Potassium sulphate has limited production centres around the world and Colluli exploration started in 2010, more than 1000Mt of potassium-bearing salts, suitable for the production of potassium sulphate, have been identified. Potassium sulphate has limited production centres around the world and Colluli exploration started in 2010, more than 1000Mt of potassium-bearing salts, suitable for the production of potassium sulphate, have been identified. The resource is dominated by kainitite, a potassium salt which contains sulphur. Utilising the kainitite not only results in a lower strip ratio and therefore lower mining costs, it provides the opportunity to produce a premium fertiliser product, potassium sulphate. Kainitite is the most commonly used potassium salt for the production of potassium sulphate, and typically exists in brine form. The Danakil region is one of only three areas globally where the kainitite salt exists in solid form. This eliminates the need for large solar evaporation ponds to form harvest salt prior to production, thereby reducing the overall footprint, reducing processing water requirements and improving production.

Following a comprehensive review of processing options focusing on full resource utilisation, South Boulder Mines initiated a pre-feasibility study for the production of potassium sulphate from all salts in the Colluli resource in February. The review identified scope to materially reduce the overall mining strip ratio from about 6:4:1 to around 2.5:1, slashing mining costs from A$122/t of product to less than $70/t of product. Fundamentally, the process combines potassium chloride produced from sylvinite, with processed kainitite. This results in an ambient temperature chemical conversion to potassium sulphate. The process is believed to be the lowest-energy, highest-potassium yield route to potassium sulphate. In October, South Boulder announced that it had successfully produced potassium sulphate at the Saskatchewan Research Council, using the simple process design.

Critically, according to Donaldson, previous Colluli studies did not assess the economic potential of lower-layer material. In the early studies, requisite consideration was not given to the balance between what the resource can potentially deliver, the processing route(s) required, and the operating cost benefits that may be achieved with full consideration of the operating environment (eg. The Danakil Depression is a favourable environment for evaporation). The revised study has looked at the total resource to determine the best economic outcome, and has embraced the strengths of the operating environment in the processing design.

South Boulder exploration team on the Colluli site

**Investment highlights**

- Large, high-grade potassium bearing resource close to surface in an emerging potash province.
- Close proximity to coast and geographically favourable relative to key markets.
- Unique combination of salts suitable for low cost production of potassium sulphate (SOP or sulphate of potash).
- Low capital intensity project.
- Premium potash fertiliser (sulphate of potash).
- Strategic national project in JV with Eritrean National Mining Company, ENAMCO.

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