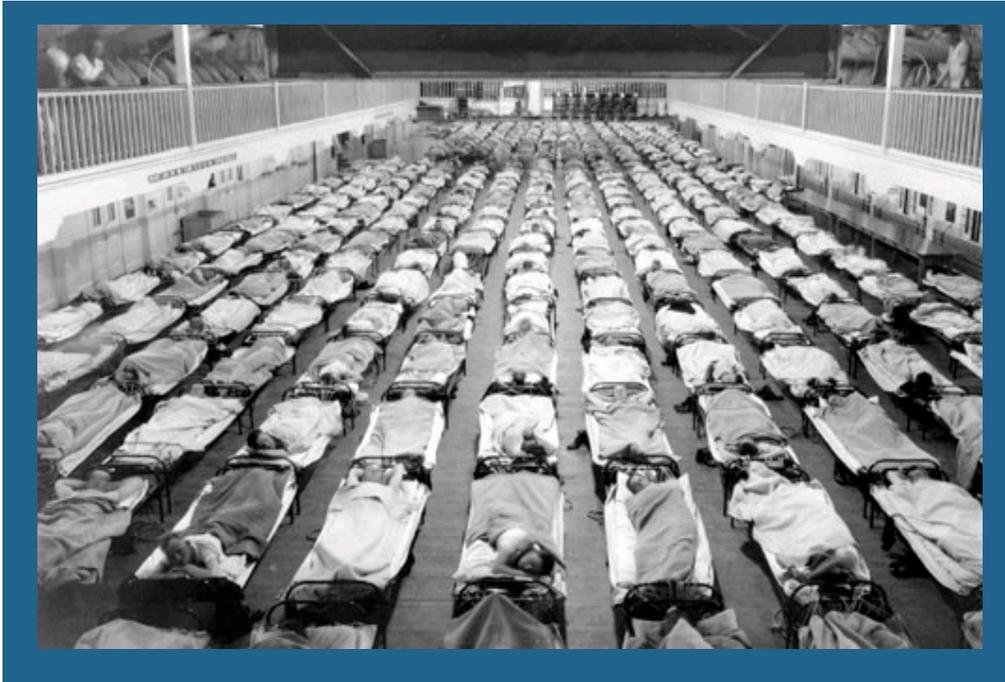


Pandemic Flu Scenario



TABLETOP EXERCISE

Date; Location

Sponsored by: Organization

Important! The information contained herein is covered by the security policies of (sponsoring organization) and should be treated as sensitive information. Exercise participants are hereby requested to turn in the action-planning results to the exercise support staff following the conclusion of the exercise.

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INTRODUCTION



Exercise Schedule



9:00 a.m.	Welcome and Introduction <ul style="list-style-type: none">• Review of Administrative Details• Exercise Purpose and Objectives<ul style="list-style-type: none">○ Purpose○ Objectives○ Roles of Participants○ Expected Outcomes
9:30 a.m.	Scenario – Pandemic Flu¹ <ul style="list-style-type: none">• Scenario• Facilitated Discussion• Transition and Wrap-Up
12:00 p.m.²	Break
12:15 p.m.	Action-Planning Session
	Review and Conclusion
1:15 p.m.	Closing Comments

Purpose of the Exercise



Influenza (also known as flu) pandemics occur when there is a notable change (termed antigenic shift) in the circulating strain of influenza. Because of this shift, a large portion of the human population lacks immunity to the virus and is vulnerable to infection from the new pandemic strain. The virus spreads easily from person to person, causing a pandemic. Influenza pandemics have occurred four times in the last hundred years (1918-1919, 1957-1958, 1967-1968, and 2009); the most recent outbreak involved the novel H1N1 virus.

The primary purpose of this facilitated exercise is to enhance the ability of utility personnel and

¹ Assumes that no additional scenario progressions, or stages, to the base scenario will be conducted. These additional scenario progressions (or stages) may also be conducted at later dates. Please see the “?” box in the upper right hand corner of this page for more information.

² Break start time is approximate.

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stakeholders, such as local and state agencies, to effectively prepare for, manage, and respond to water infrastructure consequences resulting from a pandemic flu. Additional purposes of this exercise include:

- Providing an opportunity to shape utilities' Emergency Response Plans (ERPs), including the notification and activation process, and related coordination activities;
- Developing a list of action items, including utility management and stakeholder roles and responsibilities, to support further refinement of the utility ERP; and
- Building relationships between utility and local and state water infrastructure stakeholders.

Scope of the Exercise



This exercise emphasizes the roles, responsibilities, and relationships of the utility and other stakeholders during a utility response to drinking water and wastewater-related consequences resulting from a pandemic flu.

Exercise Structure



This will be a multimedia, facilitated tabletop exercise. The exercise begins with a scenario narrative presented to the audience by an exercise facilitator. The scenario provides the backdrop that drives participant discussion. Following the scenario narrative, a facilitator will guide participants through a facilitated discussion period to describe their actions, decisions, and notifications as necessitated by the situation or change in resource status. Participants are encouraged to ask questions of other participants. Immediately following the discussion period, the facilitator will lead a “hot wash” session (see the Action-Planning Session section) among participants to highlight key elements and develop a list of action items.

Capabilities, Tasks, and Objectives



At the conclusion of this exercise, participants should be able to do the following:

- Define or refine participants' roles and responsibilities in regards to managing the consequences of a pandemic flu, which should be reflected in their *plans, policies, and procedures* and other preparedness elements currently in place or under development;
- Build relationships between utilities and stakeholders;

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- Determine neighboring utility water infrastructure (water and wastewater systems) capabilities and needs, including resources that may be available from the state Water/Wastewater Agency Response Network (WARN) and other mutual aid networks;
- Identify water infrastructure coordination requirements of state agencies operating under the appropriate Emergency Support Functions (ESFs); and
- Identify other needed enhancements related to *training and exercises* and other preparedness elements currently in place or under development.

This exercise will not be a success unless you go back to your office and follow through.

Participating Organizations



Participants of the tabletop exercise should include utility personnel from the following departments:

- Management,
- Operations,
- Security, and
- Laboratories.

Additional participants from outside of the utility may include the following organizations:

- Local emergency management agency;
- State government agencies, including:
 - Drinking water primacy agency;
 - Wastewater permitting authority;
 - Local health department; and
 - Emergency management agency.
- Federal agencies; and
- Others interested in water and wastewater issues.

For a list of individual participants, please see Appendix 1.

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Participant Roles and Responsibilities



Players respond to the situation presented based on expert knowledge of response procedures, current plans and procedures, and insights derived from training and experience.

Facilitators lead the exercise by presenting the scenario narrative and facilitating the discussion period and hot wash. They also provide additional information or resolve questions as required. Key planning team members may also assist with facilitation as Subject Matter Experts (SMEs) during the discussion.

Recorders capture the discussions of the exercise in written form.

Evaluators monitor the exercise, track accomplishments according to objectives and may ask questions. They are not encouraged to participate in the facilitated discussion period.

Observers observe the exercise but do not participate in the facilitated discussion period.

Exercise Assumptions and Artificialities



In any tabletop exercise, a number of assumptions and artificialities may be necessary to complete the exercise in the time allotted. Participation in the discussion is in accordance with the assumptions and guidelines below:

- The scenario is plausible, and events occur as presented.
- There are no “hidden agendas” or trick questions.
- All participants receive information at the same time.

Exercise Rules of Conduct



A successful tabletop exercise also depends on following the rules below, which have been proven to ensure effective discussion.

- **There is no single solution.** Varying viewpoints, even disagreements, are expected. This session is intended to be a **safe, open, stress-free environment**.
- Respond based on your knowledge of current plans and capabilities (i.e., you may use only existing assets) and insights derived from training and experience.

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- Your organization's positions or policies do not limit you. Make your best decision based on the circumstances presented.
- Decisions are not precedent-setting and may not always reflect your organization's final position on a given issue. This is an opportunity to discuss and present multiple options and possible solutions.
- Issue identification is not as valuable as suggestions and recommended actions that could improve response and preparedness efforts. Problem-solving efforts should be the focus.
- Assume there will be cooperation and support from other responders and agencies.
- The basis for discussion consists of the scenario narratives, your experience, your understanding of your Emergency Response Plan (ERP), your intuition, and other utility resources included as part of this material or that you brought with you. There are no situational injects (expected actions or scripted events inserted into the exercise by an exercise controller).
- Treat every scenario as if it will affect your area.

SCENARIO DESCRIPTION – PANDEMIC FLU



Note: The following materials include a base scenario and two separate progressions (or stages) of the base scenario. The Exercise Planning Team may choose to conduct just the base scenario, or the base scenario and one or both progressions in a single exercise, depending on the level of pandemic preparedness the utility has completed. Alternatively, the base scenario and the two progressions may be presented in a sequence of exercises. The base scenario focuses on steps to complete when the impact of a pandemic has not yet reached the United States. The first progression details outbreaks occurring in four major U.S. cities. The second progression includes a widespread outbreak throughout the U.S., and includes the utility's community.

Base Scenario - Initial Outbreak

An outbreak of respiratory illness in Southeast Asia is identified as a new, human-to-human transmissible influenza strain by the CDC.

In late November, an outbreak of an unusually severe respiratory illness is identified in a small village in Southeast Asia. At least twenty-five cases have occurred, affecting all age groups, including a chicken farmer and his four-year-old daughter, who both tested positive for human influenza. The girl had not been in direct contact with the family's poultry, and human-to-human transmission is suspected. Twenty patients have required hospitalization at the local provincial hospital, five of whom have died from pneumonia and acute respiratory failure. Surveillance in surrounding areas is increased, and new cases begin to be identified throughout the province. Specimens collected from patients located within the original outbreak are sent to the World Health Organization (WHO) Reference Center for Influenza at the Centers for Disease Control and Prevention (CDC) in Atlanta. Influenza vaccine manufacturers are placed on alert.

The CDC determines that the influenza strain is a subtype never before circulated among humans, and it has been confirmed that the strain can be transmitted from human to human. Pre-pandemic vaccines for this subtype are not available. Isolates of the new strain, now being collected from patients in various overseas outbreak locales, are sent to the Food and Drug Administration (FDA) and CDC so that they can begin work on producing a reference strain for vaccine production. Vaccine manufacturers are requested to go into full production as soon as

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they are able. The new influenza virus begins to make headlines in every major newspaper, and becomes the lead story on major news networks. Key U.S. government officials are briefed on a daily basis and surveillance is intensified throughout many countries, including the United States.

Both drinking water and wastewater utilities experience significant challenges:

- Coordination steps must be taken with other jurisdictions and agencies to align pandemic flu preparedness plans;
- Critical personnel and operations must be identified;
- Social distancing (staying away from other people) strategies must be developed;
- Personnel sick and leave time policies must be reviewed;
- Plans must be developed for meeting personnel's basic needs if personnel will be required to work extended shifts;
- Alternate suppliers of treatment chemicals need to be identified;
- Support for critical personnel's families must be considered;
- Information regarding vaccinations must be obtained;
- Preparation for extended power outages needs to be considered; and
- Prioritization of service to customers may need to be considered.

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Progression 1 - Moderate Outbreak

In December and January, flu outbreaks begin to develop around the initial outbreak in Southeast Asia, with sporadic cases occurring in more geographically separated areas. Although cases are reported in all age groups, children appear to be the most severely affected, and fatality rates approach 2%. States and local areas are asked to intensify influenza surveillance activities.

Travel agencies are experiencing a significant slowdown in their business in general. Cancellations for vacation trips to Southeast Asia are at an all-time high and even business travel to the area has significantly decreased. The public is very concerned because a vaccine is not yet available and will take up to six months to produce. Antiviral drugs are available for roughly one-quarter of the population.

Later in January, the CDC reports abnormally high numbers of influenza cases in four major U.S. cities. In most cases, the patients have been in direct contact with a friend or family member who traveled overseas, and the virus can be traced back to ill airline passengers.

Over the next month, a major outbreak begins in one of the four major cities where the virus had been isolated. This city is a major hub for U.S. travel to Asia, and city and state officials are considering restricting airline traffic. Local and state businesses are starting to experience personnel shortages, including chemical distributors for disinfection chemicals. These personnel shortages have led to a reduction in chemical availability nationwide. While there are no shortages across the nation yet, many utilities are looking into diversifying their options for obtaining necessary water treatment chemicals.

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Progression 2 - Severe Outbreak

In February, outbreaks begin to be reported throughout the United States. By March, there is widespread occurrence of pandemic influenza cases across the country. Rates of workplace absenteeism begin to rise. Schools are closed to limit the spread of the virus. Health measures that emphasize social distancing and hygiene, such as limiting physical interaction in the workplace, canceling meetings and public gatherings, and wearing face masks are put into place. Phones at physicians' offices and health departments begin to ring constantly.

Despite the preventative measures in place, police departments, local utility companies, and mass transit authorities begin to experience personnel shortages, resulting in some disruption of routine services. Hospitals and outpatient clinics also become short-staffed as physicians, nurses, and other healthcare workers become ill. Elderly patients with chronic, unstable medical conditions hesitate to leave their homes for fear of becoming seriously ill with influenza. Intensive care units at local hospitals become overwhelmed, and soon there are widespread shortages of mechanical ventilators for treatment of patients with pneumonia. Family members are distraught and outraged when loved ones die within a matter of a few days. Further deterioration in health care and other essential community services occurs over the next eight weeks in your community.

Like other government agencies, businesses, and utilities across the nation, the local water and wastewater utilities are both facing severe personnel shortages caused by personnel becoming infected by the virus, having to care for sick family members, taking care of children home from school, and those characterized as the "worried well."

Personnel shortages have also affected power and fuel distribution companies. Long lines at certain gas stations, and periods of blackout are worrying the general public as well as water and wastewater utilities, who must find alternate power supplies to keep running. Fuel for generators is becoming scarce. Some components of the supervisory control and data acquisition (SCADA) system at your utility are negatively affected by the blackouts and the data are no longer reliable.

CDC has just announced that they are very close to finally developing a vaccine for the particular

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strain of virus causing the pandemic. They believe that the vaccine will be available shortly, but it will be in limited supply.

Meanwhile, the neighboring community's water treatment plant operator is out sick, and the utility manager has contacted your utility as a backup for water supply should they be unable to treat the water. Two days later, the sick operator dies, sending panic waves among other utility employees.

DISCUSSION QUESTIONS AND KEY ISSUES



The following questions serve to focus the facilitated discussion on issues associated with responding to the exercise scenario. The facilitator will lead the Players in the discussion and the collective responses will be captured by the Recorder. It is not necessarily important that every question be addressed in order to meet the Exercise Objectives.

The questions are generally organized into two sets. The first is a set of general questions intended to focus on the issue of emergency planning and response for the organizations participating in the exercise. Answers to these questions will not depend entirely on specifics of the scenario. The second set of questions are intended to uncover issues associated with the response to the scenario and therefore should produce unique answers. For definitions of the question categories and themes, see Appendix 2.

Anticipated topics for discussion during the tabletop exercise include:

- *Notification and Activation Process,*
- *Mobilization Process and Operations,*
- *Coordination,*
- *Logistics,*
- *Communications,*
- *Finance and Administration,*
- *Demobilization, and*
- *Recovery.*

Remember, influenza pandemics are unpredictable events; it is impossible to forecast their characteristics or severity accurately. Given today's highly mobile population, outbreaks may occur nearly simultaneously across the globe making reallocation of resources more difficult than in other emergencies. Therefore, each sector must rely primarily on its own internal resources and workers for protection (including security) and response.

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General Questions (The questions are divided among eight categories that cover select areas of an ERP. Due to their broad focus, some questions can fit into several categories simultaneously.)

*Note: The Exercise Planning Team needs to determine which type and how many questions are reasonable given the objectives and amount of time available to conduct the exercise. It is not necessary to use all questions as presented. Following the primary questions, sub-questions are noted in **bold italic** font. These questions may be reserved for the Exercise Facilitator to use to provide additional information or help explore possible actions as the threat increases. Sub-questions may be removed by the Exercise Planning Team prior to producing and distributing the Situation Manual to exercise participants.*

Notification and Activation Process

- How would you be notified of this event?
- How would you maintain situational awareness?
- How will you activate your ERP and what actions does it initiate?

Mobilization Process and Operations

- What procedures have been developed to assess the situation and take initial action to support the response?
- What operations and maintenance/repair processes may be temporarily modified to reduce demand on supplies (e.g., extend period between changing fluids)?
- How can you maximize use of equipment/processes that can function via remote access?
 - ***Could information technology security measures be changed to allow designated plant operations to be performed from a remote location?***
 - ***For example, could you open and close valves and control chemical levels from a home computer?***

Coordination

- Who will the utility coordinate with concerning response and recovery?
- What are the expectations for their support?
- What specific coordination procedures have been developed to assist with successful coordination?

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- How will communications be handled among personnel, including critical personnel that have become infected?

Logistics

- What procedures have been developed to address logistical support (e.g., food, shelter, and equipment for responders) during this event?
- What are your critical chemicals for treating water and wastewater to regulatory standards or discharge permit limits?
 - *How can your utility safely store a stockpile of these chemicals?*
 - *What are the implications of stockpiling?*
- What can you afford to stockpile in terms of equipment and supplies, and how do you fund these extraordinary costs (e.g., retained earnings, special disaster fund, or municipal bond)?
 - *How will you pay for the preparation of plans, back-up resources, and other preparedness measures?*
 - *Is there adequate space on-site to safely and temporarily expand storage of chemicals and supplies if needed?*
 - *Are warehouses or storage containers that can safely store the chemicals or equipment available locally on short notice?*
 - *Are critical personnel authorized to independently make purchases via credit card or open purchase orders?*
 - *How can you ensure that quality and safety requirements are still met (e.g., maximum quantity of hazardous chemicals on-site).*
 - *How will you fund the costs associated with stocking worker protection items such as personal protective equipment?*
- How much chemical, fuel, and lab materials do you have on-hand to treat water or wastewater and meet regulatory standards?
 - *How long will that supply last? Is this sufficient for an extended period of shortage or limited access to these items?*
- How much of these supplies (e.g., pounds of disinfectant, gallons of diesel, coagulants, and lab supplies) are required to continue the most essential operations for up to 12 weeks (recommended by Pandemic Influenza Preparedness, Response, and Recovery Guide for Critical Infrastructure and Key Resources, Water and Wastewater Annex) in case of supply chain production and/or delivery challenges?
 - *What are the implications of storing such large quantities of supplies? Does this*

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storage bring added risk and safety problems?

- *Do you have a fuel supply storage capability for gasoline and diesel fuel for generator operation?*
- How will your utility respond to a chemical supply shortage? Do you have a back-up supplier for all critical resources including supplies and equipment?
 - *Have you identified primary and secondary sources for these resources?*
 - *How could you modify equipment and processes temporarily to maintain essential functions?*
 - *How will influenza pandemic-induced changes in customer demand (e.g., decreased demand from industrial customers, increased demand from residential customers) affect operations and demand on essential equipment?*
 - *Do you have pre-established contracts with multiple equipment vendors for emergency replacement and repair during an influenza pandemic?*
 - *Does your contract identify your utility as a priority for these vendors?*
- What resources are needed at this time (e.g., fuel, chemicals)?
 - *Where will the resources come from?*
 - *Who will manage the resources and provide logistical support?*
 - *How will these needs change as the threat increase?*
 - *What if the personnel who typically make resource requests are not available? Will support personnel be able to determine where and how to retrieve equipment, chemicals, etc.?*
- How can you reduce your utility's vulnerability and reliance on municipal and cross-sector support during a pandemic influenza outbreak?
 - *Could you install multiple electrical feeds and generation sources ahead of time to back up your electrical supply?*

Communications

- How will communications be handled including internally to personnel, to the public, and to officials?
- Who is responsible for internal, public, and other communication activities during this event?
- What procedures have been previously developed for use during an emergency?

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Finance and Administration

- What procedures have been developed to address incident-related expenses?
- How are financial and other incident records maintained?

Demobilization

- What procedures are in place to determine that the demands from the event have lessened to the point that you no longer need support?
- What are the closeout activities needed to demobilize?

Recovery

- When does response end and recovery begin?
- What facilities and/or activities are most critical and require immediate attention at the conclusion of response activities?
- What procedures are in place to expedite the recovery process and return to normal business operations?
- What preparedness steps have you taken to recover from a pandemic flu outbreak and how have you prioritized your recovery actions?

Scenario-Specific Questions (The questions are divided among five themes that cover a variety of issues relevant to the water sector. The answers to these questions should be dependent on the scenario.)

Emergency Response Planning

- What coordination steps have you taken with other jurisdictions and agencies to discuss preparedness in the event of an influenza pandemic? If you have a plan, have you integrated your plan with government and other cross-sector plans (i.e., plans across multiple agencies, government entities, and public and private organizations)?
 - *Are you in regular contact with your local public health department?*
 - *When would the local public health department notify you if they suspected a contagious disease within the community?*

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- What steps have you taken so far to plan for a potential pandemic influenza outbreak at your utility? Have you integrated pandemic influenza scenarios into your Emergency Response Plan (ERP)?
 - *Have you conducted a pandemic flu exercise based on your utility's ERP to ensure that the procedures are effective?*
 - *Have you considered enhancing your worksite's cleaning procedures, especially in wastewater utilities? (www.osha.gov/Publications/influenza_pandemic.html)*
 - *Have you considered closing or restricting the use of non-critical common areas, such as exercise rooms and cafeterias?*
 - *Have you reviewed the U.S. Department of Homeland Security's Water and Wastewater Sector Pandemic Guideline? (<http://amwa.net/galleries/default-file/Annex%20Water.pdf>)*
 - *Have you considered the need or the ability to completely separate staff and customers/visitors while performing all functions?*
- When should the Incident Command System (ICS) be established at your utility? How might your ICS structure fit into the larger ICS structure established to manage the outbreak?
- Given the current conditions, what are the primary concerns and potential actions at the utility level?
 - *Does this change as the influenza threat increases?*
- How will a public message be administered if necessary?
 - *If requests are received for information on the status of drinking water, who will manage these requests?*
 - *If the personnel who typically perform this duty are infected, and not available to work, who will take over?*
- When will your ERP be activated? What are the procedures for a pandemic influenza outbreak? Are there additional procedures that could be included in your emergency response plan to improve your level of readiness?
- How do you handle response if another natural disaster (e.g., flood) occurs that impacts the utility?
 - *What do you think your capabilities are to handle two or more large incidents at the same time?*
 - *What planning steps can you take to mitigate such a situation?*

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Utility Preparedness

- Who are the primary personnel you identified to perform the critical operations at your utility?
 - *Who replaces them when they are on vacation?*
 - *What do you do on major holidays?*
 - *What if they call in sick tomorrow?*
 - *What normal business practices support planning for a pandemic flu outbreak?*
 - *Is there excess operational capacity in your utility to sustain functions while alternating and reducing demands on specific personnel?*
 - *Have you looked at cross-training your employees?*
 - *Does your Continuity of Operations Plan (COOP) contain procedures that could be implemented to help keep operations running despite reduced personnel?*
- Employees who care for family members or relatives with special needs may be more affected by school closures and self-quarantine during a pandemic influenza outbreak. Can you identify specific personnel at your utility that may be impacted by these? Are these critical personnel? Who would fill in for them?
 - *How many employees may need to stay home, telework, or work an alternate schedule to care for children because they are dismissed from school, or provide care for children or elderly relatives that may become sick? How would you determine this?*
 - *How do you encourage employees to develop family emergency plans so that they can go to work and perform critical functions knowing that family members are safe?*
- What critical functions could potentially take place outside of normal business hours?
 - *Have you thought of rearranging personnel schedules to increase social distancing (staying away from other people)?*
 - *Since the virus will be spreading from person to person, and social distancing will help reduce potential viral transmission among your critical personnel, how will social distancing impact shift scheduling?*
- Where would your customers come to pay their bills? Can you set up a drive-through?
 - *Because many customers still pay their bills in cash, what other actions can be taken to avoid contact and protect utility employees?*
 - *How could you set up customer service functions so that the public does not enter a utility building or come in contact with your workers?*

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- *Does your COOP Plan specify an alternate location for bill paying that may be suitable to implement during a pandemic?*
- If the wastewater treatment plant's essential treatment chemicals are also in short supply, what will be the effect of reduced or no treatment?
 - *How would you find out if your wastewater treatment process is effective against this virus?*
 - *Would you need to increase the concentration of chemicals you use?*
 - *What notifications, communications and coordination would be necessary if chemicals are not available?*
- What are the changes in water and wastewater treatment demand when schools and specific non-essential, places of assembly and businesses close?
 - *Does this drop in demand help your operations during a pandemic?*
 - *Is this drop in demand simply offset by other uses (e.g., increased personal hygiene among the public, increased hospital use due to the increased number of patients)?*

Business Continuity Planning

- What are the critical functions for the operation of your utility? Which functions are critical to public health?
- Who would you consider to be less-essential personnel? Have you considered the possibility of asking them to not come in to reduce the chance for disease introduction and transmission?
 - *How do you determine whether or not employees will be paid if they are asked to not come to work due to the outbreak?*
- What are your options for off-site work for some of your personnel? What are the different workforce challenges for on-site versus off-site and full- versus part-time contractors to perform essential functions?
 - *How often do you test your off-site work procedures?*
- Which personnel would be vaccinated first if/when a vaccine is developed?
 - *Who have you identified as your critical staff? Are these personnel known to the authorities controlling the vaccination process in your community?*
 - *What if the personnel demand that their family members also receive the vaccine, particularly if they go home to their families?*

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- In the event of an influenza pandemic, would healthy critical personnel be asked to remain at the facility and not leave? If so, how do they assure that their families are cared for? If critical personnel become infected, who will perform their role?
- How would support personnel be compensated for overtime? Will infected personnel be provided with sick time? Who will handle this and maintain records?
 - *Have you met with union and other human resources (HR) personnel regarding implementing temporary policies?*
 - *What are the legal and business effects of applying emergency HR policies (e.g., costs associated with leave policies)?*
- If personnel have to cover additional shifts, there are many considerations. For example, how would their basic needs be met? What is the maximum number of hours personnel can work at a time?
 - *If it has not already been discussed, what about cross-training of personnel?*
 - *Do you/will you stockpile non-perishable foods? First-aid supplies? Cots?*
- If an influenza pandemic affects your community and drastic measures must be taken to sustain at least minimal essential operations, have you prioritized all functions, essential and non-essential, to potentially reduce or suspend in an authorized/approved manner (e.g., prioritize availability of water for firefighting versus potable water)?
 - *If your system is unable to provide potable water, what are the plans for alternate water?*
- Can suppliers ensure priority delivery of replacement parts or other resources during an extended influenza pandemic wave? How will this be accomplished?
 - *Can you establish priority contracts with suppliers that ensure timely assistance during emergencies?*
- Who supplies your suppliers? Will they be able to provide resources during a pandemic? If you have more than one supplier for any given resource, do your suppliers have different suppliers, or is there a single point of failure?
- Is your routine maintenance on essential equipment up-to-date? How much routine maintenance is required for this equipment?
 - *For the purpose of pandemic influenza planning, can you accelerate scheduled maintenance on short notice?*
 - *Are there maintenance activities that can be delayed?*
- What materials might you be able to substitute as temporary backups for preferred ones?
 - *Is there a more readily available but less efficient disinfectant?*
 - *Can you use dyed diesel to replace regular diesel for your backup generators?*

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- *What is the availability of synthetic lubricants? What alternatives do you have if suppliers of lubricants cannot meet your demand?*
- What is the possibility and feasibility of using alternative technologies/equipment requiring different, more accessible supplies?
 - *Could you switch treatment chemicals if your main chemical is not readily available?*
 - *Would a generator using natural gas be easier to keep operating than one running on diesel, which would require regular fill-ups?*
- If you cannot provide an adequate supply of clean drinking water to all customers, who are your critical customers? How do you prioritize customers? Who makes this decision?
 - *How do you notify your customers that the water quality has changed?*
 - *Where do businesses that employ locally and depend on large volumes of processed water, fit in the priority schemes?*
 - *Can you operate portions of your system manually if you lose power?*
 - *Who should you notify if your wastewater treatment plant cannot adequately treat the wastewater?*
- If the water treatment facility must go off-line, how will you provide clean drinking water to key customers? How and where do you contact them? What if you need to reach them outside of normal business hours? What if phone lines are busy? Discussion points:
 - *Will bottled water substitute for lack of treatment, and is this even possible?*
 - *Does your utility have physical interconnections with other treatment systems?*
 - *Have you tested these connections and systems?*
 - *Have you investigated the Government Emergency Telecommunications Service (GETS) to prioritize your phone calls?(<http://gets.ncs.gov/>)*
- What non-essential functions can you suspend to maintain enough critical personnel at your other operations?
 - *If you have more than one treatment plant, could you close one of them to ensure staffing is adequate at the other(s)?*
 - *Do your personnel know how to operate the other plant(s) or maintain other operations?*

Local and State Coordination

- Does your community have a pandemic influenza plan?

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- *Are you part of your community's pandemic influenza planning and preparedness process?*
- *If not, who would you contact to be included in the planning process?*
- Have you conducted or participated in a pandemic preparedness exercise with neighboring local jurisdictions, as well as state and regional jurisdictions, and key agencies, such as the local and state emergency management agencies, local fire department, police department, and public health department? What steps can you take to prepare with others?
- If you cannot provide clean drinking water through your regular distribution system (i.e., on tap), how do you communicate this to the public?
 - *Who handles public communication at your utility?*
 - *Do you coordinate this public message with the local health department or state primacy agency?*
 - *What do you tell the media?*
- What are the available legal options regarding temporary waivers on water quality?
 - *Could you allow a temporary increase in turbidity and/or issue "boil water" orders?*
 - *Can you expect regulatory relief from your primacy agency?*
- What temporary waivers may help with water quantity options affecting customer usage?
 - *Could you provide limited hours of service?*
 - *Could you reduce holding tank volume?*
- Will your utility coordinate with city and county government?
 - *What about other agencies and jurisdictions?*

Who will they coordinate with?

- *What are the expectations of the utility and coordinating agencies and jurisdictions?*
- *How will coordination be handled?*
- *Will coordination issues be different as the threat increases?*

Mutual Aid and Assistance (MAA)

- Do you have any mutual aid and assistance agreements in place? Do you expect to be able to give or receive mutual aid during a pandemic?

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- What if the communities that signed that agreement are also in need of resources? Where else would you go? Has your state established a Water/Wastewater Agency Response Network (WARN)? If so, have you signed up?
- Could you depend on mutual aid agreements or WARN for the replacement of disinfection chemicals or other resources in short supply or for additional personnel?
 - *Where else could you turn for additional personnel?*
- Given the potential spread of the flu, could you depend on mutual aid agreements (such as WARN) for additional support personnel?
 - *Where else could you turn for additional support personnel?*

ACTION-PLANNING SESSION MATERIALS



Instructions

During the hot wash portion of today's exercise, focus on identifying the next steps needed to enhance the utility's emergency response and long-term planning process related to water infrastructure activities. During this session, discuss the answers to the following questions and complete an Action-Planning Guide that supports developing both short- and long-term actions or program capability development goals and objectives.

After answering the following questions individually, categorize the indicated actions on the Action-Planning Matrix. Once the majority of participants have completed their questions and matrix, the group will complete the Action-Planning Guide.

Action-Planning Questions



1. List the plans, policies, procedures, and other preparedness elements that you think should be further reviewed, supplemented, or developed. Which are the highest priorities?

2. What response capabilities are needed or should be implemented to ensure an effective response to and management of water infrastructure consequences?

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Action-Planning Guide



Instructions: Put each categorized action from the Action-Planning Matrix into the Action-Planning Guide. Each action should include an individual responsible for the action, people that will support the effort, resources (and possible sources) that will support the effort, and a timeline for completing the action, including short- and long-term milestones.

Action/Task/ Follow-Up	Lead Individual or Agency Responsibility	Supporting Individual or Agency	Resources and Possible Sources	Timeline	
				Short- Term	Long- Term

REFERENCES/APPENDICES



Appendix 1: List of Participants

Appendix 2: Definitions of the Question Categories and Themes

Appendix 3: Background Technical Information

Appendix 4: Evaluation Form (Players)

Appendix 5: Facilitator Points

Appendix 6: Evaluation Form (Non-Players)

Appendix 7: Other Resources (As Needed)

APPENDIX 2: DEFINITIONS OF THE QUESTION CATEGORIES AND THEMES



General Questions are divided among 10 categories that cover select areas of an emergency response plan. Due to their broad focus, some questions can fit into several categories simultaneously.

Notification

- Notification refers to important information distributed to relevant personnel regarding an actual or potential hazard and the response status of the organization.

Activation

- Activation refers to a notification category that provides urgent information about an actual or potential hazard and orders or recommends that the notified entity activate its emergency response (usually via its ERP). It usually includes actionable information directing the notified entity on initial actions for mobilization, deployment, and/or response.

Mobilization

- Mobilization refers to the process and procedures used by all organizations — federal, state, local, and tribal — for activating, assembling, and transporting all resources that have been requested to respond to or support an incident.

Operations

- Operations refers to all activities within the defined scope of the “incident” that are directed toward reducing the immediate hazard at the incident site, saving lives and property, establishing situation control, and restoring normal conditions.

Coordination

- Coordination refers to advancing systematically through an analysis and exchange of information among personnel who have or may have a need to know certain information to carry out specific incident management responsibilities.

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Logistics

- Logistics refers to providing resources, facilities, services and material support to assist with incident management.

Communications

- Communications refers only to the method(s) of conveying information; it is a narrow, but vital component of Information Management. This also includes Public Information.

Finance and Administration

- Finance and Administration refers to the financial, administrative, and legal/regulatory issues for the incident management system.

Demobilization

- Demobilization refers to the phase that begins with the transition of Management, Operations, and Support functions and elements from the incident activities back to normal operations or to their baseline standby state, as their operational objectives are attained.

Recovery

- Recovery refers to the development, coordination, and execution of service- and site-restoration plans; additional measures for restoration; evaluation of the incident to identify lessons learned; post-incident reporting; and development of initiatives to mitigate the effects of future incidents.

Scenario-Specific Questions are divided among up to eight themes that cover a variety of issues relevant to the water sector.

Emergency Response Plans (ERPs)

- ERP questions pertain to a utility's overall planning process.

Utility Preparedness

- Utility Preparedness questions pertain to activities a utility completes in advance of an event, incident, or activation of its ERP.

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Laboratory Support

- Laboratory Support questions pertain to a utility's planning process to coordinate with support laboratories.

Business Continuity Planning

- Business Continuity Planning questions pertain to a utility's planning process to maintain continuity of key operations and business processes.

Local and State Coordination

- Local and State Coordination questions pertain to a utility's planning process to coordinate with local and state stakeholders.

Federal Coordination

- Federal Coordination questions pertain to a utility's planning process to coordinate with Federal officials if state officials request federal aid.

Mutual Aid and Assistance

- Mutual Aid and Assistance questions pertain to a utility's planning process to coordinate with other utilities in a mutual aid/assistance agreement network.

Law Enforcement

- Law Enforcement questions pertain to a utility's planning process to coordinate with local law enforcement for criminal acts as well as with regional and national law enforcement for terrorist acts.

APPENDIX 3: BACKGROUND TECHNICAL INFORMATION



Pandemic Influenza Scenario Narrative and Background:

Conceptual Framework and Underlying Assumptions: While influenza outbreaks occur commonly on a yearly basis, pandemic influenza outbreaks are somewhat rare in scale and scope but pose the potential to severely impact operations. In regards to some viruses such as the H5N1 (avian flu) virus, there have been no documented human cases of influenza caused by exposure to water contaminated with highly pathogenic H5N1 virus, but it is important to be aware of the potential for such exposure. Recent research has demonstrated that free chlorine levels typically used in drinking water treatment are adequate to inactivate highly pathogenic H5N1 avian influenza viruses, even at low temperatures.

A key complication from such an incident would be employee absenteeism that might be directly attributable to the illness, the need to care for ill family members, and the fear of infection. Some estimates place absenteeism at 40 percent during the peak weeks of a community outbreak involving a highly pathogenic strain of the influenza virus. Public health measures external to the utility, such as closing schools and day care centers or quarantining households with infected individuals, can be expected to increase absenteeism. As seen with the 2009 H1N1 pandemic, estimates also place the length of time for a pandemic outbreak in any given community as about six to eight weeks. Outbreaks may occur at the same time across the country, resulting in the potential for state and federal resources to reach their own capacity for absenteeism.

The scenario emphasizes the complications that may be encountered during this type of event, including loss or restriction in available work force, overwhelming demand for information from the public, and integration with response agencies and public health experts who might not be available during such a situation.

The probability of such a scenario cannot be predicted with certainty; however, the issues and complications that are offered in the scenario provide the background to discuss opportunities for improvement to operations and planning in light of situations that may cause less impact. For example, the pandemic influenza scenario describes a situation where the staff is unavailable and

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resources may be strained, a situation that typically may be encountered on a yearly basis during regular flu seasons. Other aspects of the scenario involve addressing potential contamination of water sources and the handling of communications and coordination with the public, media and public health agencies. Also implied is the need to identify where to obtain expert information in dealing with unknown or complicated incidents and how laboratory services might be handled in order to prepare accordingly in advance.

The risks and hazards that can be encountered are unique to each utility's organization, capability, and resources. As offered for all of the scenarios presented in the Tabletop Exercise Tool, exercise designers are encouraged to modify the narrative incident description to best suit their operation and focus on the issues that are of most concern to their operation. Each utility should identify opportunities to cope with and solve the myriad of potential problems that may be encountered. The same solutions that may be derived from the pandemic influenza outbreak exercise should be consistently applied to any and all incidents. One example would be the loss of workforce over extended periods of time due to a cause other than pandemic influenza. Another example would be the approach for how to deal with an overwhelming number of calls from the public, a situation that may be experienced during a contamination incident. As such, solutions found in those scenarios can be applied to the pandemic influenza scenario, as well.

Regarding Narrative Scenarios: For a narrative scenario to prove useful in a training exercise, it should be *realistic* (neither implausible nor contrived); it should introduce sufficient *novelty* (shock) so that "canned" or pre-scripted response strategies are not in themselves adequate; and it should be characterized by ambiguity, uncertainty and lack of information in key areas, as is true in any genuine disaster. The scenarios presented here are assumed to occur in the general present and require some form of immediate emergency response, as consistent with the stated purpose of the Tabletop Exercise Tool. In addition, they are intended to encourage participants to think strategically over planning horizons, and to do so in the face of considerable ambiguity since the timing, location, and scale of a pandemic influenza outbreak cannot be predicted as a certainty but as a probability. It is also important to consider how business continuity and the response to such a situation could be integrated into day-to-day operations.

Pandemic Flu Scenario

For Additional Information:

[Pandemic Influenza: one-stop access to U.S. Government H1N1, avian and pandemic flu information.](#) (Source: www.flu.gov. U.S. Department of Health & Human Services.)

Pandemic Flu Scenario

APPENDIX 4: EVALUATION FORM (PLAYERS)



1. The training and exercise was structured and organized well.

Strongly
Disagree
1

2

Agree
3

4

Strongly
Agree
5

Enter Score

Comment:

2. The training and exercise allowed an opportunity to demonstrate how the ERP includes ICS and the National Incident management System.

Strongly
Disagree
1

2

Agree
3

4

Strongly
Agree
5

Enter Score

Comment:

3. The exercise provided an opportunity to review utility communication procedures.

Strongly
Disagree
1

2

Agree
3

4

Strongly
Agree
5

Enter Score

Comment:

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4. The exercise provided an opportunity to review and refine roles and responsibilities of how requests for resources are managed.

Strongly
Disagree
1

2

Agree
3

4

Strongly
Agree
5

Enter Score

Comment:

5. The exercise allowed an opportunity to identify the next focus areas for follow up exercises.

Strongly
Disagree
1

2

Agree
3

4

Strongly
Agree
5

Enter Score

Comment:

6. Participation in the exercise was a valuable use of my time.

Strongly
Disagree
1

2

Agree
3

4

Strongly
Agree
5

Enter Score

Comment:

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7. Please provide additional comments not addressed. For example, how could the exercise process or preparations be improved? What suggestions would you have to improve the information provided in the procedures?

Comment:

8. Please provide recommended corrective actions. What response capabilities are needed or should be implemented? What actions should be taken to respond more effectively? What types of trainings do your personnel need to respond more effectively?

Comment:

APPENDIX 5: FACILITATOR POINTS



This appendix should be removed prior to distributing the Situation Manual to exercise participants.

General Questions

Notification and Activation Process

- Question 1 How will you be notified of this incident?
Answer *-The emergency affected you or your organization.
-Local radio or television emergency broadcast.
-Online data available by mutual aid, local or state agency notification system.*
- Question 2 How will you maintain situational awareness?
Answer *-Emergency Response Plan (ERP) identifies a means to track data.
-ERP identifies how to report information to county or state agencies via Internet, radio, or other means.*
- Question 3 How will you activate your ERP?
Answer *-ERP identifies a threshold of impact (e.g., percentage of outage) designating when to activate the plan.
-ERP identifies what is activated.
- ERP establishes a chain of command and line of succession plan, and identifies when they are updated.
-ERP identifies primary and alternate personnel for key positions.*
- Question 4 What does the ERP activate?
Answer *-ERP identifies personnel, equipment, and facilities to activate.
-ERP identifies personnel and facilities required to establish an Emergency Operations Center (EOC).
-EOC personnel have access to critical information, including key documents to continue operations.*

Pandemic Flu Scenario

Mobilization Process and Operations

Question 1 How do personnel organize according to response protocols?

Answer *-ERP identifies how personnel are trained according to the National Incident Management System (NIMS) and Incident Command System (ICS).*

-ERP describes how personnel obtain and mobilize resources to carry out actions needed to implement an Incident Action Plan (IAP).

-ERP identifies the resources needed to maintain minimum operations and essential services and also how long the utility can maintain those operations/services without outside help.

Question 2 How are interdependencies identified?

Answer *-ERP identifies key interdependencies with other sectors (e.g., power generation) and considers how to maintain minimum services and essential operations if another sector were to be out of service.*

-ERP includes procedures that identify easily understood checklists and/or flowcharts to identify and document:

- *What is damaged and how?*
- *What services can the utility still safely deliver?*
- *What resources does the utility have on hand and what additional resources does it need?*
- *What is needed to restore minimal service?*
- *How are emergency/backup data, maps, and systems accessed?*
- *What is needed to recover and return to full service?*

Question 3 How is response prioritized?

Answer *-ERP catalogs and prioritizes all utility control systems.*

-ERP determines which control systems should be restored first in an emergency.

-ERP establishes protocols to collect and manage incident information.

-ERP determines if local incident resources are adequate or if access is needed for additional resources, such as more specialized resources for damage assessment, long-term recovery, site characterization, and/or management and disposal of contaminated water, wastewater, and other

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materials.

-ERP includes protocols to activate mutual aid, as needed.

-ERP documents the skills and training of utility personnel (including equipment they are authorized to operate) and promotes cross training for key operators, responders and emergency management functions.

Coordination

Question 1 With whom do you coordinate response and remediation actions?

Answer *-ERP identifies the local emergency planning committee (LEPC), EOCs, primacy or permitting agencies, health or law enforcement agencies, etc.*

Question 2 What are the expectations to support coordination with others?

Answer *-ERP identifies levels of activation and level of response or communication.*

-ERP identifies who is likely to assume the position of incident commander for high risk, high probability incidents.

-ERP identifies how the local community and utility EOC will be activated.

-ERP identifies how to integrate with the local emergency responders and how the EOC can support the utility.

Question 3 What specific procedures have been developed to assist with successful coordination?

Answer *-ERP outlines communication protocols and procedures.*

-ERP includes forms containing likely elements of essential information to share with response partners.

-ERP includes the provision to send a liaison to a local EOC to coordinate emergency management activities.

-ERP identifies the local emergency response partners and utilities who receive copies of the ERP.

-ERP includes an incident notification flow chart clearly identifying key personnel and response partners to contact.

-ERP includes contact information that is correct and updated frequently.

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Logistics

Question 1 What procedures have been developed to address logistical support (e.g., food, shelter, and equipment for responders) during this incident?

Answer *-ERP establishes policies and protocols to authorize expenditures for supplies and other necessary equipment during a response (e.g., protocols to increase the amount of cash the utility has on hand or increase limits on employee credit cards).*
-ERP identifies critical personnel authorized to independently make purchases.

Question 2 What procedures and/or provisions are in place to support personnel with special needs (e.g., lost or damaged personal property, injured or killed family/friends) due to the incident?

Answer *-ERP includes multiple transition staffing plans such as: initial responder relief, management of ongoing day-to-day operations, managing long-term recovery, and mitigation planning.*
-ERP documents emergency contact information for all utility personnel and is kept with the utility's emergency response and recovery plans.
-ERP or emergency response policy encourages personnel to have personal emergency preparedness plans in order, and establishes protocols to help employees check on the safety of their families if they are working during an emergency.
-ERP identifies how the utility will notify personnel's family members of the status of employees on duty.

Communications

Question 1 How will communications be handled including to internal personnel, to the public, to the business community, and to elected and other government officials?

Answer *-ERP identifies how and when to provide communication with the public and with a local EOC when initiating and rescinding advisories.*

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Question 2 Who is responsible for internal, public, and other communication activities during this incident?

Answer -ERP identifies crisis communication procedures for providing public information as well as key messages for each consequence.
-ERP identifies procedures for warning customers, employees, contractors, visitors, and others who might not be familiar with the facility's warning system.
-ERP meets requirements of the Public Notification Rule.
-ERP identifies how to communicate with sensitive populations.

Question 3 What procedures have been previously developed for use during this type of emergency? How would internal communication procedures change if normal communication links were disrupted?

Answer -ERP identifies backup communications networks to check on facilities that rely on telemetry (or other systems) to manage operational systems and to communicate with utility personnel and response partners.

Question 4 How do you determine if an advisory or public notification (such as boil water or do not use) needs to be issued for this incident? How would this occur without power and if normal communication media are unavailable?

Answer -ERP identifies alternative communications/outreach networks (e.g., door-to-door notifications) if primary systems fail.
-ERP identifies and documents contact information for critical customers and sensitive subpopulations.
-ERP identifies alternative methods to keep management and personnel in contact with utility needs.

Finance and Administration

Question 1 What procedures have been developed to address incident-related expenses?

Answer -ERP includes procedures, forms, and protocols to ensure the collection of necessary information on all response actions and expenditures.
- ERP specifies procedures to file appropriate insurance or post-disaster

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reimbursement claims.

Question 2 How are financial and other incident records maintained?

Answer *-ERP identifies procedures for all personnel and describes who will compile records during response and into recovery.
-ERP identifies what to do if usual accounting systems are not available.*

Demobilization

Question 1 What procedures are in place to determine that the demands from the incident have lessened to the point that you no longer need support?

Answer *-ERP describes who can authorize demobilization.
-ERP identifies how to create a demobilization plan, when appropriate.
-ERP identifies how to manage demobilization of mutual aid/assistance resources.*

Question 2 What are the closeout activities needed to demobilize?

Answer *-ERP describes protocols to account for personnel, equipment, supplies and other resources.
-ERP identifies protocols to ensure personnel complete appropriate documentation.*

Recovery

Question 1 When does response end and recovery begin?

Answer *-ERP describes how to create a recovery plan.
-ERP describes recovery steps initiated during response.*

Question 2 What facilities and/or activities are most critical and require immediate attention at the conclusion of response activities?

Answer *-ERP includes procedures to identify and document what is needed to recover to full service.
-ERP identifies how long different stages of recovery will take.*

Question 3 What procedures are in place to expedite the recovery process and return

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to normal business operations?

Answer

-ERP pre-designates personnel to focus on recovery.

APPENDIX 6: EVALUATION FORM (NON-PLAYERS)



This form should be removed prior to distributing the Situation Manual to exercise participants.

Instructions: *The exercise designer(s) can create a separate exercise evaluator form for each of the exercise objectives to measure how well each objective was met during the exercise. For each objective, the exercise designer(s) develops three (or more) questions that gauge how effectively the objective was met. At the end of each form, include space for additional observations related to the objective.*

Evaluator Role

Evaluators monitor the actions and decisions of the participants to gauge the extent to which the exercise objectives have been met.

Evaluator Actions

- Review objectives of the exercise;
- Identify operational procedures to assess, respond to, and recover from a simulated emergency event;
- Monitor play of the exercise with objectives in mind;
- Make notes of ideas and player actions on a separate sheet of paper;
- Record suggestions for updates to plans and procedures based on players' responses;
- Complete the Evaluator Form; and
- Identify one leader to present constructive comments at the end of the exercise (depending on how you design your exercise, either during the Action-Planning Session or hot wash).

Limitations

- Do not coach players. Observe.

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Sample Exercise Evaluator Form

Please print your responses.

Evaluator: _____ Agency: _____

Contact Number: _____ E-mail: _____

Objective: Define participants' roles and responsibilities in regards to managing the consequences of a pandemic flu outbreak, including specifying the involvement of utility personnel.

1. Evaluation Question 1: The exercise allowed participants to define utilities' roles and responsibilities.

Strongly Disagree		Agree		Strongly Agree		Enter Score
1	2	3	4	5		

Comment: _____

2. Evaluation Question 2: The exercise allowed participants to define state drinking water and wastewater agencies' roles and responsibilities.

Strongly Disagree		Agree		Strongly Agree		Enter Score
1	2	3	4	5		

Comment: _____

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3. Evaluation Question 3: The exercise allowed participants to define local and state emergency management agencies' roles and responsibilities.

Strongly
Disagree
1

2

Agree
3

4

Strongly
Agree
5

Enter Score

Comment:

4. Additional observations related to the Objective.

APPENDIX 7: OTHER RESOURCES (AS NEEDED)



To Be Developed by the Exercise Design Team