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## **VHMS Prospectivity and Generative Field Works on the Arabian Shield: A Strategic Regional Copper Exploration**

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The Arabian Shield is composed of multiple accreted Neoproterozoic terranes formed through island-arc accretion, back-arc extension, ophiolite emplacement, and subsequent deformation during the assembly of the Arabian-Nubian Shield. Several terranes (including Jeddah, Tathlith, An Nimas, and Afif-Siham terranes) are already confirmed to host major VHMS districts, including Jabal Sayid Mine and Shayban Project, while others display strong geodynamic and lithostratigraphic indicators of VHMS potential. Arc magmatism was followed by post-collisional extension, promoting hydrothermal circulation and the development and preservation of sulfide lenses within bimodal mafic-felsic sequences

The Maaden/SRK Prospectivity 2 Project completed in 2024 represents a major Shield-scale assessment of mineral system prospectivity, leveraging updated geoscientific datasets, field validation, and mineral systems criteria to evaluate discovery potential for multiple commodities. Between 2025 and Q1 2026 Maaden Generative Exploration Team was focused on the field validation of high priority VHMS targets aligned with the company's copper exploration strategy.

Recent regional datasets from Saudi Geological Survey (SGS) have significantly enhanced exploration targeting across the Shield. These include the release of 1:100,000 geological maps covering 271 map sheets (~650,000 km<sup>2</sup>), with early deliverables already completed, and high-resolution geochemical dataset (2024–2025) covering over 540,000 km<sup>2</sup>, comprising approximately 88,000 samples, analyzed for 76 elements. This data substantially improved the ability to map mineral systems, basin compositions, and hydrothermal pathways across the Shield, supporting more effective target generation and ranking.

Integration of regional public datasets with high resolution ground and airborne geophysics hyperspectral datasets, remote sensing, systematic rock chip sampling, and detailed, combined with comparative analysis of known VHMS deposits and districts provides a robust framework for belt-scale exploration targeting.