

Selection of Optimum Treatment technologies for Arsenic Control in Southwest United States

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The City of Chandler, AZ relies on both groundwater wells and the surface water treatment plant (WTP) to meet its potable water demands. The City currently operates a total of 28 wells, and possibly 14 of these wells exceed the arsenic MCL and therefore need mitigation. As part of the City's ongoing Water Master Plan Update Project, the City is conducting an arsenic mitigation pilot studies were recommended for wells either higher with arsenic concentration ($> 15 \mu\text{g/L}$) or a pH greater than 8.0. In August, 2003, the City began the pilot testing of adsorption technologies, including regenerable innovative media, and coagulation-filtration (anthracite, a patented ceramic media and membrane filtration). Impacts of pH adjustment to 7.0 versus the ambient pH level were considered. Pilot testing was conducted for three granular iron media from different manufacturers. Based on the pilot results, full-scale performance of each technology was predicted. Production of residuals and their appropriate disposal for each technology was evaluated. The presentation will summarize results of the pilot testing and selection of treatment alternatives based on individual well water quality characteristics.

The City of Rio Rancho, located in the suburbs Albuquerque NM, relies solely on the groundwater to serve its approximate population of 55,000. The City owns 22 wells out of which 13 have arsenic levels that exceed the new arsenic MCL of 10 ppb. In order to comply with the Rule, the City invited a number of arsenic control vendors to evaluate their technologies. Altogether, ten different technologies (not including the two which have been trialed previously) were pilot tested from December 2003 to April 2004. These technologies included two innovative adsorption media, two GIMs, iron modified activated alumina, coagulation followed by three different filter media, anion exchange media and an ultrasound based technology were tested on the same water source. The observed pilot results were compared with the findings of a desktop study and will be presented during the presentation.

Speakers Biography:

Mr. Narasimhan, President of Narasimhan Consulting Services, Inc. (NCS), has more than 14 years of project management and engineering experience in the areas of water treatment and residuals handling, water quality research, and regulatory compliance issues. Mr. Narasimhan has served as Project Manager and Principal for numerous studies for ground and surface water, and designed the of state-of-the-art arsenic removal facilities. Additionally, he has managed or assisted with pilot treatment, planning, and compliance studies for several utilities and agencies in Arizona, Nevada, New Mexico, Texas, Indiana, California, and the metropolitan DC area. Mr. Narasimhan has an outstanding reputation for his work in pilot testing, water quality research, and treatment facilities design. As a result, he is able to integrate research findings into practical design of full-scale facilities.