

St George Mining

Potential for a large-scale nickel discovery

St George Mining (SGQ:ASX) has 100% ownership of the East Laverton Project. The key feature is the large-scale potential for nickel sulphide mineralisation. Reconciliation work has already been carried out and targets are now well defined. With an escalation of exploration activity in the near term, there are many opportunities for a nickel discovery.

High MgO ultramafics similar to Agnew-Wiluna belt

SGQ's main project is East Laverton. This is on the prospective eastern margin of the Yilgarn Craton, 230km north-east of Kalgoorlie, Western Australia. SGQ holds 100% of a tenement package extending over 2,000km². The high magnesium oxide (MgO) ultramafic rocks at East Laverton have a similar composition to the ultramafics at the Agnew-Wiluna belt where there are several world-class nickel sulphide deposits. In recognition of the potential of the East Laverton tenements, BHP Billiton Nickel West (BHP:ASX, BLT:LN) agreed to farm into a core of SGQ's tenements in 2011. Exploration results were positive but BHP withdrew in late 2013 due to BHP's company-wide pullback in exploration-related expenditure.

Experienced technical management and consultants

SGQ has followed a systematic exploration programme that has identified extensive ultramafic belts, with multiple occurrences of disseminated nickel sulphides. Massive high-grade nickel sulphides, which are the commercial objective of the exploration, are often in proximity to the disseminated sulphides. SGQ's technical management and its geophysical consultants have extensive experience in nickel exploration in the region and have been associated with several prominent discoveries. Conventional exploration plus advanced geophysics are being employed to define targets. Reconciliation work has established a portfolio of quality targets. An escalation of exploration activity will now start drilling of massive sulphide targets.

Recent Hawaii and Mt Alexander North acquisitions

SGQ has recently added to its nickel exploration exposure with the acquisition of 100% of the Hawaii and Mt Alexander North nickel sulphide projects from BHP. Both these projects straddle the Ida Fault, which is potentially the same structure that hosts the Cosmos deposit (+500,000t contained nickel). SGQ has already begun exploration at Hawaii and is planning a deep drilling campaign programme at Mt Alexander North in early 2016.

Financials

SGQ had cash of A\$2m at 30 September 2015. In early November 2015, the company raised a further A\$1.8m through a placement of 22,500,000 shares at A\$0.08/share. SGQ intends to use the funds to escalate its nickel sulphide exploration programme. SGQ spends A\$2-2.5m per year on exploration, which it has mainly funded from equity raisings. While we believe the company has sufficient funds for around the next 12 months, we believe it will raise more equity in the future to continue its exploration programme for massive nickel sulphides.

Metals & mining

27 November 2015

Price **A\$0.07**
Market cap **A\$11m**

Net cash (A\$m) at 30 Sep 2015	2.0
Shares in issue	160.0m
Free float	64%
Code	SGQ
Primary exchange	ASX
Secondary exchange	N/A

Share price performance



Business description

SGQ is focused on exploration for massive nickel sulphides in Western Australia. Its major project is East Laverton. It recently acquired two additional WA nickel projects at Hawaii and Mt Alexander North. Its exploration areas are also prospective for gold.

Next event

Quarterly activities report for period ending 31 December February 2016

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East Laverton – large-scale nickel potential

A key feature of the East Laverton nickel sulphide project (SGQ 100%) is its large-scale potential for the discovery of nickel sulphide resources.

SGQ has had an active exploration programme at East Laverton for approximately five years. As exploration has progressed, the focus on nickel has intensified as ongoing exploration has produced positive exploration results. BHP recognised the large-scale nickel potential when it farmed into the project and discovered nickel sulphides, only to withdraw at a later stage due to corporate cost-cutting. Drill hole DRAC38 at Windsor, completed by BHP, intersected 30m at 0.31% Ni from 108m, including 8m at 0.44%Ni from 130m and 2m at 0.62% Ni from 132m.

As a result of the considerable amount of exploration work to date, the reconciliation work has already been carried out. The company has well-defined targets for near-term exploration.

Exploration model to find massive nickel sulphides

The exploration model includes the identification of prospective ultramafic zones and the use of techniques that attempt to locate the higher-grade massive nickel sulphides, including electromagnetic surveys that detect conductive bodies that may be nickel sulphide deposits. Massive nickel sulphides are the commercial target of the exploration.

- **Focus on ultramafics:** Initial exploration was primarily focused on the delineation of high MgO ultramafic units because of its prospectivity for nickel sulphide mineralisation. Generally, the higher the MgO level, the higher the nickel level. The ultramafics being sought are formed by high fluxes of exceptionally hot komatiite magmas in favourable environments such as lava flow paths and channel ways.
- **Sulphur needed for nickel sulphide formation:** The ultramafics need to be capable of assimilating crustal sulphur from the footwall rocks. Provided the available sulphur level is high, assimilation is the main trigger for the formation of komatiite-hosted magmatic nickel sulphide deposits. SGQ has identified large sulphur levels in contact with the ultramafics.
- **Disseminated nickel sulphides:** Massive higher-grade nickel sulphides are sometimes found near the lower-grade disseminated nickel sulphides. The disseminated nickel sulphides are usually too low in grade to be commercial unless there is a very large resource, but can provide a vector for exploration.
- **Elevated platinum-group elements (PGEs):** Elevated PGEs in ultramafics may also be indicative of magmatic sulphides and can potentially occur as a halo around a massive nickel sulphide deposit.
- **Massive nickel sulphides:** These are typically surrounded by a halo of disseminated nickel sulphides. Further exploration tools are used to locate any massive nickel sulphides that may be present, including electromagnetic surveys and geochemical analysis of drill-hole data.
- **Basal contact of the ultramafic:** This provides a prospective surface for the deposition of massive nickel sulphide. The massive sulphide may also be mobilised into nearby structural positions.

Exploration techniques to find nickel sulphides

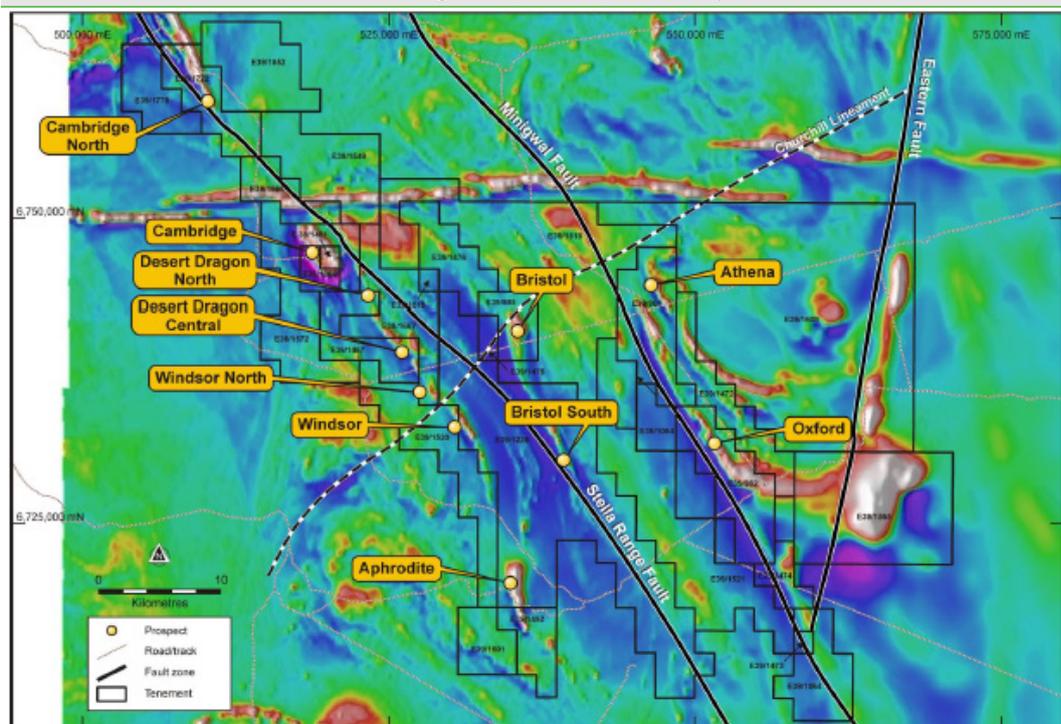
Various stages are involved in the exploration process. Techniques include:

- **Exploration drilling:** reverse circulation (RC) or diamond drilling (DD) techniques to obtain rock samples for laboratory assaying.
- **Gravity surveys:** can help interpret high MgO ultramafics, which present as gravity highs.
- **Magnetic surveys:** surface electromagnetic (EM) surveys are widely used to identify conductive bodies that may be massive sulphide mineralisation. Down-hole EM (DHEM) surveys, where the geophysical tool is within or at the base of a drill hole, are used in combination with drilling of prospective ultramafic units.
- **XRF analysis:** a portable tool that can be used for the instantaneous assaying of certain elements, which include nickel. These assays can later be checked in the laboratory.

East Laverton exploration achievements and outlook

SGQ has a large pipeline of nickel sulphide prospects at East Laverton, as shown in Exhibit 1.

Exhibit 1: East Laverton – landholding of +2,000km², three major ultramafic belts



Source: St George Mining

- **Desert Dragon Central:** Multiple ultramafic units identified in contact with sulphide-rich sequences. Significant nickel sulphide intersections for DDRDD005 are 2m at 0.44% Ni from 215m, 4m at 0.34% Ni from 220m, 5.6m at 0.44% Ni from 231m, 1m at 0.30% Ni from 379m and 1m at 0.36% Ni from 400m. Drill testing is underway to test strong EM conductors in prospective geological positions. SGQ believes the electrical signatures are consistent with massive sulphides.
- **Desert Dragon North:** Massive nickel stringer veins (including 2m at 1.08% Ni from 55m) have been interpreted by SGQ to be from a larger nickel sulphide body at depth. An EM target at the base of the same ultramafic unit is in a prospective geological position for nickel sulphides and SGQ believes this is a "compelling" target.
- **Windsor:** The first discovery of nickel sulphides at Windsor was made by BHP in 2012. A total strike length for high MgO ultramafic of 1.5km has been identified and is open to the north and

the south. Drilling has delineated widespread occurrences of high tenor disseminated nickel sulphides, which are open laterally and at depth. Pentlandite has been identified, indicating the potential to produce a high-grade nickel sulphide concentrate. Systematic drilling of the basal contact of this ultramafic and down-hole EM surveys are underway to test for massive nickel sulphides.

- **Windsor North:** Prospective ultramafic outcrop identified. Previous drilling has intersected thick sequences of komatiite ultramafic with nickel and PGE anomalism.
- **Cambridge:** Large dunite body (4km x 2km) with magmatic sulphides/PGEs confirmed by drilling. SGQ believes the dunite is similar to the Perseverance dunite (1.4Mt Ni) at Leinster.
- **Cambridge North:** Strong EM conductor co-incident with a gravity anomaly and high MgO ultramafics.
- **Bristol:** Large komatiite ultramafic unit. Magmatic sulphides/PGEs confirmed by drilling.
- **Athena:** Very thick ultramafic unit on Minigwal Belt.

East Laverton development parameters

Factors in the possible development of the East Laverton nickel sulphide Project include:

- **Mining:** The intersection of nickel sulphides at Desert Dragon and Windsor has included thick intervals of disseminated nickel sulphide at around 100m depth. This suggests potential for shallow nickel resources. These could be mined by open-pit methods, providing early cash flow prior to the possible development of underground resources at a later stage.
- **Metallurgy:** Although none of the nickel sulphide from the project has been subject to metallurgical testing, petrographic examination has delineated high tenor 100% pentlandite nickel sulphide. Pentlandite normally produces a high-grade concentrate with a high recovery. Until a resource is delineated and project studies carried out, it is not possible to determine whether nickel ore from the project would be trucked to a nickel concentrator in the region or processed in a concentrator established on the site.
- **Nickel sales:** SGQ is free to negotiate sales of ore or concentrate from the East Laverton project to any party, providing flexibility in establishing contract terms. BHP, we expect, would monitor the project as a potential source of nickel units for its Kalgoorlie smelter in the future. No royalties are payable on sales, other than government royalties.
- **Infrastructure:** The East Laverton project has the benefit of proximity to the Tropicana access road. A gas pipeline is currently being installed to service the Tropicana mine. This provides potential power optionality to the East Laverton project in the future.

Acquisition of Hawaii and Mt Alexander projects

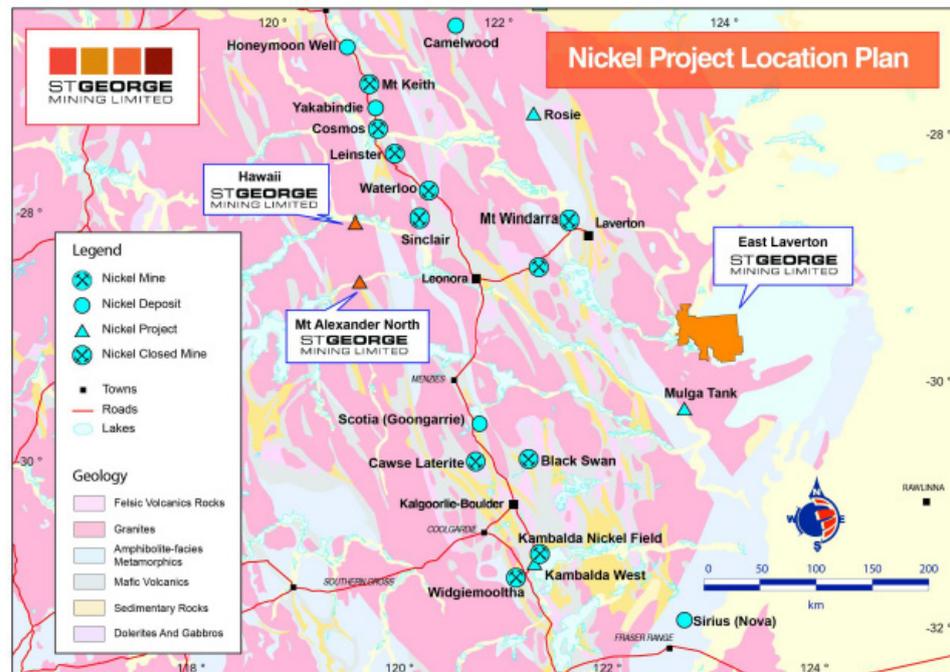
SGQ completed the acquisition of 100% of the Hawaii and Mt Alexander North nickel sulphide projects from BHP in early November, 2015. The acquisition included all technical and exploration data. The Hawaii and Mt Alexander North projects both straddle the Ida Fault. This is potentially the same structure that hosts the Cosmos deposit (+500,000t contained nickel). Western Areas (WSA:ASX) purchased Cosmos from Glencore for A\$24m in June 2015. It was originally discovered and developed by Jubilee Mines.

The key commercial terms of the transaction are:

- The consideration payable for the acquisition is A\$40,000.
- Nickel West (BHP) has off-take rights to any nickel produced from the acquired tenements.
- Nickel West may charge a base royalty of 1% of the proceeds from any mineral production at a tenement.

- Nickel West may charge an additional royalty of 1% on nickel production if a minimum measured and indicated JORC resource of at least 25,000t nickel is defined at the relevant tenement and payments of the additional royalty start 12 months after commercial production from the relevant tenement.

Exhibit 2: Hawaii and Mt Alexander North in proven nickel belt



Source: St George Mining

Hawaii

The total area of the Hawaii project, combining acquired and applied for exploration licences, is 298km².

- **Location:** 55km west of the Sinclair Nickel Project, which is owned by Talisman Mining (TLM:ASX) and 90km south west of Cosmos, owned by WSA. Major exploration programmes are underway at both Sinclair and Cosmos.
- **Exploration status:** BHP discovered over 5km of moderate to high MgO ultramafics adjacent to the Ida Fault.
- **Exploration outlook:** SGQ is planning the first ever reverse circulation (RC) drilling to test the bedrock geology at Hawaii. Drilling was scheduled to begin in the second half of November. SGQ has also started a ground moving loop electromagnetic (MLEM) survey over a prospective area of high MgO ultramafics. The objective of the survey is to identify EM targets for drill testing. Newexco, SGQ's geophysical adviser, is modelling the data.

Mt Alexander North

The total area of the Mt Alexander North project, combining acquired and applied for exploration licences, is 87km².

- **Location:** Mt Alexander North is approximately 120km south west of Leinster, where BHP operates a nickel concentrator and mining operations.
- **Exploration status:** A structure on an adjacent tenement to the south has been interpreted to extend into SGQ's licences with potential for the discovery of additional nickel-copper sulphides. The adjacent tenement E29/638 is held in joint venture by BHP and WSA. In 2008, high-grade nickel-copper sulphides were discovered in E29/638 with intersections including 4m

at 4.9% Ni, 1.7% Cu and 3.9g/t platinum group metals equivalent (PGEs) from 91.4m and 3m at 3.8% Ni, 1.6% Cu and 2.7g/t PGEs from 56.3m.

- **Exploration outlook:** SGQ plans deep RC drilling in early 2016.

Gold exploration

The greenstone belts at the East Laverton project are considered to have potential to host orogenic gold mineralisation. Soil geochemical surveys have identified a number of prospective targets. The most prominent is the Balmoral gold prospect, which is along the Minigwal belt in the eastern section of the project area.

Two of the most important gold discoveries in the region have been made by others at Tropicana in 2005 (+10MozAu) and Gruyere in 2013 (+4MozAu). In SGQ's view, these successes highlight the potential of undercover exploration and underscore exploration of prospective areas of interest at its East Laverton project.

- **Outlook:** A recent broad-ranging gravity survey is being used as a basis for a technical evaluation of gold targets. It will identify prospect-scale targets for immediate follow-up exploration. The company expects to define high-priority gold targets for drilling in 2016.

Financials

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SGQ spends A\$2-2.5m per year on exploration. It has mainly funded this expenditure from equity raisings. While we believe SGQ has sufficient funds for around the next 12 months, we believe SGQ will raise more equity in the future to continue its exploration programme for massive nickel sulphides.

Following allotment of the 22,500,000 shares under the placement plus acceptance of oversubscriptions, SGQ has 160,025,857 shares on issue and 32,172,494 listed options (ASX: SGQOA).

Directors and technical management

John Prineas B.Ec LL.B F Fin (executive chairman) is a founding shareholder. He has over 24 years' experience in the banking and legal sectors. He started his career as a lawyer at Allen, Allen & Hemsley, gaining experience in commercial transactions and corporate advice. He has worked as general counsel, chief operating officer and country head at Dresdner Bank in Sydney, with a focus on project and acquisition finance for resources and infrastructure projects as well as associated capital markets and treasury products, including commodities trading.

Tim Hronsky B.Eng (geology) MAusIMM, MSEG (executive director). Tim has over 20 years' international experience in the mineral exploration and mining industry, including 15 years with Placer Dome. His corporate roles have included business improvement, risk management and assurance.

Sarah Shipway B.Com, CA (non-executive director) is a chartered accountant with extensive experience in advising on ASX corporate listings, financial reporting, corporate planning and equity and debt funding.

Matthew McCarthy BSc (Hons) geology (exploration manager) is a geologist with 15 years' experience in nickel, gold and base metal exploration. Prior to joining SGQ, Matthew worked at BHP Billiton Nickel West (BHP) where he was a senior member of the team that discovered the Venus nickel sulphide deposit at Leinster (+250,000t contained nickel). He also managed exploration for the Project Dragon farm-in arrangement between SGQ and BHP, which first discovered nickel sulphides at East Laverton in 2012. Additionally, Matthew has expertise in gold exploration. He was on the Anglo Ashanti Australia exploration team that discovered the Tropicana gold deposit in 2005 (+8Moz) and has also managed exploration and resource definition programmes for Goldfields Australia.

Newexco Services is SGQ's geophysical consultant with a strong reputation in nickel sulphide exploration. Newexco was adviser on the discovery of the Nova-Bollinger deposit for Sirius Resources and the Spotted Quoll and Flying Fox deposits for Western Areas (ASX: WSA).

Further details on former BHP farm-in

As an indication of the possible potential at the East Laverton project, BHP Billiton Nickel West (BHP) negotiated a farm-in agreement with SGQ in April 2011 to earn a 51% interest in specified core tenements by spending A\$3m over three years with the right to increase this to 70% by funding a bankable feasibility study. After two years' exploration, which included over 8,000m of RC drilling, BHP exercised its right to earn a 51% Stage 1 interest, a clear indication that the project met BHP's technical hurdles. Later in 2013, BHP withdrew from the farm-in agreement as part of a company-wide pullback in exploration-related expenditure, unrelated to the merits of the East Laverton project. BHP, we expect, would continue to take an interest in the progress of the project as a potential source of future nickel ore for its WA-based concentrators and smelter.

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