## **National Cybersecurity Center of Excellence**

Practical Solutions for Complex Cybersecurity Challenges

**NCCoE** Learning Series

**Cybersecurity for the Water and Wastewater Systems Sector** 

December 8, 2022

This webinar is being recorded



nccoe.nist.gov

# **Submitting Questions**



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### **NCCoE Water/Wastewater Sector Project Team**

Jim McCarthy, Senior Security Engineer, Water/Wastewater Sector Lead, NIST | NCCoE

Don Faatz, Cybersecurity Architect, MITRE | NCCoE

Bob Stea, PE, Critical Infrastructure Security Engineer, MITRE | NCCoE

Daniel Eliot, Outreach and Engagement, MITRE | NCCoE



Reach the team: Water\_nccoe@nist.gov







# A solution-driven, collaborative hub addressing complex cybersecurity problems



## Who We Are





## Our Approach





### OUR GOALS





### Improve cybersecurity for businesses and commerce

# Lower the learning curve for cybersecurity

# Spark innovation in secure technology

### National Cybersecurity Excellence Partners

NIST NATIONAL CYBERSECURITY CENTER OF EXCELLENCE



### Products

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY U.S. DEPARTMENT OF COMMERCE

**Practical, user-friendly** resources demonstrating **standards-based** approaches to cybersecurity matched to business needs



#### Cybersecurity Practice Guides

#### Tip Sheets

#### White Papers

#### Short Videos

### Learning Series Webinars

### Get Involved





#### Share a Project Idea

#### **Discuss Challenges**

#### Contribute to Publications

#### Participate in a Project

Join a Community of Interest

# Focus on Critical Infrastructure



## Securing Industry Sectors









### Background: NIST/NCCoE Involvement

- Industry driven and prompted by attempted attacks on sector assets (2021)
- Requests from stakeholder community to present on NCCOE Cybersecurity body of work in other sectors (Energy)
- Developed into a regular dialogue and ultimately into this project description draft



### **Stakeholders**

- Association of Metropolitan Water Agencies (AMWA)
- American Water Works Association (AWWA)
- DC Water
- Miami-Dade County Information Technology Department
- Miami-Dade Water and Sewer Department
- National Rural Water Association (NRWA)
- Water Environment Federation (WEF)
- Water ISAC





### **Building on Previous Work in Energy Sector**



SP 1800-2: Identity and Access Management

NIST SPECIAL PUBLICATION 1800-2	NIST SPECIAL PUBLICATION 1800-7
Identity and Access	Situational Awareness
Management	For Electric Utilities
for Electric Utilities	Includes Executive Summary (A); Approach, Architecture, and Security Characteristics (B and How-To Guides (C)
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Control WHO is on your networks and in your facilities

SP 1800-7: Situational Awareness for Electric Utilities

SP 1800-23: Energy Sector Asset Management

NIST SPECIAL PUBLICATION 1800-23

Management

his publication is available free of charge from

Industrv

James McCarthy Slen Joy Iason Kuruvilla

**Energy Sector Asset** 

For Electric Utilities. Oil & Gas

#### SP 1800-32: DER Cybersecurity IIoT



Understand what the people and things on your networks are doing Know WHAT is on your networks

NCCOE

Understanding What the Data is Telling you: Data Integrity

#### www.nccoe.nist.gov/energy

# CYBERSECURITY CAPABILITIES



### **NIST / NCCOE Guidance Attributes**

- Open, Collaborative, Voluntary, Non-regulatory
- Focus is on how to implement Cybersecurity in an OT environment
- Respectful of... but not intended to pair with other Federal, State, Local, etc., guidance, frameworks, compliance regimens
- Must include consideration for all water utilities, especially "small"







### Draft Project Description / Scenario Based Cybersecurity Capabilities

- Asset Management inventory, visibility, criticality
- Data Integrity
- Remote Access
- Network Segmentation



#### Water and Wastewater (WW) utilities should improve their cybersecurity practices

WW utilities may increasingly be targets of cyberattacks

# Small WW utilities may lack resources (money, personnel, and expertise) to meaningfully address cybersecurity

- Low-cost cybersecurity solutions could help
- Provide a range of cybersecurity solutions at different cost points

#### Suggested solution requirements, architectures, and technologies

- Use enhanced network segmentation that goes beyond subnets and vLANS and includes cybersecurity controls between segments
- Incorporate physical isolation in control networks wherever feasible
- Use multi-factor authentication (MFA) at key points throughout WW systems
  - Use authenticated identities to control access to WW system resources
- Use centralized cybersecurity monitoring and alerting in WW systems

#### WW control system products should be enhanced with improved, modern cybersecurity capabilities

- Current and legacy ICS protocols may not include adequate cybersecurity capabilities
- Security controls in WW Operational Technologies often lag capabilities in Information Technology systems

### **Next Steps**

- 45-day comment period; 11/02/2022 12/19/2022
- Comment adjudication; Q1 Q2 FY 2023
- Finalize Project Description; Q2 Q3 FY2023
- Solicit collaboration; Q2 Q3 FY2023

View Project Description and comment here: nccoe.nist.gov/projects/securing-water-and-wastewater-utilities







### NCCoE Water/Wastewater Systems Sector Page nccoe.nist.gov/projects/securing-water-and-wastewater-utilities



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#### **Panel Discussion**

Daniel Eliot (Moderator), National Cybersecurity Center of Excellence

#### **Panelists:**

Lars Schmekel, Chief Information Security Officer, Miami-Dade County

Kevin M. Morley, PhD, Manager - Federal Relations, American Water Works Association (AWWA)

Dennis Gilbert, Director, Q-Net Security

Jeremy Henning, Assistant Executive Director, Glenbard Wastewater Authority



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### Upcoming NCCoE Events





January 25: Introduction to the National Cybersecurity Center of Excellence

View event descriptions and register here: www.nccoe.nist.gov/get-involved/attend-events



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