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GeoSpark Logger ~ Drill Log

Project: KZK **Hole Number:** K98-198

Prospect:	GP4F	Hole Type:	DD	Survey Type:	RTK DGPS	Logged By:	Jerome de Pasquale
Grid:	NAD83_Z9	Hole Diameter:	75.7	Survey By:	Challenger_Survey	Date Logging Start:	4/28/2016
UTM Easting	419356.346	Core Size:	NQ	Azimuth:	180	Date Logging Complete:	4/30/2016
UTM Northing:	6813494.928	Casing Pulled?:		Dip:	-64	Drill Company:	
UTM Elev. (m):	1381.6	Casing Depth (m):	12	Length (m):	249	Drill Rig:	
Local Easting:	9350	Stored?:	Yes	Claims Title		Drill Started:	
Local Northing:	3500	Cemented?:		Core Storage Loc.:	KZK Camp	Drill Completed:	
Local Elev. (m):	1381			Hole Completed?:		Purpose:	Exploration
						Parent Hole:	

Comments:

The units logged as mafic dikes contain calcite in matrix and calcite veining but do not show relevant chlorite alteration. They are fin grain unit and most of them could be sedimentary formation. From 133 m to 141 m, significant veins containing QZ/CA/MS/CL/BI/TML are encountered. Similar veins were observed underneath the first mineralized zone. Those veins suggest hydrothermal fluid circulation.

Downhole Surveys:

Depth (m)	Dip	Measured Azimuth	Correction Factor	Corrected Azimuth	Survey Type	Survey By	Survey Date	Mag Field	Accept Values?	Comments
0	-64	180		180	ACID				☑	
20	-64	174		174	ACID				☑	
127	-56	184		184	ACID				☑	
249	-54	180		180	ACID				☑	

From (m)	To (m)	Rocktype & Description	From (m)	To (m)	Width	Sample	Au ppm	Ag ppm	Cu %	Pb %	Zn %

0.00 12.20 OVBN Overburden

12.20 23.25 RHY undifferentiated rhyolite

12.2 - 23.25: Oxidized felsic tuff. 12.20-16.00m: Granular texture

<<Min: 12.2 - 105.8 0.1% Min: Pyrrhotite>> Very rare veinlets.

<<Alt: 12.2 - 62.18 Weak Calcite>>

23.25 39.10 RHYva Coarse grained to ash tuff

23.25 - 39.1: Oxidized felsic tuff. 10 cm of CA/BI rich material at lower contact. Approx 26.30-34.10m: sandy texture with 1mm blue QE

<<Struc: 25.1 - 26.6 Weak-Moderate Fault>> Few gouge, mainly broken zone.

<<Struc: 38 - 41 Weak Fault>> Multiple narrow fault and gouge, 3 to 5 cm wide.

From (m)	To (m)	Rocktype & Description	From (m)	To (m)	Width	Sample	Au ppm	Ag ppm	Cu %	Pb %	Zn %

39.10 41.00 RHYv Rhyolite volcaniclastic

39.1 - 41: Silicic-bands.

41.00 42.70 FLZ Fault Zone

41 - 42.7: Gouge. Oxidized.

<<Alt: 42.5 - 43.5 Weak-Moderate Ankerite>> Speck.

<<Struc: 41 - 42.7 Strong Fault>> Fault gouge, oxidized.

42.70 43.50 RHYv Rhyolite volcaniclastic

43.50 50.20 FLZ Fault Zone

<<Struc: 43.5 - 50.2 Strong Fault>> Fault gouge, oxidized

50.20 53.10 RHYv Rhyolite volcaniclastic

50.2 - 53.1: Silicic-bands.

53.10 55.00 FLZ Fault Zone

<<Struc: 53.1 - 55 Strong Fault>> Fault gouge, oxidized

55.00 56.75 RHYv Rhyolite volcaniclastic

55 - 56.75: Silicic-bands.

56.75 62.18 RHYva Coarse grained to ash tuff

56.75 - 62.18: Sampled for GP4F library. Light grey and brownish BI rich bands interbedded. Few lapilli.

62.18 63.23 PEL Equigranular biotite + calcite +/- quartz rock

62.18 - 63.23: CA/BI

<<Alt: 62.18 - 67.19 Strong Calcite>> Mafic dike

63.23 63.56 RHYvx Quartz and/or feldspar crystal tuff

63.56 67.19 PEL Equigranular biotite + calcite +/- quartz rock

63.56 - 67.19: Mafic dike. CA rich on the edge, fine grained. Coaser in the middle without calcite.

From (m)	To (m)	Rocktype & Description	From (m)	To (m)	Width	Sample	Au ppm	Ag ppm	Cu %	Pb %	Zn %

67.19 78.22 RHYc Rhyolite coherant volcanics

67.19 - 78.22: Sampled for GP4F library. Aphanitic unit fractured, showing stockwork texture. Probably not intrusive. Possibly RHYi?

78.22 79.70 RHY undifferentiated rhyolite

78.22 - 79.7: Silicic-bands.

<<Struc: 78.3 - 80.3 Weak Fault>> Broken zone.

79.70 81.83 RHYc Rhyolite coherant volcanics

79.7 - 81.83: Aphanitic. Massive flow. Possibly RHYi?

81.83 84.56 RHYc Rhyolite coherant volcanics

81.83 - 84.56: SI rich. Few crystals. Banded. Possibly RHYi?

84.56 85.78 PEL Equigranular biotite + calcite +/- quartz rock

84.56 - 85.78: Low CA in vening. BI rich. Could be siltstone (mafic ash).

<<Alt: 84.56 - 85.19 Moderate Calcite>> Mafic dike.

<<Alt: 84.59 - 200 Weak-Moderate Chlorite>> Associated with dike. Some CA/CL/QZ veins up to 5 cm wide.

85.78 94.42 RHYvx Quartz and/or feldspar crystal tuff

85.78 - 94.42: Sampled for GP4F library. Feldspar porphyroblasts. Grey to brownish color. Mid strained. No QE

<<Alt: 85.78 - 94.42 Weak Calcite>>

<<Struc: 91.3 - 92 Moderate Fault>> Broken and sandy gouge.

94.42 99.29 PEL Equigranular biotite + calcite +/- quartz rock

94.42 - 99.29: Sampled for GP4F library. CA/BI rich. Wavy CA veinlets. Sharp upper contact, gradual lower. CL veins associated with CA/QZ/PO/PY.

<<Min: 94.42 - 178 0.1% Min: Pyrite>> Rare. With QZ/CA/CL veining.

<<Alt: 94.42 - 99.29 Strong Calcite>> Mafic dike.

99.29 100.28 RHYva Coarse grained to ash tuff

99.29 - 100.28: Sampled for GP4F library. Mixed with probably mafic material (CA bands/dark)

<<Alt: 99.29 - 133.08 Moderate Calcite>> CL/CA/QZ vein and mafic material.

From (m)	To (m)	Rocktype & Description	From (m)	To (m)	Width	Sample	Au ppm	Ag ppm	Cu %	Pb %	Zn %

100.28 101.35 RHYvl Lapilli tuff

100.28 - 101.35: Mid strain lapilli tuff containing brown biotite. Some CL veinlets.

<<Vein: 100.28 - 114.94 Quarzt-Chlorite-Carbonate>> QZ/CL/CA veins up to 5 cm wide, about 3 per metre.

101.35 106.20 RHYv Rhyolite volcaniclastic

101.35 - 106.2: Maybe some feldspar crystals.

<<Min: 105.8 - 197.54 0.5% Min: Pyrrhotite>> And disseminated.

106.20 107.60 RHYvl Lapilli tuff

106.2 - 107.6: very few QZ eyes.

107.60 107.88 PEL Equigranular biotite + calcite +/- quartz rock

107.6 - 107.88: Crosscut by QZ vein/CA rich. Bands of Chlorite & biotite

107.88 108.12 RHYvl Lapilli tuff

108.12 109.82 PEL Equigranular biotite + calcite +/- quartz rock

108.12 - 109.82: QZ/TML in vein. CA/CL banded. QZ/CA/CL/PO associated.

109.82 116.32 RHYv Rhyolite volcaniclastic

109.82 - 116.32: Mixed with mafic material. (CA/CL bands). Maybe xtl. Locally lapillitic. Minor PEL-biotite bands.

116.32 117.05 RHYvl Lapilli tuff

116.32 - 117.05: High strain.

117.05 117.44 PEL Equigranular biotite + calcite +/- quartz rock

117.05 - 117.44: Wavy CA vein/veinlet.

117.44 120.87 RHYvl Lapilli tuff

117.44 - 120.87: Mid strain. Maybe few xtl.

120.87 124.49 RHYv Rhyolite volcaniclastic

From (m)	To (m)	Rocktype & Description	From (m)	To (m)	Width	Sample	Au ppm	Ag ppm	Cu %	Pb %	Zn %

124.49 125.52 PEL Equigranular biotite + calcite +/- quartz rock

124.49 - 125.52: QZ and CL/CA veining.Minor biotite bands with py-po.

125.52 130.10 RHYv Rhyolite volcaniclastic

125.52 - 130.1: Few QZ eyes.

130.10 134.08 RHYvl Lapilli tuff

130.1 - 134.08: dirty' biotite bands +/-py-po. 130.10-141.95m: mixed PEL-RHY package, locally PEL has minor bands of chlorite.

<<Alt: 133.08 - 141.95 Strong Calcite>>

<<Alt: 133.08 - 141.95 Moderate Biotite>> Well developed in vein.

<<Alt: 133.08 - 141.98 Moderate-Strong Chlorite>> CL/Sericite/CA/QZ/TML vein over 30 percent of the unit.

134.08 135.23 PEL Equigranular biotite + calcite +/- quartz rock

134.08 - 135.23: Sampled for GP4F library sampled for GP4F library. Fine grain. CA rich. Crosscut by CA/TML/QZ/Sericite veins, wavy. Sharp upper contact. Lower contact fading out over 50 cm. Speck of TML..

<<Vein: 134.09 - 141.95 Quarzt-Tourmaline-Chlorite>> CA/MS/QZ/CL/TML veins representing 30 to 50 percent of the unit. Crosscut the mafic unit and sheared in the foliation suggesting a late event. Hydrothermal fluid, could be related to mineralization.

135.23 136.32 RHY undifferentiated rhyolite

135.23 - 136.32: Few QZ eyes.. Brownish color.

136.32 139.70 PEL Equigranular biotite + calcite +/- quartz rock

136.32 - 139.7: Beds TML rich. Crosscut by wavy Sericite/QZ./CA.

139.70 140.51 RHYv Rhyolite volcaniclastic

140.51 141.95 PEL Equigranular biotite + calcite +/- quartz rock

140.51 - 141.95: Speck of TML aggregated in bands.

141.95 148.61 RHYv Rhyolite volcaniclastic

141.95 - 148.61: Possibly xtl ghost.

From (m)	To (m)	Rocktype & Description	From (m)	To (m)	Width	Sample	Au ppm	Ag ppm	Cu %	Pb %	Zn %

<<Alt: 141.95 - 148.81 Weak Calcite>>

148.61 153.72 PEL Equigranular biotite + calcite +/- quartz rock

148.61 - 153.72: TML speck aggregated in bands. Sericite/CL/CA veins. CA rich.

<<Alt: 148.81 - 153.72 Moderate-Strong Calcite>> And banded.

<<Alt: 150.5 - 153.13 Moderate Chlorite>> CL/Sericite/CA/QZ/TML veins over 10 percent of the unit.

<<Vein: 150.5 - 153.13 Quarzt-Tourmaline-Chlorite>> Ca/Q/Z/MS and concordant calcite veining.

<<Struc: 153.4 - 153.5 Weak Fault>> Minor fault gouge.

153.72 155.56 RHYva Coarse grained to ash tuff

153.72 - 155.56: Less biotite than above unit

<<Alt: 153.72 - 160.68 Weak-Moderate Calcite>>

155.56 160.68 RHYv Rhyolite volcaniclastic

155.56 - 160.68: Maybe some xtl. Granular texture.

160.68 163.28 PEL Equigranular biotite + calcite +/- quartz rock

160.68 - 163.28: CA rich. TML Speck aggregated. CA vening. Wavy CA/QZ/Sericite veins.

<<Alt: 160.68 - 163.28 Moderate-Strong Calcite>>

163.28 174.59 RHYv Rhyolite volcaniclastic

163.28 - 174.59: Feldspar Xtl ghost. Brownish color. TML specks.

<<Alt: 163.28 - 197.34 Weak-Moderate Calcite>>

174.59 176.75 RHYv Rhyolite volcaniclastic

174.59 - 176.75: Feldspar Xtl aggregated over 50 cm every metre. TML locally.

176.75 177.30 PEL Equigranular biotite + calcite +/- quartz rock

176.75 - 177.3: CA rich, banded.

177.30 179.65 RHYvx Quartz and/or feldspar crystal tuff

177.3 - 179.65: Some PO rich bands over 50 cm. Minor feldspar crystals

From (m)	To (m)	Rocktype & Description	From (m)	To (m)	Width	Sample	Au ppm	Ag ppm	Cu %	Pb %	Zn %

<<Min: 178 - 197.54 0.5% Min: Pyrite>>

179.65 191.43 RHY undifferentiated rhyolite

179.65 - 191.43: Few xtl. Power part of the unit altered muscovite. QZ vein. Some CA rich beds. Few thin PEL-biotite bands

<<Alt: 185 - 191.2 Moderate-Strong Muscovite>>

<<Struc: 180.35 - 180.55 Weak Fault>> Minor fault gouge.

<<Struc: 186.6 - 187.8 Moderate Fault>> Fault gouge over 30 cm.

191.43 192.20 RHY undifferentiated rhyolite

191.43 - 192.2: CL alteration. Garnet. Foliated.

<<Alt: 191.43 - 192.2 Moderate Garnet>>

<<Alt: 191.43 - 203.73 Moderate Chlorite>>

192.20 192.86 RHY undifferentiated rhyolite

192.2 - 192.86: No garnet. Abundant QE, top of blue QE hanging wall unit.

192.86 193.81 RHY undifferentiated rhyolite

192.86 - 193.81: Mafic on the edge of the unit (193.63-193.81m), CA rich.

193.81 197.34 RHY undifferentiated rhyolite

193.81 - 197.34: Sampled for GP4F library. Altered CL. Garnet. Heterogeneous QE size. Moderate biotite ('dirty' unit').

<<Alt: 196.63 - 197.24 Weak-Moderate Garnet>>

197.34 198.19 PEL Equigranular biotite + calcite +/- quartz rock

197.34 - 198.19: CA beds.

<<Min: 197.54 - 203.5 2% Min: Sphalerite>>

<<Min: 197.54 - 203.5 1% Min: Pyrite>>

<<Min: 197.54 - 203.5 2% Min: Pyrrhotite>>

<<Alt: 197.34 - 205.6 Moderate-Strong Calcite>>

198.19 199.00 RHY undifferentiated rhyolite

198.19 - 199: Mineralized SP/PY/POO/GL. PO/SP stringers.

199.00 201.90 RHY undifferentiated rhyolite

199 - 201.9: Weakly mineralized.

From (m)	To (m)	Rocktype & Description	From (m)	To (m)	Width	Sample	Au ppm	Ag ppm	Cu %	Pb %	Zn %

201.90 203.50 PEL Equigranular biotite + calcite +/- quartz rock

201.9 - 203.5: Weak OJ type chlorite alteration

203.50 206.50 OI Heavilly disseminated sulphides in host schist

203.5 - 206.5: Probably felsic tuff. PO/PY/SP/GL. Mix of of OI and OJ Chlorite type alteration. Few garnet.

<<Min: 203.5 - 205.9 3% Min: Pyrite>>
<<Min: 203.5 - 206.9 5% Min: Sphalerite>>
<<Min: 203.5 - 206.9 5% Min: Pyrrhotite>>
<<Min: 203.5 - 206.9 0.5% Min: Galena>>
<<Min: 203.5 - 212.7 0.1% Min: Pyrite>>
<<Min: 203.5 - 212.7 0.1% Min: Pyrrhotite>>
<<Alt: 203.73 - 205.5 Moderate-Strong Chlorite>>
<<Alt: 205.6 - 220.64 Weak-Moderate Calcite>>

206.50 206.95 PEL Equigranular biotite + calcite +/- quartz rock

<<Alt: 206.9 - 219.23 Moderate-Strong Muscovite>>

206.95 213.40 RHY undifferentiated rhyolite

206.95 - 213.4: Silicic-bands.

<<Min: 212.7 - 215.5 3% Min: Sphalerite>>
<<Min: 212.7 - 215.5 1% Min: Pyrite>>
<<Min: 212.7 - 215.5 5% Min: Pyrrhotite>>
<<Struc: 207 - 218.92 Moderate-Strong Fault>> Large broken zone including fault gouge over 50 cm.

213.40 215.50 PEL Equigranular biotite + calcite +/- quartz rock

213.4 - 215.5: bleached PEL - RHY

215.50 218.00 FLZ Fault Zone

215.5 - 218: Core loss and fault gouge.

<<Min: 215.5 - 234 0.1% Min: Pyrite>>
<<Min: 215.5 - 234 0.1% Min: Pyrrhotite>>

From (m)	To (m)	Rocktype & Description	From (m)	To (m)	Width	Sample	Au ppm	Ag ppm	Cu %	Pb %	Zn %

218.00 219.23 RHY undifferentiated rhyolite

219.23 219.52 PEL Equigranular biotite + calcite +/- quartz rock

219.23 - 219.52: Sampled for GP4F library. Contains QZ. Andesitic or siltstone.

219.52 220.64 RHYvx Quartz and/or feldspar crystal tuff

219.52 - 220.64: Few xtl. Mid strain. Top of footwall blue QE unit.

220.64 221.40 PEL Equigranular biotite + calcite +/- quartz rock

220.64 - 221.4: CA. Thin foliation. QZ vein at upper contact.

<<Alt: 220.64 - 221.4 Strong Calcite>>

221.40 225.40 RHYv Rhyolite volcaniclastic

221.4 - 225.4: Sampled for GP4F library. CL/Sericite vein at contacts.

<<Alt: 221.4 - 225.6 Weak Calcite>>

225.40 225.97 PEL Equigranular biotite + calcite +/- quartz rock

225.4 - 225.97: 30 cm CL/CA/QZ/sericite vein at upper contact. Same composition, 5cn at lower contact.

<<Alt: 225.6 - 226.94 Moderate-Strong Calcite>>

<<Vein: 225.6 - 226.94 Quarzt-Tourmaline-Chlorite>> QZ/MS/CA/BI/TML hydrothermal veins at contact between each unit.

225.97 226.24 RHYv Rhyolite volcaniclastic

225.97 - 226.24: CL/Sericite vein at lower contact.

226.24 226.91 PEL Equigranular biotite + calcite +/- quartz rock

226.24 - 226.91: CL/TML/Sericite vein at contacts.

226.91 229.43 RHYcf Feldspar & feldspar quartz porphyry

226.91 - 229.43: Locally large rounded clasts (0.5cm), low strained. Bottom of footwall blue QE unit

<<Alt: 226.94 - 240.42 Moderate Calcite>>

From (m)	To (m)	Rocktype & Description	From (m)	To (m)	Width	Sample	Au ppm	Ag ppm	Cu %	Pb %	Zn %

229.43 232.00 RHYv Rhyolite volcaniclastic

229.43 - 232: Foliated. Muscovite altered. Weakly sheared over 20 cm.

<<Alt: 229.68 - 234 Moderate-Strong Muscovite>>

<<Struc: 229.43 - 236.4 Moderate-Strong Fault>> Large broken zone including 2 fault gouges over 40 cm each. MU alteration.

232.00 233.60 FLZ Fault Zone

232 - 233.6: Fault gouge, high schistosity.

233.60 238.40 RHYv Rhyolite volcaniclastic

233.6 - 238.4: Weak CL alteration.

<<Min: 234 - 240.12 2% Min: Sphalerite>>

<<Min: 234 - 240.12 1% Min: Pyrite>>

<<Min: 234 - 240.12 3% Min: Pyrrhotite>>

<<Min: 234 - 240.12 0.1% Min: Galena>>

<<Alt: 234 - 238.4 Moderate Chlorite>>

238.40 240.42 OI Heavilly disseminated sulphides in host schist

238.4 - 240.42: Mineralized SP/PO stringers under 20 percent. Altered CL. Foliated. Few garnet. Light green sericite banded, TML bands. PO, maybe some AS.

<<Min: 240.12 - 248.23 3% Min: Pyrrhotite>>

<<Alt: 238.4 - 240.42 Strong Chlorite>>

<<Alt: 238.7 - 239.1 Weak-Moderate Garnet>>

240.42 243.45 PEL Equigranular biotite + calcite +/- quartz rock

240.42 - 243.45: Could be sedimentary. Two differentes texture. CA veining on the upper part, fine grain homogeneous downhole.

<<Min: 242.12 - 248.23 0.5% Min: Sphalerite>>

<<Min: 242.12 - 248.23 3% Min: Pyrite>>

<<Alt: 240.42 - 242.9 Strong Calcite>>

<<Alt: 242.9 - 248.23 Moderate Calcite>>

<<Struc: 243.25 - 243.35 Weak Fault>> Minor fault gouge.

From (m)	To (m)	Rocktype & Description	From (m)	To (m)	Width	Sample	Au ppm	Ag ppm	Cu %	Pb %	Zn %

243.45 244.76 RHYc Rhyolite coherant volcanics

243.45 - 244.76: Mixed with RHYva. Large glassy bands, aphanitic.

244.76 248.23 OJ Heavilly disseminated sulphides and/or stringer style mineralization in proximal altered rock

244.76 - 248.23: Texture obscured by OJ type alteration. Chlorite - biotite bands and weak mineralizaiton.

<<Alt: 244.95 - 246.4 Intense Chlorite>>

<<Alt: 247.2 - 247.6 Strong Chlorite>>

248.23 249.00 PEL Equigranular biotite + calcite +/- quartz rock

248.23 - 249: CA veining. Thin foliation. BI/CA. E.O.H.

<<Alt: 248.23 - 249 Strong Calcite>>

End of Hole @ 249