PRE-CONFERENCE TRAINING

GOLDEN NUGGET IN ATLANTIC CITY

"The Coming Wave: 1,4-Dioxane Background, Treatment Strategies, and Waste-Stream Management Strategies"

The New Jersey Water Association and H2M Architects and Engineers

Tuesday, October 21, 2025

Course Description:

This course provides a comprehensive understanding of 1,4-Dioxane, its treatment, and waste management strategies. It begins with a historical background, toxicology, and regulatory framework for 1,4-Dioxane. The course then discusses treatment alternatives and waste stream management. The final module focuses on real-world examples and lessons learned from the startup and commissioning of 1,4-Dioxane treatment systems. Participants will gain insights into the design criteria for treatment technologies and the implementation of UV/AOP treatment approaches. The training concludes with a review of lessons learned and a comparison between theoretical design targets and actual water quality outcomes.

Agenda:

8:00 – 9:00 AM **Morning Refreshments and Sign-in**
9:00 AM **Training Begins**

Module 1: "Historical Background, Toxicology, and Regulatory Framework for 1,4-Dioxane"

Duration: 70 minutes

- Scope Narrative: Presenters will review the historical context for the invention of PFAS, its originally intended purposes and functions, and how it became ubiquitous in the natural aquatic environment. A survey of known information in the field of toxicology will be conducted, discussing NJDEP's approach to testing and validating candidate primary contaminants and potential MCL's – via its partner board, the NJ Drinking Water Quality Institute. This module will close with a synthesis of this background information into the current 1,4-Dioxane regulation enforce in NY State, and a dialogue about potential implementation in New Jersey."

Break: 15 minutes

Module 2: "Treatment Alternatives and Waste Stream Management for 1,4-Dioxane"

Duration: 70 minutes

- Scope Narrative: The presenting team will review the design criteria for candidate treatment technologies for removal and/or destruction of 1,4-Dioxane. The focal point of this module will be a description of the design parameters, boundary conditions, and water quality targets for the implementation of the UV/AOP treatment approach (combination of ultraviolet light and advanced oxidation process). A discussion will be conducted regarding management of treatment process waste mass flows.

Break: 15 minutes

Module 3: "Implementation Workshop – Discussion of Real-World Examples and Lessons Learned from Startup/Commissioning of 1,4-Dioxane Treatment"

Duration: 70 minutes

- Scope Narrative: The presentation will close on a third module, focused on narratives of the process of due diligence, design, permitting, construction, and systems commissioning for actual, full-scale 1,4-Dioxane treatment systems. Several examples will be given, using various water qualities. A review will be conducted of lessons learned, and a comparison made between theoretical design targets and actual water quality outcomes, based on 1+ year of operating data.

1:00 PM: Dismissal

Instructors:

Karen E. Benson, P.G. is a hydrogeologist with more than 25 years of experience working with a variety of water systems and assisting clients in responding to ongoing and ever-changing requirements. She offers significant experience working with New Jersey water purveyors for compliance with the Safe Drinking Water Act (SDWA). Ms. Benson also has experience conducting hydrogeologic investigations of aquifer and well yields for groundwater supply development. Her experience includes designing and implementing well rehabilitation programs; supervision and implementation of water production well design and installation; and planning, testing, and permitting of water allocation permits.

Andrew Manfredi, P.E.'s responsibilities include preparing engineering reports, specifications, and design plans for the purpose of regulatory approval and bidding public works projects. His experience encompasses the following: optimal corrosion control evaluation, advanced oxidation process, granular activated carbon, ion exchange, and packed tower aeration treatment technologies. Mr. Manfredi has also performed multiple pilot studies on various AOP treatment technologies as well as start-up full-scale UV/H2O2 AOP systems to confirm performance. He has presented various AOP subject matters at New York State, New Jersey, and national AWWA conferences.

Timothy J. McGuire is a water resources engineer responsible for quality assurance/quality control of all 1,4-dioxane project at H2M. He makes sure projects are performed consistently and on track, holding weekly status meetings with the water department. Mr. McGuire's experience includes groundwater construction, rehabilitation, and permit applications; potable water treatment technologies including volatile organic chemical removal utilizing granular activated carbon and air stripping, nitrate removal utilizing ion exchange resins, disinfection and pH adjustment; water distribution; construction of bulk chemical tanks; water supply hydraulic design; preparation of construction documents; and construction administration on these projects.

Mr. Patrick K. Cole, P.E. With more than 20 years of experience, Mr. Cole is an H2M Vice President and the firm's Deputy Market Director of Water/Wastewater. He leads H2M's efforts in the water and wastewater market in Ner Jersey. Mr. Cole's areas of personal practice expertise lie in the optimization of treatment processes, distribution system hydraulic analysis, water quality troubleshooting and construction contract administration. He is a past chair of the AWWA NJ Section, on the Board of Trustees, and a current contribution to the following AWWA Manual of Practice Workgroups: M31 – Distribution System Requirements for Fire Protection; M64 – Aeration and Air Stripping; and M32 – Computer Modeling for Water Distribution Systems.

Accreditation:

3.5 Training Contact Hours for NJ-Licensed Water and Wastewater Operators.
TCH Course # 04-102501-30
3.5 Hours toward license renewal for NJ Certified Public Works Managers.
Course # DLGS-NJWA-295 (3.5 Technical)

Date and Location:

Tuesday, October 21, 2025, at the Golden Nugget, Atlantic City (Grand Ballroom)

FREE OF CHARGE TO NJWA MEMBERS AND EVERYONE REGISTERED FOR THE CONFERENCE

Pre-Registration is Required at www.njwater.org

505 US Highway 9, Lanoka Harbor, NJ 08734