

APPENDIX 7

NATURE OF THE MINERALIZING FLUID

Field evidence from Moina and other world occurrences clearly indicates that wiggilite results from replacement of relatively pure calcite or dolomite, therefore the mineralizing fluid must introduce all foreign elements including H₂O, F, Fe, Al, Si, K, Mg, Sn, W and Bi.

The most significant associated alteration type throughout the world is greisenization, in which H₂O, F, Fe, Al, Si, Sn and W are introduced into a granite. West (1974) found from studies of fluid inclusions in a fluorite lode about 30 km NNW of Mt. Garnet, Queensland, that the fluid associated with greisenization was possibly of high salinity (14-41% NaCl) and at temperatures of 260 - 380° C.

It is not possible to use data such as that of Meyer and Hemley (1967) on the systems K₂O - Na₂O - Al₂O₃ - SiO₂ - H₂O, to deduce the fluid composition during the alteration stages of greisenization, because greisenization would involve systems with high F concentrations, which would have an unknown quantitative effect on stability relationships. It is clear however that the fluid had a high F⁻ and H⁺ activity and therefore possibly carried fluoride complexes like Sn (OH,F)₆²⁻.

For reference list see Appendix 5.