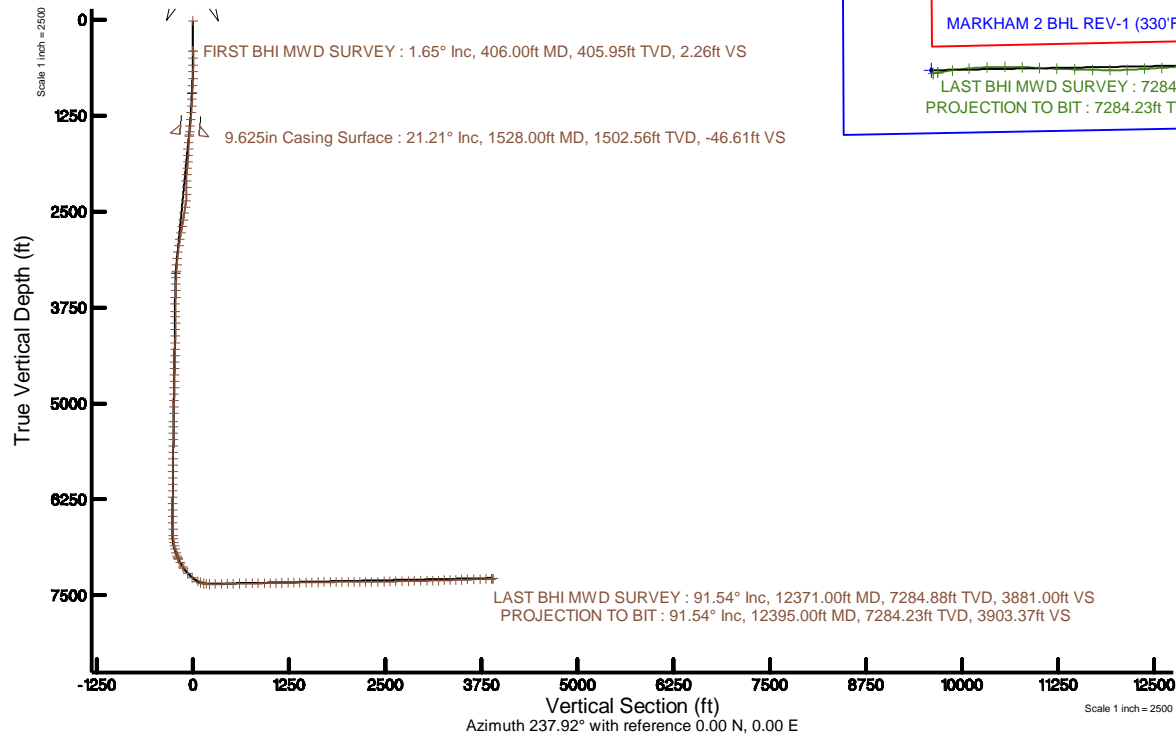
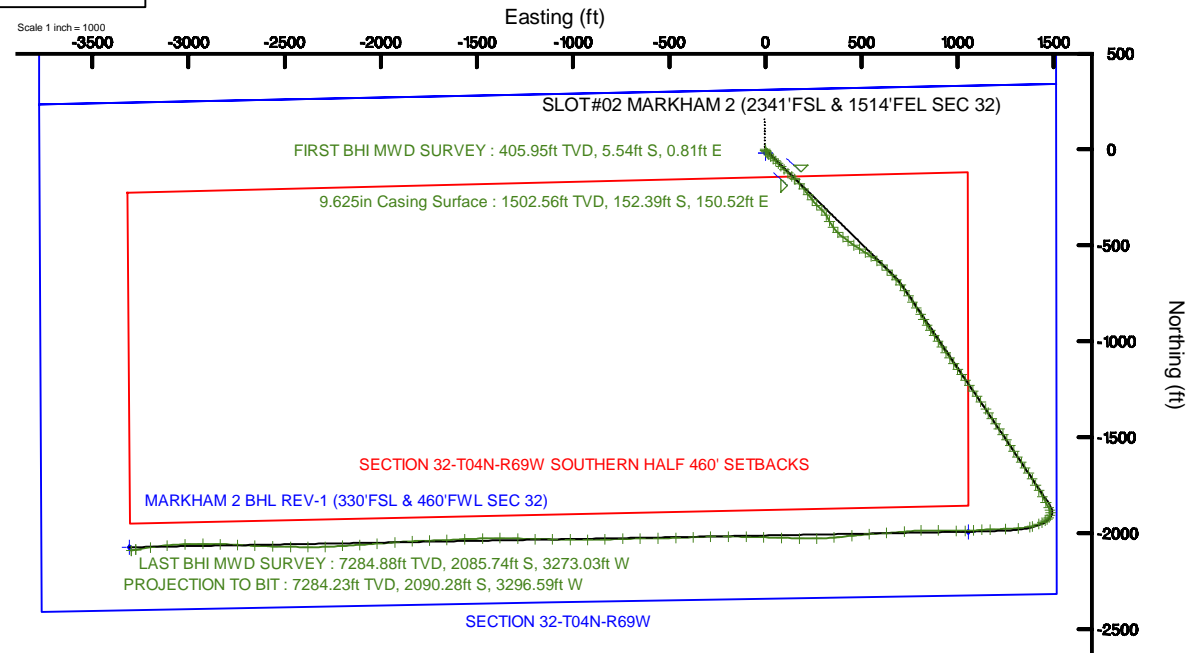


Location: COLORADO	Slot: SLOT#02 MARKHAM 2 (2341'FSL & 1514'FEL SEC 32)
Field: WELD COUNTY (NAD83, TRUE NORTH)	Well: MARKHAM 2
Facility: SEC.32-T04N-R6BW	Wellbore: MARKHAM 2 PWB
Plot reference wellpath is MARKHAM 2 REV-A-0 PWP	Grid System: NAD83 / Lambert Colorado SP, Northern Zone (501), US feet
True vertical depths are referenced to EXTREME 18 (17) (RKB)	* = Wellpath was transformed from a different geodetic datum
Measured depths are referenced to EXTREME 18 (17) (RKB)	North Reference: True north
EXTREME 18 (17) (RKB) to Mean Sea Level: 5060 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: SLOT#02 MARKHAM 2 (2341'FSL & 1514'FEL SEC 32)): 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: bensjajc on 2016-10-21
	Database: WA_DEN_Deriver_Defn



BGM (1900.0 to 2018.0) Dip: 66.75° Field: 52401.7 nT
Magnetic North is 8.57 degrees East of True North (at 05/Oct/2016)

To correct azimuth from Magnetic to True add 8.57 degrees



Actual Wellpath Report

MARKHAM 2 AWP

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INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#02 MARKHAM 2 (2341'FSL & 1514'FEL SEC 32)
Area	COLORADO	Well	MARKHAM 2
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	MARKHAM 2 AWB
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 11:06
Convergence at slot	0.31° East	Database/Source file	WA_DEN_Denver_Defn/MARKHAM_2_AWP.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	18.22	-0.01	3133072.67	1341075.75	40°16'07.212"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	EXTREME 18 (17") (RKB) to Facility Vertical Datum	5060.00ft
Horizontal Reference Pt	Slot	EXTREME 18 (17") (RKB) to Mean Sea Level	5060.00ft
Vertical Reference Pt	EXTREME 18 (17") (RKB)	EXTREME 18 (17") (RKB) to Mud Line at Slot (SLOT#02 MARKHAM 2 (2341'FSL & 1514'FEL SEC 32))	5060.00ft
MD Reference Pt	EXTREME 18 (17") (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	237.92°



Actual Wellpath Report

MARKHAM 2 AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#02 MARKHAM 2 (2341'FSL & 1514'FEL SEC 32)
Area	COLORADO	Well	MARKHAM 2
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	MARKHAM 2 AWP
Facility	SEC.32-T04N-R68W		

WELLPATH DATA (142 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
17.00	0.000	171.680	17.00	0.00	0.00	0.00	40°16'07.212"N	105°01'23.232"W	0.00	
406.00	1.650	171.680	405.95	2.26	-5.54	0.81	40°16'07.157"N	105°01'23.222"W	0.42	FIRST BHI MWD SURVEY
498.00	2.170	158.570	497.90	3.11	-8.47	1.64	40°16'07.128"N	105°01'23.211"W	0.73	
590.00	4.350	141.610	589.74	3.05	-12.83	4.44	40°16'07.085"N	105°01'23.175"W	2.57	
681.00	6.300	136.210	680.35	1.66	-19.14	10.04	40°16'07.023"N	105°01'23.102"W	2.21	
771.00	8.630	137.300	769.58	-0.59	-27.67	18.04	40°16'06.939"N	105°01'22.999"W	2.59	
861.00	9.930	132.580	858.40	-3.89	-37.88	28.33	40°16'06.838"N	105°01'22.867"W	1.67	
952.00	10.180	130.430	948.00	-8.38	-48.41	40.23	40°16'06.734"N	105°01'22.713"W	0.50	
1042.00	11.290	135.680	1036.43	-12.64	-59.87	52.44	40°16'06.620"N	105°01'22.555"W	1.64	
1133.00	13.120	135.360	1125.37	-16.78	-73.59	65.92	40°16'06.485"N	105°01'22.382"W	2.01	
1223.00	14.320	132.110	1212.80	-22.03	-88.32	81.36	40°16'06.339"N	105°01'22.182"W	1.58	
1314.00	15.780	131.660	1300.67	-28.57	-104.10	98.95	40°16'06.183"N	105°01'21.955"W	1.61	
1404.00	19.120	132.760	1386.52	-35.85	-122.24	118.92	40°16'06.004"N	105°01'21.698"W	3.73	
1483.00	21.370	133.850	1460.64	-42.74	-141.00	138.80	40°16'05.819"N	105°01'21.441"W	2.89	
1543.00	21.160	134.780	1516.55	-47.86	-156.20	154.37	40°16'05.668"N	105°01'21.241"W	0.66	
1635.00	21.520	136.810	1602.24	-54.89	-180.20	177.71	40°16'05.431"N	105°01'20.940"W	0.89	
1726.00	21.980	141.240	1686.77	-60.09	-205.65	199.80	40°16'05.180"N	105°01'20.655"W	1.87	
1818.00	23.860	143.540	1771.51	-63.51	-234.04	221.64	40°16'04.899"N	105°01'20.373"W	2.26	
1908.00	24.010	141.390	1853.77	-66.99	-262.99	243.88	40°16'04.613"N	105°01'20.086"W	0.98	
2000.00	23.940	135.520	1937.84	-73.13	-290.94	268.64	40°16'04.337"N	105°01'19.766"W	2.59	
2092.00	22.640	132.800	2022.35	-81.76	-316.29	294.71	40°16'04.086"N	105°01'19.430"W	1.83	
2181.00	22.750	149.750	2104.54	-85.68	-342.82	315.97	40°16'03.824"N	105°01'19.156"W	7.33	
2273.00	23.410	151.870	2189.18	-83.86	-374.31	333.55	40°16'03.513"N	105°01'18.929"W	1.15	
2365.00	23.220	144.620	2273.69	-83.65	-405.22	352.67	40°16'03.208"N	105°01'18.682"W	3.12	
2457.00	23.620	134.980	2358.14	-88.82	-433.05	376.22	40°16'02.933"N	105°01'18.379"W	4.18	
2548.00	23.280	126.720	2441.64	-99.41	-456.69	403.54	40°16'02.699"N	105°01'18.026"W	3.63	
2636.00	23.280	126.890	2522.48	-111.94	-477.53	431.39	40°16'02.493"N	105°01'17.667"W	0.08	
2729.00	22.910	124.750	2608.03	-125.66	-498.88	460.96	40°16'02.282"N	105°01'17.286"W	0.99	
2819.00	23.290	121.940	2690.81	-140.35	-518.28	490.45	40°16'02.090"N	105°01'16.905"W	1.30	
2911.00	23.270	123.420	2775.33	-155.86	-537.91	521.05	40°16'01.896"N	105°01'16.510"W	0.64	
3003.00	23.150	124.210	2859.88	-170.67	-558.08	551.18	40°16'01.697"N	105°01'16.122"W	0.36	
3095.00	23.410	128.170	2944.39	-184.12	-579.55	580.50	40°16'01.485"N	105°01'15.743"W	1.72	
3187.00	23.020	133.070	3028.95	-194.91	-603.13	608.02	40°16'01.252"N	105°01'15.389"W	2.14	
3279.00	23.220	135.950	3113.57	-203.28	-628.45	633.77	40°16'01.002"N	105°01'15.056"W	1.25	
3371.00	23.120	137.390	3198.15	-210.35	-654.78	658.60	40°16'00.742"N	105°01'14.736"W	0.63	
3461.00	21.580	139.090	3281.38	-216.12	-680.29	681.41	40°16'00.489"N	105°01'14.442"W	1.86	
3552.00	22.590	141.810	3365.71	-220.55	-706.68	703.17	40°16'00.229"N	105°01'14.161"W	1.58	
3642.00	23.160	143.890	3448.63	-223.64	-734.56	724.29	40°15'59.953"N	105°01'13.889"W	1.10	
3732.00	23.380	145.500	3531.31	-225.64	-763.58	744.84	40°15'59.666"N	105°01'13.624"W	0.75	
3825.00	23.410	145.760	3616.67	-227.12	-794.06	765.68	40°15'59.365"N	105°01'13.355"W	0.12	
3917.00	23.490	147.320	3701.07	-228.00	-824.60	785.87	40°15'59.063"N	105°01'13.094"W	0.68	
4026.00	22.420	148.790	3801.44	-227.91	-860.66	808.37	40°15'58.707"N	105°01'12.804"W	1.11	
4101.00	22.290	149.780	3870.80	-227.24	-885.19	822.94	40°15'58.465"N	105°01'12.616"W	0.53	
4193.00	21.910	147.890	3956.04	-226.68	-914.80	840.84	40°15'58.172"N	105°01'12.385"W	0.88	
4284.00	21.040	145.550	4040.72	-227.37	-942.65	859.11	40°15'57.897"N	105°01'12.150"W	1.34	



Actual Wellpath Report

MARKHAM 2 AWP

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INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#02 MARKHAM 2 (2341'FSL & 1514'FEL SEC 32)
Area	COLORADO	Well	MARKHAM 2
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	MARKHAM 2 AWP
Facility	SEC.32-T04N-R68W		

WELLPATH DATA (142 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
4373.00	22.870	144.480	4123.27	-229.07	-969.91	878.20	40°15'57.627"N	105°01'11.903"W	2.10	
4465.00	23.080	145.490	4207.97	-230.91	-999.32	898.80	40°15'57.337"N	105°01'11.638"W	0.49	
4556.00	23.020	145.370	4291.70	-232.46	-1028.66	919.02	40°15'57.047"N	105°01'11.377"W	0.08	
4647.00	22.780	145.550	4375.53	-233.98	-1057.82	939.10	40°15'56.759"N	105°01'11.118"W	0.27	
4737.00	22.810	144.940	4458.50	-235.61	-1086.47	958.97	40°15'56.475"N	105°01'10.861"W	0.26	
4829.00	22.990	144.980	4543.25	-237.46	-1115.78	979.53	40°15'56.186"N	105°01'10.596"W	0.20	
4920.00	22.960	144.510	4627.03	-239.43	-1144.79	1000.03	40°15'55.899"N	105°01'10.332"W	0.20	
5010.00	22.510	145.040	4710.04	-241.34	-1173.20	1020.09	40°15'55.618"N	105°01'10.073"W	0.55	
5102.00	22.430	144.750	4795.06	-243.20	-1201.97	1040.31	40°15'55.334"N	105°01'09.812"W	0.15	
5192.00	22.170	144.340	4878.32	-245.21	-1229.79	1060.12	40°15'55.059"N	105°01'09.557"W	0.34	
5284.00	22.340	144.590	4963.47	-247.32	-1258.14	1080.37	40°15'54.779"N	105°01'09.296"W	0.21	
5376.00	22.360	145.040	5048.56	-249.21	-1286.73	1100.53	40°15'54.496"N	105°01'09.036"W	0.19	
5467.00	22.550	145.210	5132.66	-250.91	-1315.25	1120.41	40°15'54.215"N	105°01'08.779"W	0.22	
5585.00	22.560	145.790	5241.63	-252.82	-1352.55	1146.04	40°15'53.846"N	105°01'08.448"W	0.19	
5649.00	22.350	146.120	5300.78	-253.66	-1372.80	1159.73	40°15'53.646"N	105°01'08.272"W	0.38	
5740.00	22.140	147.520	5385.01	-254.33	-1401.63	1178.58	40°15'53.361"N	105°01'08.029"W	0.63	
5833.00	21.640	146.720	5471.30	-254.81	-1430.75	1197.40	40°15'53.073"N	105°01'07.786"W	0.63	
5920.00	22.110	144.920	5552.04	-256.01	-1457.56	1215.61	40°15'52.808"N	105°01'07.551"W	0.94	
6011.00	21.500	143.050	5636.53	-258.32	-1484.90	1235.48	40°15'52.538"N	105°01'07.295"W	1.02	
6101.00	22.900	147.100	5719.86	-259.98	-1512.79	1254.91	40°15'52.263"N	105°01'07.044"W	2.30	
6193.00	22.580	148.940	5804.71	-259.92	-1542.95	1273.74	40°15'51.964"N	105°01'06.801"W	0.85	
6284.00	22.540	147.220	5888.75	-259.82	-1572.58	1292.20	40°15'51.672"N	105°01'06.563"W	0.73	
6374.00	22.430	145.560	5971.91	-260.74	-1601.24	1311.25	40°15'51.388"N	105°01'06.318"W	0.72	
6465.00	21.960	145.970	6056.17	-262.04	-1629.66	1330.59	40°15'51.108"N	105°01'06.068"W	0.54	
6555.00	22.850	145.680	6139.37	-263.30	-1658.04	1349.86	40°15'50.827"N	105°01'05.819"W	1.00	
6645.00	22.720	148.030	6222.35	-263.95	-1687.22	1368.92	40°15'50.539"N	105°01'05.574"W	1.02	
6736.00	22.710	149.300	6306.29	-263.50	-1717.23	1387.19	40°15'50.242"N	105°01'05.338"W	0.54	
6828.00	22.900	148.940	6391.10	-262.75	-1747.83	1405.49	40°15'49.940"N	105°01'05.102"W	0.26	
6918.00	22.870	148.710	6474.02	-262.20	-1777.78	1423.61	40°15'49.644"N	105°01'04.868"W	0.10	
7010.00	22.860	150.590	6558.79	-261.13	-1808.62	1441.67	40°15'49.339"N	105°01'04.635"W	0.79	
7100.00	22.930	151.460	6641.70	-259.23	-1839.25	1458.63	40°15'49.036"N	105°01'04.417"W	0.38	
7188.00	19.650	151.830	6723.68	-257.16	-1867.37	1473.81	40°15'48.759"N	105°01'04.221"W	3.73	
7234.00	17.830	159.790	6767.25	-255.19	-1880.80	1479.90	40°15'48.626"N	105°01'04.142"W	6.82	
7280.00	16.370	179.160	6811.25	-250.38	-1893.90	1482.43	40°15'48.496"N	105°01'04.110"W	12.72	
7326.00	16.390	198.580	6855.42	-241.99	-1906.54	1480.45	40°15'48.371"N	105°01'04.135"W	11.85	
7372.00	16.580	215.620	6899.55	-230.89	-1918.03	1474.56	40°15'48.258"N	105°01'04.211"W	10.48	
7418.00	16.330	231.800	6943.69	-218.38	-1927.37	1465.65	40°15'48.166"N	105°01'04.326"W	9.95	
7464.00	19.210	239.290	6987.50	-204.38	-1935.24	1454.06	40°15'48.088"N	105°01'04.476"W	7.98	
7510.00	24.190	242.960	7030.23	-187.42	-1943.40	1439.15	40°15'48.007"N	105°01'04.668"W	11.22	
7556.00	29.280	245.750	7071.30	-166.87	-1952.31	1420.48	40°15'47.919"N	105°01'04.909"W	11.39	
7622.00	34.190	255.380	7127.45	-133.15	-1963.63	1387.78	40°15'47.807"N	105°01'05.331"W	10.67	
7646.00	36.190	258.770	7147.06	-120.09	-1966.71	1374.30	40°15'47.777"N	105°01'05.504"W	11.65	
7737.00	44.670	265.620	7216.30	-66.54	-1974.41	1315.92	40°15'47.701"N	105°01'06.258"W	10.51	
7827.00	54.670	268.970	7274.49	-6.91	-1977.49	1247.49	40°15'47.670"N	105°01'07.140"W	11.46	
7919.00	66.160	267.730	7319.83	61.98	-1979.84	1167.65	40°15'47.647"N	105°01'08.170"W	12.54	



Actual Wellpath Report

MARKHAM 2 AWP

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INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#02 MARKHAM 2 (2341'FSL & 1514'FEL SEC 32)
Area	COLORADO	Well	MARKHAM 2
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	MARKHAM 2 AWP
Facility	SEC.32-T04N-R68W		

WELLPATH DATA (142 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
7965.00	72.690	265.650	7335.99	99.72	-1982.34	1124.69	40°15'47.623"N	105°01'08.724"W	14.81	
8009.00	79.040	266.070	7346.73	137.40	-1985.42	1082.15	40°15'47.592"N	105°01'09.273"W	14.46	
8053.00	85.380	268.430	7352.69	175.38	-1987.50	1038.63	40°15'47.572"N	105°01'09.834"W	15.36	
8099.00	89.540	272.080	7354.73	214.19	-1987.29	992.70	40°15'47.574"N	105°01'10.427"W	12.02	
8191.00	90.920	270.690	7354.36	290.94	-1985.07	900.73	40°15'47.596"N	105°01'11.613"W	2.13	
8282.00	91.230	268.130	7352.65	368.52	-1986.01	809.76	40°15'47.586"N	105°01'12.787"W	2.83	
8370.00	91.390	264.890	7350.64	445.76	-1991.36	721.95	40°15'47.534"N	105°01'13.919"W	3.69	
8461.00	90.890	266.410	7348.83	526.30	-1998.26	631.24	40°15'47.465"N	105°01'15.089"W	1.76	
8553.00	90.890	265.830	7347.40	607.37	-2004.49	539.46	40°15'47.404"N	105°01'16.273"W	0.63	
8643.00	90.830	263.520	7346.05	687.72	-2012.84	449.86	40°15'47.321"N	105°01'17.429"W	2.57	
8735.00	90.740	265.090	7344.79	770.13	-2021.97	358.33	40°15'47.231"N	105°01'18.610"W	1.71	
8825.00	90.710	268.360	7343.65	848.98	-2027.11	268.50	40°15'47.180"N	105°01'19.769"W	3.63	
8917.00	90.770	272.310	7342.46	926.63	-2026.57	176.52	40°15'47.186"N	105°01'20.955"W	4.29	
9009.00	90.800	271.760	7341.20	1002.79	-2023.30	84.59	40°15'47.218"N	105°01'22.141"W	0.60	
9102.00	91.050	271.520	7339.70	1080.14	-2020.64	-8.36	40°15'47.244"N	105°01'23.340"W	0.37	
9194.00	90.950	271.240	7338.10	1156.88	-2018.43	-100.32	40°15'47.266"N	105°01'24.526"W	0.32	
9286.00	91.020	270.410	7336.51	1234.11	-2017.10	-192.29	40°15'47.279"N	105°01'25.712"W	0.91	
9378.00	90.920	269.030	7334.96	1312.29	-2017.55	-284.28	40°15'47.275"N	105°01'26.899"W	1.50	
9468.00	90.830	267.670	7333.58	1389.89	-2020.14	-374.23	40°15'47.249"N	105°01'28.059"W	1.51	
9560.00	90.680	267.940	7332.37	1469.65	-2023.66	-466.15	40°15'47.214"N	105°01'29.245"W	0.34	
9652.00	90.830	268.950	7331.16	1548.90	-2026.16	-558.11	40°15'47.190"N	105°01'30.431"W	1.11	
9744.00	90.920	269.720	7329.75	1627.40	-2027.23	-650.09	40°15'47.179"N	105°01'31.618"W	0.84	
9834.00	90.800	267.970	7328.40	1704.60	-2029.04	-740.06	40°15'47.161"N	105°01'32.778"W	1.95	
9927.00	90.860	267.900	7327.05	1785.12	-2032.39	-832.99	40°15'47.128"N	105°01'33.977"W	0.10	
10017.00	90.770	270.420	7325.77	1862.06	-2033.71	-922.96	40°15'47.115"N	105°01'35.138"W	2.80	
10109.00	90.770	270.820	7324.54	1939.48	-2032.72	-1014.95	40°15'47.125"N	105°01'36.324"W	0.43	
10201.00	90.150	270.800	7323.80	2016.73	-2031.42	-1106.94	40°15'47.138"N	105°01'37.511"W	0.67	
10291.00	90.090	270.910	7323.61	2092.27	-2030.07	-1196.93	40°15'47.151"N	105°01'38.671"W	0.14	
10383.00	90.180	272.320	7323.39	2168.82	-2027.48	-1288.89	40°15'47.176"N	105°01'39.858"W	1.54	
10475.00	90.090	270.080	7323.18	2245.73	-2025.55	-1380.86	40°15'47.195"N	105°01'41.044"W	2.44	
10566.00	90.220	267.910	7322.93	2323.66	-2027.15	-1471.84	40°15'47.180"N	105°01'42.218"W	2.39	
10658.00	90.220	267.220	7322.58	2403.62	-2031.06	-1563.76	40°15'47.141"N	105°01'43.403"W	0.75	
10750.00	91.080	267.330	7321.53	2483.81	-2035.43	-1655.65	40°15'47.098"N	105°01'44.589"W	0.94	
10840.00	91.110	268.770	7319.81	2561.64	-2038.49	-1745.58	40°15'47.067"N	105°01'45.749"W	1.60	
10930.00	91.080	267.170	7318.09	2639.52	-2041.68	-1835.50	40°15'47.036"N	105°01'46.909"W	1.78	
11022.00	90.950	265.810	7316.46	2720.31	-2047.31	-1927.31	40°15'46.980"N	105°01'48.093"W	1.48	
11114.00	91.110	265.510	7314.81	2801.73	-2054.27	-2019.03	40°15'46.911"N	105°01'49.276"W	0.37	
11204.00	91.200	266.620	7313.00	2881.07	-2060.45	-2108.80	40°15'46.850"N	105°01'50.434"W	1.24	
11295.00	90.990	266.630	7311.26	2960.87	-2065.81	-2199.63	40°15'46.797"N	105°01'51.606"W	0.23	
11385.00	90.890	267.610	7309.78	3039.43	-2070.33	-2289.50	40°15'46.752"N	105°01'52.765"W	1.09	
11475.00	90.990	270.390	7308.30	3116.49	-2071.90	-2379.46	40°15'46.737"N	105°01'53.925"W	3.09	
11566.00	91.390	271.300	7306.41	3192.86	-2070.56	-2470.43	40°15'46.750"N	105°01'55.099"W	1.09	
11658.00	91.540	271.560	7304.06	3269.55	-2068.26	-2562.37	40°15'46.772"N	105°01'56.285"W	0.33	
11750.00	91.320	272.250	7301.77	3345.82	-2065.20	-2654.29	40°15'46.803"N	105°01'57.470"W	0.79	
11840.00	91.390	273.400	7299.64	3419.61	-2060.77	-2744.16	40°15'46.846"N	105°01'58.630"W	1.28	



Actual Wellpath Report

MARKHAM 2 AWP

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INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#02 MARKHAM 2 (2341'FSL & 1514'FEL SEC 32)
Area	COLORADO	Well	MARKHAM 2
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	MARKHAM 2 AWB
Facility	SEC.32-T04N-R68W		

WELLPATH DATA (142 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
11931.00	91.630	271.890	7297.24	3494.37	-2056.57	-2835.03	40°15'46.888"N	105°01'59.802"W	1.68	
12021.00	91.600	269.650	7294.70	3569.95	-2055.36	-2924.98	40°15'46.899"N	105°02'00.962"W	2.49	
12114.00	91.630	267.530	7292.08	3649.91	-2057.65	-3017.91	40°15'46.877"N	105°02'02.161"W	2.28	
12206.00	91.600	265.180	7289.49	3730.77	-2063.50	-3109.68	40°15'46.819"N	105°02'03.345"W	2.55	
12296.00	91.630	262.080	7286.95	3811.83	-2073.48	-3199.08	40°15'46.720"N	105°02'04.498"W	3.44	
12371.00	91.540	259.090	7284.88	3881.00	-2085.74	-3273.03	40°15'46.599"N	105°02'05.452"W	3.99	LAST BHI MWD SURVEY
12395.00	91.540	259.090	7284.23	3903.37	-2090.28	-3296.59	40°15'46.554"N	105°02'05.755"W	0.00	PROJECTION TO BIT

HOLE & CASING SECTIONS - Ref Wellbore: MARKHAM 2 AWB Ref Wellpath: MARKHAM 2 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	1538.00	1521.00	17.00	1511.89	0.00	0.00	-154.93	153.09
9.625in Casing Surface	17.00	1528.00	1511.00	17.00	1502.56	0.00	0.00	-152.39	150.52
8.5in Open Hole	1538.00	12395.00	10857.00	1511.89	7284.23	-154.93	153.09	-2090.28	-3296.59

TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
SECTION 32-T04N-R69W	-7.00	-18.22	0.00	3133072.76	1341057.53	40°16'07.032"N	105°01'23.232"W	polygon
SECTION 32-T04N-R69W SOUTHERN HALF 460' SETBACKS	7061.30	-18.22	0.00	3133072.76	1341057.53	40°16'07.032"N	105°01'23.232"W	polygon
MARKHAM 2 BHL REV-1 (330'FSL & 460'FWL SEC 32)	7274.55	-2072.67	-3307.17	3129776.84	1338985.42	40°15'46.728"N	105°02'05.892"W	point
MARKHAM 2 ENTRY POINT REV-1 ON PLAT (330'FSL & 460'FEL SEC 32)	7350.00	-1992.72	1054.94	3134138.26	1339088.82	40°15'47.520"N	105°01'09.624"W	point

WELLPATH COMPOSITION - Ref Wellbore: MARKHAM 2 AWB Ref Wellpath: MARKHAM 2 AWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
17.00	1483.00	Custom BHI NaviTrak (Standard Rotating+Axial Corr) (Rockies 0.03Gt model)	BHI NAVITRAK MWD STD ROTATING, AXIAL, ROCKIES GT <406-1483>	MARKHAM 2 AWB
1483.00	12371.00	Custom BHI AutoTrak Curve (Axial Corr, Short spacing) (Rockies 0.03Gt model)	BHI ATC MWD SHORT, ROCKIES GT <1543-12371>	MARKHAM 2 AWB
12371.00	12395.00	Blind Drilling (std)	Projection to bit	MARKHAM 2 AWB



Actual Wellpath Report

MARKHAM 2 AWP
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REFERENCE WELLPATH IDENTIFICATION			
Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#02 MARKHAM 2 (2341'FSL & 1514'FEL SEC 32)
Area	COLORADO	Well	MARKHAM 2
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	MARKHAM 2 AWB
Facility	SEC.32-T04N-R68W		

WELLPATH COMMENTS					
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment	
406.00	1.650	171.680	405.95	FIRST BHI MWD SURVEY	
12371.00	91.540	259.090	7284.88	LAST BHI MWD SURVEY	
12395.00	91.540	259.090	7284.23	PROJECTION TO BIT	