EQUITY | EXPLORATION CONSULTANTS LTD.

GeoSpark Logger ~ Drill Log

Project: KZK **Hole Number:** K16-409

Prospect:	ABM	Hole Type:	DD	Survey Type:	PLND-LiDAR	Logged By:	Oscar Nielsen
Grid:	NAD83_Z9	Hole Diameter:	96	Survey By:	Oscar Nielsen	Date Logging Start:	8/5/2016
UTM Easting	414850	Core Size:	HQ3	Azimuth:	180	Date Logging Complete:	8/8/2016
UTM Northing:	6815880	Casing Pulled?:	Yes	Dip:	-80.2	Drill Company:	Hytech
UTM Elev. (m):	1394	Casing Depth (m):	4.5	Length (m):	300	Drill Rig:	Tech 5000
Local Easting:		Stored?:	Yes	Claims Title		Drill Started:	8/4/2016
Local Northing:		Cemented?:	Yes	Core Storage Loc.:	KZK Camp	Drill Completed:	8/6/2016
Local Elev. (m):				Hole Completed?:	Completed	Purpose:	Resource Definition
						Parent Hole:	

Comments:

K16-409 was drilled to target the down-dip extension of the ABM sulphide lens. Neither the expected ABM lens nor the associated mafic sill are present in the hole. A 20 m thick zone of strong, green, muscovite alteration of the type associated with ABM mineralization, occurs at the top of the hole in a position with no known mineralization. This may indicate another pathway taken by mineralizing fluids at a stratigraphic position above known mineralization. The hole cuts a flow rich volcanic pile. Quartz eye bearing crystal tuffs are present in the top 50 and bottom 50 m. There is also a package of carbonaceous tuffs and flows from 185-200 m.

Downhole Surveys:

Depth (m)	Dip	Measured Azimuth	Correction Factor	Corrected Azimuth	Survey Type	Survey By	Survey Date	Mag Field	Accept Values?	Comments
0	-80.23	178.6	1.4	180	TN14	Oscar Nielsen	8/6/2016		☑	
5	-80.14857	177.47121	1.4	178.87121	Gyro	Oscar Nielsen	8/6/2016		☑	99.0208388186158
9	-80.6	160.6	22.1	182.7	ReflexEZS	Hytech	8/4/2016	5741	☐	
10	-80.07751	177.87158	1.4	179.27158	Gyro	Oscar Nielsen	8/6/2016		☑	100
15	-79.89923	178.49991	1.4	179.89991	Gyro	Oscar Nielsen	8/6/2016		☑	99.93819992817
20	-79.64488	179.40972	1.4	180.80972	Gyro	Oscar Nielsen	8/6/2016		☑	100
25	-79.41346	179.8683	1.4	181.2683	Gyro	Oscar Nielsen	8/6/2016		☑	100
30	-79.23487	180.94692	1.4	182.34692	Gyro	Oscar Nielsen	8/6/2016		☑	100
33	-79.5	161.8	22.1	183.9	ReflexEZS	Hytech	8/4/2016	5787	☐	
35	-79.03927	181.77066	1.4	183.17066	Gyro	Oscar Nielsen	8/6/2016		☑	100
40	-78.95634	182.55418	1.4	183.95418	Gyro	Oscar Nielsen	8/6/2016		☑	100
45	-78.76841	182.82437	1.4	184.22437	Gyro	Oscar Nielsen	8/6/2016		☑	100
50	-78.50538	183.08114	1.4	184.48114	Gyro	Oscar Nielsen	8/6/2016		☑	100
55	-78.37487	183.38434	1.4	184.78434	Gyro	Oscar Nielsen	8/6/2016		☑	100
57	-78.8	162	22.1	184.1	ReflexEZS	Hytech	8/4/2016	5784	☐	
60	-78.11471	183.93176	1.4	185.33176	Gyro	Oscar Nielsen	8/6/2016		☑	100
65	-77.95693	184.37071	1.4	185.77071	Gyro	Oscar Nielsen	8/6/2016		☑	100
70	-77.80593	184.86457	1.4	186.26457	Gyro	Oscar Nielsen	8/6/2016		☑	100
75	-77.61153	184.91983	1.4	186.31983	Gyro	Oscar Nielsen	8/6/2016		☑	100

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Depth (m)	Dip	Measured Azimuth	Correction Factor	Corrected Azimuth	Survey Type	Survey By	Survey Date	Mag Field	Accept Values?	Comments
80	-77.50785	184.89051	1.4	186.29051	Gyro	Oscar Nielsen	8/6/2016		☑	100
81	-77.5	167.3	22.1	189.4	ReflexEZS	Hytech	8/4/2016	5863	☐	
85	-77.32756	184.85488	1.4	186.25488	Gyro	Oscar Nielsen	8/6/2016		☑	100
90	-77.28773	184.95418	1.4	186.35418	Gyro	Oscar Nielsen	8/6/2016		☑	100
95	-77.1776	184.87681	1.4	186.27681	Gyro	Oscar Nielsen	8/6/2016		☑	100
100	-77.1648	184.86427	1.4	186.26427	Gyro	Oscar Nielsen	8/6/2016		☑	100
105	-77.01549	185.10638	1.4	186.50638	Gyro	Oscar Nielsen	8/6/2016		☑	100
105.01	-77.4	167	22.1	189.1	ReflexEZS	Hytech	8/4/2016	5768	☐	
110	-76.92179	185.429	1.4	186.829	Gyro	Oscar Nielsen	8/6/2016		☑	100
115	-76.84893	185.766	1.4	187.166	Gyro	Oscar Nielsen	8/6/2016		☑	100
120	-76.70331	185.8635	1.4	187.2635	Gyro	Oscar Nielsen	8/6/2016		☑	99.958849621056
125	-76.6109	186.37306	1.4	187.77306	Gyro	Oscar Nielsen	8/6/2016		☑	100
129	-76.7	166.5	22.1	188.6	ReflexEZS	Hytech	8/5/2016	5779	☐	
130	-76.50162	186.28926	1.4	187.68926	Gyro	Oscar Nielsen	8/6/2016		☑	100
135	-76.40449	186.63162	1.4	188.03162	Gyro	Oscar Nielsen	8/6/2016		☑	100
140	-76.30555	186.41709	1.4	187.81709	Gyro	Oscar Nielsen	8/6/2016		☑	100
145	-76.27739	186.74985	1.4	188.14985	Gyro	Oscar Nielsen	8/6/2016		☑	99.9594959994396
150	-76.27538	186.93816	1.4	188.33816	Gyro	Oscar Nielsen	8/6/2016		☑	100
153	-76.5	170.7	22.1	192.8	ReflexEZS	Hytech	8/5/2016	5827	☐	
155	-76.21696	186.94341	1.4	188.34341	Gyro	Oscar Nielsen	8/6/2016		☑	100
160	-76.18474	187.1027	1.4	188.5027	Gyro	Oscar Nielsen	8/6/2016		☑	100
165	-76.15428	187.0522	1.4	188.4522	Gyro	Oscar Nielsen	8/6/2016		☑	100
170	-76.1632	187.13248	1.4	188.53248	Gyro	Oscar Nielsen	8/6/2016		☑	99.8246687574656
175	-76.07335	187.05198	1.4	188.45198	Gyro	Oscar Nielsen	8/6/2016		☑	100
177	-76.2	167.3	22.1	189.4	ReflexEZS	Hytech	8/5/2016	5774	☐	
180	-76.031	187.07936	1.4	188.47936	Gyro	Oscar Nielsen	8/6/2016		☑	100
185	-76.03848	187.54864	1.4	188.94864	Gyro	Oscar Nielsen	8/6/2016		☑	99.864988443744
190	-75.96056	187.84741	1.4	189.24741	Gyro	Oscar Nielsen	8/6/2016		☑	99.9110373590807
195	-75.93342	188.0731	1.4	189.4731	Gyro	Oscar Nielsen	8/6/2016		☑	100
200	-75.87804	188.33181	1.4	189.73181	Gyro	Oscar Nielsen	8/6/2016		☑	100
201	-76.2	170.3	22.1	192.4	ReflexEZS	Hytech	8/5/2016	5782	☐	
205	-75.84392	188.61222	1.4	190.01222	Gyro	Oscar Nielsen	8/6/2016		☑	100
210	-75.80809	188.90662	1.4	190.30662	Gyro	Oscar Nielsen	8/6/2016		☑	100
215	-75.78388	189.02162	1.4	190.42162	Gyro	Oscar Nielsen	8/6/2016		☑	100

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Depth (m)	Dip	Measured Azimuth	Correction Factor	Corrected Azimuth	Survey Type	Survey By	Survey Date	Mag Field	Accept Values?	Comments
220	-75.74466	189.19871	1.4	190.59871	Gyro	Oscar Nielsen	8/6/2016		☑	100
225	-75.73178	189.42742	1.4	190.82742	Gyro	Oscar Nielsen	8/6/2016		☑	100
225.01	-76.2	168	22.1	190.1	ReflexEZS	Hytech	8/5/2016	5794	☐	
230	-75.73784	189.32579	1.4	190.72579	Gyro	Oscar Nielsen	8/6/2016		☑	100
235	-75.71448	189.37882	1.4	190.77882	Gyro	Oscar Nielsen	8/6/2016		☑	99.7658424344681
240	-75.7043	189.45684	1.4	190.85684	Gyro	Oscar Nielsen	8/6/2016		☑	100
245	-75.6233	189.80925	1.4	191.20925	Gyro	Oscar Nielsen	8/6/2016		☑	100
249	-75.8	170.6	22.1	192.7	ReflexEZS	Hytech	8/5/2016	5738	☐	
250	-75.52309	189.9175	1.4	191.3175	Gyro	Oscar Nielsen	8/6/2016		☑	100
255	-75.45349	189.84269	1.4	191.24269	Gyro	Oscar Nielsen	8/6/2016		☑	100
260	-75.37792	190.08064	1.4	191.48064	Gyro	Oscar Nielsen	8/6/2016		☑	100
265	-75.35977	190.26934	1.4	191.66934	Gyro	Oscar Nielsen	8/6/2016		☑	100
270	-75.29684	190.29029	1.4	191.69029	Gyro	Oscar Nielsen	8/6/2016		☑	100
273	-75.2	170.5	22.1	192.6	ReflexEZS	Hytech	8/6/2016	5799	☐	
275	-75.22647	190.4375	1.4	191.8375	Gyro	Oscar Nielsen	8/6/2016		☑	100
280	-75.12945	190.73849	1.4	192.13849	Gyro	Oscar Nielsen	8/6/2016		☑	100
285	-75.06106	190.98515	1.4	192.38515	Gyro	Oscar Nielsen	8/6/2016		☑	100
290	-75.01511	190.81004	1.4	192.21004	Gyro	Oscar Nielsen	8/6/2016		☑	100
299.99	-74.8	168.7	22.1	190.8	ReflexEZS	Hytech	8/6/2016	5771	☐	

From (m)	To (m)	Rocktype & Description	From (m)	To (m)	Width	Sample	Au ppm	Ag ppm	Cu %	Pb %	Zn %
0.00	**4.50**	**OVBN Overburden**									
4.50	**18.35**	**RHYva Coarse grained to ash tuff grey-green FG**									

4.5 - 18.35: Fine grained, finely banded, rhyolitic ash tuff. Green colour come from muscovite alteration.

<<Min: 4.5 - 15.3 1% Min: Pyrite>> Bands, blebs and aggregate of pyrite associated with strong MU alteration

<<Min: 13.3 - 20.96 1% Min: Pyrrhotite>> Foliation parallel bands and wisps

<<Alt: 4.5 - 17.55 Moderate Muscovite>> Altering the non-siliceous component

<<Alt: 4.5 - 20.96 Weak Calcite>>

<<Alt: 17.55 - 18.35 Weak Silicification>> Possibly related to the adjacent RHYcw?

<<Alt: 17.55 - 20.96 Weak-Moderate Muscovite>> Altering the non-siliceous component

<<Struc: 16.6 - 16.61 dominant foliation>>

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

18.35 20.96 RHYcw Curdy textured-flow banded (flows, subvolcanics) grey-green FG

18.35 - 20.96: Aphanitic, siliceous, muscovite altered unit of coherent rhyolite.

20.96 29.45 RHYvx Quartz and/or feldspar crystal tuff medium grey FCG

20.96 - 29.45: Thick, massive unit of poorly sorted volcano-epiclastic material, comprising 1-4mm fragments of quartz/siliceous material and dark and light lithic fragments.

<<Min: 20.96 - 24.85 0.5% Min: Pyrrhotite>> Foliation parallel wisps

<<Min: 24.6 - 25.4 0.5% Min: Sphalerite>> Foliation parallel aggregates

<<Min: 25.4 - 27.55 0.5% Min: Pyrite>>

<<Min: 27.55 - 29.45 0.5% Min: Pyrrhotite>>

<<Alt: 20.96 - 24.85 Weak Muscovite>> Altering the non-siliceous component

<<Alt: 20.96 - 27.55 Weak-Moderate Silicification>> Through the RHYvx

<<Alt: 20.96 - 38.35 Trace Calcite>> Rare blebs.

<<Vein: 21.5 - 21.87 20% Quartz-Carbonate>>

<<Vein: 27.55 - 32.75 35% Quartz-Carbonate 60 deg. >>

<<Struc: 27.4 - 32.75 Weak Fault>> Narrow fault gouge zones associated with MU alteration and massive QZ veins.

29.45 33.35 RHYva Coarse grained to ash tuff grey-green FMG

29.45 - 33.35: Strongly altered unit of rhyolitic ash tuff with thin, coarser beds of 0.5-1 mm bands of medium grained material, and crystals increasing towards the bottom. There are rare thin, siliceous wavy/flattened (pumice?) clasts.

<<Min: 29.45 - 37.85 0.5% Min: Pyrite>>

<<Alt: 29.45 - 30.58 Moderate-Strong Muscovite>> Strong, pervasive muscovite alteration, small zone of muscovite mush

<<Alt: 30.58 - 36.76 Weak-Moderate Muscovite>> Altering the non-siliceous component

<<Struc: 33.33 - 33.34 dominant foliation>>

33.35 39.00 RHYvx Quartz and/or feldspar crystal tuff grey-green FCG

33.35 - 39: Abundant round quartz eyes and white-green feldspar? crystals? in a fine grained ashy matrix.

<<Min: 37.85 - 40.58 0.01% Min: Pyrite>>

<<Alt: 36.76 - 37.85 Moderate Muscovite>> Altering the non-siliceous component

<<Alt: 37.85 - 49.66 Weak Muscovite>> Altering the non-siliceous component

<<Alt: 38.35 - 41.14 Weak Calcite>> Blebs and crystal replacement

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

<<Struc: 37.6 - 37.7 Weak Shear>> Weak shearing associated with QZ/CA vein.

39.00 39.36 PEL Equigranular biotite + calcite +/- quartz rock dark grey FG

39 - 39.36: Thin unit of fine grained sedimentary rock with porphyroblasts of biotite and ankerite

<<Alt: 39 - 39.36 Moderate Biotite>> Black euhedral biotite porphyroblasts, associated with diamond shaped ankerite porphyroblasts

<<Alt: 39 - 39.36 Moderate Ankerite>> Cream coloured diamond shaped porphyroblasts, fizz after scratching

39.36 40.13 RHYvx Quartz and/or feldspar crystal tuff grey-green FCG

39.36 - 40.13: Abundant round quartz eyes and white-green feldspar? crystals? in a fine grained ashy matrix.

<<Alt: 40.11 - 40.58 Weak-Moderate Biotite>> Black euhedral biotite porphyroblasts, associated with diamond shaped ankerite porphyroblasts

<<Alt: 40.11 - 40.58 Weak-Moderate Ankerite>> Cream coloured diamond shaped subhedral porphyroblasts, fizz after scratching

40.13 41.11 PEL Equigranular biotite + calcite +/- quartz rock medium grey FMG

40.13 - 41.11: Thin unit of fine to medium grained sedimentary rock with porphyroblasts of biotite and ankerite

<<Min: 40.58 - 41.14 0.01% Min: Pyrrhotite>>

41.11 49.66 RHYvx Quartz and/or feldspar crystal tuff grey-brown FCG

41.11 - 49.66: Abundant round quartz eyes and white-green feldspar? crystals? in a fine grained ashy matrix.

<<Min: 41.14 - 49.66 0.5% Min: Pyrrhotite>>

<<Alt: 41.14 - 43.05 Moderate Calcite>>

<<Alt: 43.05 - 49.66 Weak Calcite>> Blebs and crystal replacement

<<Struc: 41.52 - 41.53 Foliation>>

<<Struc: 46.46 - 46.47 dominant foliation>>

49.66 51.40 RHYcw Curdy textured-flow banded (flows, subvolcanics) light grey FCG

49.66 - 51.4: Curdy-textured siliceous unit comprising clots of silica material divided by thin domains of green-brown muscovite and/or biotite

<<Struc: 49.96 - 49.97 Foliation>> Flow band.

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

51.40 53.96 PEL Equigranular biotite + calcite +/- quartz rock dark grey FG

51.4 - 53.96: Unit of fine grained sedimentary rock with porphyroblasts of biotite and ankerite

<<Min: 53.56 - 53.96 0.01% Min: Pyrrhotite>>

<<Alt: 51.4 - 53.96 Weak-Moderate Calcite>> Patches of pervasive calcite, where ankerite porphyroblasts have not grown

<<Alt: 51.4 - 53.96 Moderate Biotite>> Black euhedral biotite porphyroblasts, associated with diamond shaped ankerite porphyroblasts

<<Alt: 51.4 - 53.96 Moderate Ankerite>> Cream coloured diamond shaped porphyroblasts, fizz after scratching

53.96 56.19 RHYcw Curdy textured-flow banded (flows, subvolcanics) light grey FCG

53.96 - 56.19: Curdy-textured siliceous unit comprising clots of silica material divided by thin domains of green-brown muscovite and/or biotite

<<Alt: 53.96 - 79.13 Trace Calcite>>

56.19 58.19 RHYvx Quartz and/or feldspar crystal tuff grey-brown FCG

56.19 - 58.19: Abundant round quartz eyes and white-green feldspar? crystals? in a fine grained ashy matrix.

<<Min: 56.19 - 114 0.5% Min: Pyrrhotite>>

<<Vein: 57.31 - 58.52 20% Quartz-Carbonate 75 deg. >> SUL=Sphalerite

58.19 59.72 RHYva Coarse grained to ash tuff dark grey FG

58.19 - 59.72: A thin unit of generally well sorted, massive, fine grained ash tuff with rare quartz eye clasts

<<Struc: 59.39 - 59.4 dominant foliation>>

59.72 60.11 MDSt Rhyolite tuff dominant mudstone dark grey FG

59.72 - 60.11: a thin unit comprising alternating light and dark, well formed bands of fine sediment. some bands are chaotically folded

60.11 71.44 RHYva Coarse grained to ash tuff medium grey FCG

60.11 - 71.44: Abundant round quartz eyes and white-green feldspar? crystals? in a fine grained ashy matrix.

<<Min: 63 - 64.4 0.01% Min: Pyrite>>

<<Min: 64.4 - 114.4 1% Min: Pyrrhotite>> Bands of disseminated pyrrhotite

<<Alt: 60.11 - 64.4 Trace Biotite>> Patches of disseminated euhedral black biotite

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

<<Alt: 64.4 - 71.44 Weak Biotite>> Patches of disseminated euhedral black biotite

<<Vein: 63 - 66 10% Tourmaline 5 deg. >>

<<Vein: 66.5 - 67.38 85% Quartz-Carbonate 75 deg. >>

<<Struc: 62.25 - 62.26 Foliation>> Flow band.

<<Struc: 64.98 - 64.99 dominant foliation>>

71.44 79.13 RHYvl Lapilli tuff medium grey FCG

71.44 - 79.13: A thick unit comprising a matrix of fine grained grey ashy material (with biotite porphyroblasts) and 0.5-5 cm flattened white siliceous clasts (lapilli). The lower 50 cm of the unit contains a higher abundance of lapilli (50-60%) with larger sizes, possibly indicating a graded bed, tops up.

<<Alt: 71.44 - 79.13 Trace Biotite>> Patches of disseminated euhedral black biotite

<<Alt: 71.44 - 114.4 Weak Tourmaline>> Small clots and rare fans of tourmaline

<<Struc: 72.09 - 72.1 dominant foliation>>

<<Struc: 74.65 - 74.66 dominant foliation>>

79.13 81.04 PEL Equigranular biotite + calcite +/- quartz rock grey-green FG

79.13 - 81.04: A thin unit of well banded, well sorted, fine grained pelite. Rare black euhedral biotite porphyroblasts are present with euhedral ankerite porphyroblasts and bands of calcite.

<<Alt: 79.13 - 81.04 Moderate Chlorite>> Pervasive chlorite flakes, possibly indicating a mafic source for the pelitic sediment

<<Alt: 79.13 - 81.04 Weak-Moderate Calcite>> porphyroblasts with calcite and bands

<<Alt: 79.13 - 81.04 Weak Biotite>> Patches and ankerite associated aggregates of disseminated euhedral black biotite

<<Alt: 79.13 - 81.04 Weak-Moderate Ankerite>> Cream coloured diamond shaped porphyroblasts, fizz after scratching

81.04 83.45 RHYva Coarse grained to ash tuff dark grey FMG

81.04 - 83.45: Primarily comprises fine grained siliceous ashy material with rare siliceous flattened lapilli. biotite and chlorite in the groundmass make the rock appear dark

<<Alt: 81.04 - 83.45 Trace Calcite>>

<<Alt: 81.4 - 83.45 Weak-Moderate Biotite>> Fine dark brown biotite in bands throughout the unit.

83.45 84.72 PEL Equigranular biotite + calcite +/- quartz rock brown FG

83.45 - 84.72: Pelitic unit composed of biotite material, both fine brown shreddy biotite and large2-4 mm black euhedral biotite porphyroblasts. Also present, giving the rock its distinctive appearance are euhedral diamond shaped ankerite porphyroblasts in bands

<<Alt: 83.45 - 84.72 Moderate Biotite>> Fine dark brown biotite in bands throughout the unit.

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

<<Alt: 83.45 - 84.72 Weak-Moderate Ankerite>> Cream coloured diamond shaped porphyroblasts, fizz after scratching

<<Alt: 83.45 - 84.78 Moderate Calcite>> porphyroblasts with calcite and pervasive throughout the rest of the unit

84.72 85.87 RHYva Coarse grained to ash tuff dark grey FCG

84.72 - 85.87: Primarily comprises fine grained siliceous ashy material with rare biotite-chlorite altered flattened lapilli. biotite and chlorite in the groundmass make the rock appear dark.

<<Alt: 84.72 - 85.87 Weak Biotite>> Fine dark brown biotite in patches.

<<Alt: 84.78 - 85.87 Trace Calcite>>

<<Struc: 84.97 - 84.98 dominant foliation>>

85.87 87.04 PEL Equigranular biotite + calcite +/- quartz rock brown FG

85.87 - 87.04: Pelitic unit composed of biotite material, both fine brown shreddy biotite and large2-4 mm black euhedral biotite porphyroblasts. Also present, giving the rock its distinctive appearance are euhedral diamond shaped ankerite porphyroblasts in bands. from 86.21-86.40, there is an interval of INT, with sharp contacts, possibly a baked margin (locally bleached)

<<Alt: 85.87 - 87.04 Moderate Calcite>> Pervasive, except for two small zones of silica alteration

<<Alt: 85.87 - 87.04 Moderate Biotite>> Fine dark brown biotite in bands throughout the unit.

<<Alt: 86.24 - 86.4 Moderate-Strong Silicification>> Strong, texture destroying silica alteration. Looks like a felsic dyke perhaps?

87.04 87.54 RHYva Coarse grained to ash tuff dark grey FCG

87.04 - 87.54: Primarily comprises fine grained siliceous ashy material with rare biotite-chlorite altered flattened lapilli. biotite and chlorite in the groundmass make the rock appear dark.

<<Alt: 87.04 - 87.54 Trace Calcite>>

<<Alt: 87.04 - 87.54 Weak Biotite>> Fine dark brown biotite in pseudoclastic patches

87.54 88.01 PEL Equigranular biotite + calcite +/- quartz rock brown FG

87.54 - 88.01: Pelitic unit composed of biotite material, both fine brown shreddy biotite and large2-4 mm black euhedral biotite porphyroblasts. Also present, giving the rock its distinctive appearance are euhedral diamond shaped ankerite porphyroblasts in bands.

<<Alt: 87.54 - 88.01 Moderate Calcite>>

<<Alt: 87.54 - 88.01 Moderate Biotite>> Fine dark brown biotite in bands throughout the unit.

88.01 91.03 RHYvl Lapilli tuff medium grey FCG

88.01 - 91.03: A thick unit comprising a matrix of fine grained grey ashy material (with biotite porphyroblasts) and 0.5-5 cm flattened white siliceous clasts (lapilli).

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

<<Alt: 88.01 - 91.03 Trace Biotite>> Disseminated euhedral black porphyroblasts of biotite

<<Alt: 88.01 - 114.4 Trace Chlorite>> Weak chlorite alteration in patches throughout the units

<<Alt: 88.01 - 118.48 Weak Calcite>> Blebs and bands of calcite

91.03 114.40 RHYva Coarse grained to ash tuff dark grey FCG

91.03 - 114.4: Primarily comprises fine grained siliceous ashy material with rare biotite-chlorite altered or siliceous flattened lapilli. Biotite and chlorite in the groundmass make the rock appear dark.

<<Alt: 91.03 - 114.4 Trace Biotite>> Fine dark brown biotite in patches.

<<Vein: 94.5 - 98.5 10% Tourmaline 45 deg. >> SUL (CP 0.5%, GL 0.5%) Cockade form in one vein, tourmaline on the outside, quartz on the inside.

<<Vein: 102.5 - 113 5% Tourmaline>>

<<Struc: 96.76 - 96.77 dominant foliation>>

<<Struc: 101.39 - 101.4 dominant foliation>>

<<Struc: 104.89 - 104.9 dominant foliation>>

<<Struc: 109.29 - 109.3 dominant foliation>>

114.40 117.39 RHYvl Lapilli tuff light grey FCG

114.4 - 117.39: This unit comprises 1-3cm lensoid white-green clasts (monomictic) with a matrix of fine grained material. It appears that these clasts (lapilli) are more common than in the preceding unit however this may be the result of alteration surrounding the fault that runs through the unit.

<<Min: 114.4 - 117.39 3% Min: Pyrite>>

<<Min: 114.4 - 117.39 0.5% Min: Pyrrhotite>> Bands of disseminated pyrrhotite

<<Struc: 114.94 - 117.03 Moderate Fault>> Multi-zone fault, comprising 3 gougy zones 5-25 cm thick, separated by intervals of boken rock or rubble.

117.39 128.30 RHYva Coarse grained to ash tuff dark grey FCG

117.39 - 128.3: Primarily comprises fine grained siliceous ashy material with rare biotite-chlorite altered and/or siliceous flattened lapilli. The biotite altered lapilli may be pseudoclasts. Biotite and chlorite in the groundmass make the rock appear dark.

<<Min: 117.39 - 146.67 1% Min: Pyrite>>

<<Min: 117.39 - 146.67 0.5% Min: Pyrrhotite>>

<<Alt: 117.39 - 119.68 Weak Biotite>> Fine dark brown biotite in bands

<<Alt: 117.39 - 142.35 Trace Chlorite>> Weak chlorite alteration in patches throughout the units

<<Alt: 118.48 - 119.68 Moderate Calcite>>

<<Alt: 119.68 - 120.79 Moderate Biotite>> Fine dark brown biotite throughout the interval

<<Alt: 119.68 - 122.2 Moderate-Strong Calcite>>

<<Alt: 120.79 - 122.2 Weak Biotite>> Fine dark brown biotite

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

<<Alt: 122.2 - 126 Weak-Moderate Calcite>>

<<Alt: 122.2 - 142.35 Trace Biotite>> Patches of fine dark brown biotite

<<Alt: 126 - 143.53 Weak Calcite>>

<<Vein: 120.22 - 120.26 100% Quarzt-Biotite 45 deg. >>

<<Vein: 126.64 - 126.95 100% Quartz>> SUL= GL

<<Struc: 124.46 - 124.46 dominant foliation>> Chloritic parting

128.30 131.44 RHYvl Lapilli tuff medium grey FCG

128.3 - 131.44: This unit comprises 1-3cm lensoid white-green clasts (monomictic) with a matrix of fine grained material. It appears that these clasts (lapilli) are more common than in the preceding unit however this may be the result of alteration surrounding the fault t that runs through the unit.

<<Vein: 131.05 - 144 1% Tourmaline-Sulphide 45 deg. >> sulphide = pyrrhotite UND = talc

131.44 143.53 RHYva Coarse grained to ash tuff dark grey FCG

131.44 - 143.53: Primarily comprises fine grained siliceous ashy material with rare biotite-chlorite altered and/or siliceous flattened lapilli. The biotite altered lapilli may be pseudoclasts. Biotite and chlorite in the groundmass make the rock appear dark.

<<Alt: 142.35 - 143.53 Weak Muscovite>> Bands of cream-green muscovite cutting the BCQ alteration

<<Struc: 134.4 - 134.4 dominant foliation>> Chloritic parting

143.53 146.67 RHYva Coarse grained to ash tuff grey-green FCG

143.53 - 146.67: This moderately muscovite altered unit comprises mainly fine grained ash material, with subangular/deformed 1-5 mm light green patches, interpreted as clasts.

<<Alt: 143.53 - 149.85 Weak-Moderate Muscovite>> Patchy/pervasive cream green alteration.

<<Vein: 144.89 - 145.6 5% Ankerite 45 deg. >>

<<Struc: 144.2 - 144.2 Vein>> Tourmaline-quartz-biotite vein, cut by py-qtz vein

146.67 148.14 RHYcw Curdy textured-flow banded (flows, subvolcanics) grey-green FG

146.67 - 148.14: This moderately to strongly altered unit comprises wavy bands of siliceous material in a mass of muscovite with pyrite. interpreted as a coherent flow

<<Min: 146.67 - 148.14 3% Min: Pyrite>>

148.14 151.44 RHYva Coarse grained to ash tuff grey-green FCG

148.14 - 151.44: This moderately muscovite altered unit comprises mainly fine grained ash material, with subangular/deformed 1-5 mm light green patches, interpreted as clasts.

<<Min: 148.14 - 155.82 0.5% Min: Pyrite>>

<<Min: 148.14 - 155.82 1% Min: Pyrrhotite>>

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

<<Vein: 149.85 - 149.9 100% Quartz-Carbonate 10 deg. >>

151.44 151.60 RHYva Coarse grained to ash tuff dark grey FG

151.44 - 151.6: Well sorted fine grained, relatively unaltered, well bedded ash tuff

151.60 154.57 RHYva Coarse grained to ash tuff medium grey FG

151.6 - 154.57: Weakly altered unit of poorly banded , homogeneous fine grained material. No strong distinguishing features

<<Alt: 151.6 - 154.57 Weak Muscovite>>

<<Vein: 154.35 - 183.42 15% Quartz>>

<<Struc: 154.2 - 154.28 Weak Fault>> small gougy fault in weak rock

154.57 155.82 MDSt Rhyolite tuff dominant mudstone dark grey FG

154.57 - 155.82: Well banded, strongly deformed unit with bands of black carbonaceous material with light green muscovite altered alternating bands, interpreted as ashy layers.

<<Min: 154.57 - 155.82 0.01% Min: Pyrite>>

<<Struc: 155.23 - 155.23 dominant foliation>> Carbonaceous parting

155.82 166.70 RHY undifferentiated rhyolite green FG

155.82 - 166.7: Strongly muscovite altered rhyolitic material with ptygmatic bands (veins?) of quartz and pyrite as well as massive quartz pods/veins. primary textures not preserved

<<Min: 155.82 - 160.1 1% Min: Pyrite>>

<<Min: 160.1 - 160.9 1% Min: Pyrite>>

<<Min: 166.14 - 189.76 1% Min: Pyrite>>

<<Min: 166.14 - 189.76 0.01% Min: Pyrrhotite>>

<<Alt: 155.82 - 159.2 Moderate Muscovite>> Pervasive alteration, barring the siliceous zones

<<Alt: 159.2 - 166.14 Moderate-Strong Muscovite>> No textures left, but rock is still coherent

<<Alt: 166.14 - 170.56 Moderate Muscovite>>

<<Struc: 166.5 - 166.5 dominant foliation>> Micaceous parting

166.70 175.51 RHY undifferentiated rhyolite green FMG

166.7 - 175.51: Strongly muscovite altered rhyolitic material with ptygmatic bands (veins?) of quartz and pyrite as well as massive quartz pods/veins. The sole primary texture preserved is the siliceous quartz eyes present in the rock.

<<Alt: 170.56 - 172.57 Weak-Moderate Muscovite>> Does not alter the siliceous pods

<<Alt: 172.57 - 180.3 Moderate Muscovite>>

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

175.51 176.11 RHYcw Curdy textured-flow banded (flows, subvolcanics) green FG

175.51 - 176.11: Strongly muscovite altered unit. Curdy silica texture has been preserved through the alteration, suggesting a unit of RHYcw.

176.11 181.70 RHY undifferentiated rhyolite green FMG

176.11 - 181.7: Strongly muscovite altered rhyolitic material with ptygmatic bands (veins?) of quartz and pyrite as well as massive quartz pods/veins. The sole primary feature preserved are the rare siliceous quartz eyes present in the rock.

<<Alt: 180.3 - 181.7 Moderate-Strong Muscovite>>

<<Struc: 179.41 - 179.41 dominant foliation>> Micaceous parting

181.70 187.56 RHYv Rhyolite volcaniclastic green FMG

181.7 - 187.56: strongly muscovite altered unit, well developed banding is preserved, as well as rare quartz eyes, suggesting a sedimentary process. The lack of additional features suggests an ash tuff

<<Alt: 181.7 - 187.56 Moderate Muscovite>> Banding is preserved, despite pervasive alteration

<<Struc: 186.97 - 186.97 dominant foliation>> micaceous fault

187.56 192.10 MDSw Coherent rhyolite flow with carbonaceous content light grey FG

187.56 - 192.1: This unit primarily consists of curdy-textured silica with deformed bands of carbonaceous material and muscovite.

<<Min: 189.76 - 235.63 1% Min: Pyrite>> In bands with quartz and disseminated

<<Alt: 187.56 - 188.47 Weak-Moderate Muscovite>> Moderately altered between curdy silica pods and carbonaceous material.

<<Alt: 188.47 - 189.21 Weak Muscovite>> Weakly altered between curdy silica pods and carbonaceous material.

<<Vein: 188.87 - 188.9 100% Quartz 75 deg. >>

192.10 195.34 MDSt Rhyolite tuff dominant mudstone grey-green FG

192.1 - 195.34: Comprises moderately muscovite altered rhyolitic material with deformed and dismembered bands of carbonaceous material as well bands/veins of quartz-pyrite. Due to the lower levels of poddy-curdy silica in this unit it is interpreted as a tuffaceous unit.

<<Alt: 192.72 - 195.08 Weak-Moderate Muscovite>> Moderately altered between the ptygmatic quartz-pyrite bands and carbonaceous material.

<<Alt: 195.08 - 270.02 Weak Muscovite>> Overprint white/silver muscovite

<<Struc: 192.94 - 193 Weak-Moderate Fault>> 95% gouge, 5% crushed rock

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

195.34 202.38 MDSw Coherent rhyolite flow with carbonaceous content medium grey FG

195.34 - 202.38: This unit primarily consists of curdy-textured silica with deformed bands of carbonaceous material and muscovite.

202.38 224.40 RHYcw Curdy textured-flow banded (flows, subvolcanics) medium grey FG

202.38 - 224.4: Comprises primarily curdy textured silica. The interstitial material to this silica is muscovite. Quartz eyes are very rare, possible xenocrysts

224.40 224.80 RHYva Coarse grained to ash tuff light grey FG

224.4 - 224.8: A thin zone of ash? within a sequence of coherent rhyolitic flow units. This could e a xenolith within a single flow, or possibly an intra-flow layer however, there does not appear to be a flow top breccia on either margin.

224.80 235.63 RHYcw Curdy textured-flow banded (flows, subvolcanics) grey-green FG

224.8 - 235.63: Comprises primarily curdy textured silica. The interstitial material to this silica is muscovite.

235.63 238.84 RHYva Coarse grained to ash tuff light grey FCG

235.63 - 238.84: Comprises a matrix of fine grained, weakly muscovite altered siliceous ashy material, with rare 0.5-2.5 cm siliceous lapilli, <15%.

<<Min: 235.63 - 255.02 1% Min: Pyrrhotite>>

<<Alt: 235.63 - 270.02 Weak Calcite>>

238.84 242.95 RHYvl Lapilli tuff light grey FCG

238.84 - 242.95: Comprises a matrix of fine grained, weakly muscovite altered siliceous ashy material, with rare 0.5-2.5 cm siliceous lapilli, >15%.

<<Struc: 239.36 - 239.36 dominant foliation>> lapilli flattening plane

242.95 256.02 RHYvl Lapilli tuff medium grey FCG

242.95 - 256.02: Comprises a matrix of fine grained, weakly muscovite or chlorite altered siliceous ashy material, with lapilli of various varieties (siliceous, BCQlpl, carbonate bearing) lapilli, >15% and lithic fragments.

<<Min: 255.02 - 300 0.5% Min: Pyrrhotite>>

<<Alt: 242.95 - 251.82 Weak Chlorite>> Patchy chlorite in the matrix of the RHYvl and occasionally in the lapilli too.

<<Vein: 248.78 - 248.8 100% Quartz 25 deg. >>

<<Struc: 253.1 - 253.1 dominant foliation>> Micaceous parting plane

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

256.02 270.02 RHYvx Quartz and/or feldspar crystal tuff medium grey FMG

256.02 - 270.02: Comprises crystals of feldspar (15-20%) and common quartz eyes (1-5%) in a matrix of fine grained ashy material.

<<Vein: 256.58 - 256.71 100% Quartz-Carbonate 70 deg. >>

<<Vein: 267.25 - 267.57 100% Quartz-Carbonate>>

270.02 270.29 PEL Equigranular biotite + calcite +/- quartz rock grey-brown FG

270.02 - 270.29: Comprises a unit of biotite altered (fine, brown) pelitic material, well banded, with pervasive calcite.

<<Alt: 270.02 - 270.29 Moderate Calcite>> Hosted in pelite

<<Alt: 270.02 - 270.29 Weak-Moderate Biotite>> Hosted in pelite

270.29 285.33 RHYvx Quartz and/or feldspar crystal tuff medium grey FMG

270.29 - 285.33: Comprises crystals of feldspar (15-20%) and common quartz eyes (1-5%) in a matrix of fine grained ashy material.

<<Alt: 270.29 - 285.33 Weak Muscovite>> Overprint white/silver muscovite

<<Alt: 270.29 - 285.33 Weak Calcite>>

<<Vein: 272 - 276 5% Tourmaline 5 deg. >> Vein has releasing bends, revealing a dextral offset, with Beta ~320

<<Vein: 277.55 - 278.3 75% Quartz>>

<<Vein: 278.14 - 278.3 5% Tourmaline>>

<<Vein: 280.79 - 280.89 95% Quartz-Carbonate>>

<<Struc: 275.4 - 275.4 Vein>> Tourmaline vein with releasing bends, indicating normal motion

285.33 285.83 PEL Equigranular biotite + calcite +/- quartz rock grey-brown FG

285.33 - 285.83: Comprises a unit of biotite altered (fine, brown) pelitic material, well banded, with pervasive calcite.

<<Alt: 285.33 - 285.83 Moderate Calcite>> Hosted in pelite

<<Alt: 285.33 - 285.83 Weak-Moderate Biotite>> Hosted in pelite

285.83 291.97 RHYvx Quartz and/or feldspar crystal tuff medium grey FMG

285.83 - 291.97: Comprises crystals of feldspar (15-20%) and common quartz eyes (1-5%) in a matrix of fine grained ashy material.

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

<<Alt: 285.83 - 291.97 Weak Muscovite>> Overprint white/silver muscovite

<<Alt: 285.83 - 291.97 Weak Calcite>>

<<Vein: 287.85 - 287.92 100% Quartz>> SUL (0.9 SP, 0.1 GL)

<<Struc: 285.83 - 285.83 Contact>> Lower contact between PEL-RHYvx

291.97 292.15 PEL Equigranular biotite + calcite +/- quartz rock grey-brown FG

291.97 - 292.15: Comprises a unit of biotite altered (fine, brown) pelitic material, well banded, with pervasive calcite.

<<Alt: 291.97 - 292.15 Weak-Moderate Calcite>> Hosted in pelite

<<Alt: 291.97 - 292.15 Weak-Moderate Biotite>> Hosted in pelite

292.15 295.68 RHYvx Quartz and/or feldspar crystal tuff medium grey FMG

292.15 - 295.68: Comprises crystals of feldspar (15-20%) and common quartz eyes (1-5%) in a matrix of fine grained ashy material.

<<Alt: 292.15 - 295.68 Weak Muscovite>> Overprint white/silver muscovite

<<Alt: 292.15 - 295.68 Weak Calcite>>

295.68 296.65 PEL Equigranular biotite + calcite +/- quartz rock grey-brown FG

295.68 - 296.65: Comprises a unit of biotite altered (fine, brown) pelitic material, well banded, with pervasive calcite, a thick quartz carbonate vein cuts the middle of the unit

<<Alt: 295.68 - 296.65 Weak-Moderate Calcite>> Hosted in pelite

<<Alt: 295.68 - 296.65 Moderate Biotite>> Hosted in pelite

<<Vein: 295.85 - 296.35 90% Quartz 70 deg. >>

296.65 297.85 RHYvx Quartz and/or feldspar crystal tuff medium grey FMG

296.65 - 297.85: Comprises crystals of feldspar (15-20%) and common quartz eyes (1-5%) in a matrix of fine grained ashy material.

<<Alt: 296.65 - 300 Weak Muscovite>> Overprint white/silver muscovite

<<Alt: 296.65 - 300 Weak Calcite>>

297.85 300.00 RHYvl Lapilli tuff medium grey FCG

297.85 - 300: Comprises weakly flattened lapilli 0.5-3 cm in the long direction, with a sericite-altered (OP), fine matrix.

<<Struc: 299.8 - 299.8 dominant foliation>> Lapilli flattening plane

From (m)	To (m)	Rocktype & Description	From (m)	To (m)	Width	Sample	Au ppm	Ag ppm	Cu %	Pb %	Zn %
End of Hole @ 300											