

## Lithium Exploration in Saskatchewan: New data from the 2021 sampling season.

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### Abstract

Since 2011 the Saskatchewan Geological Survey has been sampling brines from wells producing from Paleozoic-aged strata in southeastern and west-central Saskatchewan and a database of major and minor elements in the formation waters in Saskatchewan has been developed. Standard brine analysis completed by the oil and gas industry typically measures only the major elements, making these results the first publicly available data for trace elements in the province. The aim of the Saskatchewan Geological Survey's brine sampling project is to determine the distribution and concentration of the major and minor elements present in the subsurface brines of Saskatchewan, with an emphasis on lithium and other trace elements that could potentially be derived from basinal brines.

New results from 37 wells sampled in the 2021 season will be presented. These were collected in conjunction with a University of Regina project investigating Rare Earth Element (REE) potential from Saskatchewan formation waters. The preliminary REE results will also be presented. The University of Regina project was initiated because of REE being placed on the recently announced list of Canada's critical minerals, with this inclusion on this list it is expected demand for REE will grow over the coming years.

These new results are from previously unsampled formations and are from numerous oil producing regions in Saskatchewan and show lithium concentrations vary from formation to formation and include spatial variations within those formations.