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# Paragenesis and zonation of alteration minerals, from root to base of lithocap, of the Far Southeast porphyry copper-gold deposit, Philippines

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Master of Philosophy

May 2020

James Cook University College of Science and Engineering

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I acknowledge Far Southeast Gold Resources Inc. (FSGRI) for access to drill core and the collection of key samples. Assistance, discussions and knowledge shared by Alina Gaibor, Peter Dunkley, Glaciale Tiu, Jeffrey Adalos-Pastoral and other FSGRI staff are greatly appreciated.

I thank Kalin Kouzmanov for the collaboration and assistance for the QEMSCAN study.

Michael Calder  
May 4, 2020

## Table of Contents

<b>Abstract</b>	5
<b>Chapter 1 – Overview of porphyry systems and introduction to FSE</b>	6
Introduction	6
General features and characteristics of porphyry ore deposits	6
Geological history of the Philippines and the Mankayan district	9
Exploration history and metal content and of the Far Southeast deposit	12
Past studies on the Far Southeast deposit	13
Background on the QEMSCAN technique	14
<b>Chapter 2 – Present study of FSE</b>	15
Methodology	15
Macro- and microscopic determination of minerals and lithogeochemistry	15
Short-wavelength infrared (SWIR) spectroscopy	15
QEMSCAN study	16
Results	17
Lithologies observed in drill holes below 700m a.s.l.	17
Lithogeochemistry	22
Characterization of alteration types	26
a. Biotite alteration	28
b. Sericite-chlorite-albite (SCA) alteration	28
c. White mica alteration	29
d. Aluminosilicate alteration	29
Short Wavelength Infra-Red (SWIR) spectroscopy	31
QEMSCAN results	32
a. Intense SCA alteration overprint of Bt alteration; sample MB38	34
b. Ccp-anh-qtz vein with WM halo in SCA alteration; sample JR2	37
c. WM halo overprinting Bt alteration; Sample JR18	40
d. Aluminosilicate alteration; sample MB16	43
Mineral assemblage of alteration types	45
Discussion	47
Spatial extent, paragenesis and mineral assemblage of alteration type	47
Location of economic Au-Cu mineralization	51
<b>Chapter 3 - Implications of the FSE study on ore deposit formation</b>	52
Conclusion	52
<b>References</b>	54
<b>Appendix 1 - Other QEMSCAN results</b>	57
<b>Appendix 2 - Thin section list</b>	75
<b>Appendix 3 - Optical microscopy</b>	76
<b>Appendix 4 - Short Wavelength Infra-Red (SWIR) spectral data</b>	130
<b>Appendix 5 - Drill core log</b>	157

## **Abstract**

Ninety-six underground diamond holes (~102 km) drilled by Far Southeast Gold Resources Inc. at the Far Southeast Cu-Au porphyry deposit provide a 3-dimensional exposure of the deposit between 700 and -750m elevations; surface at ~1400m elevation. Drill holes intersect the base of advanced argillic-silicic alteration that hosts the supra-adjacent Lepanto high-sulfidation mineralization, the top of the porphyry deposit as defined by stockwork veins, the main ore body and an underlying subeconomic zone. The 1% Cu equivalent ore shell is mainly located at 500 to -300m elevation.

Alteration assemblages were determined by drill core logging, Short Wavelength Infra-Red (SWIR) spectral analysis, a petrographic study and a Quantitative Evaluation of Materials by Scanning Electron Microscopy (QEMSCAN) study. Alteration is zoned around veins, or pervasive where zoned assemblages coalesce. Mineral sequence includes early granular grey/white quartz-rich veins with biotite alteration (biotite-magnetite-K-feldspar), followed by euhedral lavender quartz-rich veins (color resulting from the presence of hematite daughter minerals in fluid inclusions) with SCA alteration (sericite-chlorite-albite) – associated with the bulk of Cu deposition as chalcopyrite and bornite – and late anhydrite-rich veins with WM alteration (illite-muscovite-pyrite). Thin Cu-sulfide rich veins ('paint' veins) are associated with SCA alteration with or without a phyllic halo. Timing between veins is recorded by crosscutting and reopening textures whereas timing of alteration is recorded in overprinting of assemblages, and mineral replacement.

SWIR analyses showed that white mica associated to SCA alteration type contains an Al-OH 2200nm peak positions with higher wavelength than white mica associated with WM alteration; mean of 2203nm vs. mean of 2198nm respectively. Automation of measuring this characteristic could improve determination of alteration type.

Variations in alteration mineralogy are a consequence of a change in temperature and fluid composition of the hydrothermal fluids. Shallow aluminosilicate mineral assemblages (pyrophyllite-diaspore-alunite-kaolinite) overlie SCA alteration and are located in white mica rich zones indicating formation caused by cooling of an initially white mica-stable fluid. Cross-cutting relations that contradict general observations of timing are the result of multiple pulses of hydrothermal fluid and attest to the dynamism of the system.

# **Chapter 1 – Overview of porphyry systems and introduction to the Far Southeast porphyry copper-gold deposit, Philippines**

## **Introduction**

Porphyry systems (including porphyry deposits *sensu stricto*, shallow high and intermediate sulfidation epithermal deposits, skarn, carbonate replacement and sediment hosted deposits) provide nearly three-quarters of the world's Cu, half of the world's Mo and about one-fifth of the world's Au (Sillitoe, 2010). As population and living standard rises, access to the natural resources they provide is necessary for society's infrastructure needs following economic and social development. The majority of shallow deposits have already been found (and potentially mined) therefore exploration for deposits at greater depths is crucial. A thorough description of hydrothermal events leading to deposit formation is important for better and deeper exploration efficiency.

This study presents the Far Southeast porphyry Cu-Au deposit (FSE) and describes the alteration mineralogy resulting from the hydrothermal events leading to mineralization of this world-class deposit (Singer, 1995). Lithogeochemistry determined the rock lithology names as well as the whole rock geochemical signatures resulting from the geologic history of the region. Hydrothermal alteration paragenesis is determined by core logging to represent the alteration spatial extent and overprint within the deposit. Microscopic observations of representative samples determined mineralogy, mineral associations and textures resulting from magmatic and hydrothermal processes. Short-wavelength infrared spectroscopy (SWIR) was used to determine characteristic minerals and finally a Quantitative Evaluation of Materials by Scanning Electron Microscopy (QEMSCAN) study of 10 samples represented the main hydrothermal events. All these analyses were important to produce two cross sections to represent lithology and hydrothermal alteration.

## **General features and characteristics of porphyry ore deposits**

Porphyry Cu systems are large volumes (10-100 km<sup>3</sup>) of hydrothermally altered rock centred on and around intermediate to felsic stocks or dike swarms. Mineralization within

the deeper parts of the system include porphyry Cu ± Mo ± Au mineralization and can also include Cu, Au, and/or Zn, Pb skarn deposits where surrounding carbonate rocks are present. Shallow mineralization may include high- and intermediate-sulfidation Au ± Ag ± Cu epithermal orebodies. Other associated mineralization styles include carbonate replacement and sediment hosted deposits (Sillitoe, 2010).

These systems are generally found in linear belts in magmatic arc (including back-arc) environments above active subduction zones (eg. Andes of western South America, belts of New Guinea and the Philippines) or continent-continent collision zones favourable for emplacement of magmatic chambers at depths of 5 to 15 km. They are formed under a variety of regional stress regimes, ranging from moderately extensional, oblique strike slip and in majority being associated with contractional settings (Tosdal and Richards, 2001). In a subduction setting and due to tectonic forces, an oceanic plate is subducted below a continental plate and hydrated minerals (such as serpentine, amphiboles, lawsonite or talc) dehydrate with increasing pressure due to deeper subduction. This releases a magmatic fluid rich in water (and other components; e.g. S and Cl) which causes melting and metasomization of overlying rocks forming magma chambers which contain minerals of economic value. These chambers feed the porphyry stocks and dikes and are essential for providing heat and magmatic components necessary for mineralization (Hedenquist and Lowenstern, 1994).

Studies on the hydrothermal controls on porphyry systems (reviewed by Kouzmanov and Pokrovski, 2012) have shown that the deposits form from S- and metal rich, moderately saline aqueous fluids (2-10 wt % NaCl equiv.) exsolving from crystallizing magma chambers. As the fluids ascend to the surface they undergo various processes that can cause metal precipitation including decompression, phase separation, cooling, host rock interaction and mixing (Fournier, 1999). Changes in conditions (temperature, pressure, pH, redox) and input of fluids following the geodynamique setting causes hydrothermal alteration of originally igneous minerals (from amphiboles and feldspars to hydrothermal biotite, white mica and albite). The rare unaffected igneous mineral is quartz with its relatively simple elemental content.

Typical hydrothermal alteration types and their key mineral assemblages are commonly observed in porphyry systems. They are defined below based on their common position within the system, key mineral assemblages, and association with mineralization:

- **Sodic-calcic alteration;** deep and below ore zone, albite-magnetite-actinolite, commonly barren

- **Potassic alteration**; deep but in the core zone, biotite-K-feldspar, frequently the main ore contributor
- **Chlorite-white mica**; upper parts or core zone of the deposit, common ore contributor
- **Sericitic (phyllic)**; ubiquitous, quartz-sericite, commonly barren
- **Propylitic**; marginal parts of the systems, chlorite-epitote-albite-carbonate, barren
- **Advanced argillic**; above ore zone, quartz-alunite-pyrophyllite-dickite-kaolinite, constitutes lithocap to porphyry deposit

These alteration types have been described by geologists observing multiple porphyry systems around the world and summarized in the review paper of [Sillitoe, 2010](#) ([Figure 1](#)).

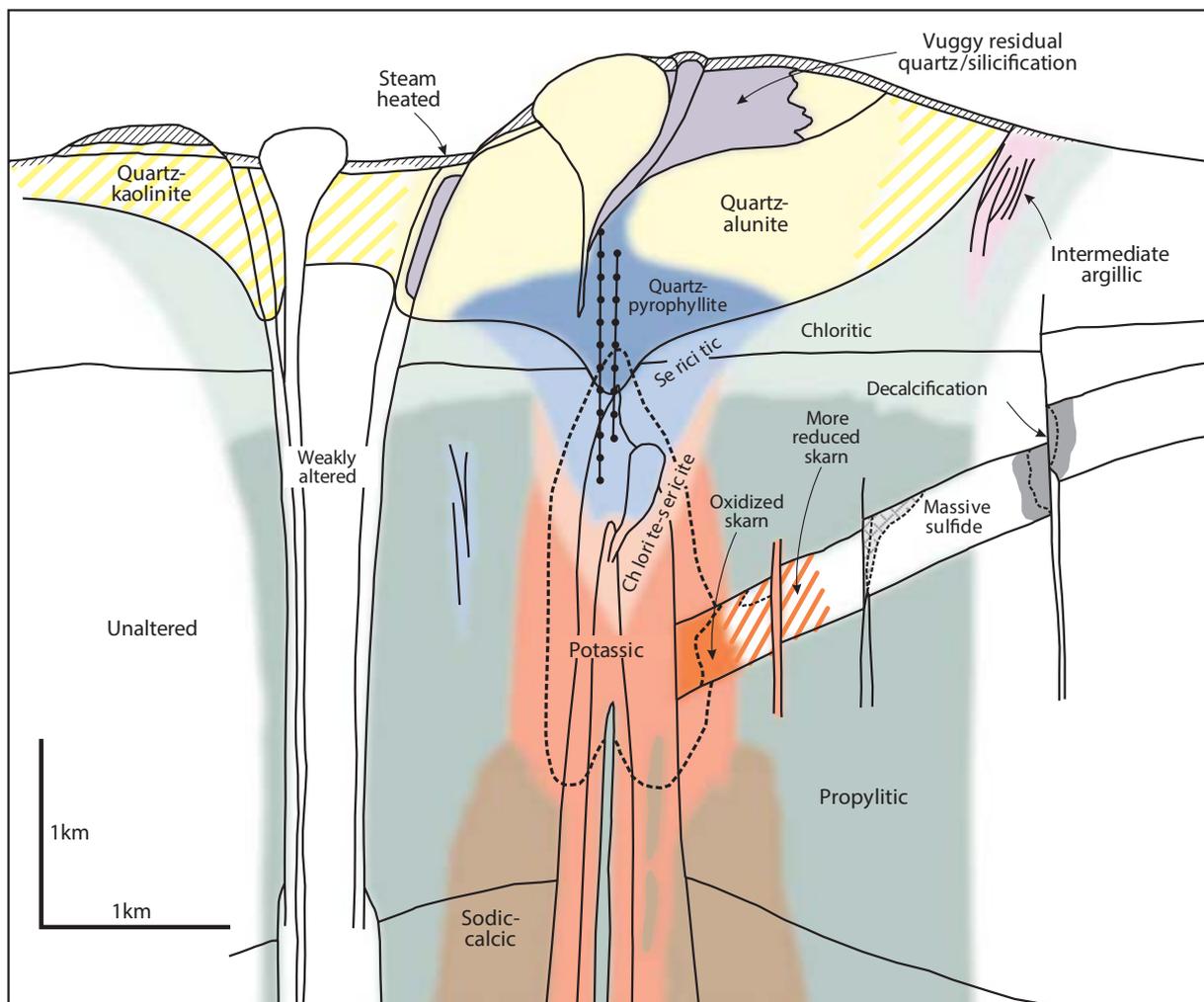


Figure 1: Typical alteration mineralogy in porphyry systems (from [Sillitoe, 2010](#))

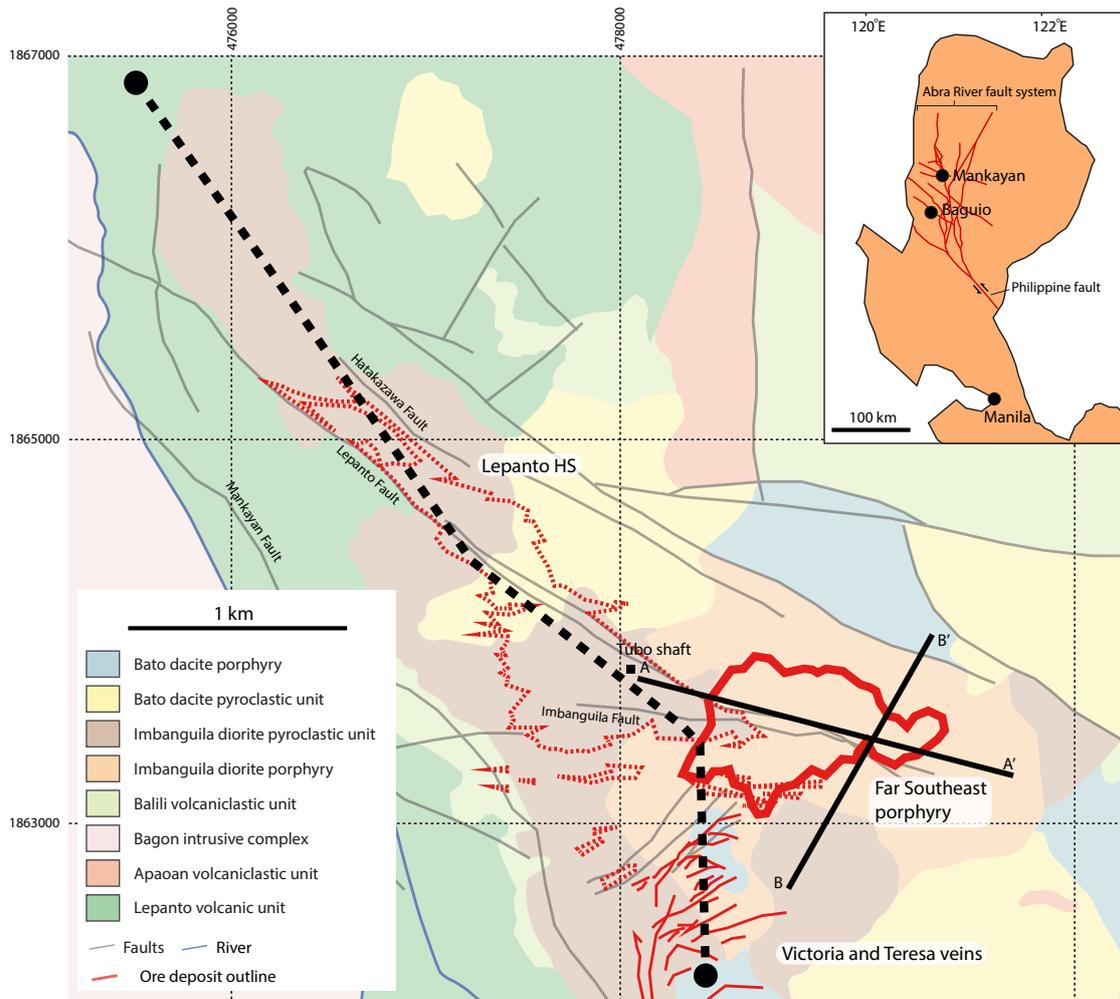
A further way of obtaining information on fluid evolution and metal transport in porphyry systems (notably from porphyry to epithermal depths) has been studied using micro-analytical techniques and in situ characterization of individual fluid inclusions trapped within hydrothermal minerals. Fluid inclusion studies in quartz veins associated with mineralization at the porphyry deposit at Butte, Montana, USA (Rusk et al., 2008); and Bingham Canyon, USA (Redmond et al., 2004; Landtwing et al., 2010) have given information on the temperature and the pressure of mineralization. Conclusions are that the hydrothermal event causing mineralization occurred exceptionally deep (at 5 - 9 km) with a temperature between 650 °C and 475 °C at Butte and at ~2 km depth with a temperature below 400 °C caused mineralization at Bingham Canyon.

### **Geological history of the Philippines and geology, geochronology and structural context of the Mankayan district**

The Philippines archipelago is a north-trending mobile belt centred on the Philippine Fault that is flanked by two convergent zones, Manila Trench to the west and the Philippine Trench to the east. Subduction direction reversal has been debated (from westward subduction along the Philippine Trench to eastward subduction along the Manila trench in the late Oligocene to early Eocene) relying heavily on evidence by Lewis and Hayes (1983) but the consensus today is that only westward subduction is active (Queano et al., 2007; Hollings et al., 2011). This subduction is regarded as significant for the formation of hydrothermal events in the region.

The Mankayan district (Figure 2) is located within the Luzon Central Cordillera, Northern Luzon. The geology of the district has been reviewed by Gonzalez (1956, 1959), Sillitoe and Angeles (1985), Concepción and Cinco (1989), and Garcia (1991).

Figure 2 (next page): Geological map of the Mankayan district showing volcanic units (modified from Chang et al., 2011). The surface projection of the Lepanto high-sulfidation epithermal, Far Southeast (FSE) porphyry, and intermediate sulfidation Victoria veins are shown. A 6-km long section across the district is represented by the dashed line and shown in Figure 3. The A-A' and B-B' black lines represent the position of the cross-sections constructed in this study. PRS 92 UTM grid datum is used



The lithological succession, represented by a long section through the district (Figure 3) contains with decreasing age the Lepanto volcanic unit (LVU), the Balili volcanoclastic unit, the Imbanguila pyroclastic unit and the Bato pyroclastic unit.

At its base, the LVU consists of a thick sequence of basaltic pillow lavas, hyaloclastites and reworked tuffaceous rocks. Dating was determined by providing U-Pb radiometric ages on zircon separates from two rhyolite sheets intruding into the unit and have yielded ages of  $35.27 \pm 0.97$  Ma and  $33.69 \pm 0.72$  Ma (Dunkley, 2015). The sheets are believed to be coeval with the basalts in the upper part of the Lepanto metavolcanic unit. If this interpretation is correct, these radiometric dates indicate an uppermost Eocene – basal Oligocene age for the upper part of the LVU.

This unit is unconformably overlain by the Balili volcanoclastic unit comprised by very poorly sorted epiclastic volcanic breccias, conglomerates and volcanic sandstones. The breccias and conglomerates are mainly composed of polymictic clasts of different types of andesite with minor dioritic and granitic clasts and rare clasts of limestone. Based on fossil evidence, Maletterre

(1989) assigned a Late Oligocene - Early Miocene age to the Balili volcanoclastic unit.

Two pyroclastic units of andesitic-dacitic composition, the Imbangulia and Bato units, follow and cover previous units. Both are similar in lithology and consist of massive and poorly stratified dacitic tuff-breccias and fine-ash tuffs also including beds with accretionary lapilli. The tuffs and tuff-breccias contain angular to sub-rounded lithic blocks and lapilli of diverse composition as well as clasts containing porphyry style mineralization and hydrothermal alteration. The Imbangulia unit is a host to the Lepanto enargite mineralisation and is widely affected by strong argillic – advanced argillic alteration. The younger Bato unit is syn- to post-mineralization in age and tends to be less affected by hydrothermal alteration (Gaibor et al. 2013).

The older Imbangulia pyroclastic unit has yielded zircon fission track ages of 1.97 to 1.78 Ma (Sajona et al., 2002) and four K-Ar ages on hornblende from  $2.19 \pm 0.62$  to  $1.82 \pm 0.36$  Ma (Arribas et al. 1995). For the younger Bato pyroclastic unit, Arribas et al (1995) also obtained K-Ar ages of  $0.96 \pm 0.29$  Ma and  $1.18 \pm 0.08$  Ma, on hornblende and igneous biotite respectively.

The Far Southeast intrusive complex is the main host to the FSE copper-gold porphyry deposit. It is concealed and consists of several dacite and diorite bodies intruding the LVU. Several syn- to post-mineralization phreatic and phreatomagmatic breccia pipes cross-cut the complex, one of which has a surface outcrop.

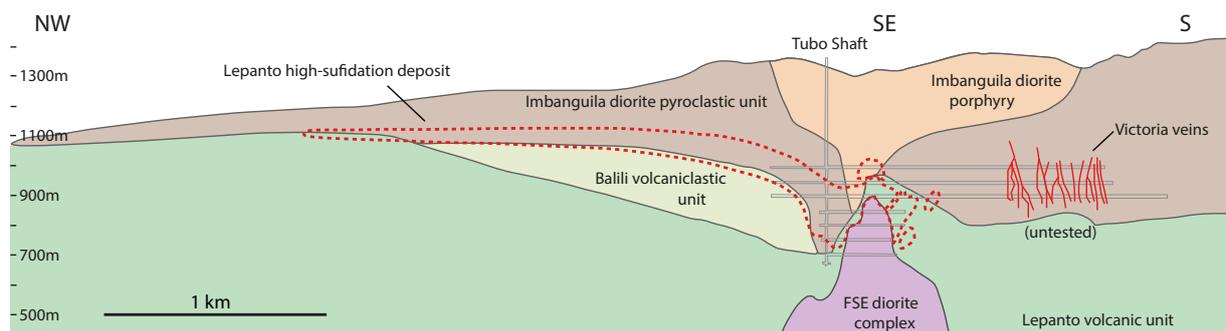


Figure 3: Schematic NW-SE long section through the Lepanto enargite Au high-sulfidation epithermal deposit, the FSE porphyry deposit and the intermediate sulfidation Victoria veins (Chang et al., 2011). Location seen on Figure 2

The district lies near the eastern limb of a broadly NS-trending anticline. The hinge corresponds to the Bagon intrusive complex of tonalite composition, found along the western side of the district (Figure 2). It intrudes the Lepanto volcanic unit and forms part of the much larger Central Cordillera diorite complex or Agno batholith that crops out along the high ground of much of the Cordillera of northern Luzon. Dunkley et al. (2015) has provided U-Pb zircon ages of  $34.51 \pm 0.53$  Ma and  $34.75 \pm 0.69$  Ma for the Bagon intrusive complex.

The structure of the district is dominated by a complex zone of north to northwesterly trending faults of the Abra River fault system (Figure 2) running along the length of the Cordillera of Northern Luzon and a major branch of the Philippine Fault (Barrier et al., 1991). This system has undergone sinistral strike-slip movement since the Miocene and exerted controls on the sedimentation, volcanism and mineralisation within the region (Gaibor et al. 2013). The NW-SE trending Mankayan fault is a major strand of the system and is the largest fault in the district. NW-SE and E-W trending secondary faults (Lepanto, Hatakazawa and Imbanguila faults; Figure 2) splay from the main Mankayan fault and are primary controls for emplacement of the enargite lodes of the Lepanto mine and the FSE porphyry (Dunkley et al. 2015). The E-W trending Imbanguila fault zone is especially significant as it controls the emplacement of the FSE intrusion complex. The Imbanguila fault coincides with a strong E-W trending gravity gradient and is therefore considered to be a deep-rooted basement structure (Gaibor et al. 2013).

## **Exploration history and metal content and of the Far Southeast deposit**

The FSE porphyry was discovered by geologists working on the overlying high-sulfidation Lepanto mine by observing clasts containing porphyry mineralization. They interpreted the clasts resulted from phreatomagmatic explosive activity resulting from a covered porphyry deposit. A subsequent induced polarisation (IP) survey defined a chargeability anomaly which contributed to the discovery of the underlying FSE deposit in 1980 (Gaibor et al. 2013).

Drilling of 102 km of core in the early 2010's by Far Southeast Gold Resources, Inc (FSGRI) a joint venture between Gold Fields Limited and Lepanto Consolidated Mining Company defined 892 Mt of ore at 0.7 g/t Au and 0.5 % Cu (19.8 Moz of Au and 9,921 Mlb of Cu) ([goldfields.com/far-southeast-philippines.php](http://goldfields.com/far-southeast-philippines.php)). The porphyry deposit is part of the larger FSE porphyry system that also includes the overlying Lepanto high sulfidation epithermal deposit and the intermediate sulfidation epithermal Victoria and Theresa veins (Figure 2).

## Past studies on the Far Southeast deposit

The FSE system has already revealed a great deal on the processes leading to mineralization in magmatic-hydrothermal systems. Past studies by [Hedenquist et al., 1998](#) looked at hydrothermal vein and alteration paragenesis, K-Ar dating by [Arribas et al., 1995](#), stable isotope (O, H, and S) analysis of hydrothermal and igneous minerals and microthermometry of fluid inclusions from hydrothermal quartz of the porphyry environment. The study also incorporated epithermal enargite fluid inclusion data from [Mancano and Campbell \(1995\)](#). The main conclusions of the study are the following:

- An early magmatic fluid exsolves within the two-phase (hypersaline liquid and vapor) field of the H<sub>2</sub>O – NaCl system. The hypersaline liquid phase rises to and remains within the porphyry environment to produce potassic alteration within the surrounding host rocks. The low-density vapor phase rises to the epithermal environment and mixes with groundwater to form acidic condensate. This condensate leaches and causes advanced argillic alteration of the surrounding host rock. These two alteration styles are synchronous and formed around 1.4 Ma.
- As isotherms retract (following the deeper crystallization front of the magma chamber with time), exsolution of magmatic fluids occurs at greater depth and pressures. A single-phase, intermediate density fluid that takes a pressure-temperature path not intersecting the immiscibility surface is responsible for sericite alteration at porphyry levels and mineralization in the porphyry and epithermal environments. This second stage occurs around 1.3 Ma, implying 100'000 year duration of hydrothermal activity.
- The switch in alteration style (and fluid properties) is thought to be due to a drastic change in pressure regimes, from lithostatic to hydrostatic conditions due to temperature decline of the system.
- The genetic link shown between the FSE porphyry and overlying high-sulfidation Lepanto epithermal deposit has led to a worldwide amendment of mineral exploration strategy

Hydrothermal alteration at FSE was dated between  $1.45 \pm 0.04$  -  $1.41 \pm 0.04$  (n=6) to  $1.37 \pm 0.05$  -  $1.22 \pm 0.06$  (n=10) Ma; respectively by K-Ar on secondary biotite and illite ([Arribas et al., 1995](#)) and mineralization was dated at  $1.50 \pm 0.01$  and  $1.48 \pm 0.02$  Ma by Re-Os on molybdenite ([Dunkely, 2015](#)).

The FSE system is extensively studied as it is a relatively simple system with little post-

mineralisation intrusive or metamorphic events.

A study by [Chang et al., 2011](#) showed that mineral vectors in the lithocap indicate proximity to the FSE porphyry. Alunite chemistry, specifically the decrease in Pb and increase in Ca content, as well as alunite short-wavelength infrared (SWIR) spectroscopy, the increased absorption peak at ~1,480nm, indicate the direction of the underlying intrusive centre.

## **Background on the QEMSCAN technique**

A major part of this study concerns visualization of remnants of hydrothermal events using the QEMSCAN instrument. Mineralogy is determined by digital processing of a combination of backscattered electron (BSE) signal and energy dispersive (EDS) X-Ray spectrometric signal of millions of sample points. This technique provides comprehensive and high-resolution mineral identification as well as information on mineral textures, shapes, and chemical and mineralogical associations with great clarity and detail ([Gottlieb et al., 2000](#)). Important but easy to overlook minerals can also be identified. The mineral content (as area percentage) of distinct zones can be determined (for example, a vein or vein halo), allowing quantitative mineralogy associated with a hydrothermal event.

The main aim of using this technique is to visualize textures and assess the mineralogy of the different hydrothermal alteration types. All samples were previously examined by optical microscopy, with QEMSCAN confirming mineralogy and adding further observations. Distinguishing the spatial distribution of mineralogy that cannot be easily assessed with traditional microscopy (e.g., albite in the rock matrix) was also an aim of the study.

## Chapter 2 – Present study of the Far Southeast deposit

This chapter will present the methodology and results of the various techniques applied in this study. A discussion will follow based on the outcomes of the study.

### Methodology

#### *Macro- and microscopic determination of minerals and lithochemistry*

Far Southeast has been studied by logging and sampling 10.3 km of drill-hole intervals representing a volume of  $\sim 2.5 \text{ km}^3$ . This volume corresponds to elevations of  $\sim 700 \text{ m a.s.l.}$  to  $-750 \text{ m a.s.l.}$ , with top of the study volume approximately 700m below the surface. Igneous mineralogy and hydrothermal mineral assemblages, paragenesis, extent and overprint were determined macroscopically during core logging. Logging of drill core intervals allowed the production of two lithology sections and two alteration extent and overprint sections. Petrography was enhanced using a Leica DM2500P microscope with a Leica DFC420 camera attached to observe and describe 40 polished thin sections.

XRF major and trace element geochemistry was determined for representative fresh rocks.

#### *Short-wavelength infrared (SWIR) spectroscopy*

Alteration mineralogy was further defined by short-wavelength infrared (SWIR) spectroscopy. The technique consists of shining a light on a defined area and detecting and recording the spectra of the reflected light. Minerals that contain  $\text{H}_2\text{O}$ ,  $\text{OH}^-$ ,  $\text{CO}_3^{2-}$ ,  $\text{CO}_2$ ,  $\text{NH}_4$  groups provides a specific reflected SWIR spectra and can be identified. Minerals such as pyrophyllite, diaspore, alunite, kandite minerals, illite and gypsum were determined by this method.

The characteristic spectra of minerals frequently defined are present on [Figure 4](#). The obtained spectra for an analysed rock area contains the combination of the mineral spectra present in the sample.

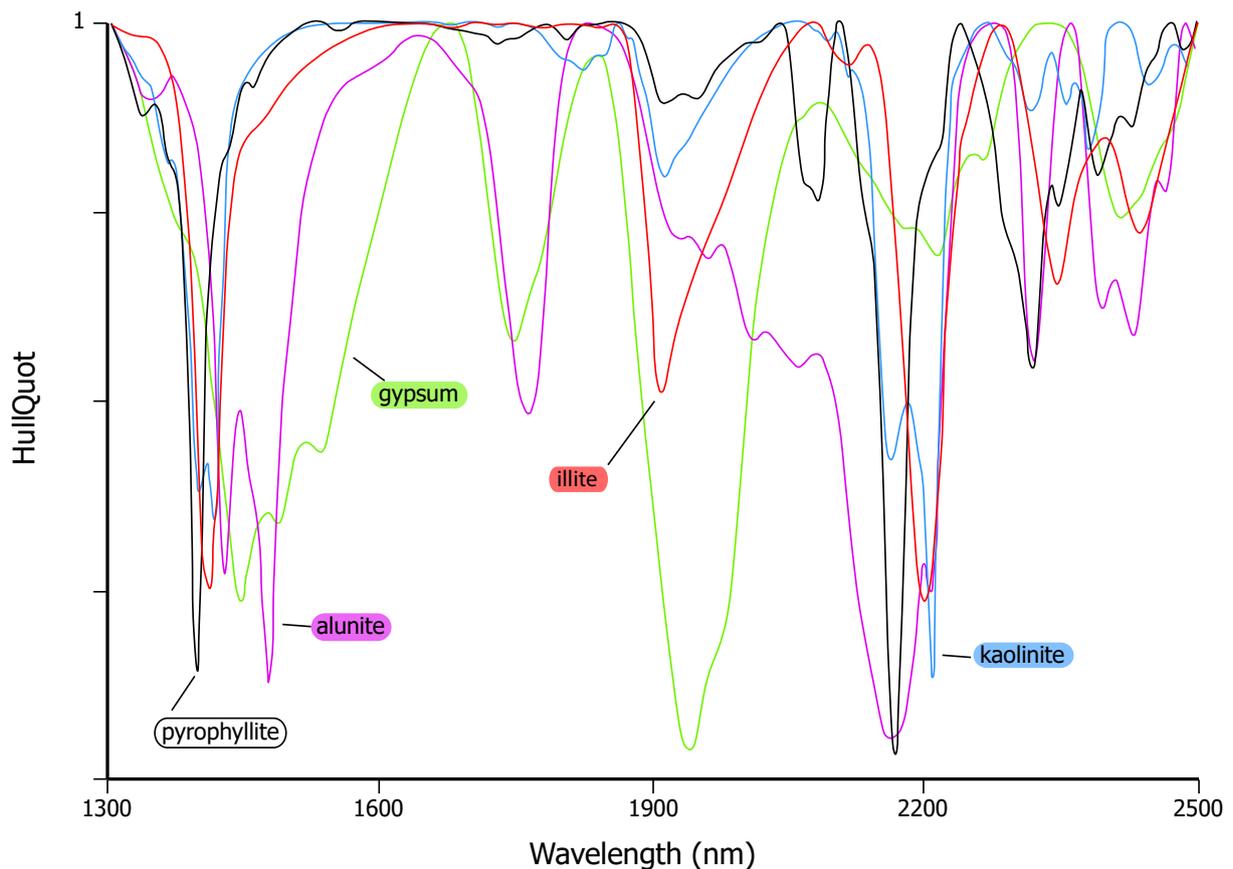


Figure 4: SWIR spectra of characteristic minerals defined by this method. Spectra intensity normalised to hull quotient

Two or more SWIR spectra were collected for every sample obtained approximately every 20 m down drill hole (a total of 682 samples counting for 1917 SWIR spectra). The PIMA™ Field spectrometer by Spectral International Inc. was used for spectra acquisition and processing.

### *QEMSCAN study*

Ten samples of diverse elevations and hydrothermal stages, quantitative mineralogy and mineral ratios were determined using quantitative evaluation on mineralogy by scanning electron microscopy (QEMSCAN instrument) providing a better description of hydrothermal alteration assemblages. Analyses were performed using the FEI QEMSCAN Quanta 650F facility at the Department of Earth Sciences, University of Geneva, Switzerland. The system is equipped with two Bruker QUANTAX light-element energy dispersive X-ray spectrometer (EDS) detectors. Analyses were conducted at high vacuum, accelerating voltage of 25 kV and a beam current of 10 nA on carbon-coated polished thin sections. FieldImage operating mode (Pirrie et al., 2004) was

used for analyses. In total 221 individual fields were measured per sample, with 1500 µm per field and point spacing of 5 µm. The standard 1000 counts per point were acquired, yielding a limit of detection of approximately 2 wt% per element for mineral classifications. Measurements were performed using iMeasure v5.3.2 software and data processing using iDiscover® v5.3.2 software package. Final results consist of: i) high-quality spatially resolved and quantified mineralogical maps; ii) BSE images with identical resolution as the mineralogical maps; iii) X-ray element distribution maps.

Since the compositions of illite and muscovite are very similar, QEMSCAN defined white mica as muscovite, and this identification is used for the results of the QEMSCAN study. Illite and muscovite have distinctive SWIR spectra; illite has a lower Al-OH (2200 nm) peak position and deeper Hull quotient calculated H<sub>2</sub>O (1900 nm) peak. Therefore, SWIR was used to distinguish different minerals typically grouped under the terms 'white mica' (or sericite).

## Results

### *Lithologies observed in drill holes below 700m a.s.l.*

The earliest unit, Lepanto volcanic unit (LVU), consists of volcanoclastic rocks including tuffs, tuffaceous siltstones, tuffaceous sandstones, tuff-breccias and reworked hyaloclastites. The tuffaceous rocks include thinly bedded sequences (with or without convoluted bedding) or are massive (Figure 5a). The tuff-breccias consist of polymictic clasts supported by a matrix of tuff and fine reworked hyaloclastite (Figure 5b). Although dominantly basaltic in composition (lithogeochemistry was determined as basalt and trachybasalt by Dunkley, 2015), some clasts are more felsic, potentially of andesite or dacite composition.

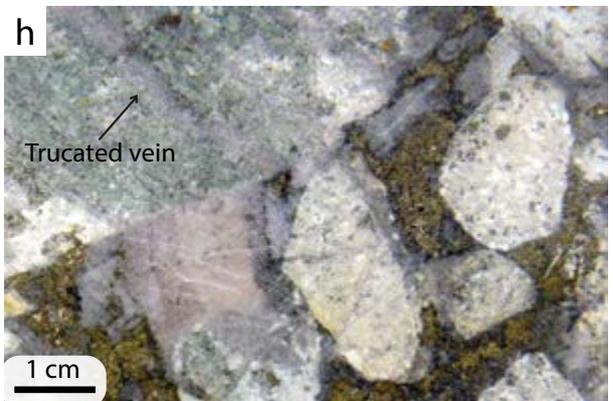
The LUV is cut by the Imbanguila porphyritic diorite. The unit contains abundant subhedral to euhedral phenocrysts of plagioclase and hornblende generally up to 6-7mm in size, as well as lesser amounts of subhedral to anhedral quartz phenocrysts (accounting for 1-3% of the rock) in a matrix consisting of fine crystalline felsic minerals. A key aspect of this rock type is the presence of mafic inclusions that are sub rounded to rounded in shape, <2-10 centimetres in size and frequently contain fine-grained chilled margins (Figure 5c).

The FSE diorite complex, the main host of porphyry mineralization, is characterised by a porphyritic to equigranular texture. Far Southeast Gold Resources Inc. has divided the complex into three units based on varying granulometry, matrix/phenocryst ratios and phenocryst mineral

ratios (quartz, plagioclase, hornblende). Firstly, the undifferentiated diorite (Figure 5d) has a porphyritic texture with 10% quartz, abundant plagioclase (70%) and minor hornblende (20%) phenocrysts. Cross-cutting this unit is the dark diorite which also has a porphyritic texture with less abundant quartz phenocrysts (<5%) and similar plagioclase and hornblende ratios (Figure 5e). Finally, the youngest unit, named as the light diorite mainly has an equigranular texture with <5% quartz, 75% plagioclase and 20% hornblende crystals (Figure 5f). Matrix/phenocryst ratio and mineral content is the main cause of colour difference leading to their nomination.

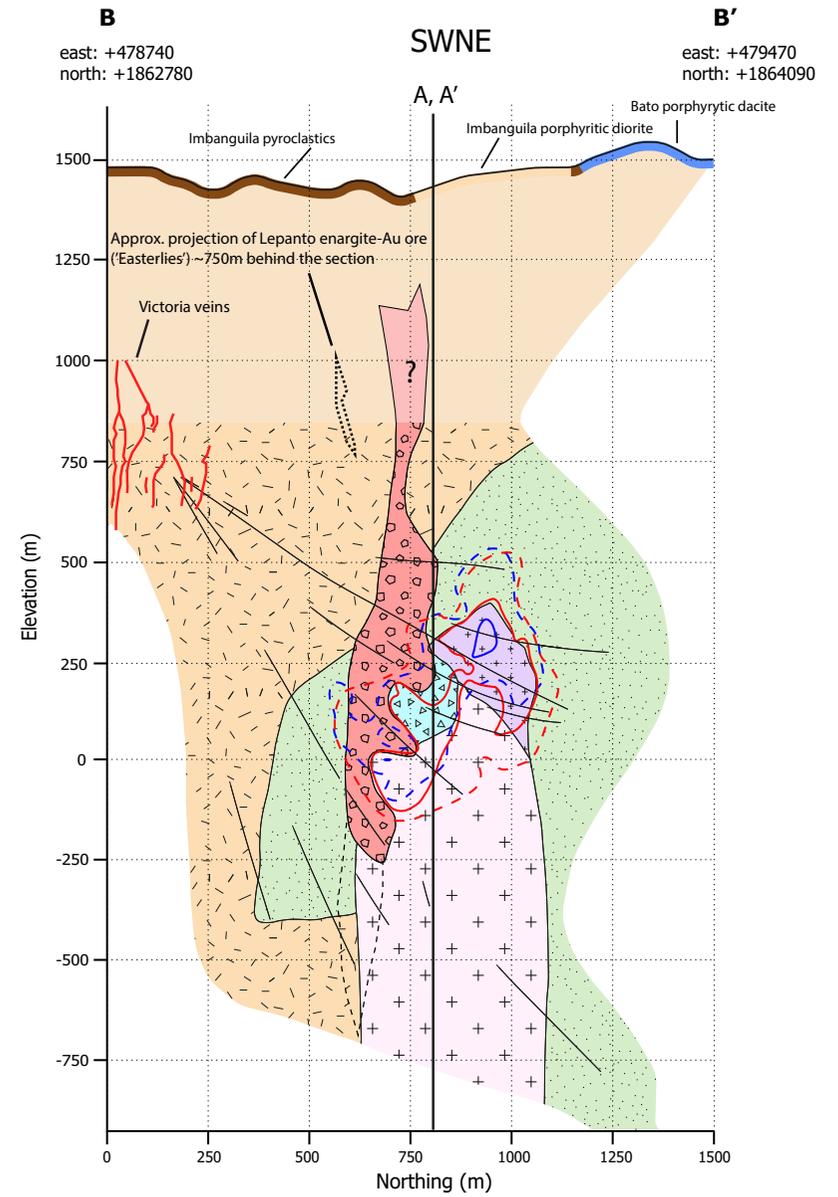
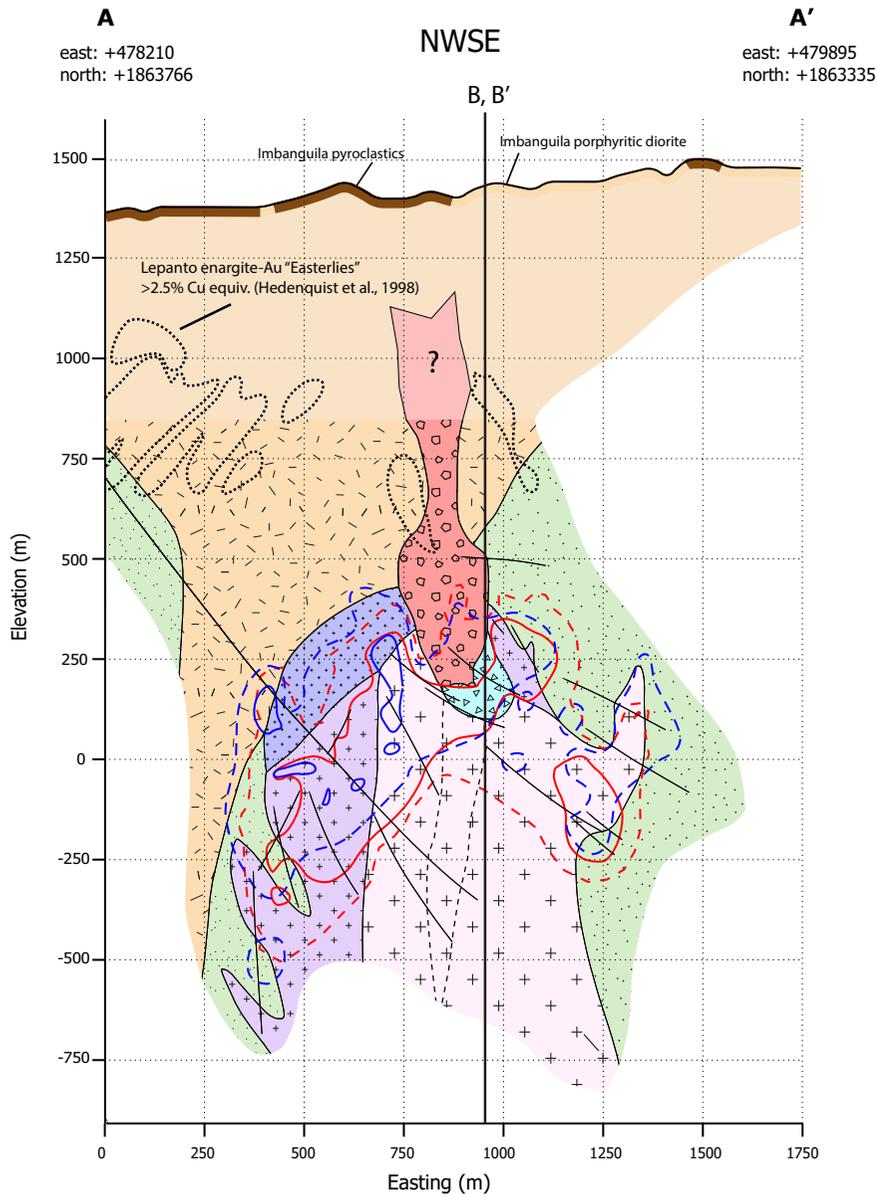
All the mentioned lithologies are cross-cut by numerous breccia bodies. On the drill-hole intervals logged, two categories of these breccia bodies have been defined. Firstly, numerous phreatic breccias are characterized by polymictic (some are hydrothermally altered and with rare presence of mineralization) and breccia clasts (Figure 5g). The phreatic breccia has a fine grained felsic rock matrix. Secondly, a syn-mineralization hydrothermal breccia with hydrothermally altered clasts (some containing mineralized truncated veins) and a matrix of hydrothermal quartz, anhydrite, chalcopyrite or pyrite (Figure 5h).

Figure 5 (next page): Macroscopic images of relatively unaltered lithological units and syn-hydrothermal event breccia types. **a.** Massive basalt of the Lepanto Volcanic Unit. **b.** Tuff-breccia consisting of polymictic clasts of the Lepanto Volcanic Unit. **c.** Typical basic inclusion with rounded, chilled margins in the Imbanguila porphyritic diorite. **d.** Undifferentiated diorite. **e.** Porphyritic dark diorite. **f.** Equigranular light diorite. **g.** Phreato-magmatic breccia with hydrothermally altered clasts of sercite-chlorite-albite (green) and advanced argillic (pink) mineral assemblages. **h.** Hydrothermal breccia with a pyrite rich matrix and hydrothermally altered clasts of sercite-chlorite-albite and white mica alteration with a truncated vein.



Lithology of FSE within a 2.5 km<sup>3</sup> volume is represented by two sections (Figure 6) according to elevation and easting. The temporal relations of lithologies are defined by cross-cutting relations. From oldest to youngest they are the LVU, the Imbanguila diorite porphyry, the FSE diorite complex (undifferentiated diorite, the dark diorite and the light diorite) the phreatic and phreatomagmatic breccia and the hydrothermal breccia.

Figure 6 (next page): Lithology cross sections with geographical locations shown on Figure 2. Logged drill hole intervals are  $\pm 100$  m from the section. The lithological body shapes were defined by cross-cutting relations and ore envelope shapes. Visualisation in three dimensions and creation of sections was done with the help of Leapfrog software.



**Lithologies**

- Phreatic and phreato-magmatic breccia
- Light diorite
- Undifferentiated diorite
- Lepanto volcanic unit
- Hydrothermal breccia
- Dark diorite
- Imbangula diorite porphyry

- 0.5 ppm Au
- 1 ppm Au
- 0.5% Cu
- 1% Cu
- Phreatic and phreatomagmatic breccia projected on the section
- Intervals logged

## Lithochemistry

In order to assess the varying lithochemistry of rocks from different units, we present new major and trace element data for 14 samples of representative lithology types of the FSE porphyry system (Table 1).

Table 1: Chemical analyses of representative samples from the Far Southeast deposit. bdl: below detection limit

	12-8047-36.2	12-8037-17.5	12-6033-14.2	12-4031-931.3	11-3029W1-602.7	11-4021W1-959.3	11-5010-803.3
	Imbanguila diorite	Imbanguila diorite	Imbanguila diorite	Undifferentiated diorite	Undifferentiated diorite	Undifferentiated diorite	Dark diorite
SiO <sub>2</sub> , wt %	62.44	60.08	62.13	60.67	57.96	64.73	61.80
TiO <sub>2</sub>	0.44	0.50	0.46	0.39	0.35	0.33	0.39
Al <sub>2</sub> O <sub>3</sub>	17.62	17.77	17.23	15.26	15.20	14.91	16.53
Fe <sub>2</sub> O <sub>3</sub>	4.74	5.39	5.07	6.41	5.20	7.08	5.00
MnO	0.22	0.17	0.29	0.05	0.03	0.07	0.03
MgO	1.96	2.14	2.10	1.74	2.25	1.23	1.73
CaO	5.76	6.57	5.62	4.37	4.54	4.17	5.08
Na <sub>2</sub> O	3.98	3.88	3.78	5.31	5.69	4.52	5.11
K <sub>2</sub> O	0.16	1.06	0.26	0.78	0.88	0.53	0.62
P <sub>2</sub> O <sub>5</sub>	0.12	0.12	0.11	0.07	0.09	0.09	0.11
LOI	2.4	2.1	2.7	4.6	7.5	2.2	3.3
Total	99.81	99.81	99.72	99.63	99.66	99.81	99.75
Cs, ppm	0.4	0.5	1.8	0.8	1.9	0.4	0.7
Rb	1.7	16.1	5.5	25.6	14.9	11.8	15.0
Sr	602.6	568.7	561.3	420.2	383.4	422.8	527.8
Y	10.9	10.9	11.8	6.9	7.3	8.1	8.9
Zr	65.0	58.9	64.2	64.6	58.2	61.9	69.8
Hf	1.9	1.8	1.9	1.8	1.9	2.0	2.0
Nb	1.6	1.6	1.5	1.7	1.5	1.3	1.2
Cu	26.72	25.03	11.76	2278.75	1842.32	439.35	1019.46
Co	8.9	7.3	8.3	8.2	4.1	6.7	7.0
Pb	57.37	5.70	281.00	4.97	1.74	2.53	2.39
Zn	134.1	72.7	622.6	67.8	40.2	84.2	39.0
Ag, ppb	45	16	79	490	142	81	532
Ni, ppm	1.9	1.3	2.3	5.3	2.6	1.8	3.4
Cr	3.4	2.8	3.8	9.4	1.8	3.6	8.0
Ba	355	337	385	78	45	299	113
Th	1.9	1.7	1.6	0.9	1.5	2.1	1.4
U	0.6	0.6	0.7	0.3	0.2	0.3	0.3
Sc	8	10	9	6	6	5	7
La	9.1	7.6	8.7	4.9	7.4	7.6	6.6
Ce	17.2	15.7	16.3	10.3	13.3	14.5	12.3
Pr	2.23	2.07	2.11	1.41	1.88	1.84	1.68
Nd	9.8	9.0	9.8	6.0	7.6	7.6	7.0
Sm	2.14	1.94	2.13	1.47	1.61	1.51	1.38
Eu	0.69	0.71	0.72	0.46	0.58	0.51	0.56
Gd	1.91	2.15	2.22	1.34	1.64	1.48	1.47
Tb	0.32	0.33	0.32	0.22	0.23	0.23	0.22
Dy	1.81	1.79	2.08	1.30	1.35	1.37	1.38
Ho	0.37	0.37	0.39	0.28	0.25	0.26	0.27
Er	1.08	1.18	1.09	0.68	0.81	0.79	0.78
Tm	0.17	0.18	0.17	0.12	0.11	0.12	0.13
Yb	1.13	1.18	1.09	0.74	0.80	0.84	0.92
Lu	0.18	0.18	0.19	0.11	0.14	0.14	0.14

Table 1 (continued)

	11-3029W1- 1210	12-6033W1- 1121	12-5049W1- 1070.1	11-5003W1- 1266.4	12-4048W1- 1167.8	13-10074- 709	11-3029W1- 987.2
	Dark diorite	Dark diorite	Light diorite	Light diorite	Light diorite	Late dyke	Late dyke
SiO <sub>2</sub> , wt %	60.93	59.95	62.42	63.27	65.53	59.09	60.78
TiO <sub>2</sub>	0.44	0.40	0.39	0.37	0.34	0.46	0.46
Al <sub>2</sub> O <sub>3</sub>	16.34	16.83	16.90	17.05	16.56	17.48	17.65
Fe <sub>2</sub> O <sub>3</sub>	7.76	6.49	5.50	4.44	4.12	5.57	5.58
MnO	0.04	0.04	0.06	0.07	0.03	0.19	0.17
MgO	1.94	1.64	1.59	1.42	1.29	2.28	1.99
CaO	5.15	5.66	5.48	5.47	4.74	5.92	6.40
Na <sub>2</sub> O	4.18	4.60	4.51	4.63	4.80	4.59	4.50
K <sub>2</sub> O	0.94	0.69	0.73	0.77	0.33	0.14	0.14
P <sub>2</sub> O <sub>5</sub>	0.11	0.11	0.11	0.10	0.06	0.11	0.13
LOI	2.0	3.3	2.1	2.2	2.1	4.0	1.9
Total	99.86	99.68	99.75	99.79	99.87	99.82	99.75
Cs, ppm	0.9	0.4	0.6	0.5	bdl	0.9	bdl
Rb	26.7	18.7	18.6	18.8	6.2	2.2	0.8
Sr	484.9	520.4	522.6	547.7	523.4	504.2	718.9
Y	7.5	7.7	9.3	9.0	6.3	9.9	11.4
Zr	67.4	62.1	62.8	66.4	64.5	54.8	68.9
Hf	1.9	1.9	1.8	2.0	2.0	1.6	2.1
Nb	1.4	1.5	1.3	1.4	1.5	1.0	1.0
Cu	26.63	1632.44	883.96	529.26	6.01	183.69	610.97
Co	9.6	8.5	6.2	5.2	2.6	9.6	7.0
Pb	1.81	2.68	14.58	1.11	1.07	2.74	2.28
Zn	53.5	32.2	82.6	26.1	31.9	128.1	59.1
Ag, ppb	22	797	164	114	9	372	1348
Ni, ppm	5.1	4.2	2.1	2.4	1.8	2.9	2.1
Cr	7.8	6.1	4.3	4.5	2.7	2.9	3.2
Ba	115	139	194	260	267	161	137
Th	1.5	1.5	1.2	1.7	1	1.6	1.3
U	0.4	0.4	0.3	0.5	0.2	0.4	0.5
Sc	8	7	6	6	5	9	9
La	6.2	8.5	7.3	7.1	5.6	7.5	7.6
Ce	13.1	15.0	12.9	14.2	10.7	14.9	16.6
Pr	1.70	1.91	1.70	1.93	1.33	2.02	2.27
Nd	7.5	7.3	7.7	7.9	5.5	8.7	10.4
Sm	1.40	1.62	1.64	1.68	1.05	2.15	2.34
Eu	0.52	0.59	0.56	0.64	0.51	0.68	0.75
Gd	1.47	1.60	1.54	1.68	1.12	1.84	2.07
Tb	0.22	0.24	0.24	0.25	0.18	0.30	0.32
Dy	1.35	1.40	1.44	1.36	0.98	1.61	1.91
Ho	0.27	0.28	0.31	0.30	0.21	0.34	0.35
Er	0.87	0.77	0.85	0.81	0.65	1.05	0.98
Tm	0.12	0.12	0.12	0.14	0.13	0.09	0.14
Yb	1.01	0.77	0.88	0.96	0.66	1.06	1.05
Lu	0.14	0.13	0.15	0.16	0.11	0.16	0.17

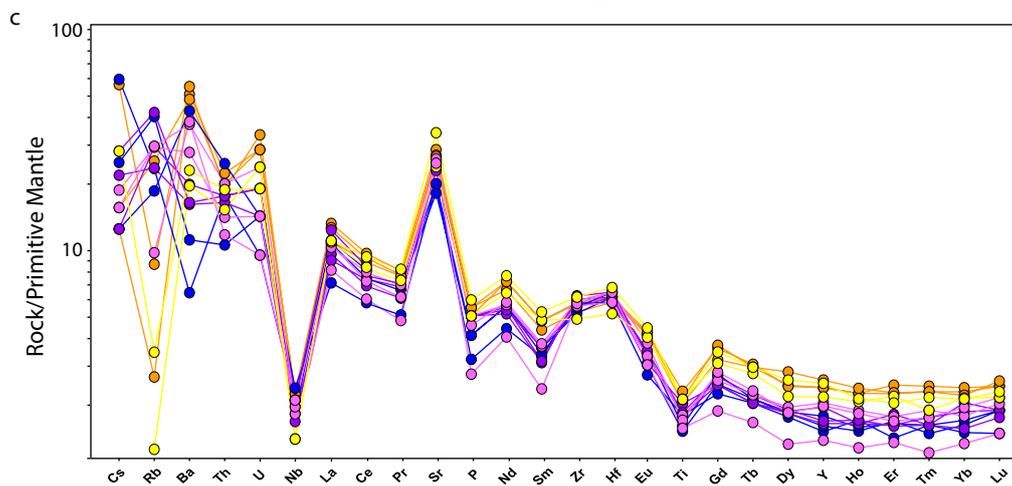
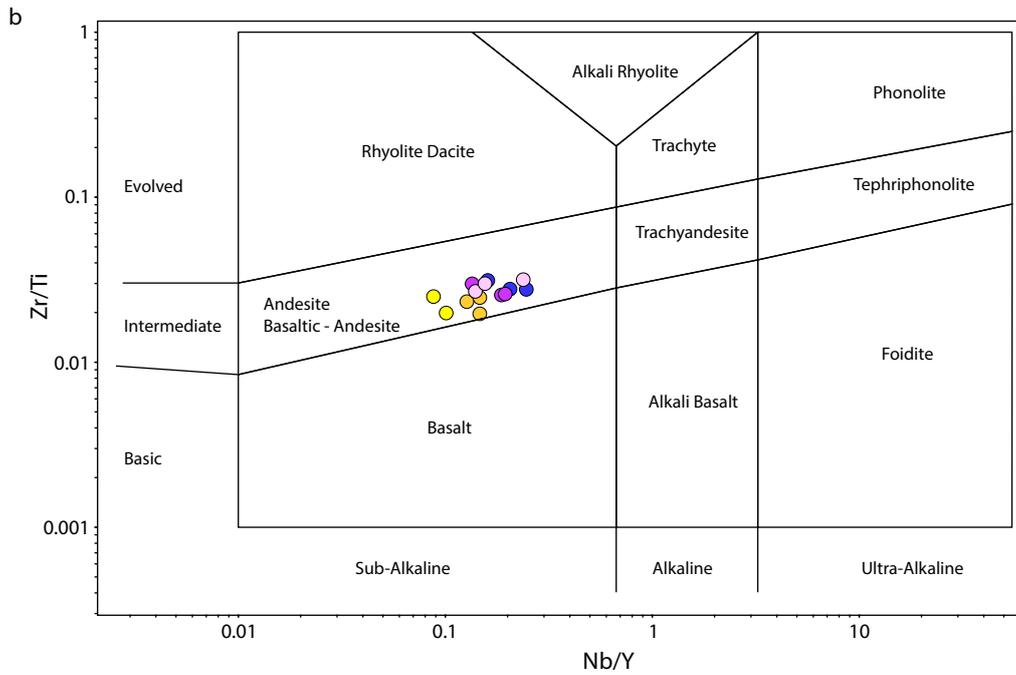
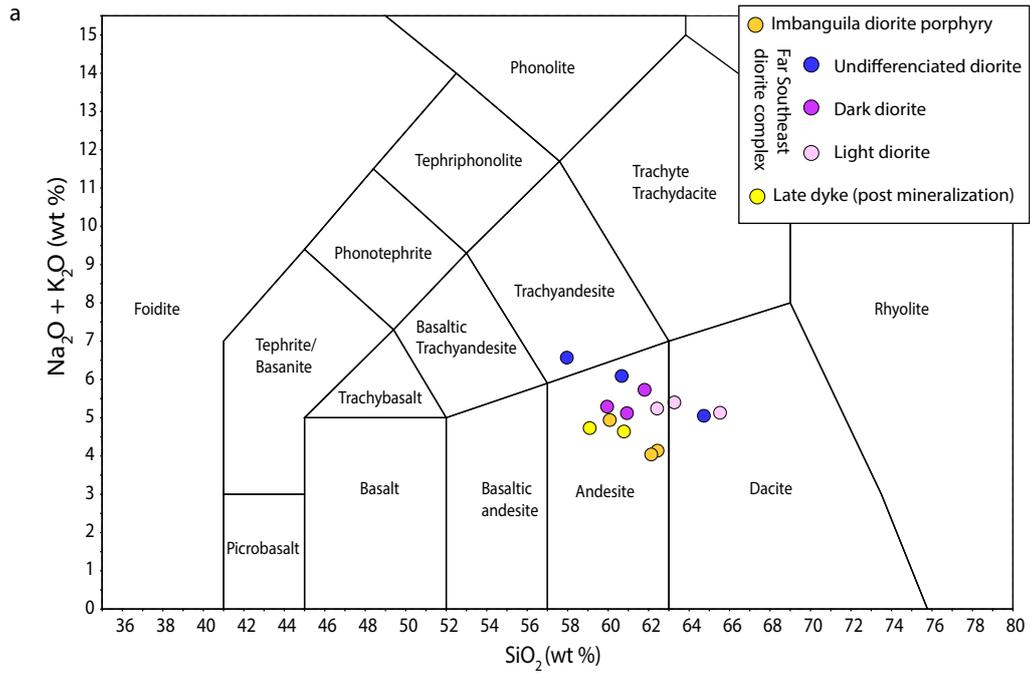
Relatively fresh rocks were chosen and represent original magmatic composition. Minor hydrothermal alteration of the samples measured is shown by low loss on ignition (majority being between 2 and 4 wt %).

Based on this compositional data, Total Alkali-Silica (TAS; [Le Maitre et al., 1989](#)) ([Figure 7a](#)) is used to define rock names. Andesitic composition was determined for the Imbanguila diorite and both andesitic and dacitic composition is determined for the FSE diorite complex.

To avoid element mobility following hydrothermal alteration, geochemical data was also plotted with the Zr/Ti vs. Nb/Y by [Winchester and Floyd \(1977\)](#) and modified by [Pearce \(1996\)](#) ([Figure 7b](#)). An intermediate composition and similar rock definitions obtained in the TAS diagram was determined for all the samples.

Trace element spider diagram ([Figure 7c](#)) was derived by normalising to primitive mantle values from [Sun and McDonough \(1989\)](#). Overall, trace element content of all samples show variable enrichment in fluid mobile elements (e.g., Rb, Ba, Sr), a strong-negative Nb-Ti anomaly and a strong-positive Th-U anomaly.

Figure 7 (next page): Geochemical diagrams for rock samples of the FSE deposit. **a.** Total alkalis versus silica diagram for volcanic rocks ([Le Maitre et al., 1989](#)). **b.** Classification of altered volcanic rocks, Zr/Ti vs. Nb/Y by [Winchester and Floyd \(1977\)](#) modified by [Pearce \(1996\)](#). **c.** Trace element spider diagram with values normalized to primitive mantle ([Sun and McDonough, 1989](#))



## Characterization of alteration types

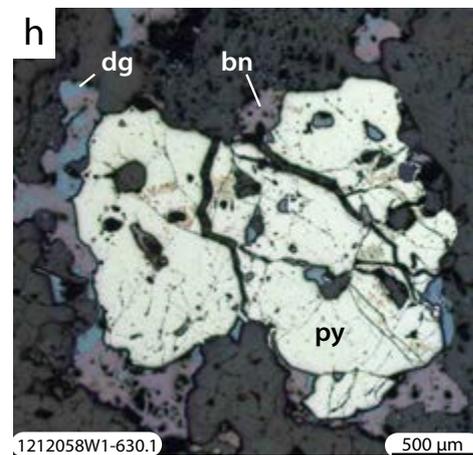
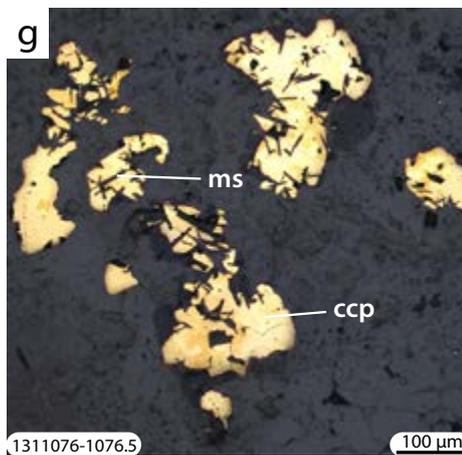
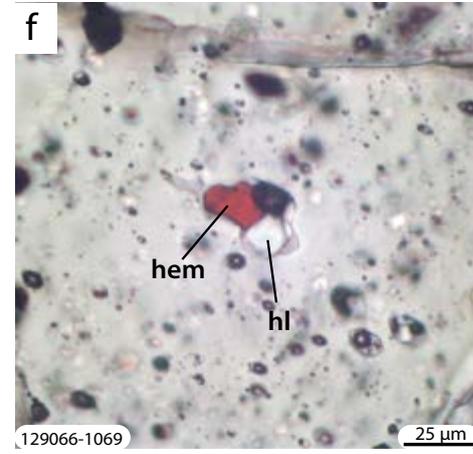
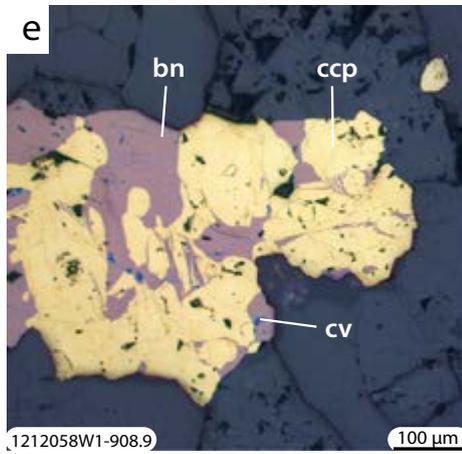
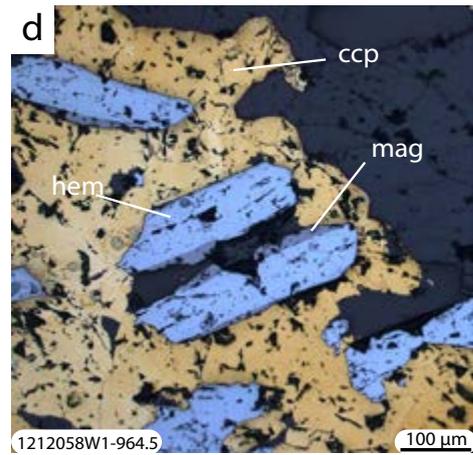
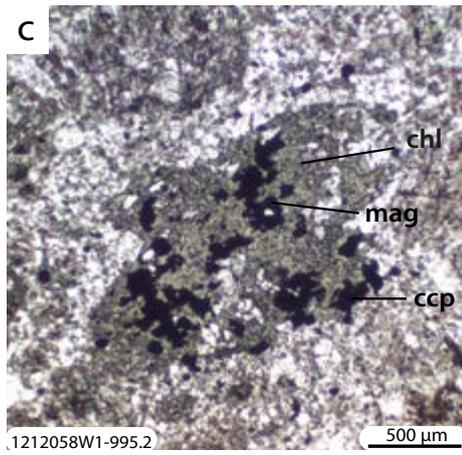
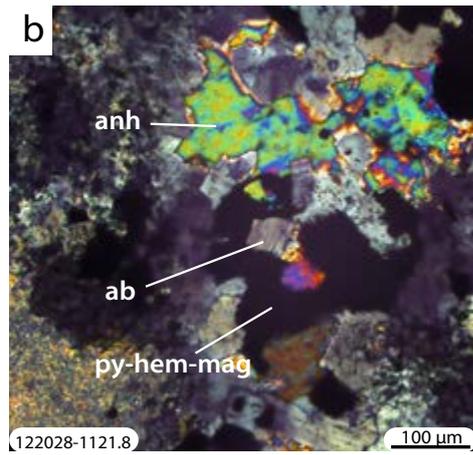
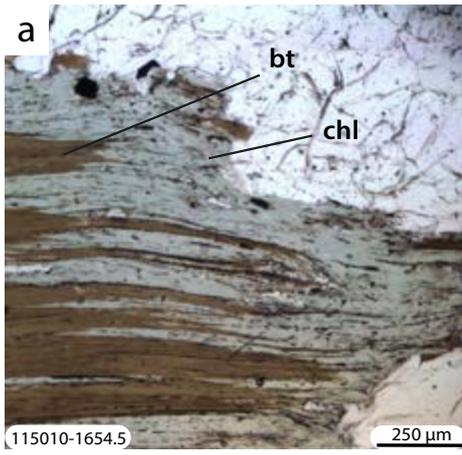
Mineral assemblages of alteration types were characterised visually (Figure 8) during core logging (Appendix 5), by collecting samples and by microscopically observing 31 thin sections (Appendix 3) from thin section list on Appendix 2. Key photomicrographs of mineral associations and textures are shown on Figure 9.

Four alteration types defined by mineral assemblages have been observed; biotite alteration, sericite-chlorite-albite (SCA) alteration, white mica alteration and aluminosilicate alteration. Timing was originally determined macroscopically by crosscutting relationships (Figure 8a, b) and confirmed microscopically by observing mineral replacements.



Figure 8: Macroscopic observation of hydrothermal events. **a.** Magnetite veins crosscut by lavender quartz-chalcopyrite crosscut by anhydrite-quartz-chalcopyrite vein with white mica halo in sericite-chlorite-albite altered undifferentiated diorite. **b.** Lavender quartz-chalcopyrite with SCA halo crosscut by Cu-sulfide thin vein with white mica halo **c.** Wavy magnetite rich vein in biotite altered light diorite. Mineral abbreviations by Whitney and Evans, 2010

Figure 9 (next page): Microscopic images of key hydrothermal features. **a.** Chlorite replacing biotite in vein associated with biotite alteration. **b.** Albite cube associated with minerals of hydrothermal origin in SCA alteration **c.** Mafic crystal (hornblende) replaced by chlorite, magnetite, chalcopyrite. **d.** Magnetite replaced by hematite, associated with chalcopyrite. **e.** Chalcopyrite, bornite, covellite within quartz vein. **f.** Large hematite daughter mineral in fluid inclusion from lavender quartz. **g.** Mica and chalcopyrite with bladed white mica shown to be pre-sulfide. **h.** Pyrite, bornite and digenite in shallow sample from advanced argillic alteration. Mineral abbreviations by Whitney and Evans, 2010



### a. Biotite alteration

Biotite alteration (commonly referred to as Potassic alteration), or Stage 1 contains the wallrock alteration mineral assemblage: quartz-biotite-magnetite-anhydrite and associated veins containing granular quartz-anhydrite-magnetite-biotite. Veins are frequently magnetite rich and wavy as seen on [Figure 8c](#). Biotite alteration is the earliest hydrothermal event recorded as evidenced by vein cross-cutting relationships ([Figure 8a](#); magnetite rich vein associated with biotite alteration crosscut by a vein associated with a later alteration type) and minerals of subsequent events replacing minerals associated with biotite alteration. An evidence of alteration overprinting, as seen on [Figure 9a](#), is hydrothermal biotite in the presence of chlorite or replaced by chlorite.

This alteration type is recorded in the LUV and the two latest stages of the FSE diorite complex; the dark and light diorite. It is principally found below -300m a.s.l., approximately 100 m below the ore envelope of 1 ppm Au. On the NWSE section however, it is also observed at shallower levels (200 m to 300 m a.s.l.), in areas of low mineralization.

Wallrock alteration is found pervasive and throughout the rock matrix, not as vein halos. Biotite crystals (sized <100 microns) and magnetite are found scattered throughout the groundmass. Sulfides are frequently absent as this alteration stage is found at depth below the high-grade Cu-Au envelope. When present, they can often be attributed to vein reopenings.

Coexisting multiphase and vapour fluid inclusions are seen in granular quartz veins and in quartz phenocrysts affected by this alteration type.

### b. Sericite-chlorite-albite (SCA) alteration

Stage 2 is defined macroscopically with a characteristic green colour arising from a simplified wallrock alteration mineralogy of sericite-chlorite-albite (SCA). It is seen as the main alteration type between 500 m and -500 m a.s.l., in the high grade Cu, Au area of economic interest and in all lithology units apart from the Imbanguila porphyritic diorite. Breccia bodies, post-dating hydrothermal events, also contain clasts affected by this alteration.

Mineral assemblages of this alteration type include quartz, sericite, chlorite, anhydrite, albite, hematite and magnetite confirmed with optical microscopy. Mineral textures have been observed as pervasive throughout the wallrock and as vein halos ([Figure 8b](#)). Hydrothermal albite can be difficult to distinguish with optical microscopy alone and more sophisticated techniques

have been found necessary. Using only optical microscopy, an example of a confirmation is of an albite cube (with characteristic parallel twinning) coeval with anhydrite, hematite, magnetite and pyrite (Figure 9b). As well as found in the rock matrix, this alteration type replaces primary magmatic minerals. As observed on Figure 9c, a cross-shaped habitus characteristic of hornblende is replaced by chlorite, magnetite and chalcopyrite. Also in primary minerals, in the case of feldspars, hydrothermal fluid passage can often be seen as the recrystallization and the modification of its cleavage along fractures.

Veins associated include euhedral lavender quartz, anhydrite, hematite and minor magnetite and pyrite. Fe-oxide relations is frequently seen as replacement of magnetite by hematite (Figure 9d). Economic sulfides present in the veins include molybdenite and Cu sulfides including chalcopyrite, bornite, covellite, chalcocite and digenite (Figure 9e). Copper-sulfides are also found in thin (~1 mm) and linear veinlets, referred to as 'paint' veins containing little or no other minerals. These 'paint' veins are frequently hosted in SCA altered rock but have been seen to contain white mica rich alteration halos.

The lavender colour of quartz veins originates from hematite daughter minerals in fluid inclusions trapped in quartz crystals (Figure 9f). Quartz veins and quartz phenocrysts contain numerous coexisting hypersaline (with or without daughter crystals) and vapour fluid inclusions.

### c. White mica alteration

Sulfide-rich (pyrite and chalcopyrite) veins containing anhydrite and quartz with a white mica alteration halo cross-cut all veins associated to previous alteration types (Figure 8a-b). They are associated with Stage 3, white mica alteration. Alteration texture is frequently observed as vein halos at elevations of the deepest drill core (-750m a.s.l.) up to elevations of 500m a.s.l.

Alteration is also recorded as pervasive near the phreato-magmatic breccia pipe or along thin zones in the Lepanto volcanic unit and the FSE diorite complex. In one such sample of pervasive white mica alteration, white mica is observed to precipitate prior to chalcopyrite (Figure 9g).

### d. Aluminosilicate alteration

At shallow levels (the majority observed <250m a.s.l., in the Imbanguila porphyritic

diorite), pervasive aluminosilicate alteration has been defined with the assemblage pyrophyllite-diaspore-alunite-dickite-kaolinite-quartz-anhydrite and minor andalusite-dumortierite. Optical microscopy observations noted high relief diaspore associated with phyllosilicates in the rock matrix or replacing original magmatic phenocrysts. Optical microscopy was incapable to differentiate between pyrophyllite and sericite, therefore a Short Wavelength Infra-Red (SWIR) spectroscopy study was necessary (and SWIR was useful to record much of the mineral assemblage).

This alteration type is associated with veins of anhydrite-quartz-hematite containing the sulfides pyrite-chalcopyrite-bornite-chalcocite-covelite-digenite-sphalerite (pyrite, bornite and digenite seen on [Figure 9h](#)).

Temporal criteria between this alteration type and others is difficult to observe. Macroscopically, it has been observed overprinting SCA alteration and could suggest that this alteration type is contemporaneous with white mica alteration.

## Short Wavelength Infra-Red (SWIR) spectroscopy

This study was useful to update the mineral assemblage of the various alteration types, most notably Aluminosilicate alteration ([Appendix 4](#)).

SWIR was also used to determine the peak position characteristic for white mica (Al-OH, 2200nm) according to alteration types ([Figure 10](#)). Differences are noted between micas associated with white mica alteration (W – mean of 2197nm wavelength peak) and micas associated with SCA alteration (G – mean of 2203nm wavelength peak).

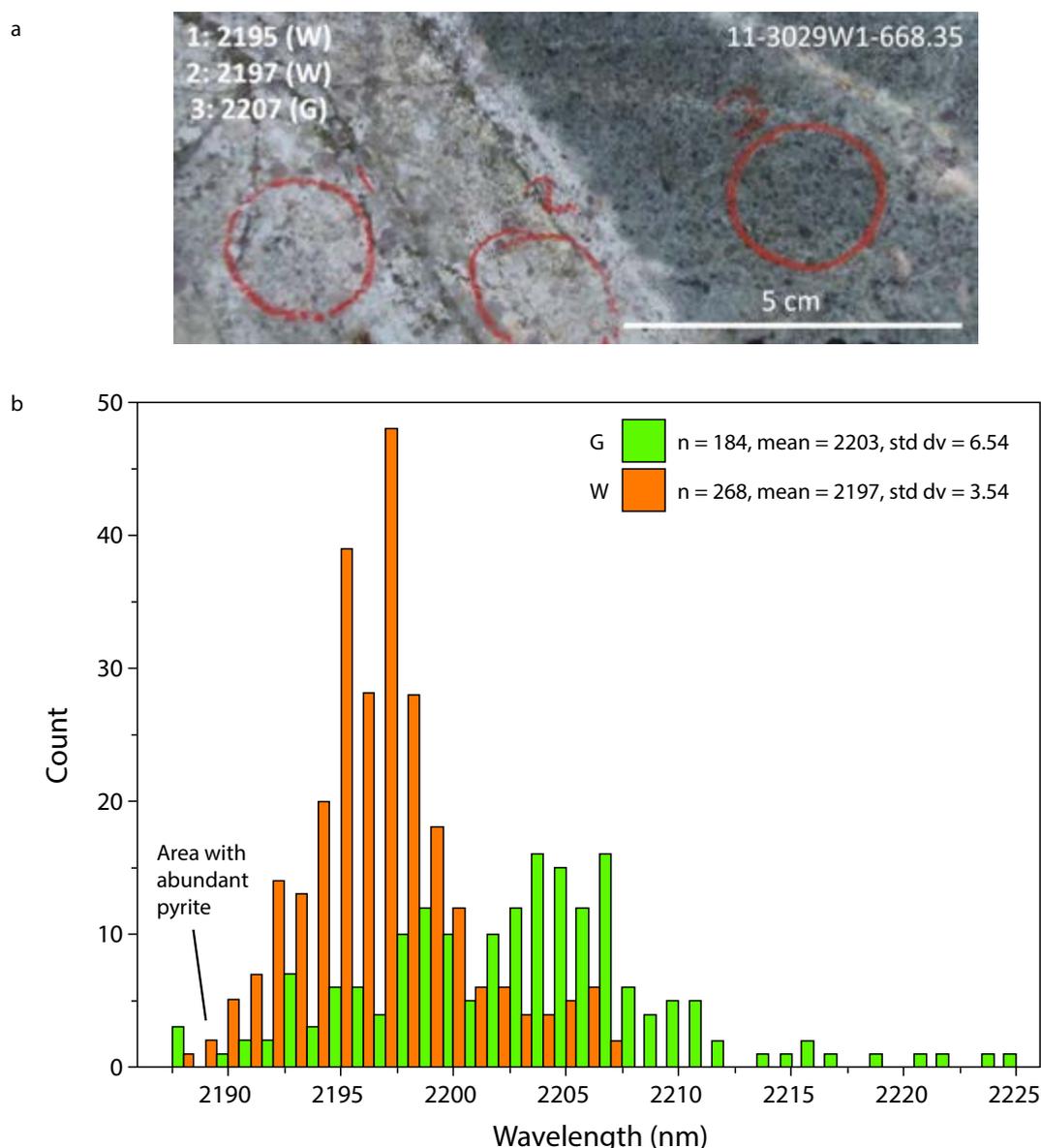


Figure 10: **a.** Characteristic sample showing areas analysed by SWIR analyses. Noted are the 2200 peaks obtained for the SWIR analyses (numbered red circle). G = green, W = white and signify the categorization of the analyses based on the colour of alteration type. **b.** Frequency bar chart showing the quantity of samples with an intensity of 2200 peak of analyses categorized as G = green and W = white

## QEMSCAN results

Samples analysed provide a coverage of all lithologic units (with the exceptions of the undifferentiated diorite of the FSE diorite complex) and the main hydrothermal alteration types in various ore grades (Figure 11). Not all samples are described in the main text of the manuscript, samples MB51, MB57, JR22, MB45, MB18 and JR18 are described in Appendix 1.

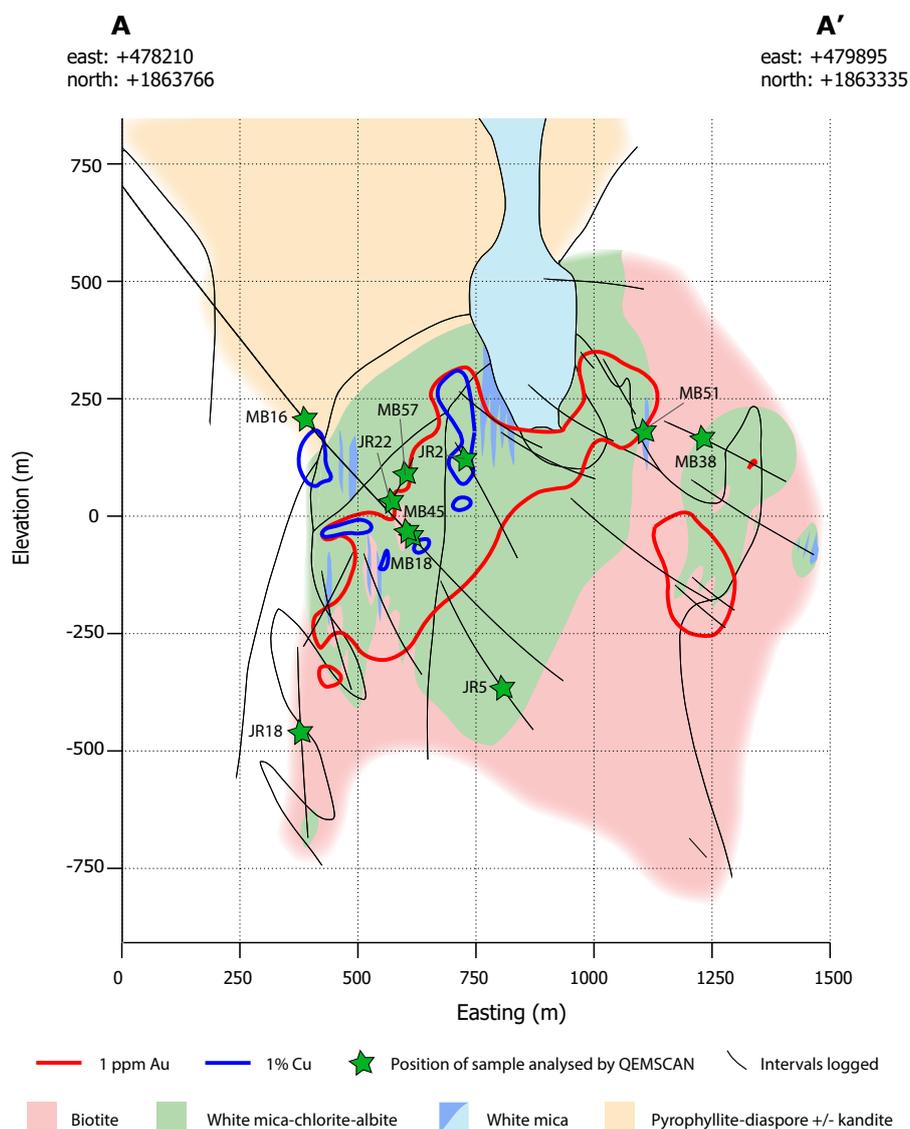


Figure 11: Samples positions of thin sections analyzed by QEMSCAN analyses. NW-SE section with lithology outlines and ore envelopes from Figure 6

A summary of the samples analyzed by QEMSCAN mentioning location, grade, host lithology and general QEMSCAN interpretation is found on Table 2. Samples are described in order of decreasing elevation.

Sample ID	Host lithology	Easting (m)	Elevation (masl)	Core sample grade		Thin section no.	Dominant alteration and temporal sequence				Description
				Au (ppm)	Cu (%)		Bt ± Kfs	SCA	White Mica	Prl - Dsp	
1212058-630.1	Imbanguila diorite	375	200	0.6	0.5	MB16			(●) — ●		qz vein reopened by anh, py in white mica alteration with incipient prl and dsp crystallization
1311076-1076.5	Lepanto volcanic unit	1110	170	1.2	0.9	MB51			●		numerous qz, anh, ccp veins in strongly silicified and white mica altered host rock
122028-1121.8	Lepanto volcanic unit	1230	160	0.4	0.5	MB38	● → ●				anh, ccp fractures with ab halo and qz vein in white mica, chl altered rock
115003W1-831.8	FSE complex (light diorite)	725	120	4.6	1.8	JR2		● → ●			ccp, anh, qz vein with qz, ms halo in ab, chl, ms altered rock
139078W1-900.9	FSE complex (dark diorite)	600	100	2.0	1.6	MB57		● → ●			qz, anh, ccp, veins in ab-rich, chl, ms (top) and white mica (bottom) altered rock
139078-1026.9	FSE complex (dark diorite)	570	30	1.1	0.7	JR22	● → ●				qz, anh, ccp, bn vein with associated pervasive ab, ms, anh, chl alteration overprinting earlier kfs, anh alteration of primary plagioclase
1212058-951.6	FSE complex (dark diorite)	600	-50	1.8	1.0	MB45	● → ●				qz, anh, bn veins with associated pervasive ab, chl, Fe-oxide, anh alteration overprinting earlier kfs, anh, bt alteration of primary igneous assemblage
1212058W1-964.5	FSE complex (dark diorite)	615	-60	1.9	1.0	MB18	● → ● → ●				qz, anh, ccp vein with ms halo and qz, anh, ccp vein with pervasive ab, ms, chl alteration overprinting earlier kfs, anh alteration
115010-1301.8	FSE complex (light diorite)	805	-375	0.2	0.1	JR5	● → ● → ●				py, anh, qz, vein with halo of ms, anh replacing primary phenocrysts ab, chl altered rock
128037-1271.0	Lepanto volcanic unit	380	-415	0.5	0.4	JR18	● → ● → ●				qz, anh vein cross-cut by anh, ccp, qz vein with ms, chl halo in ms, chl, ab altered rock overprinting earlier kfs, anh alteration

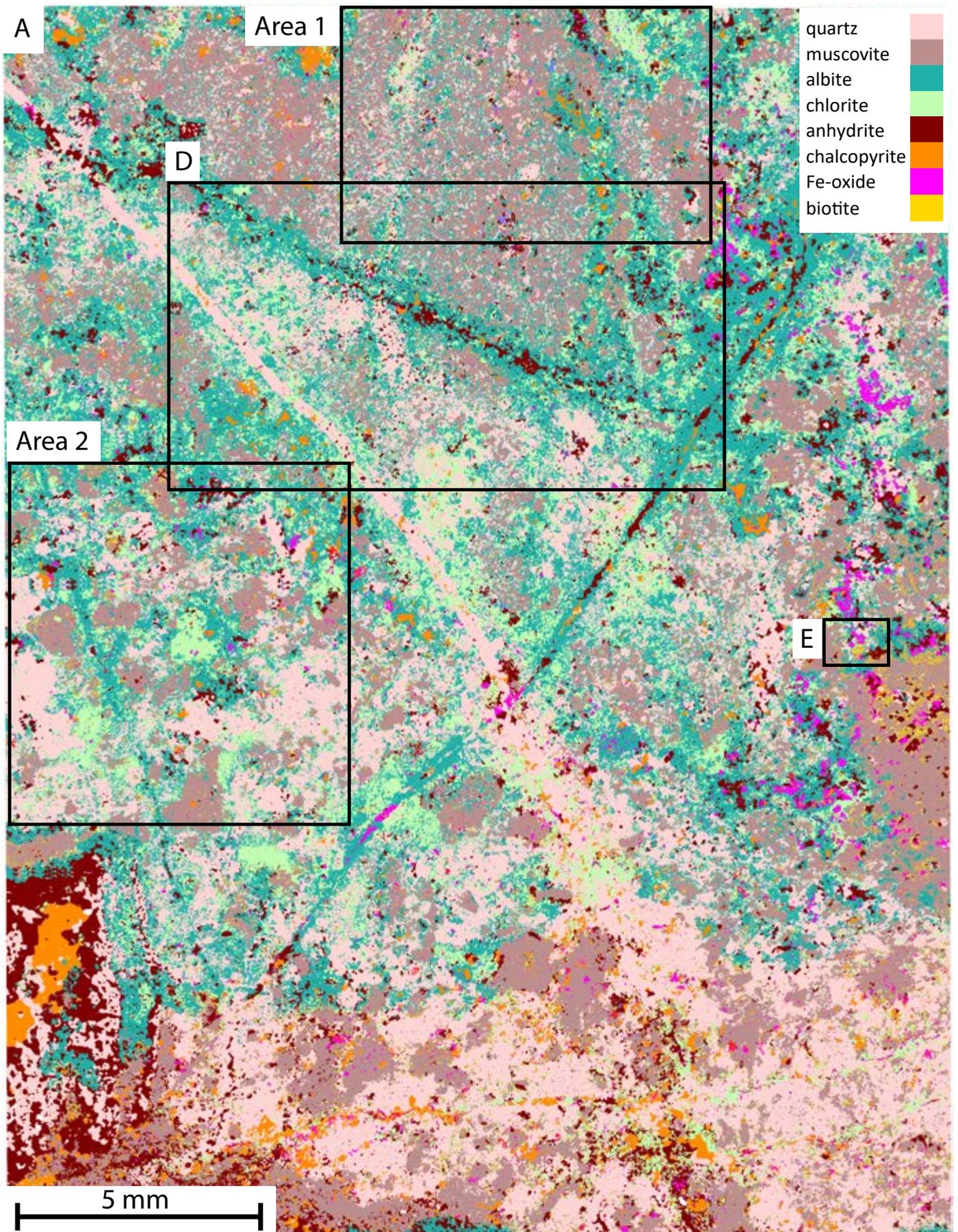
Table 2: Samples analyzed by QEMSCAN ordered by decreasing elevation. Mineral abbreviations are from [Whitney & Evans, 2010](#). Grades are determined for 2.5m of core containing the sample

a. Intense SCA alteration overprint of Bt alteration; sample MB38

Sample MB38 (122028-1121.8) is located in the western part of the deposit hosted by the Lepanto volcanic unit at an elevation of ~160 m a.s.l. Observed microscopically, early biotite alteration was overprinted by SCA alteration; the abundance of chlorite gives the rock a dark greenish colour.

QEMSCAN mineralogy (Figure 12a) was determined for the area outlined as represented on Figure 12b. The overall alteration type is white mica-chlorite-albite; Area 1 is characterised by pervasive muscovite and specks of scattered chlorite and Area 2 by muscovite and chlorite patches in distinct zones (0.5 - 2 mm in size) likely to represent the original composition of the igneous rock. The textural difference is followed by a variation in mineral contents of major minerals (Figure 12c). Area 1 has muscovite (~40%), quartz (~18%) and chlorite (~8.5%) versus Area 2 with quartz (~33%), muscovite (~16.5%) and chlorite (~16%). In both areas, the albite content is ~27%, which is an approximate content of the section as a whole. Biotite (~1.5 %) is present in the whole section.

Two vein types are observed. Firstly, thin anhydrite and chalcopyrite veins (5-50 microns wide) with intense halos of albite and minor chlorite (Figure 12d) cross-cut earlier altered muscovite-rich rock. Secondly, quartz-rich veins contain chalcopyrite and no albite halo (Figure 12d).



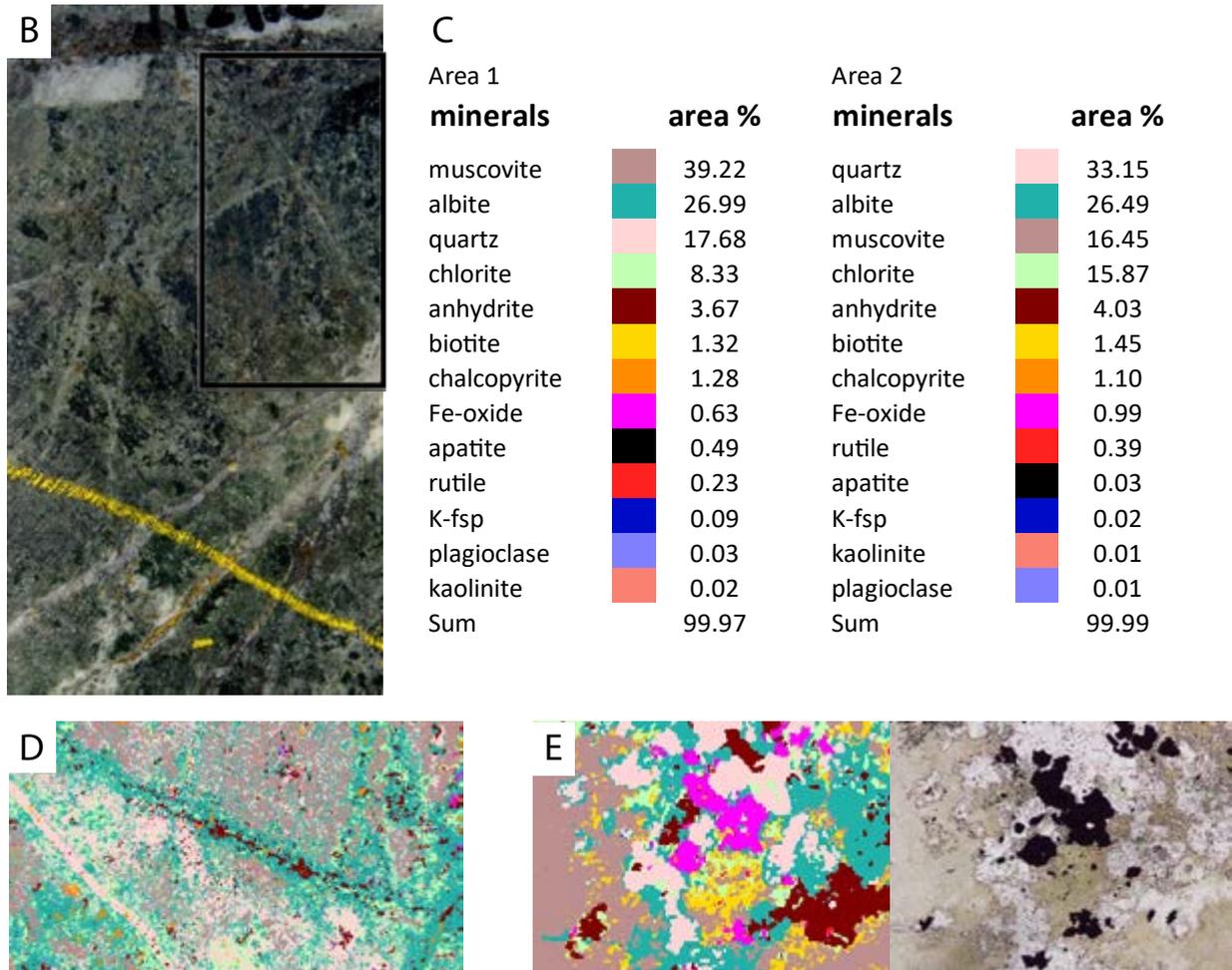


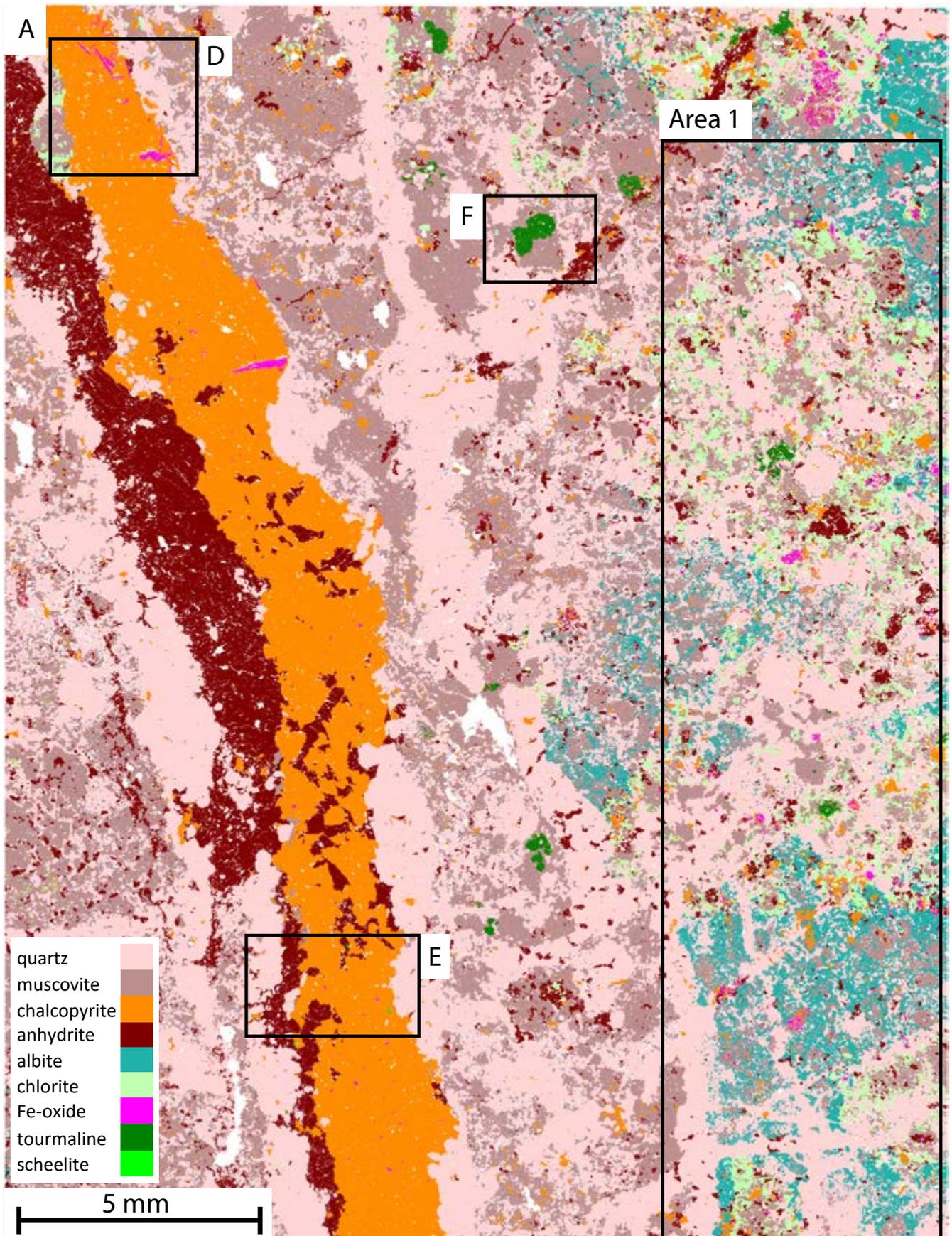
Figure 12: MB38 (122028-1121.8). **a.** Minerals identified by QEMSCAN for the sample MB38. **b.** Image of drill core and area analyzed by QEMSCAN outlined by black rectangle. **c.** Mineral content of Area 1 and Area 2 as outlined on Figure 12a. **d.** Area zoom within outline shown on Figure 12a. Albite (blue/green) halo to anhydrite (dark red) and chalcopyrite (orange) fracture postdating host rock alteration of muscovite (light brown). **e.** Area zoom within outline shown on Figure 12a. More obvious biotite-chlorite relations as shown on QEMSCAN image (left) as compared to natural light microscopy (right). Biotite; yellow, chlorite; light green

b. Ccp-anh-qtz vein with WM halo in SCA alteration; sample JR2

Sample JR2 (115003W1-831.8) is located in the centre of the deposit hosted by the light diorite of the FSE diorite complex with an elevation of ~120 m a.s.l. The sample contains a high Au and Cu grade and macroscopic observations indicate a green, chlorite-rich SCA altered rock cross-cut by a chalcopyrite-anhydrite-quartz vein with a white mica halo.

QEMSCAN identified mineralogy (Figure 13a) in the area shown on Figure 13b. Chalcopyrite-anhydrite-quartz vein with a muscovite-rich alteration halo cuts an albite-chlorite-muscovite (SCA) altered rock. QEMSCAN analyses quantified the mineralogy of SCA alteration in Area 1 as ~44% quartz, ~23% muscovite, ~14% albite and ~10% chlorite (Figure 13c). The remaining mineralogy is made up of anhydrite, chalcopyrite, Fe-oxides and other minor minerals.

Minor minerals within the chalcopyrite-anhydrite vein include hematite needles (or specularite; Figure 13d) and scheelite grains (Figure 13e). Grains of tourmaline are identified in the muscovite-rich vein halo as well as in the SCA altered rock (Figure 13f). When observed in optical microscopy, tourmaline has a radial habit with a fine-grained center and a clear, well crystallized rim (Figure 13f).



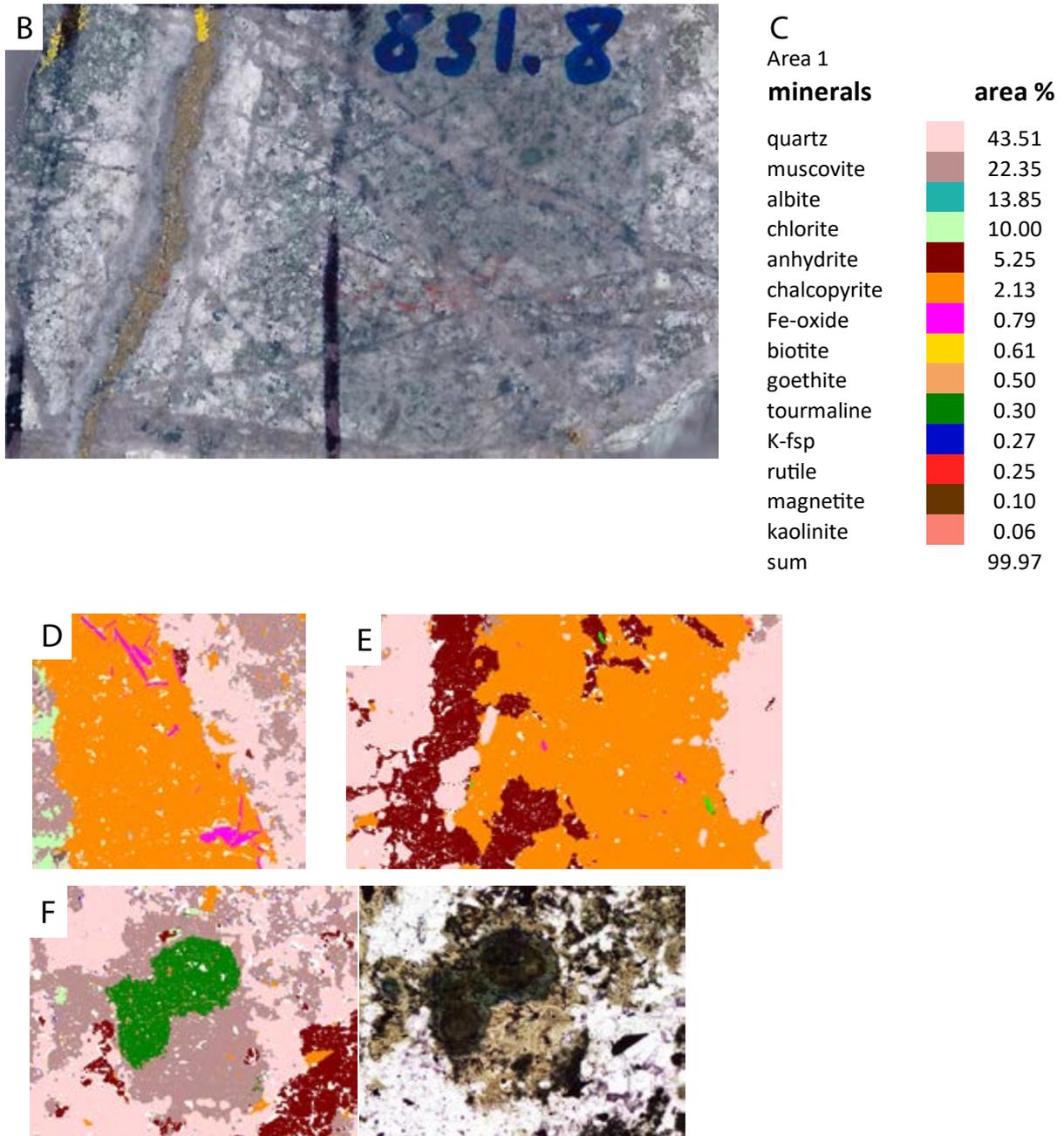


Figure 13: JR2 (115003W1-831.8). **a.** Minerals identified by QEMSCAN for the sample JR2. **b.** Image of drill core and area analyzed by QEMSCAN outlined by black marker. **c.** Mineral content of Area 1 as outlined on Figure 13a. **d.** Area zoom within outline shown on Figure 13a. Hematite (pink) needles found within chalcopyrite (orange) and anhydrite (dark red) vein. **e.** Area zoom within outline shown on Figure 13a. Scheelite (fluorescent green) grains associated with chalcopyrite (orange) and anhydrite (dark red) vein. **f.** Area zoom within outline shown on Figure 13a. Tourmaline (green) identified by QEMSCAN (left) in comparison with photomicrograph (right)

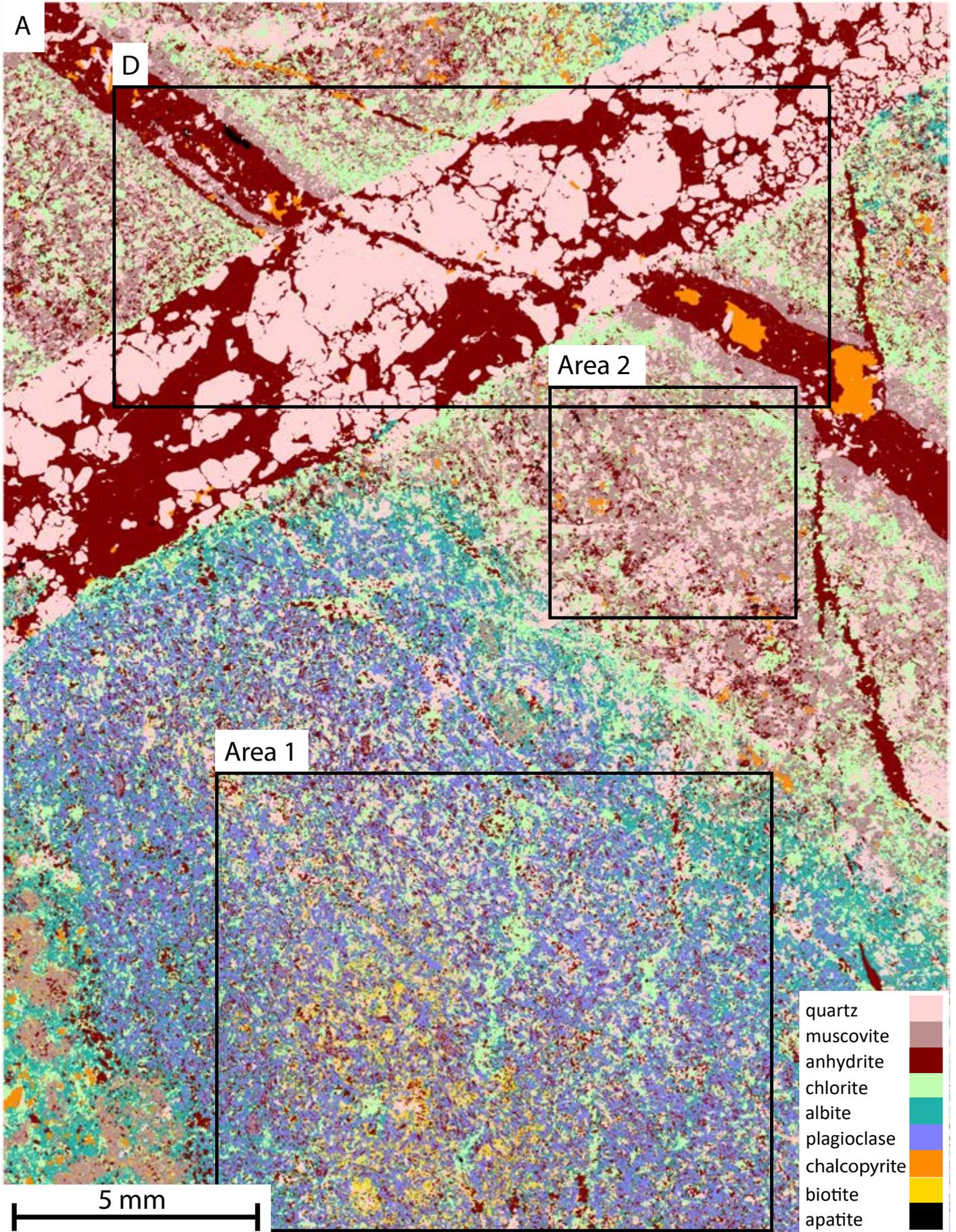
c. WM halo overprinting Bt alteration; Sample JR18

Sample JR18 (128037-1271.0) is located deep in the east of the deposit hosted by the Lepanto volcanic unit. Low-grade mineralization is ~0.5 ppm Au and ~0.4 % Cu. The sample contains a ~5 mm thick quartz-anhydrite vein with no alteration halo and a ~1 mm thick anhydrite-rich with a white mica-rich halo.

QEMSCAN mineral identification (Figure 14a) of the area outlined (Figure 14b) has additionally quantified the mineralogy within pervasive alteration in Area 1 (Figure 14c); biotite alteration, defined by the presence of ~6% biotite was overprinted by SCA alteration (~40% of plagioclase including albite, ~18% chlorite and ~6% muscovite). The mineral content of the alteration halo associated with the anhydrite-rich vein is represented by Area 2, containing ~45% muscovite, ~30% quartz and ~14% chlorite. Chlorite content increases ~0.5 mm from the vein (Figure 14a) and also at the border of the white mica halo.

Within the pervasive alteration, the distinction between plagioclase and albite by QEMSCAN is not possible due to their similar chemical composition and to the small grains present. In other samples, distinction was made between igneous plagioclase and hydrothermal albite (or K-feldspar) based on their textural differences, whereas this is not possible in this sample.

The thin anhydrite-rich vein is cut by the thicker quartz-anhydrite vein, which is different from the cross-cutting relationships in other samples, where anhydrite-chalcopyrite veins with a white mica halo are rarely cut by veins with no alteration halo. At close inspection, and using photomicrographs (Figure 14d – middle and lower photograph), the thicker vein is cut by a thin anhydrite vein, modifying the quartz crystal directions within the thick vein and causing the white mica alteration halo.



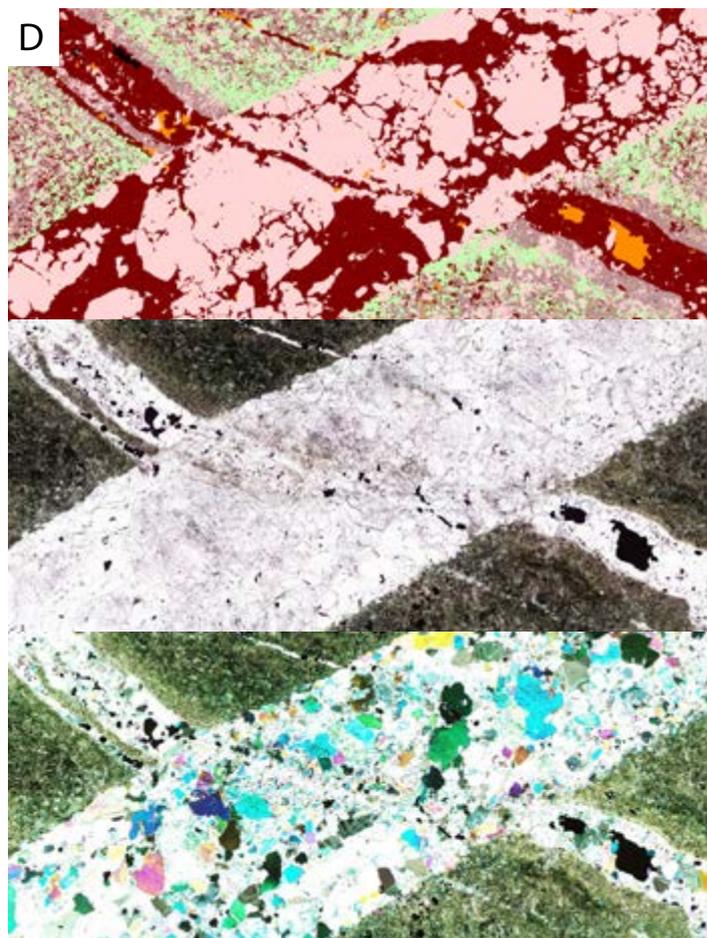
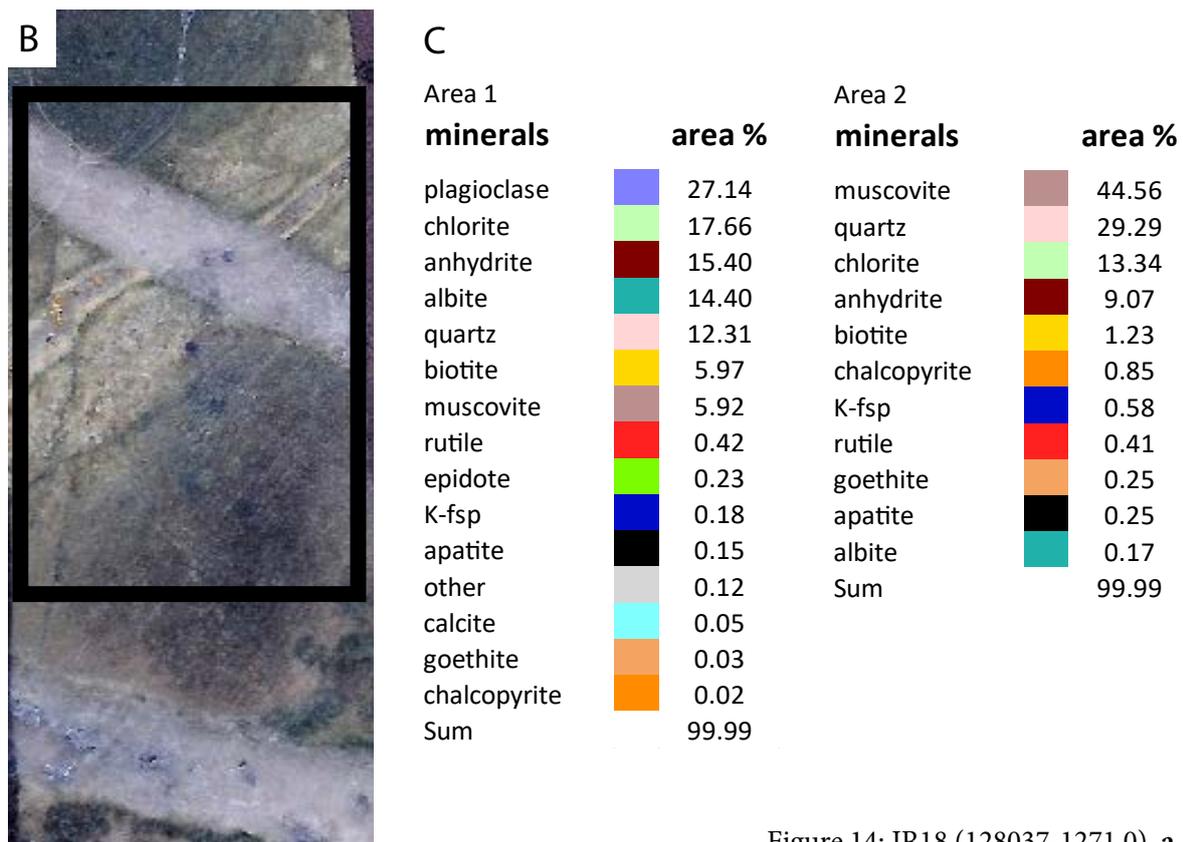


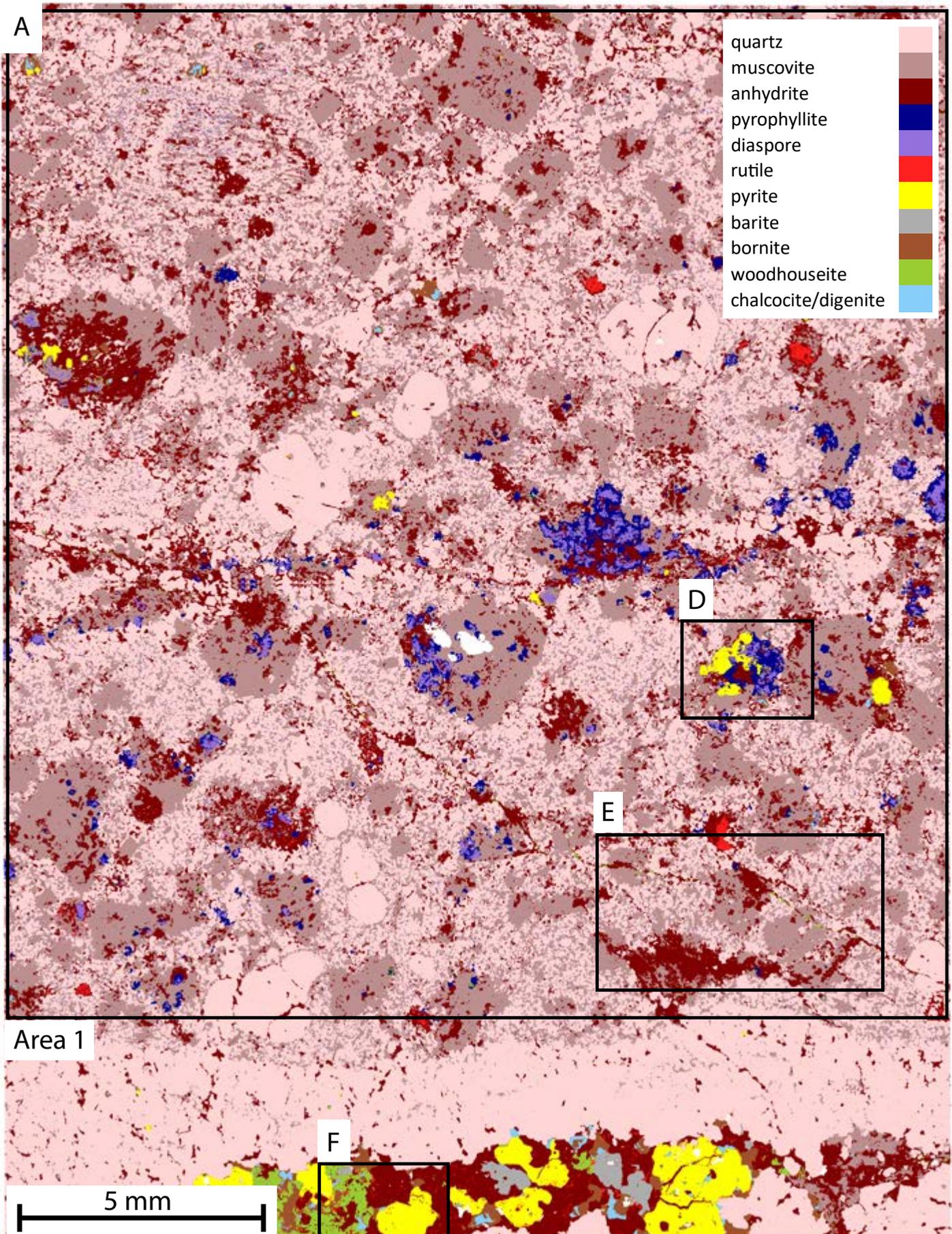
Figure 14: JR18 (128037-1271.0). **a.** Minerals identified by QEMSCAN for the sample JR18. **b.** Image of drill core and area analyzed by QEMSCAN outlined by black rectangle. **c.** Mineral content of Area 1 and Area 2 as outlined on Figure 14a. **d.** Area zoom within outline shown on Figure 14a. QEMSCAN image (top), natural light (middle), and crossed polar light (bottom) showing counter-intuitive vein cross-cutting relations. Thin anhydrite-rich vein is cross-cut by thick quartz, anhydrite vein and is later reopened by anhydrite vein

#### d. Aluminosilicate alteration; sample MB16

Sample MB16 (1212058-630.1) is located in the eastern part of FSE in the Imbangulia diorite porphyry at an elevation of ~200 m a.s.l. White mica, anhydrite, quartz, pyrophyllite and diasporite were determined macroscopically, by SWIR and has a pink and patchy texture. This sample is typical of Aluminosilicate alteration found mostly above ~100 m a.s.l.

Mineralogy was determined by QEMSCAN analysis (Figure 15a) of the area marked on the drill-core seen on Figure 15b. Pervasive alteration consists of ~80% of the analysed rock and has a mineral content of ~44% quartz, ~38% muscovite, ~14% anhydrite, ~1.5% pyrophyllite and ~0.7% diasporite (Figure 15c). The rock matrix is almost entirely quartz, muscovite and anhydrite with patches of muscovite, commonly associated with pyrophyllite and diasporite and minor pyrite, bornite, and woodhouseite (Figure 15d). Throughout the rock, anhydrite also occurs in thin fractures cutting the alteration (Figure 15e; seen with woodhouseite). Rounded igneous quartz phenocrysts are present and locally embayed.

The bottom of the section contains a quartz vein reopened by an anhydrite-rich vein containing pyrite, barite, aluminum phosphate–sulfate (APS): woodhouseite, bornite and chalcocite associated with the above pervasive alteration halo (Figure 15f). Vein mineralogy also includes rutile with a grain size of 5-50 microns.



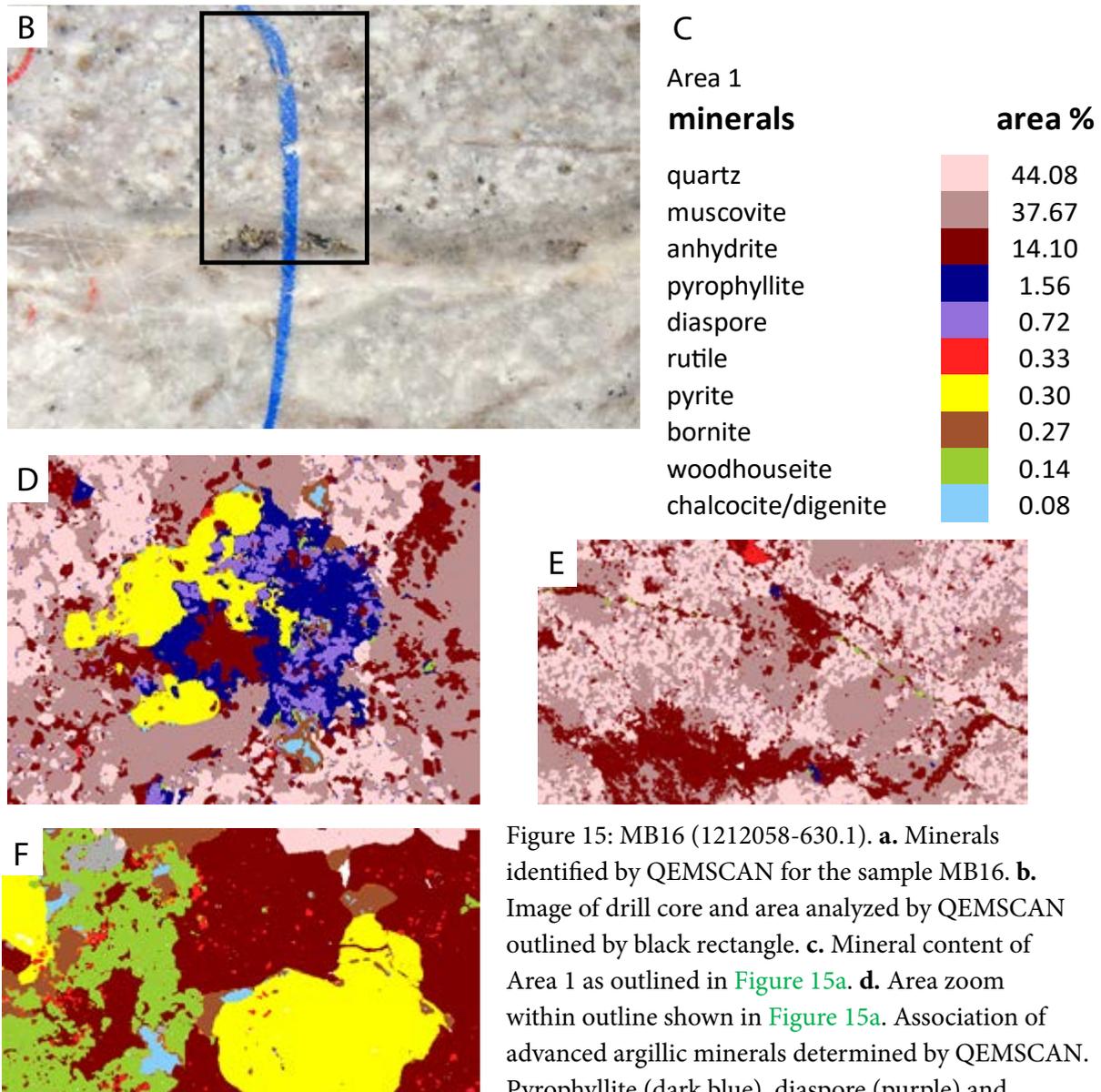


Figure 15: MB16 (1212058-630.1). **a.** Minerals identified by QEMSCAN for the sample MB16. **b.** Image of drill core and area analyzed by QEMSCAN outlined by black rectangle. **c.** Mineral content of Area 1 as outlined in Figure 15a. **d.** Area zoom within outline shown in Figure 15a. Association of advanced argillic minerals determined by QEMSCAN. Pyrophyllite (dark blue), diaspore (purple) and woodhouseite (light green) with rutile (red), pyrite (yellow) and bornite (brown) with center possibly exsolved to chalcocite/digenite (light blue). **e.** Area zoom within outline shown on Figure 15a. Late fracture containing anhydrite (red) and woodhouseite (light green). **f.** Area zoom within outline shown in Figure 15a. Mineral association of the vein at the south end of the section as determined by QEMSCAN. Anhydrite (dark red), pyrite (yellow), barite (grey), woodhouseite (light green), muscovite (light brown), bornite (brown) with center replaced by chalcocite/digenite (light blue) and specks of rutile (red). Rutile grains are between 5 and 50 microns

### *Mineral assemblage of alteration types*

Combining macroscopic logging, optical microscopy, SWIR analyses and the QEMSCAN study, mineral assemblages were determined for the observed hydrothermal alteration types within FSE (Table 3).

Simplified alteration stages		Depth range	Timing with respect porphyry mineralization	Wallrock alteration mineral assemblage	Hydrothermal veins	Sulfides in veins
Advanced argillic (AA)	lithocap	~700 to 1300 masl	Pre (syn Bt)	residual quartz, halos of quartz-alunite, kaolinite, dickite	late quartz	enargite-luzonite-covellite-(Au)
	Aluminosilicate	~100 to 700 masl	Overlaps	pyrophyllite-diaspore-alunite-dickite-kaolinite-quartz-anhydrite-illite-(woodhouseite)-(andalucite)-(dumortierite)	anhydrite-quartz-hematite-(barite)-(diaspore)-(woodhouseite)	pyrite-chalcopryrite-bornite-chalcocite-covellite-digenite-sphalerite-(molybdenite)-(enargite)-(luzonite)
White mica (WM)		~-750 to 500 masl	Syn to late syn	White mica-quartz-anhydrite-hematite-(pyrite)-(bornite)-(apatite)-(chalcopryrite)-(tourmaline)	anhydrite-quartz-sericite-hematite-(sheelite)-(apatite)-(goethite)	pyrite-chalcopryrite-(tennantite)
White mica-chlorite-albite (SCA)		~-500 to 500 masl	Syn	quartz-white mica-chlorite-anhydrite-albite-hematite-magnetite-pyrite-chalcopryrite-(sphene)-(rutile)-(tourmaline)	Euhedral lavender quartz-anhydrite-hematite-(magnetite)-(epidote)	chalcopryrite-pyrite-bornite-covellite-chalcocite-digenite-(molybdenite)-(Au)
					'Paint' veins*	chalcopryrite-bornite
Biotite (Bt)		~-750 to 500 masl	Pre to early-syn	quartz-biotite-magnetite-anhydrite-(epidote)-(fluorite)	Granular grey quartz-biotite-anhydrite-magnetite-hematite-(epidote)-(fluorite)	pyrite-chalcopryrite-bornite-(molybdenite)
					magnetite-(hematite)	NA

Note: Stages should not be viewed as sharp in time and space, but gradational. Fluid pulses and fluctuation of fluid conditions are indicated by seemingly contradictory evidence

\* with and without white mica halo

Table 3: Paragenesis of main stages of hydrothermal alteration. Minerals are positioned in terms of abundance. Parenthesis represent minor abundances. Note: lithocap alteration not studied; see [Claveria, 1997](#); [Chang et al., 2011](#). Lithocap timing relationship relative to other alteration type is recorded in [Hedenquist et al., 1998](#).

## Discussion

### *Spatial extent of alteration type, paragenetic sequence and mineral assemblage of alteration type*

Drill core logging determined the spatial extent of hydrothermal alteration type. It could then be superimposed on lithology cross sections to visualise the hydrothermal evolution with elevation and its relation with mineralization (Figure 16).

Recording cross-cutting relationships of veins associated with alteration types and microscopic observations of mineral replacements allowed the deduction of the temporal relation between alteration types. The main veins and their associated alteration are shown on Figure 17; the simplified temporal sequence is of Bt, SCA, WM to aluminosilicate alteration type (aluminosilicate alteration is not represented on Figure 17). Key minerals associated with these alteration types are precipitated temporally and follow this paragenetic sequence; biotite → chlorite → white mica → pyrophyllite. The sequence indicates a decrease in temperature as shown on the mineral phase diagrams in Hemley and Jones, 1964.

At low elevations (<-250 m a.s.l.), early Bt alteration (with the presence of biotite) represents the highest temperature and potential K<sup>+</sup> metasomatism. The effect of high temperatures on the rock is seen by the wavy aspect of the veins associated with Bt alteration (Figure 8c). This signifies modile rheology of the rock due to elevated temperatures of the system. QEMSCAN analyses has defined biotite grains in many of the samples (Figure 14a, Figure A 4a). Biotite associated with K-feldspar (also frequently defined by QEMSCAN analyses) is characteristic of the classic 'Potassic' alteration (Meyer and Hemley, 1967). Throughout the system, biotite is commonly replaced by chlorite (Figure 9a). This occurs as the system cools and where temperature conditions are stable for the precipitation of chlorite (Seedorf et al., 2005). Also associated with the alteration type is early magnetite, commonly replaced by hematite (Figure 9c).

Major economic metal input is related to white mica-chlorite-actinolite alteration and associated with lavender quartz-anhydrite veins or paint veins with or without a phyllic alteration halo (Figure 8b). The large amount of albite as seen on the QEMSCAN images (up to ~73% in Area 2 of Figure A 4a) suggests mobility of Na<sup>+</sup> and albite stability. Sodium metasomatism is the the main process but alteration of plagioclase by leaching of calcium might also play a role. In the SCA alteration type, albite follows anhydrite as seen in thin fractures (Figure 12d) and within the rock matrix (Figure A 2c, Figure A 4a). This newly identified alteration style at FSE (Gaibor et al. 2013) is analogous to the sericite-clay (illite)-chlorite alteration first noted in Philipines

porphyry deposits (Sillitoe and Gappe, 1984), and it is likely that other deposits with sericite-clay-chlorite (SCC) alteration also contain significant albite contents.

Figure 16 (next page): Simplified spatial extent of hydrothermal alteration. Extents were determined by personal logging, microscopic description and SWIR analyses. FSGRI data of hydrothermal alteration was used to crosscheck consistency with the model determined. Symbol patterns representing lithology are the same as in [Figure 6](#)

**A**  
east: +478210  
north: +1863766

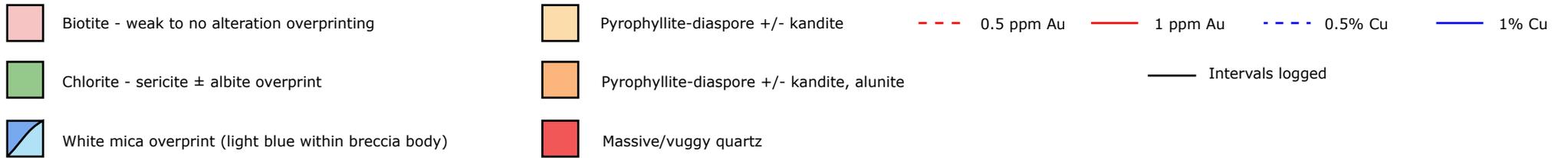
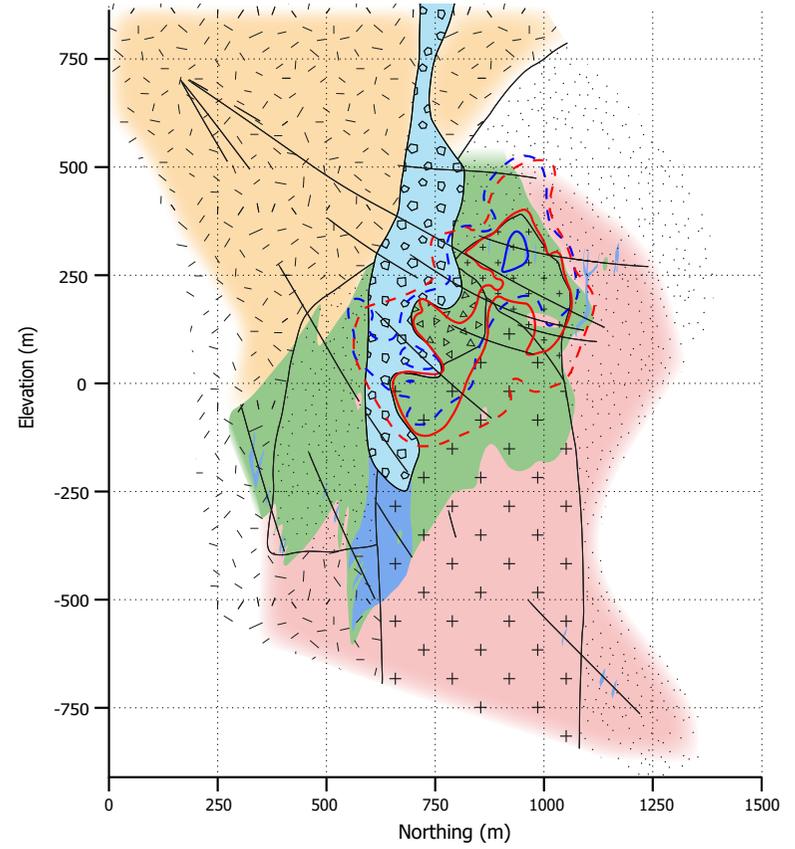
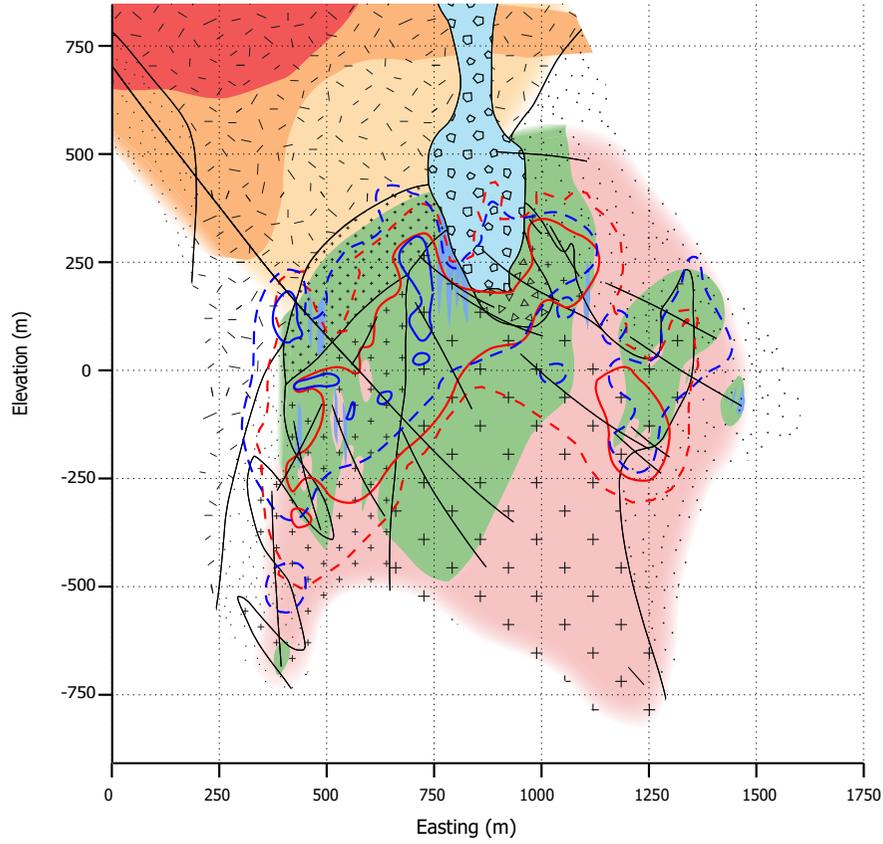
NWSE

**A'**  
east: +479895  
north: +1863335

**B**  
east: +478740  
north: +1862780

SWNE

**B'**  
east: +479470  
north: +1864090



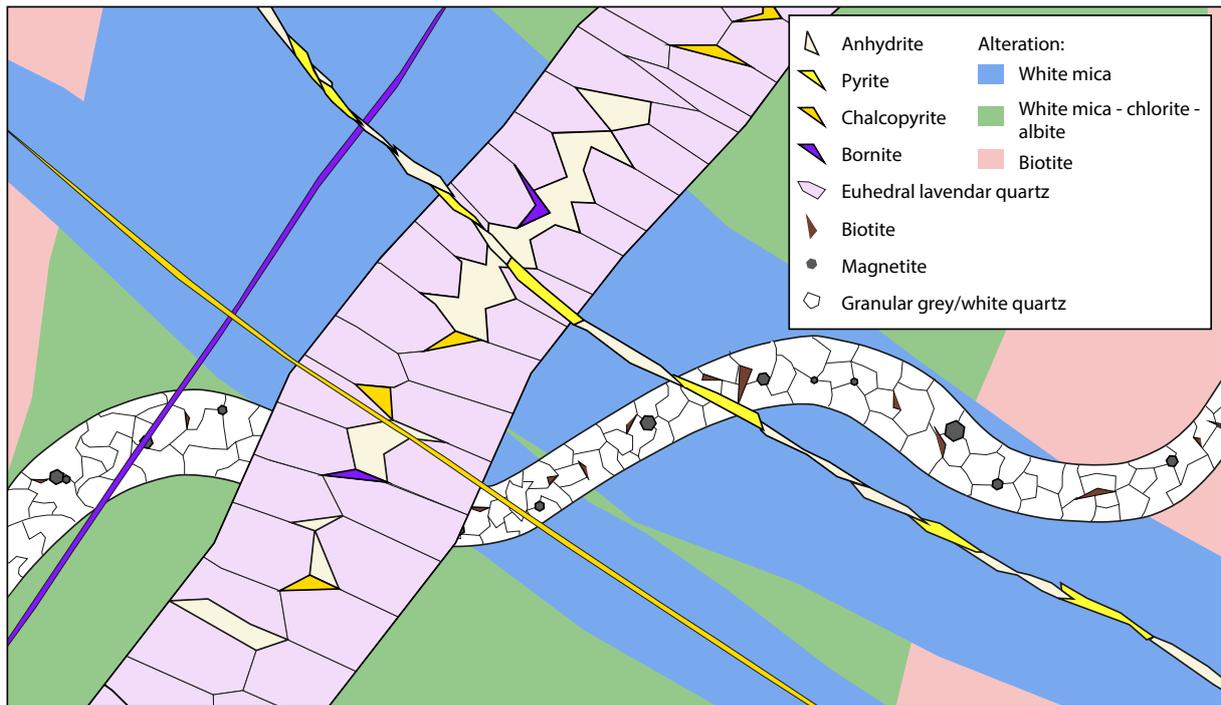


Figure 17: Schematic representation of mineralogy of major vein types and its associated alteration type. Cross-cutting relationships indicate timing

SCA is overprinted by WM alteration occurring principally as halos of thin, straight, linear anhydrite and pyrite rich veins. This final hydrothermal event represents the final cooling stage of the hydrothermal event. SWIR wavelength of white mica minerals associated with SCA vs. WM alteration is seen to decrease (Figure 10). This is due to a variation in composition and a trend towards more illitic white mica minerals. This also implies a decrease in temperature and conditions stable for illite precipitation (Watanabe and Hedenquist, 2001).

Aluminosilicate alteration is observed at elevations between 700 and 100 m a.s.l. Mineralogy (pyrophyllite, diaspore, alunite, kandite minerals) is observed with white mica often replacing primary igneous phenocrysts. Sample MB16 (Figure 15a) contains pyrophyllite, diaspore, and woodhouseite located in the centre of zones rich in white mica indicating an environment of formation caused by cooling of an initially white mica-stable fluid (Watanabe and Hedenquist, 2001). This is in contrast to the vapor condensates that form advanced argillic alteration halos to residual quartz lithocaps (Hedenquist and Taran, 2012). Within aluminosilicate alteration, sulfide assemblages also includes pyrite and bornite (Figure 9h) indicating high-sulfidation state with a high  $fS_2$  (Einaudi et al., 2003).

### *Location of economic Au-Cu mineralization*

The detailed recording of lithology and alteration has allowed the production of two cross-sections covering a volume of ~2.5 km<sup>3</sup>, spatial representation of lithology and hydrothermal alteration and the relation of these with Cu-Au mineralization. The majority of economic mineralization is located at the top of the FSE diorite complex (at an elevation between ~300 m a.s.l. and ~500 m a.s.l.). This location is consistent with the genetic relationship between the FSE diorite complex and economic mineralization. High grade Cu-Au is also located within an area with intense SCA alteration (Figure 16). The condition required for precipitation of economic mineralization are met coevally with SCA alteration (at a lower temperature than early Bt alteration).

## Chapter 3 - Implications of the FSE study on ore deposit formation

### Conclusion

A classical temporal sequence of alteration types within porphyry deposits (Bt, SCA, WM and shallow overlapping aluminosilicate alteration) was recorded in this study and is consistent with a decrease in temperature of the Far Southeast system, from late magmatic through hydrothermal alteration-mineralization processes. Similar alteration mineral assemblages and cross-cutting vein relationships have been observed in other porphyry deposits; e.g. El Salvador (Gustafson and Hunt, 1975), Bajo de la Alumbrera (Proffett, 2003), Bingham Canyon (Redmond and Einaudi, 2010).

Importantly, this study shows that the distribution and extent of alteration types is spatially related to that of economic mineralization. This is demonstrated graphically through the construction of two cross-sections representing a volume of  $\sim 2.5 \text{ km}^3$  at a depths greater than -750 m a.s.l.; see Figure 16. Given the economic significance of the Far Southeast porphyry system and environs, continued observations at this level of detail would assist in resource estimation and improve exploitation efficiency.

SWIR analyses show that white mica associated with the SCA alteration type is characterized by an Al-OH 2200nm peak position with higher wavelength than white mica associated with WM alteration; with a mean of 2203nm vs. mean that of 2198nm, respectively (Figure 10). Because SCA alteration is associated with greater Cu-Au ore grades, distinction of SCA-WM alteration types via white mica compositions using SWIR analyses could be used on a large scale to focus exploration efforts in rock volumes having the potential of hosting higher-grade mineralization.

The shape of economic-grade mineralization follows that of the diorite body. Such a bell-shape is characteristic of porphyry deposits engendered by cylindrical intrusions, such as those modeled by Weis et al., 2012. Their model shows that economic mineralization is located at the boundary between lithostatic pressure (ductile rock behavior) characterized by up-flow, hot magmatic fluids and hydrostatic pressure (brittle rock behavior) characterized by the presence of convecting, cooler meteoric fluids. This environment is controlled by dynamic permeability,

reflected by repeated vein openings and apparently contradicting veins timing relationships.

More detailed characterization of the volumetric extent of hydrothermal alteration assemblages and their paragenetic relationships using the combined techniques of macroscopic core logging, optical microscopy, SWIR and QEMSCAN would provide valuable information for the accuracy of deposit genetic models and would improve district-scale exploitation efficiency.

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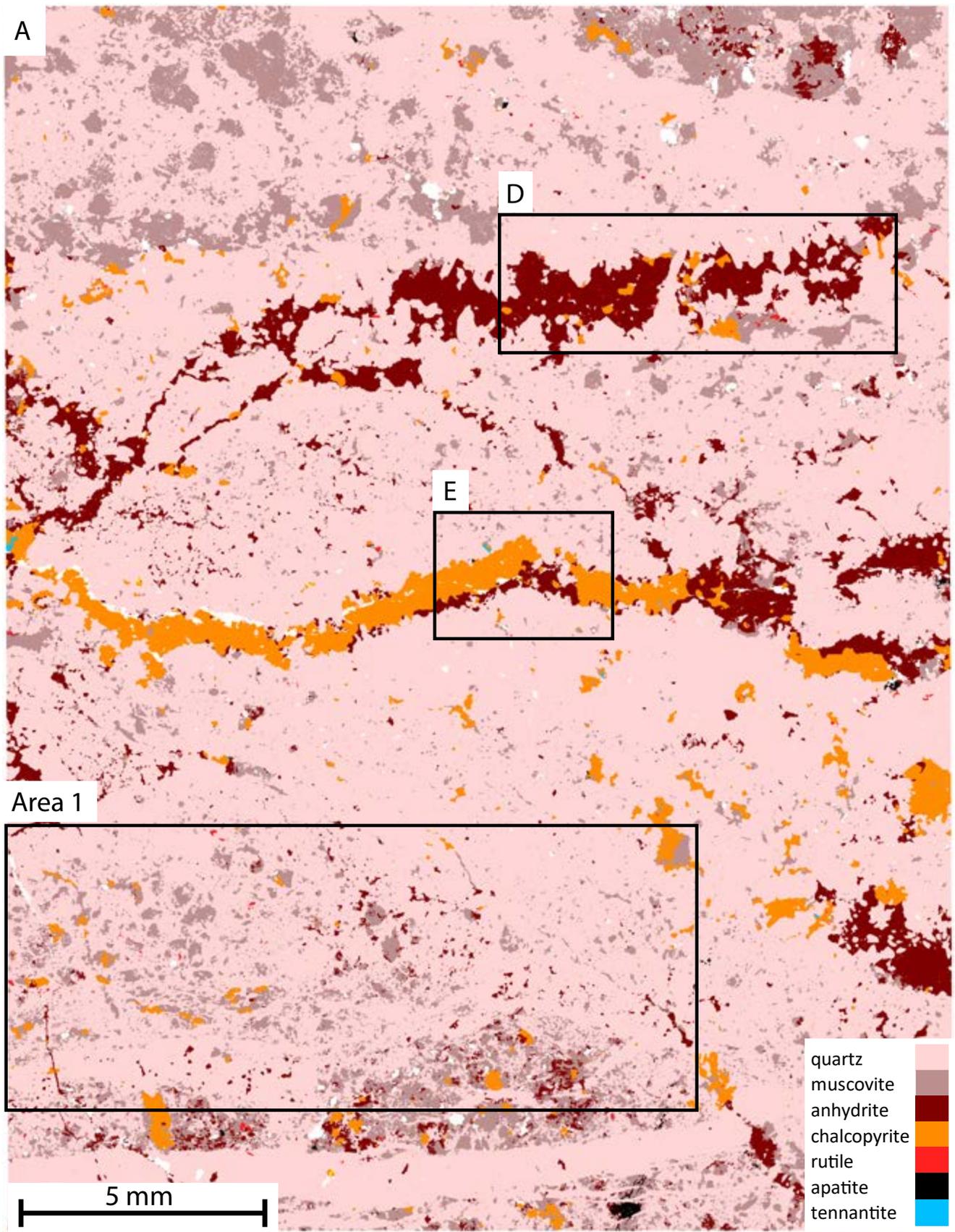
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## Appendix 1 - Other QEMSCAN results

### Silicification and WM alteration; Sample MB51

Sample MB51 (1311076-1076.5) is located in the western part of the deposit at an elevation of ~170m a.s.l., hosted by the Lepanto volcanic unit (LVU). The rock is dominated by white mica and has a white color.

QEMSCAN analyzed the mineralogy (Figure A 1a) in the area outlined on the core sample (Figure A 1b), with mineral content (area %) averaged for Area 1 (Figure A 1c) of ~75 % quartz content, ~20 % muscovite and the remainder anhydrite, chalcopyrite and other minor minerals including rutile and apatite. The euhedral texture of quartz in veins is clear on the QEMSCAN image showing the well-formed pyramidal crystal face at the termination of the quartz crystal (Figure A 1d). The rock is cut by veins containing quartz, anhydrite and chalcopyrite with tennantite (~100 micron size) and apatite grains (Figure A 1e).



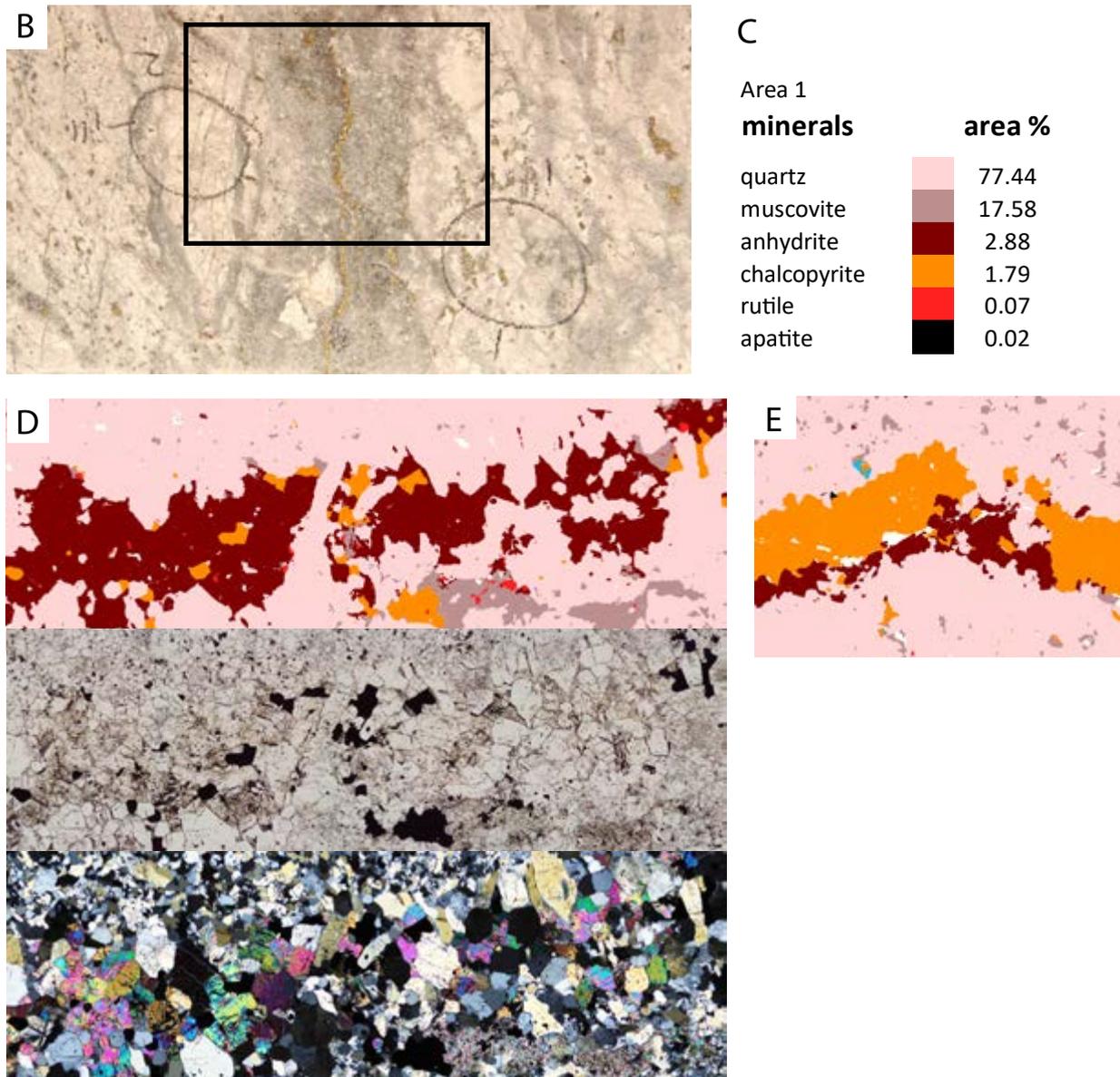


Figure A 1: MB51 (1311076-1076.5). **a.** Minerals identified by QEMSCAN for the sample MB51. **b.** Image of drill core and area analyzed by QEMSCAN outlined by black rectangle. **c.** Mineral content of Area 1 as outlined on [Figure A 1a](#). **d.** Area zoom within outline shown on [Figure A 1a](#). QEMSCAN image (top) shows euhedral quartz shape. Natural light (middle) and crossed-polar (bottom) microscopy images of the same area. **e.** Area zoom within outline shown on [Figure A 1a](#). QEMSCAN analyses have determined tennantite (light blue) and apatite (black) associated with chalcopyrite (orange) and anhydrite (dark red) vein

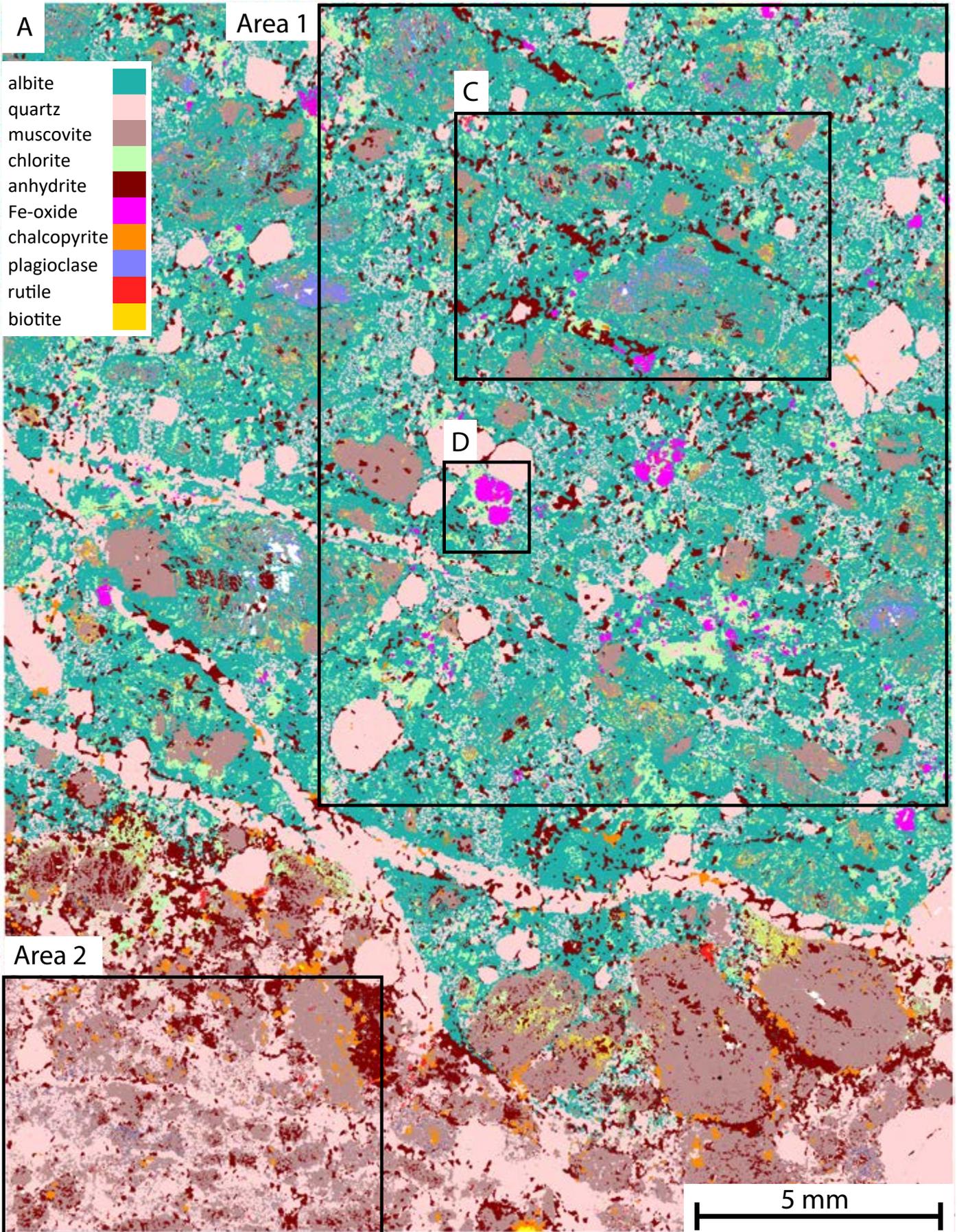
## SCA and WM alteration; Sample MB57

Sample MB57 (139078W1-900.9) is located in the east of the deposit (~600 m easting) with an elevation of ~100m a.s.l., hosted by the dark diorite unit of the FSE complex and containing a high-grade mineralization of ~2 ppm Au and ~1.6 % Cu. The extensive chlorite gives the rock a characteristic green color, with hand-sample identification of SCA alteration.

There are two areas of different alteration mineralogy based on QEMSCAN analysis ([Figure A 2a](#)); SCA alteration within Area 1 and white mica alteration within Area 2, with quantitative mineralogy determined for both areas ([Figure A 2b](#)). Alteration is pervasive in Area 1, with ~54% albite, ~19% quartz, ~9% chlorite, ~8% muscovite and ~8% anhydrite. Area 2 is adjacent to an anhydrite-quartz-pyrite-chalcopyrite-hematite vein with ~43% quartz, ~40% muscovite and ~14.5% anhydrite and other minor minerals.

Albite is pervasive in the SCA-altered rock in Area 1, both in the rock matrix but also on the outer rim of rectangular phenocryst-shaped areas with muscovite in the centre ([Figure A 2c](#)). The matrix also contains chlorite, Fe-oxides, chalcopyrite, rutile and biotite. Rounded quartz grains of igneous origin are present throughout the rock. Anhydrite mainly occurs in veins but also in the rock matrix. Numerous quartz-anhydrite-chalcopyrite veins cross-cut the rock, without an apparent alteration halo. The mineralogy within Area 1 ([Figure A 2c](#), both QEMSCAN and photomicrograph) is both matrix replacement as well as alteration of igneous phenocrysts.

QEMSCAN analyses identified the majority of Fe-oxide minerals as hematite. Numerous grains were determined optically as magnetite ([Figure A 2d](#)). QEMSCAN analyses commonly do not differentiate hematite and magnetite correctly due to their similar formulae. The issue of hematite-magnetite relations cannot be solved using only QEMSCAN analyses and have been defined as Fe-oxide throughout.



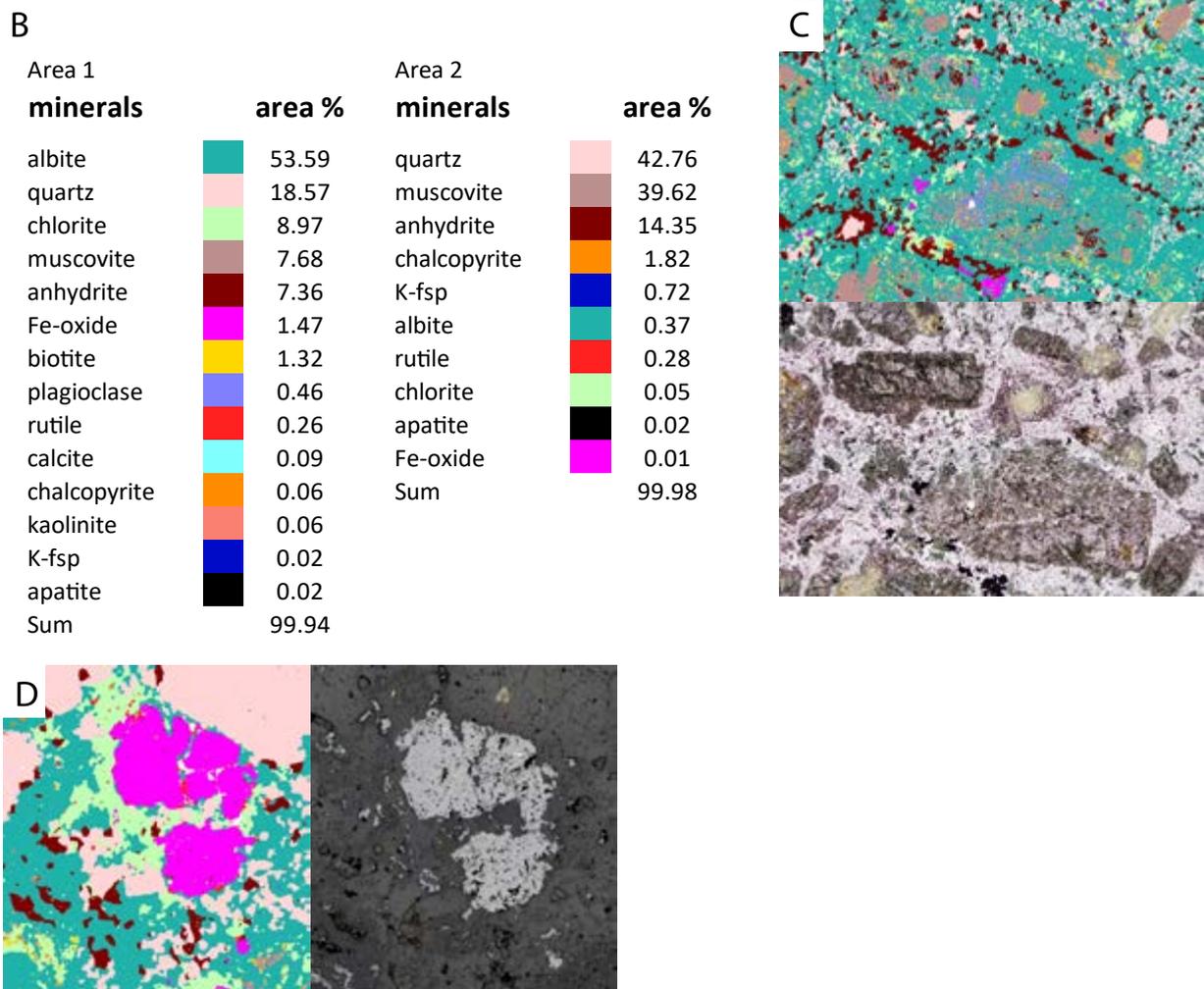


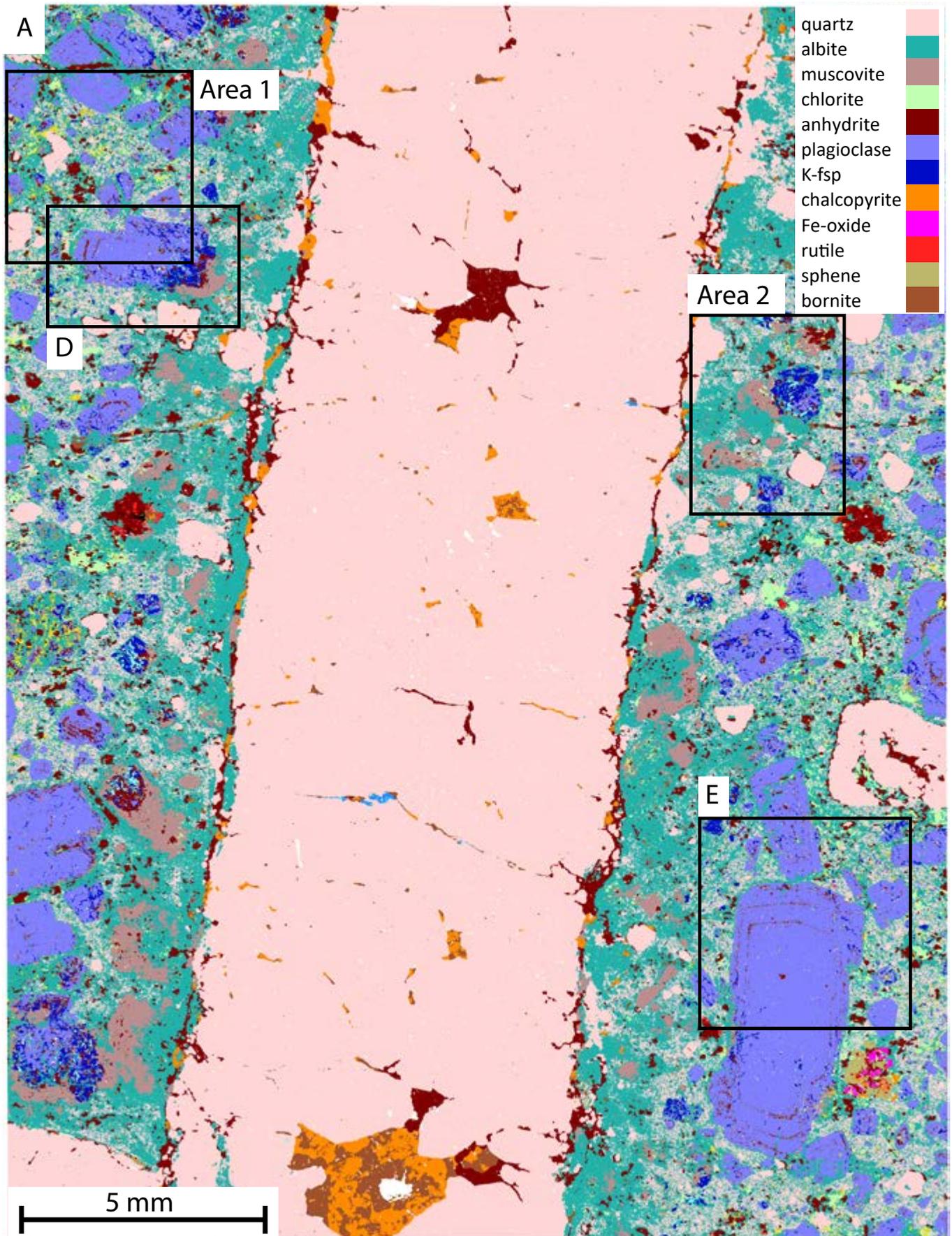
Figure A 2: MB57 (139078W1-900.9). **a.** Minerals identified by QEMSCAN for the sample MB57. **b.** Mineral content of Area 1 and Area 2 as outlined on [Figure A 2a](#). **c.** Area zoom within outline shown on [Figure A 2a](#). QEMSCAN (top) and natural light microscopy (bottom) image showing general host rock hydrothermal alteration. Felsic phenocrysts are replaced by albite (blue/green), muscovite (light brown), chlorite (light green), Fe-oxides (pink) and biotite (yellow). **d.** Area zoom within outline shown on [Figure A 2a](#). QEMSCAN image (left) and optical microphotograph in reflected light (right) of Fe-oxide (pink in QEMSCAN image). Optical properties has determined dark grey opaque mineral as magnetite with lighter grey hematite present in fractures

## Lavender quartz vein in SCA alteration; Sample JR22

Sample JR22 (139078-1026.9) is located in the east of the deposit with an elevation of ~30m a.s.l., hosted by the dark diorite of the FSE diorite complex, with high-grade mineralization of ~1.1 ppm Au and ~0.7 % Cu. The area analysed contains a lavender quartz vein with a light green halo in a brown coloured host rock.

QEMSCAN mineralogy (Figure A 3a) of a thin section (Figure A 3b) indicates ~50% of the section analysed consists of a quartz vein with chalcopyrite and bornite plus anhydrite. The major mineralogy in Area 1 (Figure A 3c), representing the pervasively altered host rock, is albite ~32%, plagioclase ~29%, quartz ~19.5%, anhydrite ~7.5%, chlorite ~3.2%, biotite ~3% and muscovite ~3%. Albite is pervasive throughout the rock matrix, but with higher content close to the vein. Igneous plagioclase is primarily rectangular shaped phenocrysts.

Area 2 represents the vein halo within ~3 mm of the vein, and contains a larger abundance of muscovite (~14.3%) than Area 1, hence the lighter color of the alteration halo in hand sample. Muscovite alters rectangular shaped phenocrysts, and plagioclase phenocrysts are altered to K-feldspar, anhydrite and muscovite closer to the vein (Figure A 3d). Epidote and anhydrite also occur in growth zones of plagioclase phenocrysts (Figure A 3e).



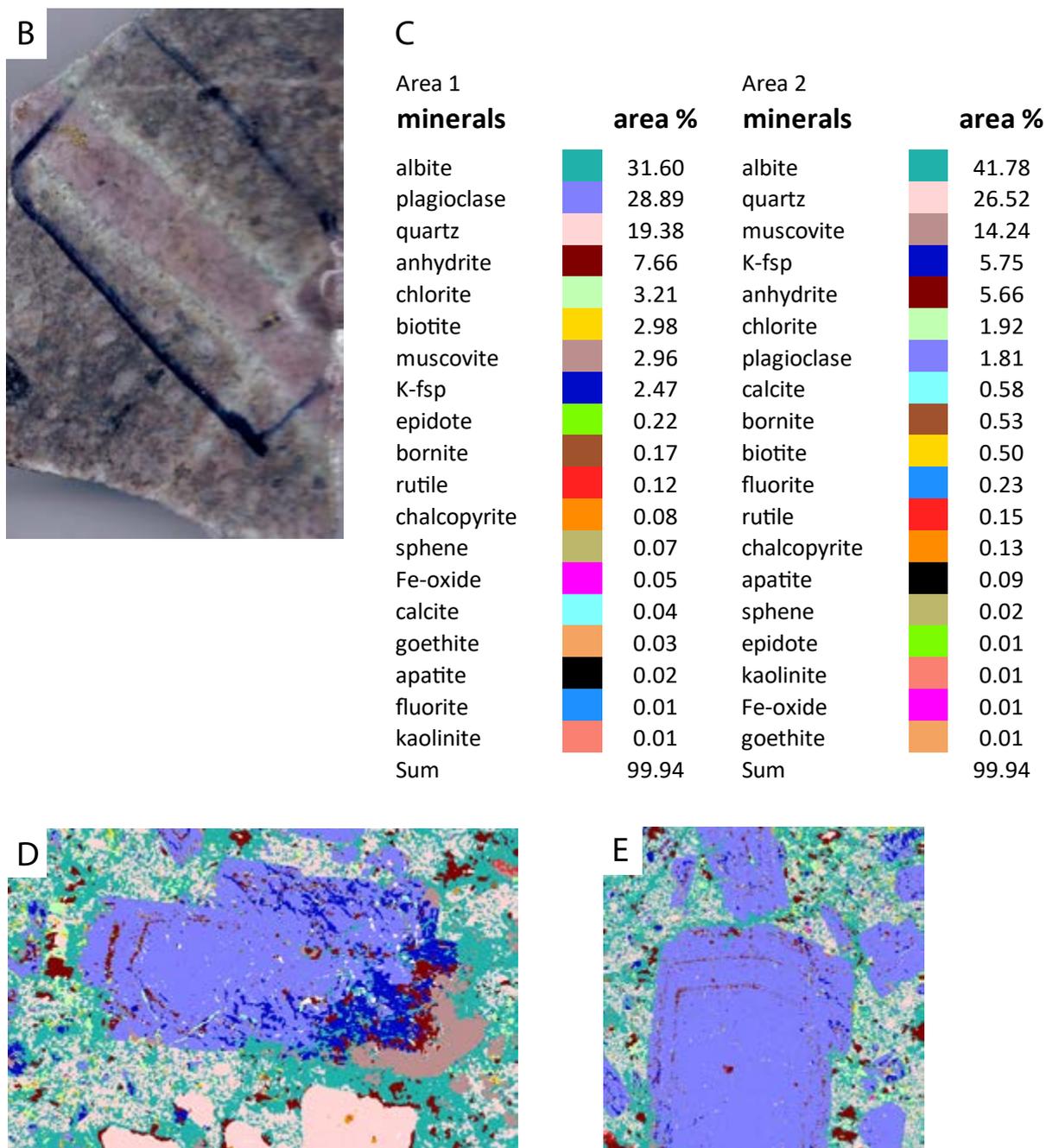


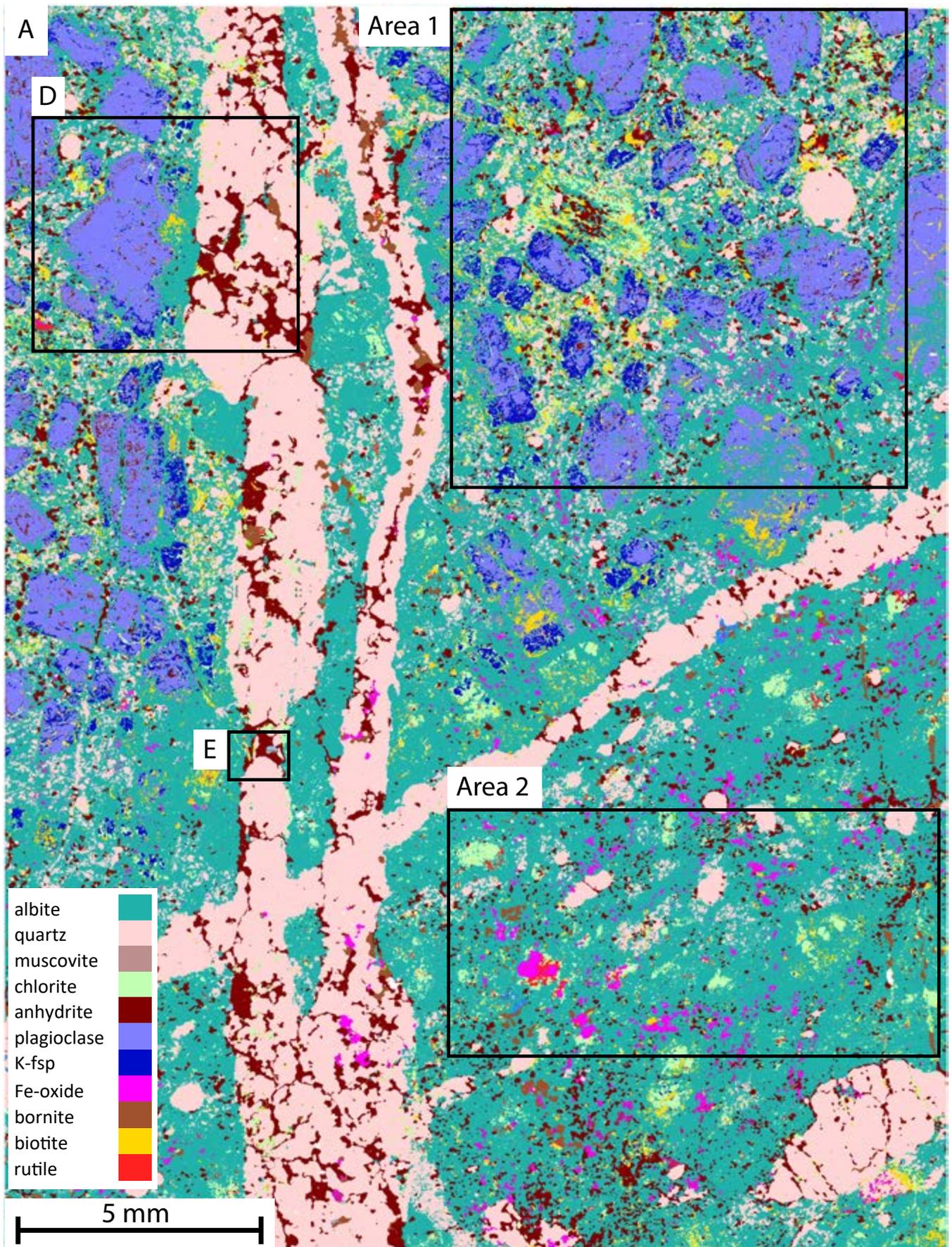
Figure A 3: JR22 (139078-1026.9). **a.** Minerals identified by QEMSCAN for the sample JR22. **b.** Image of drill core and area analyzed by QEMSCAN outlined by black marker. **c.** Mineral content of Area 1 and Area 2 as outlined on Figure A 3a. **d.** Area zoom within outline shown on Figure A 3a. Hydrothermal alteration of plagioclase phenocryst. Mineralogy identified by QEMSCAN of altered phenocryst varying from original magmatic plagioclase (purple) to K-feldspar (dark blue), anhydrite (dark red) and muscovite (light brown) with increasing proximity to the vein. **e.** Area zoom within outline shown on Figure A 3a. Hydrothermal alteration of original plagioclase phenocryst. Growth zones include epidote (fluorescent green) and anhydrite (dark red)

## SCA alteration overprinting Bt alteration; MB45

Sample MB45 (1212058-951.6) is located in the east of the deposit at an elevation of ~-50m a.s.l. in the dark diorite of the FSE diorite complex. Three quartz-anhydrite-bornite veins with similar mineralogy intersect the diorite rock, with biotite and chlorite alteration observed in hand sample. Based on this observation, the sample was interpreted as biotite alteration overprinted by SCA alteration.

Mineralogy determined by QEMSCAN analysis (Figure A 4a) on an area of the drill core outlined on Figure A 4b. Alteration includes widespread albite, with higher contents near the base of the section. Mineral contents (area %) are defined for areas 1 and 2 (Figure A 4c). Area 1 contains both K-feldspar and albite, and Area 2 contains ~73% albite and no K-feldspar. Areas of more intense hydrothermal alteration occur near veins or where veins crosscut with high albite content (~ 50%) throughout the section analyzed. A plagioclase phenocryst is altered to albite in the direction of the vein (Figure A 4d), with higher concentration near the vein. Albite mainly occurs in the rock matrix but is also present as fracture halos within altered phenocrysts.

Minerals within quartz veins (Figure A 4e) includes anhydrite, Fe-oxides, bornite (center replaced by chalcocite/digenite), chlorite, biotite and epidote. Fe-oxides are also common within the vein, identified optically as magnetite.



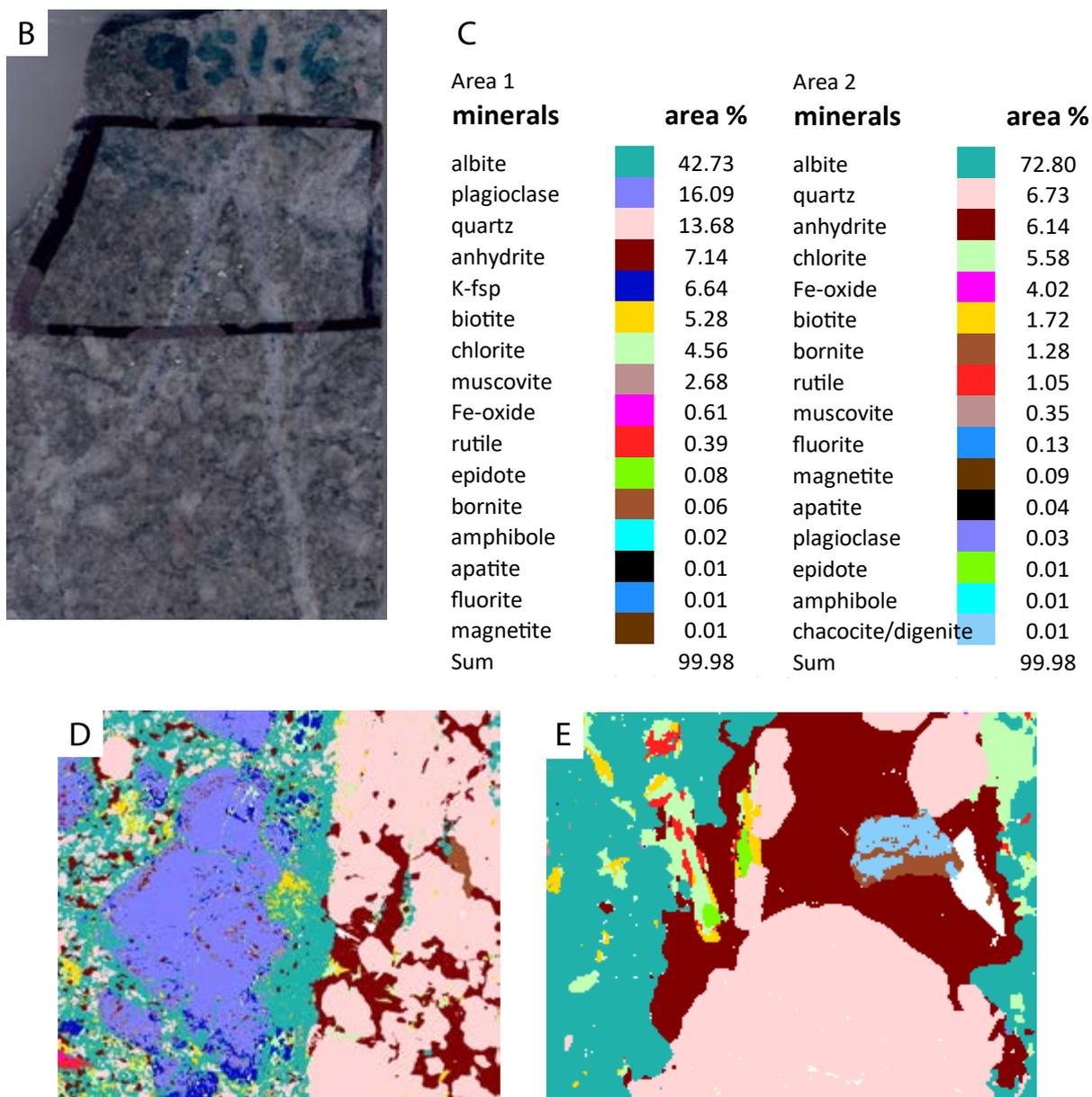


Figure A 4: MB45 (1212058-951.6). **a.** Minerals identified by QEMSCAN for the sample MB45. **b.** Image of drill core and area analyzed by QEMSCAN outlined by black marker. **c.** Mineral content of Area 1 and Area 2 as outlined on [Figure A 4a](#). **d.** Area zoom within outline shown on [Figure A 4a](#). Hydrothermal alteration of plagioclase phenocryst is due to proximity with vein. Area closest the vein is identified as albite (green/blue). **e.** Area zoom within outline shown on [Figure A 4a](#). Vein mineralogy as defined by QEMSCAN includes quartz (pink), anhydrite (dark red), bornite (brown), chalcocite/digenite (light blue), chlorite (light green), biotite (yellow), epidote (fluorescent green) and rutile (red)

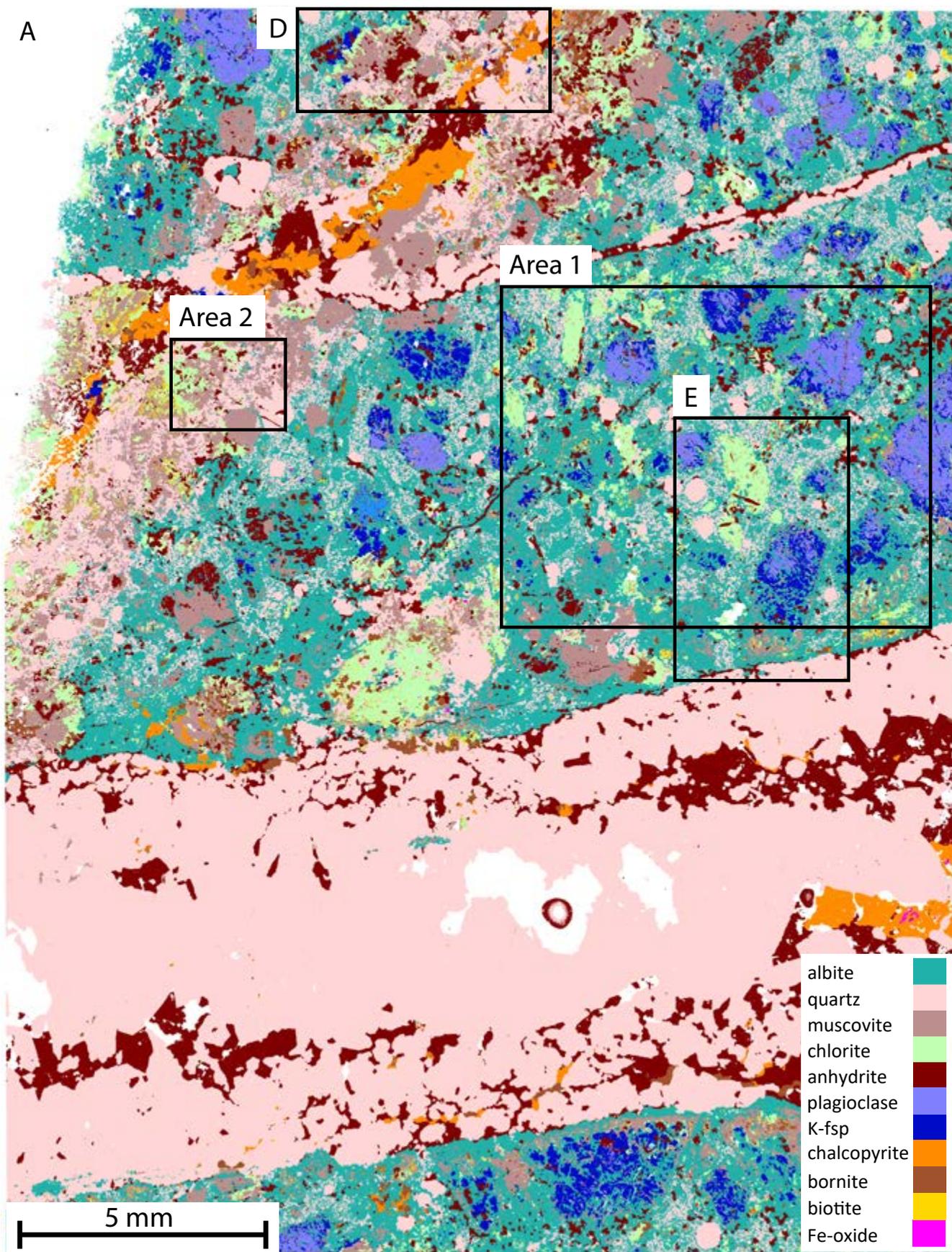
## Multiple vein types (including anh-qtz-ccp-bn vein with WM halo) in SCA alteration; MB18

Sample MB18 (1212058W1-964.5) is located in the east of the deposit in the dark diorite of the FSE diorite complex, with high-grade mineralization. Three veins are present; a 8 mm lavender quartz vein, a 0.3 mm quartz vein, both with little to no alteration halo, and one anhydrite-quartz vein with chalcopyrite and bornite and a muscovite-rich halo. The veins are hosted by green, chlorite-rich SCA altered rock. The sample has been interpreted as SCA cross-cut by white mica alteration.

The mineral contents of the sample (Figure A 5a, b) in Area 1, representing pervasive alteration SCA, is ~50% albite, ~15% quartz, ~9% chlorite and ~6% muscovite (Figure A 5c). An anhydrite-quartz-Cu-sulfide vein with a muscovite-rich halo in Area 2 has ~40% quartz, ~34% muscovite ~14% chlorite, ~7% anhydrite and ~2% albite.

Mineralogical variation within a single igneous phenocryst bordering the alteration halo and adjacent to the anhydrite-quartz-Cu-sulfide vein (Figure A 5d) includes the presence of albite, anhydrite, K-feldspar, chlorite to muscovite when approaching the vein.

Albite is widespread within the rock matrix as well as located on borders of rectangular phenocryst, the center of which consists of plagioclase, K-feldspar, anhydrite, and muscovite (Figure A 5e). The majority of muscovite has a greater content with proximity to the quartz vein (at the bottom of Figure A 5e) as well as the bottom side of the thick lavender quartz vein seen on Figure A 5a. Chlorite is also found in distinct areas and occasionally associated with anhydrite needles as seen on Figure A 5e.





**C**

Area 1		Area 2	
minerals	area %	minerals	
albite	49.25	quartz	
quartz	15.68	muscovite	
chlorite	8.68	chlorite	
anhydrite	6.47	anhydrite	
K-fsp	6.34	albite	
muscovite	5.86	biotite	
plagioclase	5.51	k-fsp	
sphe	0.90	bornite	
biotite	0.83	rutile	
rutile	0.14	apatite	
bornite	0.11	sphe	
fluorite	0.05	chalcopryite	
calcite	0.04	Sum	
chalcopryite	0.03		
apatite	0.02		
Sum	99.91		

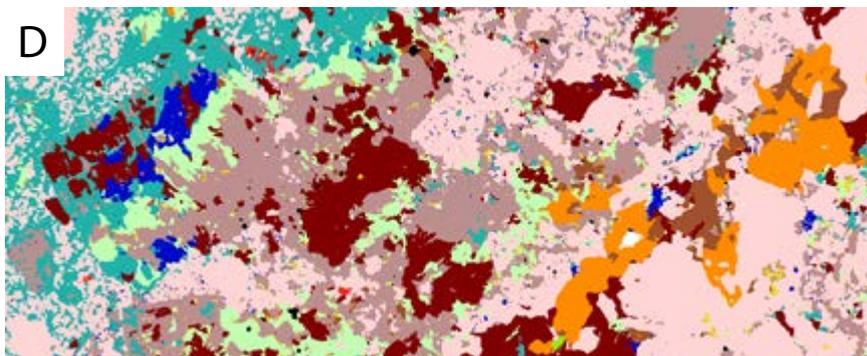
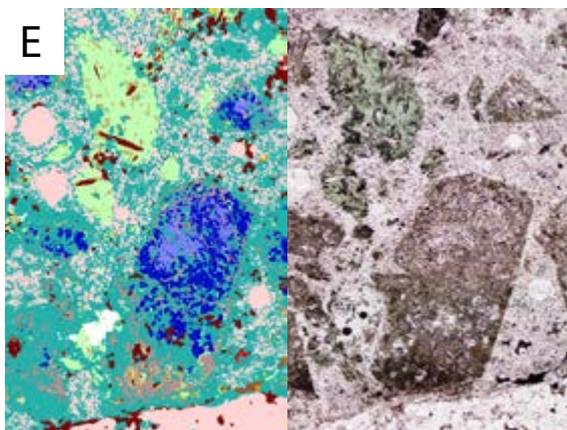


Figure A 5: MB18 (1212058W1-964.5). **a.** Minerals identified by QEMSCAN for the sample MB18. **b.** Image of drill core and area analyzed by QEMSCAN outlined by black marker. **c.** Mineral content of Area 1 and



Area 2 as outlined on Figure A 5a. **d.** Area zoom within outline shown on Figure A 5a. Hydrothermal alteration of felsic phenocryst. Mineralogy identified by QEMSCAN transitions from albite (green/blue), anhydrite (dark red), K-feldspar (blue), chlorite (light green) and muscovite (light brown) with proximity to the quartz (pink), chalcopryite (orange), anhydrite (dark red), bornite (brown) vein. **e.** Area zoom within outline shown on Figure A 5a. QEMSCAN (right) and natural light microscopy (left) images of hydrothermally altered felsic phenocryst replaced by albite (green/blue), muscovite (light brown), K-feldspar (blue), chlorite (light green) and anhydrite (dark red). Hydrothermally altered mafic mineral replaced by chlorite and containing anhydrite needles

K-feldspar (blue), chlorite (light green) and anhydrite (dark red). Hydrothermally altered mafic mineral replaced by chlorite and containing anhydrite needles

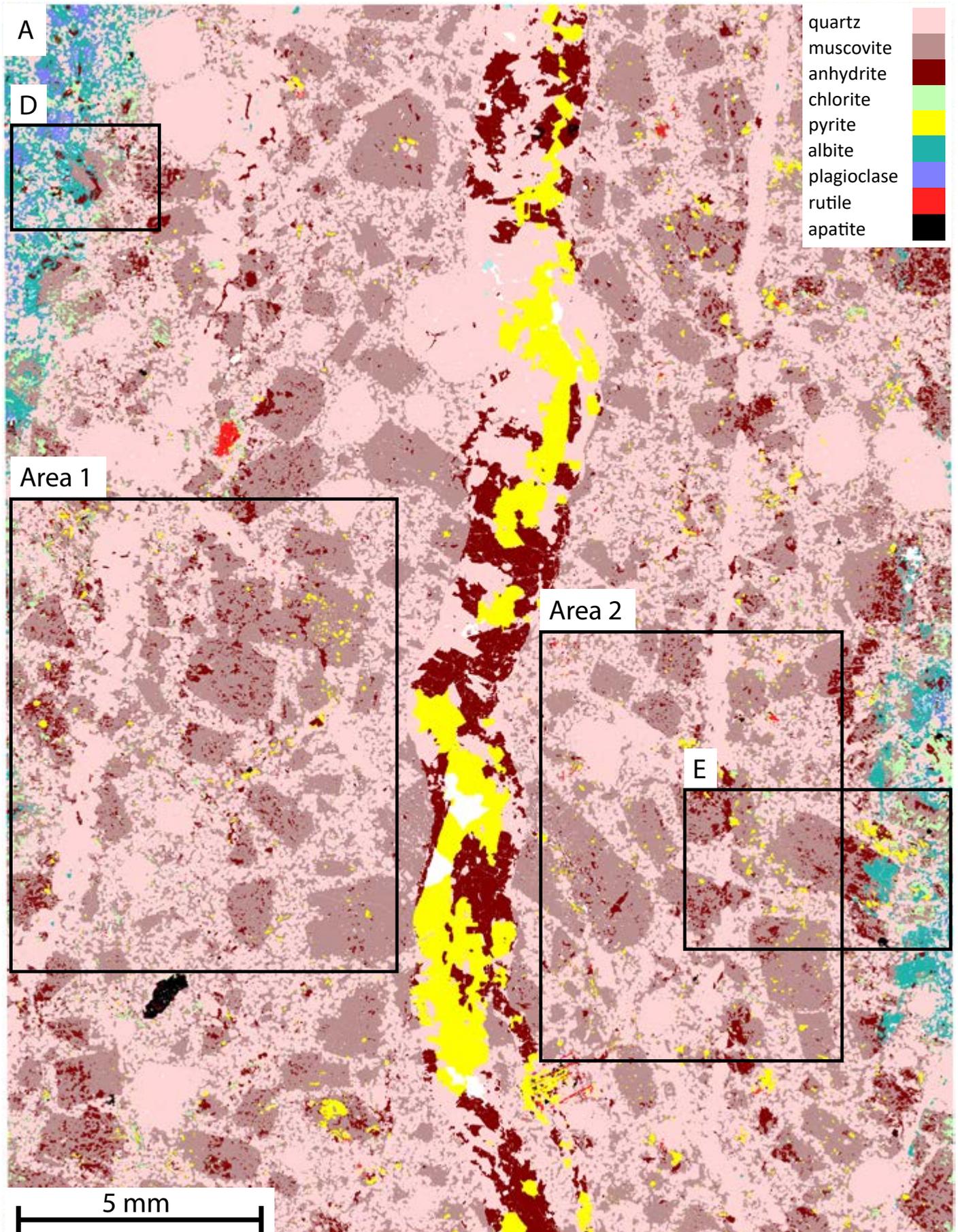
## Py-anh-qtz vein with WM halo in SCA alteration; JR5

Sample JR5 (115010-1301.8) is located deep, in the center of the deposit hosted by the light diorite of the FSE diorite complex. The grade is low, ~0.2 ppm Au and ~0.1 % Cu. Macroscopic observation noted a ~2 mm pyrite-anhydrite-quartz vein with a white mica alteration halo overprinting green, chlorite-bearing SCA alteration.

QEMSCAN analyses (Figure A 6a) were conducted on the area analysed marked on the drill-core (Figure A 6b). Area 1 and 2 (Figure A 6c) represent white mica alteration with averages of both areas being ~47 % muscovite, ~45 % quartz, ~5 % anhydrite and ~1 % pyrite.

There is an alteration halo ~8 mm wide around the ~2 mm pyrite-anhydrite-quartz vein, with muscovite concentrated in distinct areas (rectangular in shape) plus the majority of pyrite and anhydrite. Unaltered quartz phenocrysts are present in rounded grains. Both muscovite and quartz are present in the rock matrix with minor chlorite and rutile.

Albite-rich, muscovite and chlorite (SCA) alteration is present outside of the muscovite-rich alteration halo. The alteration of a felsic phenocryst is clear on the border of the alteration halo (Figure A 6e and Figure A 6f), with transition from albite to anhydrite and muscovite closer to the vein.



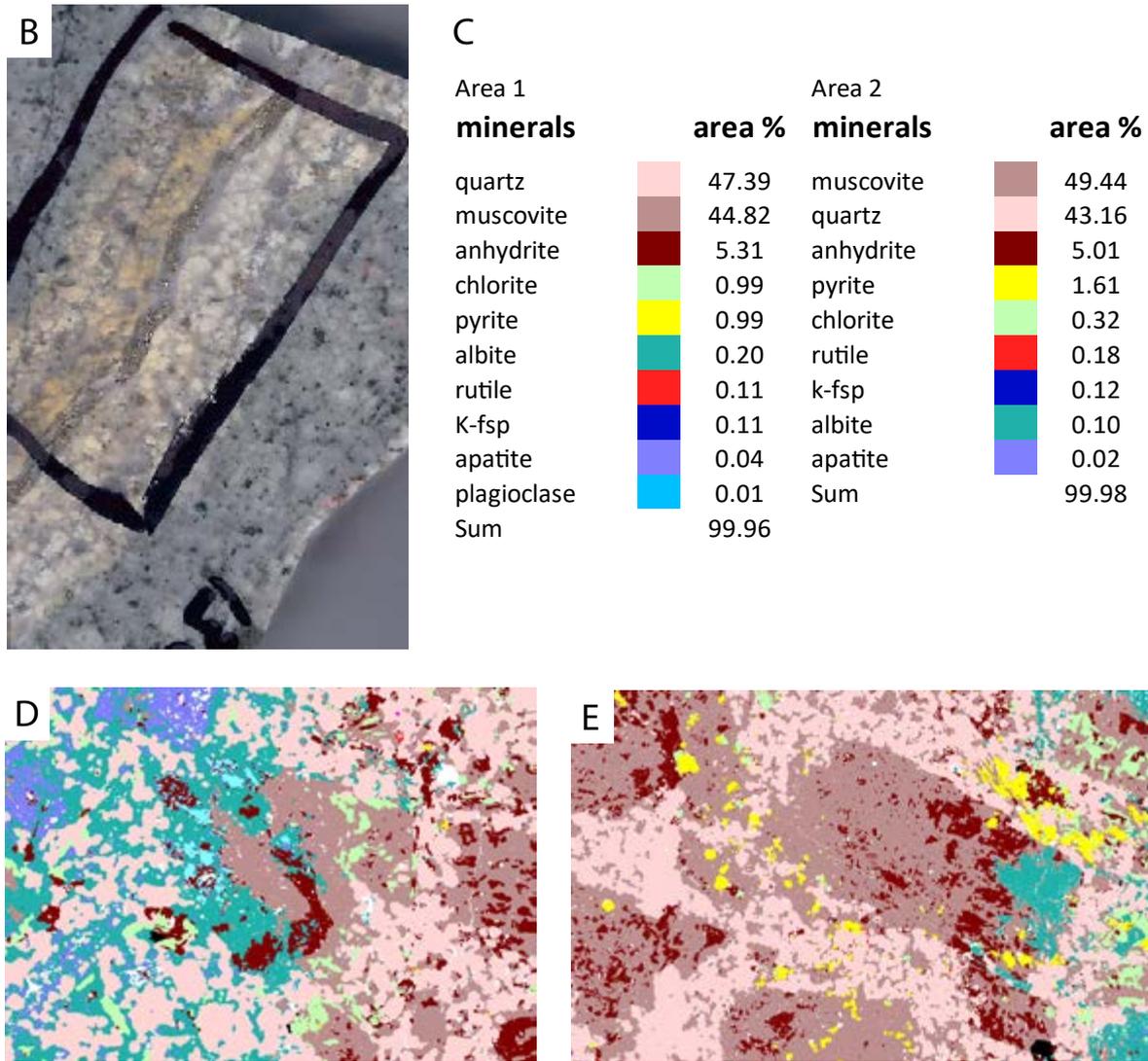


Figure A 6: JR5 (115010-1301.8). **a.** Minerals identified by QEMSCAN for the sample JR5. **b.** Image of drill core and area analyzed by QEMSCAN outlined by black marker. **c.** Mineral content of Area 1 and Area 2 as outlined on Figure A 6a. **d.** Area zoom within outline shown on Figure A 6a. QEMSCAN image of hydrothermal alteration of magmatic plagioclase phenocryst (purple) replaced by albite (green/blue), calcite (light blue), anhydrite (dark red), and muscovite (light brown) with increasing proximity to quartz, anhydrite, pyrite vein. **e.** Area zoom within outline shown on Figure A 6a. QEMSCAN image of hydrothermal alteration of felsic phenocryst on the edge of vein halo. Transition of mineralogy includes albite (green/blue), anhydrite (dark red) and muscovite (light brown) with increasing proximity to vein

## Appendix 2 - Thin section list

MB thin sections			MC Thin sections			
Position	Drill hole	Depth	Position	name	Drill hole	Depth
1	115003W1	831.8	1	1	1212058	531.6
2	115003W1	850.8	1	2	1212058	661.4
3	115003W1	926.5	2	3	1212058	682.8
4	115010	962.7	2	4	1212058	716.1
5	115010	985.4	3	5	1212058	753.8
6	113013	626.3	3	6	1212058	870.0
7	113013	734.5	4	7	1212058W1	960.1
8	113013	1191.3	4	8	1212058W1	1000.0
9	122028	1234.3	5	9	1212058W1	1036.0
10	122028	1248.0	5	10	1212058W1	1105.1
11	122028	1298.0	6	11	113013	1214.9
12	122028	1329.0	6	12	113013	1740.4
13	128037	917.5	7	13	113013	1741.4
14	128037	1163.5	7	14	113029W1	543.6
15	128037	1241.0	8	15	113029W1	652.2
16	1212058	630.1	8	16	113029W1	707.6
17	1212058	939.4	9	17	113029W1	744.7
18	1212058	964.5	9	18	113029W1	905.8
19	1212058W1	995.2	10	19	113029W1	933.7
20	1212058W1	999.5	10	20	114021W1	1094.4
21	1212058W1	1000.0	11	21	114021W1	1130.8
22	1212058W1	1101.8	11	22	114021W1	1139.7
23	129066	747.2	12	23	114021W1	558.7
24	129066	897.5	12	24	114021W1	961.1
25	129066	1047.0	13	25	115010	1054.2
26	129066	1069.0	13	26	115010	1554.9
27	11076	877.7	14	27	115010	1654.5
28	11076	992.0	14	28	115010	1712.7
29	11076	998.6	15	29	115010	1797.5
30	115003W1	1294.0	15	30	115010	1859.3
31	115010	1301.8	16	31	115010	498.3
32			16	32	115010	558.1
33	115010	1388.7	17	33	115010	722.8
34	115010	1393.2	17	34	115010	797.0
35	113013	1154.8	18	35	115010	832.0
36	113013	1226.0	18	36	115010	844.4
37	113013	1242.3	19	37	115010	930.2
38	122028	1121.8	19	38	115010	932.0
39	122028	1248.8	20	39	115010	934.6
40	128037	832.7	20	40	115010	962.9
41	128037	855.8	21	41	125049W1	523.9
42	128037	1210.9				
43	1212058	630.1				
44	1212058	908.9				
45	1212058	951.6				
46	1212058W1	1124.0				
47	129066	532.4				
48	129066	898.4				
49	1311076	864.3				
50	1311076	1075.0				
51	1311076	1076.5				
52	1311076	1143.0				
53	1311076	1309.5				
54	139078W1	518.0				
55	139078W1	844.0				
56	139078W1	981.2				
57	139078W1	900.9				
58	139078W1	985.7				
59	139078W1	1062.1				

# Optical Microscopy Study of FSE

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## Aims of the study

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- Describe thin sections from all lithologies and alteration types noting mineralogy and textures
- Determine vein – vein halo paragenesis at various locations of the deposit
- Record vein cross cutting and reopening relationships
- Record mineral replacement textures
- 31 thin sections were observed (description is ordered by drill hole and with decreasing elevation)

- Mineral abbreviations are from [Whitney and Evans, 2010](#)



# Legend

//: crosscut by

TR: traces of the mineral

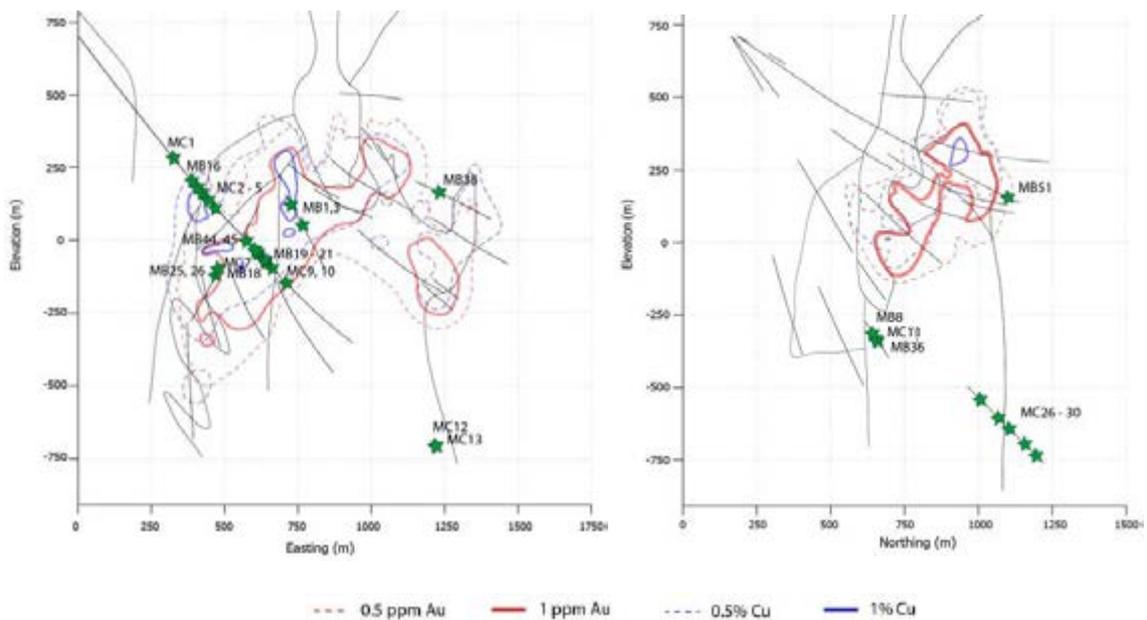
In equ.: in equilibrium with pervasive alteration

VT1: vein type 1, VT2: vein type 2

CP: cross-polarized light, NL: natural light, RL: reflected light



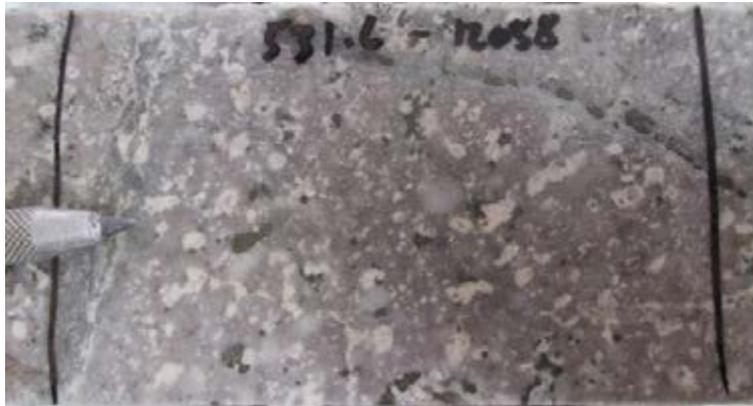
## Thin section locations



See Fig. 2 (main thesis text) for cross-section locations

## MC 1 (1212058W1 – 531.60)

Imbanguila porphyritic dacite (IPDA) – Shallow, low grade

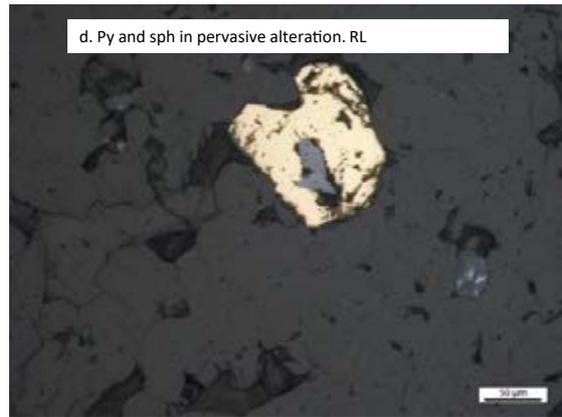
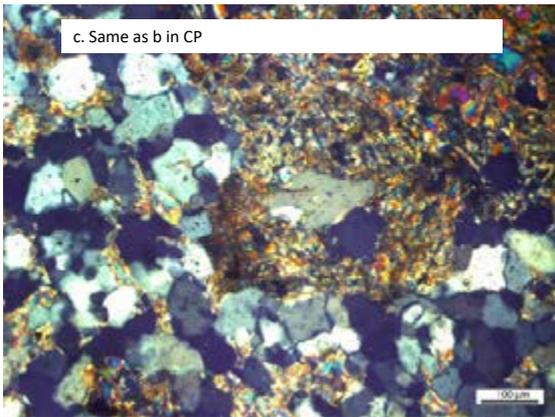
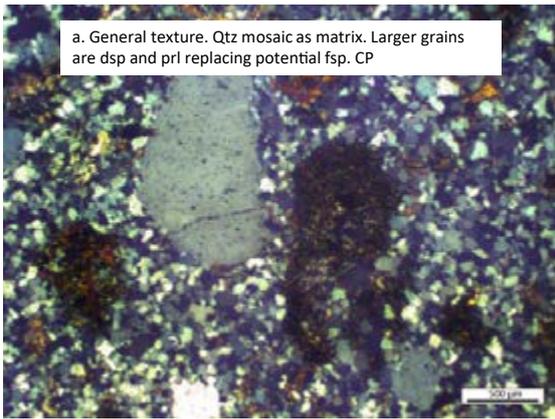


**General description** – Rock with pinkish advanced argillic alteration // anh-py veins. Patches of white phyllosilicates replace fsp phenocrysts

**SWIR** – Pyrophyllite, diaspore, alunite, anhydrite, white mica at 529.9 and 538.2

## MC 1 (1212058W1 – 531.60)

Mineral	Vol %	Comments
Protolith remnants		
Qtz	15	Large phenocrysts or phenocryst fragments
Pervasive alteration		
Qtz	60	Qtz mosaic in the matrix
Dsp	10	
Prl/Ser	7	
Py	4	
Anh	3	
Sph	1	
Vein type 1		
Anh	65	
Py	35	



## MB 16 (1212058W1 – 630.1)

Imbanguila porphyritic dacite (IPDA) – Shallow, low grade

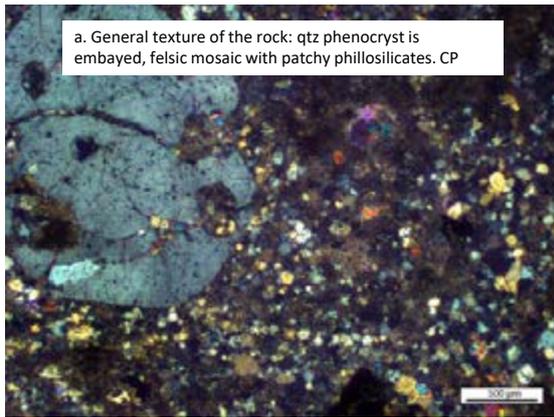


**General description** – Porphyritic rock with remnant qtz and fsp phenocrysts, the latter being totally replaced by phyllosilicates. Matrix is felsic.

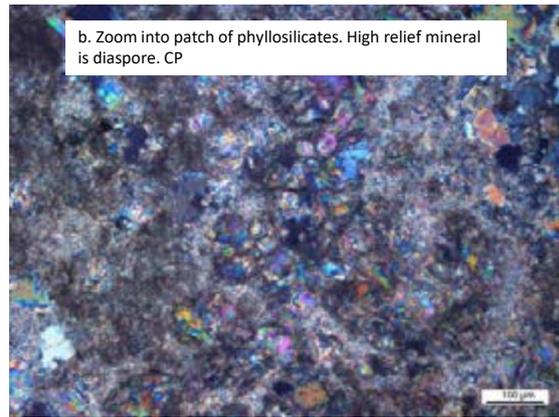
**SWIR** – Pyrophyllite, white mica, diaspore, anhydrite (at 628.6 and 646)

## MB 16 (1212058W1 – 630.1)

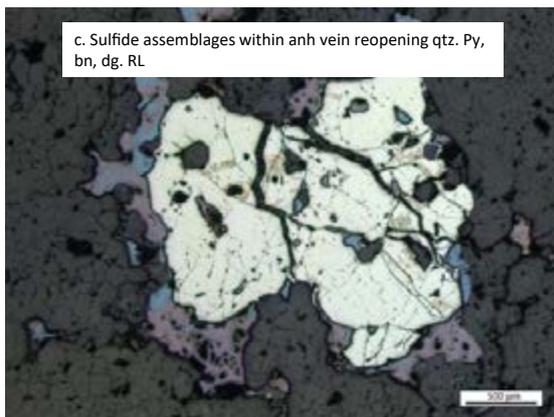
Mineral	Vol %	Comments
<b>Protolith remnants</b>		
Qtz	15	The qtz phenocrysts contain vapor rich fluid inclusions
Felsic matrix	40	Majority being qtz
<b>Pervasive alteration</b>		
Prl/Ser	30	Difficult to differentiate, SWIR has recognized prl
Anh	10	
Py	4	
Dsp	2	
Bn	1	
Dg	1	
<b>Vein type 1</b>		
Qtz	95	
Anh	3	
Ser	2	
Bn, Dg, Py	TR	
<b>Vein type 2 – Reopening of vein type 1</b>		
Anh	50	Bornite and digenite are intergrown
Py	30	
Bn	10	
Dg	5	
Ser	3	
Qtz, Ccp, Cov	TR	



a. General texture of the rock: qtz phenocryst is embayed, felsic mosaic with patchy phyllosilicates. CP



b. Zoom into patch of phyllosilicates. High relief mineral is diaspore. CP



c. Sulfide assemblages within anh vein reopening qtz. Py, bn, dg. RL



d. Vapour rich fluid inclusions in qtz phenos. NL

## MC 2 (1212058W1 – 661.4)

Imbanguila porphyritic dacite (IPDA) – Shallow, mid grade

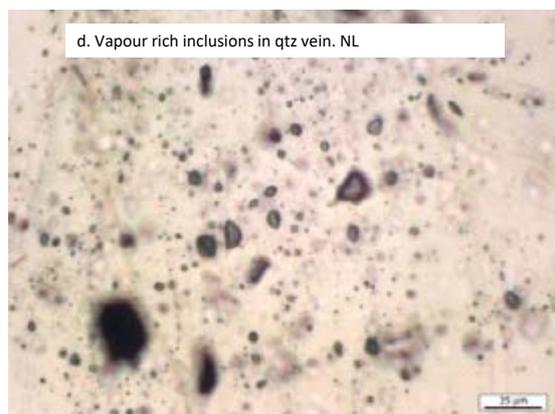
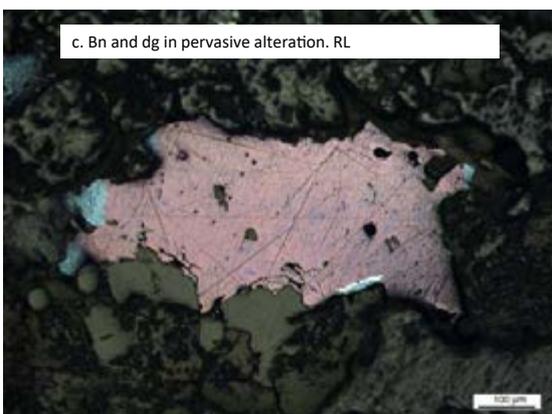
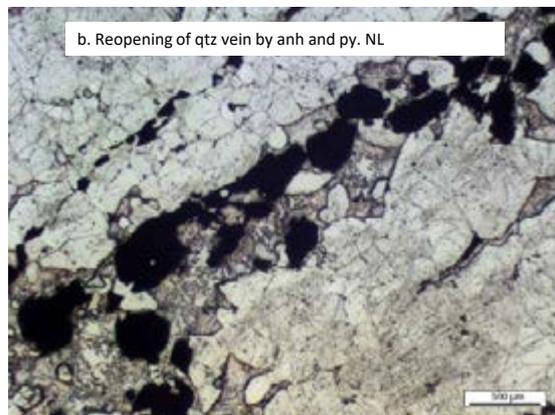
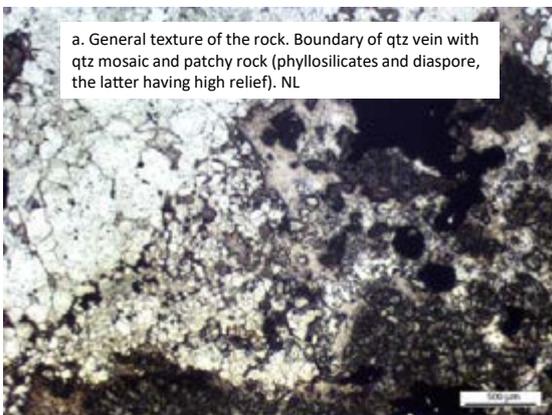


**General description** – Pink patchy AA altered rock // numerous grey qtz veins, reopened by and // py-anh

**SWIR** – Pyrophyllite, diaspore, white mica at 664.6

## MC 2 (1212058W1 – 661.4)

Mineral	Vol %	Comments
Protolith remnants		
Qtz	10	
Felsic matrix	50	Majority being qtz
Pervasive alteration		
Prl/Ser	22	Difficult to differentiate, SWIR has recognized prl
Py	10	
Anh	5	
Dsp	3	
Sph, bn, dg	TR	
Vein type 1		
Qtz	94	
Anh	3	
Py	3	
Vein type 2 – Reopening of vein type 1		
Anh	50	
Py	50	



## MC 3 (1212058W1 – 682.8)

Imbanguila porphyritic dacite (IPDA) – Shallow, high grade Cu

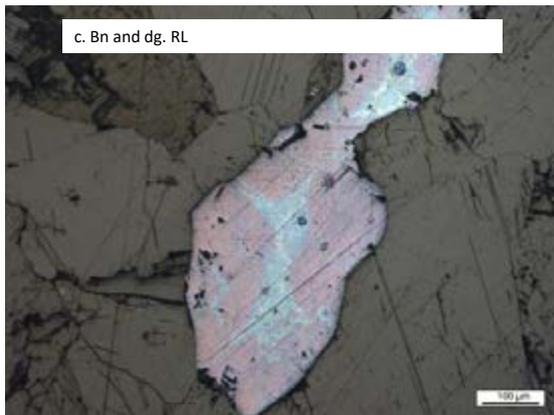
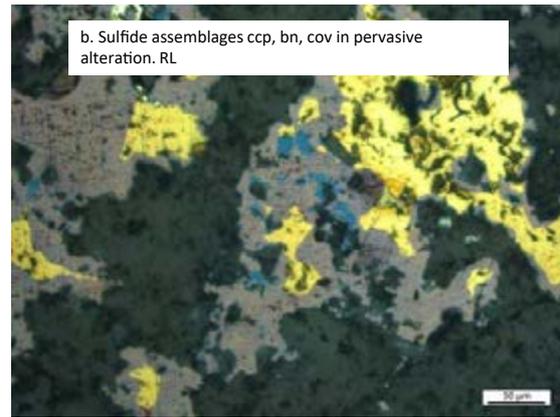


**General description** – Highly AA altered rock with zones (veins?) with abundant anh-py-bn

**SWIR** – Pyrophyllite, anhydrite, white mica at 674.5 and 689.8

## MC 3 (1212058W1 – 682.8)

Mineral	Vol %	Comments/origin/fluid inclusions
Protolith remnants		
Qtz	10	
Felsic matrix	40	Qtz mosaic
Pervasive alteration		
Pyr/Ser	38	Difficult to differentiate
Anh	6	
Ccp	2	
Py	2	
Bn	1	
Dg	1	
Cov	TR	
Vein type 1 (more of a zone – possibly numerous reopened veins)		
Qtz	60	
Anh	20	
Py	8	
Ccp	2	
Bn	2	
Dg	TR	
Vein type 2 – Reopening of vein type 1		
Anh	80	
Py	10	
Bn	5	
Ccp	5	
Dg, Qtz	TR	
Vein halo 2		
Ser	100	Halo south of the anhydrite vein



## MC 4 (1212058W1 – 716.1)

Undifferentiated diorite porphyry (IDI) – shallow, mid-grade

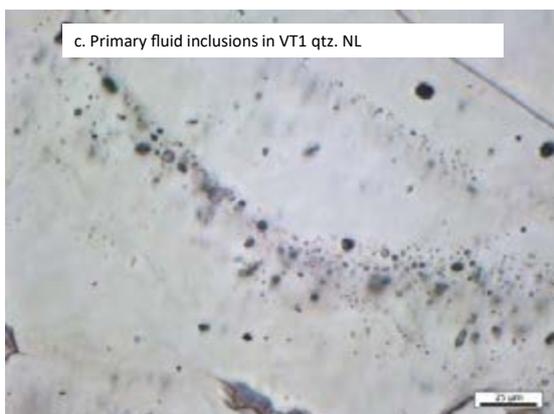
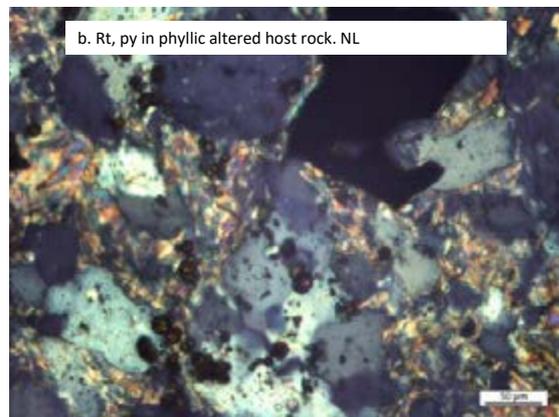


**General description** – Pink AA looking alteration // by anh-py vein.

# 1212058W1 – 716.1

Undifferentiated diorite porphyry (IDI) – shallow, mid-grade

Mineral	Vol %	Comments
<b>Pervasive alteration</b>		
Qtz matrix	40	High relief and birefringence
Ser	50	
Anh	5	
Dsp	4	
Py	1	
Rt	TR	
<b>Vein type 1 (reopening is evident, anh and others come after qtz)</b>		
Qtz	100	
<b>Vein type 2</b>		
Anh	33	
Dsp	33	
Py	30	
Ccp	3	
Rt	TR	
Hem	TR	



## MC 5 (1212058W1 – 753.8)

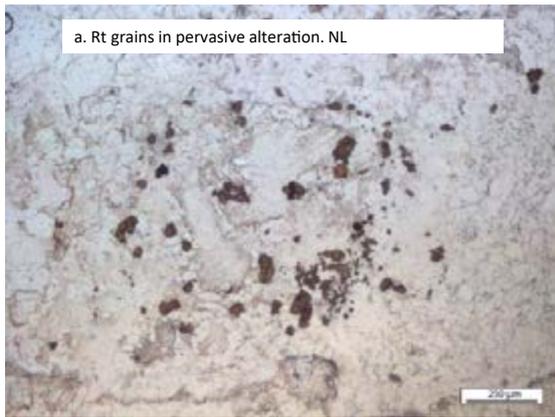
Undifferentiated diorite porphyry (IDI) – shallow, mid-grade



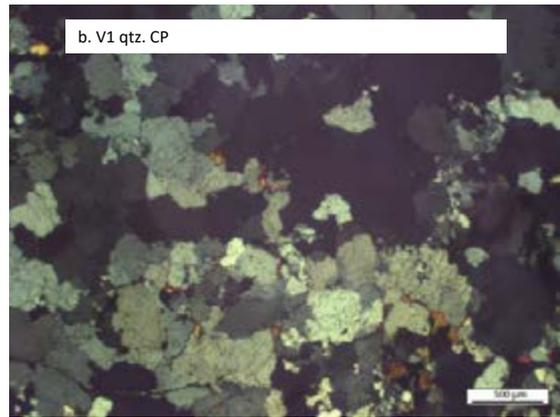
**General description** – Large lavender qtz vein // SCA altered IDI and reopened by anh-ccp

## MC 5 (1212058W1 – 753.8)

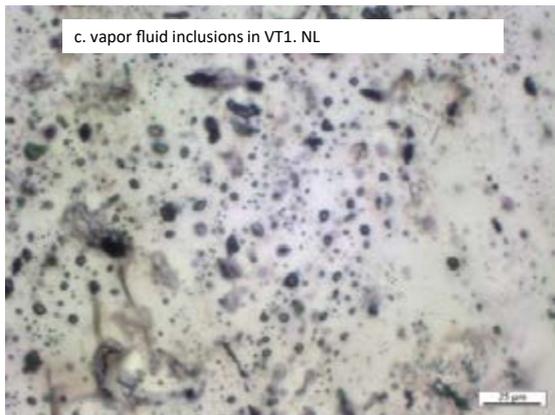
Mineral	Vol %	Comments
<b>Protolith remnants</b>		
Fsp	20	Completely replaced by sericite
Qtz	20	
Felsic matrix	20	
<b>Pervasive alteration</b>		
Ser	45	
Ccp	3	
Rt	2	
<b>Vein type 1</b>		
Qtz	98	
Anh	2	
Ccp	TR	
<b>Vein type 2 (reopening VT1)</b>		
Anh	85	
Qtz	10	
Ccp	3	



a. Rt grains in pervasive alteration. NL



b. V1 qtz. CP



c. vapor fluid inclusions in VT1. NL

## MB 1 (115003W1 – 831.8)

Light diorite porphyry (IDIL) – Shallow, high grade

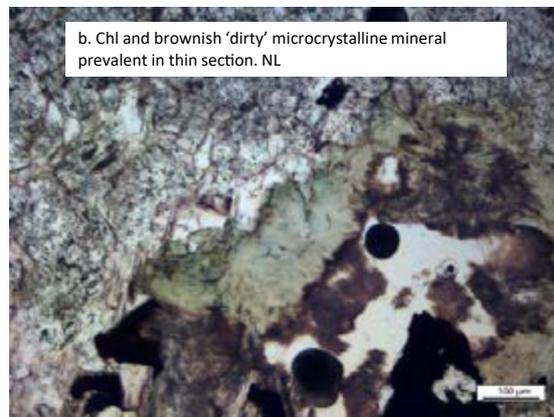


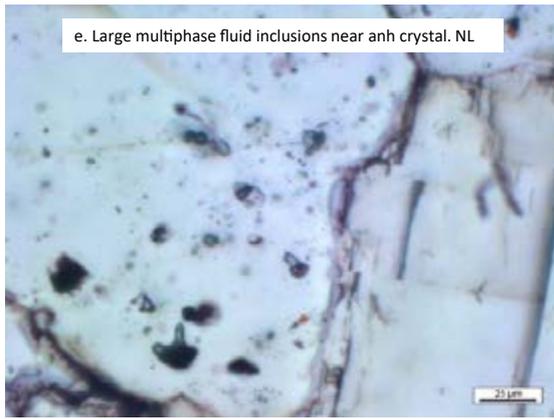
**General description** – Sericite-chlorite-albite altered rock, highly veined by lavender qtz and sulfide rich veins. Phyllic halo around sulfide rich vein

**SWIR** – White mica, chlorite at 812.6 and 854.7

# MB 1 (115003W1 – 831.8)

Mineral	Vol %	Comments
<b>Pervasive alteration</b>		
Qtz	38	Possibly some silicification
Fsp	38	Highly altered and broken down
Ser + Chl	15	Microcrystalline, difficult to make out individual crystals
Anh	5	
Ccp	3	
Mag	1	
Hem	1	Hem is seen replacing mag
<b>Vein type 1 (southwest of section)</b>		
Qtz	88	Hem inclusions in vein qtz
Anh	5	
Ccp	5	
Chl/Ser	2	
Hem	1	
<b>Vein type 2</b>		
Mag	95	Little hem replacement
Hem	5	





### MB 3 (115003W1 – 926.5)

Light diorite porphyry (IDIL) – Shallow, high grade

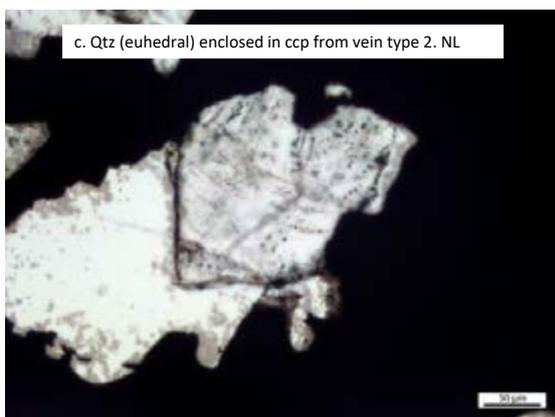
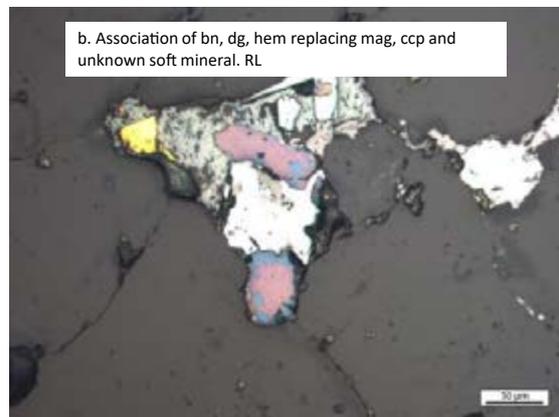
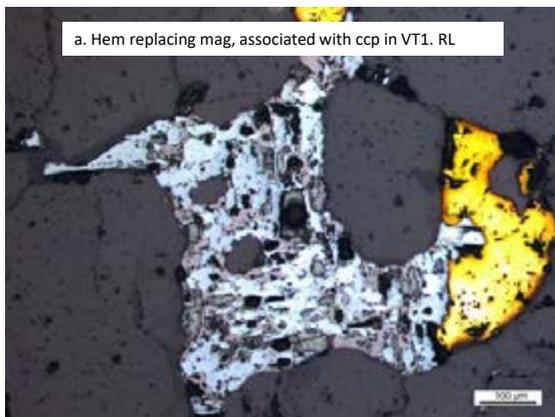


**General description** – One large grey qtz vein with fractures filled with sulfides

**SWIR** – illite/muscovite, chl at 914

# MB 3 (115003W1 – 926.5)

Mineral	Vol %	Comments/origin/fluid inclusions
<b>Vein type 1</b>		
Qtz	92	
Ccp	3	
Hem	2	
Mag	1	
Bn	1	
Anh	TR	
Dg, cct, cov	TR	
<b>Vein type 2 – Fractures reopening of vein type 1</b>		
Ccp	80	
Unknown	19	
Qtz	1	
Hem	TR	
Bn	TR	
Anh	TR	



## MB 38 (122028 – 1121.8)

Lepanto volcanic unit (LUV) – shallow, low grade



**General description** – Mosaic of qtz-fsp in groundmass intensely replaced by ser-chl alteration. Anh, ccp, py, hem/mag scattered throughout. Trace moly. Rock // qtz-anh-chl-ccp-hem and anh-hem-py veins.

## MB 38 (122028 – 1121.8)

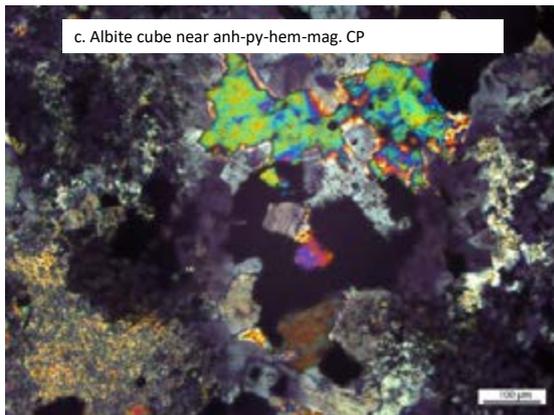
Mineral	Vol %	Comments
Pervasive alteration		
Ser	55	In dense alteration mats, ilt-ms defined by SWIR at 1103.5
Chl	15	Closely associated with opaques (mag, ccp)
Qtz	15	Granular
Anh	7	
Pl	3	Albite identified by twinning
Ccp	2	
Hem/mag	2	hem > mag
Moly	TR	
Vein type 1		
Qtz	80	Vein qtz crystals have diverse fluid inclusions, numerous with red hem daughter mineral
Anh	10	
Chl	7	
Ccp	2	
Hem	1	
Vein type 2 – Fracture		
Anh	60	
Hem	20	
Py	20	



a. General texture of pervasive alteration (ser, chl, opaques). NL



b. Association of mag, hem, ccp. RL



c. Albite cube near anh-py-hem-mag. CP



d. Same as c but reflected light. RL

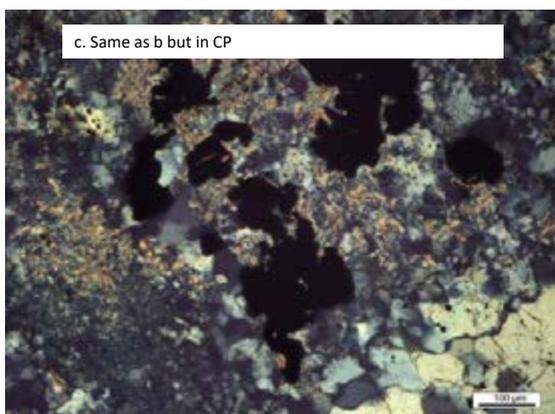
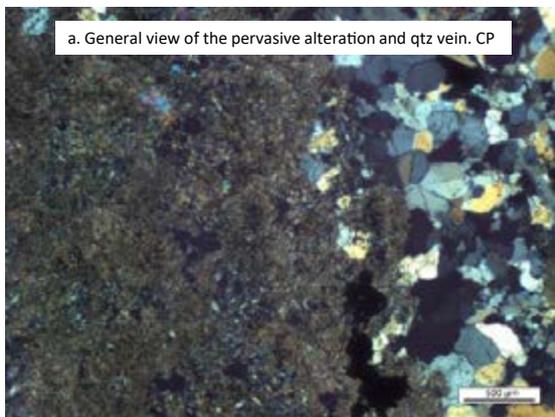
MB 51 (1311076 – 1076.5)  
Lepanto volcanic unit (LUV) – shallow, low grade



**General description** – Fine grained qtz-fsp mosaic affected by intense phyllic alteration. Numerous qtz veins and can be reopened by sulfide rich veins. Previous vein types // late fractures filled by carbonates

# MB 51 (1311076 – 1076.5)

Mineral	Vol %	Comments/origin/fluid inclusions
<b>Pervasive alteration</b>		
Ser	85	Some of the phyllosilicate flakes are relatively large
Qtz	10	
Anh	4	
Ccp	1	
Hem	TR	
Rt	TR	
<b>Vein type 1</b>		
Qtz	95	
Anh	5	
<b>Vein type 2</b>		
Ccp	50	
Anh	25	
Ser	15	
Qtz	4	
Py	TR	
Hem	TR	
<b>Other fractures</b>		
Cb	100	



## MB 44 (1212058W1 – 908.9)

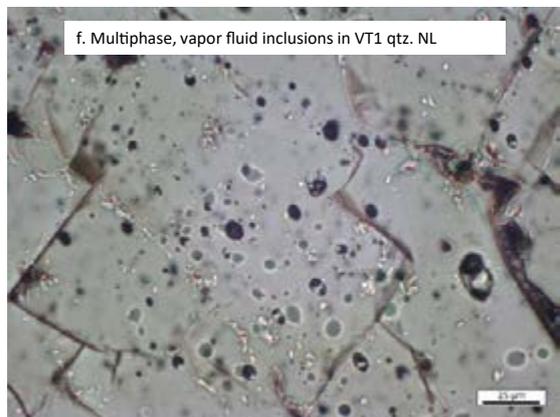
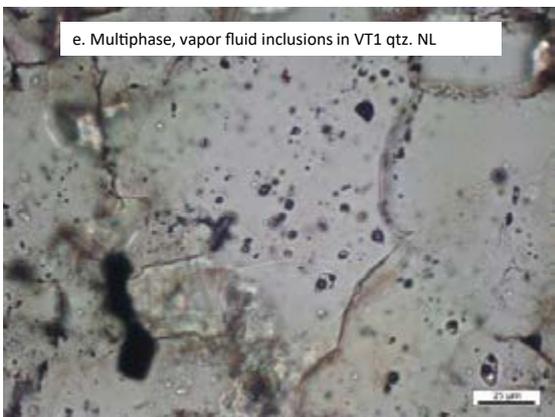
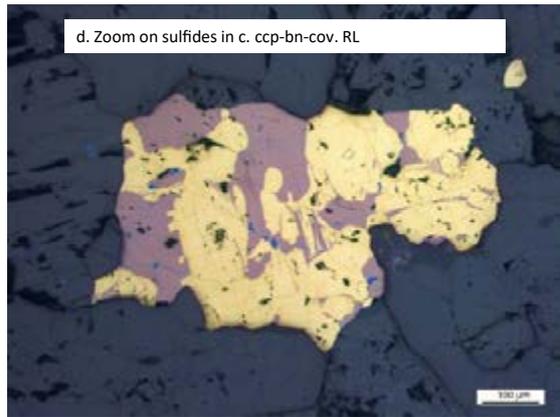
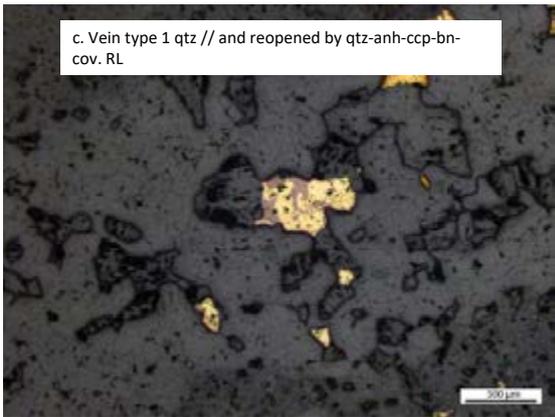
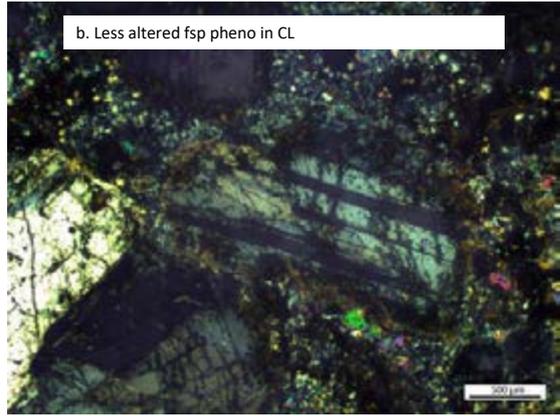
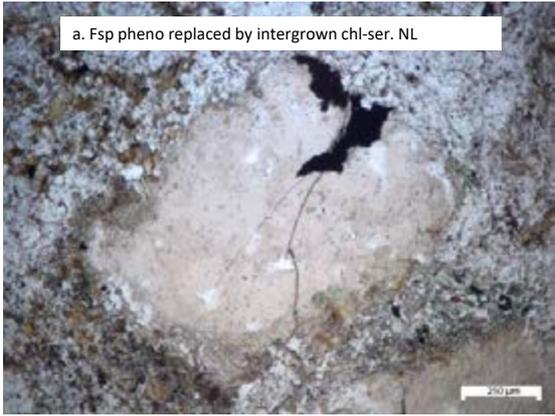
Dark diorite porphyry (IDID) – mid-depth, high grade



**General description** – Bt and SCA altered IDID // qtz-anh-sulfide vein // by anh-sulfide vein

## MB 44 (1212058W1 – 908.9)

Mineral	Vol %	Comments
<b>Protolith remnants</b>		
Fsp	30	Highly altered to ser or ser-chl, some are less altered
Qtz	20	
Felsic matrix	30	
<b>Pervasive alteration</b>		
Bt	5	Chl seen replacing bt
Anh	5	
Chl	5	
Ser	5	
Ccp	TR	
<b>Vein type 1</b>		
Qtz	70	Numerous qtz generations
Anh	28	
Ccp	2	
Bn	TR	
Cov	TR	
<b>Vein type 2</b>		
Ccp	80	
Anh	20	
Bn	TR	
<b>Vein halo 2</b>		
Ser	70	
Chl	29	
Ccp	1	



## MB 45 (1212058W1 – 951.6)

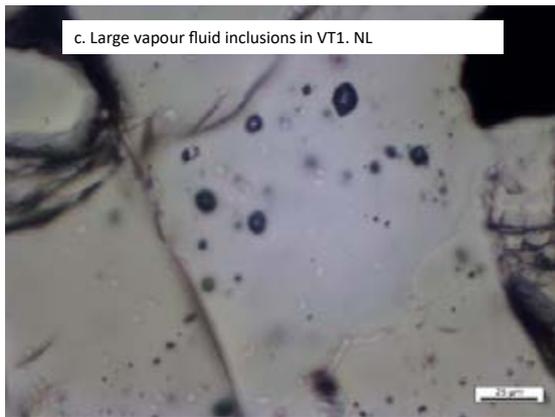
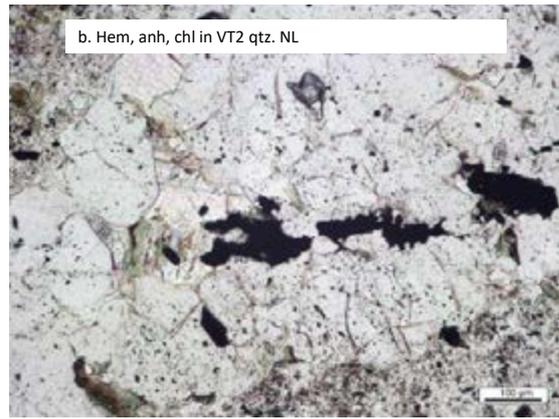
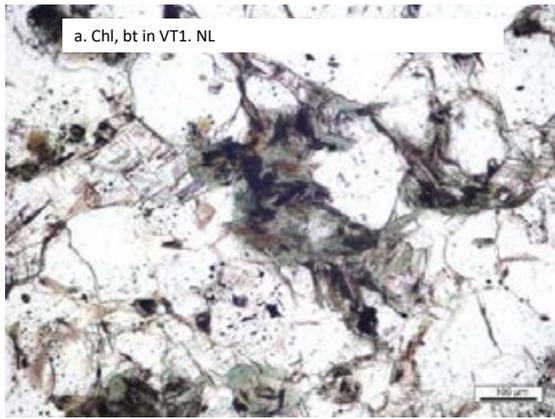
Dark diorite porphyry (IDID) – mid-depth, high grade



**General description** – Bt altered IDID // qtz-anh-bn veins

## MB 45 (1212058W1 – 951.6)

Mineral	Vol %	Comments
<b>Protolith remnants</b>		
Fsp	40	
Qtz	10	
Felsic matrix	22	
<b>Pervasive alteration</b>		
Bt	10	
Chl	5	
Anh	5	
Mag	5	
Ser	3	Ill defined by SWIR at 961.4
<b>Vein type 1 (vein that splits in two)</b>		
Qtz	70	Possibly numerous generations as there are various qtz crystal sizes
Anh	25	
Bn	2	
Mag	2	
Cct	1	
Chl, Bt	TR	
Unkown	TR	
<b>Vein type 2 (same mineralogy as vein type 1)</b>		
Qtz	90	
Anh	7	
Bn	2	
Mag	1	
Cov	TR	
Chl, Hem	TR	
<b>Vein halo 1</b>		
		Greater abundance of Chl proximal to the veins



## MC 7 (1212058W1 – 960.1)

Dark diorite porphyry (IDID) – mid-depth, high grade

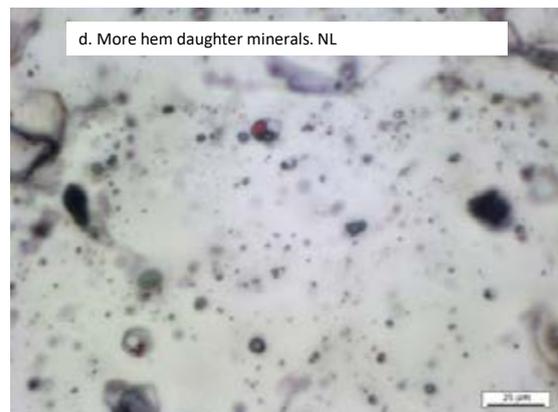


**General description** – Large lavender qtz veins in SCA altered IDID. Halo of bleached rock around the vein)

# MC 7 (1212058W1 – 960.1)

Mineral	Vol %	Comments
<b>Protolith remnants</b>		
Felsic matrix	40	Fsp phenocrysts are also present but now completely replaced by ser
Qtz	10	
<b>Pervasive alteration</b>		
Ser	30	Typically replaces fsp shaped crystals
Chl	10	
Anh	5	
Ccp	2	
Mag	1	
Hem	1	
<b>Vein type 1</b>		
Qtz	100	Most other minerals can be attributed to fractures. Numerous Qtz generations are probable as different crystal sizes are found at the rims and center of the Qtz vein. Many fluid inclusions are present: multiphase with hem daughter minerals, vapor rich...
Bn	TR	
Dg	TR	
<b>Vein type 2 (fracture)</b>		
Anh	60	
Ccp	40	
Bn, Ccp	TR	
<b>Vein halo 1</b>		
		More intense sericitization near the vein

Other: Idea that the lavender color is due to hem daughter minerals in fluid inclusions.



## MB 18 (1212058W1 – 964.5)

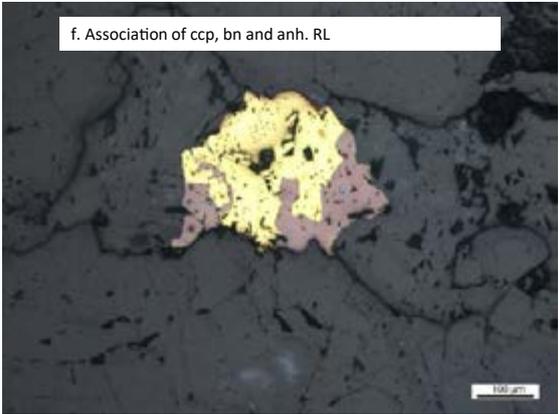
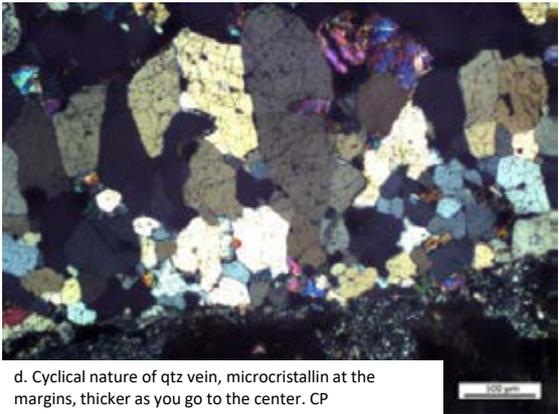
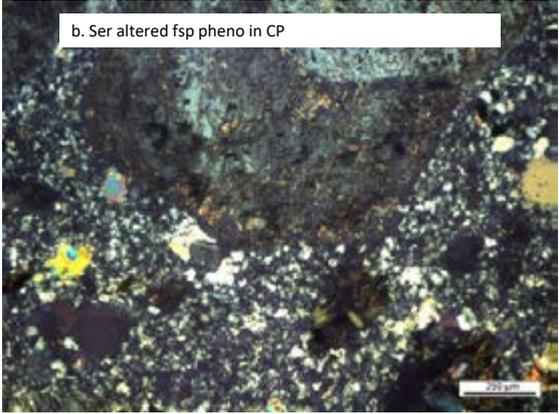
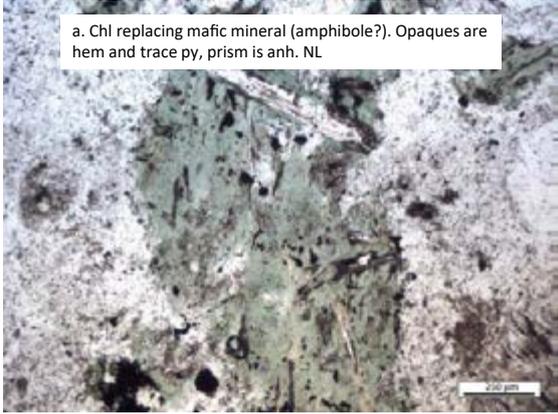
Dark diorite porphyry (IDID) – mid-depth, high grade



**General description** – SCA altered IDID // lavender qtz with slightly bleached halo. Ccp-bn-anh veins reopen the qtz vein

## MB 18 (1212058W1 – 964.5)

Mineral	Vol %	Comments
<b>Protolith remnants</b>		
Fsp	36	
Qtz	9	
Felsic matrix	35	
<b>Pervasive alteration</b>		
Chl	10	Mostly located on altered mafic minerals. Also replacing bt
Ser	5	Ser and anh localized on altered fsp phenocrysts.
Anh	5	
Hem	1	
Ccp, bn	TR	
<b>Vein type 1</b>		
Qtz	85	Fine grained crystals on the vein margins, coarser, euhedral crystals in the vein center.
Anh	12	Reopening is probable as continuous fractures are seen.
Ccp	2	
Bn	1	
Mag, hem, Cov	TR	Hem replaces mag in these veins
<b>Vein type 2</b>		
Ccp	50	
Anh	22	
Qtz	21	
Bn	2	
<b>Vein halo 1</b>		
Ser	30	
Chl	30	
Anh	15	
Felsic matrix	10	
Bn/ccp	5	



## MB 19 (1212058W1 – 995.2)

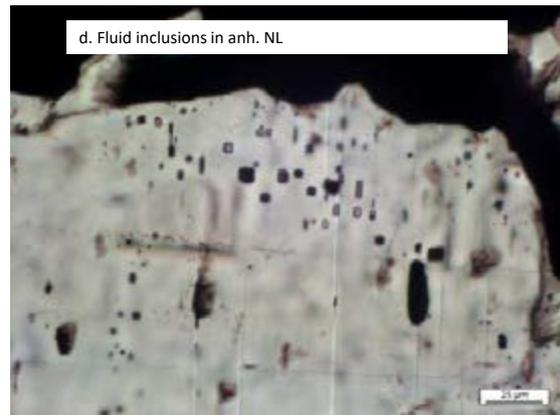
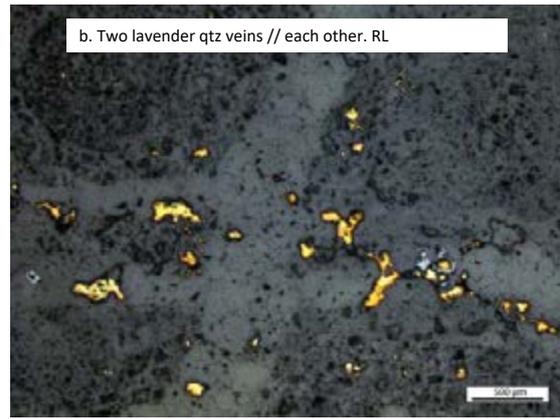
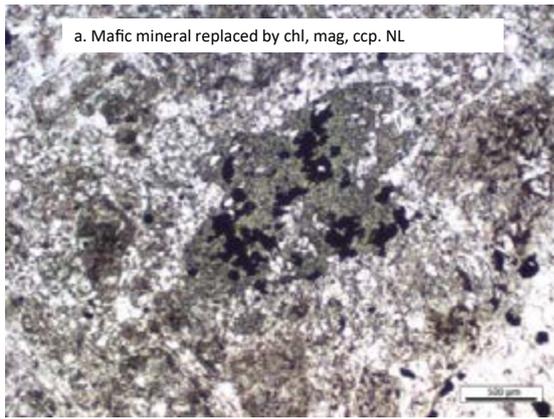
Dark diorite porphyry (IDID) – mid-depth, high grade



**General description** – SCA altered IDID with numerous lavender qtz veins reopened by anh-sulfide veins with phyllic halo.

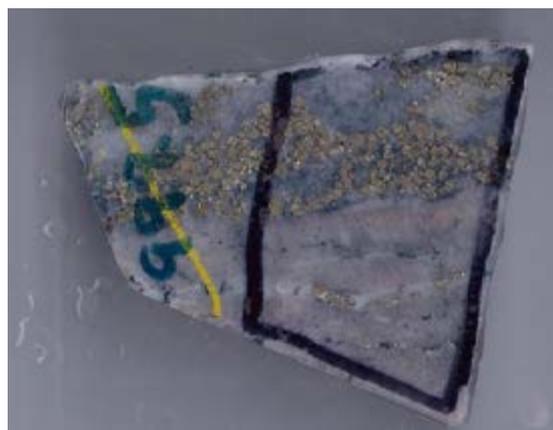
## MB 19 (1212058W1 – 995.2)

Mineral	Vol %	Comments
<b>Protolith remnants</b>		
<b>Fsp</b>	30	Highly sericite altered fsp phenocrysts
<b>Qtz</b>	10	
<b>Felsic matrix</b>	40	
<b>Pervasive alteration</b>		
<b>Ser</b>	5	Chl and mag (or ccp) replace mafics
<b>Chl</b>	5	
<b>Anh</b>	5	
<b>Mag</b>	3	
<b>Ccp</b>	2	
<b>Vein type 1 (in equ. with SCA alteration)</b>		
<b>Qtz</b>	85	There are 4 such veins in the thin section with minor variations in mineral abundance
<b>Anh</b>	10	
<b>Ccp</b>	3	
<b>Mag</b>	2	
<b>Bn</b>	TR	
<b>Vein type 2</b>		
<b>Ccp</b>	60	
<b>Anh</b>	40	
<b>Vein halo 1</b>		
<b>Ser</b>	100	



## MB 20 (1212058W1 – 999.5)

Dark diorite porphyry (IDID) – mid-depth, high grade

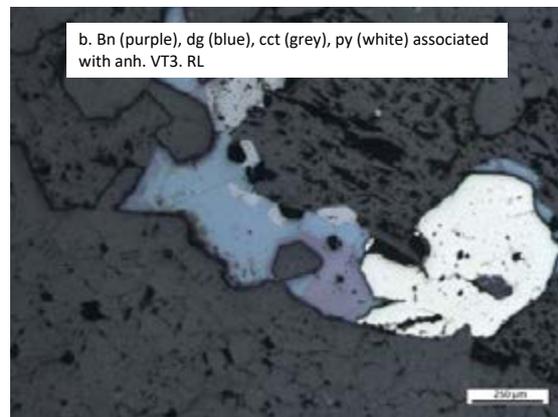
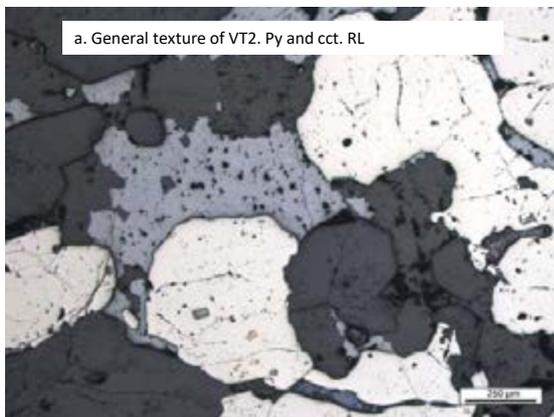


**General description** – Lavender qtz vein reopened by anh-py-Cu sulfide vein

# 1212058W1 – 999.5

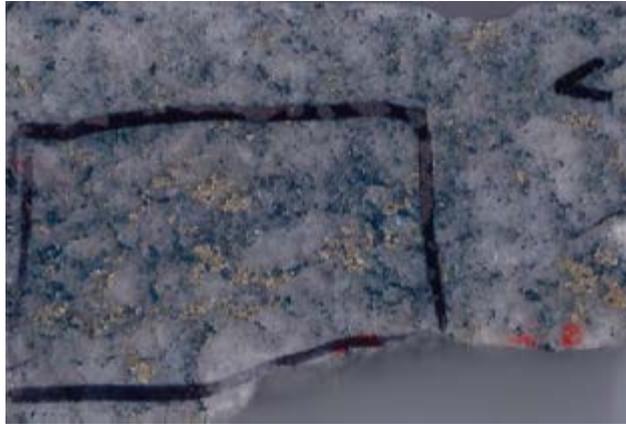
Dark diorite porphyry (IDID) – mid-depth, high grade

Mineral	Vol %	Comments/origin/fluid inclusions
<b>Vein type 1</b>		
Lav. Qtz	100	Numerous qtz generations as evidenced by varying crystal sizes in bands
<b>Vein type 2 – reopens VT1</b>		
Anh	40	
Qtz	20	
Py	30	
cct	10	
<b>Vein type 3</b>		
Anh	55	
Py	30	
Bn	5	
Dg	5	
cct	5	



## MB 21 (1212058W1 – 1000)

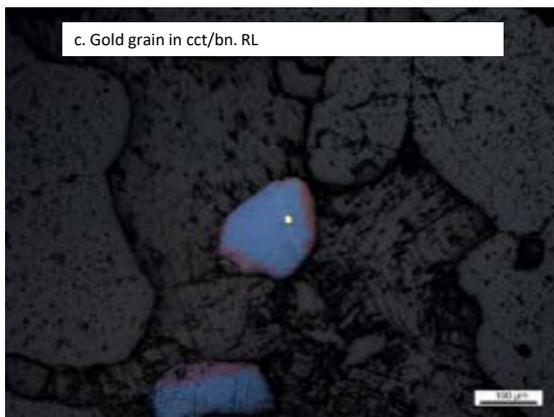
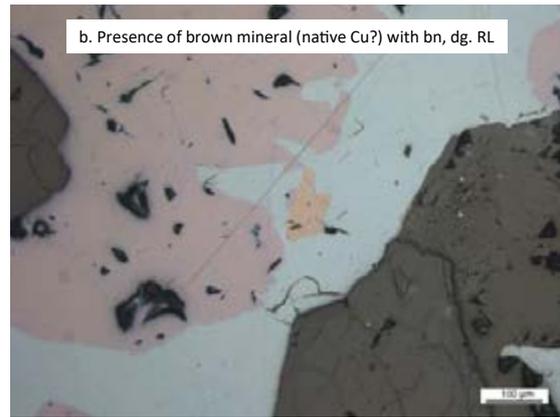
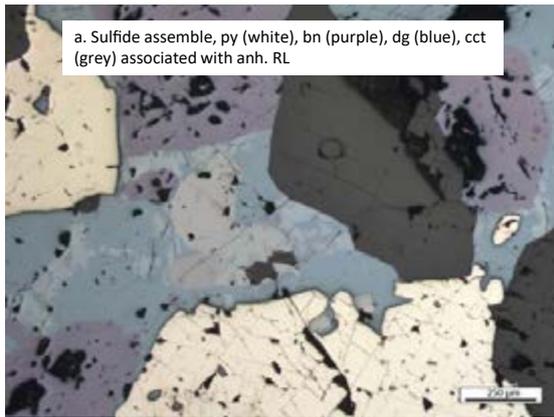
Dark diorite porphyry (IDID) – mid-depth, high grade



**General description** – Sampled within a large, high grade vein containing qtz-anh-bn-ccp

## MB 21 (1212058W1 – 1000)

Mineral	Vol %	Comments
Vein type 1		
Qtz	100	Qtz is clearly reopened by anh and sulfides. You can attribute other minerals in vein as belonging to fractures.
Vein type 2 – reopens VT1		
Anh	60	
Py	20	
Bn/Dg	20	Intergrown with bn
Ccp	TR	Ccp is rare
Hem	TR	
Au	TR	Au grain found in dg and bn grain
Unknown	TR	Orange mineral (native Cu?)



## MC 9 (1212058W1 – 1036)

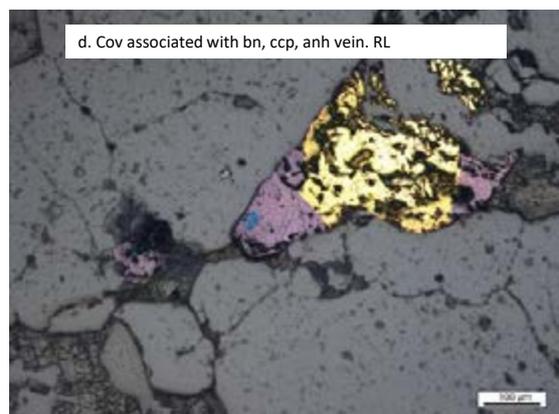
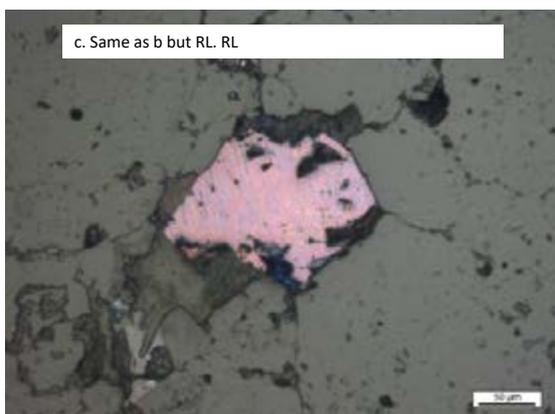
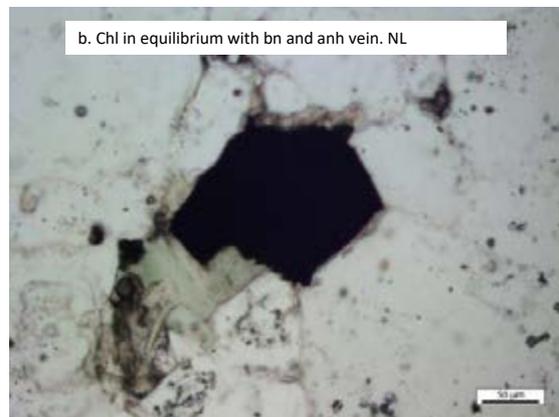
Dark diorite porphyry (IDID) – mid-depth, high grade

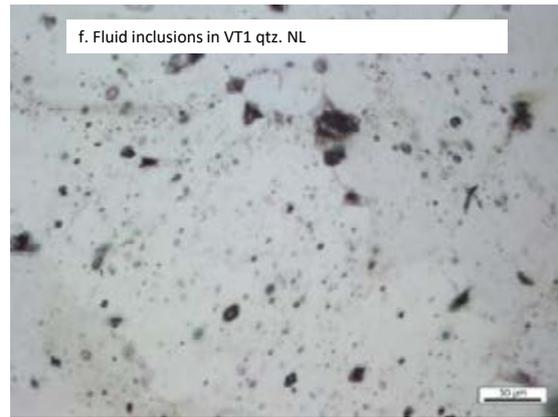
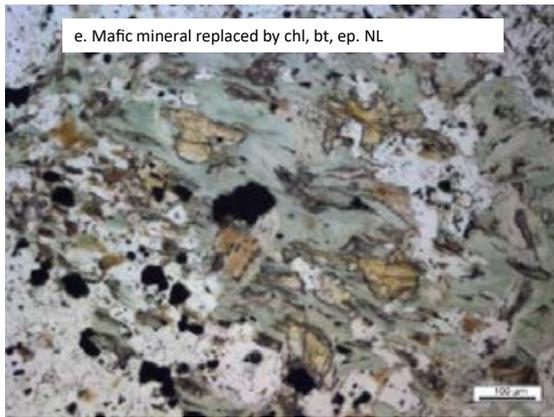


**General description** –SCA altered IDID with grey qtz vein. Remnant Bt alteration is recognized.

# MC 9 (1212058W1 – 1036)

Mineral	Vol %	Comments
Protolith remnants		
Fsp	40	
Qtz	10	
Felsic matrix	37	
Pervasive alteration		
Mag	5	
Chl	4	
Bt	2	
Ser, anh	1	
Cb	TR	
Ep	TR	
Vein type 1		
Qtz	100	All other minerals can be attributed to reopening fractures
Vein halo 1		
Chl	60	
Ser	40	
Vein type 2		
Anh	96	
Bn	2	
Chl	2	
Ccp	TR	
Cov	TR	
Mag	TR	





## MC 10 (1212058W1 – 1105.1)

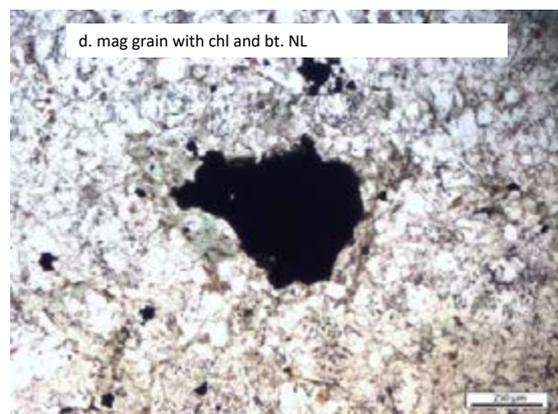
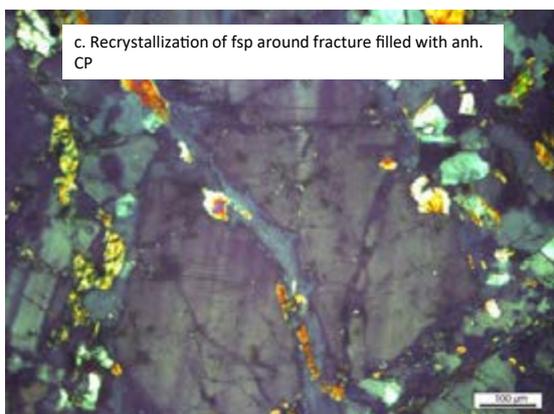
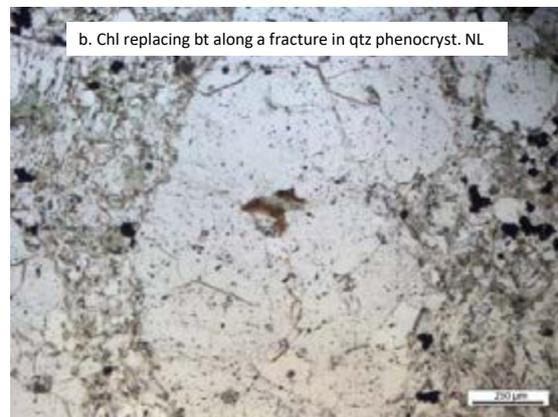
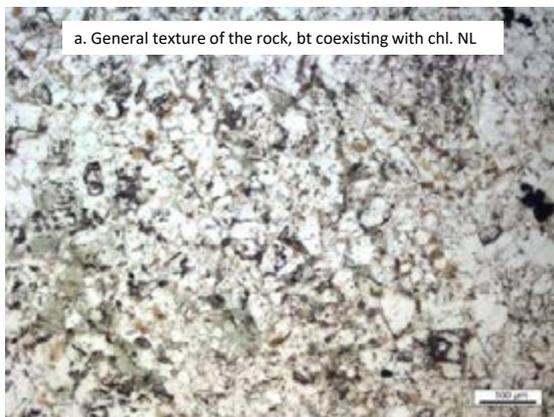
Light diorite porphyry (IDIL) – Mid-depth, high grade Au, low Cu

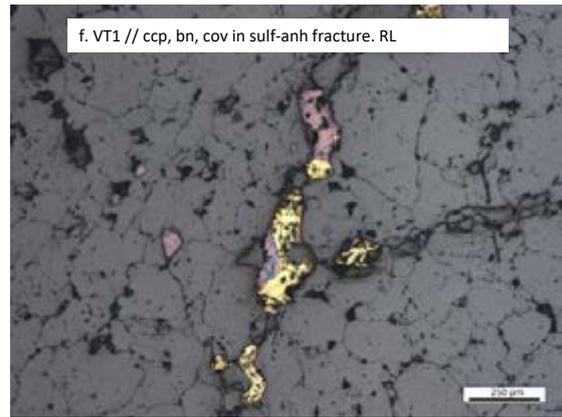
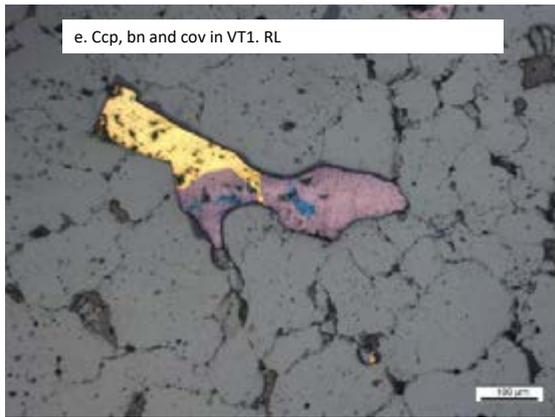


**General description** – SCA altered porphyritic rock // qtz-anh-sulfide veins // mag veinlets (fractures)

# MC 10 (1212058W1 – 1105.1)

Mineral	Vol %	Comments/origin/fluid inclusions	
<b>Protolith remnants</b>			
Qtz	20	Highly altered	
Fsp	25		
Felsic matrix	38		
<b>Pervasive alteration</b>			
Chl	10	No hematization of mag Replacing fsp phenocrysts	
Bt	3		
Anh	2		
Mag	2		
Ser	TR		
Ccp	TR		
<b>Vein type 1</b>			
Qtz	96	Could argue that all minerals apart from qtz can be attributed to fractures (later event)	
Ccp	1		
Bn	1		
Cov	1		
Anh	1		
<b>Vein type 2 – Fractures reopening of vein type 1 (not all fractures have all the minerals)</b>			
Anh	35	When more ccp, less mag and vice versa Seen as recrystallization of fsp phenocrysts	
Chl	35		
Ccp	10		
Fsp	10		
Mag	10		
Sph, Bn, Cov	TR		
Hem	TR		
<b>Vein type 3</b>			
Mag	100		





## MB 25 (129066 – 1047)

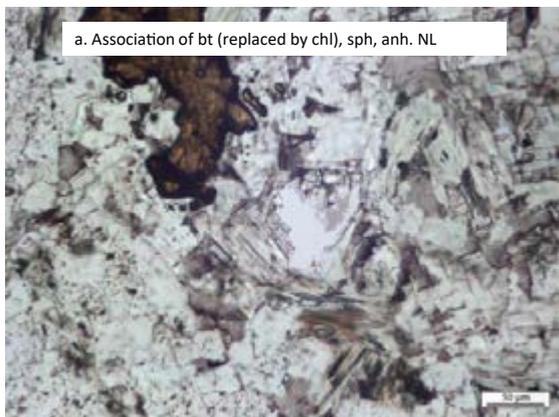
Dark diorite porphyry (IDID) – mid-depth, mid-grade



**General description** – multiple mm thick qtz veins in SCA altered IDID. Proximal to a large qtz vein reopened by sulfides (outside the section) with phyllic halo.

# MB 25 (129066 – 1047)

Mineral	Vol %	Comments
<b>Protolith remnants</b>		
Feld	40	Replaced by sericite
Qtz	10	
Felsic matrix	25	
<b>Pervasive alteration</b>		
Anh	10	
Ser	5	
Chl	5	
Rt	1	
Bn	1	
Ccp	1	
Cct	TR	
Bt	TR	
<b>Vein type 1</b>		
Qtz	80	
Anh	10	
Ccp	5	
Bn	5	
Cov, Chl, Rt	TR	
<b>Vein type 2</b>		
Qtz	80	Minerals other than qtz can be attributed to vein reopenings
Anh	15	
Bn	3	
Ccp	2	



## MB 26 (129066 – 1069)

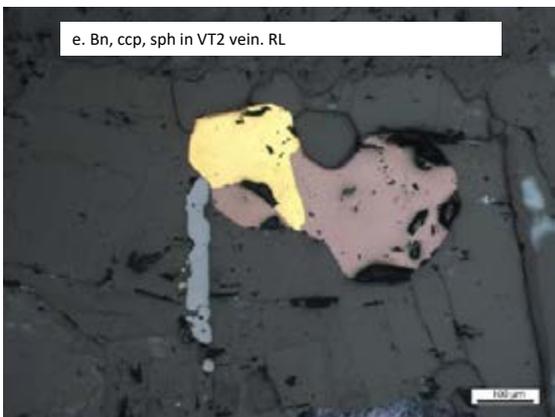
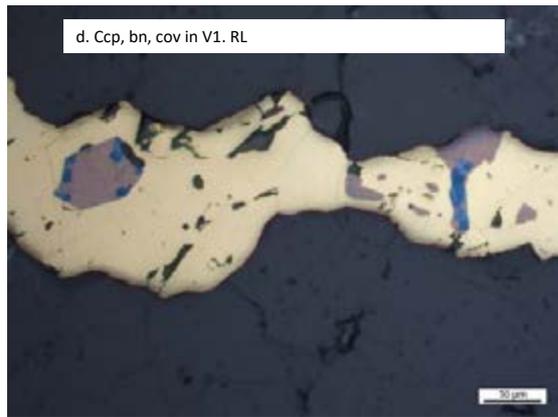
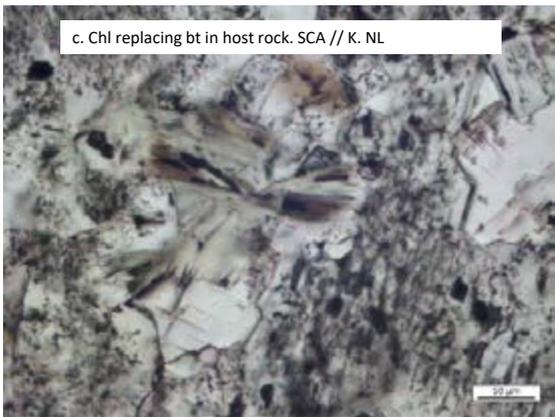
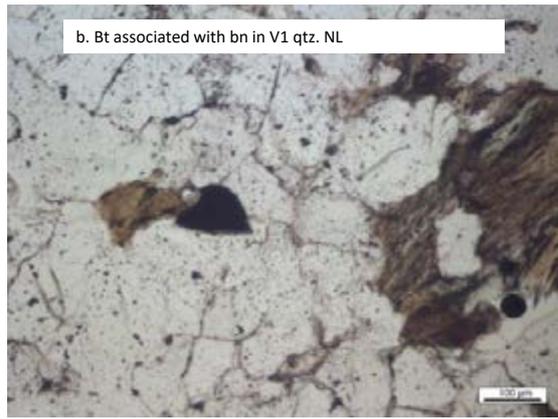
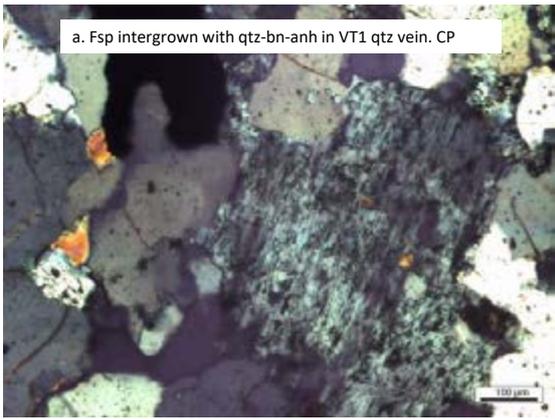
Dark diorite porphyry (IDID) – mid-depth, mid-grade



**General description** – Lavender qtz // sulfide rich veinlets in SCA altered IDID

## MB 26 (129066 – 1069)

Mineral	Vol %	Comments
<b>Protolith remnants</b>		
Feld ph.	40	Replaced by sericite
Qtz ph.	10	
Felsic matrix	20	
<b>Pervasive alteration</b>		
Anh	10	Chl replacing bt
Ser	5	
Chl	5	
Bt	5	
Bn	3	
Ccp	2	
Rt	TR	
Cov	TR	
<b>Vein type 1 (reopening is probable, qtz is heterogeneous in this vein)</b>		
Qtz	60	
Fsp	35	
Anh	20	
Bn	3	
Ccp	2	
Cov	TR	
Bt	TR	
<b>Vein type 2</b>		
Qtz	45	
Anh	45	
Bn	3	
Ccp	2	



## MB 8 (113013 – 1191.3)

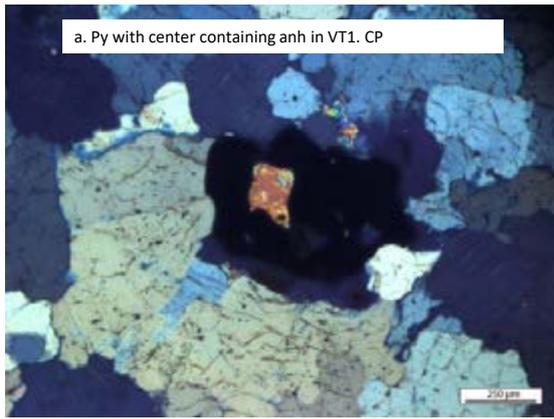
Light diorite porphyry (IDIL) – Mid-depth, unmineralized



**General description** – High vein density of lavender qtz veins // anh-py veins in SCA altered IDIL. Important phyllic alteration overprinting

## MB 8 (113013 – 1191.3)

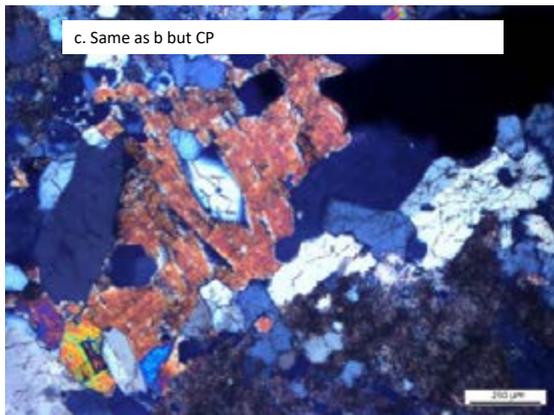
Mineral	Vol %	Comments
<b>Protolith remnants</b>		
Qtz	15	
Felsic matrix	30	
<b>Pervasive alteration</b>		
Ser, Chl mat	40	
Py	10	
anh	5	
<b>Vein type 1</b>		
Qtz	90	
Ser (+Chl)	5	Some of these minerals are likely to be in fractures reopening qtz
Py	5	
Ccp, Anh, Sph	TR	
<b>Vein halo 1</b>		
Ser	100	Some results from later vein 2 fractures
<b>Vein type 2</b>		
Qtz	40	
Py	40	
Anh	19	
Ser	1	
Ccp	TR	



a. Py with center containing anh in VT1. CP



b. VT2: anh-py-qtz vein. NL



c. Same as b but CP



d. Vapor rich inclusions in VT1 qtz. NL

## MC 11 (113013 – 1214.9)

Light diorite porphyry (IDIL) – Mid-depth, unmineralized

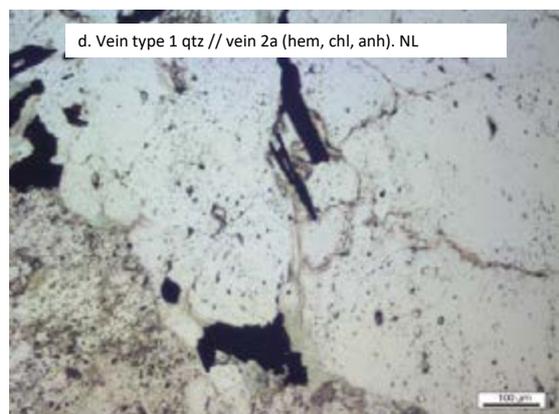
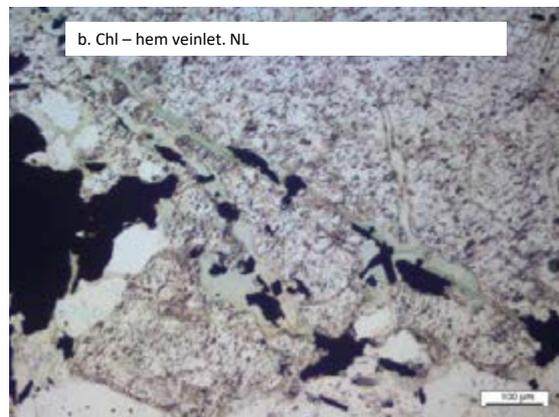


**General description** – High vein density of grey qtz veins, hem rich veinlet stockwork in SCA altered rock

# MC 11 (113013 – 1214.9)

Mineral	Vol %	Comments
Protolith remnants		
Fsp	72	
Qtz	10	
Felsic matrix	5	
Pervasive alteration		
Hem*	5	Specks within fsp phenos (alteration)
Ser	3	
Chl	3	
Anh	1	
Mag, ccp, sph	TR	
Vein type 1		
Qtz	100	Other minerals in the qtz veins can be attributed to later fracturing event
Vein type 2a		
Chl	60	This veinlet is found in host rock rather than reopening earlier veins Hem is original in this case (does not replace mag)
Hem	40	
Ser, anh	TR	
Vein type 2b		
Qtz	40	This vein type is found reopening VT1
Anh	40	
Hem	20	
Py, ccp, mag	1	

\*other: mag and hem relationships can be seen on pic d. mag grains appear to be replaced by hem. Specular hem around the replaced grains.



## MB 36 (113013 –1226.2)

Light diorite porphyry (IDIL) – Mid-depth, unmineralized



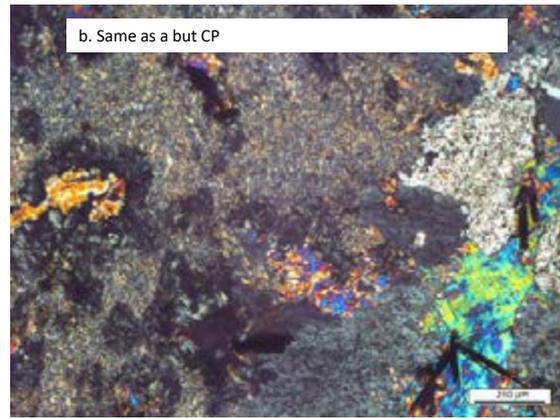
**General description** – Large lavender qtz vein, qtz stockwork, hem rich and py rich veinlets in SCA altered IDIL. Phyllic alteration overprinting is also visible.

**SWIR** – white mica, chlorite, anhydrite at 1215.2

## MB 36 (113013 –1226.2)

Mineral	Vol %	Comments/origin/fluid inclusions			
Protolith remnants					
Fsp	30	Very difficult to make out primary textures as most fsp phenocrysts are completely replaced			
Qtz	20				
Pervasive alteration					
Ser	30	Mostly specular hematite Can grow up to 10 % in some areas (north of this section)			
Chl	12				
Anh	5				
Hem	3				
Py	3				
Vein type 1					
Qtz	100	Other minerals can be attributed to fractures			
Vein halo 1					
Ser, Chl	100				
Vein type 2a			Vein type 2b		
Qtz	70		Anh	50	
Anh	20		Ccp	50	
Hem	10				
Vein type 2c			Vein type 2d		
Qtz	30		Anh	100	
Anh	30				
Chl	20				
Hem	20				

Very difficult to determine timing amongst the different VT2



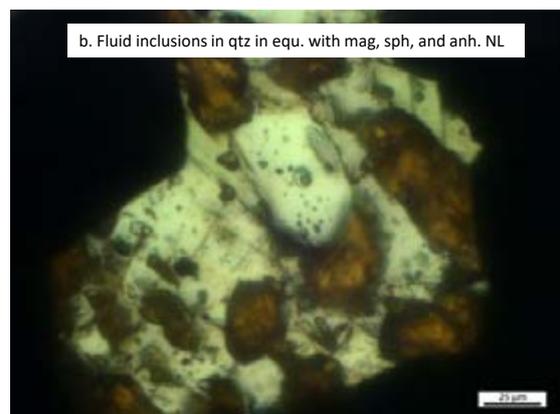
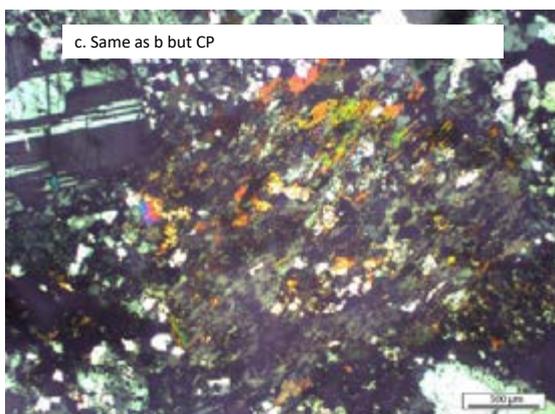
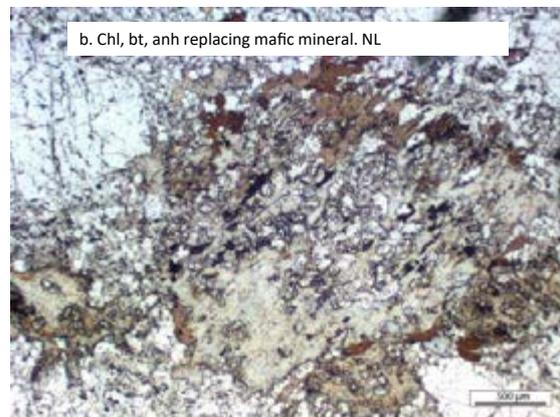
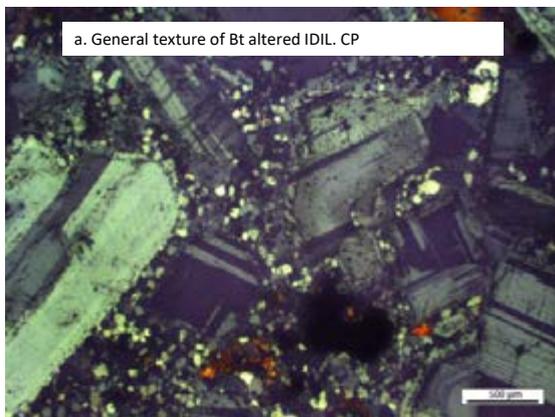
**MC 26 (115010 – 1554.9)**  
 Light diorite porphyry (IDIL) – Deep, unmineralized



**General description** – Qtz-anh-py vein with SCA alteration halo // K altered IDIL

# MC26 (115010 – 1554.9)

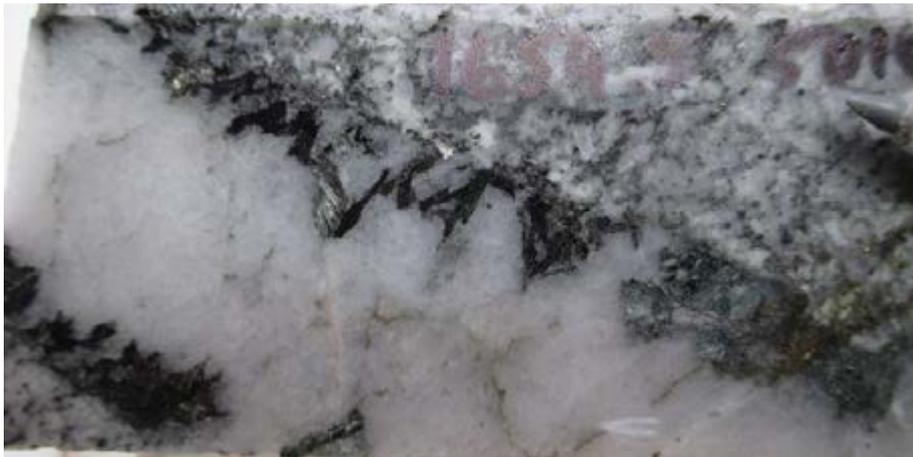
Mineral	Vol %	Comments
<b>Protolith remnants</b>		
Fsp	55	
Qtz	10	
Felsic matrix	20	
<b>Pervasive alteration</b>		
Bt	5	Chl is seen replacing Bt
Py	5	
Chl	2	
Mag	2	
Anh	2	
Ser	TR	
Rt	TR	
<b>Vein type 1</b>		
Qtz	40	
Anh	40	
Py	20	
Ser	TR	
<b>Vein halo 1</b>		
Ser	60	
Anh	20	
Chl	15	
Py	5	
<b>Vein type 2</b>		
Qtz	100	





## MC 27 (115010 – 1654.5)

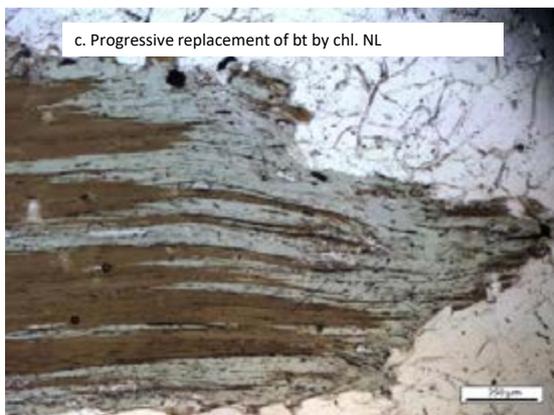
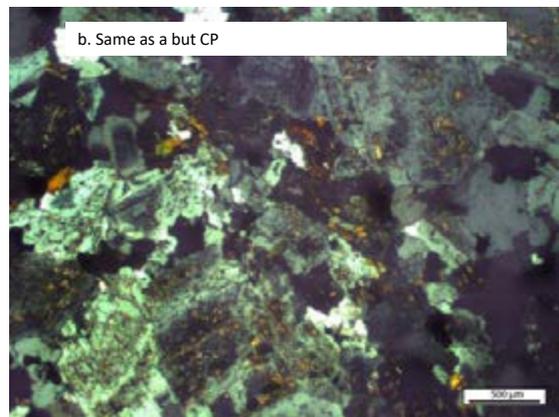
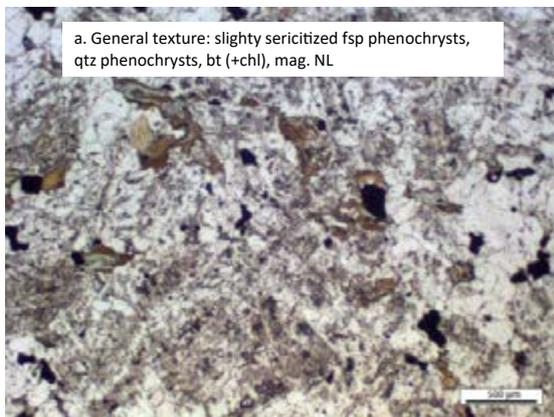
Light diorite porphyry (IDIL) – Deep, unmineralized



**General description** – Bt altered IDIL with large smoky white qtz-bt vein

# MC 27 (115010 – 1654.5)

Mineral	Vol %	Comments/origin/fluid inclusions
<b>Protolith remnants</b>		
<b>Fsp</b>	65	Highly sericitized
<b>Qtz</b>	15	
<b>Pervasive alteration</b>		
<b>Bt</b>	9	
<b>Mag</b>	7	
<b>Chl</b>	3	
<b>Ser</b>	1	
<b>Anh</b>	TR	
<b>Vein type 1</b>		
<b>Qtz</b>	80	Abundant vapor inclusions Large bt flakes
<b>Bt</b>	20	
<b>Chl</b>	TR	
<b>Vein halo 1</b>		
<b>In equ.</b>		With greater abundance of bt near the qtz vein
<b>Vein type 2</b>		
<b>Py</b>	60	Fracture fill within VT1.
<b>Chl</b>	40	
<b>Ccp</b>	TR	





MC 28 (115010 – 1712.7)

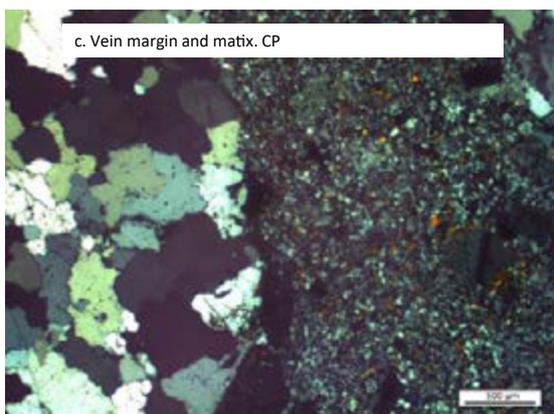
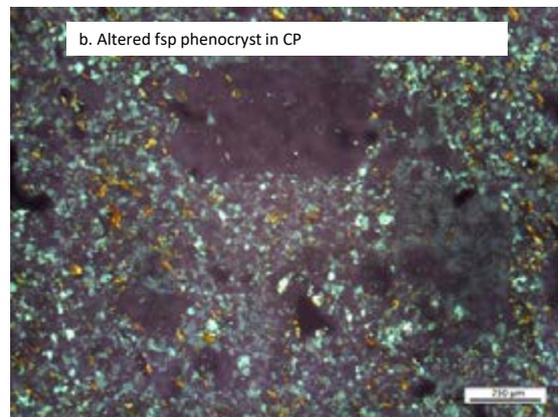
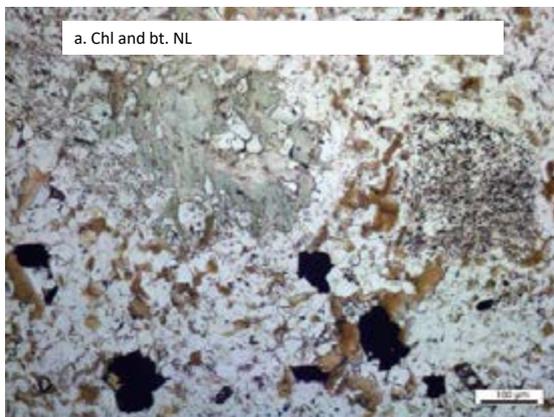
Lepanto volcanic unit (LUV) – deep, unmineralized



**General description** – Fsp phenocrysts and phenocryst fragments in a felsic matrix // by numerous white Qtz veins. Bt alteration affects the rock (bt, mag).

## MC 28 (115010 – 1712.7)

Mineral	Vol %	Comments
<b>Protolith remnants</b>		
Fsp	10	Phenocrysts, many look fragmented – transport
Felsic matrix	65	
<b>Pervasive alteration</b>		
Bt	15	Specks of bt scattered in the matrix, around Fsp phenocrysts Concentrated in aggregates rather than scattered like bt
Chl	5	
Ccp	2	
Mag	2	
Py	TR	
<b>Vein type 1</b>		
Qtz	99	Fluid inclusions are small and rare, most found are multiphase saline fluid inclusions.
Py	1	
<b>Vein type 2 – reopening</b>		
Anh	98	
Py	2	



## MC 29 (115010 – 1797.5)

Lepanto volcanic unit (LUV) – deep, unmineralized

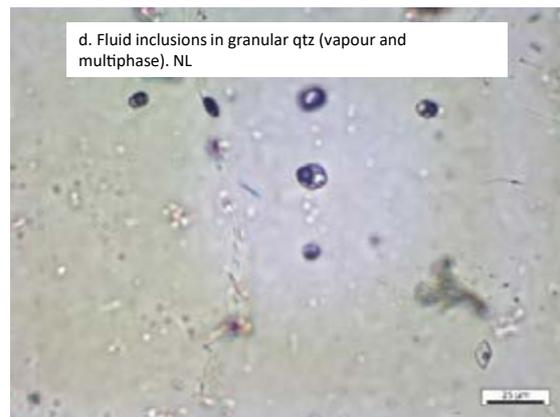
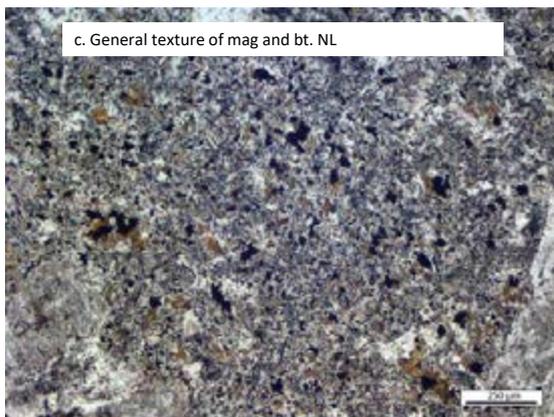
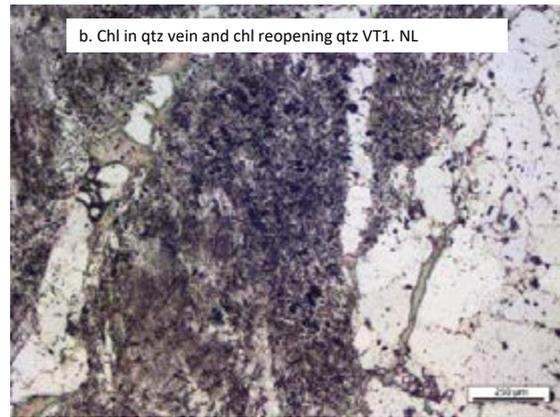
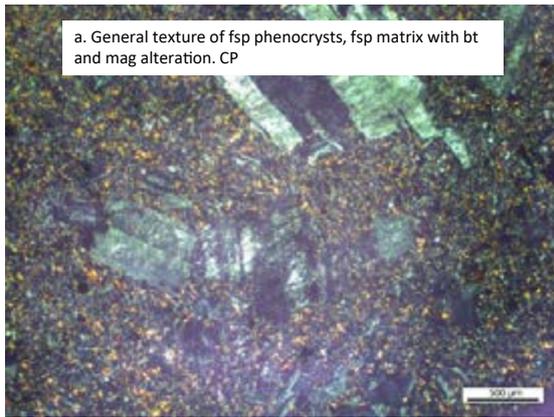


**General description** – Volcaniclastic LUV containing fsp phenocrysts and phenocryst fragments. Felsic matrix is highly affected by Bt alteration (bt and mag). The rock contains three white qtz veins

## MC 29 (115010 – 1797.5)

Mineral	Vol %	Comments
Protolith remnants		
<b>Fsp p</b>	35	Albite twinning is observed
<b>Felsic matrix</b>	40	
Pervasive alteration		
<b>Bt</b>	15	
<b>Mag</b>	10	
<b>Anh</b>	TR	
Vein type 1		
<b>Grrn* Qtz</b>	90	There are probably two generations of qtz: 1. granular qtz (thicker) 2. qtz-chl (thinner) and reopens 1. fluid inclusions in granular qtz are multiphase and vapor rich.
<b>Anh</b>	5	
<b>Chl</b>	3	
Vein halo 1		
<b>Chl</b>	100	

\*Granular



## MC 30 (115010 – 1859.3)

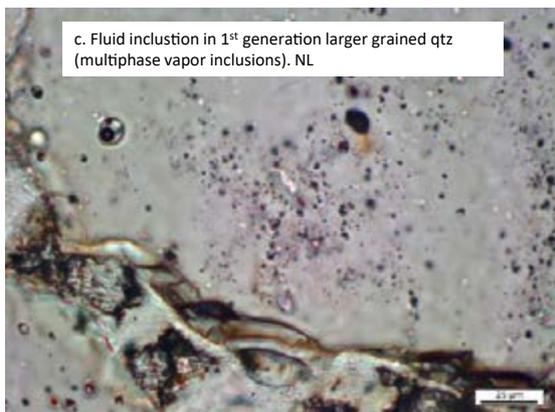
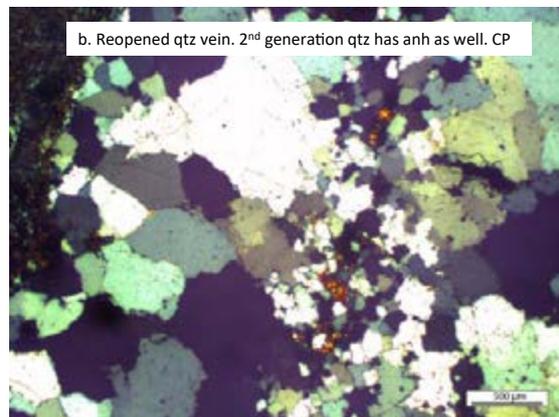
Lepanto volcanic unit (LUV) – deep, unmineralized



**General description** – Fsp and qtz phenocryst and phenocryst fragments in felsic matrix. More fine grained and equigranular as you go down hole. Rock is // white qtz veins.

# MC 30 (115010 – 1859.3)

Mineral	Vol %	Comments/origin/fluid inclusions
Protolith remnants		
Fsp	30	
Felsic matrix	30	
Qtz	5	
Pervasive alteration		
Bt	25	
mag	10	
Vein type 1		
Grn qtz	100	Large anhedral qtz crystals. Many fluid inclusions are present (multiphase and vapor rich)
Vein type 2		
Grn qtz	80	Smaller anhedral qtz grains, rare fluid inclusions
Anh	20	Most anh has been stripped off due to bad polishing
Other		
Cb	100	Carbonate veinlets // all



## MC 12 (113013 – 1740.4)

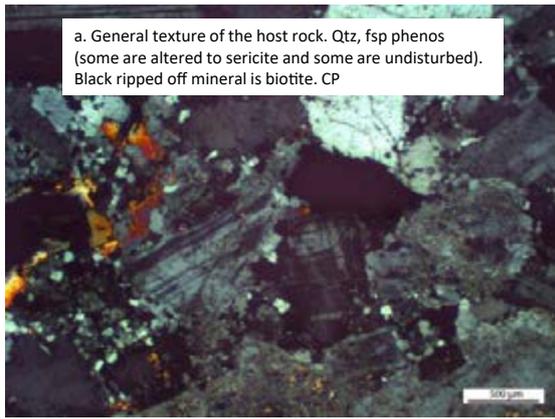
Light diorite porphyry (IDIL) – Deep, unmineralized



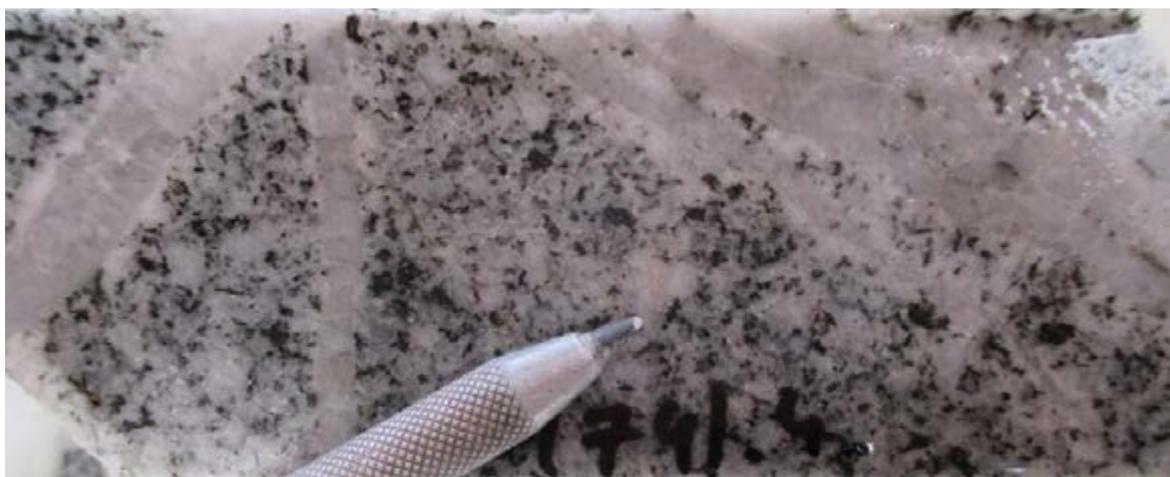
**General description** – Large grey qtz vein reopened by qtz-anh vein in Bt altered IDIL. Large biotite crystals result from Bt alteration.

## MC 12 (113013 – 1740.4)

Mineral	Vol %	Comments
Protolith remnants		
<b>Kfs</b>	35	Undisturbed by Bt alteration Altered
<b>Fsp</b>	35	
<b>Qtz</b>	10	
Pervasive alteration		
<b>Bt</b>	15	
<b>Ser</b>	5	
Vein type 1		
<b>Qtz</b>	100	Granular quartz, other minerals can be attributed to fractures
Vein type 2		
<b>Qtz</b>	60	Can be euhedral
<b>Anh</b>	40	
Vein type 3 – Fracture		
<b>Bt</b>	60	Post dates VT1 but timing relative to VT2 is unknown
<b>Py</b>	30	
<b>Ccp</b>	10	



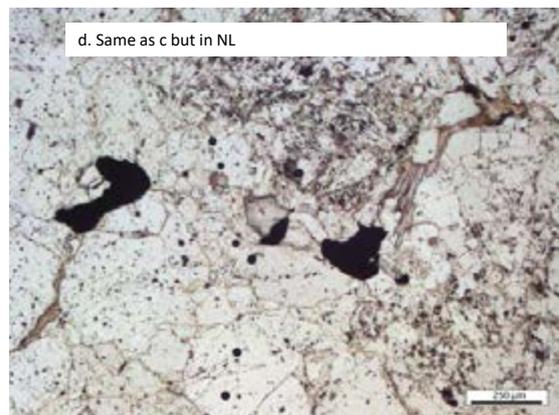
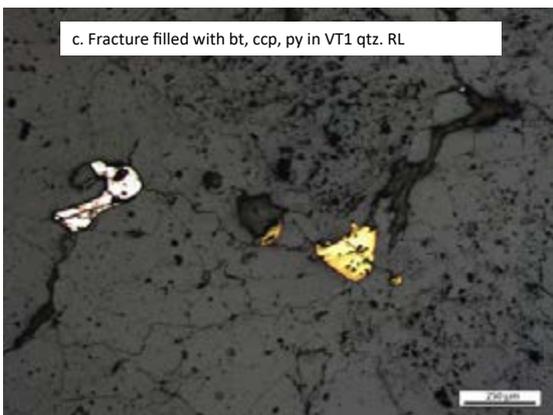
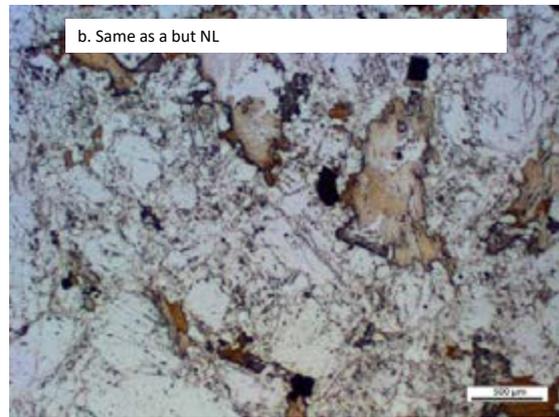
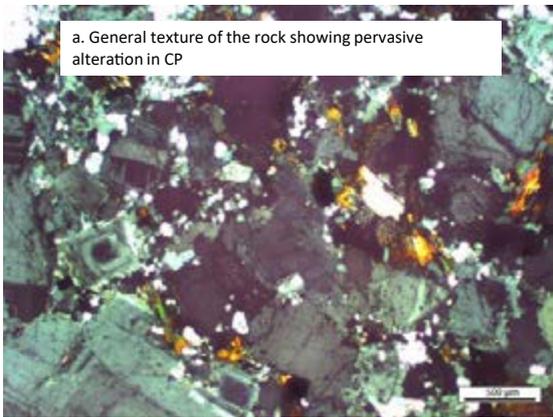
**MC 13 (113013 – 1741.4)**  
 Light diorite porphyry (IDIL) – Deep, unmineralized



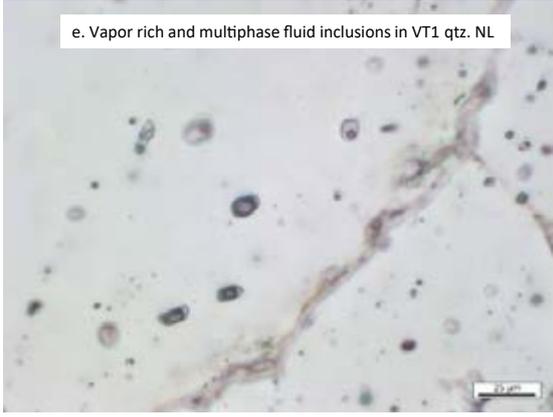
**General description** – Bt altered IDIL // numerous white Qtz veins.

# MC 13 (113013 – 1741.4)

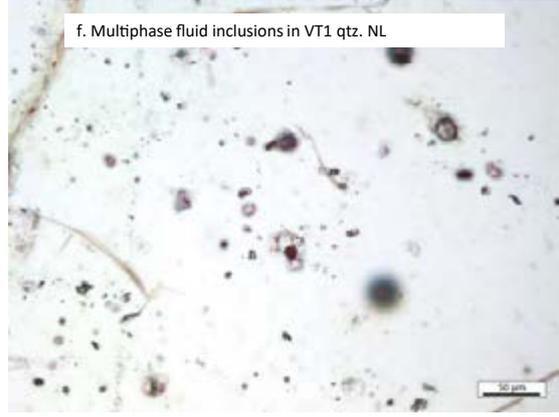
Mineral	Vol %	Comments/origin/fluid inclusions
<b>Protolith remnants</b>		
Fsp	58	Most are unaffected by Bt alteration (kfs), others are weakly replaced by sericite
Qtz	18	
Felsic matrix	10	
<b>Pervasive alteration</b>		
Bt	8	
Anh	4	
Mag	2	
Ccp	TR	
<b>Vein type 1</b>		
Qtz	100	Other minerals can be attributed to fractures
<b>Vein type 2</b>		
Anh	99	
Bt	5	
Ccp	1	
Py	TR	



e. Vapor rich and multiphase fluid inclusions in VT1 qtz. NL



f. Multiphase fluid inclusions in VT1 qtz. NL



## Appendix 4 - Short Wavelength Infra-Red (SWIR) spectral data

Sample ID/spot	Mineral ID	2250 position	2200 position	IC	1480 position	Alt style	Alter. Interp.
11-2007-1293r1	illite, anhydrite	-	2195	1.0	-	halo	PH
11-2007-1293r2	chlorite, anhydrite	2251	-	-	-	pervasive	SCA
11-2007-1293r3	illite, anhydrite	-	2195	-	-	halo	PH
11-2007-1316_3r1	anhydrite, illite	-	2203	-	-	halo	PH
11-2007-1316_3r2	messy - chlorite, illite	2251	2200	-	-	pervasive	SCA
11-2007-1316_3r3	anhydrite, illite	-	2208	-	-	halo	PH
11-2007-1379r1	biotite, anhydrite	-	-	-	-	pervasive	K
11-2007-1379r2	biotite, anhydrite	-	-	-	-	pervasive	K
11-2007-1379r3	biotite, anhydrite	-	-	-	-	pervasive	K
11-2007-1386_4r1	illite, anhydrite, minimal chlorite	-	2203	-	-	pervasive	SCA
11-2007-1386_4r2	kaolinite, anhydrite	-	-	-	-	pervasive	K
11-2007-1386_4r3	chlorite, illite, anhydrite	2251	2206	-	-	pervasive	SCA
11-2007-1399r1	illite, anhydrite, minimal chlorite	-	2207	0.6	-	halo	SCA
11-2007-1399r2	anhydrite, minimal illite, minimal chlorite	-	2205	-	-	pervasive	SCA
11-2007-1399r3	chlorite, anhydrite, illite	2249	2210	-	-	pervasive	SCA
11-2017-1282_6r1	anhydrite (strange spectra)	-	-	-	-	pervasive	
11-2017-1282_6r2	anhydrite	-	-	-	-	pervasive	
11-2017-1282_6r3	anhydrite, minimal chlorite	2253	-	-	-	pervasive	SCA
11-2017-1296_7r1	anhydrite, minimal chlorite	2251	-	-	-	pervasive	SCA
11-2017-1296_7r2	anhydrite, illite, minimal chlorite	2253	2206	-	-	pervasive	SCA
11-2017-1296_7r3	anhydrite, illite	-	2207	-	-	pervasive	PH
11-2017-1312_6r1	illite	-	2204	0.8	-	pervasive	PH
11-2017-1312_6r2	illite	-	2204	0.7	-	pervasive	PH
11-2017-1312_6r3	illite	-	2204	0.8	-	pervasive	PH
11-2017-1336_9r1	anhydrite, illite, chlorite	2247	2208	-	-	pervasive	SCA
11-2017-1336_9r2	anhydrite	-	-	-	-	pervasive	
11-2017-1336_9r3	anhydrite	-	-	-	-	pervasive	
11-2017-1353_2r1	illite	-	2195	1.6	-	halo	PH
11-2017-1353_2r2	illite, anhydrite	-	2196	-	-	halo	PH
11-2017-1353_2r3	illite	-	2199	2.2	-	halo	PH
11-2017-1368r1	kaolinite	-	-	-	-	pervasive	AA
11-2017-1368r2	kaolinite	-	-	-	-	pervasive	AA
11-2017-1368r3	kaolinite	-	-	-	-	pervasive	AA
11-2017-1389r1	illite, anhydrite	-	2193	-	-	pervasive	PH
11-2017-1389r2	illite, anhydrite	-	2194	-	-	pervasive	PH
11-2017-1389r3	illite, anhydrite	-	2193	-	-	pervasive	PH
11-2017-1424r1	illite, anhydrite	-	2196	-	-	pervasive	PH
11-2017-1424r2	anhydrite, kaolinite (or pyr-il)	-	-	-	-	pervasive	AA
11-2017-1424r3	anhydrite, kaolinite (or pyr-il)	-	-	-	-	pervasive	AA
11-2023-1028_2r1	anhydrite, chlorite, illite	2259	2207	-	-	pervasive	SCA
11-2023-1028_2r2	illite, anhydrite	-	2204	-	-	pervasive	PH
11-2023-1028_2r3	illite, anhydrite, minimal chlorite	2252	2206	-	-	pervasive	SCA
11-2023-1046_8r1	illite, chlorite	2257	2206	-	-	pervasive	SCA
11-2023-1046_8r2	illite, chlorite	2251	2207	-	-	pervasive	SCA
11-2023-1046_8r3	illite, chlorite, anhydrite	2249	2206	-	-	pervasive	SCA
11-2023-1063r1	illite, anhydrite	-	2199	1.0	-	halo	PH
11-2023-1063r2	illite, anhydrite	-	2198	0.8	-	pervasive	PH
11-2023-1063r3	illite, anhydrite	-	2204	-	-	pervasive	PH
11-2023-1082_5r1	messy - anhydrite, chlorite	2260	-	-	-	pervasive	SCA
11-2023-1082_5r2	messy - anhydrite, illite, chlorite	-	2195	0.6	-	pervasive	SCA
11-2023-1082_5r3	anhydrite, illite	-	2210	-	-	halo	PH
11-2023-1118_5r1	messy - anhydrite, biotite?	-	-	-	-	pervasive	K
11-2023-1118_5r2	messy	-	-	-	-	pervasive	
11-2023-1118_5r3	messy - biotite, anhydrite	-	-	-	-	pervasive	K
11-2023-1139_7r1	anhydrite, illite	-	2197	-	-	pervasive	PH
11-2023-1139_7r2	anhydrite, illite, minimal chlorite	2248	2197	0.7	-	pervasive	SCA
11-2023-1139_7r3	messy - illite, chlorite	2258	2193	1.2	-	pervasive	SCA
11-2023-1159_5r1	messy - biotite, anhydrite	-	-	-	-	pervasive	K
11-2023-1159_5r2	messy - biotite	-	-	-	-	pervasive	K
11-2023-1159_5r3	messy	-	-	-	-	pervasive	
11-2023-1181_1r1	anhydrite, illite, chlorite	-	2207	0.5	-	pervasive	SCA
11-2023-1181_1r2	anhydrite, illite	-	2205	-	-	pervasive	PH
11-2023-1181_1r3	anhydrite, minimal illite	-	2206	-	-	pervasive	PH
11-2023-1205r1	illite	-	2193	1.1	-	pervasive	PH
11-2023-1205r2	illite	-	2194	0.9	-	pervasive	PH
11-2023-1205r3	illite	-	2194	0.9	-	pervasive	PH
11-2023-1222_5r1	illite, minimal anhydrite	-	2195	1.0	-	pervasive	PH
11-2023-1222_5r2	illite, anhydrite	-	2195	-	-	pervasive	PH
11-2023-1222_5r3	illite	-	2195	1.0	-	pervasive	PH
11-2023-733r1	illite, anhydrite	-	2195	-	-	pervasive	PH
11-2023-733r2	anhydrite, illite	-	2195	-	-	pervasive	PH
11-2023-733r3	anhydrite, illite	-	2191	0.5	-	pervasive	PH
11-2023-757_5r1	anhydrite, illite, chlorite	2256	2199	-	-	halo	SCA

Sample ID/spot	Mineral ID	2250 position	2200 position	IC	1480 position	Alt style	Alter. Interp.
11-2023-757_5r2	anhydrite, illite, chlorite	2255	2198	-	-	pervasive	SCA
11-2023-757_5r3	anhydrite, illite, chlorite	2255	2198	0.5	-	pervasive	SCA
11-2023-776_5r1	illite, chlorite, anhydrite	2257	2193	1.0	-	pervasive	SCA
11-2023-776_5r2	illite, chlorite, anhydrite	2255	2195	0.9	-	pervasive	SCA
11-2023-776_5r3	illite, chlorite, anhydrite	2254	2195	0.9	-	pervasive	SCA
11-2023-795_6r1	illite, anhydrite	-	2196	-	-	halo	PH
11-2023-795_6r2	illite (para), chlorite, anhydrite	2258	2193	-	-	pervasive	SCA
11-2023-795_6r3	illite (para), chlorite, anhydrite	2253	2186	-	-	pervasive	SCA
11-2023-822r1	anhydrite, illite	-	2199	-	-	pervasive	PH
11-2023-822r2	illite, anhydrite	-	2197	-	-	pervasive	PH
11-2023-822r3	illite, anhydrite	-	2198	-	-	pervasive	PH
11-2023-850r1	illite, anhydrite	-	2198	1.2	-	pervasive	PH
11-2023-850r2	illite, anhydrite	-	2196	1.4	-	pervasive	PH
11-2023-850r3	illite, anhydrite	-	2199	-	-	pervasive	PH
11-2023-869_8r1	illite, anhydrite	-	2200	-	-	pervasive	PH
11-2023-869_8r2	illite, anhydrite	-	2198	-	-	pervasive	PH
11-2023-869_8r3	illite, anhydrite, minimal chlorite	2250	2199	-	-	pervasive	SCA
11-2023-917_4r1	illite, anhydrite, chlorite	2259	2193	-	-	pervasive	SCA
11-2023-917_4r2	illite, anhydrite, chlorite	2256	2194	-	-	pervasive	SCA
11-2023-917_4r3	anhydrite, chlorite, illite	2258	2198	-	-	pervasive	SCA
11-2023-979_2r1	anhydrite, chlorite	2252	-	-	-	pervasive	SCA
11-2023-979_2r2	anhydrite, chlorite	2254	-	-	-	pervasive	SCA
11-2023-979_2r3	anhydrite, chlorite	2253	-	-	-	pervasive	SCA
11-3013-0626_4r1	muscovite, illite, chlorite	2251	2196	0.5	-	pervasive	SCA
11-3013-0626_4r2	chlorite, illite	2251	2205	-	-	pervasive	SCA
11-3013-0702_5r1	muscovite, chlorite	2253	-	-	-	pervasive	SCA
11-3013-0702_5r2	anhydrite, chlorite	2253	-	-	-	pervasive	SCA
11-3013-0702_5r3	anhydrite, chlorite	2252	-	-	-	pervasive	SCA
11-3013-0752_5r1	illite-ms, (minimal anhydrite)	-	2194	-	-	halo	PH
11-3013-0752_5r2	illite-ms, (minimal anhydrite)	-	2194	-	-	halo	PH
11-3013-0752_5r3	illite-ms, (minimal anhydrite)	-	2193	-	-	pervasive	PH
11-3013-0752_5r4g	chlorite, illite-ms	2252	2196	-	-	pervasive	SCA
11-3013-0797_5r1g	messy - anhydrite?	-	-	-	-	pervasive	-
11-3013-0797_5r2w	muscovite-il (minimal anhydrite)	-	-	-	-	halo	PH
11-3013-0797_5r3g	chlorite, illite	2250	2211	-	-	pervasive	SCA
11-3013-1053r1w	illite-ms, anhydrite	-	2201	-	-	halo	PH
11-3013-1053r2w	illite-ms	-	2202	-	-	halo	PH
11-3013-1053r3w	illite-ms, anhydrite	-	2201	-	-	halo	PH
11-3013-1053r4g	messy - chlorite, illite, anhydrite	2251	2208	-	-	pervasive	SCA
11-3013-1101r1	illite-m, anhydrite	-	2198	-	-	breccia clast	PH
11-3013-1101r2	illite-ms, anhydrite	-	2198	-	-	breccia clast	PH
11-3013-1139_5r1	anhydrite, illite-ms	-	2199	-	-	halo	PH
11-3013-1139_5r2	illite-ms, anhydrite	-	2199	-	-	halo	PH
11-3013-1139_5r3	illite-ms, chlorite, anhydrite	2247	2198	-	-	halo	SCA
11-3013-1149_3r1	illite-ms, minimal anhydrite	-	2198	1.2	-	halo	PH
11-3013-1149_3r2	illite-ms, minimal anhydrite	-	2198	-	-	halo	PH
11-3013-1149_3r3	illite-ms, anhydrite, chlorite	2248	2196	-	-	halo	SCA
11-3013-1163_5r1	illite-ms, anhydrite	-	2197	-	-	pervasive	PH
11-3013-1163_5r2	illite-ms, anhydrite	-	2196	-	-	pervasive	PH
11-3013-1163_5r3	illite-ms, chlorite, anhydrite	2248	2201	-	-	halo	SCA
11-3013-1190r1	illite-ms, minimal anhydrite	-	2200	1.5	-	pervasive	PH
11-3013-1190r2	illite-ms	-	2198	1.9	-	pervasive	PH
11-3013-1190r3	illite-ms	-	2199	-	-	pervasive	PH
11-3013-1203_3r1	chlorite, illite-ms, (potential anhydrite)	2249	2200	-	-	pervasive	SCA
11-3013-1203_3r2	illite-ms, (potential anhydrite)	-	2197	1.2	-	halo	PH
11-3013-1203_3r3	chlorite, illite-ms,	2251	2200	-	-	pervasive	SCA
11-3013-1203_3r4	messy - illite-ms, chlorite	-	2199	1.0	-	pervasive	SCA
11-3013-1206_2r1	illite-ms, anhydrite	-	2196	-	-	halo	PH
11-3013-1206_2r2	illite-ms, chlorite, minimal anhydrite	2253	2196	1.2	-	pervasive	SCA
11-3013-1206_2r3	illite-ms, chlorite, anhydrite	2250	2197	-	-	pervasive	SCA
11-3013-1215_2r1	illite-ms, minimal anhydrite	-	2198	1.4	-	pervasive	PH
11-3013-1215_2r2	illite-ms, minimal anhydrite	-	2197	-	-	pervasive	PH
11-3013-1215_2r3	illite	-	2198	1.7	-	pervasive	PH
11-3013-1242r1	illite-ms, anhydrite, chlorite	-	2204	-	-	pervasive	SCA
11-3013-1242r2	illite-ms, anhydrite	-	2202	0.6	-	halo	PH
11-3013-1242r3	illite-ms, anhydrite	-	2198	-	-	halo	PH
11-3013-1256_9r1	illite-ms, anhydrite	-	2204	-	-	halo	PH
11-3013-1256_9r2	illite-ms, anhydrite, chlorite	2247	2202	0.9	-	pervasive	SCA
11-3013-1256_9r3	illite-ms, anhydrite, chlorite	2250	2203	0.9	-	pervasive	SCA
11-3013-1281_7r1	illite	-	2197	1.6	-	pervasive	PH
11-3013-1281_7r2	illite, anhydrite	-	2197	-	-	pervasive	PH
11-3013-1281_7r3	illite, anhydrite	-	2197	1.3	-	pervasive	PH
11-3013-1300_3r1	muscovite-il	-	-	-	-	halo	PH

Sample ID/spot	Mineral ID	2250 position	2200 position	IC	1480 position	Alt style	Alter. Interp.
11-3013-1300_3r2	illite-ms, chlorite	2254	2202	-	-	pervasive	SCA
11-3013-1300_3r3	messy - illite-ms, chlorite	2253	2202	-	-	pervasive	SCA
11-3013-1554_2r1w	muscovite-il	-	-	-	-	halo	PH
11-3013-1554_2r2g	chlorite, illite-ms	2250	2205	-	-	pervasive	SCA
11-3013-1554_2r3w	muscovite-il	-	-	-	-	halo	PH
11-3013-1554_2r4w	muscovite-il	-	-	-	-	halo	PH
11-3013-1601_8r1w	illite-ms	-	2200	0.5	-	halo	PH
11-3013-1601_8r2w	muscovite-il	-	-	-	-	halo	PH
11-3013-1601_8r3w	muscovite-il	-	-	-	-	halo	PH
11-3013-1601_8r4	messy - illite-ms, chlorite, gyp	2255	2206	-	-	pervasive	SCA
11-3013-1646_8r1	chlorite (phlogopite?)	2250	-	-	-	pervasive	SCA
11-3013-1646_8r2	chlorite (phlogopite?)	2250	-	-	-	pervasive	SCA
11-3013-1646_8r3w	muscovite-il	-	-	-	-	halo	PH
11-3013-1646_8r4w	muscovite-il	-	-	-	-	halo	PH
11-3013-1714r1	illite-ms, anhydrite	-	2198	-	-	halo	PH
11-3013-1714r2	illite-ms, anhydrite	-	2200	-	-	halo	PH
11-3013-1714r3	chlorite, anhydrite, minimal illite-ms	2252	-	-	-	pervasive	SCA
11-3013-1715_5r1w	muscovite-il	-	-	-	-	halo	PH
11-3013-1715_5r2w	muscovite-il	-	-	-	-	halo	PH
11-3013-1734_8r1	muscovite-il	-	-	-	-	halo	PH
11-3013-1734_8r2	chlorite, anhydrite, minimal illite-ms	2251	2200	-	-	pervasive	SCA
11-3013-1734_8r3	muscovite-il	-	-	-	-	halo	PH
11-3013-1750_3r1w	muscovite-il	-	-	-	-	halo	PH
11-3013-1750_3r2w	muscovite-il	-	-	-	-	halo	PH
11-3013-1750_3r3w	muscovite-il	-	-	-	-	halo	PH
11-3013-1757_9r1	kaolinite	-	-	-	-	halo	AA
11-3013-1757_9r2	illite-ms	-	2205	0.9	-	halo	PH
11-3013-1757_9r3	illite-ms, chlorite	2251	2207	0.7	-	pervasive	SCA
11-3013-1789_8r1w	muscovite-il	-	-	-	-	halo	PH
11-3013-1789_8r2w	muscovite-il	-	-	-	-	halo	PH
11-3013-1789_8r3w	muscovite-il	-	-	-	-	halo	PH
11-3013-1789_8r4	illite-ms, chlorite	2251	2203	-	-	pervasive	PH
11-3013-1789_8r5	chlorite (biotite?)	2250	-	-	-	pervasive	SCA
11-3013-1795_7r1	muscovite-il, minimal anhydrite	-	-	-	-	halo	PH
11-3013-1795_7r2	muscovite-il, minimal anhydrite	-	2199	-	-	halo	PH
11-3013-1795_7r3	illite, minimal anhydrite	-	2199	-	-	halo	PH
11-3013-547_3r1	muscovite-il, anhydrite	-	2199	-	-	pervasive	PH
11-3013-547_3r2	muscovite-il, anhydrite	-	2199	-	-	pervasive	PH
11-3013-547_3r3	illite-ms, anhydrite	-	2200	-	-	pervasive	PH
11-3013-551_2r1	illite-ms, minimal anhydrite	-	2196	1.3	-	pervasive	PH
11-3013-551_2r2	illite-ms, anhydrite	-	2196	-	-	pervasive	PH
11-3013-551_2r3	illite-ms, anhydrite	-	2196	-	-	pervasive	PH
11-3013-557_2r1	illite-ms, anhydrite, chlorite	2248	2191	-	-	pervasive	SCA
11-3013-557_2r2	illite-ms, chlorite, anhydrite	2252	2188	0.6	-	pervasive	SCA
11-3013-557_2r3	illite-ms, chlorite, anhydrite	2249	2192	0.7	-	pervasive	SCA
11-3013-595_4r1	illite-ms, chlorite, anhydrite	2250	2195	-	-	pervasive	SCA
11-3013-595_4r2	illite-ms, anhydrite, minimal chlorite	-	2194	-	-	pervasive	SCA
11-3013-595_4r3	illite-ms, anhydrite, chlorite	2251	2195	0.7	-	pervasive	SCA
11-3013-607_6r1	pyrophyllite, anhydrite, minimal illite-ms	-	2193	-	-	pervasive	PH
11-3013-607_6r2	pyrophyllite, illite-ms (para), anhydrite	-	2194	0.9	-	pervasive	PH
11-3013-607_6r3	illite-ms, anhydrite, minimal pyrophyllite	-	2198	-	-	pervasive	PH
11-3029W1-1002_1r1	illite-ms, anhydrite	-	2194	-	-	halo	PH
11-3029W1-1002_1r2	illite-ms, anhydrite	-	2192	0.5	-	halo	PH
11-3029W1-1002_1r3	illite-ms, anhydrite (no characteristic bat wing)	-	2192	-	-	halo	PH
11-3029W1-1012_2r1	illite-ms, anhydrite	-	2196	-	-	pervasive	PH
11-3029W1-1012_2r2	illite-ms, anhydrite	-	2195	1.2	-	pervasive	PH
11-3029W1-1023r1	illite-ms, anhydrite	-	2201	-	-	halo	PH
11-3029W1-1023r2	illite-ms, minimal anhydrite	-	2202	1.1	-	halo	PH
11-3029W1-1023r3	messy - anhydrite, illite-ms, chlorite	2253	2204	-	-	pervasive	SCA
11-3029W1-1039_7r1	illite, minimal anhydrite	-	2197	1.3	-	halo	PH
11-3029W1-1039_7r2	illite, minimal anhydrite	-	2196	1.2	-	halo	PH
11-3029W1-1039_7r3	illite-ms, chlorite, anhydrite	2252	2207	-	-	pervasive	SCA
11-3029W1-1055_4r1	illite-ms, anhydrite	-	2200	-	-	halo	PH
11-3029W1-1055_4r2	illite-ms, anhydrite	-	2199	-	-	halo	PH
11-3029W1-1055_4r3	illite-ms, anhydrite, minimal chlorite	2250	2198	0.9	-	pervasive	SCA
11-3029W1-1095_2r1	illite-ms, anhydrite	-	2207	-	-	pervasive	PH
11-3029W1-1095_2r2	illite-ms, anhydrite	-	2204	-	-	pervasive	PH
11-3029W1-1095_2r3	illite-ms, anhydrite	-	2203	-	-	pervasive	PH
11-3029W1-1120r1	illite-ms, anhydrite, minimal chlorite	2260	2195	-	-	pervasive	SCA
11-3029W1-1120r2	illite-ms, anhydrite	-	2198	-	-	halo	PH
11-3029W1-450_9r1	pyrophyllite, diaspore, muscovite-il	-	-	-	-	pervasive	AA
11-3029W1-450_9r2	pyrophyllite, diaspore, minimal alunite	-	-	-	-	pervasive	AA
11-3029W1-450_9r3	pyrophyllite, kaolinite, minimal anhydrite	-	-	-	-	pervasive	AA

Sample ID/spot	Mineral ID	2250 position	2200 position	IC	1480 position	Alt style	Alter. Interp.
11-3029W1-470_9r1	pyrophyllite, muscovite-il	-	2200	2.3	-	pervasive	PH
11-3029W1-470_9r2	pyrophyllite, muscovite-il	-	2203	2.9	-	pervasive	PH
11-3029W1-470_9r3	pyrophyllite, muscovite (para)-il	-	2203	3.7	-	pervasive	PH
11-3029W1-491_7r1	muscovite, pyrophyllite	-	2200	3.5	-	pervasive	PH
11-3029W1-491_7r2	muscovite-il, minimal anhydrite	-	2199	-	-	pervasive	PH
11-3029W1-491_7r3	illite-ms, anhydrite, minimal pyrophyllite	-	2202	1.3	-	pervasive	PH
11-3029W1-496_1r1	illite-ms, chlorite, anhydrite	-	2193	-	-	pervasive	SCA
11-3029W1-496_1r2	illite-ms(para), chlorite, anhydrite	2255	2193	1.1	-	pervasive	SCA
11-3029W1-496_1r3	illite-ms, chlorite, anhydrite	-	2197	1.1	-	pervasive	SCA
11-3029W1-511_1r1	illite-ms, anhydrite	-	2196	-	-	pervasive	PH
11-3029W1-511_1r2	pyrophyllite, illite-ms, anhydrite	-	2201	-	-	pervasive	PH
11-3029W1-511_1r3	illite-ms, minimal chlorite	-	2204	1.6	-	pervasive	SCA
11-3029W1-511_1r4	illite-ms	-	2196	2.3	-	pervasive	PH
11-3029W1-512_9r1	illite-ms, minimal alunite?	-	2197	-	1484	pervasive	AA
11-3029W1-512_9r2	illite-ms, minimal alunite?	-	2196	-	1482	pervasive	AA
11-3029W1-512_9r3	illite-ms, minimal alunite?	-	2199	-	1485	pervasive	AA
11-3029W1-527_2r1	pyrophyllite, illite-ms	-	2185	1.0	-	pervasive	PH
11-3029W1-527_2r2	pyrophyllite, illite-ms, anhydrite	-	2205	-	-	pervasive	PH
11-3029W1-527_2r3	pyrophyllite, illite-ms, anhydrite	-	-	-	-	pervasive	PH
11-3029W1-540_6r1	pyrophyllite, illite-ms, anhydrite	-	2205	-	-	pervasive	PH
11-3029W1-540_6r2	pyrophyllite, illite-ms, minimal anhydrite	-	2203	-	-	pervasive	PH
11-3029W1-540_6r3	pyrophyllite, illite-ms, anhydrite	-	2206	-	-	pervasive	PH
11-3029W1-560_8r1	pyrophyllite, anhydrite	-	-	-	-	pervasive	PH
11-3029W1-560_8r2	pyrophyllite, minimal anhydrite	-	-	-	-	pervasive	PH
11-3029W1-560_8r3	pyrophyllite, anhydrite	-	-	-	-	pervasive	PH
11-3029W1-581_6r1	pyrophyllite, anhydrite	-	-	-	-	pervasive	PH
11-3029W1-581_6r2	pyrophyllite, anhydrite	-	-	-	-	pervasive	PH
11-3029W1-581_6r3	pyrophyllite, anhydrite	-	-	-	-	pervasive	PH
11-3029W1-581r1	pyrophyllite, anhydrite, minimal illite-ms	-	-	-	-	pervasive	PH
11-3029W1-581r2	pyrophyllite, anhydrite, minimal illite-ms	-	-	-	-	pervasive	PH
11-3029W1-581r3	pyrophyllite, anhydrite	-	-	-	-	pervasive	PH
11-3029W1-603_6r1	anhydrite, illite-ms	-	2195	-	-	pervasive	PH
11-3029W1-603_6r2	anhydrite, illite-ms	-	2202	-	-	pervasive	PH
11-3029W1-603_6r3	illite-ms, anhydrite	-	2198	-	-	halo	PH
11-3029W1-619r1	anhydrite, minimal illite-ms	-	2212	-	-	pervasive	PH
11-3029W1-619r2	anhydrite, illite-ms	-	2208	-	-	pervasive	PH
11-3029W1-619r3	anhydrite, illite-ms	-	2209	-	-	pervasive	PH
11-3029W1-635_5r1	anhydrite, illite-ms	-	2201	-	-	pervasive	PH
11-3029W1-635_5r2	anhydrite, illite-ms	-	2205	-	-	pervasive	PH
11-3029W1-635_5r3	anhydrite, illite-ms	-	2201	-	-	pervasive	PH
11-3029W1-656_3r1	illite-ms, anhydrite	-	2199	-	-	halo	PH
11-3029W1-656_3r2	illite-ms, minimal anhydrite	-	2200	1.5	-	halo	PH
11-3029W1-668_35r1	anhydrite, illite-ms	-	2195	-	-	halo	PH
11-3029W1-668_35r2	anhydrite, illite-ms	-	2197	-	-	halo	PH
11-3029W1-668_35r3	anhydrite, chlorite, illite-ms	2254	2207	-	-	pervasive	SCA
11-3029W1-685_7r1	pyrophyllite, anhydrite	-	-	-	-	pervasive	PH
11-3029W1-685_7r2	pyrophyllite, anhydrite	-	-	-	-	pervasive	PH
11-3029W1-685_7r3	pyrophyllite, anhydrite	-	-	-	-	pervasive	PH
11-3029W1-702_5r1	illite, anhydrite	-	2205	0.8	-	halo	PH
11-3029W1-702_5r2	illite	-	2203	1.5	-	halo	PH
11-3029W1-702_5r3	illite, chlorite, anhydrite	2253	2205	-	-	pervasive	SCA
11-3029W1-718_4r1	illite, minimal anhydrite	-	2197	1.2	-	halo	PH
11-3029W1-718_4r2	illite-ms, chlorite, anhydrite	2248	2205	0.8	-	pervasive	SCA
11-3029W1-718_4r3	illite-ms (para), minimal anhydrite	-	2195	-	-	halo	PH
11-3029W1-734_9r1	anhydrite	-	-	-	-	pervasive	-
11-3029W1-734_9r2	anhydrite	-	-	-	-	pervasive	-
11-3029W1-755_3r1	illite-ms (para), anhydrite	-	2192	0.8	-	pervasive	PH
11-3029W1-755_3r2	anhydrite, illite-ms (para)	-	2192	-	-	pervasive	PH
11-3029W1-759_5r1	anhydrite, illite-ms	-	2211	-	-	halo	PH
11-3029W1-759_5r2	illite-ms, anhydrite	-	2208	-	-	halo	PH
11-3029W1-759_5r3	anhydrite, illite-ms	-	2209	-	-	halo	PH
11-3029W1-771_9r1	anhydrite, illite-ms, minimal chlorite	-	2199	-	-	pervasive	SCA
11-3029W1-771_9r2	anhydrite, illite-ms, minimal chlorite	-	2202	-	-	pervasive	SCA
11-3029W1-772_7r1	anhydrite, chlorite	2247	-	-	-	pervasive	SCA
11-3029W1-772_7r2	anhydrite, minimal chlorite	2250	-	-	-	pervasive	SCA
11-3029W1-772_7r3	anhydrite, minimal chlorite	2250	-	-	-	pervasive	SCA
11-3029W1-797_3r1	illite, minimal anhydrite	-	2199	-	-	halo	PH
11-3029W1-797_3r2	illite, minimal anhydrite	-	2199	1.6	-	halo	PH
11-3029W1-797_3r3	anhydrite, chlorite, illite-ms	2254	2193	-	-	pervasive	SCA
11-3029W1-802r1	illite-ms (para), anhydrite	-	2192	-	-	halo	PH
11-3029W1-802r2	illite, anhydrite	-	2196	-	-	halo	PH
11-3029W1-802r3	illite, chlorite, anhydrite	2254	2197	-	-	pervasive	SCA
11-3029W1-823r1	anhydrite, chlotite, illite	-	2206	-	-	pervasive	SCA

Sample ID/spot	Mineral ID	2250 position	2200 position	IC	1480 position	Alt style	Alter. Interp.
11-3029W1-823r2	illite, anhydrite, chlorite	2251	2201	-	-	pervasive	SCA
11-3029W1-833_3r1	illite-ms (para), anhydrite	-	2194	-	-	pervasive	PH
11-3029W1-833_3r2	anhydrite, illite-ms (para)	-	2194	-	-	pervasive	PH
11-3029W1-843_4r1	illite-ms, anhydrite	-	2195	1.0	-	pervasive	PH
11-3029W1-843_4r2	illite-ms, anhydrite	-	2195	-	-	pervasive	PH
11-3029W1-843_4r3	illite-ms, anhydrite	-	2194	-	-	pervasive	PH
11-3029W1-844r1	illite-ms, anhydrite	-	2195	0.9	-	breccia clasts	PH
11-3029W1-844r2	illite-ms, anhydrite	-	2195	1.0	-	breccia clasts	PH
11-3029W1-844r3	illite-ms, anhydrite	-	2195	-	-	breccia clasts	PH
11-3029W1-844r4	illite-ms, anhydrite	-	2196	1.3	-	breccia clasts	PH
11-3029W1-861_6r1	illite-ms, minimal anhydrite	-	2197	-	-	pervasive	PH
11-3029W1-861_6r2	illite-ms, anhydrite	-	2199	-	-	pervasive	PH
11-3029W1-861_6r3	illite-ms, anhydrite	-	2199	-	-	pervasive	PH
11-3029W1-861_6r4	illite-ms, anhydrite	-	2197	-	-	pervasive	PH
11-3029W1-864_2r1	illite-ms, anhydrite	-	2197	-	-	pervasive	PH
11-3029W1-864_2r2	illite-ms, anhydrite	-	2197	-	-	pervasive	PH
11-3029W1-864_2r3	illite-ms, anhydrite	-	2197	-	-	pervasive	PH
11-3029W1-902_6r1	anhydrite, chlorite, minimal illite-ms	2256	2198	-	-	pervasive	SCA
11-3029W1-902_6r2	anhydrite, chlorite, minimal illite-ms	2255	2203	-	-	pervasive	SCA
11-3029W1-902_6r3	anhydrite, chlorite, minimal illite-ms	2248	2203	0.5	-	pervasive	SCA
11-3029W1-920_1r1	anhydrite, illite	-	2195	-	-	halo	PH
11-3029W1-920_1r2	illite-ms (para), anhydrite	-	2191	-	-	halo	PH
11-3029W1-920_1r3	illite-ms (para), anhydrite	-	2190	-	-	halo	PH
11-3029W1-943_6r1	illite	-	2197	0.9	-	pervasive	PH
11-3029W1-943_6r2	illite	-	2194	0.9	-	pervasive	PH
11-3029W1-943_6r3	anhydrite, chlorite, illite	2248	2199	0.5	-	pervasive	SCA
11-3029W1-959_6r1	illite, anhydrite, minimal chlorite	2252	2198	-	-	pervasive	SCA
11-3029W1-959_6r2	illite, anhydrite, minimal chlorite	2255	2200	1.2	-	pervasive	SCA
11-3029W1-959_6r3	illite, chlorite, anhydrite	2252	2199	1.2	-	pervasive	SCA
11-4002-1017_8r1	anhydrite, illite	-	2203	-	-	pervasive	PH
11-4002-1017_8r2	anhydrite, illite	-	2205	-	-	pervasive	PH
11-4002-1017_8r3	anhydrite, minimal illite	-	2204	-	-	pervasive	PH
11-4002-1053_1r1	illite, minimal anhydrite	-	2198	-	-	halo	PH
11-4002-1053_1r2	illite, minimal anhydrite	-	2195	-	-	halo	PH
11-4002-1053_1r3	illite, minimal anhydrite	-	2198	-	-	pervasive	PH
11-4002-1082_2r1	anhydrite, illite, minimal chlorite	2250	2205	-	-	pervasive	SCA
11-4002-1082_2r2	anhydrite, illite, chlorite	-	2204	-	-	pervasive	SCA
11-4002-1082_2r3	anhydrite, illite, chlorite	2250	2207	-	-	pervasive	SCA
11-4002-1104_5r1	illite, anhydrite	-	2195	-	-	pervasive	PH
11-4002-1104_5r2	illite, anhydrite	-	2194	-	-	pervasive	PH
11-4002-1104_5r3	illite, anhydrite	-	2195	-	-	pervasive	PH
11-4002-1134_6r1	illite, anhydrite	-	2189	-	-	halo	PH
11-4002-1134_6r2	illite, chlorite, anhydrite	2254	2193	0.8	-	pervasive	SCA
11-4002-1134_6r3	illite, chlorite	2250	2193	0.8	-	pervasive	SCA
11-4002-1158r1	messy - anhydrite, chlorite	2257	-	-	-	pervasive	SCA
11-4002-1158r2	anhydrite, chlorite	-	-	-	-	pervasive	SCA
11-4002-1158r3	chlorite, anhydrite, minimal illite	2248	2222	-	-	pervasive	SCA
11-4002-1197_8r1	chlorite, anhydrite	2250	-	-	-	pervasive	SCA
11-4002-1197_8r2	chlorite, anhydrite	2250	-	-	-	pervasive	SCA
11-4002-1197_8r3	anhydrite, chlorite, minimal illite	2252	2213	-	-	pervasive	SCA
11-4002-1233_9r1	illite	-	2198	1.2	-	halo	PH
11-4002-1233_9r2	illite	-	2196	1.4	-	halo	PH
11-4002-1233_9r3	illite	-	2195	1.1	-	halo	PH
11-4002-1253_5r1	opal, chlorite, illite	2251	2208	-	-	pervasive	SCA
11-4002-1253_5r2	opal, chlorite	2246	-	-	-	pervasive	SCA
11-4002-1253_5r3	illite	-	2198	1.9	-	halo	PH
11-4002-1277r1	anhydrite, chlorite	2253	-	-	-	pervasive	SCA
11-4002-1277r2	chlorite, anhydrite	2250	-	-	-	pervasive	SCA
11-4002-1277r3	chlorite, anhydrite	2250	-	-	-	pervasive	SCA
11-4002-1317_4r1	anhydrite, chlorite, illite	2251	2207	-	-	pervasive	SCA
11-4002-1317_4r2	anhydrite, illite, chlorite	2251	2207	-	-	pervasive	SCA
11-4002-1317_4r3	anhydrite, minimal illite	-	2208	-	-	pervasive	PH
11-4002-1335_8r1	anhydrite	-	-	-	-	pervasive	SCA
11-4002-1335_8r2	anhydrite	-	-	-	-	pervasive	SCA
11-4002-1335_8r3	anhydrite	-	-	-	-	pervasive	SCA
11-4002-1354_3r1	messy - anhydrite, chlorite	2262	-	-	-	pervasive	SCA
11-4002-1354_3r2	messy - anhydrite, chlorite	2254	-	-	-	pervasive	SCA
11-4002-1354_3r3	messy - anhydrite, chlorite	2256	-	-	-	pervasive	SCA
11-4002-1382_8r1	illite, chlorite	2250	2199	0.7	-	pervasive	SCA
11-4002-1382_8r2	illite, anhydrite	-	2200	-	-	halo	PH
11-4002-1382_8r3	illite, minimal anhydrite	-	2198	0.9	-	pervasive	PH
11-4002-758_3r1	anhydrite	-	-	-	-	pervasive	PH
11-4002-758_3r2	illite, anhydrite	-	2194	-	-	pervasive	PH

Sample ID/spot	Mineral ID	2250 position	2200 position	IC	1480 position	Alt style	Alter. Interp.
11-4002-758_3r3	illite, anhydrite	-	2194	-	-	pervasive	PH
11-4002-777_3r1	illite, anhydrite	-	2194	-	-	pervasive	PH
11-4002-777_3r2	illite, anhydrite	-	2194	-	-	pervasive	PH
11-4002-777_3r3	illite, anhydrite	-	2194	-	-	pervasive	PH
11-4002-810_4r1	anhydrite, minimal illite	-	2191	-	-	pervasive	PH
11-4002-810_4r2	anhydrite, minimal illite	-	2190	-	-	pervasive	PH
11-4002-810_4r3	anhydrite, illite, chlorite	2259	2198	-	-	pervasive	SCA
11-4002-830_2r1	anhydrite, illite, chlorite	2251	2190	-	-	pervasive	SCA
11-4002-830_2r2	illite, anhydrite	-	2197	-	-	pervasive	PH
11-4002-830_2r3	anhydrite, illite, chlorite	2250	2189	-	-	pervasive	SCA
11-4002-857_2r1	illite, chlorite, anhydrite	2250	2193	-	-	breccia matrix	SCA
11-4002-857_2r2	illite, minimal anhydrite	-	2196	-	-	breccia clast	PH
11-4002-857_2r3	illite, anhydrite, minimal chlorite	-	2195	-	-	breccia matrix	SCA
11-4002-876_1r1	illite, anhydrite, minimal chlorite	2251	2197	-	-	pervasive	SCA
11-4002-876_1r2	illite, anhydrite, chlorite	2251	2198	-	-	pervasive	SCA
11-4002-876_1r3	illite, anhydrite, chlorite	2253	2194	-	-	pervasive	SCA
11-4002-897_4r1	illite, anhydrite	-	2197	-	-	pervasive	PH
11-4002-897_4r2	illite, chlorite, anhydrite	2251	2193	-	-	pervasive	SCA
11-4002-897_4r3	illite, anhydrite	-	2196	-	-	pervasive	PH
11-4002-920_1r1	anhydrite, illite, chlorite	2248	2199	-	-	pervasive	SCA
11-4002-920_1r2	anhydrite, illite	-	2199	-	-	pervasive	PH
11-4002-920_1r3	illite, anhydrite, minimal chlorite	2250	2199	-	-	pervasive	SCA
11-4002-940_6r1	illite, anhydrite	-	2200	-	-	pervasive	PH
11-4002-940_6r2	illite, anhydrite	-	2199	-	-	pervasive	PH
11-4002-940_6r3	illite, anhydrite	-	2201	-	-	pervasive	PH
11-4002-966_7r1	illite, anhydrite	-	2196	-	-	pervasive	PH
11-4002-966_7r2	illite, anhydrite	-	2196	-	-	pervasive	PH
11-4002-966_7r3	illite, anhydrite	-	2198	-	-	pervasive	PH
11-4002-994_3r1	illite, anhydrite	-	2203	-	-	pervasive	PH
11-4002-994_3r2	anhydrite, illite	-	2201	-	-	pervasive	PH
11-4002-994_3r3	anhydrite, illite, chlorite	2254	2205	-	-	pervasive	SCA
11-4008-1035_9r1	illite, anhydrite	-	2195	1.0	-	pervasive	PH
11-4008-1035_9r2	illite, anhydrite	-	2197	-	-	pervasive	PH
11-4008-1035_9r3	illite, anhydrite	-	2195	1.0	-	pervasive	PH
11-4008-1060_2r1	illite, anhydrite	-	2196	-	-	pervasive	PH
11-4008-1060_2r2	illite, anhydrite	-	2198	1.1	-	pervasive	PH
11-4008-1060_2r3	illite, anhydrite	-	2195	-	-	pervasive	PH
11-4008-1103_8r1	illite, minimal anhydrite, minimal chlorite	2246	2197	-	-	pervasive	SCA
11-4008-1103_8r2	illite, chlorite, anhydrite	2249	2197	-	-	pervasive	SCA
11-4008-1103_8r3	illite, minimal anhydrite	-	2196	2.1	-	pervasive	PH
11-4008-937_8r1	illite, anhydrite	-	2205	1.1	-	pervasive	PH
11-4008-937_8r2	illite, anhydrite	-	2205	-	-	pervasive	PH
11-4008-937_8r3	illite, anhydrite	-	2207	1.1	-	pervasive	PH
11-4008-951_2r1	illite, anhydrite	-	2196	1.1	-	pervasive	PH
11-4008-951_2r2	illite, anhydrite	-	2194	-	-	pervasive	PH
11-4008-951_2r3	illite, anhydrite	-	2194	0.8	-	pervasive	PH
11-4008-973r1	illite, anhydrite, chlorite	2250	2198	-	-	pervasive	SCA
11-4008-973r2	illite, anhydrite	-	2197	-	-	pervasive	PH
11-4008-973r3	illite, anhydrite	-	2198	0.6	-	pervasive	PH
11-4008-993_5r1	illite, anhydrite	-	2195	-	-	pervasive	PH
11-4008-993_5r2	illite, anhydrite, minimal chlorite	2252	2196	-	-	pervasive	SCA
11-4008-993_5r3	illite (para), anhydrite	-	2193	-	-	pervasive	PH
11-4021W1-1011_5r1	chlorite, anhydrite, illite-ms	2251	-	-	-	pervasive	SCA
11-4021W1-1011_5r2	messy - chlorite, anhydrite	2253	-	-	-	pervasive	SCA
11-4021W1-1029_7r1	chlorite, anhydrite (biotite?)	2252	-	-	-	pervasive	SCA
11-4021W1-1029_7r2	chlorite, anhydrite	2250	-	-	-	pervasive	SCA
11-4021W1-1055_5r1	chlorite, anhydrite	2250	-	-	-	pervasive	SCA
11-4021W1-1055_5r2	chlorite, illite-ms, anhydrite	2257	2199	-	-	pervasive	SCA
11-4021W1-1074_6r1	chlorite, minimal anhydrite	2252	-	-	-	pervasive	SCA
11-4021W1-1074_6r2	messy - anhydrite...	-	-	-	-	pervasive	-
11-4021W1-1092_9r1	anhydrite, chlorite	2257	-	-	-	pervasive	SCA
11-4021W1-1092_9r2	chlorite, anhydrite, illite-ms	2250	2212	-	-	pervasive	SCA
11-4021W1-1111r1	messy - biotite	-	-	-	-	pervasive	K
11-4021W1-1111r2	messy - biotite	-	-	-	-	pervasive	K
11-4021W1-1131_2r1	messy - biotite	-	-	-	-	pervasive	K
11-4021W1-1131_2r2	messy - biotite	-	-	-	-	pervasive	K
11-4021W1-1151_3r1	messy	-	-	-	-	pervasive	-
11-4021W1-1151_3r2	messy - anhydrite, illite, chlorite	2249	2194	-	-	pervasive	SCA
11-4021W1-1173_3r1	messy - biotite	-	-	-	-	pervasive	K
11-4021W1-1173_3r2	messy - biotite	-	-	-	-	pervasive	K
11-4021W1-1193_9r1	messy - biotite	-	-	-	-	pervasive	K
11-4021W1-1193_9r2	messy - biotite	-	-	-	-	pervasive	K
11-4021W1-400_4r1	illite-ms	-	2198	2.5	-	pervasive	PH

Sample ID/spot	Mineral ID	2250 position	2200 position	IC	1480 position	Alt style	Alter. Interp.
11-4021W1-400_4r2	muscovite	-	2197	2.6	-	pervasive	PH
11-4021W1-421r1	anhydrite, kaolinite OR pyrophyllite, illite	-	2208	-	-	pervasive	AA
11-4021W1-421r2	pyrophyllite, illite-ms (para), anhydrite	-	2194	1.3	-	pervasive	PH
11-4021W1-421r3	anhydrite, illite-ms, minimal pyrophyllite	-	2205	-	-	pervasive	PH
11-4021W1-444_6r1	pyrophyllite, illite-ms, anhydrite	-	2197	-	-	pervasive	PH
11-4021W1-444_6r2	pyrophyllite, anhydrite, illite-ms, diaspore	-	2193	-	-	pervasive	AA
11-4021W1-444_6r3	pyrophyllite, diaspore, anhydrite, minimal illite-ms	-	-	-	-	pervasive	AA
11-4021W1-466_6r1	pyrophyllite, illite-ms, diaspore, minimal anhydrite	-	2195	1.4	-	pervasive	AA
11-4021W1-466_6r2	illite-ms, pyrophyllite, anhydrite	-	2198	1.1	-	pervasive	PH
11-4021W1-486_7r1	pyrophyllite, anhydrite, illite-ms, minimal diaspore	-	-	-	-	pervasive	AA
11-4021W1-486_7r2	alunite, pyrophyllite, illite-ms, anhydrite	-	2185	1.1	1484	pervasive	AA
11-4021W1-503_6r1	pyrophyllite, diaspore	-	-	-	-	pervasive	AA
11-4021W1-503_6r2	pyrophyllite, diaspore, anhydrite	-	-	-	-	pervasive	AA
11-4021W1-503_6r3	pyrophyllite, diaspore, minimal anhydrite	-	-	-	-	pervasive	AA
11-4021W1-524_3r1	pyrophyllite, minimal anhydrite	-	-	-	-	pervasive	PH
11-4021W1-524_3r2	pyrophyllite, illite-ms, anhydrite	-	2196	1.7	-	pervasive	PH
11-4021W1-544_1r1	muscovite-il, minimal pyrophyllite, minimal anhydrite	-	2200	2.2	-	pervasive	PH
11-4021W1-544_1r2	illite-ms, pyrophyllite, anhydrite	-	2204	1.5	-	pervasive	PH
11-4021W1-565r1	illite-ms, chlorite	-	2193	1.3	-	pervasive	SCA
11-4021W1-565r2	illite-ms	-	2199	1.8	-	pervasive	PH
11-4021W1-582_5r1	illite-ms (para), minimal pyrophyllite, minimal anhydrite	-	2189	-	-	pervasive	PH
11-4021W1-582_5r2	illite-ms (para), minimal pyrophyllite, minimal anhydrite	-	2192	1.2	-	pervasive	PH
11-4021W1-582_5r3	illite-ms (para), pyrophyllite, minimal anhydrite	-	2190	1.1	-	pervasive	PH
11-4021W1-584_9r1	illite-ms, minimal chlorite	2249	2193	1.2	-	pervasive	SCA
11-4021W1-584_9r2	illite-ms, minimal chlorite	-	2191	1.2	-	pervasive	SCA
11-4021W1-594r1	pyrophyllite, anhydrite, minimal illite-ms (para)	-	2185	-	-	pervasive	PH
11-4021W1-594r2	pyrophyllite, anhydrite, minimal illite-ms (para)	-	-	-	-	pervasive	PH
11-4021W1-594r3	pyrophyllite, illite-ms (para), anhydrite	-	2194	-	-	pervasive	PH
11-4021W1-608_3r1	illite-ms, anhydrite	-	2197	-	-	pervasive	PH
11-4021W1-608_3r2	illite-ms, anhydrite	-	2196	-	-	pervasive	PH
11-4021W1-628_6r1	illite-ms, chlorite	2252	2202	0.6	-	pervasive	SCA
11-4021W1-628_6r2	illite-ms, chlorite	2260	2202	-	-	pervasive	SCA
11-4021W1-649_4r1	chlorite, illite-ms, anhydrite	2249	2212	-	-	pervasive	SCA
11-4021W1-649_4r2	chlorite, illite-ms, anhydrite	2249	2201	-	-	pervasive	SCA
11-4021W1-665_5r1	anhydrite, illite-ms	-	2206	-	-	pervasive	PH
11-4021W1-665_5r2	illite-ms, anhydrite	-	2204	-	-	halo	PH
11-4021W1-685r1	chlorite, illite-ms, anhydrite	2251	2206	0.7	-	pervasive	SCA
11-4021W1-685r2	illite-ms, chlorite, anhydrite	2259	2207	0.5	-	pervasive	SCA
11-4021W1-704_2r1	chlorite, anhydrite	2252	-	-	-	pervasive	SCA
11-4021W1-704_2r2	chlorite, anhydrite	2254	-	-	-	pervasive	SCA
11-4021W1-728_4r1	chlorite, anhydrite	2251	-	-	-	pervasive	SCA
11-4021W1-750_4r1	illite-ms	-	2197	1.7	-	halo	PH
11-4021W1-750_4r2	illite-ms, anhydrite, chlorite	2258	2196	-	-	pervasive	SCA
11-4021W1-772_1r1	illite-ms, chlorite, anhydrite	2252	2203	0.8	-	pervasive	SCA
11-4021W1-772_1r2	anhydrite, illite-ms, chlorite	2250	2205	-	-	pervasive	SCA
11-4021W1-795_4r1	anhydrite, chlorite	2259	-	-	-	pervasive	SCA
11-4021W1-795_4r2	anhydrite, illite-ms	-	2206	-	-	pervasive	PH
11-4021W1-815_8r1	illite-ms, anhydrite	-	2195	-	-	pervasive	PH
11-4021W1-815_8r2	illite-ms, anhydrite	-	2196	-	-	pervasive	PH
11-4021W1-836_9r1	pyrophyllite, minimal illite-ms (para), anhydrite	-	2185	-	-	pervasive	PH
11-4021W1-836_9r2	pyrophyllite, minimal illite-ms (para), anhydrite	-	-	-	-	pervasive	PH
11-4021W1-860_8r1	illite-ms, chlorite, anhydrite	2253	2199	0.5	-	pervasive	SCA
11-4021W1-882_6r1	anhydrite, minimal illite-ms	-	2199	-	-	pervasive	PH
11-4021W1-882_6r2	illite-ms, anhydrite, chlorite	2257	2198	-	-	pervasive	SCA
11-4021W1-905_5r1	pyrophyllite, minimal anhydrite	-	-	-	-	pervasive	PH
11-4021W1-905_5r2	pyrophyllite	-	-	-	-	pervasive	PH
11-4021W1-905_5r3	pyrophyllite, minimal anhydrite	-	-	-	-	pervasive	PH
11-4021W1-930_4r1	illite-ms (para), anhydrite	-	2190	-	-	pervasive	PH
11-4021W1-930_4r2	illite-ms (para), anhydrite, minimal pyrophyllite	-	2191	-	-	pervasive	PH
11-4021W1-930_4r3	illite-ms (para), anhydrite	-	2190	-	-	pervasive	PH
11-4021W1-950_9r1	illite-ms, anhydrite	-	2201	-	-	halo	PH
11-4021W1-950_9r2	illite-ms, chlorite	2253	2199	1.0	-	pervasive	SCA
11-4021W1-971_4r1	anhydrite, chlorite, illite-ms	2252	2213	-	-	pervasive	SCA
11-4021W1-971_4r2	anhydrite, chlorite, minimal illite-ms	2255	2212	-	-	pervasive	SCA
11-4021W1-990_8r1	chlorite, anhydrite, illite-ms	2250	2207	-	-	pervasive	SCA
11-4021W1-990_8r2	illite-ms, anhydrite	-	2209	-	-	halo	PH
11-5003WI-0314r1	pyrophyllite, muscovite-il	-	2187	1.1	-	halo	AA
11-5003WI-0401_4r1w	pyrophyllite, (minimal muscovite-il)	-	2186	1.7	-	pervasive	AA
11-5003WI-0401_4r2w	pyrophyllite, paragonite, (muscovite-il?)	-	2193	2.2	-	pervasive	AA
11-5003WI-0418_2r1	pyrophyllite, paragonite, (muscovite-il?)	-	2195	-	-	pervasive	AA

Sample ID/spot	Mineral ID	2250 position	2200 position	IC	1480 position	Alt style	Alter. Interp.
11-5003WI-0418_22r2	pyrophyllite, potential gysum and alunite	-	-	-	1476	pervasive	AA
11-5003WI-0418_22r3	pyrophyllite, paragonite, (muscovite-il?)	-	2195	2.2	-	pervasive	AA
11-5003WI-0428_4r1	pyrophyllite, alunite	-	-	-	1482	pervasive	AA
11-5003WI-0428_4r2	pyrophyllite, alunite	-	-	-	1484	pervasive	AA
11-5003WI-0428_4r3	pyrophyllite, alunite, (potential anhydrite)	-	-	-	1483	pervasive	AA
11-5003WI-0428_4r4	alunite (Na)	-	-	-	1485	pervasive	AA
11-5003WI-0449_8r1	paragonite, (minimal pyrophyllite)	-	-	-	-	pervasive	AA
11-5003WI-0449_8r2	pyrophyllite, paragonite, (muscovite-il?), minimal alunite	-	2196	2.4	1482	pervasive	AA
11-5003WI-0450r1	diaspore, pyrophyllite, (minimal alunite?)	-	-	-	1470	pervasive	AA
11-5003WI-0450r2	paragonite	-	-	-	-	pervasive	PH
11-5003WI-0450r3	paragonite, pyrophyllite, minimal diaspore	-	-	-	-	pervasive	AA
11-5003WI-0474_2r1	pyrophyllite, minimal paragonite, possible diaspore	-	-	-	-	pervasive	AA
11-5003WI-0474_2r2	pyrophyllite, possible paragonite, alunite, anhydrite	-	-	-	1483	pervasive	AA
11-5003WI-0474_2r3	pyrophyllite, diaspore	-	-	-	-	pervasive	AA
11-5003WI-0525r1	pyrophyllite, muscovite-il	-	2197	-	-	pervasive	PH
11-5003WI-0525r3	muscovite-il	-	2199	3.3	-	pervasive	PH
11-5003WI-0547_0r1g	chlorite, illite-ms (paragonite?)	2253	2193	1.0	-	pervasive	SCA
11-5003WI-0547_0r2w	illite-ms	-	2196	1.3	-	halo	PH
11-5003WI-0547_0r3w	illite-ms	-	2195	1.2	-	halo	PH
11-5003WI-0547_2r1g	messy - muscovite-il, chlorite	-	2200	1.9	-	pervasive	SCA
11-5003WI-0547_2r2g	messy - illite-ms, chlorite	2252	2199	0.7	-	pervasive	SCA
11-5003WI-0547_2r3	messy - illite-ms, chlorite	2256	2205	1.1	-	pervasive	SCA
11-5003WI-0593_4r1	chlorite, illite-ms	2251	2196	-	-	pervasive	SCA
11-5003WI-0593_4r2	chlorite, illite-ms	2247	2201	0.7	-	pervasive	SCA
11-5003WI-0593_4r3	chlorite, illite-ms	2248	2204	0.5	-	pervasive	SCA
11-5003WI-0650_7r1w	muscovite-il	-	2206	1.5	-	halo	PH
11-5003WI-0650_7r2w	muscovite-il	-	2204	1.4	-	halo	PH
11-5003WI-0650_7r3g	muscovite-il, chlorite	2252	2211	1.4	-	pervasive	SCA
11-5003WI-0700_5r1w	muscovite-il	-	2195	2.6	-	halo	PH
11-5003WI-0700_5r2w	muscovite-il	-	2195	2.5	-	halo	PH
11-5003WI-0700_5r3	muscovite-il, minimal chlorite	-	2203	1.3	-	pervasive	SCA
11-5003WI-0755r1w	messy - illite-ms	-	2208	-	-	halo	PH
11-5003WI-0755r2g	chlorite, minimal illite-ms	2252	2215	-	-	pervasive	SCA
11-5003WI-0755r3	illite-ms, minimal chlorite	-	2204	-	-	halo	SCA
11-5003WI-0755r4w	muscovite-il	-	2207	1.8	-	halo	PH
11-5003WI-0812_6r1w	messy - muscovite-il	-	2201	1.4	-	halo	PH
11-5003WI-0812_6r2g	muscovite-il, chlorite	2251	2203	1.3	-	pervasive	SCA
11-5003WI-0812_6r3w	muscovite-il, minimal chlorite	2249	2200	1.7	-	pervasive	SCA
11-5003WI-0812_6r4w	muscovite-il	-	2203	-	-	halo	PH
11-5003WI-0854_7r1w	muscovite-il	-	2202	1.7	-	halo	PH
11-5003WI-0854_7r2g	messy - illite-ms, chlorite?	2257	2205	0.5	-	pervasive	SCA
11-5003WI-0854_7r3g	illite-ms, chlorite	2252	2203	0.9	-	pervasive	SCA
11-5003WI-0854_7r4w	muscovite-il	-	2203	1.5	-	halo	PH
11-5003WI-0914r1w	muscovite-il	-	2200	-	-	halo	PH
11-5003WI-0914r2w	muscovite-il	-	2199	2.5	-	halo	PH
11-5003WI-0914r3g	messy - illite-ms, chorite	-	2211	-	-	pervasive	SCA
11-5003WI-0950_5r1g	messy - chlorite	2252	-	-	-	pervasive	SCA
11-5003WI-0950_5r2	illite-ms, minimal chlorite	-	2206	-	-	pervasive	SCA
11-5003WI-0950_5r3	illite-ms, chlorite	2251	2206	0.8	-	pervasive	SCA
11-5003WI-1000r1w	muscovite-il	-	2204	1.9	-	halo	PH
11-5003WI-1000r2w	muscovite-il	-	2202	2.1	-	halo	PH
11-5003WI-1000r3	messy - muscovite-il, chlorite	2253	2209	0.7	-	pervasive	SCA
11-5003WI-1050r1w	muscovite-il, minimal anhydrite	-	2200	-	-	halo	PH
11-5003WI-1050r2g	muscovite-il, chlorite	2251	2206	0.8	-	pervasive	SCA
11-5003WI-1050r3g	muscovite-il, chlorite	2251	2206	0.7	-	pervasive	SCA
11-5003WI-1050r4w	muscovite-il, possible anhydrite	-	2201	-	-	halo	PH
11-5003WI-1112r1w	muscovite-il	-	2197	1.8	-	halo	PH
11-5003WI-1112r2w	muscovite-il	-	2197	1.7	-	halo	PH
11-5003WI-1112r3g	messy - chlorite	2252	-	-	-	pervasive	SCA
11-5003WI-1201_4r1w	muscovite-il, minimal chlorite	-	2202	1.1	-	halo	SCA
11-5003WI-1201_4r2w	muscovite-il, minimal chlorite	2247	2202	1.0	-	halo	SCA
11-5003WI-1201_4r3g	messy - chlorite, muscovite-il	2250	2206	0.4	-	pervasive	SCA
11-5003WI-1201_4r4g	messy - chlorite, muscovite-il	2253	2206	-	-	pervasive	SCA
11-5003WI-1252_5r1	muscovite-il, chlorite, possible anhydrite	2252	2204	0.6	-	pervasive	SCA
11-5003WI-1252_5r2w	muscovite-il, minimal chlorite	2250	2205	1.5	-	halo	SCA
11-5003WI-1252_5r3w	muscovite-il	-	2205	1.5	-	halo	PH
11-5003WI-1252_5r4g	muscovite-il, chlorite	2252	2202	0.8	-	pervasive	SCA
11-5003WI-1302_5r1	biotite, chlorite	2254	-	-	-	pervasive	K
11-5003WI-1302_5r2w	muscovite-il	-	2197	1.4	-	halo	PH
11-5003WI-1302_5r3w	muscovite-il	-	2197	1.4	-	halo	PH
11-5003WI-1355_1r1w	muscovite-il	-	2200	1.5	-	halo	PH

Sample ID/spot	Mineral ID	2250 position	2200 position	IC	1480 position	Alt style	Alter. Interp.
11-5003WI-1355_1r2w	messy - muscovite-il	-	2197	1.3	-	halo	PH
11-5003WI-1355_1r3	phlogopite, biotite?	-	-	-	-	pervasive	K
11-5010-0924_4r1w	muscovite-il	-	2197	-	-	halo	PH
11-5010-0924_4r2w	muscovite-il	-	2197	2.3	-	halo	PH
11-5010-0924_4r3g	muscovite-il, chlorite, possible anhydrite	2248	2204	1.3	-	pervasive	SCA
11-5010-0966_1r1w	paragonite, muscovite-il	-	2193	1.3	-	halo	PH
11-5010-0966_1r2w	paragonite, muscovite-il	-	2194	1.4	-	halo	PH
11-5010-0966_1r3g	muscovite-il, chlorite	2252	2198	-	-	pervasive	SCA
11-5010-0966_1r4g	muscovite-il, chlorite	2253	2199	-	-	pervasive	SCA
11-5010-1000_3r1	anhydrite, illite	-	2195	-	-	pervasive	PH
11-5010-1000_3r2	anhydrite, illite	-	2194	-	-	pervasive	PH
11-5010-1000_3r3	anhydrite, illite	-	2197	-	-	pervasive	PH
11-5010-1003_2b1w	muscovite-il	-	2199	-	-	halo	PH
11-5010-1003_2b2g	muscovite-il, chlorite	2253	2203	1.2	-	pervasive	SCA
11-5010-1021_7r1	illite, anhydrite, chlorite	2250	2205	-	-	pervasive	SCA
11-5010-1021_7r2	anhydrite, illite	-	2205	-	-	halo	PH
11-5010-1021_7r3	illite, anhydrite	-	2202	-	-	halo	PH
11-5010-1047_8r1	illite, minimal anhydrite	-	2196	1.4	-	halo	PH
11-5010-1047_8r2	illite, anhydrite	-	2197	-	-	halo	PH
11-5010-1047_8r3	illite, minimal anhydrite	-	2196	1.8	-	halo	PH
11-5010-1065r1	chlorite, anhydrite	2251	-	-	-	pervasive	SCA
11-5010-1065r2	anhydrite, minimal chlorite	2253	-	-	-	pervasive	SCA
11-5010-1065r3	chlorite, anhydrite	2252	-	-	-	pervasive	SCA
11-5010-1094_9r1	illite-ms (para), anhydrite	-	2192	-	-	halo	PH
11-5010-1094_9r2	illite, chlorite, anhydrite	2255	2196	-	-	pervasive	SCA
11-5010-1094_9r3	illite-ms (para), minimal anhydrite	-	2193	1.1	-	halo	PH
11-5010-1120_4r1	illite, anhydrite	-	2197	-	-	pervasive	PH
11-5010-1120_4r2	anhydrite, illite	-	2196	-	-	pervasive	PH
11-5010-1120_4r3	illite, anhydrite	-	2196	-	-	pervasive	PH
11-5010-1149_8r1	anhydrite, illite-ms (para)	-	2189	-	-	halo	PH
11-5010-1149_8r2	anhydrite, illite-ms (para)	-	2188	-	-	halo	PH
11-5010-1149_8r3	anhydrite, illite	-	2194	-	-	halo	PH
11-5010-1163_5r1	anhydrite, chlorite, minimal illite	2250	2209	-	-	pervasive	SCA
11-5010-1163_5r2	anhydrite, chlorite, minimal illite	2254	2208	-	-	pervasive	SCA
11-5010-1173r1	illite, anhydrite, minimal chlorite	2247	2201	1.0	-	pervasive	SCA
11-5010-1173r2	illite, chlorite, anhydrite	2252	2201	0.7	-	pervasive	SCA
11-5010-1173r3	illite, chlorite, anhydrite	2251	2203	-	-	pervasive	SCA
11-5010-1209_1r1	illite	-	2202	1.7	-	halo	PH
11-5010-1209_1r2	illite, chlorite	2252	2204	1.4	-	pervasive	SCA
11-5010-1209_1r3	illite	-	2200	3.2	-	halo	PH
11-5010-1236r1	illite-ms (para), minimal anhydrite	-	2194	-	-	halo	PH
11-5010-1236r2	illite, chlorite, anhydrite	2255	2195	1.0	-	pervasive	SCA
11-5010-1236r3	illite-ms (para)	-	2194	2.1	-	halo	PH
11-5010-1256_7r1	illite, anhydrite	-	2197	-	-	halo	PH
11-5010-1256_7r2	illite, anhydrite	-	2197	1.4	-	halo	PH
11-5010-1256_7r3	illite, anhydrite	-	2199	-	-	halo	PH
11-5010-1282_6r1	chlorite, anhydrite	2253	-	-	-	pervasive	SCA
11-5010-1282_6r2	chlorite, anhydrite	-	-	-	-	pervasive	SCA
11-5010-1282_6r3	chlorite, anhydrite	2252	-	-	-	pervasive	SCA
11-5010-1311_3r1	illite	-	2198	2.7	-	halo	PH
11-5010-1311_3r2	illite	-	2200	1.4	-	halo	PH
11-5010-1311_3r3	illite, chlorite	2251	2203	0.6	-	pervasive	SCA
11-5010-1346_9r1	kaolinite	-	-	-	-	pervasive	AA
11-5010-1346_9r2	kaolinite	-	-	-	-	pervasive	AA
11-5010-1346_9r3	kaolinite	-	-	-	-	pervasive	AA
11-5010-1364_8r1	illite	-	2197	1.8	-	halo	PH
11-5010-1364_8r2	chlorite, anhydrite	2252	-	-	-	pervasive	SCA
11-5010-1364_8r3	illite	-	2196	2.2	-	halo	PH
11-5010-1390_9r1	chlorite, anhydrite	2251	-	-	-	pervasive	SCA
11-5010-1390_9r2	chlorite, anhydrite	2254	-	-	-	pervasive	SCA
11-5010-1390_9r3	chlorite, anhydrite	2256	-	-	-	pervasive	SCA
11-5010-1400_8r1w	muscovite-il	-	2205	0.9	-	halo	PH
11-5010-1400_8r2w	muscovite-il	-	2199	1.0	-	halo	PH
11-5010-1400_8r3	muscovite-il, chlorite	2247	2205	0.5	-	pervasive	SCA
11-5010-1400_8r4	chlorite, muscovite-il, anhydrite	2250	2207	-	-	pervasive	SCA
11-5010-1421_5r1	illite, anhydrite	-	2196	-	-	halo	PH
11-5010-1421_5r2	biotite, anhydrite	-	-	-	-	pervasive	K
11-5010-1421_5r3	chlorite, anhydrite	2250	-	-	-	pervasive	SCA
11-5010-1450_5r1	illite, anhydrite	-	2198	-	-	halo	PH
11-5010-1450_5r2	biotite, anhydrite	-	-	-	-	pervasive	K
11-5010-1450_5r3	anhydrite, chlorite, minimal illite	2251	2211	-	-	pervasive	SCA
11-5010-1469_9r1	biotite, anhydrite	-	-	-	-	pervasive	K

Sample ID/spot	Mineral ID	2250 position	2200 position	IC	1480 position	Alt style	Alter. Interp.
11-5010-1469_9r2	biotite, anhydrite	-	-	-	-	pervasive	K
11-5010-1469_9r3	biotite, anhydrite, minimal illite (para)	-	2193	-	-	pervasive	K
11-5010-1494_9r1	chlorite, anhydrite	2251	-	-	-	pervasive	SCA
11-5010-1494_9r2	chlorite, minimal illite	2251	-	-	-	pervasive	SCA
11-5010-1494_9r3	chlorite, minimal illite	2252	2185	-	-	pervasive	SCA
11-5010-1527_5r1	biotite, anhydrite	-	-	-	-	pervasive	K
11-5010-1527_5r2	biotite, anhydrite	-	-	-	-	pervasive	K
11-5010-1527_5r3	biotite, anhydrite	-	-	-	-	pervasive	K
11-5010-1544_7r1	anhydrite, biotite	-	-	-	-	pervasive	K
11-5010-1544_7r2	anhydrite, biotite	-	-	-	-	pervasive	K
11-5010-1544_7r3	anhydrite, minimal biotite	-	-	-	-	pervasive	K
11-5010-1560_9r1	anhydrite, biotite	-	-	-	-	pervasive	K
11-5010-1560_9r2	biotite, anhydrite	-	-	-	-	pervasive	K
11-5010-1560_9r3	chlorite, anhydrite	2252	-	-	-	pervasive	SCA
11-5010-1583_5r1	chlorite, minimal illite, water	2250	2203	-	-	pervasive	SCA
11-5010-1583_5r2	chlorite, anhydrite	2252	-	-	-	pervasive	SCA
11-5010-1583_5r3	chlorite, anhydrite	2254	-	-	-	pervasive	SCA
11-5010-1599_2r1w	muscovite-il	-	2195	2.3	-	halo	PH
11-5010-1599_2r2w	muscovite-il, chlorite	2249	2196	-	-	halo	SCA
11-5010-1599_2r3	chlorite, possible anhydrite	2252	-	-	-	pervasive	SCA
11-5010-1600_9r1	illite	-	2197	1.8	-	halo	PH
11-5010-1600_9r2	illite	-	2196	1.7	-	halo	PH
11-5010-1600_9r3	chlorite, anhydrite	2251	-	-	-	pervasive	SCA
11-5010-1624_5r1	illite, chlorite, anhydrite	2250	2204	0.7	-	halo	SCA
11-5010-1624_5r2	illite, minimal chlorite	2249	2203	1.0	-	pervasive	SCA
11-5010-1624_5r3	chlorite	2251	-	-	-	pervasive	SCA
11-5010-1640_8r1	chlorite, anhydrite, minimal illite	2249	2207	-	-	pervasive	SCA
11-5010-1640_8r2	illite, anhydrite	-	2199	1.0	-	halo	PH
11-5010-1640_8r3	anhydrite, biotite	-	-	-	-	pervasive	K
11-5010-1652_3r1g	chlorite, muscovite-il, possible anhydrite	2252	2205	-	-	pervasive	SCA
11-5010-1652_3r2w	muscovite-il	-	2197	2.1	-	halo	PH
11-5010-1652_3r3w	muscovite-il	-	2197	2.7	-	halo	PH
11-5010-1667_1r1	illite, anhydrite	-	2197	-	-	halo	PH
11-5010-1667_1r2	illite, chlorite, anhydrite	2250	2207	-	-	pervasive	SCA
11-5010-1667_1r3	illite, anhydrite	-	2197	1.2	-	halo	PH
11-5010-1682r1	illite, anhydrite	-	2199	-	-	halo	PH
11-5010-1700_8r1w	muscovite-il	-	2200	2.5	-	halo	PH
11-5010-1700_8r2w	muscovite-il	-	2198	2.6	-	halo	PH
11-5010-1700_8r3	messy - biotite?	-	-	-	-	pervasive	K
11-5010-1704_3r1	illite, anhydrite	-	2200	-	-	halo	PH
11-5010-1704_3r2	illite, anhydrite	-	2200	0.9	-	halo	PH
11-5010-1704_3r3	illite, minimal anhydrite	-	2198	1.5	-	halo	PH
11-5010-1740r1	messy - anhydrite, biotite	-	-	-	-	pervasive	K
11-5010-1740r2	messy - anhydrite, biotite, chlorite?	-	-	-	-	pervasive	K
11-5010-1802_6r1w	muscovite-il, chlorite	-	2204	1.6	-	halo	SCA
11-5010-1802_6r2w	illite-ms, chlorite, anhydrite	2249	2202	-	-	halo	SCA
11-5010-1802_6r3w	muscovite-il, chlorite,	2250	2203	-	-	halo	SCA
11-5010-1804_7r1	illite, minimal chlorite, anhydrite	-	2201	-	-	pervasive	SCA
11-5010-1804_7r2	illite, minimal chlorite, minimal anhydrite	-	2202	1.6	-	pervasive	SCA
11-5010-1804_7r3	illite, minimal chlorite, minimal anhydrite	2247	2202	-	-	pervasive	SCA
11-5010-1852r1w	kaolinite, anhydrite OR pyrophyllite, ms-il, anh	-	-	-	-	halo	PH
11-5010-1852r2w	kaolinite, anhydrite OR pyrophyllite, ms-il, anh	-	-	-	-	halo	PH
11-5010-1852r3	messy	-	-	-	-	pervasive	-
11-5010-1855r1	anhydrite, illite, minimal chlorite	2250	2207	0.5	-	pervasive	SCA
11-5010-1855r2	kaolinite, anhydrite	-	-	-	-	halo	AA
11-5010-1857_3r1	kaolinite	-	-	-	-	pervasive	AA
11-5010-1857_3r2	kaolinite	-	-	-	-	halo	AA
11-5010-1857_3r3	kaolinite	-	-	-	-	pervasive	AA
11-5010-1882_5r1	illite, chlorite, anhydrite	2250	2208	0.5	-	pervasive	SCA
11-5010-1882_5r2	biotite, illite, anhydrite	-	2211	0.5	-	pervasive	K
11-5010-1903r1w	kaolinite, anhydrite OR pyrophyllite, ms-il, anh	-	-	-	-	halo	PH
11-5010-1903r2w	muscovite-il, chlorite, anhydrite	2249	2206	0.6	-	halo	SCA
11-5010-456r1	pyrophyllite, illite-ms, anhydrite	-	2199	-	-	pervasive	PH
11-5010-456r2	pyrophyllite, illite-ms, anhydrite	-	2205	-	-	pervasive	PH
11-5010-456r3	pyrophyllite, muscovite-il, anhydrite	-	2205	1.8	-	pervasive	PH
11-5010-466_2r1	illite, anhydrite	-	2195	-	-	pervasive	PH
11-5010-466_2r2	illite, anhydrite	-	2197	1.7	-	pervasive	PH
11-5010-466_2r3	muscovite-il, anhydrite	-	2200	-	-	pervasive	PH
11-5010-486r1	illite, anhydrite	-	2196	-	-	pervasive	PH
11-5010-486r2	illite, anhydrite, minimal pyrophyllite	-	2197	-	-	pervasive	PH
11-5010-486r3	pyrophyllite, illite, anhydrite	-	2200	-	-	pervasive	PH
11-5010-504_5r1	illite-ms, anhydrite	-	2194	-	-	pervasive	PH

Sample ID/spot	Mineral ID	2250 position	2200 position	IC	1480 position	Alt style	Alter. Interp.
11-5010-504_5r2	pyrophyllite, illite-ms, anhydrite	-	2203	-	-	pervasive	PH
11-5010-504_5r3	illite, anhydrite	-	2197	1.2	-	pervasive	PH
11-5010-524_8r1	illite, anhydrite	-	2199	-	-	pervasive	PH
11-5010-524_8r2	illite, anhydrite	-	2203	-	-	pervasive	PH
11-5010-524_8r3	illite, anhydrite	-	2199	-	-	pervasive	PH
11-5010-527_5r1	illite, anhydrite	-	2204	0.6	-	pervasive	PH
11-5010-527_5r2	illite, chlorite, anhydrite	2251	2186	-	-	pervasive	PH
11-5010-527_5r3	illite, anhydrite	-	2186	-	-	pervasive	PH
11-5010-543_9r1	illite, pyrophyllite, anhydrite	-	2188	1.0	-	pervasive	PH
11-5010-543_9r2	illite, anhydrite	-	2200	-	-	pervasive	PH
11-5010-543_9r3	illite, pyrophyllite, anhydrite	-	2205	-	-	pervasive	PH
11-5010-551_4r1	pyrophyllite, illite, anhydrite	-	-	-	-	pervasive	PH
11-5010-551_4r2	illite, anhydrite	-	2199	-	-	pervasive	PH
11-5010-551_4r3	pyrophyllite, illite, anhydrite	-	2185	-	-	pervasive	PH
11-5010-569_7r1	pyrophyllite, illite, anhydrite, minimal diaspore	-	2204	-	-	pervasive	AA
11-5010-569_7r2	pyrophyllite, illite, anhydrite	-	-	-	-	pervasive	PH
11-5010-569_7r3	pyrophyllite, illite, anhydrite	-	2205	-	-	pervasive	PH
11-5010-583_4r1	pyrophyllite, anhydrite	-	-	-	-	pervasive	PH
11-5010-583_4r2	pyrophyllite, anhydrite	-	-	-	-	pervasive	PH
11-5010-583_4r3	illite	-	2200	2.9	-	halo	PH
11-5010-595r1	pyrophyllite, minimal anhydrite	-	-	-	-	pervasive	PH
11-5010-595r2	pyrophyllite, anhydrite	-	-	-	-	pervasive	PH
11-5010-595r3	pyrophyllite, anhydrite	-	-	-	-	pervasive	PH
11-5010-623_5r1	pyrophyllite, illite, anhydrite	-	2200	-	-	pervasive	PH
11-5010-623_5r2	pyrophyllite, illite	-	2196	1.3	-	pervasive	PH
11-5010-623_5r3	pyrophyllite, illite, anhydrite	-	2195	0.9	-	pervasive	PH
11-5010-631_1r1	pyrophyllite, anhydrite	-	-	-	-	pervasive	PH
11-5010-631_1r2	pyrophyllite, anhydrite	-	-	-	-	pervasive	PH
11-5010-631_1r3	pyrophyllite, anhydrite	-	-	-	-	pervasive	PH
11-5010-644_9r1	illite, chlorite, anhydrite	2249	2202	-	-	pervasive	SCA
11-5010-644_9r2	illite, chlorite, anhydrite	2249	2201	-	-	pervasive	SCA
11-5010-644_9r3	illite, chlorite, anhydrite	2249	2199	-	-	pervasive	SCA
11-5010-662_8r1	illite, anhydrite	-	2205	0.5	-	halo	PH
11-5010-662_8r2	illite, anhydrite, minimal chlorite	-	2205	-	-	pervasive	SCA
11-5010-662_8r3	illite, anhydrite, minimal chlorite	-	2204	0.9	-	pervasive	SCA
11-5010-699_3r1	anhydrite, chlorite	2250	-	-	-	pervasive	SCA
11-5010-699_3r2	illite, anhydrite, minimal chlorite	2249	2200	-	-	pervasive	SCA
11-5010-699_3r3	chlorite, illite, anhydrite	2248	2206	-	-	pervasive	SCA
11-5010-711_8r1	chlorite, illite, anhydrite	2251	2204	0.6	-	pervasive	SCA
11-5010-711_8r2	chlorite, illite, anhydrite	2254	2204	-	-	pervasive	SCA
11-5010-711_8r3	messy - chlorite, illite, anhydrite	2250	2209	0.7	-	pervasive	SCA
11-5010-739_5r1	illite, anhydrite	-	2195	0.9	-	pervasive	PH
11-5010-739_5r2	illite, anhydrite	-	2194	0.7	-	pervasive	PH
11-5010-739_5r3	illite, anhydrite	-	2196	-	-	pervasive	PH
11-5010-748_3r1	illite, anhydrite	-	2206	-	-	halo	PH
11-5010-748_3r2	anhydrite, illite	-	2205	-	-	halo	PH
11-5010-748_3r3	illite, chlorite, anhydrite	2250	2206	-	-	pervasive	SCA
11-5010-761r1	illite, anhydrite	-	2205	1.3	-	halo	PH
11-5010-761r2	chlorite, illite, anhydrite	2251	2215	0.6	-	pervasive	SCA
11-5010-761r3	illite-ms, anhydrite	-	2207	-	-	halo	PH
11-5010-770_2r1	illite-ms, anhydrite	-	2195	0.9	-	pervasive	PH
11-5010-770_2r2	anhydrite, illite-ms	-	2197	-	-	pervasive	PH
11-5010-770_2r3	illite-ms, anhydrite	-	2200	-	-	pervasive	PH
11-5010-786_3r1	illite, anhydrite	-	2203	1.0	-	pervasive	PH
11-5010-786_3r2	illite, anhydrite, minimal chlorite	2248	2203	0.8	-	pervasive	SCA
11-5010-786_3r3	illite-ms, anhydrite	-	2205	-	-	pervasive	PH
11-5010-793_5r1	illite, anhydrite, chlorite	2249	2207	-	-	halo	SCA
11-5010-793_5r2	chlorite, illite, anhydrite	2250	2210	-	-	pervasive	SCA
11-5010-793_5r3	illite, chlorite, anhydrite	2251	2210	-	-	pervasive	SCA
11-5010-827_1r1	anhydrite, pyrophyllite, illite	-	2194	-	-	pervasive	PH
11-5010-827_1r2	anhydrite, pyrophyllite	-	-	-	-	pervasive	PH
11-5010-827_1r3	anhydrite, illite, pyrophyllite	-	2195	-	-	pervasive	PH
11-5010-860_7r1	illite, minimal anhydrite	-	2197	1.4	-	pervasive	PH
11-5010-860_7r2	illite, anhydrite	-	2198	-	-	pervasive	PH
11-5010-860_7r3	illite, anhydrite	-	2199	1.5	-	pervasive	PH
11-5010-891_0r1	illite, chlorite, anhydrite	2251	2197	-	-	pervasive	SCA
11-5010-891_0r2	illite, anhydrite	-	2197	-	-	halo	PH
11-5010-891_0r3	illite, chlorite, anhydrite	2251	2198	-	-	pervasive	SCA
11-5010-914_2r1	chlorite, anhydrite	2254	-	-	-	pervasive	SCA
11-5010-914_2r2	anhydrite, minimal chlorite	2250	-	-	-	pervasive	SCA
11-5010-914_2r3	anhydrite, minimal chlorite	2256	-	-	-	pervasive	SCA
11-5010-944r1	anhydrite, illite, minimal chlorite	2249	2206	-	-	pervasive	SCA

Sample ID/spot	Mineral ID	2250 position	2200 position	IC	1480 position	Alt style	Alter. Interp.
11-5010-944r2	illite, chlorite, anhydrite	2254	2207	0.7	-	pervasive	SCA
11-5010-944r3	anhydrite, minimal chlorite	2252	-	-	-	pervasive	SCA
11-5010-972_2r1	pyrophyllite, anhydrite, illite	-	-	-	-	pervasive	PH
11-5010-972_2r2	alunite, pyrophyllite, illite, anhydrite	-	-	-	1490	pervasive	AA
11-5010-972_2r3	anhydrite, pyrophyllite, illite-ms	-	2206	-	-	pervasive	PH
11-5010-992_6r1	messy - anhydrite, illite...	-	2202	-	-	halo	PH
11-5010-992_6r2	anhydrite, illite	-	2204	-	-	halo	PH
11-5010-992_6r3	illite, anhydrite, minimal chlorite	2255	2205	-	-	pervasive	SCA
11-7012-1002_8r1	biotite, anhydrite	-	-	-	-	pervasive	K
11-7012-1002_8r2	biotite, anhydrite	-	-	-	-	pervasive	K
11-7012-1002_8r3	biotite, anhydrite	-	-	-	-	pervasive	K
11-7012-1023_5r1	illite, anhydrite	-	2194	-	-	halo	PH
11-7012-1023_5r2	chlorite, illite, anhydrite	2252	2201	-	-	pervasive	SCA
11-7012-1023_5r3	chlorite, illite, anhydrite	2252	2202	-	-	pervasive	SCA
11-7012-1049r1	messy - biotite, anhydrite	-	-	-	-	pervasive	K
11-7012-1049r2	messy - biotite, anhydrite	-	-	-	-	pervasive	K
11-7012-1049r3	messy - biotite, anhydrite	-	-	-	-	pervasive	K
11-7012-1067_2r1	illite, anhydrite	-	2196	1.0	-	pervasive	PH
11-7012-1067_2r2	illite, anhydrite	-	2193	-	-	pervasive	PH
11-7012-1067_2r3	illite, anhydrite	-	2195	1.3	-	pervasive	PH
11-7012-1089_3r1	biotite, anhydrite	-	-	-	-	pervasive	K
11-7012-1089_3r2	biotite, anhydrite	-	-	-	-	pervasive	K
11-7012-1089_3r3	biotite, anhydrite	-	-	-	-	pervasive	K
11-7012-1101_1r1	illite, anhydrite	-	2196	-	-	halo	PH
11-7012-1101_1r2	illite	-	2194	1.2	-	halo	PH
11-7012-1101_1r3	illite	-	2194	1.1	-	halo	PH
11-7012-1122_1r1	illite, anhydrite	-	2194	0.9	-	pervasive	PH
11-7012-1122_1r2	illite, anhydrite	-	2194	1.0	-	pervasive	PH
11-7012-1122_1r3	illite, anhydrite	-	2193	-	-	pervasive	PH
11-7012-1157_5r1	chlorite, anhydrite, illite	2249	2205	-	-	pervasive	SCA
11-7012-1157_5r2	chlorite, anhydrite, illite	2249	2205	-	-	pervasive	SCA
11-7012-1157_5r3	illite, anhydrite	-	2201	-	-	halo	PH
11-7012-1180_8r1	illite, anhydrite, chlorite	2252	2204	-	-	pervasive	SCA
11-7012-1180_8r2	illite, anhydrite	-	2197	-	-	halo	PH
11-7012-1180_8r3	chlorite, anhydrite	2254	-	-	-	pervasive	SCA
11-7012-1222r1	illite, anhydrite	-	2198	-	-	pervasive	PH
11-7012-1222r2	illite, anhydrite	-	2198	-	-	pervasive	PH
11-7012-1222r3	illite, anhydrite	-	2197	-	-	pervasive	PH
11-7012-1248_3r1	chlorite, illite, anhydrite	2253	2202	-	-	pervasive	SCA
11-7012-1248_3r2	chlorite, illite, anhydrite	2249	2201	0.8	-	pervasive	SCA
11-7012-1248_3r3	chlorite, minimal anhydrite	2253	-	-	-	pervasive	SCA
11-7012-888_8r1	illite, anhydrite	-	2197	0.5	-	pervasive	PH
11-7012-888_8r2	illite, anhydrite	-	2197	-	-	pervasive	PH
11-7012-888_8r3	illite, anhydrite	-	2197	-	-	pervasive	PH
11-7012-907_6r1	anhydrite, chlorite, illite	2250	2212	0.5	-	pervasive	SCA
11-7012-907_6r2	anhydrite, chlorite (or biotite), minimal illite	2249	2205	-	-	pervasive	SCA
11-7012-907_6r3	chlorite, anhydrite, minimal illite	2254	2216	-	-	pervasive	SCA
11-7012-929r1	illite, anhydrite	-	2206	0.9	-	pervasive	PH
11-7012-929r2	illite, anhydrite, chlorite	2248	2206	0.7	-	pervasive	SCA
11-7012-929r3	chlorite, anhydrite, minimal illite	2252	2208	-	-	pervasive	SCA
11-7012-944_5r1	illite, anhydrite	-	2195	0.6	-	halo	PH
11-7012-944_5r2	illite, anhydrite	-	2195	0.7	-	halo	PH
11-7012-944_5r3	illite, anhydrite	-	2196	0.7	-	halo	PH
11-7012-962_5r1	illite	-	2197	0.9	-	halo	PH
11-7012-962_5r2	illite	-	2197	0.8	-	halo	PH
11-7012-962_5r3	illite	-	2197	0.8	-	halo	PH
11-7012-984_6r1	biotite, anhydrite	-	-	-	-	pervasive	K
11-7012-984_6r2	biotite, anhydrite	-	-	-	-	pervasive	K
11-7012-984_6r3	biotite, anhydrite	-	-	-	-	pervasive	K
12-1030-1123_4r1	messy - anhydrite, biotite	-	-	-	-	pervasive	K
12-1030-1123_4r2	messy - anhydrite, possible biotite	-	-	-	-	pervasive	K
12-1030-1123_4r3	messy - biotite	-	-	-	-	pervasive	K
12-1030-1146r1	illite, chlorite	2254	2197	0.7	-	pervasive	SCA
12-1030-1146r2	chlorite, illite, minimal anhydrite	2253	2199	-	-	pervasive	SCA
12-1030-1146r3	chlorite, illite	2252	2196	0.5	-	pervasive	SCA
12-1030-1162_5r1	illite, chlorite	2255	2204	0.6	-	pervasive	SCA
12-1030-1162_5r2	illite, chlorite	2248	2202	0.8	-	pervasive	SCA
12-1030-1162_5r3	illite, chlorite	2251	2204	0.7	-	pervasive	SCA
12-1030-1188_5r1	anhydrite, possible biotite	-	-	-	-	pervasive	K
12-1030-1188_5r2	anhydrite, possible biotite	-	-	-	-	pervasive	K
12-1030-1188_5r3	anhydrite, possible biotite	-	-	-	-	pervasive	K
12-1030-1204_5r1	illite, anhydrite	-	2205	0.7	-	pervasive	PH

Sample ID/spot	Mineral ID	2250 position	2200 position	IC	1480 position	Alt style	Alter. Interp.
12-1030-1204_5r2	anhydrite, illite, minimal chlorite	2249	2205	-	-	pervasive	SCA
12-1030-1204_5r3	anhydrite, illite, minimal chlorite	2250	2205	0.5	-	pervasive	SCA
12-1030-1240_4r1	anhydrite, chlorite	2249	-	-	-	pervasive	SCA
12-1030-1240_4r2	anhydrite, minimal chlorite	2252	-	-	-	pervasive	SCA
12-1030-1240_4r3	anhydrite, chlorite	2255	-	-	-	pervasive	SCA
12-1030-1265_7r1	chlorite, anhydrite, illite	2249	2209	-	-	pervasive	SCA
12-1030-1265_7r2	chlorite, anhydrite	2252	-	-	-	pervasive	SCA
12-1030-1265_7r3	anhydrite, chlorite	2251	-	-	-	pervasive	SCA
12-1030-1290_2r1	illite, anhydrite	-	2206	1.8	-	halo	PH
12-1030-1290_2r2	chlorite, anhydrite, minimal illite	2252	2211	-	-	pervasive	SCA
12-1030-1290_2r3	illite, anhydrite	-	2207	1.2	-	pervasive	PH
12-1030-1315_1r1	biotite, anhydrite	-	-	-	-	pervasive	K
12-1030-1315_1r2	biotite, anhydrite	-	-	-	-	pervasive	K
12-1030-1315_1r3	biotite, anhydrite	-	-	-	-	pervasive	K
12-1030-1334_7r1	biotite, anhydrite, minimal illite	-	2211	-	-	pervasive	K
12-1030-1334_7r2	biotite, anhydrite, minimal illite	-	2215	-	-	pervasive	K
12-1030-1334_7r3	biotite, anhydrite, minimal illite	-	2212	-	-	pervasive	K
12-1030-1352_7r1	messy - biotite	-	-	-	-	pervasive	K
12-1030-1352_7r2	illite	-	2197	1.2	-	halo	PH
12-1030-1352_7r3	messy - biotite	-	-	-	-	pervasive	K
12-1030-1369_9r1	biotite, anhydrite	-	-	-	-	pervasive	K
12-1030-1369_9r2	biotite, anhydrite	-	-	-	-	pervasive	K
12-1030-1369_9r3	biotite, anhydrite	-	-	-	-	pervasive	K
12-1030-1424r1	anhydrite, chlorite, illite	2249	2206	-	-	halo	SCA
12-1030-1424r2	anhydrite, illite, chlorite	2250	2205	-	-	halo	SCA
12-1030-1424r3	anhydrite, chlorite, illite	2249	2207	-	-	halo	SCA
12-1030-1447_8r1	illite, chlorite	2248	2202	2.0	-	pervasive	SCA
12-1030-1447_8r2	illite, chlorite, minimal anhydrite	2248	2201	1.7	-	pervasive	SCA
12-1030-1447_8r3	illite, chlorite	2249	2202	1.7	-	pervasive	SCA
12-1030-1471r1	kaolinite, anhydrite, possible illite	-	2206	1.0	-	pervasive	AA
12-1030-1471r2	kaolinite	-	-	-	-	pervasive	AA
12-1030-1471r3	kaolinite	-	-	-	-	pervasive	AA
12-1030-1486_5r1	kaolinite	-	-	-	-	pervasive	AA
12-1030-1486_5r2	kaolinite, anhydrite	-	-	-	-	pervasive	AA
12-1030-1486_5r3	anhydrite, illite, minimal kaolinite	-	2206	0.6	-	pervasive	AA
12-1036-1013_8r1	illite, chlorite	2254	2193	-	-	pervasive	SCA
12-1036-1013_8r2	illite, chlorite	2255	2198	-	-	pervasive	SCA
12-1036-1013_8r3	illite, chlorite	2254	2195	-	-	pervasive	SCA
12-1036-1034_8r1	messy - illite, chlorite	2259	2197	0.8	-	pervasive	SCA
12-1036-1034_8r2	messy - illite, chlorite	2256	2204	0.9	-	pervasive	SCA
12-1036-1034_8r3	illite, chlorite	2250	2192	0.7	-	pervasive	SCA
12-1036-1057_8r1	illite, chlorite	2261	2198	0.5	-	pervasive	SCA
12-1036-1057_8r2	illite, chlorite	2256	2197	0.7	-	pervasive	SCA
12-1036-1057_8r3	illite, chlorite	2255	2196	-	-	pervasive	SCA
12-1036-1075_8r1	illite	-	2196	1.9	-	halo	PH
12-1036-1075_8r2	illite	-	2197	1.9	-	halo	PH
12-1036-1075_8r3	illite	-	2195	1.7	-	halo	PH
12-1036-1096_9r1	opal, anhydrite minimal illite	-	2201	-	-	pervasive	PH
12-1036-1096_9r2	opal, anhydrite minimal illite	-	2198	-	-	pervasive	PH
12-1036-1096_9r3	messy - opal, anhydrite	-	-	-	-	pervasive	PH
12-1036-1120_1r1	illite, chlorite	2250	2207	1.6	-	pervasive	SCA
12-1036-1120_1r2	chlorite, biotite, possible anhydrite	2250	-	-	-	pervasive	K
12-1036-1120_1r3	biotite, chlorite, minimal illite	2251	2208	1.1	-	pervasive	K
12-1036-1143_8r1	illite	-	2201	2.5	-	pervasive	PH
12-1036-1143_8r2	illite, chlorite	2248	2200	1.7	-	pervasive	SCA
12-1036-1143_8r3	illite, chlorite	-	2202	1.8	-	pervasive	SCA
12-1036-1168_5r1	illite, chlorite, minimal anhydrite	2248	2204	1.4	-	pervasive	SCA
12-1036-1168_5r2	illite, chlorite	2250	2204	2.0	-	pervasive	SCA
12-1036-1168_5r3	chlorite	2252	-	-	-	pervasive	SCA
12-1036-1178_8r1	illite, minimal anhydrite	-	2198	1.9	-	pervasive	PH
12-1036-1178_8r2	illite	-	2199	1.8	-	pervasive	PH
12-1036-1178_8r3	illite	-	2198	1.6	-	pervasive	PH
12-1036-1191_5r1	illite	-	2200	1.5	-	pervasive	PH
12-1036-1191_5r2	illite, minimal anhydrite	-	2198	1.8	-	pervasive	PH
12-1036-1191_5r3	illite, minimal anhydrite	-	2199	-	-	pervasive	PH
12-1036-1220_5r1	illite	-	2198	1.2	-	halo	PH
12-1036-1220_5r2	illite, chlorite	2250	2200	1.1	-	pervasive	SCA
12-1036-1220_5r3	illite, chlorite	2250	2200	1.1	-	halo	SCA
12-1036-1240_1r1	illite	-	2197	1.6	-	pervasive	PH
12-1036-1240_1r2	illite	-	2198	1.4	-	pervasive	PH
12-1036-1240_1r3	illite	-	2199	1.8	-	pervasive	PH
12-1036-806r1	chlorite, illite	2254	2195	0.9	-	pervasive	SCA
12-1036-806r2	chlorite, illite	2250	2195	1.0	-	pervasive	SCA

Sample ID/spot	Mineral ID	2250 position	2200 position	IC	1480 position	Alt style	Alter. Interp.
12-1036-806r3	chlorite, illite, anhydrite	-	2195	0.8	-	pervasive	SCA
12-1036-828_4r1	chlorite, illite, anhydrite	2252	2196	0.7	-	pervasive	SCA
12-1036-828_4r2	chlorite, illite, anhydrite	2253	2196	-	-	pervasive	SCA
12-1036-828_4r3	chlorite, illite, anhydrite	2253	2195	0.6	-	pervasive	SCA
12-1036-848_4r1	chlorite, illite, anhydrite	2249	2195	0.8	-	pervasive	SCA
12-1036-848_4r2	chlorite, illite, anhydrite	2250	2195	-	-	pervasive	SCA
12-1036-848_4r3	illite, anhydrite, minimal chlorite	2246	2198	0.9	-	pervasive	SCA
12-1036-872_5r1	illite, minimal anhydrite	-	2196	1.5	-	pervasive	PH
12-1036-872_5r2	illite, anhydrite	-	2198	1.2	-	pervasive	PH
12-1036-872_5r3	illite	-	2196	1.4	-	pervasive	PH
12-1036-892_7r1	illite, chlorite, anhydrite	2250	2198	-	-	pervasive	SCA
12-1036-892_7r2	illite, chlorite, anhydrite	2251	2196	-	-	pervasive	SCA
12-1036-892_7r3	illite, chlorite, anhydrite	2251	2196	-	-	pervasive	SCA
12-1036-911_8r1	illite, anhydrite, minimal chlorite	-	2193	0.6	-	pervasive	SCA
12-1036-911_8r2	illite, anhydrite, chlorite	2248	2193	-	-	pervasive	SCA
12-1036-911_8r3	illite, anhydrite, chlorite	2249	2194	0.5	-	pervasive	SCA
12-1036-934_5r1	illite, anhydrite	-	2204	1.3	-	pervasive	PH
12-1036-934_5r2	illite	-	2199	1.9	-	pervasive	PH
12-1036-934_5r3	illite	-	2200	1.7	-	pervasive	PH
12-1036-952_5r1	illite	-	2198	1.3	-	pervasive	PH
12-1036-952_5r2	illite	-	2197	1.6	-	pervasive	PH
12-1036-952_5r3	illite	-	2199	1.6	-	pervasive	PH
12-1036-974_6r1	illite, chlorite	2253	2197	0.5	-	pervasive	SCA
12-1036-974_6r2	illite, minimal chlorite	-	2199	1.5	-	pervasive	SCA
12-1036-974_6r3	illite, chlorite	2251	2196	0.8	-	pervasive	SCA
12-1036-993_1r1	illite	-	2198	1.2	-	pervasive	PH
12-1036-993_1r2	illite, minimal anhydrite	-	2199	1.6	-	pervasive	PH
12-1036-993_1r3	illite	-	2198	1.8	-	pervasive	PH
12-12058-0001r1	messy - chlorite, illite-ms	2251	2204	0.6	-	pervasive	PR
12-12058-0048_7r1	chlorite, illite-ms	2251	2203	0.5	-	pervasive	PR
12-12058-0083_5r1	diaspore, illite-ms	-	2187	0.5	-	halo	AA
12-12058-0083_5r2	diaspore, minimal illite-ms, possible anhydrite	-	2185	0.5	-	halo	AA
12-12058-0084r1	diaspore, dickite (peaks don't align perfectly...)	-	-	-	-	pervasive	AA
12-12058-0084r2	anhydrite, dickite (sticks to tongue) OR pyrophyllite, illite-ms	-	-	-	-	pervasive	AA
12-12058-0111_7r1	muscovite, anhydrite, chlorite	2255	2198	0.7	-	pervasive	PR
12-12058-0134r1	alunite	-	-	-	1486	pervasive	AA
12-12058-0134r2	alunite	-	-	-	1486	pervasive	AA
12-12058-0200_4r1	messy	-	-	-	-	pervasive	-
12-12058-0251_4r1	anhydrite, illite-ms	-	2204	-	-	pervasive	PH
12-12058-0251_4r2	illite-ms, anhydrite, possible chlorite	-	2204	1.1	-	pervasive	SCA
12-12058-0273r1	pyrophyllite, diaspore, possible anhydrite	-	-	-	-	pervasive	AA
12-12058-0303_7r1	illite-ms, chlorite	2254	2195	1.1	-	pervasive	SCA
12-12058-0303_7r2	illite-ms, chlorite	2253	2195	1.2	-	pervasive	SCA
12-12058-0350r1	illite-ms, anhydrite, minimal pyrophyllite	-	2192	-	-	pervasive	PH
12-12058-0350r2	illite-ms	-	2193	1.8	-	pervasive	PH
12-12058-0402_5r1	pyrophyllite, minimal illite-ms	-	-	-	-	pervasive	PH
12-12058-0402_5r2	pyrophyllite, minimal illite-ms	-	-	-	-	pervasive	PH
12-12058-0402_5r3	pyrophyllite, minimal illite-ms	-	-	-	-	pervasive	PH
12-12058-0454b1	alunite, diaspore	-	-	-	1489	pervasive	AA
12-12058-0500b1	pyrophyllite, diaspore, muscovite-il	-	-	-	-	pervasive	AA
12-12058-0500b2	anhydrite, pyrophyllite,	-	-	-	-	pervasive	PH
12-12058-0500b3	pyrophyllite, muscovite-il, diaspore, minimal anhydrite	-	2207	1.8	-	pervasive	AA
12-12058-0575r1	kaolinite (sticks to tongue) OR pyrophyllite, muscovite-il (spectre fits 2nd option more)	-	2203	3.8	-	pervasive	PH
12-12058-0575r2	pyrophyllite, muscovite-il, anhydrite	-	2202	2.2	-	pervasive	PH
12-12058-0600r1	muscovite-il, minimal pyrophyllite, anhydrite	-	2197	-	-	pervasive	PH
12-12058-0600r2	muscovite-il, minimal anhydrite	-	2194	-	-	pervasive	PH
12-12058-0670_2r1	pyrophyllite, muscovite-il	-	2205	2.5	-	pervasive	PH
12-12058-0670_2r2	pyrophyllite, muscovite-il, diaspore	-	2188	-	-	pervasive	AA
12-12058-0700r1	illite-ms, chlorite	2256	2198	1.3	-	pervasive	SCA
12-12058-0700r2	illite-ms, chlorite	2251	2200	2.0	-	pervasive	SCA
12-12058-0750r1w	muscovite-il (pretty much perfect spectra)	-	2196	-	-	pervasive	PH
12-12058-0750r2g	illite-ms, chlorite	2251	2192	1.1	-	pervasive	SCA
12-12058-0800r1	chlorite, anhydrite, illite-ms	2250	2207	-	-	pervasive	SCA
12-12058-0800r2	chlorite, anhydrite, illite-ms	2251	2204	-	-	pervasive	SCA
12-12058-0800r3	chlorite, anhydrite, minimal illite-ms	2250	2205	-	-	pervasive	SCA
12-12058-0875r1w	illite-ms, anhydrite	-	2203	1.1	-	pervasive	PH
12-12058-0875r2g	illite-ms	-	2202	1.4	-	pervasive	PH
12-12058-0900r1	chlorite, possible anhydrite	2254	-	-	-	pervasive	SCA
12-12058-0900r2	chlorite, possible anhydrite	2252	-	-	-	pervasive	SCA
12-12058-0960_8r1w	illite-ms, anhydrite	-	2207	-	-	pervasive	PH

Sample ID/spot	Mineral ID	2250 position	2200 position	IC	1480 position	Alt style	Alter. Interp.
12-12058-0960_8r2g	illite-ms, chlorite, anhydrite	2251	2207	0.6	-	pervasive	SCA
12-12058-0999_5r1	illite-ms, minimal pyrophyllite	-	2192	1.3	-	pervasive	PH
12-12058-0999_5r2	illite-ms, anhydrite	-	2193	-	-	pervasive	PH
12-12058-1051_5r1g	illite-ms, chlorite, anhydrite	2251	2204	-	-	pervasive	SCA
12-12058-1051_5r2g	illite-ms, chlorite, anhydrite	2251	2207	0.6	-	pervasive	SCA
12-12058-1051_5r3	messy - illite-ms, chlorite, anhydrite	-	2204	0.7	-	pervasive	SCA
12-12058-1101_8r1	illite-ms, chlorite, anhydrite	2251	2210	1.7	-	pervasive	SCA
12-12058-1150r1w	illite-ms, anhydrite	-	2194	-	-	pervasive	PH
12-12058-1150r2w	illite-ms, anhydrite	-	2193	-	-	pervasive	PH
12-12058-1202_4r1w	illite-ms, anhydrite	-	2197	-	-	halo	PH
12-12058-1202_4r2g	illite-ms, chlorite, anhydrite	2251	2196	-	-	pervasive	SCA
12-12058-1202_4r3w	illite-ms, anhydrite	-	2194	-	-	halo	PH
12-12058-1300r1	illite-ms (paragonite peaks)	-	2192	1.4	-	halo	PH
12-12058-1300r2	illite-ms (paragonite peaks)	-	2192	1.4	-	halo	PH
12-12058-1300r3	illite-ms (paragonite peaks), chlorite	2250	2192	1.2	-	pervasive	SCA
12-12058-1410r1	chlorite, illite-ms, possible anhydrite	2253	2194	-	-	pervasive	SCA
12-12058-1410r2	chlorite, minimal illite-ms, possible anhydrite	2253	2197	-	-	pervasive	SCA
12-12058-1410r3	chlorite, very little illite-ms (big 1923 peak, not sure what from)	2253	-	-	-	pervasive	SCA
12-12058-291_3r1	pyrophyllite	-	-	-	-	pervasive	PH
12-12058-291_3r2	pyrophyllite, anhydrite, minimal diaspore	-	-	-	-	pervasive	AA
12-12058-291_3r3	pyrophyllite	-	-	-	-	pervasive	PH
12-12058-321_3r1	illite, anhydrite, chlorite?	2247	2198	-	-	pervasive	SCA
12-12058-321_3r2	illite, anhydrite	-	2197	1.0	-	pervasive	PH
12-12058-321_3r3	anhydrite, illite	-	2197	-	-	pervasive	PH
12-12058-331r1	illite, anhydrite	-	2196	-	-	pervasive	PH
12-12058-331r2	anhydrite, minimal illite	-	2190	-	-	pervasive	PH
12-12058-331r3	illite, anhydrite	-	2196	1.2	-	pervasive	PH
12-12058-349_8r1	pyrophyllite, minimal anhydrite	-	-	-	-	pervasive	PH
12-12058-349_8r2	pyrophyllite, minimal anhydrite	-	-	-	-	pervasive	PH
12-12058-363_5r1	pyrophyllite, minimal anhydrite	-	-	-	-	pervasive	PH
12-12058-363_5r2	pyrophyllite, minimal illite	-	-	-	-	pervasive	PH
12-12058-363_5r3	pyrophyllite	-	-	-	-	pervasive	PH
12-12058-380_3r1	pyrophyllite, alunite	-	-	-	1486	pervasive	AA
12-12058-380_3r2	pyrophyllite, alunite	-	-	-	1488	pervasive	AA
12-12058-380_3r3	pyrophyllite, alunite	-	-	-	1488	pervasive	AA
12-12058-404_6r1	pyrophyllite, diaspore, minimal illite	-	-	-	-	pervasive	AA
12-12058-404_6r2	pyrophyllite, minimal diaspore	-	-	-	-	pervasive	AA
12-12058-404_6r3	pyrophyllite	-	-	-	-	pervasive	PH
12-12058-407_8r1	pyrophyllite, anhydrite	-	-	-	-	pachy	PH
12-12058-407_8r2	pyrophyllite, anhydrite, minimal illite, minimal diaspore	-	-	-	-	pervasive	AA
12-12058-407_8r3	pyrophyllite, diaspore, minimal anhydrite	-	-	-	-	pervasive	AA
12-12058-417_5r1	pyrophyllite, minimal anhydrite (strange spectra)	-	-	-	-	pervasive	PH
12-12058-417_5r2	pyrophyllite, diaspore, minimal illite	-	-	-	-	pervasive	AA
12-12058-417_5r3	pyrophyllite, diaspore, minimal illite	-	-	-	-	pervasive	AA
12-12058-434_7r1	diaspore	-	-	-	-	pervasive	AA
12-12058-434_7r2	diaspore	-	-	-	-	pervasive	AA
12-12058-434_7r3	diaspore	-	-	-	-	pervasive	AA
12-12058-450r1	dickite, alunite	-	-	-	1484	pervasive	AA
12-12058-450r2	dickite, alunite, pyrophyllite, diaspore, anhydrite	-	-	-	-	pervasive	AA
12-12058-450r3	dickite, alunite	-	-	-	1485	pervasive	AA
12-12058-460r1	pyrophyllite, illite (para), minimal diaspore	-	2194	3.0	-	pervasive	AA
12-12058-460r2	pyrophyllite, diaspore, anhydrite, minimal illite	-	-	-	-	pervasive	AA
12-12058-460r3	illite, pyrophyllite, diaspore	-	2192	1.8	-	pervasive	AA
12-12058-464_9r1	pyrophyllite, alunite, diaspore, anhydrite	-	-	-	1487	pervasive	AA
12-12058-464_9r2	alunite	-	-	-	1485	pervasive	AA
12-12058-464_9r3	alunite, diaspore, pyrophyllite	-	-	-	1489	pervasive	AA
12-12058-489r1	alunite, pyrophyllite, minimal anhydrite	-	-	-	1488	pervasive	AA
12-12058-489r2	pyrophyllite, alunite, diaspore	-	-	-	1487	pervasive	AA
12-12058-489r3	alunite, pyrophyllite, minimal diaspore	-	-	-	1488	pervasive	AA
12-12058-498_2r1	alunite, pyrophyllite, minimal illite	-	-	-	1490	pervasive	AA
12-12058-498_2r2	pyrophyllite, alunite, diaspore, anhydrite	-	-	-	1484	pervasive	AA
12-12058-498_2r3	pyrophyllite, illite, anhydrite, minimal alunite, minimal diaspore	-	2207	1.2	1488	pervasive	AA
12-12058-505_5r1	messy - illite, pyrophyllite...	-	2193	-	-	pervasive	PH
12-12058-505_5r2	messy - pyrophyllite, illite...	-	2200	1.8	-	pervasive	PH
12-12058-505_5r3	messy - pyrophyllite, illite, anhydrite	-	2204	-	-	pervasive	PH
12-12058-509_5r1	pyrophyllite, illite, diaspore, anhydrite	-	-	-	-	pervasive	AA
12-12058-509_5r2	dickite, diaspore, minimal anhydrite	-	-	-	-	pervasive	AA
12-12058-509_5r3	dickite, pyrophyllite, diaspore, anhydrite	-	-	-	-	pervasive	AA
12-12058-529_9r1	pyrophyllite, alunite, diaspore, minimal anhydrite	-	-	-	1485	pervasive	AA
12-12058-529_9r2	pyrophyllite, alunite, diaspore, minimal anhydrite	-	-	-	1485	pervasive	AA

Sample ID/spot	Mineral ID	2250 position	2200 position	IC	1480 position	Alt style	Alter. Interp.
12-12058-529_9r3	pyrophyllite, alunite, diaspore, minimal anhydrite	-	-	-	1484	pervasive	AA
12-12058-538_2r1	pyrophyllite, diaspore, anhydrite, minimal illite	-	-	-	-	pervasive	AA
12-12058-538_2r2	pyrophyllite, diaspore, anhydrite, minimal illite	-	-	-	-	pervasive	AA
12-12058-538_2r3	pyrophyllite, diaspore, anhydrite, minimal illite	-	-	-	-	pervasive	AA
12-12058-543_3r1	pyrophyllite, diaspore, minimal illite (para)	-	2185	-	-	pervasive	AA
12-12058-543_3r2	pyrophyllite, diaspore, minimal anhydrite	-	-	-	-	pervasive	AA
12-12058-543_3r3	pyrophyllite, diaspore, minimal anhydrite	-	-	-	-	pervasive	AA
12-12058-547_6r1	pyrophyllite, alunite, diaspore, minimal anhydrite	-	-	-	1481	pervasive	AA
12-12058-547_6r2	pyrophyllite, diaspore, minimal alunite, minimal anhydrite, minimal illite	-	-	-	1485	pervasive	AA
12-12058-547_6r3	pyrophyllite, diaspore, alunite, minimal anhydrite	-	-	-	1481	pervasive	AA
12-12058-565_3r1	pyrophyllite, diaspore, illite	-	-	-	-	pervasive	AA
12-12058-565_3r2	pyrophyllite, diaspore	-	-	-	-	pervasive	AA
12-12058-565_3r3	pyrophyllite, diaspore, minimal illite, minimal anhydrite	-	-	-	-	pervasive	AA
12-12058-571_5r1	pyrophyllite, minimal anhydrite	-	-	-	-	pervasive	PH
12-12058-571_5r2	pyrophyllite, diaspore, minimal illite	-	-	-	-	pervasive	AA
12-12058-571_5r3	pyrophyllite, diaspore	-	-	-	-	pervasive	AA
12-12058-579_8r1	pyrophyllite, diaspore, minimal anhydrite	-	-	-	-	pervasive	AA
12-12058-579_8r2	pyrophyllite, minimal illite	-	-	-	-	pervasive	PH
12-12058-579_8r3	pyrophyllite, diaspore, anhydrite	-	-	-	-	pervasive	AA
12-12058-593_5r1	pyrophyllite, anhydrite, minimal diaspore, minimal illite	-	-	-	-	pervasive	AA
12-12058-593_5r2	pyrophyllite, anhydrite, minimal diaspore, minimal illite	-	-	-	-	pervasive	AA
12-12058-593_5r3	pyrophyllite, anhydrite, minimal illite	-	-	-	-	pervasive	PH
12-12058-605r1	anhydrite	-	-	-	-	pervasive	-
12-12058-605r2	anhydrite, pyrophyllite, illite	-	2205	-	-	pervasive	PH
12-12058-605r3	pyrophyllite, illite, anhydrite	-	2197	1.0	-	pervasive	PH
12-12058-616_3r1	anhydrite, illite, pyrophyllite	-	2197	-	-	pervasive	PH
12-12058-616_3r2	illite, minimal anhydrite	-	2194	2.1	-	pervasive	PH
12-12058-616_3r3	illite, minimal anhydrite	-	2194	-	-	pervasive	PH
12-12058-628_6r1	pyrophyllite, minimal anhydrite	-	-	-	-	pervasive	PH
12-12058-628_6r2	pyrophyllite, anhydrite, minimal illite	-	2185	-	-	pervasive	PH
12-12058-628_6r3	pyrophyllite, illite, minimal anhydrite	-	2196	-	-	pervasive	PH
12-12058-646r1	pyrophyllite, diaspore, minimal anhydrite	-	-	-	-	pervasive	AA
12-12058-646r2	pyrophyllite, anhydrite	-	-	-	-	pervasive	PH
12-12058-646r3	pyrophyllite, anhydrite, minimal diaspore	-	-	-	-	pervasive	AA
12-12058-646r4	pyrophyllite, minimal diaspore, minimal anhydrite	-	-	-	-	pervasive	AA
12-12058-664_6r1	pyrophyllite, anhydrite, diaspore	-	-	-	-	pervasive	AA
12-12058-664_6r2	pyrophyllite, diaspore, anhydrite, minimal illite	-	-	-	-	pervasive	AA
12-12058-664_6r3	pyrophyllite, diaspore, anhydrite, minimal muscovite	-	-	-	-	pervasive	AA
12-12058-674_5r1	pyrophyllite, anhydrite	-	-	-	-	pervasive	PH
12-12058-674_5r2	pyrophyllite, anhydrite	-	-	-	-	pervasive	PH
12-12058-674_5r3	pyrophyllite, anhydrite	-	-	-	-	pervasive	PH
12-12058-689_8r1	illite (para), minimal chlorite	2255	2188	0.7	-	pervasive	SCA
12-12058-689_8r2	illite (para), chlorite	2253	2188	0.7	-	pervasive	SCA
12-12058-689_8r3	illite (para)	-	2194	1.5	-	halo	PH
12-12058-708_3r1	illite, minimal chlorite, minimal anhydrite	2252	2200	1.2	-	pervasive	SCA
12-12058-708_3r2	illite, chlorite, anhydrite	2251	2199	-	-	pervasive	SCA
12-12058-708_3r3	chlorite, anhydrite, illite	2253	2198	-	-	pervasive	SCA
12-12058-721_7r1	illite, anhydrite	-	2196	-	-	pervasive	PH
12-12058-721_7r2	illite, anhydrite	-	2196	-	-	pervasive	PH
12-12058-721_7r3	illite, anhydrite	-	2197	-	-	pervasive	PH
12-12058-727r1	kaolinite, anhydrite	-	-	-	-	pervasive	AA
12-12058-727r2	kaolinite, anhydrite	-	-	-	-	pervasive	AA
12-12058-727r3	kaolinite, anhydrite	-	-	-	-	pervasive	AA
12-12058-732_7r1	chlorite, illite, anhydrite	2253	2204	-	-	pervasive	SCA
12-12058-732_7r2	chlorite, illite	2254	2205	0.7	-	pervasive	SCA
12-12058-732_7r3	chlorite, illite, anhydrite	2253	2205	-	-	pervasive	SCA
12-12058-745r1	illite	-	2196	1.2	-	halo	PH
12-12058-745r2	illite	-	2202	-	-	halo	PH
12-12058-763r1	chlorite, illite, anhydrite	2252	2203	-	-	pervasive	SCA
12-12058-763r2	chlorite, illite, anhydrite	2253	2203	-	-	pervasive	SCA
12-12058-763r3	chlorite, illite, anhydrite	2251	2203	-	-	pervasive	SCA
12-12058-775r1	pyrophyllite	-	-	-	-	pervasive	PH
12-12058-775r2	pyrophyllite, anhydrite, diaspore	-	-	-	-	pervasive	AA
12-12058-775r3	pyrophyllite, minimal diaspore, minimal anhydrite	-	-	-	-	pervasive	AA
12-12058-793_7r1	illite, minimal anhydrite	-	2205	-	-	halo	PH
12-12058-793_7r2	illite, minimal anhydrite	-	2204	1.5	-	halo	PH
12-12058-793_7r3	chlorite, illite, minimal anhydrite	2250	2210	-	-	pervasive	SCA

Sample ID/spot	Mineral ID	2250 position	2200 position	IC	1480 position	Alt style	Alter. Interp.
12-12058-817_5r1	chlorite, minimal illite, minimal anhydrite	2252	-	-	-	pervasive	SCA
12-12058-817_5r2	chlorite, illite, anhydrite	2250	2207	0.6	-	pervasive	SCA
12-12058-817_5r3	chlorite, illite, minimal anhydrite	2252	2208	0.7	-	pervasive	SCA
12-12058-820_8r1	illite, anhydrite	-	2207	-	-	halo	PH
12-12058-820_8r2	illite	-	2201	1.3	-	pervasive	PH
12-12058-820_8r3	illite, anhydrite	-	2207	-	-	halo	PH
12-12058-828_7r1	illite, anhydrite	-	2203	1.1	-	halo	PH
12-12058-828_7r2	illite, anhydrite	-	2202	1.0	-	halo	PH
12-12058-828_7r3	chlorite, illite, anhydrite	2247	2206	-	-	pervasive	SCA
12-12058-835_9r1	messy - chlorite, anhydrite, minimal illite	2250	2214	-	-	pervasive	SCA
12-12058-835_9r2	messy - chlorite, anhydrite, minimal illite	2259	2210	-	-	pervasive	SCA
12-12058-835_9r3	messy - chlorite, anhydrite	2252	-	-	-	pervasive	SCA
12-12058-863_9r1	illite, minimal anhydrite	-	2201	1.1	-	pervasive	PH
12-12058-863_9r2	illite, anhydrite	-	2203	-	-	pervasive	PH
12-12058-863_9r3	illite, minimal anhydrite	-	2202	-	-	pervasive	PH
12-12058-867_1r1	chlorite, anhydrite	2252	-	-	-	pervasive	SCA
12-12058-867_1r2	chlorite, anhydrite, minimal illite	2249	2210	-	-	pervasive	SCA
12-12058-867_1r3	chlorite, anhydrite	2251	-	-	-	pervasive	SCA
12-12058-878_4r1	illite, anhydrite	-	2203	-	-	pervasive	PH
12-12058-878_4r2	illite, anhydrite	-	2207	-	-	pervasive	PH
12-12058-878_4r3	illite, anhydrite	-	2208	-	-	pervasive	PH
12-12058-892_6r1	chlorite, illite, anhydrite	2248	2204	-	-	pervasive	SCA
12-12058-892_6r2	anhydrite, chlorite	2250	-	-	-	pervasive	SCA
12-12058-892_6r3	chlorite, anhydrite, minimal illite	2251	2197	-	-	pervasive	SCA
12-12058-898_9r1	messy - chlorite, anhydrite, minimal illite	2253	2219	-	-	pervasive	SCA
12-12058-898_9r2	chlorite, anhydrite, minimal illite	2253	2206	-	-	pervasive	SCA
12-12058-898_9r3	chlorite, anhydrite	2253	-	-	-	pervasive	SCA
12-12058-913_5r1	illite	-	2198	1.5	-	halo	PH
12-12058-913_5r2	illite	-	2195	1.4	-	halo	PH
12-12058-913_5r3	illite, minimal anhydrite	-	2199	-	-	halo	PH
12-12058-923_6r1	illite, minimal anhydrite	-	2202	-	-	halo	PH
12-12058-923_6r2	illite	-	2203	2.8	-	halo	PH
12-12058-923_6r3	chlorite, illite, anhydrite	2250	2207	0.6	-	pervasive	SCA
12-12058W1-1010r1	illite, anhydrite	-	2198	1.1	-	halo	PH
12-12058W1-1010r2	illite	-	2200	1.2	-	halo	PH
12-12058W1-1010r3	chlorite, illite, anhydrite	2255	2204	-	-	pervasive	SCA
12-12058W1-1020r1	anhydrite, chlorite	2254	-	-	-	pervasive	SCA
12-12058W1-1020r2	messy - chlorite, anhydrite	2251	-	-	-	pervasive	SCA
12-12058W1-1020r3	chlorite, anhydrite	2252	-	-	-	pervasive	SCA
12-12058W1-1039_5r1	chlorite, anhydrite, minimal illite	2255	-	-	-	pervasive	SCA
12-12058W1-1039_5r2	chlorite, anhydrite	2251	-	-	-	pervasive	SCA
12-12058W1-1039_5r3	chlorite, anhydrite	2253	-	-	-	pervasive	SCA
12-12058W1-1049_9r1	chlorite, anhydrite	2248	-	-	-	pervasive	SCA
12-12058W1-1049_9r2	chlorite, anhydrite	2251	-	-	-	pervasive	SCA
12-12058W1-1049_9r3	chlorite, anhydrite	2251	-	-	-	pervasive	SCA
12-12058W1-1061_1r1	illite	-	2196	1.1	-	halo	PH
12-12058W1-1061_1r2	illite	-	2196	1.1	-	halo	PH
12-12058W1-1061_1r3	illite	-	2197	1.2	-	halo	PH
12-12058W1-1072_9r1	illite	-	2194	1.1	-	pervasive	PH
12-12058W1-1072_9r2	illite, minimal anhydrite	-	2190	1.1	-	pervasive	PH
12-12058W1-1072_9r3	illite, minimal anhydrite	-	2190	1.1	-	pervasive	PH
12-12058W1-1087_3r1	chlorite, illite, minimal anhydrite	2253	2204	1.2	-	pervasive	SCA
12-12058W1-1087_3r2	chlorite, illite, minimal anhydrite	2254	2207	1.1	-	pervasive	SCA
12-12058W1-1087_3r3	chlorite, illite	2251	2204	1.2	-	pervasive	SCA
12-12058W1-1094_3r1	illite	-	2197	1.2	-	pervasive	PH
12-12058W1-1094_3r2	illite	-	2200	1.2	-	pervasive	PH
12-12058W1-1094_3r3	illite, anhydrite	-	2196	-	-	pervasive	PH
12-12058W1-1101_3r1	chlorite, anhydrite, illite	2256	2209	-	-	pervasive	SCA
12-12058W1-1101_3r2	chlorite, illite	2253	2207	1.1	-	pervasive	SCA
12-12058W1-1101_3r3	illite, anhydrite	-	2204	-	-	halo	PH
12-12058W1-944_3r1	chlorite, anhydrite, minimal illite	2251	2210	1.1	-	pervasive	SCA
12-12058W1-944_3r2	chlorite, anhydrite	2251	-	-	-	pervasive	SCA
12-12058W1-944_3r3	chlorite, anhydrite, minimal illite	2254	2211	1.1	-	pervasive	SCA
12-12058W1-961_4r1	illite	-	2207	1.2	-	halo	PH
12-12058W1-961_4r2	illite, minimal anhydrite	-	2206	1.2	-	halo	PH
12-12058W1-961_4r3	chlorite, illite, anhydrite	2250	2207	1.2	-	pervasive	SCA
12-12058W1-968_3r1	chlorite, anhydrite, minimal illite	2251	2212	1.1	-	pervasive	SCA
12-12058W1-968_3r2	chlorite, anhydrite, minimal illite	2261	2215	-	-	pervasive	SCA
12-12058W1-968_3r3	chlorite, illite, anhydrite	2254	2213	-	-	pervasive	SCA
12-12058W1-995r1	illite, anhydrite	-	2204	-	-	halo	PH
12-12058W1-995r2	illite, anhydrite	-	2204	-	-	halo	PH
12-12058W1-995r3	chlorite, illite, anhydrite	2250	2206	-	-	pervasive	SCA
12-12058W1-997_2r1	illite, anhydrite	-	2198	-	-	halo	PH

Sample ID/spot	Mineral ID	2250 position	2200 position	IC	1480 position	Alt style	Alter. Interp.
12-12058W1-997_2r2	illite, anhydrite	-	2196	-	-	halo	PH
12-12058W1-997_2r3	chlorite, illite, anhydrite	2253	2205	-	-	pervasive	SCA
12-2028-0003_5r1	illite, chlorite	2254	2191	0.6	-	pervasive	SCA
12-2028-0003_5r2	illite, chlorite	2252	2188	0.5	-	pervasive	SCA
12-2028-0003_5r3	illite, chlorite	2254	2189	0.6	-	pervasive	SCA
12-2028-0159_9r1	paragonite, pyrophyllite	-	-	-	-	pervasive	PH
12-2028-0159_9r2	paragonite, pyrophyllite, possible kaolinite	-	-	-	-	pervasive	AA
12-2028-0159_9r3	paragonite, pyrophyllite, possible kaolinite	-	-	-	-	pervasive	AA
12-2028-0176_3r1	illite (480USGS)	-	2195	1.5	-	pervasive	PH
12-2028-0176_3r2	illite (480USGS)	-	2195	1.3	-	pervasive	PH
12-2028-0176_3r3	dickite, diaspore, anhydrite	-	-	-	-	pervasive	AA
12-2028-0176_3r4	dickite, diaspore, anhydrite	-	-	-	-	pervasive	AA
12-2028-0181_8r1	pyrophyllite	-	-	-	-	pervasive	PH
12-2028-0181_8r2	pyrophyllite	-	-	-	-	pervasive	PH
12-2028-0196_9r1w	illite (480USGS)	-	2195	2.4	-	halo	PH
12-2028-0196_9r2w	illite (480USGS)	-	2194	2.1	-	halo	PH
12-2028-0196_9r3	messy - illite (470USGS)	-	2188	1.4	-	pervasive	PH
12-2028-0196_9r4	messy - illite (480USGS)	-	2195	2.2	-	pervasive	PH
12-2028-0348_6r1	illite (480USGS), pyrophyllite, possible diaspore	-	2195	2.5	-	pervasive	AA
12-2028-0348_6r2	illite, pyrophyllite, possible diaspore	-	2204	5.4	-	pervasive	AA
12-2028-0348_6r3	messy - illite, pyrophyllite, possible diaspore	-	2184	1.8	-	pervasive	AA
12-2028-0362_8r1	pyrophyllite, possible diaspore	-	-	-	-	pervasive	AA
12-2028-0362_8r2	pyrophyllite, anhydrite	-	-	-	-	pervasive	PH
12-2028-0362_8r3	pyrophyllite, possible diaspore	-	-	-	-	pervasive	AA
12-2028-0400_7r1	pyrophyllite, diaspore, illite	-	2192	1.3	-	pervasive	AA
12-2028-0400_7r2	pyrophyllite, diaspore	-	-	-	-	pervasive	AA
12-2028-0400_7r3	pyrophyllite, diaspore	-	-	-	-	pervasive	AA
12-2028-0550r1	messy - kaolinite and anhydrite OR pyrophyllite, illite-ms, possible anhydrite - preference for kaolinite as lip at 1364 is present	-	2207	-	-	pervasive	AA
12-2028-0550r2	kaolinite, anhydrite OR pyrophyllite, illite-ms, anhydrite	-	2207	1.4	-	pervasive	AA
12-2028-0550r3	kaolinite, possible anhydrite OR pyrophyllite, illite-ms, possible anhydrite	-	2207	2.5	-	pervasive	AA
12-2028-0550r4	kaolinite, possible anhydrite OR pyrophyllite, illite-ms, possible anhydrite	-	2206	2.0	-	pervasive	AA
12-2028-0600_1r1	muscovite-il, possibly very minimal kaolinite	-	2204	4.5	-	pervasive	PH
12-2028-0600_1r2	muscovite-il	-	2198	6.9	-	pervasive	PH
12-2028-0600_1r3	muscovite-il	-	2204	-	-	pervasive	PH
12-2028-0654r1w	muscovite-il	-	2196	3.5	-	pervasive	PH
12-2028-0654r2w	muscovite-il	-	2196	4.7	-	pervasive	PH
12-2028-0654r3	muscovite-il	-	2197	3.4	-	pervasive	PH
12-2028-0689_8r1	illite-ms, anhydrite	-	2195	-	-	breccia clast	PH
12-2028-0689_8r2	muscovite-il (not sure where 2243 peak is from?) OR tosudite?? Tourmaline?	-	2197	2.3	-	breccia clast	PH
12-2028-0689_8r3	muscovite-il	-	2196	1.8	-	breccia clast	PH
12-2028-0689_8r4	muscovite-il (again 2243 peak from mineral in breccia matrix... minimal chlorite?)	-	2196	-	-	breccia clast	PH
12-2028-0700r1	muscovite-il	-	2203	2.1	-	pervasive	PH
12-2028-0700r2	muscovite-il	-	2203	2.2	-	pervasive	PH
12-2028-0700r3	muscovite-il	-	2204	2.8	-	pervasive	PH
12-2028-0751r1w	muscovite-il (2243 peak, minimal Mg-chlorite?)	2247	2192	1.6	-	halo	SCA
12-2028-0751r2g	messy - muscovite-il, chlorite	-	2198	0.9	-	pervasive	SCA
12-2028-0751r3g	messy - muscovite-il, chlorite	2250	2195	1.6	-	pervasive	SCA
12-2028-0751r4	muscovite-il (2243 peak, minimal Mg-chlorite?)	-	2197	1.7	-	halo	SCA
12-2028-0905_5r1w	chlorite, il-musc, strontianite? (aux: 916)	2252	-	-	-	halo	SCA
12-2028-0905_5r2w	messy - muscovite-il, chlorite	-	2198	-	-	halo	SCA
12-2028-0905_5r3g	chlorite, muscovite-il	2250	2201	0.6	-	pervasive	SCA
12-2028-0905_5r4g	messy	-	-	-	-	pervasive	-
12-2028-0950_5r1g	chlorite, muscovite-il	2251	2193	0.7	-	pervasive	SCA
12-2028-0950_5r2g	chlorite, muscovite-il	2258	2192	0.8	-	pervasive	SCA
12-2028-0950_5r3w	muscovite-il	-	2197	5.6	-	halo	PH
12-2028-0985_8r1w	pyrophyllite	-	-	-	-	pervasive	PH
12-2028-0985_8r2w	pyrophyllite	-	-	-	-	pervasive	PH
12-2028-0999_1r1g	chlorite, muscovite-il	2251	2195	0.9	-	pervasive	SCA
12-2028-0999_1r2g	chlorite, muscovite-il	2252	2193	0.6	-	pervasive	SCA
12-2028-0999_1r3g	chlorite, muscovite-il	2251	2193	1.0	-	pervasive	SCA
12-2028-1056_4r1w	messy	-	-	-	-	halo	-
12-2028-1056_4r2g	illite-ms, chlorite	2249	2201	0.8	-	pervasive	SCA
12-2028-1056_4r3g	illite-ms, chlorite	-	2200	0.8	-	pervasive	SCA
12-2028-1103_5r1g	illite-ms, chlorite	2252	2200	0.8	-	pervasive	SCA
12-2028-1103_5r2g	illite-ms, chlorite	2252	2197	0.6	-	pervasive	SCA
12-2028-1103_5r3g	illite-ms, chlorite	2252	2198	1.2	-	halo	SCA

Sample ID/spot	Mineral ID	2250 position	2200 position	IC	1480 position	Alt style	Alter. Interp.
12-2028-1160_7r1	messy	-	-	-	-	pervasive	-
12-2028-1160_7r2	messy	-	-	-	-	pervasive	-
12-2028-1202_7r1w	illite-ms, chlorite	-	2204	0.9	-	halo	SCA
12-2028-1202_7r2g	chlorite, illite-ms	2253	-	-	-	pervasive	SCA
12-2028-1203r1w	muscovite-il	-	2195	2.7	-	pervasive	PH
12-2028-1203r2w	muscovite-il	-	2195	-	-	pervasive	PH
12-2028-1249_2r1w	pyrophyllite	-	-	-	-	pervasive	PH
12-2028-1249_2r2w	pyrophyllite	-	-	-	-	pervasive	PH
12-2028-1249_2r3w	pyrophyllite	-	-	-	-	pervasive	PH
12-2028-1249_2r4w	pyrophyllite	-	-	-	-	pervasive	PH
12-2028-1303r1	illite-ms, chlorite	2248	2205	0.8	-	halo	SCA
12-2028-1303r2	illite-ms, chlorite	2248	2205	0.7	-	halo	SCA
12-2028-1303r3	illite-ms, chlorite	2247	2206	0.7	-	pervasive	SCA
12-2028-1336_4r1	diaspore, muscovite-il, possible chlorite	2254	2199	0.9	-	pervasive	SCA
12-2028-1336_4r2	diaspore, muscovite-il, possible chlorite	2249	2203	0.5	-	pervasive	SCA
12-2028-1336_4r3	diaspore, muscovite-il, possible chlorite	2252	2206	-	-	pervasive	SCA
12-2035-1024_4r1	messy	-	-	-	-	pervasive	-
12-2035-1024_4r2	messy	-	-	-	-	pervasive	-
12-2035-1024_4r3	messy	-	-	-	-	pervasive	-
12-2035-610_4r1	pyrophyllite, illite (para)	-	2193	-	-	pervasive	PH
12-2035-610_4r2	pyrophyllite, diaspore	-	-	-	-	pervasive	AA
12-2035-610_4r3	pyrophyllite, diaspore	-	-	-	-	pervasive	AA
12-2035-639_3r1	pyrophyllite, illite (para), anhydrite	-	2194	1.0	-	breccia matrix	PH
12-2035-639_3r2	illite (para)	-	2195	2.3	-	breccia clast	PH
12-2035-639_3r3	illite (para), anhydrite, minimal pyrophyllite, minimal chlorite	-	2193	-	-	breccia matrix	SCA
12-2035-662_3r1	anhydrite, chlorite, minimal illite	-	2201	-	-	breccia matrix	SCA
12-2035-662_3r2	illite, anhydrite	-	2196	-	-	breccia clast	PH
12-2035-662_3r3	illite, anhydrite	-	2195	-	-	breccia clast	PH
12-2035-680_5r1	illite, chlorite	2253	2191	0.6	-	breccia clast	SCA
12-2035-680_5r2	illite, chlorite	2248	2192	0.6	-	breccia matrix	SCA
12-2035-680_5r3	illite (para), chlorite	2253	2190	0.6	-	breccia clast	SCA
12-2035-711_4r1	pyrophyllite, illite (para)	-	2184	0.8	-	breccia matrix	PH
12-2035-711_4r2	illite (para), minimal chlorite	-	2194	1.4	-	breccia clast	SCA
12-2035-711_4r3	pyrophyllite, minimal illite (para)	-	2185	0.9	-	breccia matrix	PH
12-2035-735_5r1	illite (para), chlorite	-	2195	1.1	-	breccia matrix	SCA
12-2035-735_5r2	illite	-	2199	1.9	-	breccia clast	PH
12-2035-735_5r3	illite (para), minimal chlorite	2251	2193	0.8	-	breccia matrix	SCA
12-2035-753_1r1	illite, minor anhydrite, minor pyrophyllite	-	2197	-	-	breccia clast	PH
12-2035-753_1r2	illite, pyrophyllite	-	2196	2.2	-	breccia clast	PH
12-2035-753_1r3	illite, pyrophyllite, minimal anhydrite	-	2196	2.5	-	breccia clast	PH
12-2035-772_5r1	illite	-	2195	2.0	-	breccia clast	PH
12-2035-772_5r2	illite	-	2195	2.3	-	breccia clast	PH
12-2035-772_5r3	illite	-	2195	2.2	-	breccia clast	PH
12-2035-794_7r1	illite, chlorite	2258	2194	1.0	-	breccia matrix	SCA
12-2035-794_7r2	illite, chlorite	2257	2195	1.3	-	breccia matrix	SCA
12-2035-794_7r3	illite, chlorite, minimal anhydrite	2261	2193	-	-	breccia matrix	SCA
12-2035-813r1	illite, minimal anhydrite	-	2197	-	-	pervasive	PH
12-2035-813r2	illite, minimal anhydrite	-	2198	-	-	pervasive	PH
12-2035-813r3	illite, minimal anhydrite	-	2197	-	-	pervasive	PH
12-2035-838_5r1	messy - possible chlorite	2248	-	-	-	pervasive	SCA
12-2035-838_5r2	illite, minimal chlorite	-	2206	1.3	-	halo	SCA
12-2035-838_5r3	messy - possible illite	-	2222	0.8	-	pervasive	PH
12-2035-862_6r1	illite (para), minimal anhydrite	-	2192	-	-	pervasive	PH
12-2035-862_6r2	messy - chlorite, illite	2248	-	-	-	pervasive	SCA
12-2035-862_6r3	messy - chlorite, illite	2255	2205	-	-	halo	SCA
12-2035-886_8r1	messy - chlorite, possible illite	2253	2210	-	-	pervasive	SCA
12-2035-886_8r2	illite, minimal anhydrite	-	2195	1.3	-	halo	PH
12-2035-886_8r3	chlorite, anhydrite, minimal illite	2259	2205	-	-	pervasive	SCA
12-2035-920r1	anhydrite, chlorite	2255	-	-	-	pervasive	SCA
12-2035-920r2	illite, anhydrite, chlorite	2248	2209	-	-	halo	SCA
12-2035-920r3	chlorite, minimal anhydrite	2251	-	-	-	pervasive	SCA
12-2035-942_2r1	pyrophyllite, anhydrite	-	-	-	-	pervasive	PH
12-2035-942_2r2	pyrophyllite, anhydrite	-	-	-	-	pervasive	PH
12-2035-942_2r3	pyrophyllite, anhydrite,	-	-	-	-	pervasive	PH
12-2035-967_3r1	messy - illite	-	2186	1.4	-	halo	PH
12-2035-967_3r2	illite	-	2200	2.2	-	pervasive	PH
12-2035-967_3r3	messy - illite, anhydrite	-	2193	1.3	-	pervasive	PH
12-2035-979_6r1	anhydrite	-	-	-	-	halo	-
12-2035-979_6r2	messy - anhydrite	-	-	-	-	pervasive	-
12-2035-979_6r3	anhydrite, minimal illite	-	2208	-	-	pervasive	PH
12-2035-998_4r1	messy	-	-	-	-	pervasive	-
12-2035-998_4r2	messy	-	-	-	-	pervasive	-

Sample ID/spot	Mineral ID	2250 position	2200 position	IC	1480 position	Alt style	Alter. Interp.
12-2035-998_4r3	messy	-	-	-	-	pervasive	
12-3043-551_9r1	illite	-	2196	2.2	-	pervasive	PH
12-3043-551_9r2	illite	-	2197	-	-	pervasive	PH
12-3043-551_9r3	illite	-	2200	2.2	-	pervasive	PH
12-3043-572_6r1	pyrophyllite, illite, minimal anhydrite	-	2204	1.7	-	pervasive	PH
12-3043-572_6r2	pyrophyllite, illite, anhydrite	-	2205	-	-	pervasive	PH
12-3043-572_6r3	illite, minimal pyrophyllite, minimal anhydrite	-	2202	-	-	pervasive	PH
12-3043-599_4r1	illite, pyrophyllite, anhydrite	-	2196	-	-	pervasive	PH
12-3043-599_4r2	pyrophyllite, illite, anhydrite	-	2197	-	-	pervasive	PH
12-3043-599_4r3	illite, minimal anhydrite	-	2197	-	-	pervasive	PH
12-3043-623_9r1	diaspore, anhydrite	-	-	-	-	pervasive	AA
12-3043-623_9r2	diaspore, anhydrite	-	-	-	-	pervasive	AA
12-3043-623_9r3	diaspore, anhydrite	-	-	-	-	pervasive	AA
12-3043-647_4r1	pyrophyllite, kaolinite, minimal anhydrite	-	-	-	-	pervasive	AA
12-3043-647_4r2	kaolinite, anhydrite, illite, minimal pyrophyllite	-	2204	-	-	pervasive	AA
12-3043-647_4r3	illite, anhydrite, minimal pyrophyllite	-	2199	-	-	pervasive	PH
12-3043-673_5r1	illite, minimal anhydrite	-	2200	-	-	pervasive	PH
12-3043-673_5r2	illite	-	2203	2.7	-	pervasive	PH
12-3043-673_5r3	illite	-	2204	2.8	-	pervasive	PH
12-3043-692_4r1	kaolinite, anhydrite	-	-	-	-	pervasive	AA
12-3043-692_4r2	illite	-	2204	2.6	-	pervasive	PH
12-3043-692_4r3	kaolinite, minimal anhydrite	-	-	-	-	pervasive	AA
12-3043-720r1	illite, minimal anhydrite	-	2203	-	-	pervasive	PH
12-3043-720r2	illite, possible kaolinite	-	2205	2.5	-	pervasive	AA
12-3043-720r3	illite, minimal anhydrite	-	2203	2.6	-	pervasive	PH
12-3043-742_5r1	kaolinite, anhydrite	-	-	-	-	pervasive	AA
12-3043-742_5r2	illite	-	2197	1.5	-	pervasive	PH
12-3043-742_5r3	illite, minimal anhydrite, minimal chlorite	2254	2204	1.7	-	pervasive	SCA
12-3043-761_1r1	illite, pyrophyllite, anhydrite	-	2203	-	-	pervasive	PH
12-3043-761_1r2	pyrophyllite, anhydrite	-	-	-	-	pervasive	PH
12-3043-761_1r3	pyrophyllite, anhydrite, minimal illite	-	-	-	-	pervasive	PH
12-3043-786_5r1	kaolinite, anhydrite	-	-	-	-	pervasive	AA
12-3043-786_5r2	illite, anhydrite	-	2198	-	-	pervasive	PH
12-3043-786_5r3	illite, anhydrite	-	2192	1.1	-	pervasive	PH
12-3043-803_9r1	illite, anhydrite, minimal chlorite	2253	2202	1.2	-	pervasive	SCA
12-3043-803_9r2	illite, anhydrite	-	2200	-	-	pervasive	PH
12-3043-803_9r3	illite, anhydrite, minimal chlorite	2253	2196	0.9	-	pervasive	SCA
12-3043-821r1	pyrophyllite, minimal anhydrite	-	-	-	-	pervasive	PH
12-3043-821r2	pyrophyllite, illite, anhydrite	-	2194	0.8	-	pervasive	PH
12-3043-821r3	pyrophyllite, illite, anhydrite	-	2198	-	-	pervasive	PH
12-3043-835_3r1	illite, anhydrite	-	2202	1.3	-	pervasive	PH
12-3043-835_3r2	illite, anhydrite	-	2201	-	-	pervasive	PH
12-3043-835_3r3	illite, minimal chlorite	2247	2198	1.5	-	pervasive	SCA
12-3043-858_3r1	pyrophyllite, anhydrite	-	-	-	-	pervasive	PH
12-3043-858_3r2	pyrophyllite, minimal anhydrite	-	-	-	-	pervasive	PH
12-3043-858_3r3	pyrophyllite, anhydrite	-	-	-	-	pervasive	PH
12-3043-873_4r1	illite (para), minimal pyrophyllite	-	2193	1.1	-	pervasive	PH
12-3043-873_4r2	illite (para), minimal pyrophyllite	-	2192	1.2	-	pervasive	PH
12-3043-873_4r3	pyrophyllite, minimal anhydrite	-	-	-	-	pervasive	PH
12-3043-898_9r1	chlorite, illite	2256	2191	1.1	-	pervasive	SCA
12-3043-898_9r2	chlorite, illite	2255	2193	1.0	-	pervasive	SCA
12-3043-898_9r3	messy - anhydrite	-	-	-	-	pervasive	
12-3043-922_5r1	chlorite, illite (para), anhydrite	2255	2192	-	-	pervasive	SCA
12-3043-922_5r2	chlorite, illite (para), anhydrite	2256	2190	-	-	pervasive	SCA
12-3043-922_5r3	chlorite, illite (para), anhydrite	2257	2191	1.5	-	pervasive	SCA
12-3043-948_6r1	kaolinite, anhydrite, chlorite	2253	-	-	-	pervasive	AA
12-3043-948_6r2	kaolinite, anhydrite	-	-	-	-	pervasive	AA
12-3043-948_6r3	kaolinite, minimal anhydrite	-	-	-	-	pervasive	AA
12-3043-955r1	chlorite, illite	2257	2195	1.2	-	pervasive	SCA
12-3043-955r2	chlorite, illite	2255	2192	1.5	-	pervasive	SCA
12-3043-955r3	illite (para), chlorite, minimal anhydrite	2254	2192	1.3	-	pervasive	SCA
12-3061-1010r1	chlorite	2253	-	-	-	pervasive	SCA
12-3061-1010r2	chlorite, anhydrite, minimal illite	2252	2205	-	-	pervasive	SCA
12-3061-1010r3	chlorite, anhydrite	2251	-	-	-	pervasive	SCA
12-3061-1031r1	illite	-	2197	3.1	-	pervasive	PH
12-3061-1031r2	illite, anhydrite	-	2196	-	-	pervasive	PH
12-3061-1031r3	illite	-	2197	2.2	-	pervasive	PH
12-3061-1051_2r1	illite, chlorite, anhydrite	2250	2199	-	-	pervasive	SCA
12-3061-1051_2r2	illite, chlorite, anhydrite	2251	2198	-	-	pervasive	SCA
12-3061-1051_2r3	chlorite, illite, minimal anhydrite	2250	-	-	-	pervasive	SCA
12-3061-1067_3r1	illite, chlorite, anhydrite	2247	2199	1.0	-	halo	SCA
12-3061-1067_3r2	illite	-	2195	1.3	-	halo	PH
12-3061-1067_3r3	illite, chlorite, anhydrite	2250	2199	-	-	pervasive	SCA

Sample ID/spot	Mineral ID	2250 position	2200 position	IC	1480 position	Alt style	Alter. Interp.
12-3061-1083_1r1	chlorite, illite, minimal anhydrite	2249	2202	-	-	pervasive	SCA
12-3061-1083_1r2	chlorite, illite, minimal anhydrite	2249	2199	-	-	pervasive	SCA
12-3061-1083_1r3	illite, minimal anhydrite	-	2198	1.4	-	pervasive	PH
12-3061-1110r1	illite, minimal chlorite, minimal anhydrite	-	2196	2.0	-	pervasive	SCA
12-3061-1110r2	illite, chlorite	2250	2199	2.3	-	pervasive	SCA
12-3061-1110r3	illite, chlorite	2249	2202	1.7	-	pervasive	SCA
12-3061-1130_4r1	illite	-	2197	2.3	-	pervasive	PH
12-3061-1130_4r2	illite, chlorite	-	2198	2.0	-	pervasive	SCA
12-3061-1130_4r3	illite	-	2197	3.6	-	pervasive	PH
12-3061-1149r1	illite, chlorite	2250	2197	1.5	-	pervasive	SCA
12-3061-1149r2	illite (para), chlorite	2250	2193	1.5	-	pervasive	SCA
12-3061-1149r3	illite (para), chlorite	2249	2194	1.4	-	pervasive	SCA
12-3061-1161r1	illite, chlorite	2250	2200	1.8	-	pervasive	SCA
12-3061-1161r2	illite, possible anhydrite	-	2196	1.1	-	pervasive	PH
12-3061-1161r3	illite, chlorite	-	2201	1.1	-	pervasive	SCA
12-3061-1185_3r1	illite, chlorite	2248	2199	1.1	-	pervasive	SCA
12-3061-1185_3r2	illite	-	2198	1.7	-	halo	PH
12-3061-1185_3r3	illite, chlorite	-	2200	1.2	-	pervasive	SCA
12-3061-1206_7r1	illite, anhydrite, chlorite	2250	2200	0.7	-	pervasive	SCA
12-3061-1206_7r2	illite, anhydrite, chlorite	2250	2199	0.9	-	pervasive	SCA
12-3061-1206_7r3	messy - illite, possible chlorite	2257	2198	1.2	-	pervasive	SCA
12-3061-1221r1	illite, anhydrite	-	2198	1.3	-	breccia matrix	PH
12-3061-1221r2	illite, minimal anhydrite	-	2199	1.8	-	breccia clast	PH
12-3061-1221r3	illite, anhydrite	-	2193	1.2	-	breccia matrix	PH
12-3061-1244_8r1	illite, anhydrite, chlorite	2251	2198	-	-	pervasive	SCA
12-3061-1244_8r2	illite, anhydrite, chlorite	2252	2197	-	-	pervasive	SCA
12-3061-1244_8r3	illite, anhydrite, chlorite	2252	2197	0.5	-	pervasive	SCA
12-3061-1265_5r1	illite, minimal anhydrite	-	2195	1.5	-	pervasive	PH
12-3061-1265_5r2	illite	-	2197	1.7	-	pervasive	PH
12-3061-1265_5r3	illite	-	2195	2.1	-	pervasive	PH
12-3061-1290r1	illite	-	2195	2.4	-	halo	PH
12-3061-1290r2	illite	-	2195	2.1	-	halo	PH
12-3061-1290r3	illite, chlorite	2247	2193	0.6	-	pervasive	SCA
12-3061-1310_7r1	illite (para), chlorite	-	2192	1.3	-	pervasive	SCA
12-3061-1310_7r2	illite, minimal anhydrite	-	2194	1.5	-	pervasive	PH
12-3061-1310_7r3	illite, minimal anhydrite	-	2194	2.0	-	pervasive	PH
12-3061-1330r1	illite	-	2195	1.9	-	pervasive	PH
12-3061-1330r2	illite	-	2198	1.7	-	pervasive	PH
12-3061-1330r3	illite	-	2199	-	-	pervasive	PH
12-3061-1352_5r1	illite, chlorite, anhydrite	2250	2192	1.2	-	pervasive	SCA
12-3061-1352_5r2	illite, minimal chlorite, minimal anhydrite	2247	2196	1.5	-	pervasive	SCA
12-3061-1352_5r3	illite	-	2195	1.7	-	pervasive	PH
12-3061-941_7r1	chlorite, illite, minimal anhydrite	2250	2202	1.4	-	halo	SCA
12-3061-941_7r2	chlorite, illite, minimal anhydrite	2249	-	-	-	pervasive	SCA
12-3061-941_7r3	chlorite, minimal illite, minimal anhydrite	2249	-	-	-	halo	SCA
12-3061-963_4r1	illite, anhydrite	-	2196	1.1	-	pervasive	PH
12-3061-963_4r2	illite	-	2196	-	-	pervasive	PH
12-3061-963_4r3	illite	-	2196	1.1	-	pervasive	PH
12-3061-986_8r1	anhydrite	-	-	-	-	halo	
12-3061-986_8r2	anhydrite	-	-	-	-	halo	
12-3061-986_8r3	illite, anhydrite, minimal chlorite	2247	2200	1.2	-	pervasive	SCA
12-6050-1010_25r1	pyrophyllite, anhydrite	-	-	-	-	halo	PH
12-6050-1010_25r2	pyrophyllite, anhydrite	-	-	-	-	halo	PH
12-6050-1010_25r3	pyrophyllite, anhydrite	-	-	-	-	halo	PH
12-6050-1031_7r1	pyrophyllite, anhydrite	-	-	-	-	halo	PH
12-6050-1031_7r2	pyrophyllite, anhydrite	-	-	-	-	halo	PH
12-6050-1031_7r3	pyrophyllite, anhydrite	-	-	-	-	halo	PH
12-6050-1064_5r1	illite, anhydrite	-	2204	-	-	halo	PH
12-6050-1064_5r2	illite, chlorite, anhydrite	2247	2204	-	-	pervasive	SCA
12-6050-1064_5r3	illite, anhydrite	-	2205	-	-	halo	PH
12-6050-1082_6r1	illite	-	2198	1.0	-	halo	PH
12-6050-1082_6r2	messy - biotite, anhydrite	-	-	-	-	pervasive	K
12-6050-1082_6r3	biotite, illite, anhydrite	-	2205	-	-	pervasive	K
12-6050-1104_7r1	illite, chlorite, anhydrite	2249	2203	-	-	pervasive	SCA
12-6050-1104_7r2	chlorite, anhydrite, illite	2249	2208	-	-	pervasive	SCA
12-6050-1104_7r3	chlorite, anhydrite, illite	2248	2204	-	-	pervasive	SCA
12-6050-1128_9r1	chlorite, anhydrite, illite	2250	2202	-	-	pervasive	SCA
12-6050-1128_9r2	illite, chlorite, anhydrite	2250	2202	0.6	-	pervasive	SCA
12-6050-1128_9r3	chlorite, illite	2250	2204	0.7	-	pervasive	SCA
12-6050-1144_3r1	illite	-	2195	1.2	-	halo	PH
12-6050-1144_3r2	illite	-	2195	1.1	-	halo	PH
12-6050-1144_3r3	messy - biotite, anhydrite	-	-	-	-	pervasive	K
12-6050-1166_5r1	chlorite, illite	2246	2200	1.4	-	pervasive	SCA

Sample ID/spot	Mineral ID	2250 position	2200 position	IC	1480 position	Alt style	Alter. Interp.
12-6050-1166_5r2	chlorite, illite	2247	2224	0.8	-	pervasive	SCA
12-6050-1166_5r3	chlorite, illite	2247	2199	0.9	-	pervasive	SCA
12-6050-1189_3r1	illite, anhydrite	-	2191	0.6	-	pervasive	PH
12-6050-1189_3r2	anhydrite, illite, chlorite	-	2191	0.5	-	pervasive	SCA
12-6050-1189_3r3	anhydrite, illite	-	2192	0.8	-	pervasive	PH
12-6050-1196_4r1	chlorite, illite, anhydrite	-	2200	-	-	pervasive	SCA
12-6050-1196_4r2	chlorite, illite, anhydrite	2248	2201	-	-	pervasive	SCA
12-6050-1196_4r3	chlorite, anhydrite, illite	2247	2202	-	-	pervasive	SCA
12-6050-1223_2r1	chlorite, anhydrite, illite	2249	2203	-	-	pervasive	SCA
12-6050-1223_2r2	chlorite, anhydrite	2250	-	-	-	pervasive	SCA
12-6050-1223_2r3	chlorite, anhydrite	2251	-	-	-	pervasive	SCA
12-6050-1255r1	anhydrite, illite	-	2194	-	-	pervasive	PH
12-6050-1255r2	illite, anhydrite	-	2194	-	-	pervasive	PH
12-6050-1255r3	anhydrite, illite	-	2195	-	-	pervasive	PH
12-6050-1277_7r1	chlorite, illite	2252	2200	1.0	-	pervasive	SCA
12-6050-1277_7r2	chlorite	2251	-	-	-	pervasive	SCA
12-6050-1277_7r3	chlorite	2251	-	-	-	pervasive	SCA
12-6050-950_1r1	illite, anhydrite	-	2196	1.0	-	halo	PH
12-6050-950_1r2	illite, anhydrite	-	2195	0.7	-	halo	PH
12-6050-950_1r3	illite, anhydrite	-	2198	1.1	-	pervasive	PH
12-6050-970_2r1	biotite, anhydrite	-	-	-	-	pervasive	K
12-6050-970_2r2	biotite, anhydrite	-	-	-	-	pervasive	K
12-6050-970_2r3	biotite, anhydrite	-	-	-	-	pervasive	K
12-6050-989_9r1	illite, anhydrite	-	2193	-	-	pervasive	PH
12-6050-989_9r2	illite, anhydrite	-	2192	1.4	-	pervasive	PH
12-6050-989_9r3	illite, anhydrite	-	2193	-	-	pervasive	PH
12-8037-0017_7b	opal,biotite? epidote ?(aux: 387 + cuprite)	-	-	-	-	pervasive	PR
12-8037-0017_7b	opal,biotite? epidote ?(aux: 387 + cuprite)	-	-	-	-	pervasive	PR
12-8037-0017_7b	opal,biotite? epidote ?(aux: 387 + cuprite)	-	-	-	-	pervasive	PR
12-8037-0034_5b	illite-ms (aux: 498)	-	-	-	-	pervasive	PH
12-8037-0034_5r	illite-ms	-	-	-	-	pervasive	PH
12-8037-0034_5y	illite-ms	-	-	-	-	pervasive	PH
12-8037-0124Ab	pyrophyllite, minimal muscovite-il	-	-	-	-	halo	PH
12-8037-0124Ar	pyrophyllite, chlorite	2259	-	-	-	pervasive	PR
12-8037-0124Ay	chlorite, pyrophyllite	2258	-	-	-	pervasive	PR
12-8037-0124Bb	pyrophyllite	-	-	-	-	pervasive	PH
12-8037-0124Br	pyrophyllite	-	-	-	-	pervasive	PH
12-8037-0129_9b	diaspore, minimal pyrophyllite	-	-	-	-	pervasive	AA
12-8037-0129_9r	diaspore, minimal pyrophyllite	-	-	-	-	pervasive	AA
12-8037-0224_2b	pyrophyllite	-	-	-	-	halo	PH
12-8037-0224_2r	pyrophyllite, muscovite-il	-	2195	1.7	-	halo	PH
12-8037-0224_2y	pyrophyllite, muscovite-il	-	2194	1.9	-	halo	PH
12-8037-0231b	alunite-Na, minimal pyrophyllite, muscovite-il	-	2186	-	1490	pervasive	AA
12-8037-0231r	alunite-Na	-	-	-	1490	pervasive	AA
12-8037-0350_1b	messy	-	-	-	-	pervasive	-
12-8037-0350_1p	muscovite-il	-	2196	-	-	halo	PH
12-8037-0350_1r	pyrophyllite, muscovite-il	-	2196	3.6	-	halo	PH
12-8037-0350_1y	messy - pyrophyllite, muscovite-il	-	2202	2.5	-	pervasive	PH
12-8037-0375_9b	messy - pyrophyllite, muscovite-il	-	2197	2.3	-	pervasive	PH
12-8037-0375_9r	muscovite-il, pyrophyllite	-	2195	2.6	-	halo	PH
12-8037-0375_9y	muscovite-il, pyrophyllite	-	2196	-	-	halo	PH
12-8037-0400b	diaspore, alunite-Na, pyrophyllite	-	-	-	1491	pervasive	AA
12-8037-0400r	alunite-Na, diaspore, pyrophyllite	-	-	-	1491	pervasive	AA
12-8037-0400y	pyrophyllite, diaspore, alunite-Na	-	-	-	1488	pervasive	AA
12-8037-0450b	alunite-K, pyrophyllite, diaspore	-	-	-	1484	pervasive	AA
12-8037-0450r	pyrophyllite, alunite-K, minimal diaspore	-	-	-	1484	pervasive	AA
12-8037-0450y	diaspore, alunite, pyrophyllite	-	-	-	1484	pervasive	AA
12-8037-0500_8b	muscovite-il, pyrophyllite	-	2195	3.1	-	pervasive	PH
12-8037-0500_8r	paragonite, pyrophyllite	-	-	-	-	pervasive	PH
12-8037-0500_8y	paragonite, pyrophyllite	-	-	-	-	pervasive	PH
12-8037-0544b	muscovite-il	-	2196	3.3	-	pervasive	PH
12-8037-0544r	pyrophyllite, muscovite-il	-	2195	3.3	-	pervasive	PH
12-8037-0544y	muscovite-il	-	2196	2.4	-	pervasive	PH
12-8037-0552b	pyrophyllite, muscovite-il	-	2195	3.4	-	pervasive	PH
12-8037-0552r	pyrophyllite, muscovite-il	-	2195	3.3	-	pervasive	PH
12-8037-0552y	pyrophyllite, muscovite-il	-	2194	2.9	-	pervasive	PH
12-8037-0600b	pyrophyllite, muscovite-il	-	2203	2.2	-	pervasive	PH
12-8037-0600r	muscovite-il	-	2198	3.6	-	pervasive	PH
12-8037-0600y	pyrophyllite, muscovite-il,	-	2184	1.8	-	pervasive	PH
12-8037-0650_8b	muscovite-il	-	2195	3.5	-	halo	PH
12-8037-0650_8r	muscovite-il, chlorite	2257	2194	-	-	pervasive	SCA
12-8037-0650_8y	muscovite-il, chlorite	2258	2196	1.5	-	pervasive	SCA
12-8037-0654_8b	muscovite-il	-	2199	4.0	-	pervasive	PH

Sample ID/spot	Mineral ID	2250 position	2200 position	IC	1480 position	Alt style	Alter. Interp.
12-8037-0654_8r	muscovite-il	-	2199	4.0	-	pervasive	PH
12-8037-0654_8y	muscovite-il	-	2198	-	-	pervasive	PH
12-8037-0699_5b	messy - muscovite-il	-	2194	2.0	-	pervasive	PH
12-8037-0699_5r	muscovite-il	-	2194	3.1	-	halo	PH
12-8037-0699_5y	pyrophyllite, muscovite-il (strange lump 1430-1670)	-	2194	-	-	halo	PH
12-8037-0750_4b	muscovite-il	-	2197	5.4	-	pervasive	PH
12-8037-0750_4r	muscovite-il	-	2197	-	-	pervasive	PH
12-8037-0750_4y	muscovite-il	-	2198	5.0	-	pervasive	PH
12-8037-0801_9b	muscovite-il, chlorite	2248	2197	1.2	-	pervasive	SCA
12-8037-0801_9p	muscovite-il, chlorite	2250	2200	1.2	-	pervasive	SCA
12-8037-0801_9r	muscovite-il	-	2200	4.9	-	halo	PH
12-8037-0801_9y	muscovite-il	-	2198	6.5	-	halo	PH
12-8037-0850_8b	muscovite-il	-	2198	1.9	-	pervasive	PH
12-8037-0850_8r	muscovite-il	-	2199	3.2	-	pervasive	PH
12-8037-0850_8y	muscovite-il	-	2197	-	-	pervasive	PH
12-8037-0900_4b	muscovite-il, possible anhydrite	-	2203	-	-	pervasive	PH
12-8037-0900_4p	muscovite-il	-	2200	1.2	-	pervasive	PH
12-8037-0900_4r	muscovite-il, possible anhydrite	-	2201	-	-	pervasive	PH
12-8037-0900_4y	muscovite-il, possible anhydrite, possible chlorite	-	2204	1.2	-	pervasive	SCA
12-8037-0950_2b	pyrophyllite	-	-	-	-	pervasive	PH
12-8037-0950_2r	pyrophyllite	-	-	-	-	pervasive	PH
12-8037-0950_2y	pyrophyllite	-	-	-	-	pervasive	PH
12-8037-0999_2b	chlorite, minimal muscovite,	2250	2209	-	-	pervasive	SCA
12-8037-0999_2p	illite-ms	-	2198	1.2	-	halo	PH
12-8037-0999_2r1	chlorite	2250	-	-	-	pervasive	SCA
12-8037-0999_2r2	chlorite, muscovite	2250	2208	-	-	pervasive	SCA
12-8037-0999_2y	illite-ms	-	2199	1.2	-	halo	PH
12-8037-1054_9b	chlorite, minimal muscovite-il?	-	2225	-	-	pervasive	SCA
12-8037-1054_9p	muscovite-il, minimal chlorite	-	2203	1.5	-	halo	SCA
12-8037-1054_9r	chlorite, minimal muscovite-il	2249	2205	-	-	pervasive	SCA
12-8037-1054_9y	chlorite, minimal muscovite-il	2248	2212	-	-	pervasive	SCA
12-8037-1101_5b	messy	-	-	-	-	pervasive	-
12-8037-1101_5p	chlorite, muscovite-il	2251	2210	-	-	halo	SCA
12-8037-1101_5r	messy	-	-	-	-	pervasive	-
12-8037-1101_5y	messy - chlorite	2250	-	-	-	pervasive	SCA
12-8037-1149_5r1	illite-ms, chlorite	2250	2198	0.9	-	pervasive	SCA
12-8037-1149_5r2	messy - chlorite, muscovite-il	2251	2202	-	-	pervasive	SCA
12-8037-1149_5r3	illite-ms	-	-	-	-	halo	PH
12-8037-1149_5r4	illite-ms	-	-	-	-	halo	PH
12-8037-1149_5r5	illite-ms	-	-	-	-	halo	PH
12-8037-1149_5r6	illite-ms	-	-	-	-	halo	PH
12-8037-1198_7r1	messy - chlorite	2252	-	-	-	pervasive	SCA
12-8037-1198_7r2	messy - chlorite?	2251	-	-	-	pervasive	SCA
12-8037-1198_7r3	illite-ms	-	2205	1.1	-	halo	PH
12-8037-1198_7r4	illite-ms, chlorite	2248	2206	-	-	halo	SCA
12-8037-1228_9r1	messy - chlorite?	2249	-	-	-	pervasive	SCA
12-8037-1228_9r2	messy - muscovite, chlorite	-	2201	0.5	-	pervasive	SCA
12-8037-1247_2r1	chlorite, illite-ms	2250	2205	-	-	pervasive	SCA
12-8037-1247_2r2	chlorite, illite-ms	2250	2204	-	-	halo	SCA
12-8037-1247_2r3	chlorite, biotite?	2248	-	-	-	pervasive	SCA
12-8037-1247_2r4	chlorite, muscovite	2251	2223	-	-	halo	SCA
12-8037-1303_9r1	messy	-	-	-	-	pervasive	-
12-8037-1303_9r2	chlorite, illite-ms	2250	2205	1.1	-	pervasive	SCA
12-8037-1303_9r3	chlorite	2252	-	-	-	pervasive	SCA
12-8037-1350_3r1	muscovite-il, chlorite	2246	2205	2.4	-	pervasive	SCA
12-8037-1350_3r2	muscovite-il, chlorite	2248	2204	2.0	-	pervasive	SCA
12-8037-1350_3r3	muscovite-il, chlorite	2250	2205	2.4	-	pervasive	SCA
12-8037-1350_3r4	messy	-	-	-	-	pervasive	-
12-8037-1399_5r1	illite-ms, chlorite, possible anhydrite	2247	2208	-	-	pervasive	SCA
12-8037-1399_5r2	muscovite-il, possible chlorite??	-	2206	1.4	-	pervasive	SCA
12-8037-1407_5r1	biotite, illite, anhydrite	-	2206	-	-	pervasive	K
12-8037-1407_5r2	biotite, illite, anhydrite	-	2205	-	-	pervasive	K
12-8037-1407_5r3	biotite, illite, anhydrite	-	2206	-	-	pervasive	K
12-8037-1432_9r1	illite	-	2195	2.1	-	halo	PH
12-8037-1432_9r2	illite	-	2197	2.1	-	halo	PH
12-8037-1432_9r3	messy - biotite?	-	-	-	-	pervasive	K
12-8037-1450_2r1	messy	-	-	-	-	pervasive	-
12-8037-1450_2r2	chlorite, minimal muscovite-il	2250	-	-	-	pervasive	SCA
12-8037-1450_2r3	chlorite, muscovite-il	2251	2201	0.8	-	halo	SCA
12-8037-1455_4r1	illite	-	2197	1.1	-	halo	PH
12-8037-1455_4r2	illite	-	2196	1.1	-	halo	PH
12-8037-1455_4r3	illite, anhydrite	-	2195	0.9	-	halo	PH

Sample ID/spot	Mineral ID	2250 position	2200 position	IC	1480 position	Alt style	Alter. Interp.
12-8037-1472_5r1	illite, anhydrite	-	2196	-	-	pervasive	PH
12-8037-1472_5r2	illite, anhydrite	-	2195	0.9	-	pervasive	PH
12-8037-1472_5r3	illite, anhydrite	-	2195	0.9	-	pervasive	PH
12-8037-1475_9r1	muscovite-il	-	2195	2.8	-	halo	PH
12-8037-1475_9r2	muscovite-il	-	2198	2.5	-	halo	PH
12-8037-1475_9r3	muscovite-il	-	2198	2.4	-	halo	PH
12-8037-1495_4r1	anhydrite, illite	-	2199	-	-	pervasive	PH
12-8037-1495_4r2	illite, anhydrite	-	2197	-	-	halo	PH
12-8037-1495_4r3	illite	-	2197	1.9	-	halo	PH
12-8037-1501_3r1	muscovite-il, minimal chlorite	-	2205	2.7	-	pervasive	SCA
12-8037-1501_3r2	muscovite-il, minimal chlorite	2246	2205	1.5	-	pervasive	SCA
12-8037-1501_3r3	muscovite-il, minimal chlorite	-	2206	1.6	-	halo	SCA
12-8037-1507r1	illite	-	2199	2.1	-	pervasive	PH
12-8037-1507r2	illite	-	2201	1.6	-	pervasive	PH
12-8037-1507r3	illite	-	2200	1.6	-	pervasive	PH
12-8037-1512_9r1	muscovite-il, minimal chlorite	-	2204	1.5	-	pervasive	SCA
12-8037-1512_9r2	muscovite-il	-	2202	2.4	-	pervasive	PH
12-9066-0029_6b1	dickite, diaspore	-	-	-	-	pervasive	AA
12-9066-0029_6b2	dickite	-	-	-	-	pervasive	AA
12-9066-0029_6b3	dickite, diaspore, pyrophyllite	-	-	-	-	pervasive	AA
12-9066-0064_3b1	illite-ms	-	2192	0.9	-	pervasive	PH
12-9066-0064_3b2	illite-ms	-	2191	0.9	-	pervasive	PH
12-9066-0064_3b3	illite-ms	-	2192	0.9	-	pervasive	PH
12-9066-0100_5r1	illite-ms	-	2191	0.7	-	pervasive	PH
12-9066-0100r1	illite-ms	-	-	-	-	pervasive	PH
12-9066-0100r2	illite-ms	-	2188	0.6	-	pervasive	PH
12-9066-0101_3r1	pyrophyllite, minimal illite-ms	-	2183	1.3	-	pervasive	PH
12-9066-0101_3r2	pyrophyllite	-	-	-	-	pervasive	PH
12-9066-0105_7r1	messy	-	-	-	-	pervasive	-
12-9066-0106_9r1	diaspore, pyrophyllite, anhydrite	-	-	-	-	pervasive	AA
12-9066-0106_9r2	diaspore, pyrophyllite, possible anhydrite	-	-	-	-	pervasive	AA
12-9066-0150r1	illite-ms (aux: 485)	-	2194	1.0	-	pervasive	PH
12-9066-0150r2	illite-ms	-	2195	1.0	-	pervasive	PH
12-9066-0200r1	illite-ms, minimal chlorite	2249	2190	1.2	-	pervasive	SCA
12-9066-0200r2	illite-ms, minimal chlorite	2258	2191	0.9	-	pervasive	SCA
12-9066-0200r3	illite-ms, minimal chlorite	2254	2192	1.1	-	pervasive	SCA
12-9066-0248_7r1	diaspore, alunite	-	-	-	1490	pervasive	AA
12-9066-0248_7r2	diaspore	-	-	-	-	pervasive	AA
12-9066-0248_7r3	diaspore, alunite	-	-	-	1487	pervasive	AA
12-9066-0299_6b1	diaspore, alunite, pyrophyllite, anhydrite	-	-	-	1486	pervasive	AA
12-9066-0299_6b2	anhydrite, minimal pyrophyllite, diaspore and alunite	-	-	-	1485	pervasive	AA
12-9066-0299_6b3	anhydrite, alunite, minimal diaspore, pyrophyllite	-	-	-	1487	pervasive	AA
12-9066-0347_5b1	diaspore, anhydrite	-	-	-	-	pervasive	AA
12-9066-0347_5b2	diaspore, anhydrite, minimal pyrophyllite	-	-	-	-	pervasive	AA
12-9066-0347_5b3	diaspore, anhydrite, minimal pyrophyllite	-	-	-	-	pervasive	AA
12-9066-0360_1r1	pyrophyllite, anhdrite possible illite-ms	-	2186	-	-	pervasive	PH
12-9066-0360_1r2	pyrophyllite, illite-ms (paragonite), possible anhydrite	-	2193	2.3	-	pervasive	PH
12-9066-0360_1r3	pyrophyllite, illite-ms (paragonite), anhydrite, possible diaspore	-	2194	2.7	-	pervasive	AA
12-9066-0400b1	anhydrite, pyrophyllite, illite-ms	-	2206	-	-	pervasive	PH
12-9066-0400b2	anhydrite, pyrophyllite, illite-ms (peak at 2182 unexplained)	-	2206	-	-	pervasive	PH
12-9066-0400b3	diaspore, pyrophyllite, anhydrite, illite-ms	-	2189	0.5	-	pervasive	PH
12-9066-0449_7b1	illite-ms, anhydrite	-	2200	-	-	pervasive	PH
12-9066-0449_7b2	illite-ms, anhydrite	-	2201	-	-	pervasive	PH
12-9066-0449_7b3	illite-ms, anhydrite	-	2202	-	-	pervasive	PH
12-9066-0493_4b1	pyrophyllite, illite-ms, minimal anhydrite	-	2207	-	-	pervasive	PH
12-9066-0493_4b2	pyrophyllite, illite-ms, minimal anhydrite	-	-	-	-	pervasive	PH
12-9066-0493_4b3	pyrophyllite, minimal illite-ms	-	-	-	-	pervasive	PH
12-9066-0602_5r1	illite-ms, chlorite, anhydrite	2250	2200	-	-	pervasive	SCA
12-9066-0602_5r2	illite-ms, anhydrite, chlorite	2252	2200	-	-	pervasive	SCA
12-9066-0638_3r1	illite-ms (paragonite), anhydrite	-	2193	1.0	-	halo	PH
12-9066-0638_3r2	illite-ms (paragonite), chlorite, anydrite	2253	2193	1.1	-	pervasive	SCA
12-9066-0737_7r1	illite-ms, anhydrite, chlorite	2251	2202	-	-	pervasive	SCA
12-9066-0746_2r1	pyrophyllite, minimal illite-ms (paragonite), anhydrite	-	2187	-	-	halo	PH
12-9066-0746_2r2	anhydrite, illite-ms (paragonite), minimal pyrophyllite	-	-	-	-	pervasive	PH
12-9066-0752_3b1	pyrophyllite, minimal anhydrite	-	-	-	-	pervasive	PH
12-9066-0752_3b2	pyrophyllite, anhydrte, illite-ms	-	2206	-	-	pervasive	PH
12-9066-0752_3b3	pyrophyllite, minimal anhydrite	-	-	-	-	pervasive	PH
12-9066-0854_8r1	illite-ms	-	2186	0.8	-	pervasive	PH
12-9066-0854_8r2	messy - illite-ms, anhydrite	-	2191	0.9	-	pervasive	PH
12-9066-0870r1	illite-ms, anhydrite	-	2200	1.1	-	pervasive	PH

Sample ID/spot	Mineral ID	2250 position	2200 position	IC	1480 position	Alt style	Alter. Interp.
12-9066-0870r2	illite-ms, minimal anhydrite	-	2199	-	-	pervasive	PH
12-9066-0898_6r1	illite-ms, minimal anhydrite	-	2196	-	-	pervasive	PH
12-9066-1069_8r1	anhydrite, chlorite, illite-ms	2249	2211	-	-	pervasive	SCA
12-9066-1142_1r1	illite-ms, chlorite, anhydrite	2248	2205	-	-	halo	SCA
12-9066-1142_1r2	chlorite, anhydrite	2250	-	-	-	pervasive	SCA
12-9066-1142_1r3	chlorite, anhydrite	2250	-	-	-	pervasive	SCA
12-9066-1147_3r1	messy - chlorite, anhydrite...	2252	-	-	-	pervasive	SCA
12-9066-1147_3r2	messy - chlorite, anhydrite...	2250	-	-	-	pervasive	SCA
12-9066-1168_3r1	illite-ms	-	2194	1.1	-	pervasive	PH
12-9066-1168_3r2	illite-ms, minimal anhydrite	-	2195	1.1	-	pervasive	PH
12-9066-1226_8r1	illite-ms, possibly minimal anhydrite, chlorite	-	2209	1.2	-	pervasive	SCA
12-9066-1336_4r1	messy - chlorite, illite-ms	2251	2201	0.6	-	pervasive	SCA
13-10071-1009_7r1	anhydrite, illite	-	2194	-	-	pervasive	PH
13-10071-1009_7r2	illite	-	2195	1.0	-	pervasive	PH
13-10071-1009_7r3	illite	-	2193	1.1	-	pervasive	PH
13-10071-1037_5r1	messy	-	-	-	-	pervasive	-
13-10071-1037_5r2	messy	-	-	-	-	pervasive	-
13-10071-1037_5r3	messy	-	-	-	-	pervasive	-
13-10071-137_5r1	illite, minimal anhydrite	-	2193	1.3	-	pervasive	PH
13-10071-137_5r2	illite, minimal anhydrite	-	2194	1.4	-	pervasive	PH
13-10071-137_5r3	illite, minimal anhydrite	-	2191	0.8	-	pervasive	PH
13-10071-144_5r1	illite	-	2194	1.2	-	pervasive	PH
13-10071-144_5r2	illite, diaspore, minimal pyrophyllite	-	2196	0.9	-	pervasive	AA
13-10071-144_5r3	illite, anhydrite, diaspore	-	2194	-	-	pervasive	AA
13-10071-173_8r1	illite	-	2193	1.0	-	pervasive	PH
13-10071-173_8r2	illite	-	2193	0.9	-	pervasive	PH
13-10071-173_8r3	illite	-	2191	0.8	-	pervasive	PH
13-10071-18r1	illite, minimal anhydrite, possible chlorite	2253	2203	-	-	breccia matrix	SCA
13-10071-18r2	illite, chlorite	2253	2205	-	-	breccia matrix	SCA
13-10071-18r3	chlorite, possible illite, possible anhydrite	2255	2208	-	-	breccia matrix	SCA
13-10071-35_9r1	chlorite, opal, possible illite	-	2194	-	-	pervasive	SCA
13-10071-35_9r2	chlorite, opal	2250	-	-	-	pervasive	SCA
13-10071-786_5r1	illite, chlorite	2254	2195	1.3	-	pervasive	SCA
13-10071-786_5r2	illite	-	2195	2.0	-	halo	PH
13-10071-786_5r3	illite, minimal anhydrite	-	2195	-	-	halo	PH
13-10071-800_9r1	anhydrite, minimal illite	-	2217	-	-	pervasive	PH
13-10071-800_9r2	anhydrite, illite, minimal chlorite	2251	2210	-	-	pervasive	SCA
13-10071-800_9r3	anhydrite, chlorite, illite	2251	2219	-	-	pervasive	SCA
13-10071-822_1r1	illite, anhydrite, minimal chlorite	-	2205	-	-	halo	SCA
13-10071-822_1r2	anhydrite, chlorite, illite	2252	2205	-	-	pervasive	SCA
13-10071-822_1r3	anhydrite, minimal illite	-	2208	-	-	halo	PH
13-10071-843_2r1	illite, minimal chlorite	2250	2203	0.6	-	pervasive	SCA
13-10071-843_2r2	illite, anhydrite	-	2198	-	-	halo	PH
13-10071-843_2r3	illite, chlorite, minimal anhydrite	2252	2204	-	-	pervasive	SCA
13-10071-873_8r1	kaolinite + spike I don't understand	-	-	-	-	pervasive	AA
13-10071-873_8r2	kaolinite, illite	-	2206	0.7	-	pervasive	AA
13-10071-873_8r3	kaolinite, possible illite	-	2206	0.6	-	pervasive	AA
13-10071-897_5r1	illite	-	2202	0.8	-	halo	PH
13-10071-897_5r2	kaolinite, anhydrite	-	-	-	-	pervasive	AA
13-10071-897_5r3	kaolinite	-	-	-	-	pervasive	AA
13-10071-923_5r1	illite, chlorite, possible kaolinite, minimal anhydrite	2248	2207	0.5	-	pervasive	AA
13-10071-923_5r2	illite, chlorite, minimal anhydrite	2246	2207	-	-	pervasive	SCA
13-10071-923_5r3	kaolinite, chlorite, possible illite	2252	2207	-	-	pervasive	AA
13-10071-937_5r1	illite, anhydrite	-	2192	-	-	halo	PH
13-10071-937_5r2	illite, anhydrite	-	2194	-	-	halo	PH
13-10071-937_5r3	illite, anhydrite	-	2192	-	-	halo	PH
13-10071-960_8r1	illite, anhydrite	-	2197	-	-	pervasive	PH
13-10071-960_8r2	anhydrite, illite	-	2205	-	-	pervasive	PH
13-10071-982r1	messy - anhydrite, illite possible chlorite	2249	2210	0.6	-	pervasive	SCA
13-10071-982r2	messy	-	-	-	-	pervasive	-
13-10071W1-1000r1	chlorite, illite, minimal anhydrite	2248	2208	0.6	-	halo	SCA
13-10071W1-1000r2	chlorite, minimal anhydrite, possible illite	2253	2225	0.5	-	pervasive	SCA
13-10071W1-1000r3	messy - chlorite, illite	2254	2203	0.8	-	pervasive	SCA
13-10071W1-1020_4r1	pyrophyllite, anhydrite	-	-	-	-	pervasive	PH
13-10071W1-1020_4r2	pyrophyllite	-	-	-	-	pervasive	PH
13-10071W1-1020_4r3	pyrophyllite	-	-	-	-	pervasive	PH
13-10071W1-1043r1	illite	-	2194	1.5	-	pervasive	PH
13-10071W1-1043r2	illite	-	2194	1.6	-	pervasive	PH
13-10071W1-1043r3	illite	-	2193	1.5	-	pervasive	PH
13-10071W1-1078_4r1	illite, minimal anhydrite	-	2197	1.2	-	halo	PH
13-10071W1-1078_4r2	illite, chlorite	2252	2204	1.6	-	pervasive	SCA
13-10071W1-1078_4r3	illite, chlorite, minimal anhydrite	-	2200	1.1	-	pervasive	SCA

Sample ID/spot	Mineral ID	2250 position	2200 position	IC	1480 position	Alt style	Alter. Interp.
13-10071W1-1090r1	illite	-	2204	0.8	-	pervasive	PH
13-10071W1-1090r2	illite	-	2205	0.9	-	pervasive	PH
13-10071W1-1090r3	illite	-	2196	1.1	-	pervasive	PH
13-10071W1-1122_5r1	chlorite, minimal illite	2252	2206	0.7	-	pervasive	SCA
13-10071W1-1122_5r2	chlorite, minimal illite	2253	2203	0.5	-	pervasive	SCA
13-10071W1-1122_5r3	chlorite, illite	2251	2204	0.9	-	pervasive	SCA
13-10071W1-1154_7r1	illite, chlorite, minimal pyrophyllite	2252	2205	-	-	pervasive	SCA
13-10071W1-1154_7r2	illite, minimal chlorite	-	2203	0.8	-	pervasive	SCA
13-10071W1-1154_7r3	illite	-	2202	1.0	-	pervasive	PH
13-11076-0002_9r1	illite-ms	-	2183	-	-	pervasive	PH
13-11076-0002_9r2	illite-ms, minimal chlorite	2249	2192	-	-	pervasive	PR
13-11076-0099_9b2	chlorite (large unexplained peak at 1914)	2254	-	-	-	pervasive	PR
13-11076-0099_9b3	chlorite, anhydrite	2254	-	-	-	pervasive	PR
13-11076-0099_9r1	chlorite, minimal illite-ms	2254	2198	-	-	pervasive	PR
13-11076-0198_7b1	illite-ms, minimal chlorite	2251	2188	0.5	-	pervasive	PR
13-11076-0198_7b2	illite-ms, minimal chlorite	2255	2181	-	-	pervasive	PR
13-11076-0198_7b3	illite-ms, chlorite	2250	2199	0.8	-	pervasive	PR
13-11076-0237_3b1	messy - illite-ms, anhydrite, possible chlorite	2261	2192	-	-	pervasive	PR
13-11076-0237_3b2	anhydrite (aux: 73)	-	-	-	-	pervasive	-
13-11076-0250_8b1	illite-ms, chlorite	2250	2203	0.7	-	breccia matrix	PR
13-11076-0250_8b2	illite-ms, chlorite	2247	2204	0.7	-	breccia matrix	PR
13-11076-0265b1	pyrophyllite, illite-ms (paragonite peaks)	-	2193	1.3	-	pervasive	AA
13-11076-0265b2	illite-ms (paragonite peaks), minimal pyrophyllite	-	2193	1.2	-	pervasive	AA
13-11076-0266b1	pyrophyllite, illite-ms	-	-	-	-	pervasive	AA
13-11076-0266b2	pyrophyllite, illite-ms	-	2192	1.1	-	pervasive	AA
13-11076-0266b3	pyrophyllite, illite-ms	-	2184	0.7	-	pervasive	AA
13-11076-0300_2b1	pyrophyllite, illite-ms (paragonite peaks), diaspore, anhydrite	-	-	-	-	pervasive	AA
13-11076-0300_2b2	pyrophyllite, diaspore, anhydrite, minimal illite-ms (paragonite peaks)	-	-	-	-	pervasive	AA
13-11076-0300_2b3	pyrophyllite, anhydrite, possible diaspore	-	-	-	-	pervasive	AA
13-11076-0350b1	illite-ms (paragonite peaks), minimal pyrophyllite	-	2193	2.5	-	pervasive	AA
13-11076-0350b2	diaspore, illite-ms, minimal pyrophyllite, anhydrite	-	2190	-	-	pervasive	AA
13-11076-0350b3	illite-ms, diaspore, anhydrite, minimal pyrophyllite	-	2193	-	-	pervasive	AA
13-11076-0404b1	messy - chlorite, illite-ms (paragonite peaks)	2257	2190	-	-	pervasive	PR
13-11076-0404b2	messy - chlorite, illite-ms (paragonite peaks), anhydrite	2253	2193	-	-	pervasive	PR
13-11076-0404b3	chlorite, illite-ms (paragonite peaks)	2254	2187	-	-	pervasive	PR
13-11076-0452_2b1	muscovite-il, very minimal chlorite	2254	2194	4.1	-	pervasive	PR
13-11076-0452_2b2	pyrophyllite, muscovite-il, diaspore	-	2204	2.5	-	pervasive	AA
13-11076-0452_2b3	muscovite-il, possible anhydrite	-	2196	2.8	-	pervasive	PH
13-11076-0475b1	anhydrite, chlorite, minimal illite-ms	2253	2209	-	-	pervasive	PR
13-11076-0475b2	illite-ms, minimal chlorite	2251	2206	-	-	pervasive	PR
13-11076-0475b3	chlorite, anhydrite, illite-ms	2259	2205	-	-	pervasive	PR
13-11076-0500_2b1	pyrophyllite, muscovite-il	-	-	-	-	pervasive	PH
13-11076-0500_2b2	pyrophyllite, muscovite-il, anhydrite	-	-	-	-	pervasive	PH
13-11076-0500_2b3	pyrophyllite, muscovite-il, anhydrite, possible diaspore	-	2188	-	-	pervasive	AA
13-11076-0551b1	illite-ms, chlorite, anhydrite	2252	2197	0.8	-	pervasive	PR
13-11076-0551b2	illite-ms, anhydrite	-	2200	0.7	-	pervasive	PH
13-11076-0551b3	illite-ms, anhydrite	-	2195	0.8	-	pervasive	PH
13-11076-0601_7b1	messy - chlorite, possible anhydrite	2256	-	-	-	pervasive	PR
13-11076-0601_7b2	messy - chlorite, possible anhydrite	2253	-	-	-	pervasive	PR
13-11076-0601_7b3	messy - illite-ms, chlorite, possible anhydrite	2252	2204	0.7	-	pervasive	PR
13-11076-0650_2b1	muscovite-il, chlorite	2250	2195	1.8	-	pervasive	PR
13-11076-0650_2b2	illite-ms, anhydrite, minimal chlorite	2253	2194	-	-	pervasive	PR
13-11076-0878_5b1w	pyrophyllite (near perfect spectra)	-	-	-	-	halo	PH
13-11076-0878_5b2g	pyrophyllite, chlorite	2259	-	-	-	pervasive	AA
13-11076-0878_5b3w	pyrophyllite	-	-	-	-	halo	PH
13-11076-0879b1w	pyrophyllite	-	-	-	-	halo	PH
13-11076-0879b2g	pyrophyllite, illite-ms (paragonite peaks), chlorite	2260	2190	0.5	-	pervasive	PR
13-11076-0995_4b1w	illite-ms (paragonite peaks)	-	2193	1.0	-	pervasive	PH
13-11076-0995_4b2g	illite-ms (2nd ms peaks)	-	2200	1.7	-	pervasive	PH
13-11076-0995_4b3w	illite-ms	-	2196	1.1	-	pervasive	PH
13-11076-1076_5b1w	illite-ms (paragonite peaks), minimal anhydrite	-	2193	1.9	-	pervasive	PH
13-11076-1076_5b2w	illite-ms (both para and ms peaks)	-	2205	1.4	-	pervasive	PH
13-11076-1076_5b3w	illite-ms (paragonite peaks), anhydrite	-	2193	-	-	pervasive	PH
13-11076-1143b1w	illite-ms	-	2206	0.9	-	pervasive	PH
13-11076-1143b2w	illite-ms	-	2207	1.0	-	pervasive	PH
13-11076-1309_5b1w	illite-ms, chlorite	2248	2206	0.5	-	halo	SCA
13-11076-1309_5b2w	illite-ms, chlorite, minimal anhydrite	2248	2203	0.9	-	halo	SCA
13-11076-1309_5b3g	illite-ms, chlorite	-	2203	0.7	-	pervasive	SCA
13-9078W1-0006_3r1	illite-ms, minimal chlorite	2254	2189	0.8	-	pervasive	SCA

Sample ID/spot	Mineral ID	2250 position	2200 position	IC	1480 position	Alt style	Alter. Interp.
13-9078W1-0006_3r2	illite-ms, minimal chlorite	2256	2189	0.7	-	pervasive	SCA
13-9078W1-0012_7r1	pyrophyllite, anhydrite	-	-	-	-	pervasive	AA
13-9078W1-0012_7r2	pyrophyllite, anhydrite, diaspore	-	-	-	-	pervasive	AA
13-9078W1-0027_5r1	diaspore, minimal pyrophyllite	-	-	-	-	pervasive	AA
13-9078W1-0027_5r2	anhydrite, minimal illite-ms, possible pyrophyllite	-	2207	-	-	pervasive	AA
13-9078W1-0137_6r1	illite-ms	-	2195	1.2	-	pervasive	PH
13-9078W1-0137_6r2	illite-ms	-	2194	1.4	-	pervasive	PH
13-9078W1-0137_6r3	illite-ms, chlorite	2252	2203	0.6	-	pervasive	SCA
13-9078W1-0184_8r1	diaspore, other unknown (trough in 1918)	-	-	-	-	pervasive	AA
13-9078W1-0184_8r2	diaspore	-	-	-	-	pervasive	AA
13-9078W1-0307r1	messy - pyrophyllite, illite-ms...	-	2197	0.7	-	pervasive	AA
13-9078W1-0307r2	messy	-	-	-	-	pervasive	-
13-9078W1-0314_6r1	pyrophyllite, diaspore, possible anhydrite	-	-	-	-	breccia clasts	AA
13-9078W1-0314_6r2	messy - diaspore, pyrophyllite	-	-	-	-	breccia clasts	AA
13-9078W1-0344_4r1	muscovite-il, very minimal anhydrite	-	2194	-	-	tatchy	PH
13-9078W1-0344_4r2	muscovite-il, anhydrite, minimal diaspore	-	2189	2.4	-	tatchy	AA
13-9078W1-0347_5r1	muscovite-il, minimal anhydrite	-	2191	3.8	-	pervasive	PH
13-9078W1-0417_1r1	diaspore, pyrophyllite (strange peak), illite-ms, minimal anhydrite	-	2203	0.6	-	pervasive	AA
13-9078W1-0433_1r1	messy - muscovite-il, minimal pyrophyllite	-	2202	3.4	-	pervasive	AA
13-9078W1-0433_1r2	messy - muscovite-il, minimal pyrophyllite	-	2202	2.0	-	pervasive	AA
13-9078W1-0453_2r1	muscovite-il, minimal diaspore, possible pyrophyllite	-	2201	3.7	-	pervasive	AA
13-9078W1-0518r1	pyrophyllite (strange peak), diaspore	-	-	-	-	pervasive	AA
13-9078W1-0522_2r1	muscovite-il, minimal anhydrite	-	2201	2.5	-	pervasive	PH
13-9078W1-0522_2r2	muscovite-il, minimal anhydrite	-	2197	-	-	pervasive	PH
13-9078W1-0622_8r1w	pyrophyllite, illite-ms	-	2187	0.7	-	halo	AA
13-9078W1-0622_8r2g	illite-ms, chlorite	2254	2196	0.8	-	pervasive	SCA
13-9078W1-0628_3r1w	illite-ms (paragonite peaks)	-	2193	1.0	-	halo	PH
13-9078W1-0628_3r2g	illite-ms, chlorite	2257	2195	1.0	-	pervasive	SCA
13-9078W1-0709_72r1w	illite-ms (ms ref1 peak)	-	2199	1.3	-	halo	PH
13-9078W1-0709_72r2g	chlorite, minor illite-ms	2252	2214	-	-	pervasive	SCA
13-9078W1-0709_72r3g	chlorite, illite-ms	2251	2206	0.7	-	pervasive	SCA
13-9078W1-0715r1w	muscovite-il (paragonite peaks)	-	2194	2.3	-	pervasive	PH
13-9078W1-0715r2w	muscovite-il (paragonite peaks)	-	2194	2.3	-	pervasive	PH
13-9078W1-0840_7r1w	illite-ms (ms ref1 peak)	-	2200	1.3	-	halo	PH
13-9078W1-0840_7r2g	illite-ms, minimal chlorite	-	2202	1.1	-	pervasive	SCA
13-9078W1-0844r1w	illite-ms	-	2196	1.5	-	pervasive	PH
13-9078W1-0896_8r1w	illite-ms	-	2196	2.5	-	halo	PH
13-9078W1-0896_8r2g	chlorite, illite-ms, possible anhydrite	2256	2207	-	-	pervasive	SCA
13-9078W1-0908_6r1	illite-ms, chlorite, anhydrite	2247	2209	1.2	-	pervasive	SCA
13-9078W1-0912_4r1w	illite-ms	-	2201	1.4	-	halo	PH
13-9078W1-0912_4r2g	illite-ms, chlorite, possible anhydrite	2251	2203	1.0	-	pervasive	SCA
13-9078W1-0928_3r1w	muscovite-il	-	2201	2.2	-	halo	PH
13-9078W1-0928_3r2g	illite-ms, chlorite	2251	2210	1.7	-	pervasive	SCA
13-9078W1-0944_1r1g	illite-ms, chlorite	-	2207	1.1	-	pervasive	SCA
13-9078W1-0944_1r2g	illite-ms, chlorite,	2250	2212	-	-	pervasive	SCA
13-9078W1-0981_4r1w	muscovite-il (ms ref1 peak)	-	2202	2.2	-	halo	PH
13-9078W1-0981_4r2g	muscovite-il, chlorite	2248	2207	0.7	-	pervasive	SCA
13-9078W1-0982_8r1	messy - biotite, anhydrite	-	-	-	-	pervasive	K
13-9078W1-0982_8r2	messy - biotite, anhydrite	-	-	-	-	pervasive	K
13-9078W1-0998_8r1w	muscovite-il	-	2197	2.7	-	halo	PH
13-9078W1-0998_8r2g	messy - chlorite, illite-ms	2251	2210	0.5	-	pervasive	SCA
13-9078W1-1159_2r1	illite-ms, chlorite	2256	2193	1.0	-	pervasive	SCA
13-9078W1-1159_2r2	messy - biotite	-	-	-	-	pervasive	K
13-9078W1-1252_1r1w	illite-ms, chlorite,	2253	2197	1.4	-	pervasive	SCA
13-9078W1-1252_1r2	messy - biotite	-	-	-	-	pervasive	K
13-9078W1-1282_4r1	chlorite, minimal illite-ms	2252	2202	0.9	-	pervasive	SCA
13-9078W1-1282_4r2	messy	-	-	-	-	pervasive	-
13-9078W1-1285r1	messy - biotite	-	-	-	-	pervasive	K

## Appendix 5a - Drill core log

Hole_ID	From [m]	To [m]	Lith for model	Vein density	Vein type 1	Vein type 2	Vein type 3	Vein type 4	Original alteration	Overprint 1 + %	Overprint 2 + %	Alteration for model
FSU112007	1284.8	1294.5	IDIL	<5%	1	3	4		Bt	WM<10%		Bt
FSU112007	1294.5	1302.5	IDIL	<5%	1	2	3	4	Bt	SCA<10%	WM<10%	Bt
FSU112007	1302.5	1306	IDIL	<5%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU112007	1306	1306.5	IDIL	~100%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU112007	1306.5	1312	IDIL	5-10%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU112007	1312	1314.8	IDIL	3-7%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU112007	1314.8	1317.5	IDIL	3-7%	1	2	3	4	Bt	SCA<10%	WM<10%	Bt
FSU112007	1317.5	1355	BOXES MISSING									
FSU112007	1355	1361.3	IDIL	10-20%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU112007	1361.3	1365	IDIL	3-7%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU112007	1365	1365.5	IDIL	<5%	1	2	3	4	Bt	SCA<10%	WM<10%	Bt
FSU112007	1365.5	1366.7	IDIL	<5%	1	3	4		Bt	SCA<10%	WM<10%	Bt
FSU112007	1366.7	1380	IDIL	<5%	1	3			Bt	SCA<10%		Bt
FSU112007	1380	1386.6	LUV	5-10%	1	2	3		Bt	SCA~50%		SCA
FSU112007	1386.6	1387.3	LUV	5-10%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU112007	1387.3	1398	LUV	5-10%	1	2	3	4	Bt	WM<10%		Bt
FSU112007	1398	1400	IDIL	5-10%	1	2	3	4	Bt	WM<10%		Bt
FSU112017	1279.2	1280	LUV	5-10%	1	2	3		Bt	SCA~50%		SCA
FSU112017	1280	1281.1	LUV	5-10%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU112017	1281.1	1288	LUV	5-10%	1	2	3		Bt	SCA~50%		SCA
FSU112017	1288	1291.5	LUV	3-7%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU112017	1291.5	1292	fault									
FSU112017	1292	1293.6	IDD	3-7%					Bt	SCA~50%	WM<10%	SCA
FSU112017	1293.6	1295.5	fault									
FSU112017	1295.5	1298.5	LUV	3-7%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU112017	1298.5	1304	BOXES MISSING									
FSU112017	1304	1309	IDIL	5-10%	1	2	3	4	Bt	SCA<10%	WM<10%	Bt
FSU112017	1309	1314.6	IDIL	3-7%	1	2	3	4	Bt	SCA<10%	WM<10%	Bt
FSU112017	1314.6	1326.3	LUV	3-7%	1	2	3		Bt			
FSU112017	1326.3	1335.2	IDIL	<5%	1	2	3	4	Bt	WM<10%		Bt
FSU112017	1335.2	1340	LUV	5-10%	1	2	3	4	Bt	SCA<10%	WM<10%	Bt
FSU112017	1340	1340.5	LUV	5-10%	1	2	3	4	Bt	WM<10%		Bt
FSU112017	1340.5	1347	LUV	3-7%	1	2	3	4	Bt	WM<10%		Bt
FSU112017	1347	1354	LUV	5-10%	1	2	3	4	Bt	SCA<10%	WM<10%	Bt
FSU112017	1354	1363.6	LUV	5-10%	1	3	4		Bt	WM<10%		Bt
FSU112017	1363.6	1368.3	LUV	5-10%	1	2	3	4	Bt	SCA<10%	WM<10%	Bt
FSU112017	1368.3	1369.6	IDD	5-10%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU112017	1369.6	1371.5	LUV	5-10%	1	2	3	4	Bt	SCA<10%	WM<10%	Bt
FSU112017	1371.5	1382.7	LUV	5-10%	1	2	3	4	Bt	SCA<10%	WM<10%	Bt

Hole_ID	From [m]	To [m]	Lith for model	Vein density	Vein type 1	Vein type 2	Vein type 3	Vein type 4	Original alteration	Overprint 1 + %	Overprint 2 + %	Alteration for model
FSU112017	1382.7	1383.8	LVU	5-10%	1	2	3	4	Bt	SCA<10%	WM<10%	Bt
FSU112017	1383.8	1385	LVU	5-10%	1	2	3	4	Bt	WM<10%		Bt
FSU112017	1385	1400	LVU	5-10%	1	2	3	4	Bt	WM<10%		Bt
FSU112017	1400	1418.7	BOXES MISSING									
FSU112017	1418.7	1424	LVU	5-10%	1	3	4		Bt	SCA<10%	WM<10%	Bt
FSU112023	728	741	PHBX	~0%	3	4			SCA	WM~50%		WM
FSU112023	741	747.7	PHBX	~0%	3	4			SCA	WM~50%		WM
FSU112023	747.7	749.5	PHBX	~0%	3	4			SCA	WM<10%		SCA
FSU112023	749.5	753	PHBX	~0%	3	4			SCA			SCA
FSU112023	753	758.6	PHBX	~0%	3	4			SCA			SCA
FSU112023	758.6	760	PHBX	~0%	3	4			SCA	WM<10%		SCA
FSU112023	760	760.6	PHBX	~0%	3	4			SCA	WM<10%		SCA
FSU112023	760.6	763.2	PHBX	~0%	3	4			SCA	WM<10%		SCA
FSU112023	763.2	776.8	PHBX	~0%	3	4			SCA			SCA
FSU112023	776.8	777.8	PHBX	~0%	3	4			SCA	WM~50%		WM
FSU112023	777.8	778.3	IDD	~0%	3	4			SCA			SCA
FSU112023	778.3	788	PHBX	~0%	3	4			SCA	WM~50%		WM
FSU112023	788	800	PHBX	~0%	3	4			SCA	WM~50%		WM
FSU112023	800	802	PHBX	~0%	3	4			SCA	WM~50%		WM
FSU112023	802	802.5	IDD	~0%	3	4			SCA	WM~50%		WM
FSU112023	802.5	806.2	PHBX	~0%	3	4			SCA	WM~50%		WM
FSU112023	806.2	816	PHBX	~0%	3	4			SCA	WM~100%		WM
FSU112023	816	818.5	PHBX	~0%	3	4			SCA	WM~50%		WM
FSU112023	818.5	832.4	PHBX	~0%	3	4			SCA	WM~100%		WM
FSU112023	832.4	860.5	PHBX	~0%	3	4			SCA	WM~50%		WM
FSU112023	860.5	864.8	PHBX	~0%	3	4			SCA	WM~100%		WM
FSU112023	864.8	872.8	PHBX	~0%	3	4			SCA	WM~50%		WM
FSU112023	872.8	894.7	BOXES MISSING									
FSU112023	894.7	906.2	HYBX	3-7%	3	4			SCA	WM<10%		SCA
FSU112023	906.2	922.2	HYBX	5-10%	3	4			SCA	WM<10%		SCA
FSU112023	922.2	930.1	HYBX	10-20%	3	4			SCA	WM<10%		SCA
FSU112023	930.1	933	HYBX	10-20%	3	4			SCA	WM~100%		WM
FSU112023	933	966.5	BOXES MISSING									
FSU112023	966.5	979.2	IDIL	5-10%	1	3	4		SCA	WM<10%		SCA
FSU112023	979.2	985	IDIL	5-10%	1	3	4		SCA			SCA
FSU112023	985	985.4	IDIL	5-10%	1	3	4		SCA	WM<10%		SCA
FSU112023	985.4	992	IDIL	5-10%	1	3	4		SCA			SCA
FSU112023	992	1001	IDID	20-50%	1	3	4		SCA	WM<10%		SCA
FSU112023	1001	1023.4	BOXES MISSING									

Hole_ID	From [m]	To [m]	Lith for model	Vein density	Vein type 1	Vein type 2	Vein type 3	Vein type 4	Original alteration	Overprint 1 + %	Overprint 2 + %	Alteration for model
FSU112023	1023.4	1030	IDID	20-50%	1	3	4		SCA	WM<10%		SCA
FSU112023	1030	1034	BOXES MISSING									
FSU112023	1034	1067	IDID	15-30%	1	2	3	4	SCA	WM<10%		SCA
FSU112023	1067	1072.6	BOXES MISSING									
FSU112023	1072.6	1076	IDID	10-20%	1	2	3	4	SCA	WM<10%		SCA
FSU112023	1076	1083.5	IDID	10-20%	1	2	3	4	Bt	SCA<10%	WM<10%	Bt
FSU112023	1083.5	1100	BOXES MISSING									
FSU112023	1100	1110	IDID	7-15%	1	2	3	4	Bt	SCA<10%	WM<10%	Bt
FSU112023	1110	1125	LVU	7-15%	1	2	3	4	Bt	SCA<10%	WM<10%	Bt
FSU112023	1125	1130	BOXES MISSING									
FSU112023	1130	1132.5	LVU	<5%	1	2	3	4	Bt	SCA<10%	WM<10%	Bt
FSU112023	1132.5	1137.8	LVU	7-15%	1	2	3	4	Bt	SCA<10%	WM<10%	Bt
FSU112023	1137.8	1141.5	LVU	7-15%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU112023	1141.5	1143	LVU	7-15%	1	2	3	4	Bt	SCA<10%	WM<10%	Bt
FSU112023	1143	1145	LVU	<2%	1	2	3	4	Bt	SCA<10%	WM<10%	Bt
FSU112023	1145	1154.5	LVU	3-7%	1	2	3	4	Bt	SCA<10%	WM<10%	Bt
FSU112023	1154.5	1165.3	LVU	<2%	1	2	3	4	Bt	WM<10%		Bt
FSU112023	1165.3	1170	LVU	3-7%	1	2	3	4	Bt	SCA<10%	WM<10%	Bt
FSU112023	1170	1196.4	LVU	3-7%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU112023	1196.4	1205	LVU	5-10%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU112023	1205	1205.8	Fault	~0%	1	2	3	4				
FSU112023	1205.8	1208.5	LVU	5-10%	1	2	3	4	Bt	SCA~50%	WM~100%	WM
FSU112023	1208.5	1209.7	LVU	5-10%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU112023	1209.7	1210.5	LVU	5-10%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU112023	1210.5	1220.2	LVU	5-10%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU112023	1220.2	1222.5	LVU	3-7%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU112023	1222.5	1223	Fault	~0%	1	2	3	4				
FSU112023	1223	1225	LVU	3-7%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU113013	545	549.3	IPDA	3-7%	2	4			SCA	AA<10%	WM<10%	SCA
FSU113013	549.3	554	IPDA	3-7%	2	4			SCA	AA~100%	WM<10%	AA
FSU113013	554	563	IPDA	3-7%	2	4			SCA	AA<10%	WM<10%	SCA
FSU113013	563	563.7	IPDA	3-7%	2	4			SCA	AA~100%	WM<10%	AA
FSU113013	563.7	570.5	IPDA	3-7%	2	4			SCA	AA<10%	WM<10%	SCA
FSU113013	570.5	572	Fault									
FSU113013	572	575	IPDA	3-7%	2	4			SCA	AA<10%	WM<10%	SCA
FSU113013	575	590.8	BOXES MISSING									
FSU113013	590.8	593.9	IPDA	10-20%	2	3	4		SCA	AA~100%	WM~100%	WM
FSU113013	593.9	596.1	Fault									
FSU113013	596.1	602.6	IPDA	10-20%	2	3	4		SCA	AA~100%	WM~100%	WM

Hole_ID	From [m]	To [m]	Lith for model	Vein density	Vein type 1	Vein type 2	Vein type 3	Vein type 4	Original alteration	Overprint 1 + %	Overprint 2 + %	Alteration for model
FSU113013	602.6	603.9	IPDA	20-50%	2	3	4		SCA	AA~100%	WM~100%	WM
FSU113013	603.9	606.8	IPDA	20-50%	2	3	4		SCA	AA~100%	WM~100%	WM
FSU113013	606.8	607.9	IPDA	20-50%	2	3	4		SCA	AA~100%	WM~100%	WM
FSU113013	1135.3	1160.4	IDIL	5-10%	2	3	4		SCA	WM~100%		WM
FSU113013	1160.4	1181	IDIL	7-15%	2	3	4		SCA	WM~100%		WM
FSU113013	1181	1216.3	IDIL	10-20%	2	3	4		SCA	DP~100%		DP
FSU113013	1216.3	1234.5	IDIL	10-20%	2	3	4		SCA	WM~50%		WM
FSU113013	1234.5	1250	IDIL	15-30%	2	3	4		SCA	WM<10%		SCA
FSU113013	1250	1275.6	IDIL	15-30%	1	2	4		SCA	WM~50%		WM
FSU113013	1275.6	1276.1	IDIL	15-30%	1	2	4					
FSU113013	1276.1	1285	IDIL	15-30%	1	2	4		SCA	WM~50%		WM
FSU113013	1285	1710.6	BOXES MISSING									
FSU113013	1710.6	1720.5	IDIL	10-20%	1	3	4		Bt	SCA<10%	WM<10%	Bt
FSU113013	1720.5	1725	IDIL	7-15%	1	4			Bt	SCA<10%	WM<10%	Bt
FSU113013	1725	1743.5	IDIL	5-10%	1	4			Bt	SCA<10%	WM<10%	Bt
FSU113013	1743.5	1754.5	IDIL	3-7%	1	4			Bt	SCA<10%	WM<10%	Bt
FSU113013	1754.5	1771.2	IDIL	<5%	1	4			Bt	SCA<10%	WM<10%	Bt
FSU113029W1	450	454.7	IPDA	<5%	4	3			SCA	AA~100%		AA
FSU113029W1	454.7	466.5	IPDA	<5%	4	3			SCA	AA~100%		AA
FSU113029W1	466.5	500	IPDA	<5%	4	3			SCA	AA~100%		AA
FSU113029W1	500	565.5	IPDA	<5%	3	4	5		SCA	AA~100%		AA
FSU113029W1	565.5	579.5	IDI	<5%	2	3	4		Bt	SCA~100%	WM~50%	WM
FSU113029W1	579.5	582.5	IDI	<5%	2	3	4		Bt	SCA~100%	WM~100%	WM
FSU113029W1	582.5	586.3	IDI	<5%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU113029W1	586.3	589.7	Fault		2	3	4		Bt	SCA~100%	WM~100%	WM
FSU113029W1	589.7	591.5	IDI	<5%	2	3	4		Bt	SCA~100%	WM~100%	WM
FSU113029W1	591.5	592.5	IDI	<5%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU113029W1	592.5	600	IDI	3-7%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU113029W1	600	609.6	IDI	3-7%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU113029W1	609.6	622.3	IDI	<5%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU113029W1	622.3	623.9	IDD	~0%	2	3	4		Bt	SCA~100%		SCA
FSU113029W1	623.9	635.5	IPDA	3-7%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU113029W1	635.5	637.4	IPDA	10-20%	2	3	4		Bt	SCA~100%	WM~50%	WM
FSU113029W1	637.4	647	IPDA	3-7%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU113029W1	647	648.6	IPDA	3-7%	2	3	4		Bt	SCA~100%	WM~100%	WM
FSU113029W1	648.6	655.4	IPDA	<5%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU113029W1	655.4	660	IPDA	3-7%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU113029W1	660	682.9	IPDA	<5%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU113029W1	682.9	687.6	IPDA	5-10%	2	3	4		Bt	SCA~100%	WM~50%	WM

Hole_ID	From [m]	To [m]	Lith for model	Vein density	Vein type 1	Vein type 2	Vein type 3	Vein type 4	Original alteration	Overprint 1 + %	Overprint 2 + %	Alteration for model
FSU113029W1	687.6	702.8	IPDA	<5%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU113029W1	702.8	703.9	IPDA	3-7%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU113029W1	703.9	720	IPDA	3-7%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU113029W1	720	723.7	IPDA	5-10%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU113029W1	723.7	728.8	IPDA	3-7%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU113029W1	728.8	747	IPDA	5-10%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU113029W1	747	751.9	IPDA	5-10%	2	3	4		Bt	SCA~100%	WM~100%	WM
FSU113029W1	751.9	754.5	IPDA	7-15%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU113029W1	754.5	756.8	IPDA	7-15%	2	3	4		Bt	SCA~100%	WM~100%	WM
FSU113029W1	756.8	765.2	IPDA	7-15%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU113029W1	765.2	768.8	IPDA	7-15%	2	3	4		Bt	SCA~100%	WM~100%	WM
FSU113029W1	768.8	781.2	IPDA	<5%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU113029W1	781.2	785.8	PHBX	<5%	2	3	4					
FSU113029W1	785.8	788.9	PHBX	<5%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU113029W1	788.9	802.5	PHBX	3-7%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU113029W1	802.5	805.9	PHBX	<5%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU113029W1	805.9	820.2	LVU	10-20%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU113029W1	820.2	870.4	PHBX	5-10%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU113029W1	870.4	880	PHBX	<5%	2	3			Bt	SCA~100%		SCA
FSU113029W1	880	885	PHBX	5-10%	2	3			Bt	SCA~100%		SCA
FSU113029W1	885	897	PHBX	10-20%	2	3			Bt	SCA~100%		SCA
FSU113029W1	897	900	PHBX	10-20%	2	3			Bt	SCA~100%		SCA
FSU113029W1	900	918.5	PHBX	15-30%	1	3			Bt	SCA~100%		SCA
FSU113029W1	918.5	920.5	HYBX	15-30%	1	3	4		Bt	SCA~100%	WM~100%	WM
FSU113029W1	920.5	926.6	HYBX	15-30%	1	3	4		Bt	SCA~100%	WM<10%	SCA
FSU113029W1	926.6	963	HYBX	15-30%	1	3			Bt	SCA~100%		SCA
FSU113029W1	963	966.2	HYBX	>50%	1	3			Bt	SCA~100%		SCA
FSU113029W1	966.2	980.7	HYBX	3-7%	1				Bt	SCA~100%		SCA
FSU113029W1	980.7	986.5	HYBX	20-50%	1				Bt	SCA~100%		SCA
FSU113029W1	986.5	987.5	IDD	~0%								
FSU113029W1	987.5	1000	HYBX	15-30%	1				Bt	SCA~100%		SCA
FSU113029W1	1000	1007.7	HYBX	15-30%	1	3	4		Bt	SCA~100%	WM<10%	SCA
FSU113029W1	1007.7	1010	IDID	20-50%	1	3	4		Bt	SCA~100%	WM<10%	SCA
FSU113029W1	1010	1020.4	IDID	>50%	1	3	4		Bt	SCA~100%	WM<10%	SCA
FSU113029W1	1020.4	1046	IDIL	<5%	1	3	4		Bt	SCA~100%	WM<10%	SCA
FSU113029W1	1046	1125	IDIL	>50%	1	3	4		Bt	SCA~100%	WM<10%	SCA
FSU113029W1	1125	1150	IDIL	>50%	1	3	4		Bt	SCA~100%	WM<10%	SCA
FSU114002	750	751	IPDA	3-7%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU114002	751	754.5	IPDA	3-7%	2	3	4		Bt	SCA~100%	WM~100%	WM

Hole_ID	From [m]	To [m]	Lith for model	Vein density	Vein type 1	Vein type 2	Vein type 3	Vein type 4	Original alteration	Overprint 1 + %	Overprint 2 + %	Alteration for model
FSU114002	754.5	759.5	PHBX	<2%	2	4			SCA	WM~100%		WM
FSU114002	759.5	761	PHBX	<2%	2	4			SCA	WM~100%		WM
FSU114002	761	782	PHBX	<2%	2	4			SCA	WM~100%		WM
FSU114002	782	786	PHBX	<2%	2	4			SCA	WM~50%		WM
FSU114002	786	790	PHBX	<2%	2	4			SCA	WM~50%		WM
FSU114002	790	791	PHBX	<2%	2	4			SCA	WM~50%		WM
FSU114002	791	809.5	BOXES MISSING									
FSU114002	809.5	817	PHBX	<2%	4				SCA	WM<10%		SCA
FSU114002	817	819.5	PHBX	<2%	4				SCA	WM~50%		WM
FSU114002	819.5	823	PHBX	<2%	4				SCA	WM~50%		WM
FSU114002	823	829	PHBX	<2%	4				SCA			SCA
FSU114002	829	833	PHBX	<2%	4				SCA	WM~50%		WM
FSU114002	833	843.7	PHBX	<2%	4				SCA	WM~50%		WM
FSU114002	843.7	860	PHBX	<2%	3	4			SCA	WM~50%		WM
FSU114002	860	872.3	PHBX	<2%	3	4			SCA	WM~50%		WM
FSU114002	872.3	879	PHBX	<5%	3	4			SCA	WM~50%		WM
FSU114002	879	881.8	PHBX	<5%	3	4			SCA	WM~50%		WM
FSU114002	881.8	917.4	PHBX	<5%	2	3	4		SCA	WM~50%		WM
FSU114002	917.4	919.2	PHBX	<5%	2	3	4		SCA	WM~100%		WM
FSU114002	919.2	942	PHBX	<5%	2	3	4		SCA	WM~50%		WM
FSU114002	942	945.8	PHBX	<5%	2	3	4		SCA	WM<10%		SCA
FSU114002	945.8	968	PHBX	<5%	2	3	4		SCA	WM~50%		WM
FSU114002	968	969.3	PHBX	<5%	2	3	4		SCA	WM~50%		WM
FSU114002	969.3	972	PHBX	<5%	2	3	4		SCA	WM~50%		WM
FSU114002	972	978.3	PHBX	<2%	2	3	4		SCA	WM~50%		WM
FSU114002	978.3	1001	PHBX	<2%	2	3	4		SCA	WM<10%		SCA
FSU114002	1001	1013	IDIL	>50%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU114002	1013	1013.5	IDD	~0%					Bt			
FSU114002	1013.5	1075	IDIL	>50%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU114002	1075	1081	BOXES MISSING									
FSU114002	1081	1085.5	IDIL	20-50%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU114002	1085.5	1092.5	BOXES MISSING									
FSU114002	1092.5	1095	IDIL	15-30%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU114002	1095	1119.5	IDIL	>50%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU114002	1119.5	1124.7	IDIL	15-30%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU114002	1124.7	1134	BOXES MISSING									
FSU114002	1134	1135.5	IDIL	5-10%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU114002	1135.5	1135.7	IDIL	5-10%	2	3	4		Bt	SCA<10%	WM<10%	Bt
FSU114002	1135.7	1142.5	IDIL	5-10%	2	3	4		Bt	SCA~100%	WM<10%	SCA

Hole_ID	From [m]	To [m]	Lith for model	Vein density	Vein type 1	Vein type 2	Vein type 3	Vein type 4	Original alteration	Overprint 1 + %	Overprint 2 + %	Alteration for model
FSU114002	1142.5	1150	BOXES MISSING									
FSU114002	1150	1152	IDIL	5-10%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU114002	1152	1160	IDIL	3-7%	2	3	4		Bt	SCA<10%		Bt
FSU114002	1160	1192	BOXES MISSING									
FSU114002	1192	1209	IDIL	3-7%	1	2	3	4	Bt	SCA<10%	WM<10%	Bt
FSU114002	1209	1212	IDIL	<5%	1	2	3	4	Bt	SCA<10%		Bt
FSU114002	1212	1218	BOXES MISSING									
FSU114002	1218	1229	IDIL	<5%	1	2	3	4	Bt	SCA<10%	WM<10%	Bt
FSU114002	1229	1233	IDIL	<5%	1	2	3	4	Bt	SCA~50%	WM<10%	Bt
FSU114002	1233	1235	IDIL	<5%	1	2	3	4	Bt	SCA<10%	WM<10%	Bt
FSU114002	1235	1245	IDIL	<5%	1	3	4		Bt	WM<10%		Bt
FSU114002	1245	1246.5	IDIL	<5%	1	3	4		Bt	SCA<10%	WM<10%	Bt
FSU114002	1246.5	1253.5	IDIL	<5%	1	3	4		Bt	WM<10%		Bt
FSU114002	1253.5	1255.3	IDIL	10-20%	1	3	4		Bt	WM<10%		Bt
FSU114002	1255.3	1257	IDIL	10-20%	1	3	4		Bt			Bt
FSU114002	1257	1258.5	IDIL	10-20%	1	3	4		Bt	WM<10%		Bt
FSU114002	1258.5	1267	IDIL	<5%	1	3	4		Bt	WM<10%		Bt
FSU114002	1267	1270.5	IDIL	10-20%	1	3	4		Bt	WM<10%		Bt
FSU114002	1270.5	1276	IDIL	<5%	1	2	3	4	Bt	WM<10%		Bt
FSU114002	1276	1277	IDIL	7-15%	1	3	4		Bt	WM<10%		Bt
FSU114002	1277	1305	BOXES MISSING									
FSU114002	1305	1306.8	IDIL	3-7%	1	3	4		Bt			Bt
FSU114002	1306.8	1311	LVU	3-7%	1				Bt	CaSil~100%		CaSil
FSU114002	1311	1316.5	LVU	3-7%	1				Bt			Bt
FSU114002	1316.5	1319.3	LVU	3-7%	1				Bt	CaSil~100%		CaSil
FSU114002	1319.3	1320.3	LVU	3-7%	1				Bt			Bt
FSU114002	1320.3	1335.3	LVU	3-7%	1				Bt			Bt
FSU114002	1335.3	1336.5	LVU	3-7%	1				Bt	CaSil~100%		CaSil
FSU114002	1336.5	1349.6	LVU	3-7%	1				Bt	CaSil~50%		CaSil
FSU114002	1349.6	1356	LVU	3-7%	1				Bt	CaSil~50%		CaSil
FSU114002	1356	1358.5	LVU	3-7%	1				Bt	CaSil~50%		CaSil
FSU114002	1358.5	1386	IDIL	<5%	1	2	3	4	Bt	SCA<10%	WM<10%	Bt
FSU114008	937.5	942.3	LVU	~0%								
FSU114008	942.3	944.6	PHBX	~0%	2	3	4		WM			WM
FSU114008	944.6	946	PHBX	~0%	2	3	4		WM			WM
FSU114008	946	948	PHBX	~0%	2	3	4		WM			WM
FSU114008	948	951.7	PHBX	~0%	2	3	4		WM			WM
FSU114008	951.7	956.5	PHBX	~0%	2	3	4		WM			WM
FSU114008	956.5	959.5	PHBX	~0%	2	3	4		WM			WM

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FSU114008	959.5	960.5	LVU	3-7%	2	3	4		WM			WM
FSU114008	960.5	962.8	PHBX	~0%	2	3	4		WM			WM
FSU114008	962.8	964	LVU	10-20%	1	3	4		WM			WM
FSU114008	964	968	PHBX	~0%	2	3	4		WM			WM
FSU114008	968	968.8	LVU	10-20%	2	3	4		WM			WM
FSU114008	968.8	970	PHBX	~0%	2	3	4		WM			WM
FSU114008	970	971	LVU	20-50%	2	3	4		WM			WM
FSU114008	971	982	PHBX	~0%	2	3	4		WM			WM
FSU114008	982	983	LVU	10-20%	2	3	4		WM			WM
FSU114008	983	1002	PHBX	10-20%	2	3	4		WM			WM
FSU114008	1002	1027							BOXES MISSING			
FSU114008	1027	1029	PHBX	~0%	2	3	4		WM			WM
FSU114008	1029	1076	PHBX	~0%	2	3	4		WM			WM
FSU114008	1076	1100							BOXES MISSING			
FSU114008	1100	1115	PHBX	~0%	2	3	4		WM			WM
FSU114021W1	400	401	PHBX	<5%	3	4			SCA	AA~100%		AA
FSU114021W1	401	401.4	PHBX	<5%	3	4			SCA	AA<10%		SCA
FSU114021W1	401.4	475.5	PHBX	<5%	3	4			SCA	AA~100%		AA
FSU114021W1	475.5	511.2	IPDA	<5%	3	4			SCA	AA~100%		AA
FSU114021W1	511.2	517.5	IPDA	<5%	3	4			SCA	AA<10%		SCA
FSU114021W1	517.5	524.6	IPDA	<5%	3	4	5		SCA	AA~100%		AA
FSU114021W1	524.6	529.8	IPDA	<5%	3	4			SCA	AA~50%		SCA
FSU114021W1	529.8	534.6	IPDA	<5%	3	4			SCA	AA~100%		AA
FSU114021W1	534.6	541.4	IPDA	<5%	3	4			SCA	AA~50%		SCA
FSU114021W1	541.4	547.7	IPDA	<5%	3	4			SCA	AA~100%		AA
FSU114021W1	547.7	568.5	IPDA	<5%	3	4			SCA	AA<10%		SCA
FSU114021W1	568.5	575.6	IPDA	<5%	3	4			SCA	AA~100%		AA
FSU114021W1	575.6	595	IPDA	<5%	3	4			SCA	AA<10%		SCA
FSU114021W1	595	597	IPDA	<5%	3	4			SCA	AA<10%	WM<10%	SCA
FSU114021W1	597	605	IPDA	<5%	3	4			SCA	AA<10%	WM<10%	SCA
FSU114021W1	605	614.5	IPDA	<5%	3	4			SCA	AA<10%	WM<10%	SCA
FSU114021W1	614.5	620	IPDA	<5%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU114021W1	620	662.5	IDI	<5%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU114021W1	662.5	675	IDI	<5%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU114021W1	675	700	IDI	<5%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU114021W1	700	725.7	IDI	5-10%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU114021W1	725.7	727	IDD	~0%					Bt	SCA~100%	WM<10%	SCA
FSU114021W1	727	736	IDIL	5-10%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU114021W1	736	777	IDIL	7-15%	2	3	4		Bt	SCA~100%	WM<10%	SCA

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FSU114021W1	777	802.9	IDIL	7-15%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU114021W1	802.9	821.3	IDIL	7-15%	2	3	4		Bt	SCA~100%	WM~100%	WM
FSU114021W1	821.3	831.7	IDIL	7-15%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU114021W1	831.7	842.5	PHBX	<5%	2	3	4		Bt	SCA~100%	WM~100%	WM
FSU114021W1	842.5	859	PHBX	7-15%	2	3	4		Bt	SCA~100%	WM~100%	WM
FSU114021W1	859	874	IDIL	5-10%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU114021W1	874	883	IDIL	10-20%	2	3	4		Bt	SCA~100%	WM~100%	WM
FSU114021W1	883	888.5	IDIL	5-10%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU114021W1	888.5	889	IDD	~0%					Bt	SCA~100%	WM<10%	SCA
FSU114021W1	889	899	IDIL	5-10%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU114021W1	899	906.5	IDIL	5-10%	2	3	4		Bt	SCA~100%	WM~100%	WM
FSU114021W1	906.5	924.4	IDIL	7-15%	2	3	4		Bt	SCA~100%	WM~100%	WM
FSU114021W1	924.4	949.3	IDIL	5-10%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU114021W1	949.3	963.3	IDIL	5-10%	1	2	3		Bt	SCA~100%		SCA
FSU114021W1	963.3	982.5	IDIL	5-10%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU114021W1	982.5	983.5	IDIL	<5%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU114021W1	983.5	988.5	IDIL	<5%	1	2	3		Bt	SCA~100%		SCA
FSU114021W1	988.5	990.1	IDIL	<5%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU114021W1	990.1	1036.7	IDIL	<5%	1	3	4		Bt	SCA~100%		SCA
FSU114021W1	1036.7	1078.9	PHBX	<5%	1	3	4		PR			PR
FSU114021W1	1078.9	1079.9	PHBX	<5%	1	3	4		PR			PR
FSU114021W1	1079.9	1095.9	PHBX	<5%	1	3	4		PR			PR
FSU114021W1	1095.9	1160.5	LVU	5-10%	1	2	3	4	Bt	SCA~100%		SCA
FSU114021W1	1160.5	1162.7	Fault						Bt	SCA~100%		SCA
FSU114021W1	1162.7	1168	LVU	<5%	1	2	3	4	Bt	SCA~100%		SCA
FSU114021W1	1168	1225	LVU	<5%	1	2	3	4	Bt	SCA<10%		Bt
FSU115010	425	439	PHBX	<5%	1	4			DP	AA<10%		DP
FSU115010	439	465.3	PHBX	<5%	1	4			DP	AA<10%		DP
FSU115010	465.3	466.3	IPDA	<5%	1	4			DP	AA<10%		DP
FSU115010	466.3	472.5	IPDA	<5%	1	4			DP	AA~100%		AA
FSU115010	472.5	480	IPDA	3-7%	1	4			DP	AA<10%		DP
FSU115010	480	490.3	IPDA	3-7%	1	4			DP	AA~100%		AA
FSU115010	490.3	495.7	IPDA	3-7%	1	4			DP	AA<10%		DP
FSU115010	495.7	498.9	IPDA	5-10%	1	4			DP	AA<10%		DP
FSU115010	498.9	504	IPDA	5-10%	1	4			DP	AA~100%		AA
FSU115010	504	511.3	IPDA	3-7%	1	4			DP	AA<10%		DP
FSU115010	511.3	525.5	IPDA	3-7%	1	4			DP	AA~100%		AA
FSU115010	525.5	530.3	IPDA	3-7%	2	4			SCA	AA<10%	WM<10%	SCA
FSU115010	530.3	542.7	IPDA	5-10%	2	3	4		SCA	AA<10%	WM<10%	SCA

Hole_ID	From [m]	To [m]	Lith for model	Vein density	Vein type 1	Vein type 2	Vein type 3	Vein type 4	Original alteration	Overprint 1 + %	Overprint 2 + %	Alteration for model
FSU115010	542.7	550	IPDA	3-7%	2	3	4		SCA	AA~100%	WM~100%	WM
FSU115010	550	564.2	IPDA	<5%	2	3	4		SCA	AA~100%	WM<10%	AA
FSU115010	564.2	575	IPDA	3-7%	2	3	4		SCA	AA~100%	WM<10%	AA
FSU115010	575	583.3	IPDA	<5%	2	3	4		SCA	AA~50%	WM~50%	AA
FSU115010	583.3	588	IPDA	<5%	2	3	4		SCA	AA<10%	WM~100%	WM
FSU115010	588	589.9	IPDA	<5%	2	3	4		SCA	AA<10%	WM<10%	SCA
FSU115010	589.9	600	IPDA	<5%	2	3	4		SCA	AA<10%	WM~100%	WM
FSU115010	600	604.5	IPDA	<5%	2	3	4		SCA	WM~100%		WM
FSU115010	604.5	615	IPDA	3-7%	2	3	4		SCA	WM~100%		WM
FSU115010	615	620	IPDA	3-7%	2	3	4		SCA	WM~50%		WM
FSU115010	620	644	IPDA	3-7%	2	3	4		SCA	WM~100%		WM
FSU115010	644	647	IPDA	3-7%	2	3	4		SCA	WM<10%		SCA
FSU115010	647	650	IPDA	3-7%	2	3	4		SCA	WM~100%		WM
FSU115010	650	667.5	IPDA	3-7%	2	3	4		SCA	WM<10%		SCA
FSU115010	667.5	671.2	IPDA	3-7%	2	3	4		SCA	WM~100%		WM
FSU115010	671.2	678	IPDA	3-7%	2	3	4		SCA	WM<10%		SCA
FSU115010	678	697.6	BOXES MISSING									
FSU115010	697.6	717.7	IDI	3-7%	2	3	4		SCA	WM<10%		SCA
FSU115010	717.7	718	IDI	3-7%	2	3	4		SCA	WM~100%		WM
FSU115010	718	720	IDI	15-30%	2	3	4		SCA	WM~100%		WM
FSU115010	720	724.8	IDI	20-50%	2	3	4		SCA	WM~100%		WM
FSU115010	724.8	731.5	IDI	15-30%	2	3	4		SCA	WM<10%		SCA
FSU115010	731.5	737.2	IDI	15-30%	2	3	4		SCA	WM~100%		WM
FSU115010	737.2	739	Fault		2	3	4		SCA	WM~100%		WM
FSU115010	739	742.8	IDI	3-7%	2	3	4		SCA	WM~100%		WM
FSU115010	742.8	763.4	IDI	3-7%	2	3	4		SCA	WM<10%		SCA
FSU115010	763.4	767.2	IDI	7-15%	2	3	4		SCA	WM<10%		SCA
FSU115010	767.2	769.2	IDI	7-15%	2	3	4		SCA	WM~100%		WM
FSU115010	769.2	774	IDI	7-15%	2	3	4		SCA	WM<10%		SCA
FSU115010	774	775	IDID	7-15%	2	3	4		SCA	WM<10%		SCA
FSU115010	775	783.7	Fault		2	3	4		SCA	WM<10%		SCA
FSU115010	783.7	791.1	IDID	3-7%	2	3	4		SCA	WM<10%		SCA
FSU115010	791.1	793.1	IDID	<5%	2	3	4		SCA	WM<10%		SCA
FSU115010	793.1	793.9	IDID	<5%	2	3	4		Bt	SCA<10%	WM<10%	Bt
FSU115010	793.9	796	IDID	<5%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU115010	796	796.9	IDID	<5%	2	3	4		Bt	SCA<10%	WM<10%	Bt
FSU115010	796.9	800	IDID	<5%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU115010	800	804.8	BOXES MISSING									
FSU115010	804.8	809	IDID	3-7%	2	3	4		Bt	SCA~50%	WM<10%	Bt

Hole_ID	From [m]	To [m]	Lith for model	Vein density	Vein type 1	Vein type 2	Vein type 3	Vein type 4	Original alteration	Overprint 1 + %	Overprint 2 + %	Alteration for model
FSU115010	809	813.1	IDID	3-7%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU115010	813.1	820.6	IDID	<5%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU115010	820.6	824.1	IDID	3-7%	2	3	4		Bt	SCA~100%	WM~100%	WM
FSU115010	824.1	827.1	IDID	3-7%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU115010	827.1	837.3	IDID	10-20%	2	3	4		Bt	SCA~100%	WM~100%	WM
FSU115010	837.3	840.1	IDID	15-30%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU115010	840.1	843.7	IDID	15-30%	2	3	4		Bt	SCA~100%	WM~100%	WM
FSU115010	843.7	850	IDID	15-30%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU115010	850	860.8	Fault	10-20%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU115010	860.8	875	IDID	10-20%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU115010	875	880	IDID	3-7%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU115010	880	889.3	IDID	5-10%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU115010	889.3	892	IDID	10-20%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU115010	892	893.5	IDID	3-7%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU115010	893.5	919	IDID	3-7%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU115010	919	923.2	PHBX	3-7%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU115010	923.2	927.2	IDIL	3-7%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU115010	927.2	938.5	IDIL	10-20%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU115010	938.5	951.4	IDIL	20-50%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU115010	951.4	963	IDIL	20-50%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU115010	963	965.5	IDIL	20-50%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU115010	965.5	972.3	IDIL	20-50%	2	3	4		Bt	SCA~100%	WM~100%	WM
FSU115010	972.3	998.8	IDIL	20-50%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU115010	998.8	1000	IDIL	20-50%	2	3	4		Bt	SCA~100%	WM~100%	WM
FSU115010	1000	1008.5	IDIL	20-50%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU115010	1008.5	1014.3	IDIL	15-30%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU115010	1014.3	1014.7	IDIL	15-30%	1	2	3	4	Bt	SCA~100%	WM~100%	WM
FSU115010	1014.7	1015	IDIL	15-30%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU115010	1015	1016.5	IDID	15-30%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU115010	1016.5	1023.5	IDID	7-15%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU115010	1023.5	1024.5	IDID	7-15%	1	2	3	4	Bt	SCA~100%	WM~100%	WM
FSU115010	1024.5	1033.4	IDID	7-15%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU115010	1033.4	1040.1	IDID	3-7%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU115010	1040.1	1043	IDD	<5%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU115010	1043	1047.2	IDIL	<5%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU115010	1047.2	1060.5	IDIL	3-7%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU115010	1060.5	1065.4	IDIL	<5%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU115010	1065.4	1080.6	IDIL	3-7%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU115010	1080.6	1089	IDIL	3-7%	2	1	3	4	Bt	SCA~100%	WM<10%	SCA

Hole_ID	From [m]	To [m]	Lith for model	Vein density	Vein type 1	Vein type 2	Vein type 3	Vein type 4	Original alteration	Overprint 1 + %	Overprint 2 + %	Alteration for model
FSU115010	1089	1092.7	IDIL	3-7%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU115010	1092.7	1098	IDIL	<5%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU115010	1098	1121.3	IDIL	5-10%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU115010	1121.3	1125	IDIL	3-7%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU115010	1125	1130.3	IDIL	5-10%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU115010	1130.3	1137.1	IDIL	7-15%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU115010	1137.1	1144.5	IDIL	10-20%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU115010	1144.5	1151.8	IDIL	15-30%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU115010	1151.8	1170.2	IDIL	7-15%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU115010	1170.2	1188	IDIL	7-15%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU115010	1188	1210.8	IDIL	7-15%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU115010	1210.8	1225.6	BOXES MISSING									
FSU115010	1225.6	1242.1	IDIL	5-10%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU115010	1242.1	1251	IDIL	15-30%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU115010	1251	1258.2	IDIL	5-10%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU115010	1258.2	1263	IDIL	7-15%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU115010	1263	1269	IDIL	7-15%	2	3	4		Bt	SCA~100%		SCA
FSU115010	1269	1293	IDIL	7-15%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU115010	1293	1295.5	IDIL	7-15%	2	3	4		Bt	SCA~100%	WM~100%	WM
FSU115010	1295.5	1308	IDIL	7-15%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU115010	1308	1311.9	IDIL	<5%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU115010	1311.9	1320.7	IDIL	<5%	2	3	4		Bt	SCA~100%		SCA
FSU115010	1320.7	1331.3	IDIL	<5%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU115010	1331.3	1341.8	BOXES MISSING									
FSU115010	1341.8	1356.2	IDIL	<5%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU115010	1356.2	1357.9	IDIL	3-7%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU115010	1357.9	1361.9	IDIL	<5%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU115010	1361.9	1370	IDIL	3-7%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU115010	1370	1375	IDIL	<5%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU115010	1375	1379.1	Fault		2	3	4		Bt	SCA~50%	WM<10%	SCA
FSU115010	1379.1	1388.2	IDIL	<5%	2	3	4		Bt	SCA~50%	WM<10%	SCA
FSU115010	1388.2	1399.3	IDIL	3-7%	2	3	4		Bt	SCA~50%	WM<10%	SCA
FSU115010	1399.3	1425	IDIL	3-7%	1	3	4		Bt	SCA~50%	WM<10%	SCA
FSU115010	1425	1436.4	BOXES MISSING									
FSU115010	1436.4	1450	IDIL	3-7%	1	3	4		Bt	SCA~50%	WM<10%	SCA
FSU115010	1450	1513	IDIL	<5%	1	3	4		Bt	SCA~50%	WM<10%	SCA
FSU115010	1513	1525	IDIL	<5%	1	3	4		Bt	SCA~50%		SCA
FSU115010	1525	1530	IDIL	<5%	1	3	4		Bt	SCA<10%		Bt
FSU115010	1530	1565.8	IDIL	<5%	1	3	4		Bt	SCA<10%	WM<10%	Bt

Hole_ID	From [m]	To [m]	Lith for model	Vein density	Vein type 1	Vein type 2	Vein type 3	Vein type 4	Original alteration	Overprint 1 + %	Overprint 2 + %	Alteration for model
FSU115010	1565.8	1568.4	IDIL	<5%	1	3	4		Bt	SCA~50%	WM<10%	SCA
FSU115010	1568.4	1579.8	IDIL	<5%	1	3	4		Bt	SCA<10%	WM<10%	Bt
FSU115010	1579.8	1588.7	IDIL	3-7%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU115010	1588.7	1595.6	IDIL	<5%	1	3	4		Bt	SCA~50%	WM<10%	SCA
FSU115010	1595.6	1614	IDIL	<5%	1	3	4		Bt	SCA~50%	WM<10%	SCA
FSU115010	1614	1620	IDIL	<5%	1	3	4		Bt	SCA~50%	WM<10%	SCA
FSU115010	1620	1622.5	IDIL	<5%	1	3	4		Bt	SCA~50%	WM~50%	WM
FSU115010	1622.5	1623.5	IDIL	<5%	1	3	4		Bt	SCA~50%	WM<10%	SCA
FSU115010	1623.5	1638	IDIL	3-7%	1	3	4		Bt	SCA~50%	WM<10%	SCA
FSU115010	1638	1641	IDIL	3-7%	1	3	4		Bt	SCA~50%	WM<10%	SCA
FSU115010	1641	1672	IDIL	3-7%	1	3	4		Bt	SCA<10%	WM<10%	Bt
FSU115010	1672	1682	IDIL	5-10%	1	3	4		Bt	SCA<10%	WM<10%	Bt
FSU115010	1682	1683.2	Fault		1	3	4		Bt	SCA<10%	WM<10%	Bt
FSU115010	1683.2	1686	IDIL	<5%	1	3	4		Bt	SCA<10%	WM<10%	Bt
FSU115010	1686	1700	LVU	<5%	1	3	4		Bt	SCA<10%	WM<10%	Bt
FSU115010	1700	1721	LVU	3-7%	1	3	4		Bt	SCA<10%	WM<10%	Bt
FSU115010	1721	1734	BOXES MISSING									
FSU115010	1734	1762.1	LVU	3-7%	1	3	4		Bt	SCA<10%	WM<10%	Bt
FSU115010	1762.1	1773.3	LVU	3-7%	1	3	4		Bt	SCA<10%	WM~50%	WM
FSU115010	1773.3	1791.2	LVU	3-7%	1	3	4		Bt	SCA<10%	WM<10%	Bt
FSU115010	1791.2	1805	LVU	<5%	1	3	4		Bt	SCA<10%	WM<10%	Bt
FSU115010	1805	1810.2	LVU	3-7%	1	3	4		Bt	SCA<10%	WM~50%	WM
FSU115010	1810.2	1818	LVU	<5%	1	3	4		Bt	SCA<10%	WM<10%	Bt
FSU115010	1818	1838.6	BOXES MISSING									
FSU115010	1838.6	1844	LVU	<5%	1	3	4		Bt	SCA<10%	WM<10%	Bt
FSU115010	1844	1849.5	BOXES MISSING									
FSU115010	1849.5	1850	LVU	<5%	1	3	4		Bt	SCA<10%	WM<10%	Bt
FSU115010	1850	1850.4	Fault		1	3	4		Bt	SCA<10%	WM<10%	Bt
FSU115010	1850.4	1854.5	LVU	<5%	1	3	4		Bt	SCA<10%	WM<10%	Bt
FSU115010	1854.5	1855.6	Fault		1	3	4		Bt	SCA<10%	WM<10%	Bt
FSU115010	1855.6	1855.8	LVU	<5%	1	3	4		Bt	SCA<10%	WM<10%	Bt
FSU115010	1855.8	1857.7	Fault		1	3	4		Bt	SCA<10%	WM<10%	Bt
FSU115010	1857.7	1889.9	LVU	<5%	1	3	4		Bt	SCA<10%	WM<10%	Bt
FSU115010	1889.9	1891.6	Fault		1	3	4		Bt	SCA<10%	WM<10%	Bt
FSU115010	1891.6	1893.6	LVU	<5%	1	3	4		Bt	SCA<10%	WM<10%	Bt
FSU115010	1893.6	1900	Fault		1	3	4		Bt	SCA<10%	WM<10%	Bt
FSU117012	883.2	887.5	IDI	<5%	1	2	3		Bt	SCA~50%		SCA
FSU117012	887.5	889.6	IDI	3-7%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU117012	889.6	892.9	IDI	3-7%	1	2	3		Bt	SCA~50%		SCA

Hole_ID	From [m]	To [m]	Lith for model	Vein density	Vein type 1	Vein type 2	Vein type 3	Vein type 4	Original alteration	Overprint 1 + %	Overprint 2 + %	Alteration for model
FSU117012	892.9	898.5	IDI	3-7%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU117012	898.5	899.3	fault									
FSU117012	899.3	903.5	IDI	3-7%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU117012	903.5	904.4	IDI	3-7%	1	2	3		Bt	SCA~50%		SCA
FSU117012	904.4	909.5	IDI	<5%	1	2	3		Bt	SCA~50%		SCA
FSU117012	909.5	910	IDI	3-7%	1	2	3		Bt	SCA~50%		SCA
FSU117012	910	911	IDI	3-7%	1	2	3	4	Bt	SCA~50%	WM~50%	SCA
FSU117012	911	912.3	IDI	3-7%	1	2	3		Bt	SCA~50%		SCA
FSU117012	912.3	921	IDI	3-7%	1	2	3		Bt	SCA<10%		Bt
FSU117012	921	922	IDID	3-7%	1	2	3	4	Bt	SCA<10%	WM<10%	Bt
FSU117012	922	922.5	IDID	10-20%	1	2	3		Bt	SCA<10%		Bt
FSU117012	922.5	924	IDID	10-20%	1	2	3		Bt	SCA~50%		SCA
FSU117012	924	933	IDID	3-7%	1	2	3		Bt	SCA<10%		Bt
FSU117012	933	934	IDID	3-7%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU117012	934	936.8	IDID	3-7%	1	2	3		Bt	SCA~50%		SCA
FSU117012	936.8	938	IDID	3-7%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU117012	938	938.5	IDID	>50%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU117012	938.5	940.4	IDID	3-7%	1	2	3		Bt	SCA~50%		SCA
FSU117012	940.4	942.4	IDID	3-7%	1	2	3		Bt	SCA<10%		Bt
FSU117012	942.4	944.2	IDID	3-7%	1	2	3	4	Bt	SCA<10%	WM<10%	Bt
FSU117012	944.2	946.4	IDID	3-7%	1	2	3	4	Bt	SCA~50%	WM~100%	WM
FSU117012	946.4	948.3	IDID	3-7%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU117012	948.3	948.5	IDID	3-7%	1	2	3	4	Bt	SCA<10%	WM<10%	Bt
FSU117012	948.5	957.8	IDID	3-7%	1	2	3		Bt	SCA<10%		Bt
FSU117012	957.8	962.8	IDID	10-20%	1	2	3	4	Bt	SCA~50%	WM~50%	WM
FSU117012	962.8	964.8	IDID	3-7%	1	2	3	4	Bt	SCA~50%	WM~50%	WM
FSU117012	964.8	975	IDID	3-7%	1	2	3		Bt	SCA<10%		Bt
FSU117012	975	982	IDID	3-7%	1	2	3	4	Bt	SCA<10%	WM<10%	Bt
FSU117012	982	985.3	IDID	5-10%	1	2	3	4	Bt	SCA<10%	WM<10%	Bt
FSU117012	985.3	993.7	IDID	5-10%	1	2	3		Bt	SCA<10%		Bt
FSU117012	993.7	994.4	IDID	5-10%	1	2	3	4	Bt	SCA<10%	WM<10%	Bt
FSU117012	994.4	997	IDID	5-10%	1	2	3		Bt	SCA<10%		Bt
FSU117012	997	1006	IDI	3-7%	1	2	3		Bt	SCA~100%		SCA
FSU117012	1006	1010.2	IDI	3-7%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU117012	1010.2	1012.4	IDI	10-20%	1	2	3	4	Bt	SCA~100%	WM~50%	WM
FSU117012	1012.4	1020	IDI	3-7%	1	2	3	4	Bt	SCA~100%	WM~50%	WM
FSU117012	1020	1028.7	IDI	3-7%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU117012	1028.7	1059.3	IDID	3-7%	1	3	4		Bt	WM<10%		Bt
FSU117012	1059.3	1062.5	PHBX	3-7%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA

Hole_ID	From [m]	To [m]	Lith for model	Vein density	Vein type 1	Vein type 2	Vein type 3	Vein type 4	Original alteration	Overprint 1 + %	Overprint 2 + %	Alteration for model
FSU117012	1062.5	1067.2	IDI	7-15%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU117012	1067.2	1072.2	IDI	7-15%	1	2	3	4	Bt	SCA~100%	WM~50%	WM
FSU117012	1072.2	1085.6	IDID	3-7%	1	2	3	4	Bt	SCA<10%	WM<10%	Bt
FSU117012	1085.6	1096	IDID	3-7%	1	3			Bt			Bt
FSU117012	1096	1099	IDID	<5%	1	3			Bt			Bt
FSU117012	1099	1115	IDID	3-7%	1	2	3	4	Bt	WM<10%		Bt
FSU117012	1115	1119.3	IDID	3-7%	1	2	3	4	Bt	SCA<10%	WM<10%	Bt
FSU117012	1119.3	1123.2	IDI	3-7%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU117012	1123.2	1125	IDI	3-7%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU117012	1125	1132.8	IDID	3-7%	1	3			Bt			Bt
FSU117012	1132.8	1134	IDID	20-50%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU117012	1134	1139	IDID	5-10%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU117012	1139	1140	IDID	3-7%	1	2	3		Bt	SCA~50%		SCA
FSU117012	1140	1145	IDID	3-7%	1	2	3	4	Bt	SCA<10%	WM<10%	Bt
FSU117012	1145	1152	IDID	3-7%	1	2	3	4	Bt	SCA<10%	WM<10%	Bt
FSU117012	1152	1153.5	IDID	10-20%	1	2	3	4	Bt	SCA<10%	WM<10%	Bt
FSU117012	1153.5	1157	IDID	3-7%	1	2	3		Bt	SCA<10%		Bt
FSU117012	1157	1170.2	IDID	3-7%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU117012	1170.2	1182.4	IDID	3-7%	1	2	3	4	Bt	SCA<10%	WM<10%	Bt
FSU117012	1182.4	1185	IDID	3-7%	1	2	3	4	Bt	WM<10%		Bt
FSU117012	1185	1193	IDID	<5%	1	2	3	4	Bt	WM<10%		Bt
FSU117012	1193	1205	IDID	<5%	1	2	3	4	Bt			Bt
FSU117012	1205	1207	LVU	<5%	1	3			Bt			Bt
FSU117012	1207	1209	LVU	<5%	1	2	3		Bt	SCA~50%		SCA
FSU117012	1209	1211	LVU	<5%	1	3			Bt			Bt
FSU117012	1211	1219.1	LVU	<5%	1	2	3		Bt	SCA~50%		SCA
FSU117012	1219.1	1219.5	LVU	<5%	1	2	3	4	Bt	SCA~50%	WM~100%	WM
FSU117012	1219.5	1221.5	LVU	<5%	1	2	3		Bt	SCA~50%		SCA
FSU117012	1221.5	1222	LVU	<5%	1	2	3	4	Bt	SCA~50%	WM~100%	WM
FSU117012	1222	1244.4	LVU	3-7%	1	2	3		Bt	SCA~50%		SCA
FSU117012	1244.4	1250	LVU	3-7%	1	2	3		Bt	SCA~50%		SCA
FSU121030	1117	1128	LVU	3-7%	1	2	3		Bt	SCA<10%		Bt
FSU121030	1128	1134	LVU	<2%	1	2	3		Bt	SCA<10%		Bt
FSU121030	1134	1140.5	LVU	<5%	1	2	3		Bt	SCA<10%		Bt
FSU121030	1140.5	1143.3	LVU	3-7%	1	2	3		Bt	SCA~50%		SCA
FSU121030	1143.3	1166	LVU	<5%	1	2	3		Bt	SCA~50%		SCA
FSU121030	1166	1183	LVU	3-7%	1	2	3		Bt	SCA<10%		Bt
FSU121030	1183	1182.3	LVU	<5%	1	2	3		Bt	SCA<10%		Bt
FSU121030	1182.3	1203	LVU	3-7%	1	2	3		Bt	SCA<10%		Bt

Hole_ID	From [m]	To [m]	Lith for model	Vein density	Vein type 1	Vein type 2	Vein type 3	Vein type 4	Original alteration	Overprint 1 + %	Overprint 2 + %	Alteration for model
FSU121030	1203	1206	LVU	3-7%	1	2	3		Bt	SCA~50%		SCA
FSU121030	1206	1234	LVU	<5%	1	2	3		Bt	SCA<10%		Bt
FSU121030	1234	1242	IDIL	3-7%	1	2	3		Bt	SCA~50%		SCA
FSU121030	1242	1249	IDIL	<5%	1	2	3		Bt	SCA~50%		SCA
FSU121030	1249	1251	IDIL	10-20%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU121030	1251	1256	IDIL	3-7%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU121030	1256	1258.5	IDIL	3-7%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU121030	1258.5	1260.5	IDIL	~100%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU121030	1260.5	1262.5	IDIL	10-20%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU121030	1262.5	1263.7	IDIL	~100%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU121030	1263.7	1270.2	IDIL	3-7%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU121030	1270.2	1288	IDIL	3-7%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU121030	1288	1289.9	IDIL	<5%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU121030	1289.9	1294	IDIL	<5%	1	2	3	4	Bt	SCA<10%	WM<10%	Bt
FSU121030	1294	1294.9	IDIL	3-7%	1	2	3	4	Bt	SCA<10%	WM<10%	Bt
FSU121030	1294.9	1298.3	IDIL	3-7%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU121030	1298.3	1306	IDIL	5-10%	1	2	3	4	Bt	SCA<10%	WM<10%	Bt
FSU121030	1306	1307.3	IDIL	3-7%	1	2	3	4	Bt	SCA<10%	WM<10%	Bt
FSU121030	1307.3	1311.3	IDIL	3-7%	1	2	3		Bt	SCA<10%		Bt
FSU121030	1311.3	1319	IDIL	<5%	1	2	3		Bt	SCA<10%		Bt
FSU121030	1319	1321.4	IDIL	3-7%	1	2	3		Bt	SCA~50%		SCA
FSU121030	1321.4	1322.2	IDIL	3-7%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU121030	1322.2	1323	IDIL	10-20%	1	2	3	4	Bt	SCA~50%	WM~100%	WM
FSU121030	1323	1324.2	IDIL	3-7%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU121030	1324.2	1325	IDIL	<5%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU121030	1325	1336.2	IDIL	<5%	1	2	3		Bt	SCA<10%		Bt
FSU121030	1336.2	1358.6	LVU	<5%	1	2	3		Bt	SCA<10%		Bt
FSU121030	1358.6	1360	LVU	10-20%	1	2	3		Bt	SCA<10%		Bt
FSU121030	1360	1375	LVU	5-10%	1	2	3		Bt	SCA<10%		Bt
FSU121030	1375	1378.5	LVU	3-7%	1	2	3		Bt			Bt
FSU121030	1378.5	1379	fault									
FSU121030	1379	1386	LVU	<5%	1	2	3		Bt			Bt
FSU121030	1386	1386.5	fault									
FSU121030	1386.5	1403	LVU	3-7%	1	3			Bt			Bt
FSU121030	1403	1406.8	LVU	<5%	1	3			Bt			Bt
FSU121030	1406.8	1410.6	LVU	3-7%	1	3			Bt			Bt
FSU121030	1410.6	1414.3	LVU	<5%	1	3			Bt			Bt
FSU121030	1414.3	1418	LVU	3-7%	1	3			Bt			Bt
FSU121030	1418	1425	LVU	3-7%	1	3	4		Bt	SCA<10%		Bt

Hole_ID	From [m]	To [m]	Lith for model	Vein density	Vein type 1	Vein type 2	Vein type 3	Vein type 4	Original alteration	Overprint 1 + %	Overprint 2 + %	Alteration for model
FSU121030	1425	1437.7	LVU	3-7%	1	3	4		Bt	SCA~50%	WM<10%	SCA
FSU121030	1437.7	1439	fault						WM			WM
FSU121030	1439	1453	LVU	3-7%	1	3	4		Bt	SCA~50%	WM<10%	SCA
FSU121030	1453	1458.5	LVU	>50%	1	2	3	4	Bt	SCA~100%	WM~100%	WM
FSU121030	1458.5	1461	fault						WM			WM
FSU121030	1461	1467.5	LVU	3-7%	1	3			Bt	SCA~50%		SCA
FSU121030	1467.5	1468	fault						WM			WM
FSU121030	1468	1470	LVU	3-7%	1	3			Bt	SCA~50%		SCA
FSU121030	1470	1471	LVU	3-7%	1	3	4		Bt	SCA~50%		SCA
FSU121030	1471	1474	fault						WM			WM
FSU121030	1474	1476	LVU	3-7%	1	3			Bt	SCA~50%	WM~50%	WM
FSU121030	1476	1477.5	fault						WM			WM
FSU121030	1477.5	1478.8	LVU	3-7%	1	3	4		Bt	SCA~50%	WM~100%	WM
FSU121030	1478.8	1483.3	LVU	3-7%	1	3	4		Bt	SCA~50%	WM~100%	WM
FSU121030	1483.3	1488	fault						WM			WM
FSU121036	800	803	IPDA	3-7%	1	3	4		DP			DP
FSU121036	803	819.8	IPDA	3-7%	1	3	4		SCA	WM<10%		SCA
FSU121036	819.8	822.4	IPDA	10-20%	1	3	4		SCA	WM<10%	AA~100%	AA
FSU121036	822.4	823.5	IPDA	10-20%	1	3	4		SCA	WM<10%		SCA
FSU121036	823.5	824.8	IPDA	>50%	1	3	4		SCA	WM<10%		SCA
FSU121036	824.8	832.8	IPDA	3-7%	1	3	4		SCA	WM<10%		SCA
FSU121036	832.8	834.8	IPDA	5-10%	1	3	4		SCA	WM<10%		SCA
FSU121036	834.8	863	IPDA	3-7%	1	3	4		SCA	WM<10%		SCA
FSU121036	863	866	IPDA	5-10%	1	3	4		SCA	WM<10%		SCA
FSU121036	866	869	Fault	~0%	1	3	4					
FSU121036	869	880	IPDA	15-30%	1	3	4		SCA	WM<10%		SCA
FSU121036	880	892.7	IPDA	3-7%	1	2	3		SCA			SCA
FSU121036	892.7	896	IPDA	7-15%	1	2	3	4	SCA	WM<10%		SCA
FSU121036	896	911.8	IPDA	5-10%	1	2	3		SCA			SCA
FSU121036	911.8	912.4	IPDA	5-10%	1	2	3	4	SCA	WM~100%		WM
FSU121036	912.4	918.8	IPDA	5-10%	1	2	3		SCA			SCA
FSU121036	918.8	920.8	IPDA	15-30%	1	2	3		SCA			SCA
FSU121036	920.8	924.7	IPDA	5-10%	1	2	3		SCA			SCA
FSU121036	924.7	930.2	IPDA	5-10%	1	2	3		SCA			SCA
FSU121036	930.2	934	IPDA	15-30%	1	2	3	4	SCA	WM~100%		WM
FSU121036	934	956.2	IPDA	5-10%	1	2	3	4	SCA			SCA
FSU121036	956.2	958	PHBX	5-10%					SCA			SCA
FSU121036	958	961.5	PHBX	5-10%	1	3			SCA			SCA
FSU121036	961.5	975.5	IPDA	5-10%	1	3			SCA			SCA

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FSU121036	975.5	982.5	IDD	<2%	1	3			SCA			SCA
FSU121036	982.5	984.2	IDD	20-50%	1	3			SCA	WM<10%		SCA
FSU121036	984.2	997	IPDA	<2%	1	3	4		SCA	WM~100%		WM
FSU121036	997	1000	IDD	<2%	1	3			SCA			SCA
FSU121036	1000	1001.5	PHBX	<2%	4				SCA	WM<10%		SCA
FSU121036	1001.5	1009.5	IDD	<2%	4				SCA	WM<10%		SCA
FSU121036	1009.5	1013.5	PHBX	<2%	4				SCA	WM<10%		SCA
FSU121036	1013.5	1014.8	IDD	<2%	4				SCA	WM<10%		SCA
FSU121036	1014.8	1015.5	PHBX	<2%	4				SCA	WM<10%		SCA
FSU121036	1015.5	1018.2	IDD	<2%	4				SCA	WM<10%		SCA
FSU121036	1018.2	1019	PHBX	<2%	4				SCA	WM<10%		SCA
FSU121036	1019	1022	IDD	<2%	4				SCA	WM<10%		SCA
FSU121036	1022	1032.5	PHBX	<2%	4				SCA	WM<10%		SCA
FSU121036	1032.5	1040	IPDA	<2%	4				SCA			SCA
FSU121036	1040	1044.7	IPDA	<2%	4				SCA	WM<10%		SCA
FSU121036	1044.7	1068	IPDA	~0%					SCA			SCA
FSU121036	1068	1070	IPDA	~0%					SCA			SCA
FSU121036	1070	1071	IPDA	~0%					SCA	WM~100%		WM
FSU121036	1071	1092.5	IPDA	~0%					SCA			SCA
FSU121036	1092.5	1093	PHBX	~0%					SCA			SCA
FSU121036	1093	1100	IPDA	~0%					SCA			SCA
FSU121036	1100	1104	PHBX	~0%					SCA			SCA
FSU121036	1104	1119	LVU	3-7%	1	3	4		Bt	SCA<10%		Bt
FSU121036	1119	1120	PHBX	3-7%	4				Bt	SCA<10%		Bt
FSU121036	1120	1143.4	LVU	3-7%	1	2	3		Bt	SCA<10%		Bt
FSU121036	1143.4	1145	LVU	3-7%	1	2	3	4	Bt	SCA~50%	WM~50%	WM
FSU121036	1145	1153.7	LVU	3-7%	1	2	3		Bt	SCA<10%		Bt
FSU121036	1153.7	1161	LVU	3-7%	1	2	3		Bt	SCA~50%		SCA
FSU121036	1161	1167.8	LVU	3-7%	1	2	3		Bt	SCA<10%		Bt
FSU121036	1167.8	1168.8	LVU	3-7%	1	2	3		Bt	SCA~50%		SCA
FSU121036	1168.8	1173.4	LVU	3-7%	1	2	3		Bt	SCA<10%		Bt
FSU121036	1173.4	1179	LVU	5-10%	1	2	3		Bt	SCA<10%		Bt
FSU121036	1179	1180	LVU	5-10%	1	2	3	4	Bt	SCA~50%	WM~50%	WM
FSU121036	1180	1181.4	LVU	5-10%	1	2	3		Bt	SCA<10%		Bt
FSU121036	1181.4	1190.2	LVU	5-10%	1	2	3		Bt	SCA~50%		SCA
FSU121036	1190.2	1192.8	PHBX	<2%	4				SCA	WM<10%		Bt
FSU121036	1192.8	1199.5	LVU	3-7%	1	2	3		Bt	SCA~50%		SCA
FSU121036	1199.5	1204.8	LVU	3-7%	1	3			Bt	SCA~50%		SCA
FSU121036	1204.8	1207	LVU	3-7%	1	3	4		Bt	SCA~50%	WM~100%	WM

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FSU121036	1207	1209	LVU	3-7%	1	3			Bt	SCA~50%		SCA
FSU121036	1209	1218.8	LVU	<5%	1	3			Bt	SCA<10%		Bt
FSU121036	1218.8	1219.8	LVU	<5%	1	3			Bt	SCA~50%		SCA
FSU121036	1219.8	1220	LVU	3-7%	1	3			Bt	SCA~50%		SCA
FSU121036	1220	1222	LVU	3-7%	1	3	4		Bt	SCA~50%	WM~100%	WM
FSU121036	1222	1224.4	LVU	3-7%	1	3			Bt	SCA~50%		SCA
FSU121036	1224.4	1231.6	LVU	<5%	1	3			Bt	SCA<10%		Bt
FSU121036	1231.6	1232.7	LVU	<5%	1	3			Bt	SCA~50%		SCA
FSU121036	1232.7	1233	LVU	<5%	1	3	4		Bt	SCA~50%	WM~100%	WM
FSU121036	1233	1237	LVU	<5%	1	3			Bt	SCA~50%		SCA
FSU121036	1237	1250	IPDA	<5%	1	3			SCA	WM<10%		SCA
FSU1212058	287	287.5	PHBX	<5%	3	4			PR	AA<10%		PR
FSU1212058	287.5	288.5	Fault		3	4			PR	AA<10%		PR
FSU1212058	288.5	294.3	PHBX	<5%	3	4			PR	AA<10%		PR
FSU1212058	294.3	295	Fault		3	4			PR	AA<10%		PR
FSU1212058	295	300.5	PHBX	<5%	3	4			PR	AA<10%		PR
FSU1212058	300.5	302	Fault		3	4			PR	AA<10%		PR
FSU1212058	302	310	PHBX	<5%	3	4			PR	AA<10%		PR
FSU1212058	310	314	PHBX	3-7%	3	4			PR	AA<10%		PR
FSU1212058	314	315	Fault		3	4			PR	AA~50%		PR
FSU1212058	315	319	PHBX	<5%	3	4			PR	AA~50%		PR
FSU1212058	319	320	Fault		3	4			PR	AA~100%		AA
FSU1212058	320	322.6	PHBX	<5%	3	4			PR	AA~100%		AA
FSU1212058	322.6	325	Fault		3	4			PR	AA~100%		AA
FSU1212058	325	328.7	PHBX	15-30%	3	4			PR	AA<10%		PR
FSU1212058	328.7	329.4	PHBX	<5%	3	4			PR	AA~100%		AA
FSU1212058	329.4	335.5	Fault		3	4			PR	AA~100%		AA
FSU1212058	335.5	337.7	PHBX	15-30%	3	4			PR	AA<10%		PR
FSU1212058	337.7	345.7	Fault		3	4			PR	AA~100%		AA
FSU1212058	345.7	354	PHBX	<5%	3	4			PR	AA~100%		AA
FSU1212058	354	355	PHBX	<5%	3	4			PR	AA<10%		PR
FSU1212058	355	356.8	PHBX	5-10%	3	4			PR	AA<10%		PR
FSU1212058	356.8	358.1	PHBX	5-10%	3	4			PR	AA~100%		AA
FSU1212058	358.1	360.6	PHBX	<5%	3	4			PR	AA~100%		AA
FSU1212058	360.6	363.3	PHBX	<5%	3	4			PR	AA<10%		PR
FSU1212058	363.3	366	PHBX	<5%	3	4	5		PR	AA~100%		AA
FSU1212058	366	368.6	PHBX	<5%	3	4			PR	AA<10%		PR
FSU1212058	368.6	372	PHBX	<5%	3	4			PR	AA~100%		AA
FSU1212058	372	372.5	PHBX	<5%	3	4			PR	AA<10%		PR

Hole_ID	From [m]	To [m]	Lith for model	Vein density	Vein type 1	Vein type 2	Vein type 3	Vein type 4	Original alteration	Overprint 1 + %	Overprint 2 + %	Alteration for model
FSU1212058	372.5	383	PHBX	<5%	3	4			PR	AA~100%		AA
FSU1212058	383	386.6	PHBX	<5%	3	4			PR	AA<10%		PR
FSU1212058	386.6	387.5	PHBX	<5%	3	4			PR	AA~100%		AA
FSU1212058	387.5	389.7	IPDA	<5%	3	4			PR	AA<10%		PR
FSU1212058	389.7	440.5	IPDA	<5%	3	4			PR	AA~100%		AA
FSU1212058	440.5	441	IPDA	20-50%	3	4			PR	AA~100%		AA
FSU1212058	441	447	IPDA	<5%	3	4			PR	AA~100%		AA
FSU1212058	447	450	IPDA	7-15%	3	4			PR	AA~100%		AA
FSU1212058	450	456.5	IPDA	<5%	3	4			PR	AA~100%		AA
FSU1212058	456.5	457	IPDA	>50%	3	4			PR	AA~100%		AA
FSU1212058	457	478	IPDA	<5%	3	4			PR	AA~100%		AA
FSU1212058	478	479.5	Fault		3	4			PR	AA~100%		AA
FSU1212058	479.5	481.5	IPDA	<5%	3	4			PR	AA~100%		AA
FSU1212058	481.5	505	IPDA	3-7%	3	4			PR	AA~100%		AA
FSU1212058	505	506.9	IPDA	3-7%	3	4			DP	AA<10%		DP
FSU1212058	506.9	558	IPDA	3-7%	3	4			DP	AA~100%		AA
FSU1212058	558	561	IPDA	5-10%	3	4			DP	AA~100%		AA
FSU1212058	561	571	IPDA	3-7%	3	4			DP	AA~100%		AA
FSU1212058	571	574.5	IPDA	<5%	3	4			DP	AA~100%		AA
FSU1212058	574.5	583.9	IPDA	<5%	3	4			DP	AA~100%		AA
FSU1212058	583.9	589.7	Fault		3	4			DP	AA~100%		AA
FSU1212058	589.7	592.5	IPDA	3-7%	3	4			DP	AA~100%		AA
FSU1212058	592.5	594.5	Fault		3	4			DP	AA~100%		AA
FSU1212058	594.5	597.5	IPDA	3-7%	3	4			DP	AA~100%		AA
FSU1212058	597.5	599.4	IPDA	3-7%	3	4			DP	AA<10%		DP
FSU1212058	599.4	601.8	IPDA	3-7%	3	4			DP	AA~100%		AA
FSU1212058	601.8	604.7	IPDA	3-7%	3	4			DP	AA<10%		DP
FSU1212058	604.7	614.5	IPDA	3-7%	3	4			DP	AA~100%		AA
FSU1212058	614.5	619.5	IPDA	3-7%	3	4			DP	AA<10%		DP
FSU1212058	619.5	631.8	IPDA	3-7%	3	4			DP	AA~100%		AA
FSU1212058	631.8	633.6	IPDA	3-7%	3	4			DP	AA<10%		DP
FSU1212058	633.6	636	IPDA	3-7%	3	4			DP	AA~100%		AA
FSU1212058	636	640	IPDA	10-20%	3	4			DP	AA~100%		AA
FSU1212058	640	650	IPDA	3-7%	2	3	4		SCA	AA~100%	WM<10%	AA
FSU1212058	650	660	IPDA	3-7%	2	3	4		SCA	AA~50%	WM<10%	AA
FSU1212058	660	663	IPDA	5-10%	2	3	4		SCA	AA~50%	WM<10%	AA
FSU1212058	663	665	IPDA	5-10%	2	3	4		SCA	AA~100%	WM<10%	AA
FSU1212058	665	668	IPDA	10-20%	2	3	4		SCA	AA~100%	WM<10%	AA
FSU1212058	668	669	IPDA	10-20%	2	3	4		SCA	AA<10%	WM<10%	SCA

Hole_ID	From [m]	To [m]	Lith for model	Vein density	Vein type 1	Vein type 2	Vein type 3	Vein type 4	Original alteration	Overprint 1 + %	Overprint 2 + %	Alteration for model
FSU1212058	669	674	IPDA	10-20%	2	3	4		SCA	AA~100%	WM<10%	AA
FSU1212058	674	675	Fault		2	3	4		SCA	AA~100%	WM<10%	AA
FSU1212058	675	680.2	IPDA	15-30%	2	3	4		SCA	AA~100%	WM<10%	AA
FSU1212058	680.2	690	IPDA	10-20%	2	3	4		SCA	AA~100%	WM<10%	AA
FSU1212058	690	696.7	IDI	10-20%	2	3	4		SCA	AA~100%	WM<10%	AA
FSU1212058	696.7	700	IDI	7-15%	2	3	4		SCA	AA<10%	WM<10%	SCA
FSU1212058	700	702.4	IDI	3-7%	2	3	4		SCA	AA<10%	WM<10%	SCA
FSU1212058	702.4	702.7	IDI	3-7%	2	3	4		SCA	AA~100%	WM<10%	AA
FSU1212058	702.7	703.2	IDI	3-7%	2	3	4		SCA	AA<10%	WM<10%	SCA
FSU1212058	703.2	704.7	IDI	3-7%	2	3	4		SCA	AA~100%	WM<10%	AA
FSU1212058	704.7	706.7	IDI	3-7%	2	3	4		SCA	AA<10%	WM<10%	SCA
FSU1212058	706.7	707.8	IDI	3-7%	2	3	4		SCA	AA~100%	WM<10%	AA
FSU1212058	707.8	715	IDI	3-7%	2	3	4		SCA	AA<10%	WM<10%	SCA
FSU1212058	715	716.5	IDI	3-7%	2	3	4		SCA	AA~100%	WM<10%	AA
FSU1212058	716.5	729.3	IDI	3-7%	2	3	4		SCA	WM<10%		SCA
FSU1212058	729.3	735	IDI	3-7%	2	3	4		SCA	WM<10%		SCA
FSU1212058	735	750	IDI	3-7%	2	3	4		SCA	WM~50%		WM
FSU1212058	750	764.5	IDI	3-7%	2	3	4		SCA	WM<10%		SCA
FSU1212058	764.5	775	IDI	5-10%	2	3	4		SCA	WM~50%		WM
FSU1212058	775	778	IDI	15-30%	2	3	4		SCA	WM~100%		WM
FSU1212058	778	789.9	IDI	20-50%	2	3	4		SCA	WM~100%		WM
FSU1212058	789.9	803.5	IDI	<5%	2	3	4		SCA	WM<10%		SCA
FSU1212058	803.5	810.3	IDI	<5%	2	3	4		Bt	SCA~50%	WM<10%	SCA
FSU1212058	810.3	814	IDI	<5%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU1212058	814	815.3	Fault		2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU1212058	815.3	818	IDI	<5%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU1212058	818	878	IDID	<5%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU1212058	878	880	IDID	<5%	2	3	4		Bt	SCA~100%	WM~100%	WM
FSU1212058	880	884	IDID	<5%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU1212058	884	884.4	IDID	<5%	2	3	4		Bt	SCA~100%	WM~100%	WM
FSU1212058	884.4	886	IDID	<5%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU1212058	886	894	IDID	<5%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU1212058	894	909.5	IDID	<5%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU1212058	909.5	955.3	IDID	<5%	1	2	3	4	Bt	SCA<10%	WM<10%	Bt
FSU1212058	955.3	975	IDID	3-7%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU1212058W1	938.1	942.8	IDID	<5%	2	3	4		Bt	SCA~50%	WM<10%	Bt
FSU1212058W1	942.8	945.5	IDID	<5%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU1212058W1	945.5	950	IDID	<5%	1	2	3	4	Bt	SCA~50%	WM<10%	Bt
FSU1212058W1	950	951	IDID	5-10%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA

Hole_ID	From [m]	To [m]	Lith for model	Vein density	Vein type 1	Vein type 2	Vein type 3	Vein type 4	Original alteration	Overprint 1 + %	Overprint 2 + %	Alteration for model
FSU1212058W1	951	992	IDID	3-7%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU1212058W1	992	993.5	IDID	3-7%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU1212058W1	993.5	996.5	IDID	10-20%	1	2	3	4	Bt	SCA~100%	WM~50%	WM
FSU1212058W1	996.5	998.5	IDID	15-30%	1	2	3	4	Bt	SCA~100%	WM~50%	WM
FSU1212058W1	998.5	1000.5	IDID	>50%	1	2	3	4	Bt	SCA~100%	WM~50%	WM
FSU1212058W1	1000.5	1004.7	IDID	15-30%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU1212058W1	1004.7	1020.4	IDID	10-20%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU1212058W1	1020.4	1034	IDID	5-10%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU1212058W1	1034	1041.5	IDID	3-7%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU1212058W1	1041.5	1042.5	IDID	<5%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU1212058W1	1042.5	1051.5	IDID	<5%	1	2	3	4	Bt	SCA<10%		Bt
FSU1212058W1	1051.5	1060.5	IDIL	<5%	1	2	3	4	Bt	SCA~100%		SCA
FSU1212058W1	1060.5	1061.2	IDIL	3-7%	1	2	3	4	Bt	SCA~100%		SCA
FSU1212058W1	1061.2	1067	IDIL	3-7%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU1212058W1	1067	1073.3	IDIL	15-30%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU1212058W1	1073.3	1082	IDIL	<5%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU1212058W1	1082	1089	IDIL	3-7%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU1212058W1	1089	1093	IDIL	<5%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU1212058W1	1093	1107.6	IDIL	3-7%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU122035	600	613.5	IPDA	<5%	3	4			SCA	AA~100%		AA
FSU122035	613.5	615	PHBX	~0%					WM			WM
FSU122035	615	622	PHBX	~0%					WM			WM
FSU122035	622	657.3	PHBX	~0%					WM			WM
FSU122035	657.3	659.4	Fault	~0%					WM			WM
FSU122035	659.4	675	PHBX	~0%					WM			WM
FSU122035	675	714	PHBX	<2%	4				WM			WM
FSU122035	714	720	PHBX	~0%					SCA	WM<10%		SCA
FSU122035	720	725	PHBX	~0%					SCA	WM<10%		SCA
FSU122035	725	746	PHBX	~0%					WM			WM
FSU122035	746	754.5	PHBX	~0%					WM			WM
FSU122035	754.5	766	PHBX	~0%					WM			WM
FSU122035	766	775	PHBX	<2%	4				WM			WM
FSU122035	775	791	PHBX	<2%	4				WM			WM
FSU122035	791	797.7	PHBX	~0%					SCA			SCA
FSU122035	797.7	805	PHBX	~0%					SCA			SCA
FSU122035	805	811.5	PHBX	~0%					SCA			SCA
FSU122035	811.5	815	IDD	~0%								
FSU122035	815	830.5	LVU	5-10%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU122035	830.5	869	LVU	7-15%	2	3	4		Bt	SCA~100%	WM<10%	SCA

Hole_ID	From [m]	To [m]	Lith for model	Vein density	Vein type 1	Vein type 2	Vein type 3	Vein type 4	Original alteration	Overprint 1 + %	Overprint 2 + %	Alteration for model
FSU122035	869	879.5	LVU	5-10%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU122035	879.5	885.4	LVU	7-15%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU122035	885.4	887.8	IDD	<5%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU122035	887.8	898.4	LVU	7-15%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU122035	898.4	899	LVU	>50%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU122035	899	900	LVU	7-15%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU122035	900	900.3	IDD	<2%	3	4			Bt	SCA~100%	WM<10%	SCA
FSU122035	900.3	902.3	LVU	7-15%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU122035	902.3	906.2	LVU	7-15%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU122035	906.2	909.5	LVU	5-10%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU122035	909.5	914.3	LVU	<5%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU122035	914.3	919.8	LVU	<5%	2	3			Bt	SCA~100%		SCA
FSU122035	919.8	925	LVU	<5%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU122035	925	932	LVU	5-10%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU122035	932	941	LVU	3-7%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU122035	941	942	LVU	5-10%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU122035	942	943.8	LVU	5-10%	2	3	4		Bt	SCA~100%	WM~100%	WM
FSU122035	943.8	950	LVU	5-10%	2	3			Bt	SCA~100%		SCA
FSU122035	950	988	LVU	7-15%	1	2	3	4	Bt	SCA~50%	WM<10%	Bt
FSU122035	988	1025	LVU	5-10%	1	2	3	4	Bt	SCA<10%	WM<10%	Bt
FSU123043	550	575	IPDA	<5%	3	4			DP	AA~100%		AA
FSU123043	575	576	IPDA	3-7%	3	4			DP	AA<10%		DP
FSU123043	576	600	IPDA	3-7%	3	4			DP	AA~100%		AA
FSU123043	600	613	IPDA	<5%	3	4			DP	AA~100%		AA
FSU123043	613	640	IPDA	3-7%	3	4			DP	AA~100%		AA
FSU123043	640	644.3	IPDA	3-7%	3	4			DP	AA~50%		AA
FSU123043	644.3	676.8	IPDA	3-7%	3	4			DP	AA~100%		AA
FSU123043	676.8	690	IPDA	3-7%	3	4			DP	AA~50%		AA
FSU123043	690	710	IPDA	3-7%	3	4			SCA	AA~100%		AA
FSU123043	710	712.6	LVU	3-7%	3	4			SCA	AA~100%		AA
FSU123043	712.6	737.2	LVU	3-7%	3	4			SCA	AA~50%		AA
FSU123043	737.2	757.7	LVU	3-7%	3	4			SCA	AA<10%		SCA
FSU123043	757.7	761.4	LVU	3-7%	3	4			SCA	AA~50%		AA
FSU123043	761.4	769.3	LVU	3-7%	3	4			SCA	AA<10%		SCA
FSU123043	769.3	784	LVU	3-7%	3	4			SCA	AA~50%		AA
FSU123043	784	791	LVU	7-15%	3	4			SCA	AA~50%		AA
FSU123043	791	795	LVU	3-7%	3	4			SCA	AA~50%		AA
FSU123043	795	804	LVU	10-20%	3	4			SCA	AA~50%		AA
FSU123043	804	813	LVU	3-7%	3	4			SCA	AA<10%		SCA

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FSU123043	813	815.5	LVU	5-10%	3	4			SCA	AA~50%		AA
FSU123043	815.5	820	LVU	3-7%	2	3	4		SCA			SCA
FSU123043	820	821	LVU	3-7%	2	3	4		SCA			SCA
FSU123043	821	821.5	LVU	3-7%	2	3	4		SCA	AA~100%		AA
FSU123043	821.5	835	LVU	3-7%	2	3	4		SCA			SCA
FSU123043	835	836.3	LVU	5-10%	2	3	4		SCA	AA~50%		AA
FSU123043	836.3	841.8	LVU	5-10%	2	3	4		SCA			SCA
FSU123043	841.8	842.5	LVU	5-10%	2	3	4		SCA	AA<10%		SCA
FSU123043	842.5	866	LVU	3-7%	2	3	4		SCA	AA<10%		SCA
FSU123043	866	884.2	LVU	5-10%	2	3	4		SCA	AA<10%		SCA
FSU123043	884.2	886.8	LVU	5-10%	1	2	3	4	Bt	SCA~50%	AA<10%	SCA
FSU123043	886.8	896	LVU	5-10%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU123043	896	911	LVU	3-7%	1	3	4		Bt	SCA~50%		SCA
FSU123043	911	915	LVU	5-10%	1	3	4		Bt	SCA~50%	AA<50%	SCA
FSU123043	915	929.5	LVU	5-10%	1	3	4		Bt	SCA~50%	WM<10%	SCA
FSU123043	929.5	936.3	LVU	3-7%	1	3	4		Bt	SCA~100%	WM<10%	SCA
FSU123043	936.3	939	LVU	3-7%	1	3	4		Bt	SCA~100%		SCA
FSU123043	939	941.3	LVU	3-7%	1	3	4		Bt	SCA~50%		SCA
FSU123043	941.3	947.3	LVU	3-7%	1	3	4		Bt	SCA~50%	WM<10%	SCA
FSU123043	947.3	967	LVU	3-7%	1	3	4		Bt	SCA~50%	WM<10%	SCA
FSU123043	967	973	LVU	<5%	1	3	4		Bt	SCA<10%	WM<10%	Bt
FSU123043	973	980	LVU	<5%	1	3	4		Bt	SCA<10%	WM<10%	Bt
FSU123061	938.6	942.2	LVU	3-7%	2	3	4		Bt	SCA~50%	WM<10%	SCA
FSU123061	942.2	947.4	LVU	3-7%	2	3	4		Bt	SCA<10%	WM<10%	Bt
FSU123061	947.4	952.5	LVU	3-7%	2	3	4		Bt	SCA~50%	WM<10%	SCA
FSU123061	952.5	954	LVU	5-10%	2	3	4		Bt	SCA~50%	WM<10%	SCA
FSU123061	954	959.2	LVU	5-10%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU123061	959.2	961.8	LVU	3-7%	2	3			Bt	SCA<10%		Bt
FSU123061	961.8	965.9	LVU	5-10%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU123061	965.9	971.2	LVU	5-10%	2	3			Bt	SCA~100%		SCA
FSU123061	971.2	978.5	LVU	3-7%	2	3	4		Bt	SCA~100%		SCA
FSU123061	978.5	982	LVU	3-7%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU123061	982	985	LVU	5-10%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU123061	985	988	LVU	<5%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU123061	988	992.5	LVU	<5%	2	3	4		Bt	SCA~50%	WM<10%	SCA
FSU123061	992.5	1020.7	LVU	3-7%	2	3	4		Bt	SCA~50%	WM<10%	SCA
FSU123061	1020.7	1027.6	LVU	3-7%	2	3			Bt	SCA~50%		SCA
FSU123061	1027.6	1035	LVU	3-7%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU123061	1035	1039	LVU	<5%	3	4			Bt	SCA~100%	WM<10%	SCA

Hole_ID	From [m]	To [m]	Lith for model	Vein density	Vein type 1	Vein type 2	Vein type 3	Vein type 4	Original alteration	Overprint 1 + %	Overprint 2 + %	Alteration for model
FSU123061	1039	1050	LVU	<5%	3	4			Bt	SCA~50%	WM<10%	SCA
FSU123061	1050	1062.8	LVU	3-7%	2	3	4		Bt	SCA~50%	WM<10%	SCA
FSU123061	1062.8	1066.3	LVU	3-7%	2	3	4		Bt	SCA~50%	WM~50%	WM
FSU123061	1066.3	1067	LVU	~100%	2	3	4		Bt	SCA~50%	WM~50%	WM
FSU123061	1067	1067.3	LVU	3-7%	2	3	4		Bt	SCA~50%	WM~50%	WM
FSU123061	1067.3	1077	LVU	3-7%	2	3	4		Bt	SCA~50%	WM<10%	SCA
FSU123061	1077	1081.6	LVU	3-7%	2	3			Bt	SCA~50%		SCA
FSU123061	1081.6	1083.4	LVU	3-7%	2	3	4		Bt	SCA~50%	WM<10%	SCA
FSU123061	1083.4	1085.5	LVU	3-7%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU123061	1085.5	1086.3	LVU	3-7%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU123061	1086.3	1086.9	LVU	<5%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU123061	1086.9	1087.5	LVU	<5%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU123061	1087.5	1089.8	LVU	<5%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU123061	1089.8	1090.5	LVU	<5%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU123061	1090.5	1095	LVU	<5%	2	3			Bt	SCA~50%		SCA
FSU123061	1095	1101.5	LVU	3-7%	2	3			Bt	SCA~100%		SCA
FSU123061	1101.5	1103.8	LVU	<5%	2	3	4		Bt	SCA~50%	WM<10%	SCA
FSU123061	1103.8	1110	LVU	<5%	2	3			Bt	SCA~50%		SCA
FSU123061	1110	1115	LVU	3-7%	1	2	3		Bt	SCA<10%		Bt
FSU123061	1115	1119.4	LVU	3-7%	1	2	3	4	Bt	SCA<10%	WM<10%	Bt
FSU123061	1119.4	1125.3	LVU	3-7%	1	2	3		Bt	SCA<10%		Bt
FSU123061	1125.3	1125.9	LVU	3-7%	1	2	3	4	Bt	SCA<10%	WM~100%	WM
FSU123061	1125.9	1129.6	LVU	3-7%	1	2	3		Bt	SCA<10%		Bt
FSU123061	1129.6	1131	LVU	3-7%	1	2	3	4	Bt	SCA<10%	WM~100%	WM
FSU123061	1131	1134.1	LVU	3-7%	1	2	3	4	Bt	SCA<10%	WM<10%	Bt
FSU123061	1134.1	1146.2	LVU	3-7%	1	2	3		Bt	SCA<10%		Bt
FSU123061	1146.2	1162.2	LVU	<5%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU123061	1162.2	1174	LVU	<5%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU123061	1174	1185.5	LVU	3-7%	1	2	3		Bt	SCA<10%		Bt
FSU123061	1185.5	1186.4	LVU	3-7%	1	2	3	4	Bt	SCA<10%	WM~100%	WM
FSU123061	1186.4	1190.5	LVU	3-7%	1	2	3		Bt	SCA<10%		Bt
FSU123061	1190.5	1192	LVU	3-7%	1	2	3		Bt	SCA~50%		SCA
FSU123061	1192	1192.8	LVU	3-7%	1	2	3	4	Bt	SCA~50%	WM~100%	WM
FSU123061	1192.8	1216	LVU	3-7%	1	2	3		Bt	SCA~50%		SCA
FSU123061	1216	1220	PHBX	<5%	4				WM			WM
FSU123061	1220	1245.3	IPDA	<5%	1	3	4		SCA	WM~50%		WM
FSU123061	1245.3	1256.5	IPDA	<5%	1	3	4		SCA	WM<10%		SCA
FSU123061	1256.5	1260	IPDA	<5%	1	3	4		SCA	WM<10%		SCA
FSU123061	1260	1265	IPDA	<5%	1	3	4		SCA	WM~50%		WM

Hole_ID	From [m]	To [m]	Lith for model	Vein density	Vein type 1	Vein type 2	Vein type 3	Vein type 4	Original alteration	Overprint 1 + %	Overprint 2 + %	Alteration for model
FSU123061	1265	1269	IPDA	3-7%	1	3	4		SCA	WM~50%		WM
FSU123061	1269	1274	IPDA	<5%	1	3	4		SCA	WM<10%		SCA
FSU123061	1274	1285	IPDA	3-7%	1	3	4		SCA	WM~50%		WM
FSU123061	1285	1290	IPDA	<5%	1	3	4		SCA	WM<10%		SCA
FSU123061	1290	1299.5	IPDA	3-7%	1	3	4		SCA	WM~50%		WM
FSU123061	1299.5	1309.5	PHBX	3-7%	4				WM			WM
FSU123061	1309.5	1356	IPDA	<5%	1	3	4		SCA	WM~50%		WM
FSU126050	950	952.3	IDID	3-7%	1	2	3	4	Bt	SCA~100%	WM~50%	SCA
FSU126050	952.3	959	IDID	5-10%	1	2	3	4	Bt	SCA~100%	WM~50%	SCA
FSU126050	959	967.4	IDID	3-7%	1	2	3	4	Bt	SCA~100%	WM~50%	SCA
FSU126050	967.4	969	IDID	3-7%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU126050	969	971	IDID	3-7%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU126050	971	973.5	IDID	5-10%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU126050	973.5	983.3	IDID	3-7%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU126050	983.3	989.2	IDID	3-7%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU126050	989.2	989.7	IDID	3-7%	2	3	4		Bt	SCA~100%	WM~100%	WM
FSU126050	989.7	991	IDID	10-20%	2	3	4		Bt	SCA~100%	WM~100%	WM
FSU126050	991	999.2	IDID	10-20%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU126050	999.2	1000	IDID	10-20%	2	3	4		Bt	SCA~100%	WM~100%	WM
FSU126050	1000	1004	IDID	5-10%	2	3			Bt	SCA~100%		SCA
FSU126050	1004	1004.9	IDID	5-10%	2	3	4		Bt	SCA~100%	WM~100%	WM
FSU126050	1004.9	1007.7	IDID	5-10%	2	3			Bt	SCA~100%		SCA
FSU126050	1007.7	1012.5	IDID	5-10%	2	3	4		Bt	SCA~100%	WM~100%	WM
FSU126050	1012.5	1014	IDID	5-10%	2	3	4		Bt	SCA~100%	WM~50%	SCA
FSU126050	1014	1017	IDID	5-10%	2	3			Bt	SCA~100%		SCA
FSU126050	1017	1018.5	IDID	5-10%	2	3			Bt	SCA~50%		SCA
FSU126050	1018.5	1020	IDID	5-10%	2	3	4		Bt	SCA~50%	WM<10%	SCA
FSU126050	1020	1020.5	IDID	5-10%	2	3	4		Bt	SCA~50%	WM~100%	WM
FSU126050	1020.5	1025	IDID	5-10%	2	3	4		Bt	SCA~50%	WM<10%	SCA
FSU126050	1025	1031.6	IDID	10-20%	2	3	4		Bt	SCA~50%	WM<10%	SCA
FSU126050	1031.6	1033	IDID	10-20%	2	3	4		Bt	SCA~50%	WM~100%	WM
FSU126050	1033	1041	IDID	10-20%	2	3	4		Bt	SCA~50%	WM~50%	WM
FSU126050	1041	1050	IDID	10-20%	2	3	4		Bt	SCA~50%	WM<10%	SCA
FSU126050	1050	1059	IDID	7-15%	2	3	4		Bt	SCA~100%	WM~50%	WM
FSU126050	1059	1059.5	IDID	7-15%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU126050	1059.5	1066	IDID	3-7%	2	3	4		Bt	SCA~50%	WM<10%	SCA
FSU126050	1066	1067.5	IDID	5-10%	2	3	4		Bt	SCA~50%	WM<10%	SCA
FSU126050	1067.5	1070.8	IDID	3-7%	2	3	4		Bt	SCA~50%	WM<10%	SCA
FSU126050	1070.8	1075	IDID	5-10%	2	3	4		Bt	SCA~100%	WM~50%	WM

Hole_ID	From [m]	To [m]	Lith for model	Vein density	Vein type 1	Vein type 2	Vein type 3	Vein type 4	Original alteration	Overprint 1 + %	Overprint 2 + %	Alteration for model
FSU126050	1075	1078.3	IDID	5-10%	2	3	4		Bt	SCA~50%	WM<10%	SCA
FSU126050	1078.3	1083.8	IDID	5-10%	2	3			Bt	SCA<10%		Bt
FSU126050	1083.8	1088.8	IDID	5-10%	2	3	4		Bt	SCA<10%	WM<10%	Bt
FSU126050	1088.8	1093.2	LVU	5-10%	2	3	4		Bt	SCA<10%	WM<10%	Bt
FSU126050	1093.2	1094	LVU	>50%	2	3	4		Bt	SCA<10%	WM<10%	Bt
FSU126050	1094	1094.5	IDID	>50%	2	3	4		Bt	SCA~50%	WM<10%	SCA
FSU126050	1094.5	1100	IDID	3-7%	2	3	4		Bt	SCA~50%	WM<10%	SCA
FSU126050	1100	1104.5	IDID	5-10%	2	3	4		Bt	SCA~50%	WM<10%	SCA
FSU126050	1104.5	1106.6	LVU	5-10%	2	3	4		Bt	SCA~50%	WM<10%	SCA
FSU126050	1106.6	1112.5	LVU	5-10%	2	3	4		Bt	SCA<10%	WM<10%	Bt
FSU126050	1112.5	1118.5	IDID	5-10%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU126050	1118.5	1132	LVU	3-7%	1	2	3	4	Bt	SCA<10%	WM<10%	Bt
FSU126050	1132	1137	LVU	3-7%	1	2	3		Bt	SCA<10%		Bt
FSU126050	1137	1140	LVU	3-7%	1	2	3	4	Bt	SCA<10%	WM<10%	Bt
FSU126050	1140	1142.6	LVU	3-7%	1	2	3		Bt	SCA<10%		Bt
FSU126050	1142.6	1143.8	LVU	3-7%	1	2	3		Bt	SCA~50%		SCA
FSU126050	1143.8	1147.2	LVU	3-7%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU126050	1147.2	1150	LVU	3-7%	1	2	3		Bt	SCA~50%		SCA
FSU126050	1150	1162	LVU	<5%	1	2	3		Bt	SCA~50%		SCA
FSU126050	1162	1163	LVU	<5%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU126050	1163	1166	LVU	<5%	1	2	3		Bt	SCA~50%		SCA
FSU126050	1166	1175	LVU	3-7%	1	2	3		Bt	SCA~50%		SCA
FSU126050	1175	1175.8	LVU	3-7%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU126050	1175.8	1179.7	LVU	3-7%	1	2	3		Bt	SCA~50%		SCA
FSU126050	1179.7	1180.5	LVU	3-7%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU126050	1180.5	1189.8	LVU	3-7%	1	2	3		Bt	SCA~50%		SCA
FSU126050	1189.8	1190.8	LVU	3-7%	1	2	3	4	Bt	SCA~50%	WM~50%	SCA
FSU126050	1190.8	1192.5	LVU	3-7%	1	2	3	4	Bt	SCA~50%		SCA
FSU126050	1192.5	1195	IDID	>50%	1	2	3	4	Bt	SCA~50%		SCA
FSU126050	1195	1200	IDID	3-7%	1	2	3	4	Bt	SCA~50%		SCA
FSU126050	1200	1209.8	IDID	3-7%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU126050	1209.8	1212.5	LVU	3-7%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU126050	1212.5	1221.5	LVU	3-7%	1	2	3	4	Bt	SCA<10%	WM<10%	Bt
FSU126050	1221.5	1222	IDD	3-7%	1	2	3	4	Bt	SCA<10%	WM<10%	Bt
FSU126050	1222	1224.8	LVU	3-7%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU126050	1224.8	1226	IDD	3-7%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU126050	1226	1230.2	LVU	3-7%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU126050	1230.2	1242	LVU	3-7%	1	2	3	4	Bt	SCA<10%	WM<10%	Bt
FSU126050	1242	1254.5	LVU	3-7%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA

Hole_ID	From [m]	To [m]	Lith for model	Vein density	Vein type 1	Vein type 2	Vein type 3	Vein type 4	Original alteration	Overprint 1 + %	Overprint 2 + %	Alteration for model
FSU126050	1254.5	1255.5	LVU	3-7%	1	2	3	4	Bt	SCA~50%	WM~50%	WM
FSU126050	1255.5	1259	LVU	3-7%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU126050	1259	1265.5	LVU	3-7%	1	2	3		Bt	SCA~50%		SCA
FSU126050	1265.5	1266.5	LVU	3-7%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU126050	1266.5	1269.3	LVU	3-7%	1	2	3		Bt	SCA~50%		SCA
FSU126050	1269.3	1271.2	LVU	<5%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU126050	1271.2	1280	LVU	<5%	1	2	3		Bt	SCA~50%		SCA
FSU126050	1280	1281.5	LVU	<5%	1	2	3	4	Bt	SCA~50%	WM<10%	SCA
FSU126050	1281.5	1296	LVU	<5%	1	2	3		Bt	SCA~50%		SCA
FSU128037	1401.8	1407	LVU	3-7%	1	2			Bt	SCA<10%		Bt
FSU128037	1407	1408.3	IDD	3-7%	1				Bt			Bt
FSU128037	1408.3	1414.7	LVU	3-7%	1	3			Bt			Bt
FSU128037	1414.7	1416.8	LVU	3-7%	1	2	3		Bt	SCA<10%		Bt
FSU128037	1416.8	1424.2	LVU	3-7%	1	2	3	4	Bt	SCA<10%	WM<10%	Bt
FSU128037	1424.2	1453.7	LVU	3-7%	1	2	3		Bt	SCA<10%		Bt
FSU128037	1453.7	1459.8	fault	<5%								
FSU128037	1459.8	1494	IDID	<5%	2	3	4		SCA	WM<10%		SCA
FSU128037	1494	1496	IDID	<5%	1	2	3	4	Bt	SCA<10%	WM<10%	Bt
FSU128037	1496	1496.7	IDID	<5%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU128037	1496.7	1501.9	IDID	<5%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU128037	1501.9	1503.2	IDID	<5%	1	2	3		Bt	SCA<10%		Bt
FSU128037	1503.2	1507.7	IDID	<5%	1	2	3		Bt	SCA~100%		SCA
FSU128037	1507.7	1511	fault	<5%								
FSU128037	1511	1512	IDID	<5%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU128037	1512	1517.8	IDID	<5%	1	2	3		Bt	SCA~100%		SCA
FSU1310071	0	41.3	PHBX						SCA			
FSU1310071	41.3	121.5							BOXES MISSING			
FSU1310071	121.5	150	IPDA	3-7%					AA			
FSU1310071	150	175	IPDA	<5%	3				AA			
FSU1310071	175	760							BOXES MISSING			
FSU1310071	760	770.2	LVU	7-15%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU1310071	770.2	786.5	IDID	7-15%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU1310071	786.5	789	IDID	7-15%	2	3	4		Bt	SCA~100%	WM~50%	WM
FSU1310071	789	800.1	IDIL	<5%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU1310071	800.1	813.7	IDID	7-15%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU1310071	813.7	822	IDID	10-20%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU1310071	822	827	IDID	7-15%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU1310071	827	831	IDID	10-20%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU1310071	831	835	IDID	7-15%	2	3	4		Bt	SCA~100%	WM<10%	SCA

Hole_ID	From [m]	To [m]	Lith for model	Vein density	Vein type 1	Vein type 2	Vein type 3	Vein type 4	Original alteration	Overprint 1 + %	Overprint 2 + %	Alteration for model
FSU1310071	835	835.5	IDID	7-15%	2	3	4		Bt	SCA~100%	WM~50%	WM
FSU1310071	835.5	841.5	IDID	7-15%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU1310071	841.5	844	fault									
FSU1310071	844	855	IDID	7-15%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU1310071	855	873.5	BOXES MISSING									
FSU1310071	873.5	878.6	fault						WM			WM
FSU1310071	878.6	884	IDID	5-10%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU1310071	884	890	IDID	10-20%	2	3	4		Bt	SCA~100%	WM<10%	SCA
FSU1310071	890	896	IDID	7-15%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU1310071	896	899.5	IDID	7-15%	1	2	3	4	Bt	SCA~100%	WM~50%	WM
FSU1310071	899.5	906.5	IDID	10-20%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU1310071	906.5	907.5	IDID	<5%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU1310071	907.5	909	IDID	<5%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU1310071	909	914	LVU	7-15%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU1310071	914	926	IDID	<5%	1	2	3	4	SCA			SCA
FSU1310071	926	938	LVU	10-20%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU1310071	938	941.3	IDID	7-15%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU1310071	941.3	950.5	IDID	5-10%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA
FSU1310071	950.5	959.3	LVU	10-20%	1	2	3	4	Bt	SCA~50%	WM<10%	Bt
FSU1310071	959.3	974.8	IDID	5-10%	1	2	3	4	Bt	SCA~50%	WM<10%	Bt
FSU1310071	974.8	988	LVU	3-7%	1	3	4		Bt	WM<10%		Bt
FSU1310071	988	992	LVU	3-7%	1	3	4		Bt	SCA<10%	WM<10%	Bt
FSU1310071	992	1009	LVU	3-7%	1	3	4		Bt	SCA~50%	WM<10%	Bt
FSU1310071	1009	1010	fault						WM			WM
FSU1310071	1010	1018.2	LVU	3-7%	1	2	3	4	Bt	SCA~50%	WM<10%	Bt
FSU1310071	1018.2	1021.3	fault						WM			WM
FSU1310071	1021.3	1040	LVU	3-7%	1	2	3	4	Bt	SCA~50%	WM<10%	Bt
FSU1310071W1	987	996.4	LVU	5-10%	1	2	3	4	Bt	SCA~50%	WM<10%	Bt
FSU1310071W1	996.4	1003	LVU	3-7%	1	2	3	4	Bt	SCA~50%	WM<10%	Bt
FSU1310071W1	1003	1009	LVU	3-7%	1	2	3	4	Bt	SCA<10%	WM<10%	Bt
FSU1310071W1	1009	1010.5	fault						WM			WM
FSU1310071W1	1010.5	1019	LVU	3-7%	1	2	3	4	Bt	SCA<10%	WM<10%	Bt
FSU1310071W1	1019	1020.6	fault						WM			WM
FSU1310071W1	1020.6	1028	LVU	3-7%	1	2	3	4	Bt	SCA~50%	WM<10%	Bt
FSU1310071W1	1028	1040	LVU	<5%	1	2	3	4	Bt	SCA~50%	WM<10%	Bt
FSU1310071W1	1040	1043	LVU	3-7%	1	2	3	4	Bt	SCA~50%	WM<10%	Bt
FSU1310071W1	1043	1044	fault						WM			WM
FSU1310071W1	1044	1055	LVU	<5%	1	2	3	4	Bt	SCA~50%	WM<10%	Bt
FSU1310071W1	1055	1065.8	LVU	<5%	1	2	3	4	Bt	SCA~100%	WM<10%	SCA

Hole_ID	From [m]	To [m]	Lith for model	Vein density	Vein type 1	Vein type 2	Vein type 3	Vein type 4	Original alteration	Overprint 1 + %	Overprint 2 + %	Alteration for model
FSU1310071W1	1065.8	1069	LVU	3-7%	1	2	3	4	Bt	SCA~50%	WM<10%	Bt
FSU1310071W1	1069	1072	LVU	<5%	1	2	3	4	Bt	SCA~50%	WM<10%	Bt
FSU1310071W1	1072	1083.6	LVU	<5%	1	2	3	4	Bt	SCA~50%	WM<10%	Bt
FSU1310071W1	1083.6	1085	fault						WM			WM
FSU1310071W1	1085	1089	LVU	<5%	1	2	3	4	Bt	SCA~50%	WM<10%	Bt
FSU1310071W1	1089	1090	fault						WM			WM
FSU1310071W1	1090	1096	LVU	<5%	3				Bt	SCA<10%		Bt
FSU1310071W1	1096	1097.3	LVU	<2%	3	4			Bt	SCA<10%	WM<10%	Bt
FSU1310071W1	1097.3	1157	LVU	<2%	3	4			Bt	SCA<10%	WM<10%	Bt

## Appendix 5b - Drill core log, legend

### Lithology code

IDD	Late dyke - felsic
HYBX	Hydrothermal breccia
PHBX	Phreatic and phreatomagmatic breccia
IDIL	Light diorite
IDID	Dark diorite
IDI	Uniffrerenciaded Diorite
IPDA	Porphyritic dacite - Imbanguila dacite
LVU	Lepanto Volcanic Unit

### Vein type

1	grey quartz
2	lavender quartz
3	anhydrite + sulfides
4	sulfide rich
5	enargite

### Alteration

AA	Advanced argillic alteration
WM	White mica alteration
DP	Dark phyllic or hematite rich phyllic alteration
SCA	Sericite, chlorite, albite alteration
Bt	Biotite alteration
PR	Propylitic alteration
CaSil	Calc-silicate alteration