



## Evaluation of oxidized media filtration for removing sulfides from groundwater

Steven J. Duranceau\*, Vito M. Trupiano

*Department of Civil, Environmental and Construction Engineering, University of Central Florida, Orlando, FL 32815-2450  
Tel. +1 407 823 1440; Fax: +1 407 823 3315; email: sdurance@mail.ucf.edu, sduranceau@aol.com*

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### ABSTRACT

An evaluation of oxidized media filtration processes for the removal of sulfides from groundwater supplies has been completed. Two different filtration processes were studied at the pilot scale: bleach (NaOCl) oxidation preceding electromedia filtration, and NaOCl oxidation preceding manganese (IV) oxide (MnO<sub>2</sub>) filtration. Media filtration, historically used to remove iron and manganese from water supplies, was shown to effectively remove sulfide from groundwater where iron and manganese were not present in any appreciable quantities. Bleach oxidation prior to electromedia or manganese (IV) oxide filter media processes removed total sulfide to below detection levels (<0.1 mg/l) for groundwater supplies containing as high as 2.6 mg/l total sulfide. The use of bleach oxidation preceding media filtration produced finished water with low turbidity (<1.0 NTU), as compared to the more commonly used tray aeration and chlorination processes that produced significant turbidity (between 6–16 NTU as observed in this study). As compared to the more commonly employed treatment method of tray aeration and bleach processes for groundwater sulfide treatment, bleach consumption was found to be 30 percent less for the media filtration processes piloted in this study.

*Keywords:* Media filtration; Hydrogen sulfide; Oxidation; Groundwater treatment; Turbidity

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\*Corresponding author.