

Contamination

This Action Plan applies to the intentional introduction of a contaminant into the water system. Introduction of the contaminant could be at any point within the system, including raw water, treatment facilities, distribution system including distribution pipes, finished water storage, or pump stations. The adversary may or may not give notice of the contaminant or provide the location. Contamination may have actually occurred or it may be a hoax.

INITIATION AND NOTIFICATION

Initiate this plan upon notification of a possible contamination event.

1. Security Breach (including, for example):
 - a. Unsecured Doors
 - b. Open Hatches
 - c. Unlocked/Forced Gates
 - d. Alarm Triggered
2. Witness Account (including, for example):
 - a. Suspicious Activity
 - b. Trespassing
 - c. Breaking and Entering
 - d. Tampering with Equipment or Property
3. Direct Notification by Perpetrator (including, for example):
 - a. Verbal Threat
 - b. Threat in Writing
4. Notification by Law Enforcement (including, for example):
 - a. Suspicious Activity
 - b. Threat made to Water System
5. Notification by News Media (including, for example):

- a. Threat Delivered to News Media
 - b. Media Discovers Threat
6. Unusual Water Quality Parameters (including, for example):
 - a. Changes in pH, chlorine residual or turbidity
 - b. Unexpected monitoring or sampling results
 - c. Strange odor, color or appearance
7. Customer Complaints (including, for example unexplained or unusually high complaints of):
 - a. Odor
 - b. Color or Appearance
 - c. Taste
8. Public Health Notification (including, for example):
 - a. Victims in Emergency Rooms and/or Clinics
 - b. High Incidence of Similar Health Complaints in one Local Area

Notify

- Notify Utility Manager or his/her designee immediately upon discovery of any of the above Threat Warnings.
- Local law enforcement
- Virginia Department of Health – Office of Drinking Water

SPECIFIC ACTIVITIES

I. Assess the Problem

Complete the following Threat Warning Report Forms according to the type of Threat Warning received. These are in Appendix _____ of the ERP.

1. Security Incident Report Form
2. Witness Account Report Form
3. Phone Threat Report Form (to be filled out during actual phone call)

4. Written Threat Report Form
5. Water Quality / Consumer Complaint Report Form
6. Public Health Information Report Form

Complete the Threat Evaluation Worksheet to assist in determining the credibility of the threat. This is in Appendix _____ of the ERP.

II. **Isolate and Fix the Problem**

Obtain the notification phone numbers from the Organization Contact List. The immediate operational response actions are primarily to limit exposure of customers to potentially contaminated water.

See EPA Toolbox Module 2, Section 3.3.2 for guidance on containing contaminants and evaluating movement of potentially contaminated water through distribution systems.

Potential Threat

Follow the steps below:

1. Notify local law enforcement.
2. Notify Virginia Department of Health – Office of Drinking Water.
3. Do not disturb site if location could be possible crime scene. Consult Maintaining Crime Scene Integrity Form in Appendix _____ of the ERP.
4. Alert staff and emergency response personnel about threat.
5. Consider containment / isolation, elevating chlorination, and/or discharge of suspect water.
6. Evaluate spread of suspect water and potential impact on public health.
7. Initiate Site Characterization Activities:
 - a. Define the investigation site.
 - b. Designate team members to conduct site characterization.
 - c. Conduct preliminary assessment of potential site hazards.
 - d. Approach site and conduct field safety screening to detect any hazards to the characterization team.
 - e. Search for physical evidence (discarded containers, etc.).

- f. Investigate records from CCTV cameras.
 - g. Look for environmental indicators (dead animals or fish, dead vegetation, unusual odors or residues).
 - h. Perform rapid field-testing of the water.
 - i. Collect water samples according to sampling plan.
8. Determine if Threat is Credible. If yes continue below.

Credible Threat

1. Initiate this part of the plan if there is credible evidence that the water system has been contaminated:
 - a. Additional information collected during the investigation corroborates the threat warning.
 - b. Collective information indicates that contamination is likely.
 - c. During site characterization look for any signs of contamination.
 - d. Additional water quality data shows unusual trends that are consistent with the initial data and corroborate the threat.
 - e. A pattern of customer complaints emerges.
 - f. Previous threats and incidents corroborate the current threat.
 - g. Notify Utility Manager or his/her designee immediately upon discovery of credible evidence of threat (if not already notified).
 - h. Initiate ERP.
 - i. Initiate partial or full activation of the Emergency Operations Center (EOC).
 - j. Perform internal and external notifications according to ERP.
2. Assess results of previous sample analysis.
3. Perform additional site characterization at primary sites as needed.
4. Perform site characterization at any new investigation sites.
5. Perform actions to estimate the contaminated area and predict movement of contamination.

6. Take actions to isolate portions of system containing suspect water. See ERP Section _____ for System Shut Down Plan.
7. Issue “Boil Water”, “Do not Drink”, or “Do not Use” orders and Press Releases as appropriate. See Section _____ of ERP for Press Release Forms.
8. Initiate Alternate Water Supply Plan (ERP Section _____) to provide alternate water supply for customers and fire protection as necessary
9. Continue to monitor water quality in suspect parts of system by manual sampling, rapid field-testing, or automated means.
10. Confirm the threat.
 - a. If NO,
 - Verify that water is safe.
 - Notify public that water is safe.
 - Notify outside agencies that water is safe.
 - Return to normal operations.
 - Store water samples for (enter predetermined period here).
 - b. If yes, continue below

Confirmed

1. There is confirmed evidence that the water system has been contaminated:
 - a. There is analytical confirmation of the presence of one or more contaminants in the water system.
 - b. The preponderance of the evidence confirms that a contamination incident has occurred.
 - c. There is a security breach with obvious signs of contamination along with unusual water quality and consumer complaints near the security breach.
 - d. Additional findings (laboratory analysis, field observations) of continued site characterization activities add to other credible evidence of contamination.
 - e. There is information from public health officials, area hospitals, or 911 call centers indicating a problem with the water supply.
 - f. Law enforcement agencies have discovered crucial evidence or apprehended a suspect that helps confirm that the contamination of water occurred.

- g. Specific information on a number of potential contaminants used in conjunction with other available information to narrow down the number of contaminant candidates.
2. Notify Utility Manager or his/her designee immediately upon discovery of confirmed evidence of contamination (if not already notified).
3. Initiate full ERP activation.
4. Initiate full activation of Emergency Operations Center (EOC).
5. Engage other organization, as needed (drinking water primacy agency, public health agency, response agencies, and law enforcement).
6. Perform internal and external notifications according to ERP.
7. Take actions to isolate portions of system containing suspect water. See ERP Section _____ for System Shutdown Plan.
8. Shut down system if obvious or confirmed contamination warrants.
9. Issue “Boil Water”, “Do not Drink”, or “Do not Use” orders and Press Releases as appropriate. See Section _____ of ERP for Press Release Forms.
10. Initiate Alternate Water Supply Plan (ERP Section _____) to provide alternate water supply for customers and fire protection as necessary.
11. Revise public health response measures and public notifications as necessary.

III. **Monitoring**

1. Continue sampling and analysis to monitor the status and extent of the contamination, and to verify that containment strategies are working.

IV. **Recovery and Return to Safety**

A number of agencies will undertake Planning and implementation of Remediation and recovery activities. The first step of the process is to establish the roles and responsibilities of each organization

The samples obtained during site characterization and monitoring should be stored in case the situation changes and further analysis is determined to be necessary.

1. Consult with appropriate officials to develop a Remediation and Recovery Plan.
 - a. Evaluate options for treating contaminated water and rehabilitating system components.

- b. Select treatment and rehabilitation technology/approach.
 - c. Develop strategy for disposal of contaminated residuals.
 - d. Develop sampling and analysis plan to verify remediation.
 - e. Develop communications and public relations plan.
2. Implement Remediation and Recovery Plan.
- a. Verify that water is safe by performing additional sampling and analysis to confirm the progress of system treatment and remediation.
 - b. Notify public that water is safe.
 - c. Notify outside agencies that water is safe.
 - d. Return to normal operations.
 - e. Store water samples for (**enter predetermined time here**).

V. **Report of Findings**

The Utility Manager should file an internal report for the Utility's files, and provide information as requested to outside agencies. File incident reports with internal and external agencies as required. Assemble relevant personnel to review effectiveness of action plan and reinforce lessons learned.