

## DETAILED ASSESSMENT OF ALTERNATIVE SITES COMPLETED FOR THE TIVAN® PROCESSING FACILITY

Australian resource and mineral processing technology company TNG Limited (ASX: TNG) (“TNG” or the “Company”) is pleased to advise that it has completed a comprehensive assessment of alternative sites (“Assessment”) for the TIVAN® Processing Facility (“TPF”) proposed for Darwin as part of the environmental approvals process for its Mount Peake Vanadium-Titanium-Iron Project (“Project”) in the Northern Territory.

The Company received a “Direction to provide additional information” (“Direction”) on the Supplement to the Draft Environmental Impact Statement (“EIS”) for the Darwin TPF from the Northern Territory Environment Protection Authority (“NT EPA”) in May 2021 (see ASX Announcements of 20 May 2021 and 27 May 2021).

The Direction requires TNG to address 23 matters, including a key requirement to demonstrate that all reasonable alternative locations have been properly considered and evaluated for the Darwin TPF using the site selection criteria specified by the NT EPA under “Item 1.1 – Site Selection and Justification Process” of the NT EPA’s Direction.

### Background

TNG originally selected the Middle Arm Industrial Precinct in Darwin as the proposed location for the TPF due to a combination of factors including its strategic location close to existing utilities and transport infrastructure, the availability of gas and water, and a site in the precinct being offered to and reserved for the Company by the Northern Territory Government.

TNG had previously completed an initial site selection study in support of the Darwin selection decision, which considered a number of potential alternatives. A summary of these findings was included in the Draft EIS.

The alternative sites considered were the Mount Peake Mine Site (235km north of Alice Springs), a site near Alice Springs, a site within South Australia, an offshore site, and other vacant land located within the Darwin region. Preliminary reviews of these other alternative sites indicated that there were more risks and fewer benefits associated with their selection. As a result, TNG’s Project Engineering Team decided at the time not to progress further evaluation of these sites.

A further study was subsequently undertaken and provided to the NT EPA as an addendum to the EIS Supplement (refer to Appendix A).

### Assessment and Review

The Assessment required under “Item 1.1 – Site Selection and Justification Process” of the Direction has been completed by the Company’s Project Engineering Team, with assistance from local engineering consultants, and has been prepared taking into consideration environmental and social impacts as requested by the NT EPA, which include:

- Traffic from the transport of materials, including wastes;
- Demands on local infrastructure;
- Impact, including cumulative impact, on air quality;
- Stress on water resources;
- Impacts on the receiving environment;
- Impacts from unplanned pollution events;
- Greenhouse gas emissions; and,
- Community impacts including noise, visual, social and economic impacts.

The Assessment focused on comparing the Mount Peake Mine Site ("Mine Site") as an alternative site for the Darwin TPF, as directed by the NT EPA. The Assessment was structured to highlight both key favourable opportunities and key challenges by having a single integrated processing operation at the Mine Site compared to the current proposal of having a separate processing plant in Darwin.

The reviewed aspects of the Darwin site compared to the Mine Site include:

Assessment	Darwin	Mount Peake Mine Site
<b>Favourable</b>	<ul style="list-style-type: none"> <li>• NT Government support</li> <li>• Close to Darwin Port</li> <li>• Adjacent to Railway Line</li> <li>• Water availability</li> <li>• Adjacent to gas hub</li> <li>• Availability of infrastructure/services for maintenance</li> <li>• Build-Own-Operate (BOO) arrangements – close to infrastructure</li> <li>• Availability of workers' accommodation</li> <li>• Ease of access to reagents including storage availability at Darwin Port</li> <li>• Sealed roads to and from the TPF site</li> <li>• Communication/mobile phone coverage</li> <li>• Availability of emergency services</li> </ul>	<ul style="list-style-type: none"> <li>• NT Government support</li> <li>• Optimised infrastructure – consolidated power station, utilities infrastructure, offices, workshops, etc</li> <li>• Gas availability</li> <li>• Rationalised water usage</li> <li>• No haulage of concentrate to Darwin</li> <li>• Rationalisation of construction and operations workforces</li> <li>• Significant reduction in solid waste and tailings disposal costs</li> <li>• Wait time at rail crossing at Darwin is removed</li> <li>• Non-cyclonic zone – reduced structure, cladding and construction costs</li> <li>• Good geotechnical ground conditions – (with reduced civil construction costs)</li> <li>• Potential use of solar/hybrid energy due to available land space</li> <li>• Simplified take-or-pay arrangements for gas &amp; power</li> <li>• Less inclement weather downtime resulting in improved productivity and schedule savings</li> <li>• Reduced regulatory constraints related to cumulative visual impact</li> <li>• Reduced number of noise receptors</li> <li>• Visual impacts of stacks not applicable due to the remote location of the Mine Site</li> <li>• Simplified commissioning at one location</li> <li>• Ability to feed concentrate from Beneficiation Plant directly into the TPF without multiple handling</li> <li>• Access to both Darwin and Adelaide ports</li> </ul>
<b>Less favourable aspects</b>	<ul style="list-style-type: none"> <li>• Cyclonic zone – increased structure, cladding and construction costs</li> <li>• Increased humidity – additional consideration for processing conditions</li> <li>• Geotechnical ground conditions resulting in increased civil construction costs</li> <li>• Land Tenure uncertainty – final terms still in negotiation (TNG has an occupation licence for crown land Lot No 1817)</li> </ul>	<ul style="list-style-type: none"> <li>• Additional/revised permitting, agreements and licences</li> <li>• Additional operational costs related to transport of reagents and products</li> <li>• Additional costs related to infrastructure and operations such as roads, airport, accommodation</li> </ul>

	<ul style="list-style-type: none"> <li>• Close to Darwin CBD – higher number of receptors for cumulative air quality, visual and noise impact</li> <li>• Near International Airport – aviation safety impacts related to plume rise and height of stacks</li> <li>• Adjacent to Railway Line and crossing of Channel Island Road and Jenkins Road</li> <li>• Waste management</li> </ul>	
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### Water Constraints

The Assessment also considered the previous key constraint of a lack of adequate water supply for the TPF at the Mine Site. As a result of the recent incorporation of a waste-water treatment and recycling plant that reduces the TPF's water demand requirement by ~65%, this constraint has potentially been resolved.

### Gas Constraints

The Assessment also considered an additional key constraint of availability of natural gas at the Mine Site, which was not considered sufficient during the PFS and DFS stages of the Project. However, as part of the FEED study optimisations of the processing facility were undertaken and, critically, an independent review from TNG's energy consultants established that there was sufficient supply availability at the Mine Site using the existing gas pipeline.

### Next steps

TNG has established a Steering Committee to undertake a strategic assessment and quantification of the operational, regulatory and commercial feasibility of having a consolidated Mine Site operation compared with the standalone TPF in Darwin. This assessment will include an evaluation of the key risks, operating and capital costs and the Project Execution Model and contracting strategy currently being prepared by the Company's Project Management Team.

The Steering Committee is expected to provide its final report to the TNG Board in the coming weeks.

Authorised on behalf of the Board by:

**Paul E Burton**  
Managing Director & CEO

31 August 2021

### Inquiries:

Paul E Burton  
Managing Director & CEO + 61 (0) 8 9327 0900

Paula Raffo  
Company Secretary & IR + 61 (0) 8 9327 0900

Nicholas Read  
Read Corporate + 61 (0) 8 9388 1474

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## **About TNG**

TNG is a Perth based resource and mineral processing technology company focussing on building a world-scale strategic metals business based on its flagship 100%-owned Mount Peake Vanadium-Titanium-Iron Project in the Northern Territory. Located 235km north of Alice Springs, Mount Peake will be a long-life project producing a suite of high-quality, high-purity strategic products for global markets including vanadium pentoxide, titanium dioxide pigment and iron ore fines. The project, which is expected to be a top-10 global producer, has received Major Project Status from the Northern Territory and Federal Governments.

TNG is also advancing a green energy strategy with the dual objective of offsetting carbon emissions from its planned future operations and generating new business opportunities in the alternative energy market to create additional shareholder value, with a focus on green hydrogen and vanadium redox flow batteries.

## **Forward-Looking Statements**

This report has been prepared by TNG Limited. This report is in summary form and does not purport to be all inclusive or complete. Recipients should conduct their own investigations and perform their own analysis in order to satisfy themselves as to the accuracy and completeness of the information, statements and opinions contained.

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This report may include forward looking statements. Forward looking statements are only predictions and are subject to risks, uncertainties and assumptions which are outside the control of TNG Limited. Actual values, results or events may be materially different to those expressed or implied.

## **Competent Person's Statements**

The information in this report related to the Mount Peake Mineral Resource estimates is extracted from an ASX Announcement entitled "Additional Information on the Mount Peake Resource" dated 26 March 2013 in accordance with the JORC Code (2012) and is available to view on [www.tngltd.com.au](http://www.tngltd.com.au) and [www.asx.com.au](http://www.asx.com.au). The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and that all material assumptions and technical parameters underpinning the Mineral Resource estimates in the relevant market announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are represented have not been materially modified from the original market announcement.

The information in this report related to the Mount Peake Ore Reserve estimates is extracted from an ASX Announcement entitled "Mount Peake Feasibility Results" dated 31 July 2015 in accordance with the JORC Code (2012) and is available to view on [www.tngltd.com.au](http://www.tngltd.com.au) and [www.asx.com.au](http://www.asx.com.au). The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and that all material assumptions and technical parameters underpinning the Ore Reserve estimates in the relevant market announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are represented have not been materially modified from the original market announcement.

The information in this report related to the Kulgera Project Mineral Resource estimates is extracted from an ASX Announcement entitled "TNG expands tenure with existing JORC resource" dated on 8 July 2020 in accordance with the JORC Code (2012) and is available to view on [www.tngltd.com.au](http://www.tngltd.com.au) and [www.asx.com.au](http://www.asx.com.au). The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and that all material assumptions and technical parameters underpinning the Mineral Resource estimates in the relevant market announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are represented have not been materially modified from the original market announcement.

## **Production Targets and Financial Information**

Information in relation to Mount Peake production targets and financial information included in this report is extracted from an ASX Announcement dated 11 September 2019 called "Optimised Delivery Strategy for Mount Peake" available on the Company's website on [www.tngltd.com.au](http://www.tngltd.com.au). The Company confirms that all material assumptions underpinning the production target and financial information set out in the announcement released on 11 September 2019 continue to apply and have not materially changed.

## APPENDIX A – Information on alternative site locations provided as an addendum to the EIS Supplement

Favourability	Darwin	Mount Peake Mine Site	South Australia	Malaysia
Favourable aspects	<ul style="list-style-type: none"> <li>• TNG has an occupation licence for crown land Lot No 1817</li> <li>• Available Land Tenure</li> <li>• Close to Darwin Port</li> <li>• Adjacent to Railway Line</li> <li>• NT Government support</li> <li>• Water Availability</li> <li>• Adjacent to gas Hub</li> <li>• Availability of Infrastructure/Services for maintenance</li> <li>• Build-Own-Operate (BOO) arrangements - Close to infrastructure</li> <li>• Availability of workers accommodation</li> <li>• Near International Airport</li> <li>• Water supply does not require pre-treatment</li> <li>• Ease of access to reagents including storage availability at Darwin Port</li> <li>• Sealed roads to and from beneficiation plant site</li> <li>• Communication/Mobile Phone Coverage</li> <li>• Availability of Emergency Services</li> </ul>	<ul style="list-style-type: none"> <li>• Ability for common infrastructure, power station, stockpiles, offices, gate house, crib, utilities, rail siding, workshops etc</li> <li>• No haulage of concentrate to Darwin</li> <li>• Rationalisation of construction and operations workforces</li> <li>• Significant reduction in solid waste and tailings disposal costs</li> <li>• Non cyclonic zone - reduced structure, cladding and construction costs</li> <li>• Reduced humidity – improved processing conditions</li> <li>• Better geotechnical ground conditions – reduced civil construction costs</li> </ul>	<ul style="list-style-type: none"> <li>• Proximity to rail and deep-sea port</li> <li>• An established mining community</li> <li>• Close to Port Augusta and Adelaide with well-established mining services &amp; engineering businesses</li> <li>• Workforce availability</li> <li>• Lower cost of living</li> <li>• Decreased cost of construction</li> <li>• Non cyclonic zone - reduced structure, cladding and construction costs</li> <li>• Reduced humidity – improved processing conditions</li> <li>• Decreased site/demobilisation costs</li> </ul>	<ul style="list-style-type: none"> <li>• Lower construction and operations costs</li> <li>• Within an established industrial precinct</li> <li>• Close proximity to port access</li> </ul>
Less favourable aspects	<ul style="list-style-type: none"> <li>• Cyclonic zone - increased structure, cladding and construction costs</li> </ul>	<ul style="list-style-type: none"> <li>• Uncertainty of water availability</li> </ul>	<ul style="list-style-type: none"> <li>• Uncertainty of water supply and cost</li> </ul>	<ul style="list-style-type: none"> <li>• Additional costs for transporting concentrate to Malaysia via ship</li> </ul>

	<ul style="list-style-type: none"> <li>• Increased humidity – additional consideration for processing conditions</li> <li>• Geotechnical ground conditions resulting in increased civil construction costs</li> </ul>	<ul style="list-style-type: none"> <li>• Additional costs related to transport of reagents and product</li> </ul>	<ul style="list-style-type: none"> <li>• Higher costs to transport concentrate to South Australia</li> <li>• Higher costs to transport product to overseas markets</li> </ul>	<ul style="list-style-type: none"> <li>• Would require loading and storing concentrate at Darwin Port prior to shipping</li> <li>• Uncertainty of water supply and cost</li> <li>• Higher costs for gas supply</li> <li>• Higher costs to transport and dispose plant's solid waste and tailings</li> <li>• Sovereign risk</li> </ul>
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