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## Using salinity to find uranium

ASALINITY study in the Western Australian wheatbelt has discovered high concentrations of uranium in a widely distributed suite of sampled groundwater, artificial drains and surface drainage areas.

The serendipitous discovery was made by the Corporative Research Centre for Landscape Environments and Mineral Exploration in conjunction with the WA Departments of Environment and Agriculture, as part of a study examining the management options for acid, saline waters in the WA wheatbelt.

LEME chief executive Steve Rogers said water geochemistry, the mixture of elements present in a sample of water, can be a useful tool for locating certain mineral deposits such as uranium, as water samples include information from a large area which reduce the amount of sampling required.

"In this study, the concentrations of uranium in some samples were well above normal background levels, and in some cases the samples recorded concentrations ten times above what mineral explorers call anomalous," Dr Rogers said.

"The next step is to find out if these high concentrations are leaking out of a commercial uranium deposit."

Taking on this challenge are junior mineral explorers Mindax Ltd and Quasar Resources Pty Ltd, who have entered into a two-year collaborative research project with LEME known as the Uranium Anomalies in Waters of the Western Australian Wheatbelt.

The project will undertake further water sampling in the study area to determine the exact location of the anomalies detected and assess their prospectivity.

However, high concentrations of uranium in groundwater does not necessarily mean the presence of economic mineralisation.

To get a good indication of the anomalies' prospectivity, the project under the guidance of LEME's hydrogeochemical experts, Dr Grant Douglas and Dr David Gray, will examine the uranium's isotopic ratios.

Previous studies have shown that in arid areas waters coming from economic uranium deposits are characterised by uranium 234 and 238 ratios which are near equilibrium or 1:1.

"Besides having elevated levels of uranium in the water samples, our preliminary studies have also shown the uranium ratios are close to equilibrium. So we are off to a good start," Dr Rogers said, adding that the project has already demonstrated significant results.