

# Pyhäsalmi District Base-Metal Project Opportunity, Finland

## Base-metal exploration opportunity

Akkerman Finland Oy (AFOy – 51% Akkerman Exploration, 49% Avrupa Minerals), active in Finland since 2006, is offering a unique Investment Opportunity in a base-metal exploration project (copper, zinc, lead, gold silver), including five separate VMS projects and one early-stage Au project.

## Famous mining district, Central Finland

The VMS projects are located in a well-known mining camp in Central Finland, which includes two world-class deposits, Vihanti and Pyhäsalmi. Both were mined since the early 1960's by former state company Outokumpu, producing copper and zinc concentrates.

## Close to important, known VMS deposits

Geologically, The Opportunity covers parts of a 200-km long Volcanogenic Massive Sulfide (VMS) belt, where numerous massive sulfide deposits were formed by submarine volcanism. In total, some 50 smaller base metal deposits and occurrences are known to exist, apart from the large Vihanti and Pyhäsalmi deposits (Fig. 1).

## No exploration for past 20 years

Most of the known deposits were discovered by the Finnish Geological Survey (GTK) or by Outokumpu Oy through systematic, near-surface exploration in the period 1950-2000.

## High residual potential at depth

The potential for new discoveries remains high, particularly at depth, as illustrated by the discovery of the deeper and highest-grade part of the Pyhäsalmi deposit in 1996, extending to a depth of 1.4 km (Fig. 2).

## New approach with deep-penetrating geophysics

AFOy's strategy is to search for potential high-grade ore extensions around and below known deposits, not tested by previous drilling. Areas with high potential are selected by building on knowledge from previous exploration efforts. These prospective zones are then screened for the first time by innovative, deep-penetrating survey technology to identify new targets.

## Valuable mineral rights over known deposits

Following the withdrawal of Outokumpu from upstream exploration and attention of new entrants focused on gold, lithium and cobalt, AFOy has been able to secure a valuable land position in the Pyhäsalmi Belt. Its current holdings include exploration permits over two known satellite deposits around Pyhäsalmi and one close to Vihanti (Fig. 1).

The individual prospects forming part of the Pyhäsalmi District Exploration Opportunity are:

**Lehto, Kangasjärvi, Rauhala, Hallaperä, Kolima, and Lippikylä**

**Drill-ready targets on strike with Pyhäsalmi 75 MT deposit** (Fig. 3)

**Exciting new targets** (Fig. 4)

**Potential to increase tonnage** (Fig. 5)

**Downdip potential** (Fi. 6)

**Awaiting outcome of appeal** (Fig. 7)

**New acquisition adjacent to Pyhäsalmi** (Fig. 8)

**Lehto:** Permit within sight of the Pyhäsalmi Mine headframe. Covers strike extent of the mine horizon. Previously drilled 46 holes (partly from UG mine workings) of which 16 are mineralized. Includes two untested IP/Titan targets. *Exploration work done in collaboration with Pyhäsalmi Mine Oy (subsidiary of First Quantum Minerals), i.e., sharing of data and knowledge.*

**Kangasjärvi:** Detailed work including airborne deep EM generated new targets close to a mined-out zinc deposit. Initial scout drilling successfully intersected stockwork-style sulfide mineralization. Downhole EM planned ahead of follow-up drilling.

**Rauha:** Tabular, sediment-hosted massive/disseminated sulfide deposit, with a low dip of 30°. Previously drilled over an area of 650 x 350m indicating a small, high-grade deposit. Reported non-compliant resource of **880,500 Mt @ 1.6% Cu, 6% Zn, 1% Pb, 50 g/t Ag, and 0.5 g/t Au**. Previous studies include UG mine plan and bench-scale metallurgical tests.

**Hallaperä:** Known massive sulfide body outlined between 1967 and 1990 by 42 holes over a strike length of 1,150 meters. Plate-like body averages 3-18 meters thick. Deposit open below depth of 250 meters. Non-compliant resource estimate of **3.1 M @ 0.5% Cu, 0.98% Zn** (no analyses for Pb, Ag, and Au).

**Kolima:** Area of widespread low-grade zinc mineralization, interpreted as distal VMS. Proximal source not yet found. Follow-up work pending appeal, given some environmental sensitivities in nearby areas.

**Lippikylä:** Newly acquired, located immediately south of the Pyhäsalmi Mine fence. Covers untested gravity targets in favorable strongly altered felsic volcanic host rocks, previously thought to be sterile mafic volcanic rocks.

## Company info:

Akkerman Finland Oy (AFOy) is a private Finnish company, incorporated in Oulu in 2013 by Akkerman Exploration B.V. [www.akkermanexploration.com](http://www.akkermanexploration.com). Current shareholders are AEbv (51%) and Avrupa Minerals Ltd. (49%), a public company listed on the Canadian TSX-Venture Exchange as AVU [www.avrupaminerals.com](http://www.avrupaminerals.com).

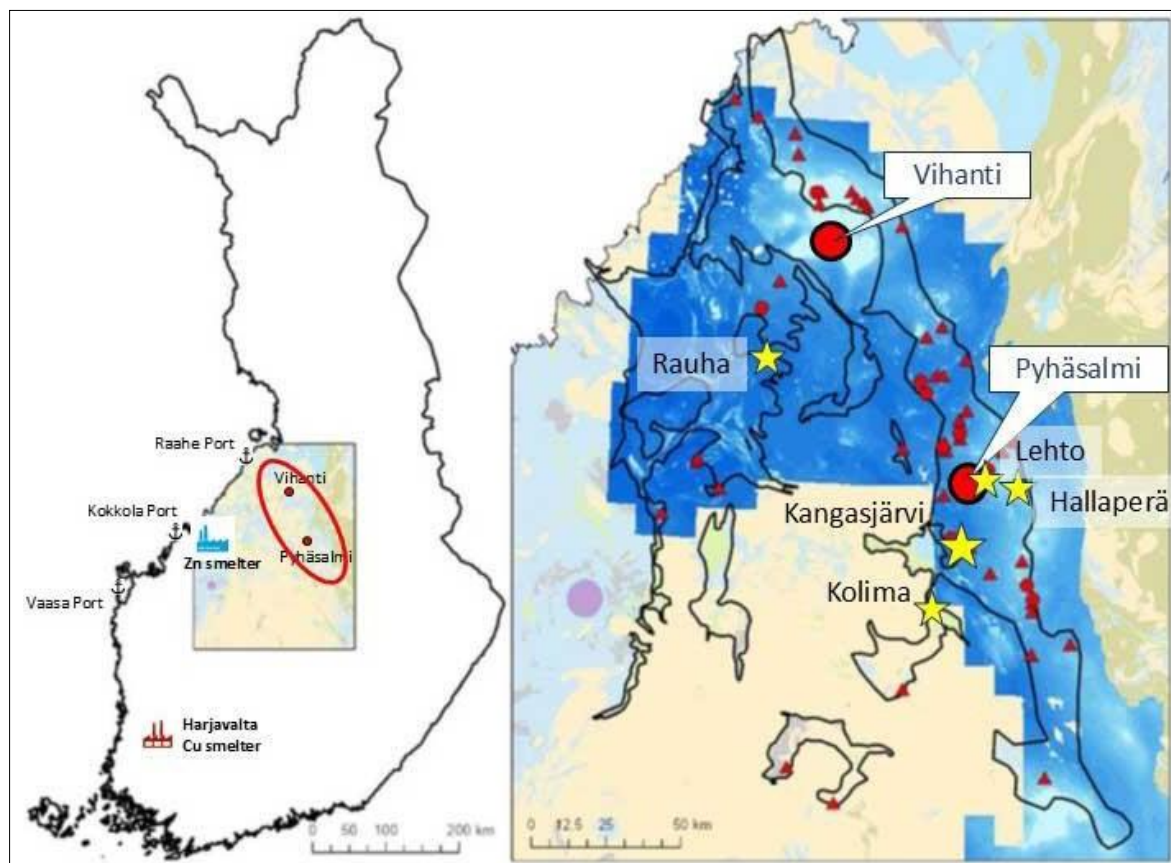
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# Vihanti-Pyhäsalmi VMS Camp

★ Project locations



tonnage

historic metal output

Pyhäsalmi	<b>75 Mt</b>	<b>542 ktCu</b>	<b>1,354 ktZn</b>	<b>10 tAu</b>	<b>500 tAg</b>
Vihanti	<b>28 Mt</b>	<b>129 ktCu</b>	<b>1,445 ktZn</b>	<b>3 tAu</b>	<b>278 tAg</b>

**Figure 1.** Map of Central Finland with outline of the Vihanti-Pyhäsalmi VMS belt. Location of its 2 principal mines (large red circles), other smaller deposits (small red circles) and occurrences (red triangles). Yellow stars represent the 5 prospects permitted by Akkerman Finland Oy.

# Pyhäsalmi Mine



1958 Orebody discovered

1962 Start Open pit production

1966 Start Underground workings

1975 End open pit mining

1996 New orebody found at 1000m

2002 Sold to Inmet Mining Corp.

2014 Purchased by First Quantum Minerals

2022 Mining ended

Tonnage mined: 58.5Mt @  
1% Cu, 2.4% Zn, 0.4g/t Au, 14 g/t Ag

Copper and zinc concentrate to  
domestic smelters in Harjavalta  
and Kokkola

Pyrite concentrates 26.3Mt

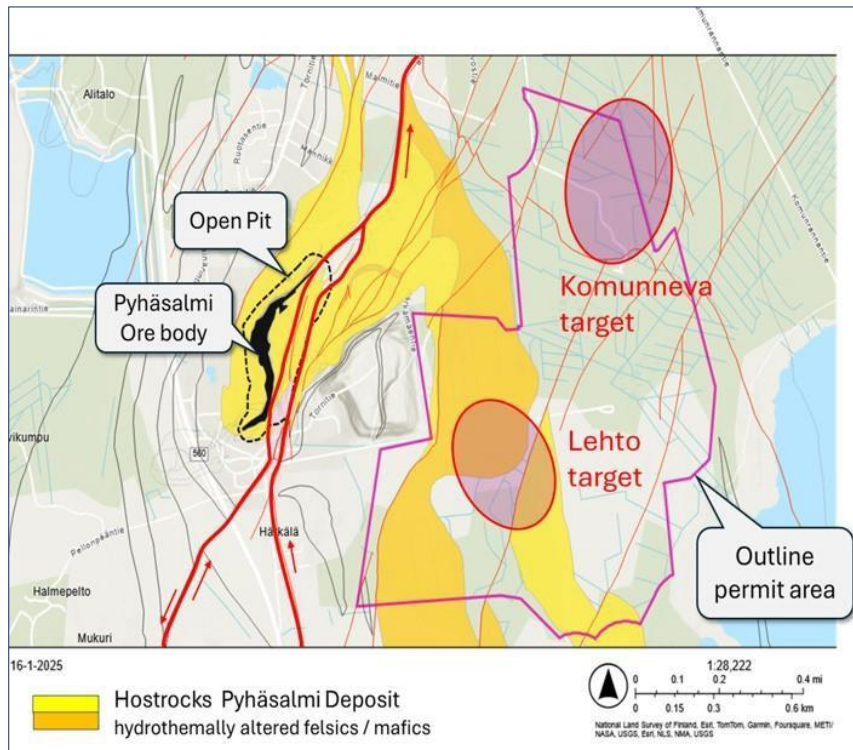
Concentrates railed from mine site

Pyrite production ongoing

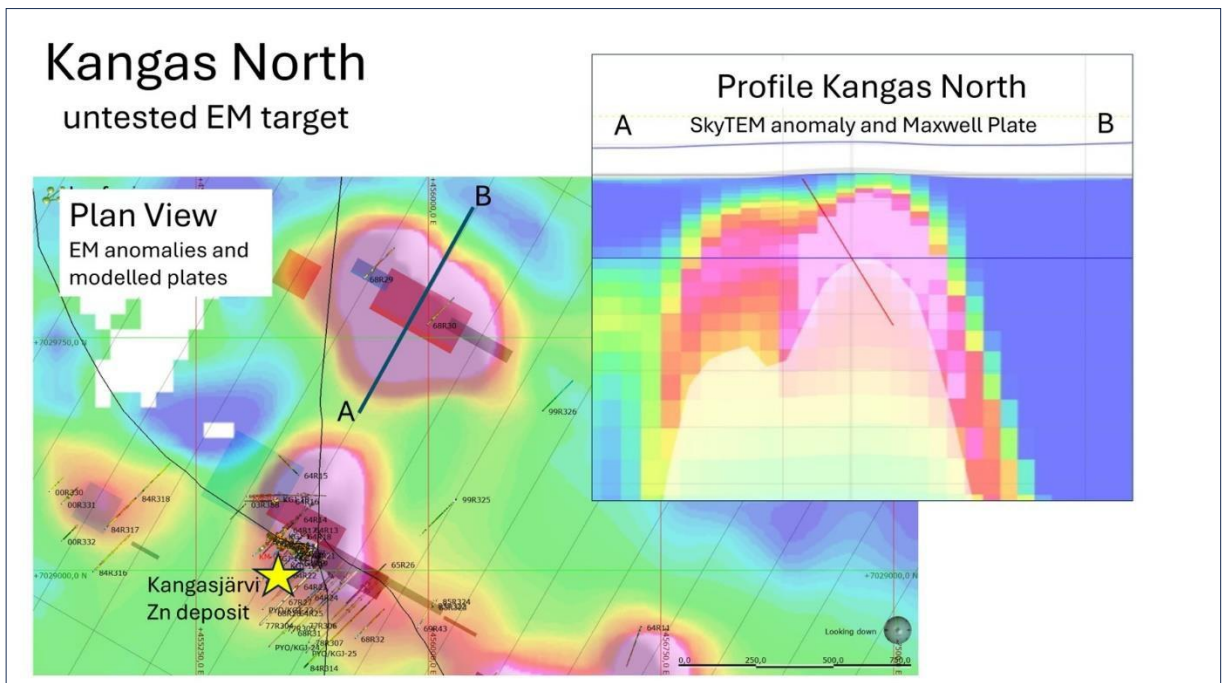
Flotation plant still in place

**Figure 2.** Image of the Pyhäsalmi open pit, main production shaft, and processing plant. Insert illustrates shape of the massive sulfide deposit in 3D with underground mining works down to 1400 meters.

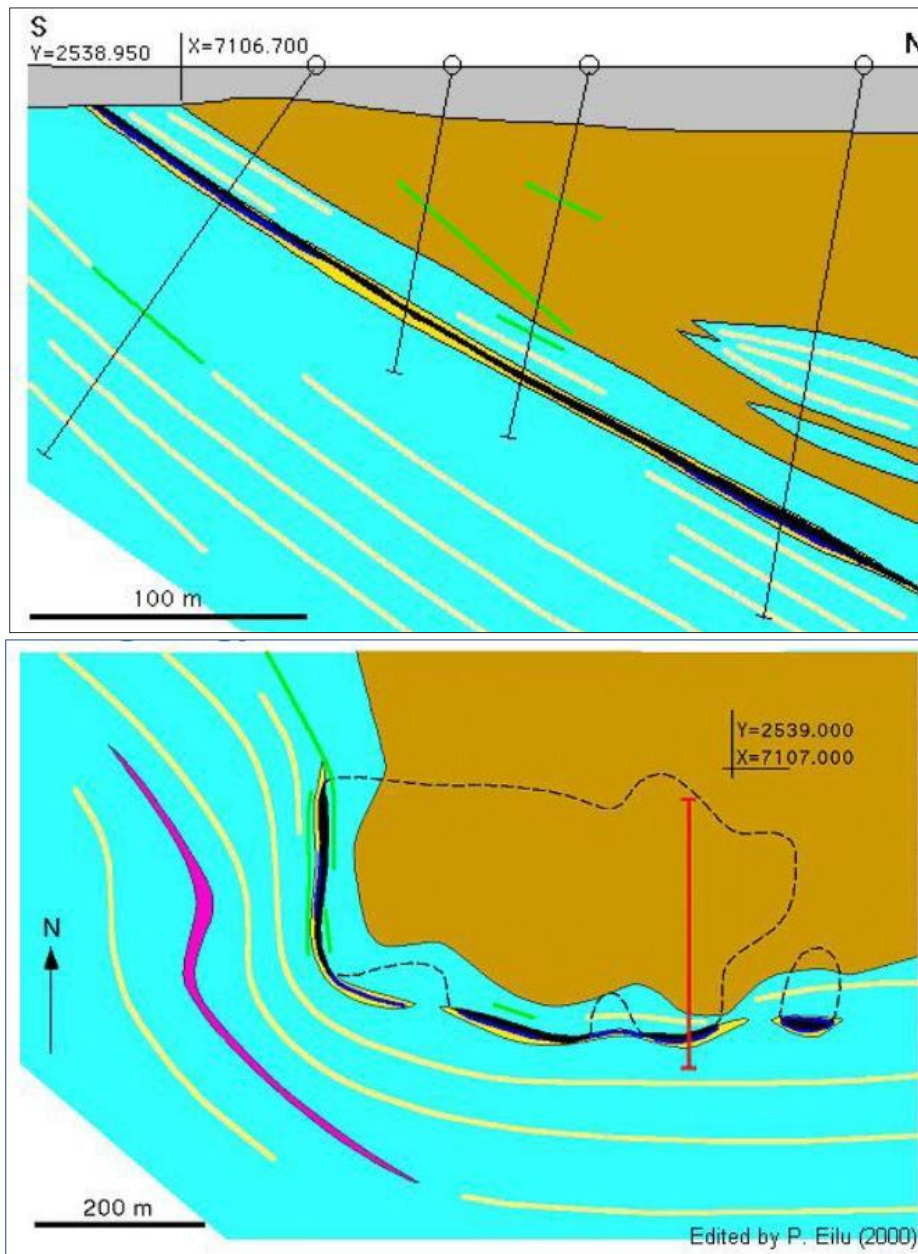




**Figure 3.** Lehto exploration permit with location of two Titan-24 IP anomalies within 1 km of the Pyhäsalmi massive sulfide deposit.



**Figure 4.** Plan/profile view of Kangas North EM target; potential for drilling in 2025.

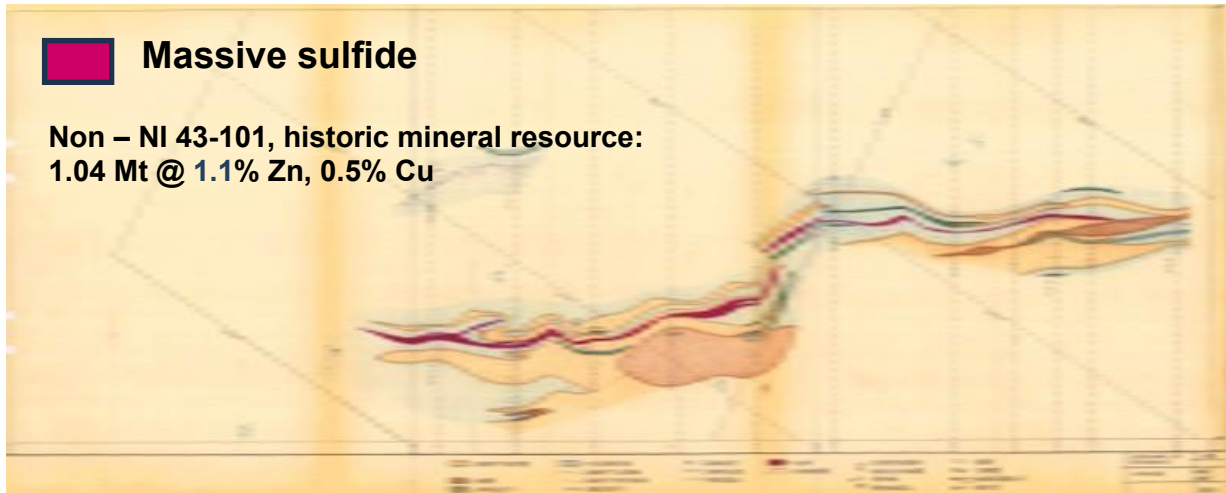


**Figure 5a/5b.** Section and plan view at Rauhala deposit. Reported non-compliant resource of 880,500 Mt @ 1.6% Cu, 6% Zn, 1% Pb, 50 g/t Ag, and 0.5 g/t Au. (Outokumpu in-house study, 1991).

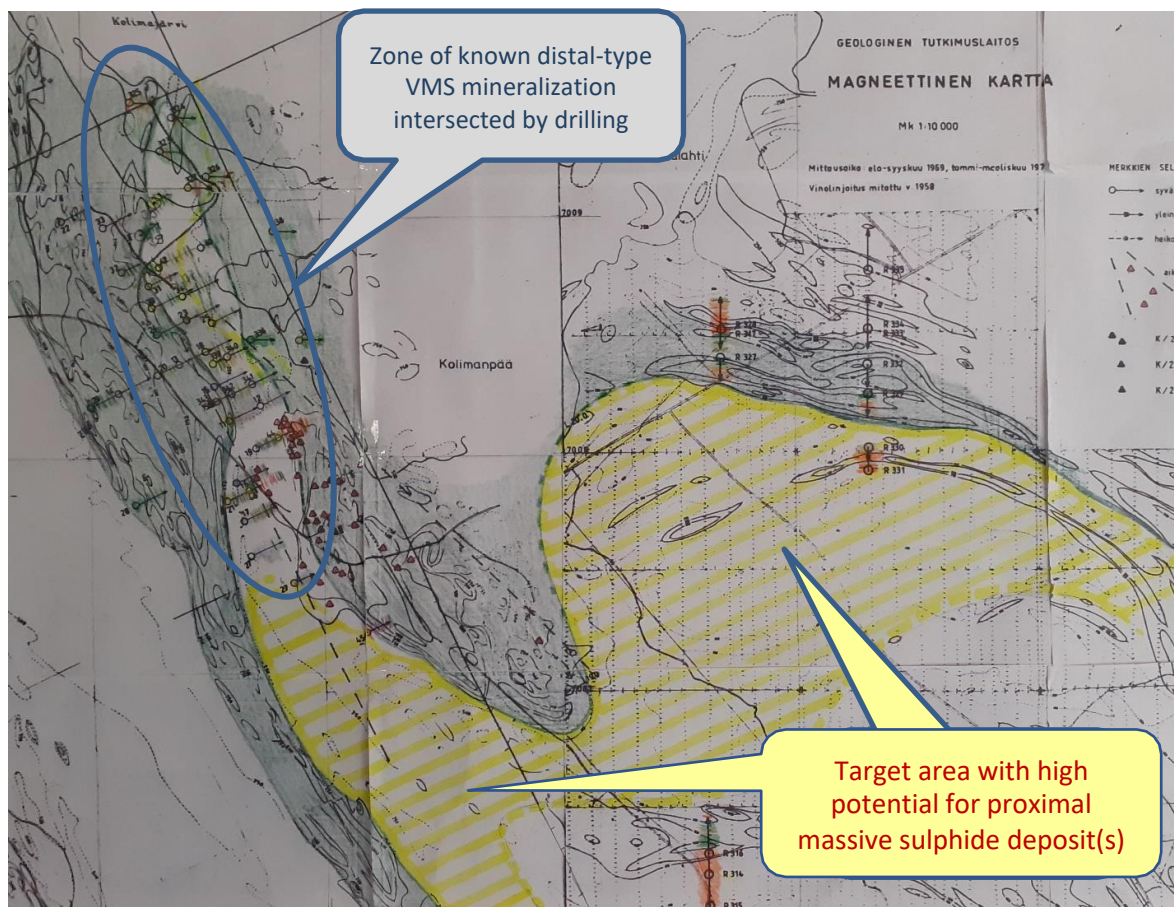


**Massive sulfide**

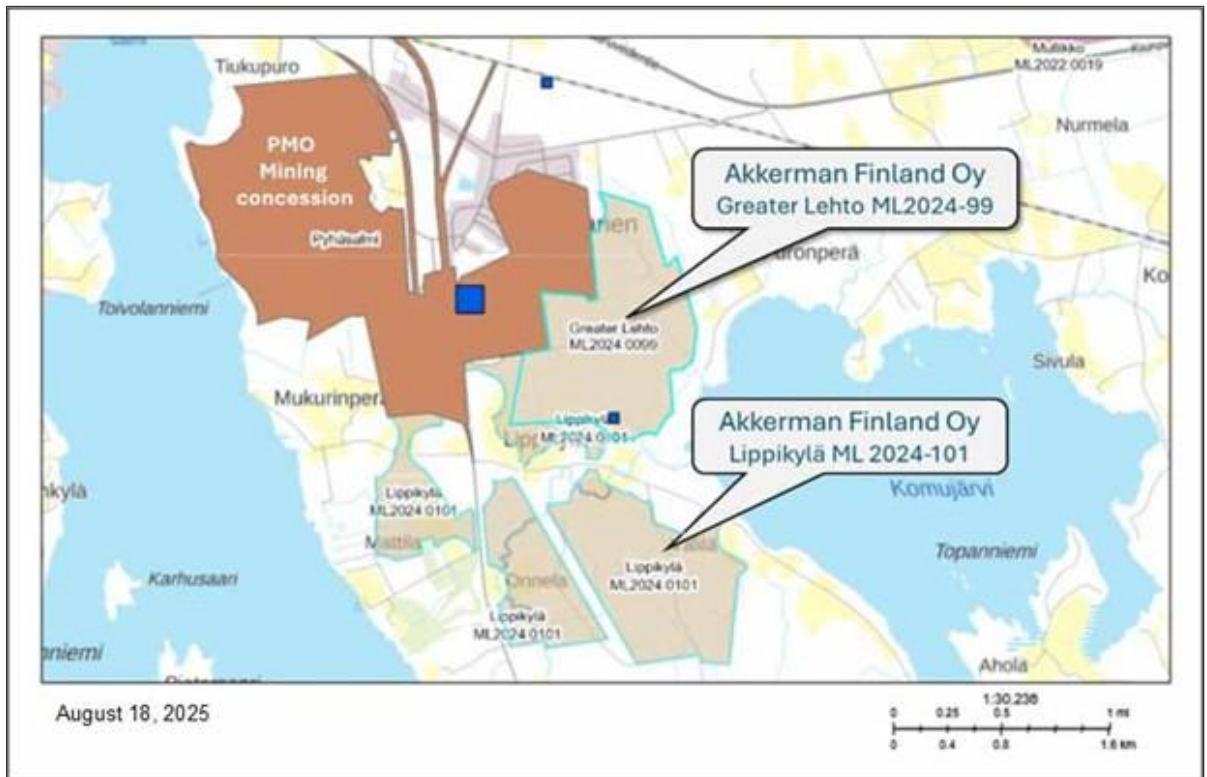
Non – NI 43-101, historic mineral resource:  
1.04 Mt @ 1.1% Zn, 0.5% Cu



**Figure 6.** Hallaperä VMS deposit. Length 1500 m, thickness 2-18m. Open at depth below 200 m.



**Figure 7.** Kolima drilling target areas.



**Figure 8.** Location of Lippikylä and Greater Lehto permit applications, with respect to the Puhosalmi Mine license.