

GeoSpark Logger ~ Drill Log

Project: KZK **Hole Number:** K04-199

Prospect:	R15	Hole Type:	DD	Survey Type:	RTK DGPS	Logged By:	Rob Duncan
Grid:	NAD83_Z9	Hole Diameter:	75.7	Survey By:	Challenger_Survey	Date Logging Start:	4/19/2016
UTM Easting	420398.6	Core Size:	NQ	Azimuth:	180	Date Logging Complete:	4/20/2016
UTM Northing:	6813522	Casing Pulled?:		Dip:	-60	Drill Company:	
UTM Elev. (m):	1294.08	Casing Depth (m):		Length (m):	246	Drill Rig:	
Local Easting:		Stored?:	Yes	Claims Title	KZK	Drill Started:	
Local Northing:		Cemented?:		Core Storage Loc.:	KZK Camp	Drill Completed:	
Local Elev. (m):				Hole Completed?:		Purpose:	Exploration
Comments:						Parent Hole:	

Hole tests stratigraphy east of GP4F and north of R15. Altered and pyrite-pyrrhotite mineralized volcanoclastic and inter tuff pelitic sediments occur between 70 and 104 m depth and are thought to be distal horizon equivalents to GP4F. Very little felsic flow rocks and no porphyritic rocks were encountered. The hole entered the lower sedimentary sequence around 17 0m depth before crossing a significant fault that may have 60 m of reverse movement such that felsic units are repeated down hole.

Downhole Surveys:

Depth (m)	Dip	Measured Azimuth	Correction Factor	Corrected Azimuth	Survey Type	Survey By	Survey Date	Mag Field	Accept Values?	Comments
0	-60	180		180	UNKN				<input checked="" type="checkbox"/>	
245.4	-62	184		184	UNKN				<input checked="" type="checkbox"/>	

From (m)	To (m)	Rocktype & Description	From (m)	To (m)	Width	Sample	Au ppm	Ag ppm	Cu %	Pb %	Zn %
0.00	37.50	OVBN Overburden									
37.50	42.40	RHYv Rhyolite volcanoclastic									
37.5 - 42.4: fine lapilli, bt foliation planes, dirty felsic tuff											
<<Vein: 37.6 - 38.1 100% Quartz>>											
<<Struc: 38 - 44 Trace Fault>> broken core											
42.40	43.20	MAFt Mafic Volcaniclastics	green-brown	FMG							
42.4 - 43.2: epiclastic intermediate rock? Alternative would be SED											
<<Alt: 43 - 56 Weak Calcite>>											
43.20	44.10	RHYvi Lapilli tuff									
<<Alt: 44 - 45 Weak Muscovite>>											
<<Alt: 44 - 59.5 Weak Ankerite>> actually porphyroblasts rhomb shapes											

From (m)	To (m)	Rocktype & Description	From (m)	To (m)	Width	Sample	Au ppm	Ag ppm	Cu %	Pb %	Zn %
44.10	44.80	MAFt Mafic Volcaniclastics									
44.1 - 44.8: the MAFi MAFT debate rages on. More likely to be epiclastic, no chilled margins											
44.80	47.30	RHYvl Lapilli tuff									
<<Min: 45 - 48 1% Min: Pyrite>>											
<<Alt: 45 - 51 Weak-Moderate Muscovite>>											
47.30	52.70	RHYv Rhyolite volcaniclastic									
47.3 - 52.7: MU overprint of BI in matrix, pseudofragmental, could be ashy. Sampled,											
<<Min: 48 - 52.7 3% Min: Pyrite>>											
<<Alt: 51 - 59.5 Moderate Muscovite>>											
<<Struc: 51.2 - 51.4 Weak Fault>> broken core and 10cm gouge											
52.70	53.10	MAFi Mafic Intrusions (primarily footwall mafic intrusion)									
52.7 - 53.1: narrow, sharp contacts											
53.10	59.50	RHYvl Lapilli tuff									
53.1 - 59.5: variable lapilli size; 55- 55.6 RHYva or RHYc; biotite variably altered to MU											
<<Min: 53.1 - 58 2% Min: Pyrite>>											
<<Min: 58 - 59.5 4% Min: Pyrite>> associated with calcite bands											
<<Alt: 56 - 59.5 Weak-Moderate Calcite>> associated with py min in felsics!											
<<Alt: 58.5 - 59.3 Moderate Chlorite>> pervasive to banded regions											
<<Struc: 53.3 - 57.7 Trace Fault>> broken and lost core											
59.50	60.00	MAFt Mafic Volcaniclastics									
59.5 - 60: gradational contacts. BI,CL,CA. several 30cm scale units like this interbedded with RHYv/vl. Looks like epiclastic mafic or pelitic sediment between pyroclastic events.											
60.00	61.20	RHYvl Lapilli tuff									
<<Min: 60 - 61.2 1% Min: Pyrite>>											
<<Alt: 60 - 64.3 Weak-Moderate Muscovite>>											
<<Alt: 61 - 62 Weak-Moderate Calcite>>											
61.20	62.00	MAFt Mafic Volcaniclastics									
61.2 - 62: as above											
<<Min: 61.2 - 62 0.5% Min: Pyrrhotite>>											

From (m)	To (m)	Rocktype & Description	From (m)	To (m)	Width	Sample	Au ppm	Ag ppm	Cu %	Pb %	Zn %
62.00	64.30	RHYvl Lapilli tuff <<Min: 62 - 66.4 0.01% Min: Pyrite>>									
64.30	65.50	RHYv Rhyolite volcanoclastic 64.3 - 65.5: MIXTURE of Rhyv/l and PEL/MAFT. <<Alt: 65 - 68 Weak Calcite>>	green-brown								
65.50	66.40	RHYvl Lapilli tuff 65.5 - 66.4: minor 1cm scale bands of BI CL rich PEL/MAFT material									
66.40	67.40	PEL Equigranular biotite + calcite 66.4 - 67.4: biotite quartz rock, pelitic sediment <<Alt: 67 - 72 Weak-Moderate Muscovite>> <<Struc: 67.2 - 67.4 Trace Fault>> broken core	brown								
67.40	79.20	RHYvl Lapilli tuff 67.4 - 79.2: consists of several Lapilli tuff units with RHYva mixed with epiclastic mafic and sedimentary material between Lapilli tuff events. Not broken out. 10% banded by mineralization hosted within some of these mixed sediment/ mafic epiclastic ashy units with moderate CL/MU alteration <<Min: 69 - 71 0.01% Min: Pyrrhotite>> <<Min: 72 - 74 4% Min: Pyrite>> <<Min: 72 - 74 3% Min: Pyrrhotite>> <<Min: 74 - 79.2 0.5% Min: Pyrrhotite>> <<Alt: 72 - 74 Moderate Muscovite>> foliaform bands as well <<Alt: 72 - 74 Moderate Chlorite>> cl/bi parts of sedimentary inter tuff layers altered to CL. <<Alt: 74 - 79.2 Weak Muscovite>> <<Alt: 76 - 77 Weak-Moderate Calcite>>	grey-brown								
79.20	80.70	MAFt Mafic Volcaniclastics 79.2 - 80.7: gradational contacts over 5cm, epiclastic mafic/pelitic sediment. <<Min: 79.2 - 80.7 1% Min: Pyrrhotite>> <<Alt: 79.2 - 80.7 Weak-Moderate Calcite>>	green-brown								

From (m)	To (m)	Rocktype & Description	From (m)	To (m)	Width	Sample	Au ppm	Ag ppm	Cu %	Pb %	Zn %
80.70	90.90	RHYvl Lapilli tuff									
<p>grey-brown</p> <p>80.7 - 90.9: lapilli tuffs with variable bands of lapilli sizes and in frequent decimeter areas with higher biotite (sediment) content. These are also calcareous</p> <p><<Min: 80.7 - 83.5 1% Min: Pyrite>></p> <p><<Min: 85.5 - 87 0.5% Min: Pyrite>></p> <p><<Alt: 80.7 - 90.9 Weak Muscovite>></p> <p><<Alt: 80.7 - 90.9 Trace Calcite>> restricted to BI rich bands</p> <p><<Struc: 83 - 83.5 Trace Fault>> broken rubbled core</p>											
90.90	94.40	PEL Equigranular biotite + calcite									
<p>green-brown FMG</p> <p>+/- quartz rock</p> <p>90.9 - 94.4: intercalated with minor RHYva and RHYv, chl also present, mafic epiclastic component</p> <p><<Min: 90.9 - 94.4 0.01% Min: Pyrite>></p> <p><<Alt: 90.9 - 94.4 Weak Calcite>></p> <p><<Struc: 92 - 99 Trace Fault>> broken core</p>											
94.40	119.30	RHYvl Lapilli tuff									
<p>grey-brown</p> <p>94.4 - 119.3: minor 20cm wide intercalated BI CL CA sedimentary rocks with lapilli component. Inter individual tuff beds?</p> <p><<Min: 97 - 101 0.5% Min: Pyrite>></p> <p><<Min: 97 - 101 0.01% Min: Pyrrhotite>></p> <p><<Min: 101 - 102 4% Min: Pyrite>> and band</p> <p><<Min: 101.2 - 101.3 0.01% Min: Sphalerite>></p> <p><<Min: 102 - 119.3 1% Min: Pyrite>></p> <p><<Min: 102 - 119.3 0.01% Min: Pyrrhotite>></p> <p><<Alt: 94.4 - 101 Weak-Moderate Muscovite>> banded and patchy overprint and OR</p> <p><<Alt: 101 - 102 Weak-Moderate Chlorite>></p> <p><<Alt: 101 - 116 Weak-Moderate Muscovite>></p> <p><<Alt: 116 - 119.3 Weak Muscovite>></p> <p><<Alt: 119.2 - 120.2 Moderate Calcite>> and dis</p>											
119.30	120.20	PEL Equigranular biotite + calcite									
<p>green-brown FMG</p> <p>+/- quartz rock</p> <p>119.3 - 120.2: Bt CA QZ central30cm is RHYvl</p> <p><<Min: 119.3 - 120.2 0.5% Min: Pyrrhotite>></p>											

From (m)	To (m)	Rocktype & Description	From (m)	To (m)	Width	Sample	Au ppm	Ag ppm	Cu %	Pb %	Zn %
120.20	122.80	RHYvl Lapilli tuff 120.2 - 122.8: variable lapilli size with 10cm intercalated sedimentary lapilli bands (epiclastic) <<Alt: 120.2 - 125.3 Weak Muscovite>>									
122.80	123.40	MAFt Mafic Volcaniclastics 122.8 - 123.4: epiclastic mafic rock (tuff)									
123.40	125.30	RHYvl Lapilli tuff <<Min: 125 - 128.3 0.5% Min: Pyrite>>									
125.30	126.80	RHYva Coarse grained to ash tuff 125.3 - 126.8: fine grained, massive, with BI CL meta pelitic epiclastic mafic lower margin over 50cm. Stg calcareous matrix <<Alt: 125.3 - 126.8 Moderate-Strong Calcite>>									
126.80	128.30	RHYvx Quartz and/or feldspar crystal tuff 126.8 - 128.3: lapilli tuff with rare feldspar crystal frags and possible qz. <<Alt: 126.8 - 128.3 Weak Muscovite>>									
128.30	129.10	MAFi Mafic Intrusions (primarily footwall mafic intrusion) 128.3 - 129.1: banded CA BI CL with 5cm BI margins = chill margins <<Alt: 128.3 - 129.1 Moderate-Strong Calcite>>									
129.10	133.70	RHYva Coarse grained to ash tuff 129.1 - 133.7: fine grained ash <<Min: 129.1 - 133.7 0.5% Min: Pyrite>> <<Alt: 129.1 - 133.7 Weak-Moderate Muscovite>> <<Struc: 131.2 - 132.9 Moderate Fault>> gouge and Riedel shear fabrics in remaining rock									
133.70	136.30	PEL Equigranular biotite + calcite +/- quartz rock 133.7 - 136.3: BI CA rock, minor lapilli present @134.9 - 135 <<Alt: 133.7 - 136.3 Moderate-Strong Calcite>> <<Vein: 134.6 - 134.8 100% Quartz>>									

From (m)	To (m)	Rocktype & Description	From (m)	To (m)	Width	Sample	Au ppm	Ag ppm	Cu %	Pb %	Zn %
136.30	138.80	RHYva Coarse grained to ash tuff									
<p>136.3 - 138.8: Really looks like felsic dyke. Siliceous, 10% BI porphyroblasts. However; lower contact is gradational with PEL and upper contact may be silicified over 5cm. Not what a hot rhyolite dyke would do to a calcareous wet sediment. Therefore calling it RHYva</p>											
138.80	140.50	PEL Equigranular biotite + calcite +/- quartz rock									
<p>138.8 - 140.5: as above</p> <p><<Alt: 138.8 - 140.5 Moderate-Strong Calcite>></p> <p><<Vein: 140.3 - 140.5 100% Quartz>></p>											
140.50	158.50	RHYvl Lapilli tuff									
<p>140.5 - 158.5: interbedded with pelitic and mafic epiclastic material. RHYvx @ 142.5 - 142.7, PEL @ 1156.2 - 156.6</p> <p><<Vein: 142.9 - 143.2 100% Calcium carbonate/Carbonate>></p> <p><<Struc: 144.7 - 145.2 Moderate Fault>> gouge with slickensides</p>											
158.50	161.80	PEL Equigranular biotite + calcite +/- quartz rock									
<p>158.5 - 161.8: quartz grains/coarse ash component.</p> <p><<Alt: 159.4 - 161.8 Moderate Calcite>></p> <p><<Vein: 158.8 - 159.1 100% Quartz>></p> <p><<Struc: 158.5 - 171 Weak Fault>> broken core, very localized gouge</p>											
161.80	163.50	RHYv Rhyolite volcaniclastic									
<p>161.8 - 163.5: sparse lapilli if any.</p>											
163.50	166.40	RHYc Rhyolite coherent volcanics									
<p>163.5 - 166.4: very siliceous, with 2% BI porphyroblasts. RHYc or very sil ash tuff</p>											
166.40	168.40	RHYv Rhyolite volcaniclastic									
<p>166.4 - 168.4: as above</p>											
168.40	172.80	PEL Equigranular biotite + calcite +/- quartz rock									
<p>168.4 - 172.8: BI - CL - CA, minor cm scale bands of felsic material. Epiclastic sediment</p> <p><<Min: 170 - 174 0.01% Min: Pyrrhotite>></p>											

From (m)	To (m)	Rocktype & Description	From (m)	To (m)	Width	Sample	Au ppm	Ag ppm	Cu %	Pb %	Zn %
<p><<Alt: 168.4 - 175.9 Moderate Calcite>></p> <p>172.80 174.10 RHYvl Lapilli tuff grey-green</p> <p>172.8 - 174.1: mixture of RHYvl and PEL</p>											
174.10	175.90	PEL Equigranular biotite + calcite +/- quartz rock	green-brown	MG							
<p>174.1 - 175.9: as above, no felsic input here</p>											
175.90	178.80	SEDC calcareous Sediment	medium grey	FMG							
<p>175.9 - 178.8: calcareous siltstone with rare 5cm scale PEL intercalated</p>											
<p><<Alt: 175.9 - 191 Intense Calcite>> NO CA in narrow RHYva sections.</p>											
178.80	179.70	RHYva Coarse grained to ash tuff									
179.70	182.80	SEDC calcareous Sediment	medium grey	FMG							
<p>179.7 - 182.8: as above with minor intercalated RHYva</p>											
182.80	183.40	MAFi Mafic Intrusions (primarily footwall mafic intrusion)	green	MCG							
<p>182.8 - 183.4: chl bt coarse grained. Equigranular</p>											
183.40	186.40	SEDC calcareous Sediment		FMG							
<p>183.4 - 186.4: intercalated with PEL</p>											
186.40	187.60	RHYv Rhyolite volcaniclastic									
187.60	189.90	RHYva Coarse grained to ash tuff		FG							
<p>187.6 - 189.9: rare coarser grained to lapilli</p>											
189.90	191.00	SEDC calcareous Sediment									
<p><<Struc: 190.6 - 191 Trace Fault>> broken core</p>											
191.00	192.00	RHYva Coarse grained to ash tuff									
192.00	199.80	SEDC calcareous Sediment		FMG							
<p>192 - 199.8: minor biotite PEL component</p>											
<p><<Alt: 192 - 208.5 Strong Calcite>></p>											
<p><<Struc: 193.9 - 205 Trace Fault>> broken core</p>											

From (m)	To (m)	Rocktype & Description	From (m)	To (m)	Width	Sample	Au ppm	Ag ppm	Cu %	Pb %	Zn %
199.80	206.00	PEL Equigranular biotite + calcite +/- quartz rock									
199.8 - 206: variable BI content, narrow RHYv intervals and coarser SEDc intercalated											
206.00	208.50	SEDc calcareous Sediment									
206 - 208.5: minor felsic tuff input and PEL											
<<Min: 207 - 208.5 1% Min: Pyrrhotite>>											
<<Vein: 208 - 208.1 100% Quartz 25 deg. >>											
208.50	216.50	RHYvi Lapilli tuff									
208.5 - 216.5: lapilli tuff intercalated intimately with BI - CA PEL											
<<Alt: 208.5 - 223.5 Moderate-Strong Calcite>>											
<<Vein: 210.1 - 210.3 100% Quartz>>											
<<Struc: 216 - 221 Intense Fault>> gouge, brz, shears in gouge											
216.50	221.00	FLZ Fault Zone									
216.5 - 221: gouge and brx gouge of likely felsic material											
221.00	230.00	RHYc Rhyolite coherent volcanics									
221 - 230: siliceous grey RHYc or possible RHYva. Looks very much like units around 158.5m suggesting a reverse movement on faulting and 65m of movement. This is opposite to the regional map											
<<Alt: 223.5 - 230 Weak-Moderate Muscovite>> Fault related?											
<<Struc: 221 - 233 Weak-Moderate Fault>> broken, rubble core, lost recovery											
230.00	232.40	MDS Carbonaceous Mudstone & Tuffaceous Mudstone									
<<Alt: 232 - 233 Moderate Muscovite>> fault related?											
232.40	233.20	RHYv Rhyolite volcanoclastic									
<<Alt: 233 - 235.8 Moderate Calcite>>											
233.20	235.80	MAFi Mafic Intrusions (primarily footwall mafic intrusion)									
233.2 - 235.8: massive fine grained compared to PEL. Sharp contacts but no chill margins											
<<Vein: 234.4 - 234.9 100% Quartz>>											
<<Vein: 235.3 - 235.4 100% Quartz>>											
<<Struc: 235.3 - 238 Strong Fault>> broken core, dust, gouge, lost recovery.											

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Hole Number:
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From (m)	To (m)	Rocktype & Description	From (m)	To (m)	Width	Sample	Au ppm	Ag ppm	Cu %	Pb %	Zn %
235.80	238.10	RHYv Rhyolite volcanoclastic 235.8 - 238.1: in very stg fault zone <<Alt: 235.8 - 238.1 Moderate Muscovite>> fault related									
238.10	241.30	MAFi Mafic Intrusions (primarily brown footwall mafic intrusion) 238.1 - 241.3: as above <<Alt: 238.1 - 241.3 Weak-Moderate Calcite>> <<Vein: 240.4 - 240.7 100% Quartz>> <<Struc: 240.5 - 246 Weak Fault>> broken core poor recovery									
241.30	246.00	RHYvi Lapilli tuff 241.3 - 246: cm scale lapilli. <<Min: 243 - 246 0.01% Min: Pyrite>>									
End of Hole @ 246											