

FYI in 45

Reduce Risk and Build Resilience: The Upside of AWIA Compliance

Panelists:

Lauren Miller, CC-P

David Tanzi P.E., BCEE

Moderated by:

Andrew Beaton

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**CDM
Smith**

Today's Discussion Will Focus On

- Dates, deadlines and details for AWIA compliance (and, what EPA could fine you if you don't certify!)
- Tools for assessing what the biggest risks to your facilities, staff and operations actually are
- Why we recommend a collaborative approach to get the greatest value from your compliance effort
- Best practices and lessons learned from our panelists' experience developing these assessments

Our Panel



Lauren Miller, CC-P
Principal, Climate Change Services



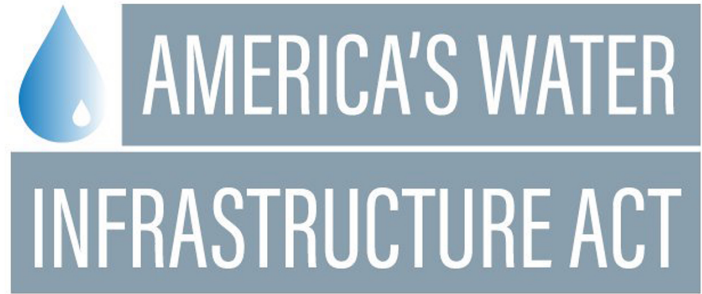
David Tanzi, PE, BCEE
Senior Vice President,
Senior Project Manager



What You Need to Know about AWIA Compliance

America's Water Infrastructure Act

- Passed and signed into law in late 2018
- Community water systems serving more than 3,300:
 - Resiliency Risk Assessments (RRA)
 - Emergency Response Plans (ERPs)
- \$25,000 fine by the EPA **per day** for non-compliance



Deadlines

Population	RRA / ERP *	Due Date
100,000+	RRA	March 31, 2020
	ERP	Six months after RRA certification
50,000 – 99,999	RRA	December 31, 2020
	ERP	Six months after RRA certification
3,300 – 49,999	RRA	June 30, 2021
	ERP	Six months after RRA certification

* **RRA**: Resiliency Risk Assessment | **ERP**: Emergency Response Plan

Assets to Consider

1. Pipes and constructed conveyances, physical barriers, source water, water collection and intake, pretreatment, treatment, storage and distribution facilities, electronic, computer, or other automated systems (including the security of such systems)
2. Monitoring practices
3. Financial infrastructure
4. Use, storage, or handling of chemicals
5. Operation and maintenance

Potential Threats to a Water System

Malevolent Acts

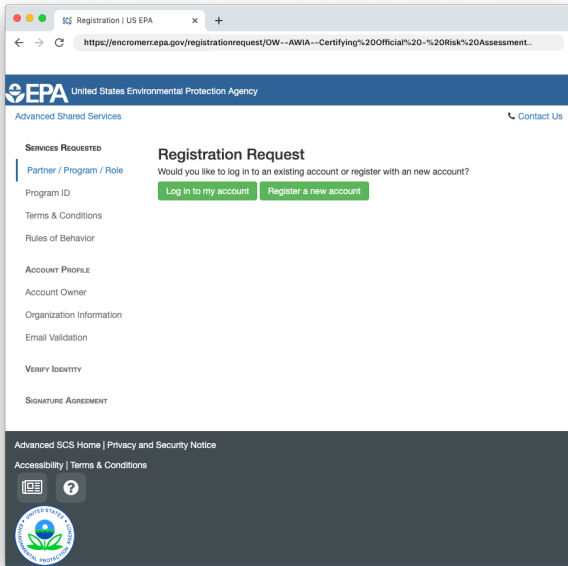
- Assault on the utility
- Intentional contamination
- Cyber attack
- Sabotage
- Theft or diversion

Natural Hazards

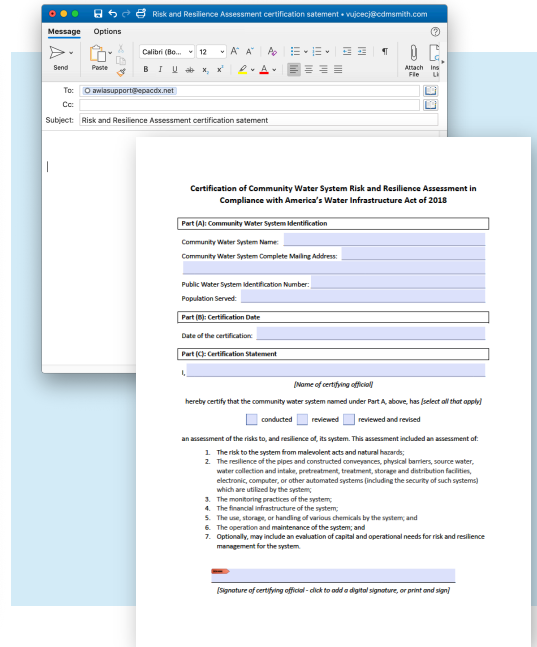
(No guidance from EPA)

- Drought
- Earthquake
- Extreme temperatures
- Flooding
- Wind/Hail/Lightning/Tornado
- Volcano
- Wildfire
- Pandemic

EPA Certification



Access online
certification portal



Send email asserting
completion



Mail a letter asserting
completion

Don't Just “Check the Box”



Take a hard look at your risks



Prioritize your needs and how to spend your resources



Examine your operations in a new light



How to Approach AWIA Compliance

CDM Smith Recommendations

1

Assess all the information you currently have

2

Bring the organization together to get deeper insights in a workshop

3

Develop the risk and resilience assessment

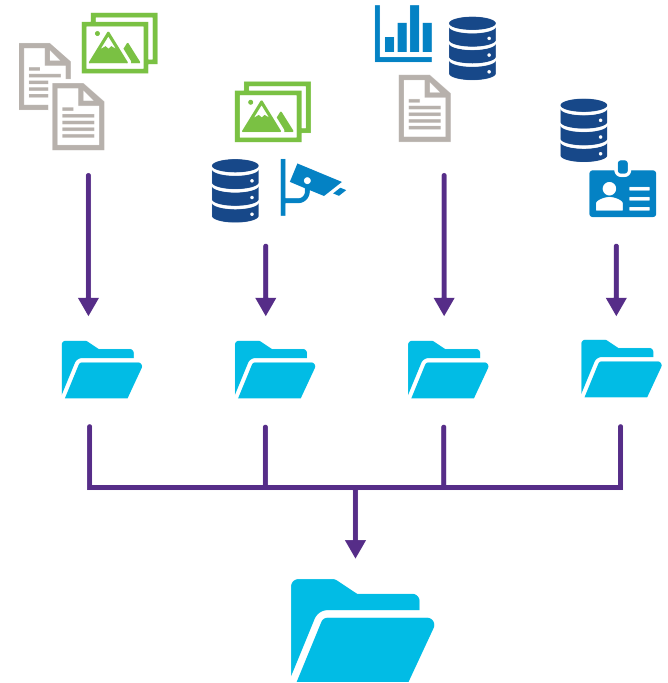
4

Develop the emergency response plan

Assessing Your Information

- Evaluating project goals, stakeholders, and current practices
- Gather GIS data, as-built drawings, descriptions of your assets, vulnerability plans, etc.

Gather and organize these files in such a way that they can be accessed as needed during the assessment



Understanding Threats

Risk and Resilience Assessment Tool
to facilitate compliance with
America's Water Infrastructure Act (AWIA)

Intent

This tool is intended to be used to complete a Risk and Resilience assessment to facilitate compliance with the American Water Infrastructure Act (AWIA). The tool is designed to assist the utility track which of their assets are critical to fulfill their mission and determine which of these critical assets are at risk to threats posed by malevolent acts and natural hazards as required by AWIA based on existing measures in place related to preparedness, active response, and recovery. Each threat-specific risk assessment is located in an individual tab to allow the user to choose which threats to assess. Once all relevant risk assessments have been completed, the Risk Summary tab provides an overview of the critical assets that are most at risk and to which threat. The tool has been designed following the process and intent of the American Water Works Association (AWWA) Risk and Resilience Management of Water and Wastewater Systems (I100) Guidance Document.

User Responsibility

This tool is designed to facilitate compliance with AWIA. It is the user's responsibility to ensure that the information inputs and outputs of the tool are appropriate to meet the utility's compliance obligation under 84 CFR 11536(D) for conducting a Risk and Resilience Assessment for AWIA.

Risk & Resilience Analysis Summary			
Back to Instructions			
Critical Assets Summary			
Asset ID	Asset Name	Highest Risk Score	
1	Water Treatment Plant	\$ 21,113.50	Ass
2	SCADA	\$ 41,553.00	Cyber Attack on Process Control Systems
3	Source water	\$ 419,175.00	Drought
4	Well fields	\$ 12,375.00	Drought
5	Large transmission mains	\$ 811.22	Finished Water Contamination - Intentional
6	Small transmission mains	\$ 50.50	Sabotage - Physical
7	Interconnections	\$ 501.75	Sabotage - Physical
8	Maintenance equipment	\$ 9,000.00	Theft or Diversion - Physical
9	Invoicing, payroll, bill payment	\$ 85,500.00	Cyber Attack on Business Enterprise Systems



Creating Resilience Through Collaboration

Goals



Collaborate



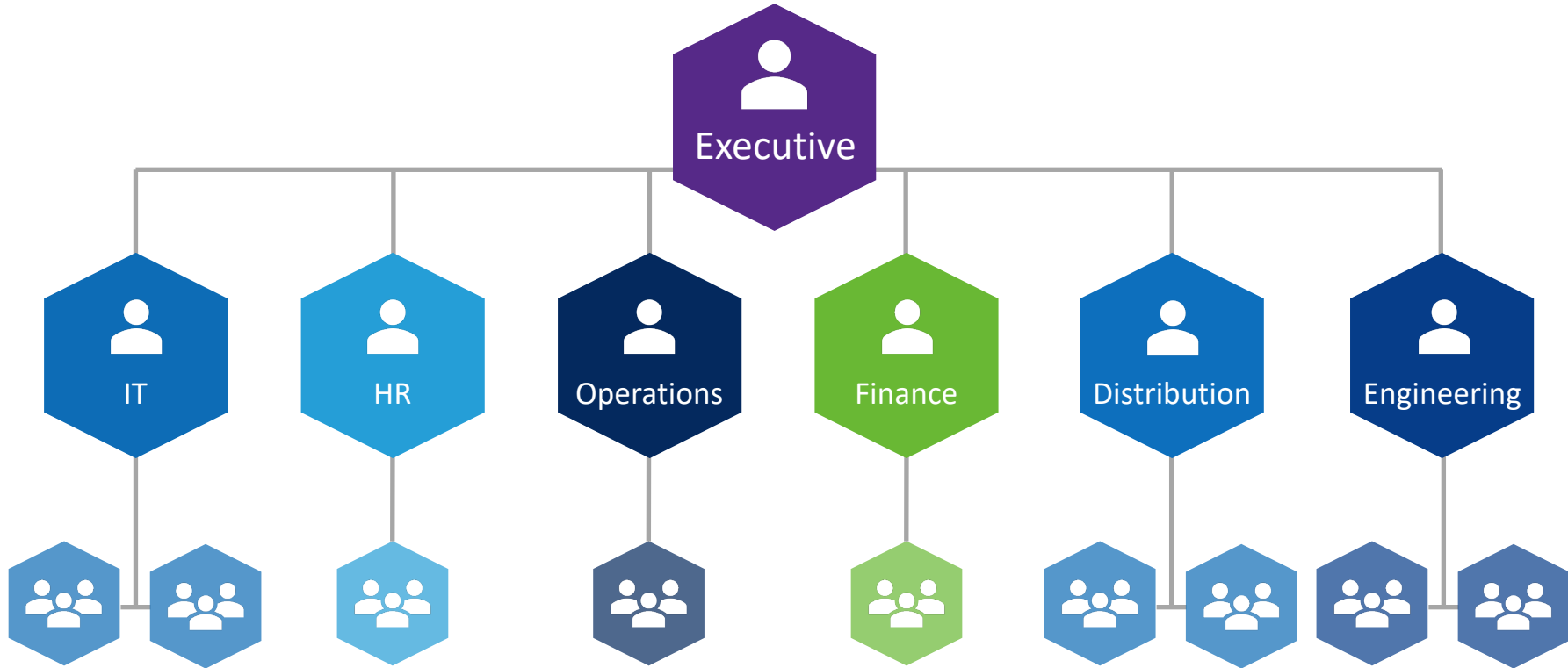
Validate



Create



Bringing the Organization Together



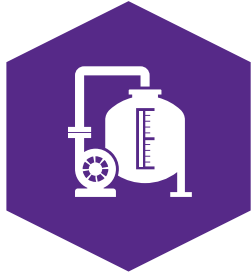
Questions We Ask Each Team

- 1 What are the most critical assets?
- 2 What are the vulnerabilities you see?
- 3 What can we do to mitigate threats and risks?

Workshop Schedule

	Day 1									Day 2					
	8	9	10	11	12	1	2	3	4	9	10	11	12	1	2
Executives	█	█	█	▨			█			█			▨		
Operations	█	█	█	▨	█	█	█						▨		
Finance	█	█	█	▨									▨	█	█
Distribution	█	█	█	▨						█	█	█	▨		
Engineers	█	█	█	▨	█	█	█						▨		
IT	█	█	█	▨	█	█	█						▨		
HR	█	█	█	▨				█	█				▨		

Most Insightful Outcomes



Significant vulnerabilities beyond major plant operations or physical infrastructures



Building resilience does not always mean huge capital investment



People are the biggest asset to any utility's operations



Knowledge and experience is invaluable

A blurred, high-angle photograph of a meeting. Several people are gathered around a table, looking at a laptop screen. One person's hand is pointing at the screen. The image has a blue and purple color overlay. The text "Finalizing the RRA and ERP" is centered in white.

Finalizing the RRA and ERP

A Successful RRA has

- Analysis of high-criticality assets and high-risk threats
- Incorporates the AWWA's RAMCAP method
- An assessment of vulnerability that considers advanced preparation, immediate response and long-term recovery
- Evaluation of the likelihood of various threats, using the EPA Baseline Information on Malevolent Acts for Community Water Systems as a guide

Two Related Deliverables

ASSETS		High-Consequence Threats																
Category	Asset Type	Asset & Supporting Infrastructure	Asset Criticality (High, Medium, Low)	Asset's Role	Physical Security	Operational Security	Information Security	Asset's Location	Asset's Condition	Asset's Age	Asset's Size	Asset's Value	Asset's Impact	Asset's Resilience	Asset's Vulnerability	Asset's Threat	Asset's Risk	
Water Treatment	Source Water Infrastructure	Source water	High	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
		Well field	High	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		Inflow	High	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		Pumping Station	High	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		Water Treatment Plant	High	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Drinking Water Treatment	Disinfection	High	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		Flow supply at treatment plant	High	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		Back-flow preventer at treatment plant	High	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		Storage	Medium	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		Reservoir	Medium	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Distribution	Drinking Water Transmission / Distribution	Transmission pipe (steel)	Medium	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
		Transmission mains < 10"	High	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
		Transmission mains > 10"	Low	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
		Interceptors	High	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		Manhole	Low	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Other	Reserve	High	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		Equipment	Medium	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		Admin Building and Shop	High	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		Concrete, ductwork, vented buildings	High	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		SOX	High	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Information Technology	Information Technology	Monitoring equipment	High	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
		Control room	High	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
		Landlines	Medium	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
		Radio transmission	High	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Finance and Accounting	Finance and Accounting	Inventory and bill payment	High	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
		Critical Assets and Threats	High	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	

Spreadsheet of analysis that meets AWIA requirements

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Section 2 Overview of <Client Name>

Overview of <Client Name> is required to comply with AWIA Section 2115 as of a population served of 200 and therefore required to submit a certification to EPA that the RRA has been received by March 31, 2022. <Client Name> sent this Authority and certified the RRA to EPA on

Section 3 Risk and Resilience Assessment Inputs

This section summarizes the inputs to the RRA.

Common terms and definitions used throughout the RRA process are as follows:

- Critical Asset:** An asset that is of value or importance) whose absence or inoperability would significantly impact the ability of a city to maintain or have acceptable consequences. **High consequence assets are defined as those assets that are critical to the health, safety, and welfare of the community and are identified in Section 3.2.2 and 3.2.3.**
- Threat:** An event with the potential to cause harm to the ability of the asset, they are identified in Section 3.2.2 and 3.2.3.
- Consequence:** The result of a natural hazard or man-made event.
- Risk:** Expected value of consequences of an event weighted by the likelihood of the event's occurrence and consequences.
- Resilience:** Ability of an asset to withstand a threat without interruption or to return to functionality.

3.2 Review of Guidance Documentation

The primary guidance used to create the basis for the RRA was the American Water Works Association (AWWA) Risk and Resilience Management of Water Systems, RRA Risk Resilience Information on Waterlines Act for Community Water Systems, and the current local hazard mitigation plan.

3.2.1 AWWA Risk and Resilience Management of Water Systems

AWWA Risk and Resilience Management of Water Systems (2019) is a guidance document that outlines an approach for analyzing risk and resilience of water systems. It focuses on the active participation of the water utility and the community in the risk and resilience process. The process is designed to help water utilities assess and analyze the risks associated with their assets. It also emphasizes the need for water utilities to take the time to create a consistent framework for risk assessment, assess and manage risk and resilience management in

Written document that captures the methodology, considerations & results

Emergency Response Plan

- Strategies and resources to improve resilience
(including physical security and cybersecurity)
- Plans procedures, and equipment for threat response
- Actions, procedures, and equipment to lessen the impact of malevolent act or natural hazard
- Strategies to detect malevolent acts or natural hazards



Thank You