



### Talga Resources Ltd

ABN 32 138 405 419

1st Floor, 2 Richardson St,  
West Perth, WA 6005

T: +61 8 9481 6667

F: +61 8 9322 1935

[www.talgaresources.com](http://www.talgaresources.com)

### Corporate Information

ASX Code **TLG/TLGO**

Shares on issue **138.36m**

Options (unlisted) **11.90m**

Options (listed) **7.71m**

### Company Directors

**Keith Coughlan**

Non-Executive Chairman

**Mark Thompson**

Managing Director

**Grant Mooney**

Non-Executive Director

ASX Code: **TLG**

## CSIRO FINDINGS BOOST TALGA'S SWEDISH GRAPHITE-GRAPHENE PROJECT

Australian technology materials development company **Talga Resources Limited** (ASX:TLG) ("Talga" or "the Company") is pleased to announce positive outcomes from a detailed 10-month assessment by the Commonwealth Scientific and Industrial Research Organisation ("CSIRO") on graphite and graphene samples from Talga's high grade and wholly-owned Nunasvaara deposit in Sweden.

The assessment was conducted pursuant to a collaboration agreement with Talga as part of CSIRO's focus on potential graphene-producing natural ore deposits. The test work was funded by CSIRO and the Federal Department of Industry's 'Researchers in Business Program' in conjunction with Talga.

In a comprehensive 128 page report, CSIRO research authors Mark A. Pearce and B elinda M. Godel concluded that the Nunasvaara graphite deposit is highly crystalline, was formed from a biogenic carbon source and that graphene liberated by Talga directly from uncrushed raw Nunasvaara graphite ore, showed thin, electron transparent 2-10 micron size graphene. Talga considers this size range is a key advantage as it enables a greater variety of bulk graphene applications to be catered to including additives to battery materials, composites, anti-corrosion paints/coatings and polymers.

Other key conclusions included that the distribution of graphite flakes within the Nunasvaara ore matrix was highly homogeneous, particularly compared with more conventional global deposits, and that late stage vein graphite occurs deposited by notably low-temperature fluids. Collectively the data assists Talga in confirming key aspects of how its natural graphite ores were formed and can

**Fig 1** CSIRO research/authors Mark A. Pearce (R) and B elinda M. Godel (L) with copies of the Talga report at the Advanced Resource Characterisation Facility, Kensington WA.



be used to optimise exploration and processing methodologies towards maximum graphene production capability.

**Talga's Managing Director, Mr Mark Thompson:**

*"The report is highly technical and the bulk of its content is commercial-in-confidence but we are highly encouraged by both the calibre and intensity of the CSIRO test program applied to the Nunasvaara ore, and the scientific integrity of the findings.*

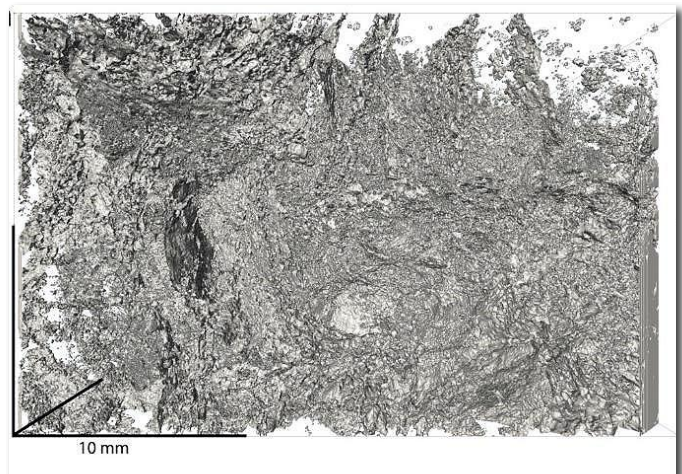
*The tests achieved our objective of gaining a deeper insight to our natural graphite-graphene deposits via a mineralogical characterisation at a larger scale than provided by our nanotechnology research programs. This provided new data to better interpret how the deposit's graphite mineralisation formed. We believe this interpretation will improve project economics as it facilitates optimised mining and processing performance and highlights ideal conditions under which deposit extensions may be found. The timing of results couldn't be better as we prepare to commence trial mining in Sweden and demonstration plant processing in Germany.*

*The CSIRO Advanced Resource Characterisation Facility is a cutting edge opportunity for increasing innovation in mining. Combined with funding provided by the Government 'Researchers in Business' program this has been an effective way to boost Talga's development of large-scale natural graphene supply."*

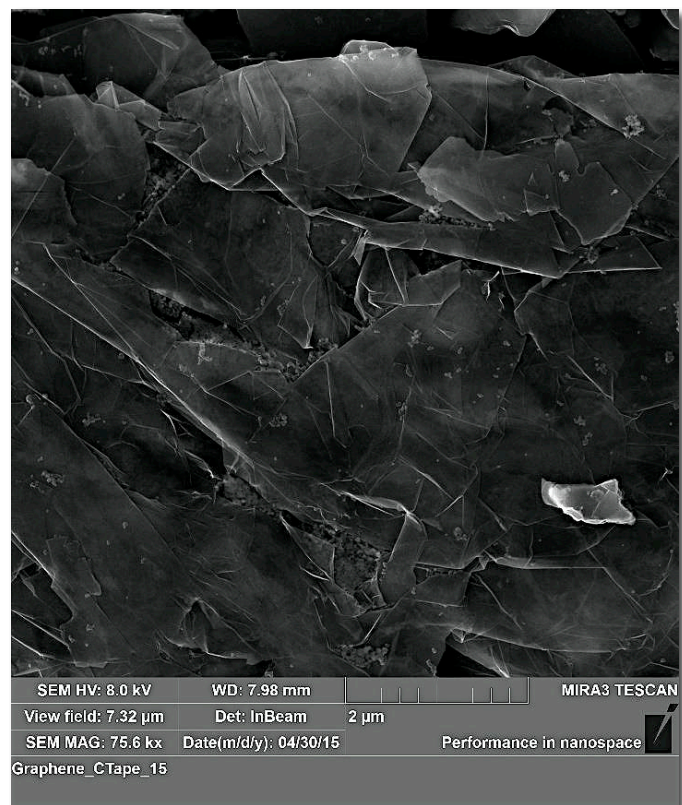
**CSIRO's Technical Approach:**

The microstructures of four ore samples from the Nunasvaara graphite deposit were analysed using a variety of techniques to quantify variations in chemistry, mineralogy and graphite grain size. Core-scale chemical maps were made using an X-ray fluorescence mapper and areas of interest were selected for more in-depth analysis, based on their microstructures. These areas were examined with a scanning electron microscope (SEM) to document features between several hundred micrometres and tens of nanometres. The SEM analysis of sample chemistry in 2D was carried out alongside 3D analysis using high-resolution X-ray computed tomography (HRXCT). Finally, four additional samples of processed graphite and graphene were examined by SEM to document the grain-size, mineralogy and microstructural relationships after metallurgical processing.

**Fig 2** Image of Nunasvaara matrix graphite mineralisation showing 3-d interconnected particle morphology that enables innovative processing methodology.



**Fig 3** Image of processed Nunasvaara ore showing slide-cast aggregate of single to multi-layer graphene sheets.



### Background to Nunasvaara:

The Nunasvaara graphite deposit lies within the Vittangi Project and is renowned as the highest grade graphite mineral resource in the world under JORC and NI43-101 codes (see Technology Metals Research Graphite Resource Index June 2015).

Recent work by Talga has demonstrated that high quality natural graphene can be produced directly from the deposit's raw ore in the same single step process that liberates graphite but without expensive and destructive stages of crushing, grinding, flotation or chemical leaching. The products therefore retain a state of high quality but can potentially be produced in bulk scale at low cost.

Talga has secured a site in central Germany close to its European alliance partners to establish a graphene pilot plant for its north Swedish deposits. The Company will shortly undertake a trial mining program to extract a bulk ore sample from Nunasvaara to be tested at the German pilot plant.

Nunasvaara is one of five wholly-owned Talga graphite projects located within the Fennoscandian Shield of northern Sweden, an historic graphite producing area of Europe. The project is only 3km from a sealed highway and 20km from rail direct to major European graphite and graphene markets.

### For further information, please contact:

#### Talga Resources Ltd.

Mark Thompson - Managing Director

Tel +61 (08) 9481 6667

Email [admin@talgaresources.com](mailto:admin@talgaresources.com)

### About Talga

**Talga Resources Limited** ("Talga") (ASX: TLG) is a Perth headquartered resources and technology materials company with its own source of integrated supply from multiple advanced and high grade graphite projects in northern Sweden. The flagship project "Vittangi" is at development stage and like the rest of the projects, it benefits from established high quality infrastructure in Sweden including proximity to grid power, road, rail and ports.

Two of the five graphite projects have unique ore that allows graphite and graphene to be liberated at an atomic level in a ground breaking and extremely cost effective way. The graphene produced is of a high quality and suitable for a range of large volume composite and additive applications as well as high technology applications.

Talga's legacy non graphite assets in Sweden and Australia, including a cobalt-rich IOCG deposit, are all to be commercialised to provide funds for the core graphite projects.

---

### Competent Person's Statement

The information in this report that relates to Exploration Results is based on information compiled and reviewed by Mr Mark Thompson, who is an employee of the Company and a member of the Australian Institute of Geoscientists and Mr Simon Coxhell, a consultant to the Company and a member of the Australian Institute of Mining and Metallurgy. Mr Thompson and Mr Coxhell have sufficient experience which is relevant to the activity which is being undertaken to qualify as a "Competent Person" as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, mineral Resources and Ore Reserves" ("JORC Code"). Mr Thompson and Mr Coxhell consent to the inclusion in the report of the matters based on this information in the form and context in which it appears.

The information in this report that relates to Resource Estimation is based on information compiled and reviewed by Mr Simon Coxhell. Mr Coxhell is a consultant to the Company and a member of the Australian Institute of Mining and Metallurgy. Mr Coxhell has sufficient experience relevant to the styles of mineralisation and types of deposits which are covered in this document and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves" ("JORC Code"). Mr Coxhell consents to the inclusion in this report of the Matters based on this information in the form and context in which it appears.