

Table 6.1. Currently applied As(V) removal technologies and their ability to remove As(III). Water quality condition needed for optimal treatment and type of residuals generated are also included.

Treatment Technology	As(III) Removal Efficiency	Required Conditions for Optimal Performance	Waste Generation
Coagulation/filtration (modified, Al)	Poor	pH < 7.0	Backwash water, sludge
Coagulation/filtration (modified, Fe)	Moderate	pH 5.5–8.5	Backwash water, sludge
Coagulation-assisted microfiltration (Fe)	Moderate	pH 5.5–8.5	Backwash water, sludge
Activated alumina	Poor	pH < 6.0	Spent media (nonhazardous without regeneration); regeneration water (disposal in a sanitary sewer)
Granular ferric hydroxide	Good	pH < 8.0 $O_2 > 0.5 \text{ mg L}^{-1}$ $Si < 20 \text{ mg L}^{-1}$	Spent media, backwash water
Ion exchange	Poor	$SO_4 < 50 \text{ mg L}^{-1}$	Regeneration water (hazardous waste or sanitary sewer disposal)
Lime softening (modified)	Poor	pH > 10.5	Sludge (high volume), backwash water
Reverse osmosis	Variable	No particulates	Reject water (sanitary sewer or hazardous waste); this comprises 15–25% of total water
Electrodialysis reversal	Poor	No particulates	Reject water (sanitary sewer or hazardous waste)
Oxidation/filtration	Variable	Fe:As > 20:1	Backwash water, sludge

Sources: US EPA (2000), US EPA (2003a), Jesperson (2002), US Filter (2005).