Analytical Preparedness FULL-SCALE Exercise Toolkit

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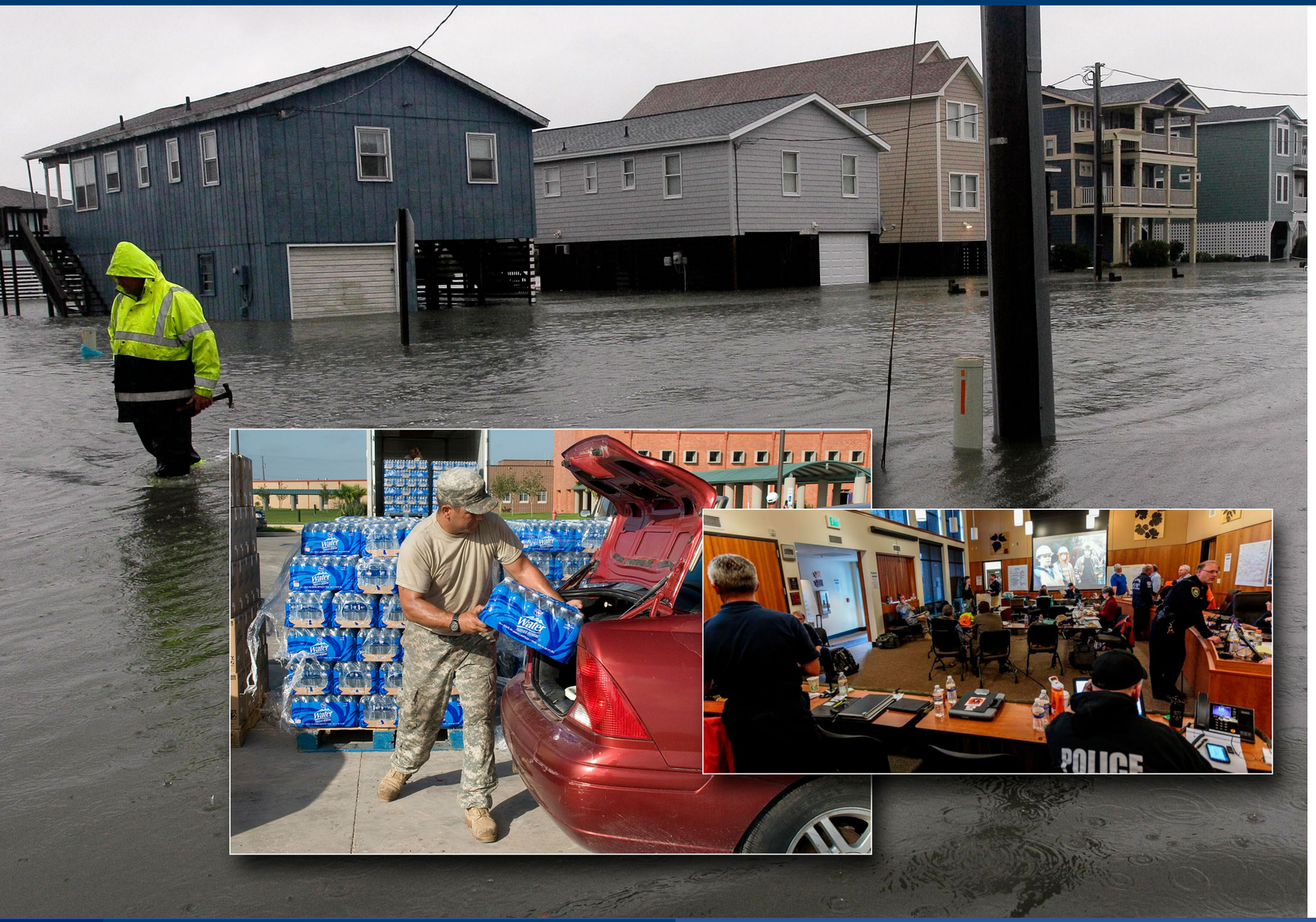
WELCOME and OVERVIEW

The Analytical Preparedness Full-Scale Exercise (AP-FSE) Toolkit provides the necessary guidance and examples for organizations to plan and conduct their own exercise.



Welcome and Overview

What Is the Analytical Preparedness Full-Scale Exercise (AP-FSE) Toolkit?

The AP-FSE Toolkit is an interactive resource that provides the necessary information and guidance for utilities and other organizations to plan and conduct their own AP-FSE for a water contamination scenario that requires analytical (i.e., laboratory) support. The AP-FSE Toolkit provides examples and templates that organizations can use to develop all the necessary documentation to support the exercise.

Exercise participants may include staff from water utilities, laboratories and other Response Partners, including local, state and federal environmental, public health and emergency response agencies. Participants may take on the roles of exercise planners, managers and players. Participant roles are discussed in greater detail in Step 2 of this document. For a summary of the exercise participant roles and responsibilities, click here.

The exercise planning team can either adopt the existing examples or alter the materials to create new scenarios and supporting documentation that meet its needs. The AP-FSE Toolkit is intended to be consistent with the Department of Homeland Security's Homeland Security Exercise and Evaluation Program (HSEEP) guidelines. More information can be found on the Federal Emergency Management Agency's HSEEP website.

Please refer to the WLA Training Center for training and other information on the use of the AP-FSE Toolkit.

What Is the EPA Water Laboratory Alliance (WLA)?

The WLA is an integrated nationwide network of laboratories. This network provides the Water Sector (including drinking water and wastewater utilities, regulatory primacy agencies and Response Partners) with the capabilities and capacity to analyze water samples in the event of natural, intentional or unintentional water contamination involving chemical, biological or radiochemical contaminants. The WLA is composed of public health, utility, environmental and commercial laboratories. The WLA is a part of EPA's Environmental Response Laboratory Network (ERLN) and focuses on drinking water and wastewater analyses. For more information, please refer to the WLA Fact Sheet.

What Is the EPA Water Security Division (WSD)?

The WLA program is led by the EPA Water Security Division (WSD). The mission of WSD is to provide support to drinking water and wastewater utilities to improve the security and resilience of our nation's water infrastructure. WSD has developed a variety of programs, tools, training and resources to support Water Sector emergency preparedness. In addition, WSD partners with other offices and divisions within EPA, including the Office of Emergency Management (OEM) and the National Homeland Security Research Center (NHSRC), to share resources, provide technical expertise and promote programs that benefit the Water Sector.

EPA Water Security Tools and Resources

- Water Laboratory Alliance Response Plan (WLA-RP): Process and procedures for coordinated laboratory response to water contamination incidents that may require analytical support.
- WLA-RP Appendices: Word version of editable forms and checklists to support laboratory response efforts; includes the Help Sheet for Requesting Analytical Support during an Emergency Response (Appendix C), which provides prompts for the information that should be exchanged when analytical support is first requested.
- Water Contaminant Information Tool (WCIT): Online tool that provides information on chemical, biological and radiological contaminants.
- Compendium of Environmental Testing Laboratories (Laboratory Compendium): Online national database of environmental laboratories.
- Web-based Electronic Data Review (WebEDR): Web-based tool that performs automated data evaluation of Electronic Data Deliverables (EDDs).
- Selected Analytical Methods (SAM) for Environmental Remediation and Recovery: Identifies analytical methods to be used by laboratories tasked with performing analyses of environmental samples following a homeland security event.
- Continuity of Operations Plan (COOP) Template for Laboratories: Fillable PDF to help drinking water and wastewater laboratories create a COOP.
- WLA Training Center: Collection of WLA training opportunities, including live events.

To learn more about other tools and resources, refer to the Resources section of this Toolkit or visit the WSD website.

What Is a Full-Scale Exercise (FSE)?

An FSE is an operations-based exercise in which live actions are taken (e.g., initiating communications, mobilizing personnel and resources) in response to a fictional scenario. FSEs are usually conducted in a manner that is intended to mirror a real incident. Personnel perform actions as if a real incident has occurred. FSEs can be used to:

- evaluate plans, policies, agreements and procedures;
- practice implementing plans and procedures;
- clarify roles and responsibilities;
- identify resource gaps; and
- build relationships necessary for effective emergency response.

The HSEEP describes FSEs as "typically the most complex and resource-intensive type of exercise. They involve multiple agencies, organizations and jurisdictions and validate many facets of preparedness. FSEs often include many players operating under cooperative systems such as the Incident Command System (ICS) or Unified Command."

What Is a WLA AP-FSE?

A WLA AP-FSE is an exercise designed to test the plans, procedures, resources, tools and personnel needed to coordinate analytical support effectively for a water contamination incident. At a minimum, these exercises include utilities and their support laboratories. The exercises may also involve other Response Partners such as federal agencies, state regulatory agencies, first responders and state and local public health and emergency management agencies. Activities in a WLA AP-FSE may include the following:

- Communication and coordination.
- Sample collection.
- Sample shipping and receipt.
- Sample analyses.
- Data review and validation.
- Data reporting.
- Data usage (e.g., mapping analytical results, developing public notices).

Why Participate in an AP-FSE?

Effective coordination of laboratory support to water contamination incidents is critical to providing emergency responders timely and accurate data to support decision making that protects human health and the environment. Preparedness is the key to effective coordination. All organizations involved in the response must understand their roles and responsibilities and be able to apply a consistent approach to laboratory coordination that ensures success.

Participation in AP-FSEs enhances the preparedness of those involved in a variety of ways. Some of the benefits include:

- increasing participants' familiarity with EPA's WLA Response Plan (WLA-RP) and other "best practices" for coordination of laboratory analysis in support of the response to water contamination incidents;
- practicing coordination between drinking water and wastewater utilities and analytical laboratories;
- building relationships between utilities and laboratories;
- building relationships with other Response Partners that are essential for effective emergency response;
- building laboratory capability and capacity by providing laboratories an opportunity to use a wide variety of analytical methods; and
- assisting utilities, laboratories and participating organizations in identifying areas for improvement in their standard operating procedures (SOPs).

An overview of a previous AP-FSE is provided in the following table. It is intended as an example only (i.e., it is not a prescription for future exercises).

AP-FSE Example
Scenario: Contamination of drinking water with Salmonella after heavy rainfall caused runoff from agricultural areas and overflow of untreated wastewater from the local wastewater treatment plant
Exercise Components: Communication and coordination, sample receipt, sample analysis, data review and data reporting
Players: One New England drinking water utility and three support laboratories
Analytical Samples: Ten drinking water samples per laboratory

Feedback from Past Exercise Participants

"This was an advantageous study in which to participate. We got the chance to build some relationships and network with other local laboratories and utilities in our region. We were able to build our intra-laboratory communication skills… and improve upon our laboratory quality control." **– AP-FSE Laboratory Participant**

"This exercise is an awesome way to educate, enhance and test our training! We learned so much and would be very much interested in participating again with future exercises." **– AP-FSE Laboratory Participant**

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Introduction:

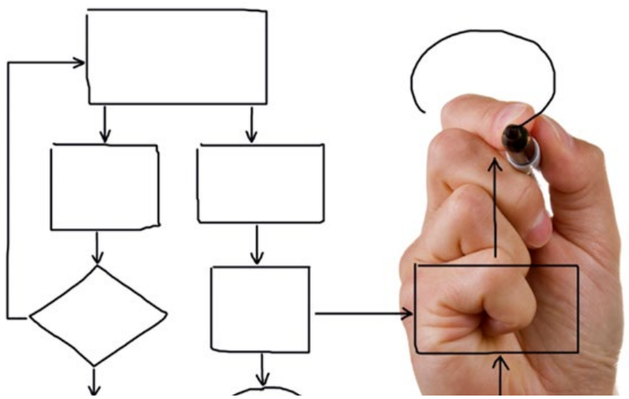
10-Step Process for Planning and Conducting an AP-FSE

Introduction: 10-Step Process for Planning and Conducting an AP-FSE

Process

There are 10 steps to developing, conducting and evaluating AP-FSEs, as listed on the right. Before planning your exercise, please read through the entire 10-step process presented in this toolkit. It is critical to be aware of activities and resources in each section before designing and conducting your exercise. To access the glossary and find definitions of acronyms, click the "Glossary" button located at the top of each page of this guide.

Generally, 6 to 12 months should be allowed for planning an AP-FSE depending on the complexity of the exercise. Sufficient time will be needed to recruit exercise participants, develop and review exercise documentation and obtain the necessary laboratory supplies for sample analyses. An example planning schedule is provided in Step 5.1.



Homeland Security Exercise and Evaluation Program (HSEEP)		AP-FSE 10-Step Process
Exercise Evaluation	Exercise Design and Development	1. Initiate the Exercise Planning Process
		2. Identify and Recruit Potential Participants
		3. Identify Objectives
		4. Develop the Scenario and Expected Actions
		5. Schedule the Exercise
		6. Prepare Exercise Documents
	Exercise Conduct	7. Conduct Pre-Exercise Training Sessions, Briefings and Laboratory Practice
		8. Conduct the Exercise
		9. Conduct the Hot Wash
	Improvement Planning	10. Perform Exercise Follow-Up Activities

Flexibility

The AP-FSE Toolkit is designed to allow users to scale the scope of the exercise up or down to meet their goals and objectives. At a minimum, each exercise should include one utility and one laboratory. To meet the HSEEP definition of an FSE, where actions are performed as if a real incident had occurred, at least some aspects of the coordination of analytical support should actually be performed. Exercise planners are encouraged to include actual sample analysis in the exercise. Doing so will directly test plans and procedures, allowing participants to gain insights that would not be possible through the generation of mock results.

There are many aspects of the AP-FSE that can be modified to control the level of effort required to plan and conduct the exercise. Depending on the objectives and scope, some aspects of the exercise that are scalable include the following:

- Number of utilities.
- Number of laboratories.
- Number of Response Partners.
- Complexity of the scenario.
- Number of contaminants.
- Number of samples analyzed per laboratory.
- Inclusion of sample collection activities in the exercise.
- Length of the exercise (note: the length of the exercise may be largely driven by the time required for analyses).

Note: Some AP-FSE Toolkit users may wish to develop a progressive, multi-year exercise program, beginning with tabletop exercises (TTXs) and moving toward increasingly complex drills and FSEs. See the WLA Training Center, contact EPA via email at WLA@epa.gov or call the ERLN/WLA Helpline at (703) 461-2400 regarding upcoming WLA TTXs. Example documentation in this Toolkit can also be used to support development of your own TTX.

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Step 1:
Initiate the Exercise Planning Process

Step 1: Initiate the Exercise Planning Process

1.1 Lead Organization

For exercise planning to begin, there must be an organization that will lead the planning process and ensure there is sufficient funding to conduct the exercise. Potential lead organizations may include, but are not limited to, the following:

- Drinking water and wastewater utilities.
- EPA regional offices.
- State environmental or public health laboratories.
- State drinking water agencies.
- State or local emergency management agencies.
- Water associations.

The lead organization will assemble a planning team. Not every organization needs to be on the planning team, but all participating organizations' interests should be represented. For more information on the exercise planning team, see Step 2.1.1.

1.2 Kickoff Activities

AP-FSE kickoff activities can begin once a lead organization has been identified. Before beginning to plan for the exercise, the lead organization should take the following steps:

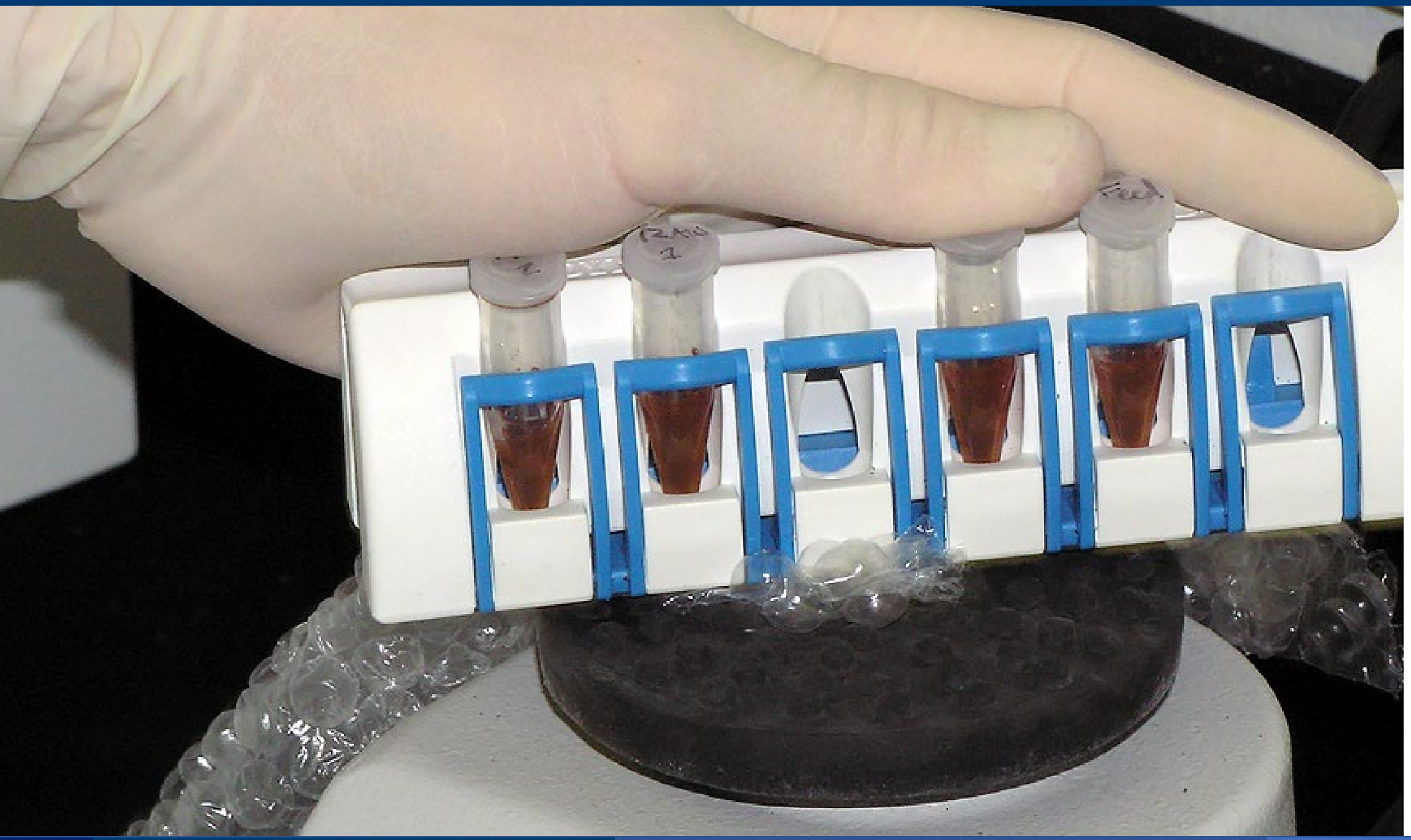
- Contact EPA to express interest in conducting an AP-FSE and request the Agency's support (see Step 1.3 on the following page).
- Review the Water Laboratory Alliance Response Plan (WLA-RP).
- Take EPA-provided training on the WLA-RP and the AP-FSE Toolkit.

1.3 EPA Support

To help ensure success of the exercises and maximize the benefit to participating organizations, EPA may be available to provide limited support to organizations interested in planning and conducting an AP-FSE. The types of support that EPA may be able to provide are listed below. Parties interested in using the AP-FSE Toolkit to plan an exercise should contact EPA via email at WLA@epa.gov or call the ERLN/WLA Helpline at (703) 461-2400 to indicate their interest in using the AP-FSE Toolkit and to determine what EPA support may be available.

Examples of Potential EPA Support

- Conduct training on the use of the AP-FSE Toolkit.
- Participate in a preliminary call with the organization interested in leading the exercise to provide an overview of the AP-FSE Toolkit and answer questions.
- Conduct training on EPA water security tools that can be used during the exercise (e.g., Water Contaminant Information Tool [WCIT] and Compendium of Environmental Testing Laboratories [Laboratory Compendium]).
- Participate in exercise planning calls to answer questions and provide suggestions, as needed.
- Assist with identifying utilities and laboratories to participate in the exercise.
- Answer questions on the AP-FSE Toolkit throughout the process of planning and conducting the AP-FSE.
- Serve as a technical expert for questions related to analytical method selection, practice and sample analysis, data reporting, etc.



1.4 Potential Costs of Conducting an AP-FSE

One important consideration when planning an AP-FSE is securing sufficient funding to conduct the exercise. Staff time will be required for exercise planners, managers and players to plan, conduct and evaluate the exercise. The hours required will vary depending on the scope and complexity of the exercise. A general idea of the time required for exercise players to conduct the exercise is provided in the Player Handout Template in Step 2.2 (Recruiting Participants).

While many organizations may volunteer the time of their staff to participate in the exercise, there may be other costs associated with planning and conducting the exercise. Potential costs for collecting, preparing, shipping and analyzing samples and other exercise-related costs are provided in Table 1.4 (see the following page).

Table 1.4 Potential Costs

Costs	Considerations
Sample Bottles and Shipping Containers	If samples are collected in the field or prepared by a third party, sample bottles and appropriate shipping containers will be needed.
Preparation of Spiked Samples	Analysis of spiked samples is recommended in order to better simulate the scenario. • **Option 1 (Preparation by Third Party):** Usually requires payment of a flat fee for preparing the samples. This option is recommended when data from the exercise are going to be used to evaluate method performance. • **Option 2 (Preparation by Participant Laboratories):** The cost of the standards to prepare the samples will need to be covered.
Sample Shipment	Samples will need to be shipped or couriered to the participating laboratories from either the utility or the sample preparation laboratory, unless laboratories will be preparing and spiking their own samples.
Sample Analyses	Laboratories might be willing to donate their time to participate in the exercise, but they may be unable to cover the costs of the reagents and other consumables needed to analyze practice and exercise samples. If this is the case, there are a few options to make it easier for laboratories to participate in the exercise. These include: • **Option 1:** Pay the laboratories a flat fee to cover the entire cost of sample analyses (i.e., labor and supplies). • **Option 2:** Pay the laboratories a flat fee to cover the cost of supplies. • **Option 3:** Have the lead organization coordinate obtaining the reagents and consumables needed to analyze the exercise samples and provide these materials to the participating laboratories free of charge.
Examples of Other Costs	• General supplies. • Binders. • Office supplies for the Incident Command Post (ICP). • Refreshments. • Postage. • Conference lines. • Web-hosting services.

CLICK HERE SUMMARY INFO

Step 2:
Identify and Recruit Potential Participants

Step 2: Identify and Recruit Potential Participants

2.1 Exercise Participants

Exercise participants include the exercise planners and managers (including exercise planning team members and controllers) as well as the exercise evaluators, players and observers. Each exercise participant has a critical role to play in the success of the exercise. The activities conducted by the players will depend on the goals and objectives of the exercise. Click here for a summary of exercise participant roles and responsibilities.

2.1.1 Exercise Planning Team, Controllers and Evaluators

Those involved in planning, managing and evaluating an AP-FSE include the exercise planning team, controllers and evaluators. A brief description of the general roles and responsibilities of each is provided in Table 2.1.1.

Table 2.1.1 Roles and Responsibilities of Exercise Planning Team, Controllers and Evaluators

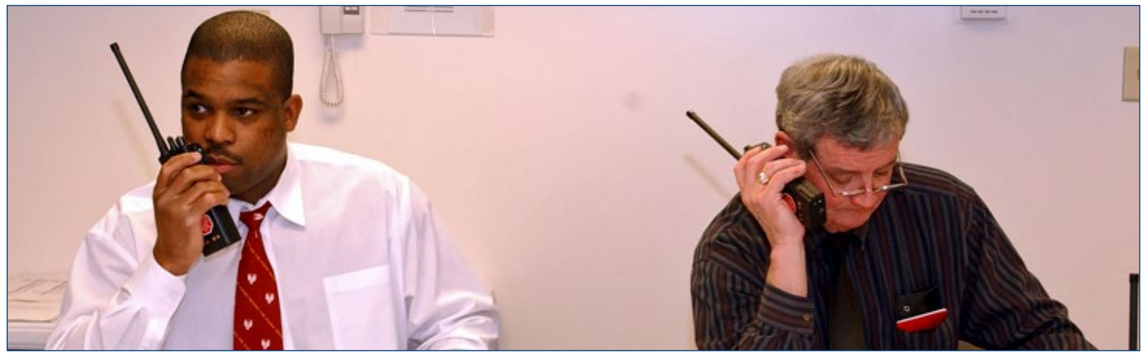
Role	Responsibilities
Exercise Planning Team, including an Exercise Director	• Oversees the successful execution of all aspects of an exercise. • Schedules and participates in exercise development meetings. • Develops exercise objectives and exercise scenario(s). • Prepares and distributes AP-FSE documents. • Coordinates recruitment of AP-FSE players. • Conducts AP-FSE pre-exercise briefing and training sessions. • Coordinates and conducts AP-FSE Hot Wash. • Prepares AP-FSE After-Action Report (AAR).
Controllers	• Help plan and manage AP-FSE play. • Simulate roles of individuals and agencies not participating in the AP-FSE. • Provide key data to players. • Prompt or initiate certain player actions to ensure AP-FSE continuity. • Supervise the safety of all exercise participants.
Evaluators	• Record events that take place in their evaluation location. • Evaluate the players' activities using Exercise Evaluation Guides (EEGs). Note: Evaluators should not interfere with the flow of the exercise.

The exercise planning team should be of manageable size while still being representative of all the organizations participating in the exercise. It may not be necessary for every organization to participate in the exercise planning team as long as their interests are represented. For example, the interests of all participating laboratory players could be represented by someone from a single laboratory (e.g., the utility laboratory or a state laboratory).

The number of controllers needed for an exercise will depend on the complexity of the exercise. Ideally, the selected controllers will have some knowledge of emergency response procedures, utility and laboratory operations (e.g., from experience in a utility laboratory) and, if possible, the analytes and methods being used. If the controllers do not have expertise with the analytical methods being used, then a subject matter expert should be available to address technical questions during the exercise.

Evaluators should be assigned to each utility and laboratory participating in the exercise. It may also be helpful to have an evaluator for any key Response Partners that are involved. Evaluators are often selected from the organization they are assigned to evaluate.

Due to staffing limitations, it may occasionally be necessary for the controllers or members of the exercise planning team to also act as players. (Having an evaluator act as a player is not encouraged.) When acting as players, these individuals should be instructed to base their actions only on the information available to the players.



2.1.2 Exercise Players

AP-FSE players may include drinking water and wastewater utilities, laboratories and other Response Partners (local, state and federal environmental, public health and emergency response agencies). Players take an active role in the exercise by performing their regular roles and responsibilities in response to the risks and hazards presented by the exercise scenario.

Likely player activities are provided in Table 2.1.2; however, this is not an exhaustive list. Depending on the exercise goals and objectives, the activities performed by each player might change, and some activities, such as sample collection, may be notional (e.g., samples may be prepared in a laboratory rather than being collected in the field). Exercise players generally will also participate in a pre-exercise briefing, training sessions and a post-exercise Hot Wash.

Utility players often serve as the Analytical Services Requester (ASR) by leading the coordination of analytical support in response to a water contamination incident at their facility. In this case, the utility would perform most of the duties listed for the ASR in Table 2.1.2 (see the following page). However, when utility resources are limited, the incident is large or multiple sectors are impacted, coordination of analytical support may be handled by another organization, such as a state drinking water agency, state laboratory or EPA regional laboratory. In these cases, most, if not all, of the activities listed in Table 2.1.2 for the ASR would be undertaken by the organization responsible for coordinating laboratory support rather than the utility. However, the drinking water utility would still be involved in coordination of the response.

Staff members with various roles in each organization can benefit from AP-FSE participation. For example, an organization might want to include public information officers (PIOs), utility operators, laboratory directors or finance staff in the exercise, to practice communication and coordination between different departments.

Exercises provide a good opportunity for cross-training staff. However, staff members should not participate in roles in which they would never serve based on their current position (e.g., a laboratory technician should not play an on-scene coordinator).

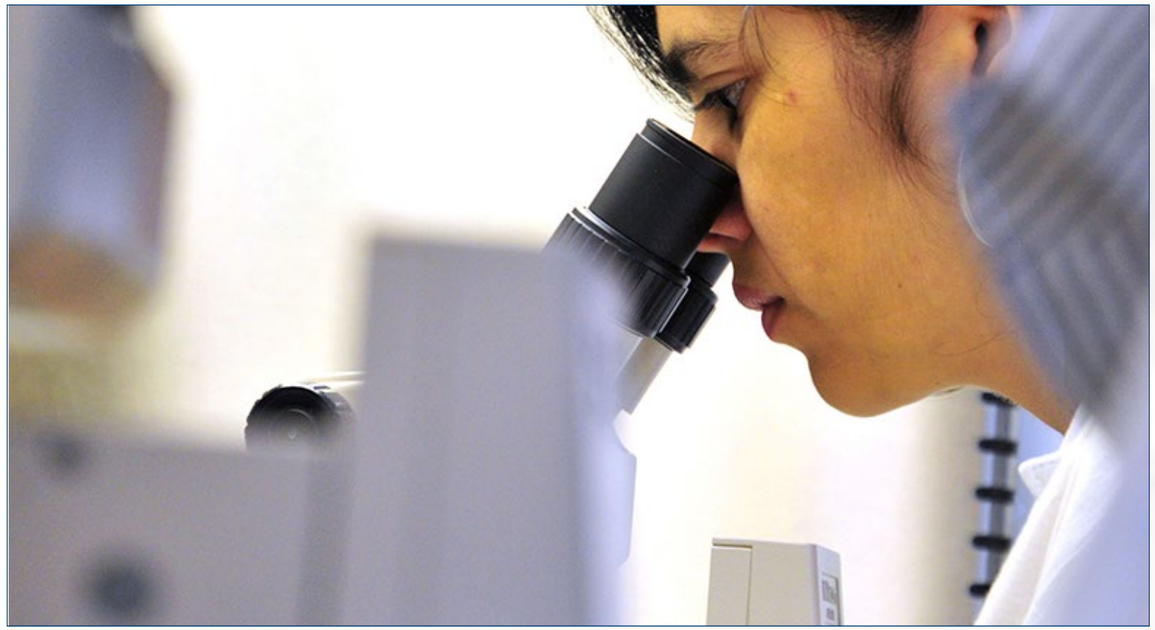
Table 2.1.2 Roles and Responsibilities of Players and Observers During an AP-FSE

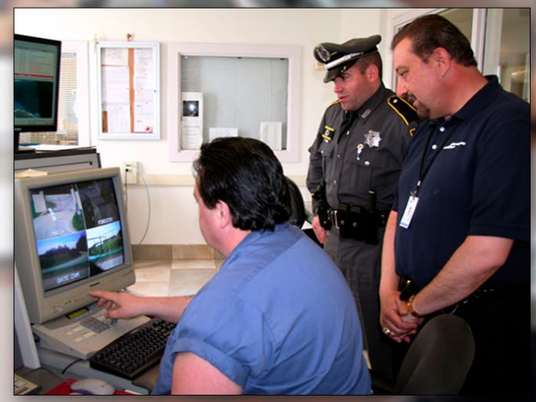
Role	Responsibilities
CORE ACTIVITIES FOR WLA AP-FSE PLAYERS	
Analytical Services Requester (Utility or other Response Partner)	• Coordinates all activities related to providing analytical support. • Identifies laboratories. • Holds daily briefings with support laboratories. • Coordinates sample collection and shipping (may be notional). • Coordinates sample analysis. • Receives data. • Coordinates with other Response Partners.
Laboratories	• Receive samples. • Analyze samples. • Review and report data. • Answer technical questions.
ADDITIONAL ACTIVITIES FOR WLA AP-FSE PLAYERS	
Other Response Partners*	• Practice lines of communication and incident notification. • Support development of public notifications including "Do not use" and "Do not drink." • Support development of press releases. • Participate in briefing calls with utilities, laboratories and other Response Partners. • Provide technical expertise to answer questions from the utilities and laboratories. • Assist with sample collection and shipping. • Help compile and evaluate data. • Provide status updates to other organizations.
ACTIVITIES FOR WLA AP-FSE OBSERVERS	
Observers	• Observe exercise activities either on site or via conference call to gain a better understanding of the procedures to be followed and decisions to be made when coordinating analytical support for water contamination incidents.

*Response Partner activities will vary widely depending on the organization and its likely role during an emergency response. Many of these activities may be notionalized.

2.1.3 Exercise Observers

Observers may include utility or laboratory personnel, Response Partners, elected officials or other parties that are interested in learning about coordinating analytical support for water contamination events, but are unable to participate in the exercise as active players or evaluators due to lack of resources or other reasons. They observe exercise activities either on site at one of the participating utilities or laboratories or via conference call during briefing calls, status updates, etc. According to HSEEP, "observers do not directly participate in the exercise; rather, they observe selected segments of the exercise as it unfolds."





2.2 Recruiting Participants

AP-FSE participants should be recruited early in the exercise planning process. When initially contacted, potential participants should be provided with the information provided in Table 2.2. During recruitment, the lead organization or exercise planners may want to provide a handout to potential exercise participants that includes background information on the exercise. The handouts can be customized to target each group of participants (e.g., players, evaluators, controllers).

Player Handout Template

This Word document can be customized by the lead organization or exercise planning team and distributed to potential exercise players.

DOWNLOAD TEMPLATE

Table 2.2 Information to Provide Potential Exercise Participants During Recruitment

Participants	Information to Provide During Initial Recruitment
All Participants	• The purpose of the AP-FSE. • Their role in the AP-FSE, including the anticipated level of effort. • How participation will benefit their organization. • Anticipated date of the exercise. • High-level summary of the scenario.
Analytical Service Requester (Utility or other Response Partner)*	• The number of laboratories the ASR will coordinate. • The contaminants that will be involved. • The methods that will be used. • How data will be reported.
Laboratories	• The contaminants that will be involved (unless the scenario is for an unknown contaminant). • The methods that will be used (unless the scenario is for an unknown contaminant). • Number of samples to be analyzed. • Any required practice analyses. • The method of data reporting. • Any anticipated compensation for participation.

*In most cases, the utility will be involved in formulating these exercise elements.

2.2.1 Utilities

When recruiting utilities to participate in the exercise, consideration should be given to the resources of the utility and the level of effort (e.g., acting as the ASR or limited participation) required for the exercise. Small utilities may have limited personnel, and it may be difficult for them to divert staff from normal duties. These small utilities might benefit from acting as observers, which would allow them to learn about best practices for coordinating analytical support for water contamination events at a reduced level of effort.

Organizations that might be able to help identify utility recruits include the following:

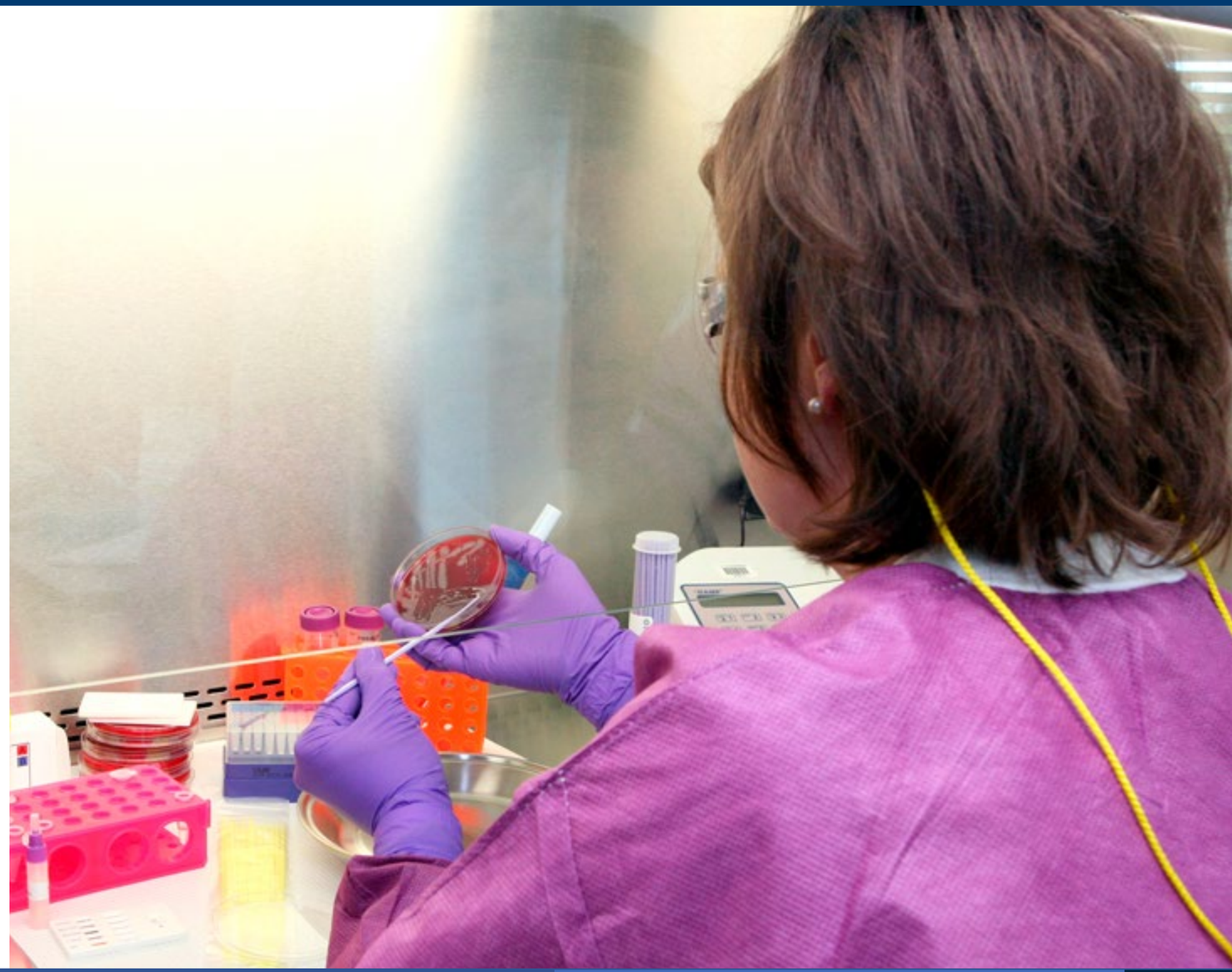
- The state's Water/Wastewater Agency Response Network (WARN). Click here for information about WARN.
- The state's drinking water regulatory agency.
- EPA Regional Laboratory Directors.
- EPA's WLA Team: email the WLA Team at WLA@epa.gov or contact the ERLN/WLA Helpline at (703) 461-2400, Monday-Friday, 8:30 AM – 5:00 PM ET, except federal holidays.

2.2.2 Laboratories

Prior to recruiting laboratories, the exercise planning team will need to determine what criteria (for example, involving analytical capabilities, existing relationships and contractual agreements) should be used to select laboratories. In most cases, decisions are made in advance about the contaminant(s) included in the scenario and the analytical methods that will be used to detect these contaminants. Then the exercise controller or exercise planning team selects laboratories that have the capability to perform the analytical methods or the ability to develop the capability through practice analyses. However, if the exercise planning team prefers to engage laboratories based on existing relationships or contractual agreements, the scenario, contaminant(s) and analytical methods might need to be modified.

While the recommended best practice is for all participating laboratories to use the same method to ensure comparability of the data, there may be cases where exercise designers let the participating laboratories choose which method to use. If the scenario involves identification of an unknown contaminant, recruited laboratories will need to have the capability to perform a wide range of analyses. Resources for identifying capable laboratories include the following:

- Local or state environmental or public health laboratories.
- The Compendium of Environmental Testing Laboratories (Laboratory Compendium).
- EPA Regional Laboratory Directors.
- Accessing Laboratory Support, which provides information on identifying laboratories to provide support for water contamination incidents.
- EPA's WLA Team: email the WLA at WLA@epa.gov or contact the ERLN/WLA Helpline at (703) 461-2400, Monday-Friday, 8:30 AM – 5:00 PM ET, except for federal holidays.



2.2.3 Other Response Partners

Utilities and laboratories are strongly encouraged to involve Response Partners in the exercise. Potential Response Partners represent organizations that would likely be involved during a water contamination incident. A list of potential organizations is provided below.

The exercise planning team can design the exercise so that Response Partners can play an active role by performing some of the activities that are presented as notional in the included scenarios. Suggested activities for Response Partners during the exercise are provided in Table 2.1.2. Utilities and laboratories participating in the exercises are encouraged to notify potential Response Partners of the exercise, even if the Response Partners are unable to play an active role.

Potential Response Partners

- State drinking water agencies.
- State Water/Wastewater Agency Response Network (WARN).
- Local and state elected officials.
- Local and state emergency management agencies.
- Local and state Emergency Operations Centers (EOCs).
- Local and state health departments.
- Drinking water associations (e.g., rural water associations).
- Federal government agencies (e.g., EPA, Centers for Disease Control and Prevention [CDC]).
- First responders/emergency managers.
- Hospitals, including emergency rooms.
- Law enforcement (including the Federal Bureau of Investigation [FBI]).
- Media.
- Other water utilities.
- Phone companies.
- Poison Control Centers.
- Power companies.

Past Exercise Participants' Recommendation: Engage Response Partners to Develop Relationships

"The exercise was useful in making us aware that an important part of a scenario where a boil water order would last for days would be how the local hospital would handle the situation. We will be reaching out to them to see if they have developed a plan." **– AP-FSE Utility Participant**

"The different boards of health may have been a good agency to have on board with the exercise because both the utilities and laboratories would be working with them as well if this had been an actual event." **– AP-FSE Evaluator**

"Some water analysis labs are not part of the Public Health system and may not have these relationships with Public Health. While I realize that not all partners could be part of this exercise, it seems like a good opportunity to start to forge those connections." **– AP-FSE Laboratory Participant**

CLICK HERE SUMMARY INFO

Step 3:
Identify Objectives

Step 3: Identify Objectives

3.1 Developing Exercise Objectives

One of the first tasks for the exercise planning team is to develop exercise objectives. Objectives are distinct outcomes that the participating organizations wish to achieve by conducting the exercise. The exercise objectives should represent the interests of all the organizations participating in the exercise. The exercise planning team should use the exercise objectives to drive development of the remainder of the exercise documentation. When the exercise is complete, the exercise outcomes will be evaluated against the exercise objectives to determine if the objectives were achieved or if corrective actions need to be implemented to address any gaps in preparedness. Exercise objectives could incorporate any of the following:

- Evaluation and testing of plans, processes and procedures.
- Identification of gaps in resources necessary for effective response to water contamination events.
- Development of relationships between utilities, laboratories and other Response Partners.
- Evaluation of analytical methods for use during water contamination incidents.

Note: These exercises are designed to be conducted in a no-fault atmosphere that focuses on making improvements to plans and procedures, rather than finding fault with specific individuals or organizations.

3.2 Examples of Exercise Objectives

A list of objectives used for previous exercises is provided below:

- Practice the procedures of the EPA Water Laboratory Alliance Response Plan (WLA-RP).
- Practice coordination of analytical support for a water contamination incident between drinking water utilities and analytical laboratories.
- Practice and evaluate internal standard operating procedures (SOPs) of exercise players.
- Build relationships between utilities, laboratories and other Response Partners to facilitate coordination of analytical support to a water contamination incident.
- Build proficiency using the newly optimized methods for chemical and biological contaminants.
- Evaluate the use of EPA's Web-based Electronic Data Review (WebEDR) application for chemical data.
- Evaluate the effectiveness of National Incident Management System (NIMS) training.
- Evaluate use of the emergency operations plan (EOP) or continuity of operations plan (COOP).

Issue identification is not as valuable as suggestions and recommended actions that could improve response efforts. Problem-solving efforts should be the focus.

3.3 Organization-Specific Objectives

In addition to the exercise objectives developed by the planning team, laboratories and Response Partners should consider developing objectives specific to their organizations. These objectives should focus on establishing relationships with Response Partners and practicing and evaluating internal SOPs. Examples of organization-specific objectives could include the following:

- Identification of Response Partners and practice implementing Response Partner roles and responsibilities during an emergency.
- Evaluation of the organization's phone tree for contacting Response Partners during an emergency.
- Practicing the use of the organization's communications tracking system to track all exercise communications.
- Evaluation of procedures for handling calls from the media and other outside callers.
- Evaluation of data review and validation procedures.
- Evaluation of the laboratory's Laboratory Information Management System (LIMS) to output data reports in the format requested by the Analytical Services Requester (ASR).
- Evaluation of backup systems and staff redundancy to meet exercise needs.
- Evaluation of systems to distribute information and notifications to the public.
- Evaluation of the process for preparing "do not drink" and "do not use" notices.

"A disaster is *not* the time to exchange business cards."

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Step 4:

Develop the Scenario and Expected Actions

Step 4: Develop the Scenario and Expected Actions

4.1 Scenario Development

The exercise scenario should be designed to support exercise participants in meeting the stated exercise objectives. Ideally, the exercise scenario is developed early in the exercise planning process. Scenarios generally start with a trigger event that indicates there is an actual or potential drinking water contamination incident. Potential trigger events could include natural disasters, terrorist threats, chemical spills, industrial accidents, customer complaints or illnesses. When developing a scenario, consider the following:

- What are the potential threats to the utility's drinking water system (e.g., likelihood of natural disasters, susceptibility to intentional contamination)?
- What are likely contaminants for the drinking water utility based on historical data, water source and proximity to industry or chemical storage facilities?
- What part of the response will the exercise cover (e.g., contaminant identification, determining extent of contamination, assessing the effectiveness of decontamination, whether it is safe to return to service)? Due to time constraints, it may not be possible to play out the analytical support needed for all phases of the response during one exercise.
- Does the scenario present opportunities to evaluate, test or practice all procedures and plans included in the exercise objectives?
- Are any components of the scenario cost-prohibitive?

Scenarios will ideally be as realistic as possible. When selecting a contaminant, consider the contaminant's properties. Some properties to consider when designing the scenario are provided below. Additional information can be found using the Water Contaminant Information Tool (WCIT).

Contaminant Properties

- Is it soluble?
- Will it break down quickly?
- Is it impacted by water treatment?
- How toxic is it?
- What are the symptoms of people exposed to the contaminant?
- How long does it take after exposure for the onset of symptoms to occur?
- Does it have a taste or odor likely to be detected by customers?

Two example scenarios are provided. These scenarios can be used as they are or modified as needed to achieve exercise objectives.

Chemical Scenario Example

Contamination of drinking water with a pesticide (dicrotophos) from an unknown source.

DOWNLOAD EXAMPLE

Biological Scenario Example

Contamination of drinking water with *E. coli* O157:H7 after heavy rainfalls cause runoff from agricultural areas.

DOWNLOAD EXAMPLE

These scenarios are based on the assumption that these incidents involve a small, localized response and that the impacted drinking water utility coordinates all laboratory support. Modifications will need to be made for larger incidents or if an organization other than the drinking water utility is responsible for coordinating laboratory activities.

4.2 Analytical Decisions

The types of laboratory analyses performed during the exercise should be driven by the exercise objectives and exercise scenario. Some types of analyses that may be included in the AP-FSEs include the following:

- Screening-level analyses.
- Quick turn-around analyses to identify the extent of contamination.
- Processing and analyses of large-volume samples (10 L – 100 L).
- Confirmatory analyses to determine the effectiveness of decontamination strategies.
- Confirmatory analyses to determine if it is safe for a utility to return to service.

It is recommended that if more than one laboratory analyzes samples, all laboratories use the same analytical method to ensure data comparability. Potential sources of method information include the following:

1. Selected Analytical Methods for Environmental Remediation and Recovery (SAM) – SAM provides access to analytical methods that have been selected by technical work groups representing multiple federal and state agencies specifically for analysis of environmental samples following a contamination incident. The methods selected are considered to be the most appropriate, currently available procedures for analysis of environmental samples for the chemical, pathogen, toxin and radiochemical target analytes listed in SAM.
2. Water Contaminant Information Tool (WCIT) – WCIT includes analytical and field testing methods (if available) for more than 800 contaminants. The recommended SAM methods are included in WCIT and are flagged for easy reference.
3. Approved EPA drinking water methods.
4. Solid waste methods from EPA's SW-846 compendium.

4.3 Spiked Samples

Ideally, laboratories will analyze spiked samples to simulate the water contamination described in the scenario. This provides an opportunity for laboratories to assess the method and their reporting capabilities for samples that provide measurable results. Spiked samples can be prepared either by a third party or by participating laboratories themselves. Any arrangements to have a third party prepare the samples should be made several months prior to the start of the exercise.

4.4 Data Reporting

Data reporting can be one of the most challenging aspects of exercises and real events. This is especially true when multiple laboratories are submitting data for a large number of samples. It is recommended that laboratories be provided a standardized format for data submission to reduce the amount of time required to compile and review data. The data reporting templates were developed to allow laboratories to upload data via WebEDR or to submit data directly to the ASR. The templates include instructions, descriptions of all of the required fields and example data to illustrate the type of information entered in each field.

Chemical Data Reporting Template

Includes example data for dicrotophos.

DOWNLOAD TEMPLATE

Biological Data Reporting Template

Includes example data for *E. coli* O157:H7.

DOWNLOAD TEMPLATE

EPA has developed the Web-based Electronic Data Review (WebEDR) system for reporting incident data electronically. WebEDR provides laboratories with the ability to manage, store and submit data files, to check files for content and completeness prior to submission and to review the status of previous submissions. If you are interested in using WebEDR for your AP-FSE, please contact EPA at WLA@epa.gov for support. For more information about WebEDR, visit the WebEDR site.

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Step 5:
Schedule the Exercise

Step 5: Schedule the Exercise

5.1 Activities to Complete

Exercise planning may take 6 months to a year, depending on the complexity of the exercise. A list of major exercise planning steps is provided in Table 5.1, along with the recommended timeframe for completion. The exercise planning schedule should be developed early in the planning process. Updates should be made and new schedules distributed as needed. For an example schedule, click here.

Table 5.1 Recommended Schedule for Exercise Activities

Activity	Time Frame in Relation to Exercise
Concept & Objectives Meeting / Initial Planning Meeting / Exercise Kickoff	6 months prior
Develop Exercise Objectives and Scenario	5 to 6 months prior
Recruit Exercise Participants	5 to 6 months prior
Schedule Exercise Date	4 months prior
Draft Exercise Documentation (Master Scenario Events List [MSEL], Exercise Evaluation Guide [EEG], etc.)	2 to 3 months prior
Midterm Planning Meeting	Halfway through planning time
Order Supplies and Reagents for Laboratories (if needed)	3 months prior
Conduct Practice Analyses (if needed)	1 month prior
Complete Exercise Documentation (MSEL, EEG, etc.)	1 month prior
Final Planning Meeting	1 month prior
Conduct Evaluator Training	2 weeks prior
Conduct Controller Training	2 weeks prior
Conduct Player Briefing	2 weeks prior
Prepare Exercise Samples	1 week prior
CONDUCT EXERCISE	**N/A**
Conduct Exercise Hot Wash	Immediately following
Prepare After-Action Report (AAR)	Within 3 months
Conduct Improvement Planning Meeting	Within 6 months

5.2 Exercise Development Schedule

The exercise planning team should meet on a regular basis to prepare for the exercise. The frequency of the meetings may vary based on the team's experience in conducting exercises, number of participants, level of detail, available resources and size of the team. While the number of planning meetings needed for an exercise will vary widely, three are considered critical. The three meetings and the recommended agenda items for each meeting are provided in Table 5.2. The date for the exercise should be selected as early in the planning process as possible and be based on input from the exercise participants.

Exercise planners may schedule a Concept & Objectives (C&O) Meeting to reach agreement on the scope and objectives of the exercise prior to or in conjunction with the Initial Planning Meeting.

Table 5.2 Key Exercise Planning Meetings

Meeting	Topics
Initial Planning Meeting	• Confirm exercise objectives. • Discuss potential exercise scenarios, including analytes and methods. • Begin identification of potential exercise players. • Define exercise scope. • Discuss available exercise resources. • Discuss evaluation requirements.
Midterm Planning Meeting	• Discuss exercise scheduling. • Discuss exercise logistics (e.g., who will prepare exercise samples, where controllers will be located). • Review draft exercise documentation, including Master Scenario Events List (MSEL).
Final Planning Meeting	• Confirm that all exercise documentation and materials are final. • Confirm that required training and briefing sessions have been scheduled. • Confirm that laboratories have the necessary supplies for sample analyses and that samples will be prepared and shipped at the designated time. • Confirm that contact information is available for exercise players, evaluators and controllers.

Note: Additional planning meetings may be necessary.

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Step 6:
Prepare Exercise Documents

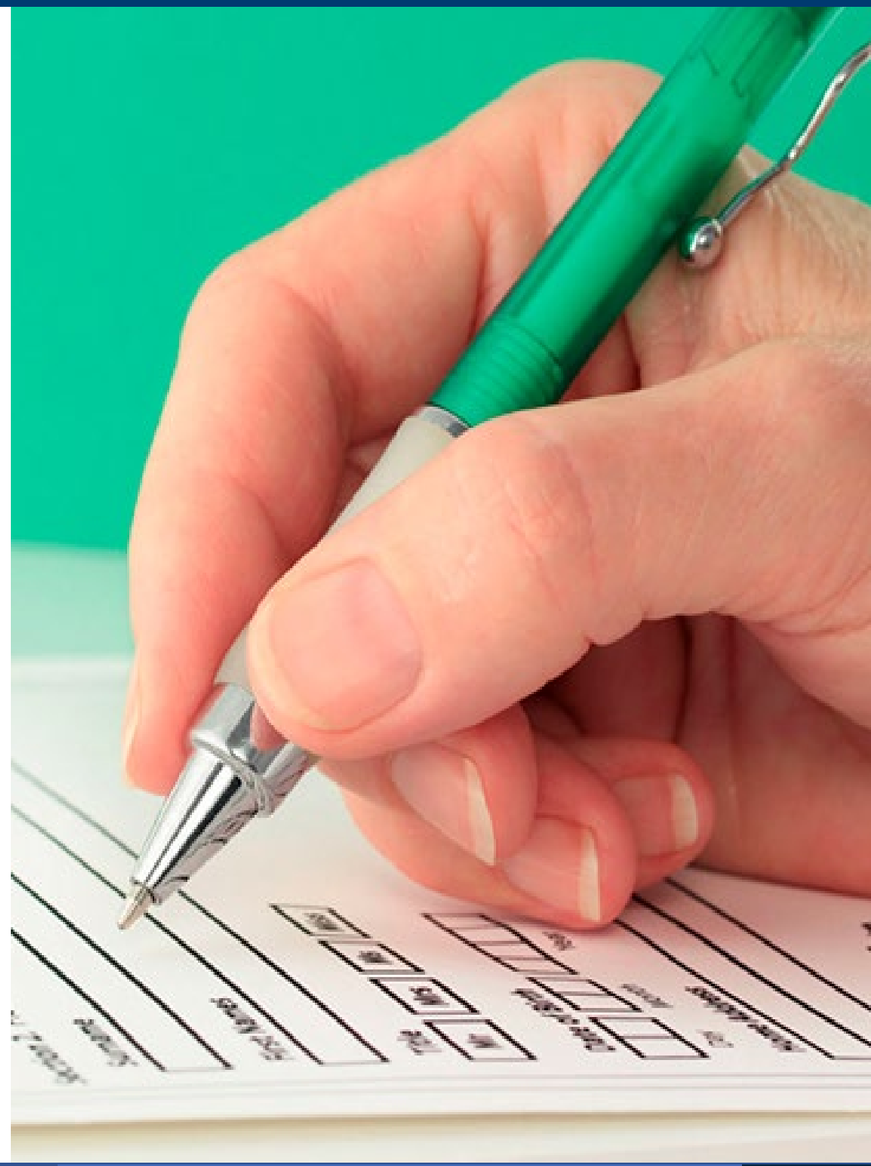
Step 6: Prepare Exercise Documents

6.1 Documentation List

A list of major exercise documents developed by the exercise planning team and a brief description of each document are provided in Table 6.1. Ideally, these documents will be finalized several weeks prior to the start of the exercise.

Table 6.1 Exercise Documents

Exercise Document	Description
Master Scenario Events List (MSEL)	A chronological listing of the events that drive exercise play. The MSEL contains event synopses, expected participant responses, responsible personnel and injects (specific scenario events that prompt actions by exercise players). It also records the method used to provide injects (e.g., phone call, radio, email).
Exercise Evaluation Guide (EEG)	The EEG provides a consistent format for recording exercise observations. It is aligned with exercise objectives and identifies the critical tasks and observations for evaluators to focus on during the exercise. The EEG is linked to the MSEL so evaluators know what they should expect to observe during each step.
Organization Evaluation Form	The Organization Evaluation Form provides participants from each organization with the opportunity to provide input on observed strengths and opportunities for improvement identified during the exercise.
Participant Feedback Form	The Participant Feedback Form provides exercise participants with the opportunity to provide feedback about the design, control or logistics of the exercise to help enhance future exercises.



6.2 Master Scenario Events List (MSEL)

The MSEL guides exercise play through a chronological list of events that supplement and expand upon the exercise scenario. If there are plans, policies and procedures to be tested that will not be prompted by the exercise scenario, MSEL entries, or injects, should be crafted to prompt players to initiate those actions. The timeline and sequence of events listed in the MSEL should be as realistic as possible. However, not every action that occurs can be anticipated, and activities might occur in an order other than what is listed in the MSEL. In some cases, actions that are not included or are different than the steps and actions listed in the MSEL could yield results that are just as good or better. Evaluators and controllers should note when divergences from the MSEL occur. The following elements are recommended for each step of the MSEL:

- MSEL # – MSEL step number.
- Subject – a brief name for the activity.
- Originator – the organization or person that prompts or begins the activity; this could be a controller or player.
- Receiver – the person or organization that receives the action; this will be an exercise player.
- Event Time – the approximate time the event is anticipated to occur.
- Method – how the inject or activity will be delivered (e.g., phone, email).
- Event Description – a brief description of the activity that is anticipated to take place.
- Expected Player Action(s) – a description of the expected actions of the players based on best practices in the Water Laboratory Alliance Response Plan (WLA-RP) and other response procedures.

An example of the MSEL format is provided in Table 6.2.

Table 6.2 Example MSEL Format

MSEL #	Subject	Originator	Receiver	Event Time (local)	Method	Event Description	Expected Player Action(s)
11	Laboratory sample receipt	Controllers	Laboratories	Afternoon of Day 1	Phone	The controllers contact the laboratories and notify them that they should have received the samples.	The laboratories accept, process and begin analyses of samples for dicrotophos. Laboratories notify the utility that samples were received.
12	Communication control	Controller (playing as governor)	Laboratories	Day 2	Phone	Call from local cities, governor, news media, etc. Controller: "Acme Laboratory, this is the governor's office of the state of Iowa."	The laboratory refers the caller to the utility and then the laboratory notifies the utility of the contact.

Two example MSELs are provided. These MSELs are based on the example scenarios provided in Step 4.1 and can be used as they are or modified as desired to achieve the exercise objectives.

Chemical MSEL Example	Biological MSEL Example
MSEL based on the scenario involving contamination of drinking water with a pesticide (dicrotophos) from an unknown source.	MSEL based on the scenario involving contamination of drinking water with *E. coli* O157:H7 after heavy rainfalls cause runoff from agricultural areas.
DOWNLOAD EXAMPLE	DOWNLOAD EXAMPLE

The activities included in these MSELs are based on the assumption that these incidents involve a small, localized response and that the impacted drinking water or wastewater utility coordinates all laboratory support. These example scenarios can be modified for use when an organization other than the water utility is responsible for coordinating laboratory activities or to address larger incidents.

Notional activities in the example MSELs could be conducted to allow Response Partners to play a more active role in the exercise and allow for additional processes to be evaluated (e.g., issuance of a joint public notice, first responder field screening and sample collection, shipment and receipt of actual samples to laboratories).

A MSEL template may be used by exercise planners to develop their own scenario and associated documentation, if desired.

MSEL Template

Once completed, the MSEL can be saved and distributed to the exercise planning team, controllers and evaluators.

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6.3 Exercise Evaluation Guide (EEG)

The EEG serves as a tool to guide evaluator observation and data collection. The EEG identifies the activities that the evaluator should be observing and provides a consistent format for recording exercise tasks. Each step in the EEG matches a step in the MSEL. Since the MSEL does not capture all possible steps the players might take, the EEG, in turn, does not capture all possible tasks the players might perform. Additional steps can be recorded in the blank rows provided in the EEG. The following fields are recommended for the EEG:

- MSEL # – corresponds to the step number in the MSEL.
- Players – which player(s) should be performing the listed activities.
- Task/Observation Keys – the description of the task that should be performed from the MSEL, followed by a list of expected activities associated with that task (the section references refer to applicable sections of the WLA-RP).
- Time of Observation/Task Completion – space for the evaluator to record when a step is completed and to make comments.

In addition to the table used to record observations during the exercise, there is also space on the EEG to record observed strengths and opportunities for improvement. The evaluator should record these observations once the exercise is complete.

An example of the EEG format is provided in Table 6.3.

Table 6.3 Example EEG Format

MSEL #	Players	Tasks/Observation Keys	Time of Observation/Task Completion
12	**All Laboratories**	**Tuesday 06/17/2014 - Afternoon** **Laboratories should accept, process and begin analyses of samples for dicrotophos.** • *Were samples inspected and any issues noted?* • *Did the laboratory notify the utility that samples were received?* • *Did the laboratory confirm that the chain-of-custody form (COC) had all of the required elements, and if not, did it follow up with the sampler/utility (WLA-RP Section 3.2.2, Sample Tracking)?* • *Did the laboratory create an internal COC, if necessary (WLA-RP Section 3.2.2, Sample Tracking)?* • *Other* _____	Date: ☐ Time: ☐ Task 12 Completed? Fully ☐ Partially ☐ Not ☐ N/A ☐ Comments:

Two example EEGs are provided. These EEGs are based on the example MSELs provided in Step 6.2 and can be used as they are or modified as needed to achieve the exercise objectives.

Chemical EEG Example

EEG based on the scenario involving contamination of drinking water with a pesticide (dicrotophos) from an unknown source.

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Biological EEG Example

EEG based on the scenario involving contamination of drinking water with *E. coli* O157:H7 after heavy rainfalls cause runoff from agricultural areas.

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An EEG template is provided so the exercise planning team can develop its own scenario and associated documentation if desired.

EEG Template

Once completed, the EEG can be saved and distributed to the exercise planning team, controllers and evaluators.

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6.4 Organization Evaluation and Participant Feedback Forms

The Organization Evaluation Form is used to compile the input of participants from each organization (one form per organization). The form will be used to record issues, accomplishments, observed strengths and opportunities for improvement identified during the exercise. The lead organization will incorporate the information submitted by each organization into the AAR.

Organization Evaluation Form

This form can be customized and distributed to the exercise players.

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The Participant Feedback Form is used by exercise participants to rate the exercise and provide suggestions for exercise improvement. Each individual participant should complete the Participant Feedback Form.

Participant Feedback Form

This form can be customized and distributed to the exercise players.

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6.5 Controller/Evaluator Handbooks

Controller/evaluator handbooks containing all the necessary exercise documentation should be provided to the exercise controllers and evaluators in advance of the exercise. These handbooks are restricted and are not to be shared with exercise players. Recommended documents to provide in the handbook (either as a hard copy or digital version) include the following:

- Contact information for the controllers, evaluators and players.
- Exercise schedule of events.
- List of exercise samples distributed to the participating laboratories.
- MSEL.
- EEG.
- Evaluator/controller training slides.
- Participant Feedback Form.
- Background documents helpful for controlling and evaluating the exercise (e.g., WLA-RP, analytical methods).

6.6 Player Handbook/Packet

Although players do not receive the same detailed information about the exercise as the controllers and evaluators, it may still be helpful to put together a handbook or packet (sometimes called an Exercise Plan, or "ExPlan") containing general information about the exercise, possibly including the following:

- An exercise synopsis including exercise objectives.
- An exercise schedule.
- Contact information for controllers, evaluators and players.
- Background documents helpful for conducting the exercise (e.g., WLA-RP).
- Organization Evaluation Form.
- Participant Feedback Form.

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Step 7:

Conduct Pre-Exercise Training Sessions, Briefings, and Laboratory Practice

Step 7: Conduct Pre-Exercise Training Sessions, Briefings and Laboratory Practice

7.1 Tool Training

EPA Water Security tools are often used by an exercise planning team to develop the exercise and by players during the exercise to aid their response activities. A list of tools commonly used to plan, prepare and conduct AP-FSEs is provided in Table 7.1. To prepare for the use of these tools, the following steps should be completed by multiple personnel from each participating organization prior to the start of the exercise:

- Register to receive passwords and user names, if the tools have restricted access.
- Log in to each tool and become familiar with its use.
- Receive formal training on the use of the tool, if available.

In some cases, the EPA WLA Team may be able to provide tool training. Contact the WLA at WLA@epa.gov to find out about training availability.

Table 7.1 Common Tools and Courses Used to Plan, Prepare and Conduct AP-FSEs

Tool	Uses	Access
Water Contaminant Information Tool (WCIT)	• Research contaminant information for scenario development. • Field testing and laboratory method information. • Access the Information Officer Report to support development of public notifications.	Register for Access
Selected Analytical Methods for Environmental Remediation and Recovery (SAM)	• Identify analytical methods.	Public Access
Compendium of Environmental Testing Laboratories (Laboratory Compendium)	• Identify laboratories.	Register for Access
Web-based Electronic Data Review (WebEDR)	• Online submission of laboratory data and automated data review.	Register for Access
Accessing Laboratory Support	• Learn how to access laboratory support	Public Access
WLA Training Center • Water Laboratory Alliance Response Plan (WLA-RP) Training Module. • WLA Tabletop Exercises Webcasts	Collection of WLA training opportunities, including live events. • Learn about the WLA-RP. • Become familiar with the WLA-RP and other response best practices.	Public Access

7.2 Player Briefings

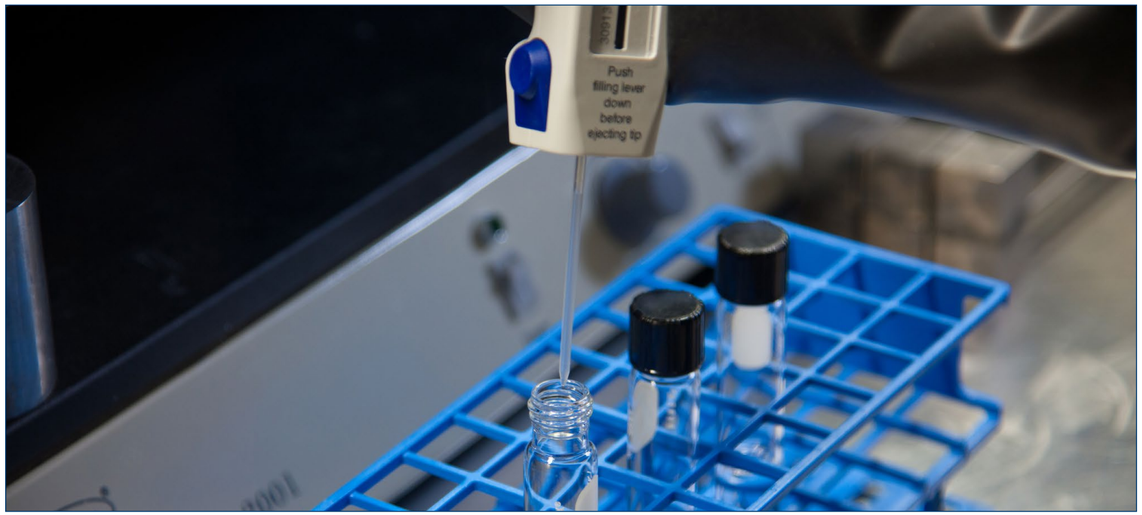
A Player Briefing should be conducted with exercise players prior to the start of the exercise. Depending on the number of players, the briefing may need to be offered at multiple times. The Player Briefing can be conducted in person, via conference call or via webcast, and it should cover the following topics:

- Goals of the exercise.
- Distribution and discussion of internal standard operating procedures (SOPs) that will be evaluated during the exercise.
- Pre-exercise preparations (e.g., review the WLA-RP, ensure access to required tools, take any required training).
- Review the controller role (e.g., manages exercise and provides injects) and provide contact info for reaching controllers during the exercise.
- Review the evaluator role and ensure all players have contact information for their evaluators.
- Provide any safety instructions.
- Review the Organization Evaluation Form and Participant Feedback Form.
- Review exercise logistics (e.g., hours of operation of the exercise, pre-staging of exercise samples [if applicable]).
- Review exercise follow-up activities, including submission of evaluation forms and preparation of the After-Action Report (AAR).

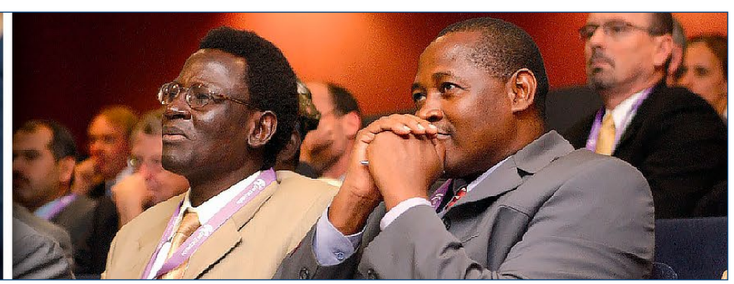
7.3 Laboratory Practice

If laboratories do not have experience with the method(s) selected for the exercise, it may be necessary for them to conduct practice analyses, ideally 2-3 weeks prior to the exercise. These analyses will allow laboratories to become familiar with the method(s), demonstrate method proficiency and resolve any method performance issues prior to the exercise. Practice analyses should include analyses of standards, blanks, positive and negative controls and unspiked and spiked reference (e.g., buffered water) and matrix samples. To reduce each laboratory's burden during the initial practice analyses, the number of samples analyzed to demonstrate method proficiency should be minimized.

To demonstrate proficiency with an established method, the laboratory's results need to meet method-specific criteria. Criteria for newer methods may not be available yet. In these cases, comparison of the results from all of the laboratories will help to identify outliers (e.g., very low or high recoveries compared to the other laboratories).







7.4 Controller Training

If all exercise controllers are members of the exercise planning team, it may be unnecessary to provide special controller training. If, however, controllers are recruited from participating organizations or other sources outside the planning team, it may be helpful to provide training to ensure that controllers understand the exercise, their role and their responsibilities.

Training could be conducted in-person, via conference call or via webcast. The following topics should be covered in the training:

- Exercise Overview.
  - » Scenario.
  - » Master Scenario Events List (MSEL).
  - » Schedule and venue information.
  - » Logistics.
- Controller role and responsibilities.
  - » Monitoring the progress of the exercise.
  - » Making exercise injects.
  - » Conducting debriefs with exercise players.
- Hot Wash logistics.

7.5 Evaluator Training

Evaluator training should be conducted prior to the start of the exercise, either in person, via conference call or via webcast. Evaluator handbooks should be distributed prior to the training. The following topics should be covered in the training:

- Exercise Overview.
  - » Scenario.
  - » MSEL.
  - » Schedule and venue information.
  - » Logistics.
- Evaluator role and responsibilities.
  - » Process for completing the Exercise Evaluation Guide (EEG).
- Hot Wash logistics.

A Controller Training Presentation template is provided to support development of controller training.

Controller Training Presentation Template

PowerPoint file that provides information on controller responsibilities and can be customized for any exercise.

DOWNLOAD TEMPLATE

An Evaluator Training Presentation template is provided to support development of evaluator training.

Evaluator Training Presentation Template

PowerPoint file that provides information on evaluator responsibilities and can be customized for any exercise.

DOWNLOAD TEMPLATE

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Step 8:
Conduct the Exercise

Step 8: Conduct the Exercise

8.1 Pre-Exercise Activities

There are several activities that need to take place in the month prior to the exercise. These activities are listed in Table 8.1. The Incident Command Post (ICP) Supply List provides a checklist of items to have available at the exercise location.

Table 8.1 Pre-Exercise Activities

Activity	Description
Training Sessions	Confirm that exercise players have completed any required training sessions
Player Briefings	Confirm that Player Briefings are complete and any remaining questions from exercise players have been answered
Laboratory Practice Analyses	Complete laboratory practice analyses 2 to 3 weeks prior to the start of the exercise and review the laboratory data
Prepare Exercise Samples	Exercise samples prepared by a third party should be prepared prior to the start of the exercise. Sample holding times should be considered when determining how far in advance to prepare the exercise samples.
Ship Exercise Samples	Exercise planners may wish to have exercise samples shipped to laboratories in advance of the exercise to avoid any delays due to shipping problems. Laboratories can hold these samples until the exercise starts.

8.2 Exercise Kickoff

The exercise kickoff should start with a briefing of the players to provide information on the background scenario and any notional activities that have already occurred to set up the start of the exercise. The set of players participating in this initial briefing will generally include the utility at the center of the incident and any Response Partners involved in the initial response. The laboratories might be included in this initial briefing or might receive background information on the incident later, as part of the exercise play. The briefing is typically provided by one of the exercise controllers verbally and in writing.

8.3 Controller Responsibilities

Controllers are responsible for monitoring and managing the progress of the exercise. Generally, controllers operate from a Simulation Cell (SimCell) located at the facilities of one of the participating organizations. The SimCell is usually a conference room or similar space with computers, Internet access, multiple phone lines and flip charts or white boards for recording information.

The following are activities that controllers should perform prior to and during the exercise:

Prior to the Exercise

- Participate in controller training (if not part of the exercise planning team).
- Confirm access to the SimCell.
- Familiarize themselves with exercise goals and objectives as well as exercise players.
- Familiarize themselves with the exercise documentation including the Master Scenario Events List (MSEL) and Exercise Evaluation Guide (EEG).
- Familiarize themselves with the Water Laboratory Alliance Response Plan (WLA-RP) and other tools and resources that may be used during the exercise.

During the Exercise

- Monitor exercise progress.
- Provide exercise injects to keep the exercise moving.
- Simulate the roles of individuals and organizations that are not participating in the exercise (e.g., media, elected officials).
- Develop a communications transition checklist to ensure information is transferred to players on a daily basis.
- Conduct debrief calls with each of the players as they complete their part of the exercise (see Step 8.8).

8.4 Evaluator Responsibilities

Evaluators observe and record what happens during the exercise. Evaluators do not play an active role in the exercise, and they need to avoid activities that could bias the exercise. This includes sharing details of the exercise with the exercise players. Evaluators should attempt to observe as many of the exercise activities first-hand as possible, rather than relying on interviews. In order to allow evaluators to listen to all parties in relevant conversations, a speaker phone or equivalent should be used for communication among exercise players.

The following are activities that evaluators should perform prior to and during the exercise:

Prior to the Exercise

- Participate in evaluator training.
- Confirm access to the facility they will evaluate.
- Familiarize themselves with the exercise documentation, including the MSEL and EEG.

During the Exercise

- Observe and evaluate player activities using the provided EEG.
- Report to the controllers any issues that arise, including safety issues and major deviations from the MSEL.

8.5 Analytical Services Requester (ASR) Activities

The role of the ASR may be played by the impacted drinking water utility or another Response Partner (e.g., state drinking water agency, state laboratory). The ASR is responsible for coordinating laboratory support to the mock contamination incident, including communicating all necessary information to the laboratories in order for them to provide effective analytical support. In addition, the ASR must communicate and coordinate exercise activities with all other exercise participants, including Response Partners. The following best practices are recommended to ensure that the ASR effectively communicates and coordinates with other players during the exercise:

- Review the WLA-RP appendices.
- Conduct an initial briefing call with all the laboratories providing analytical support for the incident. During the briefing, use the Help Sheet for Requesting Analytical Support during an Emergency Response (Appendix C) from the WLA-RP. Appendix C provides prompts for the information that should be exchanged when analytical support is first requested.
- Conduct daily briefing calls with the support laboratories.
- Include Response Partners in initial and daily briefing calls with laboratories.
- Follow up in writing information that was conveyed verbally.
- Request that laboratories use a standardized format for data reporting, such as the chemical EDD or the biological EDD.

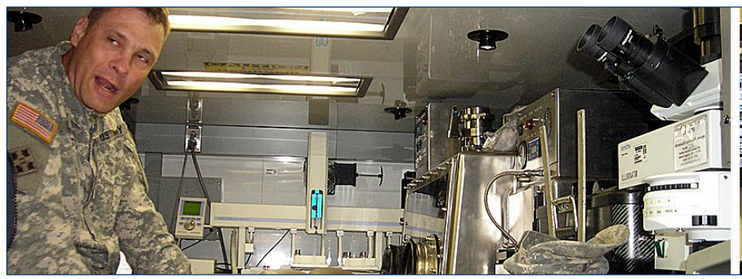
8.6 Laboratory Activities

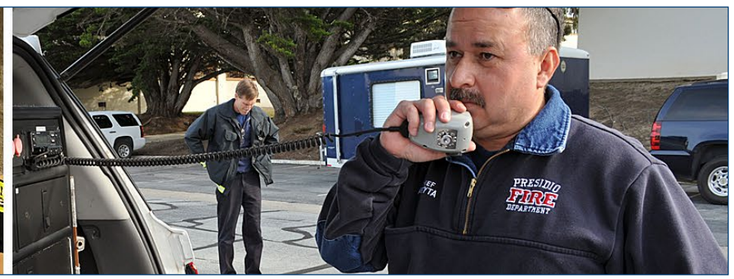
Laboratory activities are directed by the utility or other organization playing the role of the ASR. However, as technical experts, the laboratories may be called upon to answer questions and make recommendations regarding sample collection, shipment and data reporting. The following activities are recommended as best practices to ensure the laboratory is providing effective support to the ASR:

- During the initial briefing call with the ASR, use Appendix C from the WLA-RP appendices.
- Follow up in writing information that was conveyed verbally.
- Report any requests for information from outside callers to the appropriate point of contact (POC) designated by the ASR.
- Consult with the ASR regarding any problems with the sample analyses

8.7 Observers

Observers participate in the exercise to learn about coordinating analytical support for water contamination incidents. Observers do not actively participate in the exercise and need to avoid activities that could bias the exercise players' actions (e.g., providing advice to players). Their observations can either be conducted on site at one of the participating utilities or laboratories, or via conference call during briefing calls, status updates, etc. Observer participation in the AP-FSE must be coordinated with the host organization in advance and should include arrangements to access any facilities where they will be conducting on-site observations.



8.8 Debriefs

The controllers should schedule a 30-minute debrief with each organization as its part in the exercise is completed. Debrief participants include the organization's evaluator and the exercise players. During the debrief, both the evaluator and the exercise players should provide feedback on the following questions:

- What went well during exercise play?
- What issues or challenges did you encounter?
- What suggestions do you have for improving plans, procedures or response activities?
- What suggestions do you have for improving the exercise?

The debrief allows each organization's exercise participants an opportunity to provide immediate feedback in a low-stress environment. It also provides each organization with the opportunity to prepare for the upcoming Hot Wash. At the Hot Wash, representatives from each participating organization will share their high-level findings with the other exercise participants.

CLICK HERE SUMMARY INFO

Step 9:
Conduct the Hot Wash

9.1 Hot Wash

Step 9: Conduct the Hot Wash

9.1 Hot Wash

The Hot Wash should be conducted as soon as practical after the completion of the exercise, and invitations should be sent out prior to the start of the exercise. The Hot Wash can occur in person, via conference call, or via webcast and may last 2 to 3 hours, depending on the complexity of the exercise and the number of exercise participants. Ideally, the Hot Wash will be led by a member of the exercise planning team or an exercise controller with exercise facilitation experience. Each organization that participated in the exercise should have an opportunity to present its observations. Topics to be discussed during the Hot Wash include the following:

- Issues encountered, including gaps in resources, problems with method performance, etc.
- Strengths identified.
- Preliminary recommendations to improve preparedness.
- Recommendations to improve the exercise.
- Submission deadline for Exercise Evaluation Guides (EEGs), Organization Evaluation Forms and Participant Feedback Forms (generally 2 to 3 weeks).
- Process for development of the After-Action Report (AAR).

Outstanding questions can also be answered during the Hot Wash. The information provided during the Hot Wash should be captured and used to support the development of the After-Action Report (AAR).

At the beginning of the Hot Wash, the facilitator should be sure to stress that these exercises are designed to be conducted in a **no-fault atmosphere** that focuses on making improvements to plans and procedures, rather than finding fault with specific individuals or organizations. This should be emphasized during the Hot Wash and reflected in the findings of the AAR.

CLICK HERE SUMMARY INFO

Step 10:
Perform Exercise Follow-Up Activities

Step 10: Perform Exercise Follow-Up Activities

10.1 After-Action Report (AAR) and Improvement Plan (IP)

The AAR is developed by members of the exercise planning team. The AAR provides an overview of progress toward exercise objectives, highlighting strengths and areas for improvement. Generally, AARs also include basic exercise information, such as the following:

- Exercise name.
- Exercise type.
- Dates.
- Location.
- Participating organizations.
- Specific threat or hazard.
- A brief scenario description.
- Name of the AP-FSE lead organization and POC.

The following information sources form a basis for developing the AAR:

- Exercise Evaluation Guides (EEGs).
- Organization Evaluation Forms.
- Participant Feedback Forms.
- Exercise Debriefs.
- Exercise Hot Wash.

An AAR template is provided, but the length and format of the completed AAR will depend on the type and scope of the AP-FSE.

AAR Template

Formatted Word document with prompts for information that should be included in the report.

DOWNLOAD TEMPLATE

The draft AAR should be completed within 3 months of the exercise and provided to participants to review. Participants should provide feedback and identify areas requiring further action.

The Improvement Plan (IP), which highlights strengths and areas for improvement, is developed by members of the exercise planning team and can be included as an appendix to the AAR. The draft IP can be developed as a matrix covering the following elements:

- Next steps to be taken for improving performance.
- Which individuals, agencies or organizations should be responsible for implementing the improvements.
- Resources that may be needed to implement the improvement.
- Time frame for implementation.

10.2 After-Action Meeting and Improvement Planning

After completion of the draft AAR and IP, an After-Action Meeting should be conducted with the exercise planning team and evaluators. This meeting can be conducted in person, via conference call or via webcast. During the After-Action Meeting, exercise planners and evaluators should review the draft AAR and IP.

Following the After-Action Meeting, the Exercise Director incorporates the received results, corrections and clarifications into the AAR and appends the updated IP. The AAR is then considered final and can be distributed to exercise planners and players. Exercise participants should share the findings from the AAR with their management.

Action items captured in the AAR should be tracked and continually reported on until completion. Each organization is responsible for implementation of action items that apply to it and should assign a POC responsible for tracking and reporting progress to the organization's management. Changes to plans and procedures should be evaluated and practiced through additional exercises as part of a continuous improvement process.

An example of an improvement planning matrix is provided in Table 10.2, which designates actions that will be implemented within a year as short-term items and those that may take longer as long-term items. Each organization participating in the FSE may wish to develop its own improvement planning matrix to address specific action items.

Table 10.2 Improvement Planning Matrix

Option/Task/Follow-Up	Lead Individual or Agency Responsible	Supporting Individual or Agency	Resources and Possible Sources	Timeline	
				Short-Term	Long-Term
Cross-train and hire additional laboratory staff to perform pesticide analyses	Lab Director	Quality Assurance (QA) Officer	N/A		18 months
Obtain additional staff access and training on the Water Contaminant Information Tool (WCIT)	Emergency Manager	Deputy Manager	Training Budget	3 months	

10.3 Acknowledge Participation

The exercise planning team can acknowledge participation in the exercise by providing Certificates of Appreciation.

Certificate of Appreciation Template

PowerPoint file that can be customized to add participant names and organizations.

DOWNLOAD TEMPLATE

Exercise planners may also want to develop a press release that organizations can send to local media, customers and other stakeholders to announce that they have achieved enhanced Water Sector preparedness through participation in the AP-FSE.

Resources

Resources

Examples

Chemical Scenario Example – Brief summary of the chemical scenario [*Word document*]

Biological Scenario Example – Brief summary of the biological scenario [*Word document*]

Chemical Master Scenario Events List (MSEL) – Completed example for the chemical scenario [*Word document*]

Biological Master Scenario Events List (MSEL) – Completed example for the biological scenario [*Word document*]

Chemical Exercise Evaluation Guide (EEG) – Completed example for the chemical scenario [*Word document*]

Biological Exercise Evaluation Guide (EEG) – Completed example for the biological scenario [*Word document*]

Templates, Forms and Handouts

Player Handout Template – A template for providing general information about an AP-FSE and the benefits of participating *[Word document]*

Chemical Data Reporting Template – Template for reporting chemical data; includes some example data *[Excel spreadsheet]*

Biological Data Reporting Template – Template for reporting biological data; includes some example data *[Excel spreadsheet]*

Master Scenario Events List (MSEL) – A template for creating a MSEL *[Word document]*

Exercise Evaluation Guide (EEG) – A template for creating an EEG *[Word document]*

Organization Evaluation Form – A form to record issues, accomplishments, observed strengths and opportunities for improvement. Each organization will compile input from participants within the organization (i.e., one form per organization) *[Word document]*

Participant Feedback Form – A form that can be used to collect each individual participant's feedback on what aspects of the exercise worked well and what could be improved *[Word document]*

Evaluator Training Presentation Template – PowerPoint presentation template for training evaluators that can be customized for each exercise *[PowerPoint slides]*

Controller Training Presentation Template – PowerPoint presentation template for training controllers that can be customized for each exercise *[PowerPoint slides]*

After-Action Report Template – A template that can be used to create an after-action report, including an improvement planning matrix *[Word document]*

Certificate of Appreciation Template – A template for creating certificates of appreciation for exercise participants *[PowerPoint slide]*

Roles and Responsibilities -- a summary overview of exercise participant roles and responsibilities *[Word document]*

Exercise Planning Schedule – An example schedule for planning and executing an AP-FSE *[Word document]*

Incident Command Post (ICP) Supply List – A proposed list of supplies that a utility should plan to have on hand in the case of a real or simulated emergency *[Word document]*

Tools

Water Contaminant Information Tool (WCIT) – Online tool that provides information on chemical, biological and radiological contaminants

Compendium of Environmental Testing Laboratories (Laboratory Compendium) – Online database of environmental laboratories nationwide

Web-based Electronic Data Review (WebEDR) – Web-based tool that performs automated data evaluation of Electronic Data Deliverables (EDDs)

SAM Query Tool – Online tool for identifying analytical methods for measuring target chemical, radiochemical and biological analytes in environmental samples

Tabletop Exercise Tool for Water Systems: Emergency Preparedness, Response, and Climate Resiliency (TTX Tool) – Downloadable tool to help water utilities develop and conduct their own TTXs involving emergency preparedness and response

How to Develop a Multi-Year Training & Exercise Plan – Provides information to help utilities to develop a multi-year training and exercise plan

Water Quality Surveillance and Response System (SRS) Exercise Development Toolbox –Interactive downloadable tool to aid in designing, developing, conducting and evaluating discussion-based and operations-based exercises for an SRS

Accessing Laboratory Support – Interactive PDF that provides information on identifying laboratories that can provide support in the event of a water contamination incident

Method Information

Selected Analytical Methods for Environmental Remediation and Recovery (SAM) – Analytical methods selected by a technical workgroup representing multiple federal and state agencies for analysis of environmental samples following a contamination incident

Water Contaminant Information Tool (WCIT) – Online database that includes analytical and field testing methods for over 800 contaminants

Approved EPA Drinking Water Methods – Analytical methods for drinking water compliance

Solid Waste 846 Methods – Guidance documents for methods to use in responding to Resource Conservation and Recovery Act (RCRA) -related sampling

Other Resources

Water Laboratory Alliance Response Plan (WLA-RP) – Process and procedures for coordinated laboratory response to water contamination incidents that may require analytical support

WLA-RP Appendices – Word version of editable forms and checklists to support laboratory response efforts; includes the Help Sheet for Requesting Analytical Support during an Emergency Response (Appendix C) that provides prompts for the information that should be exchanged when analytical support is first requested

WLA Training Center – Collection of WLA training opportunities, including live events

Water/Wastewater Agency Response Network (WARN) – Intrastate networks of "utilities helping utilities" to respond to and recover from emergencies by sharing resources

Homeland Security Exercise and Evaluation Program (HSEEP) – Provides a set of guiding principles for exercise programs, as well as a recommended approach for exercise program management, design, development, conduct, evaluation and improvement planning

EPA Regional Laboratory Directors – Maintain relationships with laboratories throughout their respective regions

ERLN/WLA Helpline – Assists in identifying potential analytical support laboratories

- Call the ERLN/WLA Helpline at (703) 461-2400, Monday – Friday, 8:30 AM – 5:00 PM ET, except for federal holidays.
- Email the WLA Team at WLA@epa.gov.
- Email the ERLN team at ERLNHelpdesk@csra.com.

Continuity of Operations Plan (COOP) Template for Laboratories – Template to help drinking water and wastewater laboratories create a COOP

Sampling Guidance for Unknown Contaminants in Drinking Water – Guidance for biological, chemical and radiochemical sample collection, preservation and transport procedures for the detection and identification of potential contaminants in drinking water

Fact Sheets

Water Laboratory Alliance (WLA)

Water Laboratory Alliance: A Drinking Water Utility Perspective

Water Contaminant Information Tool (WCIT): A Robust Tool for the Water Sector

Water Laboratory Alliance Response Plan (WLA-RP)

Continuity of Operations Plan (COOP) Template for Laboratories

Environmental Response Laboratory Network (ERLN) Overview

Environmental Response Laboratory Network (ERLN) Web-based Electronic Data Review (WebEDR)

Reimbursement Tips for Emergency Laboratory Support

Compendium of Environmental Testing Laboratories (Laboratory Compendium)

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PRINT ONLY VERSION
of the AP-FSE TOOLKIT

Glossary & Acronym List

Glossary & Acronym List

AAR	After-Action Report
AP-FSE	Analytical Preparedness Full-Scale Exercise
ASR	Analytical Services Requester
Appendix C	Help Sheet for Requesting Analytical Support during an Emergency Response from the Water Laboratory Alliance Response Plan
CDC	Centers for Disease Control and Prevention
COC	Chain of Custody
COOP	Continuity of Operations Plan
Debrief	A facilitated discussion that provides each organization an opportunity to provide detailed feedback to the exercise planning team. Topics may include the level of satisfaction with the exercise, issues or concerns, and proposed improvements. Information from the debrief can be used to prepare for the Hot Wash.
EDD	Electronic Data Deliverable
EEG	Exercise Evaluation Guide
EOC	Emergency Operations Center
EOP	Emergency Operations Plan
EPA	Environmental Protection Agency
ERLN	Environmental Response Laboratory Network
FBI	Federal Bureau of Investigation
FSE	Full-Scale Exercise
Hot Wash	A facilitated discussion held after the exercise to capture feedback about any issues, concerns or proposed improvements to the exercise
HSEEP	Homeland Security Exercise and Evaluation Program
ICP	Incident Command Post
ICS	Incident Command System
IP	Improvement Plan
Laboratory Compendium	Compendium of Environmental Testing Laboratories
LIMS	Laboratory Information Management System
MSEL	Master Scenario Events List
NHSRC	National Homeland Security Research Center
NIMS	National Incident Management System
Notional	Exercise steps that are presented as background information but are not actually carried out by exercise players
OEM	Office of Environmental Management

Note: Definitions are intended to be consistent with HSEEP

Participant	Includes all exercise planners, players, controllers and evaluators involved in conducting an exercise
PIO	Public Information Officer
Players	Perform their regular roles and responsibilities during the exercise in order to respond to or recover from the risks and hazards presented by the scenario
POC	Point of Contact
QA	Quality Assurance
RCRA	Resource Conservation and Recovery Act
SAM	Selected Analytical Methods for Environmental Remediation and Recovery
SimCell	Simulation Cell
SOP	Standard Operating Procedure
SRS	Surveillance and Response System
TTX	Tabletop Exercise
WARN	Water/Wastewater Agency Response Network
WCIT	Water Contaminant Information Tool
WebEDR	Web-based Electronic Data Review
WLA	Water Laboratory Alliance
WLA-RP	Water Laboratory Alliance Response Plan

Note: Definitions are intended to be consistent with HSEEP