

# Chemical composition of core samples from Newark Basin, a potential carbon sequestration site

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Injection of carbon dioxide into deep saline aquifers has been identified as a promising mitigation option of greenhouse gases, the successful management of which is considered to be one of the most urgent and important challenges. Given the high energy production in the New York metropolitan area, the Newark Basin region is considered to be a potential future sequestration site. However, the risk of an upward leak of sequestered CO<sub>2</sub>, especially to a shallow drinking water aquifer, is a key concern facing geological sequestration as a safe and viable mitigation option. In this study, we measured the chemical composition of 25 cores as a precursor for an *ex situ* incubation experiment using these rock samples and aquifer water to simulate a leak event. Inductively coupled plasma mass spectrometry analysis of microwave-assisted digested rock powders and X-ray fluorescence analysis of the rock powders were conducted to obtain the concentrations of major and trace elements. Only those elements with consistent recovery rates for the analysis of standard reference materials by either ICP-MS or XRF analysis were included in the results. Most of the major and trace elements show wide concentration ranges at one to two orders of magnitude.