

Reward advancing Kumpupintil Lake potash play

REWARD Minerals has been a long-term player in Western Australia's potash brine sector, but has yet to proceed to development, which has given it time to do two things.



Reward's Kumpupintil Lake project could be the testbed of a new process technology

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First, it has been able to watch the commissioning issues of its peers, Salt Lake Potash and Kalium Lakes, and learn from their experiences.

Comments

Second, according to new CEO Lorry Hughes, Reward has developed a new propriety process that could simplify getting potash out of the brines at its Kumpupintil Lake project.

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Previously known as Lake Disappointment or LD until 2020, Kumpupintil Lake has an estimated drainable resource of 153 million tonnes of sulphate of potash, and the ability to support a 40-year mine life.

Hughes told *MNN* while the specifics of how the technology works are being kept secret while it moves to protect its intellectual property with an international patent application, but it is a simplified flow sheet could significantly reduce capital and operating costs.

Hughes said the process was "simple and handled via conventional chemical plant equipment", and operates at either ambient or moderately elevated temperatures.

It has been refined with extensive in-house testing over several years.

Essentially, the process helps avoid the requirement for mechanical harvesting of mixed potash salts, the conventional flotation steps, and the low-yield first pass crystallisation of SOP from schoenite that has featured in other developments.

"The new process involves evaporation of feed brine to near potassium saturation point followed by addition of a low-cost inert carrier forming an insoluble product containing around 50% SOP," Hughes said.

The insoluble solution is separated from the residual liquor by conventional processes, and the SOP is leached with warm water producing a solution of SOP in water with very low levels of sodium magnesium and chloride.

The liquor is then evaporated in conventional crystallisers to produce pure SOP, while the insoluble carrier is recovered and recycled.

Because the salts are not harvested, but redissolved in-situ, there's no need for heavy equipment, and the pond construction and salt base generation are less onerous.

In terms of opex, there's a substantial saving in using pumping to transfer the potassium to the extraction plant, and because the first pass recovers around 50% of the potassium, and the brine is recycled, losses are expected to be confined to typical pond seepage and entrainment losses.

"The process is relatively simple and has been subject of a very large number of laboratory trials," he said.

Reward is planning pilot field trials next year, but says there appear to be no showstoppers for scaling up operations.

A scoping study has also started and should be completed early in 2023, building on a conservative prefeasibility study in 2018, which imagined a \$451 million development producing 400,000 tonnes per annum of potash.

The process "appears to work well with Kumpupintil-type brine" and may significantly improve the economics of production of potash from both sea water and many groundwater aquifers.

Hughes said Reward was talking with several other solar salt and potash firms in Australia with a view to licencing the technology and generating a commercial return.

He said the new process could be a game-changer for SOP production where it has become clear that its peers underestimated the difficulties in developing projects in remote areas.

Hughes, who recently joined Reward from gold explorer Yandal Resources, has had previous experience with potash, having been involved in the discovery and initial development of the world-class Colluli potash project in Eritrea with South Boulder Mines (now Danakali).

Reward, which recently pulled out of its Officer Bain tenements due to poorer results from recent drilling in the region, difficult logistics, and Martu cultural sensitivity relating to the area, started the quarter with A\$2.4 million in cash.

Key approvals for Kumpupintil Lake were granted by Western Australia's government and the federal government at the time. It also has an indigenous land use agreement in place.

Kumpupintil Lake is located 340km east of Newman, in the Great Sandy Desert.

Reward describes it as Australia's largest high-grade brine SOP deposit in a region with the highest evaporation rate.

Reward's largest shareholder is investor and executive director Michael Ruane with 39.5%.

Reward shares have traded at 8.3-19.5c over the past year, and were last traded at 9.3c, valuing it at about \$18 million.



