Argent Minerals Limited: Diamond Drilling Results in Major Breakthrough at Kempfield

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Sydney - Argent Minerals Ltd. (ASX:ARD) (Argent, or the Company) is pleased to report exploration results for the 2016 diamond drilling program completed at the Company's flagship project at Kempfield, NSW.

Highlights:

- Major breakthrough - VHMS host horizons identified at the Kempfield deposit, leading to efficient drill targeting of high grade precious and base metals.

- Significant potential mineralised extensions identified.

- High grade gold trend geometry identified and confirmed as a later stage orogenic overprint related to the Trunkey-Kings Plain gold system.

- High grade VHMS precious and base metal discovery potential enhanced by identification of key elements characterising Kempfield:

-- Primary feeder zone defined by analysis that vectors to an untested area with a coincident high magnetic signature to the south of the known deposit;

-- Secondary feeder zones located in Kempfield North and Quarries Zone; and

-- Potential mineralised extensions of the newly identified VHMS host horizons into substantial untested areas to the northwest and southeast of the known deposit.

- Massive sulphide intersections in proximity to known intrusive confirm Kempfield North as a high-ranking target area.

- Proven continuity of mineralisation along strike and at depth in Kempfield North.

- Design of follow-up drill testing program underway.

Strategically designed to test the Kempfield stratigraphy, the 11 hole diamond drilling program produced 3,167 metres of drill core containing vast amounts of information that is significant to understanding the Kempfield deposit for further exploration success. Intensive detailed analyses have been performed on the entire drill core, and will continue, with the results at this juncture representing a significant milestone in the exploration of the Kempfield VHMS system.

The significant advances reported in this announcement have taken the understanding of the deposit to a new, far more detailed, higher level than that afforded by the minimal information made available by historical RC drilling.

VHMS HOST HORIZONS IDENTIFIED FOR KEMPFIELD DEPOSIT

Vital to the exploration of volcanic-hosted massive sulphide (VHMS) systems is the identification of the specific host rock horizons or geological features that control mineralisation, and their arrangement.

The litho-stratigraphy has now been defined at the Kempfield deposit and four key host horizons have been identified. Horizons A, B, C and D have been identified within stratigraphy that dips approximately 700-800 to the west and youngs to the east.

The identification of the lithology and host horizons represents a major breakthrough for the project, leading to highly efficient drill targeting of high grade precious and base metals at Kempfield.

Figure 1 (refer to link below) is a simplified geological plan view illustrating the dominant lithology and identified VHMS host horizons projected to surface, together with outlines of the three mineralisation zones of the known deposit and the 11 recently drilled holes.

LARGE POTENTIAL MINERALISED EXTENSIONS

Diamond drill core analyses provide a leap forward in the understanding of the deposit structure

Historical interpretation of the Kempfield deposit had been limited by the minimal available information from reverse circulation (RC) drilling. The new information provided by the recent diamond drilling program, however, has resulted in a leap forward in understanding the structure and architecture of the Kempfield deposit.

Diamond drilling provides a substantial level of detail that is missed by RC drilling, including bedding angles and thicknesses of the stratigraphy, as well as subtleties in host rock composition and mineralisation - details that are essential for constructing a 3D model of the VHMS deposit in preparation for drill targeting precious and base metals.

Vital information revealed - mineralisation offset by transverse faults

A key result of the detailed diamond drill core assessment is the identification of preferentially mineralised horizons that had been offset by numerous transverse faults, especially the main central fault labelled X-X in Figure 1.

Sinistral strike-slip movement associated with this fault had previously given the impression that mineralisation was homogenous along mineralised zones but in fact was not. Whereas these movements may have historically been apparent as contradictions in the data, this new level of detail provides fresh understanding and clarity.

Figure 1 shows that Zone 1, for example, is in reality composed of mineralisation from D Horizon in Kempfield North (north of the X-X transverse fault), and C Horizon from Kempfield South (south of the fault line). This is in direct contrast to the historical interpretation that Zone 1 was composed of mineralisation from one continuous and homogenous lens. Dip-slip reverse fault movement has also given the appearance that lenses are continuous down-dip, but in reality comprises two different lenses juxtaposed by faulting (see Figure 8 - AKDD187 section, refer to link below).

Similarly, Zone 2 comprises mineralisation from B Horizon in Kempfield South and C Horizon in Kempfield North.

Potential mineralised extensions identified for drill targeting

An immediate result of this new level of detail is the identification of two potentially significant areas of additional mineralisation (each labelled as 'Potential Extension' in Figure 1):

- Northwest Kempfield - comprising A and B Horizons north of the transverse fault X-X; and

- Southeast Kempfield - comprising C and D Horizons to the south of the fault.

The discovery and delineation of the host horizons and the identification of the potential mineralised extensions represent significant advances at Kempfield. The mineralisation extension potential is especially significant when considered together with the recent depth extensions to northern portions of the deposit, which were confirmed to be at least twice that afforded by historical shallow drilling.

Given the existing JORC 2012 mineral resource estimate reference point of 21.8 million tonnes (Mt), the additional tonnage potential is significant, and includes the prospect of high grade precious and base metals.

HIGH GRADE GOLD TREND

The diamond drill core assessment has confirmed two main types of gold occurrences at Kempfield:

- VHMS related gold - generally in the range of 0.5-1.5 g/t Au, widespread, and associated with the original VHMS silver and base metal mineralisation event; and

- Orogenic gold overprint related to the Trunkey-Kings Plain gold system - that occurred as a later stage event. Gold occurrences of highly variable grades to as high as 1.0 m @ 1,065 g/t Au from 97 m (AKDD181) have been identified as being related to the Trunkey-Kings Plain orogenic gold system. Diamond drill core analyses and modeling has identified that these occur within a variable trend that generally dips 25DEG to the west. The interference of the existing VHMS system and the overprinted gold system holds potential for further occurrences of structural upgrading to achieve high gold grades (see Figures 2, 3, and 6 to 9 - refer to link below).

DIAMOND DRILL HOLE SECTIONS AND SIGNIFICANT INTERSECTIONS

Figures 2 to 9 follow (refer to link below), presenting section views of the identified lithology, significant intersections and selected drill core photos, in an order commencing from the most northern part of the deposit and progressing south (refer to Figure 1 for a plan view of drill hole collars and traces against the identified lithology and VHMS host horizons).

Massive sulphides intersected by AKDD191

The small intervals of massive sulphide mineralisation are a very positive discovery for the northern area of Kempfield. It shows that sulphide mineralisation is increasing in quality, and grade, with depth and there is a high potential for further depth extensions. The coincidence of a rhyolite intrusive and increasing grades with depth strongly indicates there was a growth fault at this location controlling the distribution of sulphide mineralisation.

About the high grade gold potential and VHMS mineralised lenses identified through the analyses of diamond holes AKDD191, 183 and 184:

AKDD191 was drilled to test for extensions to Pb, Zn, Cu, Ag and Au mineralisation intersected by AKDD183.

Continuity was observed in Pb, Zn, Cu and Au occurring as narrow, higher grade lenses with broad disseminated sulphide shells. Ag mineralisation is more widely distributed, but is centred around the higher grade occurrences of the other base metals. Au generally occurs as a broad alteration halo stratigraphically above Pb-Zn-Ag occurrences - consistent with metal zonation observed in VHMS style deposits.

Additional isolated Au intervals occur at a trend dipping approximately 25DEG to the west and cross-cutting existing geology and most faults. The latter gold occurrences are hosted by chloritic quartz and quartz-carbonate veins and have a positive correlation with bismuth and cobalt. These Au occurrences have the characteristics of orogenic Au mineralisation seen in the Trunkey-Kings Plain gold system.

Sulphide mineralisation on the AKDD191 section is consistently constrained to a volcaniclastic conglomerate unit which appears to have controlled hydrothermal fluids during mineralisation. The surrounding greywacke and shale likely acted as an aquiclude. This distinction is important for the Kempfield deposit because an easily identifiable host sequence can now be distinguished and targeted by future drill programs.

There is no drilling to the west of, or down-dip of, AKDD183. The lens remains open at depth and for 200 metres along strike to the north where existing mineralisation has previously been intersected. The lens intersected in AKDD184 is also open at depth and is potentially continuous to the north for a further 80 metres.

The elevated Au occurrence at 97m in AKDD183 has coincident elevated zinc. A review of this interval showed the sphalerite had been remobilised into the same set of structures. It appears that the later Au mineralising event was of a magnitude large enough to remobilise coincident sulphides, indicating the potential for structural upgrades and Trunkey-Kings Plain type high grade gold in the main Kempfield deposit area.

AKDD187 provided valuable information in the Central Kempfield section, showing a progression from basal epiclastic breccia up stratigraphy through C and D Horizon positions into a well-developed carbonate sequence.

The thick greywacke and shale sequences seen in Figures 2 and 6 have been faulted out.

While both host sequences are present on this section, faulting has terminated the extension of each lens, and dip-slip fault movement has positioned the lenses nearing juxtaposition.

Mineralisation remains open at depth for C Horizon.

It is highly likely that similar instances occur throughout Kempfield which have been not yet been identified to date, due to the majority of historical drill coverage being percussion drilling.

Intersected footwall mineralisation indicates potential proximity to high grade base and precious metals:

AKDD182 was drilled further to the west and most importantly, confirmed the upper conformable boundary of the mafic tuff sequence, and confirmed the vein controlled gold trends seen in AKDD181.

The AKDD182 and AKDD181 drillhole section defined the lower portion of Upper Kempfield, and provided

sufficient information to delineate Kempfield geology into Upper and Lower domains, which is important to progressing the exploration strategy at Kempfield (Figure 1).

Historically, the mafic volcanic tuff was designated as part of the Ordovician Coombing Formation which was overlaid by the Kangaloolah Volcanics, the Kempfield host sequence (David 2015).

Recent drilling has confirmed that this mafic tuff unit is part of the lower Kangaloolah Volcanics and has the potential to be mineralised at the upper boundary (B Horizon).

About the orogenic gold

The orogenic gold trend on the AKDD182 and AKDD181 section dips 25DEG west, which is consistent with trends seen on sections further to the north. Gold occurrences are hosted by quartz veins or in strongly altered wall-rock on the hangingwall side of veins. Mineralised veins are difficult to distinguish from unmineralised veins at this stage; however, ongoing assessment of the Trunkey Gold occurrences and further work to be conducted at Kempfield will aid in defining any gold corridors in the future.

Drillholes AKDD190 and AKDD189

AKDD189 was drilled in Kempfield South to test a section 160m north of AKDD188 and AKDD190 was drilled 50m north of AKDD189 to test positioning and continuity of mineralisation across an apparent displacement fault.

The key findings are:

- The mafic sequence observed in Kempfield South, seen in AKDD188, is continuous to AKDD189 from 280.7 m, to AKDD190 from 291.7 m and to AKDD182 from 131.1 m. The composition becomes more felsic towards the north and can be reliably projected for future interpretive work and drill design. There is a high degree of confidence in the identification of the mafic tuffaceous sequence due to the litho-geochemical fingerprint (elevated Cr, Ni and P); and

- The transition from felsic volcanism to mafic volcanism indicates that a significant change in the volcanic regime has occurred in Kempfield South. This change can represent close proximity to a vent source, interplay of multiple eruptive centres, and/or exhaustion of a rapidly depleted magma chamber.

Drillhole AKDD188

AKDD188 was drilled in the southern portion of Kempfield south (Figure 1).

Two key findings were discovered:

- The transition from felsic to mafic volcanics is conformable and has resulted in a re-interpretation of the nature of the host rocks. Previous interpretations defined the mafic volcanic package as a basal or older sequence that was faulted against the Kempfield host package that was unlikely to host mineralisation. AKDD188 shows the conformable transition from felsic volcanics to mafic volcanics downhole. The mafic volcanic package was present during mineralisation of the Kempfield deposit and now holds potential for hosting mineralised lenses; and

- A notable gold occurrence in the upper portion of the mafic volcanic tuff in AKDD188 is a positive indicator of B Horizon extending further south (1.0 m @ 0.8 g/t Au from 238.0 m).

Significant outcome - untested area south of Hill Zone fault to be drill-tested

The first key finding above is a potentially significant outcome for Kempfield exploration. Historically assumed to be closed to mineralisation, the untested area to the south of the Hill Zone Fault (Figure 13, refer to link below) is to be scheduled for drill testing as a priority.

POTENTIAL HIGH TEMPERATURE ZONE

Key result

Diamond drill core analyses that a potential high temperature zone exists immediately to the south of the known Kempfield deposit. This is important for defining the deposit and assists with predicting potential locations of the higher grade portions for drill testing. The pyrite-pyrrhotite-chalcopyrite mineralisation intersected by hole AKDD182 indicates a higher temperature metal assemblage which occurs in the felsic volcanic breccia sequence.

Litho-stratigraphic assessments from diamond drill core have identified that prospective volcanogenic sediments have likely originated from the south. Most of the immature volcanic sediments are thickest in the south and thin towards the north. Average clast sizes in the epiclastic breccia sequence decrease towards the north. Quiescent sediment types are in contrast thickest in the north and thin out to the south. The depositional environment in Kempfield South appears to have been exposed to more volcanic activity and to have sustained greater movement on existing faults. The implications of the felsic volcanic breccia sequence forming the basal section of Lower Kempfield, in conjunction with higher temperature metal assemblages seen in AKDD182, and likely sourcing of volcanogenic sediment from the south enhances the exploration potential of the southern area.

Potential feeder zone locations

With this evidence in mind, it is possible that the majority of hydrothermal fluids emanated from the south via large growth and propagation faults, with additional secondary growth centres at Kempfield North and Quarries Zone.

VHMS deposits are characterised by multiple hydrothermal fluid source centres. The relatively large dimensions of the known deposit (over 3km in strike) indicates significant overall exploration potential of Kempfield. Given the apparent gaps in the deposit over this strike length, further work is required to establish whether these gaps are in reality continuous, or if there are additional fluid source centres yet to be discovered.

Magnetic high to be drill-tested

Recent drilling confirmed pyrite-pyrrhotite-chalcopyrite stringers in the Lower Kempfield section of Central Kempfield. Upon review of results and correlation with available geophysical data it is apparent that pyrrhotite mineralisation in AKDD182 is broadly consistent with an elevated magnetic signature (Figure 13).

The size and frequency of the pyrrhotite stringers intersected to date do not warrant a magnetic signature of that size; magnetite was not present in the mafic volcanic tuff.

An important question has therefore arisen as to exactly what is producing the magnetic response in Kempfield South. In addition, review of an historic ground IP survey revealed high chargeability anomalies that overlap the magnetic high.

The next drill campaign will include holes to test the magnetic high signature.

SUMMARY

The strategically designed 11 hole diamond drilling program produced 3,167 metres of drill core containing vast amounts of information about Kempfield that is significant to understanding the deposit for further exploration success.

Detailed physical analyses were first performed on the drill core to record host rock types, thicknesses and angles, and where visible, mineralisation. The physical drill core information was then assessed together with assays as they became available following standard QAQC. Whole rock assays were performed on more than 50% of the drill core to yield a further significant level of detail - a 36 element suite for each metre of core sampled.

In addition to the obvious pursuit of silver, gold, zinc, lead and copper mineral grades, authentic VHMS exploration that employs the latest techniques requires the remaining 31 elements to be assessed in detail to discover and quantify their associations with the target minerals and the inter-relationships that are unique for the deposit being explored.

To assess and interpret the complexities of this detailed information in the context of hundreds of millions of years of multiple geological processes, and ultimately be able to reconstruct the intricacies of the current form of the deposit for highly efficient drill targeting, requires specialised VHMS knowledge and experience.

These processes have been performed on the recent drill core, and will continue, with the results to date representing a significant milestone in the exploration of the Kempfield VHMS system.

The significant advances reported in this announcement have taken the understanding of the deposit to a new, far more detailed, higher level than that afforded by the minimal information made available by historical RC drilling.

The key results of the program reported in this announcement are summarised as follows:

- Major breakthrough - detailed litho-stratigraphy defined, and four key host horizons identified, which will lead to highly efficient drill targeting of precious and base metals at Kempfield;

- Significant potential mineralised extensions identified, following the analyses that revealed the strike-slip movements caused by transverse faulting;

- High grade gold trend geometry identified and confirmed as a later stage orogenic overprint related to the Trunkey-Kings Plain gold system - and the potential for structural upgrades and Trunkey-Kings Plain type high grade gold in the main Kempfield deposit area;

- Proven continuity of mineralisation along strike and at depth in Kempfield North;

- Significant potential for hosted mineralised lenses identified in the untested southern area historically assumed to be closed; and

- Potential high temperature zone and primary/secondary feeder sources identified.

NEXT STEPS

Preparations are underway for the next phase of drill testing at Kempfield. Targets under review include drill testing the large magnetic and IP anomalous feature in Kempfield South, confirmation of the extensions of Horizons C and D in Kempfield South, confirmation of Horizons A and B in Kempfield North, and a single test of the depth extent to the Quarries Zone (which has also been the subject of relatively shallow historical drilling).

Access negotiations for the southern area and regulatory approval process are expected to take 1-2 months, following which the drill sites will need to be prepared, and a drilling contractor organised and mobilised. Further updates will be provided as they become available.

Work continues in parallel on the 3D deposit model construction, and the review of the Kempfield mineral resource estimate has commenced.

In addition, Argent has been reviewing its other tenements in Trunkey-Kings Plain orogenic gold system, including the historic Pine Ridge gold mine.

This ASX Report must be read in conjunction with Appendix A, mineral resource estimate details in Appendix B, and JORC 2012 Table 1 provided in Appendix C (refer to link below)

To view tables and figures, please visit:
http://abnnewswire.net/lnk/1ZRY1W5U

About Argent Minerals Limited:

Argent Minerals Ltd. (ASX:ARD) 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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