



2027 MSO Pre-Conference
January 18, 2027
Title: Drip Dispersal Systems
Presenters: Bruce Lesikar and Jim Prochaska



Registration is required for this event! Register early as seating is limited!

General CEUs: 7.0; Select: Basic: 7.0, Advanced: 7.0, Inspector: 7.0, OSE: 3.25

Abbreviated Summary:

Drip distribution systems effectively distribute effluent into the soil. The shallow placement of the drip tubing improves water treatment and reuse. Because of the ability to place drip tubing relatively high in the soil profile, drip distribution is the best method for distribution on sites with limited existing soil over restrictive conditions such as groundwater and fractured or fissured rock. Drip dosing cycles consist of four stages: pressurization, pressurized, depressurization and resting. Uniform effluent distribution occurs during the pressurization stage and that stage should be maximized to facilitate equal effluent distribution. Supply and return manifold configurations are optimized relative to site conditions to limit effluent drain down during depressurization. Drip laterals are placed level and along site contour lines to limit the risk of effluent redistribution to the lowest field elevations during the dosing cycle depressurization stage.

Drip systems contain critical parts including pumps, filtration, supply and return manifolds, drip laterals, air relief and field flushing. Filtration separates suspended particles from the liquid entering the drip field. Filter cleaning options range from manual clean to automated operations. Supply and return manifolds deliver and collect liquid from drip laterals. Manifolds can affect water distribution in the field and should be configured to support uniform field pressurization and limit water movement to the lowest lateral during field depressurization. Drip laterals are arranged to uniformly apply liquid to the soil treatment area. Air relief/vacuum breakers at the high point of the supply and return manifolds facilitates rapid pressurization and air entry during field depressurization. Field flushing is a critical to long-term drip field operation. Field flushing operations can be continuous or intermittent. Sample drip designs are presented and discussed. Critical design considerations are identified and discussed to support participant knowledge gain and establish skills for effective implementation of drip technology. Common design errors are discussed to raise awareness and encourage following of industry accepted practices.

Drip installation according to accepted industry practices is critical to establishing a system with the ability to be operated and maintained as a long-term effective dispersal system. The filtration system requires accessibility for routine cleaning and maintenance. Data recording during system start-up establishes baseline information for assessing operational parameters with time. Proactive maintenance can be performed through identification of operational parameter trends and deviations from acceptable

operating conditions. Troubleshooting system operation is discussed relative to identification of operational conditions outside of normal accepted parameter ranges.

Bruce J. Lesikar, P.E., Ph.D., Bruce holds graduate degrees in Agricultural Engineering from Texas A&M University and University of Illinois. Bruce served in multiple roles during his professional career including: professor, researcher, director of engineering for a water treatment system manufacturer, and technical sales for rental of mobile water treatment systems. He is currently serving as a contract engineer to the Texas Commission on Environmental Quality. Bruce provides support to design reviews, educational material development, and conducts training events.



Bruce enjoys developing and delivering educational materials for communicating effective use of our water resources. Wastewater is a resource to meet our water needs and we must effectively utilize the resource. Public health, public safety, environmental health and environmental safety are critical aspects of beneficial use programs. He is an active speaker at educational events such as short courses and conference presentations.

Jim Prochaska, P.E., Jim holds a Bachelor's and Master of Science (Agricultural/Civil Engineering) from Texas A&M University, 1987. Mr. Prochaska began his extensive career in wastewater treatment and effluent reuse. Since that time, he has been responsible for the design and development of projects ranging from 300 gpd to 8 million gpd. His projects have included domestic, municipal and industrial wastewater generators. Since 1994, Mr. Prochaska has devoted the majority of his time towards the development of on-site wastewater treatment and disposal using subsurface drip irrigation. He has worked as a principal designer and reviewer on several of

these projects and has spent even more time training and educating engineers and sanitarians on how to design on-site systems. He has taken this technology to domestic, agricultural and food processing wastewater generators as an environmentally sound means of wastewater treatment and dispersal. Currently he is active throughout the United States in developing the onsite wastewater industry and the use of subsurface drip dispersal methods.

Mr. Prochaska provides leadership and guidance in his principal role as President of JNM Technologies, Inc. In this capacity he along with his staff have developed and refined the most modern and effective methods used for wastewater effluent dispersal using subsurface drip irrigation. Under his leadership, the company has developed an extensive line of equipment including patented filtration processes, system controllers, installation methods and design aides. The equipment and applications range from single family homes to large, non-sewered communities.