Enroll in either course, or both:

**Upgrading Your Sanitary Sewer Maintenance Program**
March 18–19, 2013
Madison, Wisconsin

**Wastewater Pumping Systems and Lift Stations**
March 20–22, 2013
Madison, Wisconsin

Gain a strong knowledge base to help you improve your wastewater systems...

- **Upgrading Your Sanitary Sewer Maintenance Program**
  - To help you achieve a reliable, well-maintained sanitary sewer system

- **Wastewater Pumping Systems and Lift Stations**
  - To help you upgrade, operate and design reliable, cost-effective lift stations, force mains and pumping systems

With special thanks to the Madison Metropolitan Sewerage District

**Enroll Online Today!**
Or visit our Web site
Upgrading Your Sanitary Sewer Maintenance Program
March 18–19, 2013, Madison, Wisconsin
1.5 CEU, 15 PDH

Practical topics include:
- Reducing costly failures and overflows
- Practical application of CMOM in the field
- Pipe inspection and condition assessments
- Techniques to measure inflow and infiltration
- Safety practices and protective equipment
- Dealing with fats, oils, and grease (FOG)
- Managing insurance risk
- Pipe repair and rehab techniques
- Lateral inspection and repair on private property

Wastewater Pumping Systems and Lift Stations
March 20–22, 2013, Madison, Wisconsin
1.8 CEU, 18 PDH

This course will help you to:
- Solve hydraulic problems
- Evaluate multiple station designs
- Reduce O&M problems
- Reduce your pumping energy costs
- Select optimum pumping equipment
- Reduce odor and corrosion problems
- Understand electric motors and VFDs
- Upgrade and rehab your pumping stations

Why Attend a Course from UW–Madison Engineering Professional Development?
- Helpful instructors with outstanding experience
- Class sizes that allow for extensive interaction, questions, and discussions – ideal for learning
- Detailed course notebook, luncheons, refreshments, completion certificate—all included
- Professional courses, organized by one of the leading national providers of continuing education.

Join Us!
I invite you to join us for the latest editions of these nationally recognized courses. Effective sanitary sewer maintenance programs and reliable wastewater pumping stations are among the most valuable of municipal assets. These courses bring together a wide array of experience, techniques and lessons learned from across the country.
I hope you can join us this year in Madison.
Regards,
Ned W. Paschke, PE, Program Director, University of Wisconsin–Madison

To Enroll in Either Course, or Both: Call 800-462-0876
Or enroll online at epd.engr.wisc.edu/emaN453 or epd.engr.wisc.edu/emaN452

Early Enrollment Discount
Save $100 per course when you enroll in either course prior to 30 days in advance.
Regular course fee is $1,195 for Sanitary Sewers; $1,295 for Wastewater Pumping Systems; early enrollment fees are $1,095 and $1,195, respectively.
Why This Course?
Sanitary sewer system maintenance is an important activity in every community served with a public wastewater collection system. Efficient, upgraded maintenance practices can help to minimize stoppages, backups, and sanitary sewer overflows. The resulting health risks, property damage, repair costs, and liability can also be reduced.

This course brings together a wide array of experience, techniques, and lessons learned from across the United States. Your team of instructors will help you upgrade one of the most valuable assets in your community—a reliable and well-maintained sanitary sewer system.

Valuable Take-Home Notebook
Course attendees will receive a detailed course notebook/binder with all presentations and handouts, prepared specifically for this course.

Who Should Attend
This course will benefit:
• Public works directors
• City engineers
• Wastewater system managers
• Sewer maintenance supervisors
• Crew leaders and members
• Consultants for wastewater maintenance
• Anyone who wants to learn more about sewer maintenance programs and techniques

Specific Benefits
This course will help you to:
• Reduce your sanitary sewer overflows (SSOs) and blockages
• Use resources efficiently to prevent costly repairs and sewerage failures
• Measure and reduce inflow and infiltration
• Understand the latest techniques for rehab and repair of gravity sewers, lift stations, and force mains
• Develop a program to deal with fats, oils, and grease (FOG), corrosion, roots, and other problems
• Review computer-based maintenance management programs
• Develop preventive maintenance practices to reduce your O&M costs and improve service to your customers
• Manage your municipal insurance risk
• Incorporate CMOM into your field operations
• Use pipe condition assessment data to improve your system
• Improve safety practices in sewer maintenance
• Evaluate trenchless technologies, joint repair techniques, slip-lining, cured-in-place liners, pipe injection, and conventional pipe replacement
• Inspect and repair laterals on private property

Earn Continuing Education Credit
By participating in this course, you will earn 1.5 Continuing Education Units (CEU) or 15 Professional Development Hours (PDH).

Past Participants Say...
"THIS COURSE SHOULD BE MANDATORY FOR ALL WASTEWATER MANAGERS AND SUPERVISORS."

"FOR A UTILITY WITHOUT AN UPGRADED SEWER MAINTENANCE PROGRAM, THIS IS A MUST DO. I NOW HAVE MORE INFORMATION FOR MY COMMISSION TO DO THE JOB RIGHT."

"ALL OF THE SPEAKERS HAD GREAT PRESENTATIONS."

"THE INFORMATION WAS VERY USEFUL AND CAN BE APPLIED AT ALL LEVELS."

"THIS COURSE HAS A GREAT COMBINATION OF DIFFERENT VIEWS FROM ALL KINDS OF PROFESSIONALS IN THE INDUSTRY. I'M GLAD I GOT THIS COMBINATION OF REAL-WORLD EXPERIENCE."
Course Outline

Monday, March 18

7:30  Registration, Coffee, Refreshments
The Pyle Center
702 Langdon Street
Madison, WI

8:00  Overview and Welcome
Ned Paschke, Program Director

8:15  Sanitary Sewer Maintenance and Equipment – Stephen Tilson
• Preventive maintenance programs
• Equipment selection on the job
• Root cutting, rodding, nozzles
• Bucketing equipment, vacuum systems
• CCTV equipment and maintenance
• Practical application of CMOM in the field
• GPS considerations

12:00  Lunch (provided onsite) and Discussion

1:00  Controlling Sanitary Sewer Overflows (SSOs): The Role of Maintenance – Tony Offerman
• Types and causes of SSOs
• Understanding CMOM; what other agencies are doing
• PM programs, asset inventories, SSO response plans
• Measuring infiltration and inflow
• Smoke testing, area-velocity meters, dye testing

2:00  Break

2:15  Televising Practices and Pipe Condition Assessment – Tony Offerman
• Televising as a maintenance tool
• NASSCO pipe condition grades
• What to do with the data
• How to handle private property

3:15  Break

• CMMS maintenance management systems
• Using and maintaining your data

4:40  Adjourn for the Day

Tuesday, March 19

7:30  Coffee, Refreshments, Conversation

8:00  Dealing with Fats, Oils, and Grease (FOG) – Stephen Tilson and instructional team

9:15  Break

• Spot repairs, short liners, chemical grouting
• Root removal, chemical root control
• New technologies, costs, ASTM standards
• Manhole repairs, liners
• Open cut and trenchless choices
• Slipping, pipe-bursting, cured-in-place-pipe, tunneling, directional drilling
• Rehab of pressure pipe and forcemains
• Working with private laterals: inspection, cleaning, repairs

12:00 Lunch (provided onsite) and Discussion

1:00  Managing Your Insurance Risk by Improved Sanitary Sewer Maintenance – Jason McMahon
• Backups, claims, insurance, public relations
• Documentation, standard forms
• Safety practices, personal protective equipment (PPE)

2:00  Break

2:15  System Rehab Case Study – Jason McMahon
• Public and private infrastructure improvements
• Finding and fixing critical pipelines

3:15  Break

3:30  The Future of Sewer Maintenance – Rich Cunningham
• Where are your agency and the industry going?
• Class discussion of trends, challenges, successes

4:30  Final Adjournment

Note: Some modification of individual time slots may occur during the course.

Your Team of Instructors

Stephen Tilson is president of Tilson and Associates, Torrington, Connecticut. He has more than 25 years of specialized experience in the field of sanitary sewer maintenance and has worked with wastewater systems throughout the country.

Tony Offerman is a professional engineer and collection system specialist based in Austin Texas. He has more than 25 years of experience in sanitary sewer systems and wet weather flow management, and has worked with collection systems across the country.

Rich Cunningham is a past chair of the Water Environment Federation’s national Collection System Committee. He has extensive experience with sewer systems of all sizes. He has served as public works director for the City of Albany, California and previously as a manager with the City and County of San Francisco.

John Nelson, Jr. is vice president with Visu-Sewer, Inc. based in Pewaukee, Wisconsin. He has more than 20 years of experience in the field of televising, cleaning, grouting, repair, and rehab of sewers and laterals.

Jason McMahon is risk management advisor with Midwest Public Risk, Kansas City, Missouri. He has extensive experience with municipal claims, insurance, safety, and rehabilitation of sanitary sewer systems.
Why This Course?
Wastewater pumping facilities and lift stations are among the most important public assets in any city or village. This course will provide you with sound techniques for the upgrade, design, operation, and maintenance of reliable, cost-effective lift stations, force mains, and pumping systems.

Both theory and practical experience are essential for upgrading, designing, or operating a successful wastewater pumping facility. Facilities must anticipate the daily fluctuation of flows and the potentially large impacts of wet weather events. A successful station must also deal with the unique operating problems that can occur in handling raw wastewater, solids, grease, and odors.

Specific Objectives of this Course
This course will help you to:
- Upgrade, design, and operate reliable, cost-effective pumping stations
- Analyze and solve practical hydraulic problems
- Understand pros and cons of various station designs
- Select the best pumps, motors, seals, bearings, and impellers
- Understand electric drives, controls, and protective devices
- Provide successful ventilation and odor control…and much more

Who Should Attend
This course will benefit:
- Wastewater system engineers and staff
- Consulting engineers and designers
- Plant managers and operators
- Approval agency personnel
- Anyone who wants to learn more about wastewater pumping

Hands-on Design Workshops
In the design workshop sessions you will conceptually design several alternative pumping stations by applying the principles learned in the course. You will:
- Analyze incoming flow data
- Select design flows
- Size force mains
- Develop system curves
- Select pumping equipment
- Develop station layouts

Please bring a calculator to help you participate in the workshop sessions.

Valuable Take-home Notebook
Course attendees will receive a detailed course notebook/binder with all presentations and handouts, prepared specifically for this course.

Earn Continuing Education Credit
By participating in this course you will earn 1.8 Continuing Education Units (CEU) or 18 Professional Development Hours (PDH).

Comments from Past Attendees at This Course
“A TERRIFIC COURSE! BEST I’VE EVER HAD!”

“WELL DONE WORKSHOP. PUT TOGETHER SUPERBLY.”

“A VERY USEFUL CLASS. I WILL BE APPLYING WHAT I LEARNED ALMOST IMMEDIATELY WHEN I GET BACK TO THE OFFICE.”

“A FANTASTIC COURSE! A ‘MUST ATTEND’ COURSE FOR ALL ENGINEERS PLANNING, DESIGNING OR OPERATING A SEWAGE PUMPING STATION.”

ENROLL ONLINE TODAY! Or visit our Web site
Course Outline

Wednesday, March 20
7:30 Registration and Refreshments
The Pyle Center
702 Langdon Street
Madison, WI
8:00 Pumping Station Features and Design Considerations – Ned Paschke
• Types of stations
• Types of pumping equipment
• Valves, fittings, and forcemain piping
• Screens and grinders
• Station layout and geometry
• Emergency power and other topics
10:30 Break
10:45 Applied Hydraulics and Selection of Pumping Equipment: Part I
• Incoming flow distributions
• Peak flow selection
• System head computations
• Force main size selection
• Pump performance curves
• Energy usage
• Pumping in parallel or series
• Variable speed vs. constant speed
Ned Paschke
12:00 Lunch (provided onsite) and Discussion
1:00 Applied Hydraulics and Selection of Pumping Equipment (continued) – Ned Paschke
2:05 Break
2:20 Understanding Pumping Units – Roy Swanke
• Shafts, bearings, and mechanical seals
• Impellers and casings
• Electric motors: submersible and drywell
• Detailed cross-sections
3:20 Break
3:35 Lift Station Operation and Maintenance – Roy Swanke
• Designing for practical operation
• Station maintenance
• Safety practices
• Common problems
4:40 Adjourn for the Day

Thursday, March 21
7:30 Coffee, Refreshments, Conversation
8:00 Station Electrical Systems and Controls – Tom Jenkins
• Electrical power basics
• Types of motors
• Constant speed and variable speed systems
• Utility and generator issues
• Station control devices
• Arc flash considerations
10:40 Break
11:00 Factory-Built Lift Stations – Patrick Reizin
• Pre-packaged stations
• Sizes, materials, costs
• Specifications, manufacturing, start-up
• Submersible, dry-well, and suction lift types
12:00 Lunch (provided onsite) and Discussion
1:00 Design Workshop – Ned Paschke
• In the workshop sessions you will apply the principles learned during the course and will conceptually design one or more pumping stations. You will analyze incoming flow data, select design flows, size force mains, develop system curves, select pumping equipment, develop station layouts, and critique alternative designs.
4:30 Adjourn for the Day

Friday, March 22
7:30 Coffee, Refreshments, Conversation
8:00 Field Inspection Trip – Dave Lundey and Roy Swanke
• Course attendees will tour a pumping station of the Madison Metropolitan Sewerage District. Transportation is provided.
10:10 Specifying and Operating a Small Submersible Station – Jim Johnson
• Specifications, features, costs
• Submittals, startup, operations
11:10 Problem Solving, Station Rehab and Other Topics – Ned Paschke
• Waterhammer protection: Do you need it?
• Station rehab examples
• Special problems in wastewater pumping
11:55 Final Adjournment

Note: Some modification of individual time slots may occur during the course.

Please bring a calculator to help you participate in the workshop sessions.

Your Team of Instructors

Ned Paschke, PE has 30 years of experience as a professional water and wastewater engineer and manager. Paschke has worked on hundreds of projects and has authored many publications in this field. Before joining the university, he was Director of Engineering for the Madison Metropolitan Sewerage District and a hydraulic consulting engineer with Harza Engineering Company (MWH) in Chicago.

Roy Swanke is an instructor at Madison Colleges and previously served as training manager and mechanical supervisor at the Madison Metropolitan Sewerage District. He has more than 20 years of practical experience in the wastewater operations and maintenance field, and is a licensed wastewater treatment plant operator.

Tom Jenkins, PE has extensive experience in wastewater control systems and technology. Prior to forming JenTech, Jenkins served as chief wastewater design engineer with Dresser Roots and as the founder of ESCOR. He is a co-author of the WEF Manual of Practice #32, Energy Conservation in Water and Wastewater Treatment Facilities, and an adjunct professor at the University of Wisconsin–Madison.

Patrick Reizin, PE is president and general manager of USEMCO (Universal Sanitary Equipment Manufacturing Company). Since 1979, he has overseen the engineering and manufacturing of 30 different types of pumping stations. He is a member of WEF, AWWA, and WWWOA.

James D. Johnson is responsible for start-up, design, and sales of pumping, control and wastewater treatment systems for ITT Water and Wastewater. He has more than 20 years of experience in the pump field and has worked with pump manufacturers of both submersible and dry pit pumps.

Dave Lundey is the electrical construction coordinator at the Madison Metropolitan Sewerage District. He also served as head of the electrical maintenance section and as a licensed master electrician. Lundey has more than 25 years of experience in electrical systems, maintenance, and construction.

ENROLL ONLINE TODAY! Or visit our Web site
Upgrading Your Sanitary Sewer Maintenance Program  
March 18–19, 2013 in Madison, Wisconsin  
Wastewater Pumping Systems and Lift Stations  
March 20–22, 2013 in Madison, Wisconsin

Past Participants in These Courses Include:

AECOM
American Consulting
Ayres Associates
Barr Engineering Company
Baxter & Woodman, Inc.
Bechtel Plant Machinery, Inc.
Bolton & Menk, Inc.
Bonestroo & Associates
Boyle Engineering Corporation
Brown and Caldwell
Cedar Corporation
Crawford, Murphy & Tilly, Inc.
Fairfax County, VA
Farnsworth Group
Fehr-Graham and Associates
Fort McCoy, WI
GE Water
Glenbard Wastewater Authority, IL
GRAEF
Guam EPA
Gwinnett County, GA
Hazen and Sawyer
Heart of the Valley MSD
Howard R. Green Company
King County, WA
MSA Professional Services, Inc.
McAlester Army Ammunition Plant, OK
Mead & Hunt, Inc.
Miller Brewing Company
MWH
Nesbitt Engineering, KY
O’Brien & Gere
Olsson Associates
Process Kinetics
Procter and Gamble
RMT, Inc.
Robert Peccia & Associates
Ruekert Mielke
Siemens Water Technologies
Stearns and Wheeler
Strand Associates
Thrasher Engineering, WV
UNIPRO, San Juan, PR
Willett, Hofmann & Associates
And hundreds of other participants.

Enjoy Your Visit to Our Campus!
The course will be held at The Pyle Center, 702 Langdon Street, Madison, WI. On the shores of Lake Mendota, it is located in the heart of one of the world’s great university settings. In your spare time, you may wish to explore the beautiful University of Wisconsin campus, hike to Picnic Point along the Lakeshore Path, relax at the Memorial Union, or enjoy the shops and restaurants of State Street, just a block away.

Other Upcoming Water-Related Courses

See our website for complete course lists and details: epd.engr.wisc.edu

Understanding Water Chemistry for Practical Application
March 4–5, 2013, Madison, Wisconsin
Course #N368

Nutrient Removal Engineering: Phosphorus and Nitrogen in Wastewater Treatment
April 23–25, 2013, Madison, Wisconsin
Course #N473

Pumps and Motors
May 7–9, 2013, Madison, Wisconsin
Course #N477

Advanced Asset Management Practices for Water and Wastewater Utilities
May 14–15, 2013, Madison, Wisconsin
Course #N775

Fundamentals of Drinking Water Treatment
June 24–26, 2013, Madison, Wisconsin
Course #N682

ENROLL ONLINE TODAY! Or visit our Web site
Four Easy Ways to Enroll

Course Information

☐ Please enroll me in **Upgrading Your Sanitary Sewer Maintenance Program**
  
  **Course #N453** March 18–19, 2013 in Madison, WI  Fee: $1,195
  
  **Early enrollment discount:** Save $100 each when you enroll prior to 30 days before the course; $1,095 discounted fee per course

☐ Please enroll me in **Wastewater Pumping Systems and Lift Stations**
  
  **Course #N452** March 20–22, 2013 in Madison, WI  Fee: $1,295
  
  **Early enrollment discount:** Save $100 each when you enroll prior to 30 days before the course; $1,195 discounted fee per course

Personal Information (Please print clearly.)

Name ______________________________________________________________
Title _______________________________________________________________
Company __________________________________________________________
Address ___________________________________________________________
City/State/Zip ______________________________________________________
Phone (_________) _______________________ Fax (_________) ________________
E-mail _____________________________________________________________

General Information

Fee Covers
Notebook, course materials, break refreshments, lunches, and certificate. Course notes are distributed only to course participants.

Cancellation
Cancellation If you cannot attend please notify us at least seven days prior to the course start, and we will refund your fee. Cancellations received after that date and no-shows are subject to a $150 administrative fee per course. You may enroll a substitute at any time before the course starts.

Course Location
The Pyle Center, 702 Langdon Street, Madison, WI 53706. Telephone messages 608-262-1122.

Additional Enrollees

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Billing Information

☐ Bill my company  ☐ P.O. or check enclosed (Payable in U.S. funds to UW – Madison)
☐ Please check the box if you are a person with a disability and desire special accommodations. A customer service representative will contact you. Requests will be kept confidential.

Cardholder’s Name ____________________________________________
Card No. ____________________________________________ Expires __________
UW# [ ] [ ] [ ] [ ]

Accommodations

We have reserved a block of guest rooms (rates starting at $89, including continental breakfast) at Lowell Center, 610 Langdon Street, Madison, WI. Reserve a room by calling 866-301-1753 or 608-256-2621. Room requests after February 18 will be subject to availability. Other fees and restrictions may apply.

We have reserved a second block of guest rooms (rates starting at $89, including parking and Madison Taxi’s silver cab from airport) at Campus Inn, 601 Langdon Street, Madison, WI. Reserve a room by calling 800-589-6285 or 608-257-4391. Room requests after February 26 will be subject to availability. Other fees and restrictions may apply. Additional lodging information may be found at www.visitmadison.com.

For these courses earn 15 PDH and 18 PDH