Why plan for an emergency?
Because an emergency situation that affects water quality or quantity is unpredictable, an assessment and response plan can guide utilities when disaster strikes.

Planning for water emergencies requires knowledge of potential impacts on water services. Operators need to be able to identify characteristics of each hazard and vulnerable system components.

System managers who want to plan ahead can now use a new tool developed for small systems to assist in planning for and assessing the likelihood of an emergency. The Emergency Planning Interactive Guide for Small Water Utilities is a CD-ROM, developed by the Mid-West Technology Assistance Center and the Illinois Section of the American Water Works Association (AWWA), that helps to evaluate the potential for specific types of emergencies in public water systems and to develop planned responses and prevention. Users of the guide can enter system-specific information, save it, and print out reports to include in their emergency plans. By using the emergency-planning guide, system managers can easily:

- assign specific responsibilities to people other than their normal assigned duties;
- describe how resources will be protected in an emergency;
- identify resources available within a municipality and create agreements with neighboring communities; and
- identify steps for mitigation during response and recovery.

What emergencies should systems plan for?
Anticipating unexpected water plant problems is just common sense. A pumping station located next to a river can expect an occasional flood. Utilities that have seen drought conditions before should know they are possible again. But many severe problems may be a little less obvious. Various types of disasters and emergencies include:

Natural Disasters are the largest single category of repetitive threats resulting from weather or geological events. They may or may not be predictable and damage can range from minimal to catastrophic. Disasters include floods, thunderstorms, landslides, tornadoes, winter storms, drought, wildfires, earthquakes, and dam failures.

Technological Disasters can result from attempts to manipulate the environment. Technological or man-made threats have dramatically expanded along with advances in modern technology. Two examples include hazardous materials and radioactive accidents.

Sabotage or Terrorism can be an act of a disgruntled employee or an act of terrorism by a group or individual. Disgruntled employees pose a great risk because of personal knowledge of a water plant’s workings and water chemistry. Terrorists may use biological or chemical agents to contaminate food or water because these agents are extremely difficult to detect.

Pressure Loss or Contamination can be the result of a major disaster or can happen at any time. Causes of contamination, in addition to major disasters, can include water main breaks,
cross-connections, improper construction, poor maintenance procedures, or source water contamination.

**Four Phases of Emergency Management**

An effective emergency management plan consists of four important steps:

1. Preparation to handle an emergency.
2. Response to an actual emergency.
3. Recovery from an emergency.
4. Mitigation to prevent future emergencies from occurring.

**Preparation**

In the preparation phase, the system manager should focus on such checklist items as plant systems identification, customer identification, an equipment inventory, and personnel skills.

With plant identification, list the systems in the water treatment plant, such as source, transmission, pumping, laboratory, treatment, storage, and distribution.

Under customer identification, you will want to have a list of priority customers, such as hospitals, along with customers who are able and willing to reduce water use.

An equipment inventory will help operators to easily know the equipment and supplies the system has along with their general condition and where they are stored. In an emergency situation, use the list to locate needed items as well as to know which items will have to be borrowed from another system. Consider items such as piping, valves, lumber, extra chemicals, hardware, disinfection needs, shoring, fuel, and chainsaws.

A personnel skills checklist will help determine which employee is skilled or trained in certain plant functions and which employees should be called in during an emergency.

The succession list you develop will outline who is in charge during an emergency. It should include all workers’ names, titles, phone numbers, and contact information.

**Response**

After an emergency has occurred, you need to determine the extent of the damage to the facility. This assessment will help in planning the correct response. Assess damages that directly affect lives and work to reduce the impact of the emergency. Take any action needed to reduce further damage that the emergency has caused. The most important issue is saving lives.

Notifying others is critical. Internally, plant managers need to notify employees about problems. Externally, managers must notify the public, regulatory agencies, and emergency-service agencies, such as the police, fire department, and hospitals, if necessary. Know in advance who is assigned to inform or contact these groups.

**Recovery**

In the recovery phase, workers spend their time assessing damages and the type and amount of outside assistance that they may need. Accurate information about the damage suffered is essential in planning an organized and recovery program. State and federal agencies need to know both the economic and social impact an emergency has on the community.

Following the announcement of an emergency situation and damage assessment, utility workers can use this checklist to begin recovery operations:

- ensure someone has notified regulatory agencies;
- assign personnel to specific areas and specific tasks;
- assess the procedures necessary to maintain a continued supply of potable water;
- estimate what is needed for cleanup and salvage operations; and
- consider the need for outside assistance or equipment.

**Mitigation**

Mitigation is the last stage of emergency management. Mitigation involves reducing the potential for damage from an emergency situation before it occurs.

Consider methods that reduce the likelihood of damage from the effects of an emergency. Mitigation means protecting facilities, equipment, and records that are essential to restoring operations once an emergency occurs. Analyze each of the systems in your plant, matching them with damage from the most likely emergency occurrences.

Establish a list of preventive measures you can take for each of the potential emergencies. Examples include storing equipment, strapping down a chlorine tank, filling elevated tanks, or shutting down exposed pipe at river crossings.

This brief overview of the emergency management plan process is based upon the software Emergency Planning Interactive Guide for Small Water Utilities. To develop your own personalized plan using the software, contact the Illinois AWWA Section at (815) 496-3062, or write to 2927 North 4395 Road, Sheridan, IL 60551. The CD is available for PCs and is free. The planning guide can be downloaded from their Web site located at www.isawwa.org/cdintro.htm.