5251.00	10.140	88.750	5167.49	-876.06	78.27	879.18	0.79	
5340.00	10.740	89.870	5255.02	-892.17	78.46	895.31	0.71	
5432.00	10.660	83.610	5345.42	-909.16	79.42	912.33	1.27	
5520.00	10.600	77.920	5431.91	-925.07	82.02	928.34	1.19	



Actual Wellpath Report

LITZENBERGER 9 AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#05 LITZENBERGER 9 (1928'FNL & 1109'FEL SEC.8)
Area	COLORADO	Well	LITZENBERGER 9
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	LITZENBERGER 9 AWB
Facility	SEC.08-T03N-R68W		

WELLPATH DATA (130 stations)

MD (ft)	Inclination [°]	Azimuth [°]	TVD (ft)	Vert Sect (ft)	North (ft)	East (ft)	DLS [°/100ft]	Comments
5612.00	10.700	75.240	5522.33	-941.46	85.97	944.87	0.55	
5702.00	10.780	70.150	5610.75	-957.28	90.96	960.87	1.06	
5794.00	10.690	64.440	5701.15	-972.84	97.56	976.66	1.16	
5885.00	10.480	72.820	5790.60	-988.15	103.65	992.18	1.71	
5976.00	9.930	71.630	5880.16	-1003.33	108.56	1007.53	0.65	
6068.00	10.580	72.740	5970.69	-1018.75	113.57	1023.13	0.74	
6157.00	10.770	74.600	6058.15	-1034.40	118.20	1038.95	0.44	
6246.00	11.430	74.470	6145.49	-1050.75	122.77	1055.46	0.74	
6336.00	11.250	75.300	6233.73	-1067.67	127.39	1072.54	0.27	
6428.00	11.450	77.540	6323.93	-1085.12	131.63	1090.14	0.53	
6520.00	10.590	75.880	6414.24	-1102.09	135.67	1107.26	1.00	
6609.00	7.310	55.360	6502.16	-1114.50	140.88	1119.85	5.09	
6699.00	10.180	329.520	6591.42	-1114.84	151.03	1120.53	13.41	
6788.00	11.630	292.030	6678.92	-1102.19	161.18	1108.21	7.98	
6878.00	18.640	263.630	6765.85	-1079.38	163.00	1085.45	11.12	
6965.00	27.190	264.150	6845.91	-1045.86	159.42	1051.80	9.83	
7057.00	36.530	267.350	6923.97	-997.63	156.00	1003.42	10.31	
7147.00	45.370	266.100	6991.88	-938.95	152.58	944.60	9.86	
7237.00	55.290	270.030	7049.28	-869.93	150.42	875.47	11.52	
7329.00	66.180	272.050	7094.19	-789.81	151.95	795.35	11.99	
7420.00	78.530	272.800	7121.72	-703.26	155.63	708.88	13.59	
7512.00	83.090	272.080	7136.41	-612.47	159.49	618.17	5.02	
7602.00	84.040	270.860	7146.49	-523.05	161.78	528.77	1.71	
7694.00	87.940	269.690	7152.93	-431.33	162.22	437.01	4.42	
7786.00	87.970	269.150	7156.21	-339.48	161.29	345.07	0.59	
7876.00	85.500	268.290	7161.33	-249.77	159.28	255.25	2.91	
7968.00	83.120	268.280	7170.45	-158.41	156.54	163.75	2.59	
8059.00	84.360	269.580	7180.38	-68.08	154.86	73.31	1.97	
8149.00	86.920	270.430	7187.22	21.60	154.87	-16.42	3.00	
8241.00	89.230	270.000	7190.31	113.50	155.21	-108.36	2.55	



Actual Wellpath Report

LITZENBERGER 9 AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#05 LITZENBERGER 9 (1928'FNL & 1109'FEL SEC.8)
Area	COLORADO	Well	LITZENBERGER 9
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	LITZENBERGER 9 AWP
Facility	SEC.08-T03N-R68W		

WELLPATH DATA (130 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
8333.00	91.390	269.250	7189.81	205.42	154.61	-200.35	2.49	
8423.00	91.570	269.610	7187.49	295.30	153.71	-290.31	0.45	
8513.00	91.420	269.670	7185.14	385.20	153.15	-380.28	0.18	
8605.00	91.850	269.210	7182.51	477.08	152.25	-472.24	0.68	
8697.00	92.030	268.280	7179.40	568.88	150.24	-564.16	1.03	
8787.00	92.220	267.490	7176.06	658.60	146.92	-654.04	0.90	
8877.00	92.060	267.470	7172.70	748.26	142.96	-743.89	0.18	
8967.00	93.140	268.090	7168.62	837.93	139.48	-833.73	1.38	
9059.00	93.080	268.690	7163.63	929.62	136.90	-925.56	0.65	
9149.00	92.960	269.050	7158.89	1019.37	135.13	-1015.41	0.42	
9239.00	91.200	268.500	7155.62	1109.17	133.20	-1105.33	2.05	
9331.00	90.150	270.320	7154.54	1201.07	132.26	-1197.31	2.28	
9423.00	90.030	270.520	7154.39	1293.04	132.93	-1289.31	0.25	
9515.00	89.940	270.320	7154.41	1385.01	133.60	-1381.31	0.24	
9605.00	92.460	270.770	7152.53	1474.96	134.46	-1471.28	2.84	
9695.00	95.110	271.980	7146.59	1564.75	136.61	-1561.04	3.24	
9785.00	97.650	271.520	7136.59	1654.18	139.35	-1650.44	2.87	
9877.00	95.120	269.510	7126.36	1745.57	140.16	-1741.85	3.50	
9969.00	92.090	268.290	7120.57	1837.25	138.40	-1833.64	3.55	
10060.00	91.390	270.160	7117.81	1928.10	137.17	-1924.58	2.19	
10152.00	91.450	271.670	7115.53	2020.06	138.64	-2016.54	1.64	
10244.00	91.510	270.930	7113.15	2112.02	140.72	-2108.49	0.81	
10335.00	91.660	269.480	7110.64	2202.94	141.05	-2199.45	1.60	
10425.00	91.380	269.120	7108.25	2292.82	139.95	-2289.41	0.51	
10515.00	91.290	268.880	7106.15	2382.67	138.38	-2379.37	0.28	
10607.00	91.420	268.700	7103.98	2474.51	136.44	-2471.33	0.24	
10697.00	91.540	269.250	7101.65	2564.36	134.83	-2561.28	0.63	
10789.00	91.290	267.970	7099.38	2656.18	132.60	-2653.22	1.42	
10880.00	91.420	265.850	7097.23	2746.80	127.69	-2744.06	2.33	
10972.00	91.420	268.410	7094.95	2838.44	123.09	-2835.91	2.78	



Actual Wellpath Report

LITZENBERGER 9 AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#05 LITZENBERGER 9 (1928'FNL & 1109'FEL SEC.8)
Area	COLORADO	Well	LITZENBERGER 9
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	LITZENBERGER 9 AWP
Facility	SEC.08-T03N-R68W		

WELLPATH DATA (130 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
11063.00	92.560	268.630	7091.79	2929.23	120.74	-2926.82	1.28	
11155.00	92.590	268.870	7087.66	3020.99	118.74	-3018.71	0.26	
11246.00	92.740	269.140	7083.42	3111.78	117.16	-3109.60	0.34	
11338.00	92.530	269.150	7079.19	3203.57	115.79	-3201.49	0.23	
11430.00	92.550	269.120	7075.12	3295.37	114.40	-3293.39	0.04	
11519.00	92.490	269.200	7071.20	3384.18	113.09	-3382.29	0.11	
11611.00	92.530	269.410	7067.18	3476.00	111.98	-3474.20	0.23	
11703.00	92.800	269.850	7062.90	3567.83	111.39	-3566.10	0.56	
11791.00	92.560	270.560	7058.78	3655.69	111.70	-3654.00	0.85	LAST BHGE MWD SURVEY (1801' FNL & 508' FWL, SEC. 8)
11828.00	92.560	270.560	7057.13	3692.64	112.06	-3690.96	0.00	PROJECTION TO BIT (1801' FNL & 471' FWL, SEC. 8)

HOLE & CASING SECTIONS - Ref Wellbore: LITZENBERGER 9 AWP Ref Wellpath: LITZENBERGER 9 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	17.00	1525.00	1508.00	17.00	1509.39	0.00	0.00	14.01	193.51
8.5in Open Hole	17.00	11828.00	11811.00	17.00	7057.13	0.00	0.00	112.06	-3690.96



Actual Wellpath Report

LITZENBERGER 9 AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#05 LITZENBERGER 9 (1928'FNL & 1109'FEL SEC.8)
Area	COLORADO	Well	LITZENBERGER 9
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	LITZENBERGER 9 AWB
Facility	SEC.08-T03N-R68W		

TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
SEC.08-T03N-R68W	-1.00	0.00	-72.58	3133484.38	1331482.52	40°14'32.388"N	105°01'18.588"W	polygon
LITZENBERGER 9 BHL REV-1 (1789'FNL & 460'FWL SEC.8)	7036.10	124.14	-3701.78	3129854.72	1331587.07	40°14'33.612"N	105°02'05.388"W	point
LITZENBERGER 9 BHL REV-2 (1789'FNL & 460'FWL SEC.8)	7060.00	124.14	-3701.79	3129854.72	1331587.07	40°14'33.612"N	105°02'05.388"W	point
LITZENBERGER 9 EP ON PLAT (1789'FNL & 460'FEL SEC.8)	7112.00	142.09	647.67	3134203.82	1331628.48	40°14'33.792"N	105°01'09.300"W	point
LITZENBERGER 9 EP REV-1 (1769'FNL & 460'FEL SEC.8)	7112.00	162.00	647.67	3134203.72	1331648.40	40°14'33.989"N	105°01'09.300"W	point
LITZENBERGER 9 EP REV-2 (1769'FNL & 460'FEL SEC.8)	7133.00	162.00	647.67	3134203.71	1331648.40	40°14'33.989"N	105°01'09.300"W	point
SEC.08-T03N-R68W HARDLINES 460' SETBACKS	7315.00	0.00	-72.58	3133484.38	1331482.52	40°14'32.388"N	105°01'18.588"W	polygon

WELLPATH COMPOSITION - Ref Wellbore: LITZENBERGER 9 AWB Ref Wellpath: LITZENBERGER 9 AWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
17.00	1482.00	Custom BHI NaviTrak (Standard Rotating+Axial Corr) (Rockies 0.03Gt model)	BHI NAVITRAK 13.5" (STD ROTATING, AXIAL, ROCKIES GT)<140-1482>	LITZENBERGER 9 AWB
1482.00	11791.00	Custom BHI AutoTrak Curve (Short) (Rockies 0.03Gt model)	BHI ATC 8.5" (SHORT, ROCKIES GT)<1620-11791>	LITZENBERGER 9 AWB
11791.00	11828.00	Blind Drilling (std)	Projection to bit	LITZENBERGER 9 AWB



Actual Wellpath Report

LITZENBERGER 9 AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#05 LITZENBERGER 9 (1928'FNL & 1109'FEL SEC.8)
Area	COLORADO	Well	LITZENBERGER 9
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	LITZENBERGER 9 AWP
Facility	SEC.08-T03N-R68W		

WELLPATH COMMENTS

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
11791.00	92.560	270.560	7058.78	LAST BHGE MWD SURVEY (1801' FNL & 508' FWL, SEC. 8)
11828.00	92.560	270.560	7057.13	PROJECTION TO BIT (1801' FNL & 471' FWL, SEC. 8)