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Exploration Series
"Early stage active Projects"

7:15 – 8:30 am, Tuesday April 2, 2013

Discovery Center, Geological Survey of Canada
1500 - 605 Robson Street, Vancouver, BC
Cost: $5 – Pay at Door – Coffee & muffins provided
RSVP: **space is limited; please pre-register by email at: morning_talks@gac-cs.ca**

Murtoa Gold Project, Stawell Gold Belt, Victoria Goldfields, Australia – Exploration under Murray Basin Cover

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Kiska Metals Corporation ("Kiska") is a mineral exploration company with a diverse portfolio of gold and copper projects throughout North America and Australia. The Murtoa project is being pursued by Kiska in a "farm-in" agreement with Crocodile Gold Corporation ("Crocodile"). Kiska has presently earned 50% interest in the project and has the opportunity to earn up to 100% interest in the project.

The exploration target for the Murtoa project is "Stawell-type" orogenic gold mineralisation, characterized by the Stawell gold deposit, presently operated by Crocodile. A total of 4.9 million ounces of gold from a 5 million ounce gold resource has been produced from the Stawell gold mine intermittently from 1853 to present. The Stawell gold deposit is located in the Stawell gold trend of the Victoria Goldfields, located in the western Lachlan Fold Belt of southeastern Australia. The gold trend occurs within the Stawell Zone, a structural corridor on the margin of the Ordovician Lachlan and Cambrian Delamerian orogens. The Stawell gold trend is hosted in greenschist facies rocks of the Moornambool Metamorphic Complex (MMC) an elongate belt of polydeformed Cambrian sediments, volcanic rocks, and Devonian intrusive rocks. These rocks represent a Cambrian back-arc rift basin deformed during the Lachlan orogeny. This basin consisted of basaltic magma extruded from rifts within extensional grabens.

At the Stawell gold mine, gold mineralization occurs in quartz veins within steeply dipping ore-shoots on the margins of structurally deformed basalt units. As an example, typical ore-shoots in the Central load range from 20 m to 30 m in width, 200 m to 350 m in strike with an average mined grade of 4 to 7 g/t Au. Gold mineralization favors iron-enriched and sulphidic sediments adjacent to and within the Cambrian basalt units. Gold mineralization is non-refractory and occurs in association with arsenopyrite, pyrrhotite, pyrite, galena, sphalerite and chalcopyrite. Stawell-type hydrothermal alteration consists of silica, iron, and potassic enrichment, characterized by quartz, stilpnomelane, actinolite, chlorite, ankarite, muscovite, and calcite. The exploration model for Stawell type deposits comprises three key elements that are critical in the development of economic mineralisation: tectonic setting, hydrothermal alteration, and structure. The combination of these three criteria produces a geochemical and structural trap for gold mineralization.

The Stawell gold trend and bounding structures have been confirmed by geophysics and drilling 100 kilometres in either direction to the north and south of the Stawell gold mine. The Murtoa project is located 50 km to the north of the Stawell gold mine, in a portion of the Stawell trend that is underexplored due significant cover by flat-lying Tertiary marine sediments of the Murray Basin. In 2006, exploration drilling by Leviathan Resources Ltd. ("Leviathan") identified an analogue of the Stawell gold deposit in the Murtoa project area, the Kewell basalt dome. Stawell-like gold grades and widths were intercepted within the Kewell basalt dome. However, the gold resource at the Kewell prospect remains to be determined.

Using the Kewell dome as an orientation site, Kiska has worked in collaboration with past and present geologists of the Stawell gold mine to develop methods to target economic gold mineralization beneath the Murray basin cover sequence along the Stawell gold trend. Combinations of geophysical, geochemical and mineralogical methods are employed to identify the key criteria essential to the development of Stawell-type gold mineralisation. Using the contrasting densities of the Cambrian basalt and less dense metasediments of the MMC, constrained three-dimensional inversion modeling of detailed gravity data is used to define the complex architecture of the Cambrian basalt units. To define sulphidic sediments adjacent to and interlayered with the Cambrian basalt units, a combination of Audio magnetotellurics (AMT) and deep penetrating geochemistry (DPG) is used. Independently, AMT defines the location and orientation of conductive units within the MMC. However, this does not distinguish conductive sulphide mineralization from conductive sediments, such as graphitic units. DPG identifies weathering, oxidized sulphide units under cover. Together, AMT and DPG define the location and attitude of sulphide units under cover. The locations of favorable, deep-seated structures are identified using three-dimensional fluid-flow modelling. Hydrothermal alterations in rocks of the MMC are identified using paleo-topographic surface mapping and regolith geochemical mapping. Hydrothermal alteration at Stawell results in indurated, weathering resistant rocks. These weathering resistive units occur as paleotopographic highs in the basement surface which can be modelled from constrained inversions of gravity data. A mineralogical footprint defining components of hydrothermal alteration in the MMC was identified using semi-quantitative X-ray diffractometry. The most effective geochemical vector in the basement regolith was iron-enrichment in the altered meta-sediments.

Collectively, these tools have been combined to define Stawell-type gold mineralization targets underneath Murray basin cover on the Murtoa project. Kiska plans to test these targets with air core drilling and follow-up diamond drilling.

A summary of the work and results, ***intended to stimulate discussion of future efforts on the project***, will be presented.