WALKERTON CLEAN WATER CENTRE
Request for Proposals

For

Instructors to Provide Training Services
Vendor of Record

Request for Proposals No.: 2012 - 06

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TO SUBMIT A RESPONSE TO THIS RFP YOU MUST ACCESS THE FULL DOCUMENT FROM: merx.com

PART 2 - THE DELIVERABLES

2.1 BACKGROUND

Established in 2004, the Centre is an operational service agency of the Government of Ontario. It is responsible for delivering education, information and advice on water treatment, equipment, technology and operational requirements and environmental issues related to drinking water. It develops and delivers training to drinking water system owners, operators, and operating authorities across Ontario with a focus on smaller, remote and older systems, including First Nations systems. It also provides advice, information and promotes public education on water safety and quality issues. In addition, the Centre provides advice to the Minister of the Environment on research needed to achieve and maintain high quality safe drinking water.

The Centre is located in Walkerton in the Municipality of Brockton, and has both a local and a provincial profile, offering services throughout the province. As it has expanded its drinking water training programs and related services, the Centre's profile has grown to become the province's leading centre for applied research, technology demonstration and high quality training.

Over 200 public-registration courses are scheduled across Ontario each year and another 125 courses are delivered as on-site sessions at Centre clients' locations. The Centre offers the largest range of courses in the province. The Centre's expanding portfolio of courses spans a variety of topics in the water industry including:

- Treatment – content is targeted to personnel working in drinking water treatment facilities. This area includes training on up-to-date information on disinfection, pathogens, chemical hazards, maintenance, source water, new technology and Supervisory Control and Data Acquisition (SCADA).

- Distribution – content is targeted to personnel working in a distribution system. This area includes training on water audits, leak detection, maintenance/repair and new technology.
- Regulatory – content focuses on new or updated regulatory information relevant to Ontario's drinking water industry. This area includes training on due diligence, management systems, emergency management and the roles of operators/mechanics.
- Management – content is targeted to managers and supervisors and/or elected officials. This area also includes training related to water/energy management, roles of management and communications.
- Health and Safety – content focuses on health and safety topics/issues with specific relevance to the water industry.

New courses and programs are being developed in response to feedback from Centre clients. In particular, the Centre is committed to the development of more hands-on training (where a practical skill is being taught) and advanced training for senior operators/mechanics and engineers.

2.1.1 Quality Management

The Centre is committed to continuous improvement and actions to ensure high quality training. In the fall of 2010, the Training Institute initiated a Quality Assurance Plan to ensure that the quality of courses delivered by the Centre remain consistently high. Under Ontario Regulation 128/04 (Operator Training and Certification) made under the *Safe Drinking Water Act, 2002*, drinking water operators are expected to perform their duties to a very high standard and to continuously improve their professional skills. It is critical that the organizations involved in operator training are on a similar path of continuous improvement.

Under the Quality Assurance Plan all Centre instructors will be required to pass a rigorous two-day Train-the-Trainer Workshop which will include a practical evaluation of the individual's ability to effectively deliver training. The quality of training delivery is a key element of the deliverables outlined in the Centre's contracts with instructors. In addition, instructors delivering training will also be periodically audited and the audit results for course delivery and course content will be compared to Centre standards. Feedback from course participants will also be used for assessing the performance of Centre instructors.

2.2.1 Delivery of Training Services

The Centre is seeking three (3) different groups of qualified instructors who will be part of a vendor of record for the development, delivery and improvement of various training courses throughout the Province of Ontario. The three groups are explained below in Section 2.2.2.

Potential course locations throughout the Province of Ontario are listed in Table 2 in Section 2.2.3.

The Centre's current training courses are listed in Table 3 in Section 2.2.5 and are current as of April 30, 2012. New courses and programs are being continually developed by the Centre and, from time to time, will be added to the list of courses to be provided by Vendors.

Services of qualified instructors will be required **on an as and when required basis** and the Centre provides no guarantee of the minimum number of training courses that may be assigned to any instructor.

2.2.2 Instructor Qualifications

Proponents should self-select which training services role best meets the qualifications of the proponent and submit a proposal for the self-selected training services role. Table 1 in Section 2.2.2.1 below sets out the three (3) categories of training services role, which are: (i) WCWC Training Specialist, Professional Expertise; (ii) WCWC Training Generalist, Technical Expertise; and (iii) WCWC Practical Trainer, Practical Expertise.

Proponents are expected to have the following minimum qualifications:

- Subject matter expertise founded in real world experience with concrete examples
- Active consulting or other work in area of subject matter expertise
- Excellent communication skills
- Experience as an instructor, mentor or workplace trainer
- Ability to bring practical applications to life and link theory to application
- Willingness to collaborate/partner in all aspects of the Centre's training
- Openness to feedback and coaching
- Commitment to continual improvement
- Valid driver's license and access to a vehicle(s) – owned or rented
- Basic computer skills
- Eligible to work in Canada

In addition, additional desirable attributes for instructors include:

- Certified Drinking Water Operator or Water Quality Analyst
- Familiarity with curriculum design and development
- In-depth knowledge of adult learning principles
- Designation, diploma or degree in Adult Education
- Fluency in French
- Online facilitation skills and content development experience
- Course content developed in area of subject matter expertise

2.2.2.1 Training Services Roles

The qualification criteria for each training services role are outlined in Table 1 below. Please note: the education and experience of a qualified instructor are required to be related to or applicable to the **water industry**.

Table 1

Training Services Roles

Training Services Role	Criteria	Compensation
WCWC Training Specialist Professional Expertise	Education: - advanced university degree and/or professional designation Drinking Water Expertise and Professional Experience: - minimum 15 years - you are a recognized provincial/national/ international expert in your field Adult Learning & Instructor Experience:	$150/hour

	- minimum 10 years (full-time or part-time) - demonstrated ability to deliver advanced courses	
WCWC Training Generalist Technical Expertise	Education: - minimum college diploma or trade license - Certified Drinking Water Operator or Water Quality Analyst Drinking Water Expertise and Professional Experience: - minimum 10 years - you are a recognized leader in your workplace Adult Learning & Instructor Experience: - minimum 10 years (full-time or part-time) - at least 5 years must be in a structured training environment - demonstrated ability to deliver courses	$100/hour
WCWC Practical Trainer Practical Expertise	Education: - minimum secondary school diploma - indication of commitment to professional development Drinking Water Expertise and Professional Experience: - minimum 5 years - you are a recognized leader in your workplace Adult Learning & Instructor Experience: - minimum 3 years (full-time or part-time) - may include informal training (i.e. mentoring and on-the-job training)	$75/hour

Instructor responsibilities for each training services role may include: room set-up based on the requirements of the course, room take-down, responding to questions from participants, collaborative course development, course review/improvement, course auditing, course delivery and participation in the Centre's quality assurance program.

2.2.3 Course Scheduling and Locations

Instructors may be requested to deliver training throughout the year and throughout Ontario. Following the second stage selection process described in Section 1.2.3, the selected instructor will be required to travel to the relevant training location as described in the Notice of Assignment.

The Centre's training courses may be offered in, but are not limited to, the locations set out in Table 2 below:

Table 2

Potential Course Locations

GEOGRAPHIC REGIONS
Central Ontario - including Barrie, Greater Toronto Area, Hamilton, Niagara
Southwestern Ontario - including Kitchener-Waterloo, London, Walkerton, Windsor
Eastern Ontario - including Belleville, Kingston, Ottawa, Peterborough
Northern Ontario - including Dryden, Fort Frances, Kenora, North Bay, Sault Ste. Marie, Timmins, Sudbury and Thunder Bay

Courses may be one (1), two (2), three (3) or five (5) days in length and usually run for seven (7) hours of classroom contact time each day.

When an instructor is sought to lead a course, the Notice of Assignment will identify the relevant course, location and dates.

2.2.4 Centre Responsibilities

Arrangements and equipment for each training venue in all locations will be made by the Centre.

The participant manuals for each course will be printed and shipped to the training venue by the Centre prior to the delivery of each training session.

2.2.5 Compensation

(i) Training Time

Table 1 in Section 2.2.2 above sets out the hourly rates which will be paid by the Centre to an instructor (depending on the training services role) for the hours of instruction undertaken by the instructor. Hours of instruction include: room set-up and take-down, course instruction and responding to questions from participants.

If, for example, a course is scheduled to run for seven (7) hours of classroom contact time in a day, the instructor will be paid the Table 1 hourly rates for training time for the full seven (7) hours, provided that the course actually ran that length of time.

(ii) Travel Time

Travel time will be paid at a flat rate of $50 per hour. Reimbursement begins after a minimum of one hour of travel (one way) up to a maximum of eight hours (one way). Travel time will be paid for both going to and returning from each assignment that requires travel.

(iii) Meals

<u>There is no meal allowance</u> nor will instructors be compensated for their meals while performing

training services for the Centre.

(iv) Invoicing
Travel expenses, excluding meals, will be reimbursed by the Centre based on original receipts. These expenses are subject to the terms of the Ontario Ministry of Government Services Travel, Meal and Hospitality Expenses Directive. Instructors are required to use the most practical and economical means of transportation.

(v) Payment
Payment will be made by the Centre on a per assignment basis, provided the Deliverables are satisfactory to the Centre.

2.2.5 Walkerton Clean Water Centre Available Courses (current as of April 30, 2012)

The Centre's current training courses are listed in Table 3 below. New courses and programs are being continually developed by the Centre and, from time to time, will be added to the list of courses to be provided by Vendors.

Table 3

List of Available Courses as of April 30, 2012

Course Title	Description
Achieving Drinking Water Quality Regulatory Requirements	This course provides participants with a fundamental understanding of the development and significance of drinking water quality indicators, guidelines and standards.
Basic Chemistry for Water Operators	This course will provide participants with an overview of basic chemistry principles related to the water industry. Areas of study include pH concepts, alkalinity and hardness relationships, chemical principles of coagulation, oxidants in water treatment, chemistry of iron and manganese, taste and odour and common chemicals in water treatment.
Basic Chlorination and Disinfection	This course introduces basic concepts related to disinfection, specifically the use of chlorine in water treatment. The course will cover various chlorine chemicals, their chemistry, their applications, and a basic introduction to equipment use.
Basic Coagulation and Flocculation	This course will provide participants with an understanding of the basic principles of coagulation and flocculation. Types of coagulants and applications, equipment, process evaluation, jar testing, troubleshooting and dosage calculations will be discussed.
Basic Mathematics for Water Operators	This course provides participants with an overview of basic math principles related to the water industry. The course will include operational calculations pertaining to flow rates, retention times, process efficiencies and dosage calculations.
Centrifugal Pumps: Operations, Maintenance and Energy Savings	This course provides sufficient background and information in topics that will allow operators to perform pump operation in an effective and safe manner.
CT Requirements for Chlorine Disinfection	This course will provide participants with knowledge of relevant chlorine chemistry and behaviour in practice in order to obtain a clear grasp of

	CT as a measure of chlorine exposure, microbial damage and disinfection logs.
Current Studies in Water Plant Operations	This course will enable participants to apply concepts of course material in the day-to-day operation of their facility. An emphasis is placed on emerging pathogens, reducing disinfection by-products and exotic contaminants.
Disinfection by Chlorination and Chloramination	This course will provide participants with an understanding of the basic principles of chlorination and chloramination plus primary versus secondary disinfection, properties of ammonia, reactions of chlorine with ammonia, factors affecting chloramination, pH relations and other concepts associated with these disinfection methods.
Drinking Water Quality Management Standard	This one-day course will provide an overview of the legislative and regulatory origins of the DWQMS and discuss the relationship of the DWQMS to other parts of the Municipal Drinking Water Licensing Program.
Drinking Water Source Protection for Groundwater Systems	This course explores the concept of GUDI and pathogen pathways into and transport in groundwater, including how a wellhead protection program can be employed as a tool in protecting groundwater from contamination by pathogens. The course also introduces the Guidance Manual and discusses how it provides for Ontario's Source Water Protection Assessment Process.
Drinking Water Treatment and Quality Monitoring	This course focuses on hands-on training on chlorination, chemical feed system, and water quality monitoring. During the course, trainees learn how to perform chemical dosage calculations, prepare a dosage curve, and test for many important water quality parameters not requiring a drinking water testing license.
Drinking Water Treatment and Troubleshooting Techniques	This course is specifically geared to discussion of operational issues concerning a wide range of conventional and advanced drinking water treatment technologies typically found in municipal drinking water treatment facilities. An emphasis is placed on recognition of warning signs and troubleshooting of the various processes. Raw water quality plays an important role in the operation of a drinking water plant and common problems associated with water quality fluctuations are also discussed. Dealing with disinfection by-products, emerging contaminants and waterborne disease outbreaks are covered in the curriculum.
Entry-Level Drinking Water Operator	This course provides new operators with a basic understanding of water characteristics and pathogens, treatment and distribution processes, and the regulations that govern water quality.
Filtration	This course will provide participants with an introduction to filtration concepts to understand how filtration works with practical examples of how this relates to filter operation. Backwashing and starting filters, monitoring coagulation and filtration performance and inspecting and maintaining granular media filters are discussed along with troubleshooting, slow sand filters, and water treatment in an emergency.
Fire Hydrant Inspection in Compliance with the Ontario Fire Code	Water operators attending will be taught a thorough hydrant inspection procedure that will test all internal and external components of a typical dry barrel fire hydrant.

Formation and Control of Disinfection By-Products	This interactive course has been prepared for the operators of drinking water systems and will improve knowledge of the formation and control of existing and emerging DBPs. The main focus is on a practical understanding of how DBPs form and methods for reducing DBPs in many different types of drinking water plants.
Fundamentals of Leak Detection	This course is designed to provide participants with a well-rounded knowledge of leak detection, including the causes and implications of leakage. Basic acoustic theory will be covered in order for participants to have a better understanding of leak noise. Various equipment and methods will be discussed to aid participants in pinpointing leaks in locations of unaccounted for water loss.
Groundwater, Wells and Well Pumps	This course will provide participants with a general understanding of the occurrence and nature of groundwater; how wells are designed and constructed; groundwater quality and wellhead protection; and pumps and well maintenance.
Internal Auditing for the DWQMS	This course will train municipal drinking water system owners and operators on how to conduct internal audits. This is based on Element 19 of the Drinking Water Quality Management Standard (DWQMS) under the Municipal Drinking Water Licensing Program. Participants will review internal audit criteria such as frequency, scope, methodology and record-keeping, as well as examining audit resource requirements, preparing for and conducting an audit, reporting, follow-up and corrective actions.
Introduction to SCADA Systems	This course will provide participants with an in-depth understanding of the present day SCADA systems. Specifically, the participants will understand some of the operations that a SCADA system performs behind the process graphic displays. Participants will learn about the various components of the SCADA system, what purpose each serves in the system, and how the various SCADA functions operate as a system.
Iron and Manganese Control Strategies	This course is designed to teach operators various types of iron and manganese removal/control strategies for drinking water. Participants will learn iron and manganese removal technologies and their limitations. The course will specifically focus on iron and manganese sequestration and their advantages and disadvantages.
Managing Water Quality in Distribution Systems	Participants in this course will gain an understanding of the factors that contribute to water quality deterioration within distribution systems. Means of identifying, preventing and dealing with quality problems in distribution will be detailed. A source to tap approach is taken to ensure that the interdependency between treatment and distribution system operations is understood.
Membranes for Drinking Water Treatment	This course will provide the technical background necessary to better operate membrane systems in drinking water treatment. The course will cover membrane classification, performance, flow, fouling and membrane integrity testing (MIT). To illustrate membrane fouling and membrane integrity testing, the course includes computer models specifically developed for training purposes only. This course encompasses strong hands on components to allow the practice of fouling control and membrane integrity testing.
Operation of	This course will provide participants with the opportunity to practice jar

Conventional Treatment Processes	tests experiments and to operate and monitor a conventional treatment system, from the chemical feed setup to backwashing filters. This course is primarily designed as hands-on; therefore theoretical knowledge of coagulation, flocculation settling and filtration will not be the focus. However the instructor will provide clarifications as appropriate.
Operation of Small Drinking Water Systems	The objective of this course is to provide trained persons with the background knowledge and skills required to operate and maintain these systems efficiently and effectively.
Performing Inspections and Maintenance of Fire Hydrants	This course combines classroom and hands-on training, and is designed to provide participants with the knowledge required to locate, maintain and operate fire hydrants. Basic theory of wet and dry barrel fire hydrants, day-to-day applications, regulations, maintenance records, inspections, flushing techniques and assembly/disassembly will all be discussed.
Performing Service Taps on Watermains	This course is designed to provide participants with best practices that operators should follow in order to safely tap into a potable water distribution main. Areas of study include tapping techniques for cast iron, ductile iron and PVC watermains using various service tapping machines.
Practical Training for Small Drinking Water System Owners and Operators	This course provides owners and operators with a realistic and practical approach to deal with issues related to source, treatment and operation of small drinking water systems. Participants will gain an understanding of basic maintenance procedures for treatment equipment commonly used in small systems.
Practice of Rapid Filtration	The objective of this course is to upgrade the participant's understanding of the filtration process. This will be conducted by explaining, demonstrating and practicing filtration using the dual train pilot plant, located at the WCWC Technology Demonstration facility. This course includes basic filtration concepts, followed by 4 hands-on filtration sessions.
Practice of Water Analysis and Interpretation	This course will provide participants with the opportunity to measure, analyze and interpret general drinking water quality parameters from different sources of water. The significance of each drinking water quality parameter will also be discussed
Practice of Water Chlorination	This course will provide participants with the opportunity to practice the analysis of free and total chlorine residuals, UV absorbance, and ammonia in water samples; and to determine the chlorine demand and breakpoint which are useful in water practice. The course will cover a basic review of chlorination principles in drinking water followed by laboratory analysis and data interpretation using a variety of water sources.
Removal and Inactivation of Pathogens in Drinking Water Systems	Participants in this course for water operations staff will learn how to use the science and engineering needed to know when any water system is being operated safely. The course focuses on harmful microbes that may be in or get into water and explains how to ensure they are either removed or made harmless to consumers.
Risk Assessment and Decision Analysis	This course will provide participants with an in-depth understanding of the principles, concepts and methodology of risk assessment associated with drinking water. Participants will examine the

	methodology of risk assessment, critical control points and monitoring, control and response measures and emergency management.
Risk Assessment and Emergency Preparedness	This course explains Elements 7, 8 and 18: Risk Assessment, Risk Assessment Outcomes and Emergency Management of the Ministry of the Environment's Drinking Water Quality Management Standard (DWQMS) Guidance Document. Terms such as Hazard, Hazardous Event, Control and Critical Control Point, Measure and Limit are defined. The course introduces the 4 components of risk: hazard, likelihood, consequence and detectability. Participants are instructed on how to perform a step-by-step risk assessment for a water system and how to prepare a risk assessment table.
Safe Drinking Water Act and Related Regulations	The course outlines the main components of the Safe Drinking Water Act (SDWA) and its associated regulations. It highlights items that have been proclaimed in the SDWA and its significance. The course also explains obligations of owner/operators of municipal and non-municipal systems as stipulated in the drinking water regulations. Flowcharts and other schematics are used to illustrate the regulatory requirements.
Safe Drinking Water: Lessons from Outbreaks	This workshop has been developed to provide water professionals with a comprehensive review of several waterborne disease outbreaks that have occurred in Canada and the United States over the past few decades. The focus is on what we have learned from these disasters and how to avoid making the same mistakes in the future. Experience has demonstrated that tragic loss of life due to waterborne disease is a real threat to drinking water production and this seminar is intended to provide information on preventing such outbreaks.
Slow Sand Filtration	Participants will learn about slow sand filtration technology in general and the basic mechanisms of treatment. Typical operation and design parameters of traditional slow sand filters will be discussed. Lab activities will give participants a good understanding of the construction of a typical upflow roughing filter as well as ozone safety procedures, general operation of ozone generators and measurement of ozone residual. A multistage slow sand filtration will be observed. Participants will also learn about related regulatory requirements.
Standard of Care – Safe Drinking Water Act	This course is designed to inform municipal councilors and officials of their oversight responsibilities under Section 19 of the Safe Drinking Water Act. Several examples of waterborne disease outbreaks are examined which highlight the importance of competent oversight. The course describes some general information about drinking water systems, the multi-barrier approach to drinking water treatment and some of the risks associated with drinking water production and distribution.
Treatability Studies and Jar Testing	This course will enable participants to understand and apply concepts of course material in the day-to-day operation of their facility. Participants will gain an understanding of the interaction of various unit processes and the potential effects of making process changes.
Ultraviolet Light Treatment of Drinking Water	This course covers all aspects of UV light treatment of drinking water including theory, design, operations, maintenance and validation of UV systems. Applications such as protozoa inactivation and advanced oxidation are discussed. Participants will learn about the components of UV disinfection technologies and the advantages and disadvantages

	of using UV as a disinfectant.
Under Pressure: Working With Pressurized Water/Wastewater Equipment	This course will provide participants with an opportunity to review the legislation, regulations and supporting documents available when working with pressurized systems. Participants will also be provided with a thorough understanding of the potential hazards of various pressurized equipment used on a regular basis at water and wastewater facilities. A variety of interactive activities allows participants to conduct hazard analysis on pressurized equipment and to use procedures/rules to ensure a safe environment.
Water Conservation	This course introduces participants to concepts related to the components of the water cycle and potential impacts of water conservation. Water conservation terminology is covered along with key provincial regulations. Participants will use proven steps to develop, implement and monitor a water conservation program and apply proven techniques to involve the public.
Water Quality Analyst	This course will provide participants with an overview of the role of a Water Quality Analyst from understanding regulatory requirements and basic chemistry and microbiology principles to working with basic formulas and calculations.
Water Quality Sampling and Monitoring	This course will provide participants with an understanding of the basic principles of drinking water sampling and monitoring, including the principles of sampling, sample types and locations, storage and handling, chain of custody and QA/QC principles.
Water Treatment Operations	This course gives participants a basic understanding of regulations related to drinking water treatment in Ontario and includes a review of specific regulations, physical/chemical/microbiological parameters, sampling and testing requirements, authority notification, operator training requirements, operator duties, etc. Basic chemistry concepts are introduced along with microbiological principles pertaining to water treatment. The course also covers sources of water (surface versus groundwater quality), sampling and analysis basics, and various water treatment processes (description, control parameters, trouble-shooting, etc.).
Water Valve Operation and Maintenance	This course prepares water system operators, both novice and experienced, to correctly operate a variety of valves common to typical water systems. Participants will receive instruction on various types of valves, commonly encountered valve operational deficiencies, corrosion processes that affect valve condition, and common causes of water valve failure.