

# HYDROGLOBE™ TEAMS WITH URS TO REMOVE ARSENIC FROM FLORIDA GROUNDWATER

## BACKGROUND

A consultant from URS Corporation, an international engineering services firm, was looking for a solution to remove high levels of arsenic, including organic arsenic, from the groundwater of a land developer in Boca Raton, Florida. In order to develop the property, a former nursery, the arsenic level had to be reduced from 730 parts per billion (ppb) to below a groundwater standard of 50 ppb. The consultant determined that pumping, treating and recycling 20 million gallons of groundwater over a period of one year would remediate the problem and was searching for a simple, low-cost, and effective treatment system.

## TYPICAL ANALYSES

Arsenic (total) . . . . . 730ppb  
 Arsenic V. . . . . 615ppb  
 Arsenic III. . . . . non detect  
 Organic Arsenic. . . . . 115ppb  
 pH. . . . . 6.7

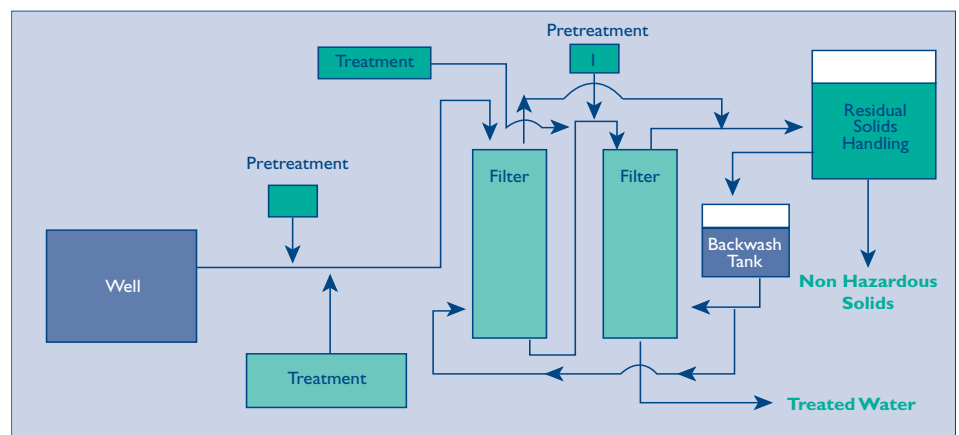
## HYDROGLOBE'S SOLUTION

URS first evaluated an iron modified activated alumina process from another vendor and, after a trial run, discovered that it could not satisfactorily remove the organic arsenic. HydroGlobe™ then determined, using batch and column tests in its laboratory, that the patent-pending FerriMet™ system was capable of reducing the arsenic level below 20 ppb. Using a "Suitcase" Pilot model, a HydroGlobe™ engineer spent 7 days on location at the site. Initial

results using HydroGlobe's treatment, chemical addition along with oxidant (added via hydrogen peroxide), showed the difficulty of removing the organic arsenic. Effluent levels remained slightly above desired levels at 60 ppb. Professionals from HydroGlobe then ran a second treatment in series using only HydroGlobe's treatment chemical and low dosages of flocculating polymer, followed by sand filtration. Effluent concentrations quickly lowered to below 50 ppb and continued to drop below 10 ppb during the run.

The generated solid wastes were shown by TCLP testing to be nonhazardous by a factor of two orders of magnitude. Operating costs were estimated to be very low. With a fully automated system design, the operating costs include only treatment chemicals (in total, below \$0.40 per 1000 gallons treated) and solids disposal (below \$0.25 per 1000 gallons treated). Capital costs are substantially lower than competitive options.

## FLORIDA FERRIMET™ SYSTEM CONFIGURATION



## RESULTS

The pilot data showed extremely high removals:

Inlet Arsenic . . . . . 730ppb  
 Outlet Arsenic . . . . . 10-40ppb  
 Removal . . . . . 95-99%

## SUMMARY

With FerriMet™ and the solution oriented HydroGlobe™ team, URS was able to recommend a low-cost system solution that would dramatically reduce the arsenic contamination level in the client's groundwater and allow development to proceed.