



## Colluli Ore Reserve update

- **1,100Mt @ 10.5% K<sub>2</sub>O Ore Reserve**
- **203Mt of contained SOP equivalent**
- **Expected mine life of approximately 200 years** at FEED production rates<sup>i</sup>
- **Significant capacity to underpin further expansions and support decades of growth**

**Danakali Limited (ASX: DNK) (Danakali, or the Company)** is pleased to confirm an updated JORC-2012 compliant Sulphate of Potash (**SOP**) Ore Reserve for the Colluli Potash Project (**Colluli, or the Project**), located in Eritrea, East Africa. The Colluli SOP Ore Reserve was updated as part of the Front End Engineering Design (**FEED**) phase (*ASX announcement 29 January 2018*). The Project is 100% owned by the Colluli Mining Share Company (**CMSC**), a 50:50 joint venture between Danakali and the Eritrean National Mining Corporation (**ENAMCO**).

### SOP Ore Reserve

**Danakali engaged recognised, capable and competent consultants for the development of FEED and the associated cost estimates, including many who were involved with the Colluli definitive feasibility study (DFS) (ASX announcement 30 November 2015)**, providing the engineering team with a high level of specific Colluli expertise and study continuity.

**The FEED phase of study investigated options to improve SOP production and cost outcomes for the Project.** The Colluli SOP Ore Reserve estimate, as at 29 January 2018, is based on a plant configuration comprising two processing modules and offsite water infrastructure to support the site water requirements. Modifying factors for SOP Ore Reserve estimation are drawn from the sections of the FEED and DFS reports as required. This is the third SOP Ore Reserve estimate for the Colluli Potash Project. This estimate replaces the SOP Ore Reserve reported on 30 November 2015.

**The updated JORC Code 2012 compliant SOP Ore Reserve estimate for Colluli, at 29 January 2018, is 1,100Mt @ 10.5% K<sub>2</sub>O for 203Mt of contained SOP equivalent.** The SOP Ore Reserve is comprised of 285Mt @ 11.3% K<sub>2</sub>O of Proved Ore Reserve and 815Mt @ 10.3% K<sub>2</sub>O of Probable Ore Reserve. Refer to Appendix A for the criteria considered by the Competent Person when estimating the SOP Ore Reserve.

FEED investigations continued after mine planning for SOP Ore Reserve estimation was complete, including an alternative water supply option for the second plant module (Module II) from groundwater sources at the project site. This alternative option, described in the FEED announcement (*ASX announcement 29*

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<sup>i</sup> The Colluli SOP Ore Reserve is estimated to contain 1.1Bt at 10.5% K<sub>2</sub>O equivalent grade, as shown in Table A. This Ore Reserve is comprised of Sylvinitite, Carnallitite and Kainitite rock units, which predominantly contain the mineral species Sylvite (KCl), Carnallite (KMgCl<sub>3</sub>·6H<sub>2</sub>O), and Kainite (MgSO<sub>4</sub>·KCl·3H<sub>2</sub>O) respectively. These three mineral species can be processed in the Colluli plant to produce 178Mt of recovered SOP (K<sub>2</sub>SO<sub>4</sub>), at 97.2% purity. The corresponding amount of the contained equivalent K<sub>2</sub>SO<sub>4</sub> from these three mineral species only is 203Mt (the in situ equivalent, prior to the application of processing recoveries). At the FEED SOP production rate of 944ktpa for Modules I & II the 178Mt of SOP recovered from the Colluli Ore Reserve equates to a mine life of approximately 200 years. This allows for ramp-up in processing plant production and ensuring the correct proportion of ore types in the plant feed is maintained.



January 2018), has an immaterial impact on the SOP Ore Reserve estimate, but yields improved project economics.

SOP Mineral Resources were converted to SOP Ore Reserves recognising the level of confidence in the SOP Mineral Resource estimate and reflecting any modifying factors, in accordance with the JORC Code 2012. The Measured and Indicated SOP Mineral Resources are inclusive of those SOP Mineral Resources modified to produce the SOP Ore Reserves. No SOP Measured Mineral Resources were converted to SOP Probable Ore Reserves.

In the context of complying with the principles of the JORC Code 2012, Appendix A of this release lists the required items for Table 1, Sections 1, 2, 3, & 4, of the JORC Code 2012, and are provided on an 'if not, why not' basis.

The SOP Ore Reserve is comprised of Sylvinite, Carnallite and Kainite rock units, which predominantly contain the mineral species Sylvite (KCl), Carnallite ( $\text{KMgCl}_3 \cdot 6\text{H}_2\text{O}$ ), and Kainite ( $\text{MgSO}_4 \cdot \text{KCl} \cdot 3\text{H}_2\text{O}$ ) respectively. These three mineral species can be processed in the Colluli plant to produce 178Mt of recovered sulphate of potash (SOP or  $\text{K}_2\text{SO}_4$ ), at 97.2% purity. The corresponding amount of the contained equivalent SOP from these three mineral species only is 203Mt (the in situ equivalent, prior to the application of processing recoveries).

The run-of-mine pad is the reference point at which the SOP Ore Reserve is defined.

**Table A: Colluli SOP Ore Reserve<sup>1,2,3</sup>**

Occurrence <sup>2</sup>	Proved		Probable		Total		
	Mt	K <sub>2</sub> O equiv.	Mt	K <sub>2</sub> O equiv.	Mt	K <sub>2</sub> O equiv.	K <sub>2</sub> SO <sub>4</sub> equiv. Mt <sup>4</sup>
<b>Sylvinite (KCl.NaCl)</b>	77	15.0%	173	12.1%	<b>250</b>	<b>13.0%</b>	
<b>Carnallite (KCl.MgCl<sub>2</sub>.H<sub>2</sub>O)</b>	77	6.9%	279	7.8%	<b>356</b>	<b>7.6%</b>	
<b>Kainite (KCl.MgSO<sub>4</sub>.H<sub>2</sub>O)</b>	131	11.8%	363	11.2%	<b>494</b>	<b>11.4%</b>	
<b>Total</b>	<b>285</b>	<b>11.3%</b>	<b>815</b>	<b>10.3%</b>	<b>1,100</b>	<b>10.5%</b>	<b>203</b>

1 The SOP Ore Reserve includes dilutant material; only Sylvite, Carnallite and Kainite mineral species from Sylvinite, Carnallite and Kainite rock types contribute to recovered product

2 Equivalent  $\text{K}_2\text{SO}_4$  (SOP) sourced from Sylvite, Carnallite and Kainite mineral species only, shown prior to the application of processing losses

3 See Appendix A for the JORC Code 2012 – Table 1, Sections 1, 2, 3 & 4 for the Colluli SOP Mineral Resource and Colluli SOP Ore Reserve

4 The Measured and Indicated SOP Mineral Resources are inclusive of those SOP Mineral Resources modified to produce the SOP Ore Reserves

## SOP Mineral Resource

### Over 85% of the Measured and Indicated SOP Mineral Resources are included in the SOP Ore Reserve.

Colluli's JORC Code 2012 compliant SOP Mineral Resource remains estimated at 1.289Bt @ 11% K<sub>2</sub>O for 260Mt of contained SOP equivalent (*ASX announcement 25 February 2015*). The resource remains open to the south-east of Area A and the west of Area B. The SOP Mineral Resource estimate was completed by AMC Consultants Pty Ltd (**AMC**), and updates the previous work conducted by Ercosplan Ingenieurgesellschaft Geotechnik und Bergbau mbH. 97% of the SOP Mineral Resource is classified as Measured and Indicated. See Table B for a summary of the SOP Mineral Resource.



**Table B: Colluli SOP Mineral Resource<sup>5,6,7,8</sup>**

Area	Rock unit	Measured		Indicated		Inferred		Total	
		Mt	K <sub>2</sub> O equiv.	Mt	K <sub>2</sub> O equiv.	Mt	K <sub>2</sub> O equiv.	Mt	K <sub>2</sub> O equiv.
Area A	Sylvinitite	66	12%	38	11%	10	8%	115	11%
	Carnallitite	55	7%	190	9%	6	16%	251	9%
	Kainitite	86	12%	199	11%	1	10%	285	11%
Area B	Sylvinitite	24	15%	122	13%	5	12%	150	13%
	Carnallitite	25	6%	114	7%	8	7%	147	7%
	Kainitite	48	13%	289	13%	4	13%	341	13%
Sub-total – Areas A & B	Sylvinitite	90	13%	160	13%	15	9%	265	12%
	Carnallitite	80	7%	303	8%	15	11%	398	8%
	Kainitite	133	12%	488	12%	5	12%	626	12%
<b>Total</b>		<b>303</b>	<b>11%</b>	<b>951</b>	<b>11%</b>	<b>35</b>	<b>10%</b>	<b>1,289</b>	<b>11%</b>

5 ASX announcements 25-Feb-15, 30-Nov-15, 15-Aug-16 and 29-Jan-18

6 The Colluli SOP Mineral Resource also contains an 85Mt Kieserite Mineral Resource

7 The Measured and Indicated SOP Mineral Resources are inclusive of those SOP Mineral Resources modified to produce the SOP Ore Reserve

8 See Appendix A for the JORC Code 2012 – Table 1, Sections 1, 2, 3 & 4 for the Colluli SOP Mineral Resource and Colluli SOP Ore Reserve

The Colluli SOP Mineral Resource estimate was prepared and reported under the direction of the Competent Person using accepted industry practice. The Measured and Indicated SOP Mineral Resources reported in FEED are inclusive of those SOP Mineral Resources modified to produce the Colluli SOP Ore Reserves that can be mined by open pit mining methods.

No grade cut-off has been used to report the SOP Mineral Resource at Colluli. Consideration of mining, metallurgical and pricing assumptions suggest that any of the currently reported SOP Mineral Resource has a reasonable prospect for eventual economic extraction.

## Rock Salt Mineral Resource

**Colluli also has a JORC Code 2012 compliant Measured, Indicated and Inferred Rock Salt Mineral Resource estimate of 347Mt @ 96.9% NaCl.** The Rock Salt Mineral Resource contains 28Mt @ 97.2% NaCl of Measured Rock Salt Mineral Resources, 180Mt @ 96.6% NaCl of Indicated Rock Salt Mineral Resources, and 139Mt @ 97.2% NaCl of Inferred Rock Salt Mineral Resources. See Table C for a summary of the Rock Salt Mineral Resource.

**Table C: Colluli Rock Salt Mineral Resource<sup>9,10</sup>**

Classification	Mt	NaCl	K	Mg	CaSO <sub>4</sub>	Insolubles
Measured	28	97.2%	0.05%	0.05%	2.2%	0.23%
Indicated	180	96.6%	0.07%	0.06%	2.3%	0.24%
Inferred	139	97.2%	0.05%	0.05%	1.8%	0.25%
<b>Total</b>	<b>347</b>	<b>96.9%</b>	<b>0.06%</b>	<b>0.05%</b>	<b>2.1%</b>	<b>0.24%</b>

9 ASX announcements 23-Sep-15, 30-Nov-15 and 29-Jan-18

10 See Appendix B for the JORC Code 2012 – Table 1, Sections 1, 2 & 3 for the Colluli Rock Salt Mineral Resource

The Measured and Indicated Rock Salt Mineral Resources are additional to the SOP Mineral Resources and SOP Ore Reserves. The cut-off grade used to report the Rock Salt Mineral Resource is 95% NaCl (Na<sub>wt%</sub> + Cl<sub>wt%</sub>) with CaSO<sub>4</sub> less than 2.5%.

The Rock Salt Mineral Resource was estimated by AMC.

## Material information

**See Appendix A for the JORC Code 2012 – Table 1, Sections 1, 2, 3 & 4, for the SOP Mineral Resource and SOP Ore Reserve.** A summary of the material information contained within Table 1, Section 4 for the SOP Ore Reserve is provided below.

### Colluli overview

**Colluli is located in the Danakil Depression region of Eritrea, East Africa.** Colluli is approximately 177km south-east of the capital, Asmara, and 180km from the port of Massawa, which is Eritrea's key import/export facility. Colluli is located approximately 75km from the Red Sea coast providing unrivalled future logistics potential.

**The Danakil Depression is an emerging potash province, which commences in Eritrea and extends south across the border into Ethiopia.** It is one of the largest unexploited potash basins globally; over 6Bt of potassium bearing salts suitable for production of potash fertilisers have been identified in the region to date (*ASX announcement 25 February 2015 and <http://circumminerals.com/resources>*).

**Colluli's mineralisation commences at just 16m below surface.** Consequently, Colluli has significant mining, logistics and, in turn, capital and operating cost benefits over other potash development projects in the Danakil Depression, and other potash development projects globally. The Project also carries a significantly lower level of complexity due to predictable processing plant feed grade, and predictable production rates due to low reliance on ambient conditions.

**The Colluli resource comprises three potassium bearing salts in solid form: Sylvinite, Carnallite and Kainitite.** These salts are suitable for high yield, low energy production of SOP, which is a high-quality potash fertiliser carrying a price premium over the more common Muriate of Potash (**MOP**). SOP is chlorine free and is commonly applied to high value crops such as fruit, vegetables, nuts, and coffee.

**Colluli will be developed to its full potential by adopting the principles of risk management, resource utilisation and modularity, using the first module as a platform for growth.** CMSC is responsible for the development of the Project.

The Colluli FEED modules are:

- **Module I** – 472ktpa SOP production
- **Module II** – additional 472ktpa SOP production commencing in year 6

The material assumptions and outcomes from the FEED study can be found in Table D and below:



Table D: Key Colluli FEED economic estimates and outcomes<sup>11</sup>

	Module I <sup>12</sup>	Module I & II <sup>13,14</sup>
<b>100% of the Project (equity / pre-debt basis)</b>		
Annualised SOP production	472ktpa	944ktpa
Strip ratio (waste:ore)	1.9	2.1
Module I development capital <sup>15</sup>	US\$302M	
Incremental Module II development capital <sup>14, 15</sup>		US\$202M
Capital intensity <sup>15</sup>	US\$640/t	US\$534/t
Incremental Module II capital intensity <sup>15</sup>		US\$427/t
Average mine gate cash costs <sup>16</sup>	US\$165/t	US\$149/t
Average total cash costs <sup>16, 17</sup>	US\$258/t	US\$242/t
Average annual undiscounted free cash flows <sup>16</sup>	US\$88M	US\$173M
Post tax NPV (10% real)	US\$505M	US\$902M
Post tax IRR	28.1%	29.9%
Module I payback period <sup>18</sup>	3.25 years	
<b>Danakali's 50% share of the Project (post-debt basis)</b>		
Average annual undiscounted free cash flows <sup>16</sup>	US\$43M	US\$85M
Post finance NPV (10% real)	US\$242M	US\$439M
Post finance IRR	29.7%	31.3%

11 Economic estimates and outcomes reported in US\$ real

12 Assumed that Module I is 60% debt / 40% equity funded

13 Module II production expected to commence in year 6

14 Assumed 100% funded from project cash flows and third-party debt

15 Including contingency, excluding sustaining and working capital

16 Average for first 60 years of production

17 Includes mine gate cash costs, product logistics, and royalties

18 Represents payback from date of first production

Further key assumptions used in the economic evaluation:

- A real average composite SOP price of US\$569/t
- The fiscal regime assumptions align to the relevant current Eritrean tax proclamations; the key assumptions are as follows (no change since DFS (*ASX announcement 30 November 2015*)):
  - Income tax is calculated at a rate of 38% of taxable profit
  - A mining royalty of 3.5% on gross revenue
  - Straight line tax depreciation over 4 consecutive years
  - Tax losses can be carried forward for 10 years for all plant and equipment
- A real discount rate of 10% per annum.

## Mining

**The mine will consist of a single open pit developing progressively from the north-east to south-west.** The pit will have a progressive working face that provides access to each of the mineralised layers simultaneously. Mining will be conducted by mining contractors using conventional mechanised equipment



(including surface miners, excavators, bulldozers and haul trucks) and methods. No drill and blast is required for mining. Mined ore will be transported by truck to a ROM pad adjacent to the processing plant. The ore body consists of three main members being Sylvinitite, Carnallitite and Kainitite which are fed as ore feed into the processing plant and from which the minerals Sylvite, Carnallite and Kainite are extracted and mixed to produce SOP.

**110t class surface miners directly loading 90t class rear dump trucks have been selected and modelled for the potash and rock salt layers within the resource.** Similar continuous miner technology is used in underground potash mines. 190t and 110t class excavators and 90t class rear dump trucks have been selected and modelled for clastic overburden and Bischofitite. Clastic overburden will be pushed down to excavators by 50t track bulldozers. This method is commonly used in open pit operations and well understood.

**The choice of mining method enables selective extraction of the potash ore units, minimising mining dilution and ore loss, and eliminating the requirement for drill and blast.** Staggered benches in the pit development level the strip ratio (waste:ore) over the mine life, which enhances economics and provides consistent plant feed.

For the SOP Ore Reserve a 0.3m 'skin' of dilution is included at each ore to waste contact. The dilutant acquires the grade of the underlying resource model block. The result is inclusion of approximately 7.5% dilutant at a grade of 3.7% K<sub>2</sub>O, and ore loss of 0.6% at a grade of 4.1% K<sub>2</sub>O, for a net increase of 6.9% in ore tonnes and an increase of 2.3% in contained K<sub>2</sub>O, based on the findings of the DFS.

The limits for the open pit were selected through pit optimization using the GEOVIA Whittle™ implementation of the Lerchs Grossman algorithm. Mine scheduling using Minemax Scheduler was undertaken to confirm the correct application of plant feed schedule constraints. The optimisation considered Measured and Indicated SOP Mineral Resources only. The SOP Ore Reserve is defined as the quantity of in situ potassium containing mineralization within an economic pit perimeter. The SOP Ore Reserve includes consideration for dilutant materials that are expected to be mined with the potassium salts. This was modelled by adding 'skins' of dilution to the contact horizons of the relevant potassium containing horizons.

The pit slope design parameters used in the SOP Ore Reserve estimation were based on analysis by AMC that used core logging information collected from geotechnical drill-holes, as well as material property data collected from laboratory tests of samples. The overall slope angles in the Area A final stage of the pit design range from 17° to 25°, averaging approximately 19°, which includes allowances for pit access ramps. An average overall pit slope angle of 19° was applied to the Area B pit design. The pit designs include the in situ SOP Ore Reserve and 4.5Bt of waste material (including surplus Kainitite), resulting in an effective stripping ratio of 4.1 waste tonnes to 1.0 ore tonne mined and processed for the entire SOP Ore Reserve. The strip ratio in production stage for the 60 year period considered in FEED financial modelling is 2.1 waste tonnes to 1.0 ore tonne mined and processed.

The Ore Reserve is estimated using breakeven processing cut-off grades which vary on a block by block basis due to multiple minerals recovered to the SOP product. Cut-off grades were assessed using:

- Adopted long-term SOP price of US\$567/t product. Note that financial modelling was subsequently completed using an SOP price of US\$569/t product, but the cut-off grades were not adjusted because the difference in total ore tonnes at each price is negligible (less than 0.02%)
- Processing, administration, overhead and associated sustaining capital cost of US\$15.20/t processed





- Costs for processing plant production rate of 944 ktpa of SOP
- Product logistics and associated sustaining capital cost, and water logistics of US\$75.34/t product
- Ore mining differential cost of US\$2.77/bcm (ore related mining costs that are additional to waste mining costs)
- Royalty costs of 3.5% of revenue
- Process recovery of 85% for K<sup>+</sup> and SO<sub>4</sub><sup>2-</sup> from Sylvite, Carnallite and Kainite mineral species hosted within Sylvinitite, Carnallitite and Kainitite rock units.
- Final product purity of 97.2% SOP. No other allowance required for deleterious elements.

There has been no mining at Colluli to the reporting date.

**Financial analysis completed in January 2018 showed that, at that time, the future revenues to be derived, and costs incurred to access those revenues, produce a viable project using the assumptions presented in this estimate.** The costs to complete and commission the mine and plant to process for a 60 year period were considered.

### Processing

**The processing method to be utilised at Colluli is the most commonly used, low cost process for production of SOP via the addition of Sylvite to Kainite** (from the salt Kainitite). The chosen processing method relies on plant feed of two different ore sources and properties: a blend of Sylvinitite and Carnallitite is required as feed type 1; and Kainitite is required as feed type 2. Both feeds are required to produce the final SOP product, so the SOP Ore Reserve only incorporates sufficient potash containing mineralisation of both feed types, in the required proportions, to make SOP to satisfy the blend requirements for the life of the SOP Ore Reserve.

**Colluli is one of the few resources globally comprising both Sylvite and Kainite** in an ideal ratio to combine using conventional flotation and mixing processes to produce SOP at ambient temperature. Ambient temperature processing, has a positive impact on process yield, and requires significantly lower energy inputs relative to Kainite brine conversion.

**Potassium yields are further improved using recovery ponds which collect brines exiting the processing plant.** Highly favourable ambient conditions within the Danakali Depression provide an environment with extremely high evaporation rates which significantly reduce pond size requirements, and allow rapid recovery of remnant potassium which is recirculated to the processing plant. An overall metallurgical recovery factor of 85% is estimated for K<sup>+</sup> and SO<sub>4</sub><sup>2-</sup> from Sylvite, Carnallite and Kainite mineral species hosted within Sylvinitite, Carnallitite and Kainitite rock units.

**Benchmark and pilot plant tests conducted at the Saskatchewan Research Council prove the process design and process flow diagrams used for FEED** (ASX announcement 29 January 2018). The process design was validated by an appointed Technical Review Committee in February 2015 (ASX announcement 4 March 2015) and confirmed in FEED (ASX announcement 29 January 2018).

**Pilot plant tests produced over 100kg of SOP** at over 96% purity. Chloride levels are of approximately 0.5%. Results were proven repeatable with a diverse range of feed material.

**The SOP product will be dried and sized to produce granular, standard and potentially soluble products which will be shipped for export.** Bench scale metallurgical testwork using samples that reasonably represent the mining schedule has been completed to determine chemical and mineral analysis of the



samples, liberation and flotation characteristics of all potassium salts, decomposition rates and retention times, decomposition ratios, precipitate sizing and evaporation rates.

### Product pricing

**The only product considered in FEED and the SOP Ore Reserve estimate is SOP.** The long-term price of SOP used in cut-off grade determination for the estimate is US\$567/t, with an expected product quality of 97.2% SOP. Financial modelling was subsequently completed by Danakali using a SOP price of US\$569/t product, which is a calculated compound average price of the expected product ratios of standard and granular product, following recommendations from the marketing specialists based on comprehensive market studies. The cut-off parameters were not adjusted because the difference in total ore tonnes at each price is negligible (less than 0.02%).

### Material modifying factors

Colluli is fully permitted following (i) the signing of the Mining Agreement between CMSC and the Eritrean Ministry of Energy and Mines in 2017 (*ASX announcement 1 February 2017*), and (ii) the subsequent awarding of the requisite Mining Licenses<sup>ii</sup> (*ASX announcement 1 February 2017*).

Colluli will rely on public roads and the Massawa port for project construction and product export. The public infrastructure has been assessed by third parties and found to be materially suitable in capacity and capability. The FEED study reflects the costs to use these facilities in their current state. Any improvement to the public infrastructure is considered potential upside for the Project.

### Competent Person

Mark Chesher is the Competent Person for the 2018 Colluli SOP Ore Reserve estimate, and supervised preparation of the SOP Ore Reserve estimate with assistance from specialists in each area of the study. Mr Chesher is a Fellow of the Australasian Institute of Mining and Metallurgy, a Chartered Professional, and is a full-time employee of AMC. He 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 2012. Mr Chesher consents to the inclusion of this information in the form and context in which it appears.

The information compiled by Mr Chesher was prepared by specialists from the FEED consulting team. These consultants were managed by James Durrant and overseen by Paul Donaldson of Danakali. Mr Chesher reviewed the work of the specialists to assess its adequacy for the purposes of SOP Ore Reserve estimation. The Competent Person is satisfied that the work of the contributing specialists is acceptable.

In undertaking the assignments referred to in this report, AMC acted as an independent party, has no interest in the outcome of the Project and has no business relationship with Danakali 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 and the Competent Person believe that there is no conflict of interest in undertaking the assignments which are the subject of this update.

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<sup>ii</sup> CMSC applied for, and were awarded 7 mining licenses which span over 60km<sup>2</sup> of the 100km<sup>2</sup> agreement area, covering the 60 years of production considered in FEED financial modelling; additional licenses can be applied for within the agreement area as required to sustain and/or grow operations



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## Appendix A – SOP – JORC Code 2012 – Table 1, Sections 1, 2, 3 & 4

South Boulder Mines Limited (STB.ASX) changed its name to Danakali Limited (DNK.ASX) after completion of some elements of the studies and these names are interchangeable in the sections that follow.

### Section 1 – Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
<b>Sampling techniques</b>	Nature and quality of sampling (e.g. cut channels, random chips, or specific specialized industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.	<p>The Colluli deposit was sampled using diamond core from surface. A total of 103 diamond holes were drilled into the deposit. 102 of the 103 holes had geological logging, assaying or geophysical logging and were available for the resource estimate. The total metres of drilling for the project were 6,409 at the date of the resource estimate. Drilling by STB occurred from June 2010 until October 2012. Borehole geophysical logging in the form of gamma ray – density measurements were made on 22 drillholes in Area B and the results interpreted to determine density of the various rock units.</p> <p>Holes were drilled on an approximate UTM grid (WGS84, Zone 37N) with a grid direction of approximately 050 degrees magnetic in Area A and 090 degrees in Area B, both at a dip of -90 degrees. The drill collar positioning was a nominal 500 m x 500 m spacing in X and Y at Area A and a 700 m x 1000 m grid spacing at Area B.</p>
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	<p>Drillhole collars were originally set out using hand held GPS and on completion the collars were surveyed by survey contractors using high precision GPS. Downhole surveys were not completed as all holes were drilled at 90 degrees down-dip and were almost all less than 15 0m depth.</p> <p>Diamond core was half-core sampled at regular intervals and generally constrained to geological boundaries where appropriate.</p>
	Aspects of the determination of mineralization that are Material to the Public Report.	<p>Diamond core was drilled predominantly at HQ size.</p> <p>Diamond core samples were cut and bagged and sent to TUC in Germany where they were crushed, split and pulverized and assayed for a suite of cations and anions using a liquid ion chromatography technique. Sample pulps were then sent to K_Utec for check assaying, using a similar process.</p>
<b>Drilling techniques</b>	<p>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).</p>	<p>Diamond drillholes account for 100% of the drill metres and comprises HQ sized core.</p> <p>All holes were drilled as diamond holes from surface, with HW 4" casing employed at the top of the holes due to poor ground conditions in the overburden unit.</p> <p>No core orientation was recorded.</p>
<b>Drill sample recovery</b>	Method of recording and assessing core and chip sample recoveries and results assessed.	<p>Diamond core recovery was assessed by comparison of the interval of core presented in the core tray against the driller's core blocks. Analysis showed that more than 93% of core intervals had 90% or better recoveries, with 96% of core having recoveries of 80% or better. Core recoveries in the uppermost unit, the overburden, were very poor and many losses occurred. Recoveries in this domain ranged between 0 -60%. These reduced recoveries were not associated with mineralization and as such are not considered material.</p>
	Measures taken to maximize sample recovery and ensure representative nature of the samples.	<p>Diamond drilling utilized triple-tube techniques and constantly monitored drilling fluids in order to assist with maximising recoveries. PVC tubing, HW 4" pipe and HQ rods were used in the uppermost unit, with the tri-salt mud balance constantly monitored for viscosity and density to reduce core dissolution whilst drilling.</p> <p>Core depths are checked against the depth given on the core blocks and rod counts are routinely carried out by the drillers. Recovered core was measured and compared against driller's blocks.</p> <p>Sections of two resource drillholes were drilled using diesel as drilling fluid, to ensure maximum recovery of the most highly soluble units in the geological sequence (especially in the Bischofite Member). An additional four drillholes were drilled for QAQC purposes in late 2014, with diesel used as the primary drilling fluid.</p>
	Whether a relationship exists between sample recovery and grade and whether sample bias may have	<p>Assessments on the effect of low recoveries were completed for the diamond drilling and found that there was not likely to be any material impact or bias on the reported assay results as a result of the reduced recoveries. All of the mineralized domains had</p>



Criteria	JORC Code Explanation	Commentary
	occurred due to preferential loss/gain of fine/coarse material.	recoveries in excess of 80%, and generally with less than 15% of the recorded recoveries being less than 90%.
Logging	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.	<p>Diamond core was geologically logged using predefined lithological, mineralogical and physical characteristics (such as colour, weathering, fabric) logging codes. In addition structural measurements of major features were collected, such as bedding to core angle for laminations, bedding, veining or fracture structures.</p> <p>The logging was completed at the company core shed by the responsible geologist and checked by the Senior Geologist once completed.</p> <p>All of the drilling was logged onto paper and has recently (late 2014) been transferred to a digital form and loaded into a Microsoft Access drillhole database. The latest geotechnical and QAQC-twinning drillhole logging was completed directly onto a laptop in the field using Microsoft Excel spreadsheets with drop-down boxes to restrict values entered. Logging information was reviewed by the senior geologist prior to final load into the database.</p> <p>All core trays were photographed. Given the nature of the mineralization at Colluli (crystalline salts) the core was not photographed wet, unless photos were taken on-site as soon as the core was removed from the barrel after drilling.</p> <p>Geotechnical logging of all diamond core consisted of recording core recovery, RQDs, amount of dissolution and core state (i.e. whole, broken). In addition in late 2014, twelve diamond holes (GT-A1 – GT-A12) were drilled specifically for geotechnical purposes and were logged by both AMC geotechnical staff and then STB geologists after initial training. Samples from these were also selected for destructive testing. Four of these holes (GT-A6, GT-A8, GT-A11 and GT-A12) were planned to be assayed as twinned holes for comparison with the existing Colluli drillhole database.</p> <p>45 holes also had downhole geophysical logging completed for natural gamma, hole diameter, neutron log, sonic log, temperature and conductivity (calibrated to 25°C). 22 of these holes also had downhole density logging recorded.</p>
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.	Logging was both qualitative and quantitative in nature, with general lithology information recorded as qualitative and most mineralization records and geotechnical records being quantitative. Core photos were collected for all diamond drilling.
	The total length and percentage of the relevant intersections logged.	All recovered intervals were geologically logged, apart from four drillholes (COL-005, COL-019B, COL-020, COL-042) that had no potash intersections and one hole (COL-063A) that was abandoned at 54 m downhole due to poor core recovery.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	<p>Diamond core was cut in half using a diesel powered core saw. No water was used for lubrication or dust suppression as core dissolution would have occurred. The material being cut is relatively soft and this has not proved to be an issue. Sample intervals were marked on the core by the responsible geologist considering lithological and structural features.</p> <p>Core selected for duplicate analysis was further cut as quartered core with both quarters submitted individually for analysis.</p>
	If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.	No non-core samples were taken.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	<p>The sample preparation techniques employed for the diamond core samples follow standard potash industry best practice. To avoid dissolution by reacting with the water in the air, all samples were double-bagged at the drill rig, opened for logging and re-bagged immediately and heat sealed prior to transport to the laboratory.</p> <p>Samples were crushed by hammer, within the plastic liner, to a grain size of approximately 1cm or less. The entire sample was then transferred to a PVC vessel and homogenized by shaking. Approximately one third of the homogenized sample was then taken and crushed inside a polythene bag by hammer to a grain size of 5mm or less. About 100g of this homogenized sample was then pulped by disk swing-mill for 120 seconds. Three grams of this pulp was prepared for XRD analysis and ten grams dissolved in 990ml distilled water and agitated for 24 hours prior to ion chromatography. The insoluble portion remaining from the dissolution was removed by a membrane filter (0.45 micron) and weighed.</p>
	Quality control procedures adopted for all sub-sampling stages to maximize representivity of samples.	For the initial drilling at Colluli, to hole COL-099, field QAQC procedures included the field insertion of "blanks" taken from the Upper Rock salt domain, as the main minerals of economic interest were KCl and MgSO <sub>4</sub> . These were inserted into the sample stream at a rate of approximately 1 in 15 samples. Coarse field duplicates were taken by quarter cutting the core at a rate of approximately 1 in 20 samples. Certified reference materials



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		<p>(standards) were not added to the sample stream by STB, as there are no commercially available CRM's for potash.</p> <p>The primary assay laboratory, TUC, also periodically inserted "blanks" in the form of clean distilled water. TUC also assayed their own internal standards (TUCEV-HA and TUCEV-HK) at a rate of 1:15 samples.</p> <p>Pulp duplicates were taken and re-assayed by a secondary assay laboratory, K-Utec, using a mixture of flame emission spectrometry, atomic absorption spectroscopy and ion chromatography. These were taken at a rate of approximately one in 40 samples.</p>
	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.	<p>Field duplicates from core samples generally showed an excellent correlation between original and duplicates, however other measures of spread such as Half Absolute Relative Difference (HARD) showed some variance in some of the minor elements such as Ca and SO<sub>4</sub>.</p> <p>Pulp repeat samples from the secondary laboratories also showed excellent correlation between original and repeat samples.</p>
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Current industry standard sampling is used and deemed appropriate. All of the salts are coarse crystalline and are dissolved completely prior to analysis.
<b>Quality of assay data and laboratory tests</b>	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	<p>Primary assaying for the diamond core was completed by TUC using their proprietary method for ion chromatography. TUC are recognized internationally for their work in potash and have a good reputation. Their methods are however, confidential and AMC has no details of the exact process used. Pulp duplicates were taken from three of the original drillholes and assayed at K-Utec laboratories in Germany.</p> <p>AMC requested STB to drill four twinned drillholes to test the reliability of the TUC assaying. These were to be assayed at K-Utec and pulp repeats tested at both TUC and SRC in Canada. K-Utec uses a combination of flame spectrometry, atomic absorption spectroscopy and ion chromatography for analysis of potash salts.</p>
	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.	<p>Downhole geophysical readings were taken for 45 of the STB drilled diamond holes. Data collected included hole diameter, neutron logs, conductivity, temperature, natural gamma, sonic logs and density. Only 22 holes had density readings taken, due to breakages of the gamma-gamma probe. The work was performed by Abitibi Terratec using the following probes suspended from a 4-conductor cable;</p> <ul style="list-style-type: none"> <li>• Electromind T-Cd-GR</li> <li>• Electromind 3-arm caliper</li> <li>• RG Neutron-neutron probe</li> <li>• RG Gamma-gamma probe</li> <li>• ALT Sonic-Full Wave probe</li> </ul> <p>Density measurements were validated by taking readings while the probe was in an aluminium block and in a container of water. There were three readings taken in each material.</p> <p>As far as AMC is aware, calibration was undertaken for the density and neutron probes prior to delivery to site for the caliper probe whilst on-site. A polynomial curve function (<math>y=38.9520+0.176803x-1.53928 \times 10^{-5}x^2</math>) was applied to the raw caliper data to produce the final hole width readings.</p>
	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.	<p>According to the Ercosplan resource report of April 2012, TUC performed internal QAQC using its own internal standards and blanks (water). They also apparently take part in round-robin testing regularly and have a good reputation internationally in the potash industry.</p> <p>STB included blanks (halite from the Upper Rock Salt unit) and coarse duplicates in the sample streams sent to TUC and K-Utec and had pulp repeat assaying completed at K-Utec.</p> <p>Limited QAQC reporting from the AMC recommended twin hole programme is available at the time of writing this report, however, the results that have been returned show no material issues.</p>
<b>Verification of sampling and assaying</b>	The verification of significant intersections by either independent or alternative company personnel.	Diamond drill core photographs have been reviewed for the recorded sample intervals. AMC Senior Geologist, John Tyrrell, visited the Colluli project site and the STB head office and core shed in Eritrea in October 2014. Whilst there he viewed the drillhole collars on-site and the remaining core (full, half or quarter) at the core shed in Asmara. Selected sections of drillholes were examined in detail in conjunction with the geological logging and assaying.



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	The use of twinned holes.	<p>AMC requested four drillholes be twinned for the purpose of testing the veracity of the logging and assaying at Colluli. The holes were sampled using the same intervals (where possible) to the original drillholes in order to compare the logging and assaying as directly as possible.</p> <p>The results for the twin hole assaying and QAQC programme are in progress at the time of this report, however the results that have already been returned show no material issues.</p>
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	<p>All primary geological data (prior to 2014) was collected using paper logs and transferred into Excel spreadsheets. This was checked by the Chief Geologist for data entry error. Assay results were returned from the laboratories as electronic data (Excel spreadsheets and PDF files). Geophysical data was recorded as log ASCII standard (LAS) files and survey and collar location data was stored as spreadsheet files.</p> <p>In late 2014, all of the primary data was collated and imported into a Microsoft Access relational database, keyed on borehole identifiers and assay sample numbers. The data was verified as it was entered and checked by the STB Chief Geologist.</p>
	Discuss any adjustment to assay data.	<p>The primary and secondary assay laboratories reported results from the assaying process as weight % values of the assayed cations (Mg<sup>2+</sup>, Ca<sup>2+</sup>, Na<sup>+</sup>, K<sup>+</sup>) and anions (Cl<sup>-</sup>, SO<sub>4</sub><sup>2-</sup>). KCl and K<sub>2</sub>O values were also reported. The assays for K were multiplied by a factor of 1.90668 to report KCl and multiplied by a factor of 0.6317 to report K<sub>2</sub>O.</p> <p>The raw assay values were also converted to mineral weight percentages using a “Normative Mineralogy” conversion scheme. This scheme relies upon the XRD results for the mineralogy of every sample. This was a two step process which is listed below;</p> <p>Step 1 - Combine cations and anions to simple salts according to the following scheme:</p> <ul style="list-style-type: none"> <li>• combine with Cl, in the following order: Na, K, Mg, Ca</li> <li>• combine with SO<sub>4</sub> in the following order: Ca, Mg, K, Na</li> <li>• Based on experience with potash deposits, the analyses should be either MgCl<sub>2</sub> or K<sub>2</sub>SO<sub>4</sub> normative, meaning if CaCl<sub>2</sub> or Na<sub>2</sub>SO<sub>4</sub> results from these combinations, the analysis is suspect.</li> </ul> <p>Step 2 - Combine the simple salts to salt mineralogy according to the following simplified scheme:</p> <ul style="list-style-type: none"> <li>• All NaCl is Halite</li> <li>• If MgCl<sub>2</sub> is present, it is combined 1:1 with KCl to form Carnallite</li> <li>• If MgCl<sub>2</sub> &gt; KCl, remaining MgCl<sub>2</sub> to Bischofite</li> <li>• If K<sub>2</sub>SO<sub>4</sub> is present, combine with CaSO<sub>4</sub> and MgSO<sub>4</sub> to form Polyhalite</li> <li>• If KCl &gt; MgCl<sub>2</sub> and MgSO<sub>4</sub> available, combine remaining KCl 1:1 to Kainite</li> <li>• If remaining KCl &gt; MgSO<sub>4</sub>, remaining KCl after Kainite to Sylvite, otherwise remaining MgSO<sub>4</sub> to Kieserite and</li> <li>• Remaining CaSO<sub>4</sub> to Anhydrite</li> </ul> <p>The resulting salt percentages are combined with the measured insoluble component and should sum to 100% (+3 to -5%). As other potash minerals occur in nature and are not taken into account, this scheme is at best indicative and the results are checked against the logging and core.</p> <p>The results are also checked to ensure over estimation of Kainite content and under estimation of the Sylvite and Kieserite does not occur.</p>
Location of data points	Accuracy and quality of surveys used to locate drillholes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.	<p>All of the drillhole collar positions were initially positioned using hand-held GPS. In September 2012, the state run Eritrean Mapping &amp; Information Center (EMIC) completed a program to position five survey control points at and around the project site. These were positioned using Leica system 1200 differential global positioning system (DGPS) equipment with an accuracy of +/-5mm.</p> <p>All of the collar positions at site are now surveyed using DGPS referencing the control point nearest to Colluli, BM-1 (1594828.511 mE, 644029.0546 mN, -101.3126 mRL, UTM). The collars are surveyed in campaigns by an external contractor after the holes are drilled.</p>
	Specification of the grid system used.	The grid projection used for Colluli is WGS84, UTM37N. All reported coordinates are referenced to this grid.
	Quality and adequacy of topographic control.	Topography data for Colluli has been generated from a series of contours taken from data provided by the NASA Shuttle Radar Topography Mission in February 2000. A wireframe was produced from the 2m contour data. AMC believes that the topography data is adequate for the project at this stage.



Criteria	JORC Code Explanation	Commentary
<b>Data spacing and distribution</b>	Data spacing for reporting of Exploration Results.	Drilling at Colluli has been focused on two deposits, Area A and Area B. The drillhole spacing at Area A is approximately 500 m x 500 m in easting and northing in the better drilled parts of the deposit, increasing to 1000m x 1000m at the peripheries. The grid pattern is aligned at approximately 050 degrees magnetic. There is a cruciform pattern of close-spaced drilling in the centre of the deposit designed to check short scale variability, which has a spacing of nominal 50m.  At Area B, the drillhole spacing is a nominal 650 – 700m in easting by 1000m in northing, with the grid direction approximately east-west. The spacing increases to approximately 1000m in easting and northing at the peripheries.
	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.	The degree of geological and grade continuity demonstrated by the data density is sufficient to support the definition of Mineral Resources and the associated classifications applied to the Mineral Resource estimate as defined under the 2012 JORC Code. Variography studies have shown very little variance in the data for most of the estimated variables and ranges in the order of several kilometres.
	Whether sample compositing has been applied.	No compositing was applied to the exploration results prior to assaying. All samples were composited to common lengths after being assayed, prior to their use in the Mineral Resource estimate.
<b>Orientation of data in relation to geological structure</b>	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	The mineralization is interpreted to be very shallow dipping, roughly planar with stratiform bedding striking approximately east-west and dipping at less than 0.5 degrees to the southwest in Area A and less than 1.0 degrees to the southwest in Area B. The diamond drilling is exclusively conducted at -90 degrees, producing drillhole intersections with the mineralization at effectively 90 degrees.
	If the relationship between the drilling orientation and the orientation of key mineralized structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	The orientation of drilling with respect to mineralization is not expected to introduce any sampling bias.
<b>Sample security</b>	The measures taken to ensure sample security.	Samples were collected onsite under supervision of a responsible geologist and any potential soluble samples were sealed with taped double bags prior to taking from the rig site. The samples were then stored in lidded core trays and closed with straps before being transported by road to the company core shed in Asmara. Only certified company drivers were allowed to transport the core. Once logging was completed the samples for assay were re-bagged and put into double plastic bags, which were heat sealed with the correct sample number on the inner bag. The samples were then placed into heavy plastic drums, which were sealed ready for transport overseas for assaying. As the samples were travelling overseas for assay, the drums may have been opened by customs both in Eritrea and at their destination. AMC does not believe this to be an issue, as individual samples are in heat sealed bags and are not easily tampered with.  Despatch sheets were compared against received samples and any discrepancies reported and corrected.
<b>Audits or reviews</b>	The results of any audits or reviews of sampling techniques and data.	A review of the sampling techniques and data was completed by Ercosplan in 2012 and by Snowden in 2013, neither found any material error. AMC also reviewed the data in the course of preparing the Mineral Resource estimate. A review of the method used by the primary assay laboratory, TUC, was not available due to the proprietary nature of their potash assaying process. AMC believes that the data integrity and consistency of the drillhole database shows sufficient quality to support resource estimation.





## Section 2 – Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
<b>Mineral tenement and land tenure status</b>	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.	<p>The Colluli Project is located wholly within an exploration concession granted by the State of Eritrea in 2009, which encompassed an area of approximately 857 km<sup>2</sup>, bordered to the West by the Ethiopian state border (as defined by the Eritrea-Ethiopia Boundary Commission in 2002). In 2012, in accordance with the Eritrean Mining Proclamation, the Colluli Exploration license has been extended and the tenement area has been reduced from the initial 857 km<sup>2</sup> to the current 200 km<sup>2</sup>. STB owns a 50% interest in the project, with the remaining 50% owned by the state of Eritrea.</p> <p>AMC is unaware of any other joint venture, native title, environmental, national park or other ownership agreements on the concession area.</p>
	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.	The concession area is in good standing and no known impediments exist.
<b>Exploration done by other parties</b>	Acknowledgment and appraisal of exploration by other parties.	<p>Previous exploration in the wider Dallol region of the Danakil Depression has been undertaken since the early 1900's, with extensive drilling (approx. 300 holes), geophysical surveys, geological and topographic mapping and hydrogeological works undertaken from 1959 to 1968.</p> <p>At the concession area proper, previous exploration was undertaken by a number of parties since 1969. The first drilling at Colluli was undertaken by the Ethiopian Potash Company Inc. (EPC), who carried out exploration drilling and chemical analyses for potash in five sub-areas in the border region Eritrea-Ethiopia (N of Dallol) up to the Buri Peninsula (S of Massawa). The sub-area named "Colluli" at the border region between Eritrea and Ethiopia was reported to contain two distinct zones of potassium and magnesium minerals in a thick section of Halite in the western part of the sub-area (EPC Engineering Division Mine, 1984). Approximately eight other companies have reported mineralization considered (by them) mineable in the area (all now in Ethiopia), but none at the actual Colluli Project site until STB started exploration on the concession in 2010.</p>
<b>Geology</b>	Deposit type, geological setting and style of mineralization.	<p>The Colluli Project area is located in the Danakil Depression, which strikes NW-SE with an extension of more than 200km from Lake Bada in the NW to Lake Acori in the SE. The structure of the Danakil Depression widens to the South, beginning with 10km width in the North and widening up to 70km in the South. The northern part is the deepest and has elevations as low as 50m to 128m below sea level. The depression is flanked by the Danakil Alps to the northeast and the Ethiopian Highlands to the southwest. These consist of Precambrian gneisses and phyllites as well as Jurassic sediments, Palaeozoic granites and intruded Neogene basalts.</p> <p>Locally at Colluli the landscape is dominated by flat lying sediments and is approximately 120 metres below sea level. The mineralization in the project area is bound to the northeast by Pliocene to recent anhydrite/ gypsum, halite and clays. The mineralization is hosted by a potash sequence overlain by clastic sediments comprised of sands and silts. Underlying the clastic sequence is a sequence of salts consisting of a discrete sub-members including the "Upper and Lower Rock Salt", "Sylvinite", "Upper and Lower Carnallite", "Bischofite", "Kainitite" and finally the "Black Clay" at the base of the drilled sequence.</p> <p>The bedding is very shallow dipping (less than 0.5 degrees) to the southwest and bound by faults to the northeast and southwest. These faults are steep, with interpreted throws of approximately 20m. A major fault with a throw of approximately 50 to 100m separates the mineralized Area A from Area B. The interpreted fault line track along the course of the Zariga River system.</p> <p>The mineralization is in the form of coarse crystalline salts, predominantly in the form of sylvinite, carnallite, kainitite and rock salt, containing the mineral types Sylvite (KCl), Carnallite (KMgCl<sub>3</sub>.6(H<sub>2</sub>O)) and Kainite (MgSO<sub>4</sub>.KCl.3(H<sub>2</sub>O)), with common interbedded halite (NaCl) and kieserite (MgSO<sub>4</sub>.H<sub>2</sub>O).</p>
<b>Drillhole Information</b>	A summary of all information material to the understanding of the exploration results	No exploration results have been reported in this release, therefore there is no drillhole information to report. This section is not relevant to reporting



Criteria	JORC Code Explanation	Commentary
	including a tabulation of the following information for all Material drillholes: <ul style="list-style-type: none"> <li>• easting and northing of the drillhole collar</li> <li>• elevation or RL (Reduced Level – elevation above sea level in metres) of the drillhole collar</li> <li>• dip and azimuth of the hole</li> <li>• down hole length and interception depth</li> <li>• hole length.</li> </ul>	Mineral Resources.
<b>Data aggregation methods</b>	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.	No exploration results have been reported in this release, therefore there is no drillhole intercepts to report. This section is not relevant to reporting Mineral Resources.
	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.	No exploration results have been reported in this release, therefore there is no drillhole intercepts to report. This section is not relevant to reporting Mineral Resources.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No exploration results have been reported in this release, therefore there is no drillhole intercepts to report. This section is not relevant to reporting Mineral Resources.
<b>Relationship between mineralization widths and intercept lengths</b>	If the geometry of the mineralization with respect to the drillhole angle is known, its nature should be reported.	No exploration results have been reported in this release. This section is not relevant to reporting Mineral Resources.
<b>Diagrams</b>	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 drillhole collar locations and appropriate sectional views.	No exploration results have been reported in this release. This section is not relevant to reporting Mineral Resources.
<b>Balanced reporting</b>	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.	No exploration results have been reported in this release. This section is not relevant to reporting Mineral Resources.
<b>Other substantive exploration data</b>	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.	No exploration results have been reported in this release. This section is not relevant to reporting Mineral Resources.
<b>Further work</b>	The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).	The decision as to the necessity for further exploration at Colluli is pending completion of mining technical studies on the currently available resource.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	The decision as to the necessity for further exploration at Colluli is pending completion of mining technical studies on the currently available resource.



## Section 3 – Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
<b>Database integrity</b>	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.	All of the drilling was logged onto paper and has recently (late 2014) been transferred to a digital form and loaded into a Microsoft Access drillhole database. The latest geotechnical and QAQC twinned drillhole logging was completed directly onto a laptop in the field using Microsoft Excel spreadsheets with drop-down boxes to restrict values entered. Logging information was reviewed by the senior geologist prior to final load into the database. The data is now stored in a single Microsoft Access database for the Colluli project.
	Data validation procedures used.	Prior to 2014, the data validation was initially completed by the responsible geologist logging the core and marking up the drillhole for assaying. The paper logs were transferred to Excel spreadsheets and compared with the originals for error. Assay dispatch sheets were compared with the record of samples received by the assay laboratories. All the electronic files were stored in directories for each data type and labelled by drillhole identifier, allowing for easy recognition of missing data.  Since late 2014, all of the drillhole data has been collected and input into a Microsoft Access database, keyed on drillhole identifier (BHID) and assay sample number. All of the data was verified at the time of import to Access and any error was corrected.  Both internal (STB) and external (Ercosplan, Snowden and AMC) validations were/are completed when data was loaded into spatial software for geological interpretation and resource estimation. AMC checked the data for overlapping intervals, missing samples, FROM values greater than TO values, missing stratigraphy or rock type codes, downhole survey deviations of $\pm 10^\circ$ in azimuth and $\pm 5^\circ$ in dip, assay values greater than or less than expected values and several other possible error types when loading the data into CAE Studio 3 (Datamine) software. Furthermore each assay record was examined and mineral resource intervals were picked by the Competent Person.  QAQC data and reports are normally also checked. Ercosplan and Snowden both reported briefly on the available QAQC data for Colluli and AMC instigated a drilling program of four twinned drillholes for geological and assay data validation purposes. AMC produced a QAQC report on the results of this program.
<b>Site visits</b>	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	AMC Senior Geologist John Tyrrell visited the Colluli project site in late 2014 and inspected the Area A and Area B deposits. Whilst on site he witnessed the drilling of validation drillholes and their geological logging and sampling preparation for assaying.  The geology, sampling, sample preparation and transport, data collection and storage procedures were all reviewed whilst at the project site and at the STB office and core shed in Asmara. AMC used this knowledge to aid in the preparation of this Mineral Resource Estimate for the Colluli Area A and Area B deposits.
	If no site visits have been undertaken indicate why this is the case.	
<b>Geological interpretation</b>	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	The Colluli potash mineralization is one of only a few shallow potash deposits documented globally. Detailed mapping, geophysical (including gravity and very localised induced polarization, electrical resistivity and seismic refraction studies) and mineralogical studies have been completed by STB geologists and contracted specialists between 2011 and 2014. These data and the relatively closely-spaced (for potash) drilling has led to a good understanding of the mineralization controls.  The mineralization is hosted within very shallow dipping bedded evaporite units (potash salts and halite) which are areally extensive and continuous. There is an obvious change in the sequence at the edges of the mineralization, explained by faulting in the order of 20m or so. Ercosplan had interpreted internal faulting in their 2012 report and model, but the vertical offsets are very small and thus have not been included in the current interpretation for the resource model as they would unnecessarily complicate the stratigraphy. Over the spacing of the drillholes, the difference in RL is negligible and they do not appear to materially affect the distribution of the potash units.  There is no obvious alteration in the mineralized units.
	Nature of the data used and of any assumptions made.	No assumptions are made.



Criteria	JORC Code Explanation	Commentary																																										
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	Neither alternative interpretations nor estimations were undertaken by AMC.																																										
	The use of geology in guiding and controlling Mineral Resource estimation.	<p>Geological observation has underpinned the resource estimation and geological model. Rock type and geochemistry (assayed anion and cation values as well as normative mineralogy) were used to define the footwall and hanging wall boundaries for each unit. The geological model was developed as an iterative process of checking against logging and photography as needed during interpretation.</p> <p>The extents of the geological model were constrained by drilling. Geological boundaries had only minimal extrapolation beyond drilling in line with the resource classifications of indicated or inferred.</p> <p>The domain coding for the Colluli project (Areas A &amp; B) is as follows:</p> <table border="1"> <thead> <tr> <th>Lithology/Member</th> <th>Rock Code</th> <th>Numeric Domain Code</th> </tr> </thead> <tbody> <tr> <td>Overburden</td> <td>OVBD</td> <td>1000</td> </tr> <tr> <td>Upper Rock Salt</td> <td>URST</td> <td>2000</td> </tr> <tr> <td>Marker Beds</td> <td>MBED</td> <td>3000</td> </tr> <tr> <td></td> <td></td> <td>(reserved for future use)</td> </tr> <tr> <td>Upper Sylvinite</td> <td>USYL</td> <td>4100</td> </tr> <tr> <td>Middle Sylvinite (low grade)</td> <td>MSYL</td> <td>4200</td> </tr> <tr> <td>Lower Sylvinite</td> <td>LSYL</td> <td>4300</td> </tr> <tr> <td>Upper Carnallite</td> <td>UCRT</td> <td>5000</td> </tr> <tr> <td>Bischofite</td> <td>BSFT</td> <td>6000</td> </tr> <tr> <td>Lower Carnallite</td> <td>LCRT</td> <td>7000</td> </tr> <tr> <td>Kainite</td> <td>KANT</td> <td>8000</td> </tr> <tr> <td>Lower Rock Salt</td> <td>LRST</td> <td>9000</td> </tr> <tr> <td>Clay</td> <td>CLAY</td> <td>10000</td> </tr> </tbody> </table>	Lithology/Member	Rock Code	Numeric Domain Code	Overburden	OVBD	1000	Upper Rock Salt	URST	2000	Marker Beds	MBED	3000			(reserved for future use)	Upper Sylvinite	USYL	4100	Middle Sylvinite (low grade)	MSYL	4200	Lower Sylvinite	LSYL	4300	Upper Carnallite	UCRT	5000	Bischofite	BSFT	6000	Lower Carnallite	LCRT	7000	Kainite	KANT	8000	Lower Rock Salt	LRST	9000	Clay	CLAY	10000
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	The factors affecting continuity both of grade and geology.	<p>Key factors that are likely to affect the continuity of grade are:</p> <ul style="list-style-type: none"> <li>The down-hole variability of the geological units; the potash units are commonly inter-bedded with other halite and evaporite salts</li> <li>The variability at deposit scale due to complete or partial non-deposition, dissolution of erosion of a salt layer</li> <li>Internal faulting at a scale that is too small to be defined at the current drill spacing.</li> </ul>																																										
<b>Dimensions</b>	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.	<p>The deposit at Area A strikes approximately 7 km and is approximately triangular being approximately 4 km at its widest point. The mineralized units dip less than one degree towards 170 – 180 degrees azimuth. The mineralized sequence (excluding the Upper Rock Salt) ranges in thickness from 10m to 50m and is approximately 20 - 60m below surface.</p> <p>At Area B the units also dip less than 1° towards 170° to 180° and strike for a distance of nearly 8 km. Area B mineralization is about 5 km at its widest point and 3 km at its narrowest (across strike). The mineralized sequence ranges in thickness from 10 m to 20 m and is 9 m to 150 m below surface.</p> <p>Areas A and B are separated by an apparent fault with an interpreted offset of 20 m to 100 m.</p>																																										
<b>Estimation and modelling techniques</b>	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.	<p>Grade estimation was completed using ordinary kriging (OK) for the Mineral Resource estimate. Datamine software was used to estimate grades for K, Mg, Na, Cl, Ca, SO<sub>4</sub>, KCl, K<sub>2</sub>O, Sylvite, Carnallite, Kainite, Polyhalite, Halite, Bischofite, Kieserite and Anhydrite using parameters derived from statistical and variographic studies. The majority of the variables estimated have coefficients of variance of less than 1.0.</p> <p>Drillhole spacing varies from approximately 500 m x 500 m at Area A to 750 m x 750 m to 1000 m at Area B. Drillhole sample data was flagged with numeric domain codes unique to each mineralization domain. Sample data was composited to 1 m, 1.5 m, 2 m or single intercept (domains 4100 and 5000, Area A) downhole lengths, with the resulting composite length adjusted to retain residuals.</p> <p>The influence of extreme sample outliers was reduced by top-cutting where required. The top-cut levels for each mineralization domain were determined using a combination of grade histograms, log probability plots, and decile and percentile analysis.</p>																																										



Criteria	JORC Code Explanation	Commentary
		Grade was estimated into six mineralization domains and four waste (although Upper Rock Salt may form a resource with additional work) domains. The key mineralization domains had downhole and directional variography performed where the number of samples permitted it. The waste domains and low sample number mineralization domains used the variograms from the mineralization domain with the closest mineralogy type. All variograms were scaled to the variance of the individual domains. Grade continuity varied from several metres in the vertical direction, to kilometres in the along and across strike directions. All estimated elements in the mineralization domains had major search axis lengths of approximately 2/3 the longest variogram range, with the other search axes scaled according to their corresponding variograms. The vertical (minor) search axis ranges were multiplied by a factor of ten, to a minimum 20m, due to the proportionally extreme lengths of the major and semi-major ranges
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	<p>A previous Mineral Resource estimate was completed by German potash expert company Ercosplan and was reported by STB in April 2012 as compliant with Canadian National Instrument 43-101 (NI 43-101) and JORC 2004 Guidelines. The estimate used a polygonal-type estimation process, the "Radius of Influence" method, which uses cylinders of equal grade and thickness influence to arrive at a weighted average derived tonnage in each resource and uses a cylindrical classification surrounding each drillhole.</p> <p>The 2015 Mineral Resource estimate is a completely new block based model, using an additional 47 drillholes (drilled by STB in 2012) and reinterpreted wireframes to define a volume, with grade estimated by kriging based on variographic studies. Classification takes into account grade and geological continuity between drillholes rather than within a set radius and/or volume surrounding them.</p>
	The assumptions made regarding recovery of by-products.	No assumptions were made regarding recovery of by-products.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterization).	No estimates were undertaken for any non-grade variables.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	<p>The Colluli block models use a parent cell size of 500 m in northing, 500 m in easting and 2 m in RL. This corresponds to approximately half the average drillhole spacing at Area B and slightly smaller than the widest drill spacing at Area A. Sub-celling was allowed to occur down to 50 m in easting, 50 m in northing and 0.02 m in RL for all domains. After completion of the volume model it was optimized to reduce the sub-cells whilst keeping the domain codes intact. This allowed for accurate volume representation of the interpretation whilst keeping the overall model size down.</p> <p>Grade was estimated into parent cells, with all sub-cells receiving the same grade as their relevant parent cell.</p> <p>Discretization was set to 10 by 10 by 2 in X, Y and Z respectively for all domains.</p> <p>Search ellipse dimensions for each domain were based on variography. Three search passes were used for each estimate in each domain. The first search allowed a minimum of 10 composites and a maximum of 25 composites. For the second pass, the first pass search ranges were expanded by 2.5 times. A minimum of 5 composites and a maximum of 25 composites were allowed. The third pass search ellipse dimensions were extended by 4 times. A minimum of 2 composites and a maximum of 30 composites were allowed for this pass. A limit of 3 composites from a single drillhole was permitted.</p>
	Any assumptions behind modelling of selective mining units.	Upon direction of STB it was assumed for modelling purposes that the deposit would be mined in its entirety by the open pit method, so no selective mining units were assumed in this estimate. Model block sizes were determined primarily by drillhole spacing and statistical analysis of the effect of changing block sizes on the final estimates.
	Any assumptions about correlation between variables.	All elements within a domain used the same sample selection routine for block grade estimation. No co-kriging was performed at Colluli.
	Description of how the geological interpretation was used to control the resource estimates.	The geological interpretation is used to define the mineralization domains. All of the mineralization domains are used as hard boundaries to select sample populations for variography and grade estimation.



Criteria	JORC Code Explanation	Commentary
	Discussion of basis for using or not using grade cutting or capping.	<p>Statistical analysis showed that the domains included outlier values that required top-cut values to be applied. Top-cut values are chosen based on the statistical parameters for that element in each domain and a visual check of the location of any possible outlier values. Usually the log probability plots and histogram plots are used to determine the final value used. The top-cuts generally only affect one or two samples. In some cases, the percentage of the weighted average mass of mineralized material was cut, due to extreme high value in relatively poorly sampled domains.</p> <p>The chosen top-cut values are listed in full in Table 6.5 in the main body of the report.</p>
	The process of validation, the checking process used, the comparison of model data to drillhole data, and use of reconciliation data if available.	<p>Validation of the block model consisted of:</p> <ul style="list-style-type: none"> <li>• Volumetric comparison of the mineralization wireframes to the block model volumes.</li> <li>• Visual comparison of estimated grades against composite grades.</li> <li>• Comparison of block model grades to the input data using swathe plots.</li> </ul> <p>As no mining has taken place at Colluli to date, there is no reconciliation data available.</p>
<b>Moisture</b>	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	All mineralization tonnages are estimated on a dry basis. The moisture content in mineralization is considered low, however there is a moisture content of up to 40% in the overlying overburden unit.
<b>Cut-off parameters</b>	The basis of the adopted cut-off grade(s) or quality parameters applied.	No grade cut-off has been used to report the Mineral Resource at Colluli. Consideration of mining, metallurgical and pricing assumptions, while not rigorous, suggest that any of the currently interpreted mineralized material has a reasonable prospect for eventual economic extraction.
<b>Mining factors or assumptions</b>	Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is 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.	<p>AMC Consultants is currently preparing mining reports to support a Pre-Feasibility Study (PFS) for Colluli on behalf of STB. Scenarios being considered are conventional open pit using mechanized mining techniques such as continuous surface mining.</p> <p>AMC has assumed, based on initial work, that the Colluli deposits are amenable to open-pit mining methods.</p>
<b>Metallurgical factors or assumptions</b>	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.	Metallurgical studies are well advanced and have delivered highly encouraging results to date. Studies are ongoing as part of the PFS work.
<b>Environmental factors or assumptions</b>	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	Environmental studies are underway as part of the PFS work.





Criteria	JORC Code Explanation	Commentary																																			
	operation. While at this stage the determination of potential environmental impacts, particularly for a greenfield 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.																																				
<b>Bulk density</b>	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.	<p>Bulk density has been estimated from density measurements collected as down-hole LAS survey data (completed by Abitibi-Terratec). The 0.01m readings were composited to 1m intervals for use in the estimate. Top and bottom cutting of outlier values was performed as required.</p> <p>As part of the AMC geotechnical testing program in 2014, 64 direct core measurements were taken by the University of Saskatchewan. These measurements have been incorporated into the table below.</p>																																			
	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.	<p>The water immersion method is not appropriate for potash deposits, owing to their solubility and collecting perfectly cylindrical core is also difficult.</p> <p>The down-hole geophysical collection of density data is most appropriate for Colluli, with adequate validation and porosity factors applied.</p>																																			
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	<p>The bulk density values applied at Colluli are:</p> <table border="1"> <thead> <tr> <th>Lithology</th> <th>OVBD</th> <th>URST</th> <th>USYL</th> <th>MSYL</th> <th>LSYL</th> <th>UCRT</th> <th>BSFT</th> <th>LCRT</th> <th>KANT</th> <th>LRST</th> <th>CLAY</th> </tr> </thead> <tbody> <tr> <td>Domain</td> <td>1000</td> <td>2000</td> <td>4100</td> <td>4200</td> <td>4300</td> <td>5000</td> <td>6000</td> <td>7000</td> <td>8000</td> <td>9000</td> <td>10000</td> </tr> <tr> <td>Mean density</td> <td>1.40</td> <td>2.16</td> <td>2.15</td> <td>2.22</td> <td>2.15</td> <td>2.12</td> <td>2.09</td> <td>2.07</td> <td>2.13</td> <td>2.16</td> <td>2.19</td> </tr> </tbody> </table> <p>All values are in t/m<sup>3</sup>.</p>	Lithology	OVBD	URST	USYL	MSYL	LSYL	UCRT	BSFT	LCRT	KANT	LRST	CLAY	Domain	1000	2000	4100	4200	4300	5000	6000	7000	8000	9000	10000	Mean density	1.40	2.16	2.15	2.22	2.15	2.12	2.09	2.07	2.13	2.16
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Mean density	1.40	2.16	2.15	2.22	2.15	2.12	2.09	2.07	2.13	2.16	2.19																										
<b>Classification</b>	The basis for the classification of the Mineral Resources into varying confidence categories.	Classification for Colluli is based upon continuity of geology, mineralization and grade, considering drillhole and density data spacing and quality, variography and estimation statistics (number of samples used and estimation pass).																																			
	Whether appropriate account has been taken of all relevant factors (i.e. 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).	<p>At Colluli, the core of the modelled Area A deposits is generally well drilled for a potash deposit with a nominal 500 m x 500 m drillhole spacing in easting and northing directions. There is also a localized cruciform drilling pattern in the centre of the deposit, designed to test continuity at small scale, with a spacing of approximately 50 m apart. At Area B, the spacing is slightly wider in the better drilled parts of the deposit, averaging 600 m to 700 m spacing.</p> <p>In general, the estimates have been classified as Measured Resource where a cluster of drillholes are within 600 m of each other, the holes have been assayed and geophysically logged and the confidence in the estimate is high. Areas classified as Indicated Resource generally have clusters of drillholes within 1.5 km of each other and the remaining areas of the models are classified as Inferred.</p>																																			
	Whether the result appropriately reflects the Competent Person's view of the deposit.	AMC believes that the classification appropriately reflects its confidence in and the quality of the grade estimates.																																			
<b>Audits or reviews</b>	The results of any audits or reviews of Mineral Resource estimates.	The previously reported Mineral Resource estimate (Ercosplan 2012) has not been audited, however it has been reviewed by Snowden Group consultants in 2013 in an unpublished report (Snowden 2013).																																			
<b>Discussion of relative accuracy/ confidence</b>	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 Mineral Resource classification applied to each deposit implies a confidence level and level of accuracy in the estimates.																																			



Criteria	JORC Code Explanation	Commentary
	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.	
	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 should include assumptions made and the procedures used.	These levels of confidence and accuracy relate to the global estimates of grade and tonnes for the deposit.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	These ranges relate to the global estimates of grade and tonnes for the deposit.



## Section 4 – Estimation and Reporting of Ore Reserves

(Criteria listed in Section 1, and where relevant in Sections 2 and 3 of the JORC Code 2012, also apply to this section)

*The Colluli SOP Ore Reserve estimate, as at 29 January 2018, is based on a project configuration comprising two processing modules and off-site water infrastructure to support the site water requirements. An alternative option has been investigated where water is supplied for the second plant module (Module II) from the project site. This alternative option yields improved project economics demonstrating further upside potential, but is not the basis of this SOP Ore Reserve estimate.*

Criteria	Explanation	Commentary
<b>Mineral Resource estimate for conversion to Ore Reserves</b>	<ul style="list-style-type: none"> <li>Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.</li> <li>Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.</li> </ul>	<ul style="list-style-type: none"> <li>Ore Reserve estimate based on the Mineral Resource reported by AMC in the report “Colluli Mineral Resource Estimate”, 16 March 2015. Refer to South Boulder Mines Ltd (now Danakali Ltd) ASX release 25 February 2015 for the updated Colluli Mineral Resource estimate, “Colluli Review Delivers Mineral Resource Estimate of 1.289Bt” (website: <a href="http://www.asx.com.au/asxpdf/20150225/pdf/42wv88cwpjmtkh.pdf">http://www.asx.com.au/asxpdf/20150225/pdf/42wv88cwpjmtkh.pdf</a>)</li> <li>Colluli open pit Ore Reserve based on Measured and Indicated Mineral Resources of 1,255 Mt @ 11% K<sub>2</sub>O, comprising:               <ul style="list-style-type: none"> <li>Sylvinite rock unit: 250 Mt @ 13% K<sub>2</sub>O</li> <li>Carnallite rock unit: 383 Mt @ 8% K<sub>2</sub>O</li> <li>Kainitite rock unit: 621 Mt @ 12% K<sub>2</sub>O</li> </ul> </li> <li>Ore Reserve based on 3D resource block models “mdclok_a2.dm” for Area A and “mdclok_b2.dm” for Area B, developed in January 2015 from geostatistical assessment of predominantly diamond drillhole sample results.</li> <li>Mineral Resource converted to Ore Reserve by developing diluted resource model and applying pit optimization and mine scheduling to determine economically viable blocks to recover and process.</li> <li>The Mineral Resources are inclusive of Mineral Resources modified to produce Ore Reserves that can be economically mined.</li> </ul>
<b>Site visits</b>	<ul style="list-style-type: none"> <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 style="list-style-type: none"> <li>The Competent Person for Ore Reserves completed a site inspection of the Colluli project in February 2015 and viewed the proposed mine, process and camp infrastructure, and also:               <ul style="list-style-type: none"> <li>Assessed data collection methods and techniques</li> <li>Inspected the proposed port site at Massawa and the product haulage route</li> <li>Visited communities nearest the project site.</li> </ul> </li> </ul>
<b>Study status</b>	<ul style="list-style-type: none"> <li>The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.</li> <li>The Code requires that a study to at least pre-feasibility study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.</li> </ul>	<ul style="list-style-type: none"> <li>Colluli studied to Feasibility Study (FS) standard. FS sometimes referred to as a Definitive Feasibility Study (DFS).</li> <li>Additional Front-End Engineering Design (FEED) study completed to advance the Project definition to a level of development that supports a capital cost estimate of ±10% level of accuracy.</li> <li>Construction at Colluli is yet to commence.</li> <li>The mine plan is technically achievable given the assumptions used as the basis for the project.</li> <li>The project is economically viable when considering the expected revenues and costs to achieve those revenues, assuming a project commissioning date in Quarter 3, 2020.</li> <li>Material Modifying Factors were considered.</li> </ul>
<b>Cut-off parameters</b>	<ul style="list-style-type: none"> <li>The basis of the cut-off grade(s) or quality parameters applied.</li> </ul>	<ul style="list-style-type: none"> <li>Breakeven processing cut-off grade used for Ore Reserve estimation.</li> <li>Cut-off grade calculated using:               <ul style="list-style-type: none"> <li>Adopted long-term SOP price of US\$567/t product was used in mine planning. Financial modelling was subsequently completed using an SOP price of US\$569/t product. Cut-off parameters were not adjusted because the difference in total ore tonnes at each price is negligible (less than 0.02%).</li> <li>Processing, administration, overhead and associated sustaining capital cost of US\$15.20/t processed.</li> <li>Product logistics and associated sustaining capital cost, and water logistics of US\$75.34/t product.</li> <li>Ore mining differential cost of US\$2.77/bcm (ore related mining costs that are additional to waste mining costs).</li> <li>Royalty costs of 3.5% of revenue.</li> </ul> </li> </ul>



Criteria	Explanation	Commentary
<b>Mining factors or assumptions</b>	<ul style="list-style-type: none"> <li>• The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimization or by preliminary or detailed design).</li> <li>• The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.</li> <li>• The assumptions made regarding geotechnical parameters (e.g. pit slopes, stope sizes, etc.), grade control and pre-production drilling.</li> <li>• The major assumptions made and Mineral Resource model used for pit and stope optimization (if appropriate).</li> <li>• The mining dilution factors used.</li> <li>• The mining recovery factors used.</li> <li>• Any minimum mining widths used.</li> <li>• The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.</li> <li>• The infrastructure requirements of the selected mining methods.</li> </ul>	<ul style="list-style-type: none"> <li>— Process recovery of 85% for K+ and SO42- from sylvite, carnallite and kainite mineral species hosted within Sylvinitic, Carnallitic and Kainitic rock units.</li> <li>— Costs for processing plant production rate of 944 ktpa of SOP.</li> </ul> <hr/> <ul style="list-style-type: none"> <li>• Open pit mining method:               <ul style="list-style-type: none"> <li>— For potash and rock salt – 110 t class surface miners direct loading 90 t class rear dump trucks. Method commonly used in potash and phosphate open pit operations and is well understood. Similar continuous miner technology is used in underground potash and phosphate mines.</li> <li>— Clastic overburden and bischofitite – 110 t class excavators and 90 t class rear dump trucks. Clastic overburden pushed down to excavators by 50 t track bulldozers. Method commonly used in open pit operations and well understood.</li> </ul> </li> <li>• Choice of mining method to enable the selective extraction of the potash ore units, minimising mining dilution and ore loss, and eliminating the requirement for drill and blast. Excavators utilised for bulk waste movement. Staggered benches in the pit development to level stripping ratio over the mine-life, enhance project economics and provide consistent plant feed.</li> <li>• Optimum pit limits determined using Geovia Lerchs-Grossman computer software given the project assumptions.</li> <li>• Process plant feed targets maintained in the mine schedule using Minemax Scheduler mine scheduling software.</li> <li>• Pit designs developed using Datamine computer software.</li> <li>• Geotechnical design parameters applied in pit design supported by analyses of laboratory testing of drill samples:               <ul style="list-style-type: none"> <li>— Clastic overburden: Batter angle of 23o to 15o for slope heights ranging in height up to 10m to 50m. Berm width of 40m at the toe of the clastic overburden, located in rock salt.</li> <li>— Carnallite and Bischofitite: Batter angle of 20o, berm width of 8m, and maximum batter height of 25m.</li> <li>— All other potash units and rock salt: Batter angle of 70o, berm width of 8m, and maximum batter height of 20m.</li> </ul> </li> <li>• Pit designs developed for two scenarios:               <ul style="list-style-type: none"> <li>— Detailed pit design to provide inventory for the period of economic assessment.</li> <li>— Life of mine pit designs for Ore Reserve estimation purposes, based on the final pit limits from pit optimisation. Detailed design for Area B not completed as it is not expected to be mined for approximately 80 to 90 years. Instead an average overall pit slope angle of 19° was applied in Area B, based on the overall slope angle resulting from the Area A detailed design.</li> </ul> </li> <li>• Mineral Resource model assumptions detailed in Section 3, Table 1. Refer to South Boulder Mines Ltd (later Danakali Ltd) ASX release 25 February 2015 for the updated Colluli Mineral Resource estimate, “Colluli Review Delivers Mineral Resource Estimate of 1.289Bt” (website: <a href="http://www.asx.com.au/asxpdf/20150225/pdf/42wv88cwpjmtkh.pdf">http://www.asx.com.au/asxpdf/20150225/pdf/42wv88cwpjmtkh.pdf</a>).</li> <li>• Production schedule based on 944 ktpa SOP production, to give a mine life of approximately of 190 years. Life of mine average plant throughput rate is 5.8 Mtpa and the life of mine average mining rate is 30 Mtpa.</li> <li>• Colluli area topography is characterized by a flat salt plain in the area of mineralisation, bordered by an anhydrite ridge approximately 20m above the salt plain. All pits, dumps and roads designed to FS standard to ensure designs practically achievable.</li> <li>• 0.3 m “skin” of dilution included at each ore to waste contact. Dilutant acquires the grade of the underlying resource model block. Result is inclusion of approximately 7.5% dilutant at a grade of 3.7% K2O, and ore loss of 0.6% at a grade of 4.1% K2O, for a net increase of 6.9% in ore tonnes and an increase of 2.3% in contained K2O, based on the findings of the FS.</li> <li>• Minimum mining width of 80m was generally applied in the detailed design of mining panels.</li> <li>• Inferred Mineral Resources were considered as waste for optimization and financial evaluations.</li> <li>• Mine waste stored in both in-pit and ex-pit waste storage landforms.</li> <li>• Infrastructure included in the mine plan includes dewatering facilities, heavy vehicle workshop, administration facilities and supporting communication and computing facilities.</li> </ul>



Criteria	Explanation	Commentary
<p><b>Metallurgical factors or assumptions</b></p>	<ul style="list-style-type: none"> <li>• The metallurgical process proposed and the appropriateness of that process to the style of mineralization.</li> <li>• Whether the metallurgical process is well-tested technology or novel in nature.</li> <li>• The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.</li> <li>• Any assumptions or allowances made for deleterious elements.</li> <li>• The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.</li> <li>• For minerals that are defined by a specification, has the Ore Reserve estimation been based on the appropriate mineralogy to meet the specifications?</li> </ul>	<ul style="list-style-type: none"> <li>• The Colluli process plant flowsheet combines steps that are individually well established for potash ores, but the detail of the process flowsheet is commercially sensitive. Details are contained in the DFS and FEED documents and have been reviewed by an expert to the satisfaction of the Competent Person.</li> <li>• The process uses the combination of salts in the orebody to produce potassium sulphate (SOP).</li> <li>• Process brine will be treated in evaporation ponds to precipitate potassium bearing salts which will be recycled to the plant for recovery.</li> <li>• The SOP product will be dried and sized to produce granular, standard, and potentially soluble, SOP products which will be shipped for export through the port of Massawa.</li> <li>• The overall process flow sheet includes eight main areas: <ul style="list-style-type: none"> <li>— Ore receipt, secondary crushing, ore storage and reclaim.</li> <li>— Ore pulping and de-slime.</li> <li>— Sylvinitic and Carnallite processing.</li> <li>— Kainite processing.</li> <li>— Process and waste storage ponds with recycle of selected streams.</li> <li>— SOP production.</li> <li>— SOP drying, sizing and compaction for SOP products.</li> <li>— Product load-out and haulage.</li> </ul> </li> <li>• The proposed metallurgical process is well understood and appropriate for the deposit. The processing method is the most commonly used, low cost process for the production of potassium sulphate via the addition of potassium chloride (sylvite) with kainite from the kainitite. Kainitite represents approximately 50% of the Colluli resource with the remaining salts comprising sylvinitic and carnallitite which are commonly used for the production of potassium chloride. Using these well understood processing principles, the ore containing sylvite and carnallite can be decomposed, and then recombined with decomposed kainite to convert the potassium chlorides to potassium sulphate.</li> <li>• Bench scale metallurgical test work and pilot testing was completed to determine: <ul style="list-style-type: none"> <li>— Chemical and mineral analysis of the samples</li> <li>— Sylvinitic characteristics (clay content, liberation, flotation ability).</li> <li>— Kainite characteristics (clay content, liberation, flotation ability).</li> <li>— Decomposition rates and retention times.</li> <li>— Feed to brine ratios.</li> <li>— Decomposition ratios.</li> <li>— Precipitate sizing.</li> <li>— Pond evaporation tests.</li> <li>— Alternate flotation methods.</li> <li>— Sensitivity to kainite grade fluctuations</li> <li>— Sensitivity to decomposition water quality</li> <li>— Caking potential and anti-caking agents</li> <li>— Compaction of raw SOP into product size fractions</li> </ul> </li> <li>• Geological domaining considered in metallurgical testwork, which was carried out separately for sylvinitic, carnallitite, kainitite rock types where appropriate. Mineralogy also considered.</li> <li>• The metallurgical test work samples are representative of mining schedules and the DFS and FEED level of economic assessment.</li> <li>• Overall metallurgical recovery factor of 85% is estimated for K<sup>+</sup> and SO<sub>4</sub><sup>2-</sup> from sylvite, carnallite and kainite mineral species hosted within Sylvinitic, Carnallitite and Kainitite rock units.</li> <li>• Process flowsheet and metallurgical assumptions based on testwork of diamond drilling samples and confirmed by pilot plant testwork which successfully demonstrated production of SOP from Colluli ore.</li> <li>• Pilot plant tests produced over 100 kg of SOP at over 96% purity compared to typical industry product purity of 94%. Chloride levels were less than 0.1%, lower than existing producers which show chloride levels at approximately 0.5%. Results repeatable with a diverse range of feed material.</li> </ul>
<p><b>Environmental</b></p>	<ul style="list-style-type: none"> <li>• The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterization and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be</li> </ul>	<ul style="list-style-type: none"> <li>• Social and Environment Impact Assessment (SEIA) documentation has been prepared by the consulting company MBS Environmental (MBS) and DNK.</li> <li>• SEIA is approved by the Eritrean Ministry of Energy and Mines.</li> <li>• Eritrea is signatory to a number of international agreements and treaties which have been taken into consideration in the planning and development of the project.</li> <li>• Mine waste material characterisation is complete. All mine waste demonstrated low potential for acid mine drainage. Water leachate analysis showed very low levels of environmentally significant metals and metalloids.</li> </ul>



Criteria	Explanation	Commentary
	<p>reported.</p>	<ul style="list-style-type: none"> <li>Physical and chemical characterisation of process waste is complete. Process wastes are not anticipated to have any acid mine drainage potential or to generate environmentally significant levels of leachable trace metals and metalloids.</li> <li>None of the infrastructure for the project will be located on agricultural or residential land.</li> </ul>
<p><b>Infrastructure</b></p>	<ul style="list-style-type: none"> <li>The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.</li> </ul>	<ul style="list-style-type: none"> <li>Colluli Project is located in the Danakil region of Eritrea approximately 350 km by road south-east of the capital city, Asmara, and 230 km by road from the port of Massawa.</li> <li>Colluli is a greenfield project comprising the mine and process facilities at the Colluli site, and a seawater abstraction and desalination plant at Anfile Bay.</li> <li>Existing access, infrastructure and services include: <ul style="list-style-type: none"> <li>Air travel to Eritrea via an international airport in Asmara.</li> <li>Shipping via the Red Sea port at Massawa.</li> <li>Exploration camp at Colluli.</li> </ul> </li> <li>Colluli is characterised by a very dry and hot climate, however rain fall intensity during storms can be high.</li> <li>All infrastructure and equipment will be designed for climatic conditions.</li> <li>Colluli is not connected to the national power grid. Power at the mine site will be from a heavy fuel oil onsite power plant providing an 11 kV supply which will be stepped down to lower voltages as required. Distribution will be via both underground and overhead power lines.</li> <li>Product export will be facilitated through the existing port of Massawa with product bulk loaded into twenty-foot equivalent (TEU) containers.</li> <li>The Colluli accommodation camp will be located at the mine site and will provide accommodation for all personnel. The camp will contain mess facilities, laundry, recreation facilities, and camp administration and maintenance buildings.</li> <li>Existing Colluli access road between Marsa Fatuma and the Colluli site will be upgraded as part of project execution.</li> <li>Water for all areas of operations will be sourced from saline water sources at site and from the sea at Anfile Bay and pumped via dedicated pipelines to Colluli.</li> <li>The desalination process at Anfile Bay will employ reverse osmosis.</li> <li>Sewage from the accommodation camp and plant ablutions will be treated in a package sewage treatment plant. Waste oils will be used as fuel in the product dryer. Wherever possible, solid wastes will be recycled.</li> <li>The process requires evaporation ponds and tailings storage facilities located on the saltpan.</li> <li>Surface water and drainage: the mine area is located between the Sariga and Galli-Colluli rivers. Seasonal discharges from these river systems to the saltpan will be mitigated using diversion bunds designed to divert surface water away from critical mine areas whilst minimising downstream impacts.</li> <li>Site buildings will be fit-for-purpose and will include a main administration building, a clinic and emergency response building, workshops, warehouse, reagent storage compound, ablution blocks and crib rooms, laboratory and gatehouse. A helipad is available if required.</li> <li>Fuel for mining equipment and power generation will be stored in bunded steel tanks providing ten day's supply.</li> <li>Communications will comprise a site radio system, process controls, and a VSAT satellite link for voice and data connection. The project area is covered by the national mobile network.</li> <li>Local staff will be employed wherever possible, in conjunction with African and international expatriates. Camp facilities will be provided for all staff with buses used for staff transport to Asmara or nearby major centres.</li> </ul>
<p><b>Costs</b></p>	<ul style="list-style-type: none"> <li>The derivation of, or assumptions made, regarding projected capital costs in the study.</li> <li>The methodology used to estimate operating costs.</li> <li>Allowances made for the content of deleterious elements.</li> <li>The source of exchange rates used in the study.</li> <li>Derivation of transportation charges.</li> <li>The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.</li> </ul>	<ul style="list-style-type: none"> <li>Capital costs estimated from first principles by specialist consultants. The estimates assumed: <ul style="list-style-type: none"> <li>EPCM contract strategy</li> <li>New equipment prices for all fixed infrastructure.</li> <li>Competitive market pricing from local and international contractors</li> <li>Factored estimates using known costs from previous projects.</li> <li>Individual assessment in accordance with the preliminary design drawings and material take offs (MTO) based on drawings, structured to the Work Breakdown Structure (WBS) by plant areas and disciplines and a combination of market driven and in-house pricing applied to the capex line items</li> </ul> </li> <li>Development capital is estimated at US\$322M for Phase I and includes mine development capital and working capital. An additional US\$245M will be spent in Years 4 and 5 for the Phase II expansion.</li> </ul>





Criteria	Explanation	Commentary
	<ul style="list-style-type: none"> <li>The allowances made for royalties payable, both Government and private.</li> </ul>	<ul style="list-style-type: none"> <li>Phase 2 development capital includes off site water infrastructure to support the water requirements of module 2. An alternative option has been investigated which supplies the water requirements for module 2 from the project site. This alternative option realises improved project economics but is not the basis of the Ore Reserve estimate.</li> <li>Capital and operating costs presented in US dollars as at June 2017 to an accuracy of +/- 10%.</li> <li>Process operating costs developed from first principles analysis of fixed costs (labour, G&amp;A, infrastructure) and variable costs associated with power and consumables.</li> <li>Mine operating costs developed from first principles, on a contractor mining basis, to consider the equipment productivity expected for each bench in the design and the unit costs to be applied to the equipment. Costs based on mining contract tender for the first 5 years of operation and extrapolated from year 6 of production onwards.</li> <li>Average unit operating costs (Includes mine gate costs, product logistics and royalties) for the period of economic assessment are US\$242 per tonne of SOP produced.</li> <li>Exchange-rate assumptions taken from the XE.com website dated 1 June 2017. Exchange rate assumptions:               <ul style="list-style-type: none"> <li>AUD1.352 to USD1.00</li> <li>ERN15.356 to USD1.00</li> <li>EUR0.889 to USD1.00</li> <li>CNY6.857 to USD1.00</li> <li>ZAR13.12 to USD1.00</li> </ul> </li> <li>Transport costs were quoted by an Eritrean logistics company. Massawa port handling fees were applied. SOP is assumed to be sold free on board (FOB) with no allowance for post-shiploading costs.</li> <li>Processing costs estimated from first principles. Final product requires no further treatment or refining.</li> <li>Royalty of 3.5% of revenue, payable to the Eritrean government, included in the financial evaluation.</li> </ul>
<p><b>Revenue factors</b></p>	<ul style="list-style-type: none"> <li>The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.</li> <li>The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.</li> </ul>	<ul style="list-style-type: none"> <li>Head grade estimated using geostatistical techniques in 3D modelling of diamond drilling results.</li> <li>Product will be in standard (-2mm) and granular (-4mm +2mm) form</li> <li>Long term SOP price estimate of US\$567/t SOP, FOB at Massawa, used in Ore Reserve estimation. Price in the range of SOP prices observed in the past several years, adjusted for the port of export. Refer to "Cut-off parameters" section for additional comment.</li> <li>Financial modelling of a shorter period of 60 years was considered when determining project NPV. A long-term price estimate was applied across the 60 years which equates to the long run marginal cost methodology. The resulting average price was US\$569/t SOP, FOB Massawa.</li> <li>Contract product haulage from Colluli to the Port of Massawa has been estimated at US\$73/t SOP sold for product haulage including diesel.</li> </ul>
<p><b>Market assessment</b></p>	<ul style="list-style-type: none"> <li>The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.</li> <li>A customer and competitor analysis along with the identification of likely market windows for the product.</li> <li>Price and volume forecasts and the basis for these forecasts.</li> <li>For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.</li> </ul>	<ul style="list-style-type: none"> <li>SOP is a regularly traded commodity and is sold predominantly by way of supply contracts in a closed market.</li> <li>The status of any supply contracts involving DNK is commercially sensitive and is therefore not disclosed.</li> <li>DNK completed customer and competitive analysis, which is commercially sensitive and is therefore not disclosed.</li> <li>Colluli is geographically well located to supply Asia, India and the Middle East, and can also supply Europe and America.</li> <li>Price forecasts were based on marketing analysis, specific to the Colluli potash project, by CRU Consulting, who have assessed supply-demand for both potassium chloride and potassium sulphate. Raw material input costs, export taxes and logistics costs have all been considered as part of the analysis and the relative position of the Colluli project on the global cost curve considered.</li> <li>The forecasts provided to DNK were based on detailed market intelligence, and a team of industry experts.</li> <li>Colluli will produce primary SOP. Approximately 50% of the world's SOP is produced by primary processes with the remainder using secondary process involving the conversion of potassium chloride to SOP by adding sulphuric acid in a high cost thermal conversion process. This provides price support to the lower cost primary producers such as Colluli.</li> <li>The assumed price combines the anticipated price for standard product (56% of output) and a premium price for granulated product (44% of output).</li> </ul>



Criteria	Explanation	Commentary
		<ul style="list-style-type: none"> <li>• Ongoing demand for SOP globally is expected and attributed to increasing world population, declining arable land, disposable income and dietary changes, and under-application of potassium fertilisers in developing countries. Combined annual demand growth rates of 1% are expected until 2040.</li> <li>• Expandability of existing operations outside of China is constrained and there are limited greenfield development projects for primary production of SOP at an advanced stage. No new projects outside of China are expected to commission prior to 2019.</li> <li>• Analysis of the China market demonstrates that when SOP and MOP prices converge, switching takes place with a preference for SOP over MOP. Colluli's cost structures suggest growth well beyond the current SOP market size is possible.</li> </ul>
<b>Economic</b>	<ul style="list-style-type: none"> <li>• The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.</li> <li>• NPV ranges and sensitivity to variations in the significant assumptions and inputs.</li> </ul>	<ul style="list-style-type: none"> <li>• It is not practical to assess the total project economic analysis due to the long timelines involved.</li> <li>• The economic assessment therefore is based on an economic period of review of 60 years, with production assumed to commence in Quarter 3, 2020.</li> <li>• Discount rate of 10% "real" used for long term financial analysis.</li> <li>• Pit shell optimizations generated using undiscounted cash flows.</li> <li>• All evaluations conducted in "real" currency with a reference date of 1 July 2018.</li> <li>• Provision was made for corporate tax at 38% of operating profit.</li> <li>• No Value Added Tax (VAT) or Goods and Services Tax (GST) payable.</li> <li>• The 60-year economic assessment estimates are NPV of US\$883M; IRR of 29.2%.</li> <li>• NPV is mainly sensitive to SOP price. Reducing SOP price by 10% reduces NPV from US\$883M to US\$663M (-25%), whilst reducing the price by 20% reduces the project NPV to US\$437M (-50%). Increasing the SOP price by 10% increases NPV by 25% to US\$1,102M.</li> <li>• NPV is less sensitive to changes in operating costs. A 20% increase in operating costs reduces the project NPV to US\$695M (-21%).</li> <li>• NPV reduces by 5% to US\$842M when development capital is increased by 20%.</li> <li>• To determine sensitivity, analysis of a case that considers Phase II not being built, shows the Phase I only economic assessment estimates are NPV of US\$505M; IRR of 28.1%; Payback period of 3.25 years.</li> </ul>
<b>Social</b>	<ul style="list-style-type: none"> <li>• The status of agreements with key stakeholders and matters leading to social licence to operate.</li> </ul>	<ul style="list-style-type: none"> <li>• Colluli is a joint venture between the Eritrean National Mining Company and DNK, via the equally owned Colluli Mining Share Company (CMSC).</li> <li>• Socio-economic and cultural heritage baseline reports have been undertaken and reviewed by the DOE.</li> <li>• Socio-economic and cultural heritage impacts have been assessed and have been documented as part of the SEIA process. Several social impact management plans have been developed as part of the SEIA process.</li> <li>• DNK has implemented a Stakeholder Engagement Program and is actively engaging with a wide range of project stakeholders.</li> <li>• No resettlement programs will be required.</li> <li>• There are believed to be no social related issues that do not have a reasonable likelihood of being resolved.</li> </ul>
<b>Other</b>	<ul style="list-style-type: none"> <li>• To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:</li> <li>• Any identified material naturally occurring risks.</li> <li>• The status of material legal agreements and marketing arrangements.</li> <li>• The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.</li> </ul>	<ul style="list-style-type: none"> <li>• Seasonal discharges from the Sariga and Galli-Colluli river systems to the saltpan will need to be mitigated. Appropriate measures are designed to protect infrastructure at Colluli and along the product haulage route.</li> <li>• A liquefaction assessment recommended that pit slopes be managed by: <ul style="list-style-type: none"> <li>— providing additional features in the pit design;</li> <li>— installing monitoring equipment;</li> <li>— developing action /response plans;</li> <li>— engaging appropriate consultants to monitor and provide recommendations</li> </ul> </li> <li>• Weather conditions at site are hot and dry, with low rainfall and a high salt environment. Equipment and infrastructure was specified that is fit-for-purpose, and appropriate operating procedures will be developed and implemented for construction and operations.</li> <li>• In 2017, CMSC signed Heads of Agreements (HOAs) with a number of prominent offtake parties comprising distributors, traders, and end-users.</li> <li>• Interest in procuring CMSC product remains high, with the aggregate demand in the HOAs totalling 850 ktpa.</li> <li>• Marketing is currently in the process of converting these HOAs to Binding Bankable offtake agreements.</li> <li>• CMSC signed a Mining Agreement with the Government of the State of Eritrea on the 31st January 2017. The agreement covers the mining and exploration licence areas.</li> <li>• Seven Mining Licenses covering 63km<sup>2</sup> were subsequently granted, which cover the</li> </ul>



Criteria	Explanation	Commentary
		<p>Ore Reserve area required for the first sixty years of mining and the proposed sites for the open pits, waste dumps, process plant, associated infrastructure. The mining licence is valid for a maximum period of 20 years or the life of the deposit, whichever is shorter. The license may be renewed for a maximum period of ten years on each renewal; subject to the licensee demonstrating the continued economic viability of mining the deposit and that the licensee has fulfilled the obligations specified in the license and is not in breach of any provisions.</p> <ul style="list-style-type: none"> <li>• An additional exploration tenement to the west of the mining licence area, with undefined mineralisation, was awarded to CMSC in October 2017.</li> <li>• Land was granted to the Colluli Potash Project for the development of coastal facilities including a product export terminal at Anfile Bay on 6 June 2014, subject to economic viability and social and environmental conditions being met. The Anfile Bay export terminal will not be developed as part of this FS.</li> </ul>
<b>Classification</b>	<ul style="list-style-type: none"> <li>• The basis for the classification of the Ore Reserves into varying confidence categories.</li> <li>• Whether the result appropriately reflects the Competent Person's view of the deposit.</li> <li>• The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).</li> </ul>	<ul style="list-style-type: none"> <li>• Measured Mineral Resources convert to Proved Ore Reserves.</li> <li>• Indicated Mineral Resources convert to Probable Ore Reserves.</li> <li>• Inferred Mineral Resource regarded as waste for optimization and evaluation purposes.</li> <li>• The Colluli Ore Reserve estimate appropriately reflects the Competent Person's views.</li> <li>• No Probable Ore Reserve was derived from Measured Mineral Resources.</li> </ul>
<b>Audits or reviews</b>	<ul style="list-style-type: none"> <li>• The results of any audits or reviews of Ore Reserve estimates.</li> </ul>	<ul style="list-style-type: none"> <li>• The process design and design criteria, metallurgical testwork, plant configuration and process equipment list presented in the PFS were reviewed both internally and by recognised industry independent experts and were found to be appropriate and fit for purpose.</li> <li>• No material change to the process flow design has occurred between DFS and FEED.</li> <li>• The process design and design criteria, metallurgical testwork, plant configuration and process equipment list presented in the DFS were reviewed by a recognised industry expert and were found to be appropriate and fit for purpose.</li> <li>• The front-end engineering design (FEED) scope and report reviewed all aspects of the DFS and recommended changes to improve performance and reduce cost. It also improved the cost estimate accuracy to <math>\pm 10\%</math>.</li> <li>• The Competent Person is not aware of any other audits or reviews of the 2015 Colluli DFS or 2018 FEED reports.</li> </ul>
<b>Discussion of relative accuracy/ confidence</b>	<ul style="list-style-type: none"> <li>• Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve 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 reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which 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 should include assumptions made and the procedures used.</li> <li>• Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.</li> <li>• It is recognized that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.</li> </ul>	<ul style="list-style-type: none"> <li>• In the Competent Person's view, the Colluli DFS and FEED achieve the required level of confidence in the modifying factors to justify estimation of an Ore Reserve. The DFS and FEED determined a mine plan and production schedule that is technically achievable and economically viable.</li> <li>• FEED capital and operating cost estimates are based on quoted prices and rates from competitive tenders, material take-offs from drawings, and allowances.</li> <li>• The Ore Reserve classification has low sensitivity to changes in the Modifying Factors and no conversion of Measured Mineral Resource to Probable Ore Reserve was required.</li> <li>• Review by independent experts of the process design at the PFS stage indicated that there are no major flaws in the process design, plant configuration and process recovery. No material changes were made to the process design for DFS or FEED. Modifying factors are unlikely to change sufficiently with further study to materially change the Ore Reserve.</li> <li>• Detailed design and analysis was based on a 60-year economic period of review with sufficient sustaining capital allowed to enable regeneration of critical items over the 60-year period.</li> <li>• Adopted long-term SOP price of US\$567/t product was used in mine planning. Financial modelling was subsequently completed at an SOP price of US\$569/t product following recommendations from the marketing specialists. Cut-off parameters were not adjusted because the difference in total ore tonnes at each price is negligible (less than 0.02%). This difference in long-term SOP pricing is immaterial to the Ore Reserve estimate.</li> </ul>



## Appendix C – Colluli Rock Salt – JORC Code 2012 – Table 1

### Section 1 – Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g. cut channels, random chips, or specific specialized industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.	<p>The Colluli deposit was sampled using diamond core from surface. A total of 103 diamond holes were drilled into the deposit. 102 of the 103 holes had geological logging, assaying or geophysical logging and were available for the resource estimate. The total metres of drilling for the project were 6,409 at the date of the resource estimate. Drilling by Danakali (Formerly South Boulder Mines) occurred from June 2010 until October 2012. Borehole geophysical logging in the form of gamma ray – density measurements were made on 22 drillholes in Area B and the results interpreted to determine density of the various rock units. Holes were drilled on an approximate UTM grid (WGS84, Zone 37N) with a grid direction of approximately 050 degrees magnetic in Area A and 090 degrees in Area B, both at a dip of -90 degrees. The drill collar positioning was a nominal 500 m x 500 m spacing in X and Y at Area A and a 700 m x 1000 m grid spacing at Area B.</p> <p>An additional 28 drillholes were completed for use in the rock salt estimate, the GT-A* series and COL098 – COL110. All were logged geologically, but only the GT-A* series holes were assayed (15 holes). The units that were targeted for the update were the Upper Rock Salt (URST) unit and the Marker Beds (MBED) unit.</p>
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	<p>Drillhole collars were originally set out using hand held GPS and on completion the collars were surveyed by survey contractors using high precision GPS. Downhole surveys were not completed as all holes were drilled at 90 degrees down-dip and were almost all less than 150m depth.</p> <p>Diamond core was half-core sampled at regular intervals and generally constrained to geological boundaries where appropriate.</p>
	Aspects of the determination of mineralization that are Material to the Public Report.	<p>Diamond core was drilled predominantly at HQ size.</p> <p>Diamond core samples for rock salt assaying were cut and bagged and sent to K-Utec in Germany where they were crushed, split and pulverized and assayed for a suite of cations and anions using a liquid ion chromatography technique. Sample pulps were then sent to Technische Universität Clausthal (TUC) for check assaying, using a similar process. A small number of pulp repeats were sent to the Saskatchewan Research Council (SRC) along with samples for geotechnical sampling.</p>
Drilling techniques	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.).	<p>Diamond drillholes account for 100% of the drill metres and comprises HQ sized core.</p> <p>All holes were drilled as diamond holes from surface, with HW 4” casing employed at the top of the holes due to poor ground conditions in the overburden unit.</p> <p>No core orientation was recorded.</p>
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	<p>Diamond core recovery was assessed by comparison of the interval of core presented in the core tray against the driller’s core blocks. Analysis showed that more than 93% of core intervals had 90% or better recoveries, with 96% of core having recoveries of 80% or better. Core recoveries in the uppermost unit, the overburden, were very poor and many losses occurred. Recoveries in this domain ranged between 0 -60%. These reduced recoveries were not associated with mineralization and as such are not considered material.</p>
	Measures taken to maximize sample recovery and ensure representative nature of the samples.	<p>Diamond drilling utilized triple-tube techniques and constantly monitored drilling fluids in order to assist with maximising recoveries. PVC tubing, HW 4” pipe and HQ rods were used in the uppermost unit, with the tri-salt mud balance constantly monitored for viscosity and density to reduce core dissolution whilst drilling.</p>



Criteria	JORC Code Explanation	Commentary
	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.	<p>Core depths are checked against the depth given on the core blocks and rod counts are routinely carried out by the drillers. Recovered core was measured and compared against driller's blocks.</p> <p>Assessments on the effect of low recoveries were completed for the diamond drilling and found that there was not likely to be any material impact or bias on the reported assay results as a result of the reduced recoveries. The MBED unit had recoveries generally in excess of 97%, with one sample with 67% and another with 85% recovery. The URST unit had recoveries greater than 80% for 85% of samples, with 5% having recoveries less than 50%.</p>
<b>Logging</b>	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.	<p>Diamond core was geologically logged using predefined lithological, mineralogical and physical characteristics (such as colour, weathering, fabric) logging codes. In addition structural measurements of major features were collected, such as bedding to core angle for laminations, bedding, veining or fracture structures.</p> <p>The logging was completed at the company core shed by the responsible geologist and checked by the Senior Geologist once completed.</p> <p>All of the drilling was logged onto paper and has recently (late 2014) been transferred to a digital form and loaded into a Microsoft Access drillhole database. The latest geotechnical and QAQC-twinning drillhole logging was completed directly onto a laptop in the field using Microsoft Excel spreadsheets with drop-down boxes to restrict values entered. Logging information was reviewed by the senior geologist prior to final load into the database.</p> <p>All core trays were photographed. Given the nature of the mineralization at Colluli (crystalline salts) the core was not photographed wet, unless photos were taken on-site as soon as the core was removed from the barrel after drilling.</p> <p>Geotechnical logging of all diamond core consisted of recording core recovery, RQDs, amount of dissolution and core state (i.e. whole, broken). In addition in late 2014, twelve diamond holes (GT- A1 – GT-A14) were drilled specifically for geotechnical purposes and were logged by both AMC geotechnical staff and then Danakali geologists after initial training. Samples from these were also selected for destructive testing. Four of these holes (GT-A6, GT-A8, GT-A11 and GT-A12) were planned to be assayed as twinned holes for comparison with the existing Colluli drillhole database.</p> <p>45 holes also had downhole geophysical logging completed for natural gamma, hole diameter, neutron log, sonic log, temperature and conductivity (calibrated to 25°C). 22 of these holes also had downhole density logging recorded.</p>
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Logging was both qualitative and quantitative in nature, with general lithology information recorded as qualitative and most mineralization records and geotechnical records being quantitative. Core photos were collected for all diamond drilling.
	The total length and percentage of the relevant intersections logged.	All recovered intervals were geologically logged, apart from four drillholes (COL-005, COL-019B, COL-020, COL-042) that had no potash intersections and one hole (COL-063A) that was abandoned at 54 m downhole due to poor core recovery.
<b>Sub-sampling techniques and sample preparation</b>	If core, whether cut or sawn and whether quarter, half or all core taken.	<p>Diamond core was cut in half using a diesel powered core saw. No water was used for lubrication or dust suppression as core dissolution would have occurred. The material being cut is relatively soft and this has not proved to be an issue. Sample intervals were marked on the core by the responsible geologist considering lithological and structural features.</p> <p>Core selected for duplicate analysis was further cut as quartered core with both quarters submitted individually for analysis.</p>
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	No non-core samples were taken.



Criteria	JORC Code Explanation	Commentary
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	<p>The sample preparation techniques employed for the diamond core samples follow standard potash industry best practice. To avoid dissolution by reacting with the water in the air, all samples were double-bagged at the drill rig, opened for logging and re-bagged immediately and heat sealed prior to transport to the laboratory.</p> <p>Samples were crushed by hammer, within the plastic liner, to a grain size of approximately 1cm or less. The entire sample was then transferred to a PVC vessel and homogenized by shaking.</p> <p>Approximately one third of the homogenized sample was then taken and crushed inside a polythene bag by hammer to a grain size of 5mm or less. About 100g of this homogenized sample was then pulped by disk swing-mill for 120 seconds. Three grams of this pulp was prepared for XRD analysis and ten grams dissolved in 990ml distilled water and agitated for 24 hours prior to ion chromatography. The insoluble portion remaining from the dissolution was removed by a membrane filter (0.45 micron) and weighed.</p>
	Quality control procedures adopted for all sub-sampling stages to maximize representivity of samples.	<p>For the initial drilling at Colluli, to hole COL-099, field QAQC procedures included the field insertion of “blanks” taken from the Upper Rock salt domain, as the main minerals of economic interest were KCl and MgSO<sub>4</sub>. These were inserted into the sample stream at a rate of approximately 1 in 15 samples. Coarse field duplicates were taken by quarter cutting the core at a rate of approximately 1 in 20 samples. For the updated Mineral Resource estimate of the rock salt, reference materials (standards) were added to the sample stream by Danakali to ensure quality control, however the quality varied with only two being certified standards (POT003 and POT004, internal standards from SRC). Pure NaCl from Rowe Scientific Laboratories was also used as a reference material; however its certification was not clear.</p> <p>The primary and secondary assay laboratories, also periodically inserted “blanks” in the form of clean distilled water and assayed their own internal standards.</p> <p>Pulp duplicates were taken and re-assayed by TUC, using a mixture of atomic absorption spectroscopy and ion chromatography. Duplicates were taken at a rate of approximately one in 40 samples.</p>
	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.	<p>Field duplicates from core samples generally showed an excellent correlation between original and duplicates, however other measures of spread such as Half Absolute Relative Difference (HARD) showed some variance in some of the minor elements such as Ca and SO<sub>4</sub>. Pulp repeat samples from the secondary laboratories also showed excellent correlation between original and repeat samples.</p> <p>Standards were compared well to their expected results, with only minor differences in a few samples. These were generally in the minor components of the URST unit and the MBED unit.</p>
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Current industry standard sampling is used and deemed appropriate. All of the salts are coarse crystalline and are dissolved completely prior to analysis.
<b>Quality of assay data and laboratory tests</b>	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	<p>Primary assaying for the updated estimate was undertaken by K-Utec laboratories in Germany. K-Utec uses a combination of flame spectrometry, atomic absorption spectroscopy and ion chromatography for analysis of potash salts.</p> <p>Secondary assaying for the diamond core was completed by TUC using its proprietary method for ion chromatography. TUC is recognized internationally for its work in potash and has a good reputation. Its methods are however, confidential and AMC has no details of the exact process used. AMC requested Danakali to drill four twinned drillholes to test the reliability of the TUC assaying. These were to be assayed at K-Utec and pulp repeats tested at both TUC and SRC in Canada.</p>
	For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument	Downhole geophysical readings were taken for 45 of the Danakali drilled diamond holes. Data collected included hole diameter, neutron logs, conductivity, temperature, natural gamma, sonic logs and density. Only 22





Criteria	JORC Code Explanation	Commentary
	make and model, reading times, calibrations factors applied and their derivation, etc.	<p>holes had density readings taken, due to breakages of the gamma-gamma probe. The work was performed by Abitibi Terratec using the following probes suspended from a 4-conductor cable:</p> <ul style="list-style-type: none"> <li>• Electromind T-Cd-GR.</li> <li>• Electromind 3-arm caliper.</li> <li>• RG Neutron-neutron probe.</li> <li>• RG Gamma-gamma probe.</li> <li>• ALT Sonic-Full Wave probe.</li> </ul> <p>Density measurements were validated by taking readings while the probe was in an aluminium block and in a container of water. There were three readings taken in each material.</p> <p>As far as AMC is aware, calibration was undertaken for the density and neutron probes prior to delivery to site for the caliper probe whilst on-site. A polynomial curve function (<math>y=38.9520+0.176803x-1.53928 \times 10^{-5}x^2</math>) was applied to the raw caliper data to produce the final hole width readings.</p>
	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.	QAQC results from both the primary and secondary assay laboratories show no material issues with the main variables of interest for the updated URST and MBED grade estimates.
<b>Verification of sampling and assaying</b>	The verification of significant intersections by either independent or alternative company personnel.	Diamond drill core photographs have been reviewed for the recorded sample intervals. AMC Senior Geologist, John Tyrrell, visited the Colluli project site and the Danakali head office and core shed in Eritrea in October 2014. Whilst there he viewed the drillhole collars on-site and the remaining core (full, half or quarter) at the core shed in Asmara. Selected sections of drillholes were examined in detail in conjunction with the geological logging and assaying.
	The use of twinned holes.	<p>AMC requested four drillholes be twinned for the purpose of testing the veracity of the logging and assaying at Colluli. The holes were sampled using the same intervals (where possible) to the original drillholes in order to compare the logging and assaying as directly as possible.</p> <p>The results for the twin hole assaying and QAQC programme show no material issues and excellent repeatability of assaying and geological logging.</p>
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	<p>All primary geological data (prior to 2014) was collected using paper logs and transferred into Excel spreadsheets. This was checked by the Chief Geologist for data entry error. Assay results were returned from the laboratories as electronic data (Excel spreadsheets and PDF files). Geophysical data was recorded as log ASCII standard (LAS) files and survey and collar location data was stored as spreadsheet files.</p> <p>In late 2014, all of the primary data was collated and imported into a Microsoft Access relational database, keyed on borehole identifiers and assay sample numbers. The data was verified as it was entered and checked by the Danakali Chief Geologist.</p>





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	Discuss any adjustment to assay data.	<p>The primary and secondary assay laboratories reported results from the assaying process as weight % values of the assayed cations (Mg<sup>2+</sup>, Ca<sup>2+</sup>, Na<sup>+</sup>, K<sup>+</sup>) and anions (Cl<sup>-</sup>, SO<sub>4</sub><sup>2-</sup>). KCl and K<sub>2</sub>O values were also reported. The assays for K were multiplied by a factor of 1.90668 to report KCl and multiplied by a factor of 0.6317 to report K<sub>2</sub>O.</p> <p>The raw assay values were also converted to mineral weight percentages using a “Normative Mineralogy” conversion scheme. This scheme relies upon the XRD results for the mineralogy of every sample.</p> <p>This was a two step process which is listed below:</p> <p>Step 1 - Combine cations and anions to simple salts according to the following scheme:</p> <ul style="list-style-type: none"> <li>• Combine with Cl, in the following order: Na, K, Mg, Ca.</li> <li>• Combine with SO<sub>4</sub> in the following order: Ca, Mg, K, Na.</li> <li>• Based on experience with potash deposits, the analyses should be either MgCl<sub>2</sub> or K<sub>2</sub>SO<sub>4</sub> normative, meaning if CaCl<sub>2</sub> or Na<sub>2</sub>SO<sub>4</sub> results from these combinations, the analysis is suspect.</li> </ul> <p>Step 2 - Combine the simple salts to salt mineralogy according to the following simplified scheme:</p> <ul style="list-style-type: none"> <li>• All NaCl is Halite.</li> <li>• If MgCl<sub>2</sub> is present, it is combined 1:1 with KCl to form Carnallite.</li> <li>• If MgCl<sub>2</sub> &gt; KCl, remaining MgCl<sub>2</sub> to Bischofite.</li> <li>• If K<sub>2</sub>SO<sub>4</sub> is present, combine with CaSO<sub>4</sub> and MgSO<sub>4</sub> to form Polyhalite.</li> <li>• If KCl &gt; MgCl<sub>2</sub> and MgSO<sub>4</sub> available, combine remaining KCl 1:1 to Kainite.</li> <li>• If remaining KCl &gt; MgSO<sub>4</sub>, remaining KCl after Kainite to Sylvite, otherwise remaining MgSO<sub>4</sub> to Kieserite and;</li> <li>• Remaining CaSO<sub>4</sub> to Anhydrite.</li> <li>•</li> </ul> <p>The resulting salt percentages are combined with the measured insoluble component and should sum to 100% (+3 to -5%). As other potash minerals occur in nature and are not taken into account, this scheme is at best indicative and the results are checked against the logging and core.</p> <p>The results are also checked to ensure over estimation of Kainite content and under estimation of the Sylvite and Kieserite does not occur.</p>
Location of data points	Accuracy and quality of surveys used to locate drillholes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.	<p>All of the drillhole collar positions were initially positioned using hand-held GPS. In September 2012, the state run Eritrean Mapping &amp; Information Center (EMIC) completed a program to position five survey control points at and around the project site. These were positioned using Leica system 1200 differential global positioning system (DGPS) equipment with an accuracy of +/-5mm.</p> <p>All of the collar positions at site are now surveyed using DGPS referencing the control point nearest to Colluli, BM-1 (1594828.511 mE, 644029.0546 mN, -101.3126 mRL, UTM). The collars are surveyed in campaigns by an external contractor after the holes are drilled.</p>
	Specification of the grid system used.	The grid projection used for Colluli is WGS84, UTM37N. All reported coordinates are referenced to this grid.
	Quality and adequacy of topographic control.	Topography data for Colluli has been generated from a series of contours taken from data provided by the NASA Shuttle Radar Topography Mission in February 2000. A wireframe was produced from the 2m contour data. AMC believes that the topography data is adequate for the project at this stage.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	Drilling at Colluli has been focused on two deposits, Area A and Area B. The drillhole spacing at Area A is approximately 500 m x 500 m in easting and northing in the better drilled parts of the deposit, increasing to 1000m x 1000m at the peripheries. Drilling in Area A has been closed even further in its northern part as a result of the twinned hole and geotechnical drilling programmes, with drill spacing down to 200 m to 300 m apart (except for the twinned holes at less than 10 m spacing from their original target holes). The grid pattern is aligned at approximately



Criteria	JORC Code Explanation	Commentary
		<p>050 degrees magnetic. There is a cruciform pattern of close-spaced drilling in the centre of the deposit designed to check short scale variability, which has a spacing of nominal 50m.</p> <p>At Area B, the drillhole spacing is a nominal 650 m – 700 m in easting by 1000 m in northing, with the grid direction approximately east-west. The spacing increases to approximately 1000 m in easting and northing at the peripheries.</p>
	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.	The degree of geological and grade continuity demonstrated by the data density is sufficient to support the definition of Mineral Resources and the associated classifications applied to the Mineral Resource estimate as defined under the 2012 JORC Code. Variography studies have shown very little variance in the data for most of the estimated variables and ranges in the order of several kilometres.
	Whether sample compositing has been applied.	No compositing was applied to the exploration results prior to assaying. All samples were composited to common lengths after being assayed, prior to their use in the Mineral Resource estimate.
<b>Orientation of data in relation to geological structure</b>	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	The mineralization is interpreted to be very shallow dipping, roughly planar with stratiform bedding striking approximately east-west and dipping at less than 0.5 degrees to the southwest in Area A and less than 1.0 degrees to the southwest in Area B. The diamond drilling is exclusively conducted at -90 degrees, producing drillhole intersections with the mineralization at effectively 90 degrees.
	If the relationship between the drilling orientation and the orientation of key mineralized structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	The orientation of drilling with respect to mineralization is not expected to introduce any sampling bias. Drillholes intersect the rock units at approximately 90 degrees.
<b>Sample security</b>	The measures taken to ensure sample security.	<p>Samples were collected onsite under supervision of a responsible geologist and any potential soluble samples were sealed with taped double bags prior to taking from the rig site. The samples were then stored in lidded core trays and closed with straps before being transported by road to the company core shed in Asmara. Only certified company drivers were allowed to transport the core. Once logging was completed the samples for assay were re-bagged and put into double plastic bags, which were heat sealed with the correct sample number on the inner bag. The samples were then placed into heavy plastic drums, which were sealed ready for transport overseas for assaying. As the samples were travelling overseas for assay, the drums may have been opened by customs both in Eritrea and at their destination. AMC does not believe this to be an issue, as individual samples are in heat sealed bags and are not easily tampered with.</p> <p>Despatch sheets were compared against received samples and any discrepancies reported and corrected.</p>
<b>Audits or reviews</b>	The results of any audits or reviews of sampling techniques and data.	<p>A review of the sampling techniques and data was completed by Ercosplan in 2012 and by Snowden in 2013. Neither found any material error. AMC also reviewed the data in the course of preparing the initial Colluli Mineral Resource estimate in 2014 and this update in 2015. A review of the method used by the secondary assay laboratory, TUC, was not available due to the proprietary nature of its potash assaying process.</p> <p>AMC concludes that the data integrity and consistency of the drillhole database shows sufficient quality to support resource estimation.</p>



## Section 2 – Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
<b>Mineral tenement and land tenure status</b>	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.	<p>The Colluli Project is located wholly within an exploration concession granted by the State of Eritrea in 2009, which encompassed an area of approximately 857 km<sup>2</sup>, bordered to the West by the Ethiopian state border (as defined by the Eritrea-Ethiopia Boundary Commission in 2002). In 2012, in accordance with the Eritrean Mining Proclamation, the Colluli Exploration license has been extended and the tenement area has been reduced from the initial 857 km<sup>2</sup> to the current 200 km<sup>2</sup>. Danakali owns a 50% interest in the project, with the remaining 50% owned by the state of Eritrea.</p> <p>AMC is unaware of any other joint venture, native title, environmental, national park or other ownership agreements on the concession area.</p>
	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.	The concession area is in good standing and no known impediments exist.
<b>Exploration done by other parties</b>	Acknowledgment and appraisal of exploration by other parties.	<p>Previous exploration in the wider Dallol region of the Danakil Depression has been undertaken since the early 1900's, with extensive drilling (approx. 300 holes), geophysical surveys, geological and topographic mapping and hydrogeological works undertaken from 1959 to 1968.</p> <p>At the concession area proper, previous exploration was undertaken by a number of parties since 1969. The first drilling at Colluli was undertaken by the Ethiopian Potash Company Inc. (EPC), who carried out exploration drilling and chemical analyses for potash in five sub-areas in the border region Eritrea-Ethiopia (N of Dallol) up to the Buri Peninsula (S of Massawa). The sub-area named "Colluli" at the border region between Eritrea and Ethiopia was reported to contain two distinct zones of potassium and magnesium minerals in a thick section of Halite in the western part of the sub-area (EPC Engineering Division Mine, 1984). Approximately eight other companies have reported mineralization considered (by them) mineable in the area (all now in Ethiopia), but none at the actual Colluli Project site until STB started exploration on the concession in 2010.</p>
<b>Geology</b>	Deposit type, geological setting and style of mineralization.	<p>The Colluli Project area is located in the Danakil Depression, which strikes NW-SE with an extension of more than 200km from Lake Bada in the NW to Lake Acori in the SE. The structure of the Danakil Depression widens to the South, beginning with 10km width in the North and widening up to 70km in the South. The northern part is the deepest and has elevations as low as 50m to 128m below sea level. The depression is flanked by the Danakil Alps to the northeast and the Ethiopian Highlands to the southwest. These consist of Precambrian gneisses and phyllites as well as Jurassic sediments, Palaeozoic granites and intruded Neogene basalts.</p> <p>Locally at Colluli the landscape is dominated by flat lying sediments and is approximately 120 metres below sea level. The mineralization in the project area is bound to the northeast by Pliocene to recent anhydrite/ gypsum, halite and clays. The mineralization is hosted by a potash sequence overlain by clastic sediments comprised of sands and silts. Underlying the clastic sequence is a sequence of salts consisting of discrete sub-members including the "Upper and Lower Rock Salt", "Sylvinite", "Upper and Lower Carnallite", "Bischofite", "Kainite" and finally the "Black Clay" at the base of the drilled sequence.</p> <p>The bedding is very shallow dipping (less than 0.5 degrees) to the southwest and bound by faults to the northeast and southwest. These faults are steep, with interpreted throws of approximately 20m. A major fault with a throw of approximately 50 to 100m separates the mineralized Area A from Area B. The interpreted fault line track along the course of the Zariga River system. The mineralization is in the form of coarse crystalline salts, predominantly in the form of sylvinite, carnallite, kainite and rock salt, containing the mineral types Sylvite (KCl), Carnallite (KMgCl<sub>3</sub>·6(H<sub>2</sub>O)) and Kainite (MgSO<sub>4</sub>·KCl·3(H<sub>2</sub>O)), with common interbedded halite (NaCl) and kieserite (MgSO<sub>4</sub>·H<sub>2</sub>O).</p>



Criteria	JORC Code Explanation	Commentary
<b>Drillhole Information</b>	A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drillholes: easting and northing of the drillhole collar elevation or RL (Reduced Level – elevation above sea level in metres) of the drillhole collar dip and azimuth of the hole down hole length and interception depth hole length.	No exploration results have been reported in this release, therefore there is no drillhole information to report. This section is not relevant to reporting Mineral Resources.
<b>Data aggregation methods</b>	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.	No exploration results have been reported in this release, therefore there is no drillhole intercepts to report. This section is not relevant to reporting Mineral Resources.
	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.	No exploration results have been reported in this release, therefore there is no drillhole intercepts to report. This section is not relevant to reporting Mineral Resources.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No exploration results have been reported in this release, therefore there is no drillhole intercepts to report. This section is not relevant to reporting Mineral Resources.
<b>Relationship between mineralization widths and intercept lengths</b>	If the geometry of the mineralization with respect to the drillhole angle is known, its nature should be reported.	No exploration results have been reported in this release. This section is not relevant to reporting Mineral Resources.
<b>Diagrams</b>	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 drillhole collar locations and appropriate sectional views.	No exploration results have been reported in this release. This section is not relevant to reporting Mineral Resources.
<b>Balanced reporting</b>	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.	No exploration results have been reported in this release. This section is not relevant to reporting Mineral Resources.
<b>Other substantive exploration data</b>	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.	No exploration results have been reported in this release. This section is not relevant to reporting Mineral Resources.
<b>Further work</b>	The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).	The decision as to the necessity for further exploration at Colluli is pending completion of mining technical studies on the currently available resource.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	The decision as to the necessity for further exploration at Colluli is pending completion of mining technical studies on the currently available resource.



## Section 3 – Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
<b>Database integrity</b>	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.	<p>All the drilling was logged onto paper and has recently (late 2014) been transferred to a digital form and loaded into a Microsoft Access drillhole database. The latest geotechnical and QAQC twinned drillhole logging was completed directly onto a laptop in the field using Microsoft Excel spreadsheets with drop-down boxes to restrict values entered. Logging information was reviewed by the senior geologist prior to final load into the database.</p> <p>The data is now stored in a single Microsoft Access database for the Colluli project.</p>
	Data validation procedures used.	<p>Prior to 2014, the data validation was initially completed by the responsible geologist logging the core and marking up the drillhole for assaying. The paper logs were transferred to Excel spreadsheets and compared with the originals for error. Assay dispatch sheets were compared with the record of samples received by the assay laboratories. All the electronic files were stored in directories for each data type and labelled by drillhole identifier, allowing for easy recognition of missing data.</p> <p>Since late 2014, all the drillhole data has been collected and input into a Microsoft Access database, keyed on drillhole identifier (BHID) and assay sample number. All the data was verified at the time of import to Access and any error was corrected.</p> <p>Both internal (Danakali) and external (Ercosplan, Snowden and AMC) validations were/are completed when data was loaded into spatial software for geological interpretation and resource estimation. AMC checked the data for overlapping intervals, missing samples, FROM values greater than TO values, missing stratigraphy or rock type codes, downhole survey deviations of <math>\pm 10^\circ</math> in azimuth and <math>\pm 5^\circ</math> in dip, assay values greater than or less than expected values and several other possible error types when loading the data into CAE Studio 3 (Datamine) software. Furthermore, each assay record was examined, and mineral resource intervals were picked by the Competent Person.</p> <p>QAQC data and reports are normally also checked. Ercosplan and Snowden both reported briefly on the available QAQC data for Colluli and AMC instigated a drilling program of four twinned drillholes for geological and assay data validation purposes. AMC produced a QAQC report on the results of this program and has continued to monitor the QAQC results from subsequent assaying programs.</p>
<b>Site visits</b>	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	<p>AMC Senior Geologist John Tyrrell visited the Colluli project site in late 2014 and inspected the Area A and Area B deposits. Whilst on site he witnessed the drilling of validation drillholes and their geological logging and sampling preparation for assaying.</p> <p>The geology, sampling, sample preparation and transport, data collection and storage procedures were all reviewed whilst at the project site and at the Danakali office and core shed in Asmara. AMC used this knowledge to aid in the preparation of this Mineral Resource Estimate update for the URST and MBED units for Colluli Area A.</p>
	If no site visits have been undertaken indicate why this is the case.	
<b>Geological interpretation</b>	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	<p>The Colluli potash mineralization is one of only a few shallow potash deposits documented globally. Detailed mapping, geophysical (including gravity and very localised induced polarization, electrical resistivity and seismic refraction studies) and mineralogical studies have been completed by Danakali geologists and contracted specialists between 2011 and 2014. These data and the relatively closely-spaced (for potash) drilling has led to a good understanding of the mineralization controls. The mineralization is hosted within very shallow dipping bedded evaporite units (potash salts and halite) which are areally extensive and continuous. There is an obvious change in the sequence at the edges of the mineralization, explained by faulting in the order of 20m or so. Ercosplan had interpreted internal faulting in its 2012 report and model, but the vertical offsets are very small and thus have not been included in the current interpretation for the resource model as they would unnecessarily complicate the stratigraphy. Over the spacing of the drillholes, the difference in RL is negligible and they do not appear to materially affect the distribution of the potash units.</p>



Criteria	JORC Code Explanation	Commentary																																							
		There is no obvious alteration in the mineralized units.																																							
	Nature of the data used and of any assumptions made.	No assumptions are made.																																							
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	Neither alternative interpretations nor estimations were undertaken by AMC.																																							
	The use of geology in guiding and controlling Mineral Resource estimation.	<p>Geological observation has underpinned the resource estimation and geological model. Rock type and geochemistry (assayed anion and cation values as well as normative mineralogy) were used to define the footwall and hanging wall boundaries for each unit. The geological model was developed as an iterative process of checking against logging and photography as needed during interpretation.</p> <p>The extents of the geological model were constrained by drilling. Geological boundaries had only minimal extrapolation beyond drilling in line with the resource classifications of indicated or inferred.</p> <p>The domain coding for the Colluli project (Areas A &amp; B) is as follows:</p> <table border="1"> <thead> <tr> <th>Lithology/Member</th> <th>Rock Code</th> <th>Numeric Domain Code</th> </tr> </thead> <tbody> <tr> <td>Overburden</td> <td>OVBD</td> <td>1000</td> </tr> <tr> <td>Upper Rock Salt</td> <td>URST</td> <td>2000</td> </tr> <tr> <td>Marker Beds</td> <td>MBED</td> <td>3000</td> </tr> <tr> <td>Upper Sylvinite</td> <td>USYL</td> <td>4100</td> </tr> <tr> <td>Middle Sylvinite (low grade)</td> <td>MSYL</td> <td>4200</td> </tr> <tr> <td>Lower Sylvinite</td> <td>LSYL</td> <td>4300</td> </tr> <tr> <td>Upper Carnallite</td> <td>UCRT</td> <td>5000</td> </tr> <tr> <td>Bischofite</td> <td>BSFT</td> <td>6000</td> </tr> <tr> <td>Lower Carnallite</td> <td>LCRT</td> <td>7000</td> </tr> <tr> <td>Kainite</td> <td>KANT</td> <td>8000</td> </tr> <tr> <td>Lower Rock Salt</td> <td>LRST</td> <td>9000</td> </tr> <tr> <td>Clay</td> <td>CLAY</td> <td>10000</td> </tr> </tbody> </table> <p>The Mineral Resource estimate update focussed upon Domain Codes 2000 and 3000 only.</p>	Lithology/Member	Rock Code	Numeric Domain Code	Overburden	OVBD	1000	Upper Rock Salt	URST	2000	Marker Beds	MBED	3000	Upper Sylvinite	USYL	4100	Middle Sylvinite (low grade)	MSYL	4200	Lower Sylvinite	LSYL	4300	Upper Carnallite	UCRT	5000	Bischofite	BSFT	6000	Lower Carnallite	LCRT	7000	Kainite	KANT	8000	Lower Rock Salt	LRST	9000	Clay	CLAY	10000
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	The factors affecting continuity both of grade and geology.	<p>Key factors that are likely to affect the continuity of grade are:</p> <ul style="list-style-type: none"> <li>• The down-hole variability of the geological units; the potash units are commonly inter-bedded with other halite and evaporite salts and occasional insoluble materials (clay, quartz)</li> <li>• The variability at deposit scale due to complete or partial non-deposition, dissolution of erosion of a salt layer</li> <li>• Internal faulting at a scale that is too small to be defined at the current drill spacing</li> </ul>																																							
<b>Dimensions</b>	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.	The deposit at Area A strikes approximately 7 km and is approximately triangular being approximately 4 km at its widest point. The mineralized units dip less than one degree towards 170 – 180 degrees azimuth. The mineralized sequence for the Upper Rock Salt ranges in thickness from 0.5 m to 35 m, averaging 10 m and is approximately 10 m to 20 m below surface. The Marker Beds are much thinner, ranging from less than 0.5 m to 6.0 m in thickness, averaging approximately 1.5 m.																																							
<b>Estimation and modelling techniques</b>	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.	<p>Grade estimation was completed using ordinary kriging (OK) for the Mineral Resource estimate. Datamine software was used to estimate grades for Na, Cl, K, Mg, Ca, S, SO<sub>4</sub>, KCl, K<sub>2</sub>O, As, Cu, Pb, Sylvite, Halite, Anhydrite and Insolubles using parameters derived from statistical and variographic studies. The majority of the variables estimated have coefficients of variance of less than 1.0. Average grades were assigned for Cd and Hg, as all the assays for these elements were below their respective levels of detection.</p> <p>Drillhole spacing varies from approximately 300 m x 300 m to 500 m x 500 m at Area A. Drillhole sample data was flagged with numeric domain codes unique to each mineralization domain. Sample data was composited to 1 m downhole length for the MBED unit and 2 m downhole length for the URST unit, with the resulting composite length adjusted to retain residuals.</p> <p>The influence of extreme sample outliers was reduced by top-cutting where required. The top-cut levels for each mineralization domain were determined using a combination of grade histograms, log probability plots, and decile and percentile analysis.</p>																																							



Criteria	JORC Code Explanation	Commentary
		Grade was estimated into two mineralization domains, URST and MBED. The URST unit had downhole variography performed for all estimated variables and directional variography performed where the number of samples permitted for Na, Cl, K, KCl and SO <sub>4</sub> . The MBED unit had no variography performed. All variograms were scaled to the variance of the individual variables in the domain. Grade continuity varied from several metres in the vertical direction, to kilometres in the along and across-strike directions. All estimated variables in the mineralization domains had major search axis lengths of approximately 2/3 the longest variogram range, with the other search axes scaled according to their corresponding variograms. The vertical (minor) search axis ranges were multiplied by a factor of ten, to a minimum 20 m, due to the proportionally extreme lengths of the major and semi-major ranges.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	<p>Prior to 2014, a Mineral Resource estimate was completed by German potash expert company Ercosplan and was reported by Danakali in April 2012 as compliant with Canadian National Instrument 43-101 (NI 43-101) and JORC 2004 Guidelines. The estimate used a polygonal-type estimation process, the "Radius of Influence" method, which uses cylinders of equal grade and thickness influence to arrive at a weighted average derived tonnage in each resource and uses a cylindrical classification surrounding each drillhole.</p> <p>The 2014 Mineral Resource estimate was a completely new block based model, using an additional 47 drillholes (drilled by Danakali in 2012) and reinterpreted wireframes to define a volume, with grade estimated by OK based on variographic studies. Resource classification takes into account grade and geological continuity between drillholes rather than within a set radius and/or volume surrounding them.</p> <p>Neither of the two previous estimates reported tonnes and grade for the URST or MBED units and this update is the maiden estimate for these domains.</p>
	The assumptions made regarding recovery of by-products.	No assumptions were made regarding recovery of by-products.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterization).	Estimates were also undertaken for K, Mg, Ca, SO <sub>4</sub> , Sylvite, Anhydrite, S, Insolubles, As, Pb and Cu.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	<p>The Colluli block models use a parent cell size of 500 m in northing, 500 m in easting and 2 m in RL. This corresponds approximately to a distance slightly smaller than the widest drill spacing at Area A. Sub-celling was allowed to occur down to 50 m in easting, 50 m in northing and 0.02 m in RL for all domains. After completion of the volume model it was optimized to reduce the sub-cells whilst keeping the domain codes intact. This allowed for accurate volume representation of the interpretation whilst keeping the overall model size down.</p> <p>Grade was estimated into parent cells, with all sub-cells receiving the same grade as their relevant parent cell.</p> <p>Discretization was set to 10 by 10 by 2 in X, Y and Z respectively for all domains. Search ellipse dimensions for each domain were based on variography. Three search passes were used for each estimate in each domain. The first search allowed a minimum of 8 composites and a maximum of 15 composites. For the second pass, the first pass search ranges were expanded by 2.5 times. A minimum of 5 composites and a maximum of 20 composites were allowed. The third pass search ellipse dimensions were extended by 4 times. A minimum of 2 composites and a maximum of 25 composites were allowed for this pass. A limit of 3 composites from a single drillhole was permitted.</p>
	Any assumptions behind modelling of selective mining units.	Upon direction of Danakali it was assumed for modelling purposes that the deposit would be mined in its entirety by the open pit method, so no selective mining units were assumed in this estimate. Model block sizes were determined primarily by drillhole spacing and statistical analysis of the effect of changing block sizes on the final estimates.
	Any assumptions about correlation between variables.	All elements within a domain used the same sample selection routine for block grade estimation. No co-kriging was performed at Colluli.
	Description of how the geological interpretation was used to control the resource estimates.	The geological interpretation is used to define the mineralization domains. All the mineralization domains are used as hard boundaries to select sample populations for variography and grade estimation.





Criteria	JORC Code Explanation	Commentary
	Discussion of basis for using or not using grade cutting or capping.	<p>Statistical analysis showed that the domains included outlier values that required top-cut values to be applied. Top-cut values are chosen based on the statistical parameters for that element in each domain and a visual check of the location of any possible outlier values. Usually the log probability plots and histogram plots are used to determine the final value used. The top-cuts generally only affect one or two samples. In some cases, the percentage of the weighted average mass of mineralized material was cut, due to extreme high value in relatively poorly sampled domains.</p> <p>The top-cut values applied were limited to the URST unit and were 0.6% for K, 1.2% for KCl and 5.0% for SO<sub>4</sub>.</p>
	The process of validation, the checking process used, the comparison of model data to drillhole data, and use of reconciliation data if available.	<p>Validation of the block model consisted of:</p> <ul style="list-style-type: none"> <li>• Volumetric comparison of the mineralization wireframes to the block model volumes</li> <li>• Visual comparison of estimated grades against composite grades</li> <li>• Comparison of block model grades to the input data using swathe plots</li> </ul> <p>As no mining has taken place at Colluli to date, there is no reconciliation data available.</p>
<b>Moisture</b>	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	All mineralization tonnages are estimated on a dry basis. The moisture content in mineralization is considered low, however there is a moisture content of up to 40% in the overlying overburden unit.
<b>Cut-off parameters</b>	The basis of the adopted cut-off grade(s) or quality parameters applied.	For interpretation and modelling a zero NaCl grade cut off has been used. A 95% NaCl (Na_wt% + Cl_wt%) grade cut off has been used for reporting of the rock salt Mineral Resource at Colluli, with an additional constraint of less than 2.5% Ca plus SO <sub>4</sub> . Consideration of mining, metallurgical and pricing assumptions, while not rigorous, suggest that the currently interpreted mineralized material has a reasonable prospect for eventual economic extraction at these cut off grades.
<b>Mining factors or assumptions</b>	Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is 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.	<p>AMC Consultants is currently preparing mining reports to support a Definitive Feasibility Study (DFS) for Colluli on behalf of Danakali. Scenarios being considered are conventional open pit using mechanized mining techniques such as continuous surface mining.</p> <p>AMC has assumed, based on initial work, that the Colluli deposits are amenable to open-pit mining methods.</p>
<b>Metallurgical factors or assumptions</b>	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.	Metallurgical studies are well advanced and have delivered highly encouraging results to date. Studies are ongoing as part of the DFS work.
<b>Environmental factors or assumptions</b>	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	Environmental studies are underway as part of the DFS work.



Criteria	JORC Code Explanation	Commentary								
	the determination of potential environmental impacts, particularly for a greenfield 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.									
Bulk density	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.	<p>Bulk density has been estimated from density measurements from geophysical probes as well as direct core measurements.</p> <p>The geophysical density measurements were collected as down-hole LAS survey data (completed by Abitibi-Terratec). The 0.01m readings were composited to 1m intervals for use in the estimate. Top and bottom cutting of outlier values was performed as required.</p> <p>As part of the AMC geotechnical testing program in 2014, 64 direct core measurements were taken by SRC.</p> <p>Danakali performed an additional 52 direct core measurements for density on samples from the URST and MBED units. Selected intervals of cylindrical core were measured for length, as well as with calipers along their length for an average diameter. The volume of the core derived by this method was combined with the weight of the core sample to generate a density measurement for each interval.</p> <p>These measurements and those taken by SRC have been incorporated into the table below.</p>								
	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.	<p>The water immersion method is not appropriate for potash deposits, owing to their solubility and collecting perfectly cylindrical core is also difficult.</p> <p>The down-hole geophysical collection of density data is most appropriate for Colluli, with adequate validation and porosity factors applied.</p>								
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	<p>The bulk density values applied for the rock salt estimate at Colluli are:</p> <table border="1"> <thead> <tr> <th>LITHOLOGY</th> <th>URST</th> <th>MBED</th> </tr> </thead> <tbody> <tr> <td>DOMAIN</td> <td>2000</td> <td>3000</td> </tr> <tr> <td>MEAN DENSITY</td> <td>2.11</td> <td>2.25</td> </tr> </tbody> </table> <p>All values are in t/m<sup>3</sup>.</p>	LITHOLOGY	URST	MBED	DOMAIN	2000	3000	MEAN DENSITY	2.11
LITHOLOGY	URST	MBED								
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MEAN DENSITY	2.11	2.25								
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	<p>Classification for the update of the rock salt Mineral Resource at Colluli is based upon continuity of geology, mineralization and grade, considering drillhole and density data spacing and quality, variography and estimation statistics (number of samples used and estimation pass). The classification also takes into account data supplied by Danakali and publicly available data for the quality specification and expected market for the final product.</p> <p>The current classification is only valid for the nominated grade cut-offs and may change if the cut-off used for reporting was changed.</p>								
	Whether appropriate account has been taken of all relevant factors (i.e. 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).	<p>At Colluli, the core of the modelled Area A deposits is generally well drilled for a rock salt deposit having a drillhole spacing from a nominal 300 m x 300 m in easting and northing, up to 500 m x 500 m in easting and northing directions. There is also a localized cruciform drilling pattern in the centre of the deposit, designed to test continuity at small scale, with a spacing of approximately 50 m apart.</p> <p>In general, the estimate has been classified as Measured Resource where clusters of drillholes are within 0.5 km to 0.65 km of each other, the holes have been assayed, geologically and geophysically logged and the confidence in the estimate is high. The estimate has been classified as Indicated Resource where clusters of drillholes are within 1.5 km of each other, with the remaining areas of the model classified as Inferred. The classification is based upon currently available marketing and processing information, particularly with respect to the deleterious elements (primarily Ca, Mg, SO<sub>4</sub> and insolubles), and assumes a 95% NaCl (Na_wt% + Cl_wt%)</p>								



Criteria	JORC Code Explanation	Commentary
		cut-off with CaSO <sub>4</sub> less than 2.5%. At the time of the completion of the estimate, the available marketing and product quality specification data was limited, and AMC considered a base case scenario for potential economic extraction based upon publicly available data.  The MBED unit estimate has not been classified at this time, due to lack of data and confidence in the possibility of economic extraction.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	AMC believes that the classification appropriately reflects its confidence in and the quality of the grade estimates.
<b>Audits or reviews</b>	The results of any audits or reviews of Mineral Resource estimates.	The previously reported Mineral Resource estimate (AMC 2014) has not been audited and did not report the URST and MBED units.
<b>Discussion of relative accuracy/ confidence</b>	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.	The Mineral Resource classification applied to each deposit is based on geostatistical procedures based on the drilling data, which implies a confidence level and level of accuracy in the estimates.
	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 should include assumptions made and the procedures used.	These levels of confidence and accuracy relate to the global estimates of grade and tonnes for the deposit.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	There has been no production from the Colluli project at this time.

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## About Danakali Limited

Danakali Limited (ASX: DNK) (**Danakali**, or the **Company**) is an ASX-listed company and 50% owner of the Colluli Potash Project (**Colluli** or the **Project**) in Eritrea, East Africa. The Company is currently developing Colluli in partnership with the Eritrean National Mining Corporation (**ENAMCO**).

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 Front End Engineering Design (**FEED**) 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 (or **MOP**). 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) 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 Colluli into production using the principles of risk management, resource utilisation and modularity, using the starting module (**Module I**) as a growth platform to develop the resource to its full potential.

### Competent Persons Statement (Sulphate of Potash Mineral 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 Resource, 951Mt @ 11% K<sub>2</sub>O of Indicated Resource and 35Mt @ 10% K<sub>2</sub>O of Inferred Resource.

The information relating to the 2015 Colluli Mineral Resource estimate is extracted from the report entitled "Colluli Review Delivers Mineral Resource Estimate of 1.289Bt" disclosed on 25 February 2015 and is available to view at [www.danakali.com.au](http://www.danakali.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, in the case of estimates of Mineral Resources or Ore Reserves, that all material assumptions and technical parameters underpinning the 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 presented have not been materially modified from the original market announcement.

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

The January 2018 Colluli Ore Reserve is reported according to the JORC Code and estimated at 1,100Mt @ 10.5% K<sub>2</sub>O Equiv. The Ore Reserve is classed as 285Mt @ 11.3% K<sub>2</sub>O Equiv. Proved and 815Mt @ 10.3% 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 Australasian Institute of Mining and Metallurgy, a Chartered Professional, a full-time employee of AMC Consultants Pty Ltd (**AMC**), 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 acted as an independent party, has no interest in the outcomes of Colluli and has no business relationship with Danakali 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 and the Competent Persons believe that there is no conflict of interest in undertaking the assignments which are the subject of the statements.

### Competent Persons Statement (Rock Salt Mineral Resource)

Colluli has a JORC-2012 compliant Measured, Indicated and Inferred Mineral Resource estimate of 347Mt @ 96.9% NaCl. The Mineral Resource estimate contains 28Mt @ 97.2% NaCl of Measured Resource, 180Mt @ 96.6% NaCl of Indicated Resource and 139Mt @ 97.2% NaCl of Inferred Resource.

The information relating to the Colluli Rock Salt Mineral Resource estimate is extracted from the report entitled "+300M Tonne Rock Salt Mineral Resource Estimate Completed for Colluli" disclosed on 23 September 2015 and is available to view at [www.danakali.com.au](http://www.danakali.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, in the case of estimates of Mineral Resources or Ore Reserves, that all material assumptions and technical parameters underpinning the 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 presented have not been materially modified from the original market announcement.

## Danakali Limited

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#### 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-Umwelttechnik GmbH, Sondershausen, Germany, utilising flame emission spectrometry, atomic absorption spectroscopy and ion chromatography. Kali-Umwelttechnik (KUTEC) has extensive experience in analysis of salt rock and brine samples and is certified according to DIN EN ISO/IEC 17025 by the Deutsche Akkreditierungsstelle GmbH (DAR). The laboratory follows standard procedures for the analysis of potash salt rocks chemical analysis ( $K^+$ ,  $Na^+$ ,  $Mg^{2+}$ ,  $Ca^{2+}$ ,  $Cl^-$ ,  $SO_4^{2-}$ ,  $H_2O$ ) 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 and its activities. Danakali 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 Colluli 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, 23 September 2015, 15 August 2016, 1 February 2017 and 29 January 2018, 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.