

See HIMCO general file

CHUM CLAIMS - THIN SECTIONS

019368

104B/160

See Figure 2 for Location Map

Chum 1

Location: 850W/250S

Field Classification: Green lapilli tuff or flow with 15% remnant phenocrysts.

Thin Section Work: The matrix is composed of 50% dense quartzofeldspathic intergrowth, 35% chlorite, 15% epidote and minor clay. The clay causes a dusty appearance under uncrossed nicols. Phenocrysts comprise 15% of the rock. Quartz occurs as 1% rounded phenocrysts with euhedral pyrite and chlorite embaying the margins; 14% are .25-1.0 mm subangular to subrounded feldspars with a square or lath shape. The feldspars are replaced by epidote and clay. Occasionally they are zoned. Euhedral to subhedral 0.025-0.25 mm pyrite is disseminated throughout.

Epidote, a common alteration product of calcium feldspars is abundant. This, plus a point count on the matrix which yielded 55% albite, 35% orthoclase, 5% quartz, 5% cristobalite, classify this rock as asodic andesite. The abundance of albite could also be an alteration effect.

Chum 2

Location: 700E/450S

Field Classification: Green, sericitically altered lapilli tuff.

Thin Section Work: The matrix is composed of 50% fine-grained quartzofeldspathic intergrowth altering to clays and sericite. The rock is 40% semi-aligned, chipped and fractured 0.125-1.0 mm laths of feldspar altered to sericite. There are 7%, 0.50-2 mm subangular phenocrysts of

4 and 8 sided remnant feldspars altered to calcite, feldspar, sericite and quartz. The remaining 3% is 0.50-4 mm fragments of andesite. Pyrite is disseminated throughout.

This is a crystal and lithic rich lapilli tuff. The aligned feldspars are evidence of compaction during deposition or possibly post deposition flowage. The lithic fragments and crystals are chipped and subangular suggesting violent eruption and/or transport not far from the source.

Chum 3

Location: Baseline/250E

Field Classification: Sericitically altered tuff

Thin Section Work: This rock is composed of 45% dense quartzofeldspathic matrix, 30% 0.25-1.5 mm wispy sericite fibers, 12% 0.125-0.25 mm semi-angular to broken orthoclase and albite phenocrysts. There is 3% 0.02-0.125 mm pyrite in the matrix and phenocrysts. The sericite fibers are aligned and wrapped around phenocrysts, giving the tuff a banded, compacted appearance in thin section.

Chum 4

Location: 900W/250S

Field Classification: Pink grey silica stockwork ± pyrite in tuffs.

Thin Section Work: Tuffaceous appearing rock is fine-grained and altered to sericite, epidote, calcite and minor chlorite. At the contact with the "silica flooding" the tuff is intensely sericitically altered. The contact itself is 0.50-1.5 mm wide composed of 70% fine-grained silica and 30% sericite. The silica flooding is 0.125-0.25

quartz and feldspar altered in the same manner as the tuffaceous
... but with noticeably less epidote.

Chum 5

Location: 500W/45N

Field Classification: Carbonaceous volcanoclastic breccia

Thin Section Work: There are 75% subangular 0.50-6 mm fragments of tuffaceous andesite lying in a carbonaceous matrix with minor orthoclase, sericite, chlorite, hematite and pyrite.

Chum 6

Location: 200E/250S

Field Classification: Andesitic tuff with carbonaceous and calcareous stringers.

Thin Section Work: A matrix of fine-grained sericite, quartzofeldspathic intergrowth and abundant clay comprises 60% of the rock. The thin section is very dusty under uncrossed nicols. Subangular 0.50-1 mm tuffaceous rock fragmentals composed of sericite and quartzofeldspathic intergrowth account for 20% of the rock.

Subangular to euhedral 0.25 mm plagioclase crystals comprise 10% of the tuff. These crystals show broad, broken-up fuzzy albite twins. Some are zoned with an albite rim. The plagioclases had optic axis figures which were consistently biaxial negative with a $55-60^\circ 2V$. According to Deer, Howie and Zussman (pg. 330) high temperature sodic plagioclases have different optics than their low temperature counterparts. A $2V$ like this indicates a composition of An_{15} on the high temperature series.

Another indicator of high temperatures is the presence of 10-15% 0.50 mm vesicles. This may indicate this rock was at the top of a volcanic pyroclastic/flow event. The presence of expanding and exploding gases would also raise the temperature. The vesicles have a devitrified rim of dense quartzofeldspathic intergrowth with centers of chlorite and/or calcite and/or sericite.

The carbonaceous stringer is composed of a heavy concentration of carbon on the outer borders of the veinlet and disseminated throughout. Also found are pyrite, quartzofeldspathic intergrowth, calcite, sericite and chlorite. The pyroclastic ejecta came to land where minor sedimentation was occurring. As the rock cooled, vesicles exploded, etc. cracks and fractures were filled with carbonaceous/argillaceous matter, forming these stringers.

Chum 7

Location: 900E/450S

Field Classification: Carbonaceous andesitic tuff

Thin Section Work: The matrix, composed of dense quartzofeldspathic intergrowth and sericite, comprises 90% of the tuff. Remnant phenocrysts and rock fragments, including what may be an exploded vesicle or pumice fragment, account for the remaining 10%. All are completely sericitized. Carbonaceous streaks are disseminated throughout the tuff and surround some of the fragments. Calcite veinlets and blebs are common. Pyrite is disseminated throughout.

Chum 8

Location: 900W/250S

Field Classification: Silica flooded andesitic tuff with disseminated sulfides.

Thin Section Work: Matrix is very fine-grained clay and sericite replacing dense quartz/feldspar. Veinlets of calcite with inclusions of accessory minerals, pyrite, sericite and illmenite cut the rock. Pyrite and sphalerite occur in veinlets of quartz, chlorite and calcite.

Chum 9 and 10

Location: 900W/250S

Field Classification: Silica flooded andesitic tuff

Thin Section Work: These rocks are completely altered to sericite wisps, clay, and chlorite with disseminated iron sulfides. Pyrite cubes are surrounded by chlorite. The silica flooded area is fine-grained quartz and feldspar and calcite. The rock has a fabric, both from silica pulses and compacted sericite wisps. The extensive alteration obscures whether this is primary or secondary.

1-CH-6

Location: Trench 6

Field Classification: Pyritic tuff

Thin Section Work: The matrix comprises 90% of the rock. It is composed of 50% dense quartzofeldspathic intergrowth, 10% grains and wisps of sericite, and 30% calcite. The quartz/feldspar texture varies

from extremely fine-grained to fine-grained patches indicating spotty recrystallization/silicification. The rest of the tuff is 5% disseminated 0.02-0.1 mm pyrite and illmenite, and 5% remnant 0.25 mm lithic fragments, and quartz and feldspar phenocrysts.

The iron sulfides, calcite and sericite are all elongated and sub-parallel giving a fabric to the rock. This specimen is from a fracture and faulted area. The mineral alignment reflects pressure from shearing.

1-CH-8

Location: Trench 8 - western portion

Field Classification: Andesitic tuff

Thin Section Work: This rock may be sericitically altered Premier Porphyry. A matrix of dense quartzofeldspathic intergrowth comprises 55% of the rock. 40% of the rock is 1-2 mm rectangular, subparallel ghost laths now composed of sericite, quartz, feldspar and chlorite. These were probably Na-K rich feldspars. Other ghost crystals are 2% 0.50-1 mm thin laths replaced by chlorite, pyrite and calcite. These were probably amphiboles. There is 3% pyrite and illmenite occurring in streaks aligned parallel the laths and disseminated throughout.

In the field this rock appears to be fine-grained and foliated. The foliation is probably due to the aligned laths and regional greenschist metamorphism which varies in intensity from site to site. These laths are generally not visible in hand specimen because of the alteration and foliation. This rock has 42% phenocrysts. This plus the absence of rock fragments suggests it may well be altered Premier Porphyry.

Veinlets in Trench 8 carry minor sulfide mineralization. Trench 7, 100 feet east of Trench 8 also carries mineralization (see trench maps). Field work next season should try to determine what these rocks are, if there is a contact here and if the mineralization is occurring as an exhalative horizon (hot spring source?) near the Premier Porphyry or andesitic fragmentals.

Chum 104

Location: Probably around the Stoner workings - collected in 1979 by Kretschmars.

Field Classification: Sericitically altered Premier Porphyry.

Thin Section Work: This rock has 30-40% 0.25-2.5 mm. subrounded phenocrysts composed of: 7: orthoclase, 2: quartz, and 1: amphibole (?) altered to clay. The matrix is dense quartzofeldspathic intergrowth. This hand specimen would be classified as a latite or dacite.