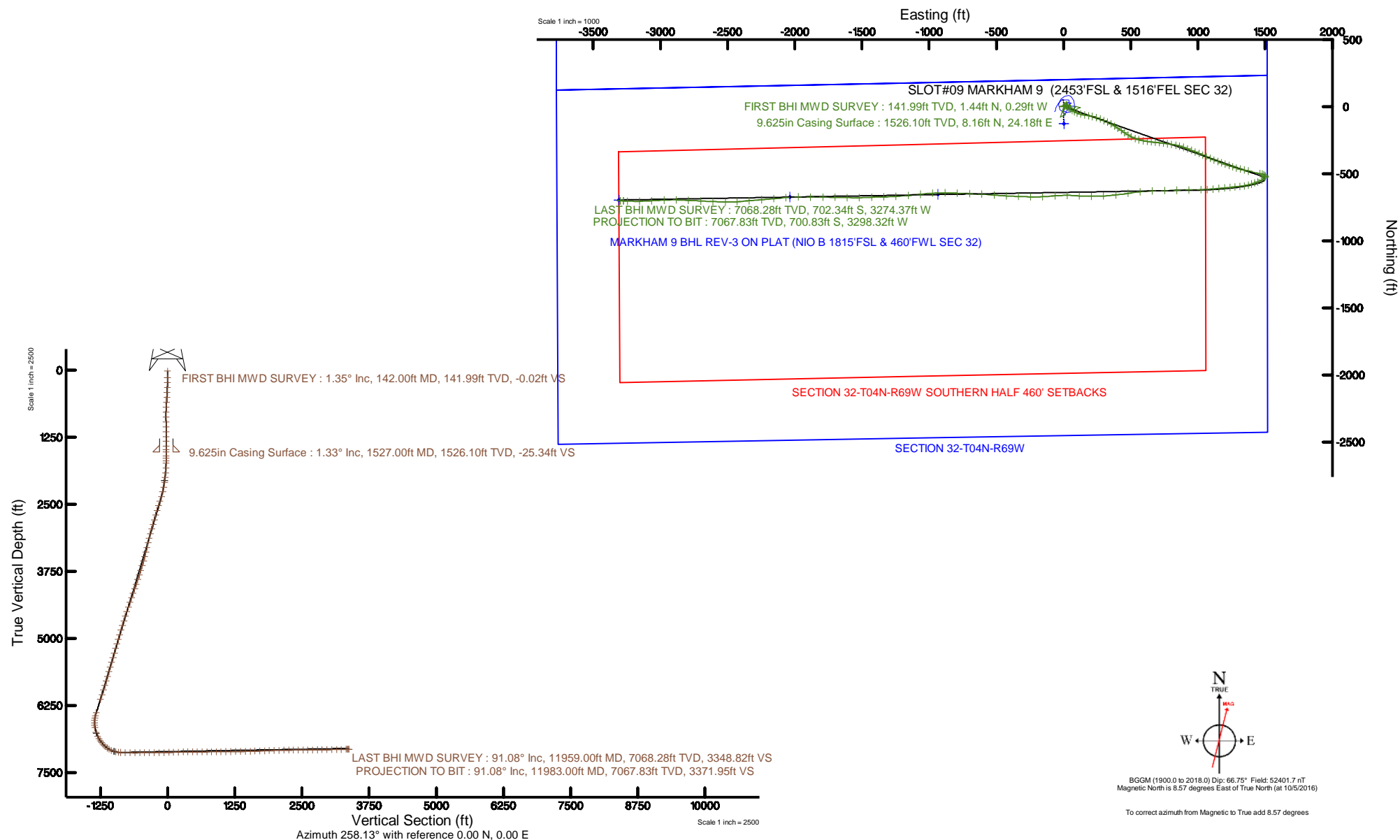


Location:	COLORADO	Slot:	SLOT#09 MARKHAM 9 (2453'FSL & 1516'FEL SEC 32)
Field:	WELD COUNTY (NAD83, TRUE NORTH)	Well:	MARKHAM 9
Facility:	SEC.32-T04N-R68W	Wellbore:	MARKHAM 9 PWB



Plot reference wellpath is MARKHAM 9 REV-C.0 PWP	Grid System: NAD83 / Lambert Colorado SP, Northern Zone (501), US feet
True vertical depths are referenced to XTREME 19 (17) (RKB)	" = Wellpath was transformed from a different geodetic datum
Measured depths are referenced to XTREME 19 (17) (RKB)	North Reference: True north
XTREME 19 (17) (RKB) to Mean Sea Level: 5057 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: SLOT#09 MARKHAM 9 (2453FSL & 1516FEL SEC 32)): 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: bensjancj on 2016-10-13
	Database: WA_DEN_Denver_Defn





# Actual Wellpath Report

MARKHAM 9 AWP

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INTEQ

## REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#09 MARKHAM 9 (2453'FSL & 1516'FEL SEC 32)
Area	COLORADO	Well	MARKHAM 9
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	MARKHAM 9 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	10/13/2016 at 4:16:57 PM
Convergence at slot	0.31° East	Database/Source file	WA_DEN_Denver_Defn/MARKHAM_9_AWP.xml

## WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	127.51	-2.80	3133069.29	1341185.02	40°16'08.292"N	105°01'23.268"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 19 (17') (RKB) to Facility Vertical Datum	5057.00ft
Horizontal Reference Pt	Slot	XTREME 19 (17') (RKB) to Mean Sea Level	5057.00ft
Vertical Reference Pt	XTREME 19 (17') (RKB)	XTREME 19 (17') (RKB) to Mud Line at Slot (SLOT#09 MARKHAM 9 (2453'FSL & 1516'FEL SEC 32))	5057.00ft
MD Reference Pt	XTREME 19 (17') (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	258.13°



# Actual Wellpath Report

MARKHAM 9 AWP

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INTEQ

## REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#09 MARKHAM 9 (2453'FSL & 1516'FEL SEC 32)
Area	COLORADO	Well	MARKHAM 9
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	MARKHAM 9 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	348.790	17.00	0.00	0.00	0.00	40°16'08.292"N	105°01'23.268"W	0.00	
142.00	1.350	348.790	141.99	-0.02	1.44	-0.29	40°16'08.306"N	105°01'23.272"W	1.08	FIRST BHI MWD SURVEY
234.00	1.050	64.610	233.97	-0.85	2.87	0.26	40°16'08.320"N	105°01'23.265"W	1.62	
326.00	2.400	71.960	325.93	-3.58	3.83	2.86	40°16'08.330"N	105°01'23.231"W	1.48	
418.00	2.600	73.320	417.84	-7.58	5.02	6.69	40°16'08.342"N	105°01'23.182"W	0.23	
510.00	3.420	76.090	509.71	-12.40	6.28	11.35	40°16'08.354"N	105°01'23.122"W	0.90	
603.00	4.260	84.570	602.51	-18.60	7.27	17.48	40°16'08.364"N	105°01'23.042"W	1.09	
693.00	3.330	85.790	692.31	-24.52	7.78	23.42	40°16'08.369"N	105°01'22.966"W	1.04	
783.00	1.370	82.150	782.23	-28.18	8.12	27.09	40°16'08.372"N	105°01'22.919"W	2.18	
874.00	0.750	260.540	873.22	-28.67	8.17	27.58	40°16'08.373"N	105°01'22.912"W	2.33	
964.00	1.180	282.690	963.21	-27.24	8.28	26.10	40°16'08.374"N	105°01'22.931"W	0.62	
1056.00	1.200	267.970	1055.19	-25.43	8.45	24.21	40°16'08.376"N	105°01'22.956"W	0.33	
1148.00	0.860	16.370	1147.18	-24.81	9.08	23.44	40°16'08.382"N	105°01'22.966"W	1.83	
1240.00	1.520	2.050	1239.16	-25.43	10.96	23.68	40°16'08.400"N	105°01'22.963"W	0.78	
1329.00	0.250	60.410	1328.15	-25.90	12.24	23.89	40°16'08.413"N	105°01'22.960"W	1.58	
1418.00	1.600	171.520	1417.14	-26.01	11.11	24.24	40°16'08.402"N	105°01'22.955"W	1.92	
1486.00	1.620	184.880	1485.11	-25.67	9.21	24.30	40°16'08.383"N	105°01'22.955"W	0.55	
1600.00	0.840	203.030	1599.08	-24.73	6.83	23.84	40°16'08.360"N	105°01'22.961"W	0.76	
1646.00	1.100	172.900	1645.08	-24.50	6.09	23.76	40°16'08.352"N	105°01'22.962"W	1.22	
1692.00	2.540	148.600	1691.05	-24.81	4.78	24.34	40°16'08.339"N	105°01'22.954"W	3.48	
1737.00	4.010	141.500	1735.98	-25.85	2.70	25.84	40°16'08.319"N	105°01'22.935"W	3.38	
1825.00	5.940	128.180	1823.65	-30.15	-2.53	31.34	40°16'08.267"N	105°01'22.864"W	2.54	
1916.00	7.230	127.800	1914.04	-36.88	-8.95	39.56	40°16'08.204"N	105°01'22.758"W	1.42	
2006.00	9.180	128.670	2003.12	-45.11	-16.91	49.65	40°16'08.125"N	105°01'22.628"W	2.17	
2097.00	11.820	126.010	2092.59	-55.97	-26.92	62.86	40°16'08.026"N	105°01'22.457"W	2.95	
2187.00	14.030	117.730	2180.31	-70.57	-37.42	79.97	40°16'07.922"N	105°01'22.236"W	3.20	
2279.00	15.850	112.220	2269.20	-89.57	-47.36	101.48	40°16'07.824"N	105°01'21.959"W	2.51	
2371.00	18.720	104.970	2357.05	-113.15	-55.93	127.38	40°16'07.739"N	105°01'21.625"W	3.89	
2463.00	19.330	98.900	2444.03	-140.56	-62.10	156.69	40°16'07.678"N	105°01'21.247"W	2.25	
2553.00	18.710	99.310	2529.11	-167.95	-66.74	185.65	40°16'07.632"N	105°01'20.873"W	0.70	
2645.00	19.030	105.550	2616.18	-195.03	-73.15	214.66	40°16'07.569"N	105°01'20.499"W	2.22	
2738.00	19.340	108.950	2704.02	-221.71	-82.21	243.83	40°16'07.480"N	105°01'20.122"W	1.25	
2830.00	18.880	110.340	2790.95	-247.39	-92.33	272.20	40°16'07.380"N	105°01'19.757"W	0.70	
2920.00	19.270	113.410	2876.01	-271.83	-103.30	299.48	40°16'07.271"N	105°01'19.405"W	1.20	
3011.00	19.650	114.440	2961.81	-296.42	-115.59	327.19	40°16'07.150"N	105°01'19.047"W	0.56	
3101.00	19.010	118.850	3046.74	-319.73	-128.93	353.81	40°16'07.018"N	105°01'18.704"W	1.77	
3193.00	19.260	122.330	3133.66	-341.96	-144.27	379.76	40°16'06.866"N	105°01'18.369"W	1.27	
3284.00	18.340	124.590	3219.80	-362.59	-160.43	404.22	40°16'06.707"N	105°01'18.053"W	1.29	
3376.00	19.340	124.530	3306.87	-383.06	-177.28	428.69	40°16'06.540"N	105°01'17.738"W	1.09	
3468.00	19.560	124.110	3393.62	-404.27	-194.55	453.99	40°16'06.369"N	105°01'17.411"W	0.28	
3556.00	19.490	121.220	3476.57	-425.23	-210.42	478.74	40°16'06.213"N	105°01'17.092"W	1.10	
3645.00	19.560	116.660	3560.45	-447.73	-224.80	504.76	40°16'06.070"N	105°01'16.757"W	1.71	
3735.00	19.630	110.300	3645.25	-472.31	-236.81	532.40	40°16'05.952"N	105°01'16.400"W	2.37	
3826.00	19.610	106.170	3730.97	-498.73	-246.37	561.41	40°16'05.857"N	105°01'16.026"W	1.52	
3918.00	19.740	101.080	3817.61	-526.67	-253.65	591.48	40°16'05.785"N	105°01'15.638"W	1.87	



# Actual Wellpath Report

MARKHAM 9 AWP

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INTEQ

## REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#09 MARKHAM 9 (2453'FSL & 1516'FEL SEC 32)
Area	COLORADO	Well	MARKHAM 9
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	MARKHAM 9 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
4010.00	19.560	97.120	3904.25	-555.54	-258.55	622.01	40°16'05.737"N	105°01'15.244"W	1.46	
4102.00	19.150	98.030	3991.05	-584.29	-262.56	652.24	40°16'05.697"N	105°01'14.854"W	0.55	
4192.00	19.740	94.950	4075.92	-612.72	-265.94	682.00	40°16'05.664"N	105°01'14.470"W	1.31	
4281.00	19.910	94.940	4159.65	-641.61	-268.54	712.07	40°16'05.638"N	105°01'14.082"W	0.19	
4370.00	19.870	97.660	4243.34	-670.38	-271.86	742.16	40°16'05.605"N	105°01'13.694"W	1.04	
4462.00	19.730	99.070	4329.90	-699.62	-276.39	772.99	40°16'05.561"N	105°01'13.296"W	0.54	
4554.00	19.870	99.440	4416.46	-728.69	-281.40	803.75	40°16'05.511"N	105°01'12.899"W	0.20	
4646.00	19.880	101.530	4502.98	-757.61	-287.10	834.50	40°16'05.455"N	105°01'12.503"W	0.77	
4736.00	19.910	104.800	4587.61	-785.35	-294.07	864.31	40°16'05.386"N	105°01'12.118"W	1.24	
4827.00	19.950	109.510	4673.17	-812.45	-303.21	893.92	40°16'05.296"N	105°01'11.736"W	1.76	
4919.00	19.920	111.950	4759.66	-838.87	-314.31	923.25	40°16'05.186"N	105°01'11.358"W	0.90	
5011.00	19.350	111.910	4846.31	-864.56	-325.86	951.93	40°16'05.072"N	105°01'10.988"W	0.62	
5102.00	19.550	111.580	4932.12	-889.79	-337.08	980.08	40°16'04.961"N	105°01'10.625"W	0.25	
5194.00	19.550	112.610	5018.81	-915.33	-348.66	1008.60	40°16'04.846"N	105°01'10.257"W	0.37	
5286.00	19.480	114.250	5105.53	-940.41	-360.88	1036.80	40°16'04.726"N	105°01'09.893"W	0.60	
5375.00	19.480	113.750	5189.43	-964.46	-372.95	1063.91	40°16'04.606"N	105°01'09.543"W	0.19	
5466.00	19.440	113.670	5275.23	-989.11	-385.14	1091.67	40°16'04.486"N	105°01'09.185"W	0.05	
5556.00	19.480	112.410	5360.09	-1013.70	-396.88	1119.26	40°16'04.370"N	105°01'08.829"W	0.47	
5648.00	19.560	110.180	5446.81	-1039.43	-408.04	1147.89	40°16'04.260"N	105°01'08.460"W	0.81	
5740.00	18.980	110.080	5533.65	-1065.18	-418.49	1176.40	40°16'04.156"N	105°01'08.092"W	0.63	
5832.00	18.170	110.310	5620.86	-1090.02	-428.60	1203.91	40°16'04.056"N	105°01'07.737"W	0.88	
5924.00	18.270	109.890	5708.25	-1114.42	-438.49	1230.92	40°16'03.959"N	105°01'07.389"W	0.18	
6015.00	19.370	108.630	5794.38	-1139.55	-448.16	1258.63	40°16'03.863"N	105°01'07.031"W	1.29	
6105.00	19.410	107.130	5879.28	-1165.49	-457.34	1287.07	40°16'03.772"N	105°01'06.665"W	0.56	
6195.00	19.630	104.230	5964.11	-1192.15	-465.46	1316.01	40°16'03.692"N	105°01'06.291"W	1.10	
6287.00	19.680	103.450	6050.75	-1220.03	-472.86	1346.06	40°16'03.619"N	105°01'05.904"W	0.29	
6379.00	18.960	104.090	6137.56	-1247.47	-480.10	1375.62	40°16'03.547"N	105°01'05.522"W	0.82	
6641.00	19.860	100.850	6384.68	-1326.79	-498.84	1460.62	40°16'03.362"N	105°01'04.426"W	0.54	
6700.00	17.560	105.960	6440.56	-1343.91	-503.18	1479.02	40°16'03.319"N	105°01'04.188"W	4.78	
6746.00	12.820	118.220	6484.95	-1353.96	-507.50	1490.20	40°16'03.277"N	105°01'04.044"W	12.39	
6791.00	9.560	137.040	6529.10	-1359.71	-512.60	1497.15	40°16'03.226"N	105°01'03.955"W	10.79	
6836.00	7.840	169.660	6573.61	-1361.56	-518.36	1500.25	40°16'03.169"N	105°01'03.915"W	11.43	
6881.00	10.150	201.190	6618.08	-1359.32	-525.08	1499.37	40°16'03.103"N	105°01'03.926"W	11.90	
6926.00	13.410	220.580	6662.15	-1353.01	-532.74	1494.53	40°16'03.027"N	105°01'03.988"W	11.30	
7016.00	18.900	241.940	6748.63	-1330.70	-547.55	1474.85	40°16'02.881"N	105°01'04.242"W	8.90	
7106.00	25.510	249.740	6831.93	-1297.49	-561.14	1443.77	40°16'02.747"N	105°01'04.643"W	8.03	
7152.00	30.460	250.310	6872.54	-1276.12	-568.50	1423.48	40°16'02.674"N	105°01'04.905"W	10.78	
7198.00	34.340	251.620	6911.37	-1251.67	-576.52	1400.18	40°16'02.595"N	105°01'05.206"W	8.57	
7244.00	38.450	255.520	6948.40	-1224.48	-584.19	1374.01	40°16'02.519"N	105°01'05.543"W	10.25	
7290.00	42.940	261.030	6983.27	-1194.52	-590.22	1344.66	40°16'02.459"N	105°01'05.922"W	12.49	
7336.00	48.800	263.810	7015.29	-1161.62	-594.53	1311.95	40°16'02.417"N	105°01'06.344"W	13.46	
7382.00	53.780	264.380	7044.05	-1125.93	-598.22	1276.25	40°16'02.380"N	105°01'06.804"W	10.87	
7427.00	60.220	264.320	7068.55	-1088.43	-601.93	1238.72	40°16'02.344"N	105°01'07.288"W	14.31	
7472.00	66.410	264.560	7088.75	-1048.49	-605.82	1198.72	40°16'02.305"N	105°01'07.804"W	13.76	
7518.00	71.960	264.910	7105.09	-1005.79	-609.76	1155.92	40°16'02.266"N	105°01'08.357"W	12.09	



# Actual Wellpath Report

MARKHAM 9 AWP

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INTEQ

## REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#09 MARKHAM 9 (2453'FSL & 1516'FEL SEC 32)
Area	COLORADO	Well	MARKHAM 9
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	MARKHAM 9 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
7564.00	77.510	264.760	7117.19	-961.74	-613.76	1111.74	40°16'02.227"N	105°01'08.927"W	12.07	
7609.00	83.250	266.370	7124.71	-917.76	-617.18	1067.52	40°16'02.193"N	105°01'09.497"W	13.23	
7655.00	88.150	269.240	7128.16	-872.56	-618.93	1021.70	40°16'02.176"N	105°01'10.088"W	12.34	
7743.00	89.290	268.770	7130.12	-786.17	-620.46	933.74	40°16'02.161"N	105°01'11.223"W	1.40	
7833.00	88.800	267.760	7131.62	-697.58	-623.19	843.80	40°16'02.134"N	105°01'12.383"W	1.25	
7925.00	89.970	268.710	7132.61	-607.02	-626.02	751.85	40°16'02.106"N	105°01'13.569"W	1.64	
8016.00	91.230	268.900	7131.66	-517.60	-627.92	660.87	40°16'02.087"N	105°01'14.743"W	1.40	
8106.00	90.710	263.220	7130.13	-428.51	-634.10	571.14	40°16'02.026"N	105°01'15.900"W	6.34	
8198.00	90.400	261.580	7129.24	-336.77	-646.26	479.95	40°16'01.906"N	105°01'17.077"W	1.81	
8290.00	89.940	263.650	7128.97	-245.06	-658.09	388.72	40°16'01.789"N	105°01'18.253"W	2.30	
8381.00	90.150	266.860	7128.90	-154.77	-665.62	298.05	40°16'01.714"N	105°01'19.423"W	3.54	
8471.00	90.120	269.760	7128.69	-66.20	-668.27	208.09	40°16'01.688"N	105°01'20.584"W	3.22	
8563.00	92.150	274.190	7126.86	23.08	-665.10	116.20	40°16'01.720"N	105°01'21.769"W	5.30	
8652.00	92.310	270.640	7123.40	109.25	-661.35	27.36	40°16'01.757"N	105°01'22.915"W	3.99	
8742.00	91.230	265.070	7120.62	197.88	-664.72	-62.50	40°16'01.723"N	105°01'24.074"W	6.30	
8834.00	90.800	267.310	7118.99	288.95	-670.83	-154.28	40°16'01.663"N	105°01'25.258"W	2.48	
8927.00	90.250	271.040	7118.13	380.21	-672.17	-247.25	40°16'01.650"N	105°01'26.458"W	4.05	
9015.00	90.430	272.420	7117.61	465.74	-669.52	-335.20	40°16'01.676"N	105°01'27.592"W	1.58	
9105.00	90.460	272.820	7116.91	552.87	-665.40	-425.11	40°16'01.717"N	105°01'28.752"W	0.45	
9197.00	90.430	275.140	7116.20	641.37	-659.02	-516.88	40°16'01.780"N	105°01'29.936"W	2.52	
9289.00	90.460	272.330	7115.48	729.96	-653.02	-608.67	40°16'01.839"N	105°01'31.120"W	3.05	
9380.00	90.520	272.650	7114.71	818.12	-649.07	-699.58	40°16'01.878"N	105°01'32.293"W	0.36	
9472.00	90.740	272.260	7113.69	907.25	-645.13	-791.49	40°16'01.917"N	105°01'33.478"W	0.49	
9562.00	90.680	270.690	7112.58	994.81	-642.81	-881.45	40°16'01.940"N	105°01'34.639"W	1.75	
9654.00	90.370	266.390	7111.74	1085.27	-645.16	-973.39	40°16'01.916"N	105°01'35.825"W	4.69	
9747.00	90.650	263.790	7110.91	1177.58	-653.12	-1066.04	40°16'01.838"N	105°01'37.020"W	2.81	
9837.00	90.620	265.190	7109.91	1267.02	-661.76	-1155.62	40°16'01.752"N	105°01'38.176"W	1.56	
9929.00	90.890	266.100	7108.70	1358.22	-668.74	-1247.34	40°16'01.683"N	105°01'39.359"W	1.03	
10021.00	91.600	268.910	7106.70	1448.96	-672.75	-1339.22	40°16'01.644"N	105°01'40.544"W	3.15	
10111.00	91.660	267.460	7104.14	1537.54	-675.60	-1429.14	40°16'01.615"N	105°01'41.704"W	1.61	
10203.00	91.380	268.820	7101.70	1628.10	-678.58	-1521.06	40°16'01.586"N	105°01'42.890"W	1.51	
10293.00	92.220	272.510	7098.87	1715.90	-677.54	-1610.99	40°16'01.596"N	105°01'44.050"W	4.20	
10384.00	92.000	270.400	7095.52	1804.38	-675.23	-1701.89	40°16'01.619"N	105°01'45.223"W	2.33	
10474.00	91.480	269.970	7092.79	1892.36	-674.94	-1791.85	40°16'01.622"N	105°01'46.383"W	0.75	
10566.00	91.600	271.630	7090.31	1982.08	-673.65	-1883.81	40°16'01.634"N	105°01'47.569"W	1.81	
10657.00	91.480	269.730	7087.87	2070.87	-672.58	-1974.76	40°16'01.645"N	105°01'48.743"W	2.09	
10749.00	91.320	264.260	7085.62	2161.71	-677.39	-2066.57	40°16'01.597"N	105°01'49.927"W	5.95	
10841.00	91.380	264.990	7083.45	2253.10	-686.01	-2158.14	40°16'01.512"N	105°01'51.108"W	0.80	
10931.00	91.290	265.450	7081.35	2342.38	-693.51	-2247.81	40°16'01.438"N	105°01'52.265"W	0.52	
11023.00	90.090	264.410	7080.25	2433.73	-701.64	-2339.44	40°16'01.357"N	105°01'53.447"W	1.73	
11112.00	90.000	266.650	7080.18	2521.98	-708.57	-2428.16	40°16'01.289"N	105°01'54.591"W	2.52	
11201.00	90.120	271.060	7080.08	2609.41	-710.35	-2517.12	40°16'01.271"N	105°01'55.739"W	4.96	
11292.00	90.800	272.640	7079.35	2697.80	-707.41	-2608.07	40°16'01.300"N	105°01'56.912"W	1.89	
11384.00	90.800	272.580	7078.07	2786.87	-703.23	-2699.96	40°16'01.341"N	105°01'58.098"W	0.07	
11476.00	90.830	273.350	7076.76	2875.80	-698.47	-2791.83	40°16'01.388"N	105°01'59.283"W	0.84	



# Actual Wellpath Report

MARKHAM 9 AWP

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INTEQ

## REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#09 MARKHAM 9 (2453'FSL & 1516'FEL SEC 32)
Area	COLORADO	Well	MARKHAM 9
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	MARKHAM 9 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
11566.00	90.980	271.080	7075.34	2963.07	-694.99	-2881.74	40°16'01.423"N	105°02'00.443"W	2.53	
11658.00	91.050	266.950	7073.71	3053.39	-696.57	-2973.70	40°16'01.407"N	105°02'01.629"W	4.49	
11750.00	91.010	266.710	7072.05	3144.31	-701.66	-3065.54	40°16'01.356"N	105°02'02.814"W	0.26	
11841.00	91.050	269.030	7070.42	3233.98	-705.04	-3156.46	40°16'01.323"N	105°02'03.986"W	2.55	
11931.00	91.020	272.500	7068.79	3321.77	-703.84	-3246.42	40°16'01.335"N	105°02'05.147"W	3.86	
11959.00	91.080	273.620	7068.28	3348.82	-702.34	-3274.37	40°16'01.349"N	105°02'05.508"W	4.01	LAST BHI MWD SURVEY
11983.00	91.080	273.620	7067.83	3371.95	-700.83	-3298.32	40°16'01.364"N	105°02'05.816"W	0.00	PROJECTION TO BIT

## HOLE & CASING SECTIONS - Ref Wellbore: MARKHAM 9 AWB Ref Wellpath: MARKHAM 9 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	1537.09	0.00	0.00	7.92	24.14
9.625in Casing Surface	17.00	1527.00	1510.00	17.00	1526.10	0.00	0.00	8.16	24.18
8.75in Open Hole	1538.00	11983.00	10445.00	1537.09	7067.83	7.92	24.14	-700.83	-3298.32

## TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
SECTION 32-T04N-R69W	-10.00	-127.51	2.79	3133072.76	1341057.53	40°16'07.032"N	105°01'23.232"W	polygon
MARKHAM 9 BHL REV-3 ON PLAT (NIO B 1815'FSL & 460'FWL SEC 32)	7051.50	-695.60	-3309.76	3129763.47	1340471.66	40°16'01.416"N	105°02'05.964"W	point
SECTION 32-T04N-R69W SOUTHERN HALF 460' SETBACKS	7058.30	-127.51	2.79	3133072.76	1341057.53	40°16'07.032"N	105°01'23.232"W	polygon
MARKHAM 9 BHL REV-2 ON PLAT (NIO B 1815'FSL & 460'FWL SEC 32)	7081.00	-695.60	-3309.76	3129763.47	1340471.66	40°16'01.416"N	105°02'05.964"W	point
MARKHAM 9 BHL REV-1 ON PLAT (NIO B 1815'FSL & 460'FWL SEC 32)	7087.00	-695.60	-3309.76	3129763.47	1340471.66	40°16'01.416"N	105°02'05.964"W	point
MARKHAM 9 WP 2	7089.60	-673.30	-2035.80	3131037.23	1340500.81	40°16'01.638"N	105°01'49.530"W	point
MARKHAM 9 WP 1	7109.40	-654.10	-934.50	3132138.36	1340525.93	40°16'01.828"N	105°01'35.323"W	point

## WELLPATH COMPOSITION - Ref Wellbore: MARKHAM 9 AWB Ref Wellpath: MARKHAM 9 AWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
17.00	1486.00	Custom BHI NaviTrak (Standard Rotating+Axial Corr) (Rockies 0.03Gt model)	BHI NAVITRAK MWD AXIAL ROCKIES GT 13 1/2" <142-1486>	MARKHAM 9 AWB
1486.00	11959.00	BHI AutoTrak Curve (Standard)	BHI ATC MWD, SHORT, ROCKIES GT 8 3/4 MONO <1600-11959>	MARKHAM 9 AWB
11959.00	11983.00	Blind Drilling (std)	Projection to bit	MARKHAM 9 AWB



# Actual Wellpath Report

MARKHAM 9 AWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#09 MARKHAM 9 (2453'FSL & 1516'FEL SEC 32)
Area	COLORADO	Well	MARKHAM 9
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	MARKHAM 9 AWB
Facility	SEC.32-T04N-R68W		

WELLPATH COMMENTS					
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment	
142.00	1.350	348.790	141.99	FIRST BHI MWD SURVEY	
11959.00	91.080	273.620	7068.28	LAST BHI MWD SURVEY	
11983.00	91.080	273.620	7067.83	PROJECTION TO BIT	