

Minerex Services Pty. Ltd.

PO BOX 264 ESPERANCE 6450
MOBILE: 0438215768 FAX: (08) 9071 3374 EMAIL: minerex@bigpond.net.au

ACN: 008 971 220
ABN: 91 352 507 055

THIN SECTION DESCRIPTION

DATE: January 2009
PETROLOGIST: ACV/RWC
CLIENT: Newmont Australia Ltd
CONTACT: Peter Pring
THIN SECTION No: **T15080**
NATURE OF THE SAMPLE: RAB chips
FIELD DESCRIPTION: Granite?

TRANSMITTED LIGHT MICROSCOPY:

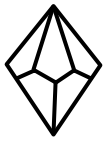
This section consists of twelve ≤ 1 cm-sized chips; the dominant rock type represented being medium-grained, weakly foliated quartz-feldspar-mica gneiss with variable degrees of alteration. The chips generally have a granitic-like texture with quartz dominating the mineral assemblage, subordinate amounts of anhedral orthoclase and microcline. Minor subhedral plagioclase is also present. Strongly foliated, fine-grained biotite is generally concentrated within narrow bands throughout the chips and in some cases is intergrown with and partially replaced by possible fibrolitic sillimanite. Minor, fine-grained muscovite is closely associated with biotite. Sericite has partially to totally replaced some feldspar, while minor clay development occurs on the margins of grains. One, narrow chip on the section is a schist containing a strong foliation defined by abundant, fine-grained biotite.

REFLECTED LIGHT MICROSCOPY:

Subhedral, crystalloblastic magnetite grains up to 1.0mm in size are thinly disseminated throughout the biotite bands. Some grains show a cataclastic texture and most exhibit a patchy development of secondary hematite. Associated masses of leucoxene-rutile after former ilmenite are also present. Exsolution lamellae of hematite occur within some of the former ilmenite grains. Very fine, exsolved rutile grains are associated with some phyllosilicates and occasional pyrite grains are evident.

FULL ROCK NAME AND CLASSIFICATION:

Quartz-feldspar-mica-sillimanite gneiss derived from amphibolite-grade metamorphic recrystallisation of a possible granite protolith.



Minerex Services Pty. Ltd.

PO BOX 264 ESPERANCE 6450
MOBILE: 0438215768 FAX: (08) 9071 3374 EMAIL: minerex@bigpond.net.au

ACN: 008 971 220
ABN: 91 352 507 055

THIN SECTION DESCRIPTION

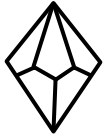
DATE:	January 2009
PETROLOGIST:	ACV
CLIENT:	Newmont Australia Ltd
CONTACT:	Peter Pring
THIN SECTION No:	T15085
NATURE OF THE SAMPLE:	RAB chips
FIELD DESCRIPTION:	Dolerite

TRANSMITTED LIGHT MICROSCOPY:

The numerous small sized chips on this section are weak to moderately foliated amphibolites with variable degrees of alteration and retrogression. Green, prismatic to equant hornblende predominates with lesser subhedral to euhedral plagioclase and interstitial quartz. In the few chips that contain granular clinopyroxene (diopside), the hornblende is khaki to brown colour. Minor, fine-grained flakes of biotite are closely associated with amphibole. Fine magnetite/ilmenite is sparsely disseminated throughout. Sericite has partially to totally replaced the feldspar, while minor chlorite occurs only on the margins of some pyroxene.

FULL ROCK NAME AND CLASSIFICATION:

Amphibolite (former mafic-dolerite). Amphibolite facies metamorphic grade



Minerex Services Pty. Ltd.

PO BOX 264 ESPERANCE 6450
MOBILE: 0438215768 FAX: (08) 9071 3374 EMAIL: minerex@bigpond.net.au

ACN: 008 971 220
ABN: 91 352 507 055

THIN SECTION DESCRIPTION

DATE: January 2009
PETROLOGIST: ACV/RWC
CLIENT: Newmont Australia Ltd
CONTACT: Peter Pring
THIN SECTION No: **T27606**
NATURE OF THE SAMPLE: RAB chips
FIELD DESCRIPTION: Gneiss

TRANSMITTED LIGHT MICROSCOPY:

There are a variety of rock types represented by the ten small chips on this section. Seven of the chips are moderately foliated gneisses containing, fine-grained, aligned, flakes of biotite and minor muscovite throughout a granoblastic groundmass of abundant fine to medium-grained quartz with lesser plagioclase and microcline feldspar. Sericite has only weakly replaced some feldspar. Rare zircons are noted.

Two chips, former mafics (amphibolites) contain abundant medium-grained amphibole (actinolite) and minor biotite surrounded by an extensively altered groundmass (former feldspar). The alteration consists of mostly sericite with small patches of clinozoisite and chlorite.

The last chip contains a granitic-like texture of mostly anhedral quartz, with minor microcline, and interstitial epidote, chlorite and sericite replacing subhedral plagioclase.

REFLECTED LIGHT MICROSCOPY:

A small number of subhedral arsenopyrite and pyrite grains $\leq 150\mu\text{m}$ in size are disseminated throughout the various chips with most occurring within the altered mafic fragments. Oxidation of former sulphides to limonite is also evident.

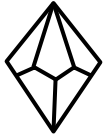
Gold is present in two forms and within two different rock types.

- (1) As minute ($<5\mu\text{m}$) sized, supergene grains confined to clay filled fractures within the gneissic chips.
- (2) As clusters or 'clouds' of grains ($<2\mu\text{m}$) within the altered mafic chips. These clusters of grains are usually associated with small patches of clinozoisite and are interpreted as primary gold, emplaced during retrograde calc-silicate alteration.

The mafic chips also host minor fine chalcopyrite and scattered subhedral ilmenite/leucoxene. Oxides are very rare in other chips.

FULL ROCK NAME AND CLASSIFICATION:

Foliated gneiss (metasediment), amphibolite and 'granitic' gneiss containing primary and supergene gold grains and rare sulphides



Minerex Services Pty. Ltd.

PO BOX 264 ESPERANCE 6450
MOBILE: 0438215768 FAX: (08) 9071 3374 EMAIL: minerex@bigpond.net.au

ACN: 008 971 220
ABN: 91 352 507 055

THIN SECTION DESCRIPTION

DATE:	January 2009
PETROLOGIST:	ACV
CLIENT:	Newmont Australia Ltd
CONTACT:	Peter Pring
THIN SECTION No:	T15106
NATURE OF THE SAMPLE:	RAB chips
FIELD DESCRIPTION:	Dolerite

TRANSMITTED LIGHT MICROSCOPY:

There is a mixture of rock types represented by the numerous small (1-7mm) chips on this section. The dominant amphibolite chips contain anhedral, poikilitic to prismatic amphibole (actinolite and hornblende) and minor biotite surrounded by subhedral plagioclase and lesser quartz. In the actinolite bearing chips, the feldspar has been partially to totally replaced by sericite.

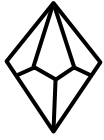
Few of the chips (gneiss) contain randomly oriented biotite flakes throughout a groundmass of feldspar (plagioclase) and quartz.

The remainder of the chips are granite-like, containing coarse-grained plagioclase, microcline and quartz. Minor biotite occurs within these chips as well. Sericite has partially replaced the feldspar.

The opaque assemblage consists of fine-grained magnetite/leucoxene closely associated with amphibole and biotite.

FULL ROCK NAME AND CLASSIFICATION:

Amphibolite (former mafic) and gneiss. Amphibolite facies metamorphic grade



Minerex Services Pty. Ltd.

PO BOX 264 ESPERANCE 6450
MOBILE: 0438215768 FAX: (08) 9071 3374 EMAIL: minerex@bigpond.net.au

ACN: 008 971 220
ABN: 91 352 507 055

THIN SECTION DESCRIPTION

DATE:	January 2009
PETROLOGIST:	ACV
CLIENT:	Newmont Australia Ltd
CONTACT:	Peter Pring
THIN SECTION No:	T15124
NATURE OF THE SAMPLE:	RAB chips
FIELD DESCRIPTION:	Dolerite

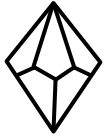
TRANSMITTED LIGHT MICROSCOPY:

The dominant rock type represented by the numerous small chips on this section is amphibolite. It contains fine to medium-grained, anhedral hornblende and minor flakes of biotite throughout a groundmass of subhedral plagioclase and quartz. Sericite has partially replaced the feldspar. Some diopside, minor magnetite and rare sulphide are closely associated with amphibole.

The other rock type is a foliated gneiss, consisting of lepidoblastic biotite throughout a granoblastic groundmass of predominantly quartz and minor plagioclase. Some clay development on the margins of the biotite is present. Rare zircons are noted.

FULL ROCK NAME AND CLASSIFICATION:

Amphibolite (former mafic) and foliated gneiss. Amphibolite facies metamorphic grade



Minerex Services Pty. Ltd.

PO BOX 264 ESPERANCE 6450
MOBILE: 0438215768 FAX: (08) 9071 3374 EMAIL: minerex@bigpond.net.au

ACN: 008 971 220
ABN: 91 352 507 055

THIN SECTION DESCRIPTION

DATE: January 2009
PETROLOGIST: ACV
CLIENT: Newmont Australia Ltd
CONTACT: Peter Pring
THIN SECTION No: **T15134**
NATURE OF THE SAMPLE: RAB chips
FIELD DESCRIPTION: Gneiss

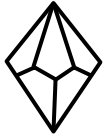
TRANSMITTED LIGHT MICROSCOPY:

The chips on this section vary from medium to coarse-grained, weakly foliated, to fine-grained, moderately foliated gneiss. The coarser grained gneiss consists of abundant anhedral quartz and subordinate and subequal amounts of plagioclase and microcline. Fine to medium-grained biotite occurs concentrated in weakly foliated, narrow bands and aggregates. Rare zircons and opaques (magnetite/ilmenite) are closely associated with the biotite.

The finer grained chips contain lepidoblastic biotite and rare muscovite defining a well developed foliation throughout a groundmass containing granoblastic quartz and minor subhedral plagioclase. Rare, medium-grained, weakly poikilitic garnet porphyroblasts are noted within one chip. Sericite has completely replaced one phase (possible feldspar) associated with biotite. Some chlorite has partially replaced biotite.

FULL ROCK NAME AND CLASSIFICATION:

Weak to moderately foliated gneiss



Minerex Services Pty. Ltd.

PO BOX 264 ESPERANCE 6450
MOBILE: 0438215768 FAX: (08) 9071 3374 EMAIL: minerex@bigpond.net.au

ACN: 008 971 220
ABN: 91 352 507 055

THIN SECTION DESCRIPTION

DATE: January 2009
PETROLOGIST: ACV/RWC
CLIENT: Newmont Australia Ltd
CONTACT: Peter Pring
THIN SECTION No: **T15144**
NATURE OF THE SAMPLE: RAB chips
FIELD DESCRIPTION: Dolerite

TRANSMITTED LIGHT MICROSCOPY:

There is a variation in the alteration and mineral assemblage within the numerous chips on the section. Most of the chips contain aggregates of unaltered, fine to medium-grained, granular to subhedral clinopyroxene surrounded by interlocking plagioclase laths. Brown to khaki hornblende and deep red to tan biotite are closely associated with the clinopyroxene.

A few chips contain intense amphibole-biotite-carbonate alteration and abundant fine opaques. Some coarser grained feldspar (plagioclase) and quartz are present within these chips.

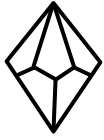
REFLECTED LIGHT MICROSCOPY:

Some variation in sulphide assemblages is evident between the fresh and highly altered chips. The unaltered gneissic chips contain irregular masses and intergrown aggregates of pyrrhotite-chalcopyrite with occasional grains of pentlandite up to 0.80mm in size. Some of the chips show alteration of the pyrrhotite to secondary pyrite and the pentlandite to violarite. Subhedral to rounded grains of ilmenite of 0.20mm size occur commonly throughout.

The more intensely altered, biotite-carbonate rich chips contain abundant fine chalcopyrite, sphalerite and rare graphite. Minor bornite is present as an alteration of chalcopyrite.

FULL ROCK NAME AND CLASSIFICATION:

Clinopyroxene-hornblende-biotite possible gneiss (former mafic) and intense biotite-carbonate altered amphibolite containing probable remobilised Fe-Cu-Ni-Zn sulphides



Minerex Services Pty. Ltd.

PO BOX 264 ESPERANCE 6450
MOBILE: 0438215768 FAX: (08) 9071 3374 EMAIL: minerex@bigpond.net.au

ACN: 008 971 220
ABN: 91 352 507 055

THIN SECTION DESCRIPTION

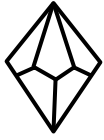
DATE:	January 2009
PETROLOGIST:	ACV
CLIENT:	Newmont Australia Ltd
CONTACT:	Peter Pring
THIN SECTION No:	T15190
NATURE OF THE SAMPLE:	RAB chips
FIELD DESCRIPTION:	Dolerite

TRANSMITTED LIGHT MICROSCOPY:

The multiple chips on this section are strongly weathered. Most contain abundant, weak to moderately foliated, fine to medium-grained biotite within a groundmass of finer grained quartz. Some chips contain minor muscovite. A few chips contain a medium-grained mosaic of quartz only, while one chip is a singular muscovite flake. Minor, subhedral to euhedral opaques are closely associated with the biotite. Iron-oxide staining is common throughout.

FULL ROCK NAME AND CLASSIFICATION:

Strongly weathered biotite schist



Minerex Services Pty. Ltd.

PO BOX 264 ESPERANCE 6450
MOBILE: 0438215768 FAX: (08) 9071 3374 EMAIL: minerex@bigpond.net.au

ACN: 008 971 220
ABN: 91 352 507 055

THIN SECTION DESCRIPTION

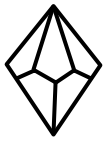
DATE:	January 2009
PETROLOGIST:	ACV
CLIENT:	Newmont Australia Ltd
CONTACT:	Peter Pring
THIN SECTION No:	T15201
NATURE OF THE SAMPLE:	RAB chips
FIELD DESCRIPTION:	Gneiss

TRANSMITTED LIGHT MICROSCOPY:

Minor, fine-grained biotite flakes and needles of muscovite define a well developed foliation throughout a fine-grained mosaic of quartz and rare plagioclase. Some coarser grained, stretched quartz is also present throughout the groundmass. Rare tourmaline is noted.

FULL ROCK NAME AND CLASSIFICATION:

Two mica gneiss (metasediment)



Minerex Services Pty. Ltd.

PO BOX 264 ESPERANCE 6450
MOBILE: 0438215768 FAX: (08) 9071 3374 EMAIL: minerex@bigpond.net.au

ACN: 008 971 220
ABN: 91 352 507 055

THIN SECTION DESCRIPTION

DATE: January 2009
PETROLOGIST: ACV/RWC
CLIENT: Newmont Australia Ltd
CONTACT: Peter Pring
THIN SECTION No: **T15203**
NATURE OF THE SAMPLE: RAB chips
FIELD DESCRIPTION: Dolerite

TRANSMITTED LIGHT MICROSCOPY:

This section consists of fourteen ≤ 1 cm-sized chips; the dominant rock type represented being fine to medium-grained, foliated amphibolite with variable degrees of retrogression and alteration. Fine to medium-grained, acicular to prismatic and irregular grains of hornblende predominate, surrounded by variably sericite altered, subhedral plagioclase and granoblastic quartz. Biotite varies in abundance throughout the chips from minor flakes associated with amphibole, to the dominant mineral phase defining a moderate to strong foliation. Minor, fine granular carbonate occurs associated with biotite in one chip. Minor amounts of a honey brown, amorphous, pseudo isotropic alteration phase occurs in some chips. Rare K-feldspar veinlets are noted.

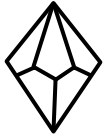
REFLECTED LIGHT MICROSCOPY:

Sulphides are rare and thinly disseminated throughout most of the chips, although showing some affinity with the sericite altered leucocratic areas. Arsenopyrite is the main phase present, occurring as euhedral crystalloblasts up to 0.4mm in size containing fine, subhedral masses of lollingite (FeAs_2) forming as a partial replacement. Minute euhedral grains of native bismuth ($\leq 10\mu\text{m}$) occur as rare inclusions within some of the arsenopyrite. Other minor sulphide phases include pyrite, chalcopyrite sphalerite and molybdenite. The chalcopyrite generally occurs as discrete grains and as clusters of fine blebs. Irregular partly skeletal masses of leucoxene/rutile up to 1.0mm in size occur as remnants of former titanomagnetite. Residual ilmenite is rare.

The presence of lollingite may contribute to the elevated Sb in some intervals, as appreciable Sb can substitute for As in the lattice.

FULL ROCK NAME AND CLASSIFICATION:

Amphibolite (former mafic) containing finely disseminated Fe-As-Cu-Zn-Mo sulphides



Minerex Services Pty. Ltd.

PO BOX 264 ESPERANCE 6450
MOBILE: 0438215768 FAX: (08) 9071 3374 EMAIL: minerex@bigpond.net.au

ACN: 008 971 220
ABN: 91 352 507 055

THIN SECTION DESCRIPTION

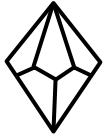
DATE:	January 2009
PETROLOGIST:	ACV
CLIENT:	Newmont Australia Ltd
CONTACT:	Peter Pring
THIN SECTION No:	T15215
NATURE OF THE SAMPLE:	RAB chips
FIELD DESCRIPTION:	Gneiss

TRANSMITTED LIGHT MICROSCOPY:

This thin section consists of five 1-1.5cm-sized chips that are petrographically similar, altered two mica gneisses. The dominant rock type consists of fairly fine-grained and texturally variable, polycrystalline quartz with dispersed, sericite altered patches of feldspar (plagioclase and microcline). Discontinuous stringers of muscovite and biotite/chlorite define a weak foliation. Iron-oxide staining of the biotite/chlorite is common. Rare tourmaline is noted.

FULL ROCK NAME AND CLASSIFICATION:

Foliated two mica gneiss



Minerex Services Pty. Ltd.

PO BOX 264 ESPERANCE 6450
MOBILE: 0438215768 FAX: (08) 9071 3374 EMAIL: minerex@bigpond.net.au

ACN: 008 971 220
ABN: 91 352 507 055

THIN SECTION DESCRIPTION

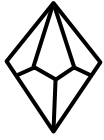
DATE:	January 2009
PETROLOGIST:	ACV
CLIENT:	Newmont Australia Ltd
CONTACT:	Peter Pring
THIN SECTION No:	T15227
NATURE OF THE SAMPLE:	RAB chips
FIELD DESCRIPTION:	Gneiss

TRANSMITTED LIGHT MICROSCOPY:

The nine chips on this section are petrographically similar, moderate to strongly foliated two mica gneisses. Fine-grained biotite defines a well developed foliation throughout a granoblastic groundmass dominated by quartz with minor weakly altered feldspar. Well formed muscovite crystals are commonly associated with biotite, oblique and subparallel to the foliation. Some chips contain fine-grained, weakly developed, poikilitic andalusite crystals. Rare zircons are noted.

FULL ROCK NAME AND CLASSIFICATION:

Biotite-muscovite-andalusite gneiss



Minerex Services Pty. Ltd.

PO BOX 264 ESPERANCE 6450
MOBILE: 0438215768 FAX: (08) 9071 3374 EMAIL: minerex@bigpond.net.au

ACN: 008 971 220
ABN: 91 352 507 055

THIN SECTION DESCRIPTION

DATE:	January 2009
PETROLOGIST:	ACV
CLIENT:	Newmont Australia Ltd
CONTACT:	Peter Pring
THIN SECTION No:	T15232
NATURE OF THE SAMPLE:	RAB chips
FIELD DESCRIPTION:	Schist

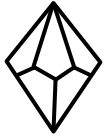
TRANSMITTED LIGHT MICROSCOPY:

The twelve small lenticular-shaped chips on this section are partly weathered, strongly foliated biotite-muscovite schist and quartz vein material. The schist is dominated by fine-grained biotite and muscovite defining a strong foliation and crenulation, in some chips separated by narrow bands of fine-grained, granoblastic quartz. In the crenulated chips, quartz veinlets are also contorted and deformed.

The quartz vein material is dominated by polycrystalline quartz, containing sutured grain boundaries. Few, fine iron-oxide stringers occur throughout the quartz.

FULL ROCK NAME AND CLASSIFICATION:

Biotite-muscovite schist (metasediment) containing quartz veins



Minerex Services Pty. Ltd.

PO BOX 264 ESPERANCE 6450
MOBILE: 0438215768 FAX: (08) 9071 3374 EMAIL: minerex@bigpond.net.au

ACN: 008 971 220
ABN: 91 352 507 055

THIN SECTION DESCRIPTION

DATE:	January 2009
PETROLOGIST:	ACV/RWC
CLIENT:	Newmont Australia Ltd
CONTACT:	Peter Pring
THIN SECTION No:	T15234
NATURE OF THE SAMPLE:	RAB chips
FIELD DESCRIPTION:	Schist

TRANSMITTED LIGHT MICROSCOPY:

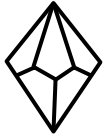
The numerous small chips on this section are petrographically similar, moderate to strongly foliated, biotite-muscovite schist. Foliated, fine-grained biotite and muscovite occur throughout a fine-grained granoblastic quartz groundmass. Some chips contain coarser grained rare feldspar, while others contain rare distorted quartz veins. Rare tourmaline is noted.

REFLECTED LIGHT MICROSCOPY:

Very fine, subhedral pyrite crystalloblasts and chalcopyrite blebs are sparsely dispersed throughout the groundmass, often associated with quartz mosaics or sericite seams. Small graphite flakes (50 μ m) are rare, although some fragments contain dense patches of graphite 'dustings' (<1.0 μ m) and minor fine rutile.

FULL ROCK NAME AND CLASSIFICATION:

Biotite-muscovite schist (metasediment) with rare sulphides and fine carbon



Minerex Services Pty. Ltd.

PO BOX 264 ESPERANCE 6450
MOBILE: 0438215768 FAX: (08) 9071 3374 EMAIL: minerex@bigpond.net.au

ACN: 008 971 220
ABN: 91 352 507 055

THIN SECTION DESCRIPTION

DATE: January 2009
PETROLOGIST: ACV/RWC
CLIENT: Newmont Australia Ltd
CONTACT: Peter Pring
THIN SECTION No: **T15237**
NATURE OF THE SAMPLE: RAB chips
FIELD DESCRIPTION: Schist

TRANSMITTED LIGHT MICROSCOPY:

The numerous small chips on this section are moderately to strongly foliated and contain fine-grained, lepidoblastic biotite and muscovite throughout a granoblastic groundmass dominated by quartz with minor plagioclase. Some chips contain fine to medium-grained, poorly defined andalusite porphyroblasts. Rare K-feldspar porphyroblasts are also present. The opaques are generally confined to quartz veins.

REFLECTED LIGHT MICROSCOPY:

Sulphides are confined to the quartz veinlets within some chips and occur as discrete crystalloblasts and as polysulphide aggregates. Euhedral crystalloblasts of arsenopyrite up to 2.0mm in size dominate the sparse sulphide assemblage and show partial replacement by lollingite. Some polysulphide aggregates of pyrite-arsenopyrite occur as a replacement of biotite and are in turn partially replaced by massive chalcopyrite. Other minor phases present include sphalerite and graphite as small masses associated with the other sulphides and acicular rutile, thinly disseminated throughout the groundmass.

FULL ROCK NAME AND CLASSIFICATION:

Biotite-muscovite-andalusite schist containing quartz vein hosted Fe-As-Cu-Zn sulphides