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Australian Securities Exchange

HIGH PURITY GRAPHITE PRODUCTION STRONG CHANCE AT CRATER GOLD'S GOLDEN GATE PROJECT - INDEPENDENT TECHNICAL REVIEW

- **Independent consultants' N H Cole and Associates (NC) review states "strong business case can be presented to support development of high purity graphite products attracting premium prices at Golden Gate"**
- **NC concludes that the Golden Gate Graphite Project ranks in world terms.**
- **NC states Golden Gate appears amenable to simple, low cost open-pit mining.**
- **NC states "There appear to be no insurmountable constraints to taking the Project forward"**
- **Previously released resource estimate calculated in accordance with the 1989 JORC code by the Company (then ASX: GOA) on 24 July 2012 needs to be re-calculated.**

Crater Gold Mining Limited (CGN or the Company) is pleased to announce that, in parallel with its recent progression of gold mining at the HGZ Project at Crater Mountain in PNG, a comprehensive review of the fully-owned Golden Gate Graphite Project was undertaken.

The Company commissioned N H Cole and Associates to undertake a review of the Golden Gate Graphite Project. Well known and respected Principal and Managing Director Neil Cole *FAusIMM* is a corporate member, Fellow and past Councillor of The Australasian Institute of Mining and Metallurgy.

The review highlighted the excellent potential for the project to be developed. stating that the project appears "amenable to simple, low cost open-pit mining".

The NC summary review is attached at the end of this announcement as an appendix, refer to page 4 onwards (Copies of the full report, 34 pages, with 7 figures and 8 tables, are available via Crater Gold Mining, email info@cratergold.com.au.)

The project is located 80 kilometres to the south of Metallica Minerals' recent discovery at its Esmeralda Graphite Project, which hosts the same Esmeralda Granite geological formation as at Golden Gate. Recent metallurgical test work at Esmeralda demonstrated the ability to produce a high purity graphite concentrate.

The previous drilling demonstrated the potential for a high-grade, bulk tonnage graphite deposit at Golden Gate. Further drilling is required to validate the estimate of the deposit size reported by previous owners Barrack Mines Ltd to JORC 2014 standards (refer to Gold Anomaly (GOA) ASX announcement on 24 July 2012 for details).

The Board is extremely encouraged by the outcome of the independent review of the Golden Gate Graphite Project. Its advancement represents another major project for the Company. The Company is now structuring a programme to advance the project.

Managing director Russ Parker commented:

> *"Golden Gate represents an excellent opportunity to tap into the growing demand for very high purity graphite, which is in very limited global supply. Given the positive findings from the NC independent expert report, Golden Gate certainly has the potential to advance rapidly, and we are planning the next phase of activities with a priority to upgrade the resource to JORC 2014 compliance.*

"We are in an excellent position, having commenced gold sales and accelerating production from our HGZ gold mine in PNG. Whilst our focus has been to ramp up production and cement a steady cash flow stream at this mine, we will be well placed to fund development of our other assets including Golden Gate."

Summary of the NC Independent Review

Key outcomes of the Independent Review are set out below.

1. Golden Gate appears to rank in world terms, based on current information.

2. There appears to be a strong chance that the project can be developed as a producer of high purity graphite products attracting premium prices which will be competing against synthetic graphite producers for market share.

3. A simple and inexpensive open pit project is indicated:

    - A single long narrow open pit, up to two kilometres long and about 100 to 300 metres wide, trending approximately south-east to north- west.

    - Open pit depths from about 60 to 120 metres.

    - Waste to ore overburden ratios between about 0.5:1 to 5:1, with an average of about 2:1.

    - With moderate dip angles, and relatively thick graphite zones between 4 metres and 56 metres thick, averaging 27 metres, open pit ore dilution should be quite minor, perhaps 5 per cent, with high mining recoveries likely, about 95 per cent.

    - Selective open pit mining techniques are not required.

    - A conceptual open pit based on a deposit size of 21 million tonnes, with strong potential to increase the tonnage and the resulting mineral resources and mineable tonnages.

- A likely annual production rate between 2 and 3 million tonnes of ore per annum, meaning aggregate mined tonnages of ore plus waste in the range of 6 to 9 million tonnes of material.

- Open pit mining would be undertaken using standard drill and blast methods, followed by load and haul.

4. The mineral resource calculated in accordance with the 1989 JORC code should be reassessed and recalculated.

5. The Technical Report did not address the gold potential at Golden Gate.

The mineral resource calculated in accordance with the 1989 JORC code did not include potential graphite extensions to the north of 25700N or south of 23700N

Background

The Golden Gate graphite project (Golden Gate) is located within EPM 8795 and EPM18616 at Croydon, North Queensland. The deposit was systematically drilled as part of a gold exploration program in the late 1980's by Barrack Mines Ltd group. A summary of historical exploration was set out in an announcement by the Company (under its former name, Gold Anomaly Ltd: ASX: GOA) dated 24 July 2012.

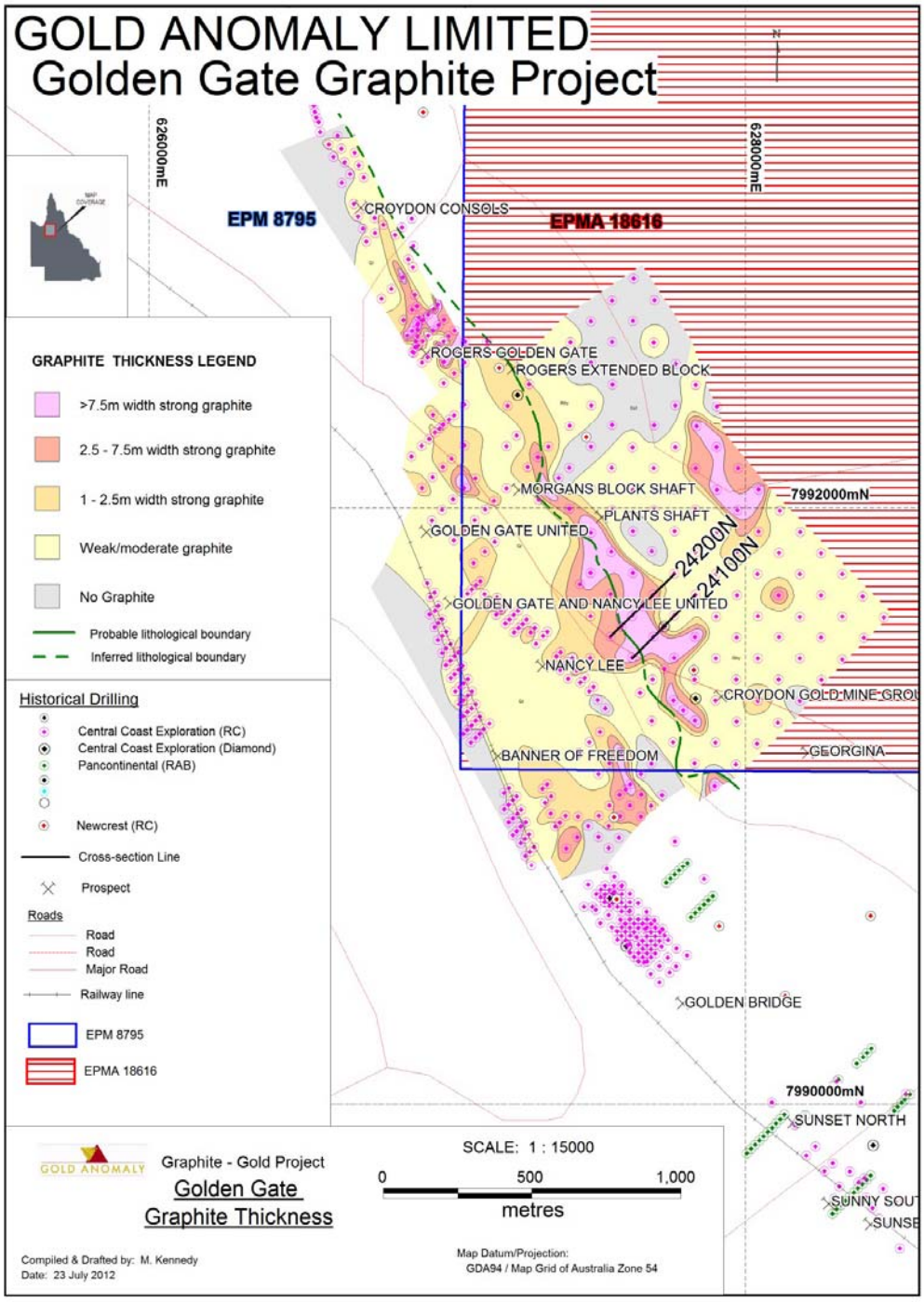

Figure 1

The location of the project is shown in **Figure 1**

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APPENDIX

Summary of Golden Gate Graphite Report

This appendix provides a summary of key points from the N H Cole and Associates Pty Ltd report entitled "Technical Report to Crater Gold Mining Limited, EPM 8795, Golden Gate, Croydon, Queensland"[1], dated 31 May 2016 and prepared at the request of Crater Gold Mining Ltd ("Crater") in the context of Crater's application for renewal of its 100% owned EPM 8795 Croydon.

The Technical Report summarised here does not address the gold potential in EPM 8795 Croydon and in the adjoining EPM 18616 Black Mountain.

Estimates in this summary for graphite content are shown with reference to graphitic carbon %Cg, in comparison with estimates of total carbon (TC) content, shown as %TC.

1. GOLDEN GATE GRAPHITE PROJECT TENURE

Crater is the registered holder of the two contiguous tenements, detailed in the table below, which together host the Golden Gate Graphite Project.

Table 1
GOLDEN GATE GRAPHITE PROJECT TENEMENT DETAILS

Title	Name	Granted	Expires	Sub-blocks	Area Km^2	3 Year Committed Exploration Expenditure
EPM 8795	Croydon	20/12/14	06/09/16	3	9.6	$50,400
EPM 18616	Black Mountain	27/06/13	18/06/18	18	48	$198,800

2. LOCATION, ACCESS AND INFRASTRUCTURE

The areas are located 4 to 7 kilometres north-west of the town of Croydon, straddling both the Gulf Development Road and the Gulflander tourist railway line which runs from Croydon to Normanton.

Croydon is a well-established town, with good infrastructure including a sealed mainly single lane highway 530 kilometres from Cairns, a 1520 metre long sealed airstrip and all town services, including a range of accommodation. It is a very historic town, with many of the original buildings restored, including among other sites, the original police station, watch house, courthouse and school, in the Historical Village developed by the local council. Several sites in and near Croydon are listed on the Queensland Heritage Register, maintained by the Queensland Department of Environment and Heritage Protection ("EHP")

[1] Copies of the full report, 34 pages, with 7 figures and 8 tables, are available via Crater, email info@cratergold.com.au.

3. CROYDON GOLDFIELD AND GOLDEN GATE HISTORY

All of the early mining activity was from the Croydon Goldfield, from the 1880s. Rich discoveries in 1891 at the Golden Gate reef north-west of Croydon led to the 1890s being the most productive years for the Croydon Goldfield, despite increasing competition from emerging mining enterprises in South Africa and Western Australia. There are dozens of old gold mine workings mapped within 20 kilometres of Croydon.

In recent times, exploration and development was mainly by larger companies, focussing on gold, with the large low grade Croydon open pit gold mine operated by the Barrack Mines Ltd group ("Barrack") of Western Australia from 1987 until 1990. Graphite occurrences were noted with the gold mineralisation, making the interpretation of any deposit relatively easy from analysis of the gold drilling results. Mining records show significant zones of graphite occurred within the Golden Butterfly open pit, located about one kilometre north-west of Croydon, with a zone of 208,000 tonnes grading an estimated 10%Cg mined to waste. No attempt was made to quantify any potential resource within this zone.

4. GEOLOGY, EXPLORATION AND DRILLING

Geologically, the Golden Gate line of workings, striking north-west from Croydon, falls entirely within the Mid Proterozoic Esmeralda Granite which, together with the overlying rhyolite, hosts the graphite-bearing gold mineralisation.

Exploration for graphite in the Golden Gate project area was made simple by the availability of data from extensive earlier drilling for gold targets, most of which was RC drilling on a 100 metre by 100 metre grid, with numerous areas further drilled to patterns of 25 metres across strike and 50 metres along strike. While no graphite assays were recorded, the drill logs clearly identified zones as graphite rich granite.

Barrack undertook graphite exploration drilling as detailed in the table below.

Table 2
GRAPHITE EXPLORATION DRILLING 1989-1990

Period	Type	Holes	Total Metres	Minimum Metres	Maximum Metres	Average Metres	Dip
8 – 11 November 1989	RC	19	1,203	30	97	63	vertical
25 January – 4 February 1990	DDH	4	330	58	106	83	vertical

The geometry of the deposit located from the drilling was simple, as shown in the cross section in the figure below.

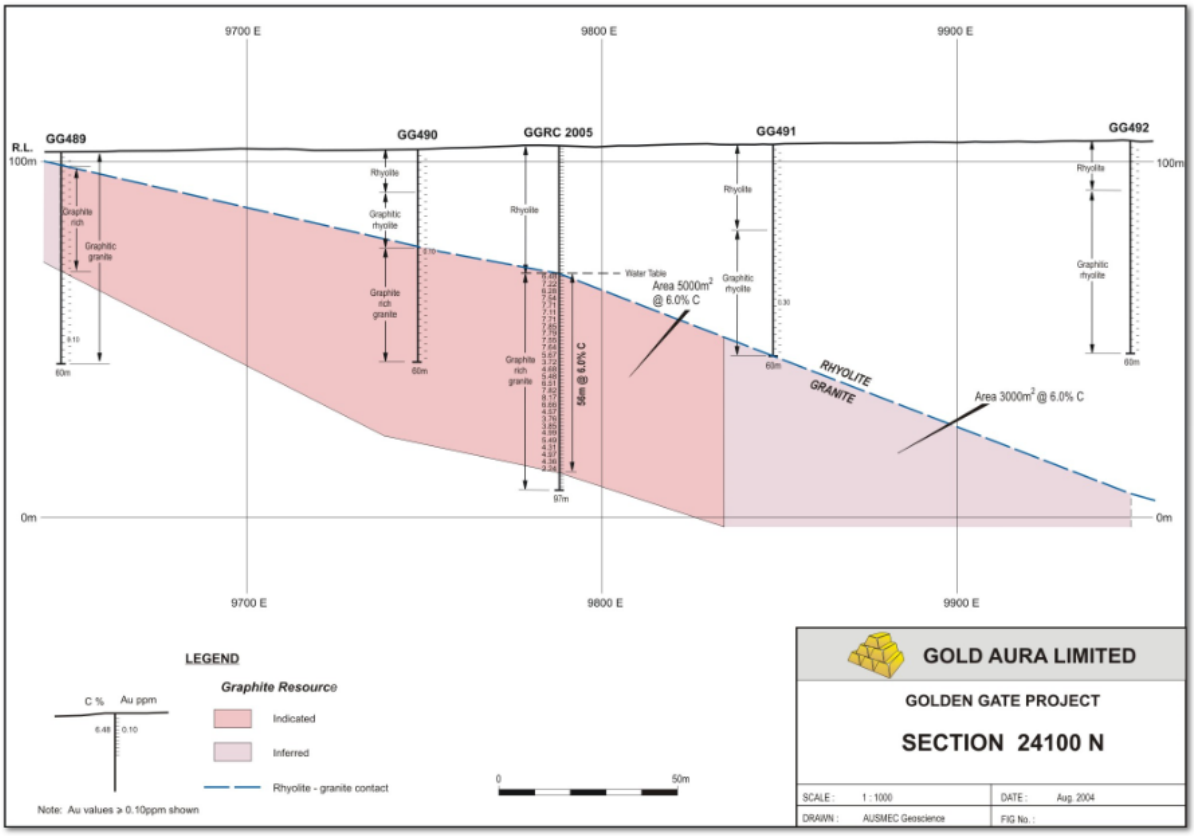

Figure 1
GOLDEN GATE PROJECT SECTION 24,100mN

The requirement for further drilling is considered in Section 8 below.

5. ESTIMATION OF DEPOSIT SIZE

From the November 1989 RC drilling results, an interpretation of the deposit was made in a February 1990 report[2], which did not take in results from the four February 1990 diamond drill holes. From 8 cross sections prepared, a graphite deposit was assessed between local grid lines 23,800mN and 25,400mN, to a maximum depth of 100 metres. Although not directly stated in the report, it is assumed by the author that the Barrack reporting protocol followed the discipline of the then current 1989 JORC Code, published in February 1989.

With the assumptions of a 2%Cg cut-off grade and an assume density of 2.0, it was estimated that the deposit size was 21.18 million tonnes, at a grade of 5.5%Cg, with a total of 1,165,000 contained tonnes of graphite. While this is in no way interpreted or represented as an estimate of mineral resources compliant with the JORC Reporting Code, 2012 edition, it is the author's opinion that relatively little

[2] Silva, K K M W, Barrack Mine Management Pty Ltd, Report on the Grade Evaluation RC Drilling of the Graphite Deposit at Golden Gate Prospect – November 1989, 192/90, February 1990

additional work would be needed for preparation of a JORC-compliant mineral resources estimate, perhaps three of four twinned drillholes.

Comments in the Barrack report included the following:

- "The resource estimate does not include potential graphite extensions to the north of 25700N or south of 23700N which may be over 50 Mt."

- The Esmeralda Granite and the overlying rhyolite both host graphitic mineralisation adjacent to the contact zone, with graphite occurring as oval to spherical pods dispersed in rocks amounting up to about 15 per cent in volume.

- Examination of then recent RC drilling to the south of the Project area indicates the mineralised granite/rhyolite contact zone probably extends over 5 kilometres to the south.

- Assay of drill cuttings by the Leco technique reported up to 11%Cg with an average grade of 5%Cg for most zones. The report indicates that due to the loss of finely crushed graphite into air and water during RC drilling, the Cg grade is higher than recorded, and the loss could be over 50 per cent, since graphite grinds faster than silicates during RC drilling. Although the reported estimated grade was 5.5%Cg, the average grade may be closer to 10%Cg.

- It is considered that the graphite mineralisation pre-dates the gold mineralisation.

6. POTENTIAL OPEN PIT MINING CONCEPT

In terms of potential mining, a simple and inexpensive open pit project is indicated:

- A single long narrow open pit, up to two kilometres long and about 100 to 300 metres wide, trending approximately south-east to north-west from near the location of the former Croydon Gold Mine.

- Mostly one but in places two thick zones of graphite-rich granite, lying conformably below the upper rhyolite zone, at dips ranging mainly from about 20° to 35° to the east.

- Open pit depths relatively shallow from about 60 to 120 metres.

- Waste to ore overburden ratios between about 0.5:1 to 5:1, with an average of about 2:1.

- With moderate dip angles, and relatively thick graphite zones between 4 metres and 56 metres thick, averaging 27 metres, open pit ore dilution should be quite minor, perhaps 5 per cent, with high mining recoveries likely, about 95 per cent.

- Selective open pit mining techniques not required.

- For a conceptual open pit based on a deposit size of 21 million tonnes, with strong potential to increase the tonnage and the resulting mineral resources and mineable tonnages, a likely annual production rate between 2 and 3 million tonnes of ore per annum, meaning aggregate mined tonnages of ore plus waste in the range of 6 to 9 million tonnes of material.

- Open pit mining with standard drill and blast methods, followed by load and haul.

- Overall mining tonnage rate probably attractive to many mining contractors, with likely unit mining costs quite low, due to the overall tonnage rate, the simplicity of mining and the availability of local labour and established infrastructure.

For mineral processing of any Golden Gate graphite ore mined, selection of the optimal recovery method depends on

- the type of graphite, of which there are three main types recognised[3], and on

- the mineralogical and metallurgical characterisation of the Golden Gate graphite, which has yet to be undertaken[4].

7. MINERAL PROCESSING OF GRAPHITE ORE

The most common form of mineral processing for graphite involves crushing and grinding, followed by flotation which can typically produce grades in the range of about 90 to 95%Cg. For high end uses, eg battery manufacture, a further purification step is required.

A useful indication of the prospects for metallurgical recovery is available from testwork reported in May 2016 from the Metallica Minerals Ltd ("Metallica") Esmeralda Project, 80 kilometres to the south, which is also in the same Esmeralda Granite geological formation. From this testwork, a target grade in the range of about 90 to 95%Cg might be expected for a Golden Gate graphite flotation concentrate. In its ASX Quarterly Report for the December 2015 period, Metallica reported in the following terms:

> "Igneous or hydrothermal-style graphite deposits, such as Esmeralda, are rare. The more common metamorphic-style graphite deposits make up 95% of the world's known graphite deposits. And unlike the metamorphic-style deposits, hydrothermal-style graphite deposits, hydrothermal-style graphite deposits are typically of high purity graphite in either flake or crystalline form. Examples of this style of mineralisation include the high-grade, narrow-vein Sri Lankan deposits and the Albany graphite deposit in Canada. The carbon source is non-organic and the carbon is thought to be from deeper carbon dioxide (CO_2) or methane (CH_4) gaseous injection into the magma chamber, which later crystallises out as pure or near-pure carbon (graphite) crystals."

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[3] Graphite occurs mainly in three different forms, in high-grade metamorphic rocks such as marble, schist, and gneiss as disseminated crystal flakes, in vein or fractures as vein graphite or in thermally metamorphosed coal deposits as amorphous graphite.

[4] A key determinant being whether impurities associated with the graphite are attached to the mineral surface rather than embedded in the mineral matrix. Testwork in 1989 by AMDEL identified the graphite as being flake graphite, 100 microns to 20 microns in size, indicating a potentially economic deposit.

8. BRINGING THE GOLDEN GATE GRAPHITE PROJECT FORWARD

An early priority is to develop estimates of mineral resources to the standards of the JORC Reporting Code, 2012 edition. This will require some additional drilling, mainly to validate the results obtained from the November 1989 and February 1990 drilling shown in Table 2, and to verify or modify the estimate of the deposit size reported by Barrack in February 1990.

There are two procedural constraints to commencement of further drilling in the main target graphite zone:

- The 2009 EHP Queensland Heritage Register listing for the Golden Gate Mining and Town Complex[5], with development approval for proposed exploration activities, and a variation to the standard conditions of the Environmental Authority permit required from EHP, with potential approval time of 3+ months.

- The location of much of the project area within Reserve Land, for which exploration activities consent is needed from the local council, with a potential procedural time required of at least one month.

Taking the project forward will also require a range of mineral processing testwork to determine the characterisation and processing flowsheet. It will also require the preparation of scoping and prefeasibility studies, including environmental studies and cost studies, to advance estimates of mineral resources towards ore reserves status.

9. POTENTIAL GOLDEN GATE GRAPHITE PROJECT ECONOMIC ANALYSIS

Databases concerning graphite projects are maintained by Technology Metals Research LLC ("TMR") and by the author.

A preliminary indication of the potential ranking of the Golden Gate Graphite Project can be found from the chart below, where the project's contained graphite of 1,165,000 tonnes as reported in Section 5 above can be seen in perspective alongside estimates from the TMR database.

[5] This is described in full detail in Sections 10.2 and 10.3 of the detailed report summarised in this appendix.

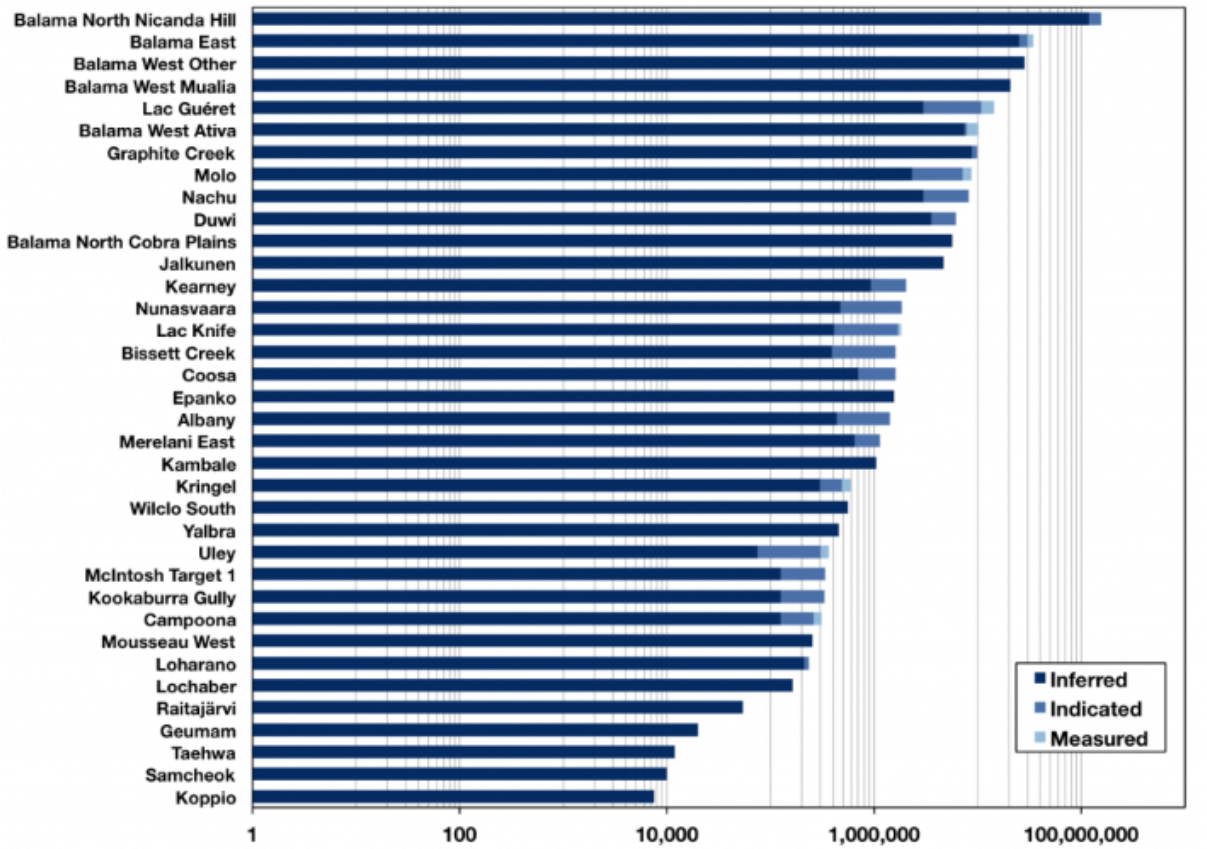

Figure 2
MASS OF IN-SITU GRAPHITE (TONNES)
Source: TMR Advanced Graphite Projects Index, September 2105

The chart shows median contained graphite tonnages of about one to two million tonnes.

For the 36 projects covered in the TMR chart, the in-situ graphite grades range from 2 to 24%Cg, with median values of about 7 to 10%Cg.

The Golden Gate Graphite Project ranks reasonably in world terms, based on current information. If the reported hypothesis in the Barrack report as shown in section 5 above that "the average grade may be closer to 10%Cg" is demonstrated as correct, the project would be very well ranked in its potential for economic development. The potential strategic advantage of major benefit to the Golden Gate Graphite Project is that the type of graphite which might be recovered may be suitable for high end uses, as described in the following Section 10.

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10. GRAPHITE SUPPLY/DEMAND AND PRICES

Graphite, one of the four main natural forms of carbon, is flexible, soft (1-2 on the Mohs scale), compressible and malleable but is not elastic. It has low frictional resistance, which gives it a greasy texture making it an efficient lubricant, and has a very high melting point. It is nontoxic, chemically inert and has a high resistance to corrosion. It has a very wide range of end uses, including high-temperature lubricants, brushes for electrical motors, friction materials, pencils, and battery anodes and fuel cells.

APPENDIX

Graphite is produced in many countries, with 2105 mine production worldwide estimated at 1.174 million tonnes, but the very high purity graphite required for lithium-ion battery anodes is currently only produced in Sri Lanka, with future production from the Albany project in Canada., and possibly also from the Golden Gate and Esmeralda projects near Croydon.

For battery grade graphite, recent forecasts are for an increase of 213 per cent in demand, then to exceed 250,000 tonnes per annum. At the core of this demand is the production of specialty coated spherical flake graphite, which has been specifically engineered as the anode for lithium ion battery use and which is the highest value flake graphite product available, recently selling for US$7,000 to US$12,000 per tonne.

There has recently been a lot of focus and media attention on electric vehicles and the associated demand for lithium ion batteries. The leading sales in electric vehicles in the United States, with 291,332 sales in 2015. The biggest recent news item relevant to graphite demand was at late in March this year, when Tesla Motors unveiled its moderately priced (US$35,000 before government subsidies) Tesla Model 3. Six weeks after the release, Tesla had taken about 373,000 reservations for purchase orders for the car. Tesla Motors' forecast demand is for 112, 500 tonne per annum of flake graphite and 45,000 tonnes per annum for spherical flake graphite within four years.

Information currently available about Crater's Golden Gate Graphite Project suggests similarity in many ways with Metallica's Esmeralda project south of Croydon, and with the Zenyatta Ventures Ltd Albany project in Northern Ontario. There appears to be a strong chance that the project can be developed as a producer of high purity graphite products attracting premium prices which will be competing against synthetic graphite producers for market share.

The market potential for 2017 for such high-end product uses is indicated in the table below, which is adapted from the July 2015 Albany project NI 43-101 report.

Table 3
FORECAST 2017 MARKET DEMAND AND PRICES – HIGH END GRAPHITE USES

Market Segment	Expected 2017 Market Demand - tonnes	Price Range US$/kilogram	Average Price US$/kilogram
Batteries, incl Li-ion & additives for others	160,000	4 – 20	12
Powder metallurgy	20,000	3 – 12	7
Fuel cells	15,000	5 – 10	8
Conductive polymers	6,000	3 – 5	4
Carbon brushes	90,000	3 – 5	4
Nuclear	30,000	10 – 35	23
High-purity (99+%Cg) lubricants	80,000	3 – 5	4
Super-capacitors	2,000	5 – 10	8
Graphite artefacts	15,000	3 – 10	7
Electronics	8,000	30 - 40	35
Total	**426,000**		**8.7**

APPENDIX

11. ASSESSMENT AND CONCLUSION

Crater's Golden Gate Graphite Project presents as a relatively simple project to bring forward, by comparison with many other mining projects. It appears very well positioned for future proving and development, with a world class deposit, good infrastructure access and the possibility of producing high purity high end graphite products for use in the rapidly growing lithium-ion battery market.

Further drilling and metallurgical testwork is required to advance the project to 2012 JORC Reporting Code standards for mineral resources and ore reserves.

A further step which has not yet been undertaken is to benchmark the Golden Gate Graphite Project against other graphite projects, in terms of value per contained tonne of graphite, having regard to graphite product types, ore grades, classification of mineral resources and ore reserves, capital and operating costs, and environmental and other permitting factors.

The author of this summary is a corporate member, Fellow and past Councillor of The Australasian Institute of Mining and Metallurgy and is bound by the Code of Ethics of that body. He has visited the Croydon area for mining project visits on two prior occasions.

Neil Cole
Principal and Managing Director
N H Cole and Associates Pty Ltd, Sydney
21 July 2016

The information contained in this appendix that relates to the Golden Gate Graphite Project near Croydon, Queensland, is based on information compiled by Neil Cole, FAusIMM, who is Principal and Managing Director of N H Cole and Associates Pty Ltd, Project Investment and Mineral Industry Advisors. Mr Cole is a Fellow of The Australasian Institute of Mining and Metallurgy and consents to the inclusion of this appendix in the report published by Crater Gold Mining Ltd to which this appendix is attached, in the form and context in which it appears and the references to this appendix therein.