

## Maintaining the Gains to Date

Containment and pump-and-treat systems are the engineered remedies of choice at the most critical hazardous waste sites in the Niagara River AOC and elsewhere in North America. Pump-and-treat requires continued investment in operation and maintenance (O&M) of the remedial system. These O&M activities can be expected to continue for decades and, in some cases, indefinitely (U.S. GAO 1995).

The Commission commends the implementing agencies for their success in achieving considerable reductions in the contaminant loadings to the Niagara River. However, as long as the contaminants remain in hazardous waste landfills located on the fractured bedrock close to the river there is a continuing risk of leakage to the Niagara River in the event of a major event such as an earthquake, technology failure or inability to maintain the funding required for operation and maintenance. Concern remains over the dense nonaqueous-phase liquids (DNAPLs) remaining in some containment sites. While promising technologies for treating DNAPL source zones and dissolved plumes emanating from DNAPL source areas have been identified by the National Research Council (NRC 1999), many of these technologies remain unproven particularly under the conditions present within the Niagara AOC.

The Commission remains concerned over the potential human health threat that is posed by the residual DNAPL contamination of some sites. Ongoing risk reduction efforts might benefit from more aggressive technology development and bench or pilot testing of alternative technologies.

## Recommendation

### **Consider Appropriate Technologies for Long Term Solutions.**

**Companies and agencies need to continue assessing new technologies that might be appropriate for permanent solutions to ensure that contaminants from the existing hazardous waste sites do not migrate into the Niagara River and jeopardize the progress to date.**