EPA Introduction for Flooding Session: NOAA’s Climate & Weather Information for Water Utilities & Stormwater Managers in New England

Lynn Gilleland    July 28, 2020
AWIA Overview

• On October 23, 2018, America's Water Infrastructure Act (AWIA) was signed into law.
  • AWIA, passed in the Senate by a 99-1 vote, was sponsored by Senator Amy Klobuchar (D-MN) and developed by the Senate Environment and Public Works Committee and the House Transportation and Infrastructure Committee.
# AWIA Section 2013: Risk Resiliency Assessments & Emergency Response Plans

<table>
<thead>
<tr>
<th>AWIA Section 2013 (a) – (f)</th>
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<tbody>
<tr>
<td>Replaces SDWA Section 1433 (from 2002 Bioterrorism Act)</td>
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<tr>
<td>Applies to all community water systems serving more than 3,300 people</td>
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<tr>
<td>Conduct Risk and Resilience Assessments and update Emergency Response Plans</td>
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<td>Submit <strong>certifications to EPA</strong> by specified deadlines</td>
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<tr>
<td>Review risk assessments and ERPs every five years</td>
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<td>Coordinate with local emergency planning committees</td>
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<td>Maintain records</td>
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Section 2013: Key due dates & approximate #s for New England

- **Population served ≥100,000**
  - Region 1 = 13 systems
    - (CT = 4, MA = 6, ME = 1, NH = 1, RI = 1, VT = 0)
  - RRA Certification due March 31, 2020
  - ERP Certification due six months after above date.

- **Population served 50,000-99,999**
  - Region 1 = 38 systems
    - (CT = 8, MA = 25, ME = 0, NH = 1, RI = 4, VT = 0)
  - RRA Certification due December 31, 2020
  - ERP Certification due six months after above date.

- **Population served 3,301-49,999**
  - Region 1 = 400 systems
    - (CT = 45, MA = 226, ME = 34, NH = 38, RI = 23, VT = 32, EPAR1 = 2)
  - RRA Certification due June 30, 2021
  - ERP Certification due six months after above date.

Sept. 30, 2020 next deadline: for ERP
Risk and Resilience Assessments

Consider risks from malevolent acts and natural hazards

<table>
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<th>Include:</th>
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<tbody>
<tr>
<td>Monitoring practices</td>
</tr>
<tr>
<td>Financial infrastructure</td>
</tr>
<tr>
<td>Use, storage or handling of chemicals</td>
</tr>
<tr>
<td>Operation and maintenance</td>
</tr>
<tr>
<td>May include capital and operational needs for risk management</td>
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Pipes/conveyances, source water, water collection/intake, pretreatment, treatment, storage and distribution, electronic, computer, or other automated systems (including security)
EPA’s Vulnerability Self-Assessment Tool Web 2.0

- Guides you through a risk and resilience assessment that complies with AWIA Section 2013
- Designed for mobile devices like tablets and iPads as well as PCs.
- Includes embedded tools that assist with estimating risk assessment parameters and resilience
Emergency Response Plans

Prepare or revise an ERP that incorporates findings from the risk assessment

| Include: |
|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| Strategies and resources to improve resilience, including physical security and cybersecurity | Plans, procedures, and equipment for responding to a malevolent act or natural hazard | Actions, procedures, and equipment to lessen the impact of a malevolent act or natural hazard, including alternative source water, relocation of intakes, and flood protection barriers | Strategies to detect malevolent acts or natural hazards |
Other EPA Tools to assist with AWIA:

- **Baseline Information on Malevolent Acts Relevant to Community Water System** document (assists in identifying the types of malevolent acts that could impact your system and estimating the threat likelihood)
- **EPA’s ERP Template** to download, fill in/create your ERP
- **Incident Specific Checklists** to address various threat types (flooding, hurricanes, earthquakes, cyber attacks, etc.) to use/customize and include in your ERP

[www.epa.gov/waterresilience](http://www.epa.gov/waterresilience)
AWIA Section 2018: Amendments to EPCRA

• SERC Notification Requirements Section 304 of EPCRA amended to add *(e) State Agency Notification*

• The state or tribal emergency response commission (SERC or TERC) shall promptly notify the applicable drinking water primacy agency of a release that requires notice (exceeds reportable quantity within 24-hr. period):
  • Extremely Hazardous Substances (EHSs) listed in EPCRA; and/or
  • Hazardous Substances (HSs) under CERCLA
AWIA Section 2018: Amendments to EPCRA (cont.)

• Data Availability: Section 312(e) of EPCRA is amended to add community water systems
  • An affected* CWS may have access to tier II information
    • The CWS must submit a request to the SERC or the local emergency planning committee (LEPC)
    • Upon receipt of the request, the SERC or LEPC shall request the tier II information from the facility and make provided information available to the affected CWS

* A CWS that receives drinking water from a source water area in which a facility that is required to submit an inventory form under EPCRA Section 312 is located
Where to find EPA Tools for Flooding:

www.epa.gov/waterresilience
EPA Flood Guide

- With a user-friendly layout, the Guide provides *worksheets*, *instructional videos*, and *flood maps* to help utilities through a simple, 4-step process!
Approach to Flood Resilience

**FIGURE 1: STEPS TO BECOME MORE RESILIENT TO FLOODING**

**STEP 1:** Understand the Threat of Flooding

**STEP 2:** Identify Vulnerable Assets & Determine Consequences

**STEP 3:** Identify & Evaluate Mitigation Measures

**STEP 4:** Develop Plan to Implement Mitigation Measures

*Click on each step.*

**STEP 1: UNDERSTAND THE THREAT OF FLOODING**

Flooding depends on various factors including rainfall, topography, river-flow, drainage and tidal-surge. The threat of flooding is based on the likelihood that such a flooding event will occur. Learn how the Berwick Water Department (BWD) evaluated their threat of flooding from the video link. Also, the Federal Emergency Management Agency (FEMA) is a resource to help you. FEMA produces maps of a “100-year flood” (a flood event that has a one percent chance of occurring in a given year) and a more catastrophic “500-year flood” (a flood event that has a two tenths of a percent chance of occurring in a given year). Click on the Step 1 worksheet icon below so that you can document the flooding threat and obtain FEMA Flood Maps.

*Select the image to view the video.*
Click the photographs of assets/operations at drinking water (DW) and wastewater (WW) to get tables of flood mitigation measures for that specific asset/operation.

**DW Assets**
- Water Intake, Distribution and Storage
- Booster Stations and Other Pumps
- Drinking Water Treatment Plant

**DW & WW Assets**
- Buildings
- Chemical and Other Storage
- Instrumentation and Electrical Controls
- Power Supply

**WW Assets**
- Lift Stations
- Headworks
- Wastewater Treatment Plant
Storm Surge Flooding

This map displays the results from the SLOSH (Sea, Lake, and Overland Surges from Hurricanes) model. SLOSH is a numerical model used by NWS (National Weather Service) to compute storm surge. Storm surge is defined as the abnormal rise of water generated by a storm, over and above the predicted astronomical tides. Flooding from storm surge depends on many factors, such as the track, intensity, size, and forward speed of the hurricane and the characteristics of the coastline where it comes ashore or passes nearby.

Click on a button to see inundation depth for each hurricane storm category on the map.

Use the map search, pan and zoom, or links above to review potential inundation depth at your location.

This product displays a seamless national map of storm surge hazard scenarios developed by the NHC (National Hurricane Center) Storm Surge Unit. This map
EPA CRWU: Case Study and Information Exchange

Extreme precipitation events and storm surge, combined with sea-level rise and coastal land subsidence, could lead to flooding at water utility facilities and across their service areas. Additional resilience to the impacts from these events is gained through planning response and recovery, monitoring weather and stream conditions, and building protection for critical assets.

www.epa.gov/crwu
EPA CRWU: CREAT Tool Climate Scenario Projection Maps

Change in average annual precipitation

Select the time period and scenario to review:

<table>
<thead>
<tr>
<th>Year</th>
<th>Hot/Dry</th>
<th>Central</th>
<th>Warm/Wet</th>
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<tbody>
<tr>
<td>2035</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2060</td>
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Hide scenario layers

Using the same scenarios as those developed for changes in temperature, consider the range of future precipitation conditions for each time period provided. In many locations, models project both drier and wetter conditions, necessitating utilities to consider which trends in population could lead to the largest threats to reliable water supplies.

www.epa.gov/crwu
Water Utility Response On-The-Go! App

www.epa.gov/responseotg
EPA’s Stormwater Tools:

Stormwater Calculator (SWC)

Estimates the annual amount of rainwater and frequency of runoff from a specific site

Storm Water Management Model (SWMM):

Helps predict runoff quantity and quality from drainage systems
Questions?

Thank You

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