Danakali enhances outlook of imminent potash DFS

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A string of new resource and operational testwork milestones at Danakali's (ASX:DNK) Colluli potash project in Eritrea has further improved the outlook for a definitive feasibility study (DFS) due in Q4 2015.

A two-phase development approach rapidly being progressed for the DFS has prioritised opportunities that are being investigated for inclusion in the study to enable a highly robust, optimised and construction ready report.

This work has delivered an important rock salt resource and a 60% reduction in plant water requirements as well as advancements in the local approvals process, mine planning progress and several operational flowsheet optimisations.

Recently, this has included completion of a pilot plant test program which further demonstrated the robustness of the process to input variations and ability to reliably produce high-purity potassium sulphate.

The pilot trials resulted in over 300 kilograms of high-purity Colluli product at over 98% SOP (greater than 52% K2O equivalent). SOP, or "sulphate of potash", is a high quality potash fertiliser carrying a price premium over the more common potassium chloride (MOP).

Materials handling trials have also been completed to determine the anti-caking requirements for the final product. The product generated from the pilot runs, which was delivered in soluble, standard and granular forms, is being showcased around the world.

All geotechnical testwork related to on-site and off-site infrastructure including foundations, borrow locations and pond construction materials was likewise completed during the September quarter. This followed successful completion of all geotechnical testwork related to mine design.

Infrastructure testwork has confirmed the suitability of the on-site base material on which the processing plant, the camp and supporting infrastructure will be built, the suitability and locality of structural fill aggregate and the suitability and low permeability of site materials for pond base construction.

Concurrent with the DFS has been the finalisation of the baseline reports for the social and environmental impact assessment along with the engagement of a consortium of social, cultural, marine and wildlife experts to establish the social and environmental management plan.

These milestones will enable a rapid transition from DFS completion to mining licence application.

Detailed scheduling is well advanced and balances plant feed requirements with even mining face development. The scheduling is designed to maintain efficient benches on which the surface miners can operate, produce low stockpile volumes, deliver a low and consistent strip ratio and also prepare the pit for early backfilling.

Waste dumping within the pit void coupled with localised rock salt stockpiling for potential commercialisation will help maintain low mining costs by keeping haulage distances short.

Colluli resources now stand at 1.289 billion tonnes at 11% K2O for 260 million tonnes of contained SOP. This includes an estimated at 1.1 billion tonnes of reserves, comprising 287 million tonnes in the proved category and 820 million...
tonnes in the probable category.

Mineralisation begins at just 16 metres below surface, making Colluli one of the most accessible potash deposits globally.

Diverse inventory strengths

Danakali has also enhanced the economic potential of Colluli with the definition of a significant rock salt resource, expected to generate another income stream for the developing mine.

The overburden is estimated to hold 347 million tonnes of rock salt within Area A the area of focus for the DFS mining schedules.

Commercialisation of this material, which sits directly above the primary potash deposit, has the potential to provide further economic benefits to the project.

The rock salt resource, unprocessed, is suitable for de-icing and other applications in nearby jurisdictions and has the potential to be a significant salt business in its own right.

The salt composition of the Danakil region otherwise provides the ability to produce a suite of potash products that not only includes potassium sulphate, but also potassium magnesium sulphate and MOP.

Such potash product diversification cannot be achieved by any other resource in the world.

In addition to the high-purity rock salt and various potash products, substantial upside for Colluli’s production profile exists in the exploitation of other contained materials such gypsum and magnesium chloride.

Water milestone

Recent Colluli development work has also delivered a 60% reduction in plant water requirements.

Following successful testwork focused on reducing the water demand of the processing plant, the mass balance modelling identified a reduction in water requirements from 11 tonnes of water per tonne of product to only 3.5 tonnes of water.

The hydrogeological test program identified both high-potassium mine water and high-yield brackish water away from the mining area, establishing the potential to eliminate a planned 75-kilometre seawater delivery system.

The identified water is suitable to complement the water demand of the plant, reduce the pumping volumes from the Red Sea and is expected to provide additional potassium that will enhance the overall plant recoveries.

Less water consumption improves Colluli’s production flowsheet and provides a critical economic boost given the arid nature of Eritrea.

Analysis

The operational optimisations and practical project advancements realised by Danakali at Colluli over the September quarter have set the stage for a significantly stronger DFS later this year.

The company maintains a strong financial position as this development work unfolds, with a cash balance of A$5.1 million as of the end of the quarter.

The new rock salt resource offers a means of commercialising waste material at Colluli and further emphasises the diversity and wide marketability of the project’s potential products.

Although Colluli has an uncommon endowment of highly marketable SOP, it is unlikely to be constrained by this product thanks to growth options in other potash varieties feasible at the project, including potassium chloride and potassium magnesium sulphate.
Strong demand growth for potash is driven by three macro themes, including growing population, reduction in arable land and changing dietary preferences.

Colluli’s shallow mineralisation makes the resource amenable to open cut mining, a proven, high-productivity mining method that allows for higher resource recovery rates relative to underground and solution mining methods.

As the world's shallowest evaporite deposit, Colluli has unique cost, operational and growth advantages, which have led to predictions the project will be in the bottom quartile cost curve position.

Price catalysts for Danakali in the coming weeks as the DFS is delivered may include the completion of social, environmental and management plans as well as the initiation of a mining agreement submission and the continuation of dialogues regarding debt funding and potential offtake customers.

Earlier this month the company has received a Speculative Buy from broker Hartleys.

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