



Orion Minerals

ASX/JSE RELEASE: 3 December 2018

Major SkyTEM Airborne EM Survey Underway at Prieska Project, as Near-Mine Exploration Gathers Momentum

- ▶ **143km² high-power SkyTEM™ Airborne Electromagnetic survey commences at the Prieska Project.**
- ▶ **The survey is designed to explore for new zinc-copper deposits on Orion's tenements within the highly prospective Prieska Volcanogenic Massive Sulphide Camp.**
- ▶ **The survey will cover the Prieska Zinc-Copper deposit itself as well as five satellite deposits and their strike extensions, in order to confirm the geophysical signature of known mineralisation and identify potential new drilling targets.**
- ▶ **The target area has not been covered by modern geophysics since the 1980's, with the last combined airborne electromagnetic and magnetic survey being conducted in 1969.**
- ▶ **Electromagnetic geophysical methods have a proven discovery record in the Areachap Belt and specifically at Prieska.**

Orion's Managing Director and CEO, Errol Smart, commented:

"Orion has a rare opportunity to enhance the value of its Northern Cape projects by simultaneously progressing both advanced and early-stage projects with the potential to move quickly up the value curve. The Company's primary focus is to continue the Bankable Feasibility Study at the advanced Prieska Zinc-Copper Project, while in parallel, drill testing known nearby exploration opportunities with the potential to become satellite operations to our emerging Prieska production centre at Copperton.

The recently announced Ayoba satellite discovery, which was made with the very first deep diamond drill hole completed as part of the Near-Mine Exploration Program, is a clear indication of the huge potential of this emerging VMS belt."

Orion Minerals Ltd (**ASX/JSE: ORN**) (**Orion** or **Company**) is pleased to announce the commencement of a major SkyTEM™ airborne electromagnetic survey over its flagship Prieska Zinc-Copper Project (**Prieska Project**) in South Africa's Northern Cape region, as it continues to accelerate its Near-Mine Exploration Program.

The intensification of near-mine exploration activities follows the successful completion of the Mineral Resource drill-out of the Prieska Deep Sulphide Target and the announcement of an early breakthrough with the recent discovery of a new satellite VMS discovery at the Ayoba Prospect, 5.3km south-west of the Prieska Project (refer ASX release 28 November 2018).

Orion's Prospecting Permits around the Prieska Project host a number of known zinc-copper deposits typical of mineralisation in a Volcanogenic Massive Sulphide (**VMS**) camp (Figures 1 and 2). The near-mine area was the focus of an exploration boom in the 1970's and early 1980's following the discovery of the Prieska VMS deposit by Anglovaal in 1968. During this period, four satellite deposits to the Prieska deposit were discovered and drilled, including the Annex and Kielder K1, K2 and K6 deposits.

Since the 1980's and up to early 2017, when Orion started exploring the Deep Sulphide Target, the Prieska Project area has not been subjected to modern exploration techniques. As shown by Orion's early exploration success (refer ASX releases 8 November 2017 and 28 November 2018), the Company stands to benefit from fast-tracking exploration in the Prieska VMS district using the superior exploration techniques currently available.

Electromagnetic (**EM**) geophysics has been proven internationally to be an effective exploration tool for discovering VMS deposits. Orion has already achieved early success using various EM methods at Prieska. The Company now plans to cover the entire Near-Mine tenements utilising a helicopter-borne Transient Electromagnetic (**TEM**) and magnetic acquisition system (Figure 2).

Airborne Electromagnetics (**AEM**) played an early role in the discovery history around the historic Prieska Copper Mine, when the Annex Deposit was discovered in 1969 by Anglovaal Ltd using the now out-dated Barringer Input System. More recently, Orion demonstrated the potential for success in applying modern EM methods for finding blind massive sulphide mineralisation at Prieska, with down-hole EM resulting in the discovery of a massive sulphide extension to the Deep Sulphide Resource (refer ASX release 8 November 2017) and the more recent discovery of massive sulphide mineralisation at a depth of 610m below surface on the Ayoba prospect by using a high-powered ground EM survey (refer ASX release 28 November 2018).

VMS deposits tend to cluster around giants like the Prieska Zinc-Copper Deposit. These clusters are referred to as camps. Deposit models for VMS camps support Orion's view that other large deposits which share the same stratigraphic setting (the prospective horizon that hosts accumulations of VMS mineralisation) will be present in a camp hosting a giant VMS deposit.

The current interpretation of the geology at Prieska suggests structural repetition of prospective horizon by folding, as illustrated in Figures 4 and 5. Magnetic data to be acquired by the planned survey will significantly aid the interpretation of the sub-outcrop geology.

Details of planned SkyTEM™ survey

Orion has contracted SkyTEM™, a leading AEM survey company headquartered in Denmark which offers a state-of-the-art helicopter-borne transient electromagnetic TEM and magnetic acquisition system, to fly the 822km line TEM survey covering all of the Company's prospecting permits in the immediate Prieska Project area, located in the Northern Cape, South Africa (refer Figure 2). The survey will be flown at 30m to 50m flight height, 200m line and 2,000m tie line spacing.

The helicopter TEM survey will be flown with the highly innovative – SkyTEM™ 312 high power technology for deep target imaging. This high-power system, with a peak moment up to 1,000,000 NIA, is optimised to provide an exceptional depth of investigation due to the high moment mode with high current and low base frequency of 12.5 Hz.

This breakthrough technology is aerodynamically superior to any TEM system on the market and was previously used by Orion to fly a 6,025km survey covering 962km² over the Masiqhame and Namaqua-Disawell prospecting rights, successfully detecting known VMS and Ni-Cu deposits and detecting a number of conductors prioritised for follow-up on these permits (refer Figures 1 and 3). The survey commenced on 1 December 2018.



Errol Smart
Managing Director and CEO

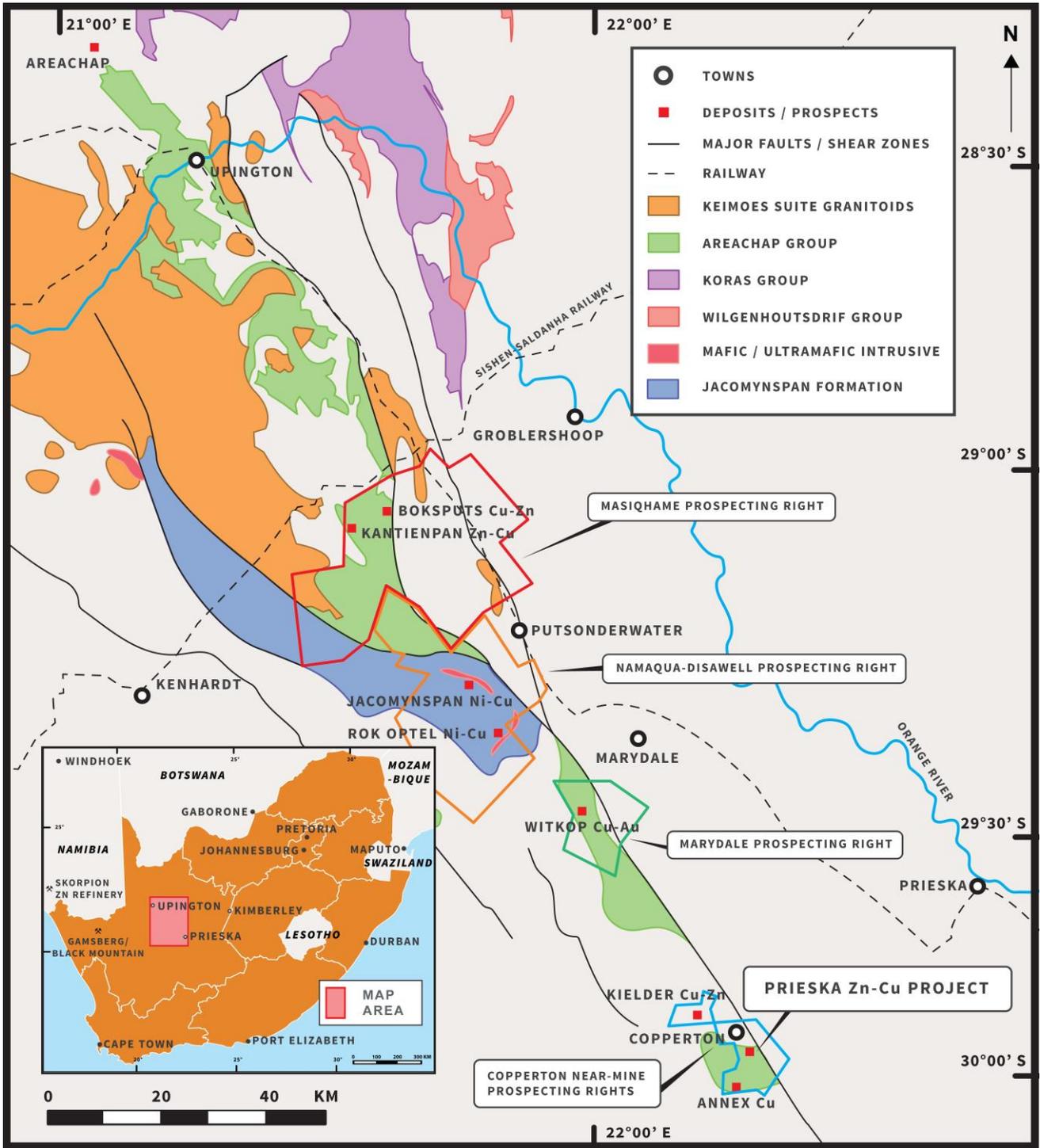


Figure 1: Locality plan showing the Prieska Project and Near Mine Exploration Area in the Areachap Belt, Northern Cape South Africa.

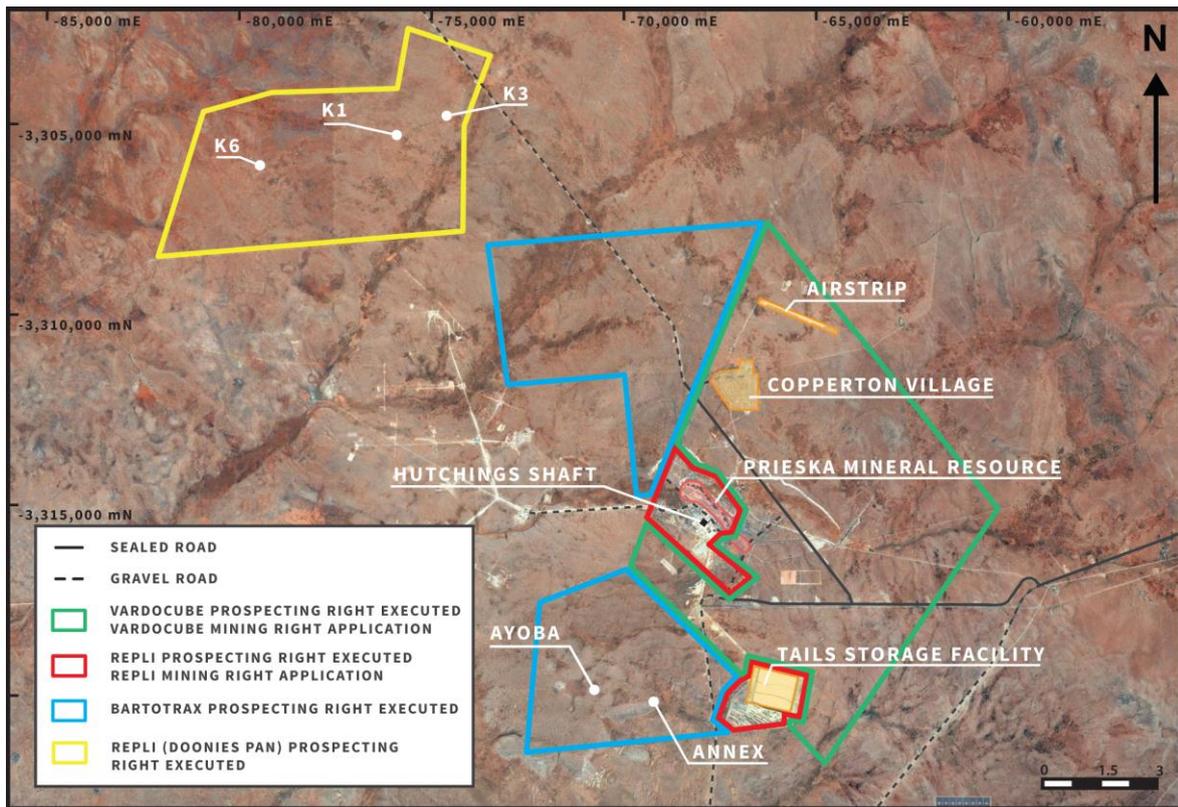


Figure 2: Locality plan showing the prospecting rights to be covered by the 143km² SkyTEM™ (AEM) survey and different known prospects in the area.



Figure 3: The SkyTEM™ technology during survey operation (during the 2017 – 2018 regional survey).

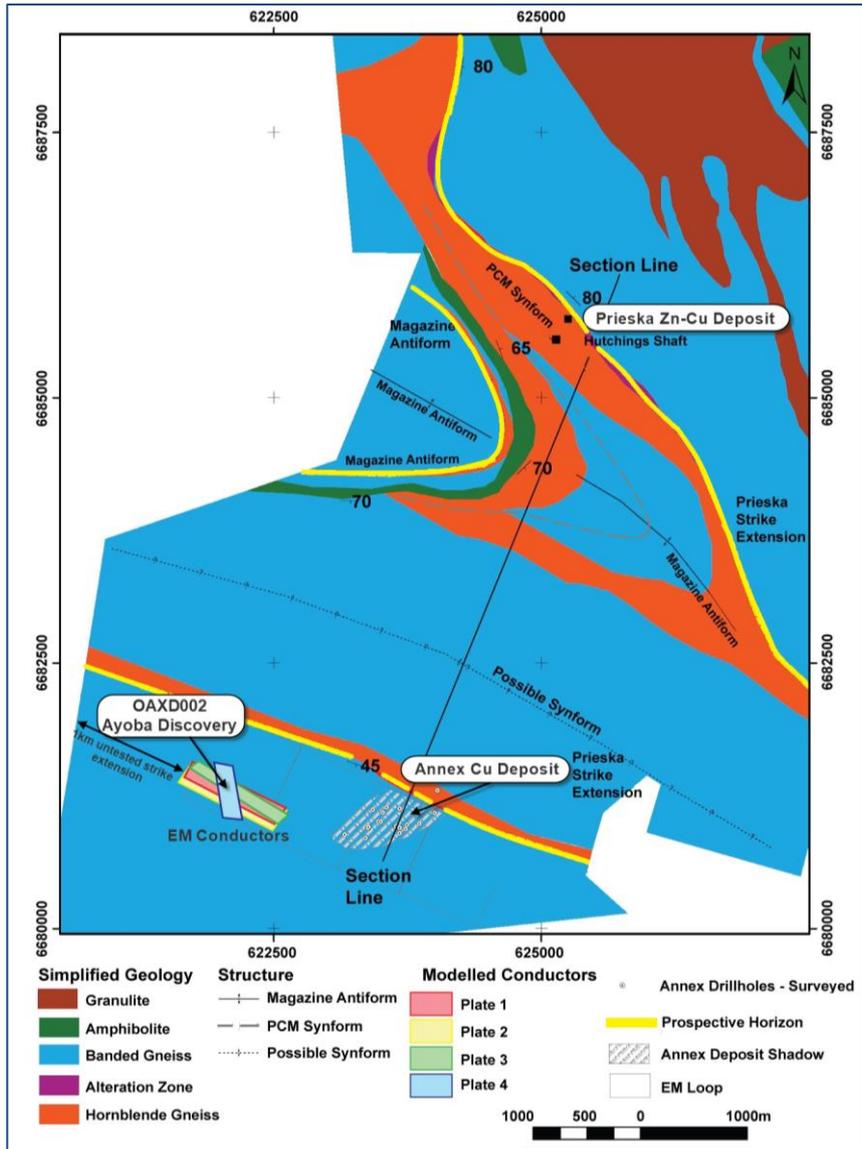


Figure 4: Simplified geological map showing structural duplication of the Prospective Horizon south of the Prieska Zinc-Copper Deposit.

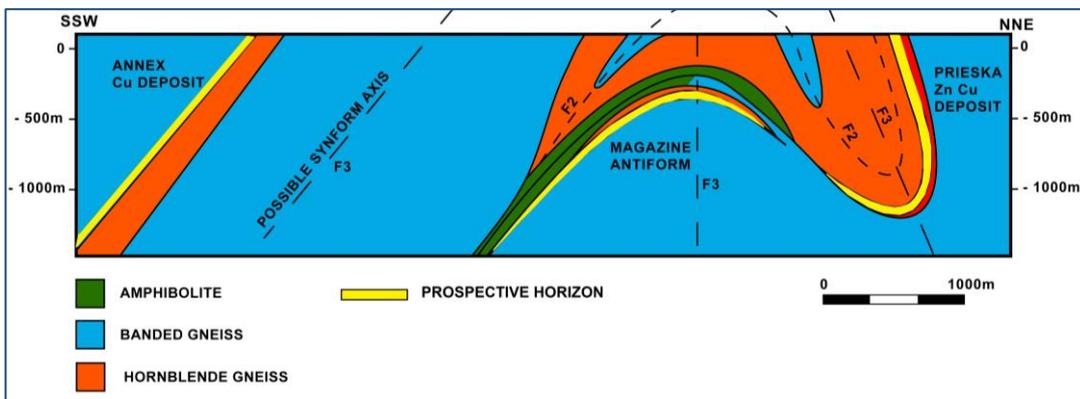


Figure 5: Simplified cross-section showing structural duplication of the Prospective Horizon – refer to the section line on Figure 4.

ENQUIRIES

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Competent Person's Statement

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