Argent Minerals Limited Kempfield Exploration Update - Drill Target Delineation

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Perth, Australia (ABN Newswire) - Argent Minerals Ltd. (ASX:ARD) (Argent, Argent Minerals or the Company) is pleased to report that it is about to commence Downhole MagnetoMetric Resistivity (DHMMR) surveys at the Kempfield Polymetallic Project in preparation for a drilling program to be conducted in the area immediately to the west of the deposit. This area has been identified as being highly prospective for lead/zinc mineralisation.

DHMMR is a geophysics technique which has been used successfully to delineate rich lead/zinc targets that have not responded to conventional electromagnetic (EM) survey techniques. Examples include Perilya's North Mine lead/zinc deposit at Broken Hill, NSW, where DHMMR was employed successfully to delineate the Zinc Lodes - rich mineralisation that had not been detected by previous Downhole EM (DHEM) surveys1. DHMMR is also considered to have made a significant contribution to the delineation of Perilya's Potosi deposit at Broken Hill.

DHMMR provides advantages over conventional DHEM in that it needs lower absolute conductivity, works well for elongated structures, has a greater area of investigation around the drill hole, gives absolute direction to conductors, and is less susceptible to shielding (1).

Argent's recent diamond hole AKDD159 intercepted rich mineralisation at the West McCarron Zone - 18 m @ 9.8% Pb/Zn, 113 g/t Ag & 0.26 g/t Au from 85 m (including 5 m @ 17.9% Pb/Zn, 259 g/t Ag & 0.34 g/t Au from 88 m). Despite these relatively rich grades mineralisation was not detected by the subsequent 2014 DHEM survey.

A recent geophysical review has identified the DHMMR technique as being more likely than DHEM to detect the target lead/zinc mineralisation adjacent to the existing Kempfield deposit - predominantly sphalerite-rich mineralisation with galena, which forms a relatively poor conductor. The DHMMR technique, if determined to be successful in the detection of the target lead/zinc mineralisation at Kempfield, will form a valuable complement to the geophysics exploration strategy recommended by Professor Ross Large of the Australian Centre of Excellence in Ore Deposits (CODES). Professor Large had recommended the combination of coincident gravity and induced polarisation (IP) anomalies for the generation of massive sulphide targets at Kempfield; the implementation of this strategy has played a key role in the identification of the significant exploration upside potential at Kempfield.

A fundamental element of Argent's strategy to transition to production, is its aggressive exploration for additional lead/zinc mineralisation to complement the significant 82% Measured/Indicated, 22 million tonne, JORC 2012 polymetallic Mineral Resource, containing 52 million ounces silver equivalent of silver, gold, lead and zinc (2).

(1) DHMMR: Coming of Age, Godber, K.E., and Bishop, J.R, 2007

(2) See Appendix A for summary including cutoff grades and silver equivalent calculations, and 6 May 2014 ASX announcement

About the DHMMR survey technique

DHMMR surveys require only a conductivity contrast between the host rock and the target, whether or not the target itself is a good conductor. Previous research suggests that low conductivity mineralisation such as that at the Kempfield West McCarron Zone, could produce a sufficient DHMMR signal if the conductivity contrast between the target area and the surrounding material is greater than 3:11.

The DHMMR technique involves the detection of this contrast by injecting a current directly into the ground via electrodes. The electrical current favours the path of least resistance; this is called 'current channelling', and the accompanying concentration in the magnetic (B) field generated by the current may be measured with the aid of a magnetometer receiver probe.

About the Kempfield surveys

At Kempfield, the downhole sensor will take measurements at progressive depths in each of holes AKDD159 and AKDD177. Mitre Geophysics has designed a DHMMR transmitter dipole layout to provide coverage of the known mineralisation intercepted by AKDD159 and to maximise the reach of the survey to 'illuminate' the interpreted VMS lens and feeder zone areas (see Figure 1 in link below).

The underlying strategy is to firstly determine the extent to which the known lead/zinc mineralisation intercepted by AKDD159 responds to the DHMMR technique, and adopt that as a benchmark against which the remainder of the measurements may be compared.

The radius of investigation may be up to 150 metres in each direction from each hole.

About the DHMMR Equipment and the DHMMR survey procedure

Argent Minerals has contracted Gap Geophysics Pty Ltd to perform the DHMMR surveys under the supervision of Mitre Geophysics Pty Ltd. The equipment to be employed is considered to be high-end in sensitivity and quality, featuring:

- DHMMR Transmitter - Gap GeoPak HPTX-70 High Powered Transmitter. According to Gap Geophysics, the HPTX-70 is the highest powered DHMMR transmitter in Australia, with the capability of producing up 350 Amps, and up to 1200 Volts available to maximise current delivery. This is a vast improvement on previous technology. To put this in perspective, the equipment employed by Mitre Geophysics at the Broken Hill deposit only delivered current of approximately 10 Amps, yet that survey was very successful. The higher the injected current, the stronger will be the magnetic (B) field produced by any current channelling, and the greater the ability to distinguish received signals from background noise. An additional feature of the equipment is that the transmitter waveform edges are synchronised precisely to GPS time, enabling the transmitter and receiver to be precisely synchronised to each other for superior accuracy in the analysis.

- DHMMR Receiver - EMIT "DigiAtlantis" fluxgate DHMMR probe and instrumentation system. The DigiAtlantis is a new generation borehole EM system comprising a 3 axis magnetometer probe and a digital processing system that provides 24-bit, rapid, simultaneous sampling of the magnetometer's three components, and greatly improved noise rejection capabilities. The DigiAtlantis system provides significantly improved data quality and efficiency in comparison to previous generation systems. Orthogonal accuracy is 0.1 degrees, and signal calibration accuracy, 0.1%.

The survey procedure will have 10 m station spacing generally to end of hole, to be reduced to 5 m spacing around the known mineralisation in AKDD159 (18 m from 88 m), and 2.5 m spacing around areas wherever increased responses occur. Signal frequencies of 4 Hz and 1 Hz will be reviewed in the field to determine the optimum rate.

Gap Geophysics will mobilise for Kempfield on completion of another survey currently in process. This is envisaged to be prior to the end of June 2014, and Argent will advise the ASX on mobilisation when that occurs for the Kempfield survey.

This is the first time that DHMMR surveys will have been employed at Kempfield, and based on publicly available information, possibly in the Hill End Trough region of the Lachlan Orogen terrane. The combination of this relatively new survey technique, and the new generation equipment being employed, represents a significant advance in exploration for sphalerite-rich lead/zinc VMS style mineralisation at Kempfield, and regionally within the Hill End Trough basin margin - potentially rich mineralisation that has not yet been identified by other geophysics methods due to inherently low conductivity, or simply overlooked.

Preliminary lead isotope observations confirm potential proximity to VMS feeder zone

Preliminary information has been received from Melbourne University via Geosciences Australia in relation to lead isotope studies being conducted for the Kempfield deposit. Whilst exploration results are pending completion of the data analysis, the following preliminary observations have been made:

- The data indicates a tight cluster of Silurian-Devonian Volcanogenic Massive Sulphides (VMS) style of mineralisation, providing strong support for Argent's deposit genesis hypothesis; and

- the isotopic data supports Argent Minerals' relatively recent interpretation of West McCarron Zone being part of a 'Lens 3' which is different to the remainder of the deposit, with this lens, in addition to its higher base metals and gold grades, being slightly younger than the remainder of the deposit, and therefore potentially closer to a feeder zone.

This observation adds to the growing list of exploration vectors that point to a potential VMS feeder zone immediately to the west of the known mineralisation at Kempfield, an area of substantial size which is yet to be drill-tested.

It is hoped that the completed analysis will provide further clues in relation to the original formation of the Kempfield deposit, and the potential location and number of feeder zones, to assist in target generation for rich base and precious metals mineralisation.

About the target VMS lens and feeder zone areas

Figure 1 in link below is a plan view of the existing mineralisation (excluding Quarries Zone to the north), together with conceptual VMS lenses and a feeder zone which have been generated based on all of the available data.

These areas are summarised as follows:

- Lens 1 and 2 (see link below). The known mineralisation at Kempfield has been estimated and documented as a JORC 2012 Mineral Resource (see 6 May 2014 announcement). As reported in previous announcements, the mineralisation occurs in the form of two main north trending lenses, labelled 'Lens 1' and 'Lens 2' in Figure 1 in link below. A distinct trend of increasing grades, especially lead/zinc, is evident, with the increase occurring towards the west and at depth (3).

(3) See ASX announcement 10 March 2014

- Lens 3 (see link below). As noted in the lead isotope discussion above, the West McCarron Zone of existing mineralisation, also forming part of the JORC 2012 Mineral Resource estimate, is interpreted as being the southern section of a longer Lens 3 which lies to the west and parallel with Lens 23. As indicated by the red 'Open' arrow in Figure 1 in link below, the mineralisation in Lens 3 remains open to the north. Information supporting this interpretation includes IP chargeability data, soil geochemical anomalies, rock outcrops, and gravity survey data. Based on a plan to test an IP chargeability anomaly, hole AKDD177 successfully intercepted the target pyrites which are interpreted to be a VMS alteration 'halo' associated with nearby mineralisation. However, hole AKDD177, which was stopped at 408 m, did not test the adjacent section of Lens 3 at depth. The rich lead/zinc intercepts reported in the 10 March 2014 announcement are on the western edge of the West McCarron Zone and importantly, in addition to being open to the north, mineralisation also remains open to the west and at depth.

- Western VMS lens and feeder zone (including Colossal Reef copper mine). A substantially untested area lies immediately to the west of Lens 2 and Lens 3, and includes the area denoted by the dashed red polygon in Figure 1 in link below. Several Argent Minerals announcements have referred to the increasing database of exploration vectors pointing to the potential for a feeder zone and associated rich mineralisation - the potential for rich lead/zinc grades +/- gold and copper.

Example conceptual VMS lenses and a feeder zone have been generated within the polygon, based on a hypothesis of an overturned VMS mound with a symmetrical repetition of Lens 1, 2 and 3. Under this hypothesis, Lens 1 is the most distal to the feeder source, and therefore the lowest temperature, which in the VMS deposit spectrum, can be expected to be predominantly silver/barite mineralisation. This is the case for Lens 1.

Under this model, Lens 2 can be expected to yield generally increasing grades, with lead/zinc beginning to feature more, and Lens 3 yielding the highest base metal grades of Lenses 1 to 3. All of this is supported by the available evidence at this point.

A feeder zone (such as that marked conceptually by the purple polygon closest to the historic Colossal Reef copper mine), could be expected to yield the richest grades related to the higher temperatures involved in the original deposition sequence. The presence of the copper mine, with adjacent copper soil anomalies, as well as outcropping blue azurite and green malachite, are supportive of this conceptual model.

Alternative genesis models have been considered for the area, and remain valid until geophysics, and ultimately, drill-testing, reveals further information.

About the exploration program and timing

The DHMMR surveys are scheduled to commence July 2014. Analysis of the DHMMR surveys will commence immediately following the DHMMR survey.

About the drill-testing plan

Argent Minerals is planning to follow up this work with drill-testing of the areas of interest. The drill plan designs will be finalised and announced following the completion of the DHMMR surveys. The drilling plan will focus initially on the interpreted VMS lens and feeder zone immediately to the west of the Kempfield deposit, including Colossal Reef.

Argent Minerals Managing Director David Busch said, "The VMS lens and feeder zone areas immediately to the west of the Kempfield deposit are highly prospective for additional lead and zinc mineralisation, yet they remain substantially untested.

"The intercepts reported on 10 March this year, together with the growing database of exploration vectors, indicate compelling upside that demands drill-testing of these areas regardless of whether or not the DHMMR surveys are able to detect mineralisation. These areas offer the potential to accelerate our progress toward our goal of becoming a significant Australian polymetallic producer".

JORC Table 1 (see link below)

In accordance with section 5.8.2 of the ASX listing rules, Section 1 (Sampling Techniques and Data), and Section 2 (Reporting of Exploration Results) of Table 1 of Appendix 5A (JORC Code) is attached as Appendix B to this announcement.

To view all tables and figures and the Appendix B, please visit:
http://media.abnnewswire.net/media/en/docs/ASX-ARD-681753.pdf

About Argent Minerals Limited:

Argent Minerals Ltd. is an Australian publicly listed company with a 100% interest in a silver/gold project at Kempfield NSW. Work is underway on the preparation of an EIS and a feasibility study for the first stage of the project which will involve heap leaching some 8.8 million tonnes of mainly oxide and transitional material to produce over 9.5 million ounces of silver and 15,000 ounces of gold over a 5 year mine life. Argent is also earning up to a 70% interest in two other NSW projects - gold at West Wyalong and base metals at Sunny Corner.

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