Appendix 1: Detailed sample descriptions of rock and polished thin sections with a focus on tourmaline occurrence.

| Deposit | Sample #’s | Sample Locations  | Noteworthy Associated Minerals\* | Sample Descriptions |
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| Casino | 17CEBB\_002 | Drill hole: 93-150 (5.7 m depth) | hematite, jarosite, K-feldspar, muscovite, quartz, rutile | This sample consists of a quartz-monzonite microbreccia from the potassic zone that has been overprinted by argillic alteration. Tourmaline is found forming along fractures and disseminated throughout the host rocks.In thin section: Tourmaline grains are prismatic, radiating, and interlocking. They are pleochroic from nearly colorless to light blue-green. Grains show weak concentric zonation. Clots can contain interstitial epidote but it most commonly envelopes the tourmaline clots. |
| 17CEBB\_003 | Drill hole: 93-177 (155 m depth) | chalcopyrite, muscovite, pyrite, quartz, rutile | This sample consists of an explosive breccia within the phyllic zone that has been overprinted by argillic alteration. Tourmaline is found as the main breccia cement in addition to quartz.In thin section: Tourmaline grains are prismatic, radiating, and interlocking. They are pleochroic from colorless to blue-green. Grains show weak concentric zonation. Voids in the tourmaline cement have been filled by late pyrite, which overgrows the earlier-formed tourmaline. There is a minor amount of tourmaline that forms as acicular (<5% of grains). Some pyrite grains contain rounded inclusions of chalcopyrite. |
| 17CEBB\_010 | Drill hole: 93-177 (189 m depth) | chalcopyrite, muscovite, pyrite, quartz, rutile | This sample consists of an explosive breccia within the phyllic zone that has been overprinted by argillic alteration. The breccia here is significantly more milled with a rock flower matrix and disseminated tourmaline forming as clots within the breccia matrix.In thin section: Tourmaline grains are prismatic, radiating, and interlocking. They are weakly pleochroic, colorless to green. Grains show weak concentric zonation. Tourmaline is found as isolated clots of multiple grains. Within these clots, pyrite can be found overgrowing tourmaline. This sample contains a minor amount of molybdenite along with pyrite that can contain small, rounded inclusions of chalcopyrite. Some pyrite grains also contain minor amounts of pyrrhotite inclusions. |
| 17CEBB\_011 | Drill hole: 93-177 (227 m depth) | chalcopyrite, muscovite, pyrite, quartz, rutile | This sample consists of an explosive breccia within the phyllic zone that has been overprinted by argillic alteration. Tourmaline is found forming in an earlier breccia which has been re-brecciated. Tourmaline forms as a matrix cement along with quartz.In thin section: Tourmaline grains are prismatic, radiating, and interlocking. They are pleochroic from a pale tan to blue-green. Grains show weak concentric zonation. Minor amounts of tourmaline grains appear to be replacing earlier-formed micas (likely biotite). Tourmaline is only found within the breccia clasts. Chalcopyrite grains are enveloped by a thin rim of covellite alteration. Chalcopyrite was found as both inclusions in pyrite as well as disseminated throughout the sample. |
| 17CEBB\_031 | Drill hole: CAS-82 (177 m depth) | chalcopyrite, K-feldspar, muscovite, pyrite, quartz, rutile | This sample consists of a granodiorite within the phyllic zone. Tourmaline is found in veins with pyrite that crosscut early sinuous quartz only *A*-veins. The tourmaline-bearing veins are also crosscut by late pyrite-only *D*-veins. Chalcopyrite envelopes the tourmaline veins and was likely deposited during similar timing.In thin section: Tourmaline grains are prismatic, radiating, and interlocking. They are pleochroic from tan to blue-green. Grains show weak concentric zonation. Grains are not exclusively found in veins but also as clots in the wall-rock although are very minor in occurrence. In the veins, tourmaline is overgrown and found as inclusions in later pyrite and minor chalcopyrite. |
| 17CEBB\_033 | Drill hole: CAS-84 (21 m depth) | epidote, jarosite, muscovite, quartz, rutile | This sample consists of a yellow-stained granodiorite within the phyllic zone. Tourmaline here forms as disseminated clots with accessory quartz.In thin section: Tourmaline grains are prismatic, radiating, and interlocking clots. They are pleochroic from tan to blue-green. Grains show weak concentric zonation. The yellow coloration in hand sample is caused by pervasive epidote alteration. |
| Coxheath | KQ-75-46A | Grab sample from shaft #2 collected by R. Kirkham in 1976  | apatite, chalcopyrite, hematite, pyrite, quartz | The host rock consists of a hornblende diorite, although this sample is intensely altered and mineralized. Mineralization consists of a box work of chalcopyrite veins with pyrite. Tourmaline forms pre-sulfide based on the observation of chalcopyrite and pyrite veins crosscuting the tourmaline.In thin section: Tourmaline grains are prismatic and radiating. Grains are pleochroic from tan to blue-green. Grains show weak concentric zonation. In regions of massive chalcopyrite, tourmaline grains are found suspended as euhedral inclusions. In other regions, tourmaline grains are fractured and crosscut by chalcopyrite. |
| SVA75-6-12.14 | Surface grab sample collected by A. Soregaroli in 1975 | chalcopyrite, pyrite, quartz | The host rock consists of a hornblende diorite, although this sample is intensely altered and mineralized. Mineralization consists of a boxwork of chalcopyrite veins with pyrite. Tourmaline minerals form pre-sulfide formation as chalcopyrite and pyrite veins crosscut the tourmaline. Additionally, the sample is crosscut by a late epidote vein which crosscuts all earlier alteration and mineralization.In thin section: Tourmaline grains are prismatic, radiating, and interlocking. They are pleochroic from tan to blue-green. Grains show concentric zonation. Massive fine-grained tourmaline dominates the sample with minor regions of coarser-grained grains (100 µm’s in diameter) present. Late quartz veins crosscut the sample which also has tourmaline growing into the vein space (likely a later generation of tourmaline). These grains are very small (on the order of 5 µm’s in diameter). Pyrite grains are the dominant sulfide forming late, infilling and overgrowing tourmaline. The only chalcopyrite observed is rounded inclusions in pyrite grains. |
| Donoso Breccia Rio-Blanco – Los-Bronces | 08LB-01 | Grab sample collected from the Donoso Breccia during a field visit in 2008.  | chalcopyrite, molybdenite, muscovite, pyrite, quartz  | The host rock consists of a quartz-monzonite within the phyllic zone that has been brecciated and mineralized. Breccia matrix is predominantly made up by tourmaline-quartz cement that is slightly earlier than chalcopyrite, pyrite, and molybdenite formation.In thin section: Tourmaline grains are prismatic, radiating, and interlocking. They are pleochroic from colorless to blue-green. Grains show concentric zonation. Grains are almost exclusively found overgrown by sulfides mainly chalcopyrite and pyrite. There are rare, small inclusions of rutile in the tourmaline. |
| Highland Valley Copper | KQ-82-52B | Grab sample collected from the Highmont E Pit, 3rd bench on the south wall by R. Kirkham in 1982.  | albite, apatite, quartz | The host rock consists of a late granodiorite dike that has undergone sodic alteration. The sample has been brecciated and cemented by tourmaline, albite, and quartz.In thin section: Tourmaline grains are prismatic, radiating, and interlocking. They are pleochroic from brown to green. Grains show concentric zonation. Rarely do grains show sector zonation. When observed perpendicular to *c*-axis grains are color zoned from colorless to slightly blue cores and surrounded by strongly colored rims of brown to green tourmaline. These tourmaline grains form slightly later in the paragenesis than what is observed in all other porphyry tourmaline samples. Here the tourmaline grains form after the coarse albite, denote by tourmaline grains growing off the grain boundaries of albite grains. No sulfides are observed in this sample. |
| New Afton | UA10-147 | Drill hole: UA10-147 (65.9 m depth) | abite, anhydrite, barite, carbonate, pyrite, quartz, rutile  | The host rock consists of a strongly altered monzonite from the transition zone between the potassic and phyllic zones. The sample is pervasively altered/crosscut by tourmaline which has been later infilled by sulfide mineralization, mainly pyrite with minor chalcopyrite.In thin section: Tourmaline grains are prismatic, radiating, and interlocking. They are pleochroic from tan to green-brown. Grains show concentric zonation. The matrix of this sample is dominated by carbonate, feldspars, and white micas. Sulfides are observed throughout the sample as pyrite which both overgrows and contains inclusions of euhedral tourmaline. |
| EA14-131 | Drill hole: EA 14-131 (523.6 m depth) | albite, K-feldspar, quartz, titanite | The host rock consists of a monzonite from the phyllic alteration zone. Tourmaline forms as monomineralic veins which crosscut the sample. These veins have been cut by late quartz veins.In thin section: Tourmaline grains are prismatic, radiating, and interlocking. They are weakly pleochroic from tan to green-brown. Grains show concentric zonation. The matrix of the sample is dominated by sericite-altered feldspars. Additionally, the sample is crosscut by late carbonate and sulfate veins. |
| Schaft Creek | 15CDBSC03 | Drill hole: SCK-13-435 (302 m depth) | albite, apatite, chalcopyrite, K-feldspar, molybdenite, pyrite, quartz, rutile | The host rock consists of a granodiorite breccia from the potassic zone which has been overprinted by phyllic alteration. Here, tourmaline forms as the breccia cement.In thin section: Tourmaline grains are prismatic, radiating, and interlocking. They are weakly pleochroic from tan to green-brown. Grains show concentric zonation. The matrix is dominated by fine-grained sericite alteration. Sulfides are dominated by pyrite with minor chalcopyrite. Pyrite grains are found overgrowing tourmaline in some cases. Minor amounts of rutile inclusions are observed in the tourmaline. |
| 15CDBSC04 | Drill hole: SCK-13-435 (306 m depth) | albite, apatite, chalcopyrite, K-feldspar, molybdenite, pyrite, quartz, rutile | The host rock consists of a granodiorite breccia from the potassic zone which has been overprinted by phyllic alteration. Tourmaline forms in the breccia matrix with quartz, chalcopyrite, and pyrite.In thin section: Tourmaline grains are prismatic, radiating, and interlocking. Grains are pleochroic from tan to brown and show concentric zonation. Chalcopyrite is found throughout the breccia matrix, primarily enveloping tourmaline grains as well as along fractures that crosscut earlier formed euhedral tourmaline grains.  |
| 15CDBSC11 | Drill hole: SCK-15-443 (87 m depth) | apatite, barite, chalcopyrite, chlorite, pyrite, quartz, rutile | The host rock consists of a granodiorite from the phyllic zone. Here, Tourmaline veins crosscut the sample. Veins are enveloped by a bleached white halo of albite.In thin section: Tourmaline form as single micron scale prismatic radiating and interlocking grains. Pleochroism can not be determined as the grains are too small. Grains show concentric zonation (observed on the SEM). Tourmaline grains are found in veins consisting of only quartz and tourmaline. The quartz in the veins is earlier formed as euhedral scepters that grow into the veins, with tourmaline filling the remaining open space. There is some minor chlorite alteration present in the sample, presumably what remains from early mafic phases in the granodiorite host. No sulfides are observed in the tourmaline veins, but pyrite is observed disseminated within the rest of the sample.  |
| 15CDBSC14 | Drill hole: SCK-15-443 (104 m depth) | apatite, barite, chalcopyrite, chlorite, pyrite, quartz, rutile | The host rock consists of a granodiorite from the phyllic zone. Tourmaline forms as disseminated clots with quartz and pyrite. There are also regions where tourmaline forms as veins that crosscut the sample.In thin section: Tourmaline grains are prismatic, radiating, and interlocking clots. They are pleochroic from tan to brown and grains show concentric zonation. The bulk of the sample consists of feldspars (mostly albite, minor K-feldspar) and interstitial quartz. There also exists a late sulfate vein that crosscuts the sample and a minor abundance of chlorite. Sulfides are present as chalcopyrite and pyrite as late interstitial and fracture filling. These sulfides are observed enveloping clots of tourmaline grains. Some chalcopyrite is also observed as rounded inclusions in pyrite.  |
| 15CDBSC17 | Drill hole: SCK-15-443 (438 m depth) | apatite, barite, chalcopyrite, chlorite, pyrite, quartz, rutile | The host rock consists of a granodiorite breccia from the phyllic zone. Tourmaline forms as cement with quartz in the breccia matrix.In thin section: Tourmaline forms as a breccia cement of radiating prismatic and interlocking grains. There are some small (<5 µm) acicular tourmaline grains that form as inclusions in quartz in the breccia matrix. Tourmaline grains are pleochroic from tan to brown and exhibit concentric zonation. The breccia matrix consists of tourmaline and quartz cement with minor pyrite and chalcopyrite. The wall rock consists of pervasively altered granodiorite that is now dominantly sericite, quartz, and minor chlorite. Chlorite is dominantly found in veins. Tourmaline can be observed as both a breccia cement as well as within the wall rock.  |
| 15CDBSC22 | Drill hole: SCK-15-443 (467 m depth) | apatite, barite, chalcopyrite, chlorite, pyrite, quartz, rutile | The host rock consists of granodiorite from the phyllic zone. Tourmaline forms as clots and veins pervasively throughout the sample.In thin section: Tourmaline forms as radiating prismatic and interlocking grains in discontinuous veins and disseminated clots. Grains are pleochroic from green to brown. Grains exhibit weak concentric zonation. The host rock is dominated by sericite alteration and quartz with late dolomite veins which crosscut the sample. Some minor amounts of tourmaline are observed as (<5 µm) acicular grains that form as inclusions in quartz. Sulfide abundance in this sample is limited and only pyrite is observed.  |
| 15CDBSC25 | Drill hole: T80CH139 (415 m depth) | albite, apatite, chlorite, quartz, rutile, titanite | The host rock consists of a strongly altered volcanic (basalt to andesite) from the propylitic zone. Tourmaline forms as fracture fill veins with some sulfides, pyrite, and chalcopyrite.In thin section: Tourmaline forms as radiating prismatic and interlocking grains as veins. Grains are pleochroic tan to brown and exhibit weak concentric zonation. The granodiorite host is strongly sericite altered with interstitial quartz in the matrix. There are numerous late cross-cutting carbonate veins. Only pyrite is observed in the sample as both disseminated subhedral grains and also in veins. The pyrite is paragenetically later and overgrows tourmaline in the sample.  |
| 15CDBSC26 | Drill hole: T80CH139 (427 m depth) | albite, apatite, chlorite, quartz, rutile, titanite | The host rock consists of a strongly altered volcanic (basalt to andesite) from the propylitic zone. Tourmaline forms as large cm-scale clots/veins with massive pyrite.In thin section: Tourmaline forms as radiating prismatic and interlocking grains as massive clots. Grains are pleochroic green to brown and exhibit concentric zonation. The granodiorite host is strongly sericite altered and has networks of chlorite alteration. Pyrite is the only sulfide in the sample that forms as subhedral and interstitial grains and in some cases contains inclusions of euhedral tourmaline grains.  |
| 15CDBSC28 | Drill hole: T80CH139 (440 m depth) | albite, apatite, chlorite, quartz, rutile, titanite | The host rock consists of a strongly altered volcanic (basalt to andesite) from the propylitic zone. Tourmaline forms as isolated disseminated grains in the matrix.In thin section: Tourmaline grains are prismatic, radiating, and interlocking. Grains are pleochroic tan to brown and are found in disseminated grains, some clots, and veins. The basalt host is pervasively altered by sericite and chlorite. The chlorite is replacing primary mafic phases. Tourmaline grains are overgrown by pyrite and some minor chalcopyrite.  |
| 15CDBSC29 | Drill hole: T80CH139 (446 m depth) | albite, apatite, chlorite, quartz, rutile, titanite | The host rock consists of a strongly altered volcanic (basalt to andesite) from the propylitic zone. Tourmaline form as large cm-scale clots in regions that have bleached feldspars.In thin section: Tourmaline grains are prismatic, radiating, and interlocking as massive clots. Grains are pleochroic green to brown and exhibit concentric zonation. The granodiorite host is strongly sericite altered and has networks of chlorite alteration. There are late crosscutting quartz-carbonate veins. Chalcopyrite forms as coating and fracture filling in pyrite.  |
| Woodjam (Deerhorn) | 13CDBWJ09 | Drill hole: DH-11-26 (157.5 m depth) | apatite, muscovite, pyrite, quartz | The host rock consists of a monzonite from the phyllic alteration zone. Tourmaline in this sample forms as both veins which crosscut the sample as well as isolated disseminated clots of grains.In thin section: Tourmaline grains are prismatic, radiating, and interlocking as clots and veins. Grains are pleochroic blue-green to brown and exhibit concentric zonation. The porphyritic monzonite host is strongly sericite altered, with only relict feldspar outlines observed. Pyrite is found disseminated throughout the sample and in veins and overgrows tourmaline in many instances. Additionally, much of the pyrite observed is adjacent to thetourmaline grains.  |
| Woodjam (Takom) | 13CDBWJ05 | Surface grab sample (52°13'35.9"N 121°23'19.0"W) | apatite, epidote, quartz | The host rock consists of a pervasively propylitic altered hornblende dacite. Tourmaline forms in association with epidote as large clots with there generally being regions dominated by tourmaline followed by regions dominated by epidote.In thin section: Tourmaline forms as massive prismatic grains. Grains are pleochroic blue-green to brown. Uncharacteristically these grains contain numerous euhedral inclusions of other minerals, notably quartz. Grains are forming in direct association with epidote and some grains contain inclusions of epidote. These are the only grains from the suite investigated that contain predominant sector and concentric zonation.  |

\*Noteworthy minerals present in the sample in spatial association with tourmaline, minerals listed are organized in alphabetical order.