



ASX Release

27 July 2017

## FEED optimisation significantly reduces Colluli earthworks requirements

### Key Points

- FEED optimisation process has improved overall earthworks requirements across entire site relative to DFS
- Outcomes follow an optimisation process which identified improvements for FEED
- FEED seeks to build on the industry leading capital intensity demonstrated in the Colluli DFS
- Processing Cut volumes reduced by almost 30%
- Processing Plant Fill volumes reduced by 86%
- Total site surface preparation area reduced by 13%
- Total site Fill volumes reduced by 22%
- Prior debottlenecking optimisation has increased production from 425kt to 472kt per annum
- FEED phase well advanced

Danakali Limited (**ASX:DNK**) and its Joint Venture Partner - the Eritrean National Mining Corporation (**ENAMCO**), are pleased to announce that following a comprehensive optimisation program, the overall site earthworks requirements for the Colluli Potash project in Eritrea have been reduced relative to the Definitive Feasibility Study (**DFS**)<sup>1</sup>. Evaluation of the earthworks requirements follows a reduction in the overall size of the processing recovery ponds. This reduction occurred despite an increase in the processing plant throughput relative to the DFS<sup>2</sup>.

A cut and fill process seeks to match the volume of required extraction material ("Cut") to the required volume for construction ("Fill") to minimise construction labour and cost. The processing plant cut requirements has been reduced by over 20% from approximately 27,000m<sup>3</sup> to approximately 20,000m<sup>3</sup> while the plant fill volume has been reduced by over 80% to approximately 27,000m<sup>3</sup> from approximately 190,000m<sup>3</sup>.

<sup>1</sup> ASX announcement, Colluli Definitive Feasibility Study Results, 30 November 2015

<sup>2</sup> ASX announcement, FEED optimisation increases planned Sulphate of Potash production capacity at Colluli, 3 May 2017



Further improvements include a reduction in overall site cut and fill volumes as a consequence of the reduction in the recovery pond footprint size. Total site fill volumes have decreased by approximately 22% relative to the DFS.

*Managing Director, Paul Donaldson commented “We are very pleased with the outcomes of the optimisation work, and look forward to further results in the upcoming weeks”.*

**For more information, please contact:**

Paul Donaldson  
Managing Director  
+61 8 6315 1444

**About Danakali Ltd**

Danakali is an ASX listed company and 50% owner of the Colluli Potash Project in Eritrea, East Africa. Danakali is currently developing the Colluli Potash Project with its joint venture partner Eritrean National Mining Corporation (ENAMCO). Danakali and ENAMCO each have a 50% ownership interest in the joint venture company, the Colluli Mining Share Company (CMSC).

The project is located in the Danakil Depression region of Eritrea, and is ~75km from the Red Sea coast, making it one of the most accessible potash deposits globally. Mineralisation within the Colluli resource commences at just 16m, making it the world’s shallowest potash deposit. The resource is amenable to open pit mining, which allows higher overall resource recovery to be achieved, is generally safer than underground mining and is highly advantageous for modular growth.

The company has completed a definitive feasibility study for the production of potassium sulphate, otherwise known as SOP. SOP is a chloride free, specialty fertiliser which carries a substantial price premium relative to the more common potash type; potassium chloride. Economic resources for production of SOP are geologically scarce. The unique composition of the Colluli resource favours low energy input, high potassium yield conversion to SOP using commercially proven technology. One of the key advantages of the resource is that the salts are present in solid form (in contrast with production of SOP from brines) with which reduces infrastructure costs and substantially reduces the time required to achieve full production capacity.

The resource is favourably positioned to supply the world’s fastest growing markets.

Our vision is to bring the Colluli project into production using the principles of risk management, resource utilisation and modularity, using the starting module as a growth platform to develop the resource to its full potential.

**Competent Persons Statement (Rock Salt Resource)**

Colluli has a JORC 2012 compliant Measured, Indicated and Inferred Mineral Resource estimate of 347Mt @97% NaCl. The resource contains 28Mt @ 97% NaCl of Measured Resources, 180Mt @ 97% NaCl of Indicated Resources and 139Mt @ 97% NaCl of Inferred Resources.

The information relating to the Colluli Rock Salt Mineral Resource estimate was compiled by Mr. John Tyrrell. Mr. Tyrrell is a member of the Australasian Institute of Mining and Metallurgy (AusIMM) and a full-time employee of AMC. Mr. Tyrrell has more than 25 years’ experience in the field of Mineral Resource estimation. He has sufficient experience relevant to the style of mineralisation and type of the deposit under consideration, and in resource model development, to qualify as a Competent Person as defined in the JORC Code.

Mr Tyrrell consents to the inclusion of the information relating to the rock salt Mineral Resource in the form and context in which it appears.



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### **Competent Persons Statement (Sulphate of Potash Resource)**

Colluli has a JORC 2012 compliant Measured, Indicated and Inferred Mineral Resource estimate of 1,289Mt @11% K<sub>2</sub>O. The resource contains 303Mt @ 11% K<sub>2</sub>O of Measured Resources, 951Mt @ 11% K<sub>2</sub>O of Indicated Resources and 35Mt @ 10% K<sub>2</sub>O of Inferred Resources.

The information relating to the 2015 Colluli Mineral Resource estimate was compiled by Mr. John Tyrrell, under the supervision of Mr. Stephen Halabura M. Sc. P. Geo. Fellow of Engineers Canada (Hon), Fellow of Geoscientists Canada, and as a geologist with over 25 years' experience in the potash mining industry. Mr. Tyrrell is a member of the Australian Institute of Mining and Metallurgy and a full-time employee of AMC. Mr. Tyrrell has more than 25 years' experience in the field of Mineral Resource estimation.

Mr. Halabura is a member of the Association of Professional Engineers and Geoscientists of Saskatchewan, a Recognised Professional Organisation (RPO) under the JORC Code and has sufficient experience relevant to the style of mineralisation and type of deposit under consideration 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 (the JORC Code). Mr. Tyrrell & Mr. Halabura consent to the inclusion of information relating to the 2015 Resource Statement in the form and context in which it appears.

### **Competent Persons Statement (Sulphate of Potash Reserve)**

The November 2015 Colluli Ore Reserve is reported according to the JORC Code and estimated at 1,113Mt @10% K<sub>2</sub>O Equiv. The Ore Reserve is classed as 286Mt @ 11% K<sub>2</sub>O Equiv Proved and 827Mt @ 10% K<sub>2</sub>O Equiv Probable. The Competent Person for the estimate is Mr Mark Chesher, a mining engineer with more than 30 years' experience in the mining industry. Mr. Chesher is a Fellow of the AusIMM, a Chartered Professional, a full-time employee of AMC Consultants Pty Ltd, and has sufficient open pit mining activity experience relevant to the style of mineralisation and type of deposit under consideration to qualify as a Competent Person as defined in the JORC Code. Mr Chesher consents to the inclusion of information relating to the Ore Reserve in the form and context in which it appears.

In reporting the Mineral Resources and Ore Reserves referred to in this public release, AMC Consultants Pty Ltd acted as an independent party, has no interest in the outcome of the Colluli Project and has no business relationship with Danakali Ltd other than undertaking those individual technical consulting assignments as engaged, and being paid according to standard per diem rates with reimbursement for out-of-pocket expenses. Therefore, AMC Consultants Pty Ltd and the Competent Persons believe that there is no conflict of interest in undertaking the assignments which are the subject of the statements.

### **Quality Control and Quality Assurance**

Danakali Exploration programs follow standard operating and quality assurance procedures to ensure that all sampling techniques and sample results meet international reporting standards. Drill holes are located using GPS coordinates using WGS84 Datum, all mineralisation intervals are downhole and are true width intervals.

The samples are derived from HQ diamond drill core, which in the case of carnallite ores, are sealed in heat sealed plastic tubing immediately as it is drilled to preserve the sample. Significant sample intervals are dry quarter cut using a diamond saw and then resealed and double bagged for transport to the laboratory.

Halite blanks and duplicate samples are submitted with each hole. Chemical analyses were conducted by Kali-UmwelttechnikGmbH Sondershausen, Germany utilising flame emission spectrometry, atomic absorption spectroscopy and ionchromatography. Kali- Umwelttechnik (KUTEC) Sondershausen1 have extensive experience in analysis of salt rock and brine samples and is certified according by DIN EN ISO/IEC 17025 by the Deutsche AkkreditierungssystemPrüfwesen GmbH (DAR). The laboratory follows standard procedures for the analysis of potash salt rocks chemical analysis (K<sup>+</sup>, Na<sup>+</sup>, Mg<sup>2+</sup>, Ca<sup>2+</sup>, Cl<sup>-</sup>, SO<sub>4</sub><sup>2-</sup>, H<sub>2</sub>O) and X-ray diffraction (XRD) analysis of the same samples as for chemical analysis to determine a qualitative mineral composition, which combined with the chemical analysis gives a quantitative mineral composition.

### **Forward Looking Statements and Disclaimer**

The information in this document is published to inform you about Danakali Limited (the "Company" or "DNK") and its activities. DNK has endeavoured to ensure that the information enclosed is accurate at the time of release, and that it accurately reflects the Company's intentions. All statements in this document, other than statements of historical facts, that address future production, project development, reserve or resource potential, exploration drilling, exploitation activities, corporate transactions and events or developments that the Company expects to occur, are forward-looking statements. Although the Company believes the expectations expressed in such statements are based on reasonable assumptions, such statements are not guarantees of future performance and actual results or developments may differ materially from those in forward-looking statements.

Factors that could cause actual results to differ materially from those in forward-looking statements include market prices of potash and, exploitation and exploration successes, capital and operating costs, changes in project parameters as plans continue to be evaluated, continued availability of capital and financing and general economic, market or business conditions, as well as those factors disclosed in the Company's filed documents.

There can be no assurance that the development of the Colluli Project will proceed as planned. Accordingly, readers should not place undue reliance on forward looking information. Mineral Resources and Ore Reserves have been reported according to the JORC Code, 2012 Edition. To the extent permitted by law, the Company accepts no responsibility or liability for any losses or damages of any kind arising out of the use of any information contained in this document. Recipients should make their own enquiries in relation to any investment decisions. Mineral Resource, Ore Reserve and financial assumptions made in this presentation are consistent with assumptions detailed in the Company's ASX announcements dated 25 February 2015, 4 March 2015, 19 May 2015, 23 September 2015, 30 November 2015, 15 August 2016 and 1 February 2017 which continue to apply and have not materially changed. The Company is not aware of any new information or data that materially affects assumptions made.