

**BIOLOGICAL ACTIVATED CARBON FLUIDIZED-BED REACTOR
(BAC-FBR) SYSTEM FOR TREATMENT OF
CONTAMINATED GROUNDWATER**

T.C. VOICE and XIANDA ZHAO

*Department of Civil and Environmental Engineering, Michigan State University,
East Lansing, MI 48824, USA*

ABSTRACT

The use of granular activated carbon (GAC) as the biofilm carrier in a biological fluidized-bed reactor was studied for the treatment of groundwater contaminated with gasoline constituents benzene, toluene, and xylene. The GAC was found to provide dampening during the transient conditions at start up and periods of step organic load increases. The activated carbon provided temporary storage of the substrates in excess of the biodegradation capacity, with subsequent substrate release and degradation as capacity increased. During the steady-state conditions, the BAC-FBR performed primarily as a biological system with the high efficiencies normally associated with fluidized beds. The production and removal of the biological products during the step organic load increase was also studied.