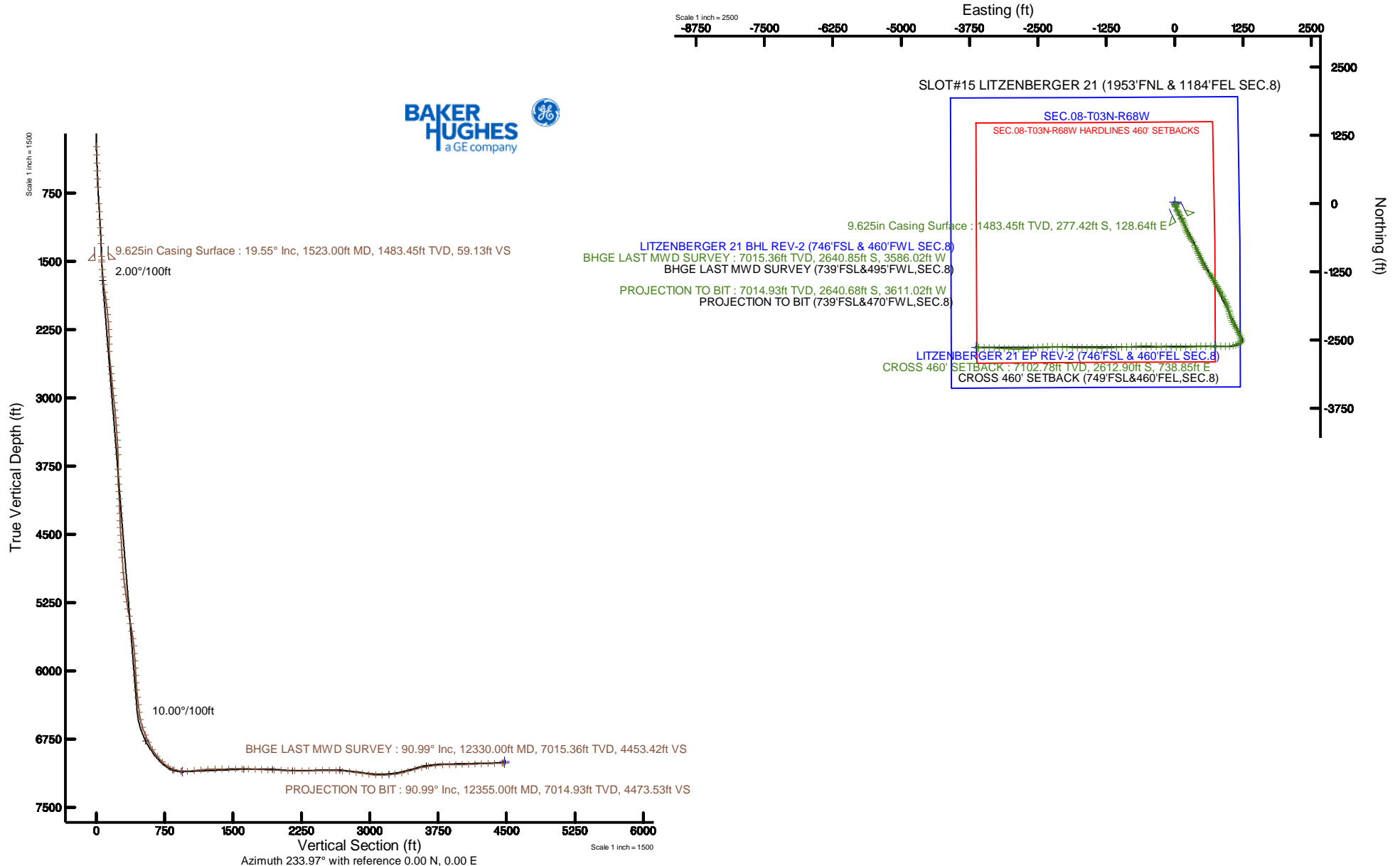


CUB CREEK ENERGY, LLC

Location: COLORADO Slot: SLOT#15 LITZENBERGER 21 (1953'FNL & 1184'FEL SEC.8)
Field: WELD COUNTY (NAD83, TRUE NORTH) Well: LITZENBERGER 21
Facility: SEC.08-T03N-R68W Wellbore: LITZENBERGER 21 PWB

Plot reference wellpath is LITZENBERGER 21 REV.0 PWB		Grid System: NAD83 / Lambert Conformal Conic (NAD83) US Feet	
True vertical depths are referenced to XTREME 18 (17) (RAB)		North Reference: True north	
Measured depths are referenced to XTREME 18 (17) (RAB)		Scale: True distance	
XTREME 18 (17) (RAB) to Mean Sea Level: 5000 feet		Depths are in feet	
Mean Sea Level to Mud line (N Slot: SLOT#15 LITZENBERGER 21 (1953'FNL & 1184'FEL SEC.8)) 0 feet		Created by: Southgate on 2017-10-16	
Coordinates are in feet referenced to Slot		Database: Change	
Location Information			
Facility Name		Grid East (E) (ft)	Grid North (N) (ft)
SEC.08-T03N-R68W		3703464.277	1331462.120
Latitude		Longitude	
42°14'32.1387N		100°10'16.5887W	
Site	Local N (ft)	Local E (ft)	Grid East (E) (ft)
SLOT#15 LITZENBERGER 21 (1953'FNL & 1184'FEL SEC.8)	-25.50	0.00	3703464.275
Grid North (N) (ft)	Latitude		Longitude
1331462.100	42°14'32.1387N		100°10'16.5887W
XTREME 18 (17) (RAB) to Mud line (N Slot: SLOT#15 LITZENBERGER 21 (1953'FNL & 1184'FEL SEC.8))		5000ft	
Mean Sea Level to Mud line (N Slot: SLOT#15 LITZENBERGER 21 (1953'FNL & 1184'FEL SEC.8))		0ft	
XTREME 18 (17) (RAB) to Mean Sea Level		5000ft	
Survey Program			
Well ID	Well Name	Site	Survey Program
LITZENBERGER 21	LITZENBERGER 21	LITZENBERGER 21	LITZENBERGER 21
Well ID	Well Name	Site	Survey Program
LITZENBERGER 21	LITZENBERGER 21	LITZENBERGER 21	LITZENBERGER 21



Actual Wellpath Report

LITZENBERGER 21 AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#15 LITZENBERGER 21 (1953'FNL & 1184'FEL SEC.8)
Area	COLORADO	Well	LITZENBERGER 21
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	LITZENBERGER 21 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 3:37:10 PM
Convergence at slot	0.31° East	Database/Source file	Denver/LITZENBERGER_21_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	0.00	3133484.52	1331457.02	40°14'32.136"N	105°01'18.588"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	5099.00ft
Horizontal Reference Pt	Slot	XTREME 18 (17') (RKB) to Mean Sea Level	5099.00ft
Vertical Reference Pt	XTREME 18 (17') (RKB)	XTREME 18 (17') (RKB) to Mud Line at Slot (SLOT#15 LITZENBERGER 21 (1953'FNL & 1184'FEL SEC.8))	5099.00ft
MD Reference Pt	XTREME 18 (17') (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	233.97°

Actual Wellpath Report

LITZENBERGER 21 AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#15 LITZENBERGER 21 (1953'FNL & 1184'FEL SEC.8)
Area	COLORADO	Well	LITZENBERGER 21
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	LITZENBERGER 21 AWP
Facility	SEC.08-T03N-R68W		

WELLPATH DATA (134 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	160.300	0.00	0.00	0.00	0.00	40°14'32.136"N	105°01'18.588"W	0.00	
17.00	0.000	160.300	17.00	0.00	0.00	0.00	40°14'32.136"N	105°01'18.588"W	0.00	
237.00	3.240	160.300	236.88	1.75	-5.85	2.10	40°14'32.078"N	105°01'18.561"W	1.47	
328.00	6.180	159.990	327.57	3.82	-12.88	4.64	40°14'32.009"N	105°01'18.528"W	3.23	
418.00	7.800	158.730	416.89	6.72	-23.12	8.51	40°14'31.907"N	105°01'18.478"W	1.81	
507.00	9.240	159.850	504.91	10.21	-35.46	13.17	40°14'31.786"N	105°01'18.418"W	1.63	
599.00	10.570	157.350	595.54	14.18	-50.18	18.96	40°14'31.640"N	105°01'18.344"W	1.52	
690.00	11.890	155.590	684.79	18.00	-66.42	26.05	40°14'31.480"N	105°01'18.252"W	1.50	
874.00	15.340	158.470	863.60	27.91	-106.34	42.82	40°14'31.085"N	105°01'18.036"W	1.91	
965.00	15.700	155.780	951.28	33.45	-128.76	52.29	40°14'30.864"N	105°01'17.914"W	0.88	
1056.00	15.770	156.720	1038.87	38.70	-151.35	62.23	40°14'30.640"N	105°01'17.786"W	0.29	
1148.00	16.040	154.580	1127.35	43.79	-174.31	72.62	40°14'30.413"N	105°01'17.652"W	0.70	
1239.00	17.600	152.570	1214.45	48.16	-197.88	84.36	40°14'30.181"N	105°01'17.500"W	1.83	
1331.00	18.570	149.810	1301.91	51.73	-222.89	98.13	40°14'29.933"N	105°01'17.323"W	1.41	
1480.00	19.200	151.220	1442.89	57.24	-264.87	121.86	40°14'29.519"N	105°01'17.017"W	0.52	
1545.00	19.730	152.380	1504.17	60.19	-283.96	132.09	40°14'29.330"N	105°01'16.885"W	1.01	
1634.00	21.000	154.840	1587.61	65.39	-311.71	145.84	40°14'29.056"N	105°01'16.707"W	1.72	
1722.00	22.080	157.830	1669.47	72.33	-341.30	158.78	40°14'28.763"N	105°01'16.540"W	1.75	
1812.00	23.560	159.800	1752.42	81.29	-373.85	171.38	40°14'28.442"N	105°01'16.378"W	1.85	
1904.00	25.020	162.630	1836.28	92.53	-409.67	183.54	40°14'28.088"N	105°01'16.221"W	2.03	
1996.00	26.320	160.760	1919.20	104.64	-447.50	196.07	40°14'27.714"N	105°01'16.060"W	1.66	
2088.00	26.300	156.820	2001.67	115.07	-485.49	210.81	40°14'27.338"N	105°01'15.870"W	1.90	
2180.00	26.630	155.940	2084.03	123.87	-523.06	227.24	40°14'26.967"N	105°01'15.658"W	0.56	
2270.00	26.650	152.910	2164.48	131.19	-559.45	244.66	40°14'26.608"N	105°01'15.433"W	1.51	
2362.00	26.840	148.850	2246.65	136.16	-595.59	264.80	40°14'26.250"N	105°01'15.173"W	2.00	
2454.00	26.570	145.460	2328.84	138.46	-630.32	287.21	40°14'25.907"N	105°01'14.884"W	1.68	
2546.00	26.700	146.290	2411.07	139.83	-664.46	310.34	40°14'25.570"N	105°01'14.586"W	0.43	
2636.00	26.480	149.200	2491.56	142.48	-698.52	331.84	40°14'25.233"N	105°01'14.309"W	1.47	
2817.00	26.470	157.480	2653.63	155.58	-770.47	367.96	40°14'24.522"N	105°01'13.843"W	2.04	
2906.00	26.390	155.610	2733.33	164.21	-806.80	383.73	40°14'24.163"N	105°01'13.640"W	0.94	

Actual Wellpath Report

LITZENBERGER 21 AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#15 LITZENBERGER 21 (1953'FNL & 1184'FEL SEC.8)
Area	COLORADO	Well	LITZENBERGER 21
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	LITZENBERGER 21 AWP
Facility	SEC.08-T03N-R68W		

WELLPATH DATA (134 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
2993.00	26.510	154.380	2811.23	171.61	-841.92	400.11	40°14'23.816"N	105°01'13.429"W	0.64	
3083.00	25.990	155.870	2891.94	179.31	-878.03	416.86	40°14'23.459"N	105°01'13.213"W	0.93	
3175.00	26.800	155.100	2974.35	187.47	-915.24	433.83	40°14'23.092"N	105°01'12.994"W	0.96	
3265.00	26.580	156.870	3054.76	195.88	-952.16	450.28	40°14'22.727"N	105°01'12.782"W	0.92	
3355.00	26.680	154.330	3135.22	204.00	-988.89	466.95	40°14'22.364"N	105°01'12.567"W	1.27	
3447.00	26.400	153.320	3217.53	211.04	-1025.78	485.08	40°14'21.999"N	105°01'12.333"W	0.58	
3537.00	25.890	153.560	3298.32	217.56	-1061.25	502.81	40°14'21.649"N	105°01'12.104"W	0.58	
3630.00	26.420	152.300	3381.79	223.94	-1097.75	521.47	40°14'21.288"N	105°01'11.864"W	0.83	
3720.00	26.830	151.830	3462.25	229.62	-1133.38	540.36	40°14'20.936"N	105°01'11.620"W	0.51	
3812.00	26.710	150.230	3544.39	234.71	-1169.63	560.43	40°14'20.578"N	105°01'11.361"W	0.79	
3904.00	26.990	145.410	3626.48	237.49	-1204.77	582.55	40°14'20.230"N	105°01'11.076"W	2.39	
4082.00	27.120	143.330	3785.01	238.04	-1270.57	629.71	40°14'19.580"N	105°01'10.468"W	0.54	
4172.00	26.600	144.820	3865.30	238.11	-1303.49	653.57	40°14'19.255"N	105°01'10.160"W	0.95	
4264.00	25.820	151.270	3947.86	240.96	-1337.90	675.07	40°14'18.915"N	105°01'09.883"W	3.21	
4353.00	26.670	152.230	4027.68	246.29	-1372.57	693.70	40°14'18.572"N	105°01'09.643"W	1.07	
4443.00	26.800	149.940	4108.06	251.30	-1408.00	713.27	40°14'18.222"N	105°01'09.391"W	1.15	
4532.00	27.030	147.770	4187.42	254.73	-1442.48	734.11	40°14'17.881"N	105°01'09.122"W	1.13	
4624.00	26.790	147.560	4269.46	257.41	-1477.66	756.38	40°14'17.534"N	105°01'08.835"W	0.28	
4712.00	26.550	148.310	4348.10	260.14	-1511.13	777.35	40°14'17.203"N	105°01'08.564"W	0.47	
4800.00	26.800	150.730	4426.73	263.96	-1545.17	797.38	40°14'16.867"N	105°01'08.306"W	1.27	
4891.00	26.890	151.860	4507.93	269.20	-1581.22	817.12	40°14'16.510"N	105°01'08.052"W	0.57	
4983.00	27.080	150.430	4589.91	274.41	-1617.78	837.26	40°14'16.149"N	105°01'07.792"W	0.73	
5075.00	26.360	150.470	4672.09	279.08	-1653.76	857.66	40°14'15.794"N	105°01'07.529"W	0.78	
5166.00	26.130	150.450	4753.71	283.62	-1688.77	877.50	40°14'15.448"N	105°01'07.273"W	0.25	
5349.00	26.460	153.920	4917.78	295.21	-1760.45	915.30	40°14'14.739"N	105°01'06.786"W	0.86	
5436.00	26.260	156.810	4995.74	302.84	-1795.55	931.40	40°14'14.392"N	105°01'06.578"W	1.49	
5528.00	26.320	159.240	5078.22	312.73	-1833.33	946.65	40°14'14.019"N	105°01'06.382"W	1.17	
5618.00	26.290	160.150	5158.90	323.54	-1870.74	960.49	40°14'13.649"N	105°01'06.203"W	0.45	
5707.00	25.220	159.610	5239.06	334.14	-1907.05	973.79	40°14'13.291"N	105°01'06.032"W	1.23	
5799.00	26.790	163.740	5321.75	346.44	-1945.33	986.42	40°14'12.912"N	105°01'05.869"W	2.60	

Actual Wellpath Report

LITZENBERGER 21 AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#15 LITZENBERGER 21 (1953'FNL & 1184'FEL SEC.8)
Area	COLORADO	Well	LITZENBERGER 21
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	LITZENBERGER 21 AWP
Facility	SEC.08-T03N-R68W		

WELLPATH DATA (134 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
5889.00	26.720	165.680	5402.12	360.78	-1984.41	997.11	40°14'12.526"N	105°01'05.731"W	0.97	
5979.00	26.600	163.650	5482.55	375.05	-2023.35	1007.78	40°14'12.141"N	105°01'05.593"W	1.02	
6071.00	26.850	164.040	5564.72	389.11	-2063.09	1019.30	40°14'11.749"N	105°01'05.445"W	0.33	
6162.00	26.570	160.460	5646.02	401.94	-2102.03	1031.75	40°14'11.364"N	105°01'05.284"W	1.79	
6252.00	26.800	155.090	5726.44	411.57	-2139.40	1047.03	40°14'10.994"N	105°01'05.087"W	2.69	
6344.00	26.830	151.460	5808.56	418.27	-2176.46	1065.69	40°14'10.628"N	105°01'04.847"W	1.78	
6434.00	26.740	149.840	5888.90	422.99	-2211.81	1085.57	40°14'10.279"N	105°01'04.591"W	0.82	
6526.00	26.830	151.010	5971.03	427.65	-2247.86	1106.03	40°14'09.923"N	105°01'04.327"W	0.58	
6616.00	26.780	150.730	6051.36	432.52	-2283.31	1125.79	40°14'09.572"N	105°01'04.072"W	0.15	
6707.00	26.770	151.440	6132.60	437.60	-2319.20	1145.61	40°14'09.218"N	105°01'03.816"W	0.35	
6794.00	26.120	154.000	6210.50	443.48	-2353.62	1163.37	40°14'08.877"N	105°01'03.587"W	1.51	
6884.00	25.970	158.170	6291.37	451.76	-2389.72	1179.38	40°14'08.521"N	105°01'03.381"W	2.04	
6975.00	26.780	158.140	6372.90	461.67	-2427.25	1194.43	40°14'08.150"N	105°01'03.187"W	0.89	
7066.00	26.830	154.960	6454.12	470.60	-2464.88	1210.75	40°14'07.778"N	105°01'02.977"W	1.58	
7154.00	21.410	173.870	6534.53	482.42	-2498.92	1220.89	40°14'07.442"N	105°01'02.846"W	10.66	
7246.00	21.960	206.960	6620.34	506.20	-2531.07	1214.87	40°14'07.124"N	105°01'02.924"W	13.14	
7336.00	21.740	237.460	6704.14	537.93	-2555.11	1193.12	40°14'06.886"N	105°01'03.204"W	12.49	
7425.00	25.650	249.290	6785.67	573.00	-2570.80	1161.17	40°14'06.731"N	105°01'03.616"W	6.90	
7516.00	32.500	250.950	6865.15	615.43	-2585.76	1119.59	40°14'06.583"N	105°01'04.152"W	7.58	
7608.00	40.900	256.280	6938.87	667.03	-2601.01	1066.86	40°14'06.433"N	105°01'04.832"W	9.76	
7698.00	50.100	265.600	7001.95	723.87	-2610.67	1003.61	40°14'06.337"N	105°01'05.647"W	12.59	
7790.00	61.480	270.330	7053.61	786.70	-2613.16	927.73	40°14'06.313"N	105°01'06.626"W	13.07	
7880.00	74.580	269.660	7087.21	854.07	-2613.19	844.45	40°14'06.313"N	105°01'07.700"W	14.57	
7972.00	86.800	270.490	7102.07	927.28	-2613.06	753.83	40°14'06.314"N	105°01'08.868"W	13.31	
7987.00†	87.754	270.674	7102.78	939.31	-2612.90	738.85	40°14'06.315"N	105°01'09.061"W	6.48	CROSS 460' SETBACK (749'FSL&460'FEL, SEC.8)
8064.00	92.650	271.620	7102.51	1000.64	-2611.36	661.89	40°14'06.331"N	105°01'10.054"W	6.48	
8156.00	94.710	269.500	7096.60	1074.35	-2610.46	570.10	40°14'06.340"N	105°01'11.237"W	3.21	
8246.00	94.840	267.010	7089.11	1148.45	-2613.19	480.46	40°14'06.313"N	105°01'12.393"W	2.76	
8336.00	92.220	265.670	7083.57	1224.32	-2618.93	390.82	40°14'06.256"N	105°01'13.549"W	3.27	
8428.00	90.770	266.280	7081.17	1302.30	-2625.39	299.08	40°14'06.192"N	105°01'14.732"W	1.71	

Actual Wellpath Report

LITZENBERGER 21 AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#15 LITZENBERGER 21 (1953'FNL & 1184'FEL SEC.8)
Area	COLORADO	Well	LITZENBERGER 21
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	LITZENBERGER 21 AWP
Facility	SEC.08-T03N-R68W		

WELLPATH DATA (134 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
8520.00	90.890	268.050	7079.84	1379.28	-2629.93	207.21	40°14'06.147"N	105°01'15.916"W	1.93	
8612.00	90.890	269.690	7078.41	1454.73	-2631.75	115.24	40°14'06.129"N	105°01'17.102"W	1.78	
8702.00	90.650	270.630	7077.20	1527.36	-2631.50	25.25	40°14'06.132"N	105°01'18.262"W	1.08	
8793.00	89.660	272.170	7076.95	1599.62	-2629.27	-65.72	40°14'06.154"N	105°01'19.435"W	2.01	
8883.00	88.120	272.980	7078.69	1669.94	-2625.23	-155.61	40°14'06.194"N	105°01'20.594"W	1.93	
8975.00	87.570	273.540	7082.15	1741.09	-2620.00	-247.39	40°14'06.245"N	105°01'21.778"W	0.85	
9066.00	87.600	273.190	7085.99	1811.36	-2614.67	-338.16	40°14'06.298"N	105°01'22.948"W	0.39	
9158.00	88.000	272.460	7089.52	1882.95	-2610.14	-429.98	40°14'06.343"N	105°01'24.132"W	0.90	
9248.00	88.680	270.270	7092.13	1954.42	-2607.99	-519.91	40°14'06.364"N	105°01'25.292"W	2.55	
9336.00	88.680	268.060	7094.15	2026.31	-2609.28	-607.87	40°14'06.351"N	105°01'26.426"W	2.51	
9429.00	88.430	265.600	7096.50	2104.40	-2614.42	-700.69	40°14'06.300"N	105°01'27.623"W	2.66	
9516.00	88.090	265.290	7099.14	2178.57	-2621.32	-787.37	40°14'06.232"N	105°01'28.740"W	0.53	
9608.00	90.340	268.600	7100.40	2255.73	-2626.22	-879.22	40°14'06.184"N	105°01'29.925"W	4.35	
9700.00	91.540	267.630	7098.89	2331.86	-2629.25	-971.15	40°14'06.154"N	105°01'31.110"W	1.68	
9789.00	91.290	266.760	7096.70	2406.29	-2633.60	-1060.02	40°14'06.111"N	105°01'32.256"W	1.02	
9880.00	91.420	266.760	7094.54	2482.77	-2638.74	-1150.85	40°14'06.060"N	105°01'33.427"W	0.14	
9968.00	89.200	267.910	7094.07	2556.26	-2642.84	-1238.74	40°14'06.019"N	105°01'34.560"W	2.84	
10058.00	87.230	269.610	7096.87	2630.13	-2644.78	-1328.67	40°14'06.000"N	105°01'35.720"W	2.89	
10149.00	86.710	270.810	7101.68	2703.43	-2644.45	-1419.54	40°14'06.003"N	105°01'36.891"W	1.44	
10241.00	84.820	271.260	7108.47	2776.64	-2642.79	-1511.27	40°14'06.020"N	105°01'38.074"W	2.11	
10333.00	83.800	270.400	7117.60	2849.88	-2641.47	-1602.80	40°14'06.033"N	105°01'39.254"W	1.45	
10423.00	83.860	270.390	7127.27	2921.88	-2640.85	-1692.28	40°14'06.039"N	105°01'40.408"W	0.07	
10512.00	83.770	271.180	7136.86	2992.72	-2639.64	-1780.75	40°14'06.051"N	105°01'41.549"W	0.89	
10604.00	86.300	271.710	7144.82	3065.46	-2637.33	-1872.37	40°14'06.073"N	105°01'42.730"W	2.81	
10696.00	90.990	272.730	7147.00	3137.67	-2633.76	-1964.25	40°14'06.109"N	105°01'43.915"W	5.22	
10786.00	94.220	272.450	7142.91	3207.90	-2629.70	-2054.05	40°14'06.149"N	105°01'45.073"W	3.60	
10874.00	96.790	272.070	7134.46	3276.65	-2626.25	-2141.57	40°14'06.183"N	105°01'46.201"W	2.95	
10966.00	99.900	271.000	7121.11	3348.80	-2623.81	-2232.55	40°14'06.207"N	105°01'47.374"W	3.57	
11058.00	103.360	268.660	7102.57	3421.80	-2624.06	-2322.64	40°14'06.204"N	105°01'48.536"W	4.51	
11150.00	103.260	266.320	7081.38	3496.44	-2627.98	-2412.08	40°14'06.165"N	105°01'49.689"W	2.48	

Actual Wellpath Report

LITZENBERGER 21 AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#15 LITZENBERGER 21 (1953'FNL & 1184'FEL SEC.8)
Area	COLORADO	Well	LITZENBERGER 21
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	LITZENBERGER 21 AWB
Facility	SEC.08-T03N-R68W		

WELLPATH DATA (134 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
11238.00	100.340	265.130	7063.39	3569.68	-2634.41	-2497.97	40°14'06.102"N	105°01'50.797"W	3.57	
11327.00	97.380	263.150	7049.68	3645.70	-2643.39	-2585.43	40°14'06.013"N	105°01'51.924"W	3.99	
11415.00	95.430	265.180	7039.86	3721.28	-2652.28	-2672.42	40°14'05.925"N	105°01'53.046"W	3.19	
11506.00	92.460	266.010	7033.60	3798.57	-2659.25	-2762.93	40°14'05.856"N	105°01'54.213"W	3.39	
11595.00	90.030	269.100	7031.67	3872.69	-2663.04	-2851.81	40°14'05.818"N	105°01'55.359"W	4.42	
11685.00	90.090	271.350	7031.58	3945.26	-2662.69	-2941.80	40°14'05.822"N	105°01'56.519"W	2.50	
11775.00	91.050	273.270	7030.68	4015.84	-2659.06	-3031.72	40°14'05.858"N	105°01'57.679"W	2.39	
11863.00	92.160	273.930	7028.22	4083.59	-2653.54	-3119.51	40°14'05.912"N	105°01'58.811"W	1.47	
11955.00	92.160	273.450	7024.75	4154.31	-2647.62	-3211.25	40°14'05.970"N	105°01'59.994"W	0.52	
12044.00	92.160	271.070	7021.39	4224.11	-2644.11	-3300.11	40°14'06.005"N	105°02'01.139"W	2.67	
12136.00	91.020	270.470	7018.84	4297.75	-2642.88	-3392.07	40°14'06.017"N	105°02'02.325"W	1.40	
12225.00	91.050	270.780	7017.23	4369.14	-2641.91	-3481.05	40°14'06.026"N	105°02'03.472"W	0.35	
12330.00	90.990	270.380	7015.36	4453.42	-2640.85	-3586.02	40°14'06.037"N	105°02'04.826"W	0.39	BHGE LAST MWD SURVEY (739'FSL&495'FWL,SEC.8)
12355.00	90.990	270.380	7014.93	4473.53	-2640.68	-3611.02	40°14'06.038"N	105°02'05.148"W	0.00	PROJECTION TO BIT (739'FSL&470'FWL,SEC.8)

HOLE & CASING SECTIONS - Ref Wellbore: LITZENBERGER 21 AWB Ref Wellpath: LITZENBERGER 21 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	1535.00	1518.00	17.00	1494.76	0.00	0.00	-280.98	130.53
9.625in Casing Surface	17.00	1523.00	1506.00	17.00	1483.45	0.00	0.00	-277.42	128.64
8.5in Open Hole	1535.00	12355.00	10820.00	1494.76	7014.93	-280.98	130.53	-2640.68	-3611.02

Actual Wellpath Report

LITZENBERGER 21 AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#15 LITZENBERGER 21 (1953'FNL & 1184'FEL SEC.8)
Area	COLORADO	Well	LITZENBERGER 21
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	LITZENBERGER 21 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	0.00	25.50	0.00	3133484.38	1331482.52	40°14'32.388"N	105°01'18.588"W	polygon
LITZENBERGER 21 BHL REV-1 (746'FSL & 460'FWL SEC.8)	6995.90	-2633.64	-3621.23	3129877.70	1328804.01	40°14'06.108"N	105°02'05.280"W	point
LITZENBERGER 21 BHL REV-2 (746'FSL & 460'FWL SEC.8)	7011.00	-2633.64	-3621.23	3129877.70	1328804.01	40°14'06.108"N	105°02'05.280"W	point
LITZENBERGER 21 EP REV-1 (746'FSL & 460'FEL SEC.8)	7072.00	-2615.68	737.09	3134235.66	1328845.47	40°14'06.288"N	105°01'09.084"W	point
LITZENBERGER 21 EP REV-2 (746'FSL & 460'FEL SEC.8)	7109.00	-2615.68	737.09	3134235.66	1328845.47	40°14'06.288"N	105°01'09.084"W	point
SEC.08-T03N-R68W HARDLINES 460' SETBACKS	7316.00	25.50	0.00	3133484.38	1331482.52	40°14'32.388"N	105°01'18.588"W	polygon

WELLPATH COMPOSITION - Ref Wellbore: LITZENBERGER 21 AWB Ref Wellpath: LITZENBERGER 21 AWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
17.00	1480.00	Custom BHI NaviTrak (Standard Rotating+Axial Corr) (Rockies 0.03Gt model)	Custom BHI NaviTrak (Standard Rotating+Axial Corr) (Rockies 0.03Gt model) <237'-1480'>	LITZENBERGER 21 AWB
1480.00	12330.00	Custom BHI AutoTrak Curve (Short) (Rockies 0.03Gt model)	BHI ATC 8.5" (SHORT, ROCKIES GT)<1545-12330>	LITZENBERGER 21 AWB
12330.00	12355.00	Blind Drilling (std)	Projection to bit	LITZENBERGER 21 AWB

Actual Wellpath Report

LITZENBERGER 21 AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#15 LITZENBERGER 21 (1953'FNL & 1184'FEL SEC.8)
Area	COLORADO	Well	LITZENBERGER 21
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	LITZENBERGER 21 AWB
Facility	SEC.08-T03N-R68W		

WELLPATH COMMENTS

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
7987.00	87.754	270.674	7102.78	CROSS 460' SETBACK (749'FSL&460'FEL,SEC.8)
12330.00	90.990	270.380	7015.36	BHGE LAST MWD SURVEY (739'FSL&495'FWL,SEC.8)
12355.00	90.990	270.380	7014.93	PROJECTION TO BIT (739'FSL&470'FWL,SEC.8)