

pH Guidelines for Treatment of Soluble Metal Streams

(Reference: Groundwater Resources Association of California; Hydro Visions – Volume 10, No. 2; Summer 2001)

Metal	Arsenic	Lead	Copper	Zinc
Treatment Notes:	Acid medium only forms various arsenic sulfides; pH>7; arsenic-sulfur compounds are soluble; pH<7 the compounds are insoluble.	Wide Range (pH: 4-9); forms lead sulfide	Close to neutral (Optimal pH: 5-7); forms copper sulfide	Wide range (pH: 4-9); forms zinc sulfide
Metal	Cadmium	Molybdenum	Uranium	Cyanide
Treatment Notes:	Wide range (pH: 4-9); forms cadmium sulfide	Wide range (pH: 4-9); forms molybdenum sulfide	Wide range (pH: 4-9); forms uranium sulfide	Chemical conversion produces thiocyanate*

*Thiocyanate can be bio-treated, or it can be treated with lime, producing calcium carbonate, gypsum and ammonia.

Chromium (Cr VI) can be treated with calcium polysulfide, and the Cr(VI) is reduced to Cr(III), which is then precipitated as chromium hydroxide.