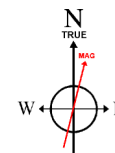


CUB CREEK ENERGY, LLC

Location: COLORADO Slot: SLOT#06 LITZENBERGER 10 (1928'FNL & 1064'FEL SEC.8)
 Field: WELD COUNTY (NAD83, TRUE NORTH) Well: LITZENBERGER 10
 Facility: SEC.08-T03N-R68W Wellbore: LITZENBERGER 10 PWB

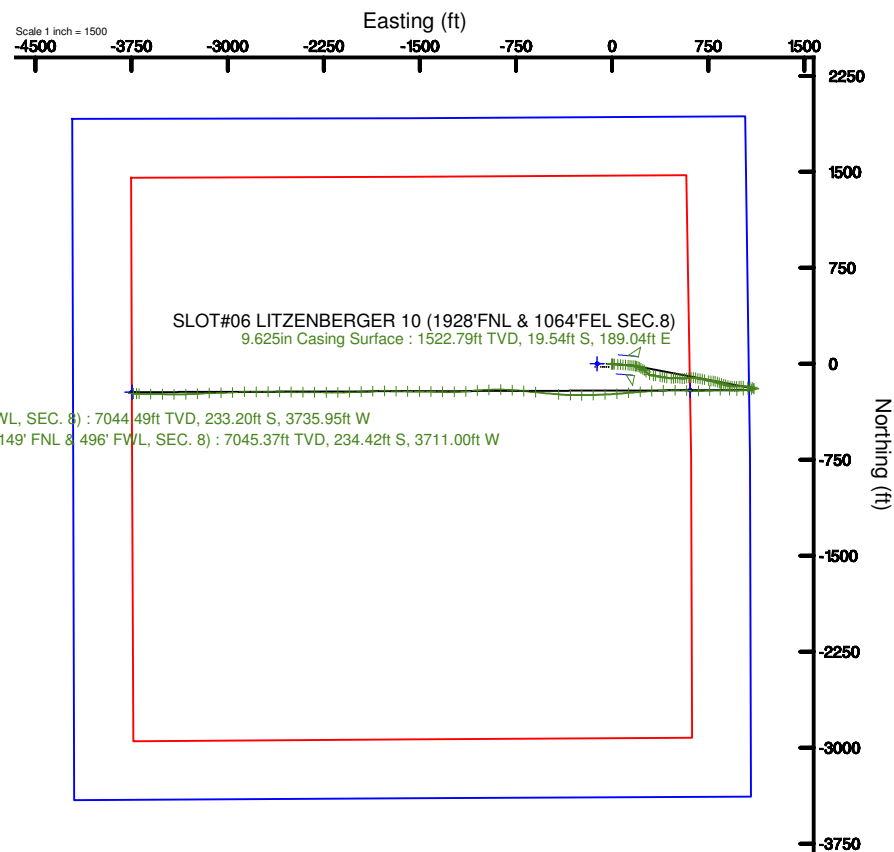
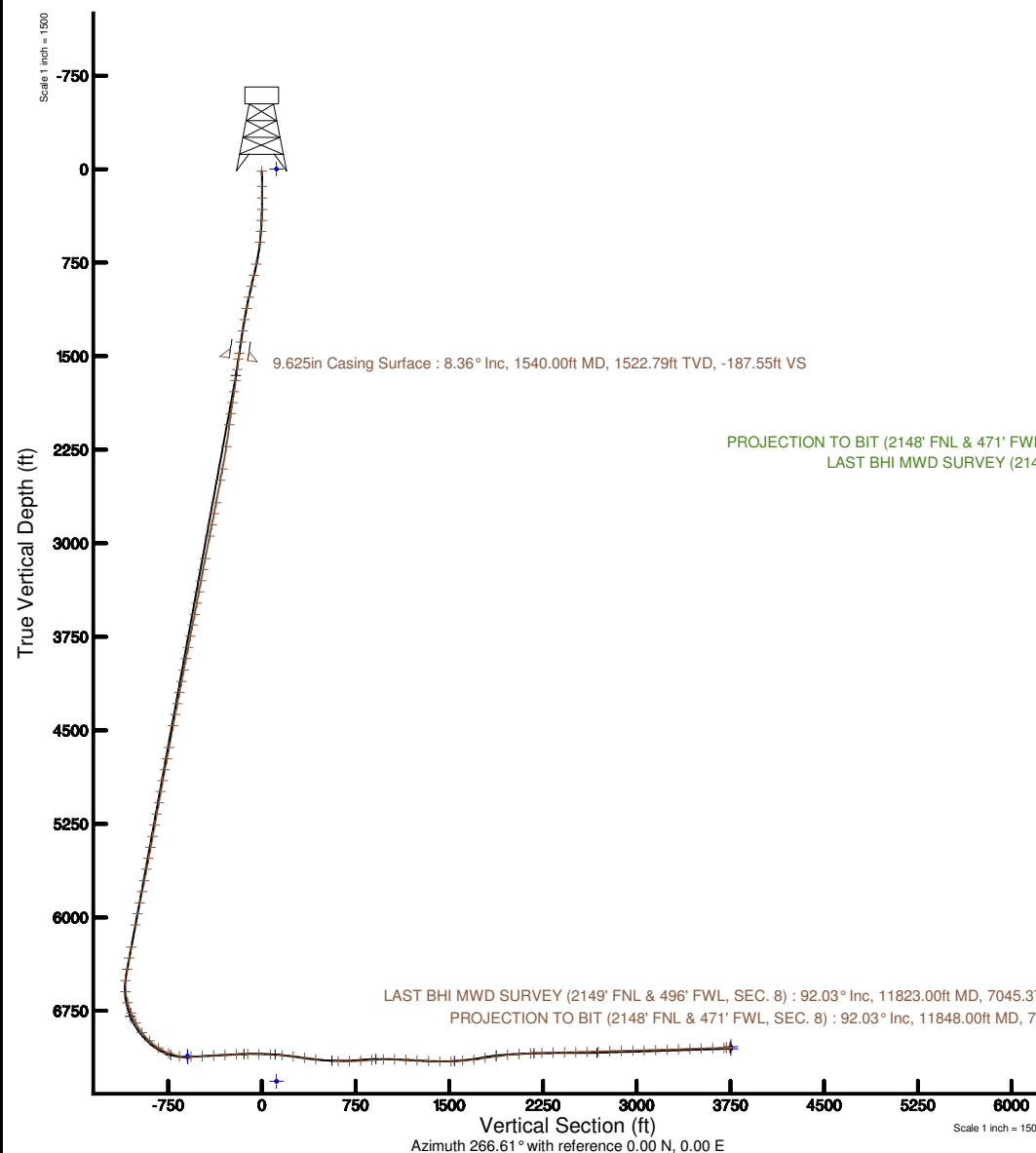
Plot reference wellpath is LITZENBERGER 10 PWB REV B.0	Grid System: NAD83 (Lambert Colorado SP, Northern Zone 10T1, US feet)
True vertical depths are referenced to XTREME 18 (17) (RKB)	North Reference: True north
Measured depths are referenced to XTREME 18 (17) (RKB)	Scale: True distance
XTREME 18 (17) (RKB) to Mean Sea Level: 5097 feet	Depths are in feet
Mean Sea Level to Mud line (At Slot: SLOT#06 LITZENBERGER 10 (1928'FNL & 1064'FEL SEC.8): 0 feet	Created by: carlynn on 2017-08-07
Coordinates are in feet referenced to Slot	Database: Denver



BGGM (1900.0 to 2018.0) Dip: 66.70° Field: 52271.4 nT
 Magnetic North is 8.50 degrees East of True North (at 6/29/2017)

To correct azimuth from Magnetic to True add 8.50 degrees

**BAKER
HUGHES**
a GE company





Actual Wellpath Report

LITZENBERGER 10 AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#06 LITZENBERGER 10 (1928'FNL & 1064'FEL SEC.8)
Area	COLORADO	Well	LITZENBERGER 10
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	LITZENBERGER 10 AWB
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 11:37:23 AM
Convergence at slot	0.31° East	Database/Source file	Denver/LITZENBERGER_10_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	117.25	3133601.62	1331483.15	40°14'32.388"N	105°01'17.076"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	5097.00ft
Horizontal Reference Pt	Slot	XTREME 18 (17") (RKB) to Mean Sea Level	5097.00ft
Vertical Reference Pt	XTREME 18 (17") (RKB)	XTREME 18 (17") (RKB) to Mud Line at Slot (SLOT#06 LITZENBERGER 10 (1928'FNL & 1064'FEL SEC.8))	5097.00ft
MD Reference Pt	XTREME 18 (17") (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	266.61°



Actual Wellpath Report

LITZENBERGER 10 AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#06 LITZENBERGER 10 (1928'FNL & 1064'FEL SEC.8)
Area	COLORADO	Well	LITZENBERGER 10
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	LITZENBERGER 10 AWB
Facility	SEC.08-T03N-R68W		

WELLPATH DATA (125 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
0.00†	0.000	212.290	0.00	0.00	0.00	0.00	0.00	
17.00	0.000	212.290	17.00	0.00	0.00	0.00	0.00	
139.00	1.500	212.290	138.99	0.93	-1.35	-0.85	1.23	
231.00	0.980	170.130	230.97	1.54	-3.14	-1.36	1.10	
323.00	1.060	88.190	322.96	0.61	-3.89	-0.38	1.46	
411.00	2.680	84.500	410.91	-2.26	-3.67	2.49	1.85	
498.00	4.300	83.720	497.74	-7.55	-3.12	7.75	1.86	
588.00	6.280	92.700	587.36	-15.82	-2.98	16.02	2.38	
765.00	11.940	96.560	762.05	-43.50	-5.53	43.91	3.21	
857.00	13.640	92.440	851.77	-63.67	-7.08	64.20	2.10	
947.00	13.130	95.500	939.33	-84.33	-8.51	84.98	0.97	
1036.00	12.420	94.800	1026.12	-103.79	-10.28	104.58	0.82	
1128.00	10.960	93.870	1116.21	-122.26	-11.70	123.16	1.60	
1220.00	10.000	93.490	1206.68	-138.86	-12.77	139.86	1.05	
1311.00	9.030	96.970	1296.42	-153.73	-14.12	154.84	1.24	
1402.00	8.590	98.580	1386.35	-167.41	-16.00	168.65	0.55	
1494.00	8.740	99.990	1477.30	-180.93	-18.24	182.33	0.28	
1624.00	7.700	105.960	1605.96	-198.75	-22.35	200.43	1.03	
1714.00	8.720	119.030	1695.05	-210.20	-27.32	212.19	2.36	
1805.00	10.700	124.190	1784.74	-222.72	-35.41	225.21	2.37	
1893.00	10.250	120.050	1871.28	-235.73	-43.92	238.75	1.00	
1983.00	10.040	126.870	1959.87	-248.40	-52.64	251.95	1.35	
2073.00	10.770	134.730	2048.40	-260.00	-63.27	264.20	1.77	
2252.00	10.840	122.330	2224.25	-284.83	-84.04	290.31	1.30	
2436.00	10.690	88.960	2405.18	-315.96	-92.99	322.03	3.34	
2528.00	10.670	99.700	2495.60	-332.79	-94.27	338.95	2.16	
2711.00	11.400	103.110	2675.21	-366.63	-101.23	373.27	0.53	
2801.00	11.120	94.890	2763.49	-383.75	-103.99	390.58	1.81	
2892.00	11.200	101.990	2852.77	-400.95	-106.57	407.97	1.51	
2984.00	11.470	102.470	2942.98	-418.37	-110.40	425.64	0.31	



Actual Wellpath Report

LITZENBERGER 10 AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#06 LITZENBERGER 10 (1928'FNL & 1064'FEL SEC.8)
Area	COLORADO	Well	LITZENBERGER 10
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	LITZENBERGER 10 AWB
Facility	SEC.08-T03N-R68W		

WELLPATH DATA (125 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
3167.00	11.440	90.170	3122.36	-453.99	-114.39	461.56	1.33	
3257.00	10.190	78.890	3210.77	-470.79	-112.88	478.30	2.72	
3348.00	10.780	85.360	3300.25	-487.27	-110.64	494.68	1.45	
3440.00	11.020	99.270	3390.61	-504.46	-111.36	511.94	2.86	
3532.00	10.990	98.240	3480.92	-521.62	-114.03	529.29	0.22	
3622.00	11.110	94.510	3569.25	-538.62	-115.95	546.43	0.81	
3710.00	11.130	83.100	3655.61	-555.49	-115.59	563.32	2.50	
3802.00	11.030	78.790	3745.89	-573.08	-112.81	580.76	0.91	
3894.00	11.160	78.860	3836.17	-590.62	-109.38	598.13	0.14	
3986.00	11.020	90.270	3926.47	-608.22	-107.70	615.66	2.39	
4078.00	11.090	94.660	4016.76	-625.75	-108.46	633.28	0.92	
4170.00	11.080	99.650	4107.05	-643.13	-110.66	650.81	1.04	
4261.00	11.130	101.660	4196.34	-660.13	-113.91	668.03	0.43	
4351.00	11.160	101.410	4284.65	-676.94	-117.38	685.08	0.06	
4442.00	11.210	101.360	4373.92	-694.00	-120.87	702.38	0.06	
4534.00	11.110	104.350	4464.18	-711.10	-124.83	719.74	0.64	
4712.00	11.010	99.880	4638.88	-743.97	-131.99	753.10	0.48	
4804.00	10.830	93.340	4729.21	-761.11	-134.01	770.38	1.36	
4893.00	10.680	94.390	4816.65	-777.58	-135.12	786.95	0.28	
4982.00	11.070	105.060	4904.06	-793.86	-137.98	803.43	2.30	
5070.00	11.070	111.990	4990.43	-809.51	-143.33	819.42	1.51	
5162.00	11.170	109.520	5080.70	-825.70	-149.62	836.01	0.53	
5253.00	11.030	105.200	5170.00	-842.07	-154.85	852.72	0.93	
5344.00	10.940	105.660	5259.33	-858.48	-159.46	869.43	0.14	
5436.00	10.940	107.120	5349.66	-874.91	-164.39	886.18	0.30	
5526.00	11.160	106.700	5437.99	-891.09	-169.40	902.68	0.26	
5616.00	11.080	101.990	5526.30	-907.61	-173.70	919.49	1.01	
5706.00	11.200	99.820	5614.61	-924.45	-176.99	936.56	0.48	
5798.00	11.040	87.920	5704.89	-941.96	-178.19	954.17	2.50	
5888.00	11.290	82.900	5793.19	-959.37	-176.79	971.52	1.11	



Actual Wellpath Report

LITZENBERGER 10 AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#06 LITZENBERGER 10 (1928'FNL & 1064'FEL SEC.8)
Area	COLORADO	Well	LITZENBERGER 10
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	LITZENBERGER 10 AWB
Facility	SEC.08-T03N-R68W		

WELLPATH DATA (125 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
5981.00	11.130	87.440	5884.42	-977.43	-175.27	989.52	0.96	
6069.00	10.870	90.700	5970.80	-994.20	-174.99	1006.31	0.77	
6161.00	11.230	94.980	6061.10	-1011.71	-175.87	1023.91	0.97	
6341.00	11.110	96.640	6237.69	-1046.13	-179.40	1058.59	0.19	
6432.00	11.180	98.190	6326.97	-1063.41	-181.67	1076.03	0.34	
6523.00	11.160	106.710	6416.26	-1080.32	-185.46	1093.20	1.81	
6614.00	6.330	129.110	6506.20	-1092.30	-191.16	1105.54	6.40	
6704.00	7.430	240.360	6595.84	-1090.73	-197.19	1104.33	12.63	
6793.00	14.760	261.760	6683.15	-1074.25	-201.67	1088.08	9.31	
6881.00	21.490	263.740	6766.73	-1046.95	-205.03	1060.93	7.68	
6970.00	28.250	267.800	6847.44	-1009.56	-207.62	1023.63	7.83	
7062.00	37.950	270.420	6924.42	-959.44	-208.25	973.46	10.66	
7150.00	46.510	270.930	6989.52	-900.50	-207.54	914.38	9.74	
7242.00	56.590	269.580	7046.66	-828.69	-207.27	842.42	11.02	
7334.00	68.310	267.720	7089.14	-747.32	-209.26	761.03	12.86	
7425.00	81.230	269.480	7113.00	-659.76	-211.36	673.44	14.32	
7517.00	93.110	273.290	7117.53	-568.37	-209.13	581.76	13.56	
7608.00	93.080	270.090	7112.62	-477.88	-206.45	490.94	3.51	
7700.00	93.140	267.590	7107.62	-386.09	-208.31	399.11	2.71	
7790.00	93.080	265.930	7102.74	-296.22	-213.39	309.38	1.84	
7882.00	93.020	266.020	7097.85	-204.36	-219.84	217.74	0.12	
7974.00	90.340	264.880	7095.15	-112.43	-227.13	126.08	3.17	
8063.00	88.860	265.520	7095.77	-23.46	-234.58	37.40	1.81	
8156.00	87.840	267.370	7098.45	69.50	-240.34	-55.38	2.27	
8248.00	85.310	268.120	7103.94	161.31	-243.96	-147.14	2.87	
8339.00	82.650	269.730	7113.49	251.72	-245.66	-237.61	3.41	
8428.00	81.780	271.800	7125.54	339.66	-244.48	-325.77	2.50	
8520.00	82.840	274.610	7137.86	430.22	-239.38	-416.79	3.24	
8703.00	88.120	276.290	7152.28	610.41	-222.05	-598.33	3.03	
8795.00	90.770	274.880	7153.17	701.27	-213.10	-689.87	3.26	



Actual Wellpath Report

LITZENBERGER 10 AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#06 LITZENBERGER 10 (1928'FNL & 1064'FEL SEC.8)
Area	COLORADO	Well	LITZENBERGER 10
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	LITZENBERGER 10 AWB
Facility	SEC.08-T03N-R68W		

WELLPATH DATA (125 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
8885.00	93.420	273.760	7149.88	790.39	-206.33	-779.55	3.20	
8976.00	94.530	270.750	7143.57	880.72	-202.75	-870.25	3.52	
9067.00	91.790	267.960	7138.55	971.46	-203.78	-961.09	4.29	
9158.00	89.050	265.250	7137.88	1062.44	-209.17	-1051.91	4.23	
9249.00	86.890	266.000	7141.11	1153.36	-216.11	-1142.58	2.51	
9339.00	86.800	268.590	7146.06	1243.21	-220.35	-1232.34	2.88	
9431.00	87.320	271.700	7150.78	1334.90	-220.11	-1324.20	3.42	
9521.00	88.830	271.240	7153.80	1424.52	-217.81	-1414.12	1.75	
9611.00	91.350	269.850	7153.66	1514.30	-216.95	-1504.11	3.20	
9703.00	93.970	271.530	7149.39	1605.96	-215.84	-1595.99	3.38	
9793.00	96.940	270.940	7140.84	1695.25	-213.91	-1685.55	3.36	
9885.00	99.810	270.540	7127.44	1786.02	-212.74	-1776.55	3.15	
9977.00	98.090	267.700	7113.12	1876.80	-214.14	-1867.41	3.58	
10068.00	95.120	267.090	7102.66	1967.18	-218.25	-1957.70	3.33	
10160.00	93.940	267.610	7095.39	2058.88	-222.49	-2049.31	1.40	
10251.00	92.460	270.340	7090.31	2149.65	-224.11	-2140.14	3.41	
10341.00	91.350	270.490	7087.32	2239.40	-223.46	-2230.09	1.24	
10433.00	91.290	270.440	7085.20	2331.17	-222.71	-2322.06	0.08	
10524.00	91.290	270.180	7083.15	2421.96	-222.22	-2413.04	0.29	
10615.00	91.570	271.480	7080.88	2512.68	-220.90	-2504.00	1.46	
10705.00	91.630	270.970	7078.37	2602.35	-218.98	-2593.94	0.57	
10796.00	91.660	269.930	7075.76	2693.11	-218.26	-2684.90	1.14	
10888.00	91.690	269.600	7073.07	2784.93	-218.64	-2776.86	0.36	
10980.00	91.450	268.230	7070.55	2876.82	-220.38	-2868.81	1.51	
11072.00	91.480	267.750	7068.19	2968.76	-223.61	-2960.72	0.52	
11163.00	91.600	268.480	7065.75	3059.70	-226.60	-3051.64	0.81	
11255.00	91.450	267.660	7063.30	3151.63	-229.70	-3143.55	0.91	
11347.00	91.750	266.690	7060.73	3243.59	-234.23	-3235.40	1.10	
11437.00	91.880	268.170	7057.88	3333.54	-238.26	-3325.27	1.65	
11529.00	91.910	270.650	7054.84	3425.37	-239.21	-3417.20	2.69	



Actual Wellpath Report

LITZENBERGER 10 AWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#06 LITZENBERGER 10 (1928'FNL & 1064'FEL SEC.8)
Area	COLORADO	Well	LITZENBERGER 10
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	LITZENBERGER 10 AWB
Facility	SEC.08-T03N-R68W		

WELLPATH DATA (125 stations)								
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
11620.00	91.690	270.810	7051.98	3516.09	-238.05	-3508.15	0.30	
11712.00	91.850	270.290	7049.14	3607.83	-237.17	-3600.10	0.59	
11802.00	92.000	272.080	7046.11	3697.49	-235.31	-3690.03	1.99	
11823.00	92.030	272.790	7045.37	3718.36	-234.42	-3711.00	3.38	LAST BHI MWD SURVEY (2149' FNL & 496' FWL, SEC. 8)
11848.00	92.030	272.790	7044.49	3743.20	-233.20	-3735.95	0.00	PROJECTION TO BIT (2148' FNL & 471' FWL, SEC. 8)

HOLE & CASING SECTIONS - Ref Wellbore: LITZENBERGER 10 AWB Ref Wellpath: LITZENBERGER 10 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	1540.00	1523.00	17.00	1522.79	0.00	0.00	-19.54	189.04
8.5in Open Hole	17.00	11848.00	11831.00	17.00	7044.49	0.00	0.00	-233.20	-3735.95



Actual Wellpath Report

LITZENBERGER 10 AWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#06 LITZENBERGER 10 (1928'FNL & 1064'FEL SEC.8)
Area	COLORADO	Well	LITZENBERGER 10
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	LITZENBERGER 10 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	-2.00	0.00	-117.25	3133484.38	1331482.52	40°14'32.388"N	105°01'18.588"W	polygon
LITZENBERGER 10 BHL REV-1 (2137'FNL & 460'FWL SEC.8)	7036.00	-221.94	-3746.50	3129856.54	1331241.01	40°14'30.192"N	105°02'05.388"W	point
LITZENBERGER 10 BHL REV-2 (2137'FNL & 460'FWL SEC.8)	7053.00	-221.94	-3746.50	3129856.54	1331241.01	40°14'30.192"N	105°02'05.388"W	point
LITZENBERGER 10 EP REV-1 (2137'FNL & 460'FEL SEC.8)	7112.00	-207.64	608.60	3134211.30	1331278.80	40°14'30.336"N	105°01'09.228"W	point
LITZENBERGER 10 EP REV-2 (2137'FNL & 460'FEL SEC.8)	7120.00	-207.65	608.60	3134211.30	1331278.80	40°14'30.336"N	105°01'09.228"W	point
SEC.08-T03N-R68W HARDLINES 460' SETBACKS	7314.00	0.00	-117.25	3133484.38	1331482.52	40°14'32.388"N	105°01'18.588"W	polygon

WELLPATH COMPOSITION - Ref Wellbore: LITZENBERGER 10 AWB					Ref Wellpath: LITZENBERGER 10 AWP		
Start MD [ft]	End MD [ft]	Positional Uncertainty Model		Log Name/Comment		Wellbore	
17.00	1494.00	Custom BHI NaviTrak (Standard Rotating+Axial Corr) (Rockies 0.03Gt model)		BHI NAVITRAK 13.5"(STD ROTATING, AXIAL, ROCKIES GT)<139-1494>		LITZENBERGER 10 AWB	
1494.00	11823.00	Custom BHI AutoTrak Curve (Short) (Rockies 0.03Gt model)		BHI ATC 8.5" (SHORT, ROCKIES GT)<1624-11823>		LITZENBERGER 10 AWB	
11823.00	11848.00	Blind Drilling (std)		Projection to bit		LITZENBERGER 10 AWB	



Actual Wellpath Report

LITZENBERGER 10 AWP

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**REFERENCE WELLPATH IDENTIFICATION**

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#06 LITZENBERGER 10 (1928'FNL & 1064'FEL SEC.8)
Area	COLORADO	Well	LITZENBERGER 10
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	LITZENBERGER 10 AWB
Facility	SEC.08-T03N-R68W		

WELLPATH COMMENTS

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
11823.00	92.030	272.790	7045.37	LAST BHI MWD SURVEY (2149' FNL & 496' FWL, SEC. 8)
11848.00	92.030	272.790	7044.49	PROJECTION TO BIT (2148' FNL & 471' FWL, SEC. 8)