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GeoSpark Logger ~ Drill Log

Project: KZK **Hole Number:** K16-400

Prospect:	GP4F	Hole Type:	DD	Survey Type:	RTK DGPS	Logged By:	Roger Hulstein
Grid:	NAD83_Z9	Hole Diameter:	96	Survey By:	Challenger_Survey	Date Logging Start:	7/21/2016
UTM Easting	419400.538	Core Size:	HQ3	Azimuth:	179.9	Date Logging Complete:	7/23/2016
UTM Northing:	6813207.191	Casing Pulled?:	Yes	Dip:	-60	Drill Company:	New Age
UTM Elev. (m):	1349.139	Casing Depth (m):	4.5	Length (m):	98.5	Drill Rig:	Zinex A5
Local Easting:		Stored?:	Yes	Claims Title		Drill Started:	7/19/2016
Local Northing:		Cemented?:	Yes	Core Storage Loc.:	KZK Camp	Drill Completed:	7/22/2016
Local Elev. (m):				Hole Completed?:	Completed	Purpose:	Resource/Met
						Parent Hole:	

Comments:

The purpose of this DDH is resource infill and to collect a metallurgical sample from the GP4F sulfide lens. Both objectives were accomplished. The GP4F lens was intersected at 46.14-57.82m (including minor to significant sections of altered rhyolite) and consisted mainly of OJ and OI type mineralization. Short, <30cm sections of semi-massive mineralization are included in the wider OI and OJ units. Sphalerite content was up to 15% in some sections. The DDH did not go deep enough to intersect the lower lens. A major fault zone was intersected from 26.50-34.70m with poor to no core recovery. There was also missing and poor core recovery between 34.70 - 50.20 m due to faulting and/or possibly poor drilling technique (lots of rounded pebbles and evidence of ground core). After shift change at 50.2 m core recovery and quality improved markedly.

Downhole Surveys:

Depth (m)	Dip	Measured Azimuth	Correction Factor	Corrected Azimuth	Survey Type	Survey By	Survey Date	Mag Field	Accept Values?	Comments
0	-60	178.5	1.4	179.9	TN14	Roger Hulstein	7/19/2016		☑	drill aligned at 8:30pm July 19, 2016.
5	-60.61123	178.89739	1.4	180.29739	Gyro	Dillon Hume	7/23/2016		☑	Motion quality = 100
10	-60.60472	179.02508	1.4	180.42508	Gyro	Dillon Hume	7/23/2016		☑	Motion quality = 100
15	-60.62847	178.85157	1.4	180.25157	Gyro	Dillon Hume	7/23/2016		☑	Motion quality = 100
20	-60.75103	179.30431	1.4	180.70431	Gyro	Dillon Hume	7/23/2016		☑	Motion quality = 100
25	-60.64492	179.61811	1.4	181.01811	Gyro	Dillon Hume	7/23/2016		☑	Motion quality = 100
30	-60.52335	179.33215	1.4	180.73215	Gyro	Dillon Hume	7/23/2016		☑	Motion quality = 100
35	-60.7883	179.52226	1.4	180.92226	Gyro	Dillon Hume	7/23/2016		☑	Motion quality = 100
40	-60.8539	179.70058	1.4	181.10058	Gyro	Dillon Hume	7/23/2016		☑	Motion quality = 100
44	-60	158	22.1	180.1	ReflexEZS	New Age	7/20/2016	5755	☐	
45	-60.81393	179.42777	1.4	180.82777	Gyro	Dillon Hume	7/23/2016		☑	Motion quality = 100
50	-60.82919	179.1675	1.4	180.5675	Gyro	Dillon Hume	7/23/2016		☑	Motion quality = 100
55	-61.00248	179.1727	1.4	180.5727	Gyro	Dillon Hume	7/23/2016		☑	Motion quality = 100
60	-61.13631	179.01989	1.4	180.41989	Gyro	Dillon Hume	7/23/2016		☑	Motion quality = 100
65	-61.20796	179.21373	1.4	180.61373	Gyro	Dillon Hume	7/23/2016		☑	Motion quality = 100
70	-61.2948	179.31903	1.4	180.71903	Gyro	Dillon Hume	7/23/2016		☑	Motion quality = 100
74.5	-61.3	162.8	22.1	184.9	ReflexEZS	New Age	7/21/2016	5752	☐	
75	-61.54015	179.55217	1.4	180.95217	Gyro	Dillon Hume	7/23/2016		☑	Motion quality = 100

Depth (m)	Dip	Measured Azimuth	Correction Factor	Corrected Azimuth	Survey Type	Survey By	Survey Date	Mag Field	Accept Values?	Comments
80	-61.75236	179.65103	1.4	181.05103	Gyro	Dillon Hume	7/23/2016		☑	Motion quality = 100
85	-61.9793	180.01612	1.4	181.41612	Gyro	Dillon Hume	7/23/2016		☑	Motion quality = 100
98.5	-62.3	159.1	22.1	181.2	ReflexEZS	New Age	7/22/2016	5736	☐	

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

0.00 4.10 OVBN Overburden

4.10 6.85 PEL Equigranular biotite + calcite +/- quartz rock

4.1 - 6.85: PEL unit could be a dyke but no direct evidence either way although BIppo in observed in RHYvl at lower (PEL) contact.

<<Min: 4.1 - 9.3 0.01% Min: Pyrite>>

<<Alt: 4.1 - 6.8 Moderate-Strong Calcite>>

<<Alt: 6.8 - 10.7 Trace Calcite>>

6.85 10.70 RHYvl Lapilli tuff

6.85 - 10.7: weak BCQlpl

<<Min: 9.3 - 10.7 1% Min: Pyrite>>

<<Min: 9.3 - 10.7 1% Min: Pyrrhotite>>

<<Alt: 9.3 - 13.15 Weak Chlorite>> and as diss

<<Struc: 7.7 - 9.3 Weak Shear>> fracture - shear, minor clay

<<Struc: 7.7 - 9.3 Weak-Moderate Fault>> broken core, fractured, minor gouge

10.70 12.98 PEL Equigranular biotite + calcite +/- quartz rock

10.7 - 12.98: Bi-r

<<Min: 10.7 - 12.93 1% Min: Pyrite>>

<<Min: 12.93 - 18.31 3% Min: Pyrite>>

<<Alt: 10.7 - 12.98 Moderate-Strong Calcite>>

12.98 18.31 RHYvl Lapilli tuff

12.98 - 18.31: bleached, biotite & chlorite destroyed

<<Alt: 12.98 - 16.03 Trace Calcite>>

<<Alt: 13.15 - 18.31 Weak Muscovite>> at expense of biotite and chlorite.

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

<<Alt: 16.03 - 16.6 Weak Calcite>>

<<Alt: 16.6 - 18.31 Trace Calcite>>

<<Struc: 13 - 14.5 Moderate dominant foliation>>

<<Struc: 17 - 18 Moderate dominant foliation>>

<<Struc: 17.4 - 17.6 Weak Shear>> fracture with clay - calcite

18.31 19.40 PEL Equigranular biotite + calcite +/- quartz rock

18.31 - 19.4: 10cm calcite banding with weak chlorite at lower contact

<<Min: 18.31 - 19.5 0.01% Min: Pyrite>>

<<Alt: 18.31 - 19.49 Moderate-Strong Calcite>>

<<Struc: 18.31 - 18.32 Moderate-Strong Contact>>

19.40 26.50 RHYvl Lapilli tuff

19.4 - 26.5: bleached. Rare foliaform and crosscutting sulfide veins (<1cm wide).

<<Min: 19.5 - 20.5 1% Min: Pyrrhotite>>

<<Min: 19.5 - 26.5 3% Min: Pyrite>>

<<Alt: 19.43 - 26.5 Weak Muscovite>> at expense of biotite and chlorite.

<<Alt: 19.49 - 25.1 Trace Calcite>>

<<Alt: 25.1 - 26.5 Weak-Moderate Calcite>>

<<Struc: 19.85 - 19.86 Weak Shear>> fracture with clay - calcite

<<Struc: 22.85 - 23 Moderate dominant foliation>>

<<Struc: 24.81 - 26.5 Weak-Moderate Fault>> missing core, broken core with clay on fractures

26.50 29.50 RHYvl Lapilli tuff

26.5 - 29.5: Fault zone starting at 26.50m. Gougy and argillic alter RHYvl. Missing core.

<<Min: 26.5 - 32.5 3% Min: Pyrite>>

<<Min: 26.5 - 32.5 0.5% Min: Galena>>

<<Alt: 26.5 - 27 Moderate Calcite>> in clay gouge

<<Alt: 26.5 - 32.5 Moderate-Strong Muscovite>> sericite-muscovite alteration.

<<Alt: 27 - 36.2 Trace Calcite>>

<<Vein: 29.15 - 29.25 100% Quartz>>

<<Struc: 26.5 - 32.5 Strong Fault>> missing core, gouge, strong musc - argillic alt, broken core with clay on fractures, core rubble.

From (m)	To (m)	Rocktype & Description	From (m)	To (m)	Width	Sample	Au ppm	Ag ppm	Cu %	Pb %	Zn %
29.50	**32.50**	**RHYvl Lapilli tuff** 29.5 - 32.5: Fault zone, as above but wrse corerecovery and only RHYvl pebbles (fault brx clasts) recovered									
32.50	**34.70**	**FLZ Fault Zone** 32.5 - 34.7: Fault zone, only bleached (muscovite - sericite altered) RHY pebbles recovered. Two full core boxes of caved and washed material recovered between 32.50-34.70m. Essentially no core 32.5-34.7 m. <<Struc: 32.5 - 34.7 Strong Fault>> missing core, gouge, strong musc - argillic alt, broken core with clay on fractures, core rubble.									
34.70	**36.20**	**RHYc Rhyolite coherant volcanics** 34.7 - 36.2: silic bands with muscovite & diss pyrite on folia. Poor core recovery. <<Min: 34.7 - 36.2 5% Min: Pyrite>> <<Min: 34.7 - 40.25 0.1% Min: Arsenopyrite>> <<Alt: 34.7 - 36.2 Moderate Muscovite>> fine white muscovite on folia. <<Struc: 34.7 - 43.9 Strong Fault>> missing core, ground core, pebbles, no gouge recovered. Possible driller problem and not fault zone.	34.70	36.20	1.50	D00004438	0.101	24.8	-0.01	0.02	0.02
36.20	**37.20**	**PEL Equigranular biotite + calcite +/- quartz rock** 36.2 - 37.2: Missing core. Coarse grained biotite-muscovite-qtz schist, local 0.5cm silic bands, 8cm piece of bleached RHYvl (similar to above unit). <<Min: 36.2 - 37.9 0.5% Min: Sphalerite>> <<Min: 36.2 - 37.9 3% Min: Pyrite>> <<Min: 36.2 - 37.9 0.5% Min: Galena>> <<Alt: 36.2 - 37.9 Moderate Calcite>> with botite rich bands and units. <<Alt: 36.2 - 44.5 Moderate Muscovite>>	36.20	37.90	1.70	D00004439	0.074	18.5	0.03	0.8	1.34
37.20	**40.45**	**RHYvl Lapilli tuff** 37.2 - 40.45: Poor core recovery. 10cm piece fault brx at 40.20m. RHYvl with silic and PEL (brown biotite - calcareous rich) bands. 39.80-40.13m: assuming no core loss, 30cm of recovered core with thin (3-5mm) qtz-cal-sulfide bands. <<Min: 37.9 - 40.2 0.5% Min: Sphalerite>> and in this sulfide veinlets <<Min: 37.9 - 40.2 5% Min: Pyrite>> <<Min: 37.9 - 40.2 0.5% Min: Galena>> and in thin sulfide veinlets <<Alt: 37.9 - 46.14 Weak Calcite>> in fault brx, as fracture filling, rare Ca rich bands and diss.	37.90	40.20	2.30	D00004441	0.034	4.4	0.02	0.2	0.46
40.45	**43.20**	**No Core No Core**									

From (m)	To (m)	Rocktype & Description	From (m)	To (m)	Width	Sample	Au ppm	Ag ppm	Cu %	Pb %	Zn %
43.20	**44.50**	**RHYvx** **Quartz and/or feldspar crystal tuff**	43.20	43.90	0.70	D00004442	-0.005	3.8	0.02	0.09	1.17
43.2 - 44.5: Qtz eye marker unit. Chloritization increasing down hole.											
<<Min: 43.2 - 44.5 0.1% Min: Sphalerite>>			43.90	44.50	0.60	D00004443	-0.005	1.5	0.05	0.02	0.37
<<Min: 43.2 - 44.5 3% Min: Pyrrhotite>>											
<<Min: 43.2 - 44.5 0.1% Min: Galena>>											
<<Min: 43.2 - 44.5 0.02% Min: Chalcopyrite>>											
<<Alt: 43.2 - 44.5 Weak-Moderate Chlorite>>											
<<Alt: 43.2 - 44.5 Trace Biotite>>											
<<Struc: 43.9 - 50.2 Moderate-Strong Fault>> missing core, ground core, pebbles, no gouge recovered. Possible driller problem and not fault zone. Recovery and core quality improves after shift change at 50.20m.											
44.50	**46.14**	**RHY** **undifferentiated rhyolite**	44.50	46.14	1.64	D00004444	-0.005	0.5	0.03	-0.01	0.94
44.5 - 46.14: Not RHY at all! 44.50-46.14 is a quartz vein. Includes 6cm piece of OJ and minor blebs diss sulfides.											
<<Min: 44.5 - 46.14 0.01% Min: Sphalerite>> in chl alt											
<<Min: 44.5 - 46.14 1% Min: Pyrite>>											
<<Min: 44.5 - 46.14 0.01% Min: Galena>> in chl alt											
<<Min: 46.12 - 47.52 1% Min: Pyrrhotite>>											
<<Min: 46.12 - 47.52 5% Min: Galena>>											
<<Vein: 45.5 - 46.14 90% Quartz>> bull qtz vein with minor wallrock(chloritized with sp and py blebs), chl, tourmaline											
46.14	**47.52**	**OJ** **Heavilly disseminated sulphides and/or stringer style mineralization in proximal altered rock**	46.14	47.00	0.86	D00004445	0.03	10.7	0.19	0.11	5.97
46.14 - 47.52: banded and diss mineralization and chlorite - muscovite alteration											
<<Min: 46.16 - 47.52 15% Min: Sphalerite>>			47.00	47.52	0.52	D00004446	0.047	19.5	0.24	0.24	10.2
<<Min: 46.16 - 47.52 15% Min: Pyrite>>											
<<Alt: 46.14 - 47.52 Moderate Chlorite>> and diss											
<<Alt: 46.14 - 47.52 Moderate Calcite>> In healed fault brx, as fracture filling, Ca rich bands and diss.											
<<Alt: 46.14 - 47.52 Weak-Moderate Biotite>>											
<<Vein: 46.68 - 46.75 100% Quartz-Chlorite-Sulphide>>											

From (m)	To (m)	Rocktype & Description	From (m)	To (m)	Width	Sample	Au ppm	Ag ppm	Cu %	Pb %	Zn %
47.52	**49.34**	**RHY** **undifferentiated rhyolite**	47.52	49.34	1.82	D00004447	0.016	10.3	0.14	0.39	3.14

47.52 - 49.34: weak - mod. diss chlorite - biotite -muscovite alteration. Minor diss and blebs of sulfide (mainly pyrite). Assigned core loss to the interval 47.00-50.20m. Recovered 0.88m in 1.82m length (47.52-49.34m) for 48% recovery.

<<Min: 47.52 - 49.34 1% Min: Sphalerite>>
<<Min: 47.52 - 49.34 5% Min: Pyrite>>
<<Min: 47.52 - 49.34 0.1% Min: Galena>>
<<Alt: 47.52 - 49.34 Weak Chlorite>>
<<Alt: 47.52 - 49.34 Weak-Moderate Calcite>>
<<Alt: 47.52 - 49.34 Weak-Moderate Biotite>>

49.34	**50.45**	**OJ** **Heavilly disseminated sulphides and/or stringer style mineralization in proximal altered rock**	49.34	50.45	1.11	D00004448	0.054	18.3	0.23	0.96	6.25

49.34 - 50.45: 49.20m was determined assuming no core loss from 50.20m. Locally siliceous - possible cherty bands. Diss chlorite-biotite alteration and diss mineralization.

<<Min: 49.34 - 50.34 10% Min: Galena>>
<<Min: 49.34 - 50.34 0.5% Min: Chalcopyrite>>
<<Min: 49.34 - 50.45 15% Min: Sphalerite>>
<<Min: 49.34 - 50.45 15% Min: Pyrite>>
<<Min: 50.34 - 52.16 1% Min: Pyrite>>
<<Alt: 49.34 - 49.64 Moderate Cordierite>>
<<Alt: 49.34 - 50.45 Weak Chlorite>>
<<Alt: 49.34 - 50.45 Weak Calcite>>
<<Alt: 49.34 - 50.45 Weak Biotite>>
<<Vein: 50.1 - 50.2 100% Quartz-Carbonate>>
<<Struc: 50.12 - 50.2 Moderate Foliation>> sulfide banding

50.45	**52.16**	**PEL** **Equigranular biotite + calcite +/- quartz rock**	50.45	51.00	0.55	D00004449	0.034	4.1	0.07	0.2	0.48

50.45 - 52.16: Variably bleached, muscovite altered PEL.

<<Alt: 50.45 - 51.4 Weak Calcite>>			51.00	52.16	1.16	D00004451	0.015	5.2	0.02	0.28	1.12

<<Alt: 50.45 - 52.9 Weak Chlorite>>
<<Alt: 50.45 - 54.8 Weak-Moderate Muscovite>> at expense of biotite and chlorite

From (m)	To (m)	Rocktype & Description	From (m)	To (m)	Width	Sample	Au ppm	Ag ppm	Cu %	Pb %	Zn %
		<<Alt: 50.45 - 56.07 Weak Biotite>>									
		<<Alt: 51.4 - 52.16 Moderate Calcite>>									
		<<Vein: 51.73 - 52 20% Quartz-Tourmaline 60 deg. >>									
52.16	**52.83**	**OI** **Heavilly disseminated sulphides in host schist**	52.16	52.83	0.67	D00004452	0.161	31.4	0.12	2.58	7.11
		52.16 - 52.83: Rare chlorite, minor biotite, alteration, diss, wisps, fracture filling and one 5cm band of sulfides. Host rock is light gre fine grained PEL - ash.									
		<<Min: 52.16 - 52.46 5% Min: Sphalerite>>									
		<<Min: 52.16 - 52.48 3% Min: Galena>>									
		<<Min: 52.16 - 52.83 10% Min: Pyrite>>									
		<<Min: 52.48 - 52.83 20% Min: Sphalerite>>									
		<<Min: 52.48 - 52.83 5% Min: Galena>>									
		<<Min: 52.48 - 54.92 3% Min: Pyrrhotite>>									
		<<Alt: 52.73 - 56.61 Weak Calcite>>									
52.83	**54.82**	**PEL** **Equigranular biotite + calcite +/- quartz rock**	52.83	53.30	0.47	D00004453	0.048	7.6	0.05	0.54	0.39
		52.83 - 54.82: Variably bleached, muscovite altered PEL. Biotite alteration.									
		<<Min: 52.83 - 56.07 1% Min: Sphalerite>> And in thin bands.	53.30	54.82	1.52	D00004454	0.121	8.3	0.03	0.37	0.51
		<<Min: 52.83 - 56.07 1% Min: Galena>> And in thin bands									
		<<Min: 52.83 - 56.4 5% Min: Pyrite>>									
		<<Struc: 54.75 - 56 Weak-Moderate Fault>> zones of broken core, low angle fractures, two (<10cm) gouge zones.									
54.82	**56.07**	**OI** **Heavilly disseminated sulphides in host schist**	54.82	56.07	1.25	D00004455	0.829	29.7	0.03	1.11	1.83
		54.82 - 56.07: 54.82-56.40: weak OI, approx 10% diss and banded sulfides. 56.40-56.61: OF band of sulfide. Too small to break out separately.									
		<<Alt: 54.82 - 56.07 Strong Muscovite>>									
56.07	**56.61**	**OJ** **Heavilly disseminated sulphides and/or stringer style mineralization in proximal altered rock**	56.07	56.61	0.54	D00004456	0.168	49.4	0.1	3.05	6.91
		56.07 - 56.61: 56.07-56.40: OI, variably bleached, muscovite altered PEL with diss and banded sulfide. Locally weakly brecciated with qtz-cal filling and fractures.									

From (m)	To (m)	Rocktype & Description	From (m)	To (m)	Width	Sample	Au ppm	Ag ppm	Cu %	Pb %	Zn %
<<Min: 56.07 - 56.4 5% Min: Sphalerite>>											
<<Min: 56.07 - 56.4 3% Min: Galena>>											
<<Min: 56.4 - 56.61 30% Min: Sphalerite>>											
<<Min: 56.4 - 56.61 5% Min: Pyrite>>											
<<Min: 56.4 - 56.61 5% Min: Pyrrhotite>>											
<<Min: 56.4 - 56.61 10% Min: Galena>>											
<<Alt: 56.07 - 57.7 Moderate Biotite>>											
<<Alt: 56.07 - 57.8 Trace Chlorite>>											
<<Alt: 56.07 - 57.82 Weak-Moderate Muscovite>>											
<<Struc: 56.07 - 56.4 Moderate-Strong Foliation>> sulfide banding											
<<Struc: 56.6 - 56.62 Strong Contact>>											
56.61	**57.42**	**PEL** **Equigranular biotite + calcite +/- quartz rock**	56.61	57.42	0.81	D00004457	-0.005	-0.3	0.02	0.02	0.06
56.61 - 57.42: PEL, minor ash?, weakly brecciated and fractured with qtz-cal filling.											
<<Min: 56.61 - 57.42 0.5% Min: Pyrite>>											
<<Min: 56.61 - 57.42 3% Min: Pyrrhotite>>											
<<Alt: 56.61 - 57.82 Moderate-Strong Calcite>>											
<<Vein: 56.61 - 57.62 20% Quarzt-Chlorite-Tourmaline>>											
<<Struc: 56.61 - 56.8 Moderate dominant foliation>>											
57.42	**57.82**	**OJ** **Heavilly disseminated sulphides and/or stringer style mineralization in proximal altered rock**	57.42	57.82	0.40	D00004458	0.077	61.6	0.11	2.58	3.62
57.42 - 57.82: Minor bleached PEL bands, includes 10cm brx qtz vein with pyrite filling fractures. Diss, blebs and banded sulfides. Weak chlorite alteration.											
<<Min: 57.42 - 57.82 3% Min: Sphalerite>>											
<<Min: 57.42 - 57.82 3% Min: Pyrite>>											
<<Min: 57.42 - 57.82 10% Min: Pyrrhotite>>											
<<Min: 57.42 - 57.82 5% Min: Galena>>											

From (m)	To (m)	Rocktype & Description	From (m)	To (m)	Width	Sample	Au ppm	Ag ppm	Cu %	Pb %	Zn %
57.82	**59.45**	**RHYvx** **Quartz and/or feldspar crystal tuff**	57.82	58.55	0.73	D00004459	0.057	6.1	0.02	0.38	0.85
57.82 - 59.45: Has muscovite altered PEL (does have remnant biotite) and likely an ash component. Rare blue qtz phenos. 57.82-58.55: bands and diss sulfides.											
<<Min: 57.82 - 58.55 1% Min: Sphalerite>> in thin qtz-calcite sulfide bands			58.55	59.45	0.90	D00004461	-0.005	-0.3	-0.01	-0.01	0.65
<<Min: 57.82 - 58.55 5% Min: Pyrite>>											
<<Min: 57.82 - 58.55 0.5% Min: Galena>>											
<<Min: 58.55 - 59.5 1% Min: Pyrite>>											
<<Alt: 57.82 - 59.45 Weak-Moderate Muscovite>> at expense of biotite											
<<Alt: 57.82 - 59.45 Weak Calcite>>											
<<Struc: 58.3 - 58.85 Moderate dominant foliation>> parallel to sulfide banding											
59.45	**60.62**	**PEL** **Equigranular biotite + calcite +/- quartz rock**	59.45	60.62	1.17	D00004462	0.013	0.7	0.02	0.02	0.04
59.45 - 60.62: varibaly bleached, minor ash and lpl component.											
<<Min: 59.5 - 60.62 0.5% Min: Pyrite>>											
<<Min: 59.5 - 60.62 3% Min: Pyrrhotite>>											
<<Alt: 59.45 - 60.82 Moderate Calcite>>											
<<Vein: 59.97 - 60.17 100% Quartz-Carbonate-Sulphide>>											
60.62	**62.50**	**RHYvx** **Quartz and/or feldspar crystal tuff**	60.62	62.00	1.38	D00004463	0.008	3.7	0.01	0.21	0.42
60.62 - 62.5: minor PEL bnds and wisps											
<<Min: 60.62 - 61.6 0.5% Min: Sphalerite>>			62.00	62.50	0.50	D00004464	-0.005	-0.3	-0.01	0.02	0.09
<<Min: 60.62 - 61.6 0.1% Min: Galena>>											
<<Min: 60.62 - 62.5 0.5% Min: Pyrrhotite>>											
<<Min: 60.62 - 63.3 0.5% Min: Pyrite>>											
<<Alt: 60.82 - 61 Weak Calcite>>											
<<Alt: 61 - 62.5 Weak Calcite>>											
62.50	**63.60**	**PEL** **Equigranular biotite + calcite +/- quartz rock**	62.50	63.60	1.10	D00004465	-0.005	0.4	0.02	-0.01	0.03
<<Min: 63.3 - 63.6 3% Min: Pyrrhotite>>											
<<Alt: 62.5 - 63.6 Moderate Calcite>>											
<<Struc: 62.7 - 62.9 Moderate Fault>> minor gouge											

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

63.60 65.25 RHYvx Quartz and/or feldspar crystal tuff

63.6 - 65.25: 'dirty RHYvx', PEL, biotite wisps.

<<Min: 63.6 - 65.25 0.1% Min: Pyrrhotite>>

<<Alt: 63.6 - 65.25 Trace Calcite>>

65.25 67.93 SED undifferentiated Sediment

65.25 - 67.93: thin and mostly discontinuous siliceous bands, elongated qtz clasts and granuales. Biotite - calcite rich PEL for about 30cm at upper and lower contacts.

<<Min: 65.25 - 67.93 1% Min: Pyrrhotite>>

<<Min: 66.93 - 72.19 0.5% Min: Pyrite>>

<<Alt: 65.25 - 67.98 Weak-Moderate Calcite>> weaker cA in middle of unit

<<Alt: 66 - 69 Trace Chlorite>>

67.93 72.19 RHYvx Quartz and/or feldspar crystal tuff

<<Alt: 67.98 - 72.19 Weak Calcite>>

<<Vein: 68.82 - 68.99 100% Quartz>>

<<Struc: 68.4 - 68.5 Moderate dominant foliation>>

<<Struc: 69 - 69.6 Weak Shear>> fracture with clay - calcite

<<Struc: 69 - 69.6 Moderate Foliation>> sulfide veinlets - banding

<<Struc: 72 - 72.05 Weak Shear>> fracture with clay - calcite

<<Struc: 72.15 - 72.9 Moderate-Strong dominant foliation>>

<<Struc: 72.18 - 72.2 Strong Contact>>

72.19 73.70 PEL Equigranular biotite + calcite +/- quartz rock

<<Min: 72.19 - 75.6 0.5% Min: Sphalerite>> thin qtz -calcite-sulfide bands and diss

<<Min: 72.19 - 75.6 3% Min: Pyrite>> thin qtz -calcite-sulfide bands

<<Min: 72.19 - 75.6 0.1% Min: Galena>>

<<Min: 72.19 - 76.02 3% Min: Pyrrhotite>>

<<Alt: 72.19 - 73.7 Moderate-Strong Calcite>>

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

73.70 75.60 RHYvx Quartz and/or feldspar crystal tuff

73.7 - 75.6: Blue qtz and feldspar phenos. Upper contact gradational over 5 cm. lower contact sharp with 8cm qtz vein between units.

<<Alt: 73.7 - 75.6 Trace Calcite>>

75.60 76.02 PEL Equigranular biotite + calcite +/- quartz rock

<<Alt: 75.6 - 78.23 Weak Calcite>>

<<Struc: 75.8 - 76 Weak dominant foliation>>

76.02 77.40 MDSt Rhyolite tuff dominant mudstone

76.02 - 77.4: Black fine grained biotite on folia between silicic bands- looks like a MDSt or even a MDSc but no conclusive carbonaceous material observed. Medium gray - green cherty - siliceous disaggregated bands and fragments, mm to cm scale, between biotite folia. Siliceous unit.

<<Min: 76.02 - 78 1% Min: Pyrrhotite>>

<<Vein: 76.25 - 76.45 40% Quartz>> bleached envelope

<<Struc: 77 - 77.4 Weak dominant foliation>>

77.40 78.23 PEL Equigranular biotite + calcite +/- quartz rock

77.4 - 78.23: includes 13 cm qtz vein at lower contact with rare blebs pyrite and sphalerite.

<<Min: 78 - 85.6 3% Min: Pyrrhotite>>

<<Vein: 78.11 - 78.23 100% Quartz-Chlorite-Sulphide>>

78.23 87.83 RHYcf Feldspar & feldspar quartz porphyry

78.23 - 87.83: Euhedral feldspar phenos up to 1cm. Same unit observed in K19-396.

<<Min: 85.6 - 89 3% Min: Pyrite>>

<<Min: 86.42 - 89 0.5% Min: Sphalerite>>

<<Min: 86.42 - 89 0.1% Min: Galena>>

<<Alt: 78.23 - 91.56 Trace Calcite>>

<<Struc: 85.4 - 85.75 Moderate Vein>>

<<Struc: 87.8 - 88 Moderate Foliation>> sulfide banding

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

87.83 92.92 RHYvx Quartz and/or feldspar crystal tuff

87.83 - 92.92: Unit is grey brown color, brown due to variable amounts of diss and locally banded biotite (PEL component). Lower 0.5m looks very clastic - coarse sandstone. Foliaform sulfide veinlets (approx 5% total) 87.83-88.90m.

<<Min: 89 - 91.56 0.1% Min: Sphalerite>>

<<Min: 89 - 94 0.5% Min: Pyrite>>

<<Min: 90.85 - 93.22 3% Min: Pyrrhotite>>

<<Alt: 91.56 - 93.55 Weak-Moderate Calcite>>

<<Vein: 92.05 - 93.38 10% Quartz-Carbonate>>

92.92 93.32 PEL Equigranular biotite + calcite +/- quartz rock

92.92 - 93.32: 5cm calcite and weak chlorite at upper contact. PEL units marks hiatis in deposition?

<<Min: 93.22 - 98.5 1% Min: Pyrrhotite>> diss and in thin qtz-cal-sulfide veinlets-bands

93.32 98.50 RHYvx Quartz and/or feldspar crystal tuff

93.32 - 98.5: Siliceous, cut by foliaform qtz-calcite-sulfide+/- chlorite veinlets (<1cm wide) from 94.08-98.50m (<5% total). Rare fine sulfide diss. Locally thin bands of PEL including band at 96.80-96.98m.

<<Min: 94 - 96.8 0.5% Min: Sphalerite>> thin qtz -calcite-sulfide bands and diss

<<Min: 94 - 96.8 3% Min: Pyrite>>

<<Min: 94 - 98.5 0.1% Min: Galena>>

<<Min: 96.8 - 98.5 0.1% Min: Sphalerite>>

<<Min: 96.8 - 98.5 5% Min: Pyrite>>

<<Alt: 93.55 - 96.1 Trace Calcite>>

<<Alt: 96.1 - 97 Weak Calcite>> couple <10cm PEL sections.

<<Alt: 97 - 98.5 Weak Calcite>>

<<Vein: 95.5 - 95.58 100% Quartz>>

<<Vein: 96.76 - 96.8 100% Quartz>>

<<Vein: 97.1 - 97.25 50% Quartz>> bleached envelope

<<Struc: 96.35 - 96.8 Moderate dominant foliation>> parallel to thin sulfide bands - veinlets

End of Hole @ 98.5