Report for: Endurance Gold Corp.,
906 – 1112 West Pender St.,
Vancouver, BC
V6E 2S1

Report 100742
September 27, 2010

SAMPLES:

Three rock samples from the Band Project, designated Abc, Pabc, and GD69A, were submitted by Robert Boyd, with a request for petrographic descriptions. Typical portions of each sample were prepared for microscopic examination as polished thin sections.

SUMMARY:

Sample Abc:
This rock is an altered porphyry of apparent mafic or ultramafic composition. Phenocrysts (of unknown primary mineralogy) are totally pseudomorphed by carbonate. The fine groundmass is totally altered to an intergrowth of carbonate and probable chlorite; it also contains relatively abundant fine-grained Fe oxides which may be of relict primary origin. Patches of strong chlorite enrichment in the groundmass may represent the alteration of an accessory component of phenocrysts of a different composition.

Sample Pabc:
This rock is a breccia composed of angular clasts of plagioclase-rich volcanic rocks. These are interstitially cemented by a heterogenous matrix component consisting of smaller andesitic clasts, disaggregated plagioclase crystals, rounded clasts of quartz and chalcedony, and indeterminate cryptocrystalline material. Localized minor impregnations of fine-grained Fe oxides are developed in the matrix and adjacent fragments.

Sample GD 69A
This rock consists dominantly of a featureless, minutely microgranular aggregate of apparent fresh albite. Within this are developed thin laminar zones containing plates of biotite and sub-oriented crystals of an elongate prismatic mineral resembling ferruginized aegirine.
The nature of this rock is uncertain but it has some features suggestive of hybrid or metasomatic contact zone affinities.

Individual petrographic descriptions and illustrated photomicrographs are attached.

J.F.Harris, Ph.D.

DESCRIPTIONS:

Sample Abc: **Altered Porphyry**

Estimated mode:

Carbonate	58
Chlorite(?)	30
Biotite	2
Fe oxides	10
Pyrite	trace

Macroscopically (see off-cut) the sectioned area of this sample displays reddish brown phenocrysts of stumpy, sub-prismatic form, 0.2 – 4.0 mm in size, in an aphanitic greenish grey groundmass. There are also some similar sized, less well-defined, phenocryst-like bodies of a dark grey colour.

Petrographic examination shows that the brown phenocrysts are actually pseudomorphs of an indeterminate primary component. They now consist of polygranular aggregates of more or less Fe-stained carbonate. This shows only local weak reactivity with 10% HCl, suggesting that it is probably of ankeritic composition. Some of the carbonate pseudomorphs are traversed by apparent relict (pre- carbonate) networks resembling the texture developed by partial serpentinisation of olivine.

The groundmass is a fine-grained, compact intergrowth of carbonate and probable chlorite, in a grain size range of 5 – 50 microns. The macroscopically visible, dark grey "phenocrysts" noted in the off-cut apparently consist of carbonate-poor, chlorite-rich segregations in the groundmass. Their origin is debatable, but they may represent pseudomorphs after a different species of original phenocrysts.

An additional constituent of the groundmass is a fine-grained oxide having the appearance of partially hematized magnetite. This occurs throughout as more or less abundantly disseminated equant grains, 10 – 100 microns in size. Scattered, similar sized pyrite grains are also present.

The protolithology of this strongly altered porphyry is uncertain. It contains no quartz or recognizable feldspar and has features suggesting possible mafic-rich or ultramafic parentage.

Sample Pabc: **Igneous breccia**

Estimated mode:

Plagioclase	75
Quartz/chalcedony	10
Chlorite	10
Carbonate	trace
Sericite	trace
Fe oxides	5

Macroscopic examination of the off-cut of this sample shows features clearly indicative of fragmental character. The rock is made up of sharply defined, non-matching, sub-angular clasts ranging up to 1 cm or so in size. These are separated by finer material which apparently consists of progressively finer fragments down to a few microns in size.

Petrographic examination reveals that this rock differs in mineralogy from the previous sample, in that it is virtually devoid of carbonate and is composed essentially of plagioclase feldspar. It also contains accessory proportions of quartz.

The fragments appear to represent a single lithology, comprising a rock of igneous textural aspect, made up essentially of fine grained aggregates of plagioclase as compact meshworks of slender laths, 50 – 200 microns in length. Some of the fragments contain scattered, euhedral prismatic microphenocrysts up to 1 mm in length. The plagioclase aggregates are fresh, but for occasional dustings of sericite or rare wisps of carbonate. An accessory component of micron-sized opaque oxides and probable chlorite locally forms intimate interstitial impregnations.

A "matrix" phase between the well-defined lithic fragments is of similar composition and appears to consist of disaggregated feldspar crystals, often cemented interstitially by indeterminate isotropic material dusted with minutely fine-grained Fe oxides. It also contains a significant proportion of quartz and/or chalcedony, as vari-sized, often rounded grains.

The origin of this breccia is uncertain. It consists dominantly of fragmented, fresh, leucocratic, fine-grained felsic igneous material of andesitic composition. It shows no features of sedimentary reworking and is most likely a product of explosive volcanic activity – possibly of diatreme affinities.

Sample GD 69A: **Mafic laminae in albitite**

Estimated mode:

Albite	85
Biotite	5
Hematized aegirine(?)	10
Monazite(?)	trace
Apatite	trace

The off-cut corresponding to the sectioned portion of this sample is of distinctive appearance, being an evenly fine-grained, white-etched aggregate traversed by thin, sub-parallel laminae or strings of dark mafic material, 0.2 – 2.0 mm in thickness.

Petrographic examination shows that the felsic component is a minutely saccharoidal to locally sub-oriented aggregate of what appears to be monomineralic plagioclase of grain size 10 – 100 microns. This differs from the plagioclase aggregate in Sample Pabc in that it is distinctly finer grained and lacks the characteristic meshwork texture of lamellar-twinned, lath-like grains. The plagioclase in the present sample only very rarely shows lamellar twinning; it has a refractive index lower than the mounting medium, suggesting a composition of, or close to, albite.

The dark laminar zones consist of concentrations of brown biotite and a pleochroic green mineral of uncertain identity. The latter occurs as individual grains exhibiting strongly elongate prismatic form, and ranging up to 5.0 mm or so in length. For the most part these are independent of the biotite, which typically forms ragged, skeletal/poikiloblastic plates incorporating small grains of the albite matrix.

The great majority of grains of the green, acicular/prismatic mineral are rendered sub-opaque to opaque by pervasive ferruginous alteration – in the form of impregnations of dust-sized hematite (see photo). Some of the biotite also shows ferruginization, expressed in the form of cleavage-related lamellae of Fe or Fe/Ti oxides.

The petrographic features of the green prismatic component are ambiguous. Its colour, morphology, birefringence and straight, or near straight, extinction resemble that of the pyroxene variety aegirine. The geometry of the crystal terminations is, however, more often consistent with that of an amphibole rather than a pyroxene (although the distinctive 60 degree intersecting cleavage pattern in cross sections is not seen – possibly because of the obscuring effect of the opaque alteration). The refractive index, as suggested by the optical relief, seems higher than normal for both these mineral groups. Identification of this mineral could probably be achieved by means of an XRD scan.

Other constituents (occurring only in trace concentrations) are small, equant grains of a colourless, high relief, strongly birefringent mineral which could be any one of several minerals such as monazite, zircon, anatase, etc.; and rare tiny prismatic grains of apatite.

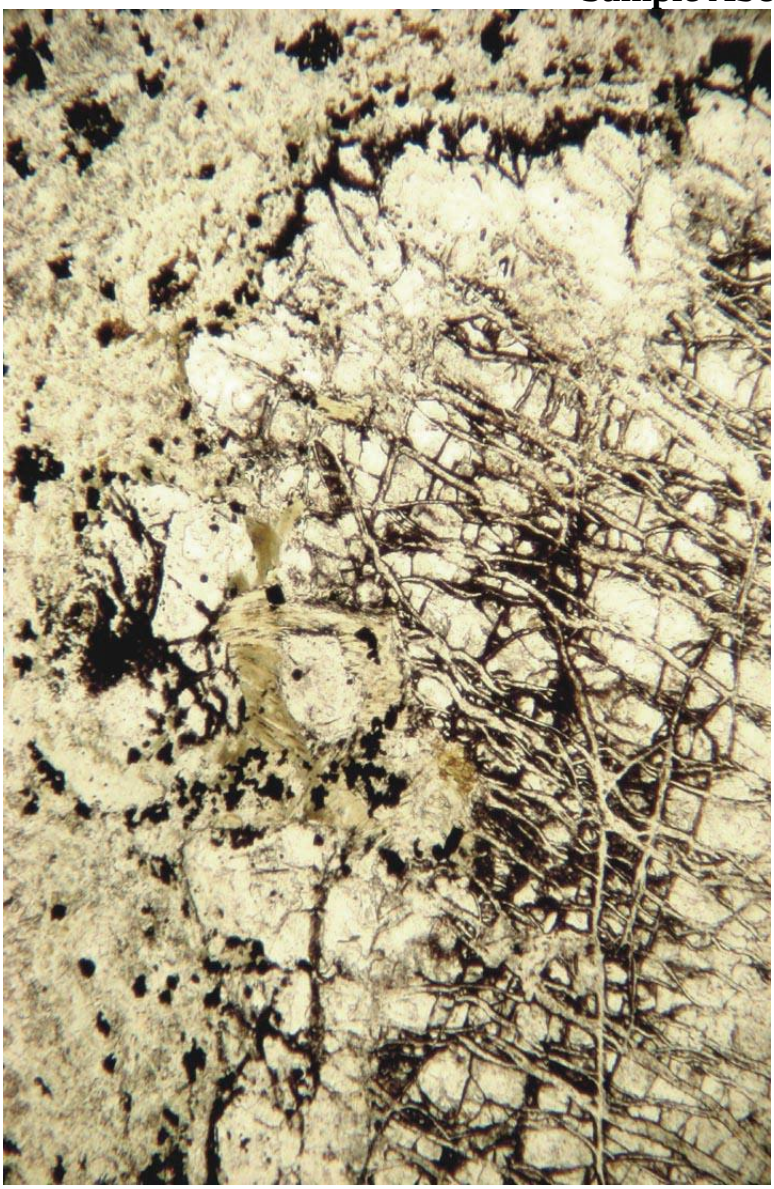
The nature of this rock is uncertain, but its texture is in some ways more consistent with formation by metasomatic or hybrid processes than with normal igneous origin. Possibly it is related to an intrusive contact, though the mineralogy is not that of a typical skarn. The suggested field name of fenite (in your covering letter) fits intriguingly with the observed compositional features, though acceptance of this would require evidence of sub-silicic alkalic intrusive activity in the region.

PHOTOMICROGRAPHS:

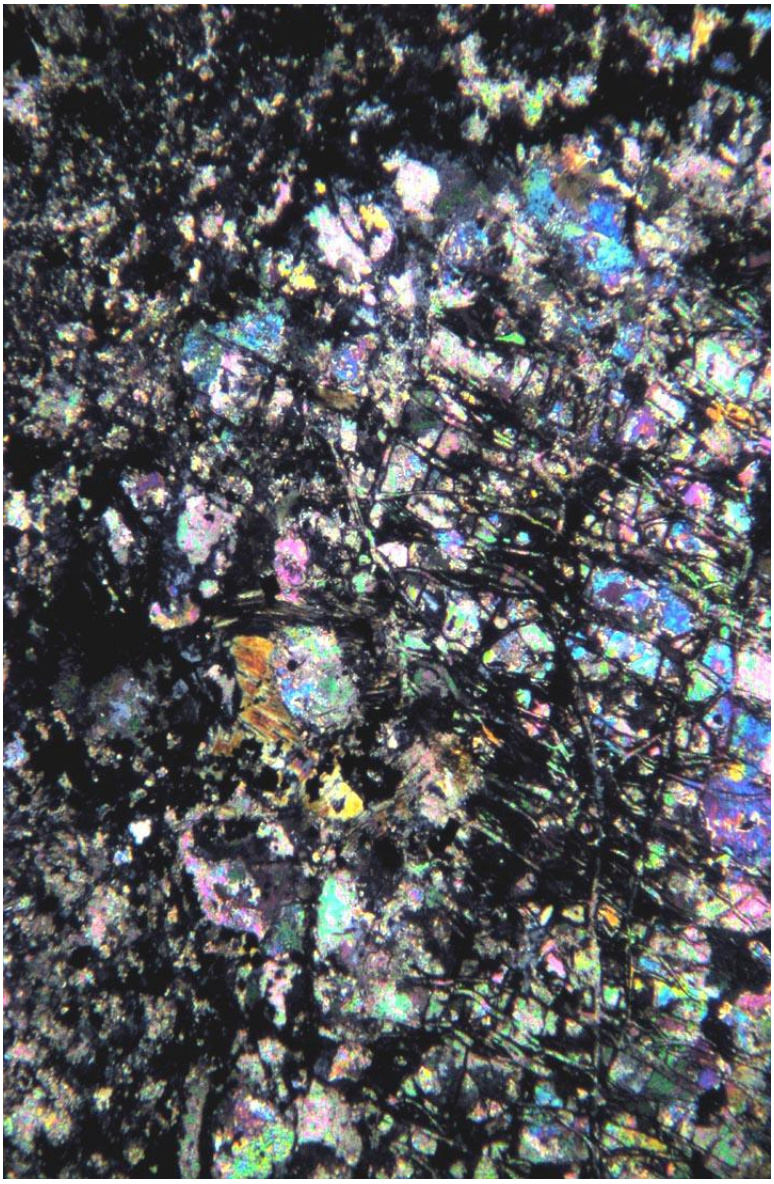
The attached photomicrographs illustrate the principal petrographic features of the three samples.

Scale: In all cases the long dimension of the photo field equals approximately 2.0 mm.

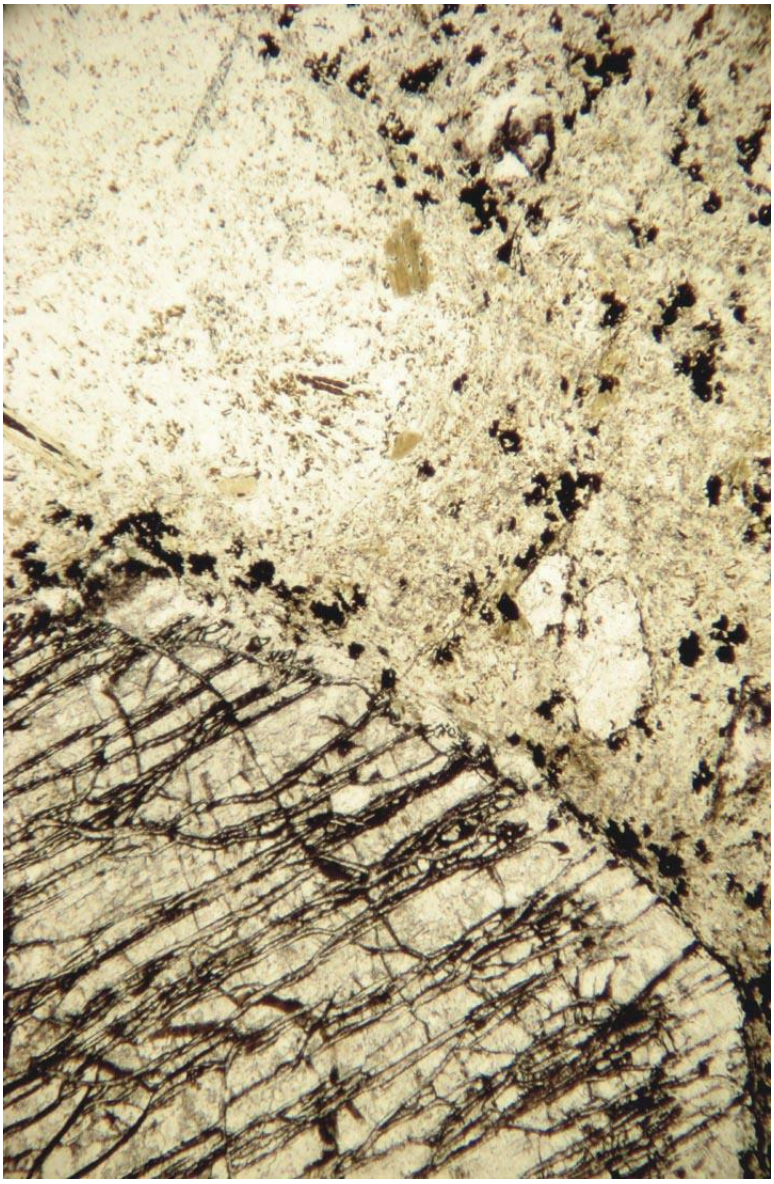
Sample Abc:



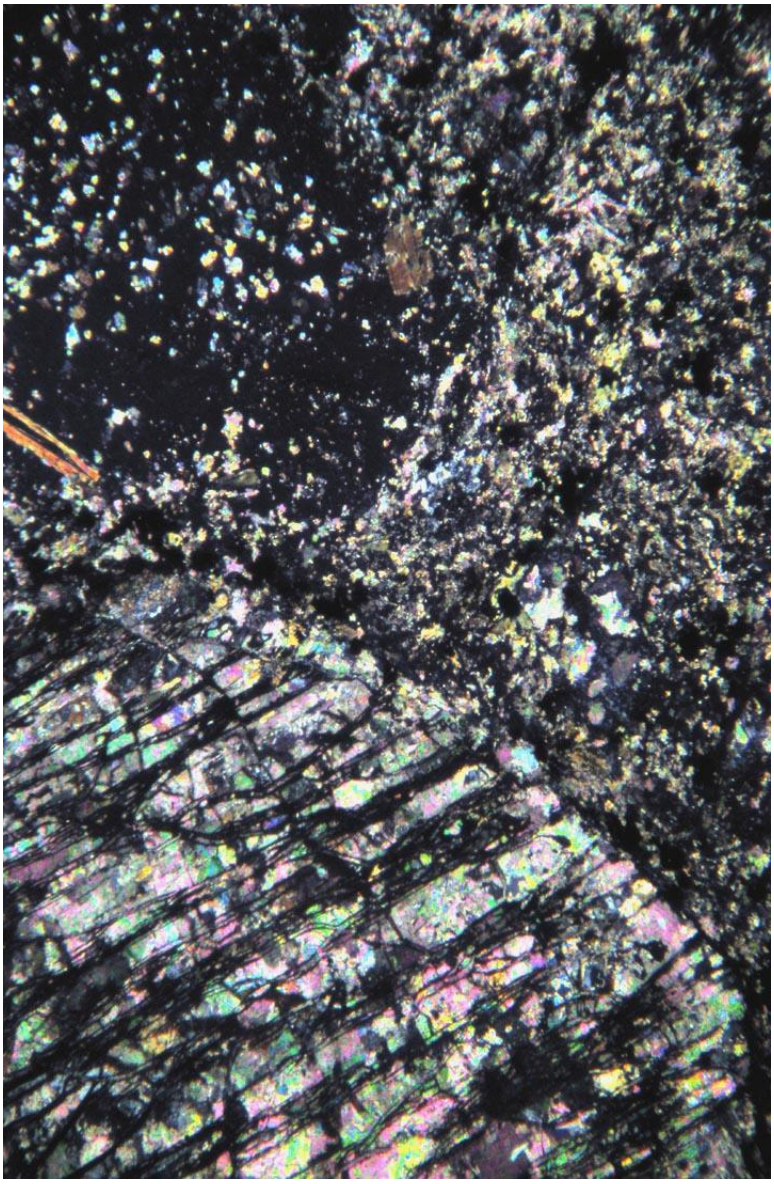
Abc Photo IMG-1647: Plane-polarized transmitted light. The bulk of this field comprises part of a carbonate pseudomorph (colourless area at lower left), partly outlined by a thin rim of opaque Fe oxides (black). Note the relict texture of reticulate (cleavage-related?) micro-stringers within the pseudomorph. The groundmass component (of intergrown chlorite and carbonate, plus disseminated opaques) is exemplified by the mottled areas at top and far right).



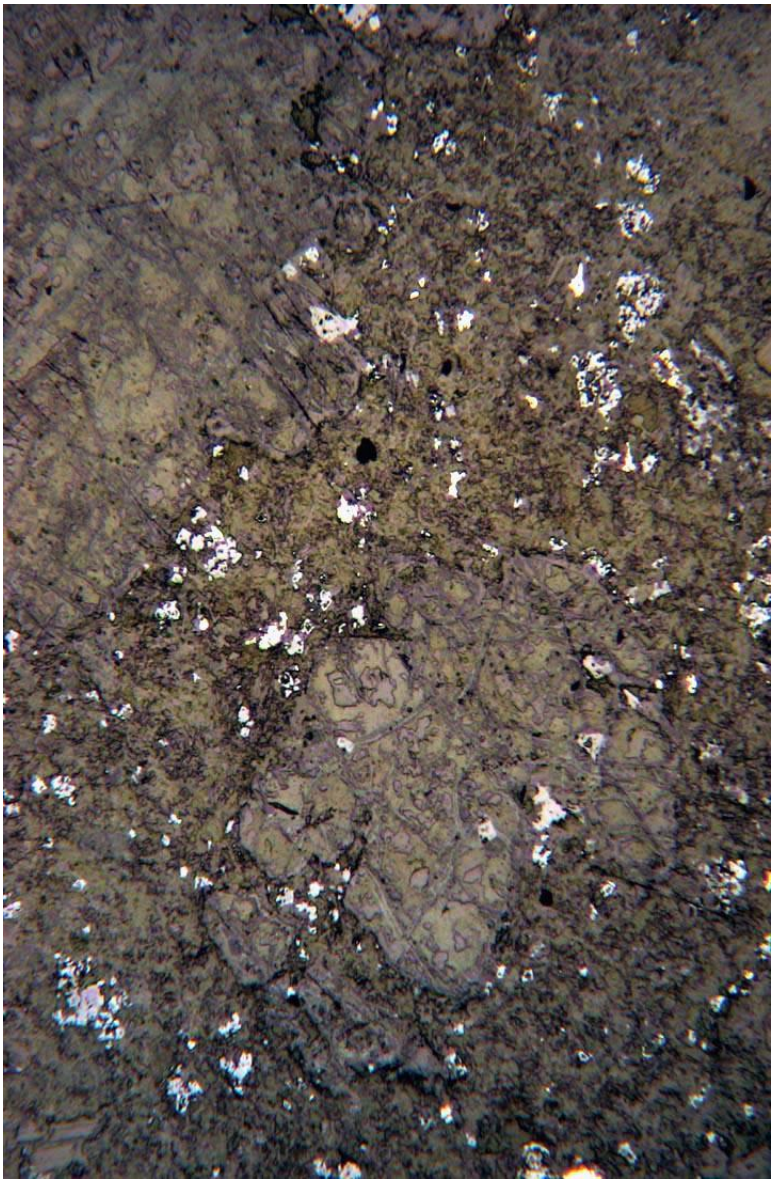
Abc Photo IMG-1648: Cross-polarized transmitted light; same field as IMG-1647. The carbonate making up the pseudomorph appears as pearly greys and pastel colours. The groundmass composition of intergrown carbonate (greys and colours) and chlorite plus opaques (dark) is clearly shown.



Abc Photo IMG-1649: Plane-polarized transmitted light. A different field, illustrating the three principal components. The lower right quadrant is part of an original phenocryst, cut by a relict system of parallel micro-stringers, now totally pseudomorphed by carbonate. The upper left portion is part of the groundmass, of chlorite, carbonate and Fe oxides. The lightest-coloured area, at lower left, is part of one of the opaque-free, chlorite-rich segregations or possible pseudomorphs.

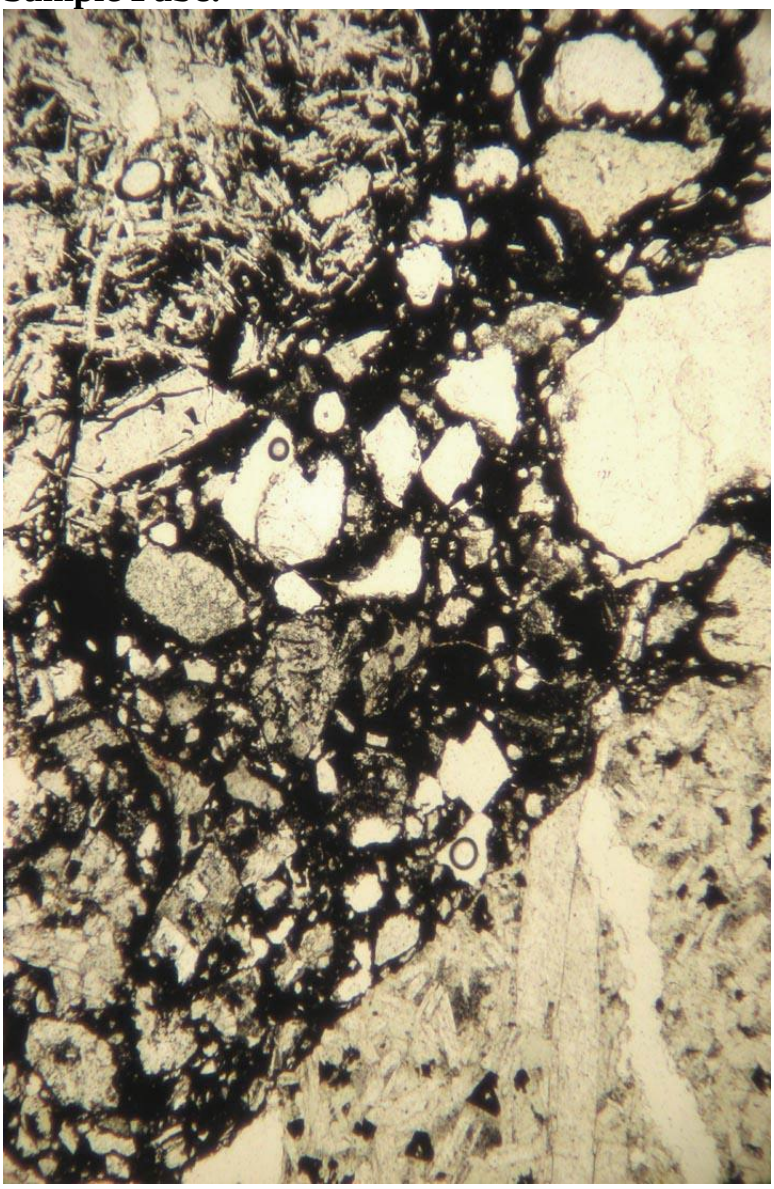


Abc Photo IMG-1650: Cross-polarized transmitted light. Same field as IMG-1649.The three different components are clearly distinguishable. Note the minor content of carbonate (lighter speckles) within the chlorite segregation (dark).

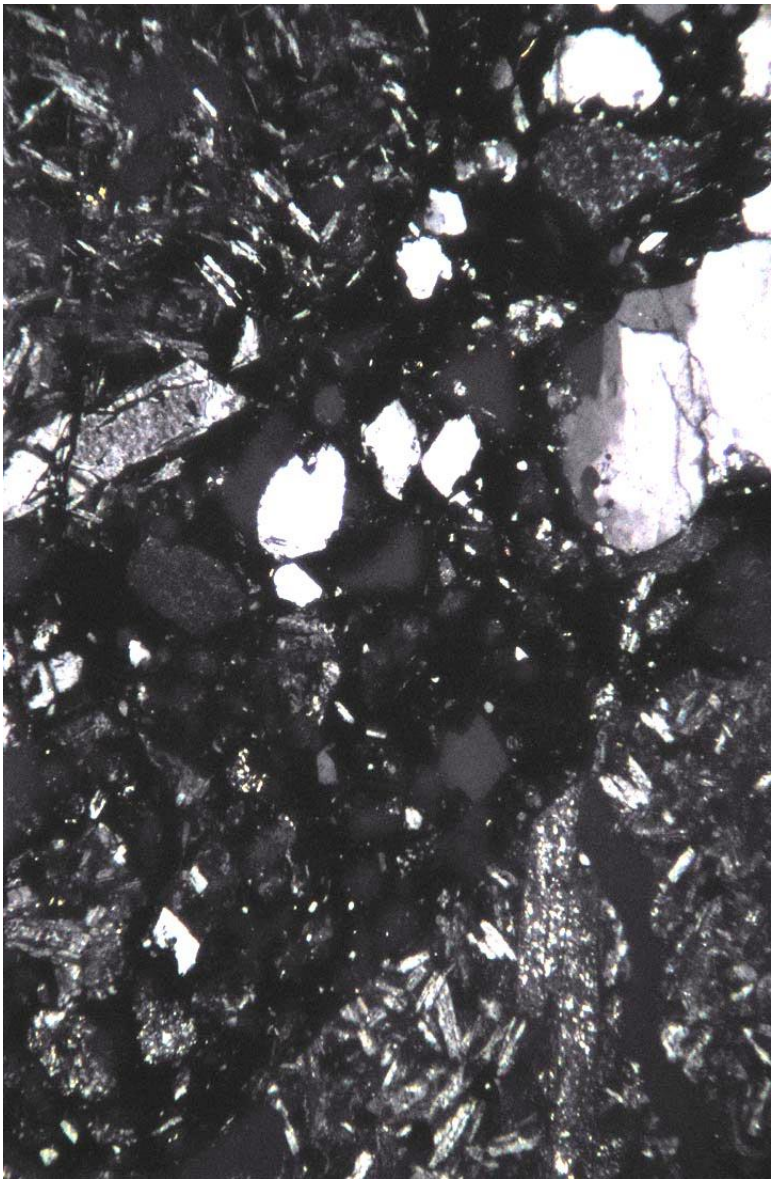


Abc Photo IMG-1651: Reflected light. Another field, showing carbonate pseudomorphs (Brownish grey; lower left and centre right) in the chlorite/carbonate groundmass. The content of fine-grained disseminated Fe oxides (light grey speckles) in the latter is clearly shown. Rare specks of brighter, cream-coloured appearance are pyrite.

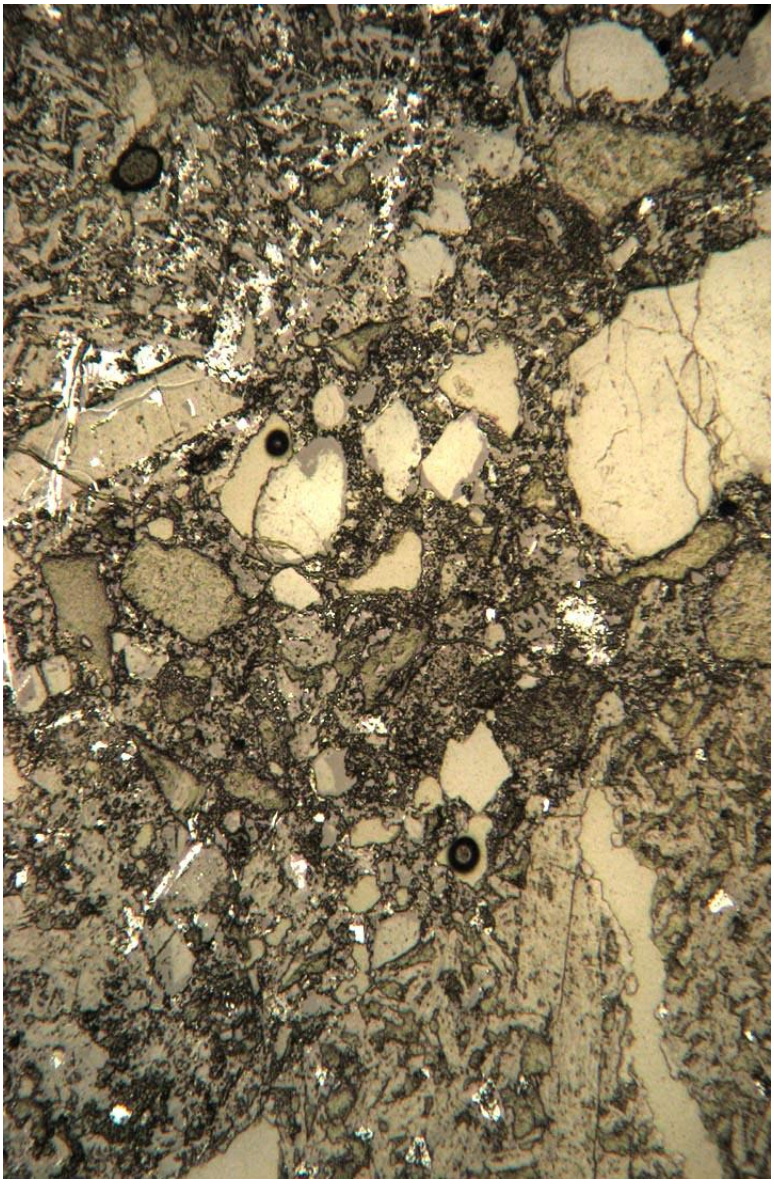
Sample Pabc:



Pabc Photo IMG-1652: Plane-polarized transmitted light. Typical area showing breccia character. The areas at bottom left and upper right are parts of larger, angular fragments of microporphritic andesite or diabase. The central area (extending from top left to bottom right) is part of the matrix phase of smaller lithic fragments, discrete plagioclase crystals, and rounded grains of quartz and/or chalcedony (white) in a turbid sub-opaque matrix.

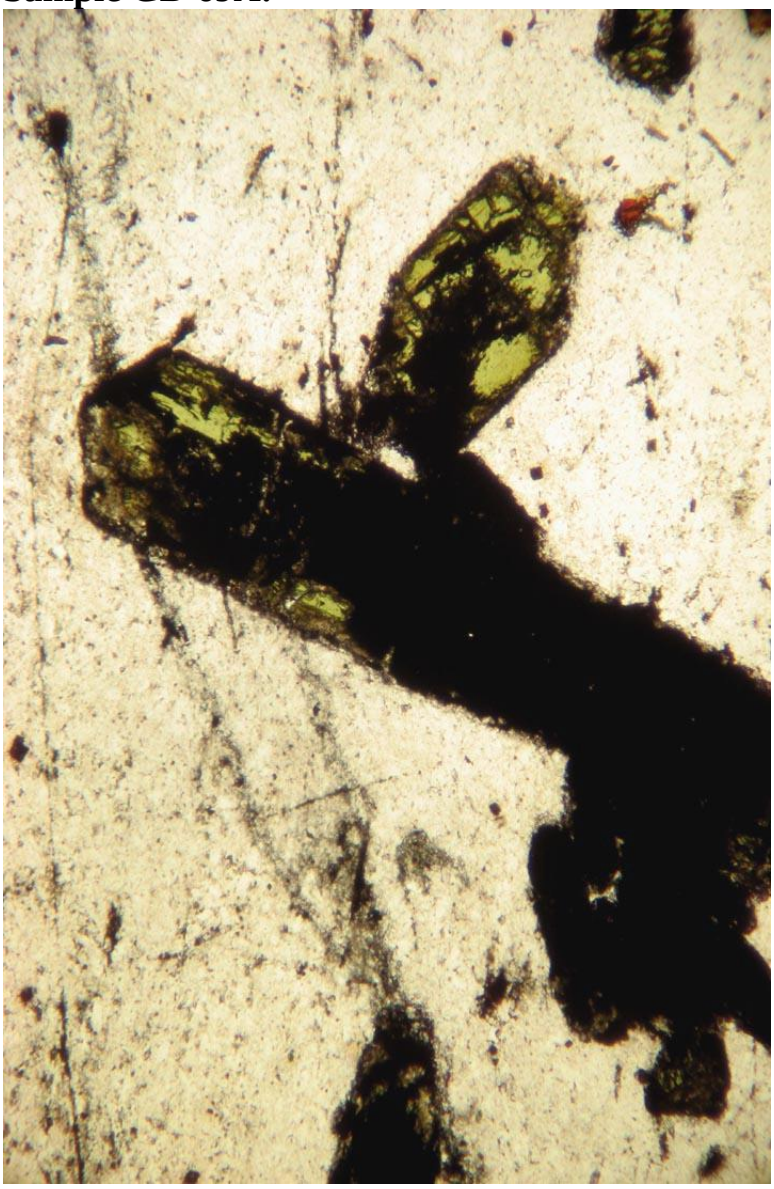


Pabc Photo IMG-1653: Cross-polarized transmitted light; same field as IMG-1652. The meshwork texture in the plagioclase-rich fragments is clearly shown. The white grains in the matrix area are quartz. The fine interstitial portion of the matrix is essentially isotropic and appears black.

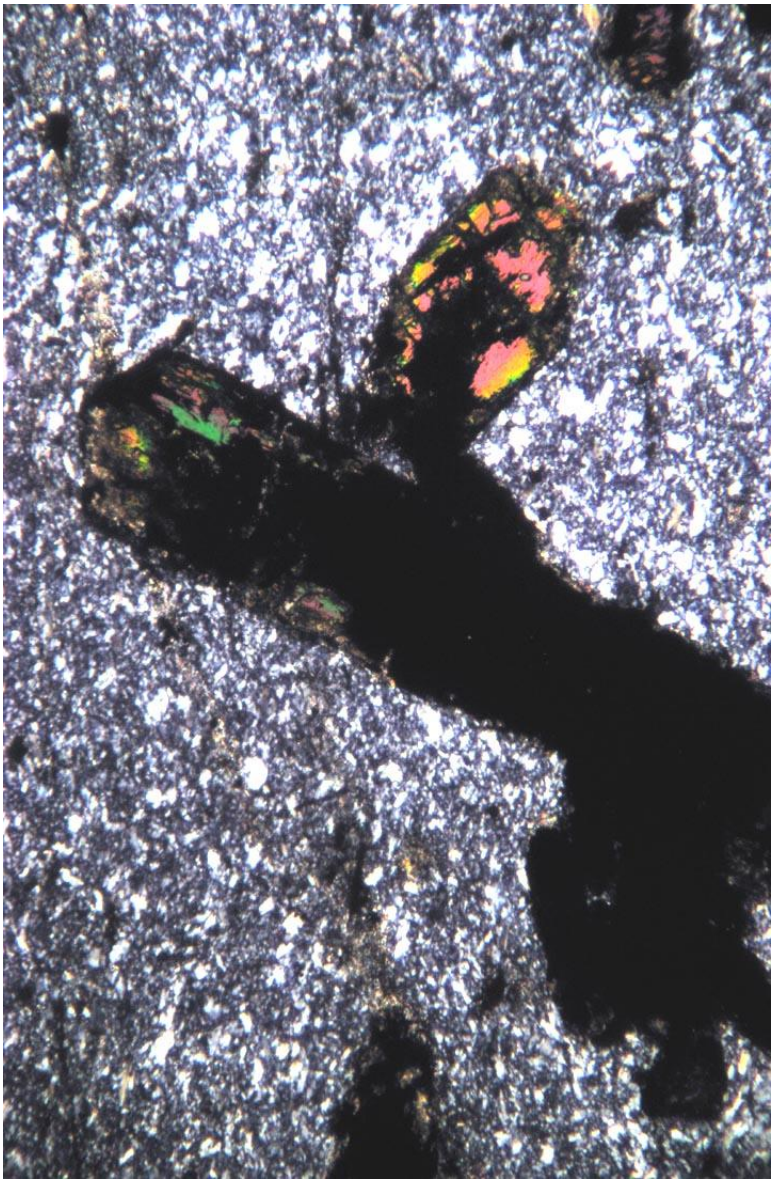


Pabc Photo IMG-1654: Reflected light; same field as IMG-1652 and 1653. Shows dispersed fine-grained Fe oxides (whitish grey; e.g. lower left). These are of lower abundance than the degree of opacity in the matrix would suggest (compare black areas in photo IMG-1652) and may include a non-polishable, amorphous component. Note that localized Fe oxide impregnations are also developed within the fragments (e.g. lower left).

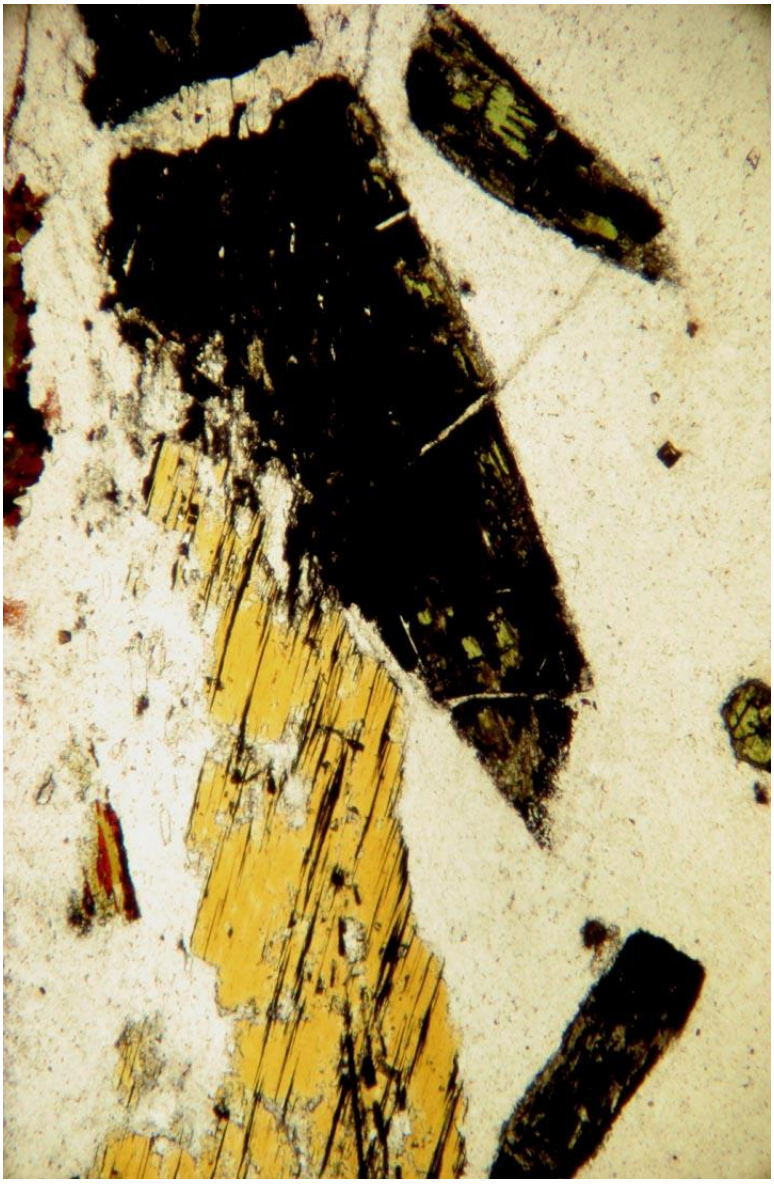
Sample GD 69A:



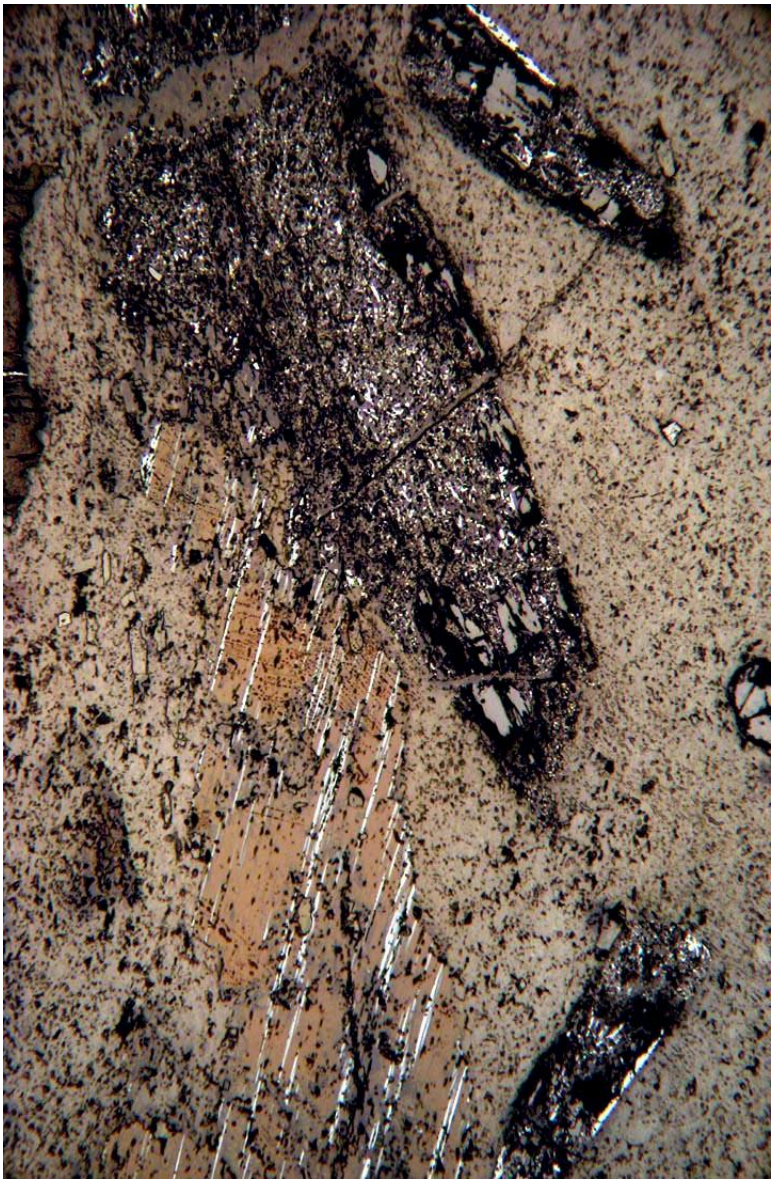
GD 69A Photo IMG-1656: Plane-polarized transmitted light. Example of the unidentified green prismatic constituent. Note the prevalence of pervasive ferruginous alteration (opaque; black).



GD 69A Photo IMG-1655: Cross-polarised transmitted light; same field as IMG-1656. The strong birefringence (bright interference colours) is visible in the unaltered areas of the crystals. Note the extremely fine-grained, anhedral/equigranular form of the albite (white,greys) making up the hosting matrix.



GD 69A Photo IMG-1657: Plane-polarized transmitted light. An example of biotite (orange-brown) in partial intergrowth with the altered prismatic mineral (dark).



GD 69A Photo IMG-1658: Reflected light; same field as IMG-1657. Shows ferruginisation, in the form of diffuse impregnations of minutely fine-grained hematite (whitish grey), in the altered prismatic grains. Thin cleavage-related lamellae of Fe or Fe-Ti oxides are developed in the biotite.