

ASX:TLG

# TALGA TREBLES TOTAL GRAPHITE RESOURCE TO GLOBAL SCALE

## **Highlights**

- New resource at Jalkunen lifts Talga's total combined JORC graphite inventory > 43 million tonnes for 6.9 million tonnes contained graphite
- Maiden JORC Inferred resource at Jalkunen (Talga's 3rd graphite resource in Sweden) 31.5 million tonnes @ 14.9% graphite
- Strong potential to upgrade Jalkunen resource with further drilling
- Jalkunen amenable to same graphene liberation process used at Vittangi project, just 50km to northwest
- Combined total graphite inventory has international grade and scale significance
- Supports Talga's European graphene and graphite production ambitions

Perth-based advanced materials company, Talga Resources Ltd ("Talga") (ASX: TLG), is pleased to announce the maiden Joint Ore Reserves Committee ("JORC") mineral resource at its Jalkunen graphite project ("Jalkunen") in Sweden. The maiden resource triples the total Indicated and Inferred inventory across Talga's combined Swedish graphite-graphene projects to more than 43 million tonnes ("Mt") of JORC classified material for approximately 6.9Mt contained graphite (see Table 2).

The Company believes this achieves a new level of inventory, grade and scale to support Talga's strategy of establishing a sustainable long term international graphite and graphene production corridor through Europe.

The maiden JORC 2012 compliant Inferred mineral resource estimate for Jalkunen totals 31.5Mt at 14.9% graphitic carbon ("Cg") for 4.7Mt of contained graphite, based on a 10% Cg lower cut-off. Further details and parameters relevant to the estimation are provided in Table 1, Figure 1 and text below.

Project	Classification	Tonnes	Average Grade (%Cg)	Contained Graphite (Tonnes)
Jalkunen	Inferred	31,500,000	14.9	4,693,500

Table 1 - Jalkunen Mineral Resource (10% Cg low cut-off Aug 2015)

Jalkunen is one of Talga's five wholly owned graphite projects in north Sweden (see Figure 2), and is the Company's third graphite project with a resource estimate (see Appendix 2). It is one of two projects with dual graphene and graphite production potential (the other being the flagship Vittangi project).

When Jalkunen is combined with the existing JORC 2004 Indicated and Inferred resources for the high grade Vittangi project (7.6Mt @ 24.4%Cg) and the coarser flake Raitajärvi project (4.3Mt @ 7.1%Cg), it gives Talga a total combined inventory of approximately 6.9Mt contained graphite, more than triple the previous total (see Table 2).

Office: Level 1, 2 Richardson St, West Perth WA 6005 Tel: +61 (08) 9481 6667 Fax: +61 (08) 93221935 Email: admin@talgaresources.com

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#### Talga Managing Director Mark Thompson commented:

"The Jalkunen resource estimate is extremely encouraging on a number of fronts. Not only does it elevate the project from target to resource status, it springboards into the top nine graphite deposits by size and is within top six for grade of worldwide graphite resources (Talga's Vittangi project is rated number one - see Technology Metals Research Advanced Graphite Projects Index<sup>1</sup>). This is significant as this was the first drill test by Talga and required relatively few holes, so the deposit has a high potential for further growth if required. Also, the Jalkunen resource sits close to the previously announced Jalkunen Exploration Target<sup>2</sup> which provides encouragement regarding endowment of the remaining graphite Exploration Target portfolio.

Our initial metallurgical work has confirmed amenability of Jalkunen to follow the same dual graphite and graphene processing pathway as our Vittangi project. Talga is confident regarding the growth outlook in markets for both graphene and related nano and micro graphite products across a range of new applications from batteries to building materials. The combined resources at Vittangi and Jalkunen provide the platform to supply that growth".

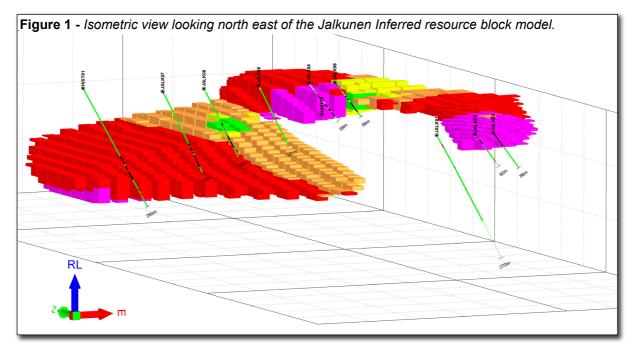
Project	Classification	Total Tonnes	Average Grade (%Cg)	Contained Graphite (Tonnes)
Jalkunen	Inferred	31,500,000	14.9	4,693,500
Vittangi	Indicated and Inferred	7,600,000	24.4	1,854,400
Raitajärvi	Indicated and Inferred	4,300,000	7.1	305,300
	Total	43,400,000		6,853,200

Table 2 -	Talga's (	Combined	total Miner	al Resource	inventory
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#### Next Steps

Evidence from Talga's past 12 month commercial development program, combined with encouraging growth in new graphitic carbon applications outside traditional steel/refractory markets, justified pursuing the Jalkunen maiden resource estimate.

Metallurgical work and further technical analysis will be undertaken on the drill-core and the outcomes of this, in conjunction with developments at Vittangi, will be considered as part of an overall Jalkunen review. Further drilling to enhance scale and classification of the Jalkunen resource will be considered, as there is potential to consider dual development of both projects given the proximity and processing similarities. However, there is no immediate imperative to fast track any decisions in this regard and the Company will continue to avoid drilling for the sake of resource scale status alone. Talga is encouraged that it may have additional production optionality and a stronger platform for growth as required.



#### Background - Jalkunen Project

The Jalkunen project is situated 50km southeast from Vittangi (see Figures 2 & 3) and comprises a number of exploration licences covering approximately 88km<sup>2</sup>. These collectively contain five graphite prospects - Jalkunen, Tiankijokki, Nybrännan, Suinavaara and Lautakoski (see Figure 4).

Some of these prospects have been historically mined, and in the early 1990's were explored by the Swedish Geological Survey ("SGU") who conducted geophysical surveys, rock/boulder sampling, microscopic analyses and drilling. The historical exploration results, combined with Talga's work since first pegging the project in 2011, enabled the estimation of five Exploration Targets<sup>2</sup> (see ASX 26 February 2015 for details, Table 3 & Figure 4). Note, the Exploration Targets are based on a number of assumptions and limitations with the potential grade and quantity being conceptual in nature. There has been insufficient exploration to estimate a Mineral Resource Estimate in accordance with the JORC Code and it is uncertain if future exploration will result in the estimation of a Mineral Resource.

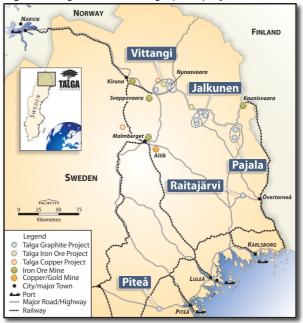
#### **Resource Geology and Mineralisation**

The Jalkunen graphite deposit is located within metasedimentary units of Veikkavaara greenstone group rocks belonging to the ~1.9 billion year age Pahakurkioi Group (see Figure 3 and source SGU report 2014:21 "Summary of geological and geophysical information of the Masugnsbyn area"). The graphitic units are interpreted to be located on the western side of a shallowly dipping anticline or domal structure and partially juxtaposed by later faults. The graphitic unit, which outcrops in part, is a generally sheet-like body offset by some late faults and interleaved with a number of lower grade metasedimentary units.

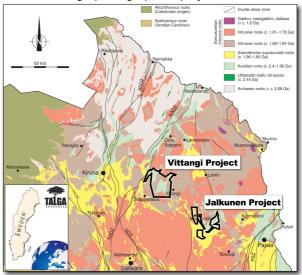
Previously the SGU completed limited microscopy on 9 polished sections across two portions of the Jalkunen deposit tested by historic drilling and concluded that the graphite is crystalline flake, and predominantly fine grained. They estimated the majority of graphite particles to be <100 microns in length with minor amounts above this size, up to maximum 400 microns. Visual observations of the current drillcore are consistent with the historical work (see Photo 1).

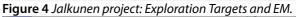
Preliminary 'sighter' metallurgical testwork by Talga has commenced on a suite of representative samples across the mineralised zone intercepted in the current drilling. To date this has demonstrated that the Jalkunen ore type responds to the same 1-step liberation method

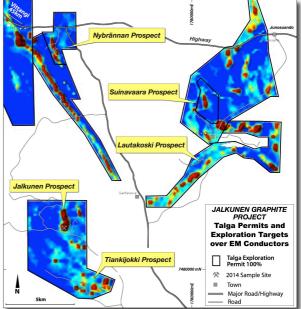
#### Figure 2 Talga 100% owned graphite projects, Sweden.



**Figure 3** Geological location plan of Talga's Vittangi and Jalkunen graphite-graphene projects in Sweden.







as used at the Vittangi project to produce both graphite and graphene. Further testwork to characterise the Jalkunen material is underway.

#### Drilling, Sampling and Analysis

In March 2015 Talga completed a diamond drilling program covering some 800 metres of strike targeting a prominent EM anomaly where three historic SGU holes had previously tested base metal geochemical anomalies (see ASX 4 June 2015). The EM anomaly extends over 1,400 metres of strike and in places is over 300 metres wide reflecting the nearly flat lying nature of the host rock in this location.

Eight diamond holes totalling 1,082 metres were drilled with hole depths ranging from 80 to 270 metres. The holes were drilled on two

**Photo 1** *Microphotograph of atypical quartz vein- hosted graphite flakes at Jalkunen. Scale bar 100 micron.* 



traverses located 800 metres apart and straddling the southern and northern ends of the EM anomaly (see Figure 5). Six of the eight holes intersected a prominent graphite unit averaging 50–60 metres true thickness (see Appendix 1 for drillhole location and significant intercept details, Figure 6 for cross section) and two holes failed to return graphite as they intercepted faulted footwall blocks. As in the historic holes a number of lower grade metasedimentary units were interleaved within the overall graphite horizon. Drill core was processed by ALS-Chemex in Piteå, Sweden and assayed for graphitic carbon by LECO analyses and multi-element suites by ICP-MS.

The wide intersections returned coupled to the exceptionally shallow dip of the intersected graphite units (approximately 18 degrees) offer significant advantages toward potential development. Using a 10% graphite cut off grade and based on the drilling completed coupled to the extensive EM data a 2012 JORC compliant Inferred resource has been estimated to total 31.5 Mt at 14.9% Cg for 4.7 Mt of contained graphite.

#### **Exploration Target**

In February 2015, Talga estimated an JORC compliant Exploration Target of 13–26 Mt @ 20–25% Cg for the Jalkunen target (see ASX 26 February 2015). *Exploration Targets are based on a number of assumptions and limitations with the potential grade and quantity being conceptual in nature. There has been insufficient exploration to estimate a Mineral Resource Estimate in accordance with the JORC Code and it is uncertain if future exploration will result in the estimation of a Mineral Resource.* 

Based on contained graphite of the midway point of the Exploration Target (approximately 20 Mt @ 22.5% Cg) being **4.5 Mt** contained graphite, the maiden Jalkunen Inferred resource estimate containing **4.7 Mt** graphite is a very close result.

Project	Exploration Target	Lengt	:h (m)	Width (m)	Tonı (0-100m			ohite Cg)
		Min.	Max.		Min.	Max.	Min.	Max.
	Nunasvaara	12,000	18,000	20	62,400,000	93,600,000	20	30
Vittangi	Kotajärvi	3,200	5,800	20	16,640,000	30,160,000	20	25
	Maltosrova	4,000	10,000	20	20,800,000	52,000,000	20	25
	Tiankijokki	500	1,000	20	2,600,000	5,200,000	15	25
Lelle men	Nybrännan	1,000	2,000	20	5,200,000	10,400,000	20	30
Jalkunen	Suinavaara	500	1,100	20	2,600,000	5,720,000	15	25
	Lautakoski	5,000	10,000	20	26,000,000	52,000,000	15	25
	TOTAL:			TOTAL:	136,240,000	249,080,000	19	27
			ROU	INDED:	136,000,000	250,000,000	18	25

#### Table 3 - Talga graphite Exploration Targets<sup>2</sup>.

The Jalkunen Exploration Target, being successfully drill tested and converted to a JORC mineral resource classification, has been removed from the target list. The remaining Vittangi and Jalkunen graphite project Exploration Targets are unchanged (see Table 3).

#### Methodology

The Jalkunen resource modelling was undertaken by CoxsRocks Pty Ltd ("Coxsrocks"), an independent mining and resource consultancy. Coxsrocks imported all of the historic and recent drilling into Micromine Mining Software and validated the drilling with the original drill logs and analytical data. Plots of all drilling was completed and incorporated with GIS datasets incorporating magnetics, geology and EM data.

Cross sections of the drilling were generated and interpretations completed at a nominal 10% graphite grade. All graphite intersections were included within the interpretations. Wireframes of the interpretation were generated and the drill hole downhole analytical data lying within the wireframes were subset and interpolated using inverse distance squared method. Graphitic carbon was modelled with a lower cut of 10% and no top cuts used. Wireframes were then assigned into the block model to ensure no blocks sat outside the interpreted and wireframe solids, and grades were then reported. In situ bulk density ("ISBD") measurements of the diamond core were completed and then used in the tonnage/volume conversions. An average ISBD of 2.60 tonnes/bcm was used. All resources were classified as 2012 JORC compliant "Inferred Resources" with additional potential recognised.

Further separate occurrences of graphite in the licence area from historical drilling and EM suggest high prospectivity for further mineralization to be defined.

For further information, visit <u>www.talgaresources.com</u> or contact:

Mark Thompson Managing Director Talga Resources Ltd T: + 61 (08) 9481 6667

#### References

1 http://www.techmetalsresearch.com/metrics-indices/tmr-advanced-graphite-projects-index/

2 Exploration Targets are based on a number of assumptions and limitations with the potential grade and quantity being conceptual in nature. There has been insufficient exploration to estimate a Mineral Resource Estimate in accordance with the JORC Code and it is uncertain if future exploration will result in the estimation of a Mineral Resource.

#### **Competent Person's Statement**

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The information in this report that relates to Exploration Results and Exploration Targets is based on information compiled and reviewed by Mr Simon Coxhell, a consultant to the Company and a member of the Australian Institute of Mining and Metallurgy and Mr Mark Thompson, who is an employee of the Company and a member of the Australian Institute of Geoscientists. 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.

Figure 5 Jalkunen prospect 2015 drilling, historical drilling on EM geophysical image.

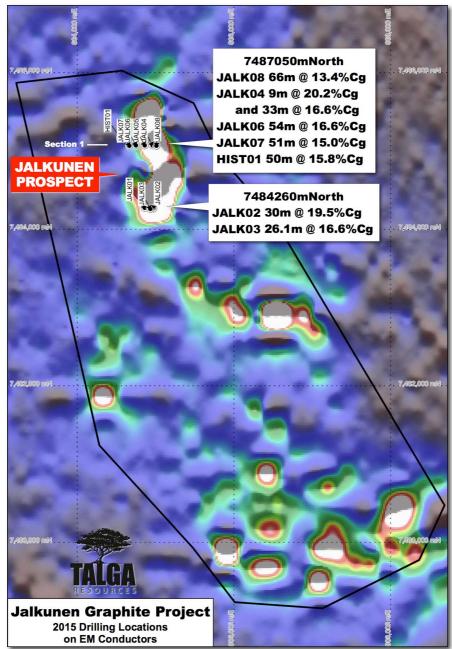
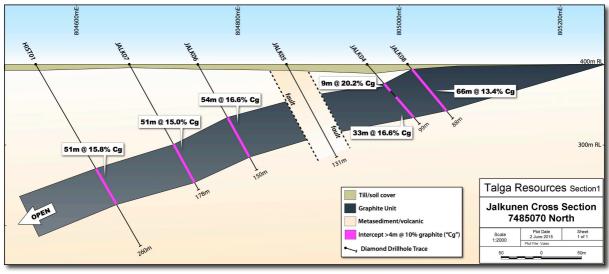


Figure 6 - Jalkunen cross section 2015 and historic drilling: 7485070 North.



## **APPENDIX 1**

	sumanen exploration anning results significant graphice intercepts.					
Hole ID	From (m)	To (m)	Intersection	Note		
JALK01	-	-	NSR	Fault		
JALK02	3.0	33.0	30.0m @ 19.5% Cg			
JALK03	6.9	33.0	26.1m @ 16.6%Cg			
JALK04	33.1	42.3	9.15m @ 20.2% Cg			
JALK04	54.9	88.0	33.10m @ 16.6% Cg			
JALK05	-	-	NSR	Fault		
JALK06	76.0	130.0	54.0m @ 16.6% Cg			
JALK07	115.0	165.6	50.6m @ 15.0% Cg			
JALK08	9.0	75.0	66m @ 13.4% Cg			

#### Jalkunen exploration drilling results/significant graphite intercepts.

NSR = No significant result.

#### Jalkunen 2015 diamond drillhole locations.

Hole ID	Easting (Sweref99)	Northing (Sweref99)	RL	Azi	Dip	EOH Depth (m)
JALK01	804860	7484275	400	85	-60	270.2
JALK02	804970	7484268	400	85	-50	86.0
JALK03	804932	7484264	400	85	-50	80.0
JALK04	804960	7485075	400	80	-47	99.4
JALK04	804860	7485075	400	85	-60	130.5
JALK06	804750	7485075	400	85	-60	150.0
JALK07	804665	7485070	400	84	-60	177.9
JALK08	805010	7485070	400	84	-50	87.9

Jalkunen Mineral Resource (10% Cg low cut-off Aug 2015)
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Project	Classification	Tonnes	Graphite (%Cg)	Contained Graphite Tonnes
Jalkunen	Inferred	31,500,000	14.9	4,693,500

#### Nunasvaara Mineral Resource\* (10% Cg low cut-off Nov 2012)

Project	Classification	Tonnes	Graphite (%Cg)	Contained Graphite Tonnes
	Indicated	5,600,000	24.6	
Vittangi	Inferred	2,000,000	24.0	
	Total	7,600,000	24.4	1,854,400

#### Raitajärvi Mineral Resource\* (5% Cg low cut-off Aug 2013)

Project	Classification	Tonnes	Graphite (%Cg)	Contained Graphite Tonnes
	Indicated	3,400,000	7.3	
Raitajärvi	Inferred	900,000	6.4	
	Total	4,300,000	7.1	305,300

\* This information was prepared and first disclosed under the JORC code 2004. It has not been updated since to comply with the JORC code 2012 on the basis that the information has not materially changed since it was last reported. The Company is not aware of any new information or data that materially affects the information included in the previous announcement and that all of the previous assumptions and technical parameters underpinning the estimates in the previous announcement have not materially changed.

#### **JORC Code 2012 Edition**

### Section 1 Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
Sampling techniques	<ul> <li>Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as downhole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.</li> <li>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used. Aspects of the determination of mineralisation that are Material to the Public Report.</li> <li>In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.</li> </ul>	<ul> <li>Recent exploration at the Jalkunen Graphite Project has comprised the diamond drilling (NTW size:56 mm) of 8 holes totaling 1082 metres. The drilling was completed on a prominent EM anomaly and in the vicinity of 3 historic holes previously drilled to test the anomaly.</li> <li>Drill hole collars are surveyed with a hand held GPS. Drill core systematically logged. Samples were logged for lithology, alteration, weathering and mineralisation.</li> <li>Diamond core of 56 mm diameter (NTW) was produced and cut to quarter in mineralised zones, with 1 meter samples (approx. 3kg/sample) being submitted for analysis. A total of 48 elements were analyzed via ICP following 4 acid digest.</li> <li>Graphitic Carbon was analyzed via ALS-Chemex method C-IR18, "Graphitic Carbon via Leco".</li> </ul>
Drilling techniques	<ul> <li>Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).</li> </ul>	<ul> <li>Conventional diamond drilling producing core with a diameter of 56 mm, classed NTW. Core was not orientated.</li> </ul>
Drill sample recovery	<ul> <li>Method of recording and assessing core and chip sample recoveries and results assessed.</li> <li>Measures taken to maximise sample recovery and ensure representative nature of the samples.</li> <li>Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.</li> </ul>	<ul> <li>Diamond Core recoveries are logged and recorded in a database. In general excellent recoveries (&gt;95% returned).</li> <li>Careful drilling techniques in areas of broken ground are employed with communication between the geologist and drillers to maximise the understanding and recovery.</li> <li>Insufficient data is available, but given the nature of the competent diamond core, no sample bias expected.</li> </ul>
Logging	<ul> <li>Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.</li> <li>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.</li> <li>The total length and percentage of the relevant intersections logged.</li> </ul>	<ul> <li>Geological logging of diamond core captures lithology, mineralogy, mineralisation and structural observations. Core is photographed in both wet and dry states.</li> <li>Diamond core logging is a primarily a qualitative activity with pertinent relevant features recorded: lithology, mineralogy, mineralisation, structural, weathering, alteration, colour and other features of the samples.</li> <li>All samples were logged.</li> </ul>
Sub-sampling techniques and sample preparation	<ul> <li>If core, whether cut or sawn and whether quarter, half or all core taken.</li> <li>If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.</li> <li>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</li> <li>Quality control procedures adopted for all subsampling stages to maximise representivity of samples.</li> <li>Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.</li> <li>Whether sample sizes are appropriate to the grain size of the material being sampled.</li> </ul>	<ul> <li>Core was cut in quarter, prepared into nominal 1 metre composite samples, with an average weight of 3-3.5 kilogram.</li> <li>All diamond core.</li> <li>The sample preparation for all samples follows industry best practice and was undertaken by ALS in Sweden. The samples are dried and pulverised to produce a sub sample for analysis. Sample preparation involving oven drying, coarse crushing, followed by total pulverisation LM2 grinding mills to a grind size of 85% passing 75 microns.</li> <li>QC for sub sampling follows ALS procedures, and is reviewed by the company. In addition blanks and standards (1:30) are inserted into the sample runs, on a blind basis.</li> <li>No field duplicates have been taken.</li> <li>The sample sizes are considered to be appropriate to correctly represent the style of mineralisation.</li> </ul>

Criteria	JORC Code explanation	Commentary
Quality of assay data and laboratory tests	<ul> <li>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</li> <li>For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.</li> <li>Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.</li> </ul>	<ul> <li>The laboratory uses a four acid digest multi-element suite with an ICP/MS and ICP/AES finish on a 25 gram sub sample. Both total carbon and graphitic carbon are analyzed. The technique is considered a total digest and analysis.</li> <li>No geophysical tools were used to determine any element concentrations at this stage.</li> <li>Laboratory QA/QC involves the use of internal lab standards using certified reference material, blanks, splits and duplicates as part of the in house procedures. Blind blanks and standards are inserted by the company at a rate of 1:30.</li> <li>Lab repeat or duplicate analysis for samples shows that the precision of samples is within acceptable limits.</li> <li>Grind size checks by the laboratory (1:25) reveals all samples have a grind size of &lt;75micron.</li> </ul>
Verification of sampling and assaying	<ul> <li>The verification of significant intersections by either independent or alternative company personnel.</li> <li>The use of twinned holes.</li> <li>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</li> <li>Discuss any adjustment to assay data.</li> </ul>	<ul> <li>The Company's Exploration Manager has visually reviewed the diamond core samples and correlated results with the geology.</li> <li>No twin holes have been drilled.</li> <li>Data captured on logging sheets and transferred to a series of excel spreadsheets, prior to import into Micromine and merging of electronic sample analytical result data.</li> <li>No adjustments or calibrations were made to any assay data used in this report.</li> </ul>
Location of data points	<ul> <li>Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.</li> <li>Specification of the grid system used.</li> <li>Quality and adequacy of topographic control.</li> </ul>	<ul> <li>All samples have been located by GPS. Downhole surveys are captured using the Deviflex downhole system with readings every 3 metres captured.</li> <li>The grid system is Swedish Coordinate System Sweref 99, which correlates with WGS84 Z 34 Northern Hemisphere.</li> <li>Topographic control is based on broad topographic data and is adequate for the wide spaced exploration completed.</li> </ul>
Data spacing and distribution	<ul> <li>Data spacing for reporting of Exploration Results.</li> <li>Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.</li> <li>Whether sample compositing has been applied.</li> </ul>	<ul> <li>Drill hole spacing varied. See attached plans, cross sections and tables. A total of 2 sections were drilled.</li> <li>The work completed is at a scoping stage, the drilling was designed to verify and test the continuity of a stratigraphic graphite unit, interpreted from EM and indicated by rock chip samples. The data will be useful at verifying exploration targets in the area, and will assist with the estimation of inferred JORC compliant mineral resource.</li> <li>Regular one metre samples have been collected from the diamond drilling and submitted for analysis.</li> </ul>
Orientation of data in relation to geological structure	<ul> <li>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</li> <li>If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.</li> </ul>	<ul> <li>At this stage the orientation is considered appropriate for the sampling completed, with the drill holes drilled perpendicular to the interpreted strike of the geological units and graphite mineralisation.</li> <li>No orientation based sampling has been identified at this stage of the exploration.</li> </ul>
Sample security	The measures taken to ensure sample security.	<ul> <li>Chain of custody is managed by the Company.</li> <li>Samples are transported to the laboratory via registered couriers with samples safely consigned to ALS for preparation and analysis.</li> <li>Whilst in storage, they are kept in a locked yard. Tracking sheets are used track the progress of batches of samples.</li> </ul>
Audits or reviews	<ul> <li>The results of any audits or reviews of sampling techniques and data.</li> </ul>	<ul> <li>No review of the data management system has been carried out.</li> </ul>

### Section 2 Reporting of Exploration Results

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	<ul> <li>Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.</li> <li>The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.</li> </ul>	<ul> <li>The Jalkunen Graphite Project is located on licences Jalkunen nr 1 owned 100% by Talga Resources.</li> <li>The licence is wholly owned by the company and is located on forested areas. No native title issues, historical sites or environmental area are known to exist.</li> <li>The licence is in good standing with no known impediments.</li> </ul>
Exploration done by other parties	<ul> <li>Acknowledgment and appraisal of exploration by other parties.</li> </ul>	<ul> <li>The area has been intermittently explored over the last 30 years for graphite and copper base metal systems. LKAB completed drilling in the area in the late 1970s.</li> </ul>
Geology	<ul> <li>Deposit type, geological setting and style of mineralisation.</li> </ul>	<ul> <li>The graphite mineralisation is found in a shallowly dipping 50 metre wide stratigraphic unit interpreted to have developed in a shallow fresh water basin in the early Proterozoic (Circa 1.8 billion years) developed in a sedimentary/volcanic succession of Proterozoic aged rocks. Subsequent deformation has resulted in tectonic movement resulted in a shallow dipping stratiform unit.</li> <li>The graphite is very fine grained and may be one of the earliest accumulations of organic compounds.</li> </ul>
Drill hole Information	<ul> <li>A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:         <ul> <li>easting and northing of the drill hole collar</li> <li>elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</li> <li>dip and azimuth of the hole</li> <li>down hole length and interception depth</li> <li>hole length.</li> </ul> </li> <li>If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.</li> </ul>	<ul> <li>Drill hole locations are shown in the figures and tables in the text of the report. Appropriate maps and plans also accompany this announcement.</li> </ul>
Data aggregation methods	<ul> <li>In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.</li> <li>Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.</li> <li>The assumptions used for any reporting of metal equivalent values should be clearly stated.</li> </ul>	<ul> <li>No averaging techniques were used. For the reporting of results a nominal lower cut of 10% Graphitic carbon (Cg) has been used</li> <li>No top cuts have been applied to exploration results.</li> <li>No metal equivalent values are used in this report.</li> </ul>
Relationship between mineralisation widths and intercept lengths	<ul> <li>These relationships are particularly important in the reporting of Exploration Results.</li> <li>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</li> <li>If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').</li> </ul>	The orientation or geometry of the mineralised zone is relatively well understood and the reported mineralised drillhole intersections are approximately true thickness of the mineralised zones.
Diagrams	<ul> <li>Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.</li> </ul>	<ul> <li>The appropriate plans and sections have been included in the text of this document.</li> </ul>
Balanced reporting	<ul> <li>Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.</li> </ul>	<ul> <li>All grades at a nominal 10% graphitic carbon are reported.</li> </ul>

Criteria	JORC Code explanation	Commentary
Other substantive exploration data	<ul> <li>Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.</li> </ul>	<ul> <li>All relevant exploration data is shown in the figures.</li> </ul>
Further work	<ul> <li>The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).</li> <li>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</li> </ul>	<ul> <li>Future work at Jalkunen will involve mapping of any outcrops and additional interpretation of the data. A number of additional EM anomalies defined from both airborne surveys and ground based surveys are apparent, and untested at this stage.</li> </ul>

## Section 3 Estimation and Reporting of Mineral Resources

Criteria	JORC Code explanation	Commentary
Database integrity	<ul> <li>Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.</li> <li>Data validation procedures used.</li> </ul>	<ul> <li>Data was imported from excel files as validated and cross checked with drillhole logs/surveys/assays/collars. These were digitally imported into Micromine Mining Software. Micromine validation routines were run to confirm validity of all data.</li> <li>Analytical results have all been electronically merged to avoid any transcription errors.</li> </ul>
Site visits	<ul> <li>Comment on any site visits undertaken by the Competent Person and the outcome of those visits.</li> <li>If no site visits have been undertaken indicate why this is the case.</li> </ul>	<ul> <li>Site visits have been undertaken, drilling techniques and methods reviewed, diamond core has been logged and verified with surrounding historic drill intersections.</li> </ul>
Geological interpretation	<ul> <li>Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.</li> <li>Nature of the data used and of any assumptions made.</li> <li>The effect, if any, of alternative interpretations on Mineral Resource estimation.</li> <li>The use of geology in guiding and controlling Mineral Resource estimation.</li> <li>The factors affecting continuity both of grade and geology.</li> </ul>	<ul> <li>The confidence in the geological interpretation is reasonable and relies on the projection of detailed ground based EM data, coupled to the recent diamond drilling completed.</li> <li>Detailed geological logging and limited surface mapping allows extrapolations of data. Alternative interpretations will result in similar tonnage and grade estimation techniques.</li> <li>Geological boundaries are determined by the spatial locations of the various mineralized zones as logged and assayed in diamond drilling, coupled to interpretation of detailed EM data.</li> <li>Graphite rich zones are clearly associated with the EM.</li> </ul>
Dimensions	<ul> <li>The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.</li> </ul>	<ul> <li>The Jalkunen Inferred Resource is 1100 metres long (NE) by 160 metres wide at surface (shallow dipping) to a maximum of 200 metres vertical depth.</li> </ul>
Estimation and modelling techniques	<ul> <li>The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.</li> <li>The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.</li> <li>The assumptions made regarding recovery of by-products.</li> <li>Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation).</li> <li>In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.</li> <li>Any assumptions about correlation between variables.</li> <li>Description of how the geological interpretation was used to control the resource estimates.</li> <li>Discussion of basis for using or not using grade cutting or capping.</li> <li>The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.</li> </ul>	<ul> <li>Grade Estimation using Inverse Distance Squared applied to a block model was used for the Inferred Mineral Resources. Two Wireframes were used to subset and constrain the data points used in the interpolation and only individual grades from individual wireframes were used.</li> <li>All of the Inferred Mineral Resources are based on the mean grade of the various elements lying within a validated wireframed solid.</li> <li>A previous historic non JORC compliant resource has been made and is consistent given the drilling at the time with this latest estimate.</li> <li>No assumptions have been made regarding recovery of by-products.</li> <li>No estimation of any deleterious elements have been made</li> <li>The block model was constructed using a 50m X 50m x 5m block size, constrained by two individual wireframes. One interpolation passes were made, with a 800m X 160 m X 4 m search orientated parallel to the azimuth and dip of the mineralized zone (no plunge component assumed) to ensure all portions of the wireframe were filled.</li> <li>Geological interpretation of a consistent shallow dipping vein structure (50 metres true thickness, dipping at 15-20 degrees to the west).</li> <li>Visual validation of comparing block grades with drill hole assay values, via cross sections, plans and long sections was completed.</li> </ul>
Moisture	<ul> <li>Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.</li> </ul>	Tonnages are estimated on a dry basis.
Cut-off parameters	<ul> <li>The basis of the adopted cut-off grade(s) or quality parameters applied.</li> </ul>	<ul> <li>A nominal cut off 10% Graphitic carbon corresponds with the visual mineralization as determined by visual graphite lithologies.</li> </ul>
Mining factors or assumptions	<ul> <li>Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is</li> </ul>	<ul> <li>The mining scenario if the deposit is shown to be economically viable would be a simple open pit mine.</li> <li>The shallow dipping nature of the mineralisation lends</li> </ul>

Criteria	JORC Code explanation	Commentary
	always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	itself to a low strip ratio open pit mining operation.
Metallurgical factors or assumptions	<ul> <li>The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.</li> </ul>	<ul> <li>Representative samples have been collected from the recent drilling campaign to conduct metallurgical testwork.</li> <li>The application of the metallurgical process used to potentially extract graphite and graphene requires further work to validate.</li> </ul>
Environmen-tal factors or assumptions	<ul> <li>Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.</li> </ul>	<ul> <li>No assumptions at this stage in regards to environmental factors have been made but there is ample space and suitable topography for development.</li> </ul>
Bulk density	<ul> <li>Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.</li> <li>The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.</li> <li>Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.</li> </ul>	<ul> <li>An insitu bulk density of 2.60 tonnes per cubic metre has been assumed for the mineralization. This is the average of 12 ISBD measurements made on the drillcore samples.</li> </ul>
Classification	<ul> <li>The basis for the classification of the Mineral Resources into varying confidence categories.</li> <li>Whether appropriate account has been taken of all relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).</li> <li>Whether the result appropriately reflects the Competent Person's view of the deposit.</li> </ul>	<ul> <li>The Mineral Resource has been classified as Inferred based on the drilling spacing completed and the use or otherwise of diamond check drilling.</li> <li>Additional diamond drilling at closer spacing will result in the Inferred Resource being upgraded to Indicated assuming exploration success.</li> <li>The result of the Resource Estimation reflects the view of the Competent Person</li> </ul>
Audits or reviews	<ul> <li>The results of any audits or reviews of Mineral Resource estimates.</li> </ul>	<ul> <li>This is the first JORC 2012 Resource Estimate for Jalkunen and no audits have been carried out.</li> </ul>
Discussion of relative accuracy/ confidence	<ul> <li>Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.</li> <li>The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation</li> </ul>	<ul> <li>The relative accuracy of the Mineral Resource is reflected in the reporting of the Mineral Resource as per the guidelines of the 2012 JOC Code.</li> <li>The statement relates to global estimates of tonnes and grade.</li> </ul>

Criteria	JORC Code explanation	Commentary	
	<ul> <li>should include assumptions made and the procedures used.</li> <li>These statements of relative accuracy are confidence of the estimate should be conwith production data, where available.</li> </ul>	d	