

CUB CREEK ENERGY, LLC

Location: COLORADO

Slot: SLOT#07 LITZENBERGER 11 (1928'FNL & 1079'FEL SEC.8)

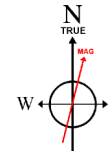
Field: WELD COUNTY (NAD83, TRUE NORTH)

Well: LITZENBERGER 11

Facility: SEC.08-T03N-R68W

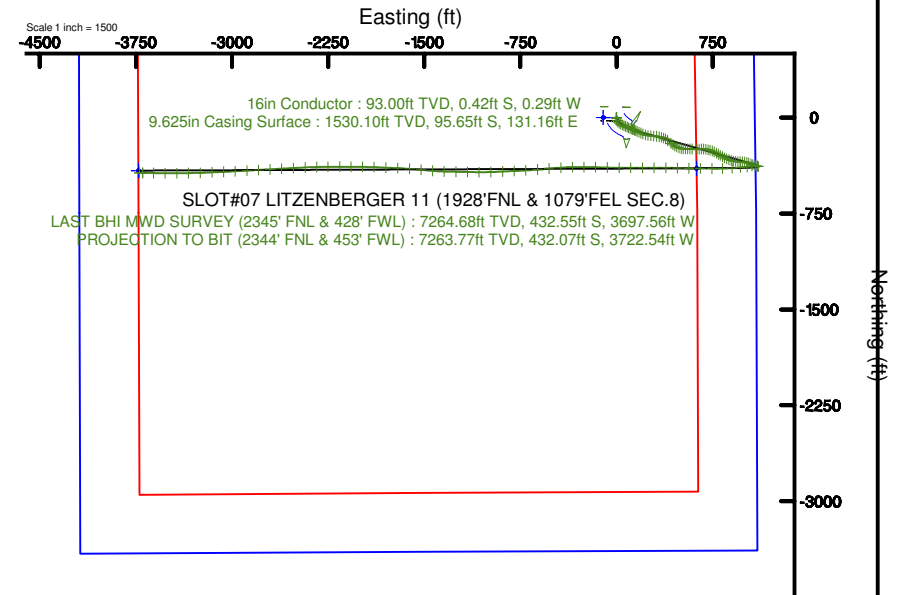
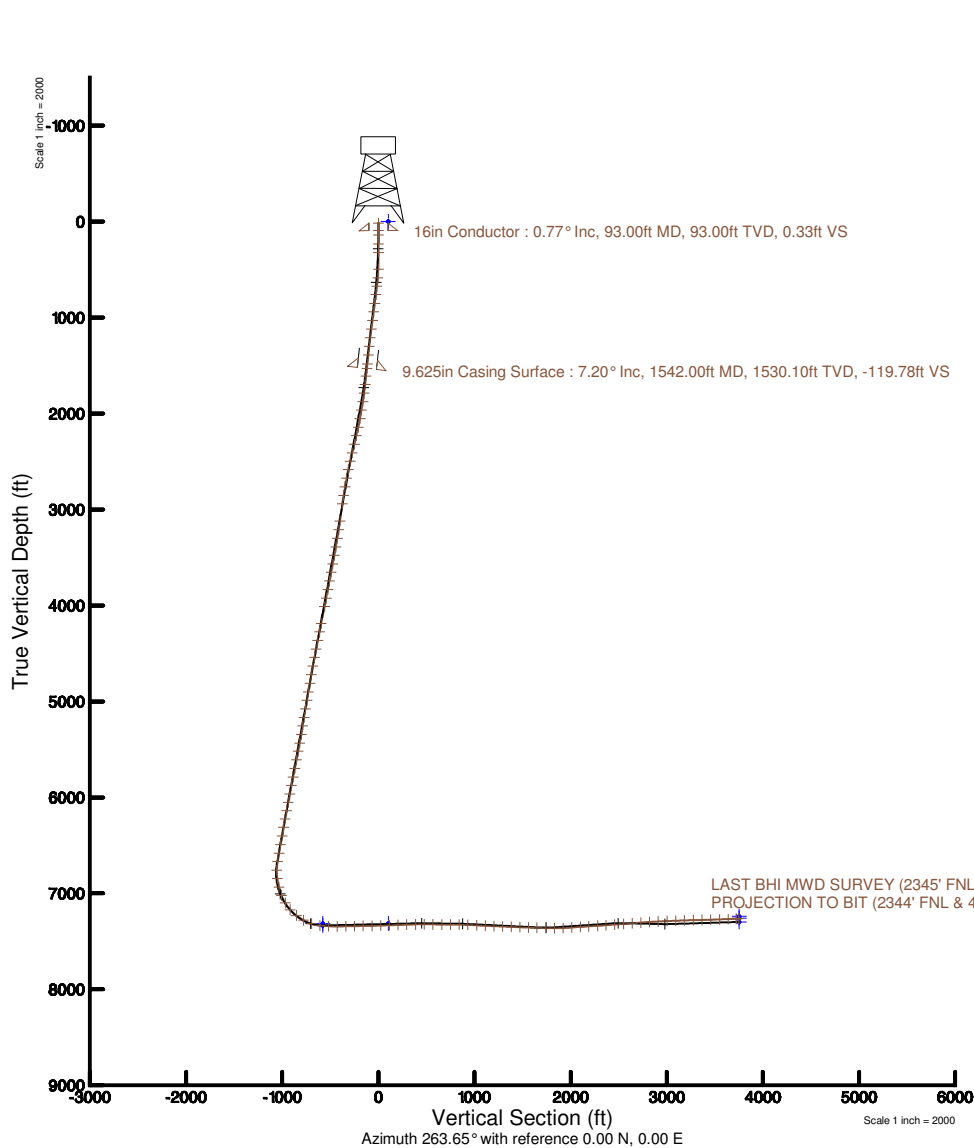
Wellbore: LITZENBERGER 11 PWB

Plot reference wellpath is LITZENBERGER 11 PWB REV E.D	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: 5088 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot SLOT#07 LITZENBERGER 11 (1928'FNL & 1079'FEL SEC.8)) 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: Jambryl on 2017-07-05
	Database: Denver



BGGM (1900.0 to 2018.0) Dip: 66.70° Field: 52313.3 nT
Magnetic North is 8.50 degrees East of True North (at 6/23/2017)

To correct azimuth from Magnetic to True add 8.50 degrees





Actual Wellpath Report

LITZENBERGER 11 AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#07 LITZENBERGER 11 (1928'FNL & 1079'FEL SEC.8)
Area	COLORADO	Well	LITZENBERGER 11
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	LITZENBERGER 11 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	Wagnjam
Scale	0.999957	Report Generated	10/25/2017 at 4:20:23 PM
Convergence at slot	0.31° East	Database/Source file	WA_DEN_Denver_Defn/LITZENBERGER_11_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	103.29	3133587.66	1331483.08	40°14'32.388"N	105°01'17.256"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#07 LITZENBERGER 11 (1928'FNL & 1079'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	263.65°



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Area	COLORADO	Well	LITZENBERGER 11
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	LITZENBERGER 11 AWP
Facility	SEC.08-T03N-R68W		

WELLPATH DATA (132 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
0.00†	0.000	214.740	0.00	0.00	0.00	0.00	0.00	
17.00	0.000	214.740	17.00	0.00	0.00	0.00	0.00	
139.00	1.230	214.740	138.99	0.86	-1.08	-0.75	1.01	
231.00	1.650	186.540	230.96	1.81	-3.20	-1.46	0.88	
323.00	3.720	181.560	322.86	2.51	-7.50	-1.69	2.26	
498.00	7.920	156.760	496.94	-0.21	-24.27	2.91	2.74	
588.00	8.540	138.610	586.03	-5.85	-34.98	9.78	2.95	
675.00	9.540	127.900	671.95	-14.73	-44.25	19.74	2.25	
765.00	8.980	119.590	760.78	-25.76	-52.31	31.73	1.61	
857.00	8.760	113.030	851.68	-37.67	-58.59	44.43	1.12	
947.00	8.830	115.080	940.63	-49.54	-64.20	56.99	0.36	
1036.00	8.360	111.710	1028.63	-61.08	-69.49	69.19	0.77	
1128.00	8.450	112.030	1119.64	-72.93	-74.50	81.67	0.11	
1220.00	8.220	115.770	1210.67	-84.44	-79.89	93.86	0.64	
1311.00	7.040	111.690	1300.86	-94.88	-84.78	104.90	1.43	
1402.00	6.680	114.970	1391.21	-104.32	-89.08	114.88	0.58	
1494.00	7.560	110.480	1482.50	-114.29	-93.46	125.40	1.13	
1621.00	6.610	112.680	1608.53	-128.14	-99.20	139.97	0.78	
1710.00	7.270	115.130	1696.88	-137.42	-103.56	149.79	0.81	
1802.00	8.670	116.580	1787.99	-148.21	-109.14	161.26	1.54	
1892.00	10.260	113.440	1876.76	-160.86	-115.36	174.69	1.86	
1981.00	11.060	113.040	1964.22	-175.17	-121.86	189.81	0.90	
2071.00	11.770	110.940	2052.44	-190.85	-128.52	206.33	0.91	
2163.00	13.280	107.840	2142.25	-208.83	-135.11	225.15	1.80	
2254.00	14.080	101.400	2230.67	-228.91	-140.50	245.96	1.89	
2345.00	13.960	92.830	2318.97	-250.29	-143.23	267.77	2.28	
2438.00	14.120	95.050	2409.20	-272.48	-144.78	290.28	0.60	
2528.00	13.440	96.940	2496.60	-293.43	-147.01	311.59	0.91	
2618.00	12.640	100.910	2584.28	-313.01	-150.14	331.65	1.33	
2710.00	11.930	107.550	2674.18	-331.32	-154.91	350.60	1.72	



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REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#07 LITZENBERGER 11 (1928'FNL & 1079'FEL SEC.8)
Area	COLORADO	Well	LITZENBERGER 11
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	LITZENBERGER 11 AWP
Facility	SEC.08-T03N-R68W		

WELLPATH DATA (132 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
2800.00	10.930	111.820	2762.40	-347.34	-160.89	367.39	1.45	
2892.00	11.130	123.080	2852.71	-361.89	-168.98	382.93	2.35	
2983.00	11.290	128.580	2941.98	-374.98	-179.33	397.25	1.19	
3165.00	11.490	131.440	3120.39	-399.78	-202.43	424.77	0.33	
3257.00	11.330	122.740	3210.58	-412.95	-213.39	439.24	1.88	
3347.00	11.360	119.140	3298.82	-427.03	-222.48	454.42	0.79	
3439.00	11.380	114.190	3389.02	-442.22	-230.61	470.61	1.06	
3530.00	11.300	107.300	3478.25	-458.12	-236.94	487.31	1.49	
3620.00	11.020	103.860	3566.55	-474.27	-241.63	504.09	0.80	
3710.00	10.900	97.580	3654.91	-490.60	-244.81	520.87	1.33	
3802.00	11.090	90.510	3745.22	-507.83	-246.04	538.34	1.48	
3893.00	11.140	87.670	3834.52	-525.29	-245.76	555.88	0.60	
3983.00	11.220	92.840	3922.81	-542.61	-245.84	573.31	1.12	
4073.00	11.230	95.500	4011.09	-559.83	-247.11	590.78	0.58	
4253.00	11.320	89.800	4187.62	-594.55	-248.73	625.89	0.62	
4343.00	11.260	84.730	4275.88	-612.12	-247.89	643.48	1.10	
4433.00	11.520	86.700	4364.11	-629.87	-246.57	661.20	0.52	
4524.00	11.400	94.970	4453.30	-647.77	-246.82	679.23	1.81	
4612.00	11.390	99.760	4539.57	-664.64	-249.05	696.46	1.08	
4704.00	10.970	101.640	4629.82	-681.70	-252.36	713.99	0.60	
4796.00	9.720	106.620	4720.33	-697.18	-256.34	730.00	1.67	
4888.00	11.210	112.640	4810.80	-712.15	-262.01	745.70	2.01	
4980.00	11.600	116.160	4900.98	-727.77	-269.53	762.25	0.87	
5070.00	11.880	119.000	4989.10	-742.96	-278.01	778.48	0.71	
5161.00	11.780	119.070	5078.17	-758.17	-287.06	794.79	0.11	
5251.00	11.680	122.360	5166.29	-772.76	-296.40	810.52	0.75	
5341.00	11.710	122.890	5254.42	-786.95	-306.24	825.88	0.12	
5432.00	11.780	118.440	5343.52	-801.73	-315.68	841.80	1.00	
5524.00	11.750	110.940	5433.59	-817.77	-323.50	858.81	1.66	
5612.00	12.230	106.470	5519.67	-834.32	-329.34	876.12	1.19	



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REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#07 LITZENBERGER 11 (1928'FNL & 1079'FEL SEC.8)
Area	COLORADO	Well	LITZENBERGER 11
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	LITZENBERGER 11 AWP
Facility	SEC.08-T03N-R68W		

WELLPATH DATA (132 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
5703.00	11.880	108.150	5608.67	-851.73	-334.99	894.26	0.54	
5795.00	11.840	105.670	5698.70	-869.10	-340.49	912.35	0.56	
5887.00	11.170	95.980	5788.86	-886.55	-343.97	930.30	2.22	
5975.00	11.200	91.440	5875.19	-903.35	-345.07	947.32	1.00	
6066.00	11.130	94.250	5964.47	-920.74	-345.95	964.91	0.60	
6155.00	11.040	94.530	6051.81	-937.55	-347.26	981.98	0.12	
6244.00	11.110	97.890	6139.15	-954.23	-349.11	998.96	0.73	
6333.00	11.040	101.760	6226.50	-970.64	-352.02	1015.80	0.84	
6421.00	11.000	108.830	6312.88	-986.25	-356.45	1032.00	1.54	
6512.00	10.990	112.100	6402.21	-1001.73	-362.51	1048.25	0.69	
6604.00	10.990	110.750	6492.52	-1017.25	-368.92	1064.58	0.28	
6694.00	11.040	108.320	6580.86	-1032.72	-374.67	1080.78	0.52	
6783.00	10.940	104.740	6668.23	-1048.34	-379.50	1097.04	0.77	
6873.00	1.230	166.440	6757.65	-1056.45	-382.62	1105.55	11.57	
6961.00	8.010	285.590	6845.38	-1050.87	-381.88	1099.85	9.86	
7053.00	13.940	283.270	6935.66	-1034.47	-377.61	1082.88	6.46	
7142.00	21.290	255.840	7020.57	-1008.29	-379.11	1056.70	12.25	
7231.00	31.370	262.100	7100.24	-969.02	-386.27	1017.98	11.73	
7319.00	41.950	266.810	7170.75	-916.59	-391.07	965.76	12.43	
7407.00	52.010	266.090	7230.71	-852.41	-395.08	901.63	11.45	
7497.00	61.490	268.110	7280.01	-777.38	-398.81	826.55	10.70	
7587.00	72.040	270.890	7315.47	-695.24	-399.45	743.98	12.06	
7678.00	83.550	271.120	7334.67	-607.18	-397.89	655.20	12.65	
7768.00	86.240	269.960	7342.68	-518.19	-397.05	565.57	3.25	
7858.00	90.800	271.970	7345.00	-428.98	-395.53	475.64	5.54	
7948.00	91.320	270.830	7343.34	-339.82	-393.33	385.69	1.39	
8040.00	91.200	269.730	7341.32	-248.46	-392.88	293.71	1.20	
8131.00	90.920	269.290	7339.63	-157.95	-393.66	202.73	0.57	
8223.00	91.390	270.270	7337.78	-66.50	-394.01	110.75	1.18	
8313.00	91.420	270.610	7335.57	22.84	-393.32	20.78	0.38	



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REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#07 LITZENBERGER 11 (1928'FNL & 1079'FEL SEC.8)
Area	COLORADO	Well	LITZENBERGER 11
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	LITZENBERGER 11 AWP
Facility	SEC.08-T03N-R68W		

WELLPATH DATA (132 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
8405.00	92.030	271.800	7332.80	114.00	-391.39	-71.15	1.45	
8497.00	92.000	271.060	7329.57	205.10	-389.09	-163.07	0.80	
8587.00	91.880	270.100	7326.52	294.39	-388.18	-253.01	1.07	
8679.00	92.030	269.410	7323.38	385.81	-388.58	-344.95	0.77	
8769.00	89.200	265.780	7322.42	475.57	-392.35	-434.85	5.11	
8860.00	89.350	264.940	7323.57	566.52	-399.71	-525.54	0.94	
8952.00	89.570	265.560	7324.43	658.48	-407.33	-617.22	0.72	
9044.00	89.510	266.350	7325.17	750.40	-413.82	-708.99	0.86	
9134.00	89.450	268.190	7325.99	840.22	-418.11	-798.88	2.05	
9224.00	87.320	266.570	7328.53	929.98	-422.22	-888.74	2.97	
9316.00	87.140	268.370	7332.97	1021.67	-426.28	-980.54	1.96	
9408.00	87.230	270.280	7337.49	1113.10	-427.36	-1072.42	2.08	
9498.00	87.410	271.020	7341.70	1202.33	-426.34	-1162.31	0.85	
9588.00	87.540	271.380	7345.67	1291.46	-424.46	-1252.20	0.42	
9680.00	87.380	271.370	7349.74	1382.54	-422.25	-1344.09	0.17	
9772.00	88.310	275.290	7353.20	1473.15	-416.91	-1435.85	4.38	
9862.00	87.470	274.800	7356.52	1561.31	-409.00	-1525.44	1.08	
9952.00	89.420	274.600	7358.96	1649.61	-401.63	-1615.10	2.18	
10044.00	87.940	272.370	7361.08	1740.22	-396.04	-1706.89	2.91	
10136.00	89.850	272.290	7362.85	1831.15	-392.30	-1798.80	2.08	
10228.00	92.100	272.060	7361.29	1922.11	-388.81	-1890.71	2.46	
10318.00	94.410	270.730	7356.18	2011.14	-386.62	-1980.53	2.96	
10408.00	93.880	270.620	7349.67	2100.23	-385.56	-2070.29	0.60	
10498.00	93.850	270.350	7343.61	2189.39	-384.80	-2160.08	0.30	
10590.00	94.040	269.290	7337.28	2280.64	-385.09	-2251.86	1.17	
10677.00	93.980	268.080	7331.19	2367.09	-387.08	-2338.62	1.39	
10768.00	93.760	267.300	7325.05	2457.65	-390.74	-2429.34	0.89	
10860.00	93.970	267.020	7318.85	2549.27	-395.29	-2521.02	0.38	
10952.00	94.930	267.070	7311.71	2640.83	-400.02	-2612.62	1.04	
11042.00	93.850	266.670	7304.82	2730.42	-404.92	-2702.22	1.28	



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Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	LITZENBERGER 11 AWP
Facility	SEC.08-T03N-R68W		

WELLPATH DATA (132 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
11133.00	93.950	266.710	7298.63	2821.09	-410.16	-2792.86	0.12	
11223.00	92.530	266.860	7293.55	2910.81	-415.20	-2882.57	1.59	
11315.00	92.560	267.090	7289.46	3002.56	-420.05	-2974.35	0.25	
11405.00	92.460	267.010	7285.52	3092.32	-424.68	-3064.15	0.14	
11497.00	91.910	267.590	7282.01	3184.06	-429.01	-3155.98	0.87	
11588.00	91.380	268.100	7279.40	3274.78	-432.43	-3246.87	0.81	
11680.00	91.380	269.070	7277.18	3366.41	-434.70	-3338.82	1.05	
11771.00	91.850	269.840	7274.62	3456.91	-435.56	-3429.78	0.99	
11863.00	92.190	270.100	7271.38	3548.29	-435.61	-3521.72	0.47	
11954.00	92.220	271.400	7267.87	3638.53	-434.42	-3612.64	1.43	
12039.00	92.090	271.120	7264.68	3722.72	-432.55	-3697.56	0.36	LAST BHI MWD SURVEY (2345' FNL & 428' FWL)
12064.00	92.090	271.120	7263.77	3747.49	-432.07	-3722.54	0.00	PROJECTION TO BIT (2344' FNL & 453' FWL)

HOLE & CASING SECTIONS - Ref Wellbore: LITZENBERGER 11 AWP Ref Wellpath: LITZENBERGER 11 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]
16in Conductor	17.00	93.00	76.00	17.00	93.00	0.00	0.00	-0.42	-0.29
13.5in Open Hole	93.00	1549.00	1456.00	93.00	1537.05	-0.42	-0.29	-95.97	131.97
9.625in Casing Surface	17.00	1542.00	1525.00	17.00	1530.10	0.00	0.00	-95.65	131.16
8.5in Open Hole	1549.00	12064.00	10515.00	1537.05	7263.77	-95.97	131.97	-432.07	-3722.54



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REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#07 LITZENBERGER 11 (1928'FNL & 1079'FEL SEC.8)
Area	COLORADO	Well	LITZENBERGER 11
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	LITZENBERGER 11 AWP
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	-103.29	3133484.38	1331482.52	40°14'32.388"N	105°01'18.588"W	polygon
LITZENBERGER 11 BHL REV-1 (2327'FNL & 460'FWL SEC.8)	7239.00	-415.02	-3729.78	3129860.34	1331047.95	40°14'28.284"N	105°02'05.352"W	point
LITZENBERGER 11 BHL REV-2 (2327'FNL & 460'FWL SEC.8)	7258.00	-415.02	-3729.78	3129860.34	1331047.95	40°14'28.284"N	105°02'05.352"W	point
LITZENBERGER 11 BHL REV-3 (2327'FNL & 460'FWL SEC.8)	7298.00	-415.02	-3729.78	3129860.34	1331047.95	40°14'28.284"N	105°02'05.352"W	point
LITZENBERGER 11 EP REV-1 (2327'FNL & 460'FEL SEC.8)	7315.00	-397.08	625.35	3134215.12	1331089.39	40°14'28.464"N	105°01'09.192"W	point
SEC.08-T03N-R68W HARDLINES 460' SETBACKS	7315.00	0.00	-103.29	3133484.38	1331482.52	40°14'32.388"N	105°01'18.588"W	polygon
LITZENBERGER 11 EP REV-2 (2327'FNL & 460'FEL SEC.8)	7334.00	-397.08	625.35	3134215.12	1331089.39	40°14'28.464"N	105°01'09.192"W	point

WELLPATH COMPOSITION - Ref Wellbore: LITZENBERGER 11 AWP Ref Wellpath: LITZENBERGER 11 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 11 AWP
1494.00	12039.00	Custom BHI AutoTrak Curve (Short) (Rockies 0.03Gt model)	BHI ATC 8.5" (SHORT, ROCKIES GT)<1621-120039>	LITZENBERGER 11 AWP
12039.00	12064.00	Blind Drilling (std)	Projection to bit	LITZENBERGER 11 AWP



Actual Wellpath Report

LITZENBERGER 11 AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#07 LITZENBERGER 11 (1928'FNL & 1079'FEL SEC.8)
Area	COLORADO	Well	LITZENBERGER 11
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	LITZENBERGER 11 AWB
Facility	SEC.08-T03N-R68W		

WELLPATH COMMENTS

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
12039.00	92.090	271.120	7264.68	LAST BHI MWD SURVEY (2345' FNL & 428' FWL)
12064.00	92.090	271.120	7263.77	PROJECTION TO BIT (2344' FNL & 453' FWL)