

Nitrification and Denitrification in the Activated Sludge Process

Who Should Attend?

This workshop will benefit anyone responsible for developing or complying with effluent nitrogen requirements, including municipal and industrial wastewater operators and managers, state regulators and environmental consultants.

Cost: \$50.00 for CT licensed wastewater operators. \$75.00 for all others. Lunch will be provided. There will be a \$15.00 late fee if registration is not received by November 23, 2006.

Michael Gerardi's book **Nitrification and Denitrification in the Activated Sludge Process** is available (and recommended) for an additional \$45.00.

Credits: 6 Training Contact Hours

Attendance: Seven days notice is required in writing (mailed or faxed) for you to cancel at no cost. Cancellations received after this time will be charged \$15.00. Registrants who do not cancel and fail to show are responsible for full payment.

Date: **Monday, December 4, 2006**

Old Lyme, CT

8:30 a.m. to 3:30 p.m.

(sign-in at 8:00 a.m.)

Course Code: ETC0741

Directions will be mailed with confirmations.

Questions?: Contact NEIWPCCC at 978-323-7929 or training@neiwpc.org.



NEIWPCCC
Boott Mills South
116 John Street
Lowell, MA 01852-1124

www.neiwpc.org



New England Interstate Water Pollution Control Commission

and Connecticut

Department of

Environmental Protection



Nitrification and Denitrification in the Activated Sludge Process

with Michael Gerardi



December 4, 2006
Marine Headquarters
Old Lyme, Connecticut

Nitrification and Denitrification in the Activated Sludge Process with Michael Gerardi, Wastewater Biologist, Water Pollution Biology

High concentrations of nutrients such as nitrogen produce algae that deplete a receiving stream's dissolved oxygen and create unsightly algal blooms. They also produce bacteria leading to fish kills, and the increased oxygen demand on the receiving stream causes septic waters with anaerobic bacteria that produce foul odors.

NEIWPCC and Connecticut DEP are co-sponsoring this workshop in Connecticut. The Nitrification and Denitrification workshop, led by Michael Gerardi, will cover the principles of nitrification and denitrification by focusing on operational controls, problem solving, troubleshooting, and the minimization of treatment costs. The session will include a review of the biological, chemical, and physical principles of wastewater nitrification and their application for process control, troubleshooting, permit compliance and cost-effective operation. Participants will receive helpful operational and reference material and, by evaluating the performance of different treatment technologies and operational controls in the nitrification and denitrification process, will learn of the best methods to improve effluent quality so it poses less of an environmental threat to receiving waters.

As one of the country's leading authorities on wastewater biology, Mr. Gerardi is known nationwide for developing and presenting many highly praised wastewater biology courses at Penn State University and for writing numerous widely read articles and technical publications.

Topics include:

Nitrification

- What is wastewater nitrification?
- Why do wastewater treatment plants nitrify?
- Sources of reduced nitrogen ($\text{NH}_3/\text{NH}_4^+$), nitrite, nitrate, TKN.
- Fate of reduced nitrogen, nitrite, nitrate in activated sludge.
- Biology and chemistry of nitrifying bacteria.
- Operational conditions affecting wastewater nitrification.
- Forms of nitrification.
- Nitrite accumulation ("chlorine sponge").
- Cold weather nitrification.
- Corrective measures to improve nitrification.

Denitrification

- What is wastewater denitrification?
- Why do wastewater treatment plants denitrify?
- Sources of reduced nitrite, nitrate.
- Biology and chemistry of denitrifying bacteria.
- Operational conditions affecting wastewater denitrification.
- Use of redox (oxidation-reduction potential-ORP).
- Forms of denitrification.
- Promoting denitrification for permit compliance/process control.
- Identifying/correcting denitrification in secondary clarifiers.

Please complete this form and return with payment **by November 23, 2006**. Please use one form per attendee.

Registration Fee: \$50.00 for CT licensed wastewater operators. \$75.00 for all others. Fee includes lunch and course materials. (Registration costs partially subsidized for Connecticut Licensed Wastewater Operators by Connecticut DEP).

Optional Manual: Additional \$45.00 (purchase of the manual is strongly recommended).

Mail registration form and fee to:

NEIWPCC
Attn: CT Nite Workshop
116 John St.
Lowell, MA 01852-1124

Registration

Name _____

Manual (optional) \$45.00

Amount Enclosed \$ _____ **Check No.** _____

Or Use Your Credit Card

Card Type _____ **3-digit code (Visa Only)** _____
(indicate Visa, MC or Discover) (located on back of card)

Card No.: _____

Name on card _____ **Expiration:** _____

Signature _____ **Date** _____

Affiliation _____

Address _____

City/Town _____ **State** _____ **Zip** _____

Telephone _____ **Fax** _____

E-mail _____

CT WW License # _____

Credits: 6 Training Contact Hours

