Can Standard Lithium's DLE technology be the miracle that helps solve the forecast lithium deficits ahead?

written by Tracy Hughes | October 20, 2022
The widely forecast lithium deficits this decade and next will need a miracle to solve the problem. Enter 'Direct Lithium Extraction' or DLE for short.

DLE is a promising new set of technologies designed to extract lithium from projects that are considered unconventional or have lower lithium concentrations. There are several types of DLE such as lithium bonding (adsorption), ion exchange, and solvent extraction.

Today we look at the latest progress of arguably USA's leading DLE company, Standard Lithium Ltd.

Standard Lithium Ltd. (TSXV: SLI | NYSE American: SLI) is a lithium development company using Direct Lithium Extraction ("DLE") at their projects in the USA. The lithium extraction projects are:

- Southern Arkansas Projects (flagship) – LANXESS JV Project and the SOUTH–WEST ARKANSAS Project.
- Mojave Project – Located at the Bristol Dry Lake in the Mojave Dessert, California.

Standard Lithium uses their propriety 'LiSTR' DLE process and typically partners with existing projects where they already have a brine product, such as at the LANXESS Project (where Lanxess already produces bromine from brine, but not lithium).

Standard Lithium simply ‘bolts’ on their DLE technology to extract the lithium and achieve a high purity lithium chloride solution that can then be converted into battery grade lithium carbonate or hydroxide.

Standard Lithium state that they have the “most advanced direct lithium extraction technology – industrial scale pre–commercial demonstration plant in installed at the project. Over 5,000 hours of operation.”

Standard Lithium ‘LiSTR’ DLE technology can be used to bolt onto existing bromine or brine operations to extract the unused lithium

Source: Standard Lithium company presentation

As announced on September 7, 2022 Standard Lithium is now proceeding with a Front End Engineering Design (“FEED”) Study and a Definitive Feasibility Study (“DFS”) for the first commercial plant, at their LANXESS Project. This progress by Standard Lithium is as a result of their successful demonstration plant validating their technology.

Standard Lithium states:

“*This project contemplates processing the brine that is currently being handled by Lanxess at its South Facility, where the Company’s continuously operating pre-commercial Direct Lithium Extraction (DLE) Demonstration Plant is located. The existing brine flow at this location is approximately 3,000 US gallons per minute (usgpm), and using the design criteria of 90% lithium recovery during the DLE process, results in expected annual production of between 5,000 to 6,000 tonnes per annum (TPA) of battery quality lithium carbonate. This first project at Lanxess South, designated as Phase 1A, forms part of a staged*

development of commercial lithium projects contemplated by Standard Lithium:

- *Phase 1A Existing brine flow at Lanxess South Plant (design 5-6,000 TPA lithium carbonate);*
- *Phase 1B Expansion at Lanxess South Plant (expected approximately 5,000 TPA);*
- *Phase 2 Lanxess West Plant…..,*
- *Phase 3 Lanxess Central Plant……"*

Added to this Standard Lithium plan to develop their stand alone South West Arkansas Project (~30,000tpa lithium hydroxide) and others.

The results of the FEED study will be summarized in a NI 43-101 DFS report in H1 2023.

Elon Musk says the lithium refining business (what Standard Lithium is working towards) is a license to print money

In July 2022, at Tesla's Q2 Earnings Call (transcript here), Elon Musk made his famous comment regarding lithium refiners/processors making great money. He explicitly stated:

"I would like to once again urge entrepreneurs to enter the lithium refining business. The mining is relatively easy. The refining is much harder…….So, it is basically like minting money right now. There is like software margins in lithium processing right now. So, I would really like to encourage, once again, entrepreneurs to enter the lithium refining business. You can't lose. It's licensed to print money."

Source: Yahoo Finance

All of this is great news for Standard Lithium investors and

good news for the auto manufacturers desperate to get future lithium supply.

Of course all of the above takes time and does not solve today's lithium deficit; however, it could be the miracle we need to help solve the increasingly large lithium deficits forecast post-2025.

Standard Lithium trades on a market cap of US$622M.

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