GEOLOGICAL REPORT
ON THE
MOUSE MOUNTAIN PROPERTY
AND
SUMMARY OF EXPLORATION
IN THE SUMMER
OF 2006

58º 02´ N, 122º 19´ W
545094 E, 5876965 N, Zone 10 (NAD 83)

Prepared for:

Richfield Ventures Corp.

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1.0. INTRODUCTION:

Mouse Mountain is situated within the central Quesnel Trough, occurring 70 km northwest of Mount Polley and 200 km southeast of Mount Milligan; two known copper-porphyry deposits within British Columbia. Triassic to Jurassic volcanic-sedimentary arc rocks characterise the Quesnel Terrane, within which alkaline intrusions are known to systematically occur every 13 km along strike length. On the eastern flank of Mouse Mountain is an area known as the Valentine Zone, which shows classic porphyry attributes: propylitic alteration and stockwork copper mineralization. The extent of mineralization within the monzonite-syenite intrusion has been a subject of debate for over 50 years. Does Mouse Mountain fit into the pattern of porphyry distribution within the Nicola Group, and if so, is the Valentine the tail of an elephant, or the body of a mouse?

This report describes the preliminary results of a detailed bedrock geology study done on the Mouse Mountain property. Exploration and mapping began on the 20^{th} May 2006, and was carried out, by the author and one assistant, until the end of August 2006. The area mapped covers approximately 16 km^2 of generally subdued topography on the eastern margin of the low-lying Fraser Plateau. Previous bedrock maps of the area are based on reconnaissance-scale mapping carried out by Teck in 1991, and Sanguinetti in 1989. The bedrock geology map created in 2006 was improved by examining the rocks in thin section; petrography not having been done to date. Elevated metal prices and a rekindled interest in Cu-Au porphyry deposits are two incentives to continue searching in this under explored area. To fully understand and define the mineral potential of Mouse Mountain, detailed mapping will have to continue in 2007, and an improved geological framework will also have to be established.

1.1. Background and Purpose of Report:

The Mouse Mountain property is wholly owned by Richfield Ventures Corporation (RVC); a private company with their offices in Quesnel, British Columbia. In 2003 Mr. Peter Bernier, the President of RVC, staked the Mouse Mountain property resting on the recommendation of geologist Mr. Leo Lindinger. With the recovery in metal prices, preparations to re-evaluate Mouse Mountain were underway by early 2005.

This report contains a summary of the geology of Mouse Mountain as presently understood, and a brief account of exploration activities in 2006. References cited have been taken from published and unpublished reports. Two maps attached to this report are cited frequently in reference to geographic and geologic features, and infrastructure. Map 1 shows the property geology and selected physiographic features of the region. Map 2 is a more detailed geology map of the centre of the property around Mouse Mountain. Note that the property with which the report is concerned does not take into consideration the total land owned by Richfield; the land concerned is within the map area.

1.2. Location and Access:

The Mouse Mountain property is situated 9km east-northeast of Quesnel in the Quesnel River area of south-central British Columbia (Fig. 1.1). The centre of the Mouse Mountain property is at latitude 53º 02´ N, longitude 122º 19´ W, or UTM 545094E, 5876965N, in Zone 10 (NAD 83). The nearest settlement is the town of Quesnel, at the confluence of the Quesnel and Fraser Rivers. The property is within NTS Map Sheet 093G/01. The magnetic declination in 2006 was 19º 43´ E (Natural Resources Canada, online geomagnetism calculation).

Mouse Mountain is road-accessible all year round, via the paved highway between the Quesnel Airport and Barkerville, on the Wells-Barkerville Highway 26. A well-maintained gravel road branches off the Quesnel-Wells highway 11 km east of the Quesnel airport (4 km north of downtown Quesnel on the Cariboo Highway 97). Access to the property is also possible from the Quesnel-Wells highway via Corbett Lake road, 12 km north of the Quesnel airport.

An underused exploration road branches off the Matthew's access road. It provides access to the north of the property. This road connects with the main logging and exploration roads inside the property. Logging roads and old drill roads are present in most of the property, although their condition varies, with the older ones overgrown or washed out. In areas of recent exploration, some of the older roads have been improved.

The nearest airport is Quesnel. Driving time to the property from there is between 10 and 15 minutes. Prince George is situated 120 km north of Quesnel and is a major regional centre, with regularly scheduled air services to Vancouver and Kamloops.

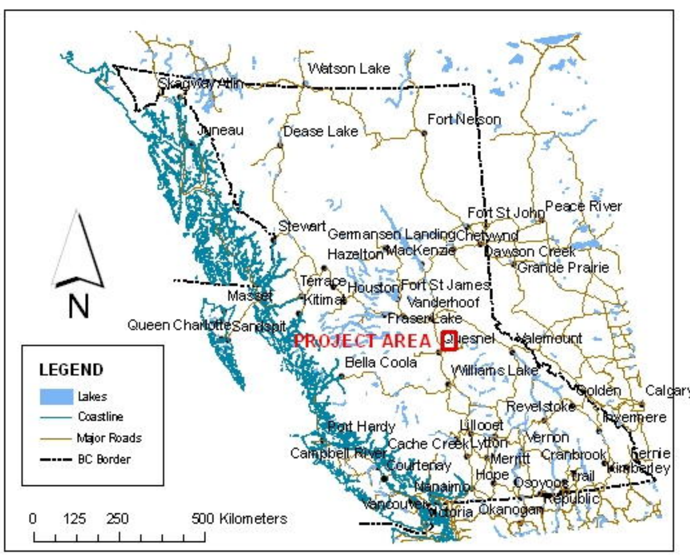


Figure 1.1. Index map showing the location of the Mouse Mountain project area within British Columbia. Compiled from data acquired in www.mapplace.ca.

1.3. Physiography, Vegetation and Climate:

The Mouse Mountain property is situated in the Quesnel Trough, which occupies the eastern part of the Intermontane morphogeological belt along its boundary with the Omineca Belt. The region is part of the Cariboo Plateau, which is along the eastern margin of the low-lying Fraser Plateau of the British Columbia interior, flanked to the east by the Quesnel Highlands and the Cariboo Mountains beyond. The property mapped covers approximately 16 square kilometres or 1600 hectares.

The high point in the property is Mouse Mountain (hereafter distinguished as 'Mouse Mountain peak', a small mountain 1025 m (3363 feet) a.s.l., with relatively steep slopes to the west, north and east. The terrain slopes away from Mouse Mountain peak more gradually towards the south and southeast, into subdued topography composed of moraines, swamps and glacial-fluvial landforms. Northwest of Mouse Mountain peak, the topography rises again to a series of hills around 975 m.

The effects of glacial transport and post-glacial deposition have had a huge effect on the topography of the property. There is a consistent northwest direction reflected in the trends of both the lakes and bedrock ridges. Natural rock exposure is related to elevation and relief, and is best around peaks, ridges and in creek beds. Otherwise, exposure is moderately sparse, due to post-glacial deposits. The elevation at the confluence of the Quesnel and Fraser Rivers is about 500 metres.

Vegetation varies from forest, consisting of Douglas fir, red cedar, cottonwood, trembling aspen and paper birch, to interspersed grasslands and marshy ponds. Mean monthly temperatures range form 16.6ºC in summer to –9.1ºC in winter. Precipitation averages 538 mm, with 189 cm falling as snow and 377 mm as rainfall.

1.4. History and Previous Work Done:

Most of the exploration at Mouse Mountain has been for copper porphyry type deposits, with the earliest exploration work dating from the 1950's. From that time and onwards tenureship has successively run out and been renewed. The activity at Mouse Mountain spans over 50 years, but history of exploration is not well documented. Nevertheless, the work that has been done at Mouse Mountain is summarized below, and combines sections from the reports written by Sanguinetti (1989), and Templeman-Kluit (2006):

1955-56: Harrison Minerals Ltd. shipped a carload of hand-sorted ore averaging 5.5 % Cu, 0.05 oz/t Au and 0.5 oz/t Ag to Tacoma Smelter. This ore was taken from close to Beaver Lake from what is now known as the High-grade zone.

1967: Euclid Mining Corporation planned continued exploration in the High-grade zone, however only preliminary work was done such as minor stripping, some crushing and pilot leach tests. Work was suspended due to lack of funding.

1970: Bethlehem Copper Corp. drilled 14 percussion holes, between 200 and 360 feet deep, on the east side of the Valentine zone. The Valentine zone was previously known as the Wanda showing. Five holes averaged greater than 0.1 % Cu over *lengths of 80 to 180 feet; one hole ended in 0.33% Cu, however no values for gold were reported.*

1974: Hudson's Bay Oil and Gas Company Limited conducted a geochemical soil survey over the area immediately southwest of Mouse Mountain. Samples were analysed only for Cu, Pb, Zn, Ag and Mo.

1975: Dupont of Canada Limited drilled 5 percussion holes on the north side of Mouse Mountain – about 1 km northeast of the current Valentine zone. One hole averaged greater than 0.1 % Cu (over 170 feet) and 0.12 ppm Au. This was the best hole.

1981-84: First Nuclear Corporation Limited carried out prospecting, grid preparations and soil geochemical sampling. Soil samples were analysed for Cu, Pb, Zn and Mo.

1986: Quesnel Mines Limited conducted limited exploration consisting of limited grid preparation, backhoe trenching, stripping and sampling. A VLF-EM survey, a magnetometer survey and a partial induced polarization survey were conducted over a relatively small area of the property (Walcott, 1987).

1989: Placer Dome Inc. acquired an option from Quesnel Mines Ltd. to test the ground for QR type replacement gold. A grid of 73.3 km was sampled with 1328 soil samples and 52 km of total field ground magnetic survey as well as 42 km of induced polarization survey were carried out.

Several soil samples from the 1989 survey returned elevated gold, but most were at or near background. Small copper anomalies were found near the mineralised showings on Mouse Mountain as well as to the east. The latter were not explained.

Chargeability anomalies were discovered on the north and west flanks of Mouse Mountain; these are thought to reflect pyritic zones in the volcaniclastic rocks. Moderate chargeability anomalies are associated with the "High-grade showing" and east of Mouse Mountain. A large magnetic high under Mouse Mountain is thought to reflect the Valentine zone while the extensive magnetic high north of Mouse Mountain is considered to reflect magnetite in the volcaniclastic rocks there.

In October 1989, Michael Sanguinetti, of Sanguinetti Engineering, was contracted by Quesnel Mines Limited to report on the geological potential of the region and to map the Mouse Mountain property.

1991: Teck conducted 151 km of ground magnetic and VLF-EM surveys on three grids on the Mouse Mountain property. Several target sized (200-600 m diameter) magnetic highs were located south of Mouse Mountain. Conductive VLF-EM anomalies trend northwest and are thought to reflect bedrock contrast. A 9.5 km IP survey located chargeability anomalies on the south and west edges of Mouse Mountain.

In October 1991 Teck diamond drilled nine holes totalling 915.62 m. Short intervals of Cu and Au mineralization were cut with the best intersection of 18.29 m of 1621 ppm Cu, including 6.1 m of 0.31 % Cu and 123 ppb Au. A geological map of Mouse Mountain was constructed, which encompassed an area of 6 km^2 (600 hectares).

2003: Richfield Ventures Corp acquired the Mouse Mountain property and began extensive soil sampling, induced polarization, geological mapping, prospecting and trenching.

1.5. Current Work:

Geological mapping was done with specially designed, small and lightweight Pocket PC computers, made by Hewlett Packard. The computers are weatherproof and rugged, and loaded with GIS-capable software including a mapping program by Ganfeld, and ArcPAD (ESRI). Mapping was done using a digital aerial photograph loaded into ArcPAD, with station locations etc. automatically linked with geological data entered directly in the field into the Ganfeld database. All plotting can be done on-screen, without the need for map digitising. A Bluetooth GPS receiver built into the computer allowed accurate and precise location (usually within 5-7 metres) of field stations.

Earlier this year, a grid 90 km in total was cut, on the property ,that consists of 42 lines (bearing east-west), spaced 200 m apart. Subsequently, an induced polarization survey commenced early-May and was completed end-July. RVC is currently awaiting the resistivity and connectivity results from *SJ Geophysics*. Soil sampling was systematically done in the southeast extension from end-June to early-July. A total of 1617 soil samples were collected and these results will be compiled as soon as the assays are returned from Eco Tech Laboratory in Kamloops. Trenching will begin in August, and a total of approximately 7 km has been proposed. The trench locations will be targeting anomalies illustrated by the soil geochemistry report (Templeman-Kluit, 2006). Prospecting on Mouse Mountain began mid-April, by Mr. Gary Roste, and in mid-July Lee Dearing continued to systematically prospect the property in areas suggested by the author.

2.0. REGIONAL GEOLOGICAL SETTING:

The Quesnel Belt, or Quesnellia, is the narrow tectono-stratiographic belt that lies along the eastern margin of the Intermontaine Belt close to its tectonic boundary with the Omineca terrane (Fig. 2.1). The northwesterly trending Quesnel Belt, which extends from north-central British Columbia to south of the U.S. border, is subdivided into the Stuhini, Takla, Nicola and Rossland Groups, respectively. Middle Triassic to Early Jurassic volcanic, sedimentary and plutonic assemblages characterise these rocks, which formed in an island arc setting outboard of the ancestral North American continental margin (Bailey, 1988; Panteleyev *et al*., 1996; Rees, 2005). Several major porphyry copper deposits, such as: Highland Valley, Copper Mountain, Afton-Ajax, Mount Milligan and Mount Polley, all generated by early Mesozoic, calc-alkalic or alkalic island-arc magmatism, are hosted within Quesnellia (Logan and Bath, 2005; Rees 2005).

The principal assemblage in the central Quesnel Belt is the Mesozoic strata of the Nicola Group. These rocks represent an island arc marginal basin sequence, and consist of a basal unit of Mid-Triassic argillites and fine clastic sedimentary rocks, and an overlying thick sequence of Late Triassic shoshonitic alkali volcanic and volcaniclastic rocks (Panteleyev *et.al.*, 1996; Rees, 2005). Towards the top of this sedimentary unit mafic volcanic debris becomes common within the sedimentary rocks, which suggests that early mafic volcanism and late sedimentation were contemporaneous (Panteleyev *et al.*, 1996). This sedimentary-volcanic arc succession is underlain by Proterozoic rocks, which dip towards the southwest, in the eastern part of the map area, and that dip towards the northeast in the western part, forming a regional syncline along the length of the Belt (Bailey, 1988; Panteleyev *et al.*, 1996). Intrusive rocks in Quesnellia include Early Jurassic calc-alkaline and alkaline plutons and also some mid-Cretaceous high-level alkaline stocks (Panteleyev *et.al.*, 1996).

The Mouse Mountain project area is situated in the centre of the Nicola Group, 70 km northeast of Mount Polley and 200 km southwest of Mount Milligan, along strike length of the Quesnel Belt (Fig. 2.2). The western terrane boundary of Quesnellia is situated along the southwestern margin of the map area, and is flanked by Permian sedimentary and volcanic rocks of the Cache Creek Terrane (Panteleyev *et al*., 1996). This zone is probably the southern extension of the Pinchi fault system, which is marked by high-angle, strike-slip faults (Bailey, 1988; Panteleyev *et al.*, 1996). Along the eastern margin of the map area rocks of the Quesnel Trough are structurally coupled and tectonically emplaced by the Eureka thrust onto the Snowshoe Group of the Barkerville Subterrane (Bailey, 1988; Panteleyev *et al.*, 1996). Intensely deformed and variably metamorphosed Proterozoic and Paleozoic rocks of the Barkerville Subterrane are characteristic components of the western limits of the Omineca Belt (Panteleyev *et al.*, 1996).

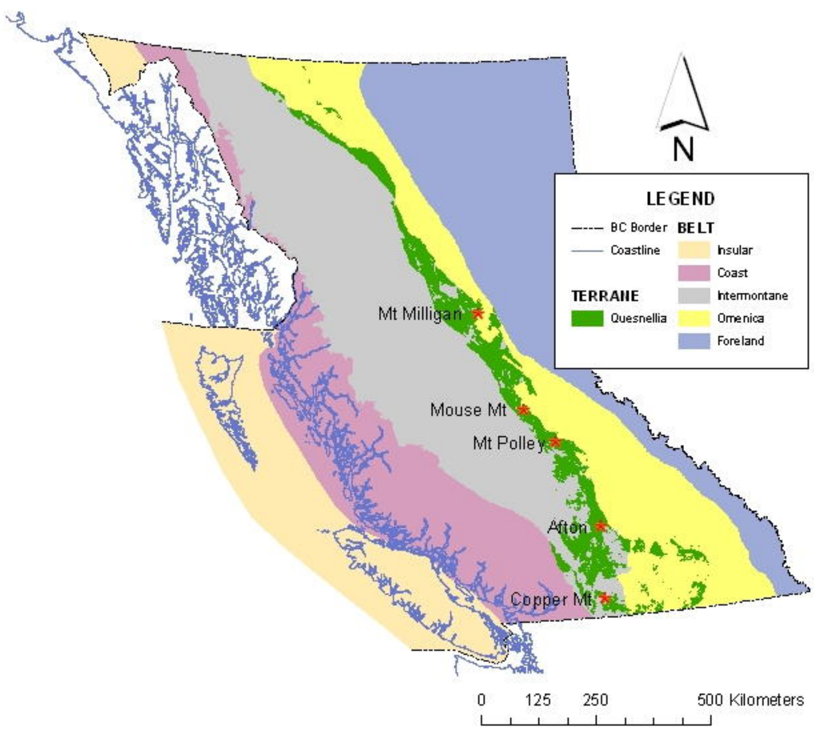


Figure 2.1. Morphogeologic belts of the Canadian Cordillera, showing other porphyry copper deposits in Quesnellia. Compiled from data acquired through www.mapplace.ca.

The structural geology of the central Quesnel Belt is related to the collision of Quesnellia arc rocks with rocks of the Omineca crystalline belt to the east, which produced a broad regional syncline in Triassic-Jurassic Nicola Group strata (Bailey, 1988; Panteleyev *et al.*, 1996; Rees, 2005). The rocks in the Quesnel Trough record northwest-striking faults and folds, but the geological pattern is complicated by variable 'block' faulting, related to a later period of crustal extension (Bailey, 1988). Most faults are normal or strike-slip and parallel the Quesnel Belt, thereby defining terrane boundaries, and trend either N or NNW (Rees, 2005).

Regional metamorphism of Mesozoic rocks in the adjacent Swift River area is typical of the zeolites facies of metamorphism, however the occasional development of chlorite along foliation planes suggests greenschist facies has been attained (Bailey, 1988). Metamorphism occurred during the obduction of the Quesnellia arc onto to the Barkerville Kootenay terrane to the east (Rees, 2005). Contact metamorphic effects have also occurred around several plutons, with the development of biotite hornfels where stocks have intruded sedimentary rocks (Bailey, 1988).

2.1. Regional Continuity:

Bailey (1988) constructed a map of the Swift River Area that only just includes Mouse Mountain in the northeast portion of his map (Fig. 2.3). The Cottonwood River, which bounds the Mouse Mountain property to the north and east, branches into the Swift River tributary at a point below the Wells-Barkerville Highway. The units that he mapped correlate well with those seen at the Mouse Mountain property, and those that are relevant to the Mouse Mountain property have been summarized below:

Unit 1: Lower Triassic dark green and grey siltstone, sandstone, mafic tuff and minor conglomerate.

Unit 2a: Lower Triassic green and grey alkali and alkali olivine basalt.

Unit 3a: Lower Jurassic maroon polylithic breccia with feldspathic clasts. Subunit 3a contains material from all the underlying rock types together with clasts of syenite, monzonite, monzodiorite and diorite, and extrusive equivalents of these rock types. This subunit is considered to have resulted from laharic activity along the flanks of volcanic edifices.

Unit 3b: Lower Jurassic reddish grey to maroon monolithic latite tuff and breccia.

Unit 7a: Upper Jurassic pink and grey, medium to fine-grained, non-porphyritic syenite, monzonite and diorite. Stocks of syenite, monzonite and diorite have intruded the Triassic-Jurassic volcanic stratigraphy. Almost all of these stocks have associated pyrite-chalcopyrite mineralization with attendant propylitic alteration halos.

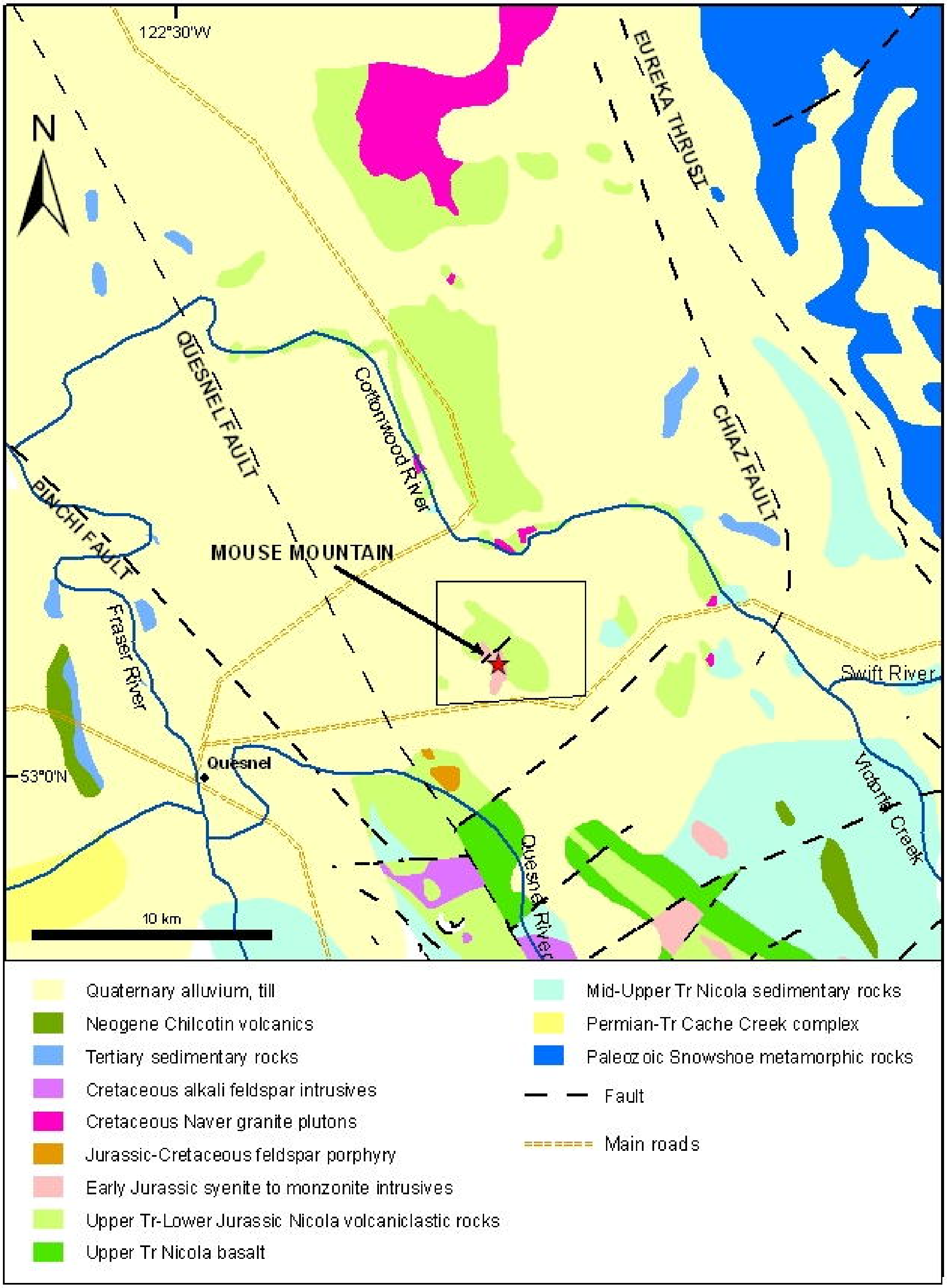


Figure 2.2. Regional geology map of the Quesnel Belt around Mouse Mountain, showing property outline. Compiled from data acquired through www.mapplace.ca and supplemented by Bailey, 1988.

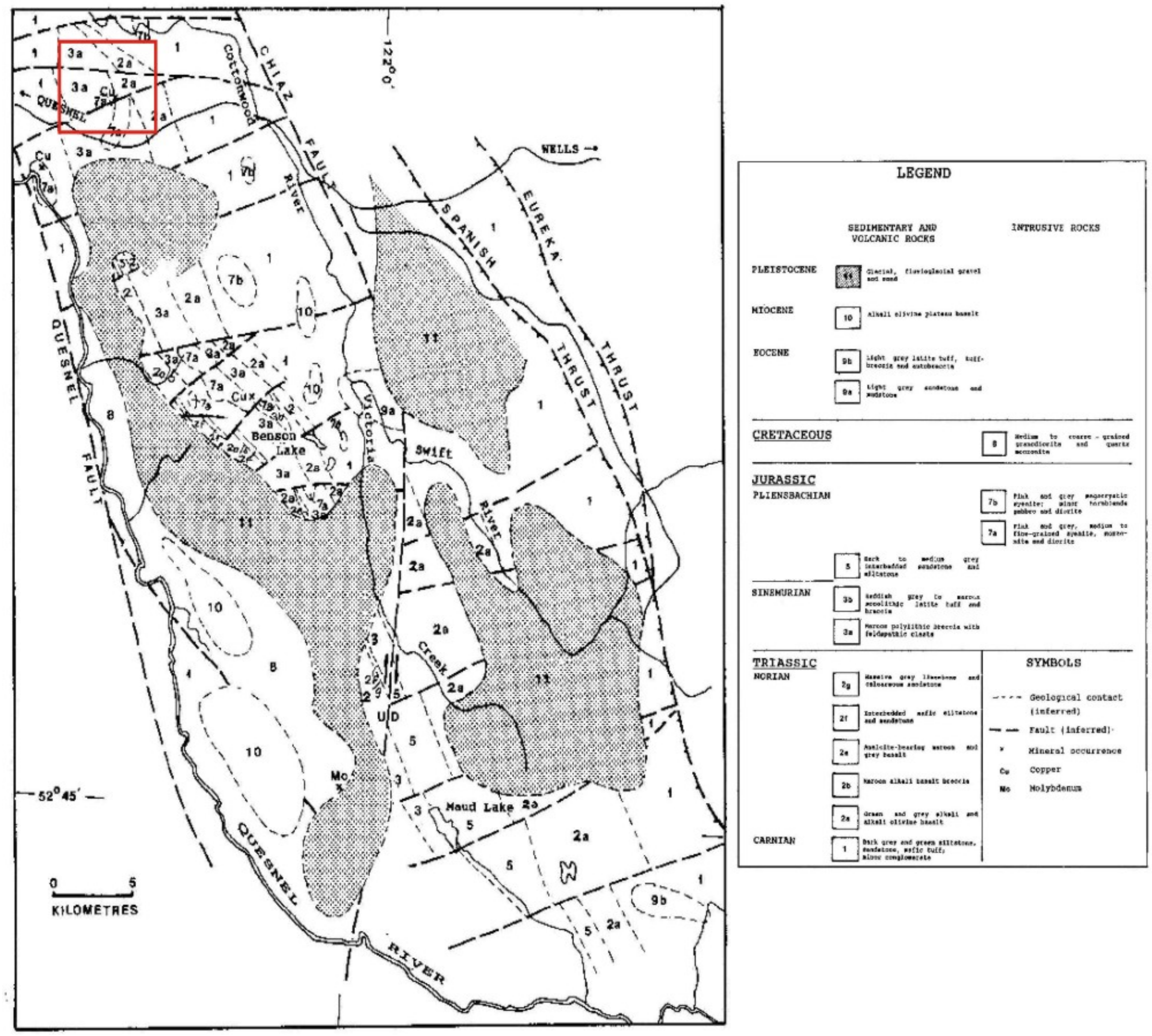


Figure 2.3. Geology of the Swift River area, with the approximate area of the Mouse Mountain property outlined in red. Modified after Bailey 1988.

2.2. Mineralization:

The central Quesnel belt hosts a wide variety of mineral deposits, but is typified by alkalic intrusive-related copper-gold porphyries (Bailey, 1988; Panteleyev *et al.*, 1996; Templeman-Kluit, 2006). The Mount Polley copper porphyry deposit is by far the largest porphyry in this belt, however, almost all stocks within the felsic volcanic rocks are mineralised; in the Swift River area copper mineralisation is known in stocks south of Benson Lake, at Cantin Creek and at Mouse Mountain (Bailey, 1988). Copper is invariably chalcopyrite with minor bornite and occasional chalcocite, and mineralization is coupled with hydrothermal alteration of the intrusive bodies and host rocks (Panteleyev *et al*., 2006). The deposits consist of stockworks, veinlets and disseminations of copper minerals, surrounded by a propylitic halo including alteration minerals such as: K-feldspar, pyrite, sericite, magnetite, actinolite, chlorite, epidote and carbonate (Bailey, 1988; Panteleyev *et al.*, 1996). Magnetite is also ubiquitous and magnetic patterns are important indicators of the presence of stocks in overburden-covered areas (Bailey, 1988).

3.0. PROPERTY STRATIGRAPHY:

3.1. Introduction:

Fieldwork commenced on the 20th May and continued until the 20th July. In that time 243 station descriptions, from all across the property, were made. Traverses were made easier by a 200 m spaced IP grid line that was already in place prior to mapping. These grid lines were utilized when rock outcrops were sparse to better constrain the geology contacts. Hand samples were taken at most of the stations, and have been saved for reference purposes. A map of the exposed rock and outcrop on the property was constructed (Fig. 3.1). Large tracks of land are, as yet, unavailable since access is limited or the area is covered in a thin veneer of overburden, but future trenching will reveal the underlying bedrock in these covered areas. Consequently, particularly in the south of the map area, contact limits have been inferred. Geology units were established by referring to a detailed petrographic report of 27 thin sections collected from the Mouse Mountain property, which was compiled by the author (Appendix 1).

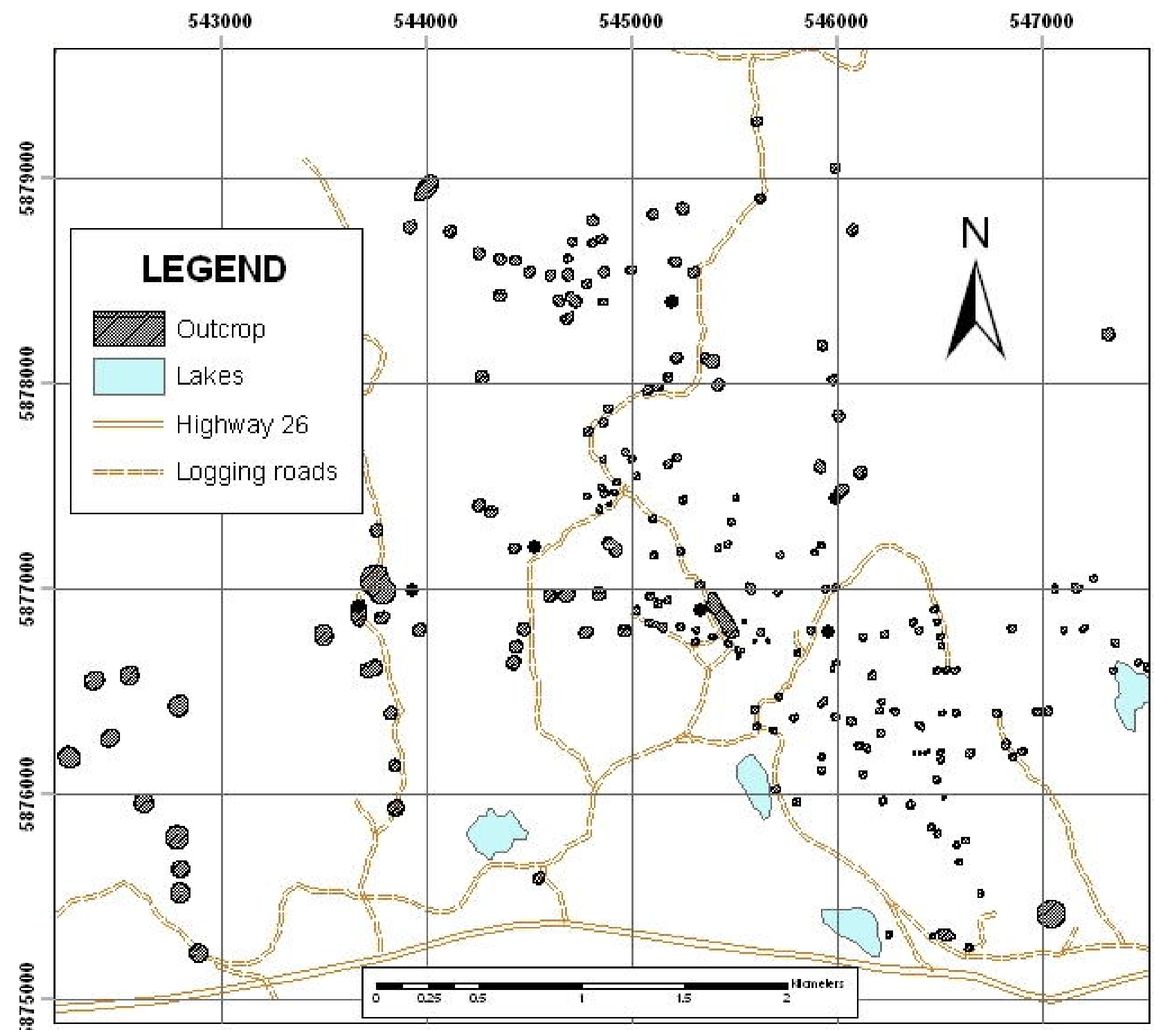


Figure 3.1. Outcrop map of the Mouse Mountain property, with UTM coordinates spaced 1000 m apart.

3.2. Rock Unit Description:

This section describes all the main geological units that occur on the Mouse Mountain property, from oldest to youngest, and their general characteristics (Map 1 and 2). Map 1 shows the property geology and selected physiographic features of the region. Map 2 is a more detailed geology map of the centre of the property around Mouse Mountain peak. The order of Mouse Mountain units has not been constructed from field relations, however time relations have been inferred from mapping conducted by Bailey (1988) and Panteleyev *et al.*, (1996) (Fig. 3.2).

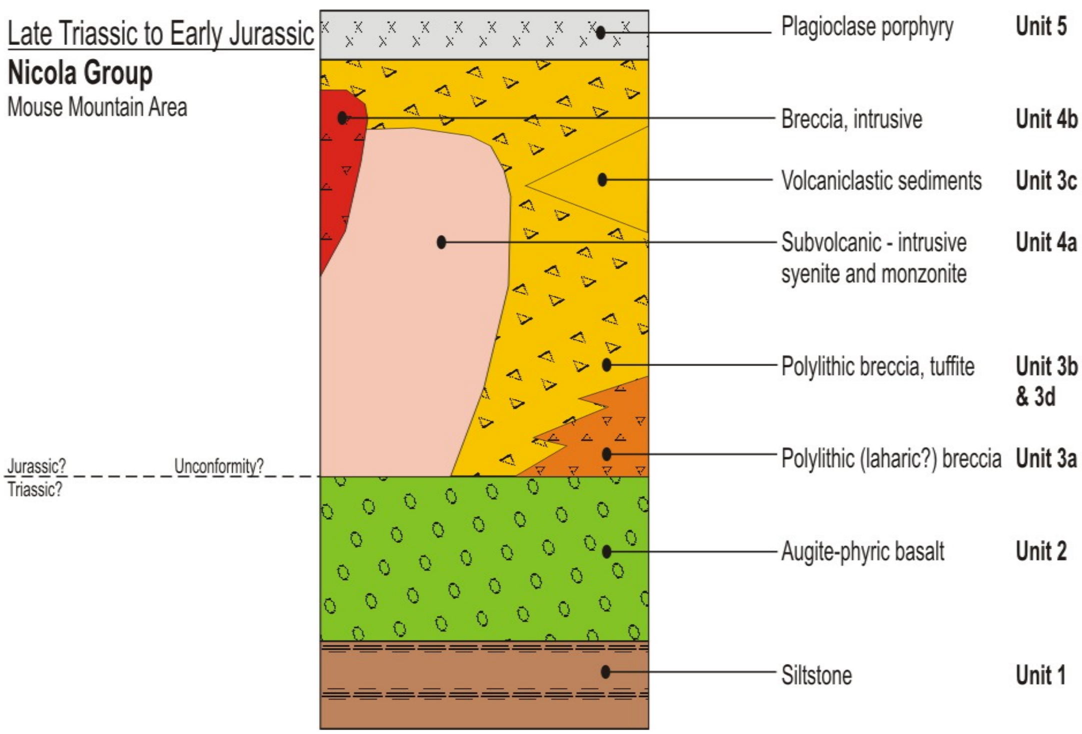
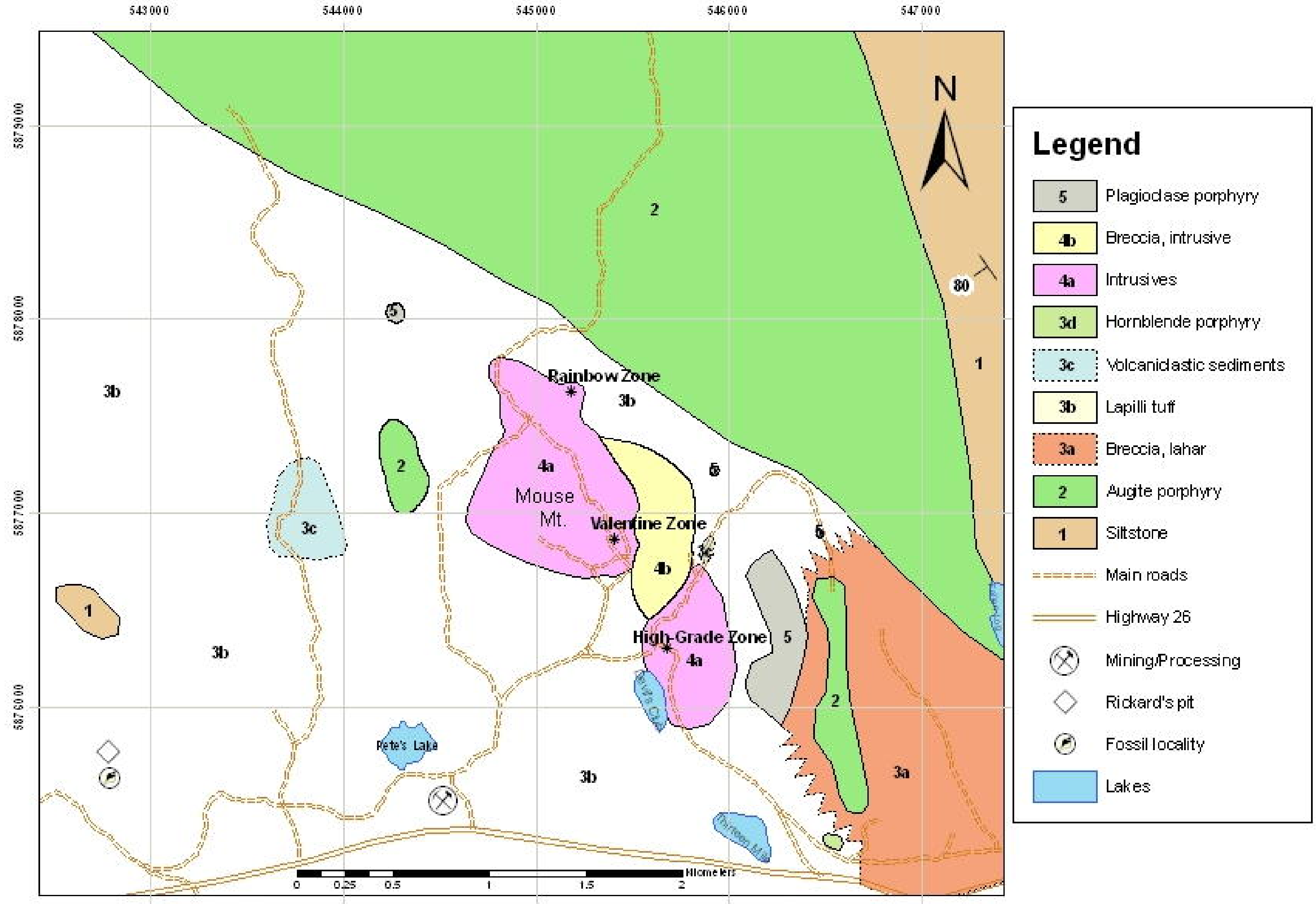
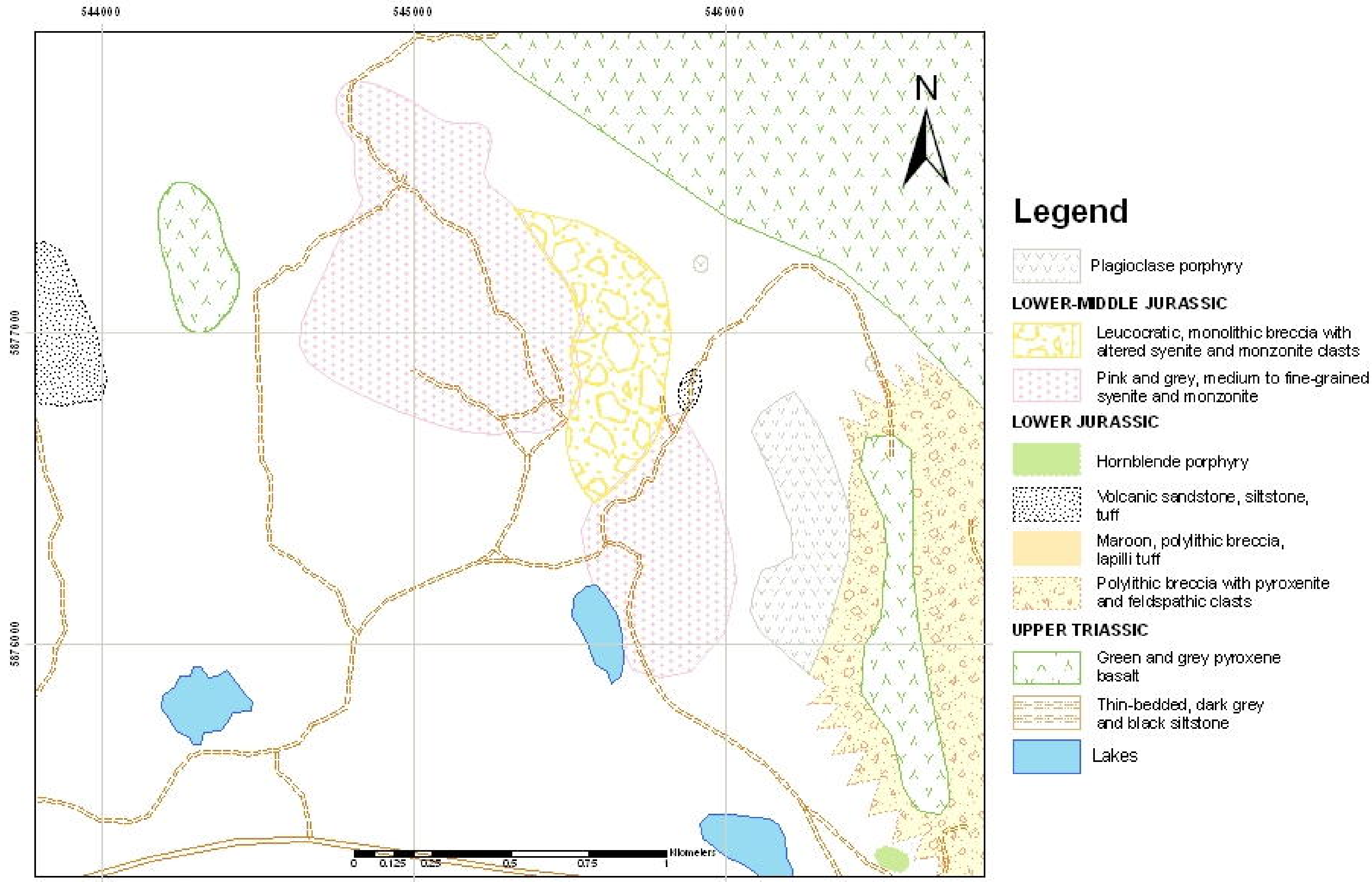


Figure 3.2. Schematic stratigraphy diagram for the Mouse Mountain Area.



Map 1. Property Geology.



Map 2. Detailed geology of the centre of the property around Mouse Mountain Peak.

SEDIMENTARY ROCKS

3.2.1. Siltstone (Unit 1):

A small outcrop of black siltstone was found in the far northeast of the property (Photo 3.1). The siltstone dips steeply to the southwest and may be traced as far south as Fallen Log Lake where a small section of black siltstone was also found. Bedding surfaces or bases were not exposed, although the unit exceeds 7 m in thickness. The unit is dominated by dark grey to medium grey beds that are approximately 10 cm thick, with interbedded leucocratic laminations. The matrix is uniformly aphanitic and weakly calcareous, but sedimentary features and fossils were not observed. This unit correlates with the sedimentary package mapped by Bailey (1988), which has been dated as Carnian in age (Late Triassic) - the oldest recognized part of the Quesnel Belt stratigraphy. Sediments of unit 1 may underlie the volcanic succession seen on the property, although field relations are not directly evident.

Photo 3.1. Finely laminated steeply dipping siltstone, of unit 1, northeast of Mouse Mountain peak.

VOLCANIC ROCKS

3.2.2. Augite porphyry (Unit 2):

Rocks of unit 2 forms a continuous belt extending from the southeast of the property to the northwest (Photo 3.2). Two localized pods of this unit also occur in the west and southeast of the property that occupy north to northwest trending ridges. Augite-phyric basalt of unit 2 is extensive at the property scale, however the unit thickness is unknown.

The metabasalts form green-grey and maroon monolithic tuff breccias and autobrecciated flows. Augite phenocrysts comprise up to 10-35 % and are approximately 2-3mm in size, with lesser intermediate plagioclase. The groundmass is aphanitic, grey-green, weakly hematite-stained and composed of fine-grained pyroxene and plagioclase. Accessory magnetite and pyrite also occur, yet this unit appears mainly intact and unaltered, except for weak saussurite alteration. Quartz and calcite-filled amygdules are found in the northern extreme of unit 2. These amygdules constitute approximately 10 % of the mode and are approximately 1 cm in size, spherical-oblate and weakly flattened. In thin section, interstitial plagioclase is trachytic, but major variations in appearance are due to differences in depositional environments in the subaqueous, mainly flow and breccia deposits.

Contact relationships are not obvious because Quaternary deposits mask large tracts of land on the Mouse Mountain property. However, this unit is equivalent to unit 2 in Bailey (1988), being the oldest and most widespread volcanic rocks found in the Quesnel Trough. The age of the unit is interpreted as lower Norian (Late Triassic) (Bailey, 1988).

(A)

(B)

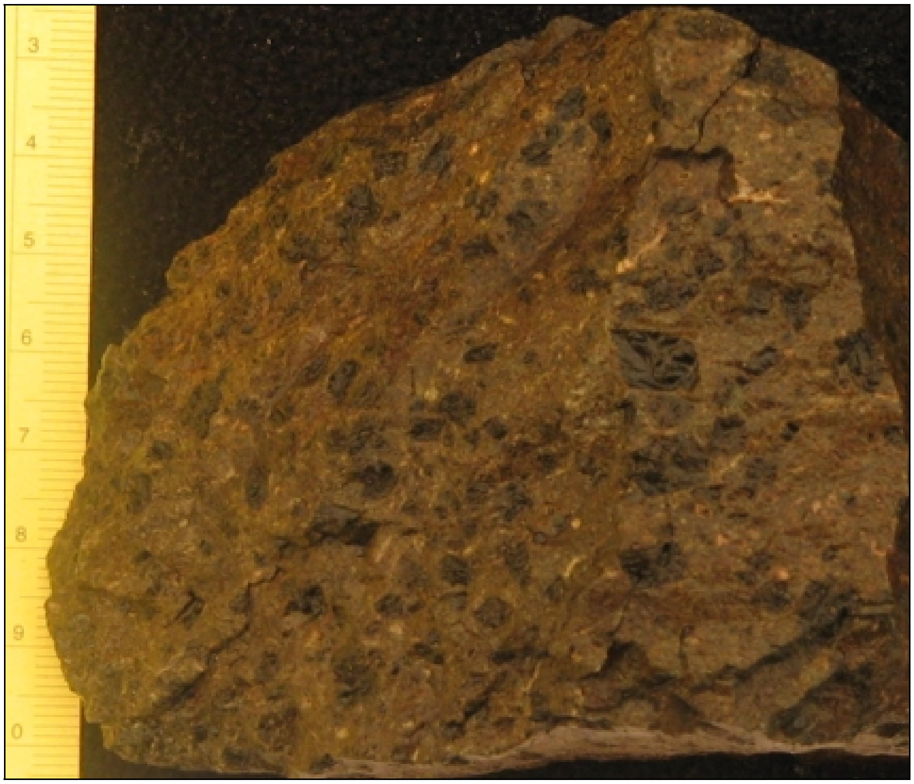


Photo 3.2. Basaltic volcanic of unit 2, with (A) quartz and calcite-filled amygdules, and (B) megacrystic augite phenocrysts. The scale is in centimeters for both images.

3.2.3. Volcaniclastic/ Epiclastic breccia (unit 3a):

Due east of Thirteen Mile Lake protrude very large outcrops of laharic(?) breccia that are metres thick (Photo 3.3). Unit 3a is described as an unsorted, matrix-supported (locally clast-supported in places), polymictic breccia with coarse intrusive, feldspathic and mafic volcanic clasts (hornblendite and pyroxenite lapilli). Hornblende-plagioclase-phyric lapilli fragments are the dominant clasts present. The varicoloured clasts, some of which are as large as 15-20 cm, are mature and occur in an aphanitic, hematite-stained maroon-coloured matrix. The fine-ash matrix also consists of reworked plagioclase and hornblende crystals that are randomly aligned. Unit 3a consists of mixed pyroclasts and epiclasts, which are subangular and subrounded, respectively. In thin section it is apparent that unit 3a is weakly K-altered and sericitized.

Soft sediment deformation features drape the underlying breccia, possibly deposited during periods of quiescence in volcanic activity, but winnowing or imbrication features were not observed. A late-stage plagioclase porphyry dyke adjoins unit 3a on the western margin, whereas a sliver of unit 2 occurs in the centre of unit 3a. According to Bailey (1988) and Panteleyev *et al.*, (1996), unit 3a lies stratigraphically above unit 2 (possibly above an angular unconformity), and has been interpreted to be Sinemurian in age (Lower Jurassic).

(A)

(B)

Photo 3.3. (A) Laharic? breccia of unit 3a, from the southeast part of the property, with a large ultramafic xenolith. (B) Breccia, with mixed clasts in soft sediment 'slump' structure.

3.2.4. Volcaniclastic Crystal Lapilli Tuff (unit 3b):

Subunit 3b is the dominant lithology in the map area, occurring around the intrusive rocks of Mouse Mountain peak and to the west of the property (Photo 3.4). The unit of heterolithic breccia (to crystal-lithic tuff) is provisionally distinguished by having volcanic components, particularly augite-phyric basalt clasts that reach up to 50 cm in size, and felsic hypabyssal clasts. Unit 3b is generally green to grey, matrix-supported (but locally clast-rich in places), with subangular to subrounded clasts. This unit has been divided from unit 3a and reclassified based on 3 observations: better sorting, better rounding and the lack of ultramafic clasts. The matrix, evident from thin section analysis, consists of mature crystals and reworked lapilli.

Stratigraphically this breccia may be related to unit 3a in the south, and grade laterally into finer-grained volcaniclastic rocks of unit 3c and 3d. In general unit 3b is not altered or mineralized, although weak metamorphism of this unit has caused seritization to be pervasive. This breccia correlates with unit 3b mapped by Bailey (1988), which is Sinemurian in age (Lower Jurassic), characterized by felsic rocks as well as basaltic debris derived from the underlying unit.

(A)

(B)

Photo 3.4. Variable texture of subunit 3b, that is (A) hematite-stained and clast-poor, (B) dominated by augite-phyric clasts.

3.2.5. Volcaniclastic sediments (Unit 3c):

Two small elements of unit 3c occur on the east and west side of Mouse Mountain peak (Photo 3.5). Unit 3c is a fine-grained, dark grey-greenish, feldspathic volcaniclastic and epiclastic siltstone and sandstone deposit. Thin section analysis shows that a few scattered broken plagioclase crystals occur in an otherwise aphanitic groundmass. This unit is minor and has a gradational contact with the adjacent unit 3b. Compositionally, there is little difference across the inferred contact, as unit 3b and 3c have the same mineralogy; unit 3c is probably just a finer-grained facies of unit 3b. The eastern and western elements of unit 3c differ slightly, since the former contains bedding? or flame structures (oriented at 165º/68º), whereas depositional layering has not been preserved in the latter. These rocks are interpreted as distal deposits related to major volcanic centers, and probably represent reworked tuffs.

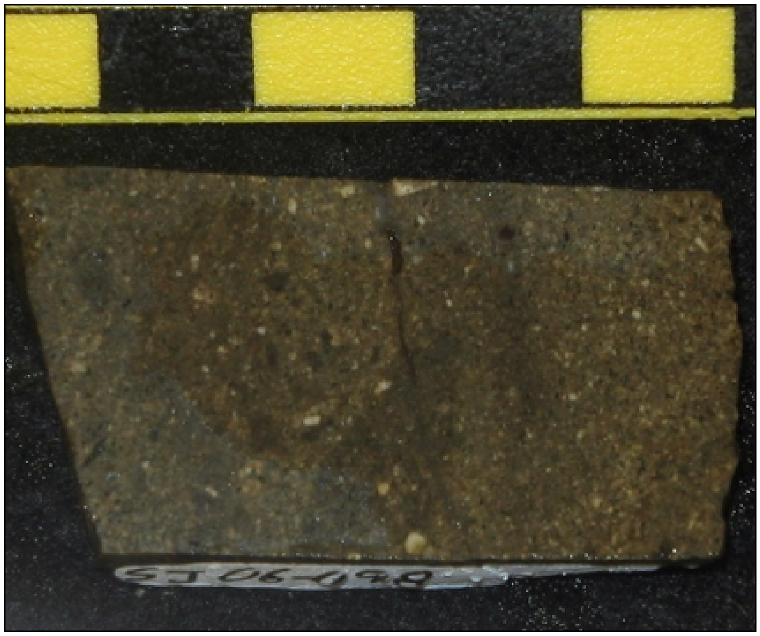


Photo 3.5. Volcanic sediment of unit 3c, with white plagioclase crystals. The scale is in centimeters.

3.2.6. Volcaniclastic hornblende-porphyry (Unit 3d):

Situated in the southeast portion of the map area, enveloped in unit 3b, is a small outcrop that has been distinguished as a hornblende-plagioclase porphyry (Photo 3.6). Hornblende phenocrysts are approximately 5 mm in size and constitute 30-40 % of the mode; interstitial plagioclase crystals are 1 mm and occur in an aphanitic matrix that is abundant in blebby magnetite. With the exception of flow banding, this unit principally has lava flow features, such as: monomictic autobrecciation textures on weathered surfaces, and scattered centimetre-sized mafic xenoliths. Unit 3d is possibly a small flow that is related to the coeval volcanism of unit 3b.

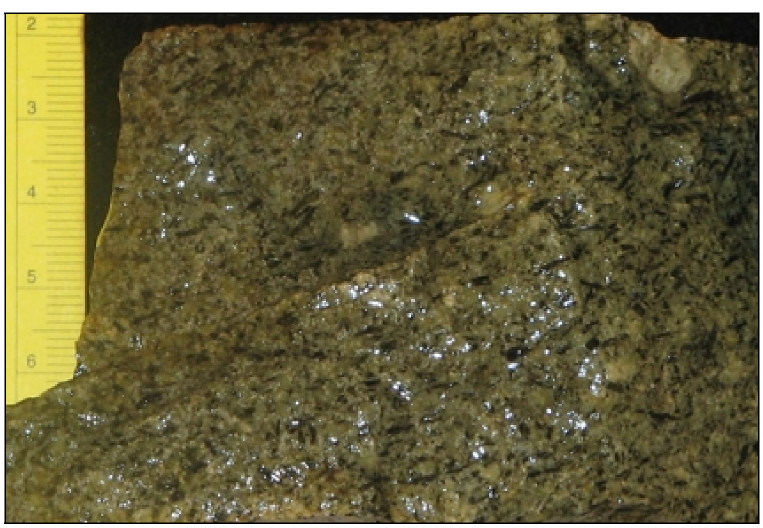


Photo 3.6. Hornblende-porphyry of unit 3d, east of Thirteen Mile Lake.

INTRUSIVE ROCKS

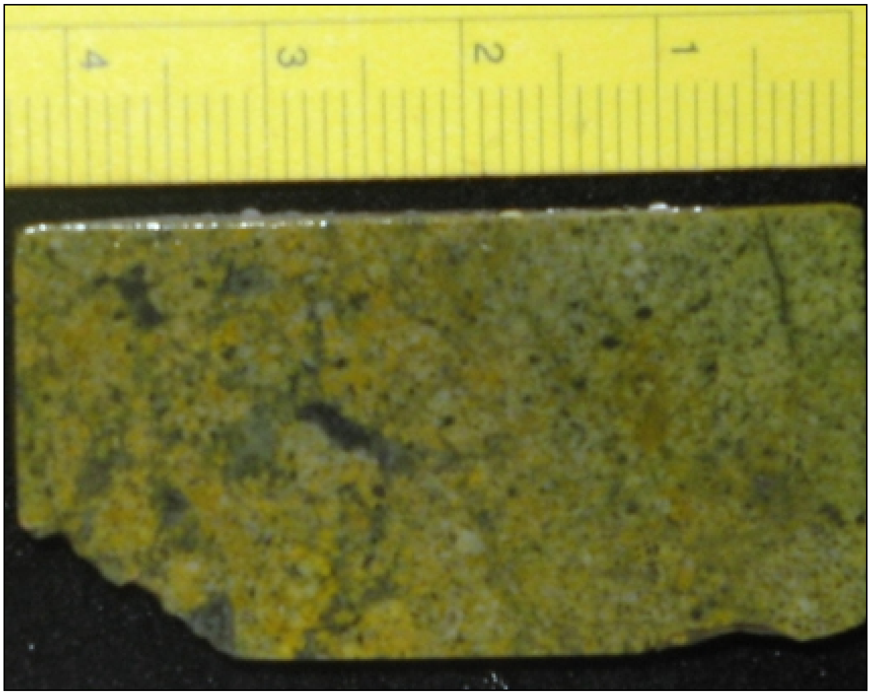
3.2.7. Monzonite-Syenite (Unit 4a):

A large region of intrusive rocks occupies the central, north-central and southeast-central portion of the Mouse Mountain property, encompassing an area of approximately 1.3 km^2 (130 hectares) (Photo 3.7). They are leucocratic and felsic, and typically the rocks weather off-white with a deep rusty brown stain from pyrite. Fresh, they are creamy-grey-pink, fine to medium grained, and fairly equigranular. Subunit 4a consists of non-porphyritic grey monzonite and pink syenite, which are feldspar-rich and quite deficient in mafics (although minor pyroxene and biotite are present). Clearly intrusive, medium or coarse-grained textures are lacking. Compositionally, unit 4a is variable (clearly evident in thin section), being K-spar abundant and nepheline normative, at the peak of the mountain, and grade southeast, beginning at the Valentine zone, into a micro-monzonite

All known significant mineralization in the property occurs within 1 or 2 km of Mouse Mountain peak and within this unit. These stocks have associated pyrite-chalcopyrite mineralization with attendant propylitic alteration halos. Alteration has modified the intrusives so significantly that the 3 separate areas in unit 4: the Rainbow, Valentine and High-grade zone, look like distinct rock types (discussed in next section). Most of unit 4a is flanked by volcaniclastic tuffs and breccias of unit 3b, and in the southeast this unit probably interfingers with breccias of unit 4b, although well displayed contacts in the field were not seen.

This unit may be equivalent to unit 7a mapped by Bailey (1988), which is considered to range from late Early Jurassic to Middle Jurassic on the basis of stratigraphic evidence and radiometric dates from similar plutons to the south of the Swift River area. Most of unit 4a probably represents subvolcanic dikes, sills and stocks, which have intruded the Triassic-Jurassic volcanic stratigraphy (Panteleyev *et al.*, 1996). These varied subvolcanic intrusions may have formed in, or near, eruptive centres, which represent a more mature stage of arc activity, and a gradual change to more subaerial deposition as the arc became emergent (Panteleyev *et al.*, 1996).

(A)



(B)

Photo 3.7. (A) Nepheline syenite from Mouse Mountain peak, unit 4a. (B) Altered and mineralised fine-grained monzonite from the Valentine zone.

3.2.8. Breccia, intrusive (Unit 4b):

Separating the larger intrusive unit due east of Mouse Mountain peak is a small body of rock unique to the property (Photo 3.8). This breccia is distinctive because it consists of felsic intrusive clasts in a white-creamy rock flour matrix. Unit 4b is essentially monolithic consisting of immature and subangular potassic altered monzonite and syenite clasts (except for the occasional maroon volcanic). The breccia is clast-supported (locally matrix-supported), moderately to poorly sorted, and clasts range in size from 1 cm to 10 cm. Additionally, blebs of magnetite occur within the clasts.

Unit 4b has been provisionally distinguished as the Valentine East zone, which has intrusive rocks as east and west neighbours; contacts were not observed in the field. Primary K-spar alteration and copper mineralization (malachite) have been preserved within the clasts, whereas secondary epidote and chlorite alteration occur within the matrix. This suggests that the breccia pipe postdates the intrusion, which initially transported K-spar and copper-rich fluids, but predates or is coeval with a second stage of alteration. Multistage events have led to the present day appearance of unit 4b. This unit may represent an intrusion that has eroded, or may be the top of the intrusive pile - used to outline the eruptive volcanic centre. According to Panteleyev *et al*. (1996), a number of volcanic centres in the Quesnel Trough are underlain by high-level intrusive bodies.

(A)

(B)

Photo 3.8. Monolithic breccia of unit 4b, with (A) rock flour matrix, and (B) the occasional maroon volcanic clast.

VOLCANIC ROCKS

3.2.9. Plagioclase porphyry (unit 5):

This unit occurs in the southeast corner of the map, east of Devils Club Lake. Plagioclase-bearing hypabyssal volcanics form a broad crescent around the ESE limits of Mouse Mountain, encompassing an area of approximately 0.25 km^2 (25 hectares) (Photo 3.9). Distinctive plagioclase-phyric intrusive (?) rocks, or possibly flows, were also noted in a few other isolated areas. The unit is usually grey-greenish with off-white (locally crowded) plagioclase laths in an aphanitic dark grey coloured groundmass. The plagioclase phenocrysts are euhedral, up to 1 cm and form 20-30 % of the mode, but do not typically have flow alignment. Subordinate hornblende occurs as minor phenocrysts or in the groundmass. Unit 5 is andesitic in composition, contains minor amounts of hydrous minerals (hornblende and lesser biotite), but is generally not altered. The plagioclase porphyry is considered to be late, crosscutting the underlying augite porphyry and volcanic units.

Photo 3.9. Plagioclase porphyry of unit 5.

3.3. Alteration and Mineralization:

This section presents an overall picture of the alteration and mineralization patterns in and around Mouse Mountain peak (Fig. 3.3 and 3.4). The discussion has been divided into the Rainbow, Valentine and High-grade zone, although other areas on the property, as shown on the map, are also altered and mineralised. These 3 separate areas occur over a NNW-SSE strike length of 3 km, and all show significant copper mineralization at the surface.

3.3.1. Rainbow Zone:

Situated approximately 1,000 m north-northwest of the Valentine zone is a small poorly exposed area of altered monzonite. The felsic rocks in this area are generally fine-grained, pink-orange-yellow in colour and silicified; thermal alteration having played a role in producing this texture. This zone is chiefly characterized by pervasive, texturally destructive quartz-carbonate alteration, although intact biotite was observed at several outcrops. In thin section, it is clear that ankerite is the dominant carbonate mineral present, with calcite only occurring in late-stage crosscutting veinlets. Additionally, chalcedonic quartz occurs in veins and blebs and encloses zircons and numerous fluid inclusions. Where this alteration assemblage is strongest, sulphides and copper carbonates have been leached out of the rock and are not as prevalent.

In June 2006, Roste (2006) spent a significant amount of time prospecting the Rainbow zone, and he extended the mineralized area to 125 m by 125 m. Mineralisation within the Rainbow zone occurs as disseminations and microveins of pyrite, chalcopyrite, malachite and azurite. Negligible fluorite, sphalerite and bornite were also observed. The Rainbow zone is zoned with a core of chalcopyrite becoming pyrite-only towards the margins, with chalcopyrite estimated at 0.5 %.

3.3.2. Valentine Zone:

The Valentine zone is located due east of Mouse Mountain peak and is a 100 m by 100 m outcrop of altered and mineralised monzonite. This rock is well exposed and accessible, and is an area of geological interest for mineral potential. Special focus was given to this area in a report compiled by Jonnes (2006a), which gives a detailed account of mineralization, alteration and structure.

The key components have been summarized: The Valentine zone does not vary in lithology across its length, but represents one phase of intrusion that has been variably altered and mineralised. Compositionally, the Valentine zone is a nepheline normative micro-monzonite. The Valentine zone and adjacent area exhibit classic porphyry style alteration zonations: propylitic-phyllic-potassic-supergene enrichment, from the fringe to the core. In the outer margins of the study area, and in the surrounding country rock, chlorite+epidote+carbonate alteration defines a propylitic zone. Stockworks of sericite, quartz and pyrite are common on the periphery of the Valentine zone, delineating a phyllic halo. Progressing to the potassic core, K-felspar+biotite+chlorite alteration hosts the low-grade ore consisting of disseminations and stockworks of pyrite and chalcopyrite. At the top of the deposit, supergene enrichment has leached the cap rock to form iron oxide, malachite and azurite; this is the most noticeable evidence of the Cu-porphyry deposit.

The structure of the Valentine zone is complex, but as is presently understood, there are 3 main fault sets. These trend 040º, 220º and 310º, all of which dip moderately to steeply. The highest assay results from grab samples collected on the Valentine zone returned 0.6056 % Cu and 455 ppb gold.

3.3.3. High-Grade Zone:

Two hundred metres north of Devils Club Lake and 750 m south of the Valentine zone is a small mineralised outcrop rock known as the High-grade zone. Texturally this rock compares with that of the Valentine zone, being fine to medium grained and grey-pink in colour. Compositionally, however, the High-grade zone is distinct on two accounts: mafic minerals (clinopyroxene) are abundant (~25 % of the mode), and nepheline is not present. This means that the High-grade zone may be part of a larger more mafic stock that is spatially and temporally distinct from the intrusives on and around the Peak of Mouse Mountain. Alteration here is similar to that of the Valentine zone; K-spar alteration occurs in veins, and magnetite and epidote alteration form in open spaces. Copper mineralisation consists of copper carbonates and minor chalcopyrite. The highest assay results from grab samples collected at the High-grade zone returned 1.38 % Cu and 1.23 g/t Au.

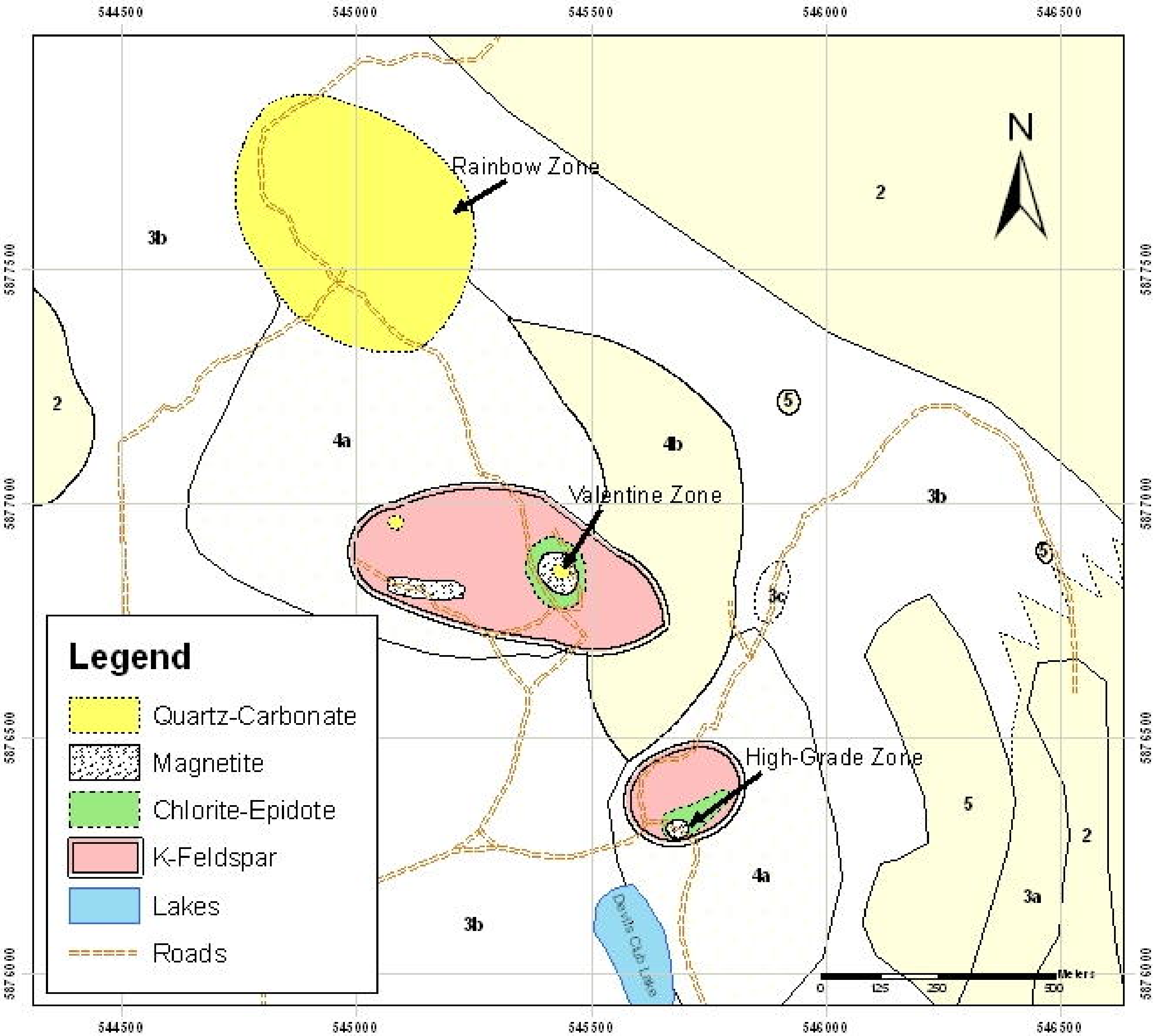


Figure 3.3. Alteration zonation map of the Mouse Mountain property.

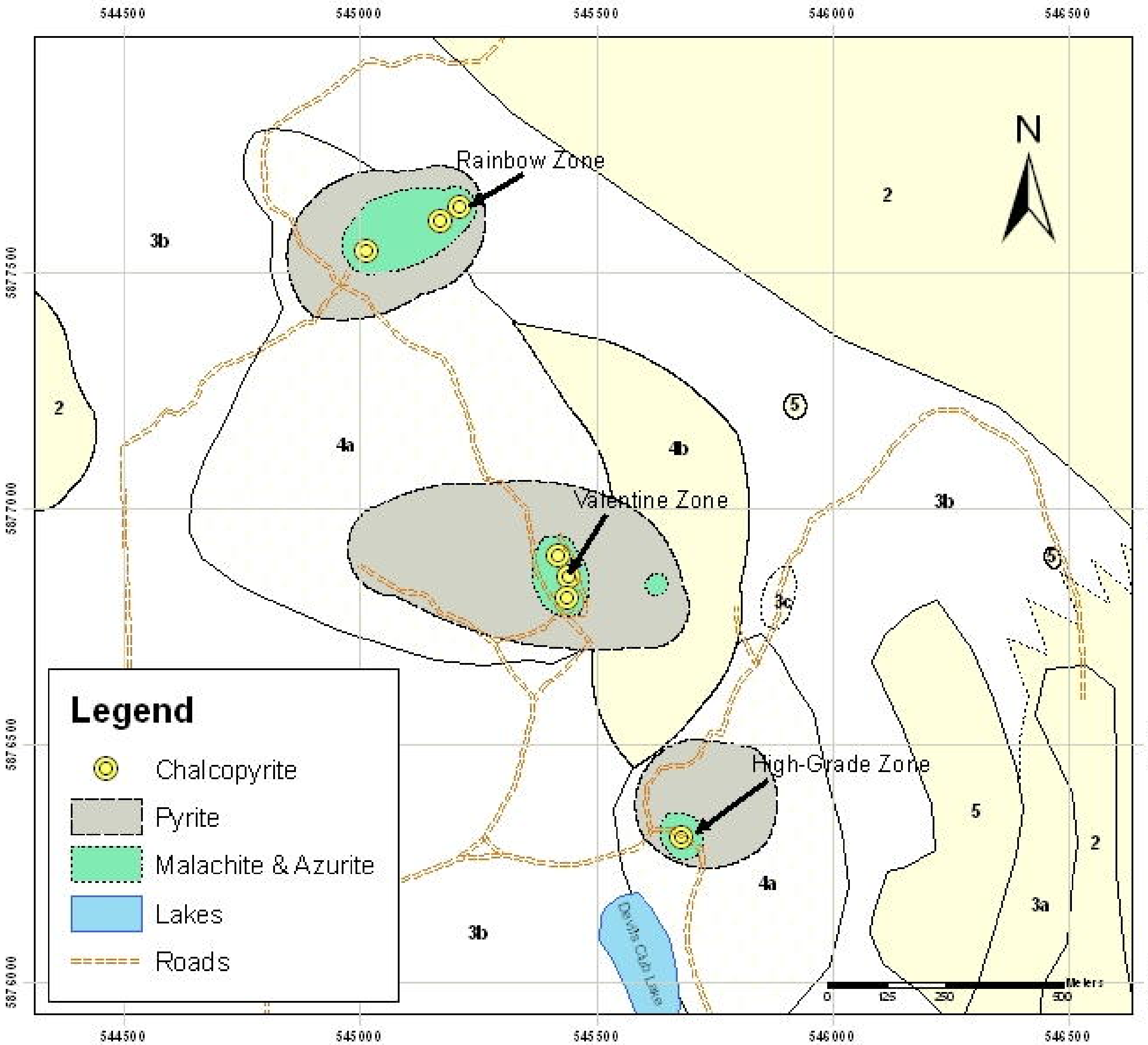


Figure 3.4. Mineralization map of the Mouse Mountain property.

3.4. Structure:

The structural geology of the Mouse Mountain property is poorly constrained; the few faults, fractures and slickensides that were observed are disorderly and are unrelated. Bedding was only seen in unit 1 in the northeast corner of the map area. These sedimentary rocks dip and face southwesterly, and may be equivalent to the eastern limits of the Quesnel Trough syncline (Panteleyev *et al.*, 1996). According to the regional geology map compiled by the Geological Survey (Fig. 2.2), there is a major east to west striking fault that dissects the intrusive suite. This major fault was not seen in the monzonite and syenite rocks in the centre of the property, although 3 km west, in Rickard's pit, is a 2.5 m wide fault zone oriented 280º/78º. This zone of crushed rock, fault gauge and sandy infill corresponds to a splay of the Chiaz Fault in Bailey (1988), and may represent the fault outlined by the Geological Survey. In general, the property map-unit contacts and structural trends are related to the northwesterly striking tectonic fault contact along the Barkerville-Quesnellia terrane boundary.

3.5. Metamorphism:

The rocks of the Mouse Mountain property are not significantly metamorphosed. Primary textures and fabrics are preserved except where the rocks have been affected by faulting or hydrothermal alteration. The metavolcanic rocks of unit 2 and unit 3 occur within the chlorite metamorphic isograd, with the characteristic metamorphic minerals being chlorite+epidote±clinozoisite. In unit 3, saussuritization of plagioclase varies from slight to complete replacement by fine-grained epidote, calcite and sericite. The dark green to dark grey pyroxene basalts of unit 2 contain mafic crystals with only slightly chloritized rims, although the plagioclase is universally turbid and saussuritized. Amygdules within the vesicular portion of the flows contain calcite and lesser quartz. Locally, zones of more intense replacement of the greenschist assemblage are interpreted to be products of propylitic alteration related to the nearby intrusion. Metamorphic grade of the rocks of the central Quesnel Belt is, for the most part, subgreenschist facies (Panteleyev et al., 1996).

3.6. Surficial Geology:

The Mouse Mountain property lies in a region affected by extensive glacial erosion and deposition. Unconsolidated Pleistocene glacial, glaciofluvial, till and organic material covers much of the map area. In low-lying areas swamps, bogs and glaciolacustrine deposits are common, whereas till and glaciofluvial deposits occupy the elevated slopes and ridges. Typically a thin veneer of till drapes the underlying bedrock, but in river valleys south of the property thickness of greater than 150 m are attained. Glacial striations and the trend of bedrock ridges are commonly between 330 and 350 degrees, which reflect the major direction of glacial transport (Bailey, 1988).

3.7. Palaeontology:

In June 2006, a fossiliferous outcrop was found in the southeast portion of the map area, until this occasion fossils have not been identified in this region (Photo 3.10). The fauna occur in reworked crystal lapilli tuff layers, within the volcaniclastics of unit 3b. Bedding is not obvious, but a repetitive attitude of 270º/60º renders this as depositional layering. Macrofossil imprints and molds are most common, constituting approximately 10 % of the mode, although soft body fragments, which have been replaced by black calcite, were also observed. The fossils identified include: bivalves, gastropods and rugose coral, which do not typically exceed 10 cm in size, and pyritized nodules that are approximately 5 cm in diameter. This fossil assemblage was possibly deposited in a high-energy volcanic beach sedimentary environment. Samples have been collected for macrofossil and conodont analysis, and sent to Paul Smith of the Paleontology department of the University of British Columbia, Vancouver, and the results are pending.

Photo 3.10. Fossiliferous rocks of unit 3b, in the southeast region of the property.

3.8. Geochemistry:

Forty-six samples were collected and analysed for Au, Pd and Pt by fire assay, and for 28 elements by ICPMS, by Eco Tech Laboratory Limited in Kamloops, BC (Appendix 2). The assay results from the soil sampling grid arrived on the 29 July 2006; the results are pending. For further information about the geochemical anomalies of Mouse Mountain refer to Tempelman-Kluit (2006).

4.0. CONCLUSIONS:

The 2006 summer mapping program on the Mouse Mountain property was successful; lithology units were described in detail, and for the first time thin sections were analysed to validate these descriptions. The rock units on the Mouse Mountain property correlate with those of the Nicola Group, in which the intrusive rocks are spatially and temporally associated with mineralization. Volcaniclastic rocks, that are Triassic-Jurassic in age, and which vary considerably in composition and texture, underlie much of the Mouse Mountain property. In general, the volcanic succession consists of subaqeous pyroxene-phyric basalt flows and breccias, an overlying sequence of pyroclastic and epiclastic volcanic deposits, and shallow water sedimentary rocks that overlap and flank the volcanic accumulations. Jurassic alkaline intrusions intrude the volcaniclastic succession, simultaneously producing high-level breccias by steam-blasted disintegration. There are multiple events and phases associated with the invasion of stocks and sills into the country rock: hydrothermal alteration, brecciation and mineralization. Unravelling the complex system by interpreting the sequence of events will help reveal the potential mineral deposit.

5.0. ACKNOWLEDGEMENTS:

The author extends her thanks to Dirk Templeman-Kluit for his guidance and support throughout the mapping project. Geological discussions with Jim Logan, Mitch Mihalynuk and Lee Ferreira were informative and appreciated. Lee Dearing is gratefully acknowledged for her capable assistance in the field. David Nelles is also thanked for kindly loaning the author his petrographic microscope.

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7.0. APPENDIX 1:

PETROGRAPHIC DESCRIPTIONS OF TWENTY-SEVEN THIN SECTIONS COLLECTED FROM THE MOUSE MOUNTAIN PROPERTY, QUESNEL, BRITISH COLUMBIA

Abbreviations used on descriptions and photos:

Ppl – plane polarized light
Cpl – cross polarized light
biref. - birefringence
Rhomb. - rhombohedral
Opt. Prop. – optical property

SUMMARY:

Twenty-seven hand samples were sent into *Vancouver Petrographics Ltd.* and made into standard 26 X 46mm thin sections and prepared sections off-cuts. The objective was to characterise the rocks according to mineralogy and alteration. The final bedrock geology map shows the location of these samples relative to the various rock units on the Mouse Mountain property (Figure 1).

The prepared sections off-cuts were photographed with a *5.9-13.2mm Canon Powershot A400* digital camera, and were analysed using a QZ series stereo zoom microscope, which has a zoom range magnification of 7X to 45X, using a 10X eyepiece. The thin sections were examined with a Nikon Alphaphot-2 YS2-H transmitting light microscope, which was courteously loaned by David Nelles from the Earth and Ocean Science department, University of Victoria. Sketches were drawn for each thin section, as precisely as possible, using the 4X objective lens and in plane polarized light.

Fourteen of the 27 hand samples were stained with Sodium Cobaltinitrite, which turns the K-feldspar on the surface a yellow colour. This makes for an easy estimate of the composition of the feldspars, and a more accurate identification of the rocks chemistry. Where there was any doubt as to the nature of the feldspars, interference figures were done for verification purposes. In some cases, interference figures were not sufficient because the feldspars were strongly sericitized; however, most of the feldspars were seen to be biaxial positive, characteristic of the plagioclase feldspar series.

The rocks were named by determining the mineralogical mode, which was normalized to P, A, Q or F. The results from this report show that there are 4 broad groups of rocktypes, namely: (1) monzonite to syenite with a microcrystalline texture that are variably altered and hydrothermally brecciated, (2) augite-phyric basalts with both tuffaceous and flow textures, (3) volcaniclastic crystal lapilli tuffs with andesite to latite compositions and, (4) plagioclase porphyries. The intrusives are the rock units that are chiefly mineralized, whereas, alteration is common in the monzonite, syenite and volcaniclastic breccias. Sericitization and chloritization are common features to all of the rocktypes, which suggests that the property was subjected to weak metamorphism.

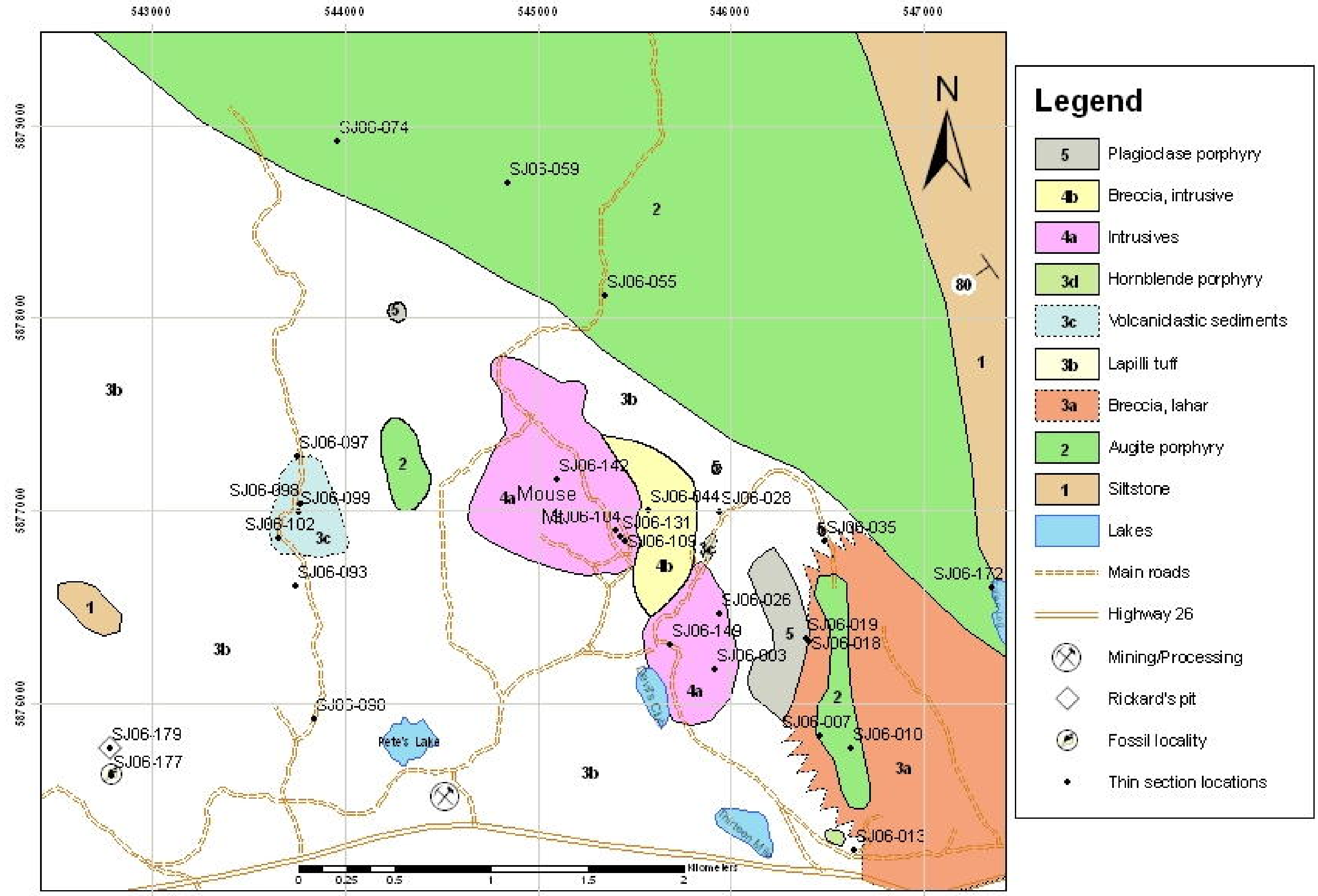


Figure 1. The Mouse Mountain property with the station locations and sample numbers of the 27 thin sections.

SAMPLE: SJ06-003
LITHOLOGY: Altered (Micro)-Monzonite
ALTERATION: Pervasive K-feldspar+magnetite alteration, Crosscut by late-stage calcite veining

Hand Sample Description: Equant, fine-grained plagioclase feldspar minerals dominate the groundmass. There are, however, plagioclase crystals that have relict tabular shapes, are subrounded, digested at the margins, and look larger than the groundmass minerals. This observation may be a result of the irregular alteration assemblage making certain minerals more discernable. Primary K-feldspar occurs in the groundmass where the staining is a lighter shade of yellow. The groundmass K-feldspar differs from K-alteration in that it is grain-like and less blurry. K-feldspar alteration is patchy and pervasive and stands out in relief against the groundmass minerals. Magnetite veinlets and blebs are part of the same alteration event as K-feldspar, whereas, calcite veinlets post-date K-feldspar+magnetite alteration.

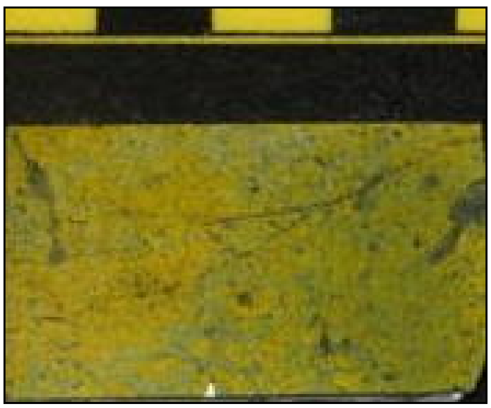


Photo 1: SJ06-003. The offcut is stained bright yellow with sodium cobaltinitrite, indicating an abundance of K-feldspar. The scale is in centimeters.

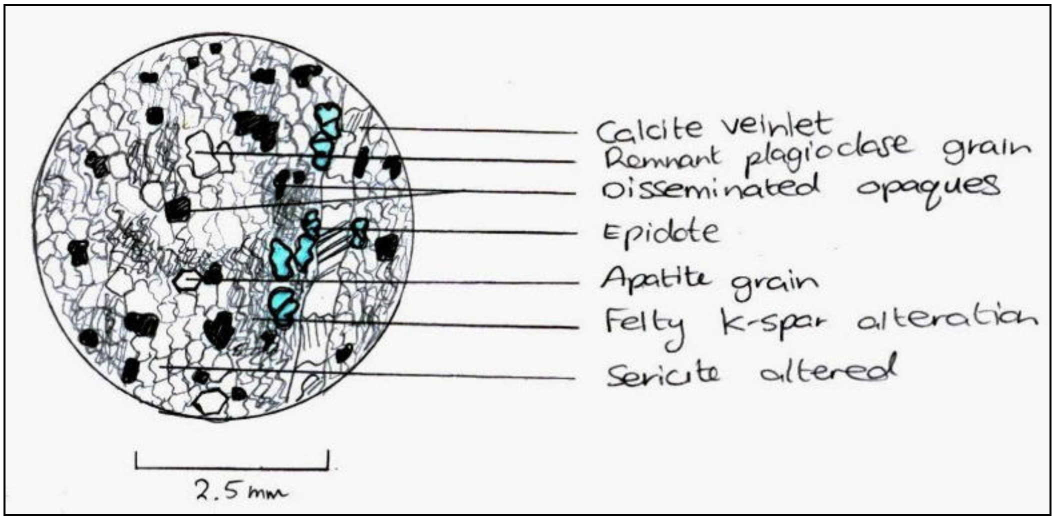
TRANSLUSCENT MINERALS

Mineral	**%**	**Distribution & Characteristics**	**Opt. Prop.**
plagioclase	50	<1mm grains, in groundmass, interlocking, no crystal shapes	polysynthetic twinning,1^{st} order brief.
K-feldspar	35	very fine-grained, dirty brown-pink in Ppl	low biref.
sericite	7	fine-grained, cloudy in Ppl, replaces feldspars	3^{rd} order biref.
calcite	2	anhedral grains, occur in mm-sized veins	extreme brief, rhomb. cleavage
epidote	2	anhedral grains, in groundmass and in veinlets	pleochroic green-yellow, 3^{rd} order brief
apatite	minor	euhedral hexagonal grains, overprinting K-feldspar alteration	grey interference colours, no cleavage
quartz	minor	very fine-grained, occurs in µm-sized veinlets	undulatory extinction, 1^{st} order brief.

OPAQUE MINERALS

Mineral	%	Distribution & Characteristics	Opt. Prop.
pyrite	3	disseminated cubes	opaque
hematite	1	scattered blebs, brown-red stain adjacent to grains	opaque

Thin Section Description: Feldspars are mainly anhedral, aphanitic and interlock; however, few remnant tabular plagioclase minerals are evident in the mosaic textured K-feldspar groundmass. Relict polysynthetic twinning is apparent in several of these grains, although the crystal outline has been partially destroyed by K-feldspar alteration. .Sericite and K-feldspar have almost entirely overprinted the primary texture, whereas epidote is found adjacent to calcite veins. Finely disseminated opaque minerals occur throughout the thin section.



Sketch 1: SJ06-003. The rock consists almost entirely of microcrystalline plagioclase and K-feldspar. Field of view 4.8mm, Ppl.

SAMPLE: SJ06-007
LITHOLOGY: Augite Porphyry
ALTERATION: Late-stage calcite+chlorite+sericite alteration

Hand Sample Description: The matrix is aphanitic and strongly hematite stained. Tabular plagioclase micro-phenocrysts, that are <1mm, are distinct in the groundmass where hematite alteration is less strong. Millimeter-sized augite phenocrysts are found scattered in the matrix and constitute approximately 7% of the mode. In some places, the mafic grains have been entirely altered by hematite. The rock has been crosscut by wispy veinlets of albite and calcite.

Photo 2. SJ06-007. Augite porphyry of unit 2 from the southeast part of the property. The scale is in centimeters.

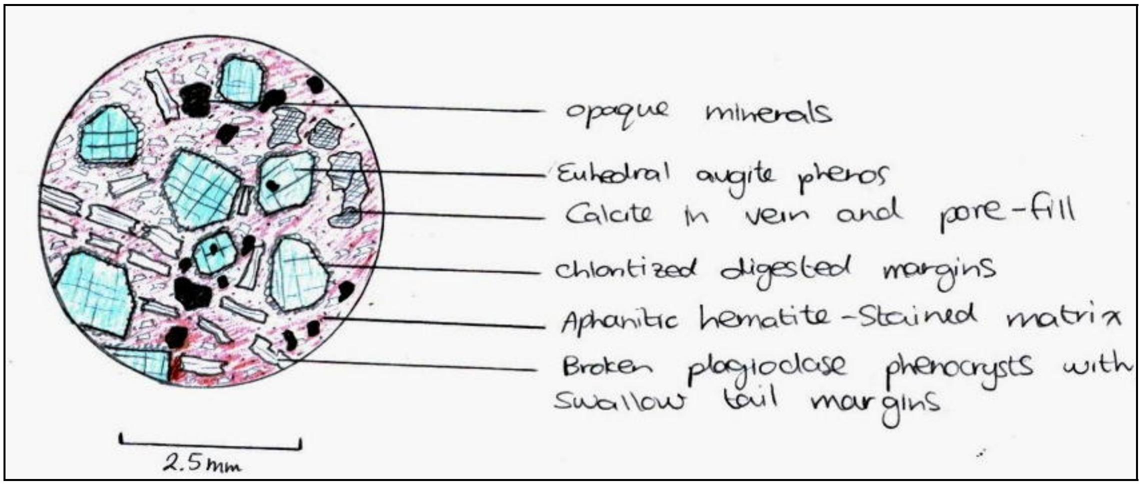
TRANSLUSCENT MINERALS

Mineral	%	Distribution & Characteristics	Opt. Prop.
plagioclase	77	tabular, 1-2mm, weakly aligned, swallow tail edges	polysynthetic twins, low biref.
clinopyroxene (augite)	10	euhedral, 4 or 8-sided in cross-section, stubby, 1-3mm	inclined extinction, upper 2^{nd} order biref.
sericite	5	fine-grained, replaces feldspars	3^{rd} order biref.
orthopyroxene	minor	euhedral 4 or 8-sided in cross-section	parallel extinction, upper 1^{st} order biref.
chlorite	minor	fine-grained, replacing mafic minerals	anomalous blue interference colours
calcite	minor	subhedral grains interlock as vein-fill	rhomb. cleavage, extreme biref.

OPAQUE MINERALS

Mineral	%	Distribution & Characteristics	Opt. Prop.
pyrite	3	finely disseminated micro-cubes	opaque
hematite	5	fine-grained, reddish-brown matrix	isotropic

Thin Section Description: The thin section is porphyritic with mm-sized augite phenocrysts and µm-sized plagioclase phenocrysts in an aphanitic matrix. The groundmatrix is reddish-brown, mostly isotropic and is speckled with numerous submicroscopic opaques. The phenocrysts constitute approximately 25% of the mode and these phenocrysts are mostly euhedral and intact, except for chloritized alteration halos. Plagioclase grains, which display Carlsbad and polysynthetic twins, appear to flow around the augite phenocrysts. Late-stage calcite+chlorite+sericite alteration has caused the phenocrysts and microcrysts to acquire 'fuzzy' digested margins.



Sketch 2: SJ06-007. The plagioclase phenocrysts exhibit a distinctly trachytic texture. Field of view 4.8mm, Ppl.

SAMPLE: SJ06-010
LITHOLOGY: Augite Porphyry
ALTERATION: Moderate sericite alteration and weak calcite+chlorite alteration

Hand Sample Description: The rock is aphanitic, dark grey and porphyritic. Eu-subhedral tabular plagioclase phenocrysts are approximately 1mm, and euhedral stubby augite phenocrysts are about 2-3mm. The phenocrysts comprise approximately 30% of the mode. The rock appears mainly intact and unaltered.

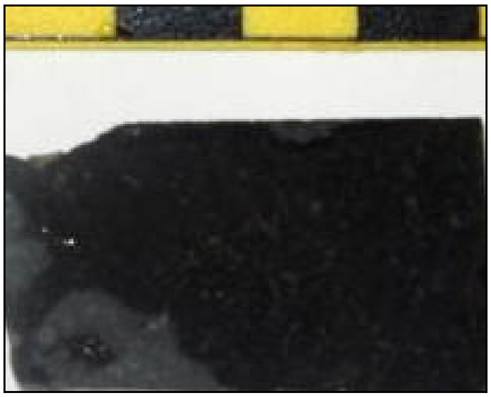


Photo 3: SJ06-010. Fine-grained augite porphyry from unit 2. The scale is in centimeters.

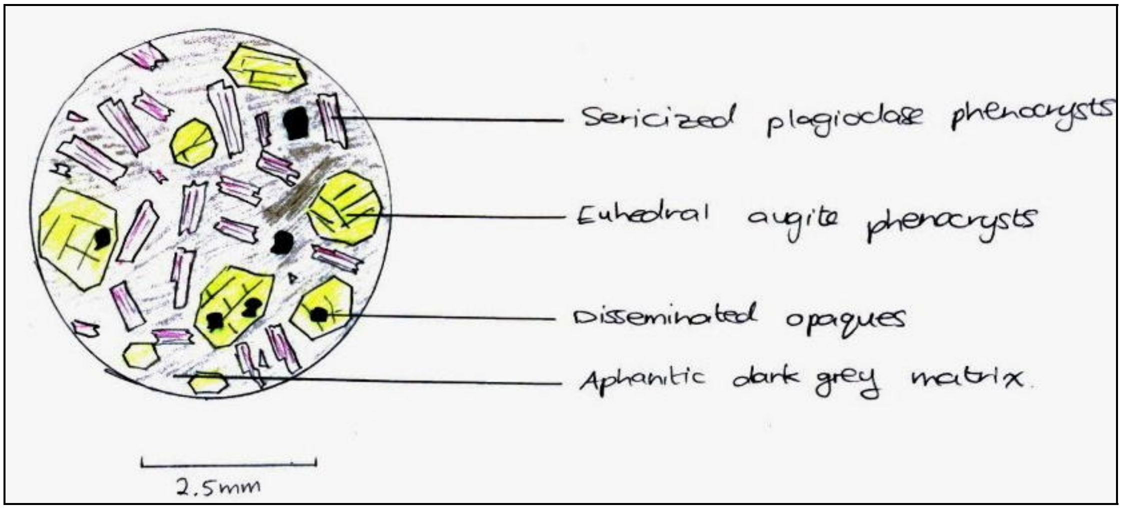
TRANSLUSCENT MINERALS

Mineral	%	Distribution & Characteristics	Opt. Prop.
plagioclase	80	tabular phenocrysts, trachytic texture	polysynthetic twins, 1st order biref.
clinopyroxene (augite)	15	euhedral, stubby prismatic phenocrysts	inclined extinction, 3rd order biref.
sericite	4	aphanitic, replaces plagioclase phenocrysts	brown-pinkish in Ppl, 3rd order biref.
calcite	minor	fine-grained, veinlet-controlled	rhomb. cleavage, extreme biref.
chlorite	minor	wispy flakes, replaces mafic minerals	green in Ppl, anomalous interference colours

OPAQUE MINERALS

Mineral	%	Distribution & Characteristics	Opt. Prop.
pyrite	1	disseminated cubes	opaque
hematite	minor	fine-grained, brown-reddish matrix	isotropic

Thin Section Description: The thin section shows a distinct porphyritic texture with phenocrysts comprising approximately 30%, and matrix 70%, of the mode. Within the phenocryst assemblage, 60% is plagioclase, and 40% is augite. The distinction between matrix and phenocryst margins is sharp. The matrix is aphanitic and mostly isotropic, although submicroscopic plagioclase can barely be discerned. The plagioclase phenocrysts have a weak flow orientation around the larger augite minerals. Sericite has almost entirely replaced the plagioclase phenocrysts, but otherwise the rock remains unaltered.



Sketch 3: SJ06-010. The euhedral augite phenocrysts are pale green in Ppl. Field of view 4.8mm, Ppl.

SAMPLE: SJ06-013
LITHOLOGY: Volcaniclastic Andesitic Tuff
ALTERATION: Chlorite+sericite replacement

Hand Sample Description: Subrounded plagioclase grains are tightly packed amongst fine-grained mafic minerals. The plagioclase grains are 1-2mm in size, do not interlock, but tend to dissolve into the matrix. The matrix is fine-grained, dark grey to greenish in colour and tuffaceous in appearance. Scattered mafic minerals, some of which are hornblende, are shardy and broken.

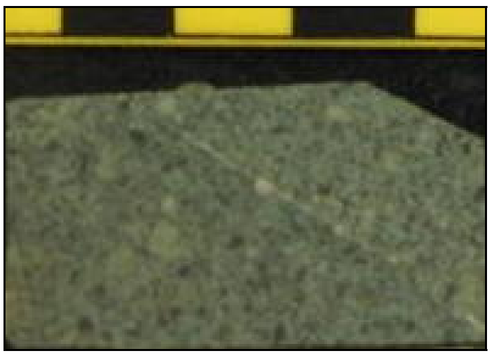


Photo 4: SJ06-013. Breccia tuffite of unit 3b. The scale is in centimeters.

TRANSLUSCENT MINERALS

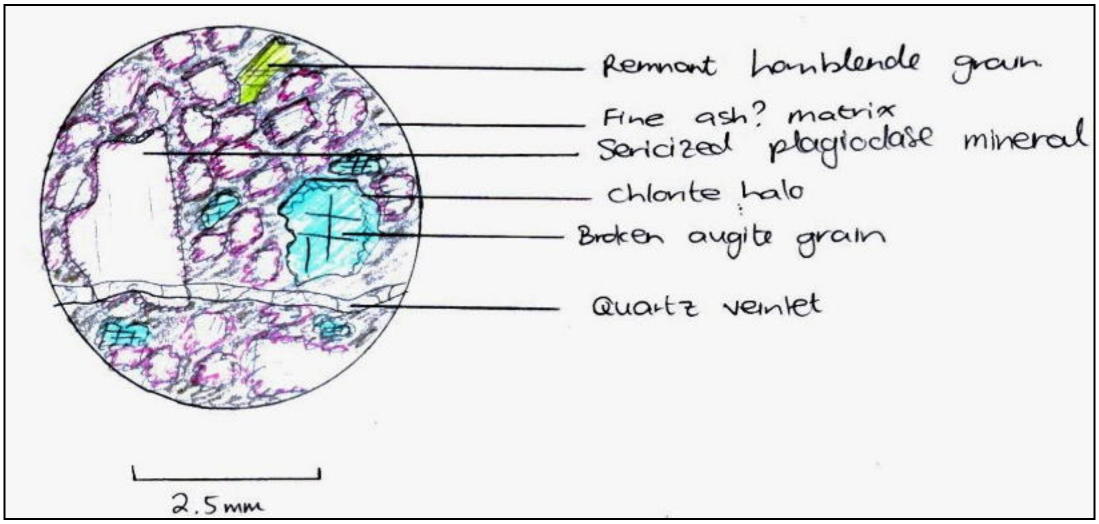
Mineral	%	Distribution & Characteristics	Opt. Prop.
plagioclase	94	subhedral grains, broken and shardy	remnant twins, 1st order biref.
clinopyroxene (augite)	2	shattered grains, remnant euhedral shape	inclined extinction, 3rd order biref.
hornblende	1	shattered grains, sparsely distributed	pleochroic green, symmetrical extinction
chlorite	minor	replaces augite and hornblende in microfractures	anomalous blue interference colours
quartz	minor	anhedral grains in veinlets	undulatory extinction, 1st order orange biref.
apatite	minor	hexagonal, disseminated grains	high relief, 1st order grey biref.

OPAQUE MINERALS

Mineral	%	Distribution & Characteristics	Opt. Prop.
pyrite	3	disseminated cubes and grains	opaque

Thin Section Description: The bulk of the thin section consists of moderately sorted, mm-sized, subrounded plagioclase grains that dissolve into the matrix. The plagioclase grains do not have any specific orientation in the matrix, but mostly are clustered and disordered. Sparsely distributed augite and hornblende minerals are fractured and broken, displaying only remnant euhedral shapes. The matrix is composed of fine-grained minerals that are isotropic and weakly rusty looking - indicative of fine-ash.

Disseminated opaques occur all throughout the matrix, but do not overprint mineral grains. The rock has only been weakly sericite altered and chloritized to feldspar and mafic grains, respectively.



Sketch 4: SJ06-013. A thin section drawing of the volcaniclastic tuff of unit 3b. Field of view 4.8mm, Ppl.

SAMPLE: SJ06-018
LITHOLOGY: Volcaniclastic Crystal Lapilli Andesitic Tuff
ALTERATION: Patchy K-feldspar and pervasive sericite alteration

Hand Sample Description: This rock consists of crystals and lapilli fragments supported in a strongly hematite-stained aphanitic matrix. The dominant crystals present are rounded plagioclase grains with lesser amounts of mafic minerals. Felsic, porphyritic and intrusive lapilli fragments are discernable. The fragments are poorly to moderately sorted and subangular. K-feldspar has selectively altered the rock, evident after staining, in pervasive patches. Magnetite and pyrite can also be identified with the naked eye.

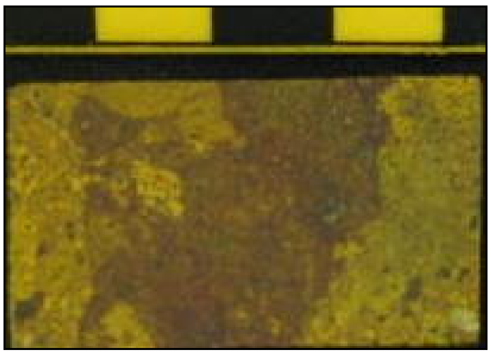


Photo 5: SJ06-018. Potassium feldspar staining highlights how K-feldspar alteration has preferentially altered the rock in patches. The scale is in centimeters.

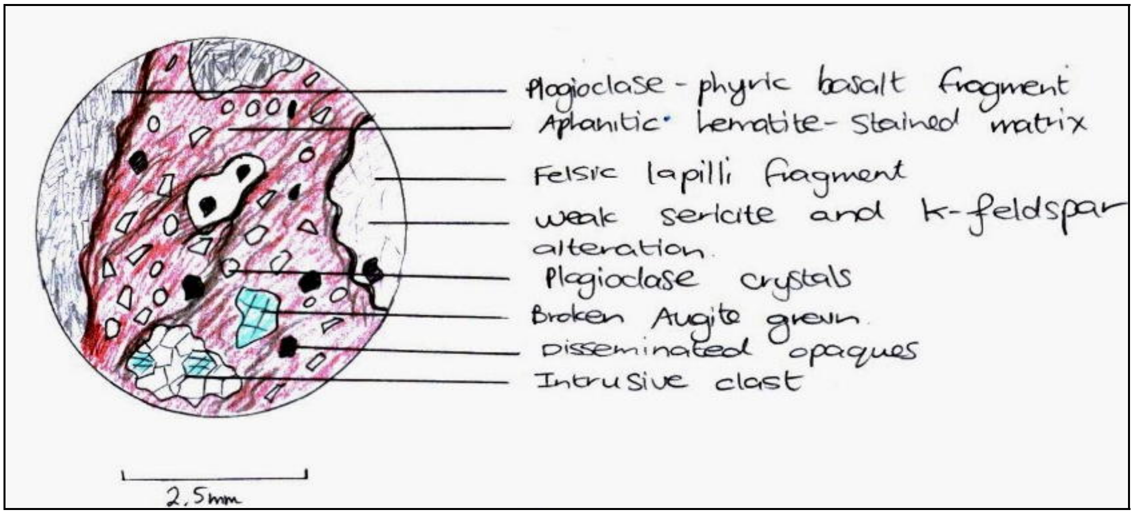
TRANSLUSCENT MINERALS

Mineral	%	Distribution & Characteristics	Opt. Prop.
plagioclase	74	shardy, digested margins, sericite altered phenocrysts	polysynthetic twins, 1st order biref.
sericite	7	fine-grained, replacing feldspar minerals	3rd order biref.
K-feldspar	5	fine-grained, pinkish to brown, overprinting felsic minerals	low biref.
clinopyroxene (augite)	3	scattered sub-anhedral grains	inclined extinction, 3rd order biref.
hornblende	minor	scattered subhedral grains	pleochroic green, symmetrical extinction
calcite	minor	anhedral grains scattered in groundmass	rhomb. cleavage, extreme biref.

OPAQUE MINERALS

Mineral	%	Distribution & Characteristics	Opt. Prop.
hematite	10	reddish-brown, aphanitic matrix	isotropic
pyrite	1	disseminated cubes and blebs	opaque

Thin Section Description: The rock is distinctly clastic in appearance with approximately 35% lapilli fragments, 25% crystals and 40% matrix. The matrix is tuffaceous, consisting of very fine-grained anhedral plagioclase grains, fine-ash and hematite. Within the matrix are <1mm subrounded plagioclase grains, some of which are shardy, that are clumped, clustered and overlap. Additionally, mafic grains (augite and hornblende) are broken and scattered within the matrix. Lapilli fragments are diverse, which include felsites, plagioclase-phyric basalt clasts and few intrusive fragments. The rock is mostly intact and unaltered, except for moderate K-feldspar and sericite replacement.



Sketch 5: SJ06-018. The plagioclase phenocrysts, in the basalt fragment on the left hand side, have a distinctly trachytic texture in this volcaniclastic crystal lapilli tuff of unit 3a. Field of view 4.8mm, Ppl.

SAMPLE: SJ06-019
LITHOLOGY: Plagioclase Porphyry
ALTERATION: Weak sericite alteration

Hand Sample Description: Phenocrysts of plagioclase, that are approximately 5mm in length, occur in a fine-grained dark-grey matrix. Euhedral plagioclase phenocrysts comprise approximately 15% of the mode. Additionally, interstitial hornblende minerals, that are approximately 1mm, occur in the matrix. The rock is unaltered and intact.

Photo 6: SJ06-019. This photo shows the porphyritic texture of unit 5. The scale is in centimeters.

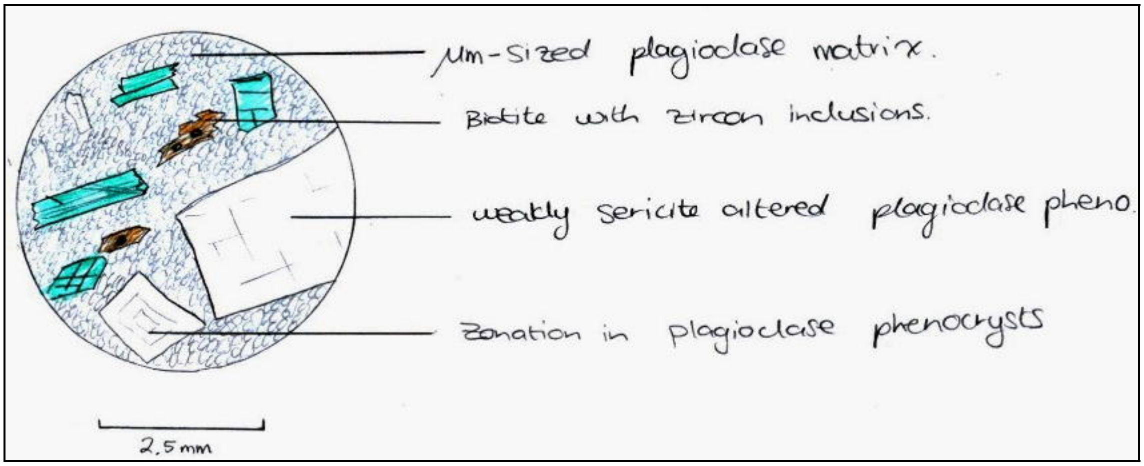
TRANSLUSCENT MINERALS

Mineral	%	Distribution & Characteristics	Opt. Prop.
plagioclase	94	tabular as phenocrysts, sub-granular in groundmass	polysynthetic twins, 1st order biref.
hornblende	5	tabular, euhedral interstitial phenocrysts	pleochroic green, 60º/120º cleavage
biotite	1	replaces hornblende, contains zircon inclusions	flaky cleavage, extreme biref.
apatite	minor	hexagonal, disseminated minerals	high relief, grey interference colours
sericite	minor	aphanitic, replaces feldspars	3rd order biref.
zircons	minor	scattered in biotite minerals	high relief, 3rd order biref.

OPAQUE MINERALS

Mineral	%	Distribution & Characteristics	Opt. Prop.
pyrite	minor	disseminated grains	opaque

Thin Section Description: The thin section is composed of approximately 15% phenocrysts and 85% matrix. Plagioclase and hornblende make up the phenocryst assemblage. Plagioclase phenocrysts are mm-sized, whereas hornblende minerals do not typically exceed 1mm. Few feldspar phenocrysts exhibit weak zonation and most have been weakly sericite altered. The matrix consists almost entirely of fine-grained plagioclase grains. Individual anhedral grains are evident, however they are submicroscopic. Flaky biotite is evident as pseudomorphs after hornblende, and within them zircon inclusions are common.



Sketch 6: SJ06-019. Notice the characteristic amphibole cleavage in hornblende. Field of view 4.8mm, Ppl.

SAMPLE: SJ06-026
LITHOLOGY: ?
ALTERATION: Chalcedonic quartz-ankerite-iron oxide

Hand Sample Description: The rock is almost entirely altered, with no primary minerals being evident. The hand sample has been altered a pink-yellowish-orange-white colour. Some of the alteration minerals are medium grained, however, grain size is variable and some of the alteration minerals also occur in aphanitic aggregates. A 5mm chalcedonic quartz vein crosscuts the rock. Quartz alteration also occurs in mm-sized anhedral blebs. A yellowish-brown mineral (possibly ankerite) occurs in close association with quartz. This mineral occurs in granular aggregates, but also forms euhedral rhombohedrons, prismatic tablets and pseudo-octahedrons. The hand sample was stained for K-feldspar, however since none was present, the hand sample remained unaffected.

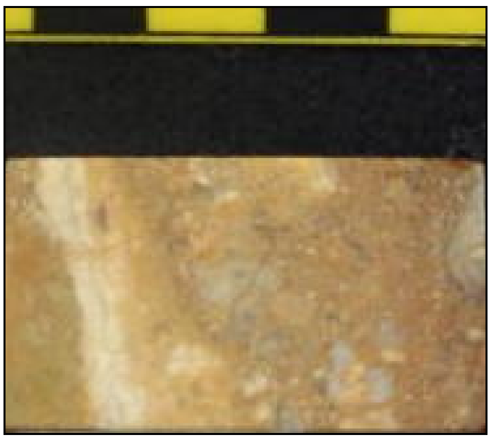


Photo 7: SJ06-026. On the left hand side of the photo a chalcedonic quartz vein is evident. The scale is in centimeters.

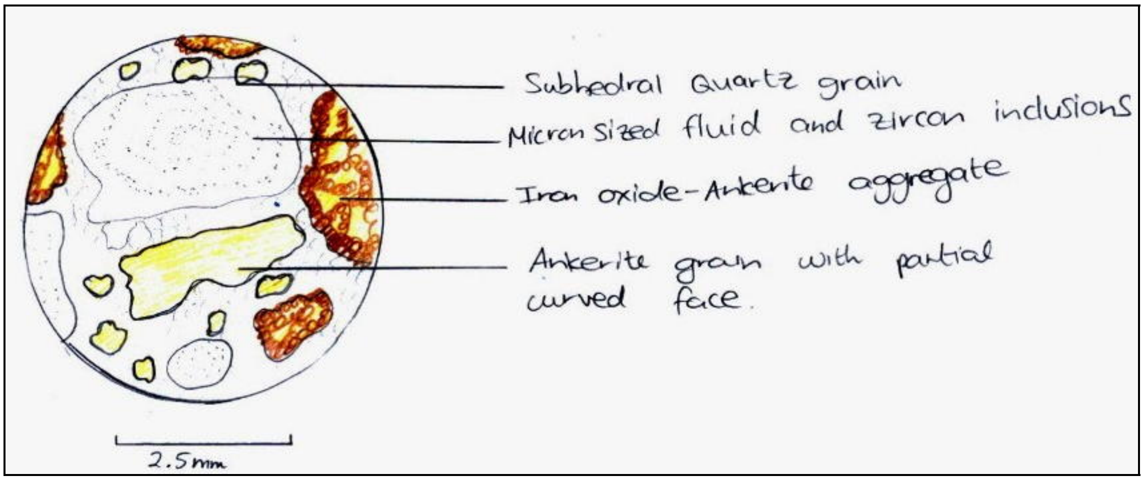
TRANSLUSCENT MINERALS

Mineral	%	Distribution & Characteristics	Opt. Prop.
quartz	63	subhedral & anhedral grains, variable sizes	wavy extinction, 1st order grey & orange biref.
ankerite	30	yellowish-brown, euhedral, subhedral & anhedral grains	uniaxial negative, extreme biref.
calcite	minor	fine-grained, filling veinlets	rhomb. cleavage, extreme biref.
zircon	minor	micron-sized inclusions in quartz	high relief, 3rd order biref.

OPAQUE MINERALS

Mineral	%	Distribution & Characteristics	Opt. Prop.
hematite	7	fine-grained, reddish-orange-brown	isotropic

Thin Section Description: Quartz, ankerite and iron oxide are the dominant alteration minerals present in this thin section. No primary minerals were evident, however, some of the alteration minerals are possibly pseudomorphs after plagioclase, since lathe-like alteration grains are common. Quartz is the most prevalent mineral and forms sheaf-like radiating bundles, but also occurs in the groundmass as micrometer-sized grains. Numerous micron-sized inclusions were seen in the larger grains of quartz, some of which are zircons. The fluid inclusions and zircons concentrate in bands, which reveals the varicoloured bands of chalcedony. The carbonate mineral occurs in two forms: as fine-grained granular masses and as medium grained rhombohedrons. The former is so highly oxidized that the thin section looks isotropic in these fine-grained aggregates, whereas the latter remains more intact with only minor oxidation having occurred on the margins of the grain. Several grains of ankerite appear banded, which may either be a result of it having precipitated in the same chalcedonic manner as quartz, or, ankerite alteration entirely overprinted the quartz grains. Late-stage calcite veining crosscuts both the ankerite and quartz alteration.



Sketch 7: SJ06-026. Observe how the inclusions are arranged in concentric bands. Field of view 4.8mm, Ppl.

SAMPLE: SJ06-028
LITHOLOGY: Volcaniclastic Crystal Lapilli Andesitic Tuff
ALTERATION: K-feldspar+sericite+calcite

Hand Sample Description: The bulk of the rock is clastic with medium-grained crystals loosely held together. In places the rock is porphyritic, which may be remnant lapilli clasts within the crystal-rich matrix. Eu-subhedral plagioclase lathes are the only apparent minerals, other than minor amounts of blebby magnetite. The rock has been pervasively K-altered, both within the matrix and lapilli fragments, that has caused clast boundaries to be partially obscured.

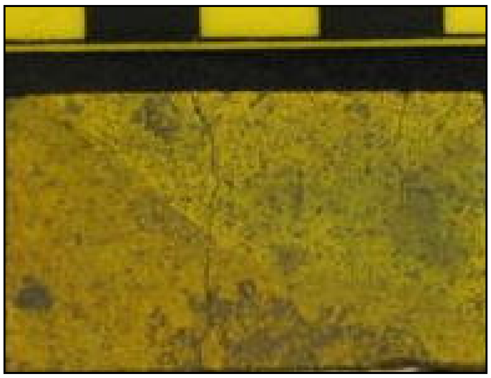


Photo 8: SJ06-028. This image shows how the rock has been pervasively K-altered. The scale is in centimeters.

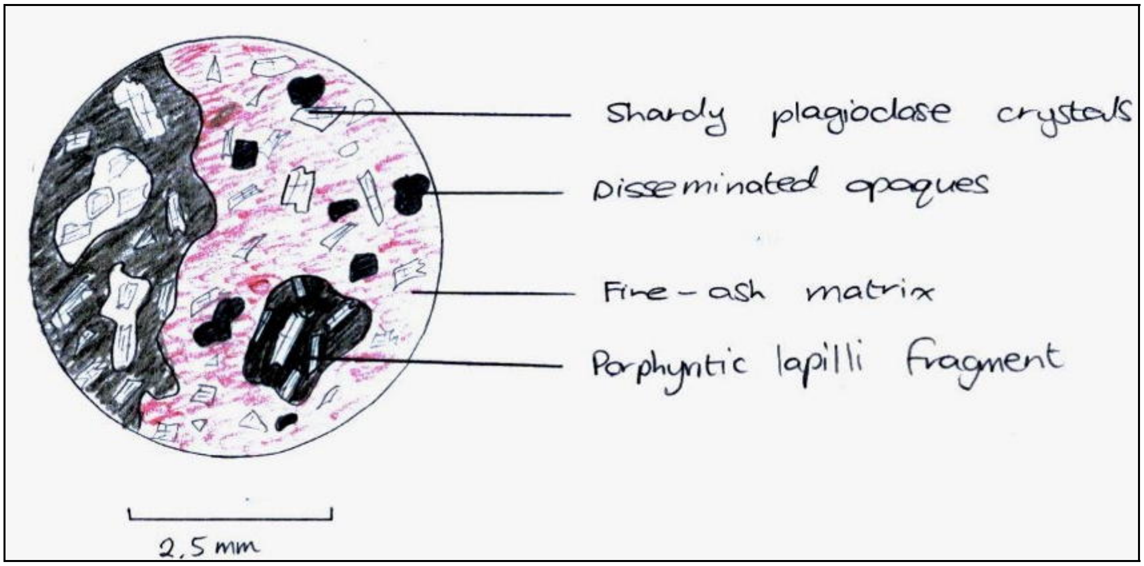
TRANSLUSCENT MINERALS

Mineral	%	Distribution & Characteristics	Opt. Prop.
plagioclase	70	eu-subhedral, clumped lathes	polysynthetic twins, 1st order biref.
sericite	10	very fine-grained, replaces plagioclase	3rd order biref.
K-feldspar	10	aphanitic, brown-pinkish, alters the groundmatrix	low biref.
calcite	minor	anhedral grains in the matrix and veinlets	rhomb. cleavage, extreme biref.

OPAQUE MINERALS

Mineral	%	Distribution & Characteristics	Opt. Prop.
pyrite	7	disseminated cubes	opaque
hematite	3	reddish-brown, aphanitic matrix	isotropic

Thin Section Description: The thin section consists of approximately 50% matrix, 10% lapilli fragments and 40% plagioclase crystals. The matrix has a variable grain size, ranging from fine-ash to medium-ash. Within the matrix are numerous clumped plagioclase crystals that are shardy and partially stripped, some of which exhibit hematite-corroded margins. Sericite+calcite replacement is persistent in the felsic minerals. The crystals are loosely, and randomly, consolidated and remnant euhedral shapes can still be seen. The lapilli evident in this small hand sample are felsites and plagioclase porphyry fragments, which both exhibit subrounded margins.



Sketch 8: SJ06-028. The lapilli fragment on the left hand side of the sketch is a plagioclase-phyric basalt fragment. Field of view 4.8mm, Ppl.

SAMPLE: SJ06-035
LITHOLOGY: Volcaniclastic Andesitic Crystal Tuff
ALTERATION: Weak K-spar alteration, sericite+calcite replacement

Hand Sample Description: The hand sample is aphanitic and consists mostly of felsic minerals. The rock has been differentially eroded so that anhedral grains of plagioclase can be easily observed, most of which are <1mm. A porphyritic lapilli fragment was observed, which suggests that this rock is volcaniclastic. The rock has been uniformly weakly K-altered and only scarce magnetite blebs were seen.

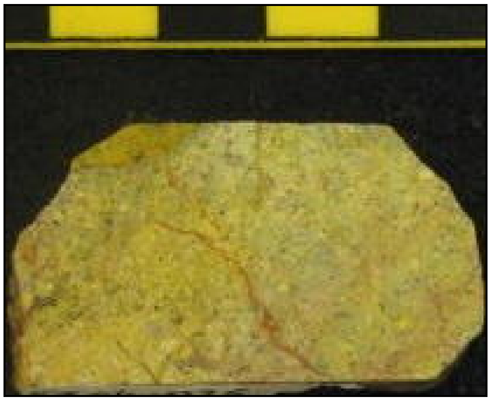


Photo 9: SJ06-035. The rock has been very weakly altered by potassium feldspar. Notice the fracture in the centre of the photo, which has been oxidized. The scale is in centimeters.

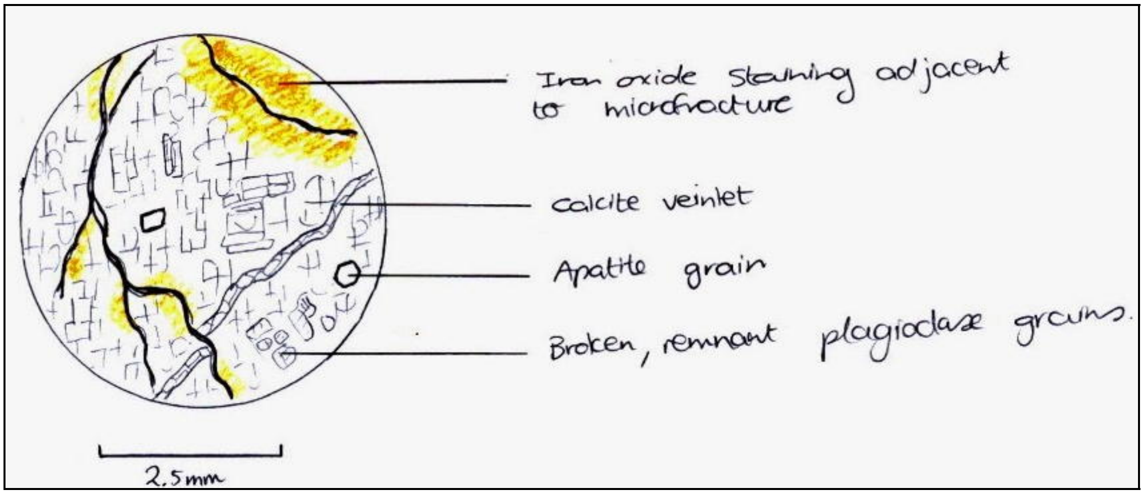
TRANSLUSCENT MINERALS

Mineral	%	Distribution & Characteristics	Opt. Prop.
plagioclase	83	fine-grained groundmass and anhedral 1mm grains	remnant twinning, 1st order biref.
sericite	10	very fine-grained, replaces plagioclase, also occurs in veinlets	3rd order biref.
iron oxide	7	aphanitic, stains the matrix, occurs adjacent to veinlets	isotropic orange-brown
calcite	minor	subhedral grains, vein-fill	rhomb. cleavage, extreme biref.
apatite	minor	euhedral, sparsely scattered	moderate relief, 1st order grey biref.

OPAQUE MINERALS

Mineral	%	Distribution & Characteristics	Opt. Prop.
pyrite	1	disseminated fine cubes and blebs	opaque

Thin Section Description: The thin section is uniform in composition and is composed of numerous broken anhedral plagioclase grains that are loosely packed. The matrix is coarse-ash sized and is composed of micron-sized plagioclase. Sericite has completely replaced plagioclase grains in places, but otherwise uniformly alters the feldspars. The rock is highly fractured, which has allowed iron oxide to seep in and stain the rock adjacent to the microfractures. There does not appear to be any primary potassium feldspar present, however, the rock is weakly and uniformly K-altered.



Sketch 9: SJ06-035. The rock is highly oxidized adjacent to microfractures. Field of view 4.8mm, Ppl.

SAMPLE: SJ06-044
LITHOLOGY: Altered (Micro)-Monzonitic Breccia
ALTERATION: K-feldspar+muscovite+calcite+chlorite

Hand Sample Description: The hand sample has a hydrothermal breccia appearance that may be a result of differential alteration. Subhedral plagioclase grains can be discerned, but otherwise the rock is almost entirely altered by calcite+quartz+K-feldspar. Primary K-feldspar is present where potassium staining is less intense; however, the majority of K-feldspar is the result of pervasive and strong alteration.

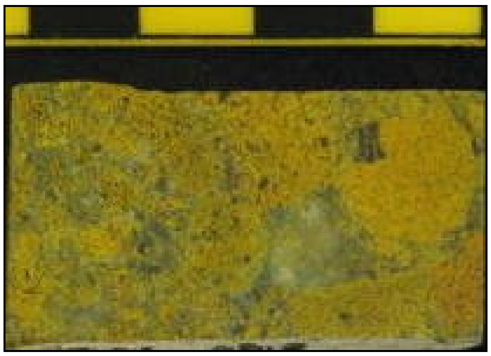


Photo 10: SJ06-044. Notice the patchy K-feldspar alteration, which outlines the breccia fragments. The scale is in centimeters.

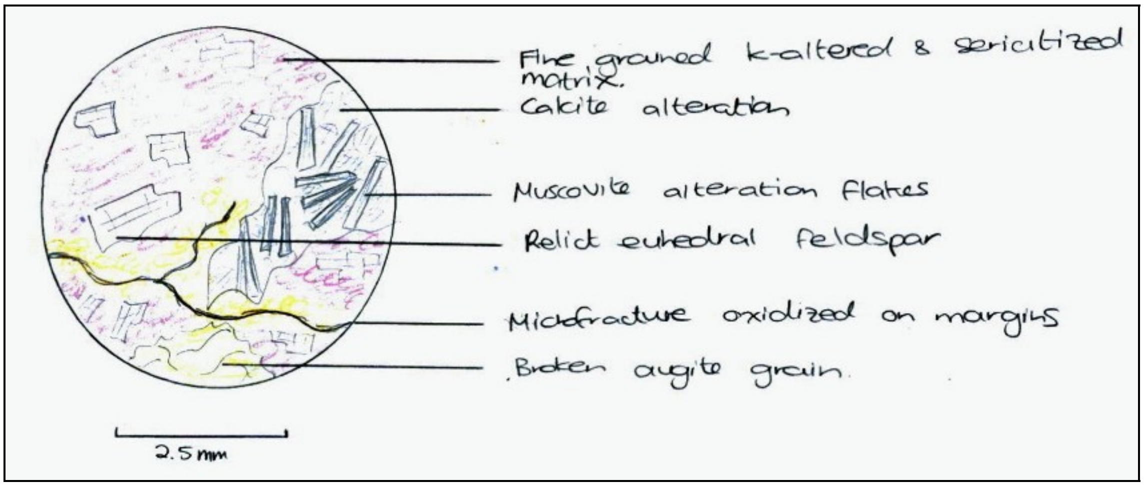
TRANSLUSCENT MINERALS

Mineral	%	Distribution & Characteristics	Opt. Prop.
plagioclase	42	sub-anhedral, remnant euhedral shape, µm-sized grains	polysynthetic twinning, 1st order biref.
K-feldspar	25	blurry pinkish-brown alteration and subhedral µm-sized grains	1st order biref.
sericite	10	aphanitic, pervasive, replaces feldspars	3rd order biref.
muscovite	7	flaky alteration in groundmass	mottled extinction, 3rd order biref.
clinopyroxene (augite)	5	shattered grains, weakly chloritized	inclined extinction, upper 2nd order biref.
calcite	3	fine-grained, alters feldspars and groundmass	rhomb. cleavage, extreme biref.
chlorite	1	fine-grained, replaces mafics	anomalous blue biref.
apatite	minor	euhedral, hexagonal and tabular grains	moderate relief, 1st order grey biref.
quartz	minor	anhedral grains, alteration product in groundmass	undulatory extinction, 1st order biref.
biotite	minor	fine flakes, scattered in groundmatrix	pleochroic brown, extreme biref.

OPAQUE MINERALS

Mineral	%	Distribution & Characteristics	Opt. Prop.
pyrite	7	disseminated blebs and cubes	opaque

Thin Section Description: The rock has been highly altered so that the primary texture has mostly been obliterated. Relict euhedral plagioclase, K-feldspar and augite grains are, however, faintly evident which had, at one point, an interlocking texture. A fine-grained assemblage of K-feldspar+calcite+quartz+chlorite has almost entirely altered the protolith. K-feldspar alteration pre-dates the calcite+muscovite+quartz alteration assemblage.



Sketch 10: SJ06-044. Remnant feldspar grains are evident beneath the strong alteration assemblage. Field of view 4.8mm, Ppl.

SAMPLE: SJ06-055
LITHOLOGY: Augite Porphyry
ALTERATION: Weak chlorite and sericite replacement

Hand Sample Description: The hand sample is dark grey with a medium to fine-grained texture. The rock is composed of loosely compacted sub-anhedral plagioclase and augite minerals that do not typically exceed 1mm. The matrix does not appear flow-like, but has more of a clastic texture. The rock is mostly intact and unaltered.

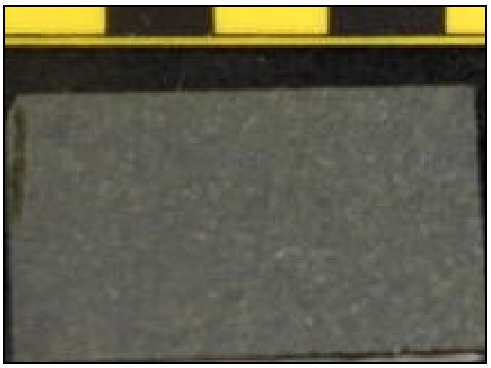


Photo 11: SJ06-055. Hand sample of unit 2. The scale is in centimeters.

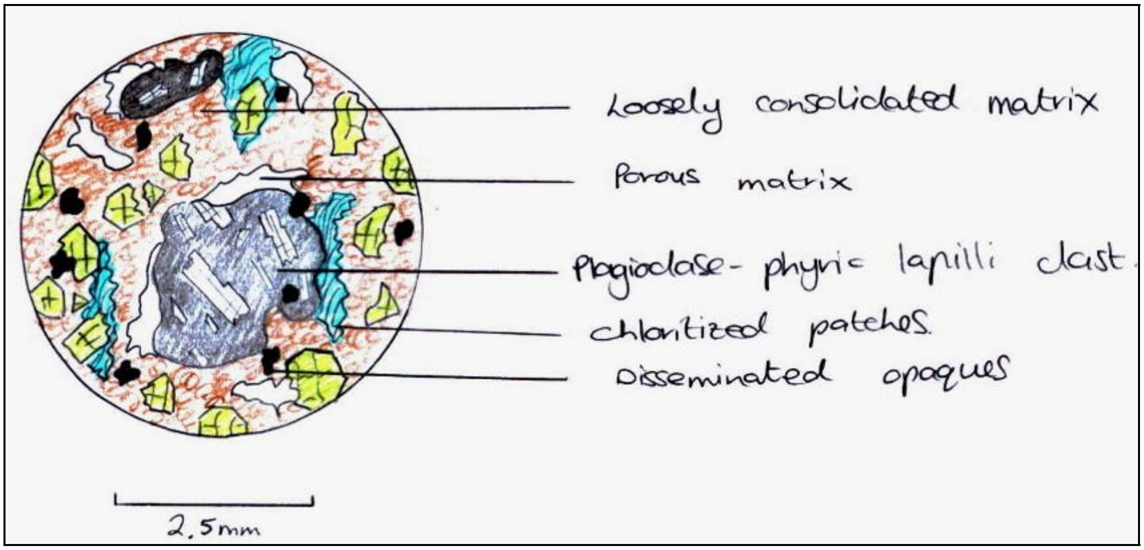
TRANSLUSCENT MINERALS

Mineral	**%**	**Distribution & Characteristics**	**Opt. Prop.**
plagioclase	82	µm-sized grains in the matrix, few subhedral grains approx. 1mm	remnant twinning, 1st order biref.
clinopyroxene (augite)	15	broken, relict euhedral shape, approx. 1mm in size	inclined extinction, upper 2nd order biref.
orthopyroxene	minor	broken, relict euhedral shape, approx. 1mm in size	parallel extinction, upper 1st order biref.
chlorite	minor	wispy replacement flakes	anomalous blue biref.
sericite	minor	fine-grained, found in the matrix	3rd order biref.

OPAQUE MINERALS

Mineral	**%**	**Distribution & Characteristics**	**Opt. Prop.**
pyrite	3	finely disseminated grains and cubes	opaque

Thin Section Description: In thin section this rock is porphyritic, with the matrix constituting approximately 85%, and augite phenocrysts approximately 15%, of the mode. Augite grains are mostly shardy and broken, although few have euhedral shapes and display zonation. There is no flow orientation of the augite minerals, but they are randomly distributed and clumped. The matrix consists of micron-sized plagioclase grains and flattened wisps. Additionally, the matrix is porous, loosely compacted and has been weakly chloritized and sericitized. Few scattered plagioclase-phyric lapilli fragments were also seen.



Sketch 11: SJ06-055. This sketch illustrates the tuffaceous texture of unit 2 from the north part of the property. Field of view 4.8mm, Ppl.

SAMPLE: SJ06-059
LITHOLOGY: Augite Porphyry
ALTERATION: Sericite alteration, calcite+quartz filled amygdules

Hand Sample Description: The rock consists of augite phenocrysts and lapilli fragments in an aphanitic, porous greenish-grey coloured matrix. Augite minerals are approx. 5mm and broken. The matrix consists of anhedral plagioclase grains <1mm, which display weak foliation. Additionally, within the matrix there are numerous amygdules that are rounded and weakly flattened.

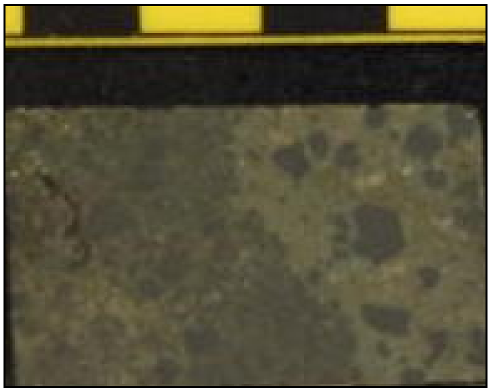


Photo 12: SJ06-059. Note the broken augite phenocryst on the right hand side of this photo. The scale is in centimeters.

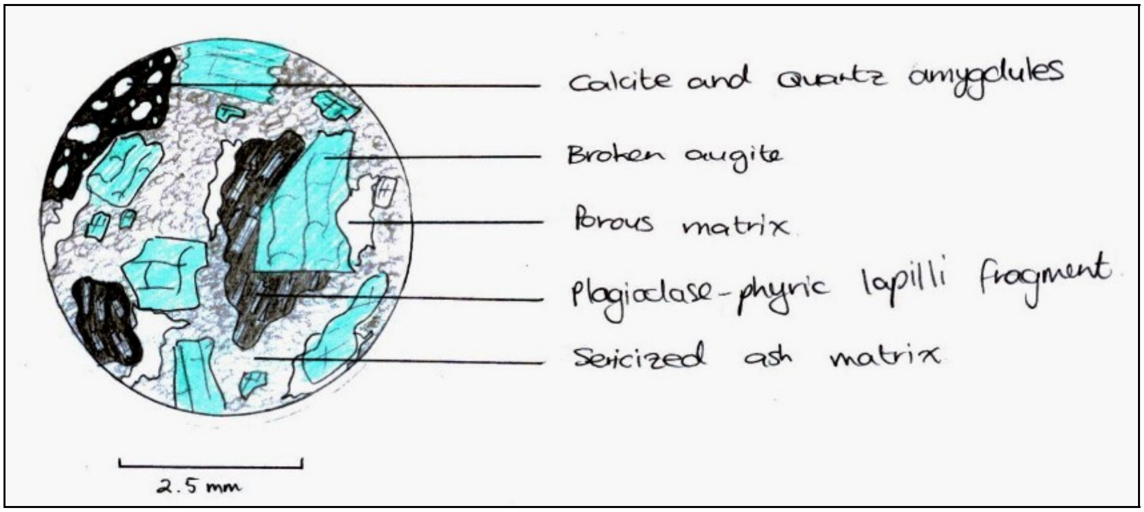
TRANSLUSCENT MINERALS

Mineral	**%**	**Distribution & Characteristics**	**Opt. Prop.**
plagioclase	82	euhedral lathes in lapilli fragments, micron-sized matrix fill	relict twinning, 1st order biref.
clinopyroxene (augite)	10	euhedral, broken phenocrysts	inclined extinction, upper 2nd order biref.
sericite	7	very fine-grained, selectively alters the matrix	3rd order biref.
quartz	minor	aphanitic, secondarily filling amygdules	undulatory extinction, 1st order grey biref.
calcite	minor	secondarily filling veinlets and amygdules	rhomb. cleavage, extreme biref.

OPAQUE MINERALS

Mineral	**%**	**Distribution & Characteristics**	**Opt. Prop.**
pyrite	1	disseminated cubes and blebs	opaque

Thin Section Description: Augite phenocrysts and lapilli fragments are loosely packed together in the sericite altered fine-ash matrix. Most of the augite minerals have been broken or shattered so that only relict euhedral shapes have remained. Quartz and calcite amygdules occur in concentrated patches within the lapilli fragments, few of which are flattened. There are also numerous micron-sized vesicles that are spherical and rounded.



Sketch 12: SJ06-059. Lithic fragments occur sporadically throughout the sample. Field of view 4.8mm, Ppl.

SAMPLE: SJ06-074
LITHOLOGY: Augite and Plagioclase Porphyry
ALTERATION: Sericite replacement

Hand Sample Description: Faint plagioclase phenocrysts are evident in an otherwise aphanitic, dark grey to green matrix. Plagiclase is the dominant phenocryst present, however, augite phenocrysts are also evident sparsely scattered in the groundmass. The rock is mostly intact and unaltered.

Photo 13: SJ06-074. The hand sample has a non-descript homogenous texture. The scale is in centimeters.

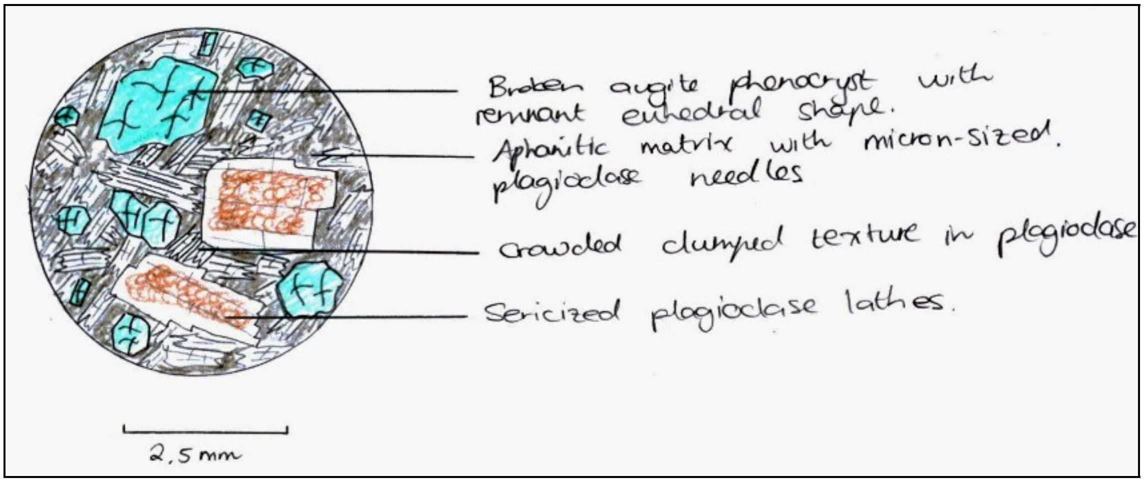
TRANSLUSCENT MINERALS

Mineral	**%**	**Distribution & Characteristics**	**Opt. Prop.**
plagioclase	85	tabular lathes approx. 1mm, tightly clustered	polysynthetic twinning, 1^{st} order biref.
clinopyroxene (augite)	7	euhedral grains, <1mm	inclined extinction, upper 2^{nd} order biref.
sericite	5	aphanitic, replacing plagioclase lathes	upper 3^{rd} order biref.

OPAQUE MINERALS

Mineral	**%**	**Distribution & Characteristics**	**Opt. Prop.**
pyrite	3	dispersed cubes and blebs	opaque

Thin Section Description: The thin section exhibits a crowded porphyritic texture with phenocrysts comprising approximately 60% of the mode. Plagioclase grains are clumped together, overlap in places and randomly distributed. They do not typically exceed 1mm in size, since pyroclastic fall-out of tephra may have aided in sorting the grains by size. Furthermore, plagioclase lathes have been mostly sericitized and also show blocky, ripped up margins. Interstitial augite phenocrysts are mostly intact, but have been broken irregularly. The matrix is composed of loosely compacted micron-sized plagioclase needle-like grains.



Sketch 13: SJ06-074. Augite and plagioclase porphyry of unit 2. Field of view 4.8mm, Ppl.

SAMPLE: SJ06-090
LITHOLOGY: Andesitic Crystal Tuff
ALTERATION: Pervasive weak K-feldspar alteration, sericite+chlorite replacement

Hand Sample Description: Plagioclase, hornblende and augite phenocrysts are evident in this hand sample. Most of the phenocryst are eu-subhedral and are on average 1mm in size. The phenocrysts and crystals are loosely clustered and randomly distributed in a fine-grained matrix. The matrix has been weakly, but homogenously k-altered.

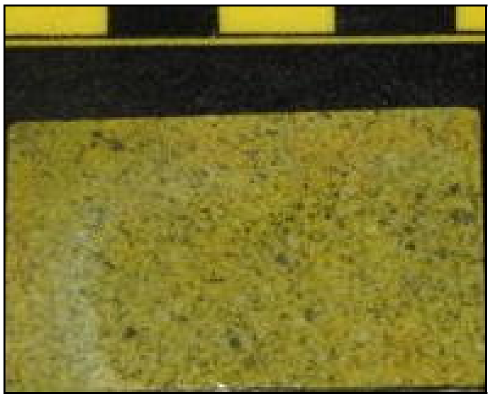


Photo 14: SJ06-090. The hand sample is weakly but pervasively altered by K-feldspar. The scale is in centimeters.

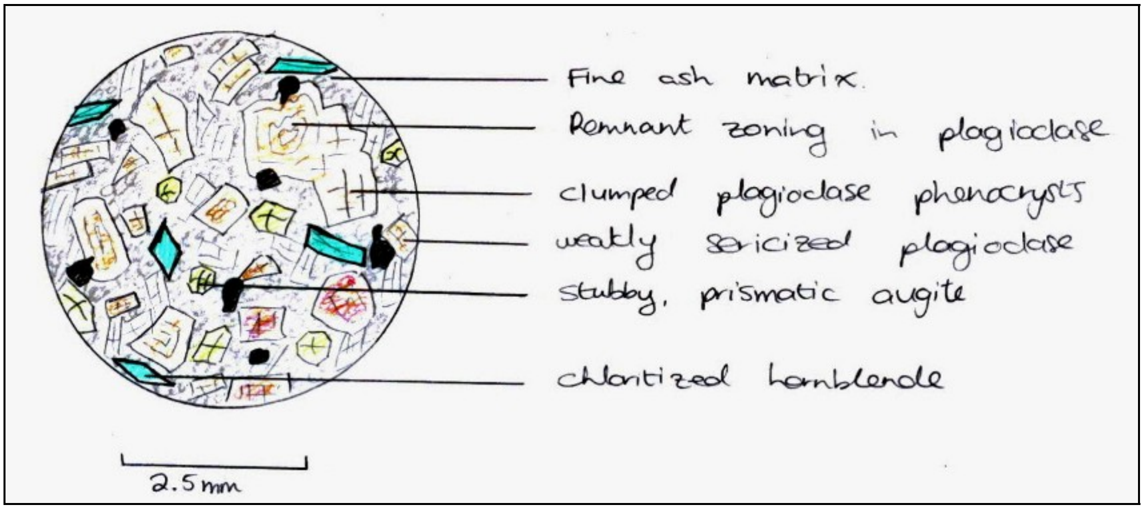
TRANSLUSCENT MINERALS

Mineral	%	Distribution & Characteristics	Opt. Prop.
plagioclase	80	eu-subhedral phenocrysts, approx. 1mm	remnant polysynthetic twins, 1st order biref.
clinopyroxene (augite)	7	euhedral, stubby, <1mm	inclined extinction, upper 2nd order biref.
hornblende	3	euhedral, approx. 1mm, tabular, sparsely scattered	$60^o/120^o$ cleavage
K-feldspar	5	fine-grained brownish colour, hazy texture, weakly overprinting feldspars	1st order biref.
chlorite	minor	aphanitic, replacing amphiboles	anomalous blue biref.
sericite	minor	fine-grained, replacing feldspars	3rd order biref.

OPAQUE MINERALS

Mineral	%	Distribution & Characteristics	Opt. Prop.
pyrite	5	disseminated cubes and grains	opaque

Thin Section Description: The bulk of the thin section consists of plagioclase phenocrysts that are broken and shardy, have digested margins and are loosely but randomly consolidated. These plagioclase phenocrysts exhibit relict zoning and twinning, overlap and are also weakly sericitized. Interstitial hornblende phenocrysts are tabular and entirely chloritized, whereas augite grains are stubby and prismatic. These phenocrysts all occur in a fine-grained, dark grey ash matrix.



Sketch 14: SJ06-090. Notice the remnant zoning in the plagioclase grains. Field of view 4.8mm, Ppl.

SAMPLE: SJ06-093
LITHOLOGY: Volcaniclastic Crystal Lapilli Andesitic Tuff
ALTERATION: Weakly chloritized+sericitized

Hand Sample Description: The hand sample is homogenously dark grey, fine-grained with numerous dispersed subhedral plagioclase grains. The plagioclase crystals are concentrated in clusters that have overlapping, 'washed' out margins. The rock is weakly pyritized, but otherwise unaltered.

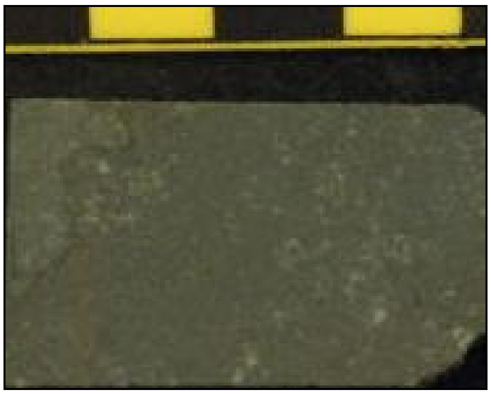


Photo 15: SJ06-093. Plagioclase grains congregate in clumps in the aphanitic matrix. The scale is in centimeters.

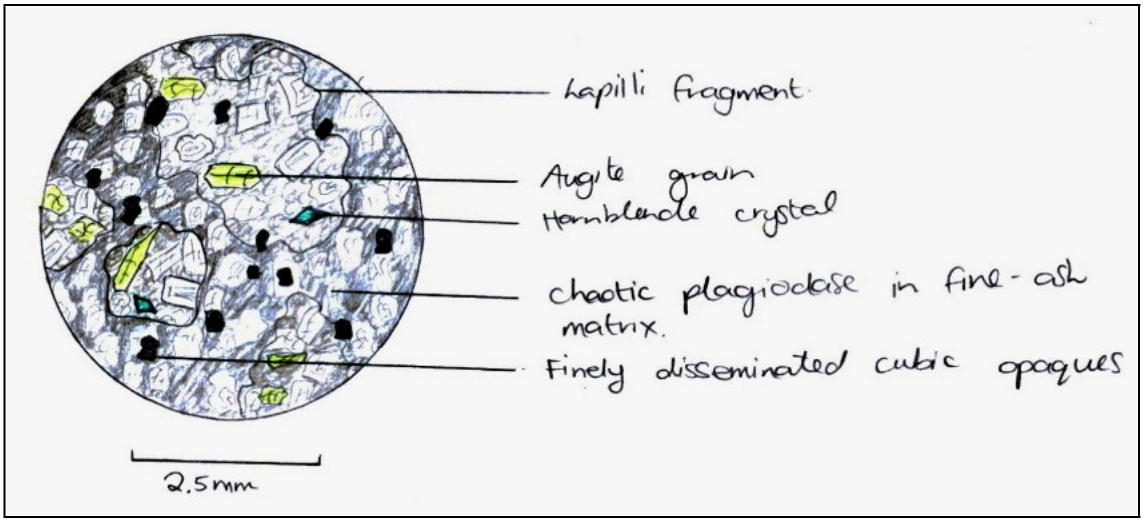
TRANSLUSCENT MINERALS

Mineral	**%**	**Distribution & Characteristics**	**Opt. Prop.**
plagioclase	92	subhedral, <0.5mm, broken fragments	polysynthetic twins, 1st order biref.
clinopyroxene (augite)	1	sub-anhedral, micron-sized grains	inclined extinction, upper 2nd order biref.
hornblende	minor	subhedral, chloritized, μm-sized grains	dark green in Ppl, 60º/120º cleavage
chlorite	minor	fine-grained, replacing amphiboles and pyroxenes	flaky cleavage, anomalous blue biref.

OPAQUE MINERALS

Mineral	**%**	**Distribution & Characteristics**	**Opt. Prop.**
pyrite	7	finely disseminated cubes	opaque

Thin Section Description: The thin section consists of lapilli fragments and broken plagioclase crystals within a fine-ash matrix. The lapilli fragments consist of minor sub-anhedral augite and hornblende grains joined together by fine-grained plagioclase. Within the fine-ash matrix are numerous broken, jumbled and disorganized plagioclase crystals, some of which display remnant zoning.



Sketch 15: SJ06-093. The lithic fragments have subrounded margins. Field of view 4.8mm, Ppl.

SAMPLE: SJ06-097
LITHOLOGY: Volcaniclastic Crystal Lapilli Andesitic Tuff
ALTERATION: Weak K-feldspar alteration, weak calcite+sericite replacement

Hand Sample Description: The hand sample has a distinctly clastic texture and is heterolithic, consisting of plagioclase crystals, mafic and augite-phyric clasts in an aphanitic hematite-stained matrix. The plagioclase crystals within the matrix are mostly eu-subhedral, randomly distributed and shardy. The rock is weakly K-altered.

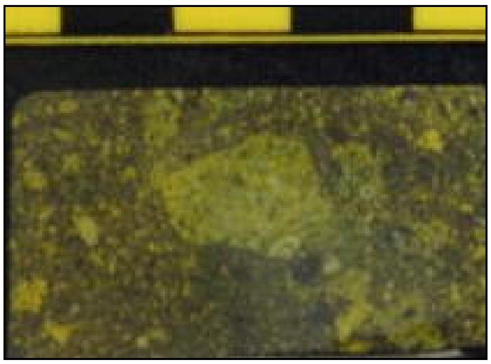


Photo 16: SJ06-097. Staining for potassium feldspar shows how K-alteration differentially altered the rock. Scale is in centimeters.

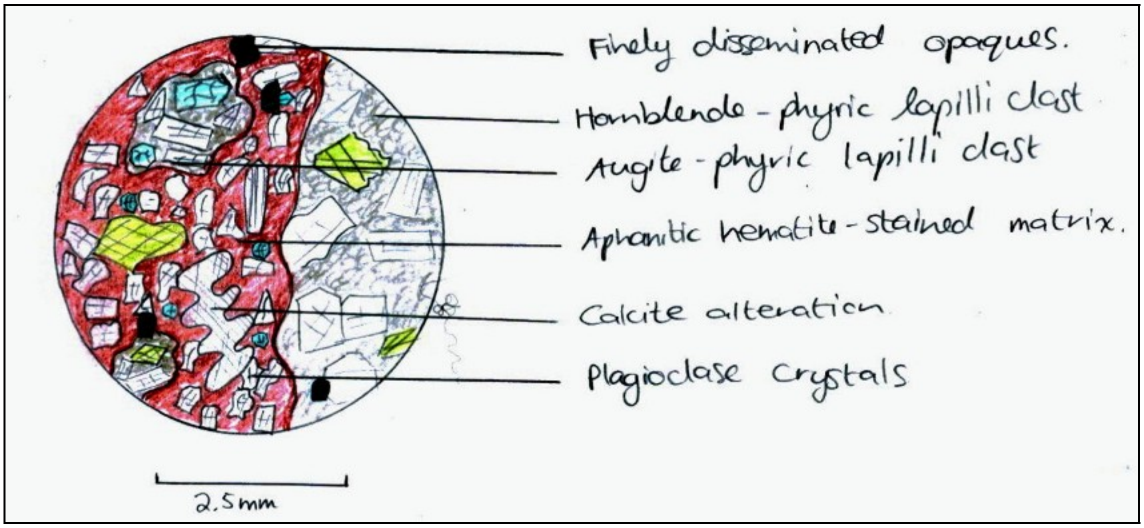
TRANSLUSCENT MINERALS

Mineral	%	Distribution & Characteristics	Opt. Prop.
plagioclase	87	subhedral grains approx. 1mm, shardy and broken	polysynthetic twins, 1^{st} order biref.
K-feldspar	5	subhedral grains approx. 1mm and as fine-grained alteration	simple twins, 1^{st} order biref.
clinopyroxene (augite)	5	stubby prismatic, micron-sized grains	inclined extinction, upper 2^{nd} order biref.
hornblende	3	euhedral grains, micron-sized grains	pleochroic green, 60º/120º cleavage
sericite	minor	fine-grained, replacing feldspars	3^{rd} order biref.
chlorite	minor	fine flakes, replacing amphiboles	anomalous blue biref.
calcite	minor	replacing feldspars and as anhedral grains in the matrix	rhomb. cleavage, extreme biref.
biotite	minor	aphanitic flakes in hornblende-phyric lapilli clasts	pleochroic brown, extreme biref.
apatite	minor	tabular and hexagonal micron-sized grains	moderate relief, 1^{st} order grey biref.

OPAQUE MINERALS

Mineral	%	Distribution & Characteristics	Opt. Prop.
pyrite	minor	finely disseminated cubes and grains	opaque

Thin Section Description: The thin section consists of hornblende-phyric and augite-phyric lapilli clasts within an aphanitic strongly hematite-stained plagioclase crystal rich matrix. Crystals and lapilli fragments have distinct oxidized margins, which are subangular and ragged. Lapilli fragments and crystals are tightly clumped and are also moderately to poorly sorted. Potassium alteration is concentrated in the clasts, which suggests that K-alteration occurred prior to brecciation. However, sericite+calcite alteration is a late stage events and overprint K-spar alteration.



Sketch 16: SJ06-097. Thin section of a volcaniclastic crystal lithic tuff from unit 3b. Field of view 4.8mm, Ppl.

SAMPLE: SJ06-098
LITHOLOGY: Hornblende and Plagioclase-Phyric Crystal Tuff
ALTERATION: Weak sericite replacement

Hand Sample Description: The hand sample consists of mainly plagioclase and hornblende crystals, however the occasional euhedral augite grain was observed. The plagioclase minerals are shardy, subrounded and set in a weakly oxidized fine-ash matrix. Crystals constitute approximately 50% of the mode and are clustered and randomly distributed. The rock is mostly intact and unaltered.

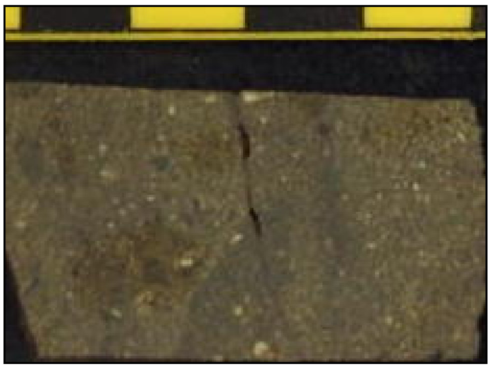


Photo 17: SJ06-098. Notice how a few of the plagioclase crystals are much larger than those within the matrix. The scale is in centimeters.

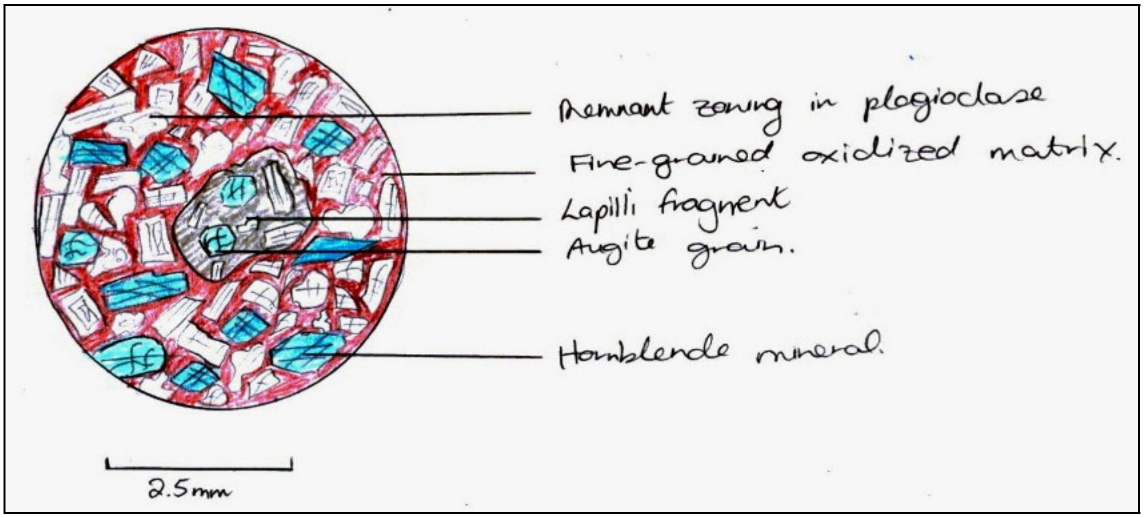
TRANSLUSCENT MINERALS

Mineral	%	Distribution & Characteristics	Opt. Prop.
plagioclase	83	mm-sized lathes, sub-anhedral	polysynthetic twinning, 1st order biref.
hornblende	10	euhedral micron-sized hexagons and octahedrons	pleochroic brown, 60º/120º cleavage
sericite	7	very fine-grained, replaces feldspars	3rd order biref.
clinopyroxene (augite)	minor	euhedral micron-sized grains	inclined extinction, upper 2nd order biref.

OPAQUE MINERALS

Mineral	%	Distribution & Characteristics	Opt. Prop.
pyrite	minor	very finely disseminated	opaque

Thin Section Description: The bulk of the mode consists of subhedral plagioclase crystals that are loosely bound and bunched together. Lesser amounts of hornblende are scattered throughout, and the occasional lapilli clast is also found. Plagioclase grains have relict zoning evident beneath weak to moderate sericite replacement.



Sketch 17: SJ06-098. Thin section of a hornblende and plagioclase-phyric tuff from unit 3c. Field of view 4.8mm, Ppl.

SAMPLE: SJ06-099
LITHOLOGY: Altered K-spar-Phyric Crystal Tuff
ALTERATION: Sericite replacement, iron oxidation

Hand Sample Description: Subhedral K-feldspar phenocrysts are approx. 1mm and occur in an interlocking matrix texture. The K-spar phenocrysts have weak foliation. The rock appears to have a thermally cooked texture. Quartz alteration occurs in veinlets and pyrite is disseminated throughout.

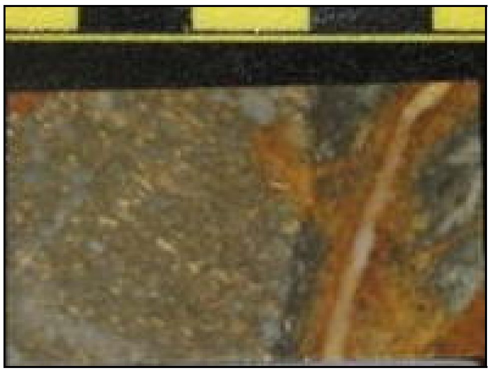


Photo 18: SJ06-099. Notice the eu-subhedral primary K-feldspar phenocrysts. The scale is in centimeters.

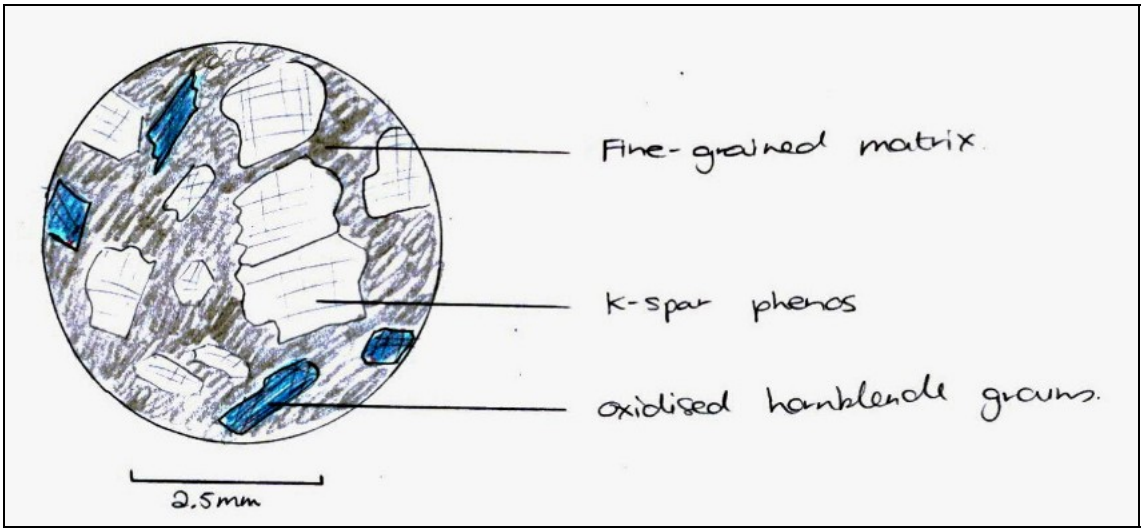
TRANSLUSCENT MINERALS

Mineral	%	Distribution & Characteristics	Opt. Prop.
plagioclase	76	fine-grained, occurs in matrix	polysynthetic twinning, 1^{st} order biref.
K-feldspar	15	mm-sized eu-subhedral grains	scotchplaid twinning, biaxial negative
hornblende	5	euhedral grains, iron altered	60º/120º cleavage
sericite	3	aphanitic, occurs in the matrix replacing feldspars	3^{rd} order biref.
quartz	minor	anhedral grains, vein-fill	undulatory extinction
zircon	minor	micron-sized inclusions in quartz	high relief, 3^{rd} order biref.

OPAQUE MINERALS

Mineral	%	Distribution & Characteristics	Opt. Prop.
pyrite	1	disseminated cubes and blebs	opaque

Thin Section Description: The thin section is composed of two distinct textures: an aphanitic oxidized matrix composed of numerous interlocking micron-sized plagioclase grains, and mm-sized K-feldspar and hornblende phenocrysts. This porphyritic texture is similar to the crystal rich tuff seen in the previous thin section. Secondary quartz and iron oxide alteration may have destroyed the primary texture.



Sketch 18: SJ06-099. K-spar phenocrysts appear broken and shardy and randomly distributed. Field of view 4.8mm, Ppl.

SAMPLE: SJ06-102
LITHOLOGY: Volcanic Arkose? Tuff
ALTERATION: Minor sericite replacement

Hand Sample Description: The hand sample is fine-grained and dark grey to greenish in colour. Other than the occasional shardy plagioclase grain, the rock has a homogenous texture and is mainly intact and unaltered.

Photo 19: SJ06-102. This rock from unit 3c is extremely fine-grained and unaltered. The scale is in centimeters.

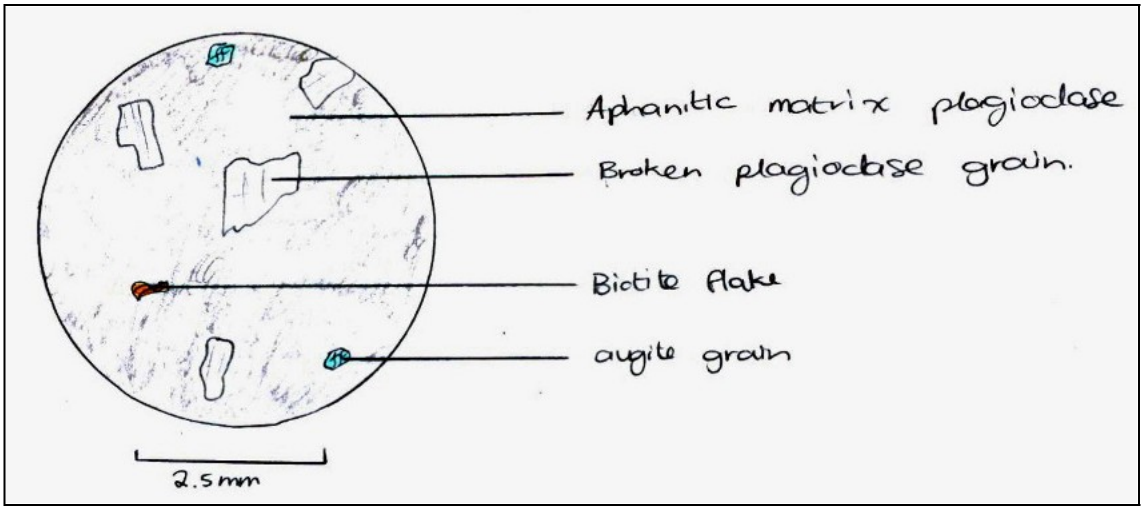
TRANSLUSCENT MINERALS

Mineral	%	Distribution & Characteristics	Opt. Prop.
plagioclase	100	subhedral micron-sized grains constituting the bulk of the matrix	polysynthetic twinning, 1st order biref.
clinopyroxene (augite)	minor	submicroscopic grains	inclined extinction, 3rd order biref.
sericite	minor	aphanitic, replacing feldspars	3rd order biref.
biotite	minor	scattered fine flakes	pleochroic brown, extreme biref.

OPAQUE MINERALS

Mineral	%	Distribution & Characteristics	Opt. Prop.
opaques	minor	micron sized blebs	opaque

Thin Section Description: The bulk of the thin section consists of very fine-grained sub-anhedral plagioclase grains. There is the occasional 0.5mm broken plagioclase phenocryst that has a relict euhedral shape. Sericite has weakly replaced the feldspar grains.



Sketch 19: SJ06-102. Several shardy plagioclase grains can be observed, otherwise the matrix is submicroscopic. Field of view 4.8mm, Ppl.

SAMPLE: SJ06-104
LITHOLOGY: ?
ALTERATION: Chalcedonic quartz+ankerite

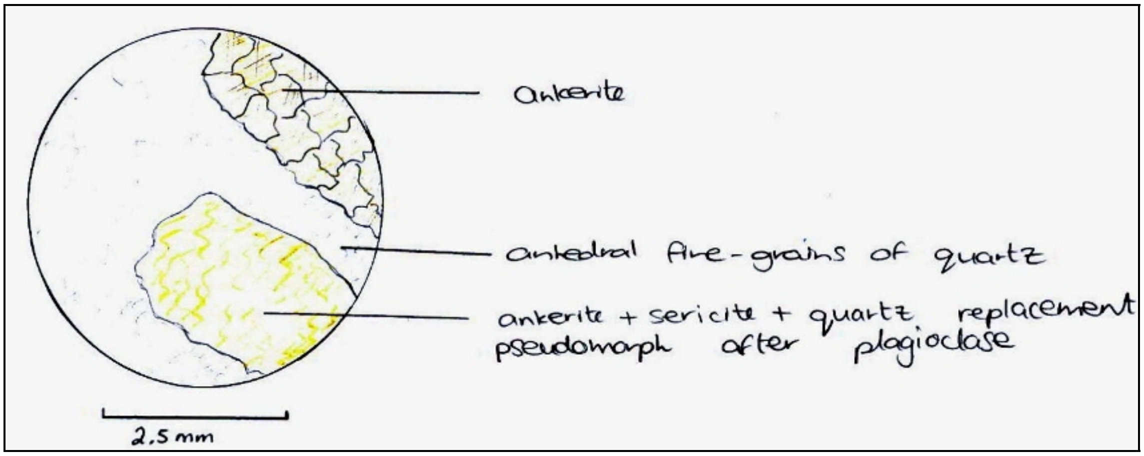
Hand Sample Description: The off section is coloured yellowish-orange. Quartz, ankerite and sericite alteration are pervasive, which have entirely disguised the protolith. Quartz alteration occurs in mm-sized veins and blebs, whereas ankerite surrounds the quartz veinlets in anhedral aggregates. The off section was stained with sodium cobaltinitrite, but the lack of yellow colour indicates the absence of K-feldspar.

Photo 20: SJ06-104. Iron carbonate and quartz alteration have entirely altered the protolith. The scale is in centimeters.

TRANSLUSCENT MINERALS

Mineral	%	Distribution & Characteristics	Opt. Prop.
quartz	65	anhedral aphanitic grains in veins, subhedral medium-grains in blebs	wavy extinction, 1st order biref.
ankerite	30	fine-grained masses and anhedral grains	yellow-brown in Ppl, extreme biref.
sericite	5	aphanitic aggregates, replacing feldspars	3rd order biref.
apatite	minor	micron-sized hexagonal grains	moderate relief, 1st order grey biref.
zircon	minor	occurs as micron-sized inclusions in quartz	high relief, 3rd order biref.

Thin Section Description: The thin section consists of anhedral fine-grained quartz in veinlets and subhedral medium-grained quartz in blebs. Ankerite surrounds the quartz veinlets. Aphanitic aggregates of quartz, ankerite and sericite have formed replacement pseudomorphs after plagioclase, which show remnant tabular shapes characteristic of the feldspars.



Sketch 20: SJ06-104. This sketch shows the texturally destroying nature of the quartz+ankerite alteration assemblage. Field of view 4.8mm, Ppl.

SAMPLE: SJ06-109
LITHOLOGY: Monzonitic Hydrothermal Breccia
ALTERATION: Strong K-feldspar+magnetite alteration, sericite+chlorite replacement

Hand Sample Description: The rock has been hydrothermally brecciated, but appears to have had an intrusive protolith. K-feldspar alteration is strong and patchy and the rock is loaded with chalcopyrite, pyrite and magnetite in blebs. Calcite veins are apparent and appear late-stage.

Photo 21: SJ06-109. Chalcopyrite mineralization is finely disseminated in sailboat blebs throughout this hand sample. The scale is in centimeters.

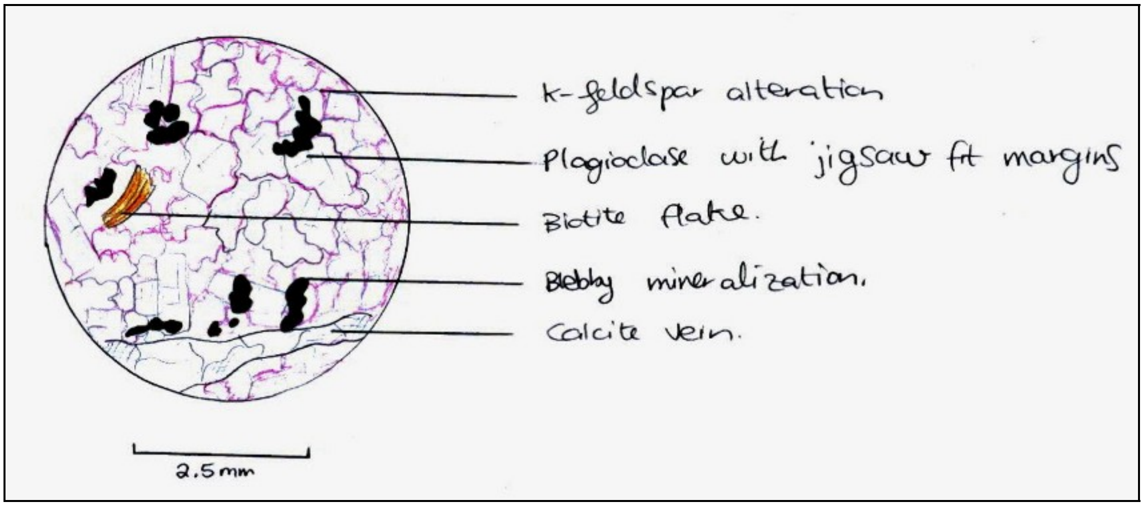
TRANSLUSCENT MINERALS

Mineral	%	Distribution & Characteristics	Opt. Prop.
plagioclase	53	eu-subhedral grains, approx. 0.5mm, interlocking texture	polysynthetic twinning, 1st order biref.
K-feldspar	30	eu-subhedral grains, and as aphanitic fuzzy alteration	scotchplaid twinning, biaxial negative
calcite	3	anhedral grains in veinlets	rhomb. cleavage, extreme biref.
sericite	3	very fine-grained, replacing feldspars	3rd order biref.
nepheline?	1	anhedral grains, approx. 0.5mm	uniaxial negative, 1st order biref.
biotite	minor	dispersed flakes	flaky cleavage, extreme biref.
clinopyroxene (augite)	minor	broken micron-sized grains	inclined extinction, 3rd order biref.
chlorite	minor	fine-grained flakes, replacing mafics	anomalous blue biref.

OPAQUE MINERALS

Mineral	%	Distribution & Characteristics	Opt. Prop.
pyrite, chalcopyrite, magnetite	10	disseminated cubes and blebs	opaque

Thin Section Description: The feldspar grains have a jigsaw fit pattern with sutured grain boundaries, which indicates that weak metamorphism has occurred. A saussuritized alteration assemblage is prevalent. Numerous opaques are disseminated throughout the matrix.



Sketch 21: SJ06-109. Notice the interlocking texture of the feldspar grains from unit 4a. Field of view 4.8mm, Ppl.

SAMPLE: SJ06-131
LITHOLOGY: Altered Syenite
ALTERATION: Chalcedonic quartz+ankerite, sericite replacement

Hand Sample Description: The sample is an orange to pink intrusion, without any well-defined phenocrysts or crystal habit. It has mottled alteration, which gives the rock a pseudo breccia texture. The rock is moderately, pervasively K-altered and weakly magnetic. Relict tabular feldspar grains are evident, which have been mostly sericitized. Chalcedonic quartz alteration occurs in veinlets with surrounding ankerite.

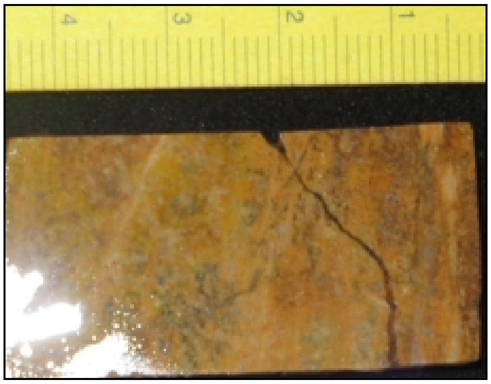


Photo 22: SJ06-131. Weak K-feldspar alteration is evident on the left hand side of this photo. The scale is in centimeters.

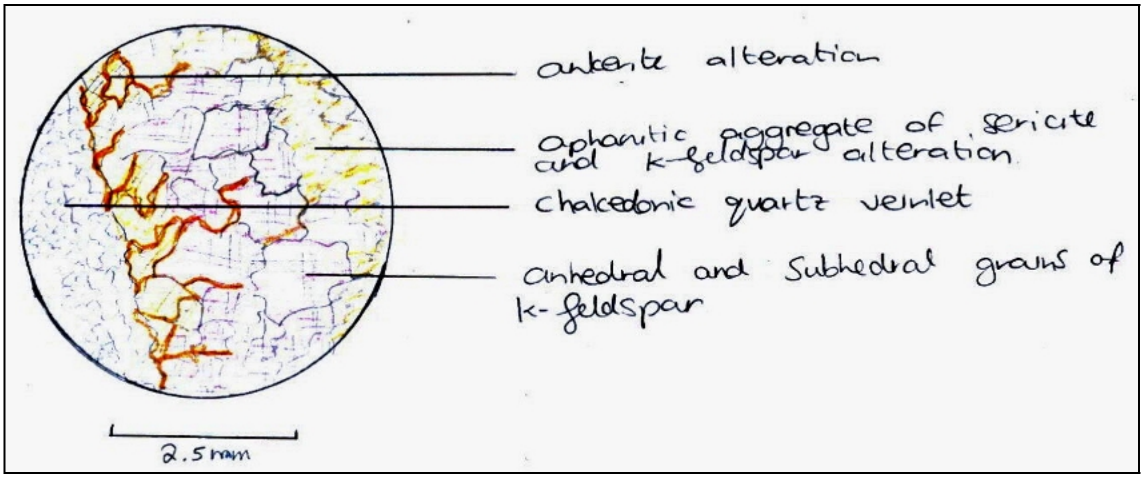
TRANSLUSCENT MINERALS

Mineral	%	Distribution & Characteristics	Opt. Prop.
K-feldspar	55	subhedral grains and as fine-grained alteration	tartan twinning, 1st order biref.
plagioclase	10	subhedral 0.5mm grains	polysynthetic twinning, 1st order grey biref.
quartz	15	anhedral aggregates and chalcedonic veinlets	undulatory extinction, 1st order grey biref.
ankerite	15	anhedral aggregates and in veinlets	yellow-orange in Ppl, extreme biref.
sericite	5	fine-grained, replacing feldspars	3rd order biref.
apatite	minor	micron-sized hexagonal grains	moderate relief, 1st order grey biref.

OPAQUE MINERALS

Mineral	%	Distribution & Characteristics	Opt. Prop.
opaques	minor	disseminated blebs	opaque

Thin Section Description: Interlocking K-feldspar grains are approximately 0.5mm in size, which have mostly been texturally destroyed by a pervasive fine-grained assemblage of ankerite, sericite and quartz alteration. Ankerite occurs adjacent to chalcedonic quartz veinlets. Scattered apatite grains occur in the matrix where alteration is the strongest.



Sketch 22: SJ06-131. The yellow ankerite grains are surrounded by brown-reddish iron oxide. Field of view 4.8mm, Ppl.

SAMPLE: SJ06-142
LITHOLOGY: Nepheline Syenite
ALTERATION: Weak K-feldspar alteration, sericite replacement

Hand Sample Description: The hand sample consists of equigranular, interlocking feldspar grains that are 1-2mm in size. There are also approximately 10% indistinct mafic phenocrysts present. Anhedral blebs of magnetite occur scattered in the matrix. The groundmass of the offcut is weakly to moderately stained yellow by sodium cobaltinitrite, indicating the presence of moderate K-feldspar alteration.

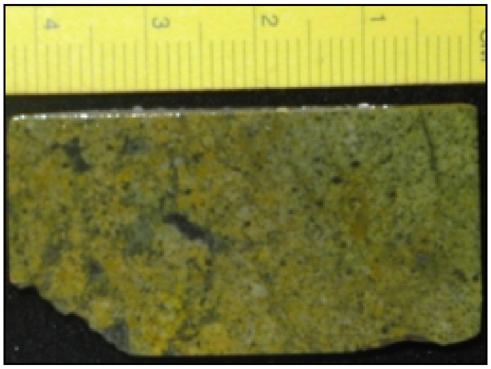


Photo 23: SJ06-142. This intrusive sample was collected from Mouse Mountain peak of unit 4a. The scale is in centimeters.

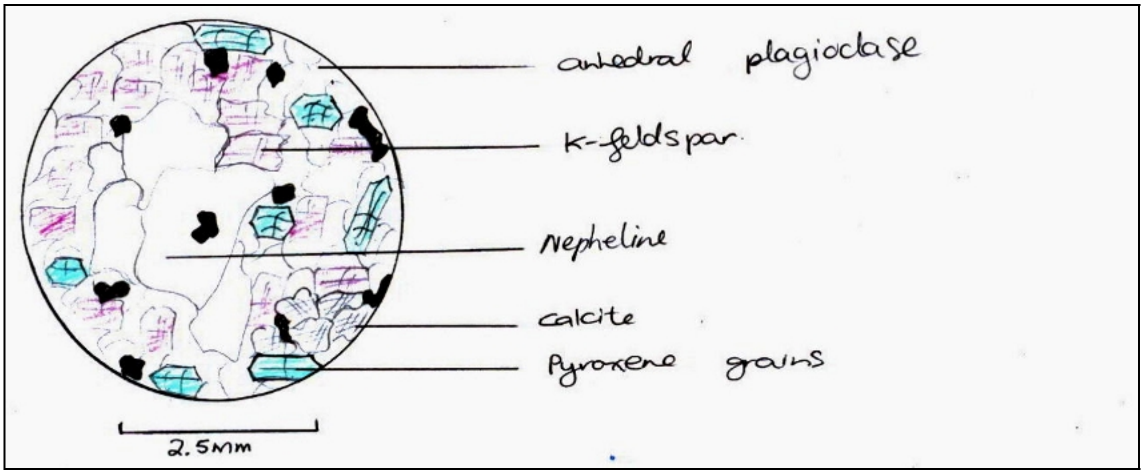
TRANSLUSCENT MINERALS

Mineral	%	Distribution & Characteristics	Opt. Prop.
K-feldspar	56	subhedral, interlocking tabular 1mm grains	pinkish in Ppl, relict scotchplaid twinning
plagioclase	15	anhedral grains in the matrix	1st order biref.
nepheline	10	subhedral, interlocking 2mm grains	uniaxial negative, 1st order biref.
sericite	7	aphanitic aggregate, replacing feldspars	3rd order biref.
clinopyroxene	7	eu-subhedral aphanitic grains	inclined extinction, upper 2nd order biref.
calcite	minor	anhedral grains in veinlets	rhomb. cleavage, extreme biref.
apatite	minor	hexagonal micron-sized grains	moderate relief, 1st order biref.

OPAQUE MINERALS

Mineral	%	Distribution & Characteristics	Opt. Prop.
pyrite	5	disseminated cubes and blebs	opaque

Thin Section Description: Interlocking nepheline, K-feldspar and pyroxene minerals constitute the bulk of the mode. Feldspar grains have been almost entirely replaced by sericite, whereas stubby prismatic pyroxene grains are intact. Mineral margins have mostly been texturally destroyed by pervasive K-feldspar alteration.



Sketch 23: SJ06-142. The intrusive rock of unit 4a contains accessory apatite and opaques. Field of view 4.8mm, Ppl.

SAMPLE: SJ06-149
LITHOLOGY: Altered (Micro)-Monzonite to Monzodiorite
ALTERATION: K-feldspar, sericite+chlorite replacement

Hand Sample Description: The rock is a fine-grained, equigranular intrusion, with about 20% indistinct mafic minerals. The rock consists of interlocking feldspars as the dominant mineral and is specked with numerous disseminated sulphides. The offcut is stained bright yellow, indicating an abundance of K-feldspar.

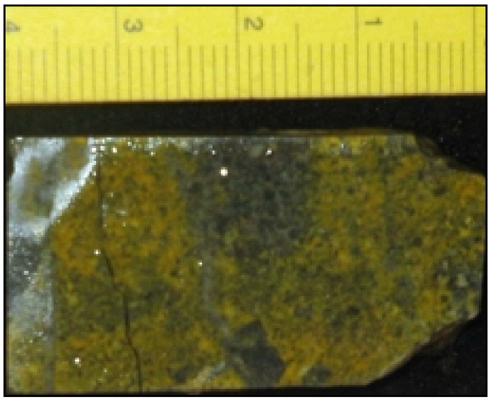


Photo 24: SJ06-149. The hand sample is strongly potassic altered in pervasive patches. The scale is in centimetres.

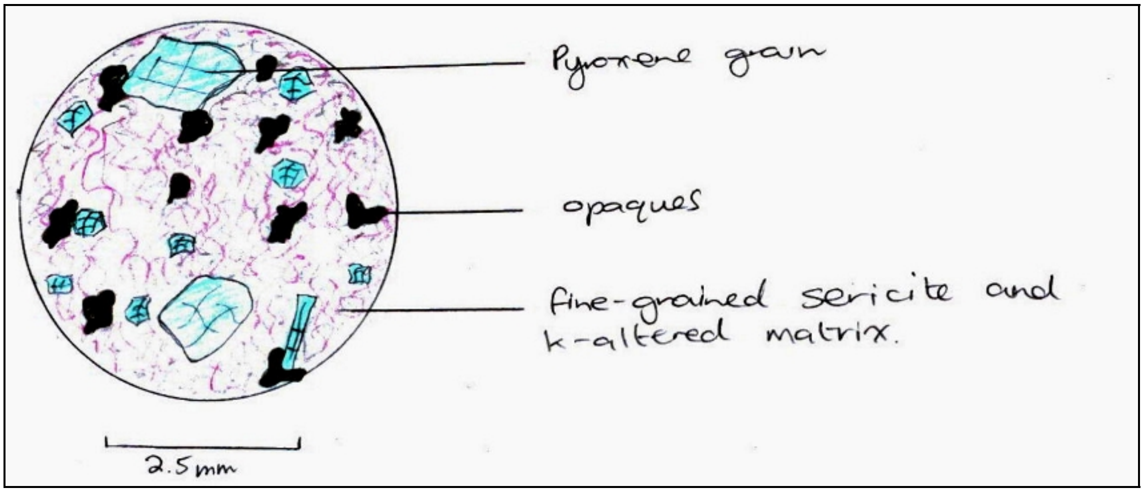
TRANSLUSCENT MINERALS

Mineral	%	Distribution & Characteristics	Opt. Prop.
K-feldspar	29	subhedral, <1mm in size	pinkish in Ppl, 1st order biref.
plagioclase	28	aphanitic, micron-sized in matrix	1st order biref.
clinopyroxene	25	subhedral grains, micron-sized to mm-sized	inclined extinction, upper 2nd order biref.
sericite	5	fine-grained, replacing feldspars	3rd order biref.
chlorite	3	aphanitic flakes, replacing mafic minerals	anomalous blue biref.
biotite	minor	aphanitic flakes, replacing mafic minerals	pleochroic brown, extreme biref.
apatite	minor	hexagonal micron-sized grains	medium relief, 1st order grey biref.

OPAQUE MINERALS

Mineral	%	Distribution & Characteristics	Opt. Prop.
pyrite, magnetite, chalcopyrite	10	scattered blebs and cubes	opaque

Thin Section Description: The rock is composed of a fine-grained aggregate of K-feldspar, plagioclase and pyroxene, that has been strongly sericitized, chloritized and K-altered. This pervasive alteration assemblage has mostly destroying the crystal outlines. Numerous opaque minerals are found disseminated throughout the groundmass.



Sketch 24: SJ06-149. K-feldspar and sericite overprint the feldspars, mostly destroying the crystal outlines. Field of view 4.8mm, Ppl.

SAMPLE: SJ06-172
LITHOLOGY: ?
ALTERATION: Chalcedonic quartz+ankerite+sericite, Late stage calcite and hematite alteration

Hand Sample Description: The hand sample is fine-grained, coloured orange-yellow, and has been cross cut by numerous chalcedonic quartz veinlets. The rock is entirely altered by iron oxide, quartz and sericite, which have made the protolith unidentifiable. The groundmass of the offcut was stained with sodium cobaltinitrite, however, since the rock did not turn yellow, K-feldspar was not present.


Photo 25: SJ06-172. Chalcedonic quartz, ankerite and sericite have pervasively altered this rock. The scale is in centimeters.

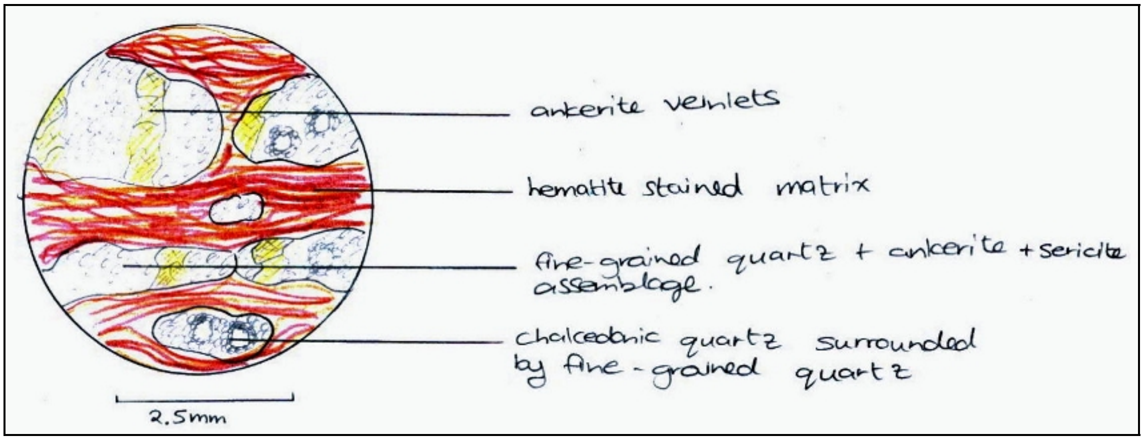
TRANSLUSCENT MINERALS

Mineral	%	Distribution & Characteristics	Opt. Prop.
quartz	40	micron-sized grains in blebs and veinlets	1st order grey biref.
ankerite	30	eu-subhedral grains in veinlets and the matrix	yellow-orange in Ppl, extreme biref.
calcite	5	anhedral grains in late-stage veinlets	rhomb. cleavage, extreme biref.
sericite	5	fine-grained, occurs with quartz and ankerite	3rd order biref.

OPAQUE MINERALS

Mineral	%	Distribution & Characteristics	Opt. Prop.
hematite	20	stains grains, fills interstices	reddish-brown, opaque
pyrite	minor	scattered blebs and cubes	opaque

Thin Section Description: This specimen has been entirely altered so that identifying the protolith is impossible. Chalcedonic quartz has formed with alteration veinlets of ankerite and fine-grained quartz. This alteration assemblage has been displaced by hematite flooding, which has stained some grains and fills some interstices, so that the quartz-ankerite grains are oriented perpendicular to the matrix.



Sketch 25: SJ06-172. Notice the perpendicular orientation of the ankerite veinlets to the hematite stained matrix. Field of view 4.8mm, Ppl.

SAMPLE: SJ06-177
LITHOLOGY: Fossiliferous Volcaniclastic Latite Crystal Lapilli Tuff
ALTERATION: Sericite+calcite+chlorite replacement

Hand Sample Description: The sample is composed of lapilli fragments, approximately 5mm in size, and crystals in an aphanitic dark-grey matrix. The matrix is weakly calcareous and a few semi-circular fossil fragments are visible. The rock is moderately magnetic, and moderately calcareous.

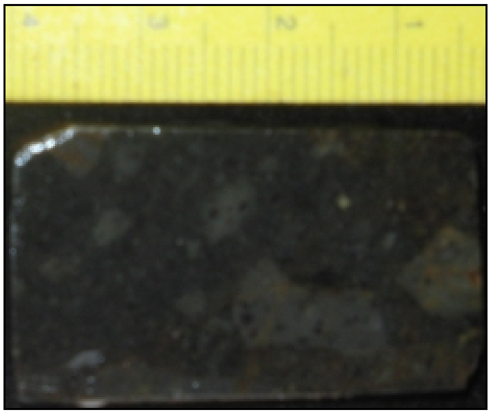


Photo 26: SJ06-177. Washed out lapilli fragments can be discerned in this fine-grained sample. The scale is in centimeters.

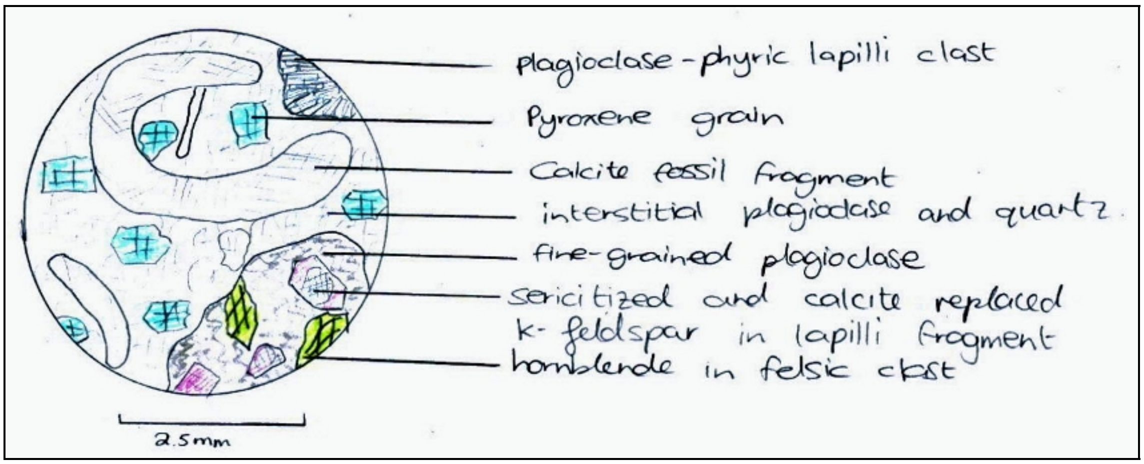
TRANSLUSCENT MINERALS

Mineral	%	Distribution & Characteristics	Opt. Prop.
plagioclase	37	micron-sized lathes in lapilli fragments, anhedral grains in the matrix	1st order grey biref.
K-feldspar	20	<1mm sized euhedral grains in felsic clasts, remnant zoning	simple twins, white-pinkish in Ppl
quartz	10	aphanitic, fills interstices in the matrix	wavy extinction, 1st order biref.
clinopyroxene	7	shardy, broken fragments in matrix, >1mm	inclined extinction, upper 2nd order biref.
hornblende	5	mm-sized subhedral broken grains within felsic clasts	60°/120° cleavage, pleochroic green
sericite	5	aphanitic, replacing feldspars	3rd order biref.
calcite	5	forms pseudomorphs after feldspars, makes up mm-sized fossil fragments	rhomb. cleavage, extreme biref.
chlorite	1	fine-grained, replacing rims of mafic minerals	anomalous blue biref.
apatite	minor	micron-sized hexagonal and rectangular grains	medium relief, 1st order grey biref.

OPAQUE MINERALS

Mineral	%	Distribution & Characteristics	Opt. Prop.
pyrite	5	scattered cubes and blebs	opaque
hematite	5	stains grains and fills interstices in the matrix	reddish-brown, opaque

Thin Section Description: The thin section consists of approximately 15% lapilli fragments and 70% crystals, in a loosely consolidated matrix. Plagioclase-phyric and felsic lapilli fragments are most common, with micron-sized plagioclase lathes and quartz cementing the matrix together. Pyroxene grains are evident within the matrix, along with plagioclase and K-feldspar crystals, whereas hornblende minerals are found within the felsic clasts. An intergrowth of calcite and sericite form pseudomorphs after K-feldspar. A few scattered fossil fragments were found within the matrix. These fragments were made entirely out of calcite, which are semi-circular to elliptical in transverse section, and with coral-like septa.



Sketch 26: SJ06-177. Notice the coral-like septa from the fossil fragment in the centre of this sketch. Field of view 4.8mm, Ppl.

SAMPLE: SJ06-179
LITHOLOGY: Volcaniclastic Andesitic Plagioclase-Phyric Tuff
ALTERATION: Sericite replacement

Hand Sample Description: The sample is a fine-grained, dark grey-reddish porphyry, consisting of abundant plagioclase lathes in a hematite-stained matrix. There are also approximately 5% calcite and quartz filled amygdules. Scattered mafic grains have been weakly chloritized. The rock is moderately magnetic, and moderately calcareous.

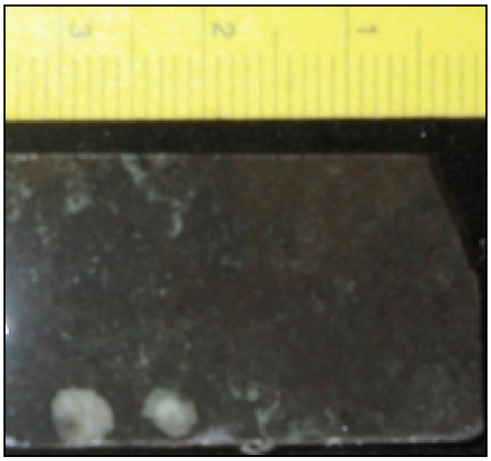


Photo 27: SJ06-179. The amygdules (lower left) are a localized feature in this unit. The scale is in centimeters.

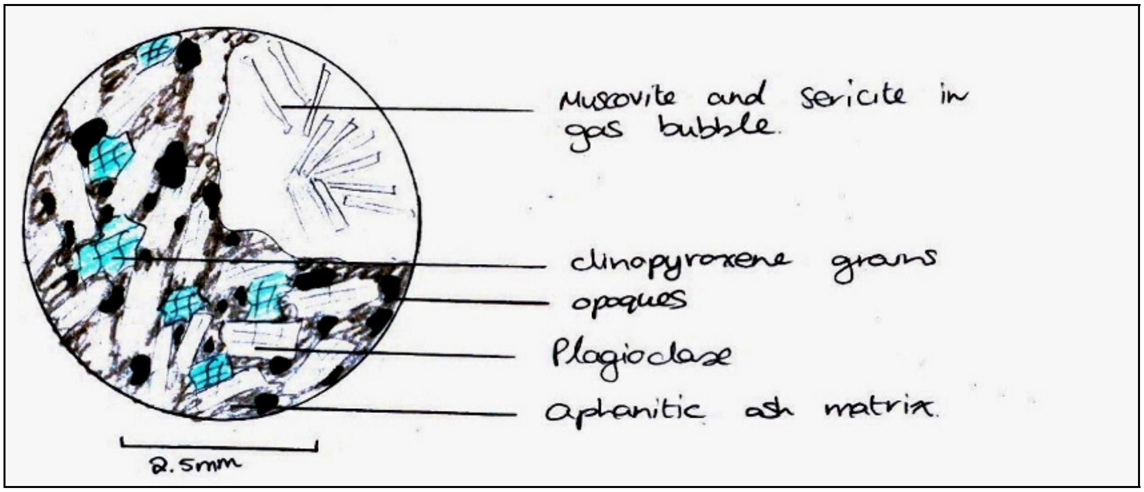
TRANSLUSCENT MINERALS

Mineral	%	Distribution & Characteristics	Opt. Prop.
plagioclase	83	1-2mm, euhedral crystals	relict albite twinning, 1st order biref.
clinopyroxene	7	2-3mm, euhedral crystals	inclined extinction, upper 2nd order biref.
calcite	minor	anhedral grains in veinlets	rhomb. cleavage, extreme biref.
muscovite	minor	tabular flakes in amygdules	3rd order biref.
sericite	minor	fine-grained, replacing feldspars and in amygdules	3rd order biref.

OPAQUE MINERALS

Mineral	%	Distribution & Characteristics	Opt. Prop.
pyrite	10	disseminated cubes and blebs	opaque

Thin Section Description: The sample contains abundant opaque minerals and plagioclase in a fine-grained dark grey isotropic groundmass. Plagioclase grains are randomly distributed in a matrix that is composed of fine-ash. Radiating bundles of muscovite+sericite secondarily fill amygdules. Calcite and quartz are also present in these vesicles.



Sketch 27: SJ06-179. The amygdule (upper right) has radiating bundles of sericite and lesser amounts of muscovite. Field of view 4.8mm, Ppl.

8.0. APPENDIX 2:

32 ELEMENT ICPMS ANALYSIS ON 46 SAMPLES COLLECTED FROM THE MOUSE MOUNTAIN PROPERTY, QUESNEL, BRITISH COLUMBIA

Sample number	Tag number	Easting (m)	Northing (m)	Au (ppb)	Pd (ppb)	Pt (ppb)	Ag (ppm)	Al %	As (ppm)	Ba (ppm)	Bi (ppm)	Ca %	Cd (ppm)	Co (ppm)	Cr (ppm)	Cu (ppm)	Fe %
SJ06-001	148801	545793.76	5875960.27	10	<5	<5	<0.2	1.30	10	80	<5	1.53	<1	19	19	73	4.64
SJ06-024	148802	545980.07	5876374.86	<5	<5	<5	<0.2	2.16	15	175	<5	3.05	<1	13	6	19	4.16
SJ06-026	148803	545936.08	5876460.92	<5	<5	<5	<0.2	0.30	15	440	<5	3.46	<1	13	41	76	3.27
SJ06-028	148804	545942.21	5876996.87	<5	<5	<5	<0.2	2.17	25	45	<5	1.93	<1	33	6	16	6.02
SJ06-029	148805	545596.19	5876330.53	425	<5	<5	<0.2	1.34	15	95	<5	0.65	<1	13	9	6318	5.05
SJ06-030	148806	545596.57	5876405.13	10	<5	<5	<0.2	1.42	15	55	<5	1.48	<1	19	<1	268	4.09
SJ06-032	148807	545802.6	5876688.12	20	<5	<5	<0.2	2.11	<5	25	<5	2.29	<1	17	<1	445	9.37
SJ06-033	148808	545992.19	5877008.34	5	<5	<5	<0.2	0.53	<5	15	<5	3.28	<1	14	12	50	4.49
SJ06-035	148809	546484.97	5876839.16	10	<5	<5	1.0	0.83	250	285	<5	3.88	2	15	15	5551	3.60
SJ06-051	148810	544960.64	5877660.29	10	<5	<5	<0.2	0.66	5	180	<5	2.78	<1	18	22	92	4.31
SJ06-055	148811	545347.62	5878118.46	<5	<5	<5	<0.2	2.57	15	30	<5	0.97	<1	29	14	82	5.47
SJ06-073	148812	544010.01	5878991.47	5	<5	<5	<0.2	3.61	<5	100	<5	2.20	<1	24	<1	102	5.06
SJ06-075	148813	545302.86	5876740.91	<5	<5	<5	<0.2	1.02	10	45	<5	1.11	<1	15	21	66	4.36
SJ06-076	148814	545142.51	5876818.49	<5	<5	<5	<0.2	0.41	25	1000	<5	2.93	<1	16	27	122	4.89
SJ06-077	148815	545115.95	5876824.31	<5	<5	<5	<0.2	0.88	15	50	<5	2.41	<1	18	<1	46	6.45
SJ06-081	148816	545083.39	5876959.97	<5	<5	<5	<0.2	0.33	<5	825	<5	3.87	<1	14	5	61	3.26
SJ06-085	148817	545388.08	5876763.92	<5	<5	<5	<0.2	2.54	40	105	<5	1.61	<1	16	<1	20	4.31
SJ06-086	148818	545103.94	5877339.02	<5	<5	<5	<0.2	0.77	<5	825	<5	4.15	<1	11	26	1	4.19
SJ06-087	148819	545234.32	5877182.52	5	<5	<5	0.6	1.36	10	720	<5	3.12	<1	24	2	158	4.03
SJ06-090	148820	543843.91	5875917.65	10	<5	<5	<0.2	1.60	35	55	<5	2.51	<1	10	9	13	3.85
SJ06-095	148821	543666.78	5876838.67	<5	<5	<5	<0.2	0.37	15	615	<5	3.42	<1	9	29	19	4.65
SJ06-097	148822	543750.85	5877281.48	<5	<5	<5	<0.2	2.22	5	100	<5	2.08	<1	20	3	68	5.08
SJ06-103	148823	545388.65	5876895.83	<5	<5	<5	<0.2	1.00	<5	685	<5	2.67	<1	13	20	8	4.34
SJ06-104	148824	545402.88	5876896.44	165	15	<5	0.2	0.19	215	935	<5	6.10	<1	15	56	1305	4.09
SJ06-106	148825	545467.14	5876736.55	15	<5	<5	<0.2	1.94	45	230	<5	2.80	<1	22	<1	248	4.61
SJ06-108	148826	545622.19	5876786.33	5	<5	<5	<0.2	1.57	15	490	<5	2.99	<1	15	<1	55	3.96
SJ06-109	148827	545453.82	5876840.06	455	25	<5	1.3	0.92	35	270	<5	1.34	<1	32	40	6056	6.80
SJ06-117	148828	546100.55	5876235.83	5	<5	<5	<0.2	1.78	15	125	<5	3.92	<1	18	22	28	4.58
SJ06-119	148829	544955.33	5876792.47	140	<5	<5	<0.2	0.97	15	95	<5	2.98	<1	28	15	273	5.14
SJ06-127	148830	544667.42	5876964.48	10	<5	<5	<0.2	1.59	10	140	<5	3.81	<1	20	<1	89	5.66
SJ06-128	148831	544834.03	5876973.11	15	<5	<5	<0.2	0.93	10	185	<5	3.75	<1	27	<1	87	6.26
SJ06-131	148832	545423.65	5876862.49	40	<5	<5	<0.2	0.25	50	250	<5	4.47	<1	12	33	341	4.64
SJ06-132	148833	545457.41	5876870.76	255	15	<5	0.5	1.04	10	35	<5	1.20	<1	26	49	2658	7.76
SJ06-133	148834	545477.99	5876809.58	460	60	<5	0.7	0.23	110	140	<5	5.97	<1	28	17	3543	5.14
SJ06-134	148835	545438.83	5876818.89	15	<5	<5	<0.2	1.41	5	60	<5	3.73	<1	24	<1	202	7.33
SJ06-142	148836	545098.7	5877162.37	15	<5	<5	0.2	1.09	15	40	<5	2.35	<1	25	45	155	6.09
SJ06-146	148837	546112.17	5877568.16	10	<5	<5	0.2	3.50	10	145	<5	3.93	<1	44	95	116	6.84
SJ06-149	148838	545682.74	5876305.42	>1000	70	5	1.3	2.10	20	65	<5	5.76	<1	34	60	>10000	8.23
SJ06-168	148839	546854.97	5876178.02	10	<5	<5	<0.2	1.58	60	135	<5	2.49	<1	21	35	285	5.11
SJ06-170	148840	547460.59	5876635.19	15	<5	<5	<0.2	0.31	110	110	<5	>10	<1	41	142	127	6.78
SJ06-171	148841	547349.51	5876733.88	5	5	<5	<0.2	0.28	15	290	<5	8.42	<1	36	228	93	5.89
SJ06-172	148842	547347.36	5876597.94	15	10	<5	<0.2	0.15	25	40	<5	9.28	<1	56	307	38	5.71
SJ06-176	148843	542790.88	5875516.68	10	<5	<5	<0.2	0.45	25	535	<5	0.29	<1	9	28	21	3.61
SJ06-198	148844	545016.52	5877544.78	100	<5	<5	0.2	0.35	985	190	<5	1.70	6	23	41	2510	1.92
SJ06-165	148845	547012.89	5875430.26	<5	<5	<5	<0.2	1.65	35	65	<5	2.24	<1	12	39	61	3.21
SJ06-213	148846	545786.19	5876373.07	15	<5	<5	<0.2	1.85	10	160	<5	2.40	<1	22	21	100	6.61

Table 1. Raw geochemistry data; anomalous Cu and Au results are highlighted in grey.

Sample number	Tag number	Easting (m)	Northing (m)	La (ppm)	Mg %	Mn (ppm)	Mo (ppm)	Na %	Ni (ppm)	P (ppm)	Pb (ppm)	Sb (ppm)	Sn (ppm)	Sr (ppm)	Ti %	U (ppm)	V (ppm)	W (ppm)	Y (ppm)	Zn (ppm)
SJ06-001	148801	545793.76	5875960.27	<10	1.62	551	<1	0.04	7	1780	8	<5	<20	55	0.09	<10	131	<10	9	24
SJ06-024	148802	545980.07	5876374.86	<10	1.15	959	1	0.04	9	1750	10	<5	<20	61	0.11	<10	175	<10	16	33
SJ06-026	148803	545936.08	5876460.92	<10	0.65	1310	<1	<0.01	7	530	2	<5	<20	75	<0.01	<10	84	<10	8	36
SJ06-028	148804	545942.21	5876996.87	<10	2.72	1925	1	0.04	8	2370	12	<5	<20	41	0.18	<10	158	<10	19	78
SJ06-029	148805	545596.19	5876330.53	<10	1.88	282	2	0.04	10	2130	10	<5	<20	24	0.06	<10	210	<10	13	13
SJ06-030	148806	545596.57	5876405.13	<10	1.25	285	2	0.06	8	1650	8	<5	<20	38	0.20	<10	207	<10	19	13
SJ06-032	148807	545802.6	5876688.12	<10	1.26	534	1	0.03	7	1060	10	<5	<20	36	0.08	<10	408	<10	7	17
SJ06-033	148808	545992.19	5877008.34	<10	0.21	1461	<1	0.04	5	2230	4	<5	<20	50	0.10	<10	93	<10	23	31
SJ06-035	148809	546484.97	5876839.16	<10	0.43	945	3	0.03	9	1460	8	<5	<20	89	<0.01	<10	73	<10	15	49
SJ06-051	148810	544960.64	5877660.29	<10	1.14	1354	<1	0.04	11	1770	6	<5	<20	138	0.05	<10	119	<10	18	44
SJ06-055	148811	545347.62	5878118.46	<10	1.63	800	<1	0.79	21	1010	14	<5	<20	27	0.34	<10	169	<10	16	48
SJ06-073	148812	544010.01	5878991.47	10	1.35	996	1	1.38	6	2170	18	<5	<20	51	0.29	<10	159	<10	20	60
SJ06-075	148813	545302.86	5876740.91	<10	0.57	686	1	0.05	5	1190	8	<5	<20	49	0.11	<10	88	<10	12	37
SJ06-076	148814	545142.51	5876818.49	<10	0.18	1865	<1	0.03	5	2010	8	30	<20	51	<0.01	<10	66	<10	18	61
SJ06-077	148815	545115.95	5876824.31	<10	1.08	1353	<1	0.05	7	1940	6	<5	<20	52	0.05	<10	202	<10	16	68
SJ06-081	148816	545083.39	5876959.97	<10	1.42	1574	<1	0.04	4	1820	4	<5	<20	361	0.01	<10	93	<10	11	39
SJ06-085	148817	545388.08	5876763.92	<10	1.01	656	<1	0.61	6	2030	12	<5	<20	74	0.17	<10	211	<10	17	23
SJ06-086	148818	545103.94	5877339.02	<10	0.11	1236	<1	0.03	4	1570	6	<5	<20	43	<0.01	<10	39	<10	12	31
SJ06-087	148819	545234.32	5877182.52	<10	1.82	1316	<1	0.04	12	1820	8	<5	<20	113	0.10	<10	154	<10	17	48
SJ06-090	148820	543843.91	5875917.65	<10	0.79	996	1	0.06	5	1950	10	<5	<20	24	0.15	<10	125	<10	19	62
SJ06-095	148821	543666.78	5876838.67	<10	0.43	1542	1	0.03	2	1360	4	<5	<20	56	<0.01	<10	36	<10	13	94
SJ06-097	148822	543750.85	5877281.48	<10	1.25	769	1	0.17	11	1700	14	<5	<20	188	0.28	<10	207	<10	16	75
SJ06-103	148823	545388.65	5876895.83	<10	0.85	1356	<1	0.04	6	1520	6	<5	<20	63	0.01	<10	79	<10	21	46
SJ06-104	148824	545402.88	5876896.44	<10	1.00	1160	5	<0.01	9	1020	14	335	<20	165	<0.01	<10	58	<10	6	38
SJ06-106	148825	545467.14	5876736.55	<10	0.90	965	2	0.29	10	2310	26	<5	<20	98	0.16	<10	218	<10	13	55
SJ06-108	148826	545622.19	5876786.33	<10	1.35	1051	2	0.02	8	1660	18	<5	<20	62	0.13	<10	204	<10	17	42
SJ06-109	148827	545453.82	5876840.06	<10	1.23	848	9	0.02	25	1150	24	<5	<20	40	0.09	<10	216	<10	13	48
SJ06-117	148828	546100.55	5876235.83	<10	1.33	1366	2	0.02	16	1640	22	<5	<20	51	0.11	<10	207	<10	15	134
SJ06-119	148829	544955.33	5876792.47	<10	1.24	1452	2	0.03	13	1750	22	<5	<20	50	0.21	<10	205	<10	18	64
SJ06-127	148830	544667.42	5876964.48	<10	2.12	1299	1	0.03	9	2090	24	<5	<20	200	0.02	<10	241	<10	21	111
SJ06-128	148831	544834.03	5876973.11	<10	1.53	1153	2	0.04	15	1720	18	<5	<20	125	0.22	<10	285	<10	14	72
SJ06-131	148832	545423.65	5876862.49	<10	0.61	750	14	0.01	11	1060	8	30	<20	75	<0.01	<10	72	<10	9	25
SJ06-132	148833	545457.41	5876870.76	<10	1.54	870	7	0.02	22	1010	20	<5	<20	28	0.15	<10	249	<10	6	42
SJ06-133	148834	545477.99	5876809.58	<10	1.88	1084	8	0.01	18	1030	14	<5	<20	103	<0.01	<10	134	<10	18	35
SJ06-134	148835	545438.83	5876818.89	<10	2.04	2302	2	0.02	21	2160	18	<5	<20	39	0.03	<10	256	<10	20	77
SJ06-142	148836	545098.7	5877162.37	<10	1.43	1116	2	0.04	12	2100	48	<5	<20	92	0.14	20	235	<10	12	118
SJ06-146	148837	546112.17	5877568.16	<10	2.25	1054	3	0.96	58	1290	78	<5	<20	140	0.23	20	199	<10	17	136
SJ06-149	148838	545682.74	5876305.42	<10	2.15	730	5	0.03	22	3660	62	<5	<20	158	0.17	30	308	<10	17	70
SJ06-168	148839	546854.97	5876178.02	10	0.55	887	<1	0.12	8	2550	42	<5	<20	347	0.06	20	128	<10	20	134
SJ06-170	148840	547460.59	5876635.19	<10	5.06	1418	<1	0.02	77	830	22	<5	<20	780	<0.01	30	104	<10	10	116
SJ06-171	148841	547349.51	5876733.88	<10	3.54	1154	<1	0.01	130	340	16	<5	<20	560	<0.01	20	105	<10	7	110
SJ06-172	148842	547347.36	5876597.94	<10	8.40	1427	<1	0.01	504	200	16	<5	<20	873	<0.01	20	82	<10	3	31
SJ06-176	148843	542790.88	5875516.68	<10	0.03	1189	1	0.07	5	950	10	<5	<20	26	<0.01	<10	87	<10	14	59
SJ06-198	148844	545016.52	5877544.78	<10	0.38	405	10	0.07	8	1590	6	10	<20	71	<0.01	<10	41	<10	10	31
SJ06-165	148845	547012.89	5875430.26	<10	0.89	781	1	0.10	12	1360	30	<5	<20	44	0.11	<10	113	<10	11	72
SJ06-213	148846	545786.19	5876373.07	<10	1.41	1368	1	0.05	12	1300	20	<5	<20	43	0.09	<10	263	<10	8	49

Table 1. Raw geochemistry data; anomalous Cu and Au results are highlighted in grey.

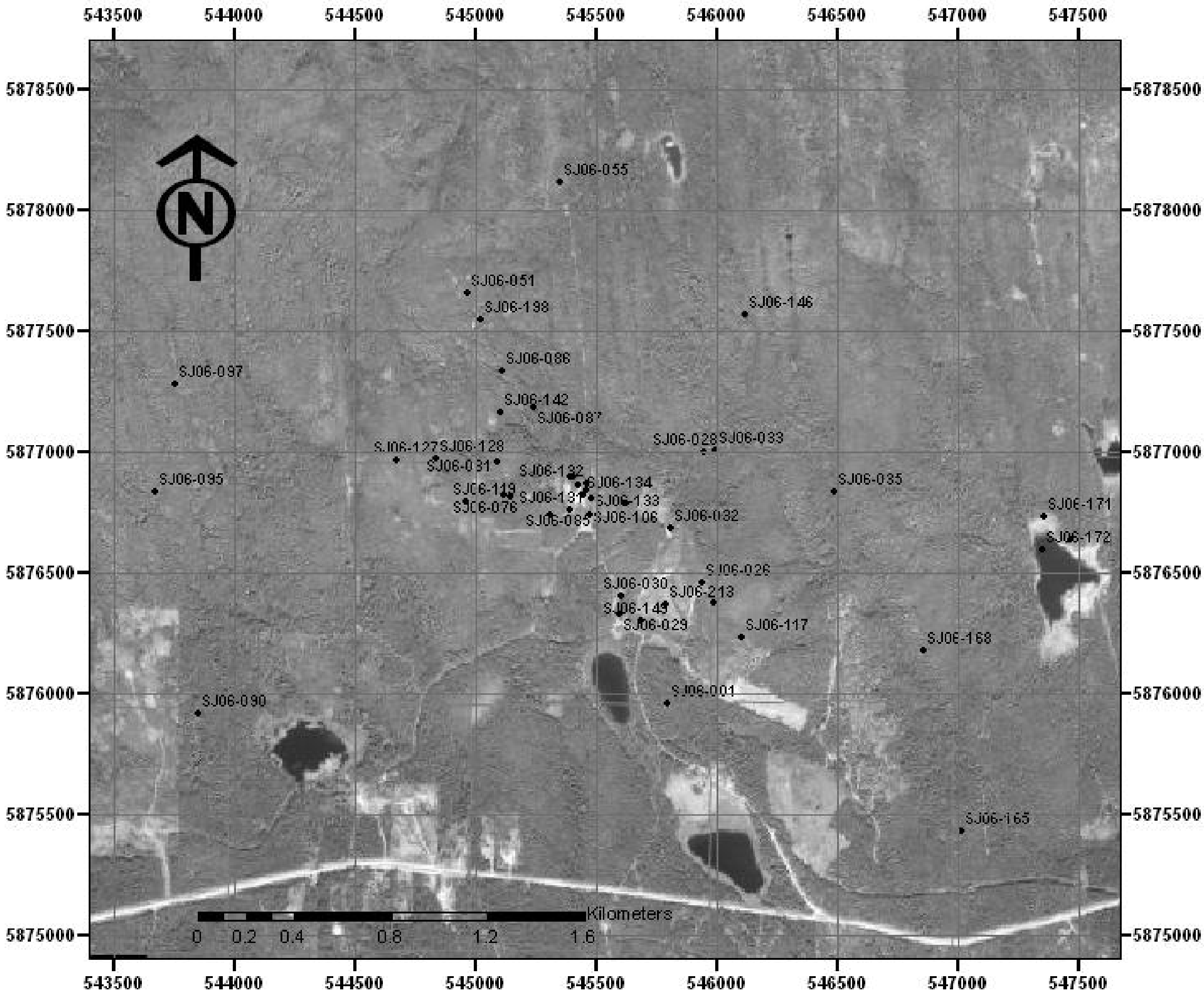


Figure 1. The station locations have been superimposed on an orthophoto of the Mouse Mountain property.

WRITER'S CERTIFICATE

I, Sheila Jonnes, residing at 423 Hartley Street, Quesnel, British Columbia, do hereby certify that:

1. I am a co-op geologist residing in Quesnel, B.C.

2. I am in my final year in a Bachelor of Science degree in Earth and Ocean Sciences in the University of Victoria, Victoria, British Columbia.

3. I have practiced my profession as a student geologist since 2002. Work has included regional property examinations and mapping with the Geological Survey Branch of the Ministry of Energy and Mines, and core logging and drilling logistics with Imperial Metals Corporation. I have directly supervised and conducted programs of geological mapping, prospecting and trenching with Richfield Ventures Corp. in 2006.

4. I hereby consent to the publication of this report by Richfield Ventures Corp. I further consent to the filing of this report with any stock exchange and other regulatory authority and any publication by them, including electronic publication in the public company files on their websites accessible by the public.

Dated in Quesnel, British Columbia this 31st day of July, 2006

Sheila Jonnes

COST STATEMENT

TECHNICAL COSTS

	Coop Geologist S. Jonnes 54 Days @ $195.00/D	10,530.00
	Room & Board	2,600.00
	Reporting 94 Hrs. @ $25.00/Hr.	2,350.00
	Assays	2,279.45
TOTAL TECHNICAL COSTS		**$ 17,759.45**

CERTIFICATE OF ANALYSES AK 2006-564

15-Jun-06

RICHFIELD VENTURES CORP.
331 Reid Street
Quesnel, BC
V2J 2M5

ATTENTION: Peter Bernier

No. of samples received: 23
Sample type: Rock
Project: Mouse Mountain
Samples submitted by: Richfield Ventures Corp.

ET #.	Tag #	Au (ppb)	Pd (ppb)	Pt (ppb)
1	148801	10	<5	<5
2	148802	<5	<5	<5
3	148803	<5	<5	<5
4	148804	<5	<5	<5
5	148805	425	<5	<5
6	148806	10	<5	<5
7	148807	20	<5	<5
8	148808	5	<5	<5
9	148809	10	<5	<5
10	148810	10	<5	<5
11	148811	<5	<5	<5
12	148812	5	<5	<5
13	148813	<5	<5	<5
14	148814	<5	<5	<5
15	148815	<5	<5	<5
16	148816	<5	<5	<5
17	148817	<5	<5	<5
18	148818	<5	<5	<5
19	148819	5	<5	<5
20	148820	10	<5	<5
21	148821	<5	<5	<5
22	148822	<5	<5	<5
23	148823	<5	<5	<5

RICHFIELD VENTURES CORP.AK6-564

ET #.	Tag #	Au (ppb)	Pd (ppb)	Pt (ppb)
QC DATA:				
Repeat:				
1	148801	15	<5	<5
10	148810	10	<5	<5
Resplit:				
1	148801	<5	<5	<5
Standard:				
PG115		515	130	1214

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CERTIFICATE OF ANALYSIS AK 2006-569

RICHFIELD VENTURES CORP. 16-Jun-06
331 Reid Street
Quesnel, BC
V2J 2M5

ATTENTION: Peter Bernier

No. of samples received: 12
Sample Type: Rock
Project #: Mouse Mountain
Samples submitted by: Lee Dearing

ET #.	Tag #	Au (ppb)	Pt (ppb)	Pd (ppb)
1	148824	165	<5	15
2	148825	15	<5	<5
3	148826	5	<5	<5
4	148827	455	<5	25
5	148828	5	<5	<5
6	148829	140	<5	<5
7	148830	10	<5	<5
8	148831	15	<5	<5
9	148832	40	<5	<5
10	148833	255	<5	15
11	148834	460	<5	60
12	148835	15	<5	<5
QC DATA:				
Resplit:				
1	148824	155	<5	15
Repeat:				
1	148824	160	<5	20
4	148827	490		30
10	148833	235	<5	10
11	148834	390		60
Standard:				
PG115		515	1215	125
PG115		520	1220	130

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B.C. Certified Assayer

JJ/ga
XLS/06

ECO TECH LABORATORY LTD.
10041 Dallas Drive
KAMLOOPS, B.C.
V2C 6T4

Phone: 250-573-5700
Fax : 250-573-4557

ICP CERTIFICATE OF ANALYSIS AK 2006-569

RICHFIELD VENTURES CORP.
331 Reid Street
Quesnel, BC
V2J 2M5

ATTENTION: Peter Bernier

No. of samples received: 12
Sample type: Rock
Project #: Mouse Mountain
Samples submitted by: Lee Dearing

Values in ppm unless otherwise reported

Et #.	Tag #	Ag	Al %	As	Ba	Bi	Ca %	Cd	Co	Cr	Cu	Fe %	La	Mg %	Mn	Mo	Na %	Ni	P	Pb	Sb	Sn	Sr	Ti %	U	V	W	Y	Zn
1	148824	0.2	0.19	215	935	<5	6.10	<1	15	56	1305	4.09	<10	1.00	1160	5	<0.01	9	1020	14	335	<20	165	<0.01	<10	58	<10	6	38
2	148825	<0.2	1.94	45	230	<5	2.80	<1	22	<1	248	4.61	<10	0.90	965	2	0.29	10	2310	26	<5	<20	98	0.16	<10	218	<10	13	55
3	148826	<0.2	1.57	15	490	<5	2.99	<1	15	<1	55	3.96	<10	1.35	1051	2	0.02	8	1660	18	<5	<20	62	0.13	<10	204	<10	17	42
4	148827	1.3	0.92	35	270	<5	1.34	<1	32	40	6056	6.80	<10	1.23	848	9	0.02	25	1150	24	<5	<20	40	0.09	<10	216	<10	13	48
5	148828	<0.2	1.78	15	125	<5	3.92	<1	18	22	28	4.58	<10	1.33	1366	2	0.02	16	1640	22	<5	<20	51	0.11	<10	207	<10	15	134
6	148829	<0.2	0.97	15	95	<5	2.98	<1	28	15	273	5.14	<10	1.24	1452	2	0.03	13	1750	22	<5	<20	50	0.21	<10	205	<10	18	64
7	148830	<0.2	1.59	10	140	<5	3.81	<1	20	<1	89	5.66	<10	2.12	1299	1	0.03	9	2090	24	<5	<20	200	0.02	<10	241	<10	21	111
8	148831	<0.2	0.93	10	185	<5	3.75	<1	27	<1	87	6.26	<10	1.53	1153	2	0.04	15	1720	18	<5	<20	125	0.22	<10	285	<10	14	72
9	148832	<0.2	0.25	50	250	<5	4.47	<1	12	33	341	4.64	<10	0.61	750	14	0.01	11	1060	8	30	<20	75	<0.01	<10	72	<10	9	25
10	148833	0.5	1.04	10	35	<5	1.20	<1	26	49	2658	7.76	<10	1.54	870	7	0.02	22	1010	20	<5	<20	28	0.15	<10	249	<10	6	42
11	148834	0.7	0.23	110	140	<5	5.97	<1	28	17	3543	5.14	<10	1.88	1084	8	0.01	18	1030	14	<5	<20	103	<0.01	<10	134	<10	18	35
12	148835	<0.2	1.41	5	60	<5	3.73	<1	24	<1	202	7.33	<10	2.04	2302	2	0.02	21	2160	18	<5	<20	39	0.03	<10	256	<10	20	77

QC DATA:

Resplit:

Et #.	Tag #	Ag	Al %	As	Ba	Bi	Ca %	Cd	Co	Cr	Cu	Fe %	La	Mg %	Mn	Mo	Na %	Ni	P	Pb	Sb	Sn	Sr	Ti %	U	V	W	Y	Zn
1	148824	<0.2	0.23	210	950	<5	6.20	<1	16	51	1256	4.06	<10	0.97	1148	9	<0.01	9	1030	14	355	<20	168	<0.01	<10	62	<10	8	37

Standard:

Standard	Ag	Al %	As	Ba	Bi	Ca %	Cd	Co	Cr	Cu	Fe %	La	Mg %	Mn	Mo	Na %	Ni	P	Pb	Sb	Sn	Sr	Ti %	U	V	W	Y	Zn
GEO '06	1.5	1.62	55	135	5	1.60	<1	20	58	86	3.70	<10	1.00	803	1	0.01	30	730	20	<5	<20	58	0.10	<10	74	<10	11	79

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CERTIFICATE OF ANALYSIS AK 2006-783

RICHFIELD VENTURES CORP. 13-Jul-06
331 Reid Street
Quesnel, BC
V2J 2M5

ATTENTION: Peter Bernier

No. of samples received: 30
Sample Type: Rock
Project #: Mouse Mountain
Samples submitted by: Sheila Jonnes

ET #.	Tag #	Au (ppb)	Pt (ppb)	Pd (ppb)
1	148843	10	<5	<5
2	148844	100	<5	<5
3	148845	<5	<5	<5
4	148846	15	<5	<5
5	148440	10	<5	<5
6	148441	<5	<5	<5
7	148442	45	<5	<5
8	148443	105	<5	<5
9	148444	90	<5	5
10	148445	115	<5	<5
11	148446	15	<5	<5
12	148447	15	<5	<5
13	148423	5	<5	<5
14	148424	5	<5	<5
15	148425	<5	<5	<5
16	148426	30	<5	<5
17	148427	45	<5	5
18	148428	20	<5	<5
19	148429	155	<5	<5
20	148430	45	<5	<5
21	148431	145	<5	25
22	148432	105	<5	10
23	148433	55	<5	<5
24	148434	85	<5	<5
25	148435	70	<5	10
26	148436	65	<5	<5
27	148437	45	<5	5
28	148438	40	<5	<5
29	148439	25	<5	<5
30	6631N 7456E	10	<5	<5

RICHFIELD VENTURES CORP. AK6-783 13-Jul-06

ET #.	Tag #	(ppb)	(ppb)	(ppb)
QC DATA:				
Resplit:				
1	148843	10	<5	<5
Repeat:				
1	148843	10	<5	<5
10	148445	95	<5	<5
19	148429	170	<5	<5
Standard:				
PG115		540	1420	120

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ICP CERTIFICATE OF ANALYSIS AK 2006-783

RICHFIELD VENTURES CORP.
331 Reid Street
Quesnel, BC
V2J 2M5

ATTENTION: Peter Bernier

No. of samples received: 30
Sample type: Rock
Project #: Mouse Mountain
Samples submitted by: Sheila Jonnes

Values in ppm unless otherwise reported

Et #.	Tag #	Ag	Al %	As	Ba	Bi	Ca %	Cd	Co	Cr	Cu	Fe %	La	Mg %	Mn	Mo	Na %	Ni	P	Pb	Sb	Sn	Sr	Ti %	U	V	W	Y	Zn
1	148843	<0.2	0.45	25	535	<5	0.29	<1	9	28	21	3.61	<10	0.03	1189	1	0.07	5	950	10	<5	<20	26	<0.01	<10	87	<10	14	59
2	148844	0.2	0.35	985	190	<5	1.70	6	23	41	2510	1.92	<10	0.38	405	10	0.07	8	1590	6	10	<20	71	<0.01	<10	41	<10	10	31
3	148845	<0.2	1.65	35	65	<5	2.24	<1	12	39	61	3.21	<10	0.89	781	1	0.10	12	1360	30	<5	<20	44	0.11	<10	113	<10	11	72
4	148846	<0.2	1.85	10	160	<5	2.40	<1	22	21	100	6.61	<10	1.41	1368	1	0.05	12	1300	20	<5	<20	43	0.09	<10	263	<10	8	49
5	148440	<0.2	2.04	15	175	<5	2.41	<1	11	<1	72	2.97	<10	1.03	629	1	0.06	6	1970	12	<5	<20	45	0.08	<10	176	<10	14	23
6	148441	<0.2	1.88	15	215	<5	1.88	<1	16	2	90	4.06	<10	1.29	704	1	0.08	7	2230	16	<5	<20	50	0.11	<10	204	<10	16	45
7	148442	<0.2	0.28	100	425	<5	1.68	<1	5	54	364	1.30	<10	0.48	295	4	0.05	7	990	4	<5	<20	83	<0.01	<10	29	<10	7	35
8	148443	<0.2	0.28	155	165	<5	1.11	1	10	42	1370	1.39	<10	0.24	254	3	0.05	9	1530	6	<5	<20	41	<0.01	<10	36	<10	9	21
9	148444	<0.2	0.44	40	165	<5	3.05	<1	7	33	1225	1.59	<10	0.72	399	7	0.05	10	1420	6	<5	<20	57	0.01	<10	69	<10	13	17
10	148445	0.2	0.91	<5	155	<5	1.02	<1	16	7	2071	3.61	<10	1.26	456	4	0.04	17	1920	10	<5	<20	23	0.07	<10	163	<10	12	36
11	148446	<0.2	1.22	20	100	<5	1.78	<1	16	21	100	2.84	<10	0.59	695	1	0.07	12	1760	10	<5	<20	38	0.08	<10	106	<10	13	34
12	148447	<0.2	2.04	25	95	<5	1.65	<1	13	2	136	3.10	<10	1.10	906	2	0.50	7	1820	16	<5	<20	64	0.06	<10	133	<10	10	54
13	148423	<0.2	0.21	45	45	<5	8.78	<1	10	31	60	3.05	<10	4.40	743	<1	0.02	17	420	4	<5	<20	178	<0.01	<10	50	<10	7	37
14	148424	<0.2	0.19	5	135	<5	9.09	<1	17	84	30	3.33	<10	4.43	720	<1	<0.01	46	230	2	<5	<20	261	<0.01	<10	72	<10	5	29
15	148425	<0.2	0.16	15	50	<5	7.29	<1	21	98	35	3.47	<10	5.51	982	<1	<0.01	120	240	2	<5	<20	402	<0.01	<10	78	<10	3	14
16	148426	<0.2	0.68	40	80	<5	4.53	<1	17	<1	544	3.42	<10	0.66	760	<1	0.02	7	1730	10	<5	<20	138	0.06	<10	253	<10	9	40
17	148427	<0.2	0.20	65	55	<5	1.38	<1	4	48	394	0.89	<10	0.36	224	1	0.02	6	990	4	15	<20	27	<0.01	<10	37	<10	9	11
18	148428	<0.2	1.07	<5	210	<5	0.66	<1	13	14	308	3.64	<10	1.56	400	<1	0.03	16	1800	6	<5	<20	27	0.04	<10	157	<10	12	35
19	148429	<0.2	0.22	170	180	<5	1.29	1	6	26	849	0.76	<10	0.33	145	<1	0.01	5	800	<2	55	<20	32	<0.01	<10	39	<10	9	11
20	148430	<0.2	0.73	<5	65	<5	2.49	<1	9	11	480	3.03	<10	0.74	382	2	0.04	12	1500	6	<5	<20	51	0.02	<10	145	<10	15	20
21	148431	<0.2	0.61	<5	45	<5	4.97	<1	6	17	2031	1.19	<10	0.92	369	261	0.03	9	970	4	<5	<20	70	0.04	<10	91	<10	10	12
22	148432	0.4	0.58	<5	105	<5	0.88	<1	9	8	1583	2.15	<10	0.66	270	7	0.05	9	1470	12	<5	<20	25	0.07	<10	127	<10	8	24
23	148433	<0.2	0.51	<5	240	<5	3.41	<1	8	22	341	2.23	<10	0.70	553	19	0.05	10	1340	4	<5	<20	98	<0.01	<10	63	<10	15	16
24	148434	0.3	0.22	255	125	<5	2.82	2	11	24	639	1.72	<10	0.96	513	2	0.05	7	1660	4	25	<20	122	<0.01	<10	29	<10	12	24
25	148435	0.2	1.30	<5	155	<5	1.23	<1	12	<1	1004	4.69	<10	1.49	370	2	0.04	14	2230	10	<5	<20	45	0.09	<10	186	<10	14	16
26	148436	<0.2	1.20	5	125	<5	3.14	<1	22	43	204	4.25	<10	2.37	1130	<1	0.04	16	1530	10	<5	<20	185	0.07	<10	139	<10	13	47
27	148437	<0.2	1.32	10	90	<5	2.59	<1	29	89	162	5.34	<10	3.13	956	<1	0.07	22	1630	10	<5	<20	306	0.11	<10	186	<10	11	47
28	148438	<0.2	1.28	20	310	<5	1.55	<1	23	8	174	5.11	<10	2.40	660	1	0.35	16	2540	16	<5	<20	137	0.15	<10	215	<10	8	30
29	148439	0.2	1.34	25	55	<5	2.36	<1	19	24	158	4.51	<10	1.59	971	3	0.05	13	1800	18	<5	<20	54	0.13	<10	165	<10	11	84
30	6631N 7456E	<0.2	0.18	215	125	<5	9.21	1	20	52	59	3.84	<10	5.42	716	<1	0.02	34	550	6	<5	<20	300	<0.01	<10	59	<10	5	33

Et #.	Tag #	Ag	Al %	As	Ba	Bi	Ca %	Cd	Co	Cr	Cu	Fe %	La	Mg %	Mn	Mo	Na %	Ni	P	Pb	Sb	Sn	Sr	Ti %	U	V	W	Y	Zn
QC DATA:																													
Resplit:																													
1	148843	<0.2	0.39	25	555	<5	0.34	<1	8	28	18	3.61	<10	0.05	1148	<1	0.06	5	930	8	<5	<20	24	<0.01	<10	76	<10	12	53
Repeat:																													
1	148843	<0.2	0.44	25	505	<5	0.29	<1	9	27	23	3.58	<10	0.03	1180	1	0.07	5	960	8	<5	<20	25	<0.01	<10	87	<10	14	58
10	148445	0.2	0.80	<5	135	<5	0.91	<1	14	7	2025	3.59	<10	1.22	455	3	0.03	15	1980	10	<5	<20	21	0.06	<10	161	<10	10	33
19	148429	<0.2	0.22	175	185	<5	1.37	1	6	28	893	0.81	<10	0.35	155	<1	0.01	5	890	4	55	<20	33	<0.01	<10	41	<10	9	10
Standard:																													
PB106		>30	0.50	265	70	<5	1.64	47	2	41	6265	1.36	<10	0.25	518	29	0.03	7	200	5238	55	<20	164	<0.01	<10	13	<10	4	8386

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CERTIFICATE OF ASSAY AK 2006-683

13-Jul-06

RICHFIELD VENTURES CORP.
331 Reid Street
Quesnel, BC
V2J 2M5

ATTENTION: Peter Bernier

No. of samples received: 7
Sample type: Rock
Projectf#: Mouse Mountain
Samples submitted by: Sheila Jonnes

ET #.	Tag #	Au (g/t)	Au (oz/t)	Cu (%)
3	148838	1.23	0.036	1.38

QC DATA:

		Au (g/t)	Au (oz/t)	Cu (%)
Repeat:				
3	148838	1.24	0.036	1.38
Standard:				
OX140		1.83	0.053	
Cu120				1.51
Pb106				0.62

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