

SIRIUS RESOURCES NL

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Projects
Collurabbie:

nickel, copper, PGM's

Fraser Range:

nickel, copper, PGM's

Polar Bear:

nickel, PGM's

Boundary Well:

nickel

Lawlers:

nickel

Youanmi:

nickel, copper, zinc, PGM's, gold


DECEMBER EXPLORATION UPDATE

- **More EM conductors identified in third survey at Lawlers**
- **Ultradetailed aeromagnetic survey completed at Collurabbie**
- **Soil geochemical sampling ongoing at Fraser Range and Youanmi**

Sirius Resources (ASX:SIR) advises that significant advances have been made at several of its exploration properties despite progress being slower than expected due to unfavourable weather and equipment issues at some locations. Results from these activities will become available in January, when exploration will resume at an accelerated pace.

Lawlers

At Lawlers, Sirius is exploring for komatiite-hosted nickel sulphide deposits similar to those at Xstrata's nearby Cosmos and Prospero mines.

Additional electromagnetic (EM) conductors have been identified in ongoing surveys at the Lawlers project. The survey covers ultramafic rocks over part of the Lawlers Nickel Joint Venture (2006) and the Lawlers 2008 Nickel Joint Venture on the western side of the 14 Mile Creek syncline. The latest EM conductors include a moderate late time anomaly and a moderate mid-time anomaly in a geologically favourable position, close to the basal contact of the ultramafic unit (Figure 1). An additional unconstrained (and potentially spurious) conductor identified in the footwall of the ultramafic unit requires verifying with further EM.

Progress with this survey has been slower than expected due to summer thunderstorm activity, which can create undesirable noise in the electromagnetic data being collected. As a consequence, drilling originally planned for December will be undertaken in the March 2010 quarter. EM will also resume as soon as possible in the March quarter once weather and atmospheric conditions permit.

Collurabbie

At Collurabbie, Sirius is exploring for Raglan-style nickel-copper platinum group metal (PGM) mineralisation, similar to that at Falcon's nearby Olympia deposit.

A high resolution aeromagnetic survey has been completed over

Sirius' most recently granted tenement, which covers a key part of the nickel prospective stratigraphy. This area is concealed by more recent rocks and contains interpreted extensions of the stratigraphy which hosts Falcon's nearby Olympia nickel-copper-platinum group metals (PGM) deposit.

The results of this survey are expected in late December or early January, and drilling is scheduled for the March quarter of 2010.

Fraser Range

The Fraser Range project covers 400 strike kilometres of the Albany-Fraser belt, which is a relatively unexplored province with potential for giant nickel-copper-PGM deposits.

Detailed soil geochemical sampling of the Talbot, Talbot 1 and Gnama South regional anomalies has largely been completed, and results are expected in mid-January. Sirius intends to drill these anomalies as soon as a drill rig can be sourced in the March 2010 quarter.

Infill soil geochemical sampling of the Transline, Buningonia and GSWA anomalies will also commence early in the new year.

Youanmi

At Youanmi, Sirius is exploring for intrusion-hosted PGM reefs and for volcanogenic massive sulphide (VMS) copper-zinc deposits within the surrounding stratigraphy, which is known to host such mineralisation within the district.

Initial PGM focused soil geochemical sampling has been completed at Youanmi, and results are expected in early January. Geochemical sampling of copper-zinc targets will commence early in the new year.

Lake Wells

Sirius is exploring for base metals, gold and uranium in the Lake Wells greenstone belt.

The planned airborne radiometric survey of regional uranium anomalies at Lake Wells has been delayed as a result of aircraft maintenance issues. The survey has been rescheduled for the last week of December, and results should be available by mid-January.

Ownership and Joint Venture Interests

Sirius has a 70% interest in the Lawlers Nickel Joint Venture (2006) and is earning similar rights on the adjacent Lawlers 2008 Nickel Joint Venture. Both joint ventures are with Barrick Gold Australia Pacific. The project is situated in the heart of Western Australia's nickel producing district, and covers 80 strike kilometres of stratigraphy which also hosts BHP's nearby Leinster and Mt.Keith operations, Xstrata's Cosmos, Prospero and Sinclair mines, and Norilsk's Waterloo nickel mine.

Sirius has a 70% interest in the Collurabbie Joint Venture, with Mark Creasy retaining a 30% free carried interest to the completion of a bankable feasibility study. The Joint Venture comprises three tenements in the vicinity of Falcon's Olympia deposit, and a number of tenements which cover 2,678 square kilometres of the Lake Wells greenstone belt.

The Fraser Range Joint Venture covers 400km of strike of relatively unexplored territory in the Proterozoic Albany-Fraser mobile zone. Sirius has a 70% interest in the base metal rights on the Fraser Range Joint venture, with Mark Creasy retaining a 30% free carried interest to the completion of a bankable feasibility

study. The base metal rights include nickel, copper, cobalt, zinc, lead and platinum group metals (PGM's), together with other metals occurring in conjunction with these.

Sirius has a 70% interest in the Youanmi Joint Venture, with Mark Creasy retaining a 30% free carried interest to the completion of a bankable feasibility study, and retaining full rights to vanadium, titanium and iron (V-Ti-Fe).

A handwritten signature in black ink that reads "Mark Bennett".

Mark Bennett
Managing Director and CEO
Sirius Resources NL

Important Notice

This press release is not an offer of securities for sale in the United States. No security of Sirius has been registered under the United States Securities Act of 1933, as amended (the "U.S. Securities Act"), and no such security may be offered or sold in the United States absent registration under the U.S. Securities Act and applicable state securities laws or an exemption from registration under the U.S. Securities Act and such laws.

Competent Persons statement

The information in this report that relates to Exploration Results and Mineral Resources is based on information compiled by Dr. Mark Bennett, who is an employee of the company. Dr Bennett is a Member of the Australasian Institute of Mining and Metallurgy and has sufficient experience of relevance to the styles of mineralisation and the types of deposits under consideration, and to the activities undertaken, to qualify as a Competent Person as defined in the 2004 Edition of the Joint Ore Reserves Committee (JORC) Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Dr Bennett consents to the inclusion in this report of the matters based on information in the form and context in which it appears.

Exploration results are based on standard industry practices, including sampling, assay methods, and appropriate quality assurance quality control (QAQC) measures. Reverse circulation (RC), aircore and rotary air blast (RAB) drilling samples are collected as 1 metre samples and composited where stated. Core samples are taken as half core sampled to geological boundaries where appropriate. All samples are prepared using four acid digest, lead collection or nickel sulphide collection fire assay, and assayed using inductively coupled plasma mass spectrometry (ICPMS), inductively coupled optical emission spectrometry (ICPOES) or atomic absorption spectrometry (AAS) at reputable laboratories in Perth, Western Australia. The accuracy and precision of analytical results is monitored by the use of internal laboratory procedures and certified standards and subsequent statistical analysis to ensure that results are representative.

Mineral Resources, where stated, have been estimated using standard accepted industry practices, as described in each instance. Top cuts have been applied to the composites based on statistical analysis and consideration of the nature and style of mineralization in all cases. Where quoted, Mineral Resource tonnes and grade, and contained metal, are rounded to appropriate levels of precision, which may cause minor apparent computational errors. Mineral Resources are classified on the basis of drillhole spacing, geological continuity and predictability, geostatistical analysis of grade variability, sampling analytical spatial and density QAQC criteria, demonstrated amenability of mineralization style to proposed processing methods, and assessment of economic criteria.

