

**New Hampshire Water Works Association**  
**Operators' Training Session**  
**Wednesday, January 20, 2010**  
**"Distribution System Hydraulics"**  
**Manchester Water Works**



**AGENDA:**

- 8:30 a.m. **REGISTRATION**, at Manchester Water Works, 281 Lincoln St. (Directions on back).
- 9:00 a.m. **SYSTEM HYDRAULICS REVIEW**. Including: source to storage, storage to distribution, pressure created by elevation, and boosting pressure.
- 9:45 a.m. **PRESSURE LOSS**. Including: c-factor, piping size, materials, age, system components, system demands.
- 10:30 a.m. **HYDRAULIC MODELING**. Including: calculations, modeling, available commercial programs, and examples of runs, uses to date, and other potential uses (predicting chlorine residual, THM's, water chemistry with blended sources).
- 11:15 a.m. **AN ORGANIZED FLUSHING PROGRAM**. Overview of directional flushing, frequency, time, duration, velocity.
- 12 Noon **LUNCH BREAK – ON YOUR OWN**. Directions to local restaurants will be provided.
- 1:00 p.m. **PRESSURE TESTING, HYDRANT TESTING, FLOW TESTING**.
- 1:45 p.m. **SPECIALTY CONTROL VALVES**. Including: altitude valves, pressure reducing valves, pressure regulating and sustaining valves.
- 2:15 p.m. **IMPROVING PRESSURE AND FLOW**. Including: maintenance, flushing, cleaning and lining, pipe replacement, and chemical treatment.
- 3:00 p.m. **PRESENTATION OF CERTIFICATES**.

**Instructor:** Bruce Lewis, P.E., *Lewis Engineering*, Primary Instructor.  
**Credits:** 5 TCH will be awarded to those who complete the full day.  
**Cost:** The cost of this class is \$60.00 per person for NHHWA members and \$80.00 per person for non-members. **Reservations and check must be received at NHHWA, 18 North Main Street, Suite 308, Concord, NH 03301 no later than Friday, January 15, 2010.** Please use the reservation form below. A \$5.00 surcharge will be applied to those registering after the deadline. Inquiries call Jennifer Lombardo at (603) 415-3959.

**This class will be limited to 35 attendees.**

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To register, please complete this form:

To be received NO LATER THAN FRIDAY, January 15, 2010 at:  
NHHWA, 18 North Main Street, Suite 308, Concord NH 03301.  
**NHHWA OPERATOR TRAINING, WEDNESDAY, JANUARY 20, 2010**  
**"DISTRIBUTION SYSTEM HYDRAULICS"**

Water System, Firm, Etc.: \_\_\_\_\_ List Attendees Below:  
Mailing Address: \_\_\_\_\_ 1). \_\_\_\_\_  
City, State, Zip: \_\_\_\_\_ 2). \_\_\_\_\_  
Daytime Tel. # \_\_\_\_\_ Evening Tel. # \_\_\_\_\_ 3). \_\_\_\_\_  
Reserve # \_\_\_\_\_ @ \$60.00 per person (member) \$80.00 per person non-NHHWA member.

