



**Granite State Designers and Installers Association** is pleased to present Sara Heger from the University of Minnesota and Dennis F. Hallahan, Technical Director, Infiltrator Systems for a day-long training program...

## **Septic System Continuing Education Class**

**Friday, November 2, 2018 - 8:30 AM to 3:30 PM**

IBEW Local No. 490, 48 Airport Road, Concord, NH

**8:30 AM**

### **Compaction - The Enemy of System Longevity - Sara Heger**

Humans along with all our activities cause widespread soil compaction. Compaction constrains oxygen (O<sub>2</sub>) movement in the soil and shifts soil toward anaerobic conditions. Less O<sub>2</sub> diffusion into the soil leads to a chemically reducing soil environment. Compaction leads to smaller pore spaces and slower infiltration rates. This presentation will discuss the causes of compaction including wet soils, material handling and the weight of vehicles/equipment, pedestrians, and animals. It will then focus on avoidance methods and potential solutions for sites that have been compacted.

**9:45 AM**

### **Drainfield Malfunction Analysis - Dennis Hallahan**

The lifespan of an onsite wastewater treatment system drainfield is influenced by numerous factors, including siting, vertical separation distance, maintenance, wastewater flow volume, septic tank volume, as well as other factors. The presentation will review methodologies to diagnose problem site systems. The intention is to have the presentation serve as a learning tool on the potential causes, how to investigate and once the problem is understood then recommending a proper solution. The presentation will review: Malfunction investigation basics, septic tank investigation, function of the tank, drainfield investigation, and malfunction issues and examples.

**10:45 AM**

### **Break**

**11:00 AM**

### **Nutrient Issues with Septics - Sources and Solutions - Sara Heger**

The presentation includes environmental and health effects of nitrogen and phosphorus in the environment, biology and chemistry of nitrogen transformations, biological nitrification/denitrification in onsite wastewater treatment and examples of onsite/decentralized nitrogen removal processes.

**12:00 PM**

### **Lunch**

**12:45 PM**

### **Loading Rates - How Much can the Soil Take - Sara Heger**

Varying dwelling and facilities generate varying quantities and qualities of wastewater. This presentation will discuss how these vary and offer suggestions on how design for them. It will then look at the application rates to the soil and impacts of ground and surface water interference to treatment and acceptance.

**1:45 PM**

### **Break**

**2:00 PM**

### **The Top Ten Myths in Onsite - Dennis Hallahan**

These myths seem to abound in the onsite industry more so than any other. This presentation will discuss various myths and then discuss the facts and science to address the common misconceptions. This will allow the decentralized industry to have a more professional stance and raise the level of the industry. For example we often hear: "Those septic systems fail", well what is the rate of centralized system failures? What is the expected design life and if a system reaches its design life does that constitute a failure? Or the myth regarding system start up: does one need to "start-up" their septic system with a dead chicken or any other foreign substance? or does a distribution pipe or a d-box yield equal distribution? These are some of the myths that will be addressed.

**3:00 PM**

### **Challenging Wastewater Stream Case Studies - Sara Heger**

More septic systems are being negatively impacted by the use and disposal of varying chemicals, cleaners, medicines and anti-bacterial products. This presentation will cover how to identify this problem and troubleshoot the system. In addition, chemicals of emerging concern that are showing up in our lakes, rivers and streams, groundwater and even in tap water will be discussed. This is obviously concerning for our health but how do these chemicals affect our wastewater treatment systems? This presentation will discuss what they are, how they can potentially be removed and what we can do as an industry to limit their impact. This session will also address the impacts of various chemical and medications on septic, including a discussion of septic systems servicing assisted living and nursing homes and homes where residents use at-home dialysis systems which contribute a range of chemical to the system.

**4:00 PM**

### **Adjourn**

## INSTRUCTORS



### Sara Heger, Ph.D.

Dr. Sara Heger is an engineer, researcher and instructor in the Onsite Sewage Treatment Program in the Water Resources Center and is an Adjunct Assistant Professor in the Bioproducts and Biosystems Engineering Department. Since 1998, she has been conducting research and providing education and technical assistance to homeowners, small communities, onsite professionals and local units of government regarding onsite wastewater treatment. She presents at many local and national training events regarding the design, installation and management of septic systems and related research. Sara is a Board Member and Education Chair of the National Onsite Wastewater Recycling Association and has served on the board of the Minnesota Onsite Wastewater Association. Sara serves on the NSF International Committee on Wastewater Treatment Systems. She is also the chair of the Minnesota State Advisory Committee on Decentralized Systems. She has BS in Biosystems & Agricultural Engineering and a MS and a PhD in Water Resource Science.



### Dennis F. Hallahan, P.E.

Dennis F. Hallahan has thirty years of experience with the design and construction of on-site wastewater treatment systems. He has authored several articles for on-site industry magazines and has given numerous presentations nationally on the science and fundamentals of on-site wastewater treatment systems. Dennis also is responsible for product research and testing at Universities, test centers and private consultants. His department develops system-sizing charts for national and international approvals and assists customers and field representatives in the planning and review of large commercial decentralized systems. Many of these systems are in excess of a million gallons per day. He received his MS in civil engineering from the University of Connecticut and his BS in civil engineering from the University of Vermont.

He has been with Infiltrator Water Technologies for 19 years and holds the current position as Technical Director. Dennis also holds patents for on-site wastewater products and is a member of the Water Environment Federation and of the National Onsite Wastewater Recycling Association and currently serves as Chairman for the NOWRA Technical Practices Committee.

**Registration fee includes instruction, handout materials, morning coffee and danish, breaks, and box lunch. This program is approved for 6 Continuing Education Contact Hours for NH designers and installers.**

**Space is limited. Register early.**

### REGISTRATION FORM: Septic System Continuing Education Class

Friday, November 2, 2018 - IBEW Hall, Concord, NH

Attendees: (please print clearly)

Note dietary restrictions:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Company: \_\_\_\_\_

Address: \_\_\_\_\_

Phone: \_\_\_\_\_ Email: \_\_\_\_\_

Make check payable to GSDI Ck#: \_\_\_\_\_ or charge my credit card:

Name on Card: \_\_\_\_\_ Signature: \_\_\_\_\_

Card Number: \_\_\_\_\_ Exp. Date: \_\_\_\_\_ CSC #: \_\_\_\_\_

Card Billing Address (if different than above): \_\_\_\_\_  
 \_\_\_\_\_

**Registration Deadline:** 10/29/2018

**Cancellations:** If you are unable to attend, please contact us prior to 10/29/2018. No refunds will be given after that date.

**Registration Fee:**

GSDI Member: \$60

Non-member: \$80

**Total Amount:** \$ \_\_\_\_\_

(4 digits from front of Amex;  
3 digits from back of all other cards)

**Mail to: GSDI, 53 Regional Drive, Suite 1, Concord, NH 03301 or FAX: 603-228-2118**  
**Questions: Contact us at 603-228-1231 or info@gsdia.org**