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GeoSpark Logger ~ Drill Log

Project: KZK **Hole Number:** K98-193

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:	5/3/2016
UTM Easting	419460.697	Core Size:	NQ	Azimuth:	175	Date Logging Complete:	5/5/2016
UTM Northing:	6813401.237	Casing Pulled?:	No	Dip:	-59	Drill Company:	
UTM Elev. (m):	1357.991	Casing Depth (m):	9	Length (m):	199.9	Drill Rig:	
Local Easting:	9450	Stored?:	Yes	Claims Title		Drill Started:	7/17/1998
Local Northing:	3275	Cemented?:		Core Storage Loc.:	KZK Camp	Drill Completed:	7/20/1998
Local Elev. (m):	1358			Hole Completed?:		Purpose:	Resource Definition
						Parent Hole:	

Comments:

Note: the UTM coordinates come from Challenger's survey. They do not match with the coordinate written on the Cominco document (Easting: 419553/Northing: 6813219/Elevation: 1392m-NAD27(?)). In the mineralization zone, the depth are from the Cominco log (mineralization and alteration sections). Accurate measurements were not possible due to core deterioration. In order to be consistent, most of the BI/CA rich units have been logged as MAFi. This has to be consider carefully. Below the "rhyolite dome unit", many of the upper contacts are sharp whereas the lower contacts are more often. Abundant tourmaline is observed at depth as well as QZ/CA/CL/BI/TML/maybe fuchsite (and a light green fibrous mineral) veins, discordant and crenulated along the foliation. This elements may be related to mineralization. Garnet is observed until E.O.H.

Downhole Surveys:

Depth (m)	Dip	Measured Azimuth	Correction Factor	Corrected Azimuth	Survey Type	Survey By	Survey Date	Mag Field	Accept Values?	Comments
0	-59	175		175	ACID				☑	

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

0.00 9.10 OVBN Overburden

9.10 12.50 SED undifferentiated Sediment

9.1 - 12.5: Could be overburden still. Very heterogeneous rocks.

<<Min: 9.1 - 115.81 0.1% Min: Pyrite>>

<<Min: 9.1 - 115.81 0.1% Min: Pyrrhotite>>

<<Alt: 9.1 - 30 Moderate Calcite>> In vein and veinlet, including QZ/CA/BI/MS?CL veinlet set.

12.50 18.35 SED undifferentiated Sediment

12.5 - 18.35: Granular, brownish, siliceous unit, medium to coarse grain, blurry texture.

18.35 21.55 SED undifferentiated Sediment

18.35 - 21.55: Few quartz eyes. Coarse grain, blurry texture, granular, siliceous, whitish. Could be meta sandstone.

<<Struc: 21.05 - 21.5 Weak Fault>>

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

21.55 24.57 SED undifferentiated Sediment

21.55 - 24.57: Few quartz eyes. Brownish, granular, coarse grain.

24.57 29.90 SED undifferentiated Sediment

24.57 - 29.9: Brownish, medium to coarse grain. Some MS/QZ/CA/BI/few PO vein/veinlets. Veinlet primary discordant and sheared within the foliation, becoming progressively opened fractures going downhole.

<<Vein: 25.6 - 30 Quarzt-Chlorite-Carbonate>> CA/QZ/BI/MS/CL/TML vein set.

<<Struc: 28.3 - 30 Moderate Fault>>

29.90 31.75 SED undifferentiated Sediment

29.9 - 31.75: Sampled for GP4F library. Bluish, coarse grain. Meta sandstone.

<<Alt: 30 - 40.5 Trace Calcite>>

31.75 32.94 SED undifferentiated Sediment

31.75 - 32.94: Whitish, granular, siliceous. Quartzite (/).

32.94 40.50 RHYc Rhyolite coherant volcanics

32.94 - 40.5: Sampled for GP4F library. Blurry texture, coarse grain, brownish/beige, locally weakly foliated.

40.50 41.15 PEL Equigranular biotite + calcite +/- quartz rock

40.5 - 41.15: Homogeneous, black, fine grain, weakly foliated. BI/CA/feldspar.

<<Alt: 40.5 - 41.15 Moderate-Strong Calcite>>

41.15 74.10 RHYc Rhyolite coherant volcanics

41.15 - 74.1: Few quartz eyes. Beige/brownish, coarse grain. Fractured filled QZ/BI. Locally "spider" texture

<<Alt: 41.15 - 66.5 Trace Calcite>>

<<Alt: 54 - 79.6 Moderate-Strong Silicification>>

<<Alt: 66.5 - 79.7 Weak-Moderate Calcite>> In fracture.

<<Struc: 48.2 - 49.68 Weak Fault>> Core loss. Sandy material over 20cm in the box. No evidence of fault or shearing.

<<Struc: 73.5 - 74.1 Weak-Moderate Fault>> Multiple narrow faults, minor.

74.10 79.60 RHYc Rhyolite coherant volcanics

74.1 - 79.6: Siliceous, fractured, stockwork texture increasing downhole. BI/QZ in groundmass showing granular texture.

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

79.60 82.09 RHYc Rhyolite coherant volcanics

79.6 - 82.09: Sampled for GP4F library. Could be logged as RHYi. Aphanitic texture. Probably rhyolitic flow dome. QZ/BI in fracture.

<<Alt: 79.6 - 87.4 Strong Silicification>>

<<Alt: 79.7 - 89.27 Trace Calcite>>

82.09 82.60 PEL Equigranular biotite + calcite +/- quartz rock

82.09 - 82.6: Black, fine grain,

82.60 87.40 RHYc Rhyolite coherant volcanics

82.6 - 87.4: Siliceous, fractured, whitish.

87.40 89.20 RHYc Rhyolite coherant volcanics

87.4 - 89.2: Strongly fractured, BI in fracture, siliceous, Locally granular texture. Disaggregated at lower contact.

<<Alt: 87.4 - 92.6 Moderate Silicification>>

89.20 90.20 PEL Equigranular biotite + calcite +/- quartz rock

89.2 - 90.2: Black, fine grain, CA in groundmass, sharp upper contact, progressive lower contact. The unit is relatively homogeneous and does not show RHY clasts suggesting dike but possibly sedimentary.

<<Alt: 89.27 - 90.2 Strong Calcite>>

90.20 92.50 RHYc Rhyolite coherant volcanics

90.2 - 92.5: Disaggregated RHYc, mixed with dark material. The foliation progressively increases downhole . Black material could be intrusive as well as sedimentary. Some beds seems to crosscut the primary fracturation. Could be RHYc massive flow collapsing in unconso

<<Alt: 90.2 - 93.7 Weak Calcite>>

92.50 93.12 PEL Equigranular biotite + calcite +/- quartz rock

92.5 - 93.12: CA veining, fine grain BI, sharp contacts, thin foliation.

93.12 93.70 RHYc Rhyolite coherant volcanics

93.12 - 93.7: Short interval on top of the larger porphyritic unit. Could be the result of a strong shearing.

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

93.70 105.51 RHYvx Quartz and/or feldspar crystal tuff

93.7 - 105.51: Low to medium strain (could be logged as RHYcq). 80 percent of the core are missing from 99.00 to 103.70, sample by Piercey.

<<Alt: 93.7 - 114.66 Trace Calcite>>

<<Struc: 105.5 - 105.88 Strong Foliation>> Shearing within the foliation, very strong schistosity and rapid change within a short interval.

105.51 105.88 RHY undifferentiated rhyolite

105.51 - 105.88: High strain, foliation/schistosity very strong, shearing. Could be RHYcf.

105.88 107.00 RHYvx Quartz and/or feldspar crystal tuff

105.88 - 107: Small xtl, BI content increases with the strain.

107.00 110.38 RHYvx Quartz and/or feldspar crystal tuff

107 - 110.38: High strain, xtl still visible. BI increases/porphyroblasts appear. Granular texture in groundmass could be ghost xtl.

110.38 110.39 FLZ Fault Zone

110.38 - 110.39: Note: according to the Cominco log (core missing and fault). No evidence of fault in the box, just core missing (no gouge, no shearing).

110.39 116.27 PEL Equigranular biotite + calcite +/- quartz rock

110.39 - 116.27: Black, fine grain FI/feldspar, thin foliation, CA veining parallel to the foliation. Speck of tourmaline, QZ/BI/MS/CL vein at contact.

<<Min: 115.81 - 116.52 0.5% Min: Pyrite>>

<<Min: 115.81 - 160.36 0.5% Min: Pyrrhotite>>

<<Alt: 114.66 - 119.15 Weak-Moderate Calcite>> In mafic (sedimentary) unit and veining.

<<Vein: 115.21 - 116.2 Quarzt-Chlorite-Carbonate>> CA/QZ/BI/MS/CL/TML vein set.

116.27 118.48 RHYvx Quartz and/or feldspar crystal tuff

116.27 - 118.48: Very few blue quartz eyes. This unit could be RHYcf. Progressive lower and upper contact.

<<Min: 116.52 - 117.52 1% Min: Pyrite>>

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

<<Min: 117.52 - 142 0.5% Min: Pyrite>>

118.48 119.08 PEL Equigranular biotite + calcite +/- quartz rock

118.48 - 119.08: Black, fine grain, BI/feldspar, speck of tourmaline, veining.

<<Vein: 118.48 - 129.34 Quarzt-Chlorite-Carbonate>> CA/QZ/BI/MS/CL/TML vein set.

119.08 119.27 RHY undifferentiated rhyolite

119.08 - 119.27: Interbedded in mafic dikes.

<<Alt: 119.15 - 126.51 Trace Calcite>>

119.27 120.35 MAFi Mafic Intrusions (primarily footwall mafic intrusion)

119.27 - 120.35: Black, fine grain, BI/feldspar, speck of tourmaline, veining.

120.35 128.90 RHYv Rhyolite volcaniclastic

120.35 - 128.9: Mixed with black material from 126.21 to 128.90. From 120.50 to 121.60, QZ vein. TML speck abundant, aggregated. Foliated.

<<Alt: 126.51 - 141 Moderate Calcite>> In mafic (sedimentary) unit and veining.

128.90 129.80 FLZ Fault Zone

128.9 - 129.8: Sheared and fault gouge.

<<Vein: 128.9 - 135 Quarzt-Chlorite-Carbonate>> CA/QZ/BI/MS/CL/TML vein set. Possibly some fuchsite. Well developed from 130.72 to 130.92m.

<<Struc: 128.9 - 129.8 Moderate Fault>> Sandy fault gouge, broken vein or shearing.

129.80 130.10 PEL Equigranular biotite + calcite +/- quartz rock

129.8 - 130.1: QZ/BI/MS/CL vein.

<<Struc: 130 - 135 Weak Fault>> Large broken zone. No gouge and shearing. Could be the result of drilling issues.

130.10 135.00 PEL Equigranular biotite + calcite +/- quartz rock

130.1 - 135: Core missing (poor recovery or block error). Large QZ/MS/CA/TML/BI vein (maybe fuchsite and a light green fibrous mineral). TML specks. Fine grain BI.

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

135.00 137.30 RHYv Rhyolite volcaniclastic

135 - 137.3: Broken zone. Maybe some xtl.

137.30 137.67 PEL Equigranular biotite + calcite +/- quartz rock

137.3 - 137.67: PY veinlet at upper contact. Fine grain BI.

137.67 150.00 RHYv Rhyolite volcaniclastic

137.67 - 150: MU altered. PY veinlets (stringers (?)). Broken zone, poor recovery.

<<Min: 142 - 160.36 1% Min: Pyrite>>

<<Alt: 137.67 - 179.1 Moderate-Strong Muscovite>>

<<Alt: 141 - 174.4 Weak-Moderate Calcite>>

150.00 150.40 PEL Equigranular biotite + calcite +/- quartz rock

150 - 150.4: CA/BI.

150.40 160.36 RHY undifferentiated rhyolite

150.4 - 160.36: Crosscut by narrow mafic dike or sediment unit. BI bands locally.

160.36 162.40 RHY undifferentiated rhyolite

160.36 - 162.4: Some BI rich bands.

<<Min: 160.36 - 173.9 0.1% Min: Sphalerite>>

<<Min: 160.36 - 173.9 3% Min: Pyrite>>

<<Min: 160.36 - 173.9 1% Min: Pyrrhotite>>

162.40 168.04 PEL Equigranular biotite + calcite +/- quartz rock

162.4 - 168.04: Or sediments.

<<Vein: 167.06 - 167.4 Quartz>> QZ vein and QZ/BI/CL/TML vein.

<<Struc: 165 - 165.4 Moderate-Strong Fault>> Fault gouge.

168.04 173.90 RHYcf Feldspar & feldspar quartz porphyry

168.04 - 173.9: Mid strain. Locally no feldspar, and BI bands.

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

<<Struc: 171 - 171.4 Moderate Fault>> Fault gouge.

173.90 174.40 OJ **Heavilly disseminated sulphides and/or stringer style mineralization in proximal altered rock**

173.9 - 174.4: Proximal alteration. Cordierite/chlorite.

<<Min: 173.9 - 174.9 5% Min: Sphalerite>>
<<Min: 173.9 - 174.9 5% Min: Pyrite>>
<<Min: 173.9 - 174.9 2% Min: Pyrrhotite>>
<<Min: 173.9 - 174.9 0.5% Min: Chalcopyrite>>
<<Alt: 173.9 - 174.4 Weak-Moderate Garnet>>
<<Alt: 173.9 - 174.4 Moderate-Strong Chlorite>>
<<Alt: 173.9 - 174.4 Weak-Moderate Cordierite>> Aggregated.

174.40 174.90 OI **Heavilly disseminated sulphides in host schist**

174.4 - 174.9: Rhyolite hosted.

<<Alt: 174.4 - 179.1 Moderate Calcite>>

174.90 175.50 OB **Wispy laminar, fine buckshot textured, massive sulphide with lesser magnetite**

174.9 - 175.5: Semi massive, buckshot texture. Medium grain pyrite.

<<Min: 174.9 - 179.1 10% Min: Sphalerite>>
<<Min: 174.9 - 179.1 60% Min: Pyrite>>
<<Min: 174.9 - 179.1 3% Min: Pyrrhotite>>
<<Min: 174.9 - 179.1 2% Min: Magnetite>>
<<Min: 174.9 - 179.1 3% Min: Galena>>
<<Min: 174.9 - 179.1 0.5% Min: Chalcopyrite>>
<<Alt: 174.9 - 175.5 Moderate Garnet>>
<<Alt: 174.9 - 175.5 Moderate-Strong Chlorite>>

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

175.50 175.90 OI **Heavilly disseminated sulphides in host schist**

175.5 - 175.9: Rhyolite altered MU hosted.

175.90 179.10 OB **Wispy laminar, fine buckshot textured, massive sulphide with lesser magnetite**

175.9 - 179.1: Semi massive. Locally strong alteration, dark chlorite/garnet.

179.10 179.50 OI **Heavilly disseminated sulphides in host schist**

179.1 - 179.5: Schist hosted.

<<Min: 179.1 - 195.35 2% Min: Pyrite>>

<<Min: 179.1 - 195.35 1% Min: Pyrrhotite>>

<<Alt: 179.1 - 187.86 Weak Calcite>>

<<Alt: 179.1 - 199.8 Moderate Muscovite>>

179.50 185.81 RHYcf **Feldspar & feldspar quartz porphyry**

179.5 - 185.81: Irregular repartition of the feldspar. Mid to high strain. Locally no feldspar, and BI rich bands.

<<Struc: 184.61 - 184.7 Weak-Moderate Fault>> Fault gouge.

185.81 189.57 SED **undifferentiated Sediment**

185.81 - 189.57: Few QZ eyes.

<<Alt: 187.86 - 199.9 Moderate-Strong Calcite>>

189.57 199.90 RHYcf **Feldspar & feldspar quartz porphyry**

189.57 - 199.9: Crosscut by possibly mafic dikes, PY veinlets, stringer (?). BI rich narrow units. Garnet alteration present from 195.35 to 199.90 m. E.O.H.

<<Min: 195.35 - 199.9 0.5% Min: Sphalerite>>

<<Min: 195.35 - 199.9 3% Min: Pyrite>>

<<Min: 195.35 - 199.9 1% Min: Pyrrhotite>>

<<Alt: 195.35 - 199.9 Weak-Moderate Garnet>> Aggregated from 195.90 to 196.00 m.

<<Vein: 189.97 - 190.83 Quartz>> QZ vein, fractured.

From (m)	To (m)	Rocktype & Description	From (m)	To (m)	Width	Sample	Au ppm	Ag ppm	Cu %	Pb %	Zn %
End of Hole @ 199.9											