



Michigan Helps Fund Drinking Water Security Projects

By Bob Babcock, Michigan Department of Environmental Quality

Over the past year, the Michigan Water Bureau in the Department of Environmental Quality (DEQ) has instituted a number of projects and programs to help its water systems with security enhancements and emergency preparedness efforts. These projects and programs include: implementing a Gas Chlorine Reduction Project; conducting follow up activities for the Vulnerability Assessment Capital Improvement Plan; and conducting training and tabletop exercises.

Gas Chlorine Reduction Project

The Michigan DEQ, Water Bureau, was able to use U.S. Department of Homeland Security (DHS) grant funds to implement a gas chlorine reduction project. This project was instigated when the Michigan Homeland Protection Board (MHPB) asked its members to submit proposals for use of state infrastructure protection funds. Members of the MHPB represent (i.e., are the Directors of) the majority of state departments responsible for critical infrastructure protection in Michigan, including the DEQ. The Board works in concert with the state's Critical Infrastructure Protection Committee that consists of staff (who run the programs) from all of the state agencies. The MHPB and the CIPC were both created as a result of a Governor's Executive Order, after the terrorist attacks of 2001, to ensure that the state's collective homeland security needs are addressed, and that state DHS funds are distributed accordingly. It was the Committee that actually reviewed and approved the DEQ Water Bureau's gas chlorine reduction project proposal, and worked with the State Police (the Michigan State Administrative Agency) to procure the funding from DHS.

In August 2007, the DEQ awarded two contracts for an eight month period to provide public water and wastewater systems with information, risk-benefit analysis, contacts, support, presentations, documentation, and motivation to switch from gas chlorine to a safer, alternative disinfectant. One contract was provided for the counties of Wayne, Oakland, Macomb, St. Clair, Washtenaw, and Monroe under the Urban Area Security Initiative (UASI). The other contract was provided for non-UASI areas that generally includes the remainder of the state outside of the Southeast Michigan urban area.

The activities of the gas chlorine reduction contracts include site visits and conference calls with facility representatives at 117 of the largest public water systems (PWSs) and wastewater treatment plants throughout the state. Facility participation was voluntary. However, participation was recommended inasmuch as the risk-benefit analysis is considered very important for the safety of the community.

The reason the DEQ embarked on this project is that, while gas chlorine currently meets the disinfection needs of PWSs, it is extremely dangerous and can be life-threatening, even in very small amounts. While current standards and procedures provide for the safe use of gaseous chlorine, gaseous chlorine containers may become attractive targets for terrorism. Gaseous chlorine must be stored and transported under pressure, often in high concentrations and quantities requiring the use of 90-ton railcars.

A number of alternatives exist to directly replace the use of gaseous chlorine including ozone treatment, irradiation treatment, and sodium hypochlorite treatment. These alternatives may have not been considered before homeland security became a high priority. With the risk of transportation, handling, and storage of gaseous chlorine, Michigan DEQ believes these replacements have become more attractive, as well as more practical, for public water and wastewater system use. Wastewater systems have an additional reason to switch to alternative disinfection methods inasmuch as they have to de-chlorinate prior to discharge – usually with another toxic gas, sulfur dioxide.

Many Michigan systems have already converted from the use of gaseous chlorine. DEQ expects that other water and wastewater systems will follow suit. However, since disinfection is a critical unit process, switching disinfectants will take significant time and capital to accomplish.

Vulnerability Assessment Capital Improvement Plan (VA CIP)

In September 2006, the Michigan DEQ awarded a VA CIP follow-up contract for the purpose of improving water system security by assisting the PWS with implementing changes identified in their VA. The VA CIP follow-up contract was not intended to be a compliance assessment. All PWSs that were required to complete a VA as part of the Bioterrorism Act of 2002 were asked to participate in the program. This two-year effort was expected to help the state determine the status of the PWS's security program and better direct future efforts and grant funding opportunities.

At this time, Phase I of the VA CIP follow-up effort is completed. Phase I looked at the security improvement needs identified in the utility's VA, what improvements had been made since the VA, and the PWS's timeline for completing remaining projects. Some of these items included making changes to utility policies and procedures and emergency response plans and physical improvements such as purchasing and installing backup

Michigan Helps Fund Drinking Water Security Projects...*cont'd from page 2*

emergency generators, as well as locks, fences, cameras, and key card entry access. The review indicates that approximately 80 percent of the security related projects identified in the utilities' VAs have been completed and that in total, utilities spent approximately \$25 million to implement these improvements. Given the fact there was no grant money for capital improvements made available from EPA, the Michigan DEQ considers this good news, as it shows the utilities took the VA CIP seriously. Yet, there are still many security projects that remain uncompleted and need funding to complete.

Phase II of the VA CIP follow-up is continuing and involves querying the Phase I utilities about subsequently identified security needs and those that have been implemented.

Train the Trainer Program for Conducting Table Top Exercises

The Michigan DEQ conducted nine Train-the-Trainer Courses for Table Top Exercises (TTT-TTX) with favorable feedback from attendees. One of the goals of the TTT-TTX was to give the utility enough information and confidence to perform a TTX at their facility.

Approximately 60 TTXs have been conducted with favorable response from participants who thought that they were useful in highlighting the importance and vulnerability of the water system to local partners. The TTXs take place in a conference room, where local partners, police, fire, health, emergency management, elected officials, and others work together to respond to terrorist scenarios. There are at least six modes of terrorism presented during the exercises. They include chemical, biological, radiological, nuclear, explosive, and cyber terrorism. The participants have felt that these exercises have been valuable and that more TTX's should be conducted.

If you have any questions, please contact Robert Babcock, Security and Emergency Response Coordinator, at 517-373-8566 or babcockr@michigan.gov. More information about these projects and other security efforts can be found on Michigan's web site at: http://www.michigan.gov/deq/0,1607,7-135-3313_23413---,00.html. ■

ASDWA Workshop and Member Meeting Focus on Drinking Water Security...*cont'd from page 4*

- Kevin Morley of AWWA discussed the driving forces of the Water Sector's efforts to move toward an all-hazards, multi-barrier approach for secure and resilient water and wastewater infrastructure. He made note of the activities that will help us reach each of the Sector Specific Plan (SSP) Goals "by number" as follows:
 1. Developing and installing contamination warning systems, technologies, and response protocols;
 2. Developing and using the Risk Analysis and Management for Critical Asset Protection (RAMCAP) framework, working with the Homeland Infrastructure Threat and Risk Analysis Center (HITRAC), and voluntarily instituting Chemical Facility Anti-Terrorism Standards (CFATS);
 3. Developing business continuity and cyber security plans, as well as mutual aid agreements; and
 4. Working with the Coordinating Councils and partners.
- Jane Downing of EPA Region I provided information about many of EPA's Regional security efforts including: developing a variety of top ten lists; conducting drills and exercises; and creating law enforcement training materials. Other Region I activities include developing the Regional Water Teams and working with Region II on some emergency planning scenarios. ■