

Identification of Membrane Foulants in Natural Waters

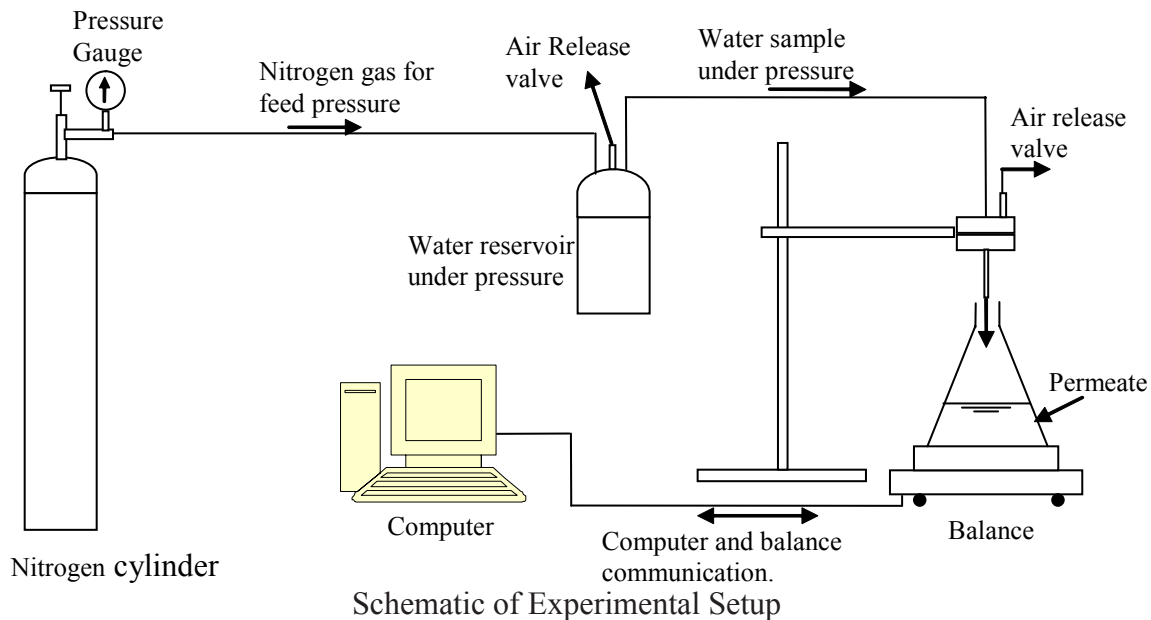
Khalid Mehboob and Dr. Kerry J. Howe (advisor)
Department of Civil Engineering, University of New Mexico

PURPOSE OF STUDY

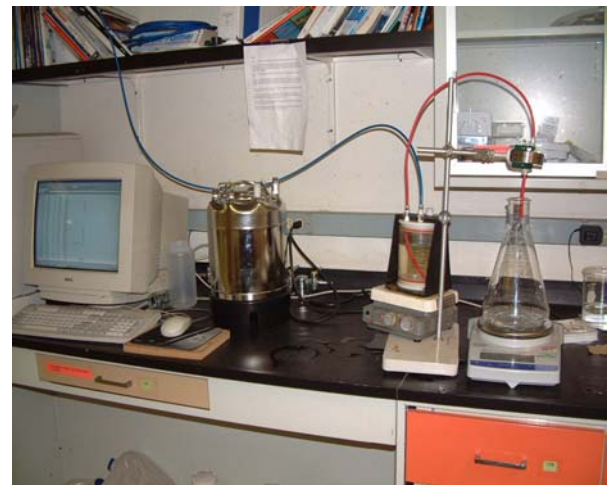
This project deals with Membrane Filtration (microfiltration and ultrafiltration), a new technology used for municipal water treatment. Membrane filtration has an important advantage over other treatments in that it provides greater safety against water-borne diseases. Its biggest disadvantage is due to membrane fouling or pores getting blocked. Previous research has shown that natural organic matter (NOM) and small colloids (particles that are neither dissolved nor particulate) in water are prime membrane foulants. Little is known about the small colloidal matter in water or how it contributes to membrane fouling. This research will identify the physiochemical characteristics of membrane foulants with a focus on NOM and small colloidal particles in water ranging from 3 - 20 nm in diameter. We will study the fouling of microfilters and ultrafilters by surface water and groundwater from sources in and around Albuquerque, including the Rio Grande and City of Albuquerque wells.

RESULTS AND BENEFITS

This project is ongoing and will be completed by December 31, 2004. Results will be used for improving the membrane filtration process and for developing new techniques and strategies so that membrane filtration can be applied to a wider variety of source waters.



Scanning Electron Microscope (JEOL 5800LV SEM) attached with an Oxford Analytical ultra-thin window EDS and an Oxford Isis 300 X-ray analyzer



Complete filtration experiment setup

