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## Direct Lithium Extraction Study confirms highly efficient lithium concentrating process

**Ion exchange Media proves to be highly efficient for lithium extraction from brine contained within Fish Lake Valley**

**Lithium concentrations increased over 600% in a two-hour processing cycle with an extraction efficiency up to 95%.**

**Positive results support the study's extension and planning for pilot-scale development**

**Drill program at Fish Lake Valley expected in Late Q4 2022**

### Overview

Morella Corporation Limited (**ASX: 1MC** "Morella" or "the Company") is pleased to provide an update on the Direct Lithium Extraction (DLE) study being completed by Recion Technologies ("Recion") at Recion's laboratory in Edmonton, Canada. (Refer ASX Announcement *Direct Lithium Extraction Testwork Begins* released 14 June 2022) The study is aimed at providing a preliminary assessment of lithium extraction and underlying economics using Recion's technology solution and Fish Lake Valley (FLV) brine.

An interim progress report from Recion has provided positive early-stage indications of successful lithium concentration using Recion's ion exchange media (Media) process and FLV brine.

The brine sample was obtained from near surface of the playa at FLV and was expected to be highly diluted from surface water, however the testing process focussed on lithium extraction from the brine type or signature of the brine. As part of the next phase of DLE testing Morella will provide brine samples from reservoirs identified in the Passive Seismic and MT surveys completed earlier in 2022. (Refer ASX announcement *Geophysical Exploration Update for Fish Lake Valley Lithium Project* released on 22 February 2022)

The report has identified that two hours of absorption is sufficient to extract lithium from the brine with extraction efficiency up to 95% using an absorption column configuration. Absorption column configuration has been used in water treatment operations and is known to be scalable using standard/commercially available equipment.

Extended testing saw high lithium recoveries, resulting in lithium concentration levels over 600%.

### Kinetics Test

Morella provided a 20 litre brine sample to Recion in June 2022, initial testing was conducted at benchtop scale, focusing on understanding how Recion's Media process performed with the FLV brine.

To test the lithium extraction rate, a prescribed amount of Media was packed into a column, a prescribed amount of brine then flowed through the column at a prescribed flowrate. Lithium was then desorbed from the column by using acid<sup>1</sup> at a prescribed flow rate.

Concentrate samples were taken every 30 minutes and analysed for lithium concentration. The concentration rates can be seen in Table 1 (below).

**Table 1 – Fish Lake Valley Brine and mineral concentrations (ppm) during DLE testing**

	Li	B	Na	Mg	K	Ca
Original Brine	72	1,040	105,000	BDL	2,620	BDL*
Concentrate 30 min	212	77	3,546	BDL	239	BDL
Concentrate 60 min	322	82	3,440	BDL	275	BDL
Concentrate 90 min	421	82	3,458	BDL	308	BDL
Concentrate 120 min	450	80	3,400	BDL	280	BDL

\*BDL = below detection limit

Recion has identified two hours as the optimal cycle time and ran a set of extended series repeat tests varying Media quantity, flow rates and total brine volume flowing through the column. The results continue to build a body of knowledge on processing options for larger scale testing.

### Media Performance

Recion also conducted a series of tests to assess the performance of the Media process for extended cycles of lithium absorption and desorption. Observations identified that the Media process performed consistently achieving 80-95% lithium extraction over more than 2 months of operation.

Recion also tested Media which had been used for more than 8 months and achieved a high lithium extraction rate. The performance of the process over repeat cycles is a key area of interest to support developing an economic model around the use of DLE technology to underpin the FLV Project. Media performance testing is ongoing.

### Progress Report Conclusion

The Recion testwork on the FLV brine has determined the following conclusions:

- 2 hours was sufficient timeframe to extract lithium from the provided brine sample with an extraction efficiency up to 95% using an absorption column configuration;
- Processing of the brine in the column results in a high lithium recovery and lithium can be concentrated by a factor of 7-9 up to ~400-500 ppm depending on recovery;
- Desorption can be completed in 1-2 hours; however, 2 hours is recommended to ensure full recovery of lithium from the sorbent;
- The absorption column configuration is a well-known modular configuration which has been used in water treatment for decades and can be scaled up using standard equipment; and
- Preliminary economics have been determined and will be refined following the provision of more representative deeper reservoir samples from the upcoming drill program.

### Future Works

The DLE study will continue with Morella recently providing additional brine material to Recion. A primary objective of the next phase of testing is to generate enough concentrated lithium in solution to

<sup>1</sup> Testing was conducted using both sulfuric acid and hydrochloric acid – no notable difference in performance was observed between the two acid types.

allow for continued processing at benchtop scale and production of lithium chemicals from the FLV brine.

Morella is currently in the final stages of permitting and a drill contract has been awarded for a drill program aimed at providing brine samples from depth at the FLV project. The Company expects that drilling will commence in the latter part of Q4 2022 once all regulatory approvals have been received.

Morella has also commenced initial discussions on using Recion's recently built field prototype and potential field pilot and will advise the market in due course.

### Contact for further information

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#### Investors | Shareholders

**James Brown**

Managing Director

E: [info@morellacorp.com](mailto:info@morellacorp.com)

#### Media

**Michael Weir**

Citadel Magnus

M: 0402 347 032

**This announcement has been authorised for release by the Board of Morella Corporation Limited.**

**About Morella Corporation Limited** Morella (ASX:1MC) is an exploration and resource development company focused on lithium and battery minerals. Morella is currently engaged in exploration activities on multiple lithium project opportunities, strategically located, in Tier 1 mining jurisdictions in both Australia and the United States of America. Morella will secure and develop raw materials to support the surging demand for battery minerals, critical in enabling the global transition to green energy.