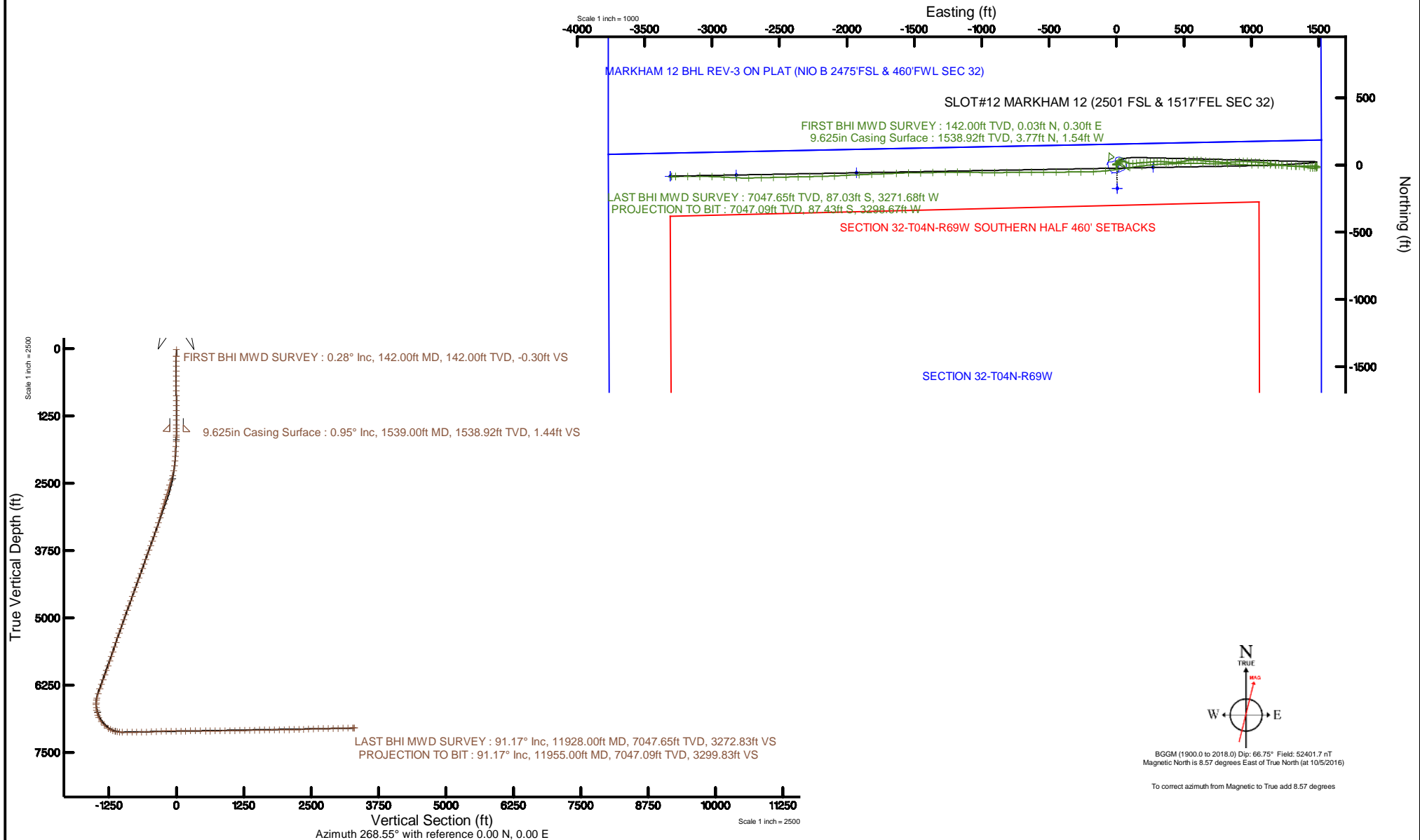


CUB CREEK ENERGY, LLC

Location: COLORADO Slot: SLOT#12 MARKHAM 12 (2501 FSL & 1517'FEL SEC 32)
Field: WELD COUNTY (NAD83, TRUE NORTH) Well: MARKHAM 12
Facility: SEC.32-T04N-R68W Wellbore: MARKHAM 12 PWB

Plot reference wellpath is MARKHAM 12 REV-C.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: 5055 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: SLOT#12 MARKHAM 12 (2501 FSL & 1517'FEL SEC 32)): 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: bensjajc on 2016-10-13
	Database: WA_DEN_Denver_Data





Actual Wellpath Report

MARKHAM 12 AWP

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INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#12 MARKHAM 12 (2501 FSL & 1517'FEL SEC 32)
Area	COLORADO	Well	MARKHAM 12
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	MARKHAM 12 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	10/13/2016 at 4:42:55 PM
Convergence at slot	0.31° East	Database/Source file	WA_DEN_Denver_Defn/MARKHAM_12_AWP.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	174.87	-5.59	3133066.24	1341232.36	40°16'08.760"N	105°01'23.304"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	5055.00ft
Horizontal Reference Pt	Slot	XTREME 18 (17') (RKB) to Mean Sea Level	5055.00ft
Vertical Reference Pt	XTREME 18 (17') (RKB)	XTREME 18 (17') (RKB) to Mud Line at Slot (SLOT#12 MARKHAM 12 (2501 FSL & 1517'FEL SEC 32))	5055.00ft
MD Reference Pt	XTREME 18 (17') (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	268.55°



Actual Wellpath Report

MARKHAM 12 AWP

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INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#12 MARKHAM 12 (2501 FSL & 1517'FEL SEC 32)
Area	COLORADO	Well	MARKHAM 12
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	MARKHAM 12 AWB
Facility	SEC.32-T04N-R68W		

WELLPATH DATA (140 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
17.00	0.000	84.160	17.00	0.00	0.00	0.00	40°16'08.760"N	105°01'23.304"W	0.00	
142.00	0.280	84.160	142.00	-0.30	0.03	0.30	40°16'08.760"N	105°01'23.300"W	0.22	FIRST BHI MWD SURVEY
234.00	0.610	71.910	234.00	-1.00	0.21	0.99	40°16'08.762"N	105°01'23.291"W	0.37	
326.00	0.450	104.150	325.99	-1.82	0.27	1.81	40°16'08.763"N	105°01'23.281"W	0.36	
418.00	0.470	49.480	417.99	-2.46	0.43	2.45	40°16'08.764"N	105°01'23.272"W	0.46	
510.00	0.590	49.510	509.99	-3.12	0.98	3.09	40°16'08.770"N	105°01'23.264"W	0.13	
603.00	0.680	289.170	602.98	-2.97	1.47	2.94	40°16'08.775"N	105°01'23.266"W	1.19	
693.00	1.030	308.550	692.97	-1.85	2.15	1.80	40°16'08.781"N	105°01'23.281"W	0.50	
782.00	0.320	236.700	781.97	-1.03	2.51	0.97	40°16'08.785"N	105°01'23.292"W	1.10	
874.00	0.800	256.410	873.96	-0.18	2.22	0.13	40°16'08.782"N	105°01'23.302"W	0.55	
964.00	0.990	257.690	963.95	1.20	1.91	-1.24	40°16'08.779"N	105°01'23.320"W	0.21	
1056.00	0.190	281.970	1055.95	2.12	1.77	-2.17	40°16'08.777"N	105°01'23.332"W	0.89	
1148.00	0.280	179.160	1147.95	2.27	1.58	-2.32	40°16'08.776"N	105°01'23.334"W	0.40	
1240.00	0.440	290.490	1239.95	2.60	1.48	-2.64	40°16'08.775"N	105°01'23.338"W	0.65	
1329.00	0.660	316.320	1328.94	3.27	1.97	-3.32	40°16'08.779"N	105°01'23.347"W	0.37	
1418.00	0.880	71.140	1417.94	2.96	2.56	-3.02	40°16'08.785"N	105°01'23.343"W	1.46	
1487.00	0.970	50.210	1486.93	2.00	3.10	-2.07	40°16'08.791"N	105°01'23.331"W	0.50	
1606.00	1.140	1.730	1605.91	1.14	4.93	-1.26	40°16'08.809"N	105°01'23.320"W	0.74	
1639.00	1.150	5.710	1638.90	1.08	5.59	-1.22	40°16'08.815"N	105°01'23.320"W	0.24	
1729.00	4.570	57.090	1728.79	-2.09	8.44	1.88	40°16'08.843"N	105°01'23.280"W	4.39	
1818.00	5.700	52.990	1817.43	-8.71	13.02	8.39	40°16'08.889"N	105°01'23.196"W	1.33	
1910.00	5.380	34.220	1909.01	-14.94	19.34	14.46	40°16'08.951"N	105°01'23.117"W	1.99	
2000.00	4.100	31.000	1998.70	-19.13	25.59	18.49	40°16'09.013"N	105°01'23.065"W	1.45	
2089.00	5.500	69.120	2087.40	-24.86	29.84	24.12	40°16'09.055"N	105°01'22.993"W	3.82	
2181.00	6.630	89.120	2178.90	-34.33	31.49	33.55	40°16'09.071"N	105°01'22.871"W	2.59	
2273.00	10.460	107.710	2269.88	-47.54	29.03	46.82	40°16'09.047"N	105°01'22.700"W	5.08	
2365.00	16.720	110.890	2359.26	-67.69	21.76	67.16	40°16'08.975"N	105°01'22.438"W	6.85	
2455.00	18.360	105.250	2445.08	-93.24	13.42	92.93	40°16'08.893"N	105°01'22.105"W	2.62	
2548.00	17.260	88.120	2533.68	-121.09	10.01	120.87	40°16'08.859"N	105°01'21.745"W	5.74	
2640.00	16.610	79.650	2621.70	-147.73	12.82	147.46	40°16'08.887"N	105°01'21.402"W	2.77	
2732.00	16.650	86.080	2709.86	-173.89	16.09	173.54	40°16'08.919"N	105°01'21.065"W	2.00	
2824.00	16.850	85.920	2797.96	-200.38	17.94	199.99	40°16'08.937"N	105°01'20.724"W	0.22	
2913.00	16.380	87.730	2883.24	-225.81	19.35	225.40	40°16'08.951"N	105°01'20.396"W	0.79	
3003.00	16.920	83.960	2969.47	-251.56	21.23	251.10	40°16'08.970"N	105°01'20.065"W	1.34	
3095.00	15.740	86.210	3057.76	-277.37	23.47	276.87	40°16'08.992"N	105°01'19.732"W	1.46	
3187.00	16.850	89.380	3146.06	-303.18	24.44	302.65	40°16'09.001"N	105°01'19.400"W	1.55	
3278.00	17.050	90.230	3233.11	-329.70	24.53	329.18	40°16'09.002"N	105°01'19.057"W	0.35	
3369.00	17.800	96.090	3319.94	-356.82	23.00	356.36	40°16'08.987"N	105°01'18.707"W	2.10	
3460.00	19.580	94.190	3406.14	-385.79	20.41	385.40	40°16'08.962"N	105°01'18.332"W	2.07	
3548.00	19.880	90.100	3488.98	-415.42	19.30	415.07	40°16'08.951"N	105°01'17.949"W	1.61	
3637.00	20.160	87.280	3572.60	-445.88	20.00	445.52	40°16'08.958"N	105°01'17.557"W	1.13	
3727.00	20.040	81.100	3657.13	-476.68	23.13	476.25	40°16'08.988"N	105°01'17.160"W	2.36	
3819.00	20.250	78.800	3743.50	-508.00	28.66	507.44	40°16'09.043"N	105°01'16.758"W	0.89	
3911.00	20.190	83.330	3829.84	-539.51	33.59	538.83	40°16'09.092"N	105°01'16.353"W	1.70	
4004.00	18.800	86.780	3917.51	-570.47	36.30	569.74	40°16'09.119"N	105°01'15.954"W	1.94	



Actual Wellpath Report

MARKHAM 12 AWP

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INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#12 MARKHAM 12 (2501 FSL & 1517'FEL SEC 32)
Area	COLORADO	Well	MARKHAM 12
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	MARKHAM 12 AWB
Facility	SEC.32-T04N-R68W		

WELLPATH DATA (140 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
4094.00	18.640	95.390	4002.76	-599.25	35.76	598.54	40°16'09.113"N	105°01'15.583"W	3.07	
4184.00	20.100	97.350	4087.67	-628.82	32.43	628.20	40°16'09.080"N	105°01'15.200"W	1.78	
4275.00	20.160	94.900	4173.11	-659.86	29.09	659.33	40°16'09.047"N	105°01'14.798"W	0.93	
4367.00	20.100	93.910	4259.49	-691.35	26.66	690.90	40°16'09.023"N	105°01'14.391"W	0.38	
4459.00	20.020	94.130	4345.91	-722.76	24.45	722.38	40°16'09.002"N	105°01'13.985"W	0.12	
4551.00	20.230	96.000	4432.29	-754.21	21.65	753.90	40°16'08.974"N	105°01'13.578"W	0.74	
4640.00	20.180	94.380	4515.82	-784.74	18.87	784.51	40°16'08.946"N	105°01'13.183"W	0.63	
4732.00	20.340	89.010	4602.13	-816.52	17.94	816.33	40°16'08.937"N	105°01'12.773"W	2.03	
4824.00	20.490	83.650	4688.36	-848.55	19.99	848.32	40°16'08.957"N	105°01'12.360"W	2.04	
4916.00	20.570	84.790	4774.52	-880.72	23.24	880.42	40°16'08.990"N	105°01'11.946"W	0.44	
5007.00	19.760	87.680	4859.94	-912.06	25.32	911.71	40°16'09.010"N	105°01'11.543"W	1.41	
5098.00	19.090	89.930	4945.76	-942.32	25.96	941.96	40°16'09.016"N	105°01'11.152"W	1.10	
5189.00	19.350	93.220	5031.69	-972.22	25.13	971.89	40°16'09.008"N	105°01'10.766"W	1.22	
5279.00	19.500	93.850	5116.57	-1002.04	23.28	1001.77	40°16'08.990"N	105°01'10.381"W	0.29	
5367.00	19.370	94.330	5199.56	-1031.18	21.19	1030.97	40°16'08.969"N	105°01'10.004"W	0.23	
5458.00	19.300	94.590	5285.42	-1061.15	18.85	1061.01	40°16'08.946"N	105°01'09.616"W	0.12	
5550.00	18.750	94.620	5372.40	-1090.97	16.44	1090.91	40°16'08.922"N	105°01'09.231"W	0.60	
5642.00	17.840	96.530	5459.75	-1119.63	13.65	1119.65	40°16'08.895"N	105°01'08.860"W	1.18	
5734.00	18.600	99.730	5547.14	-1147.99	9.57	1148.11	40°16'08.854"N	105°01'08.493"W	1.37	
5825.00	17.900	98.970	5633.56	-1175.98	4.93	1176.23	40°16'08.808"N	105°01'08.130"W	0.81	
5915.00	19.980	97.630	5718.68	-1204.77	0.74	1205.13	40°16'08.767"N	105°01'07.757"W	2.36	
6005.00	19.230	96.790	5803.46	-1234.62	-3.06	1235.09	40°16'08.729"N	105°01'07.371"W	0.89	
6097.00	19.530	94.810	5890.25	-1264.90	-6.14	1265.46	40°16'08.699"N	105°01'06.979"W	0.79	
6189.00	19.380	92.960	5977.00	-1295.41	-8.22	1296.03	40°16'08.678"N	105°01'06.585"W	0.69	
6281.00	19.690	90.300	6063.71	-1326.12	-9.09	1326.77	40°16'08.670"N	105°01'06.188"W	1.02	
6373.00	19.580	87.490	6150.36	-1357.02	-8.49	1357.67	40°16'08.676"N	105°01'05.789"W	1.03	
6465.00	20.150	88.420	6236.88	-1388.28	-7.38	1388.91	40°16'08.687"N	105°01'05.386"W	0.71	
6554.00	20.540	90.580	6320.33	-1419.22	-7.11	1419.85	40°16'08.689"N	105°01'04.987"W	0.95	
6646.00	18.710	89.020	6406.99	-1450.10	-7.03	1450.74	40°16'08.690"N	105°01'04.589"W	2.07	
6736.00	10.830	93.620	6493.95	-1473.00	-7.31	1473.65	40°16'08.687"N	105°01'04.293"W	8.85	
6768.00	9.000	100.970	6525.47	-1478.44	-7.98	1479.11	40°16'08.681"N	105°01'04.223"W	6.94	
6826.00	7.480	136.830	6582.90	-1485.38	-11.60	1486.15	40°16'08.645"N	105°01'04.132"W	9.07	
6858.00	6.740	167.430	6614.67	-1487.13	-14.95	1487.99	40°16'08.612"N	105°01'04.108"W	11.91	
6916.00	6.990	241.340	6672.35	-1484.65	-19.98	1485.63	40°16'08.562"N	105°01'04.139"W	14.21	
6962.00	11.470	260.420	6717.76	-1477.63	-22.08	1478.65	40°16'08.541"N	105°01'04.229"W	11.67	
7008.00	15.420	263.650	6762.49	-1467.00	-23.52	1468.06	40°16'08.527"N	105°01'04.365"W	8.74	
7055.00	18.930	274.430	6807.40	-1453.18	-23.62	1454.24	40°16'08.526"N	105°01'04.544"W	10.05	
7101.00	23.160	279.740	6850.32	-1436.88	-21.51	1437.88	40°16'08.547"N	105°01'04.755"W	10.08	
7192.00	35.940	275.940	6929.33	-1392.65	-15.70	1393.49	40°16'08.604"N	105°01'05.327"W	14.19	
7283.00	46.510	273.140	6997.68	-1333.09	-11.11	1333.79	40°16'08.650"N	105°01'06.097"W	11.79	
7373.00	56.750	274.240	7053.47	-1262.91	-6.53	1263.48	40°16'08.695"N	105°01'07.005"W	11.42	
7419.00	62.870	273.440	7076.59	-1223.34	-3.88	1223.83	40°16'08.721"N	105°01'07.516"W	13.39	
7465.00	69.240	271.920	7095.25	-1181.43	-1.93	1181.85	40°16'08.741"N	105°01'08.058"W	14.17	
7510.00	75.450	270.530	7108.90	-1138.62	-1.02	1139.00	40°16'08.750"N	105°01'08.610"W	14.11	
7555.00	80.760	269.660	7118.17	-1094.61	-0.95	1094.99	40°16'08.750"N	105°01'09.178"W	11.95	



Actual Wellpath Report

MARKHAM 12 AWP

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INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#12 MARKHAM 12 (2501 FSL & 1517'FEL SEC 32)
Area	COLORADO	Well	MARKHAM 12
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	MARKHAM 12 AWB
Facility	SEC.32-T04N-R68W		

WELLPATH DATA (140 stations)

MD (ft)	Inclination (°)	Azimuth (°)	TVD (ft)	Vert Sect (ft)	North (ft)	East (ft)	Latitude	Longitude	DLS (°/100ft)	Comments
7600.00	86.030	269.480	7123.34	-1049.94	-1.28	1050.30	40°16'08.747"N	105°01'09.755"W	11.72	
7646.00	90.890	271.170	7124.58	-1003.99	-1.02	1004.34	40°16'08.750"N	105°01'10.348"W	11.18	
7736.00	90.280	273.710	7123.66	-914.21	2.81	914.43	40°16'08.788"N	105°01'11.507"W	2.90	
7828.00	89.970	272.370	7123.46	-822.49	7.69	822.56	40°16'08.836"N	105°01'12.693"W	1.49	
7918.00	90.030	270.100	7123.46	-732.60	9.63	732.59	40°16'08.855"N	105°01'13.853"W	2.52	
8009.00	90.250	270.760	7123.24	-641.65	10.31	641.59	40°16'08.862"N	105°01'15.027"W	0.76	
8101.00	91.630	270.120	7121.73	-549.71	11.02	549.61	40°16'08.869"N	105°01'16.214"W	1.65	
8191.00	93.360	268.950	7117.81	-459.82	10.29	459.70	40°16'08.862"N	105°01'17.374"W	2.32	
8283.00	93.670	267.380	7112.17	-367.99	7.35	367.93	40°16'08.833"N	105°01'18.558"W	1.74	
8373.00	92.430	264.830	7107.38	-278.21	1.24	278.27	40°16'08.772"N	105°01'19.714"W	3.15	
8464.00	91.350	263.020	7104.38	-187.56	-8.38	187.84	40°16'08.677"N	105°01'20.881"W	2.32	
8554.00	89.910	261.750	7103.39	-98.09	-20.31	98.64	40°16'08.559"N	105°01'22.032"W	2.13	
8645.00	89.050	262.240	7104.21	-7.70	-32.98	8.53	40°16'08.434"N	105°01'23.194"W	1.09	
8737.00	90.090	264.330	7104.90	83.91	-43.74	-82.83	40°16'08.328"N	105°01'24.373"W	2.54	
8827.00	91.230	267.350	7103.87	173.79	-50.26	-172.57	40°16'08.263"N	105°01'25.530"W	3.59	
8918.00	91.390	269.910	7101.79	264.76	-52.44	-263.52	40°16'08.242"N	105°01'26.703"W	2.82	
9010.00	90.180	269.280	7100.53	356.73	-53.09	-355.50	40°16'08.235"N	105°01'27.890"W	1.48	
9102.00	89.010	269.660	7101.18	448.72	-53.94	-447.50	40°16'08.227"N	105°01'29.077"W	1.34	
9194.00	89.320	270.130	7102.52	540.68	-54.11	-539.49	40°16'08.225"N	105°01'30.264"W	0.61	
9284.00	90.580	269.820	7102.60	630.65	-54.15	-629.48	40°16'08.225"N	105°01'31.425"W	1.44	
9376.00	91.750	268.900	7100.73	722.62	-55.18	-721.46	40°16'08.215"N	105°01'32.611"W	1.62	
9467.00	90.830	269.490	7098.68	813.59	-56.45	-812.42	40°16'08.202"N	105°01'33.785"W	1.20	
9559.00	90.030	269.730	7097.99	905.57	-57.08	-904.42	40°16'08.196"N	105°01'34.971"W	0.91	
9651.00	90.680	270.550	7097.42	997.53	-56.86	-996.41	40°16'08.198"N	105°01'36.158"W	1.14	
9741.00	91.880	271.760	7095.41	1087.41	-55.04	-1086.37	40°16'08.216"N	105°01'37.319"W	1.89	
9833.00	91.630	270.400	7092.59	1179.28	-53.31	-1178.31	40°16'08.233"N	105°01'38.505"W	1.50	
9925.00	91.170	268.580	7090.34	1271.23	-54.13	-1270.27	40°16'08.225"N	105°01'39.691"W	2.04	
10016.00	90.860	268.190	7088.73	1362.22	-56.69	-1361.22	40°16'08.199"N	105°01'40.864"W	0.55	
10106.00	90.890	269.430	7087.35	1452.21	-58.56	-1451.19	40°16'08.181"N	105°01'42.025"W	1.38	
10198.00	91.080	269.490	7085.77	1544.18	-59.43	-1543.17	40°16'08.172"N	105°01'43.212"W	0.22	
10287.00	90.860	267.310	7084.27	1633.16	-61.91	-1632.12	40°16'08.148"N	105°01'44.359"W	2.46	
10379.00	91.080	267.720	7082.71	1725.13	-65.90	-1724.02	40°16'08.108"N	105°01'45.545"W	0.51	
10472.00	90.520	267.860	7081.41	1818.12	-69.49	-1816.94	40°16'08.073"N	105°01'46.743"W	0.62	
10564.00	90.090	267.380	7080.92	1910.10	-73.31	-1908.86	40°16'08.035"N	105°01'47.929"W	0.70	
10656.00	91.320	267.540	7079.79	2002.08	-77.38	-2000.76	40°16'07.995"N	105°01'49.115"W	1.35	
10746.00	90.950	267.220	7078.01	2092.04	-81.50	-2090.65	40°16'07.954"N	105°01'50.274"W	0.54	
10838.00	90.920	268.410	7076.50	2184.02	-85.00	-2182.57	40°16'07.919"N	105°01'51.460"W	1.29	
10929.00	91.480	269.120	7074.60	2275.00	-86.96	-2273.53	40°16'07.900"N	105°01'52.633"W	0.99	
11017.00	92.710	268.740	7071.38	2362.93	-88.61	-2361.45	40°16'07.883"N	105°01'53.768"W	1.46	
11107.00	93.420	269.070	7066.57	2452.80	-90.32	-2451.30	40°16'07.866"N	105°01'54.927"W	0.87	
11199.00	91.940	267.890	7062.27	2544.70	-92.76	-2543.17	40°16'07.842"N	105°01'56.112"W	2.06	
11291.00	90.620	268.730	7060.21	2636.67	-95.48	-2635.10	40°16'07.815"N	105°01'57.298"W	1.70	
11382.00	90.460	269.170	7059.35	2727.67	-97.14	-2726.08	40°16'07.799"N	105°01'58.471"W	0.51	
11474.00	91.450	272.620	7057.82	2819.56	-95.71	-2818.04	40°16'07.813"N	105°01'59.658"W	3.90	
11566.00	91.260	273.060	7055.65	2911.28	-91.15	-2909.90	40°16'07.858"N	105°02'00.843"W	0.52	



Actual Wellpath Report

MARKHAM 12 AWP

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INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#12 MARKHAM 12 (2501 FSL & 1517'FEL SEC 32)
Area	COLORADO	Well	MARKHAM 12
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	MARKHAM 12 AWB
Facility	SEC.32-T04N-R68W		

WELLPATH DATA (140 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
11656.00	91.230	272.290	7053.69	3001.02	-86.95	-2999.78	40°16'07.899"N	105°02'02.002"W	0.86	
11747.00	91.230	270.110	7051.74	3091.90	-85.04	-3090.74	40°16'07.918"N	105°02'03.176"W	2.40	
11838.00	91.390	269.110	7049.66	3182.86	-85.66	-3181.71	40°16'07.911"N	105°02'04.349"W	1.11	
11928.00	91.170	269.150	7047.65	3272.83	-87.03	-3271.68	40°16'07.898"N	105°02'05.510"W	0.25	LAST BHI MWD SURVEY
11955.00	91.170	269.150	7047.09	3299.83	-87.43	-3298.67	40°16'07.894"N	105°02'05.858"W	0.00	PROJECTION TO BIT

HOLE & CASING SECTIONS - Ref Wellbore: MARKHAM 12 AWB Ref Wellpath: MARKHAM 12 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	1539.00	1522.00	17.00	1538.92	0.00	0.00	3.77	-1.54
9.625in Casing Surface	17.00	1539.00	1522.00	17.00	1538.92	0.00	0.00	3.77	-1.54
8.75in Open Hole	1539.00	11955.00	10416.00	1538.92	7047.09	3.77	-1.54	-87.43	-3298.67

TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
SECTION 32-T04N-R69W	-12.00	-174.87	5.58	3133072.76	1341057.53	40°16'07.032"N	105°01'23.232"W	polygon
MARKHAM 12 BHL REV-3 ON PLAT (NIO B 2475'FSL & 460'FWL SEC 32)	7048.75	-83.57	-3309.67	3129757.22	1341131.00	40°16'07.932"N	105°02'06.000"W	point
SECTION 32-T04N-R69W SOUTHERN HALF 460' SETBACKS	7056.30	-174.87	5.58	3133072.76	1341057.53	40°16'07.032"N	105°01'23.232"W	polygon
MARKHAM 12 WP 2	7104.70	-58.30	-1928.40	3131138.27	1341163.69	40°16'08.183"N	105°01'48.181"W	point
MARKHAM 12 BHL REV-2 ON PLAT (NIO B 2475'FSL & 460'FWL SEC 32)	7107.00	-83.57	-3309.67	3129757.22	1341131.00	40°16'07.932"N	105°02'06.000"W	point
MARKHAM 12 WP 3	7112.20	-74.60	-2819.60	3130247.21	1341142.60	40°16'08.021"N	105°01'59.678"W	point
MARKHAM 12 WP 1	7112.30	-18.00	271.20	3133337.52	1341215.82	40°16'08.582"N	105°01'19.805"W	point
MARKHAM 12 BHL REV-1 ON PLAT (NIO B 2475'FSL & 460'FWL SEC 32)	7113.00	-83.57	-3309.67	3129757.22	1341131.00	40°16'07.932"N	105°02'06.000"W	point

WELLPATH COMPOSITION - Ref Wellbore: MARKHAM 12 AWB Ref Wellpath: MARKHAM 12 AWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
17.00	1487.00	Custom BHI NaviTrak (Standard Rotating) (Rockies 0.03Gt model)	BHI NAVITRAK MWD, STD ROTATING, ROCKIES GT 13 1/2" <142-1487>	MARKHAM 12 AWB
1487.00	11928.00	Custom BHI AutoTrak Curve (Short) (Rockies 0.03Gt model)	BHI ATC MWD SHORT, ROCKIES GT <1606-11928>	MARKHAM 12 AWB
11928.00	11955.00	Blind Drilling (std)	Projection to bit	MARKHAM 12 AWB



Actual Wellpath Report

MARKHAM 12 AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#12 MARKHAM 12 (2501 FSL & 1517'FEL SEC 32)
Area	COLORADO	Well	MARKHAM 12
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	MARKHAM 12 AWB
Facility	SEC.32-T04N-R68W		

WELLPATH COMMENTS

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
142.00	0.280	84.160	142.00	FIRST BHI MWD SURVEY
11928.00	91.170	269.150	7047.65	LAST BHI MWD SURVEY
11955.00	91.170	269.150	7047.09	PROJECTION TO BIT