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***Microbial community analyses between groundwater and sediments injected with nitrate for biostimulation of chromium reduction at Hanford Site***

The Hanford site in Washington, USA was an active producer of weapons grade plutonium from 1943 to 1987, causing billions of gallons of waste and contaminants, such as chromium, much of which remains to be either removed or remediated. On-site clean-up is being currently overseen by a joint effort comprised of the Washington Department of Ecology, the Environmental Protection Agency, and the Department of Energy. Previous studies in the Field's lab showed that in-situ reduction of chromium (Cr(VI)) to insoluble Cr(III) was achieved by injection of hydrogen release compound (HRC®). In order to assess other possible nutrient sources that may act to stimulate microbially-mediated reduction of Cr(VI), nitrate was injected into chromium-contaminated wells at the Hanford DOE site in 2010.

Groundwater and sediments samples (pre and post injection) were collected. Chromosomal DNA was extracted and 16S rRNA gene fragments were prepared for 454 sequencing using a GS Junior Sequencer (Roche). Sequences were trimmed and refined by length, primer errors, and ambiguous repeats. Sequences with a high percentage of low quality score values were removed. Chimeras were also removed, and python scripts previously developed were used to sort through sequence data. Dereplicates were run through NCBI-BLAST database, and highest scoring hits were used to obtain phylum and genus of closest relatives. Predominant populations (richness and diversity) were compared between samples.