Subsurface Drip for Decentralized Wastewater Dispersal Siting, Design, Installation, Management Best Practices Workshop

Pre-Conference workshop, 2023 Onsite Wastewater Megaconference, Hampton, VA,

Sunday October 22, 2023, Noon to 5:00 PM

Focus: Decentralized/multi-family/commercial/small community subsurface drip system.

Workshop Planning Group: Mike Hines, Jim Prochaska, David Morgan, Bob Rubin, Kevin Sherman, Tom Ashton, Anish Jantrania, Gabriele Bonaiti, Pam Pruett, Dwayne Jones, Steven Berkowitz

1. **Welcome and Housekeeping for Workshop**. (5 minutes)
   Pam Pruett, Moderator

2. **History of the Development of Drip from the 1950s to 1990s and Beyond, from Israel to the US**. (30 Minutes)
   a. Early Days, Advent of Modern Drip (Israel)
   b. Drip Comes to US
   c. Agriculture to Onsite Wastewater Evolution
   d. Emitter Design Development
   e. Netafim, Geoflow, Wastewater Systems
   f. Case Study: Evolution of Wastewater Drip in North Carolina
   Speakers: Jim Prochaska, Steven Berkowitz

3. **Soil/Siting Assessment** (45 minutes)
   a. Soil Receiving Environment/Assessment/Boundary Conditions
   b. Instantaneous, Infiltrative Surface, Linear and Areal Loading Rates for Drip
   c. Critical Factors for Subsurface Drip placement/sizing/operation
   d. Drip as Best Management Practice for Effluent Treatment
   Speaker: Tom Ashton

4. **Drip Field Layout Options and Hydraulic Design Considerations** (35 minutes)
   a. Terminology and Options Overview
   b. Field/Zone Layout Considerations/Trade-offs
   c. Hydraulic Design Factors, Flow, Head, Pump Selection, Dosing/Flushing Regimes
   d. Hydraulic Measurements, Start-up/Ongoing for Performance Verification
   Speaker: Steven Berkowitz

(Over)

5. **Drip System Components and Packages** (50 minutes).
   a. Drip System Nuts and Bolts, Emphasis on Large Flow Systems
   b. Filter and Control, Idiosyncrasies, Most Important Lessons Learned Factors for Sustainable Performance
   c. Considerations and Importance of Integrated System Components
   Speakers: Jim Prochaska and David Morgan

REFRESHMENT BREAK (10 Minutes)

6. **Installation, Operation and Maintenance** (45 minutes)
   a. Techniques and Equipment for Varying Terrains and Soils Conditions
   b. Start-Up/On-Boarding and Routine O&M
   c. Troubleshooting.
   Speakers: Dwayne Jones

7. **Lifecycle Management of Decentralized Drip Systems** (25 minutes)
   a. Business management aspects for sustainable management entity.
   b. EPA Voluntary Management Entity Levels for Decentralize Drip Systems
   Speakers: Bob Rubin and Mike Hines

8. **Texas AMU's Research Program to Understand and Improve Performance of Drip Systems in Texas** (30 minutes)
   a. Overview, Texas On-Site Sewage Facility Grant Program
   b. Drip Problems Survey Results on Paper and in Real-World
   c. Bench-Scale Drip Research Project at Texas A&M Center
   d. Future Drip Research Plans at Texas A&M Center
   Speakers: Anish Jantrania and Gabriele Bonaiti

9. **Panel Discussion, Questions, and Feedback from Audience** (30 minutes)
   Pam Pruett, Moderator