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Report on Mapping and X-Ray Diffraction Work
Le Mare Property

for Minnova Inc.
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SUMMARY

The alteration types within the South Gossan Zone (SGZ)of the Le Mare Property were reviewed using existing reports, field mapping and X-ray diffraction. This work confirms that the property contains advanced argillic alteration, characterized by pyrophyllite and diaspore. In addition extensive leached rock also outcrops within the SGZ. Quartz-sericite (phyllic) alteration flanks both of these types of advanced argillic alteration and grades outward to kaolinite dominant (argillic) and propylitic alteration. Potassic alteration was observed at the base of the hill, below the leached rock. A porphyry deposit, adjacent or beneath the main alteration of the SGZ remains the best exploration target.

Work Program

Five days (July 15-19) were spent on the Lemare Property on Vancouver Island. The majority of mapping and sampling was conducted within the South Gossan Zone, with one day spent on the rest of the property, for regional context. A total of 24 hand samples were collected, and 10 of these were analyzed by X-ray diffraction using the facilitites in the Geology Dept. at the Univ. of British Columbia. The field work, a review of the existing reports and the XRD analysis have been synthesized for this report.

The goals of this work were as follows:

- Assess the potential for epithermal mineralization, based on the alteration and geology of the property.
- Determine the style of alteration present and in particular further define the advanced argillic alteration and associated silicification ('sinter').
- Define basic zoning patterns within the SGZ, based on mapping and XRD.

Geology

The Lemare Property is located 35 Km southwest of the Island Copper Mine. The property lies within an area of mapped Jurassic Bonanaza Supergroup volcanics and contains a variety of volcanic lithologies. The alteration within the SGZ is hosted by mafic, basaltic to andesitic dykes and flows, a variety of epiclastic and pyroclastic units and extensive flow banded rhyolites. The highest point on the property, a kilometre to the west of the SGZ consists of flow banded rhyolite and probably forms the center of a rhyolite dome complex. The mafic dykes cut the rhyolite, and all units are cut by an a set of near east-west, steeply dipping fractures. The dykes are frequently altered, to either propylitic or quartz-sericite assemblages, and occassionally to 100% clay. The alteration, therefore, appears to be post the main phase of volcanism, but may have been contemporaneous with a late phase intrusion.

Alteration

The South Gossan Zone of the Lemare Property contains extensive alteration, ranging from advanced argillic to propylitic. The observed alteration assemblages are most consistent with a porphyry system. Alunite and/or other extensive sulfate rich zones are lacking, as is significant introduction of silica and hdyrothermal brecciation. The assemblages are as follows:

- **Advanced Argillic**: Quartz, pyrophyllite, diaspore, also acid-leached rock containing quartz with trace amounts of diaspore + kaolinite
- **Phyllic**: Quartz, sericite (either 1M muscovite, or illite), pyrite
- **Argillic**: Kaolinite, quartz

- **Propylitic**: Chlorite, epidote, calcite, pyrite

SAMPLES FOR XRD:

The mineralogy and brief descriptions are given below for each of the samples which were analyzed by XRD and the X-ray patterns are attached:

9204: Quartz dominant, pyrophyllite and kaolinite moderate.

615m on the upper road - Sugary white, 'sparkly' rock, moderately hard, weathered, brown, geothite on fractures.

9206: Quartz dominant, pyrophyllite and sericite moderate, pyrite minor.

412m on the upper road - grey, slightly greasy rock, heavily stained by limonite/geothite.

9209: Allophane ($Al_2O_3\ 2SiO_2\ 3H_2O$) dominant, illite (sericite) moderate, quartz and goethite minor.

42m north of junction of upper and middle roads - white/grey,to buff quartz - clay rock with occasional pyritic zones, and x-cut by small dyke.

9210: Quartz dominant, pyrophyllite and illite (sericite) moderate.

240m on middle road - buff white/grey, rock with limonite/jarosite coating fractures, same as sample site #6.

9213: Quartz dominant, illite (sericite) moderate, pyrophyllite and pyrite minor.

840m on middle road - greasy white/grey rock, probable altered flow banded rhyolite. same as sample site #23.

9214 Quartz dominant, kaolinite, muscovite (1M) moderate, poss. minor pyrophyllite.

approx. 100 m north of junction of upper and middle roads - grey/buff v. slippery rock, with weak to moderate limonite/goethite coating.

9217 Dickite ($Al_2O_2\ 2SiO_2\ 2H_2O$)

161m on main road - white, slippery mineral, (not sticky) coating fracture surfaces, monomineralic sample. On surface of grey quartz-sericite? rock.

9220 Quartz dominant, moderate to minor muscovite (1M)/ sericite

407m on main road - light grey outcrop with jarositic staining and slightly greasy feel, dominantly quartz, with 2% vugs and 1-2% diss. hematite.

9221 Quartz dominant, with trace kaolinite

541m on main road - acid leached, 'rubble rock' - with possible minor clay, immediately adjacent to quartz-sericite-pyrite rock.

9223 Quartz dominant, with trace kaolinite and diaspore

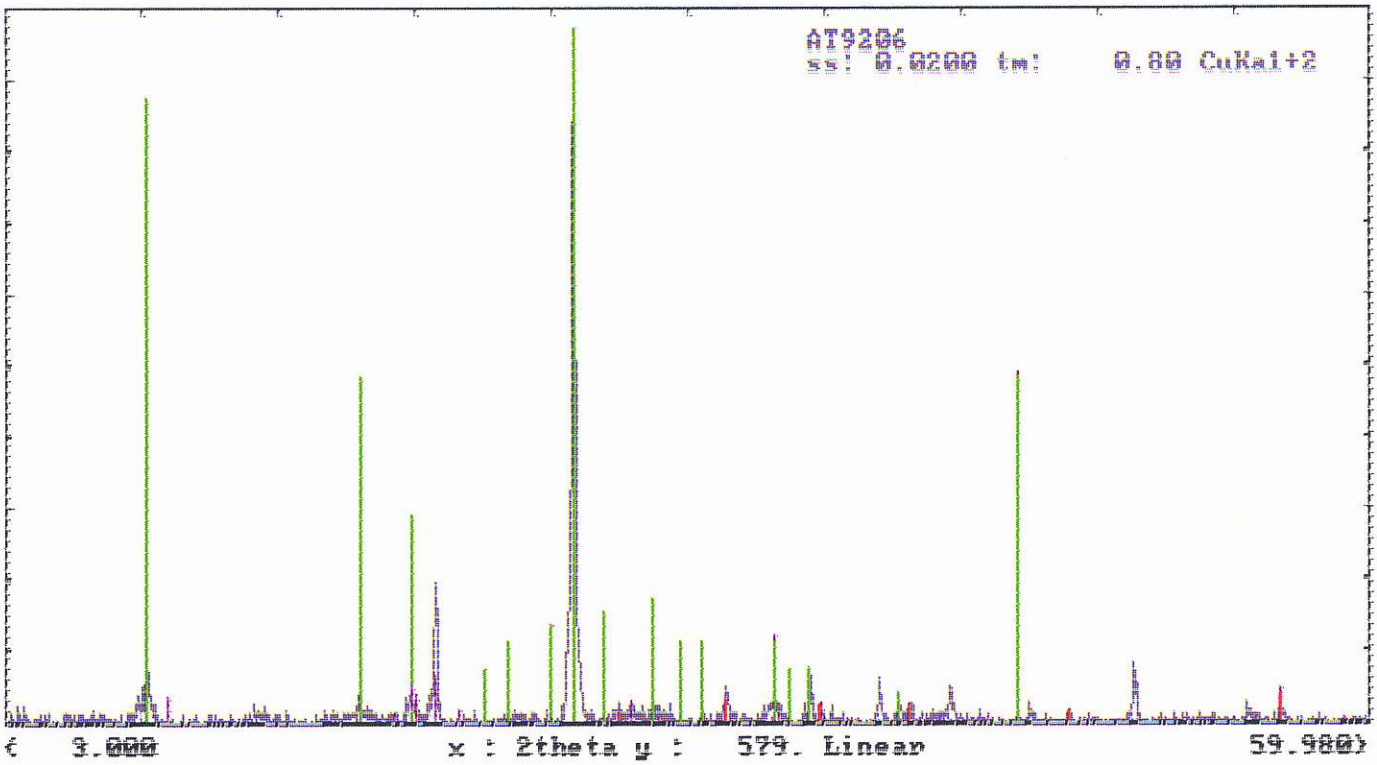
982m on main road - acid leached rock, virtually 100% residual silica, white to light grey, overlain by competent, unleached lithology.

CONCLUSIONS

The potential for epithermal mineralization within the SGZ area of the Lemare Property is low due to several factors, most important are:

1. The lack of introduced silica within the alteration zones.
2. The paucity of hydrothermal brecciation
3. No significant sulfate alteration, suggestive of a 'high-sulphidation' system.

The property, however, continues to have significant potential as a porphyry target. The advanced argillic alteration, including the acid leached zone defined on the main road are undoubtedly porphyry related and are similar to other alteration zones within the Island Copper Belt.



26-0911 I (K,H3O)Al2Si3AlO10(OH)2 Illite IT M RG NR
33-1161 * SiO2 Quartz syn
6-0710 I FeS2 Pyrite syn
25-0022 I Al2Si4O10(OH)2 Pyrophyllite IT A RG

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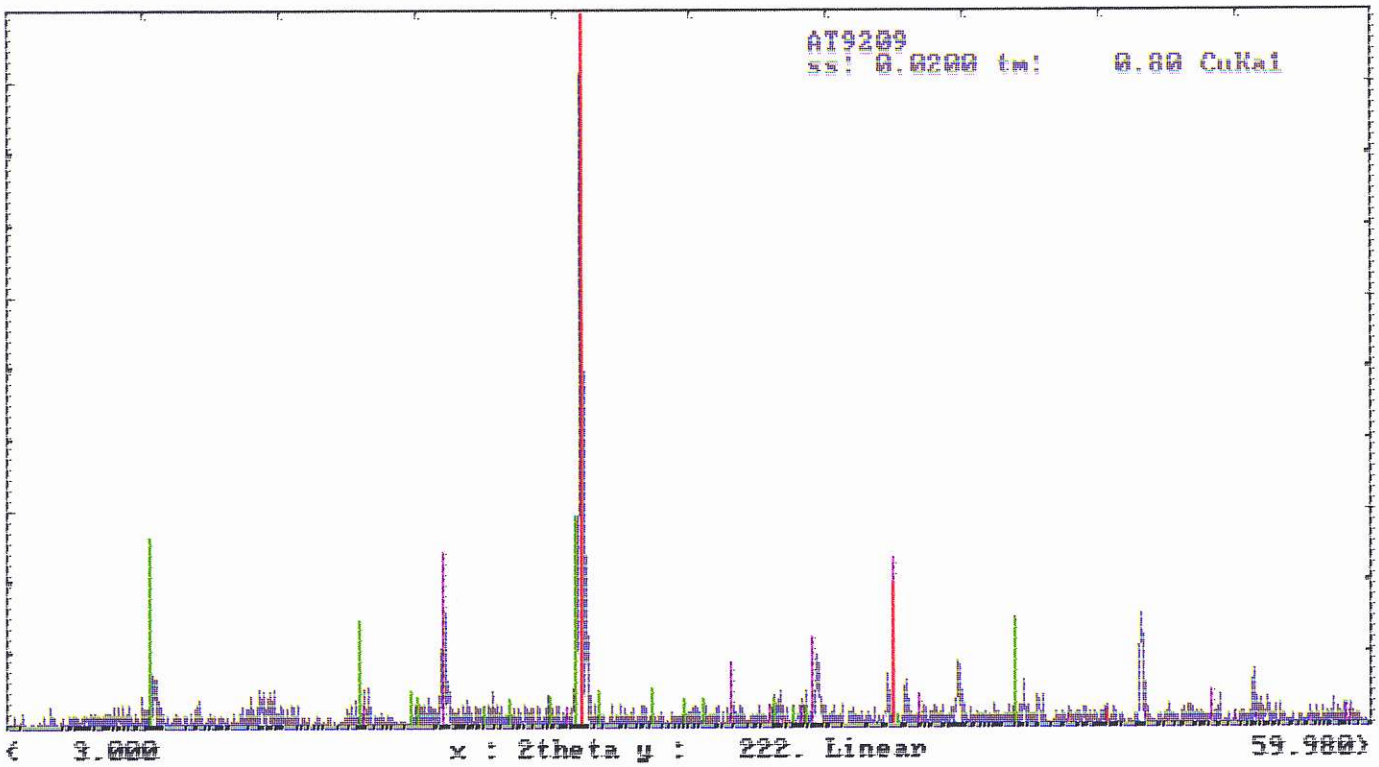

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33-1161 * SiO2 Quartz syn
38-0449 Al2O3.2SiO2.3H2O Allophane
29-0713 I FeO(OH) Goethite

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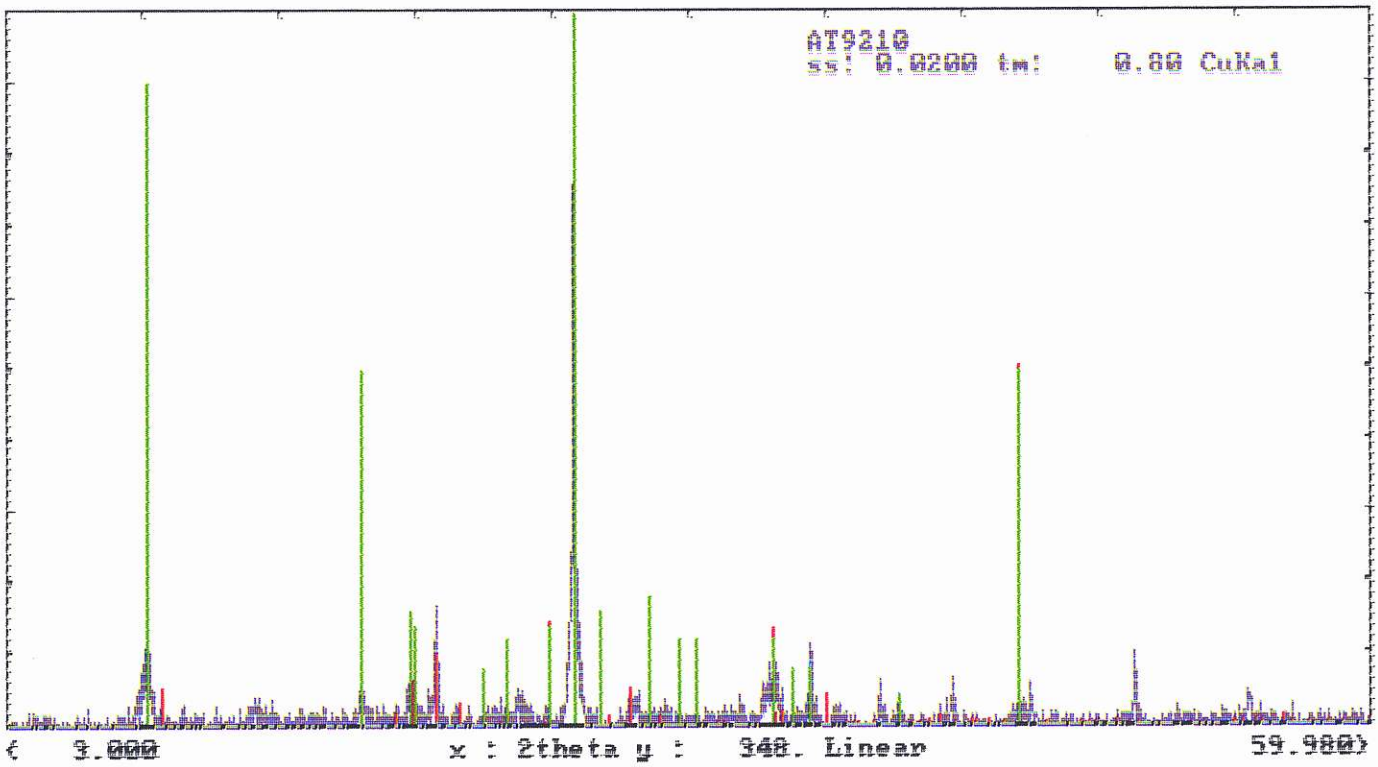

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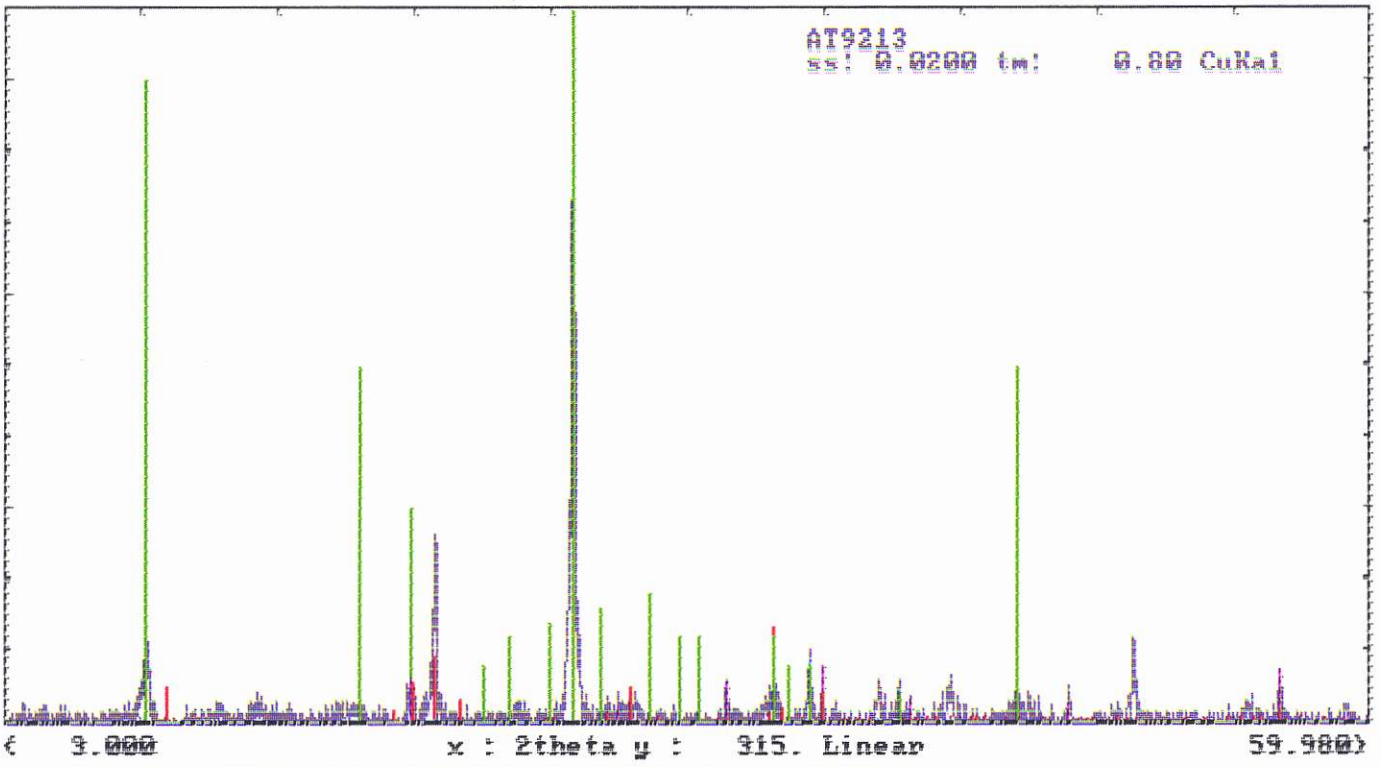

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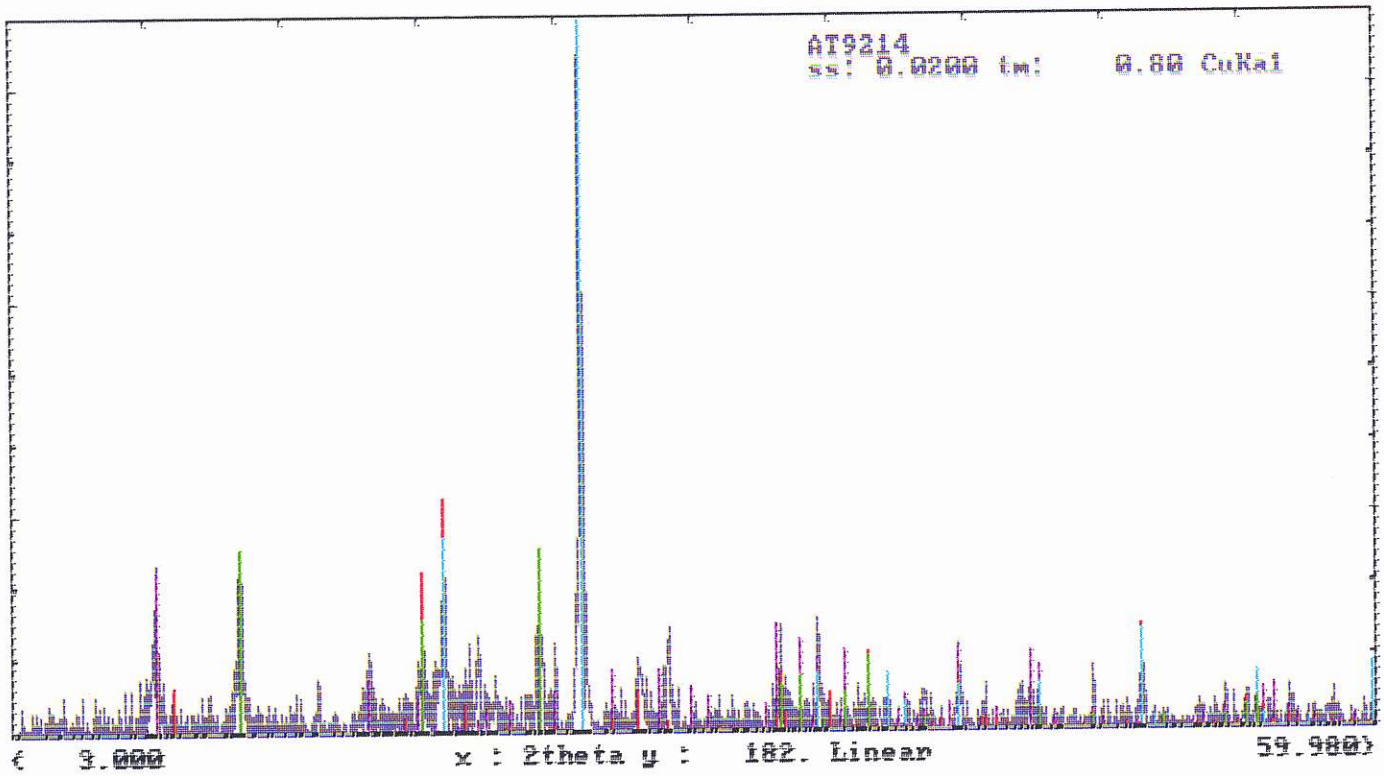

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33-1161 * SiO2 Quartz syn
25-0022 I Al2Si4O10(OH)2 Pyrophyllite IT A RG
6-0263 I KAl2(Si3Al)O10(OH,F)2 Muscovite IT M RG

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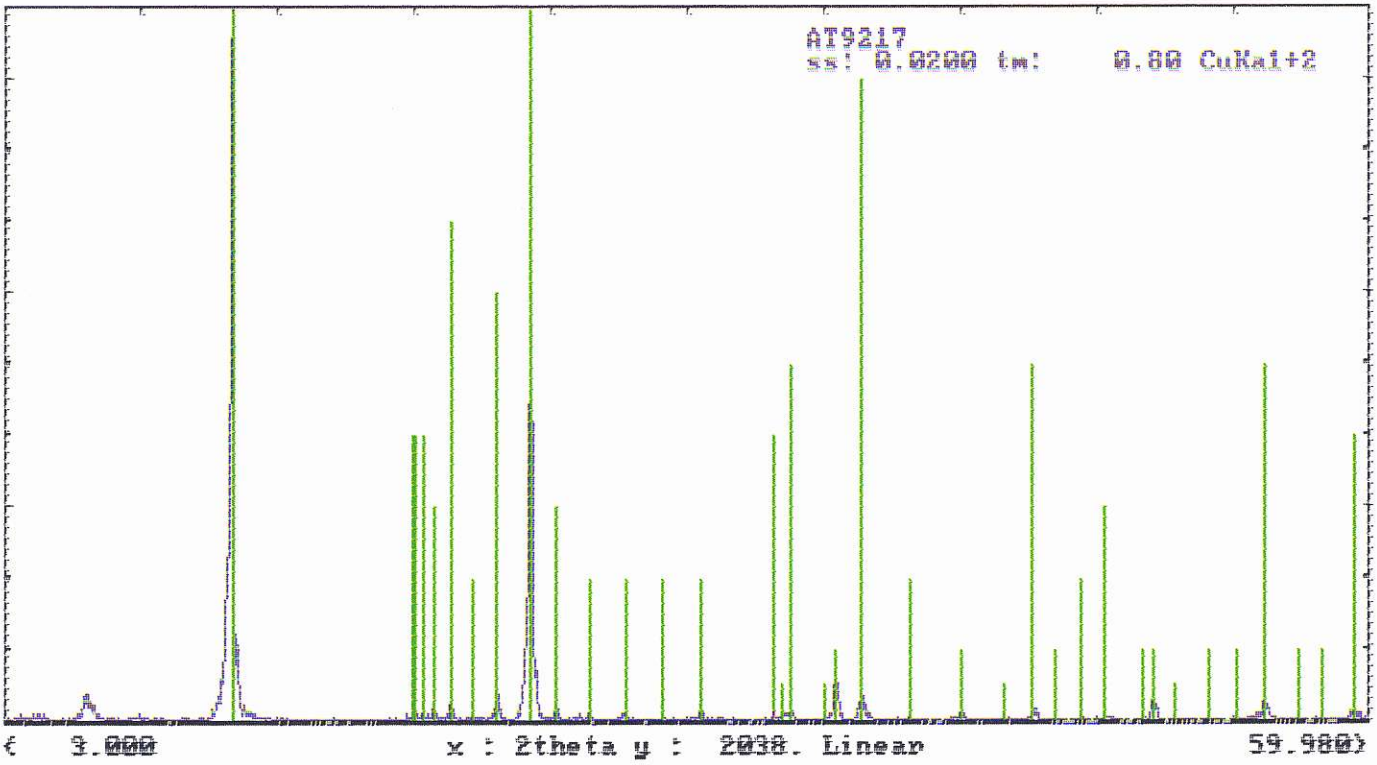

10-0446 I Al2Si2O5(OH)4 Dickite IT M RG

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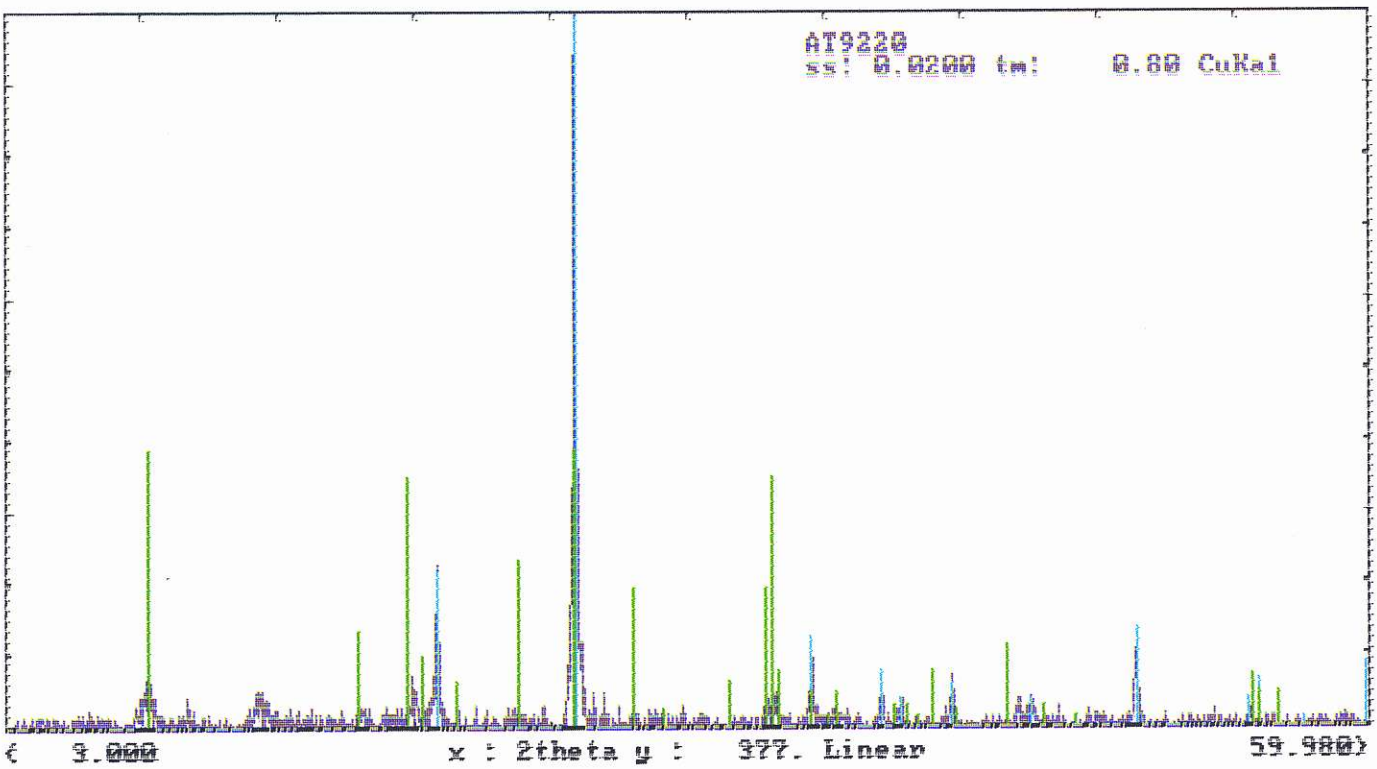

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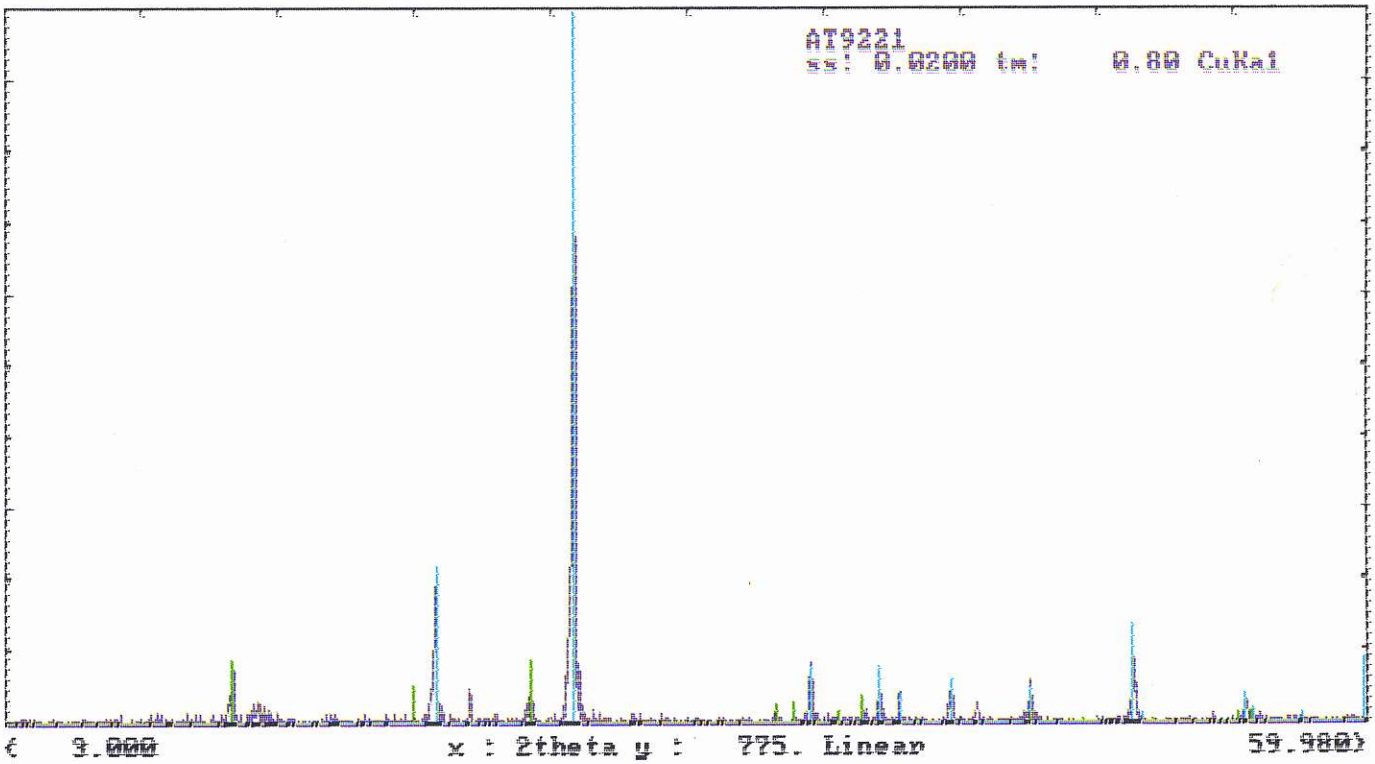

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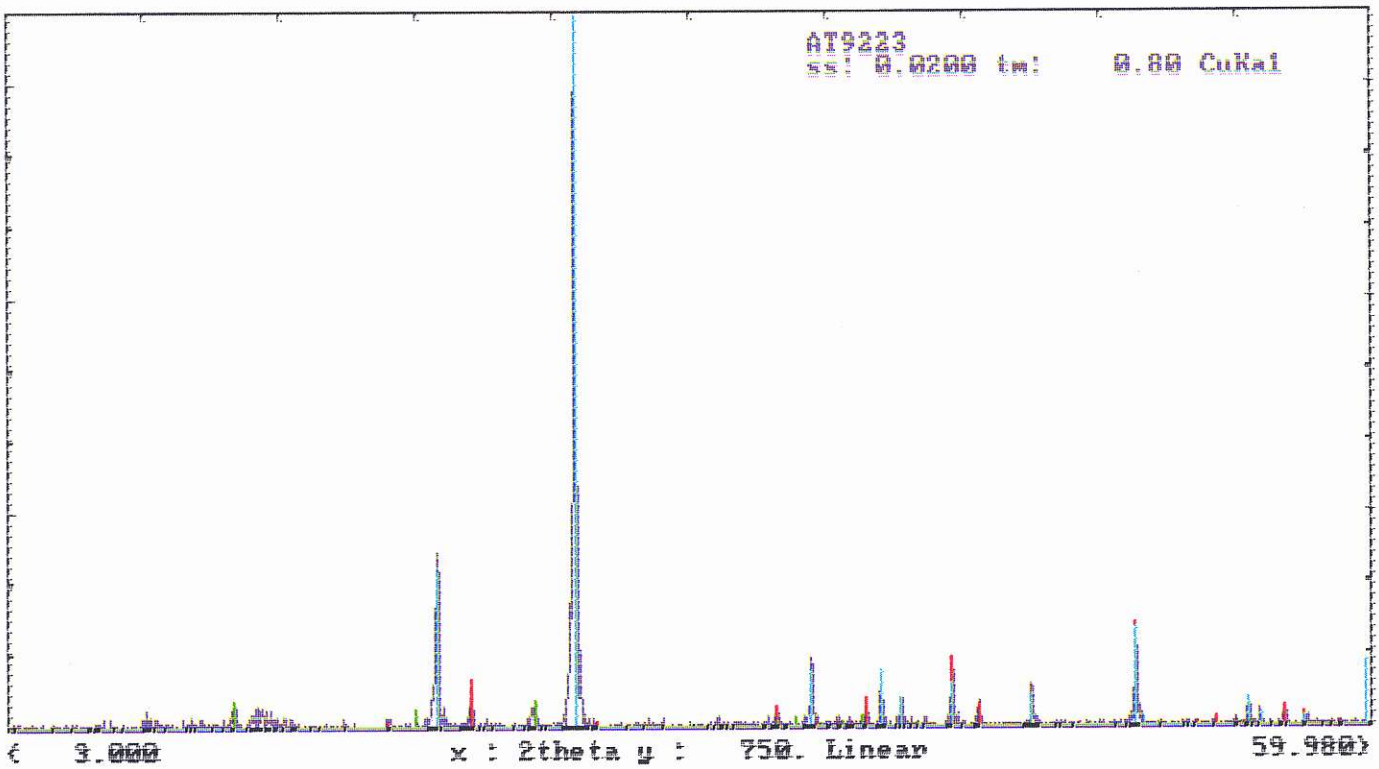

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33-1161 * SiO2 Quartz syn
5-0355 I AlOOH Diaspore

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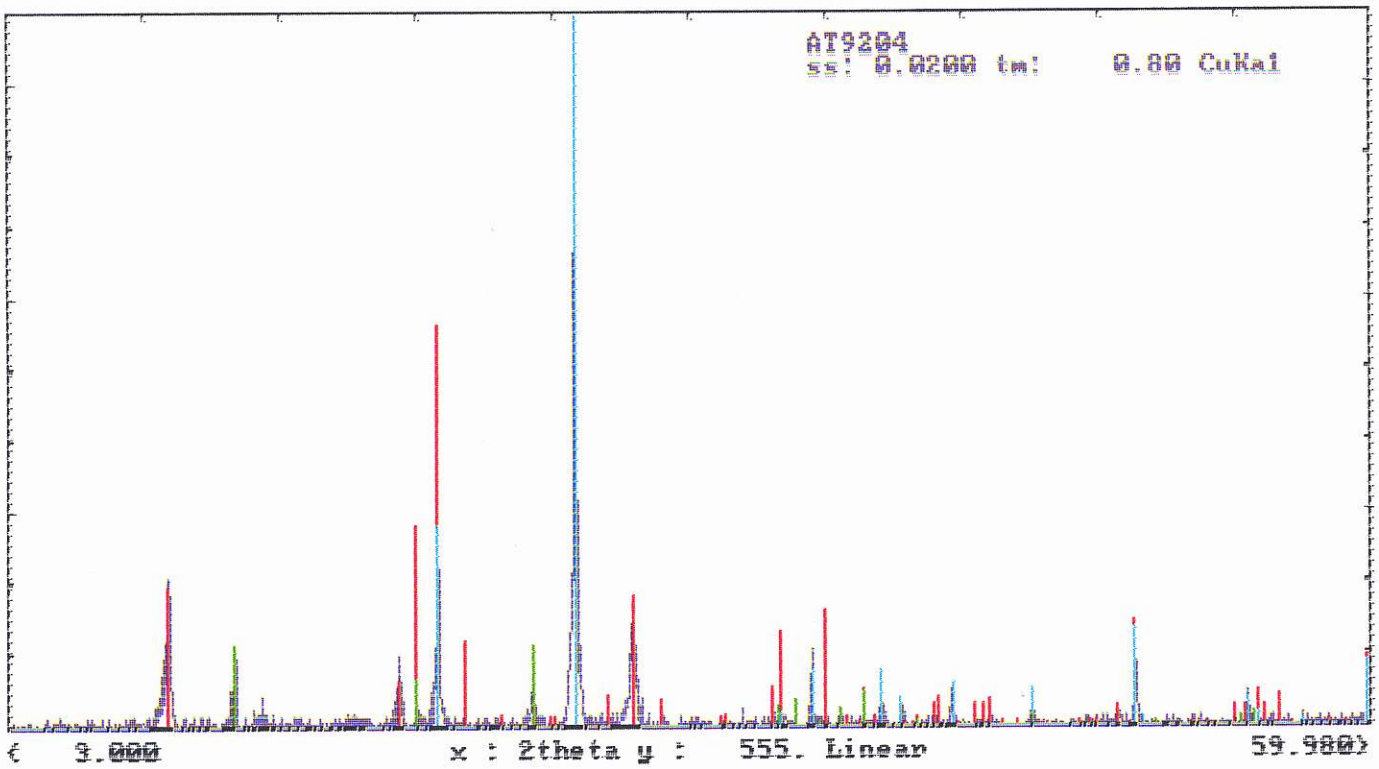

29-1488 Al2Si2O5(OH)4 Kaolinite IT Md RG
33-1161 * SiO2 Quartz syn
25-0022 I Al2Si4O10(OH)2 Pyrophyllite IT A RG

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