



**Great Lakes Protection Fund**

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**Funded Project**

# Chlor-alkali Plants: A Major Source of Mercury in the Great Lakes Basin

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Project No.	509
Timeline	1998 – 2002
Award Amount	\$215,000
Team Leader	Jerome O. Nriagu, University of Michigan

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This team measured and accounted for mercury losses from closed chlorine gas manufacturing facilities, and it made recommendations to the U.S. Environmental Protection Agency (EPA) to reduce emissions from both closed and operating facilities. The team monitored six closed mercury cell chlor-alkali (MCCA) sites for concentrations of ambient mercury and mercury emission fluxes at locations both on and off site. The team found mercury concentrations as high as 8,000 ng/m<sup>3</sup> in a patch of land adjacent to one closed Niagara Falls site. Their findings revealed that underground samples contained more than nine times the surface amount, suggesting lateral subsurface mercury vapor transport from a poorly sealed buried mercury cell room. Over one of the site's manholes, team members found mercury fluxes as high as 15,000 ng/m<sup>2</sup>/hr, suggesting that sewers once connected to these sites may also be a source of mercury contamination. The team found that un-dismantled structures, uncovered and untreated sites, or poorly conceived storage sites were still releasing large amounts of mercury into the atmosphere. Sites properly decommissioned—where contaminated materials were properly buried—were not releasing significant amounts of mercury.

Team members recommended that the U.S. EPA develop a central repository of monitoring data and information for Great Lakes MCCA sites and that the EPA revise decommissioning procedures for MCCA plants based on the team's results. The U.S. EPA participated in the project and received the team's recommendations. Additionally, the Chlorine Institute agreed to reduce mercury use in the US by 50 percent by 2005.