USGS

WATER RESOURCES RESEARCH GRANT PROPOSAL

Project ID: 2002ND11B

Title: A Comparative Analysis of Fargo and Moorhead Ozonation Systems

Project Type: Research

Focus Categories: Treatment, Water Supply, Surface Water

Keywords: Ozonation, Trihalomethane, Disinfection

Start Date: 05/01/2002

End Date: 12/31/2003

Federal Funds: $11,312

Non-Federal Matching Funds: $23,071

Congressional District: 1

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Abstract

Ozone has been increasingly used as a disinfectant in water treatment processes in the United Sates. Ozone is a strong oxidant that also can be used for taste and odor control and organic matter removal. The use of ozone for disinfection is thought to reduce the potential formation of trihalomethanes (THMs) and other harmful disinfection by products (DBPs) associated with chlorine disinfection. Also, ozone is able to achieve disinfection with less contact time and concentration than other disinfectants. However, ozone demand and reactions are highly dependent upon pH, temperature, organic concentration and other factors. Therefore, it is more difficult to control ozonation systems. Incomplete oxidation of organics under certain conditions may also produce toxic by-products. Two water treatment plants using the same source of water are investigated in this study to compare and contrast the performance their ozonation systems.The impact of operation conditions on ozone demand, odor removal efficiency, and ozonation by-product formations are investigated in the study.The information gained will be valuable for other possible ozonation applications in the aquatic environment. The type of organics and the oxidation by-products produced during the ozonation process will be identified.