

Arsenic Removal System Keeps Village in Compliance

A combination of increasing arsenic levels from the new well and the lowering of the MCL to 10 ppb has the water company concerned about meeting the new arsenic standards.

The town of Camp Verde, Ariz., historically has had an arsenic problem, which led to the development of a new well approximately seven miles from the town. Initial arsenic testing indicated that the new well had low arsenic content, but arsenic levels had increased since pumping began. This increase along with the U.S. Environmental Protection Agency's lowering of the Maximum Contaminant Level (MCL) to 10 ppb has the water company concerned about meeting the new arsenic standards.

Water Remediation Technology (WRT) contacted the managers of the water system and the Arizona Department of Environmental Quality and proposed to install a small arsenic removal system on one of the satellite water systems that was consuming 7,000 to 10,000 gallons a day (6 to 8 gpm on demand) with arsenic levels around 25 ppb. The goal for the project was to consistently produce water with less than 10 ppb arsenic. It also was important that the installation operate with a minimum of attention from Camp Verde personnel.



This arsenic removal system successfully reduced the arsenic level to below the new MCL of 10 ppb during the entire test period.

The Camp Verde System was designed to handle 6 to 8 gallons per minute in four 16"-diameter by 10'-tall pressure vessels. Each vessel contained 6.5 feet of 20 x 40 mesh Z-33 arsenic removal media. This media depth was chosen to enable the monitoring of loading over a shorter period of time than would be the case in a full size system that would contain about 15 feet of media per tank in larger tanks. The vessels were plumbed and valved to allow any tank to be the number one tank and to allow any tank to be taken off line without shutting down the system.


The plant was placed in operation on December 22, 2001 and has operated continuously since that time. pH analysis conducted in the field by Camp Verde staff has shown no significant change in the pH between feed and discharge. Rechecks of the iron assay have shown only modest iron increase in the discharge over the feed. (Feed = 0.2 ppm, Discharge = 0.7 ppm.) Arsenic levels in the feed have been consistent at 24 to 27 ppb. (See Figure 1.) All columns are continuing to remove arsenic. As of February 24, 2002, more than 363,000 gallons have been treated during seven weeks with no media change and no discharges over the MCL of 10 ppb. The test continues to run smoothly. 

Figure 1: Arsenic Removal Over Time

