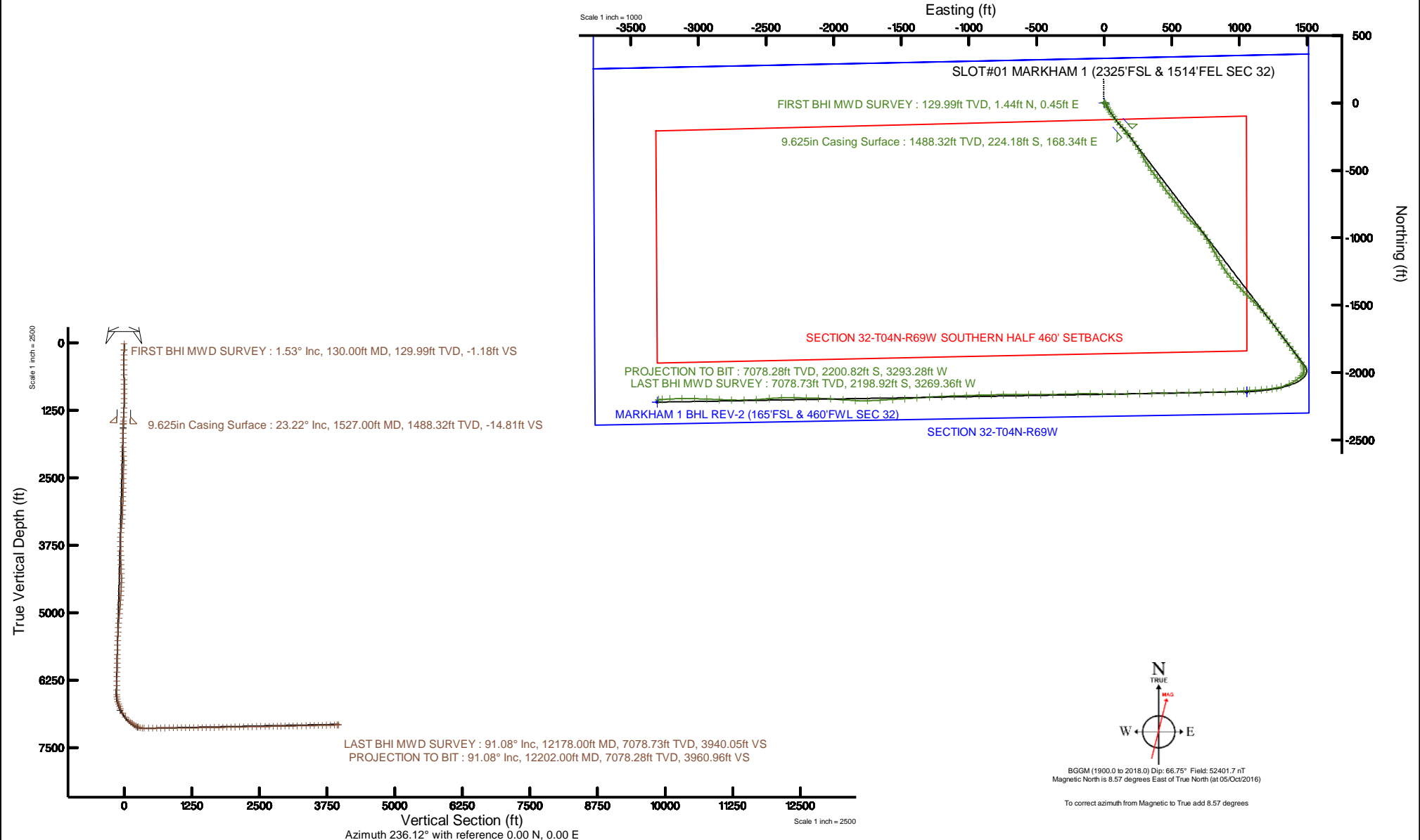


CUB CREEK ENERGY, LLC

Location: COLORADO Slot: SLOT#01 MARKHAM 1 (2325'FSL & 1514'FEL SEC 32)
 Field: WELD COUNTY (NAD83, TRUE NORTH) Well: MARKHAM 1
 Facility: SEC.32-T04N-R68W Wellbore: MARKHAM 1 PWB

Plot reference wellpath is MARKHAM 1 REV-8.0 PWB	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: 5061 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: SLOT#01 MARKHAM 1 (2325'FSL & 1514'FEL SEC 32)): 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: bensijac on 2016-10-21
	Database: WA_DEN_Denver_Defn





Actual Wellpath Report

MARKHAM 1 AWP

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INTEQ

REFERENCE WELLPATH IDENTIFICATION			
Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#01 MARKHAM 1 (2325'FSL & 1514'FEL SEC 32)
Area	COLORADO	Well	MARKHAM 1
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	MARKHAM 1 AWP
Facility	SEC.32-T04N-R68W		

REPORT SETUP INFORMATION			
Projection System	NAD83 / Lambert Colorado SP, Northern Zone (501), US feet	Software System	WellArchitect® 5.0
North Reference	True	User	Bensjacj
Scale	0.999957	Report Generated	21/Oct/2016 at 10:28
Convergence at slot	0.31° East	Database/Source file	WA_DEN_Denver_Defn/MARKHAM_1_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	-0.01	3133072.77	1341057.54	40°16'07.032"N	105°01'23.232"W
Facility Reference Pt			3133072.77	1341057.53	40°16'07.032"N	105°01'23.232"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	5061.00ft
Horizontal Reference Pt	Slot	XTREME 18 (17') (RKB) to Mean Sea Level	5061.00ft
Vertical Reference Pt	XTREME 18 (17') (RKB)	XTREME 18 (17') (RKB) to Mud Line at Slot (SLOT#01 MARKHAM 1 (2325'FSL & 1514'FEL SEC 32))	5061.00ft
MD Reference Pt	XTREME 18 (17') (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	236.12°



Actual Wellpath Report

MARKHAM 1 AWP

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INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#01 MARKHAM 1 (2325'FSL & 1514'FEL SEC 32)
Area	COLORADO	Well	MARKHAM 1
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	MARKHAM 1 AWP
Facility	SEC.32-T04N-R68W		

WELLPATH DATA (143 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
17.00	0.000	17.440	17.00	0.00	0.00	0.00	40°16'07.032"N	105°01'23.232"W	0.00	
130.00	1.530	17.440	129.99	-1.18	1.44	0.45	40°16'07.046"N	105°01'23.226"W	1.35	FIRST BHI MWD SURVEY
222.00	1.280	90.310	221.97	-2.99	2.61	1.85	40°16'07.058"N	105°01'23.208"W	1.83	
314.00	3.870	152.030	313.87	-4.90	0.77	5.39	40°16'07.040"N	105°01'23.163"W	3.18	
406.00	5.000	149.340	405.60	-5.75	-4.50	9.94	40°16'06.988"N	105°01'23.104"W	2.29	
498.00	6.900	152.770	497.10	-4.88	-12.87	14.52	40°16'06.905"N	105°01'23.045"W	2.10	
590.00	8.520	155.090	588.27	-3.18	-23.96	19.92	40°16'06.795"N	105°01'22.975"W	1.79	
681.00	10.190	152.120	678.05	-1.29	-37.19	26.52	40°16'06.664"N	105°01'22.890"W	1.91	
771.00	11.260	148.550	766.48	-0.08	-51.72	34.83	40°16'06.521"N	105°01'22.783"W	1.40	
861.00	12.350	146.000	854.58	0.27	-67.20	44.79	40°16'06.368"N	105°01'22.654"W	1.34	
952.00	13.140	145.420	943.33	0.12	-83.79	56.11	40°16'06.204"N	105°01'22.508"W	0.88	
1042.00	14.950	144.880	1030.64	-0.26	-101.70	68.59	40°16'06.027"N	105°01'22.347"W	2.02	
1133.00	15.980	144.820	1118.34	-0.80	-121.54	82.56	40°16'05.831"N	105°01'22.167"W	1.13	
1223.00	16.410	140.290	1204.77	-2.38	-141.45	97.82	40°16'05.634"N	105°01'21.970"W	1.48	
1314.00	18.690	138.860	1291.53	-5.53	-162.32	115.63	40°16'05.428"N	105°01'21.740"W	2.55	
1404.00	22.660	139.100	1375.72	-9.47	-186.30	136.48	40°16'05.191"N	105°01'21.471"W	4.41	
1480.00	24.590	140.540	1445.35	-12.80	-209.57	156.11	40°16'04.961"N	105°01'21.218"W	2.65	
1547.00	22.640	139.110	1506.74	-15.73	-230.09	173.42	40°16'04.758"N	105°01'20.995"W	3.03	
1639.00	21.390	142.930	1592.03	-18.83	-256.86	195.12	40°16'04.494"N	105°01'20.715"W	2.07	
1730.00	21.750	146.280	1676.66	-19.71	-284.13	214.49	40°16'04.224"N	105°01'20.465"W	1.41	
1822.00	23.430	145.620	1761.60	-19.82	-313.40	234.28	40°16'03.935"N	105°01'20.210"W	1.85	
1913.00	23.270	145.880	1845.15	-20.06	-343.22	254.58	40°16'03.640"N	105°01'19.948"W	0.21	
2005.00	22.510	150.570	1929.91	-18.77	-373.60	273.43	40°16'03.340"N	105°01'19.705"W	2.15	
2097.00	24.130	153.640	2014.39	-14.95	-405.79	290.43	40°16'03.022"N	105°01'19.485"W	2.20	
2186.00	24.120	149.510	2095.62	-11.50	-437.77	307.74	40°16'02.706"N	105°01'19.262"W	1.90	
2278.00	23.630	148.220	2179.75	-9.71	-469.64	326.99	40°16'02.391"N	105°01'19.014"W	0.78	
2370.00	24.030	145.270	2263.91	-9.32	-500.71	347.37	40°16'02.084"N	105°01'18.751"W	1.37	
2460.00	24.130	141.650	2346.08	-11.03	-530.20	369.22	40°16'01.793"N	105°01'18.469"W	1.64	
2549.00	24.120	141.030	2427.31	-14.06	-558.60	391.95	40°16'01.512"N	105°01'18.176"W	0.28	
2641.00	22.570	143.740	2511.78	-16.46	-587.46	414.22	40°16'01.227"N	105°01'17.889"W	2.05	
2733.00	23.500	146.660	2596.45	-17.03	-617.02	434.74	40°16'00.935"N	105°01'17.624"W	1.60	
2833.00	23.830	142.770	2688.04	-18.02	-649.76	457.92	40°16'00.611"N	105°01'17.325"W	1.60	
2917.00	23.760	140.840	2764.90	-20.57	-676.39	478.87	40°16'00.348"N	105°01'17.055"W	0.93	
3008.00	23.470	141.000	2848.28	-23.88	-704.69	501.85	40°16'00.068"N	105°01'16.758"W	0.33	
3100.00	23.640	144.330	2932.62	-26.10	-733.91	524.14	40°15'59.780"N	105°01'16.471"W	1.46	
3192.00	23.460	144.200	3016.96	-27.29	-763.75	545.61	40°15'59.485"N	105°01'16.194"W	0.20	
3284.00	23.830	143.220	3101.23	-28.85	-793.49	567.45	40°15'59.191"N	105°01'15.912"W	0.59	
3374.00	23.650	140.240	3183.62	-31.62	-821.93	589.88	40°15'58.910"N	105°01'15.623"W	1.35	
3464.00	23.640	134.300	3266.08	-37.17	-848.41	614.34	40°15'58.648"N	105°01'15.307"W	2.65	
3556.00	22.320	134.840	3350.78	-44.37	-873.62	639.93	40°15'58.399"N	105°01'14.977"W	1.45	
3646.00	23.390	131.380	3433.71	-52.26	-897.48	665.46	40°15'58.163"N	105°01'14.648"W	1.91	
3738.00	23.680	135.330	3518.06	-60.37	-922.69	692.15	40°15'57.914"N	105°01'14.303"W	1.74	
3830.00	23.890	140.850	3602.26	-65.54	-950.28	716.90	40°15'57.641"N	105°01'13.984"W	2.43	
3922.00	23.830	145.150	3686.40	-67.57	-979.98	739.29	40°15'57.348"N	105°01'13.695"W	1.89	
4014.00	23.800	147.520	3770.57	-67.43	-1010.89	759.88	40°15'57.042"N	105°01'13.430"W	1.04	



Actual Wellpath Report

MARKHAM 1 AWP

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INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#01 MARKHAM 1 (2325'FSL & 1514'FEL SEC 32)
Area	COLORADO	Well	MARKHAM 1
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	MARKHAM 1 AWP
Facility	SEC.32-T04N-R68W		

WELLPATH DATA (143 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
4106.00	23.830	148.590	3854.74	-66.18	-1042.41	779.53	40°15'56.731"N	105°01'13.176"W	0.47	
4198.00	23.270	150.600	3939.08	-63.96	-1074.11	798.14	40°15'56.418"N	105°01'12.936"W	1.06	
4287.00	23.760	150.660	4020.69	-61.18	-1105.05	815.55	40°15'56.112"N	105°01'12.712"W	0.55	
4378.00	23.530	151.130	4104.05	-58.14	-1136.94	833.31	40°15'55.797"N	105°01'12.483"W	0.33	
4469.00	23.910	151.310	4187.36	-54.89	-1169.03	850.93	40°15'55.480"N	105°01'12.255"W	0.43	
4560.00	23.850	149.210	4270.57	-52.23	-1201.01	869.20	40°15'55.164"N	105°01'12.020"W	0.94	
4651.00	23.730	146.050	4353.84	-51.27	-1232.00	888.85	40°15'54.857"N	105°01'11.766"W	1.41	
4743.00	23.600	144.640	4438.11	-51.77	-1262.38	909.84	40°15'54.557"N	105°01'11.495"W	0.63	
4833.00	23.770	140.100	4520.53	-54.14	-1290.99	931.90	40°15'54.274"N	105°01'11.211"W	2.03	
4923.00	23.680	136.740	4602.93	-58.99	-1318.07	955.93	40°15'54.007"N	105°01'10.901"W	1.51	
5015.00	23.930	137.920	4687.10	-64.66	-1345.37	981.09	40°15'53.737"N	105°01'10.576"W	0.58	
5105.00	23.430	138.510	4769.53	-69.64	-1372.32	1005.18	40°15'53.471"N	105°01'10.266"W	0.61	
5195.00	23.180	136.130	4852.19	-75.09	-1398.49	1029.31	40°15'53.212"N	105°01'09.954"W	1.08	
5287.00	23.390	134.470	4936.69	-81.92	-1424.34	1054.89	40°15'52.957"N	105°01'09.624"W	0.75	
5378.00	23.320	134.750	5020.24	-89.12	-1449.68	1080.57	40°15'52.706"N	105°01'09.293"W	0.14	
5468.00	23.440	135.210	5102.85	-96.02	-1474.92	1105.83	40°15'52.457"N	105°01'08.967"W	0.24	
5560.00	23.070	136.540	5187.37	-102.49	-1500.99	1131.12	40°15'52.199"N	105°01'08.641"W	0.70	
5651.00	23.480	137.430	5270.97	-108.20	-1527.28	1155.65	40°15'51.939"N	105°01'08.325"W	0.59	
5743.00	23.300	139.690	5355.41	-113.01	-1554.66	1179.82	40°15'51.669"N	105°01'08.013"W	0.99	
5832.00	22.390	138.810	5437.43	-117.14	-1580.83	1202.37	40°15'51.410"N	105°01'07.722"W	1.09	
5922.00	23.240	141.630	5520.39	-120.71	-1607.66	1224.68	40°15'51.145"N	105°01'07.434"W	1.54	
6013.00	23.320	142.910	5603.98	-123.13	-1636.10	1246.69	40°15'50.864"N	105°01'07.150"W	0.56	
6105.00	23.350	143.470	5688.45	-125.00	-1665.28	1268.52	40°15'50.576"N	105°01'06.869"W	0.24	
6195.00	23.510	144.290	5771.03	-126.40	-1694.18	1289.62	40°15'50.290"N	105°01'06.597"W	0.40	
6282.00	22.650	143.930	5851.07	-127.59	-1721.82	1309.61	40°15'50.017"N	105°01'06.339"W	1.00	
6372.00	23.270	143.210	5933.94	-129.16	-1750.06	1330.46	40°15'49.738"N	105°01'06.070"W	0.76	
6463.00	22.480	143.380	6017.78	-130.91	-1778.42	1351.60	40°15'49.458"N	105°01'05.797"W	0.87	
6553.00	22.530	143.090	6100.93	-132.64	-1806.02	1372.22	40°15'49.185"N	105°01'05.531"W	0.14	
6644.00	22.990	143.110	6184.84	-134.50	-1834.17	1393.36	40°15'48.907"N	105°01'05.259"W	0.51	
6735.00	23.080	145.040	6268.59	-135.77	-1863.00	1414.25	40°15'48.622"N	105°01'04.989"W	0.84	
6826.00	23.550	146.220	6352.16	-136.08	-1892.73	1434.58	40°15'48.328"N	105°01'04.727"W	0.73	
6918.00	23.550	146.320	6436.49	-135.99	-1923.30	1454.99	40°15'48.026"N	105°01'04.464"W	0.04	
7008.00	20.210	151.330	6520.01	-134.52	-1951.91	1472.42	40°15'47.743"N	105°01'04.239"W	4.25	
7052.00	17.170	164.920	6561.70	-131.73	-1964.86	1477.76	40°15'47.615"N	105°01'04.170"W	12.03	
7097.00	19.770	178.190	6604.40	-125.55	-1978.89	1479.73	40°15'47.476"N	105°01'04.144"W	10.95	
7142.00	21.320	193.520	6646.57	-115.48	-1994.46	1478.06	40°15'47.323"N	105°01'04.166"W	12.40	
7188.00	21.930	209.290	6689.36	-101.65	-2010.10	1471.90	40°15'47.168"N	105°01'04.246"W	12.67	
7234.00	21.720	225.000	6732.10	-85.62	-2023.62	1461.67	40°15'47.034"N	105°01'04.378"W	12.67	
7280.00	22.930	234.780	6774.67	-68.30	-2034.81	1448.32	40°15'46.924"N	105°01'04.550"W	8.48	
7372.00	30.470	235.910	6856.80	-27.00	-2058.26	1414.32	40°15'46.692"N	105°01'04.988"W	8.21	
7465.00	39.540	245.150	6932.95	25.97	-2083.98	1367.80	40°15'46.438"N	105°01'05.588"W	11.27	
7555.00	47.410	254.520	6998.28	85.85	-2104.92	1309.72	40°15'46.231"N	105°01'06.338"W	11.29	
7600.00	51.230	258.790	7027.62	117.78	-2112.76	1276.53	40°15'46.154"N	105°01'06.766"W	11.13	
7645.00	54.650	261.850	7054.73	150.51	-2118.77	1241.14	40°15'46.094"N	105°01'07.222"W	9.34	
7691.00	59.720	264.150	7079.66	184.97	-2123.46	1202.78	40°15'46.048"N	105°01'07.717"W	11.79	



Actual Wellpath Report

MARKHAM 1 AWP

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INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#01 MARKHAM 1 (2325'FSL & 1514'FEL SEC 32)
Area	COLORADO	Well	MARKHAM 1
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	MARKHAM 1 AWP
Facility	SEC.32-T04N-R68W		

WELLPATH DATA (143 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
7736.00	65.430	265.930	7100.38	219.91	-2126.89	1163.00	40°15'46.014"N	105°01'08.230"W	13.16	
7782.00	71.520	266.540	7117.25	256.91	-2129.70	1120.32	40°15'45.986"N	105°01'08.781"W	13.30	
7828.00	77.590	266.630	7129.49	295.11	-2132.34	1076.09	40°15'45.960"N	105°01'09.351"W	13.20	
7873.00	83.400	266.340	7136.92	333.39	-2135.06	1031.81	40°15'45.933"N	105°01'09.923"W	12.93	
7918.00	89.230	266.760	7139.81	372.10	-2137.76	987.00	40°15'45.907"N	105°01'10.500"W	12.99	
8008.00	90.280	267.670	7140.19	449.17	-2142.13	897.11	40°15'45.864"N	105°01'11.660"W	1.54	
8100.00	91.050	269.330	7139.13	526.86	-2144.54	805.15	40°15'45.840"N	105°01'12.846"W	1.99	
8191.00	91.200	268.500	7137.34	603.34	-2146.26	714.19	40°15'45.823"N	105°01'14.020"W	0.93	
8279.00	91.170	268.240	7135.52	677.75	-2148.77	626.24	40°15'45.798"N	105°01'15.154"W	0.30	
8370.00	91.140	269.610	7133.69	754.23	-2150.47	535.28	40°15'45.781"N	105°01'16.327"W	1.51	
8462.00	90.090	269.290	7132.70	831.09	-2151.36	443.29	40°15'45.773"N	105°01'17.514"W	1.19	
8552.00	90.000	268.490	7132.63	906.77	-2153.10	353.31	40°15'45.755"N	105°01'18.675"W	0.89	
8643.00	90.060	268.490	7132.58	983.64	-2155.50	262.34	40°15'45.732"N	105°01'19.848"W	0.07	
8733.00	89.880	268.860	7132.63	1059.50	-2157.58	172.36	40°15'45.711"N	105°01'21.009"W	0.46	
8825.00	90.150	269.990	7132.60	1136.39	-2158.50	80.37	40°15'45.702"N	105°01'22.195"W	1.26	
8917.00	90.710	271.140	7131.91	1212.26	-2157.59	-11.62	40°15'45.711"N	105°01'23.382"W	1.39	
9007.00	90.580	270.190	7130.90	1286.39	-2156.55	-101.61	40°15'45.721"N	105°01'24.543"W	1.07	
9099.00	90.460	269.110	7130.06	1363.08	-2157.11	-193.60	40°15'45.716"N	105°01'25.729"W	1.18	
9191.00	90.740	268.420	7129.10	1440.55	-2159.09	-285.58	40°15'45.696"N	105°01'26.916"W	0.81	
9283.00	90.830	269.060	7127.84	1518.03	-2161.12	-377.55	40°15'45.676"N	105°01'28.102"W	0.70	
9375.00	90.860	269.150	7126.48	1595.20	-2162.55	-469.52	40°15'45.662"N	105°01'29.288"W	0.10	
9465.00	90.650	269.610	7125.30	1670.46	-2163.53	-559.51	40°15'45.652"N	105°01'30.449"W	0.56	
9558.00	91.020	270.390	7123.94	1747.66	-2163.53	-652.50	40°15'45.652"N	105°01'31.649"W	0.93	
9649.00	91.050	269.840	7122.30	1823.10	-2163.35	-743.48	40°15'45.654"N	105°01'32.822"W	0.61	
9741.00	91.110	269.090	7120.56	1899.94	-2164.20	-835.46	40°15'45.645"N	105°01'34.009"W	0.82	
9832.00	90.740	267.810	7119.10	1976.83	-2166.67	-926.42	40°15'45.621"N	105°01'35.182"W	1.46	
9922.00	91.390	268.340	7117.42	2053.18	-2169.69	-1016.35	40°15'45.591"N	105°01'36.342"W	0.93	
10015.00	91.260	267.770	7115.27	2132.09	-2172.84	-1109.27	40°15'45.560"N	105°01'37.541"W	0.63	
10107.00	90.550	267.840	7113.82	2210.37	-2176.37	-1201.19	40°15'45.525"N	105°01'38.726"W	0.78	
10197.00	90.920	265.910	7112.66	2287.71	-2181.27	-1291.05	40°15'45.477"N	105°01'39.885"W	2.18	
10289.00	91.080	265.890	7111.06	2367.55	-2187.85	-1382.80	40°15'45.412"N	105°01'41.069"W	0.18	
10382.00	90.860	266.890	7109.48	2447.86	-2193.70	-1475.60	40°15'45.354"N	105°01'42.266"W	1.10	
10472.00	90.950	266.570	7108.06	2525.31	-2198.84	-1565.44	40°15'45.303"N	105°01'43.425"W	0.37	
10564.00	90.800	266.820	7106.66	2604.52	-2204.14	-1657.28	40°15'45.250"N	105°01'44.609"W	0.32	
10656.00	90.920	268.350	7105.28	2682.98	-2208.02	-1749.18	40°15'45.212"N	105°01'45.795"W	1.67	
10746.00	90.860	273.030	7103.88	2757.06	-2206.93	-1839.14	40°15'45.223"N	105°01'46.955"W	5.20	
10837.00	90.990	274.910	7102.41	2828.91	-2200.63	-1929.90	40°15'45.285"N	105°01'48.126"W	2.07	
10929.00	90.860	273.430	7100.92	2901.35	-2193.94	-2021.65	40°15'45.351"N	105°01'49.310"W	1.61	
11021.00	90.770	271.140	7099.62	2975.62	-2190.28	-2113.56	40°15'45.387"N	105°01'50.495"W	2.49	
11111.00	90.950	271.740	7098.26	3049.05	-2188.02	-2203.52	40°15'45.409"N	105°01'51.656"W	0.70	
11201.00	90.680	271.150	7096.98	3122.47	-2185.75	-2293.48	40°15'45.432"N	105°01'52.816"W	0.72	
11293.00	90.710	267.430	7095.87	3199.47	-2186.89	-2385.45	40°15'45.420"N	105°01'54.002"W	4.04	
11383.00	90.990	265.600	7094.53	3277.09	-2192.36	-2475.27	40°15'45.366"N	105°01'55.161"W	2.06	
11479.00	90.990	265.980	7092.87	3360.49	-2199.40	-2571.00	40°15'45.296"N	105°01'56.396"W	0.40	
11571.00	91.170	268.630	7091.14	3439.18	-2203.73	-2662.87	40°15'45.254"N	105°01'57.581"W	2.89	



Actual Wellpath Report

MARKHAM 1 AWP

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INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#01 MARKHAM 1 (2325'FSL & 1514'FEL SEC 32)
Area	COLORADO	Well	MARKHAM 1
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	MARKHAM 1 AWB
Facility	SEC.32-T04N-R68W		

WELLPATH DATA (143 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
11663.00	91.110	272.250	7089.31	3515.14	-2203.02	-2754.83	40°15'45.261"N	105°01'58.767"W	3.93	
11755.00	91.140	272.420	7087.50	3589.36	-2199.27	-2846.74	40°15'45.297"N	105°01'59.953"W	0.19	
11847.00	91.260	272.130	7085.58	3663.63	-2195.62	-2938.65	40°15'45.333"N	105°02'01.138"W	0.34	
11938.00	91.110	271.230	7083.69	3737.65	-2192.96	-3029.59	40°15'45.360"N	105°02'02.311"W	1.00	
12029.00	91.290	269.370	7081.79	3812.91	-2192.48	-3120.56	40°15'45.364"N	105°02'03.485"W	2.05	
12121.00	91.140	267.170	7079.84	3890.79	-2195.26	-3212.49	40°15'45.337"N	105°02'04.671"W	2.40	
12178.00	91.080	265.460	7078.73	3940.05	-2198.92	-3269.36	40°15'45.300"N	105°02'05.404"W	3.00	LAST BHI MWD SURVEY
12202.00	91.080	265.460	7078.28	3960.96	-2200.82	-3293.28	40°15'45.282"N	105°02'05.713"W	0.00	PROJECTION TO BIT

HOLE & CASING SECTIONS - Ref Wellbore: MARKHAM 1 AWB Ref Wellpath: MARKHAM 1 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	1537.00	1520.00	17.00	1497.52	0.00	0.00	-227.15	170.89
9.625in Casing Surface	17.00	1527.00	1510.00	17.00	1488.32	0.00	0.00	-224.18	168.34
8.5in Open Hole	1537.00	12202.00	10665.00	1497.52	7078.28	-227.15	170.89	-2200.82	-3293.28

TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
SECTION 32-T04N-R69W	-6.00	0.00	0.00	3133072.76	1341057.53	40°16'07.032"N	105°01'23.232"W	polygon
MARKHAM 1 BHL REV-1 (165'FSL & 460'FWL SEC 32)	7060.60	-2218.39	-3304.40	3129780.49	1338821.51	40°15'45.108"N	105°02'05.856"W	point
SECTION 32-T04N-R69W SOUTHERN HALF 460' SETBACKS	7062.30	0.00	0.00	3133072.76	1341057.53	40°16'07.032"N	105°01'23.232"W	polygon
MARKHAM 1 BHL REV-2 (165'FSL & 460'FWL SEC 32)	7067.60	-2218.39	-3304.40	3129780.49	1338821.51	40°15'45.108"N	105°02'05.856"W	point
MARKHAM 1 ENTRY POINT REV-1 ON PLAT (165'FSL & 460'FEL SEC 32)	7136.00	-2142.08	1054.95	3134139.17	1338921.25	40°15'45.864"N	105°01'09.624"W	point
MARKHAM 1 ENTRY POINT REV-2 ON PLAT (165'FSL & 460'FEL SEC 32)	7143.00	-2142.08	1054.95	3134139.17	1338921.25	40°15'45.864"N	105°01'09.624"W	point

WELLPATH COMPOSITION - Ref Wellbore: MARKHAM 1 AWB Ref Wellpath: MARKHAM 1 AWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
17.00	1480.00	Custom BHI NaviTrak (Standard Rotating) (Rockies 0.03Gt model)	BHI NAVITRAK MWD AXIAL ROCKIES GT <17-1480>	MARKHAM 1 AWB
1480.00	12178.00	Custom BHI AutoTrak Curve (Short) (Rockies 0.03Gt model)	BHI ATC MWD, SHORT, ROCKIES GT <1547'-12178'>	MARKHAM 1 AWB
12178.00	12202.00	Blind Drilling (std)	Projection to bit	MARKHAM 1 AWB



Actual Wellpath Report

MARKHAM 1 AWP

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INTEQ

REFERENCE WELLPATH IDENTIFICATION			
Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#01 MARKHAM 1 (2325'FSL & 1514'FEL SEC 32)
Area	COLORADO	Well	MARKHAM 1
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	MARKHAM 1 AWB
Facility	SEC.32-T04N-R68W		

WELLPATH COMMENTS				
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
130.00	1.530	17.440	129.99	FIRST BHI MWD SURVEY
12178.00	91.080	265.460	7078.73	LAST BHI MWD SURVEY
12202.00	91.080	265.460	7078.28	PROJECTION TO BIT