

# Lithium brine supply agreement signed with Electroflow

Date: 21 August 2024

ASX Code: MAN

## Capital Structure

Ordinary Shares: 616,759,920  
Current Share Price: 2.9c  
Market Capitalisation: \$17.9M  
Cash: \$14.9M (June 2024)  
EV: \$3.0M  
Debt: Nil

## Directors

Lloyd Flint  
Non-Executive Chairman  
Company Secretary

James Allchurch  
Managing Director

Roger Fitzhardinge  
Non-Executive Director

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## Highlights

- **Mandrake has executed a Lithium Brine Supply Agreement (LBSA) with Direct Lithium Extraction (DLE) provider, Electroflow Technologies (Electroflow)**
- **Pursuant to the LBSA, Mandrake will supply Electroflow's DLE pilot plant with bulk lithium brine**
- **Electroflow will construct and operate the pilot plant, at its own cost, to produce lithium hydroxide via the Electroflow DLE process**
- **Mineral Resource Estimate to be delivered during the current quarter - scoping study to follow**

Mandrake Resources Limited (ASX: MAN) (Mandrake or the Company) has executed a Lithium Brine Supply Agreement (LBSA) with US- based Direct Lithium Extraction (DLE) provider Electroflow Technologies, Inc. (Electroflow) which will see Mandrake supply (on a non-exclusive basis) Electroflow's DLE pilot plant with brines from its Utah Lithium Project.

Managing Director James Allchurch commented:

*'In May 2024, using Mandrake's Utah Lithium Project brines, Electroflow achieved outstanding repeatable lithium recoveries of 92% and conversion to lithium hydroxide with no chemical pre-treatment.*

*Mandrake will now be trucking a large quantity of Utah Lithium Project brine to Electroflow's pilot plant which will provide important information on recovery and purity of lithium hydroxide produced on an ongoing basis at a larger scale. Crucial commercial information relating to costs of processing will also be delivered.*

*In a difficult environment for lithium players, Mandrake has been able to make impressive headway with the Utah Lithium Project without compromising the Company's cash position. The successful qualification for US\$1M of US Federal DoE funding, commitment from two DLE providers to build pilot facilities at their own cost and Mineral Resources Estimate due this quarter has the Company well positioned going forward.'*

Key terms of the LBSA include:

- Electroflow will, at its own cost, construct and assemble the primary self-contained Pilot Plant processing facility and satisfy ongoing associated operating expenses relating to the production of lithium hydroxide via the Electroflow DLE Process utilising lithium brine supplied by Mandrake.
- Mandrake is responsible for the delivery of lithium brine and the costs associated with delivery. Mandrake is also responsible for costs associated with the disposal of delithiated brine from the Utah pilot plant.
- Each party to provide full information to the other in relation to the extraction of brine and operation of the pilot plant.

To ensure costs remain low, Mandrake will re-enter previously sampled legacy oil and gas wells in order to generate adequate volumes of brines for Electroflow's pilot plant facility. Mandrake will initially truck a large volume of brine to Electroflow's existing San Francisco Bay Area laboratory facility to enable preliminary processing to calibrate equipment and finalise pilot plant design.

The bulk of the pilot plant processing work will then commence in Utah early in the new year. The projected scale of production from the pilot plant facility is anticipated to be several hundred grams of high purity lithium hydroxide per day.

The successful completion of pilot plant DLE work on Utah Lithium Project brines will provide crucial information on the potential commerciality of processing Mandrake brines.

Mandrake is on-track to deliver a Mineral Resource Estimate (MRE) for the Utah Lithium Project during the current quarter. The MRE will be followed by the commencement of a scoping study.



#### **Electroflow Technologies, Inc.**

Electroflow's proprietary electrochemical process uses lithium-selective electrodes to convert saltwater brines into lithium chemicals for batteries. Their process eliminates the need for excessive chemical reagents for purification and offers high scalability with a modular cell stack design.

Electroflow is backed by Bill Gates' Breakthrough Energy Fellows programme. The BE group has a stated aim of "accelerating the energy transformation by supporting cutting-edge research and development, investing in companies that turn green ideas into clean products, and advocating for policies that speed innovation from lab to market. Through investment vehicles, philanthropic programs, policy and advocacy efforts, and other initiatives, BE works with a global network of partners to accelerate the technologies needed to build a carbon-free economy."

The ability of Electroflow's technology to produce lithium hydroxide directly from brine revolutionises DLE by completely circumventing the conventional interim steps of lithium processing, being the production of lithium chloride and lithium carbonate, which often involves the use of costly, carbon intensive converters.

### About Mandrake

Mandrake is an ASX listed explorer, focused on advancing its large-scale lithium project in the prolific 'lithium four corners' Paradox Basin in south-eastern Utah, USA. The Company's 100%-owned tenure position exceeds 93,000 acres (~379km<sup>2</sup>).

Mandrake has produced a significant Exploration Target (JORC 2012) for Lithium mineralisation which ranges from 1.7 to 5.6 million tonnes (Mt) of contained Lithium Carbonate Equivalent (LCE) and is currently establishing a maiden Mineral Resource.

The Exploration Target has been prepared and reported in accordance with the 2012 edition of the JORC Code. The potential quantity and grade of the Exploration Target is conceptual in nature. There has been insufficient exploration to estimate a Mineral Resource. It is uncertain if further exploration will result in the estimation of a Mineral Resource.

Positioned within Utah's pro-mining jurisdiction, the project benefits from a favourable regulatory environment that supports mining activities. The project has access to Tier 1 infrastructure, including power and water resources.

Furthermore, the project aligns with the proactive efforts of the US government and industry to promote domestic exploration and production of strategic and critical materials.

**This announcement has been authorised for release by the Board of Mandrake Resources.**

### Competent Persons Statement

The information related in this announcement has been compiled and assessed under the supervision of Mr James Allchurch, Managing Director of Mandrake Resources. Mr Allchurch is a Member of the Australian Institute of Geoscientists. He has sufficient experience that is relevant to the information under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the JORC Code. Mr Allchurch consents to the inclusion in this announcement of the matters based on his information in the form and context in which it appears.