

## SMEDG MEETING 29<sup>th</sup> March 2007

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**Kylylahti Copper Cobalt Deposit, Outokumpu, Finland**  
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### ABSTRACT

**Location:** The Outokumpu copper camp is located some 400 kilometres north-east of Helsinki, Finland's capital.

**Story:** Outokumpu style copper-cobalt-zinc-nickel-gold deposits were first discovered at Outokumpu in 1913. The deposits gave rise to the company of the same name and mining was continuous for 80 years until 1989. Kylylahti was discovered in 1984 as part of a regional exploration programme. The project was never developed by Outokumpu due to metal prices and its subsequent withdrawal from mining.

Kylylahti has a Resource of 7.4 Mt at 1.07% Cu, 0.22% Co, 0.22% Ni, 0.43% Zn and 0.7 g/t gold or 4.8% copper equivalent. A definitive feasibility study is nearing completion and envisages a 12 year underground mine with construction commencing in late 2007 and production in early 2009.

**Geology:** Sulphide mineralisation occurs as an elongate body over 4 kilometres long, up to 70 metres thick and up to 250 metres across. At the contact between a Proterozoic metasomatically-altered ultramafic rocks ('the Outokumpu association') and sulphidic black shale.

Ultramafic rocks occur as discontinuous lenses of serpentinite some 1-5 kilometres in size, enclosed by a 'skin' of black shales within a monotonous sequence of wackes. Ultramafic rocks form complexly deformed linear belts which have been metamorphosed to upper amphibolite facies. Ultramafic rocks are progressively more altered approaching sulphide mineralisation. The sequence is serpentinite grading into talc-magnesite rocks, to tremolite-carbonate-quartz rocks to quartz-tremolite rocks to sulphide bearing quartz±tremolite rocks.

Mineralisation occurs as 1-20 metres thick layers of 40-70% semi-massive sulphide directly in contact with black shale. Sulphides are pyrite and pyrrhotite with lesser chalcopyrite and sphalerite with minor cobaltite and Co-pentlandite. Semi-massive sulphides grade upwards into, and are interlayered with disseminated sulphides up to 30 metres thick and which range in sulphide content from 5-40%. Disseminated sulphides are pyrrhotite dominant with only minor pyrite.