

Tuesday 25 January 2022

## BEYONDIE SOP PROJECT – ACTIVITIES UPDATE

Kalium Lakes Limited (ASX:KLL) (**Kalium Lakes** or the **Company**) provides an update with respect to its operational activities at the Beyondie SOP Project (**Beyondie** or **BSOPP**).

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- Brine orebody performing well with potassium grades in brine from Sunshine Lakes (**Sunshine**) and 10 Mile Lake (**10 Mile**) at or above target.
  - Aggregate brine flow from borefield and trenching operations to the pre-concentration ponds has now been restored to near the 90Ktpa SOP target level.
  - Initiatives introduced to minimise transfer pipeline capacity restrictions and progressively restore Sunshine pre-concentration and primary evaporation pond operations towards full capacity in current quarter.
  - Next harvest of high-grade potassium salts expected to commence this quarter, with a greater focus on grade control and ROM stockpile management.
  - SOP purification plant currently idled to allow rectification works, which are expected to be completed in March, and high-grade salt harvesting.
  - Updated Beyondie commissioning and production ramp-up schedule to be provided in February 2022, with no impact expected to forecast long term SOP output.
  - Commenced production borehole drilling and procurement of the second Sunshine pre-concentrated brine transfer pipeline as part of the 120Ktpa Expansion Plan.
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**Kalium Lakes Chief Executive Officer, Len Jubber, said:** *“The lower grade potassium salt feed that adversely impacted the plant start-up was a process control issue related to start-up of the solar evaporation ponds and harvest operation. This is expected to be avoided in the future with improved management of pond brine flows and harvesting.*

*The commissioning issues experienced in December highlight the challenges associated with starting up any new operation. While the delay is regrettable, the temporary interruption in the commissioning process has presented Kalium Lakes with the opportunity to review not only the learnings to date but importantly also take stock of the operational readiness aspects. The outcome of this work will be incorporated in our go forward plan.*

*The Kalium Lakes team is conducting the review and compilation of the revised commissioning and production ramp-up plan in a structured and methodical manner, incorporating input from international technical design and operating experts.*

*The plan to deliver immediate improvement in the quality of new harvest salts, and resolution of non-critical equipment issues typical of any plant start-up, is expected to enable successful commissioning of the purification plant in the coming months.”*

## Borefield & Trenching Operations and Brine Production

Recent actions taken to optimise brine production levels (see KLL ASX releases dated 3 November 2021 and 22 December 2021) have delivered significant positive impacts.

De-silting works at 10 Mile and Sunshine are progressing well, with flow rates from trenches at 10 Mile now restored to design targets. Work at Sunshine continues with flow rates improving and target levels expected to be fully restored during the current quarter. A third amphibious excavator has also been added to the trench fleet and additional routine trench maintenance programs implemented.

Bore pump station availability at both 10 Mile and Sunshine is improving through upgrading monitoring and maintenance programs, including the introduction of a telemetry system to improve response times to pumping system breakdowns.

As a result of these combined measures, the aggregate brine flow rate from the borefield and trenching operations to the pre-concentration ponds has now been restored to near the 90Ktpa SOP target level.

In addition, the 120Ktpa expansion drilling program has commenced and twenty-five new production bores are planned to be progressively brought online during the next 12 months. There are currently twenty bores at 10 Mile and Sunshine.

Aggregate brine supply continues to deliver potassium grades above design targets, partially offsetting some of the impact from previous lower flow rates.

## Pond Operations and KTMS Production

As previously announced (refer KLL ASX releases dated 3 November 2021 and 22 December 2021), prior impacts to brine production rates ahead of the peak summer solar evaporation period are expected to result in less harvested potassium salt (KTMS) being produced during CY2022 than initially targeted.

Further investigation has revealed that these impacts to brine supply resulted in brine concentration in the Sunshine pre-concentration pond increasing above targeted levels, exacerbated by increasing evaporation rates with the onset of summer. This more concentrated brine progressively resulted in gypsum and salt scaling within the transfer pipeline from the Sunshine pre-concentration pond to the primary evaporation ponds.

The site team has implemented a range of interim initiatives in recent weeks to rectify these issues:

- Approximately half the Sunshine pre-concentration pond evaporative area has been closed to minimise the risk of overconcentration of the brine prior to transfer through the pipeline to the primary evaporation ponds. As brine volume in the Sunshine pre-concentration pond aggregates towards targeted levels, this offline pre-concentration pond area is expected to be progressively reactivated over coming months.
- Cleaning operations have been undertaken on the transfer pipeline and measures to minimise future scaling are in progress. Closer monitoring of pipeline operation and efficiency has been implemented.
- Two of the five primary evaporation pond trains have been closed in order to effectively manage pond operations under the reduced Sunshine pre-concentration brine volumes. Utilisation of these two trains is expected to be progressively reinstated in coming months as the aggregate Sunshine pre-concentration brine volume increases.

In addition, a second transfer pipeline is to be installed in the current quarter as part of the 120Ktpa SOP expansion program. This is expected to not only ultimately deliver the 120Ktpa SOP extraction rate but also provide surplus transfer pipeline capacity in the near term, further de-risking brine transfer logistics.

A review of the potassium salt harvesting operations has highlighted the underlying factors that contributed to the variability in KTMS feed during the SOP purification plant commissioning in December. Harvesting of potassium salts is expected to recommence during the current quarter, with a greater focus on grade control and ROM stockpile management.

Kalium Lakes continues to work with international potash industry experts to strengthen operating capability, increase understanding of pond chemistry dynamics and harvesting techniques, and quantify the likely impacts on forecast CY2022 harvested potassium salt production. Forecast long term harvested potassium salt output is not expected to be affected.

## **Purification Plant and SOP Production**

Following the commissioning challenges faced due to initial variability in potassium salt feed grades (refer KLL ASX release dated 22 December 2021), further review and consultation has confirmed that a consistently higher-grade potassium salt feed supply (higher than for normal operations) is required during commissioning. This improved salt feed is expected to enable the schoenite conversion, flotation, cooling crystallisation, centrifuges and fluid bed dryer to be commissioned at nameplate capacity.

The requirement for individual sections in the SOP purification plant to be commissioned on a staged basis over an extended timeframe led to there being insufficient residual higher grade potassium salt feed available on the ROM stockpile to successfully complete commissioning and achieve continuous operation of the plant.

The rectification works identified as being beneficial to successful commissioning of the SOP purification plant (refer to KLL ASX release dated 22 December 2021) are underway, with the plant being idled while this work is undertaken and pending harvest of further high-grade potassium salts. The plant rectification works are scheduled to be completed during March.

Kalium Lakes continues to be supported, both on site and remotely by its German partners, EBTEC Gbr, through its leading SOP production technical expertise. It should be noted that the ability of EBTEC to facilitate the arrival of additional specialist personnel to the Beyondie site does remain constrained by ongoing Western Australian border restrictions.

The systematic recommencement of SOP purification plant operations as part of the commissioning process is being jointly planned by the Kalium Lakes and EBTEC teams in conjunction with international experts with SOP processing operations experience. Full nameplate operation of the plant is expected to be achieved in accordance with the performance guarantees provided by EBTEC.

## **Updated Ramp-Up and Production Schedule**

Following completion of the rectification works and harvesting of sufficient high grade potassium salt supply, Kalium Lakes plans to continue with commissioning of the SOP purification plant. Commissioning of the compaction plant is expected to follow immediately after successful commissioning of the purification plant.

As previously announced (refer KLL ASX release dated 22 December 2021), the current overall commissioning and ramp-up position of the BSOPP is expected to have an impact on the targeted timeframes for achieving nameplate production rates.

The Company expects to provide a revised Beyondie ramp-up schedule and production profile following completion of the current comprehensive review process, scheduled for late February 2022. Forecast long term SOP output levels are not expected to be impacted.

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\*\*\* ENDS \*\*\*

This announcement was approved and authorised for release by the Chief Executive Officer of Kalium Lakes Limited.

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