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**Title:** Nitrate as an Oxidant for In Situ Recovery

**Abstract:**

When an oxidant is needed for in situ recovery (ISR) of uranium (U), oxygen is an industry standard. However, in the groundwater remediation industry, U and nitrate is the more popular couple, but in a negative way. The predominant method to attenuate U concentrations in groundwater is to use microbes to reduce it to U(IV), the more insoluble, and hence immobile, U species. The problem is that oxidants can subsequently reoxidize the U to more soluble species. Multiple tests comparing oxygen and nitrate showed the rate and extent of uranium reoxidation were greater with nitrate. Would nitrate be a superior oxidant in ISR? What about the environmental risks and economics of using nitrate? Details of these issues will be addressed, but ultimately field testing needs to be done to determine if nitrate can improve the bottom line for ISR.