



# Basic Laboratory Procedures for Water Operators

**April 26, 2018**

**St. John's, NL**

## **COURSE OBJECTIVES AND OVERVIEW:**

Accurate testing of water is crucial to maintaining human health and safety. Operators of public and private water supplies and wastewater treatment facilities must follow specific sampling and testing protocols to ensure accurate and precise results.

In general, the course will focus on contaminants and associated laboratory procedures most relevant to water and wastewater operators in Atlantic Canada.

### **1. Introduction**

- a. Regulatory Requirements for Monitoring in the Atlantic Provinces
- b. Guidelines for Drinking Water Quality & Atlantic Provinces' Treatment Standards

### **2. Safety**

- a. Common Hazards

### **3. Personal Protective Equipment Basic Techniques**

- a. Equipment
  - i. Glassware
  - ii. Analytical
- b. Masses
  - i. Analytical Balance
- c. Volumes
  - i. Graduated Cylinders
  - ii. Volumetric Flasks
  - iii. Pipettes
- d. Titration

### **4. Sample Collection and Preservation**

- a. Labelling and Chain of Custody
- b. Parameters
  - i. Microbiological Parameters
  - ii. Chemical Parameters
- c. Sample Devices
- d. Sampling Techniques
  - i. Grab
  - ii. Composite
  - iii. Tap sampling
    - First Draw
    - Flushed
- e. Sample Preservation
- f. Quality Control
  - i. Duplicates
  - ii. Spikes
  - iii. Blanks

## **5. Select Laboratory Procedures**

- a. pH, Alkalinity and Hardness
- b. Solids
  - i. TDS, TSS
  - ii. Turbidity
- c. Dissolved Oxygen and Oxygen Demand
  - i. DO
  - ii. BOD
  - iii. COD
- d. Microbiological
  - i. *E. coli*
  - ii. Total Coliform
  - iii. Fecal Coliform
- e. Organics
  - i. TOC, DOC
  - ii. UV<sub>254</sub>
- f. Metals
  - i. Aluminum
  - ii. Iron
  - iii. Manganese
  - iv. Phosphorus
- g. Chlorine
  - i. Total
  - ii. Free

### **COURSE FORMAT:**

Every attempt is made to keep the course informal and an enjoyable day-long training experience. Registration starts at 8:00 am, and the instructor will start shortly after 8:30. Lunch is on your own 12:00-1:00pm. Wrap-up time is usually around 4:00pm. Though all workshops are non-smoking, ample breaks are provided for coffee and discussion.

### **COORDINATORS & PRESENTERS:**

**Dr. Amina Stoddart** is a Research Engineer with the Centre for Water Resources Studies at Dalhousie University. She received her PhD in Civil Engineering and BEng in Biological Engineering from Dalhousie University. Her research focuses on the development and application of tools to understand and optimize biological drinking water treatment. Amina has contributed to several academic, government and industry projects. She has co-authored 10 peer-reviewed journal articles and over 20 conference proceedings. She is an active member of the drinking water treatment community, serving as Chair of the ACWWA Technical Knowledge Committee and as a member of the AWWA Biological Treatment Committee and Biological Drinking Water Treatment Research Subcommittee.

### **CONTACT INFORMATION:**

Registration can be made by faxing or mailing the registration form on the reverse of this page, or on-line at [www.acwwa.ca](http://www.acwwa.ca). For further information, please contact ACWWA Section office at 902-434-6002.

### **COURSE LOCATION:**

Fairfield Inn & Suites  
199 Kenmount Road  
St. John's, NL A1B 3P9



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**St. John's, NL**

Name: \_\_\_\_\_

Organization: \_\_\_\_\_

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

City, Province: \_\_\_\_\_ Postal Code: \_\_\_\_\_

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

ACWWA Membership #: \_\_\_\_\_ WEF Membership #: \_\_\_\_\_  
(If no membership number is listed, you will be invoiced as a non-member. See pricing below.)

**Fee for ACWWA or WEF Members & Employees of Utility Members**

Course: \$290.00 + \$43.50 HST (15%) = \$333.50

**Fee for Non – Members**

Course: \$310.00 + \$46.50 HST (15%) = \$356.50

Fees include coffee breaks.

Lunch is on your own.

**Payment can be made by visa, master card or cheque. Invoices will be sent to the address listed above.**

**Please send PO number if you want it included on the invoice.** \_\_\_\_\_

Card Holder's Name \_\_\_\_\_

Card Number \_\_\_\_\_ Expiry \_\_\_\_\_

Signature \_\_\_\_\_

Cheques should be made payable to

**ACWWA**

PO Box 28142 Dartmouth, NS B2W 6E2

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