

ARSENIC REMEDIATION BY IN-SITU CO-PRECIPITATION

A bench-scale study was performed showing that ISOTEC's ferrous iron (Fe^{2+}) catalyst combined with small concentrations of hydrogen peroxide triggers dissolved arsenic (Ar^{3+}) to co-precipitate as a ferric arsenate/ferric oxyhydroxide.

BENCH-SCALE STUDY SET-UP

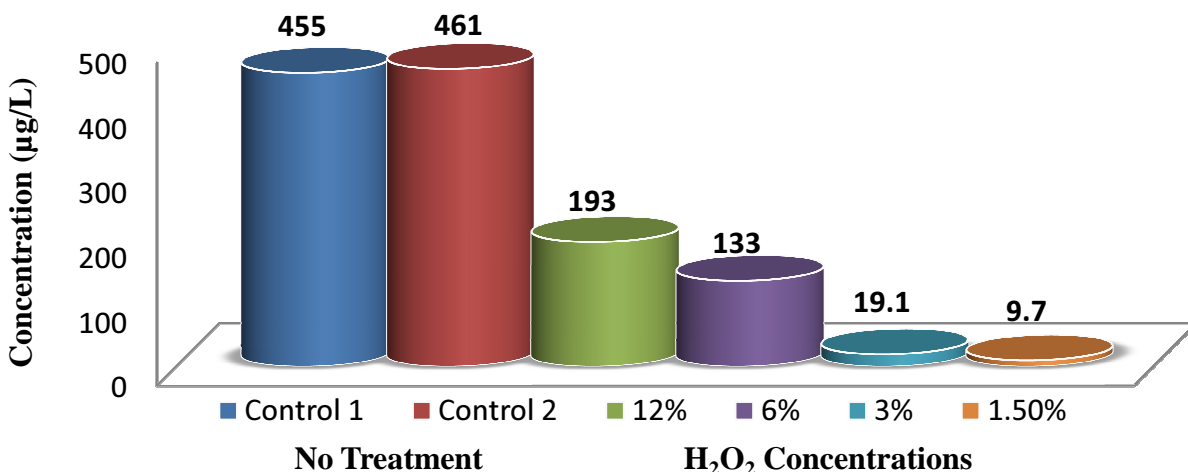
**DISSOLVED
ARSENIC
PLUME?**

ISOTEC technicians prepared an approximately 450 microgram per liter ($\mu\text{g/L}$) solution of arsenic Ar^{3+} . A volume of 238 milliliters (mL) of this solution was added to each of six separate 250 mL jars. Two of the six jars each received 12 mL of distilled water and were labeled "Control 1" and "Control 2." The remaining four jars each received six mL of ISOTEC's patented neutral pH iron catalyst and six mL of hydrogen peroxide at varying concentrations; 12%, 6%, 3% or 1.5%. These four jars were labeled according to the concentration of hydrogen peroxide they received; "12%," "6%," "3%" and "1.5%." All six jars were sent to an accredited laboratory for analysis of dissolved arsenic.

RESULTS

Results from the laboratory analysis showed that all concentrations of hydrogen peroxide used were successful at reducing dissolved arsenic concentrations in the samples submitted. Control 1 and Control 2 were reported to have dissolved arsenic concentrations of 455 $\mu\text{g/L}$ and 461 $\mu\text{g/L}$, respectively, for an average control concentration of 458 $\mu\text{g/L}$. Dissolved arsenic was reported at 9.7 $\mu\text{g/L}$ in the jar that received 1.5% hydrogen peroxide. This jar exhibited the greatest concentration reduction (97.9%) when compared to the average control concentration. The graph below shows the complete results.

**REMEDICATION BY IN-SITU
CO-PRECIPITATION**



Results of the ISOTEC arsenic bench-scale study