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GeoSpark Logger ~ Drill Log

Project: KZK **Hole Number:** K16-347

Prospect:	Krakatoa	Hole Type:	DD	Survey Type:	RTK DGPS	Logged By:	Alicia Vainio
Grid:	NAD83_Z9	Hole Diameter:	96	Survey By:	Challenger_Survey	Date Logging Start:	5/20/2016
UTM Easting	415023.1158	Core Size:	HQ3	Azimuth:	48.53	Date Logging Complete:	5/27/2016
UTM Northing:	6815019.6137	Casing Pulled?:	Yes	Dip:	-55	Drill Company:	Hytech
UTM Elev. (m):	1384.5	Casing Depth (m):	33	Length (m):	170.7	Drill Rig:	Tech 5000
Local Easting:		Stored?:	Yes	Claims Title		Drill Started:	5/18/2016
Local Northing:		Cemented?:	Yes	Core Storage Loc.:	KZK Camp	Drill Completed:	5/20/2016
Local Elev. (m):				Hole Completed?:	Completed	Purpose:	Resource/Met
						Parent Hole:	

Comments:

The purpose of K16-347 was to test inferred portions of the up-dip, Krakatoa upper lens, and to collect metallurgical samples from the upper lens. The hole collared into bedrock at 31.3 m; the felsic hanging wall consisted of RHYva, RHYvl, and RHYcw. Weak to moderate faulting was prominent to a depth of 60.96 m, followed by a strong fault (60.96 - 69.6 m) characterized with strong sericite alteration, brecciation, and gouge. OI mineralization was encountered at 127.56 m, followed with OB (128.22-135.58 m), and OA (135.58-137.28 m). Sericite alteration was intense within the OI unit. RHY continued to a depth of 148.23 m, and contained moderate to strong sericite alteration and occasional mineralized quartz veins. The mafic footwall was encountered at 148.23 m, with a zone of OJ mineralization from 148.23-151.27 m.

Downhole Surveys:

Depth (m)	Dip	Measured Azimuth	Correction Factor	Corrected Azimuth	Survey Type	Survey By	Survey Date	Mag Field	Accept Values?	Comments
0	-55	47.13	1.4	48.53	APS	Dillon Hume	5/18/2016		☑	Rig aligned to true north (measured azimuth). Grid convergence of 1.4 deg applied to correct to UTM azimuth.
42	-55.1	27.9	22.1	50	ReflexEZS	Hytech	5/19/2016	5767	☑	Measured azimuth relative to magnetic north. Grid declination of 22.1 deg applied to correct to UTM azimuth.
66	-56.7	27.9	22.1	50	ReflexEZS	Hytech	5/19/2016	5736	☑	Measured azimuth relative to magnetic north. Grid declination of 22.1 deg applied to correct to UTM azimuth.
84	-55	17.8	22.1	39.9	ReflexEZS	Hytech	5/20/2016	5760	☐	Suspect wrong azimuth was written.
90	-57.8	28.8	22.1	50.9	ReflexEZS	Hytech	5/19/2016	5727	☑	Measured azimuth relative to magnetic north. Grid declination of 22.1 deg applied to correct to UTM azimuth.
114	-58.3	28.5	22.1	50.6	ReflexEZS	Hytech	5/19/2016	5716	☑	Measured azimuth relative to magnetic north. Grid declination of 22.1 deg applied to correct to UTM azimuth.
146	-60.6	30.4	22.1	52.5	ReflexEZS	Hytech	5/20/2016	5765	☑	Measured azimuth relative to magnetic north. Grid declination of 22.1 deg applied to correct to UTM azimuth.
170	-61.6	31	22.1	53.1	ReflexEZS	Hytech	5/20/2016	5736	☑	Measured azimuth relative to magnetic north. Grid declination of 22.1 deg applied to correct to UTM azimuth.

From (m)	To (m)	Rocktype & Description	From (m)	To (m)	Width	Sample	Au ppm	Ag ppm	Cu %	Pb %	Zn %
0.00	**31.30**	**OVBN Overburden**									
31.30	**40.00**	**RHYva Coarse grained to ash tuff**									

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

<<Min: 31.3 - 43.75 1% Min: Pyrrhotite>>

<<Alt: 31.3 - 45.7 Weak Calcite>>

<<Alt: 31.3 - 55 Weak Muscovite>>

<<Struc: 37.25 - 37.72 Strong Fault>> Fractured RHYva; FLT gouge with sand to pebble-sized clasts from 37.48-37.72m.

<<Struc: 37.72 - 43.5 Weak Fault>> Fractured RHY with poor recovery; clay-coating is visible on fractured surfaces. ~35% recovered.

40.00 42.00 No Core No Core

42.00 43.75 RHYva Coarse grained to ash tuff

43.75 49.10 RHYcw Curdy textured-flow banded (flows, subvolcanics)

<<Min: 43.75 - 49.1 1% Min: Pyrite>>

<<Min: 43.75 - 49.1 0.1% Min: Pyrrhotite>>

<<Alt: 45.7 - 49.1 Weak-Moderate Calcite>>

<<Struc: 45.64 - 49.1 Weak Fault>> Brecciated RHYcw with moderate sericite alteration. Gouge is localized. ~40% recovered.

49.10 51.85 RHYva Coarse grained to ash tuff

<<Min: 49.1 - 55 1% Min: Pyrrhotite>>

<<Alt: 49.1 - 51.85 Trace Calcite>>

<<Struc: 50.83 - 54.18 Weak Fault>> Fractured RHY with traces of gouge along broken surfaces. ~50% recovered.

51.85 55.00 RHYvl Lapilli tuff

<<Min: 51.85 - 55 0.1% Min: Pyrite>>

<<Alt: 51.85 - 55 Weak-Moderate Calcite>>

<<Vein: 53.93 - 54 50% Quartz-Carbonate-Sericite 15 deg. >> Quartz-carbonate vein with patchy sericite.

55.00 57.85 RHYcw Curdy textured-flow banded (flows, subvolcanics)

<<Min: 55 - 57.85 1% Min: Pyrite>>

<<Min: 55 - 57.85 2% Min: Pyrrhotite>>

<<Alt: 55 - 57.85 Moderate Muscovite>>

<<Alt: 55 - 96 Weak Calcite>>

57.85 60.96 RHY undifferentiated rhyolite

<<Min: 57.85 - 60.96 0.5% Min: Pyrite>>

<<Min: 57.85 - 60.96 1% Min: Pyrrhotite>>

<<Alt: 57.85 - 67.4 Weak-Moderate Muscovite>>

From (m)	To (m)	Rocktype & Description	From (m)	To (m)	Width	Sample	Au ppm	Ag ppm	Cu %	Pb %	Zn %
		<<Vein: 57.85 - 57.88 100% Quartz-Carbonate-Sericite 45 deg. >>									
		<<Struc: 57.91 - 59.3 Weak-Moderate Fault>> FLT gouge ~90% core loss.									
60.96	**69.60**	**FLZ Fault Zone**									
		60.96 - 69.6: Undifferentiated RHY fault with intense sericite alteration, brecciation, gouge, and quartz veins.									
		<<Min: 60.96 - 69.6 1% Min: Pyrite>> Within the FLT, pyrite is both disseminated and patchy; the patchy pyrite occurs within the brecciated clasts.									
		<<Min: 60.96 - 69.6 0.5% Min: Pyrrhotite>>									
		<<Alt: 67.4 - 69.6 Strong Muscovite>>									
		<<Vein: 60.96 - 69.6 4% Quartz-Carbonate-Sericite 28 deg. >> Series of fractured quartz veins within a brecciated FLT zone; veins contain patchy carbonate and sericite.									
		<<Struc: 60.96 - 69.6 Strong Fault>> Undifferentiated RHY fault with intense sericite alteration, brecciation, gouge, and quartz veins. ~ 70% core loss.									
69.60	**127.56**	**RHYcw Curdy textured-flow banded (flows, subvolcanics)**	117.00	118.50	1.50	B00292131	0.011	0.4	-0.01	-0.01	0.01
		69.6 - 127.56: Silicic flow banding, with localized curdy-texture.									
		<<Min: 69.6 - 110.47 0.5% Min: Pyrite>>	118.50	120.00	1.50	B00292132	0.01	0.5	-0.01	-0.01	0.01
		<<Min: 110.47 - 127.56 1% Min: Pyrite>>	120.00	121.50	1.50	B00292133	0.007	0.7	-0.01	-0.01	0.02
		<<Min: 110.47 - 127.56 0.1% Min: Arsenopyrite>>	121.50	123.00	1.50	B00292134	0.012	1.2	-0.01	-0.01	0.06
		<<Alt: 69.6 - 110.47 Moderate Muscovite>>	123.00	124.50	1.50	B00292135	0.01	1.2	-0.01	0.01	0.03
		<<Alt: 96 - 128.55 Trace Calcite>>	124.50	126.00	1.50	B00292136	0.006	1	-0.01	-0.01	0.02
		<<Alt: 110.47 - 127.56 Strong Muscovite>>	126.00	127.56	1.56	B00292137	0.008	2.5	-0.01	0.05	0.1
		<<Struc: 69.6 - 70.62 Weak-Moderate Shear>> Well-foliated RHY with moderate sericite alteration and localized gouge. Shear zone is proximal to FLZ.									
		<<Struc: 70.76 - 70.77 dominant foliation>>									
		<<Struc: 78.37 - 78.75 Moderate Fault>> Clast-supported, gouge BRX.									
		<<Struc: 92.45 - 92.46 Crenulation cleavage>> Wavy, crenulated foliation, sub-parallel TCA that has developed a spaced crenulation cleavage.									
		<<Struc: 95.75 - 95.96 Weak Fault>> Brittle RHY and FLT gouge.									
		<<Struc: 115.83 - 115.84 dominant foliation>>									
		<<Struc: 127.51 - 127.52 dominant foliation>>									
127.56	**128.22**	**OI Heavilly disseminated sulphides in host schist**	127.56	128.22	0.66	B00292138	0.212	51.9	1.16	0.27	0.51
		127.56 - 128.22: Disseminated-patchy pyrite, chalcopyrite, sphalerite, and galena within RHY. Mineralization is most abundant near the quartz vein (127.79-128.06m). The RHY unit has undergone intense sericite alteration.									

From (m)	To (m)	Rocktype & Description	From (m)	To (m)	Width	Sample	Au ppm	Ag ppm	Cu %	Pb %	Zn %
		<<Min: 127.56 - 128.22 0.5% Min: Sphalerite>>									
		<<Min: 127.56 - 128.22 4% Min: Pyrite>> Disseminated-patchy pyrite, sphalerite, galena,and pyrrhotite. Chalcopyrite and pyrrhotite occurs within the quartz vein.									
		<<Min: 127.56 - 128.22 0.5% Min: Pyrrhotite>>									
		<<Min: 127.56 - 128.22 0.1% Min: Galena>>									
		<<Min: 127.56 - 128.22 6% Min: Chalcopyrite>>									
		<<Alt: 127.56 - 128.55 Intense Muscovite>>									
		<<Vein: 127.77 - 128.08 100% Quartz-Carbonate-Sulphide>> Quartz vein with patches of calcite and chalcopyrite +/- sphalerite, pyrite, and galena.									
128.22	**135.58**	**OB** **Wispy laminar, fine buckshot textured, massive sulphide with lesser magnetite**	128.22	129.00	0.78	B00292139	1.05	244	0.05	6.29	8.93
		128.22 - 135.58: Massive pyrite +/- sphalerite and galena. Patches of altered host rock (?) become more prominent down-hole.									
		<<Min: 128.22 - 131.75 5% Min: Sphalerite>> Massive pyrite with disseminated sphalerite, and traces of galena.	129.00	130.00	1.00	B00292141	0.556	194	-0.01	6.37	9.29
		<<Min: 128.22 - 131.75 75% Min: Pyrite>> Massive pyrite with disseminated sphalerite, and traces of galena.	130.00	131.00	1.00	B00292142	1.45	231	0.24	4.64	7.63
		<<Min: 128.22 - 131.75 1% Min: Galena>> Massive pyrite with disseminated sphalerite, and traces of galena.	131.00	131.75	0.75	B00292143	1.71	174	0.17	4.05	7.07
		<<Min: 131.75 - 135.58 3% Min: Sphalerite>> Massive pyrite with disseminated-blebs of sphalerite and galena. Patches of barite (?) are visible within the wallrock.	131.75	132.50	0.75	B00292144	4.96	282	0.78	2.45	5.14
		<<Min: 131.75 - 135.58 65% Min: Pyrite>> Massive pyrite with disseminated-blebs of sphalerite and galena. Patches of barite (?) are visible within the wallrock.	132.50	133.50	1.00	B00292145	1.88	318	0.6	3.76	5.14
		<<Min: 131.75 - 135.58 3% Min: Galena>> Massive pyrite with disseminated-blebs of sphalerite and galena. Patches of barite (?) are visible within the wallrock.	133.50	134.50	1.00	B00292146	1.02	215	0.53	2.34	7.2
		<<Min: 131.75 - 135.58 0.5% Min: Barite>> Massive pyrite with disseminated-blebs of sphalerite and galena. Patches of barite (?) are visible within the gangue.	134.50	135.58	1.08	B00292147	1.12	159	0.08	4.8	8.29
		<<Alt: 128.22 - 131.75 Trace Silicification>>									
		<<Alt: 128.55 - 131.75 Weak Calcite>>									
		<<Alt: 131.75 - 135.58 Weak Silicification>>									
		<<Alt: 131.75 - 135.58 Weak-Moderate Calcite>>									
135.58	**137.28**	**OA** **Laminar or heavilly disseminated magnetite bearing massive sulphide**	135.58	136.50	0.92	B00292148	1.25	215	0.33	6.31	11.9
		135.58 - 137.28: Coarse-grained, massive pyrite + magnetite, sphalerite, +/- chalcopyrite, and galena. Calcite is patchy, and is common within fractures.									

From (m)	To (m)	Rocktype & Description	From (m)	To (m)	Width	Sample	Au ppm	Ag ppm	Cu %	Pb %	Zn %
		<<Min: 135.58 - 137.28 10% Min: Sphalerite>> Massive pyrite with disseminated sphalerite and magnetite, and traces of galena and chalcopyrite.	136.50	137.28	0.78	B00292149	5.02	273	1.68	6.15	10.8
		<<Min: 135.58 - 137.28 70% Min: Pyrite>> Massive pyrite with disseminated sphalerite and magnetite, and traces of galena and chalcopyrite.									
		<<Min: 135.58 - 137.28 15% Min: Magnetite>> Massive pyrite with disseminated sphalerite and magnetite, and traces of galena and chalcopyrite.									
		<<Min: 135.58 - 137.28 0.5% Min: Galena>> Massive pyrite with disseminated sphalerite and magnetite, and traces of galena and chalcopyrite.									
		<<Min: 135.58 - 137.28 0.1% Min: Chalcopyrite>> Massive pyrite with disseminated sphalerite and magnetite, and traces of galena and chalcopyrite.									
		<<Alt: 135.58 - 137.28 Weak-Moderate Calcite>>									
137.28	**148.23**	**RHY undifferentiated rhyolite**	137.28	138.50	1.22	B00292152	0.006	2.3	0.02	0.03	0.09
		137.28 - 148.23: Well-foliated, undifferentiated RHY with moderate-strong sericite alteration. Quartz veining occurs from 147.05- 148.2m; quartz veins contain coarse-grained chalcopyrite, and pyrrhotite +/- sphalerite and galena. Sericite alteration is intense within the quartz vein.									
		<<Min: 137.28 - 146.75 0.1% Min: Pyrite>>	138.50	140.00	1.50	B00292153	0.006	0.5	-0.01	-0.01	-0.01
		<<Min: 137.28 - 146.75 0.1% Min: Chalcopyrite>> Blebs of chalcopyrite are within quartz veins.	140.00	141.50	1.50	B00292154	0.006	0.4	-0.01	-0.01	-0.01
		<<Min: 146.75 - 148.23 2% Min: Sphalerite>>	141.50	143.00	1.50	B00292155	-0.005	0.8	-0.01	-0.01	-0.01
		<<Min: 146.75 - 148.23 1% Min: Pyrrhotite>> Pyrrhotite zonation is common around patches of chalcopyrite.	143.00	144.50	1.50	B00292156	-0.005	0.5	-0.01	-0.01	-0.01
		<<Min: 146.75 - 148.23 0.5% Min: Galena>>	144.50	146.00	1.50	B00292157	-0.005	0.5	-0.01	-0.01	-0.01
		<<Min: 146.75 - 148.23 3% Min: Chalcopyrite>> Mineralization is patchy-blebby within the quartz veins.	146.00	146.75	0.75	B00292158	-0.005	0.5	-0.01	-0.01	-0.01
		<<Alt: 137.28 - 146.75 Moderate-Strong Muscovite>>	146.75	148.23	1.48	B00292159	0.385	27.3	0.8	0.01	0.19
		<<Alt: 137.28 - 146.75 Trace Calcite>>									
		<<Alt: 146.75 - 148.23 Intense Muscovite>>									
		<<Alt: 146.75 - 148.23 Weak Calcite>>									
		<<Vein: 137.28 - 137.46 100% Quartz-Carbonate>> Quartz vein with patches of calcite.									
		<<Vein: 138.1 - 138.33 20% Quartz-Carbonate-Sulphide>> Quartz veins within RHY; veins contain blebs of chalcopyrite, and minor calcite within the fractures.									
		<<Vein: 146.75 - 148.23 70% Quartz-Carbonate-Sulphide>> Massive quartz vein within an intense-sericite altered RHY unit. The vein contains patchy calcite, chalcopyrite, sphalerite, and chlorite (?) Pyrrhotite zonation is common around the patches of chalcopyrite.									
		<<Struc: 143.27 - 143.28 dominant foliation>>									
		<<Struc: 146.35 - 146.36 dominant foliation>>									

From (m)	To (m)	Rocktype & Description
148.23	**151.27**	**OJ** **Heavilly disseminated sulphides and/or stringer style mineralization in proximal altered rock**
148.23 - 151.27: Mafic sill host. Localized patches of intense chlorite alteration. Coarse-grained, intergrown chalcopyrite-pyrrhotite disseminated blebs.		
<<Min: 148.23 - 151.27 2% Min: Pyrite>> Coarse-grained, intergrown chalcopyrite-pyrrhotite-pyrite disseminated blebs.		
<<Min: 148.23 - 151.27 2% Min: Pyrrhotite>> Coarse-grained, intergrown chalcopyrite-pyrrhotite-pyrite disseminated blebs.		
<<Min: 148.23 - 151.27 2% Min: Chalcopyrite>> Coarse-grained, intergrown chalcopyrite-pyrrhotite-pyrite disseminated blebs.		
<<Alt: 148.23 - 151.27 Strong Chlorite>>		
<<Alt: 148.23 - 155.2 Moderate Calcite>>		
<<Alt: 148.23 - 170.7 Moderate Biotite>>		
<<Vein: 149.45 - 149.59 100% Quartz-Carbonate 45 deg. >> Quartz vein with patches of calcite.		
151.27	**170.70**	**MAFi** **Mafic Intrusions (primarily footwall mafic intrusion)**
151.27 - 170.7: Chlorite-rich groundmass with blebby biotite and minor, patchy calcite.		
<<Min: 151.27 - 170.7 0.1% Min: Pyrite>>		
<<Min: 151.27 - 170.7 0.1% Min: Pyrrhotite>>		
<<Alt: 151.27 - 170.7 Moderate Chlorite>>		
<<Alt: 155.2 - 170.7 Weak-Moderate Calcite>> FRA		
<<Struc: 153.57 - 153.58 dominant foliation>>		
<<Struc: 156.82 - 156.83 dominant foliation>>		
<<Struc: 160.58 - 160.59 dominant foliation>>		
<<Struc: 165.27 - 165.28 dominant foliation>>		
<<Struc: 168.43 - 168.44 dominant foliation>>		
<<Struc: 168.6 - 168.61 Vein>> Calcite stringer.		

From (m)	To (m)	Width	Sample	Au ppm	Ag ppm	Cu %	Pb %	Zn %
148.23	149.00	0.77	B00292161	0.301	23.9	0.83	-0.01	0.37
149.00	150.00	1.00	B00292162	0.229	26.6	0.65	0.04	0.78
150.00	151.27	1.27	B00292163	0.908	76.7	1.81	0.09	0.89
151.27	152.50	1.23	B00292164	0.006	2	0.02	0.02	0.04
152.50	154.00	1.50	B00292165	-0.005	1.2	-0.01	0.02	0.04
154.00	155.50	1.50	B00292166	-0.005	1.3	-0.01	0.02	0.03
155.50	157.00	1.50	B00292167	-0.005	0.7	-0.01	0.02	0.03
157.00	158.50	1.50	B00292168	-0.005	1.2	-0.01	0.02	0.03
158.50	160.00	1.50	B00292169	-0.005	1	-0.01	0.02	0.03
160.00	161.50	1.50	B00292171	-0.005	1	-0.01	-0.01	0.02

End of Hole @ 170.7