

Integrated Water, Wastewater, and Reclaimed Water Master Plan

HIGHLIGHTS

Field testing 5 arsenic treatment technologies at 2 different field sites.

Accurate cost data developed by testing media to complete failure/exhaustion.

Wellhead treatment recommendations used to update Capital Improvement Plans.

Carollo was retained by the City of Chandler to develop master plans for water, wastewater, and reclaimed water systems. Part of the water master plan included an arsenic evaluation component due to the presence of arsenic above 10 ppb in several of the City's wells.

For the arsenic evaluation component, arsenic treatment technologies were compared side by side and costs were developed based on pilot testing. Results from these studies were used to update future projects for the City's Capital Improvement Plans. Features of the field testing included:

- ▶ Testing of coagulation/media filtration, coagulation/membrane filtration, activate alumina (AA) and arsenic specific medias (e.g., GFH, Sorb33).
- ▶ Arsenic specific medias were found to process four times as much water before requiring replacement compared to AA.
- ▶ Different source waters have more of an impact on AA treatment performance compared to ASM.
- ▶ Coagulation/media filtration and coagulation/membrane filtration were comparable in terms of arsenic removal effectiveness. Both processes resulted in filtered water arsenic levels lower than 5 ppb, using 3 to 5 mg/L of ferric chloride.



Coagulation/microfiltration was one of five arsenic treatment technologies evaluated for the City of Chandler over an 8-month period.