ONLINE TRAINING/WEBINAR
SPEAKER INFO, BIO & TOPIC ABSTRACT

Please provide the following information and email to support@nwmoa.com.
If you are presenting on multiple topics during this event, please fill out one form for each topic.

Name: Dave Holland Suffix: *(i.e.: Ph.D., P.E., Jr.)* Job Title: Senior Process Engineer

Company: Aqua-Aerobic Systems

Mailing Address: 6306 N. Alpine Rd.

City: Loves Park State/Province: IL Postal Code: 61111 Country: USA

Telephone: 815-639-4470 Cell Ph: 815-985-7823

Email: dholland@aqua-aerobic.com Website:www.aqua-aerobic.com

☒ Checking this Box confirms that I agree to be videoed and recorded for the duration of the Online Training/Webinar.

1. ***Speaker Biography*** (please provide one paragraph – 150 words or less)

Dave has 41 years of experience designing, piloting, commissioning, and troubleshooting water and wastewater treatment systems. He possesses skills in design, application and technical support for membrane products and biological processes. As part of his role as Senior Process Engineer, he gives technical presentations to engineers and owners in the areas of membrane systems, cloth media filtration, nutrient removal, reuse, and secondary system design. Dave holds an Associate of Applied Science degree in Technical writing from Rock Valley College, Rockford, IL and is currently completing his Bachelor of Science degreee in Chemical Engineering at the University of North Dakota.

2. ***Topic Title*** *(please provide the topic title for your presentation)*

Lessons Learned after Three Years at Montana's First Ceramic Membrane Drinking Water Plant

3. ***Topic Abstract*** *(please provide a minimum of 250 words for your presentation and describe how it relates to membrane technology)*

This session describes the ceramic membrane system commissioned in 2017 at the Butte-Silver Bow Water Treatment Plant, gives the system performance since startup, and discusses some of the lessons learned. Operators will understand why a ceramic system was used at this plant and learn some of the challenges there may be when operating a ceramic membrane plant.

4. ***Polling Questions*** *(please provide up to 5 questions you might ask the audience, relative to your topic, which you would like to engage with them on. Questions are multiple choice. A right or wrong answer is not required. If you do provide a question with only 1 correct answer, please indicate which answer is correct.. Provide 3 answers to choose from.)*

1. Q. What's the main advantage of a ceramic membrane system over a polymeric membrane system for drinking water?
   A 1 Membranes last longer.
   A 2 Membranes have higher flux (less membrane area needed).
   A 3 System gets greater recovery (generates less wastewater).
2. Q. What's the best application for a ceramic membrane drinking water system?
   A 1 High influent pressure
   A 2 Requires zero liquid discharge (ZLD)
   A 3 Needs to replace current membrane system
3. Q. How does fouling of a ceramic membrane compare with fouling of a polymeric membrane?
   A 1 Less
   A 2 Same
   A 3 More
4. Q.
   A 1
   A 2
   A 3
5. Q.
   A 1
   A 2
   A 3