

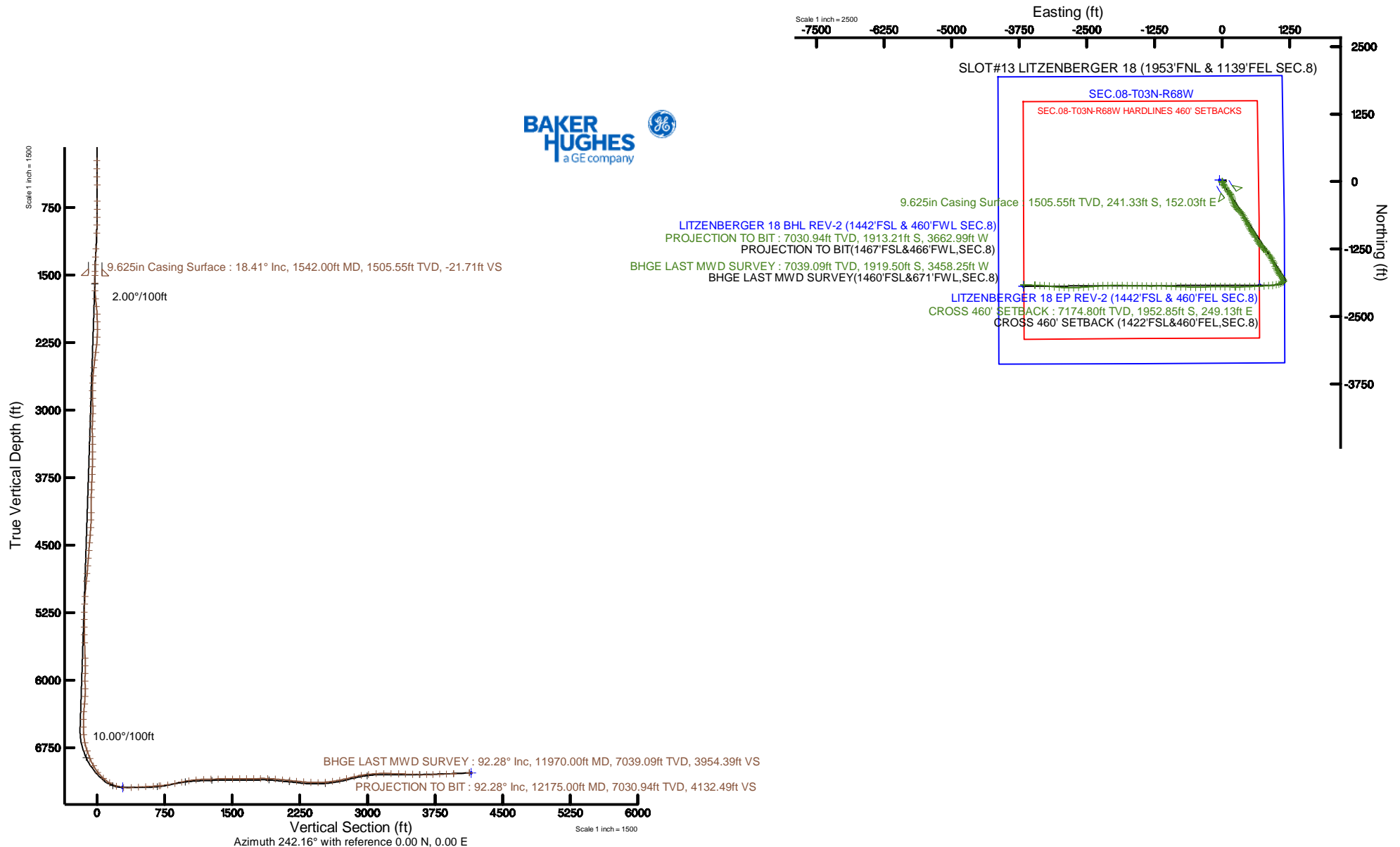
# CUB CREEK ENERGY, LLC

Location: COLORADO Slot: SLOT#13 LITZENBERGER 18 (1953'FNL & 1139'FEL SEC.8)  
Field: WELD COUNTY (NAD83, TRUE NORTH) Well: LITZENBERGER 18  
Facility: SEC.08-T03N-R68W Wellbore: LITZENBERGER 18 PWB

Plus reference wellbore is LITZENBERGER 18 PWB REV-B.0		Grid System: NAD83 (Lambert Colorado SP, Northern Zone 2011) US Feet	
True vertical depth are referenced to XTREME 18 (17) (R008)		North Reference: True north	
Measured depths are referenced to XTREME 18 (17) (R008)		Scale: True distance	
XTREME 18 (17) (R008) to Mean Sea Level: 5088 feet		Depth: are in feet	
Mean Sea Level to Mud line (in Slot: SLOT#13 LITZENBERGER 18 (1953'FNL & 1139'FEL SEC.8)) 0 feet		Created by: burlapack on 2017-05-16	
Coordinates are in feet referenced to Slot		Database: Demogr	

Location Information				
Facility Name		Grid East (US Ft)	Grid North (US Ft)	Latitude
SEC.08-T03N-R68W		313484.377	1331482.525	40°14'32.388"N
Site	Local N (Ft)	Local E (Ft)	Grid East (US Ft)	Grid North (US Ft)
SLOT#13 LITZENBERGER 18 (1953'FNL & 1139'FEL SEC.8)	25.50	44.67	3133825.179	1331487.201
XTREME 18 (17) (R008) to Mud line (in Slot: SLOT#13 LITZENBERGER 18 (1953'FNL & 1139'FEL SEC.8))				5088
Mean Sea Level to Mud line (in Slot: SLOT#13 LITZENBERGER 18 (1953'FNL & 1139'FEL SEC.8))				0
XTREME 18 (17) (R008) to Mean Sea Level				5088

Survey Program				
Surveyor	Client	Tool	Model	Logbook/Document
John	Client	Surveyor	Surveyor	Surveyor
John	Client	Surveyor	Surveyor	Surveyor
John	Client	Surveyor	Surveyor	Surveyor



# Actual Wellpath Report

LITZENBERGER 18 AWP

Page 1 of 8



## REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#13 LITZENBERGER 18 (1953'FNL & 1139'FEL SEC.8)
Area	COLORADO	Well	LITZENBERGER 18
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	LITZENBERGER 18 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	Bushjamh
Scale	0.999957	Report Generated	10/16/2017 at 1:48:55 PM
Convergence at slot	0.31° East	Database/Source file	Denver/LITZENBERGER_18_AWP.xml

## WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-25.50	44.67	3133529.18	1331457.26	40°14'32.136"N	105°01'18.012"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#13 LITZENBERGER 18 (1953'FNL & 1139'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	242.16°

# Actual Wellpath Report

LITZENBERGER 18 AWP

Page 2 of 8



## REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#13 LITZENBERGER 18 (1953'FNL & 1139'FEL SEC.8)
Area	COLORADO	Well	LITZENBERGER 18
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	LITZENBERGER 18 AWP
Facility	SEC.08-T03N-R68W		

## WELLPATH DATA (129 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	150.980	0.00	0.00	0.00	0.00	40°14'32.136"N	105°01'18.012"W	0.00	
17.00	0.000	150.980	17.00	0.00	0.00	0.00	40°14'32.136"N	105°01'18.012"W	0.00	
229.00	2.070	150.980	228.95	-0.08	-3.35	1.86	40°14'32.103"N	105°01'17.988"W	0.98	
320.00	3.750	151.330	319.83	-0.16	-7.40	4.08	40°14'32.063"N	105°01'17.959"W	1.85	
411.00	3.600	160.540	410.65	0.22	-12.70	6.46	40°14'32.010"N	105°01'17.929"W	0.67	
499.00	6.480	158.660	498.30	1.18	-19.93	9.19	40°14'31.939"N	105°01'17.893"W	3.28	
683.00	10.890	150.690	680.15	1.92	-44.77	21.48	40°14'31.694"N	105°01'17.735"W	2.48	
775.00	13.270	149.680	770.11	1.24	-61.47	31.07	40°14'31.529"N	105°01'17.611"W	2.60	
866.00	15.010	150.780	858.35	0.50	-80.77	42.10	40°14'31.338"N	105°01'17.469"W	1.93	
957.00	16.080	148.070	946.02	-0.68	-101.75	54.51	40°14'31.131"N	105°01'17.309"W	1.42	
1049.00	16.240	146.970	1034.38	-2.75	-123.35	68.26	40°14'30.917"N	105°01'17.132"W	0.38	
1231.00	15.900	141.180	1209.28	-9.80	-164.11	97.77	40°14'30.514"N	105°01'16.751"W	0.90	
1323.00	17.420	141.760	1297.42	-14.68	-184.75	114.19	40°14'30.310"N	105°01'16.539"W	1.66	
1415.00	18.040	146.150	1385.05	-18.66	-207.40	130.65	40°14'30.087"N	105°01'16.327"W	1.60	
1495.00	18.650	148.230	1460.98	-20.83	-228.56	144.29	40°14'29.877"N	105°01'16.151"W	1.12	
1630.00	17.980	151.430	1589.15	-22.57	-265.21	165.62	40°14'29.515"N	105°01'15.876"W	0.89	
1722.00	18.290	160.040	1676.59	-20.77	-291.26	177.34	40°14'29.258"N	105°01'15.725"W	2.93	
1814.00	17.930	168.950	1764.05	-14.70	-318.73	184.98	40°14'28.986"N	105°01'15.627"W	3.03	
1905.00	19.870	169.890	1850.14	-5.94	-347.70	190.38	40°14'28.700"N	105°01'15.557"W	2.16	
1994.00	20.750	160.800	1933.63	1.04	-377.49	198.22	40°14'28.406"N	105°01'15.456"W	3.68	
2083.00	20.670	152.040	2016.90	3.38	-406.26	210.78	40°14'28.121"N	105°01'15.294"W	3.48	
2175.00	19.920	153.440	2103.19	3.69	-434.62	225.40	40°14'27.841"N	105°01'15.105"W	0.97	
2267.00	20.880	148.930	2189.42	3.12	-462.69	240.87	40°14'27.564"N	105°01'14.906"W	2.00	
2357.00	20.840	134.720	2273.58	-2.58	-487.70	260.53	40°14'27.317"N	105°01'14.652"W	5.61	
2449.00	20.640	130.930	2359.62	-13.35	-509.84	284.41	40°14'27.098"N	105°01'14.344"W	1.47	
2541.00	20.770	131.710	2445.68	-24.92	-531.32	308.84	40°14'26.886"N	105°01'14.029"W	0.33	
2633.00	20.510	134.290	2531.77	-35.57	-553.43	332.55	40°14'26.667"N	105°01'13.724"W	1.03	
2725.00	20.810	142.090	2617.87	-43.37	-577.58	354.14	40°14'26.428"N	105°01'13.445"W	3.01	
2815.00	21.500	147.960	2701.82	-47.37	-604.18	372.71	40°14'26.166"N	105°01'13.206"W	2.47	
2905.00	21.390	150.790	2785.59	-48.97	-632.49	389.47	40°14'25.886"N	105°01'12.990"W	1.16	

# Actual Wellpath Report

## LITZENBERGER 18 AWP

Page 3 of 8



### REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#13 LITZENBERGER 18 (1953'FNL & 1139'FEL SEC.8)
Area	COLORADO	Well	LITZENBERGER 18
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	LITZENBERGER 18 AWB
Facility	SEC.08-T03N-R68W		

### WELLPATH DATA (129 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
2997.00	20.990	154.920	2871.37	-48.57	-662.05	404.64	40°14'25.594"N	105°01'12.794"W	1.68	
3087.00	21.700	156.680	2955.20	-46.49	-691.93	418.06	40°14'25.298"N	105°01'12.621"W	1.06	
3179.00	21.740	147.620	3040.69	-46.49	-721.95	433.93	40°14'25.002"N	105°01'12.417"W	3.64	
3270.00	21.110	145.200	3125.41	-49.81	-749.64	452.30	40°14'24.728"N	105°01'12.180"W	1.19	
3360.00	21.600	151.580	3209.24	-51.94	-777.52	469.44	40°14'24.453"N	105°01'11.959"W	2.64	
3452.00	21.220	156.480	3294.90	-50.85	-807.68	484.14	40°14'24.154"N	105°01'11.769"W	1.99	
3544.00	21.780	152.830	3380.50	-49.40	-838.14	498.58	40°14'23.854"N	105°01'11.583"W	1.58	
3634.00	21.240	153.800	3464.23	-48.73	-867.62	513.41	40°14'23.562"N	105°01'11.392"W	0.72	
3723.00	21.140	149.290	3547.22	-49.07	-895.88	528.72	40°14'23.283"N	105°01'11.194"W	1.83	
3814.00	21.270	147.930	3632.06	-51.11	-923.98	545.86	40°14'23.005"N	105°01'10.973"W	0.56	
3905.00	21.340	147.460	3716.84	-53.68	-951.92	563.53	40°14'22.729"N	105°01'10.745"W	0.20	
3996.00	20.170	145.690	3801.93	-56.81	-978.84	581.28	40°14'22.463"N	105°01'10.516"W	1.46	
4086.00	20.590	145.830	3886.30	-60.30	-1004.75	598.92	40°14'22.207"N	105°01'10.289"W	0.47	
4176.00	19.250	151.640	3970.92	-62.17	-1030.91	614.86	40°14'21.949"N	105°01'10.084"W	2.65	
4354.00	20.480	151.660	4138.33	-62.71	-1084.14	643.58	40°14'21.423"N	105°01'09.713"W	0.69	
4444.00	20.610	146.160	4222.61	-64.50	-1111.15	659.87	40°14'21.156"N	105°01'09.503"W	2.15	
4534.00	20.450	141.430	4306.90	-69.08	-1136.60	678.50	40°14'20.904"N	105°01'09.263"W	1.85	
4624.00	20.530	139.880	4391.21	-75.36	-1160.97	698.47	40°14'20.663"N	105°01'09.005"W	0.61	
4715.00	20.410	138.860	4476.46	-82.40	-1185.12	719.19	40°14'20.425"N	105°01'08.738"W	0.41	
4803.00	20.350	140.670	4558.95	-88.98	-1208.51	738.99	40°14'20.194"N	105°01'08.483"W	0.72	
4894.00	20.480	139.920	4644.24	-95.51	-1232.93	759.26	40°14'19.952"N	105°01'08.222"W	0.32	
4984.00	20.300	139.240	4728.60	-102.33	-1256.80	779.60	40°14'19.716"N	105°01'07.959"W	0.33	
5075.00	20.250	138.440	4813.96	-109.59	-1280.54	800.35	40°14'19.482"N	105°01'07.692"W	0.31	
5166.00	20.290	135.910	4899.33	-117.74	-1303.66	821.78	40°14'19.253"N	105°01'07.416"W	0.96	
5350.00	20.520	141.240	5071.79	-132.78	-1351.72	864.17	40°14'18.778"N	105°01'06.869"W	1.02	
5442.00	20.440	146.360	5157.99	-137.45	-1377.67	883.16	40°14'18.522"N	105°01'06.624"W	1.95	
5533.00	20.470	149.690	5243.25	-139.74	-1404.64	900.00	40°14'18.255"N	105°01'06.407"W	1.28	
5623.00	20.240	151.870	5327.63	-140.50	-1431.96	915.28	40°14'17.985"N	105°01'06.210"W	0.88	
5713.00	20.530	153.740	5412.00	-140.14	-1459.84	929.60	40°14'17.710"N	105°01'06.025"W	0.79	
5805.00	20.460	152.970	5498.17	-139.47	-1488.63	944.05	40°14'17.425"N	105°01'05.839"W	0.30	

# Actual Wellpath Report

LITZENBERGER 18 AWP

Page 4 of 8



## REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#13 LITZENBERGER 18 (1953'FNL & 1139'FEL SEC.8)
Area	COLORADO	Well	LITZENBERGER 18
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	LITZENBERGER 18 AWP
Facility	SEC.08-T03N-R68W		

## WELLPATH DATA (129 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
5897.00	19.360	157.860	5584.68	-137.72	-1517.08	957.10	40°14'17.144"N	105°01'05.671"W	2.17	
6078.00	20.640	159.070	5754.76	-130.90	-1574.67	979.80	40°14'16.575"N	105°01'05.378"W	0.74	
6170.00	20.510	149.900	5840.92	-129.58	-1603.76	993.68	40°14'16.288"N	105°01'05.199"W	3.50	
6262.00	20.400	149.160	5927.11	-131.05	-1631.47	1009.99	40°14'16.014"N	105°01'04.989"W	0.31	
6354.00	19.900	152.700	6013.49	-131.74	-1659.16	1025.39	40°14'15.740"N	105°01'04.790"W	1.43	
6443.00	20.500	154.220	6097.01	-131.04	-1686.65	1039.11	40°14'15.468"N	105°01'04.613"W	0.90	
6535.00	20.640	146.900	6183.16	-131.94	-1714.74	1054.98	40°14'15.191"N	105°01'04.409"W	2.80	
6625.00	20.490	137.050	6267.45	-137.50	-1739.57	1074.38	40°14'14.946"N	105°01'04.159"W	3.84	
6715.00	20.300	139.600	6351.81	-145.00	-1762.99	1095.23	40°14'14.714"N	105°01'03.890"W	1.01	
6806.00	20.510	148.150	6437.12	-149.55	-1788.56	1113.88	40°14'14.461"N	105°01'03.649"W	3.28	
6896.00	19.690	152.380	6521.64	-150.59	-1815.39	1129.23	40°14'14.196"N	105°01'03.451"W	1.85	
6986.00	12.030	178.130	6608.25	-146.41	-1838.25	1136.58	40°14'13.970"N	105°01'03.356"W	11.37	
7077.00	12.780	224.220	6697.34	-132.65	-1854.99	1129.86	40°14'13.805"N	105°01'03.443"W	10.63	
7169.00	17.810	237.610	6786.08	-108.92	-1869.83	1110.86	40°14'13.658"N	105°01'03.688"W	6.65	
7260.00	21.990	242.410	6871.63	-78.00	-1885.18	1084.00	40°14'13.507"N	105°01'04.035"W	4.93	
7351.00	29.540	252.080	6953.56	-38.79	-1900.00	1047.48	40°14'13.360"N	105°01'04.505"W	9.47	
7439.00	40.410	258.530	7025.59	10.11	-1912.39	998.73	40°14'13.238"N	105°01'05.134"W	13.03	
7531.00	50.110	263.580	7090.29	71.74	-1922.29	934.25	40°14'13.140"N	105°01'05.965"W	11.23	
7621.00	60.240	266.860	7141.63	139.56	-1928.31	860.73	40°14'13.080"N	105°01'06.913"W	11.64	
7713.00	73.200	265.720	7177.91	216.54	-1933.81	776.58	40°14'13.026"N	105°01'07.999"W	14.13	
7802.00	86.830	266.880	7193.31	296.32	-1939.43	689.32	40°14'12.971"N	105°01'09.124"W	15.37	
7894.00	92.930	269.390	7193.50	378.98	-1942.43	597.42	40°14'12.941"N	105°01'10.309"W	7.17	
7986.00	92.990	268.090	7188.75	461.14	-1944.45	505.57	40°14'12.921"N	105°01'11.493"W	1.41	
8076.00	92.900	266.990	7184.12	542.35	-1948.30	415.77	40°14'12.883"N	105°01'12.651"W	1.22	
8166.00	92.830	268.220	7179.63	623.51	-1952.06	325.96	40°14'12.846"N	105°01'13.809"W	1.37	
8243.00†	94.362	270.604	7174.80	691.82	-1952.85	249.13	40°14'12.838"N	105°01'14.800"W	3.68	CROSS 460' SETBACK (1422'FSL&460'FEL,SEC.8)
8258.00	94.660	271.070	7173.62	704.94	-1952.63	234.17	40°14'12.840"N	105°01'14.992"W	3.68	
8349.00	97.440	271.590	7164.03	783.95	-1950.53	143.71	40°14'12.861"N	105°01'16.159"W	3.11	
8441.00	100.690	272.270	7149.53	862.79	-1947.48	52.93	40°14'12.891"N	105°01'17.330"W	3.61	
8531.00	100.090	271.370	7133.30	939.72	-1944.66	-35.55	40°14'12.919"N	105°01'18.470"W	1.19	

# Actual Wellpath Report

## LITZENBERGER 18 AWP

Page 5 of 8



### REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#13 LITZENBERGER 18 (1953'FNL & 1139'FEL SEC.8)
Area	COLORADO	Well	LITZENBERGER 18
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	LITZENBERGER 18 AWB
Facility	SEC.08-T03N-R68W		

### WELLPATH DATA (129 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
8623.00	98.340	269.450	7118.57	1019.70	-1944.02	-126.35	40°14'12.925"N	105°01'19.641"W	2.80	
8713.00	95.120	266.780	7108.02	1100.05	-1946.97	-215.66	40°14'12.896"N	105°01'20.793"W	4.63	
8804.00	91.720	265.920	7102.59	1182.90	-1952.75	-306.30	40°14'12.839"N	105°01'21.962"W	3.85	
8896.00	91.260	270.030	7100.20	1265.67	-1956.00	-398.20	40°14'12.807"N	105°01'23.146"W	4.49	
8987.00	90.460	270.720	7098.83	1345.84	-1955.40	-489.18	40°14'12.813"N	105°01'24.320"W	1.16	
9079.00	90.460	271.510	7098.09	1426.34	-1953.61	-581.16	40°14'12.831"N	105°01'25.506"W	0.86	
9169.00	90.520	272.380	7097.32	1504.44	-1950.56	-671.10	40°14'12.861"N	105°01'26.665"W	0.97	
9260.00	90.460	272.310	7096.55	1583.09	-1946.83	-762.03	40°14'12.897"N	105°01'27.838"W	0.10	
9350.00	90.520	272.210	7095.78	1660.95	-1943.28	-851.95	40°14'12.932"N	105°01'28.997"W	0.13	
9440.00	90.550	273.010	7094.94	1738.53	-1939.19	-941.85	40°14'12.973"N	105°01'30.157"W	0.89	
9529.00	90.590	272.040	7094.05	1815.32	-1935.27	-1030.76	40°14'13.012"N	105°01'31.303"W	1.09	
9621.00	88.400	270.190	7094.86	1895.80	-1933.48	-1122.73	40°14'13.029"N	105°01'32.489"W	3.12	
9713.00	85.750	269.400	7099.56	1977.19	-1933.80	-1214.60	40°14'13.026"N	105°01'33.673"W	3.01	
9802.00	84.700	269.670	7106.96	2055.94	-1934.52	-1303.29	40°14'13.019"N	105°01'34.817"W	1.22	
9894.00	84.480	271.000	7115.64	2136.68	-1933.99	-1394.88	40°14'13.024"N	105°01'35.998"W	1.46	
9982.00	84.510	272.060	7124.08	2213.01	-1931.65	-1482.44	40°14'13.047"N	105°01'37.127"W	1.20	
10074.00	85.840	271.170	7131.82	2292.83	-1929.07	-1574.07	40°14'13.073"N	105°01'38.309"W	1.74	
10165.00	87.810	270.120	7136.86	2372.68	-1928.04	-1664.92	40°14'13.083"N	105°01'39.480"W	2.45	
10255.00	90.860	271.420	7137.90	2451.67	-1926.83	-1754.89	40°14'13.095"N	105°01'40.640"W	3.68	
10347.00	93.880	270.770	7134.10	2532.11	-1925.08	-1846.79	40°14'13.112"N	105°01'41.825"W	3.36	
10439.00	96.820	270.600	7125.52	2612.57	-1923.98	-1938.37	40°14'13.123"N	105°01'43.006"W	3.20	
10528.00	99.900	268.740	7112.58	2690.65	-1924.48	-2026.41	40°14'13.118"N	105°01'44.141"W	4.03	
10618.00	102.850	268.280	7094.83	2769.71	-1926.78	-2114.60	40°14'13.095"N	105°01'45.278"W	3.32	
10710.00	101.910	267.390	7075.11	2850.69	-1930.17	-2204.40	40°14'13.061"N	105°01'46.436"W	1.39	
10802.00	98.960	266.380	7058.45	2932.86	-1935.09	-2294.73	40°14'13.013"N	105°01'47.601"W	3.38	
10890.00	95.980	264.230	7047.01	3013.08	-1942.24	-2381.67	40°14'12.942"N	105°01'48.722"W	4.16	
10981.00	92.920	265.170	7039.95	3096.86	-1950.62	-2472.00	40°14'12.859"N	105°01'49.887"W	3.52	
11072.00	89.880	266.980	7037.72	3180.01	-1956.84	-2562.74	40°14'12.797"N	105°01'51.057"W	3.89	
11164.00	88.460	267.120	7039.06	3263.45	-1961.58	-2654.61	40°14'12.750"N	105°01'52.241"W	1.55	
11255.00	88.370	269.230	7041.57	3345.19	-1964.47	-2745.52	40°14'12.722"N	105°01'53.414"W	2.32	

# Actual Wellpath Report

LITZENBERGER 18 AWP

Page 6 of 8



## REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#13 LITZENBERGER 18 (1953'FNL & 1139'FEL SEC.8)
Area	COLORADO	Well	LITZENBERGER 18
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	LITZENBERGER 18 AWB
Facility	SEC.08-T03N-R68W		

## WELLPATH DATA (129 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
11343.00	88.310	270.480	7044.12	3423.07	-1964.69	-2833.49	40°14'12.719"N	105°01'54.548"W	1.42	
11431.00	88.310	272.160	7046.72	3499.88	-1962.67	-2921.42	40°14'12.739"N	105°01'55.682"W	1.91	
11521.00	88.460	274.750	7049.26	3576.75	-1957.25	-3011.21	40°14'12.793"N	105°01'56.840"W	2.88	
11613.00	90.000	276.270	7050.49	3653.58	-1948.41	-3102.77	40°14'12.880"N	105°01'58.020"W	2.35	
11703.00	91.940	276.800	7048.97	3727.84	-1938.17	-3192.17	40°14'12.981"N	105°01'59.173"W	2.23	
11793.00	91.970	274.730	7045.90	3802.75	-1929.14	-3281.66	40°14'13.070"N	105°02'00.327"W	2.30	
11880.00	92.280	273.030	7042.67	3876.70	-1923.26	-3368.40	40°14'13.128"N	105°02'01.445"W	1.98	
11970.00	92.280	271.760	7039.09	3954.39	-1919.50	-3458.25	40°14'13.165"N	105°02'02.604"W	1.41	BHGE LAST MWD SURVEY(1460'FSL&671'FWL,SEC.8)
12175.00	92.280	271.760	7030.94	4132.49	-1913.21	-3662.99	40°14'13.227"N	105°02'05.244"W	0.00	PROJECTION TO BIT(1467'FSL&466'FWL,SEC.8)

## HOLE & CASING SECTIONS - Ref Wellbore: LITZENBERGER 18 AWB Ref Wellpath: LITZENBERGER 18 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	1552.00	1535.00	17.00	1515.04	0.00	0.00	-244.05	153.63
9.625in Casing Surface	17.00	1542.00	1525.00	17.00	1505.55	0.00	0.00	-241.33	152.03
8.5in Open Hole	1630.00	12175.00	10545.00	1589.15	7030.94	-265.21	165.62	-1913.21	-3662.99

# Actual Wellpath Report

LITZENBERGER 18 AWP

Page 7 of 8



## REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#13 LITZENBERGER 18 (1953'FNL & 1139'FEL SEC.8)
Area	COLORADO	Well	LITZENBERGER 18
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	LITZENBERGER 18 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	25.50	-44.67	3133484.38	1331482.52	40°14'32.388"N	105°01'18.588"W	polygon
LITZENBERGER 18 BHL REV-2 (1442'FSL & 460'FWL SEC.8)	7032.00	-1937.81	-3668.59	3129871.26	1329499.77	40°14'12.984"N	105°02'05.316"W	point
LITZENBERGER 18 BHL REV-1 (1442'FSL & 460'FWL SEC.8)	7073.85	-1937.81	-3668.59	3129871.26	1329499.77	40°14'12.984"N	105°02'05.316"W	point
LITZENBERGER 18 EP REV-1 (1442'FSL & 460'FEL SEC.8)	7150.00	-1919.86	692.40	3134231.89	1329541.25	40°14'13.164"N	105°01'09.084"W	point
LITZENBERGER 18 EP REV-2 (1442'FSL & 460'FEL SEC.8)	7192.00	-1919.86	692.40	3134231.89	1329541.25	40°14'13.164"N	105°01'09.084"W	point
SEC.08-T03N-R68W HARDLINES 460' SETBACKS	7315.00	25.50	-44.67	3133484.38	1331482.52	40°14'32.388"N	105°01'18.588"W	polygon

## WELLPATH COMPOSITION - Ref Wellbore: LITZENBERGER 18 AWB Ref Wellpath: LITZENBERGER 18 AWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
17.00	1495.00	Custom BHI NaviTrak (Standard Rotating+Axial Corr) (Rockies 0.03Gt model)	Custom BHI NaviTrak (Standard Rotating+Axial Corr) (Rockies 0.03Gt model) <229'-1495'>	LITZENBERGER 18 AWB
1495.00	11970.00	Custom BHI AutoTrak Curve (Short) (Rockies 0.03Gt model)	BHI ATC 8.5" (SHORT, ROCKIES GT)<1630-11970>	LITZENBERGER 18 AWB
11970.00	12175.00	Blind Drilling (std)	Projection to bit	LITZENBERGER 18 AWB

# Actual Wellpath Report

LITZENBERGER 18 AWP

Page 8 of 8



## REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#13 LITZENBERGER 18 (1953'FNL & 1139'FEL SEC.8)
Area	COLORADO	Well	LITZENBERGER 18
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	LITZENBERGER 18 AWB
Facility	SEC.08-T03N-R68W		

## WELLPATH COMMENTS

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
8243.00	94.362	270.604	7174.80	CROSS 460' SETBACK (1422'FSL&460'FEL, SEC.8)
11970.00	92.280	271.760	7039.09	BHGE LAST MWD SURVEY(1460'FSL&671'FWL, SEC.8)
12175.00	92.280	271.760	7030.94	PROJECTION TO BIT(1467'FSL&466'FWL, SEC.8)