Agenda

Overview of Onsite Wastewater Treatment Technologies
- The evolution of onsite wastewater treatment systems
- Shortcomings of conventional onsite systems
- Improvements in technology that make onsite systems a credible choice
- Best management practices for decentralized treatment systems

Regulation and Permitting of Onsite Wastewater Treatment Systems
- Federal, state and local regulation of systems
- Surface water and groundwater permitting of discharges in Michigan
- Permit requirements and procedures

Evaluating Sites and Choosing Treatment Goals
- Mapping the site
- Analyzing the receiving environment
- Water movement through soil
- Factors affecting soil loading rates

Treatment System Selection and Design
- Designing for both quantity and quality of wastewater
- Know the capabilities of a technology
- How to handle high-strength wastewater
- When flow equalization should be considered
- Maximizing treatment in the soil through equal distribution – LPP, drip, etc.
- Advantages of using open sand bed dispersal

Alternative and Sustainable Treatment Technologies
- Attached growth, unsaturated treatment systems
  - Mounds
  - Packed-bed media filters: sand, geotextile, peat, etc.
- Suspended growth treatment systems
  - Activated sludge processes: SBR's, extended air, etc.
- Submerged fixed growth treatment systems
  - MBBR's, vegetated submerged beds, constructed wetlands, etc.
- Combinations of the above, and others
  - Trickling filters, wastewater lagoons, aerated lagoons, etc.

Conditions Necessary for Nutrient Removal
- Nitrogen reduction
- Phosphorus removal

Treatment Options for Difficult Sites
- Off-lot (cluster) solutions
- Effluent sewer collection options
- Re-use of treated wastewater

Management Program for Onsite Wastewater Treatment Systems
- Monitoring of systems
- Developing maintenance plans
- Inspection procedures
- Repair options

Septic System Design, Construction and Maintenance
Lansing, MI - Tuesday, February 12, 2019

Halfmoon Education Inc.
PO Box 278
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Learning Objectives

You'll be able to:

Explore the technology and operation of conventional wastewater treatment systems.

Coordinate system regulation with surface and groundwater regulations.

Examine factors for selecting and sizing systems.

Consider alternative and sustainable treatment technologies.

Review treatment options for difficult sites.

Develop management programs for onsite wastewater treatment systems.

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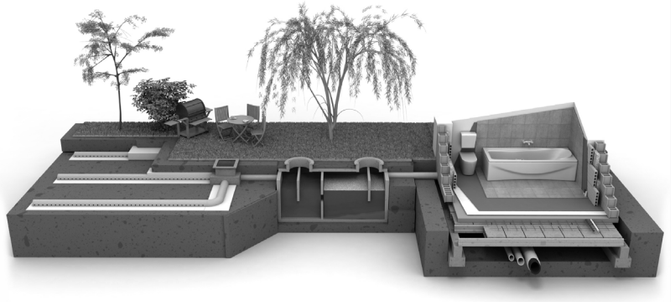

Get an overview of onsite wastewater treatment technologies

Learn about regulation and permitting of onsite wastewater systems

Evaluate sites and set treatment goals

Discuss conventional treatment system selection and design

Investigate alternative and sustainable treatment technologies

Develop monitoring and maintenance plans

Continuing Education Credits

Professional Engineers
6.5 PDHs

Architects
6.5 HSW CLE Hours
6.5 AIA HSW Learning Units

Contractors
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Faculty

Larry Stephens *President, Stephens Consulting Services*

Mr. Stephens is the owner and founder of Stephens Consulting Services, P.C., a highly-skilled civil engineering firm established in 1980 with clients throughout lower Michigan and the Midwest. Under his leadership, Stephens Consulting Services, P.C. has become a leader in problem solving, particularly with regard to sustainable solutions for wastewater treatment for small communities.

Mr. Stephens is also partner in SCS Systems, LLC, a second company established in 2001 to provide management and maintenance services for onsite and cluster wastewater treatment systems.

Prior to establishing Stephens Consulting Services, P.C., Mr. Stephens was a regional engineer with the Division of Community Environmental Health, Michigan Department of Public Health, in Lansing, Michigan. During the course of his 12 years of service with the State of Michigan, Mr. Stephens was involved with policy development, rule-making and regulatory review with regard to various types of land development infrastructure.

Mr. Stephens is a licensed professional engineer in Michigan, and is past president of the Michigan Onsite Wastewater Recycling Association (MOWRA). He holds a B.S. degree in Civil Engineering from Michigan State University, and a masters of engineering degree in Environmental Engineering from the University of Florida.

Michael Stephens *Stephens Consulting Services*

Mr. Stephens has now been in the operation and maintenance of septic systems for over 20 years. His company, SCS Systems LLC, has grown from providing operation and maintenance services on single-family home septic systems to now operating 32 community systems, 30 commercial systems, and STEP/STEG collection systems for over 700 homes. SCS Systems now contracts for operation and maintenance in 22 counties across Michigan, managing both groundwater and NPDES permits and discharges for numerous clients.

Mr. Stephens has a B.A. degree in Business Administration from Grand Rapids Baptist College. He is a certified wastewater operator with the Michigan Department of Environmental Quality for both municipal and commercial wastewater treatment facilities. Mr. Stephens has served in leadership roles for the Michigan Onsite Wastewater Recycling Association, the National Onsite Wastewater Recycling Association, and the Michigan Water Environment Association.

Seminar Information

Crowne Plaza Lansing West
925 South Creyts Road
Lansing, MI 48917
(517) 323-7100

Registration
8:00 - 8:30 am
Morning Session
8:30 am - 12:00 pm
Lunch (On your own)
12:00 - 1:00 pm
Afternoon Session
1:00 - 4:30 pm

Tuition

$279 for individual registration
$259 for three or more registrants from the same company at the same time.

Included with your registration: *Complimentary continental breakfast and printed seminar manual.*

Receive a reduced tuition rate of $101 by registering to be our on-site coordinator for the day. For availability and job description, please visit *www.halfmoonseminars.org*.

How to Register

- Visit us online at www.halfmoonseminars.org
- Mail-in or fax the attached form to 715-835-6066
- Call customer service at 715-835-5900

Cancellations: Cancel at least 48 hours before the start of the seminar, and receive a full tuition refund, minus a $39 service charge for each registrant. Cancellations within 48 hours will receive a credit toward another seminar or the self-study package. You may also send another person to take your place.

Continuing Education Credit Information

This seminar is open to the public and offers 6.5 PDHs to professional engineers and 6.5 HSW continuing education hours to architects in all states. Educators and courses are not subject to pre-approval in Michigan.

This course has been approved by the American Institute of Architects for 6.5 HSW Learning Units (Provider No. J885). Only full attendance can be reported to the AIA.

HalfMoon Education is an approved continuing education sponsor for engineers in Florida, Indiana (License No. CE21700059), Maryland, New Jersey (Approval No. 24GP00000700), New York (NYSED Sponsor No. 35), North Carolina, and North Dakota. HalfMoon Education is deemed an approved continuing education sponsor for New York architects.

This seminar offers contractors a non-credit continuing education opportunity; it has not been submitted to any state contractor licensing entity for continuing education approval.

Attendance will be monitored, and attendance certificates will be available after the seminar for most individuals who complete the entire event. Attendance certificates not available at the seminar will be mailed to participants within fifteen business days.

Additional Learning

Webinar Series

Pumping and Piping Systems

- **Introduction to Pumps: Operation, Principles and Calculations**
  Thurs., Jan. 24, 2019, 12:00 - 2:00 PM CST
- **Design Standards and Codes**
  Thurs., Jan. 24, 2019, 2:30 - 3:30 PM CST
- **Piping System Components, Materials and Calculations**
  Fri., Jan. 25, 2019, 12:00 - 2:00 PM CST
- **Handling Pump and Piping System Problems**
  Fri., Jan. 25, 2019, 2:30 - 3:30 PM CST

For more information visit:
www.halfmoonseminars.org/webinars/

Can't Attend? Order the Manual and the Audio from the Live Seminar as a Self-Study Package!
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Registration

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How to Register

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Complete the entire form. Attach duplicates if necessary.

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Additional Registrants:

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Email address is required for credit card receipt, program changes, and notification of upcoming seminars and products. Your email will not be sold or transferred.

( ) I need special accommodations. Please contact me.

Tuition

( ) **I will be attending the live seminar.** Single Registrant - **$279.00**. Three or more registrants from the same company registering at the same time - **$259.00** each.

( ) **I am not attending.** Please send me the self-study package for **$289.00**.

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☐ CD/Manual Package
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