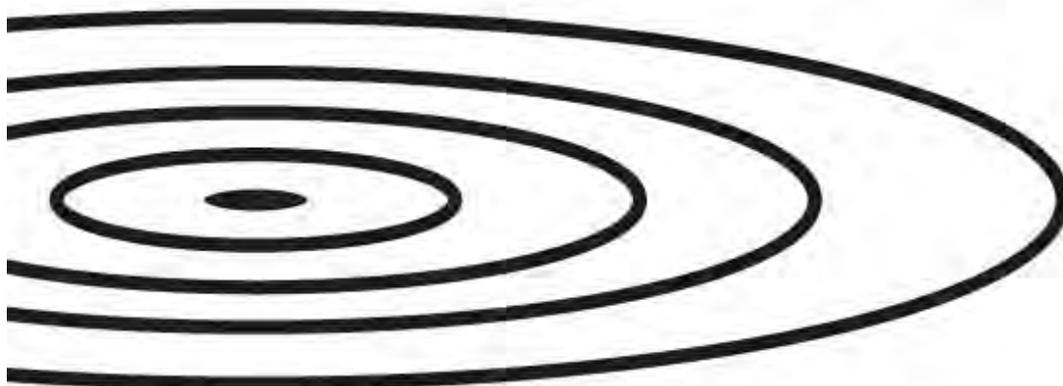


Up to the Certification Challenge

A Study of Education Initiatives to Support CUPE Members



Literacy Program
CUPE Education
September 2005



Researcher and Writer Lynette Plett, member of CUPE Local 3907, Ontario
Institute for Studies in Education, of the University of
Toronto

Editor Bozica Costigliola

Project Coordinator Irene Jansen, Canadian Union of Public Employees

Funding National Literacy Secretariat (Human Resources and
Skills Development Canada) and the Canadian Union of
Public Employees

We wish to thank the many individuals who participated in interviews for this report. They are listed in Appendix B. We also wish to thank everyone who reviewed the drafts of this report.

Table of Contents

- **1 INTRODUCTION**.....5
 - 1.1 EXECUTIVE SUMMARY.....5
 - 1.2 BACKGROUND8
 - 1.3 METHODOLOGY8
 - 1.4 LABOUR LITERACY PRINCIPLES.....9
- **2 THE WATER AND WASTEWATER SECTOR**.....11
 - 2.1 STANDARDS.....11
 - 2.2 FACILITIES.....12
 - 2.3 OPERATORS12
 - 2.4 CERTIFICATION REGULATIONS13
 - 2.5 THE CERTIFICATION EXAM15
 - 2.5.1 *Education Requirements*.....16
 - 2.5.2 *Experience Requirements*16
 - 2.6 TRAINING AND CONTINUING EDUCATION17
 - 2.7 CERTIFICATION RENEWAL.....19
- **3 ADVOCACY – CUPE'S RESPONSE TO WATER AND WASTEWATER OPERATOR REGULATIONS**.....21
 - 3.1 PUBLIC OWNERSHIP AND OPERATION OF WATER AND WASTEWATER SERVICES..21
 - 3.2 HIGH QUALITY AND ACCESSIBLE TRAINING23
 - 3.3 RECOGNITION OF WORK EXPERIENCE.....25
 - 3.4 JOB SECURITY AND ADVANCEMENT26
 - 3.5 CANADIAN STANDARDS AND EXAM.....27
 - 3.6 SUMMARY28
- **4 EDUCATION – CUPE'S RESPONSE TO WATER AND WASTEWATER OPERATOR REGULATIONS – CASE STUDIES**28
 - 4.1 CUPE LOCAL 734 AND THE TOWN OF TRURO, WORKPLACE EDUCATION PROGRAM29
 - 4.2 MATH FOR WATER AND WASTEWATER WORKER CERTIFICATION, CUPE LOCALS 830 AND 501, AND THE CITY OF CHARLOTTETOWN.....32
 - 4.3 RETURN TO LEARN: A PILOT WORKPLACE ESSENTIAL SKILLS TRAINING PROGRAM, CUPE LOCAL 21 AND THE CITY OF REGINA.....36
 - 4.4 CUPE LOCAL 500 (WATER AND WASTE UNIT) AND THE CITY OF WINNIPEG40
 - 4.5 THE SASKATCHEWAN WATER AND WASTEWATER ESSENTIAL SKILLS PROJECT...44
- **5 DISCUSSION AND RECOMMENDATIONS**.....53
 - 5.1 RECOMMENDATIONS TO CUPE63
- **APPENDIX**.....66
 - A: GLOSSARY.....66
 - B: KEY PEOPLE INTERVIEWED69
 - C: QUESTIONS GUIDING INTERVIEWS70

D: PRINCIPLES FOR LITERACY PRACTICE IN LABOUR ORGANIZATIONS	71
E: PROVINCIAL EDUCATION AND EXPERIENCE REQUIREMENTS FOR WRITING WATER AND WASTEWATER CERTIFICATION EXAMS	72
F: PROVINCIAL DEFINITION OF TERMS	79
G: NUMBER OF WATER AND WASTEWATER OPERATORS BY PROVINCE	82
H: THE WALKERTON AND NORTH BATTLEFORD PUBLIC INQUIRIES.....	84
I: RESOURCES.....	88
• REFERENCES.....	91
• ABOUT THE RESEARCHER	94

1 Introduction

1.1 Executive Summary

The Canadian Union of Public Employees (CUPE) sponsored this study to examine how basic skills programs can support water and wastewater workers to qualify for their operator certificate. The study also looked at other ways the union could support water and wastewater workers and other CUPE members facing demands for certification or licensing.

The water and wastewater sector is undergoing major changes, including increasing regulation of facilities and workers. Because of public concern for water safety and problems brought to light by the Walkerton and North Battleford water inquiries, provinces are bringing in mandatory certification of facilities and operators. (Operators are the workers responsible for the day-to-day operation, repair and maintenance of water and wastewater facilities.) The mandatory certification requirements affect thousands of workers across Canada.

Other sectors are also facing certification and licensing demands. More and more, employers are insisting that workers obtain certificates and licenses even in sectors where these are not legally required. For example, educational assistants, child and youth workers, nursing aides, custodians and social service workers are among the groups of workers increasingly required to meet such demands.

The study recommends that CUPE should:

1. Lobby governments and employers to strengthen and improve certification systems and processes.
2. Strengthen and coordinate its efforts to support water and wastewater workers as well as other members who face mandatory certification.
3. Undertake a needs assessment of other sectors facing mandatory certification. With this information, CUPE should develop a strategy to make certification a shared responsibility between individual workers, their union, employers and governments. Right now, most of the responsibility is on individual workers.

Focus of the Study

The study reviews provincial regulations for the water and wastewater sector and approaches to training and certification in six key provinces: Nova Scotia, Saskatchewan, Manitoba, British Columbia, Ontario and Prince Edward Island. In addition, the study examines the experience of five CUPE initiatives to help workers

prepare for certification exams through basic skills education: Local 734 in Truro, Nova Scotia; Locals 830 and 501 in Charlottetown, Prince Edward Island; Local 21 in Regina, Saskatchewan; Local 500 in Winnipeg, Manitoba; and Saskatchewan Water and Wastewater Essential Skills Project.

Six Key Themes

Six key themes emerged from the five case studies and research into provincial certification systems:

1. Workplace Literacy Programs – Needs Assessments and Curriculum
2. Program Planning and Coordination – Union Role and Partnership Models
3. Training Issues
4. Certification Exams and Standards
5. Financing of Workplace Literacy and Certification Programs
6. Job Security and Advancement

1. Workplace Literacy Programs – Needs Assessments and Curriculum

The five case studies confirm that operators want to upgrade their basic skills, and offer models and strategies for meeting and assessing these workers' education needs. For example, organizational needs assessments (ONA) are particularly helpful for developing courses that address the broader needs of the membership, beyond immediate demands such as certification rules. As well, emergent curriculum—where course content “emerges” from the interests of the workers as the program progresses—is appealing to workers in many sectors.

2. Program Planning and Coordination – Union Role and Partnership Models

The study concludes that the union must be active in all aspects of programs: planning, coordination, design, delivery and evaluation. Programs must also draw on the knowledge and experience of CUPE researchers, servicing representatives, educators and activists. Joint employer-union committees must be real partnerships in order to work. This means the union must be in a position to make decisions, not just recommendations.

CUPE offers a series of workshops to train activists to design and coordinate worker-centred programs. CUPE locals and divisions should take part in these union workshops before embarking on a workplace education project.

3. Training Issues

Well-designed literacy programs to help operators get certified or re-certify are only part of the solution. The training system itself needs to change. The study suggests the need for more research on training in certification courses and continuing education. This research should focus on issues such as: the type of training provided; costs and who pays; gaps in training and how to address them; and ways to serve the interests of employers, workers and the public.

4. Certification Exams and Standards

Changes needed in this area include:

- Exams that use a national standard, Canadian content and clear language.
- Credit for work experience as an alternative or supplement to exams and formal education requirements.
- Different ways to take exams—such as orally and through one-on-one assessments. Employers and governments should pay the costs for these different options.

5. Financing of Workplace Literacy and Certification Programs

Individual workers should not have to pay the costs of mandatory certification, including the time they need to prepare for exams. Bargaining a joint training fund and lobbying for paid training are two strategies for making changes in this area.

6. Job Security and Advancement

Many workers studying for certification exams are concerned about job security and opportunities for advancement. These concerns add to the already high anxiety of preparing for the exams. These issues highlight the union's responsibility to help workers with rising job qualification demands:

- At the provincial and local levels, CUPE has demanded employment and income protection for operators who fail certification exams. A worker who fails a certification exam and is transferred to another job should not lose pay.
- CUPE has also called for a clear process to implement certification. Certification should not limit access to promotions and allow employers to favour some workers over others.

1.2 Background

Water and wastewater regulatory systems across Canada are undergoing profound change. Increasing regulation of the facilities and the workers in those facilities is one aspect of that change. Prompted by public concern for water safety and problems brought to light by the Walkerton and North Battleford water inquiries, provinces are hastening to introduce mandatory certification of facilities and operators. The Canadian Union of Public Employees (CUPE) is the principal union representing water and wastewater workers in Canada. CUPE has taken a lead role in advocating for high quality publicly-owned and operated systems, including high standards for employee training and certification.

The union is also a champion of literacy, and it recognized the challenges presented by certification and new education standards. CUPE has had a national literacy project in place for five years, and activists have from the beginning raised the issue of certification and literacy. While workers in every sector are facing rising job requirements, mandatory certification in the water and wastewater sector is a high profile issue that affects thousands of workers across the country at the same time. For these reasons, CUPE commissioned this study to:

- Document the status of mandatory certification and the certification process for water and wastewater workers in key provinces.
- Document how CUPE has supported its members to meet the educational requirements for water and wastewater worker certification.
- Recommend to the union ways to support the educational needs of members who face mandatory certification in the water sector and other sectors.

1.3 Methodology

This study was carried out using various qualitative research methods:

- An extensive Internet search about the water and wastewater sector. This search focused on: (1) provincial government regulations for the sector, and (2) the provincial training and certification processes.
- Interviews (in-person, telephone and e-mail) with key people (CUPE members and staff, instructors, project committee members and others) from various locals, programs and projects.¹

¹ See Appendix C for the list of questions that guided the interviews and Appendix A for definitions of terms such as “program” and “project”.

- A review of documents generated by the locals, programs and projects, including: letters, memos, minutes, reports and submissions to government.
- A review of related literature.

1.4 Labour Literacy Principles

CUPE supports workplace education programs that²:

- Enable workers to have more control over their lives and jobs
- Build on what workers already know
- Address the needs of the whole person
- Are developmental
- Reflect the diverse learning styles and needs of adult workers
- Involve workers in decision-making
- Seek to integrate literacy training with other aspects of workplace training
- Are confidential
- Are open to all
- Are accessible

² Resolution 304, National Convention 2001. (See Appendix D for the Canadian Labour Congress principles that inspired this resolution.) Resolution 304 was a composite resolution, bringing together resolutions submitted by seven CUPE Locals, one Provincial Division, and one District Council. The Resolutions Committee recommended concurrence, and the National Executive Board subsequently adopted the resolution.

CUPE also believes that:

Union literacy programs are key to ensuring that all our members can participate fully in union education, as well as face the demand for increased literacy skills at work, at home, and in their community. Literacy and basic skills classes can provide the upgrading these members need, and open the door to union education and/or other education and training.³

One of the objectives of the CUPE National Literacy Project is integrating literacy into all aspects of the union. This objective, along with the foregoing principles of literacy practice in labour organizations, guided the research, discussion and recommendations of this study.

³ CUPE, *On the Front Line: Building Power through Union Education as Adopted at the 2001 National Convention* (Ottawa, 2001), 5.

2 The Water and Wastewater Sector

This section provides an overview of the water and wastewater sector, concentrating on the following provinces: Nova Scotia, Prince Edward Island, Ontario, Manitoba, Saskatchewan and British Columbia.⁴ The overview reviews the situation with respect to standards in the sector, defines facilities and operators, summarizes provincial regulations, and describes provincial training and certification processes.

2.1 Standards

In Canada, water falls under the jurisdiction of provincial and territorial governments. As a result, legislation varies across the country. There are no made-in-Canada standards for the water and wastewater sector. The provinces examined in this study base their operator certification standards on guidelines set by the Association of Boards of Certification (ABC), located in Ames, Iowa.

The environment sector council, Environmental Careers Organization of Canada (ECO), has developed national profiles for water and wastewater occupations. The Water and Wastewater National Occupational Standards (NOS) is a set of 1,600 competency statements that define the knowledge and skills needed for operator jobs. ECO is currently conducting a survey of operators to further define the standards by operator level. ECO anticipates that the NOS will “aid employers, educators, and certifying authorities with a number of critical issues including inter-provincial operator mobility, jurisdictional differences, and limited training options.”⁵ If the NOS were recognized Canada-wide, ECO argues, provinces and territories could jointly develop training programs and tailor exams to Canadian regulations and facilities.⁶

In its NOS, ECO states that the,

...regional fragmentation of water quality regulations has created a sub-optimal situation in Canada ... In terms of human resources, the inconsistency between provinces has created several difficulties, such as limiting the movement of qualified personnel between different provinces and limiting the availability of current training and education options for treatment operators.⁷

⁴ These provinces were chosen because they were either: (a) next to implement mandatory certification, or (b) the site of CUPE programs or projects for water and wastewater workers.

⁵ *National Occupational Standards for Canadian Water and Wastewater Operators* (ECO, formerly the Canadian Council for Human Resources in the Environment Industry, summer 2004), 1; available from http://www.eco.ca/pdf/wastewater_eng.pdf.

⁶ Ibid, 116-117.

⁷ Ibid, 114.

2.2 Facilities

Water and wastewater workplaces are referred to as facilities. These facilities can be privately or publicly owned and they can operate on a for-profit or non-profit basis. There are four types of facilities:

- Water treatment facility – treats potable (drinkable) water.
- Water distribution facility – produces, collects, stores and transmits potable water.
- Wastewater treatment facility – treats and disposes of wastewater (sewage).
- Wastewater collection facility – collects or transmits wastewater.

A single plant may have more than one facility classification. For example, a plant may be both a water treatment facility and a wastewater collection facility.

Each of these facilities is classified into five levels: Small Systems, Class 1, Class 2, Class 3 and Class 4. Treatment facilities are classified based on criteria such as the size of population served, water supply source, filtration and fluoridation.⁸

Distribution and collection facilities are classified based on the size of the population served. The more complex a facility and the greater the population served, the higher the classification.

The facility classification system is somewhat different in Ontario. There are four municipal categories that require certified operators: large municipal residential (serving more than 100 private residences); small municipal residential (serving 100 or fewer private residences); large municipal non-residential (serving large community centres, recreation and sports complexes, etc.); and small municipal non-residential (serving small community centres). These systems are divided into three types of subsystems: water distribution, water distribution and supply, and water treatment. Each subsystem has four classification systems: Classes 1 – 4.⁹

2.3 Operators

Water and wastewater workers are called operators. They are responsible for the day-to-day operation, repair and maintenance of a facility. Facility owners must employ operators certified at or higher than the classification of the facility. For example, a class 1 water distribution facility must employ operators with a class 1 or higher water distribution certification. If a facility has more than one facility classification, operators require a certificate for each one. For example, in a class 3 facility that is

⁸ See provincial legislation for a detailed listing of criteria used for point allocation.

⁹ *Certification Guide for Operators and Water Quality Analysts of Drinking Water Systems* (1 August) (Queen's Printer for Ontario, 2004 [cited 19 February 2005]); available from <http://www.ene.gov.on.ca/envision/gp/4723e.pdf>

both a water distribution and a wastewater collection facility, operators must hold a class 3 or higher certificate in both water distribution and wastewater collection.

It is difficult to obtain accurate information about the number of water and wastewater workers in Canada. According to the 2001 census, there were 5,960 water and waste plant operators employed in Canada.¹⁰ Research from the ECO indicates those census numbers are very low. ABC puts the number of certified operators alone at more than 16,000. This figure does not include Quebec and the territories.¹¹

The Canadian municipalities sector is currently conducting a situational analysis as the first phase of a possible human resources sector study.¹² In the meantime, we do not have reliable statistics on the number of operators, education levels, employment status, unionization rates or other features of the workforce. We do know that the majority of water and wastewater workers are unionized and that CUPE is the largest union in the sector. Most of the unorganized workers are in remote locations, including aboriginal communities.

2.4 Certification Regulations

Provinces and territories are responsible for regulating water and wastewater facilities. Until a decade ago, these jurisdictions relied on a voluntary certification process overseen in most cases by provincial/territorial or regional professional associations. These associations administered certification exams, and provided training and continuing education.

The certification process began to change in the mid-1990s when, beginning with Nova Scotia in 1996, provinces and territories introduced mandatory certification of facilities and operators. The public inquiries into water contamination in Walkerton, Ontario, and North Battleford, Saskatchewan, increased the pressure on governments to make certification mandatory.¹³ *Table 1* shows the year the provinces examined in this study introduced water and wastewater legislation, and the compliance deadlines.

¹⁰ See Appendix G for estimates of the number of water and waste plant operators by province.

¹¹ This information is based on: (a) telephone communication with Sarah MacPherson, project manager, for the ECO National Occupational Standards for Canadian Water and Wastewater Operators project, and (b) the ABC online database of certification programs (www.abccertonline.org).

¹² The study, *Municipalities – A Situational Analysis of the Canadian Municipalities Sector*, is funded by the Sector Studies and Partnership Division of Human Resources and Skills Development Canada (HRSDC). The Canadian Association of Municipal Administrators, CUPE and the Federation of Canadian Municipalities are the key players in this study (see <http://www.icmd-cidm.ca>, select ‘programs-canada’ and scroll down to ‘documents’ section).

¹³ See Appendix H for a summary of inquiry recommendations related to water and wastewater training and certification.

Table 1: Provincial Water and Wastewater Certification Regulations

Province	Year	Name of Legislation / Regulations	Compliance Deadlines for Certification of Operators
NS	1996	Environment Act: Water and Wastewater Facility Regulations	2000
SK	2002	The Environmental Management and Protection Act: The Water Regulations	July 2005: Operators with Direct Responsible Charge
MB	2003	The Environment Act: Water and Wastewater Facility Operators Regulation	September 2006
BC	2003	Drinking Water Protection Act: Drinking Water Protection Regulation	January 2005: Operators in Small Systems, Class 1 and Class 2 facilities January 2006: Level 3 operators
ON	1993	Ontario Water Resources Act	Operators were grandparented. They received an operator's license without having to pass a certification exam.
	2004	Safe Drinking Water Act: Certification of Drinking-Water System Operators and Water Quality Analysts Regulation <i>and</i> Ontario Water Resources Act: Licensing of Sewage Works Operators Regulation	August 2005: Operators in Training May 2005: Grandparented operators with overall responsibility May 2006: all other grandparented operators
PEI	2004	Environment Protection Act: Drinking Water and Wastewater Facility Operating Regulations	December 2004

According to a 2001 study, New Brunswick, the Northwest Territories and Yukon did not have certification requirements for water and wastewater workers.¹⁴ Alberta requires “in charge” operators to have a certificate. Newfoundland and Labrador’s Department of Environment and Conservation offers regular operator training seminars and does not require certification.

Where certification of facilities and operators is mandatory, the process is either administered directly by government or by a third-party agency. In Manitoba, Nova Scotia and Prince Edward Island, the government department responsible for implementing water and wastewater operator certification oversees the certification process. In British Columbia, Saskatchewan and Ontario, a third party administers the certification process.

2.5 The Certification Exam

Provincial regulations require operators to pass certification exams. All of the provinces in this study use the ABC exams. There is an exam for each classification level and each type of facility. The exams have 100 multiple-choice questions and are timed. Exam questions cover: general knowledge, support systems, process/quality control and administration. The number of questions in each category changes with the level of certificate. For example, a Class 4 exam has 25 questions on administration while a Class 1 exam only has five. The ABC web site “Need to Know” section describes in detail what each exam category covers.¹⁵ Operators are given a sheet of key math formulas to use during the exam.

ABC has recently developed Canadian versions of the exams. These versions use the metric system and refer to Canadian regulations and terminology. ABC scores the exams for each province except Ontario. Operators have to get a minimum mark set by the provincial government. The pass mark is 70 per cent in at least several provinces.

- In Saskatchewan, 158 (21 per cent) of the 768 operators who wrote exams between January and March 2004 failed.¹⁶ Earlier data covering July 2000 to March 2004 showed that 1,216 operators (24 per cent) failed certification exams.¹⁷
- In Ontario, 127 of the 1,191 grandparented operators took the exam following the four-day certification course. Twenty-two (17 per cent) failed.¹⁸

¹⁴ Heather Edwards, "Certification Regimes for Water and Wastewater Facility Operators: A Review of Provincial and First Nations Approaches," (Institute of Governance, 2001).

¹⁵ <http://www.abccert.org/needtoknow.html>

¹⁶ Merv Simonot, CUPE representative on the Saskatchewan Certification Board Advisory Committee, March 2005.

¹⁷ Frankel, *Final Report, Water and Wastewater Essential Skills Project*, Appendix: Certification Exam Results, 48.

Ontario offers a one-on-one assessment to grandparented operators who fail the exam twice, and an oral exam to operators with dyslexia or a learning disability. The Ontario Environmental Training Consortium (OETC) has three assessors. An assessor goes to the plant, observes the operator at work, asks questions, and documents the operator's skills and knowledge. The cost is \$1,500. The government and employers may subsidize this cost. Operators with English as a second language or a demonstrated learning disability can take an oral exam. The oral exam is offered only at the Brampton, Ontario, OETC office.¹⁹

In all of the provinces studied, operators have to meet certain education and work experience requirements before writing the exam.²⁰

2.5.1 Education Requirements

For all provinces, the minimum education requirement to write any level of the certification exam is a provincial high school diploma or equivalent. The GED - General Education Development – is an adult education diploma equivalent to Grade 12. Except for Ontario and Prince Edward Island, provinces allow operators to substitute years of related work experience for grade school- and high school-level education. Operators who apply for Class 3 or 4 certification must also meet a combination of post-secondary education and continuing education requirements.

2.5.2 Experience Requirements

Operators are required to have a minimum of one year related work experience for Class 1 certification. Higher levels of certification require more years of work experience. Class 3 and Class 4 certificates require operators to have two years of direct responsible charge (DRC) experience. In most provinces, operators can use post-secondary or continuing education credits to replace years of experience, including a percentage of DRC experience.

In Saskatchewan, for example, operators submit a certification application form to the Operator Certification Board.²¹ Operators have to list their duties and the number of hours per day they perform those duties. They also have to provide proof of education, including a list of water and wastewater courses they've taken. All

¹⁸ Anita Petra, Ontario Environmental Training Consortium, February 2005.

¹⁹ One local union president interviewed for this project said he has put the employer on notice that both parties have a duty to accommodate workers with learning disabilities or other challenges in writing the certification exam. See Appendix A: Glossary for definition of “duty to accommodate”.

²⁰ See Appendix E for the full education and experience requirements for each province.

²¹ The application is available online at:

<http://www.se.gov.sk.ca/environment/protection/water/OCB%20Certification%20Application%20Form.pdf>

applications must be signed by the operator and his supervisor. The supervisor must verify DRC experience.²²

2.6 Training and Continuing Education

Water and wastewater worker training and continuing education are offered by a range of providers in each province.²³ Courses vary between provinces, though some of the providers and reference materials are inter-provincial or international. Many courses are online or correspondence courses and many operators learn on their own with study guides and occupational reference manuals. Among the organizations offering training and continuing education:

- Public and private colleges.
- Professional associations.
- Private instructors.
- Employers.

In Ontario, the government designed a certification preparation program specifically for the 1,392 operators who were grandparented in 2004.²⁴ Ridgetown College of Guelph University coordinates the program. The college offers four weeklong courses: Class 1 and 2 Drinking Water Treatment; Class 3 and 4 Drinking Water Treatment; Class 1 and 2 Drinking Water Distribution; and Class 3 and 4 Drinking Water Distribution. Operators can write the exam on the fifth day of each course. Operators are sent a study manual prior to the course. Classes usually have around 10 participants. *Table 2* lists the organization that administers certification and some of the organizations that provide training and continuing education. This is not an exhaustive list of trainers.

²² See Operator Certification Board brochure “Saskatchewan's Mandatory Water and Wastewater Operator Certification Program” available online at:

<http://www.se.gov.sk.ca/environment/protection/water/OCB%20Brochure%20-%202002.pdf>

²³ Training, as used here, refers to in-depth formal courses taken in preparation for certification. Continuing education refers to ongoing courses and learning activities, either academic or on-the-job, that a worker undertakes to maintain certification or advance to another level.

²⁴ Information on the Ontario program is based on telephone communication with Anita Petra of the Ontario Environmental Training Consortium (OECT) and on *Grandparented Operator Course Information Guide and Application Form* ([cited 28 February 2005]); available from <http://www.oetc.on.ca/pdf/gpinfo guide.pdf>.

Table 2: Certification Program Administrators and Providers of Training and Continuing Education

Province	Administrator of Certification	Providers of Training and Continuing Education
BC	Environmental Operators Certification Program	<ul style="list-style-type: none"> • BC Water and Wastewater Association • California State University (correspondence courses) • Okanagan University College (two-year diploma) • British Columbia Institute of Technology (part-time courses) • Kwantlen University College (two-year diploma)
SK	Operator Certification Board	<ul style="list-style-type: none"> • Saskatchewan Institute of Applied Science and Technology • Saskatchewan Water and Wastewater Association
MB	Manitoba Conservation, Environmental Approvals	<ul style="list-style-type: none"> • Western Canada Water and Wastewater Association (correspondence courses) • Manitoba Water and Wastewater Association • American Water Works Association (on-line courses) • California State University (computer-based courses) • Red River College (certification preparation courses) and Water Wastewater School

ON	Ontario Environmental Training Consortium	<ul style="list-style-type: none"> • Ridgetown College (for grandparented operators) • Independent organizations and trainers • California State University Courses
NS	Nova Scotia Department of Environment and Labour	Atlantic Canada Water and Works Association
PEI	PEI Department of Environment and Energy	Atlantic Canada Water and Works Association

2.7 Certification Renewal

In addition to meeting initial certification requirements, water and wastewater operators in most provinces have to renew their certification on a regular basis. In some provinces, operators are required to participate in continuing education—either academic courses or on-the-job training—between renewal periods. In Ontario, owners have to keep records of on-the-job training for five years. Operators in Ontario and Saskatchewan must keep records of their own studies, called “continuing education units”. Operators are usually responsible for the time and cost of participating in continuing education and certification renewal. *Table 3* shows the provincial process for certificate renewal.

Table 3: Operator Certificate Renewal: Provincial Continuing Education Requirements

	Renewal Period	Continuing Education Requirements	Cost
BC	Annual	None	Set annually through payment of annual dues (\$40)
SK	2 years	0.5 continuing education units (CEUs) annually	\$130
MB	5 years	None	\$75
ON	3 years	Wastewater Operator: 40 hours of training annually, arranged by owner of facility	\$75
	3 years	Drinking Water Operator: 20 hours annually (for operators employed in Limited Systems) to 50 hours annually (for operators employed in Class 4 facilities) of continuing education (academic type courses) or on-the-job training (provided in the workplace)	\$115
NS	None		
PEI	4 years	Over four years: <ul style="list-style-type: none"> • 2.4 CEUs (Class 1 or 2) • 4.8 CEUs (Class 3 or 4) 	\$20

3 Advocacy – CUPE's Response to Water and Wastewater Operator Regulations

CUPE has been a leading advocate of water and wastewater workers' concerns. This advocacy takes many forms: submissions to inquiries, consultation on draft regulations, letters and meetings with government, and representation on provincial boards and committees. Water and wastewater workers' issues differ from one province to another, but there are some common themes. This section describes some of those themes: public ownership and operation, high quality and accessible training, recognition of work experience, job security and advancement, and national standards.

3.1 Public Ownership and Operation of Water and Wastewater Services

CUPE members have led the fight against privatization in public sector workplaces across the country. As in other sectors, municipal locals have stood alongside citizen groups, demanding proper funding and high standards. In the process of public inquiries, sector restructuring and now, mandatory certification, CUPE has opposed privatization and contracting-out of water and wastewater services.²⁵

CUPE's national policy statement on water and wastewater systems identifies public ownership and operation as "essential to safeguarding the public's interests".²⁶ Stopping the expansion of trade agreements and fighting current trade rules that facilitate privatization is part of the CUPE strategy, as is a model of democratic governance. As the policy states:

CUPE will continue to fight against the operation, financing and ownership of the public water and wastewater sector by the private sector... Public water systems must be owned by the people and operated in their interest. Public water utilities also must be managed in a way that respects the rights of the water workers who operate them and promotes the interests of the citizens who depend on them.

CUPE's submission to the Walkerton Inquiry was an analysis of who should own and operate water and wastewater systems in Ontario.²⁷ The analysis was based on five

²⁵ *Water Services in Ontario: For the Public, by the Public* [A Submission to Phase 2 of the Walkerton Inquiry] (The Canadian Environmental Law Association (CELA), The Canadian Union of Public Employees, The Ontario Public Service Employees Union, 22 June 2001 [cited 5 March 2005]); available from the CELA website, see: <http://62.44.8.131/publications/cardfile.shtml?x=1052>.

²⁶ CUPE National, "CUPE's Plan to Strengthen Canada's Public Water and Wastewater Systems" (May 2004), 3.

²⁷ Ibid (cited).

factors: security of supply, quality, environmental protection, public accountability and involvement, and full and fair pricing of water. The research showed that “public ownership of water and wastewater services is the best way to provide an adequate supply of safe, affordable water to the people of Ontario.”²⁸ The report recommended that water systems should remain in public hands.

CUPE Local 287’s submission to the North Battleford Water Inquiry also championed public ownership and management. It expressed concern that “privatization of all or some of the aspects of these plants may be considered by the City of North Battleford at some time in the future.”²⁹ The submission stated that it would be “contrary to the public interest for any municipality to surrender its water and wastewater treatment facilities to the private sector.”³⁰

Mandatory certification presents its own privatization risks, and CUPE is vigilant here too. For example, Prince Edward Island’s certification rules may open the door to contracted-out management. The regulations do not clearly define “direct responsible charge” (DRC) or specify whether the DRC employee has to be on site. CUPE is concerned that private contractors could be deemed DRC, without even operating in the province. Since the regulations seem to restrict CUPE members from gaining DRC qualifications, the public infrastructure is threatened. CUPE has raised these concerns with the provincial government and is waiting for its response.

The manipulation of certification rules by employers bent on privatization is also a concern in Saskatchewan. Employers have been lobbying for a “career path” model where managers submit reports of certifiable hours for each employee, effectively controlling who gets certified. Some employers have also been hiring more contractors for repair work in distribution and collection. If employers succeed in limiting certifiable hours to a select group, they can argue a shortage of qualified staff and contract out more work.

Training is another foot in the door for private companies. Many governments and employers contract out training to private colleges and freelance instructors rather than supporting the public education system. In this decentralized environment, private facility owners use training as an incentive to get municipalities to contract out services. Alberta’s EPCOR, for example, argues that it has the expertise and

²⁸ “Submission to the Government of Ontario on Bill 175 Ontario Sustainable Water and Sewage Systems Act 2002 and Bill 195 Safe Drinking Water Act 2002,” (CUPE Research, 2002), 2.

²⁹ “Canadian Union of Public Employees, Local 287, Submission to the North Battleford Water Inquiry (9 January 2002).

³⁰ Ibid.

economy of scale to train water and wastewater workers.³¹ This can be a significant enticement as the pressure of fast-approaching certification deadlines mounts.

In a 2003 issue of *Our Times*, four CUPE water and wastewater workers discuss public water works and concerns about privatization.³² Phil Miller, a wastewater worker in Local 47 at the City of Saskatoon, states: “Everybody, including the poor, should have access to good, clean, safe drinking water.” Frank Morrissey, a Toronto water treatment worker from Local 416, explains that “with privatization, you get no transparency; no accountability.” Danny Cavanagh, from Local 734, works in the Town of Truro’s water distribution department, and concludes that “the private sector just can’t compete with the work we do.” Blaine Parkman, utility foreman with the City of Charlottetown, Local 830, agrees: “What we’ve got is working. We’re providing a better service, with public dollars, than what the residents would get from a private owner.”

3.2 High Quality and Accessible Training

In all of the regions examined in this study, CUPE has advocated for high quality training that operators can access without financial and other barriers. Nowhere has CUPE opposed mandatory certification.

In Ontario, CUPE submitted a brief on the Safe Drinking Water Act, Bill 195. Regarding the mandatory certification of previously grandfathered operators, CUPE stated it was “in favour of ensuring that all operators in the system are well qualified and properly trained to carry out their roles in delivering such a critical public service.”³³ However, the brief continues, “operators must not pay the price for former mismanagement or inadequate training by their employers.”³⁴ The brief recommends that the provincial government or employers should cover the operators’ time and cost for re-training and certification.³⁵

As new water and wastewater regulations come into force in Ontario, CUPE has continued to lobby for paid training and certification. The union recognizes the government’s initiative in developing the certification training and options such as the oral exam and one-on-one assessment, but it objects to the cost shift from employers to workers. Previously, the employer had to pay for all course and conference costs,

³¹ This information is based on communication with Brenda Wall, CUPE National Research Officer, 2004. Edmonton-based EPCOR, whose employees are CUPE members, is a public non-profit corporation that manages water and wastewater operations in a number of Alberta and British Columbia municipalities.

³² Phil Miller et al., *Public Water Works: A Workers' Roundtable on Privatization* [magazine] (*Our Times: Canada's Independent Labour Magazine*, 2003 [cited May / June 2004]); available from http://www.ourtimes.ca/features/03_may_june.html

³³ “Submission to the Government of Ontario on Bill 175 Ontario Sustainable Water and Sewage Systems Act 2002 and Bill 195 Safe Drinking Water Act 2002,” 7.

³⁴ Ibid.

³⁵ Ibid, 8.

including time to attend. The current act does not specify who pays for training. The rising cost of certificate renewal is another concern that CUPE has brought to employers and government.

CUPE operators in British Columbia have also been disappointed by government training policy. In 2002, CUPE surveyed municipal locals on water and wastewater regulation issues.³⁶ The locals that responded to the survey were unanimous in their support for mandatory certification of water and wastewater workers, but raised questions about access to education. Based on this feedback, CUPE BC's president wrote a letter to the government stating CUPE's support for the new regulations, *provided that money is targeted to train workers with literacy difficulties*. However, when the regulations were enacted, no money was allotted for training. CUPE BC's Environment Committee continues to pressure the provincial government to "provide the resources necessary to ensure adequate training...of water workers, particularly long time workers who have the required knowledge and skills, but experience difficulty in passing certification exams."³⁷

In Saskatchewan, CUPE Local 287 of the City of North Battleford also endorsed mandatory certification of water and wastewater workers and demanded paid education. In its submission to the North Battleford Water Inquiry, Local 287 states:

The Canadian Union of Public Employees supports the concept of mandatory certification of personnel who are employed in the area of water and/or wastewater treatment facilities ... it is necessary to have a method of ensuring that a standard level of skill, training and ability is met in order to perform job duties with an adequate measure of care, responsibility and protection.³⁸

In its submission, Local 287 described a workplace where training and continuing education opportunities were few:

In the past, operators have not been encouraged to attend conferences or conventions of their peers, much less attend training and development seminars.³⁹

³⁶ This information is based on telephone communication with Kathy Corrigan, CUPE Research Representative, BC Regional Office.

³⁷ CUPE BC Environment Committee, *Report to Convention*, 2004. Available online at: www.cupe.bc.ca/1852

³⁸ Canadian Union of Public Employees, *Local 287 Submission to the North Battleford Water Inquiry* (9 January 2002), 17.

³⁹ Barristers and Solicitors Mitchell Law Firm, *The North Battleford Water Inquiry: Written Submission Made on Behalf of the Canadian Union of Public Employees, Local 287* (2202 [cited 2004]). Available at: <http://www.northbattlefordwaterinquiry.ca/pdf/finalsubmission-CUPE.pdf>

To improve the situation, Local 287 recommended that the City of North Battleford develop long-term training plans for each employee and pay for 40 hours a year of on-the-job training. It also called on the government to review the certification training program and develop a core curriculum that would be available at a reasonable cost.

CUPE Saskatchewan has raised these issues at the provincial level. At a CUPE Saskatchewan conference in 2001, the Municipal Workers Steering Committee struck a sub-committee of water and wastewater operators from across the province. With their input, the union lobbied the provincial government and last year gained a seat on the Operator Certification Review Board committee overseeing implementation of the new regulations. As Chair of the CUPE Water and Wastewater Committee and CUPE representative on the government's Certification Advisory Committee, CUPE Local 47 President and operator, Merv Simonot, has been urging government, employers and educators to make training and continuing education available to operators.

CUPE Locals in Prince Edward Island are also demanding paid education for operators. In PEI, Level 1 and 2 operators are required to complete 2.4 continuing education units (CEUs) between certification periods (every four years). Level 3 and 4 operators must complete 4.8 CEUs. In a letter to the Prince Edward Island Minister of Energy, Environment and Forestry, CUPE recommends that the regulations clearly state "that the Employer must provide time off and training with pay and benefits to allow employees to obtain their CEUs..."⁴⁰ The government has so far been unresponsive.

CUPE National has made operator training and certification a key component of its plan to strengthen public water systems. It has called on water utilities to invest in the training and certification of all workers:

CUPE will advocate better training of water workers and will insist that training expenses be paid by the employer. Decisions about training must be made jointly by the employer and union. Workers should not be required to undergo testing without adequate training and preparation. All expenses related to testing and licensing, including fees, should be paid for by the employer.⁴¹

3.3 Recognition of Work Experience

CUPE has been fighting hard to protect members who lack formal credentials but have solid experience as operators. In addition to training, CUPE has sought certification exam alternatives such as Prior Learning Assessment and Recognition, and substitution of work experience for academic pre-requisites.⁴² In Prince Edward

⁴⁰ CUPE Servicing Representative Bill McKinnon letter to Minister Jim Young, 25 November 2004.

⁴¹ CUPE National, *CUPE's Plan to Strengthen Canada's Public Water and Wastewater Systems* (May 2004), 5.

⁴² Prior Learning Assessment and Recognition (PLAR) is a process of identifying, assessing and recognizing what a person knows and can do. PLAR allows workers to demonstrate and get credit for learning that took place outside of formal educational institutions; for example, through work, training or self-study.

Island, CUPE is protesting the rule that operators cannot substitute work experience for grade school or high school education. Many competent operators with years of experience do not have the formal education credentials and are blocked from writing the exam. CUPE has proposed that work experience be allowed to replace Grade 12 or GED, at minimum for Level 1 and 2 certificates.

CUPE Local 287 in North Battleford was also concerned that certification processes failed to recognize the experience of long-term employees. The local argued that while these employees might lack formal training, their years of on-the-job training made them expert operators. Local 287 recommended that Prior Learning Assessment and Recognition be used to assess and recognize the skills and abilities of existing operators. Instead of relying only on the exam, this form of assessment could include demonstrations, simulations, interviews and oral exams.

3.4 Job Security and Advancement

The union is also negotiating job and income protection for members who do not achieve certification. Locals are negotiating to make sure that no water and wastewater worker suffers loss of pay or employment because of mandatory certification. In Ontario as elsewhere, CUPE is demanding that “employers must offer suitable redeployment and income protection, or bridging to pension”⁴³ for grandparented operators who do not succeed in becoming certified. In a lateral transfer, these operators should be able to move to garbage collection, snow removal or a number of other municipal jobs. If the pay rate of the new job is lower, the workers should be paid their former rate.

Access to promotions is another right the union has asserted. In all provinces, operators must have direct responsible charge (DRC) experience for Level 3 and 4 certificates. (See Appendix F for definitions of DRC in each province.) Some employers are using this rule to control access to higher-level positions. Prince Edward Island’s regulations do not clearly define “operating experience” as distinct from DRC. It seems that operators will be unable to attain DRC experience unless they had it when the regulations came into effect. Therefore, an operator might be unable to move from a Class 2 to a Class 3 certificate, or from a Class 3 to a Class 4 certificate. In Saskatchewan, the regulations define DRC but give employers significant discretion in allocating the hours. Some managers claim DRC hours even if CUPE members do the hands-on work. If workers are not assigned DRC hours, they cannot meet the requirements for Class 3 and Class 4 certificates.

Research on PLAR prepared for the Canadian Labour Congress by the research network for New Approaches to Lifelong Learning (NALL) at the Ontario Institute for Studies in Education/University of Toronto, is available online at: http://fcis.oise.utoronto.ca/~plar/values/labour_movement.html.

⁴³ *Submission to the Government of Ontario on Bill 175 Ontario Sustainable Water and Sewage Systems Act 2002 and Bill 195 Safe Drinking Water Act 2002*, 8.

3.5 Canadian Standards and Exam

CUPE advocates Canadian content, clear language and national standards for certification training and testing. Resolution No. 281, adopted by the 2001 CUPE National Convention, called for Red Seal certification for water treatment, water distribution, sewer collection and sewage treatment workers across Canada. Red Seal certification allows qualified tradespersons to practise a trade in any province or territory in Canada where the trade is designated, without having to write further examinations.⁴⁴ Three years after the resolution was passed, CUPE's plan for revitalizing public water systems decried the patchwork of provincial regulations and called on the federal and provincial/territorial governments to "develop uniform training, testing and certification programs for all water and wastewater operators."⁴⁵

Danny Cavanagh, President of CUPE Local 734 in the Town of Truro, feels strongly that made-in-Canada standards are needed:

We desperately need to come up with a standardized Canadian exam, with terminology that is used in every province. And if a worker is certified in Nova Scotia, it should be recognized in B.C. or Ontario or New Brunswick, or whatever province the worker happens to be in.⁴⁶

Cavanagh's concerns are shared by Serge Hurtubise, President of the Water and Waste Unit of CUPE Local 500 in Winnipeg, and Merv Simonot. All have called for inter-provincial recognition of water and wastewater credentials and for exams based on the Canadian context.

The call for national standards and exams is also coming from the environment sector council, ECO. Canadian certification authorities' reliance on ABC exams is, in the council's words, a "sub-optimal situation: an exam designed for distribution throughout North America is not equipped to address certain issues that are exclusive to Canadian facilities."⁴⁷ ECO hopes its National Occupational Standards will lead to a made-in-Canada benchmark for exams and training.

Literacy barriers in the certification exam are another concern expressed by workers. Merv Simonot has urged the Association of Boards of Certification to undertake a clear language review of its exams. Several members have complained to him about the complicated language and format of the exam:

⁴⁴ For more information on Red Seal, see: <http://www.red-seal.ca> .

⁴⁵ CUPE National, *CUPE's Plan to Strengthen Canada's Public Water and Wastewater Systems* (May 2004), 6.

⁴⁶ Miller, Phil, Blaine Parkman, Frank Morrissey, and Danny Cavanagh. "Public Water Works." *Our Times* (2003). Available online at: http://www.ourtimes.ca/features/03_may_june.html

⁴⁷ *National Occupational Standards for Canadian Water and Wastewater Operators* (ECO, formerly the Canadian Council for Human Resources in the Environment Industry), summer 2004, 117.

The exams are full of word puzzles. Operators tell me they can't get through the questions let alone give answers, the way they're worded.⁴⁸

3.6 Summary

CUPE has long advocated for the public interest in water and wastewater services. The union has insisted on public ownership and operation of facilities, high quality and accessible training, recognition of work experience, income and job security for operators, and certification exams that support inter-provincial mobility and use clear language and Canadian content. CUPE has consistently upheld these goals—in public inquiries, on certification boards, at the bargaining table and in ongoing lobbying.

In addition to lobbying and negotiating on these issues, CUPE has directly supported water and wastewater workers through education initiatives. Recognizing the literacy barriers faced by many members, particularly long-time operators who have been out of school for years, CUPE locals have sought education programs to help members pass the certification exams. The next section will examine some of those initiatives.

4 Education – CUPE's Response to Water and Wastewater Operator Regulations – Case Studies

This section looks at five workplace education and literacy initiatives to support CUPE members facing certification.

- Local 734 in Truro, Nova Scotia.
- Locals 830 and 501 in Charlottetown, Prince Edward Island.
- Local 21 in Regina, Saskatchewan.
- Local 500 in Winnipeg, Manitoba.
- Saskatchewan Water and Wastewater Essential Skills Project.

In each project, CUPE worked with other groups interested in worker education (management, provincial governments, educational institutions and professional associations). However, these case studies focus on CUPE's role and the perspective of members and staff involved in these projects.

⁴⁸ Telephone communication with Merv Simonot, March 2005.

Methodology

Information was gathered from key people through in-person and telephone interviews, and e-mail correspondence.⁴⁹ Final reports from programs and projects were examined where available.

The descriptions of these case studies vary in length. It was possible to get more detailed information about the programs that were more recent.

Each case study looks at:

- Context.
- Timeline.
- Goals.
- Sponsors and Funders.
- CUPE Role.
- Program Promotion.
- Participants.
- Needs Assessments.
- Delivery Model (includes coordination, location, length of program, facilitation, courses offered and curriculum material).
- Results Recommendations.

4.1 CUPE Local 734 and the Town of Truro, Workplace Education Program

Context

Certification of water and wastewater workers and facilities in Nova Scotia was phased in beginning around 1996.⁵⁰ Both workers and employers were given time to comply with the new regulations. This phase-in period ended in 2000. The Nova Scotia regulations required that operators have a Grade 12 high school diploma or

⁴⁹ See Appendices B and C for a list of key people interviewed and the questions guiding the interviews.

⁵⁰ The province of Nova Scotia's "*Water and Wastewater Facility Regulations*" are available online at <http://www.gov.ns.ca/just/regulations/REGS/envwaste.htm>

GED before writing any level of certification exam.⁵¹ Work experience could be substituted for education.⁵²

In the mid-1990s in the Town of Truro, other changes in the workplace were also affecting the members of CUPE Local 734. The employer was building a new fully automated water treatment facility and sewer lift stations were becoming more complicated for members to operate because of computerization. It was these technological changes that prompted Danny Cavanagh, President of CUPE Local 734, to initiate a workplace education program for water and wastewater workers..

When mandatory certification was introduced, the town insisted that all workers be trained and certified without any grandparenting.⁵³ The union agreed with the employer because it wanted the members to have the necessary skills and to become involved in further education.

Timeline

The workplace education program ran from 1996 to 2003.

Goal

The initial goal of the program was to prepare members for the technological change. The focus soon changed to help members write the certification exam. This included obtaining a GED, as well as math and communication courses.

Sponsors and Funders

The program was a partnership between CUPE Local 734, the Town of Truro and Workplace Education Nova Scotia. Workplace Education paid for the instructor and the needs assessment and provided assistance in the development and implementation of the program.

CUPE Role

The union initiated the program: Local president, Danny Cavanagh, contacted Workplace Education Nova Scotia about starting a program for his members.

The union was very active in all aspects of the project: it was represented on the project team, helped with curriculum development, promoted the program and participated in the courses.

⁵¹ GED (General Education Development) is an adult education diploma issued by the province.

⁵² See Appendix E for details of education and experience requirements.

⁵³ Grandparenting means exempting existing operators from new rules and regulations.

Program Promotion

The union spoke with members one-on-one and announced the program at union meetings. As well, members who took the program and got their GED provided an incentive for other members to do the same.

Participants

The members who participated in the workplace education program were all more than 40 years old and had been out of school for a long time. None of the participants had Grade 12 or certification before taking the course; some attended more than one session.

Needs Assessments

The participants' needs were assessed using confidential, individual assessments.

Delivery Model

- **Facilitation:** The project team hired an instructor through Workplace Education Nova Scotia to plan and deliver the program.
- **Location:** The courses were delivered in a classroom setting in the workplace or at Department of Education offices.
- **Attendance:** The employer gave participants one hour of release time and the participants gave one hour of their own time (over their lunch break).
- **Curriculum Materials:** The program offered courses in math, metric conversion, basic chemistry, GED and pre-GED, communication, basic computer skills, and computer applications including e-mail, spreadsheets and Word. Curriculum materials included union newsletters, items from the national union, the collective agreement, library materials and the instructor's materials. The instructor developed the curriculum with help from Cavanagh and Department of Education staff.

Results

All of the participants obtained a GED and became certified operators. Cavanagh himself obtained a GED and went on to pass Level 2 operator exams in three categories: water treatment, sewage collection and water distribution.⁵⁴

⁵⁴ See "CUPE Rises to Challenge of Water Workers' Certification." *CUPE Literacy News*, May 2003, 2-4.

Recommendations

The union was very active in all aspects of the project. According to Cavanagh, the “employer reps on the committee really didn’t have much say and let it flow along. They were really too busy to pay much attention.” Cavanagh says he wouldn’t do much differently in future programs.

Future Challenges

Currently, Cavanagh is supporting other municipal workers facing certification. He is trying to set up meetings between the Town Council of Truro, the community college and the Nova Scotia Department of Education to develop courses for heavy equipment operators and truck drivers. He also wants to see academic and trades training for workers who can’t attend high school or college classes during regular hours.

4.2 Math for Water and Wastewater Worker Certification, CUPE Locals 830 and 501, and the City of Charlottetown

Context

The City of Charlottetown’s workplace education program started with a series of meetings and information sessions beginning in March 2001. A project team was created and met for the first time in September. An organizational needs assessment (ONA) was conducted in October. The project team hired an instructor and in February 2002 the City’s Personal Education Program (PEP) offered courses in GED and computer literacy.

Regulations for water and wastewater worker certification in PEI were adopted in December 2004 and took effect immediately. The CUPE Literacy Project coordinator recommended that the program look at the needs of water and wastewater workers in light of the new requirement for mandatory certification. At a project team meeting in 2003, the City’s Utility Manager suggested a math course be developed for water and wastewater workers who were preparing to write certification exams. The workplace education instructor developed and instructed the course, Math for Water and Wastewater Worker Certification.⁵⁵

Timeline

The math course was first offered in spring 2003 and has been offered five times since.

⁵⁵ See Appendix E for PEI’s education and experience requirements for writing water and wastewater certification exams.

Goal

To provide workers with the math skills required to pass certification exams.

Sponsors and Funders

The program has received funding and support from the City of Charlottetown, CUPE Local 501 (both the Civic and Waste Water Treatment Plant), CUPE Local 830 (Water and Sewer Utility), Police Association of Nova Scotia (PANS) 301, the Voluntary Association of Charlottetown Employees (VACE), Human Resources and Social Development Canada (HRSDC) and Workplace Education PEI. The project team is made up of representatives from the five unions, the City's Human Resource Department, managers from each department, and Workplace Education PEI.

CUPE Role

Members from Locals 501 (Civic and Waste Water Treatment Plant) and 830 (Water and Sewer Utility) are active representatives on the project team. CUPE members have participated in the courses and have helped with course content.

Program Promotion

The Utility Manager encourages workers to write the certification exam and prepare for it by attending the course. PEP and the math course are promoted by inserting flyers in pay cheques and advertizing in e-mail newsletters. The courses are also publicized at events such as an open house.

Participants

The participants were all male and aged 30 to 55. They had not participated in formal education for at least 10 years—35 years for the oldest participant. Their experience ranged from five to 20 years. All participants had at least a Grade 11 education. Some had post-secondary education in vocational school and technical college with backgrounds in welding, plumbing, pipe fitting and surveying.

Assessments

The instructor conducts individual needs assessments. He meets with each participant for an hour approximately one week before the start of the course. He interviews participants about their educational background. He gives them a math assessment where the questions get progressively harder. If participants have difficulty with a question, he asks them to note if they recognize the problem but have forgotten the formula. He also gives participants a reading comprehension assessment by asking

them to read an item such as a newspaper article, and answer questions about it. By having the participants write a paragraph explaining why they want to take the course, he is able to assess their spelling and writing skills.

Individual results are kept completely confidential. Only generalizations are reported back to the project team and the employer.

Delivery Model

- **Facilitation:** The workplace education instructor delivers the course in a classroom setting using both large-group and individual instruction.
- **Location:** The course is held in the Learning Centre located in the lunchroom of the Public Works Building.
- **Length:** Participants meet twice a week for 2 ½ to three hours. The first course lasted 12 weeks. Subsequent courses have been shorter: one eight-week course and two six-week courses. Each course ends approximately one week before the exam is scheduled.⁵⁶
- **Attendance:** The course is held after work hours. Participants attend on their own time. The city covers the cost of the instructor and materials. Participants pay for their own calculators (a scientific calculator and a metric conversion calculator).
- **Curriculum Materials:** There are no recently published math study guides available for water and wastewater workers. Requirements for writing the exam indicated that the necessary math skills included basic math, using formulas to calculate measurements (e.g., area), and applying complicated formulas to specific water and wastewater problems. Since certification exams are sealed, the instructor was not able to look at any actual exams. The instructor located resources from the 1980s and 1990s that were used in Alberta and Nova Scotia. He developed the math course using the following resources:
 - Alberta Environment Certification Education and Training Level 1 and 2, Western Canada Water and Wastewater Association Certification Math.
 - Atlantic Canada Water Works Association Certification Study Guide, Water Distribution, sample tests 1 and 2.
 - Atlantic Canada Water and Works Association (AWWA) Operation Certification Study Guide, Water Distribution.

⁵⁶ Certification exams in PEI are scheduled twice a year: usually in January and then six months later in June or July.

- Exam formulas: a six-page handout given to operators when they write the exam.
- WEF/ABC Certification Guide for Collection System Personnel, 1993 Water Environment Federation.

On a number of occasions, the instructor obtained valuable background information from the operator of the Waste Water Treatment Plant, a member of CUPE Local 501.

Since the course was charting new territory, the instructor met concerns as they arose. He found that participants often had difficulty conceptualizing from the page. For example, during a class in the first course, he tried unsuccessfully to explain a problem that was shown two-dimensionally on paper. He brought wooden models to the next class to explain the problem. The participants understood immediately. After that the instructor made models ahead of time. After a few classes, the participants didn't need the models any more—they could conceptualize a problem on their own.

Wherever possible, the instructor also uses pamphlets and other written materials to show the relevance of math to other subjects. The course also includes topics such as learning strategies and preparing for examinations.

Results

All participants eligible to write the certification exam have passed. One participant was unsuccessful with his first attempt. He took a subsequent math course and then passed the exam. Some participants in the first math course were not eligible to write the exam because they did not meet the post-secondary education requirements.

The instructor has found that participants' basic math skills are generally satisfactory, but they need to review fractions, percentages, the metric system and the use of formulas.

The instructor has informed participants about a Workplace Education PEI program to help them document workshops and conferences they've attended. These educational experiences can count towards the post-secondary education requirement. To date no workers have participated in that program.⁵⁷

⁵⁷ One CUPE member, whose education and work experience for Level 3 certification have not been recognized by the ministry, is considering this option.

Lessons Learned / Recommendations

The following lessons come from the instructor's experience with the course:

- While the math course is usually delivered to groups, participants need a great deal of individual attention. Tutorials outside of class are helpful when participants need more one-on-one practice. Participants are sometimes uncomfortable with other participants knowing their skill level.
- Initial confidence building is essential. A course like this one needs to begin at a basic level, reviewing basic math skills, perhaps through warm-up exercises. This helps boost participants' confidence and develops group camaraderie.
- Participants need to know the importance of applying formulas in a step-by-step way. By fully documenting the sequence, participants can backtrack and find any math errors that occurred along the way.
- Before using metric vocabulary in class, participants should have a class on metric terminology and relationships as well as exercises where they physically measure things (using both linear and liquid measures). Before plugging numbers into formulas, participants need to understand the differences between the American gallon, the Imperial gallon and the metric equivalent. Participants also need to learn how to use scientific and metric conversion calculators.
- Asking participants to come up with a name for their group helps establish a sense of identity and ownership. The PEP water and wastewater group is known as the WH₂O (WHO) group. In addition to representing the chemical formula for water, the number 2 suggests two W's for water and wastewater.

Future Plans

The project team has proposed a 40-hour course covering all aspects of the certification exam other than math. The course would be led by a CUPE member who is a water operator and has experience conducting training workshops.

4.3 Return to Learn: A Pilot Workplace Essential Skills Training Program, CUPE Local 21 and the City of Regina

Context

In 2003, CUPE Local 21 and the City of Regina formed a joint Workplace Education Committee to address workers' literacy and essential skills needs.⁵⁸ Later that same

⁵⁸ Essential skills refer to the nine skills identified by Human Resources and Skills Development Canada. See Glossary for details.

year this committee hired two consultants: one to conduct an organizational needs assessment and the other to design and implement a workplace essential skills program. The latter consultant presented the committee with several options. They selected the Return to Learn Network (R2L). This program was not designed specifically for water and wastewater workers.

Timeline

November 2003 to April 2004.

Goal

To help workers to return to learning and to view themselves as lifelong learners.

Sponsors and Funders

The program was funded from a joint education fund negotiated by the City of Regina and CUPE Local 21. It also received funding from the National Literacy Secretariat (NLS). The joint education committee (with representation from the city and the union) administered the program.

CUPE Role

CUPE Local 21 participated in the program in several ways: as co-chair and members of the joint education committee, peer tutors and participants.

Program Promotion

Recruitment of participants began after the peer tutor training was completed. The program was publicized through posters, promotional articles in the union newsletter and word of mouth (peer tutors and members of the education committee talked to workers). However, few workers expressed interest. Funding restrictions required the pilot to be completed in a few short weeks and time was running out. A decision was made to approach the city's water sewage treatment employees since they were facing certification requirements by July 2005.

The R2L program was presented to the managers and supervisors in the city's Engineering and Works Department. They readily agreed to participate and started working out the scheduling challenges. The following day, the consultant and a peer tutor made a presentation to workers in the Engineering and Works Department. After the presentation, all the workers were given a form to fill out. They could sign up for the program and/or enter their name for a draw (prizes donated by the Saskatchewan Federation of Labour). In this way, workers could show their interest in the R2L program without revealing their interest to co-workers.

Participants

Sixteen participants attended regularly – all were water workers except for one participant preparing for certification in another sector.

Assessments

At the first session, participants were asked about what areas they would like assistance with learning. The tutors and coordinator indicated which of the topics identified by participants would be within the scope of the R2L program.

Delivery Model

- **Facilitation:** The consultant who developed the program was hired to coordinate it. Five members of Local 21 were trained as peer tutors. The training took place over five days and was delivered by the R2L coordinator and the coordinator of the Saskatchewan Federation of Labour Workplace Essential Skills Training program. The coordinator describes the peer tutor learning as “experiential, reflective and interactive.”⁵⁹ The topics covered in the peer tutor training included: adult learning principles, learning styles, workplace essentials skills, assessments, planning lessons and leading sessions. The study sessions were facilitated by the coordinator and the peer tutors. The coordinator led the sessions in the beginning of the program and gradually increased the role of the peer tutors. By the end, the peer tutors were leading the session and the coordinator provided support where needed.
- **Location:** The program was delivered in a large space above a city-owned arena.
- **Length:** The R2L program was offered twice a week, two hours per session for six weeks.
- **Attendance:** Participants attended half on employer time and half on personal time.
- **Curriculum:** The program relied mostly on emergent curriculum. (This means that the class content is not pre-set, but rather emerges as participants identify what they want to learn.) The sessions included large group discussion and small group activities. The first half of the session was a large group discussion focused on developing skills in problem-solving, decision-making, critical thinking, working with others and written communication. During the second half of the session, peer tutors offered assistance with numeracy, navigating documents and written communication.

⁵⁹ Naomi Frankel, "Return to Learn: A Pilot Workplace Essential Skills Training Program," (Regina: The City of Regina and Canadian Union of Public Employees, Local 21, 2004), 11.

- The R2L program covered the following categories⁶⁰:
 - Lifelong Learning
 - How complex texts are organized and how to read them efficiently.
 - Tips for exam preparation and coping with anxiety (including how to concentrate and other study skills)
 - Critical Thinking
 - What is needed from the employer and union to help achieve the goal of certification and other learning goals
 - Problem-Solving and Decision-Making
 - Numeracy
 - Work on math questions in Water Certification Study Guide.
 - Written Communication

Results

A majority of participants in the R2L program have passed various levels of the certification exam.⁶¹ The City of Regina has arranged for employees to write exams on work time. The Engineering and Works Department is planning to make on-site math tutoring available.

Another R2L session is being planned. Local 21 water workers have expressed interest in participating. While the R2L program was not developed specifically for water and wastewater workers, the need to address certification makes them keen to participate.

Recommendations

In her final report, the R2L coordinator made a number of recommendations including:

- Increase the program to eight or 10 weeks from six.
- Hold classes once a week for three hours.

⁶⁰ *ibid*, 17.

⁶¹ This information is based on e-mail communication with Alie Dobbs, member of CUPE Local 21, an R2L peer tutor and currently co-chair of the joint education committee.

- Use personal communication to promote the program.

The following recommendations were made specifically to assist water and wastewater workers to prepare for certification exams:

- Bring a math tutor to the work site.
- Make enough copies of the certification study guide available to all interested workers.
- Provide workers with complete information on the available certification preparation courses.
- Determine whether barriers exist for workers who are not attempting to write the exams, and work to eliminate any barriers.
- Establish paid leave in the collective agreement for workers taking certification preparation courses (whether on-site or correspondence).

4.4 CUPE Local 500 (Water and Waste Unit) and the City of Winnipeg

Context

The Province of Manitoba legislated the mandatory certification of water and wastewater workers in 2003.⁶² Facilities and operators were given until September 1, 2006 to comply with the new legislation. Kim Kauk, Training Coordinator for the City of Winnipeg, estimates that approximately 220 employees will have to be certified to at least Level 2 by the September 2006 deadline.⁶³ Most of these employees are members of the Water and Waste Unit of CUPE Local 500.

Certification Exam

In addition to the new regulations, the province has also implemented a new certification exam. It is a multiple entry test. This means that a Class 2 certificate test will also cover Class 1 certificate material. Workers must get 70 per cent on the exam to pass. The questions are broad-based. Workers have to know the entire water and sewer system, even if their job requires them to know only a portion of the system. The test is largely reading comprehension and math: 25 per cent on equipment and support systems; 25 per cent on basic math and science; 25 per cent on the discipline;

⁶² The province of Manitoba's "*Water and Wastewater Facility Operator Certification Requirements*" are available online at <http://web2.gov.mb.ca/laws/regs/pdf/e125-077.03.pdf>

⁶³ Information about the City of Winnipeg training program for water and wastewater employees is based on telephone and e-mail communication with Kim Kauk, training coordinator, City of Winnipeg.

and 25 per cent on administration and safety. The certification exam is a timed test. In Manitoba, operators are allowed to take a seven-page formula sheet into the exam. They do not need to memorize formulas but have to recognize which formula to use. The exam format is multiple choice.

Water and wastewater workers have gone through many difficult changes at the City of Winnipeg over the past several years.⁶⁴ The city recently moved to a competency based system whereby pay rates are set according to skill level rather than experience or seniority. They have also moved from a regular eight-hour work day, Monday to Friday, to an 11-hour shift, seven days a week (five days on; five days off). These changes have involved years of complicated negotiations. More recently, members of the Water and Waste Unit of CUPE Local 500 have been waiting to see how the province and the city will implement mandatory certification requirements.

Timeline

February 2005 – ongoing.

Goal

To assess and prepare approximately 220 water and wastewater employees for Level 2 or higher certification.

Sponsors and Funders

The Water and Waste Department presented a proposal for this project to the Joint Committee for Education, Training and Staff Development (City of Winnipeg and Local 500). The proposal was evaluated and approved by the joint committee.

The cost of the certification course (\$400 per person) is covered by the City of Winnipeg under a collective agreement provision that calls for the employer to pay these fees (see below).

CUPE Role

Local 500 negotiated a \$3 million joint training fund, administered by the joint committee. An essential skills sub-committee, made up entirely of CUPE members, runs a very successful essential skills program. Each year, about 200 CUPE members (and some family members) take part in courses offered by the essential skills program. Only a few water and wastewater workers participated in GED and

⁶⁴ Information about the Water and Waste Unit of CUPE Local 500 is based on telephone and email communication with Serge Hurtubise, unit president.

computer courses in the past, likely because they faced many changes in the workplace⁶⁵.

The local also negotiated a provision to ensure that the employer would cover the costs of all licenses and accreditations that are job requirements:

Effective January 1,2004 the City shall pay all costs of licenses and accreditations, including membership in professional organizations, that are required by the City as a condition of employment. The provisions of this Article apply to those employees who accrue and maintain seniority pursuant to Article 20 of the Agreement.⁶⁶

CUPE Local 500, Water and Waste Unit, has encouraged its members to participate in the City's assessment and training program.

Participants

All of the participants are City of Winnipeg employees. Most of them are members of CUPE Local 500, Water and Waste Unit. Many of the participants have over 20 years of work experience. Some participants have only primary school education.

Delivery Model

Coordination

The City of Winnipeg hired a training coordinator to develop a training program for water and wastewater employee certification. He recently started an intensive assessment and training program. The training coordinator is a manager and has worked in the water and wastewater sector for over 27 years. He anticipates all CUPE members will have enough years of experience to substitute for the educational requirements of Class 2 certification. Although some CUPE members have only primary school education, Manitoba legislation allows an operator to substitute a certain number of years of experience for formal education.

Facilitation

Red River College (RRC) in Winnipeg has an established training program for water and wastewater worker certification. The training coordinator contracted the college

⁶⁵ Information about the joint CUPE 500 and City of Winnipeg education program is based on e-mail and telephone communication with Kathy Todd, coordinator of the essential skills program for CUPE members and on the following articles: *Opening doors for Winnipeg members*, CUPE Literacy News, Sep 2002, 2-3 and *NEWS FLASHES from Manitoba* CUPE Literacy News, Oct 2004, 8.

⁶⁶ Collective Agreement between the City of Winnipeg and CUPE Local 500, December 29, 2002 to December 30, 2005.

to conduct employee math assessments and eight hours of math refresher, and to deliver the certification training.⁶⁷

Assessments

RRC is using the Canadian Adult Achievement Test (CAAT) to assess employees' math skills.⁶⁸ The CAAT, a standardized test, is frequently used in adult literacy programs, technical and vocational schools, and community colleges. The CAAT tests four levels of formal education. The college is using two modules from Level C, which measures 7 – 10 years of formal education.⁶⁹ The modules measure basic math and basic problem-solving achievement. The college decided not to use a reading comprehension test, since the problem-solving test will also measure employees' reading achievement. These are both timed, 40-minute tests. The college is using an 80 per cent competency measure. Those who score 80 per cent or above on both tests are referred to the water and wastewater certification course. Employees who score below 80 per cent are referred to a review seminar in basic math and metric measurement before taking the certification course.

RRC summarizes the assessment results for the city, but individual test scores are confidential. When employees complete the assessment, they will receive an envelope with four documents: a transcript showing that the assessment has been completed; the actual test scores; an explanation of the scores; and a recommendation to take the seminar or the course.

Review Seminar

An RRC instructor will deliver a total of eight hours of basic math and metric measurement review. This seminar will be offered in the workplace, in a classroom setting with approximately 15 participants. CUPE members have agreed to attend the seminar on Sundays, on paid time, when their workload is usually lighter. The college recommends that these seminars be spread out over four sessions of two hours each. However, because the city was hoping to complete four certification training courses of 20 people each by the end of April 2005, the exact make-up of the seminars was still being negotiated at the time of writing this report.

Certification Training Course

⁶⁷ For more information on RRC's Water and Wastewater School, See: <http://me.rrc.mb.ca/Catalogue/Default.aspx>

⁶⁸ Information about the RRC's program for the City of Winnipeg water and wastewater worker training is based on telephone communication with John Graeb, program officer, Continuing Education of Red River College.

⁶⁹ Level A measures 1 – 3 years of formal education; Level B measures 5 – 6 years of formal education; Level C measures 7 – 10 years of formal education; and Level D measures 11 – 12 years of formal education. For more information about the CAAT, see Taylor, Maurice C. *Workplace Literacy Assessment Tools* Algonquin College, Adult Basic Education. Available from <http://www.nald.ca/fulltext/report4/rep36-40/REP36-01.HTM>

When they complete the review seminar, employees take the water or wastewater certification training course. Kim Kauk negotiated with RRC to deliver five course days spread over five to six weeks. Because these employees are outside workers, Kauk wanted to ensure that they would never spend more than two days in a row in a classroom setting. On the first course day, employees will study math. A month later, two course days will include a math review and basic science. A week later, the fourth and fifth day are spent on the water or wastewater topic, followed by the certification exam on the sixth day.

Results to date

Of the approximately 80 employees who have taken the math assessment to date, 13 (16 per cent) will be referred directly to the water and wastewater certification training course. The remaining 67 employees (84 per cent) will be referred to the review seminar.

Of the 66 employees who have taken the certification exam, 57 (86 per cent) have passed. The provincial pass rate is 80 per cent.

Because so many employees needed the math refresher, and because most employees who scored above 80 per cent still wanted to take the refresher, employees will automatically take the math refresher in the future. Extra workshops will be offered to employees needing more help with math.

The City of Winnipeg is only beginning to implement the assessment and training process. It is still working out many details with RRC. For example, there are no plans yet for employees who require more than eight hours of math review or assistance with reading comprehension. As well, RRC identified employees near the 80 per cent competency who would likely need less than the full eight hours of review. The essential skills coordinator is working with the Water and Waste Department to re-vamp the math skills course offered through the essential skills program to better meet the needs of the department. The new course, offered in modules, will start in September 2005.

4.5 The Saskatchewan Water and Wastewater Essential Skills Project

Context

When the Saskatchewan government legislated the certification of water and wastewater workers in 2000, facilities and workers had until July 2005 to comply with the new regulations. According to an October 2001 report on operator certification in Saskatchewan, there were 150 certified operators—approximately 10 per cent of all

operators in the province.⁷⁰ The report estimated that 750 operators would have to be certified by the 2005 deadline. Many of these operators are represented by CUPE.

Gail Lasiuk, Literacy Reference Group member for Saskatchewan and a member of CUPE Local 1975 at the University of Saskatchewan, heard members from the municipal sector talk about the implications of this legislation at a CUPE Saskatchewan Convention. She had heard similar concerns from fellow Literacy Reference Group member Danny Cavanagh. As President of CUPE Local 734 in Truro, and a water worker himself, Danny helped establish a workplace education program when the Nova Scotia government brought in certification. In 2002, Lasiuk and other labour literacy activists began to develop ideas about how to assess the essential skills needs of water and wastewater workers in Saskatchewan. Identifying members' needs would help the union develop education programs for workers facing the certification exams. Ron Torgerson, Coordinator of the Saskatchewan Federation of Labour's Workers' Education for Skills Training (WEST) program, suggested that the National Literacy Secretariat (NLS) might be interested in funding a project on this issue.

With the assistance of CUPE National Literacy Coordinator Sylvia Sioufi, Lasiuk developed a proposal to create a needs assessment tool using the Test of Workplace Essential Skills (TOWES) and the National Occupational Classification (NOC) for water and wastewater operators.⁷¹ An essential skills program would then be developed based on the assessment. The project would increase the union's capacity for identifying members' learning needs and provide the union with a model to use in other provinces and with other sectors within CUPE facing certification.

There were several potential benefits and limitations of using TOWES as the needs assessment tool. For example, it did not include questions about workers' lives beyond work. (Although the activists thought they might be able to adapt the questionnaire to include union content, they later discovered that broader questions could not be incorporated into the tool.) But the potential benefits were that the test would be based on the Saskatchewan context and on the NOC for the occupation, which could support a made-in-Canada certification exam. Because TOWES was still a relatively new assessment tool, the activists thought using it would increase their chances to get funding.

While developing the project proposal, Gail Lasiuk contacted the chair of the Municipal Sector Committee, a CUPE staff representative, and the President of CUPE

⁷⁰ Gus Feitzelmayer, "Appendix 1: Operator Certification in Saskatchewan," in *Certification Regimes for Water and Wastewater Facility Operators: A Review of Provincial and First Nation Approaches*, ed. Heather Edwards (Institute on Governance, 2001).

⁷¹ See Appendix A: Glossary for definitions of TOWES and NOC. An NOC description for Water and Waste Plant Operators, #9424, can be viewed online at <http://www23.hrdc-drhc.gc.ca/2001/e/groups/9424.shtml>

Saskatchewan Division. They were all interested in participating in the project. The proposal was submitted to the NLS from CUPE Saskatchewan Division and its Municipal Workers Steering Committee. The NLS turned down the proposal but encouraged CUPE to apply for provincial funding.

At this time, consultant Naomi Frankel (a former CUPE member) was brought on board. Ron Torgerson arranged a meeting between himself, Frankel, Lasiuk and the Assistant Deputy Minister of Saskatchewan Learning as well as representatives from the Sector Partnerships program. The labour group was invited to apply for provincial funding, but they would have to modify the NLS proposal to meet the Sector Partnerships criteria. The needs assessment would have to include a sample of all water and wastewater workers in the province, not just CUPE members, and a First Nations component. Also, a sector council would have to be formed with representatives from key organizations concerned with various aspects of worker certification.⁷²

Frankel adapted the NLS proposal, and CUPE Saskatchewan Division submitted it to the JobStart/Future Skills, Sector Partnership Program of Saskatchewan Learning. The project was approved for \$50,000.

Timeline

It was initially thought that the project could be completed in eight months. However, it took 18 months to complete. A major factor was the time it took to develop TOWES for the project:

- January 2003 – funding received.
- March 2003 – Essential skills profile completed.
- May 2003 – TOWES created.
- August – December 2003 – 44 TOWES administered.
- July 2004 – Final report submitted.

Goals

The project had several goals:

⁷² The mandate of the sector partnership program is to “work with community groups and training institutions to plan and develop human resource strategies to address industry skill shortages.” Cited from: http://www.sasked.gov.sk.ca/branches/programs/jsfs_spp.shtml

- To identify education and training gaps for water and wastewater workers.
- To develop a learning strategy to address identified gaps.
- To provide information about the Recognition of Prior Learning (RPL) to workers, unions and employers.
- To provide moral support to workers.
- To build CUPE's capacity in other training initiatives.
- To develop a learning culture in smaller workplaces.⁷³

Sponsors and Funders

The project was funded by the Sector Partnership Program of Saskatchewan Learning. It also received assistance from the CUPE National Literacy Project.

CUPE Role

CUPE Saskatchewan provided in-kind support and financial accountability for the project. The Division hired a coordinator to oversee the project.

Project Promotion

CUPE raised awareness about the project at several union events, such as the Western Municipal Workers Conference in 2003. However, the coordinator reported significant difficulty identifying supervisors and workers interested and able to participate in the project.⁷⁴ In retrospect, it would have been helpful to identify and develop advocates within the sector who could promote the project.

Participants

TOWES was delivered to 44 operators working in 10 urban, rural, and northern Class 1 and Class 2 facilities.⁷⁵ The operators' certification levels ranged from none to Class 2. All but one of the operators were men. Thirty-seven of the operators were between the ages of 25 and 54. The operators' education levels ranged from less than high school to a university degree.

⁷³ "Pilot Project: *Water and Wastewater Workers Essential Skills Project*," project funding proposal (Saskatoon, SK: Canadian Union of Public Employees, Saskatchewan Division, 2002).

⁷⁴ Naomi Frankel, "*Final Report, The Water & Wastewater Essential Skills Project*," (Regina: 2004), 23.

⁷⁵ The research did not identify the exact size of the population under study, but the final report referred to 720 uncertified operators out of 1,300 estimated total operators in the province.

Coordination

The coordinator was responsible for: coordinating with Bow Valley College and SkillPlan about the essential skills profile and TOWES, contacting water and wastewater facilities, coordinating the administration of TOWES, managing project finances, and communicating with participants, the steering committee and project partners.

One of the coordinator's first tasks was to set up a steering committee with representatives from the water and wastewater sector. This committee included representation from:

- Labour (CUPE, Saskatchewan Federation of Labour, and the Communications, Energy and Paper Workers Union).
- Employers (City of Regina, Saskatchewan Urban Municipalities Association).
- Education (Saskatchewan Region Colleges, Saskatchewan Institute of Applied Science and Technology).
- Government (Saskatchewan Environment, Saskatchewan Learning),
- Other Stakeholders (Federation of Saskatchewan Indian Nations (FSIN), Saskatchewan Labour Force Development Board, and Saskatchewan Water and Wastewater Association (SWWA)).

Labour and education representatives co-chaired the committee. The role of the committee was to “provide ongoing advice, direction, information, and feedback to the Project Coordinator, and to connect the Project Coordinator with people from various constituencies.”⁷⁶ The committee met regularly for discussion and decision-making.

Project minutes and coordinator reports to the steering committee indicate ongoing concerns about the composition and effectiveness of this committee. Representatives were sought from FSIN and SWWA well into the project, and there was frequent turnover of people representing other organizations. Committee members were often late replying to the coordinator's requests or did not reply at all. These dynamics caused delays in the project.

Project Delivery

The Saskatchewan project contracted with Bow Valley College in Calgary and SkillPlan in Vancouver for approximately \$16,000 to:

⁷⁶ Frankel, Naomi. "Final Report, The Water & Wastewater Essential Skills Project," 12.

- Develop an essential skills profile of water and wastewater workers.
- Validate the profile with industry experts.
- Create a customized version of TOWES.
- Mark the TOWES and provide results. (See Appendix A: Glossary, for more information on Profiles and TOWES)

Essential Skills Profile

The certified essential skills profiler went to three Class 1 and 2 facilities where she interviewed workers about their jobs. (Class 1 and 2 operators were selected because they were considered more likely to need assistance with workplace essential skills. Class 3 and 4 operators are more likely to have post-secondary education or equivalent experience.)⁷⁷

The profiler used the NOC for water and wastewater workers as a starting point. Five subject experts reviewed a draft of the resulting *Essential Skills Profile for Class 1 and 2 Water and Wastewater Workers in Saskatchewan*. The essential skills profile was revised based on their feedback.⁷⁸

Needs Assessment

A customized TOWES was developed based on the essential skills profile. TOWES assesses proficiency for three workplace essential skills: reading text, document use, and numeracy. The TOWES used in the Saskatchewan project included 18 problem sets (test items). Two were specific to the water and wastewater sector; the other 16 were generic.⁷⁹ TOWES included a questionnaire to gather demographic information from the workers taking the test. The Saskatchewan project was able to add two questions to this questionnaire: 1) What kind of training have you received for your present job? and, 2) What training would you like to receive in order to do your job better or get a different job?

Although individual workers wrote the TOWES, results were not used to assess individual needs. The Saskatchewan project used TOWES to survey the essential skills needs for a group of workers.⁸⁰

⁷⁷ Ibid, 14.

⁷⁸ *An Essential Skills Profile for Water and Waste Plant Operators*, based on NOC 9424 can be viewed online: <http://www15.hrdc-drhc.gc.ca/english/profiles/126.asp>

⁷⁹ The TOWES website has sample tests available on-line at: <http://www.measureup.towes.com>

⁸⁰ Frankel, Naomi. "Final Report, The Water & Wastewater Essential Skills Project," 13.

TOWES was administered either by the coordinator (with TOWES training) or one of the steering committee members. They tried to alleviate participants' anxiety by emphasizing that it was not a test, and that it was completely voluntary. Participants were also assured that individual results would be kept confidential. Participants were allowed to ask questions for clarification. They were told they could take more than the two hours normally allotted to complete the test, but no one asked for extra time. The Saskatchewan project members recognized that TOWES is not the only survey tool available to assess literacy and that it has limitations.⁸¹ One project team member noted, "TOWES is just a test for text and document literacy. There [are] many other workplace essential skills. TOWES doesn't test for any of those." One person felt that TOWES worked well as a broad survey. Another had mixed feelings about the usefulness of TOWES: it was more relevant than an exam that uses generic material and references, but involved a long and costly development process, strict procedures and a bureaucratic framework. When asked whether TOWES helped the project make recommendations about learning plans, a project team member replied, "Not really. It tells you there is a need and what level the need is, but [it] doesn't change how I would develop and deliver a curriculum."

Recognition of Prior Learning (RPL)

Due to time constraints, the Saskatchewan project was unable to complete an analysis of RPL options for the sector.

Results

Quantitative Data

Participants who score 80 per cent or higher on TOWES are considered to be proficient, with an:

...ability to transfer learning and knowledge to another situation in the home, workplace or community, the ability to learn new skills, and the ability to adapt to workplace changes such as new technology.⁸²

The results of the TOWES indicated that 12 (27 per cent) of the participants had difficulty with reading text; 12 (27 per cent) had difficulty with document use; and 15 (34 per cent) had difficulty with numeracy. The project analyzed the results by geographic region and found that these figures were higher for participants from the

⁸¹ Ibid.

⁸² Frankel, "Final Report, The Water & Wastewater Essential Skills Project," 6. TOWES is based on the same methodology as the International Adult Literacy Survey (IALS) and uses the same 80 per cent proficiency benchmark.

five facilities north of Prince Albert: 56 per cent had difficulty reading text; 56 per cent had difficulty with document use; and 66 per cent had difficulty with numeracy. The final report for the project concluded, “There are significant essential skills issues in the existing workforce in the sector...there is significant evidence of a low level of essential skills.”⁸³

Qualitative Data

The Saskatchewan project also obtained qualitative data from plant operators and participants. One worker questioned the relevance and accuracy of tests such as TOWES and the certification exam as a measure of operators’ competence. For example, while on the job an operator can ask another operator for advice or to check his work. Tests don’t allow this.⁸⁴ Low scores on TOWES do not necessarily indicate that operators have impaired judgement skills: “multiple-choice exams are more a test of reading ability than of technical and operational knowledge.”⁸⁵ The final report quotes one plant operator’s observation of another operator: “He makes really good water, the best water, but he just has [less than Grade 8]. There’s no way he is going to get his certification.”⁸⁶

In every location where TOWES was delivered, operators expressed anxiety about writing the certification exams. They were unfamiliar with the formality of the test situation, the format for demonstrating knowledge, the long duration of the test, the classroom environment, and having a fixed time to complete the exam. Some operators were concerned about the consequences of failing certification exams. One operator feared he might lose his job. The final report raises questions about the consequences faced by operators who do not obtain certification, noting that 1,216 operators (24 per cent) failed certification exams taken between July 2000 and March 2004.⁸⁷

Operators reported that preparing for certification exams on personal time took them away from other important responsibilities such as family and the union.

The report concludes that workers are anxious about the certification process and experience hardship while preparing for certification exams. At the same time, they recognize the importance of certification and are committed to their jobs and their communities.

Recommendations

⁸³ Ibid, 7.

⁸⁴ Ibid, 18.

⁸⁵ Ibid.

⁸⁶ Ibid.

⁸⁷ Appendix: Certification Exam Results *Frankel, "Final Report, The Water and Wastewater Essential Skills Project,"* 48.

The Saskatchewan Water and Wastewater Essential Skills Project Final Report included eight recommendations:⁸⁸

1. Essential skills upgrading: Develop and pilot models that help water and wastewater workers increase their essential skills proficiencies, particularly in numeracy and text literacy.
2. Exam preparation: Provide all water and wastewater workers with exam preparation and practice workshops.
3. Learning strategy: Undertake additional research into technical training and essential skills needs of water and wastewater workers.
4. Steering committee: In the case of a second phase of the project, give the contract to the Saskatchewan Water and Wastewater Association and continue with a multi-stakeholder steering committee co-chaired by employers and labour. Fully orient future members about expectations for participation.
5. Access to education and training: Dedicate literacy funding to water and wastewater workers in regions where workers face significant literacy challenges.
6. Test of occupational knowledge: Explore alternatives to written exams for obtaining certification.
7. Recognition of workers: Formally recognize workers' achievement with measures such as monetary reward, letters of congratulation, certificates of achievement, commendations in personnel files, and opportunities for advancement.
8. Compensation for study time: Water and wastewater facility owners should investigate how to compensate workers for time spent preparing for certification, including paid study time, peer learning at work, or monetary compensation.

⁸⁸ Naomi Frankel, "Return to Learn: A Pilot Workplace Essential Skills Training Program," April 2004, 6-28.

5 Discussion and Recommendations

This study set out to:

- Document water and wastewater mandatory certification systems and processes.
- Document CUPE's efforts to help members navigate the education demands of those systems and processes.
- Make recommendations to CUPE about how to support the education needs of members facing mandatory certification in the water and other sectors.

In the course of research, it became apparent that education issues related to certification are complex and interwoven with broader issues such as privatization, occupational standards, job security and labour adjustment. Hence the report documents both specific education initiatives in the sector and the union's position on broader questions such as facility ownership and operation, training infrastructure, certification exams and national standards. The research confirms that CUPE water and wastewater workers need and want education support, and it exposes a number of related areas where CUPE policy and action are needed.

This section presents a discussion of six key themes that emerged from the research, with an emphasis on literacy issues. It also offers recommendations for ways CUPE might further support members and the public interest:

1. Workplace Literacy Programs – Needs Assessments and Curriculum

The five case studies confirm that operators want to upgrade their basic skills and offer models for meeting operators' education needs. The variations in program models reflect the different conditions in each site, including provincial regulations, employer-union relations, and funding availability and criteria. Despite the differences, the case studies taken as a whole offer lessons for CUPE in two key areas of education programming: needs assessments and curriculum.

(A) Literacy Needs Assessments

The needs assessments carried out in each of the five cases offer valuable information on water and wastewater workers' educational needs. The assessments also offer a reminder of the importance of needs assessment methods based on labour principles.

The programs in all five case studies used some type of individual needs assessment. Regina's Return to Learn program was the least structured—participants identified their own learning goals. Truro's workplace education program conducted individual

needs assessments. The workplace instructor for Charlottetown’s program held individual interviews with participants, using assessment tools related to the math course content. The City of Winnipeg program and the Saskatchewan Essential Skills project both used standardized tests. These tests measured participants’ broad knowledge and were not specific to the occupation (in the case of TOWES) or to work (in the case of CAAT, which is an academic test). In each program, assessments were confidential. Only general results were reported to the project team.

All of the needs assessments showed that participants want support with math, including basic math review, metric conversion, use of formulas, and use of scientific and conversion calculators. TOWES scores showed that 34 per cent of participants tested in Saskatchewan had difficulty with numeracy. CAAT scores showed that 57 per cent of the employees tested in the City of Winnipeg had difficulty with basic math and problem solving. These results suggest that CUPE water and wastewater workers facing certification want educational support, especially with math.

Standardized tests such as TOWES and CAAT present particular challenges for labour. Jean Connon Unda, a literacy educator with many years of experience working with unions, lists the following concerns about literacy testing:

- The claim for objectivity in testing is misleading—evaluation of learning (knowledge) always involves interpretation.
- Tests often measure the wrong things—isolated parts, not whole processes—and then the results reveal the wrong things.
- Testing shapes instruction.
- The testing model removes control of learning from workers. It conflicts with worker-centred principles of literacy in labour programs, including worker involvement in determining goals, objectives and content of learning.
- The testing process is intimidating and anxiety-provoking. It often focuses attention on what *isn't* known instead of what *is* known.

Employers can use testing to control access to jobs, training, job security and promotions.⁸⁹

In addition to individual needs assessments, it is also important to look at the bigger picture of the workplace. An organizational needs assessment (ONA) is a systematic way of developing an understanding of the educational needs in a workplace or sector.

⁸⁹ Participant Notes, CLC Union Based Literacy Course, Session 7.

Of the programs examined in this study, only Charlottetown and Regina conducted an ONA in addition to individual needs assessments.

The main limitation of programs that rely only on individual assessments is that they can miss important factors in the workplace and the sector. They don't take into account the workplace climate, such as the degree of support for learning, or the sector conditions, such as access to training and continuing education. The union might miss key information if it relies solely on individualized assessments. Worse, individualized assessments can reinforce the notion that the worker rather than the employer or government is responsible for training and certification. The labour movement, including CUPE and the CLC, generally recommends an organizational needs assessment as a first step in a workplace education initiative. The ONA involves consulting with a cross-section of people: workers, supervisors, trainers, labour and management. Typically the ONA uses questionnaires with at least some open-ended questions, one-on-one interviews and focus groups.

It is preferable for union representatives (instead of outsiders) to approach individual union members in order to encourage participation in an ONA and assure them that the information will be kept confidential.⁹⁰ The ONA should not be threatening to workers; rather, it should boost their confidence and inspire learning. Done well, an ONA:

- Provides a comprehensive picture of workers' educational goals, needs and motivations.
- Identifies the interests of workers and management, and makes these transparent to everyone.
- Builds understanding of the organizational climate and culture.
- Identifies ways to make training and education accessible and comfortable to people.
- Identifies barriers to training and education, and possible solutions.
- Fosters realistic expectations about what an education initiative can and cannot address.

⁹⁰*Learning For Our Lives: A Union Guide to Worker-Centred Literacy* (Ottawa: Canadian Labour Congress, 2000), 41.

- Assumes that everyone has something to learn and everyone has something to teach someone else. It builds on people's strengths rather than focussing on deficits.⁹¹

A workplace training inventory should be part of the needs assessment.⁹² The training inventory evaluates current training opportunities in terms of accessibility, content, pedagogy and other criteria identified by workers. Some questions relevant to water and wastewater training might include: Are courses based on sound adult education principles, where goals, content and delivery are developed with learners and discussion encouraged? Do they help workers gain skills and knowledge, or do they just help workers pass exams?

Organizational needs assessments help unions develop programs that treat workers as whole persons with lives beyond work, and recognize literacy as part of a larger, complex system. They identify advocacy needs as well as education program needs. They help unions develop curriculum and strategy that address the broader needs of the membership, beyond immediate demands such as certification rules.

(B) Curriculum

Taken together, the case studies and labour literacy resources offer insights for how CUPE might approach curriculum. In essence, the recommended model is one where curriculum emerges from participants' needs and experiences using group, problem-posing discussion.

The programs examined in this study offered a range of courses and used a variety of curriculum materials:

- In Truro's workplace education program, the instructor developed the courses and used labour materials in the curriculum.
- The workplace instructor in Charlottetown's program used materials gathered from the water and wastewater sector in addition to developing new materials.
- In Regina's Return to Learn (R2L) program, the curriculum emerged from the participants based on large group discussions and small group activities.
- The instructor for the City of Winnipeg program used materials from Red River College's certification training program.

⁹¹ Canadian Association of Municipal Administrators, *A Guide for Planning and Conducting an Organizational Needs Assessment for Municipal Workplace Literacy Programs* (Ottawa: 2000), 10-11.

⁹² *Learning For Our Lives: A Union Guide to Worker-Centred Literacy* (Ottawa: CLC, 2000), 41-42. *Building Workplace Education and Literacy Programs Workshop* (Ottawa: CUPE, 2002).

The curriculum developed and implemented in these programs ranged on a continuum from emergent (Regina's R2L program) to more prescribed.⁹³ The more focused a program is on teaching participants to pass a test, for example, GED and certification exams, the more likely it will use a prescribed curriculum. In *Seeds for Change*, Jean Connon Unda describes prescribed curriculum as tightly controlled. There are few choices left to the instructor and participants. An emergent curriculum is more flexible: the curriculum emerges from participants over the course of the program. Connon Unda suggests that in a worker-centred program, participants' learning is maximized when curriculum is significantly open and flexible. Emergent curriculum is particularly well suited to a problem-posing approach to education, where workers come together to discuss and reflect in order to "read the world" from the perspectives of their lived experience.⁹⁴

A problem-posing approach to education with an emphasis on collective discussion is appealing for the water and wastewater sector. Workers may feel that the bulk of responsibility for certification has been thrust on them, that employers and governments do not adequately share the responsibility for certification. A problem-posing approach within an emergent curriculum would give workers the opportunity to:

- Make better sense of a complex system: regulations, terminology, organizations and players.
- Participate more fully in the system: understand their rights and obligations, get information about procedures.
- Critically reflect on the system: get insight into the values on which it is based, how the system got developed, and how it affects workers, employers and communities.
- Take action to change the system: educate and mobilize for action.

To develop and implement this approach to curriculum, CUPE locals have to take an active role in all aspects of the program: planning, coordination, design, delivery and evaluation. CUPE offers a series of workshops to train activists to design and coordinate worker-centred programs. CUPE locals and divisions should take part in these union workshops before embarking on a workplace education project.

2. Program Planning and Coordination: Union Role and Partnership Models

⁹³ This discussion about a problem-posing approach and emergent curriculum in worker-centred literacy programs is based on ideas developed in Connon-Unda, *Seeds for Change: A Curriculum Guide for Worker-Centred Literacy* (Ottawa: Canadian Labour Congress, 2001).

⁹⁴ Paolo Freire, *Pedagogy of the Oppressed* (New York: Seabury Press, 1970).

The case studies are a reminder that education programs must be rooted in the membership and in union structures, and that employer-union partnerships must be genuine. In addition to good organizational needs assessments, programs need steering committees that:

- Clearly articulate labour values and goals.
- Develop terms of reference early on.
- Draw CUPE representation from existing committees and structures; and
- Select members with expertise in the sector and in literacy, with a commitment to the project, and with resources and authority to carry out their role.

With the exception of Winnipeg, CUPE was a sponsor and member of the steering committee in each program and project. The committee size and composition varied:

- CUPE Local 734 was an active member of the project team, which also had representation from management and government.
- The City of Charlottetown project team has representatives from management, government, and the five unions, including several CUPE locals.
- The City of Regina R2L program was directed by a joint committee with representation from CUPE Local 21 and management.
- In the City of Winnipeg program, the union was involved in negotiating the funding but was not an equal partner in the development and coordination.
- The Saskatchewan Essential Skills Project, which extended to facilities across the province, was directed by a steering committee with a broad range of constituents.

CUPE's level of involvement, and its ability to achieve labour-based literacy goals, varied from program to program. In Truro, with a smaller project team, the union was active and able to incorporate labour materials into the curriculum. In Charlottetown, participants in the math course benefited from the expertise of other CUPE water and wastewater workers. By contrast, in the Saskatchewan Essential Skills Project, CUPE did not have a local activist with literacy expertise assigned to the steering committee and the project coordinator had difficulty accessing CUPE expertise.

Working with committees representing various constituencies is always a challenge. In the publication, *Learning for Our Lives*, the Canadian Labour Congress (CLC) offers guidelines for unions participating in literacy projects:

Unions who work with management on workplace literacy must not compromise basic union principles... To be an equal participant the union must be in a position to make decisions, not just recommendations.⁹⁵

Learning for Our Lives also recommends that joint committees set ground rules, establish terms of reference, and clarify committee members' roles and goals.⁹⁶ This recommendation matches one of the recommendations from the Saskatchewan Essential Skills Project: fully orient future steering committee members about the expectations for their participation. The CUPE National Literacy Project has developed guidelines for partnership agreements and terms of reference for joint workplace education programs.⁹⁷

- CUPE can also look to the labour movement's experience with sector councils, which bring together unions, employers, government, educators and other constituents. Sector councils began in the 1980s as a means to address training, adjustment and other human resource issues in a given sector. According to the *CLC Guidelines for Labour Management Sectoral Councils and Committees*, first developed in 1992, sector councils should:
- Have parity in representation.
- Be co-chaired by labour and management; and
- Have directors representing labour nominated or appointed by and accountable to their unions.⁹⁸

In *Learning for Our Lives*, the CLC suggests that unions consider a number of questions before deciding to work with a sector committee:

- Is a sector initiative an appropriate first step for a union initiative?
- Is a sector initiative wise within the current climate?
- Can a sector committee uphold union values and objectives?
- What are the short- and long-term benefits of using a sector committee?
- What are the potential risks of using a sector committee?⁹⁹

⁹⁵ *Learning for Our Lives: A Union Guide to Worker-Centred Literacy*, (Ottawa: CLC, 2000), 18.

⁹⁶ *Ibid*, 37.

⁹⁷ CUPE National, *Sample Partnership Agreement for Workplace Education Programs* (September 2004), available at www.cupe.ca/www/literacy

⁹⁸ Canadian Labour Congress, *Sector Councils: A CLC Discussion Paper* (2004).

When planning future literacy projects, the union should research the sector and carefully weigh all options before deciding how to manage a project. Labour's perspective should be clearly articulated and actively guide decision-making on a project. Whatever the committee structure, terms of reference should be developed early on. It is essential to agree on a vision, goals and objectives, principles, ground rules, roles and responsibilities, and the decision-making process.

Learning for Our Lives also recommends that “where possible, your coordinating committee should be part of a structure already in place.”¹⁰⁰ CUPE representatives on a literacy committee should be drawn from, or linked to, existing CUPE committees and structures. In the case of water and wastewater workers, this committee might be the provincial Division municipal workers' committee. Committee members should have clear lines of accountability to the union. They should have the authority to represent the union and make significant decisions. They should have the necessary time, resources and support from the union to carry out this role. Committee members should be selected for their expertise in the sector and in literacy, and for their commitment to the project.

The case studies show us how important it is for programs to be initiated by members and directed by members. The more deeply rooted a program is in the union's structures and priorities, the more successful it will be at gaining members' trust and participation. This involvement of both rank-and-file members and leaders is key, particularly when the union engages in a multi-party process.

3. Training Issues

Well-designed and -implemented literacy programs will enable current operators to gain certification and keep working as operators. Other changes may be needed to strengthen the training system itself. Exploring water and wastewater operator training in any depth is beyond the scope of this research. However, the data suggest a need for further research and discussion on training in both certification courses and continuing education.

Training programs for water and wastewater operators are decentralized and accessibility varies by region. There are currently no national training standards or curricula. A wide variety of trainers deliver courses for certification exams and continuing education using different curricula. Freelance trainers and private training companies are major players. Many operators learn on their own with occupational reference manuals, or they take correspondence courses. Access to training for operators in small and remote communities is particularly limited.

⁹⁹ These questions have been adapted from Canadian Labour Congress, *Learning for Our Lives: A Union Guide to Worker-Centred Literacy*, 32.

¹⁰⁰ *Learning for Our Lives: A Union Guide to Worker-Centred Literacy*, 35.

Of the provinces examined in this study, Ontario seems to have the most direct government involvement in operator training. The Ministry of Environment designed the four-day certification preparation program for operators grandfathered under the 2004 legislation; Guelph University's Ridgetown College delivers the courses. It was in this province that the Walkerton Board of Inquiry recommended government leadership to develop a "comprehensive training curriculum for operators", evaluate existing courses, and develop a long-term training strategy.¹⁰¹

There is a need for more research on water and wastewater operator training on several key issues:

- What type of training do employers, private institutions, public institutions, freelance instructors, professional associations and others offer?
- What are the costs, and who is paying?
- Are there gaps in training, and how could those gaps be addressed?
- What improvements need to be made to ensure training serves the interests of employers, workers and the public?

4. Certification Exams and Standards

Interviewees stressed a number of concerns with the way candidates are assessed for certification. CUPE activists, educators and even employers are calling for changes to the certification regime, including:

- Exams that use a national standard, Canadian content and clear language.
- Recognition of work experience, both as an alternative or supplement to exams and formal education requirements.
- Alternatives to the written exams, such as oral exams and one-on-one assessments.

In its policies and lobbying, CUPE has called for national regulations for public water systems, including employee certification. When national exams are developed, say CUPE activists, they should use clear language as well as Canadian content. Currently, water and wastewater operator exams come from the Association of Boards of Certification (ABC) in Iowa, United States. In recent years, ABC has revised the exams for Canada, using metric measurements and Canadian terminology. CUPE presses Canadian provinces to go further by settling on national standards and recognizing equivalent certificates earned out-of-province. The Canadian exam

¹⁰¹ Chapter 12, "The Certification and Training of Operators," *Part II: Report on the Walkerton Inquiry*. See Appendix H.

should reflect not only Canadian practice but also clear language and design principles.

Prior Learning

Many in the sector are also calling for recognition of prior learning, where workers get credit for skills and knowledge earned outside of the formal education system, most notably at work. Provinces outside of Ontario and PEI already recognize work experience as a substitute for formal education as an exam pre-requisite; Ontario and PEI should follow suit. With national standards and exams, this practice should be the norm. Many of the formal prior learning and recognition programs offered by colleges and universities are onerous and expensive.

Features of prior learning recognition come into play with oral exams and in-person demonstrated assessments, the two alternatives to written exams implemented thus far. Ontario is on the forefront with exam options, though barriers persist even there. Ontario allows operators with English as a second language or a demonstrated learning disability to take an oral exam. Workers have to travel to Brampton, the only location where the oral exam is available. Ontario also offers one-on-one assessments to grandparented operators who have taken a certification preparation program and failed the written exam twice. Again, the worker pays a high price for having an assessor come to the plant to observe and validate his or her skills and knowledge. Alternatives like the oral exam and in-person assessments should be more widely available, and costs should be covered by employers and governments.

5. Financing of Workplace Literacy and Certification Programs

One recurring theme in the case studies and in union advocacy is funding for workplace literacy programs and certification, including training. In submissions to government and to the Walkerton and North Battleford water inquiries, CUPE has demanded that individual workers should not have to pay the costs of mandatory certification. The costs of training and exam fees, study and reference documents, and wage replacement for study time, are substantial and a major concern for workers and the union. Workers face these costs when they prepare for certification exams to maintain their current job and advance in the future; and when they take continuing education courses required to maintain the certificate.

CUPE has lobbied for paid training and employer reimbursement of certification fees in each of the provinces studied, with limited success. No province has yet provided funds dedicated to workers facing the new certification requirements. Despite some success at the bargaining table, employer-paid training is sporadic and seems limited to large municipalities. In Nova Scotia, the Department of Education's Workplace Education program covers instructor costs for upgrading classes; employers and

employees have to cover wage reimbursement, books and facility costs. No other province substantially funds workplace literacy programs.

Government funding for operator training is also limited. Ontario in fact removed the obligation on employers to pay for course and conference costs when it revised the Safe Water Drinking Act in 2004. More research is needed on government and employer-paid training for water and wastewater workers, but data gathered for this project suggest that many operators shoulder the costs of meeting new standards.

6. Job Security and Advancement

While the focus of this research was literacy and training, job security and opportunities for advancement are underlying concerns for most CUPE water and wastewater workers. At the provincial and local levels, CUPE has demanded employment and income protection for operators who fail the certification exams. A worker transferred to another position in the facility or municipality should not lose pay.

Access to promotions is another pressing issue for many CUPE water and wastewater workers. Direct Responsible Charge (DRC) experience is required for Level 3 and 4 certificates, but unclear definitions of DRC and absence of implementation rules give employers leeway to favour some employees over others. In PEI and Saskatchewan, CUPE is calling on government to encourage operators to obtain higher levels of certification by clearly defining DRC and Operator in Charge experience, developing transparent guidelines for allocating DRC experience, and applying these guidelines consistently and in keeping with seniority and other contract obligations.

5.1 Recommendations to CUPE

This research suggests a path for CUPE in the water sector and in other sectors where members are facing mandatory certification.

- 1) CUPE should lobby governments and employers to strengthen and improve certification systems and processes, as identified in the discussion points above.

Governments and employers should:

- Fund worker-centred literacy programs that (a) include organizational needs assessments (not tests like TOWES and CAAT) and emergent curriculum; (b) reflect true union-employer partnerships; and (c) meet the union principles for literacy identified in Appendix D;

- Develop a training strategy for the water sector that reflects national standards and curriculum, and relies on the public education system;
 - Fund training for water and wastewater workers--both certification prep courses and continuing education;
 - Implement certification exams that (a) use a national standard, Canadian content and clear language, (b) recognize prior learning, both as an alternative or supplement to exams and formal education requirements, and (c) include alternatives such as oral exams and one-on-one assessments;
 - Provide job security and promotion opportunities to existing water and wastewater workers.
- 2) CUPE should strengthen and coordinate its efforts to support water and wastewater workers as well as other members who face mandatory certification.
- CUPE activists need opportunities to share their experiences and coordinate their efforts both provincially and nationally. By sharing experiences with provincial regulations, contract language and education strategies, CUPE locals and divisions would be in a stronger position to achieve the goals identified above. National coordination is particularly important for achieving Canadian standards and inter-provincial recognition of workers' credentials.
- 3) Drawing on its experience with water and wastewater certification, CUPE should undertake a needs assessment of other sectors facing mandatory certification.

This research would examine:

- The occupations and number of members affected.
- The impacts of certification on members.
- Bargaining issues and responses.
- The education needs of members, including literacy and basic skills.
- Learning opportunities available, including training and continuing education curricula, articulation between programs, exam preparation programs and resources, providers of training, barriers built into the exams, and options like oral exams and recognition of prior learning.
- The intersection of certification and privatization.

Based on the needs assessment, CUPE should develop a strategy to shift responsibility of certification from individual workers to a shared responsibility with their union, employer and government.

APPENDIX

A: Glossary

ABC – Association of Boards of Certification (ABC), located in Ames, Iowa.

CAAT – The Canadian Adult Achievement Test is a standardized test measuring years of formal education: Level A (1 – 3 years); Level B (4 – 6 years); Level C (7 – 10 years); and Level D (11 – 12 years).

Case Study – Describes and examines projects or programs in detail.

CEUs (Continuing Education Units) – Operators in several provinces are required to complete a certain number of continuing education hours between certification periods.

Contact Hour – Two-way communication between a learner and an instructor. Ten contact hours = 1 CEU.

DRC (Direct Responsible Charge) – DRC is experience gained when an operator is responsible for the operation and supervision of a facility. See Appendix E for different provincial definitions.

Duty to Accommodate - Steps that the employer and union must take to avoid discrimination. The employer and the union must look for standards, requirements, practices, or rules that discriminate against workers, and then eliminate those barriers. For example, the employer might change the work schedule so that workers can follow their religious beliefs, or renovate a building so that workers with disabilities can use it. Workers who need accommodation must cooperate and accept reasonable offers of accommodation.

Emergent Curriculum – The program content emerges from the participants as they engage in the program.¹⁰²

Essential Skills – Human Resources and Skills Development Canada (HRSDC) defines essential skills as “the skills needed for work, learning and life. They provide the foundation for learning all other skills and enable people to evolve with their jobs and adapt to workplace change.”¹⁰³ HRSDC identifies nine essential skills: reading text, document use, numeracy, writing, oral communication, working with others, computer use, continuous learning, and thinking skills. Thinking skills include problem-solving, decision-making, job task planning and organizing, significant use of memory, finding information, and critical thinking. Outside of the HRSDC usage, “essential skills” is

¹⁰² Connon-Unda, *Seeds for Change: A Curriculum Guide for Worker-Centred Literacy*, 15.

¹⁰³ http://www15.hrdc-drhc.gc.ca/English/general/Understanding_ES_e.asp

also used as a synonym for literacy, along with other terms such as “basic skills” and “foundation skills.”

Essential Skills Profiles – These profiles “describe how each of the nine essential skills is used by workers in a particular occupation.”¹⁰⁴ HRSDC is developing these profiles for the occupations listed in the National Occupation Classification (NOC). These profiles include a description of the occupation, a list of the most important essential skills, examples of tasks that illustrate how the essential skills are applied, and ratings that indicate the level of difficulty for each skill.

Facilities – There are four types of water and wastewater facilities in most provinces: water distribution, water treatment, wastewater collection and wastewater treatment. Each type of facility is further classified as a Class 1, 2, 3, or 4 facility based on factors such as size of population served and complexity of operation.

GED (General Education Development) – An adult education diploma issued by a province. It is considered equivalent to Grade 12.

Grandparenting – When a new provision or rule does not apply to existing workers. For example, new workers may be required to have a Grade 12 education, but workers already in the job do not have to meet this requirement.

HRSDC – Human Resources and Skills Development Canada is the federal government department responsible for human resources research and policy.

IALS (International Adult Literacy Survey) – In the 1990s, IALS tested people’s reading and writing skills in seven countries, including Canada.

Literacy – “The ability to understand and use printed information in daily activities at home, at work and in the community – to achieve one’s goals, and to develop one’s knowledge and potential” (IALS).

NLS (National Literacy Secretariat) – The unit within Human Resources and Skills Development Canada (HRSDC) that promotes literacy in Canada. The unit funds projects that develop materials, increase literacy awareness, and improve coordination and information sharing.

Operators – The workers who are responsible for the day-to-day operation, repair and maintenance of water and wastewater facilities. (See provincial regulations for specific definitions.)

¹⁰⁴ http://www.15.hrdc-drhc.gc.ca/English/general/ES_ES_Profiles_e.asp

Peer Tutors – Workers who help other workers learn, sometimes in partnership with an instructor.

Prior Learning Assessment and Recognition (PLAR) – A process of identifying, assessing, and recognizing what a person knows and can do. PLAR allows workers to demonstrate and get credit for learning that has taken place outside of formal educational institutions – for example through work, training or self-study.

Project – Activities that promote literacy.

Program – Education (literacy, basic skills or essential skills) delivered to members.

Recognition of Prior Learning (RPL) – See Prior Learning Assessment and Recognition.

Test of Workplace Essential Skills (TOWES) – Measures an individual's skills and knowledge in three workplace essential skills: reading text, document use and numeracy. The test uses workplace documents. SkillPlan (a joint labour-management initiative of the BC construction industry) and Bow Valley College jointly developed TOWES in the late 1990s. In 2004, Bow Valley College became the sole owner of TOWES.

Wastewater – Sewage or industrial process water.

Water Distribution Facility – A facility that produces, collects, stores and transmits drinking water.

B: Key People Interviewed

British Columbia

Kathy Corrigan, CUPE BC Region

Saskatchewan

Alie Dobbs, CUPE Local 21, City of Regina

Naomi Frankel, Consultant and former CUPE member

Tom Graham, President, CUPE Saskatchewan Division

Gail Lasiuk, CUPE Local 1975, University of Saskatoon

Alex Lenko, CUPE Local 21, City of Regina

Merv Simonot, CUPE Local 47, City of Saskatoon

Ron Torgerson, Saskatchewan Federation of Labour

Manitoba

John Graeb, Continuing Education, Red River College, Winnipeg

Serge Hurtubise, CUPE Local 500, City of Winnipeg

Kim Kauk, Trainer, City of Winnipeg

Kathy Todd, CUPE Local 500, City of Winnipeg

Ontario

Shelly Gordon, CUPE Ontario Region

Anita Petra, Ontario Environmental Training Consortium

Prince Edward Island

Ian Carr, Workplace Education Instructor, City of Charlottetown

Roland Ford, CUPE Local 501, City of Charlottetown

Bill McKinnon, CUPE Atlantic Region

Blaine Parkman, President CUPE Local 830, City of Charlottetown

Nova Scotia

Danny Cavanagh, CUPE Local 734, Town of Truro

John Eisnor, Nova Scotia Department of Environment and Labour

CUPE National Staff

Sylvia Sioufi, National Literacy Coordinator

Brenda Wall, Research Officer

Other

Suzanne De la Cruz, Manager of Testing and Certification, Association of Boards of Certification

Sarah MacPherson, Manager, ECO National Occupational Standards project.

C: Questions Guiding Interviews

1. What types of educational initiatives (courses or programs) for water workers has your local participated in (e.g. GED, Math, vocabulary, test taking, etc.)?
2. What was the local / organization's role in planning, delivering, and evaluating the courses (e.g. financial, committee participation, hiring of consultants, etc.)?
3. What were the reasons these courses were offered (e.g. members' requests, certification concerns, etc.)?
4. How many members have participated in these courses?
5. What were the ages, educational levels and certification levels of the participants?
6. What kind of curriculum was used? How was it developed? By whom? How were decisions about curriculum made?
7. Who taught the course? How was that decision made?
8. What were the outcomes of the courses? For individual members (e.g. attained GED, passed certification test, continued taking courses, greater self-confidence, etc.)? For the local? For the sector?
9. What worked well in the program? What would you do differently?
10. Are there plans for future courses? Why? Why not? What kinds of support would you require to plan and deliver future courses (e.g. from the union, the province, the sector, the workplace, etc.)?
11. Are there other supports around certification that the local has provided to water workers (e.g. lobbying regulatory organizations or government, passing resolutions, contract negotiations, etc.)?
12. Is there any documentation available about the initiatives that we could use for our report?
13. Who delivers training programs for water workers in your province? What is the content of those training programs? Who delivers the certification exams?
14. Other comments.

D: Principles for Literacy Practice in Labour Organizations

CUPE's 2001 National Convention resolution on *Workplace Education and Training* follows the elements of worker-centred education programs outlined by the CLC in *Learning for Our Lives*.¹⁰⁵ Education programs are worker-centred when they:

Enable workers to have more control over their lives and jobs. Workers learn about individual and collective rights. Programs build on workers' confidence and self-esteem. This strengthens workers' roles in the union, the workplace and the community.

Build on what workers already know. Programs focus on workers' strengths, recognizing that all workers bring knowledge and skills to a program. Workers' life experience is important.

Address the needs of the whole person. The goal of the program is to enrich the lives of workers as individuals, union members, family members and citizens.

Are developmental. Programs are not limited to improving skills for a specific job but provide workers with the opportunity for lifelong learning.

Reflect the diversity of adult workers. Programs respect different learning styles and are sensitive to workers' race, ethnicity, gender and culture.

Involve workers in decision-making. Workers participate in program planning.

Integrate literacy training with other aspects of workplace training. Literacy skills must be combined with other workplace skills to respond to changes in the workplace.

Assure confidentiality. Workers' privacy is respected. Employers do not have access to a worker's individual information.

Are open to all regardless of skill level, job classification, seniority, gender or race.

Are accessible. Programs identify and address all barriers to access.

¹⁰⁵*Learning for Our Lives: A Union Guide to Worker-Centred Literacy* (Ottawa: Canadian Labour Congress, 2000), 23-25.

E: Provincial Education and Experience Requirements for Writing Water and Wastewater Certification Exams

The tables on the following pages outline the education and experience requirements for writing water and wastewater certification exams in British Columbia, Manitoba, Nova Scotia, Ontario, Prince Edward Island and Saskatchewan. This information has been compiled from several documents, including directly from legislation. Readers are asked to check the sources before using the information. The sources (regulations and other documents available on-line) are listed for each province.

British Columbia: Requirements for Writing Water and Wastewater Exams¹⁰⁶

Class	Education	Post-Secondary Education	Experience
1	Grade 12, GED or equivalent		1 year at Class 1+ facility No substitutions
2	Grade 12, GED or equivalent		3 years at Class 1+ facility
3	Grade 12, GED or equivalent	90 CEUs of post high school in water/wastewater field, engineering or related science	4 years at Class 2+ facility, including 2 years DRC experience (No substitution for 1 year DRC)
4	Grade 12, GED or equivalent	180 CEUs of post high school in water/wastewater field, engineering or related science	4 years at Class 3+ facility, including 2 years DRC experience (No substitution for 1 year DRC)
<p>Substitutions for Education:</p> <ul style="list-style-type: none"> • 1 year operating or DRC experience for 2 years Grade School (Grade 1 – 8), no limit • 1 year operating or DRC experience for 1 year High school (Grade 9 – 12), no limit • Class 3 – 1 year DRC in Class 2 or higher facility for 45 CEUs • Class 4 – 2 years DRC in Class 3 or higher facility for 90 CEUs <p>Substitutions for Experience:</p> <ul style="list-style-type: none"> • Class 2 – 45 CEUs for 2-year operating experience • Class 3 and 4 – 90 CEUs for 2 years operating experiencing • Experience applied to education requirements cannot be applied to experience requirement 			

¹⁰⁶ *Environmental Operator Certification Program Guide* (Vancouver, British Columbia: Environmental Operators Certification Program, 2000).

Manitoba: Requirements for Writing Water and Wastewater Exams ¹⁰⁷

Class	Education	Post-Secondary Education	Experience
1	Manitoba high school diploma or GED 12		1 year in Class 1+ facility in category of facility applied for
2	Manitoba high school diploma or GED 12		3 years in Class 1+ facility in category of facility applied for
3	Manitoba high school diploma or GED 12	2 years post-secondary education in water or wastewater works operations, engineering, science or a related field	4 years in Class 2 + facility, including 2 years DRC experience at Class 2 + facility (the DRC requirement applies only to operators working in water treatment or wastewater treatment facilities)
4	Manitoba high school diploma, or GED 12	4 years post-secondary education in water or wastewater works operations, engineering, science or a related field	4 years in Class 3+ facility (for water and wastewater treatment facilities, 2 years DRC experience at Class 3+ facility)

Substitutions for Education:

- 1 year of experience for 2 years of grade school
- 1 year of experience for 1 year of high school
- 45 CEUs (in water or wastewater works operations, engineering, science or related field) for 1 year of high school
- 1 year DRC experience for 1 year post-secondary education [at class 2+ facility for Class 3 (limit: 1 year) and at Class 3+ facility for Class 4 certificates (limit: 2 years)]
- 5 Years DRC experience in Class 2+ facility for another year of post-secondary education (only for Class 3 water treatment or wastewater treatment certificates)

Substitutions for Experience:

- 45 CEUs or 1 year post-secondary education for 1 non-DRC year experience (limit: 2 years)
- 45 CEUs or 1 year post-secondary education for 2 years DRC experience (limit: 1 year)

¹⁰⁷ *Water and Wastewater Facility Operator Certification Requirements* (2003 [cited 19 February 2005]); available from <http://web2.gov.mb.ca/laws/regs/pdf/e125-077.03.pdf>

Nova Scotia: Requirements for Writing Water and Wastewater Exams ¹⁰⁸

Class	Education	Post-Secondary Education	Experience
1	Grade 12 or GED		1 year at Class 1+ facility
2	Grade 12 or GED		3 years at Class 1+ facility
3	Grade 12 or GED	2 years or 90 CEUs of post-high school in water/wastewater field, engineering or related science	4 years at Class 2+ facility, including 2 years DRC
4	Grade 12 or GED	4 years or 180 CEUs of post-high school in water/wastewater field, engineering or related science	4 years at Class 2+ facility, including 2 years DRC

Substitutions for Education:

- 1 year operating or DRC experience for 2 years grade school (Grade 1 – 8), no limit
- 1 year operating or DRC experience for 1 year high school (Grade 9 – 12), no limit
- 45 CEUs for 1 year post-secondary education, no limit

Substitutions for Experience:

- 1 year post-secondary education for 1 year operating or DRC experience (limit: 50 per cent of requirement)
- 45 CEUs for 1 year operating or DRC experience (limit: 50 per cent of requirement)

¹⁰⁸ Information for Nova Scotia requirements is based on *Water and Wastewater Facility Regulations* ([cited 19 February 2005]); available from <http://www.gov.ns.ca/just/regulations/REGS/envwaste.htm>.

Ontario: Requirements for Writing Water and Wastewater Exams ¹⁰⁹

Class	Education	Post-Secondary Education	Experience
1	Grade 12 or equivalent and entry level course of study		1 year operating experience
2	Grade 12 equivalent		3 years at Class 1+ facility
3	Grade 12 equivalent	2 years education/training*	4 years experience at Class 2+ facility 2 years Operating in Charge (OIC) in Class 2, 3 or 4 system
4	Grade 12 or GED	4 years education/training	4 years experience at Class 3+ facility, 2 years OIC in Class 3 or 4 system

*1 year of education/training = 45 CEUs

Substitutions for Education:

- GED for Grade 12
- 2- to 3- year diploma at university or community college for Grade 12
- Class 3: 1 year OIC (Class 2, 3 or 4) for 1 year education/training
- Class 4: 2 years OIC (Class 3 or 4) for 2 years education/training

Substitutions for Experience:

- Class 2, 3, 4: education/training (not elementary or high school) for 50 per cent of operating experience

¹⁰⁹ "Certification Guide for Operators and Water Quality Analysts of Drinking Water Systems: Certification of Drinking-Water System Operators and Water Quality Analysts Regulation, O. Reg. 128/04," (Toronto: Queen's Printer for Ontario, 2004), "Licensing Guide for Operators of Wastewater Facilities: Licensing of Sewage Works Operators, O. Reg. 129/04 Made under the Ontario Water Resources Act," (Toronto: Queen's Printer for Ontario, 2004).

Prince Edward Island: Requirements for Writing Water and Wastewater Exams¹¹⁰

Class	Education	Post-Secondary Education	Experience
1	High school or GED		1 year experience at Class 1+ facility (no substitution for experience)
2	High school or GED		3 years at Class 1+ facility
3	High school or GED	900 contact hours or 90 CEUs <u>or</u> 90 quarter post-secondary education credits or 60 post-secondary education semester credits in environmental control, engineering or related science	4 years experience (2 years at Class 2+ facility), including 2 years DRC experience
4	High school or GED	1,800 contact hours or 180 CEUs <u>or</u> 180 quarter post-secondary education credits or 120 post-secondary education semester credits in environmental control, engineering or related science	4 years experience (2 years at Class 3+ facility), including 2 years DRC experience

Substitutions:

This legislation does not allow experience to be substituted for education, but education can be substituted for experience:

- Class 2: 675 contact hours or 68 CEUs or 45 post-secondary education semester credits in environmental control, engineering or related science for 1 ½ years experience
- Class 3: 900 contact hours or 90 CEUs or 90 quarter post-secondary education credits or 60 post-secondary education semester credits in environmental control, engineering or related science for 2 years experience; 450 contact hours, 45 CEUs or 45 quarter credits or 30 pse semester credits in environmental control, engineering or related science for 1 year DRC
- Class 4: 900 contact hours or 90 CEUs or 90 quarter post-secondary education credits or 60 post-secondary education semester credits in environmental control, engineering or related science for 2 years experience; 900 contact hours, 90 CEUs or 90 quarter credits; 90 post-secondary education semester credits in environmental control, engineering or related science for 2 years DRC at Class 3+ facility

¹¹⁰ Information for Prince Edward Island requirements is based on *Royal Gazette* (18 December 2004 [cited 18 February 2005]); available from <http://www.gov.pe.ca/royalgazette>.

Saskatchewan: Requirements for Writing Water and Wastewater Exams

111

Class	Education	Post-Secondary Education ¹¹²	Experience ¹¹³
1	High school or GED (substitution allowed)		1 year experience in Class 1+ facility (no substitution)
2	Class 1 Certificate		3 years experience in Class 1+ facility (substitutions allowed)
3	Class 2 Certificate	2 years post-secondary education (substitutions allowed)	4 years experience in Class 2+ facility, including 2 years of DRC experience at Class 2 or 3 facility for operators seeking certification for water and wastewater treatment facilities (substitutions for non-DRC experience allowed)
4	Class 3 Certificate	4 years post-secondary education (substitutions allowed)	4 years experience, including 2 years DRC at Class 3 + for operators seeking certification for water/wastewater treatment facilities (substitutions allowed)

Substitutions for Education:

- 1 year experience for 2 years of grade school (no limit)
- 1 year experience for 1 year of high school (no limit)
- 45 CEUs for 1 year of high school (no limit)

Substitutions for Post-Secondary Education:

- 45 CEUs for 1 year post-secondary education
- 1 year drc in class 2+ facility for 1 year post-secondary education
- 5 years drc in class 2+ facility for 2 years post-secondary education
- Additional 6 years DRC in Class 3+ facility for 2 years post-secondary education

Substitutions for Experience:

- 45 ceus or 1 year post-secondary education for 1 year facility experience (limit: 50 %)
- 45 ceus or 1 year post-secondary education for 1 year non-drc experience (limit: 50 %)
- 45 ceus or 1 year post-secondary education for 1 year or 50 % drc experience
- 45 ceus or 1 year post-secondary education for 1 year non drc experience (limit: 2 years or 50 %)

¹¹¹ Information for Saskatchewan requirements is based on *Saskatchewan Water and Wastewater Works Operator Certification, 2002* (Enrionmental Protection Branch: Saskatchewan Environment and Resource Management, 2002 [cited 19 February 2005]); available from <http://www.se.gov.sk.ca/environment/protection/water/water.asp>

¹¹² Post-secondary education requirements are further clarified in Appendix C of Ibid [cited].

¹¹³ Experience has to be in the type of facility for which the operator is seeking certification.

F: Provincial Definition of Terms

	Contact hour	Continuing Education Unit
British Columbia	Not applicable	A measure of the education credit to be awarded for various educational activities an operator may undertake.
Manitoba	One hour of two-way communication and interaction between a learner and instructor in order for the learner to gain knowledge and to receive feedback.	Not applicable
Nova Scotia	Not applicable	Not applicable
Ontario	Not applicable	Not applicable
Prince Edward Island	A 50-minute classroom instruction session or its equivalent.	10 hours of participation in a continuing education program.
Saskatchewan	Two-way communication between a learner and instructor in order for the learner to gain knowledge and to receive feedback.	10 contact hours of participation in an organized continuing education experience under responsible sponsorship, capable direction and qualified instructors.

	DRC (Direct Responsible Charge)	Operating Experience
British Columbia	Individual accountability for and performance of daily, on-site operation of the facility or system, or a major segment of the facility or system.	Not applicable
Manitoba	Experience gained by the holder of a Class 2, 3 or 4 certificate through responsibility for the performance or supervision of daily on-site operational duties of a Class 2, 3 or 4 facility, or an operating shift in such a facility.	Time spent working at a facility in satisfactory performance of operating duties as approved by the director.
Nova Scotia	The direct charge of the operations at water or wastewater treatment facilities (that do or do not have shift operations, active, daily, on-site charge of the operation).	Not applicable
Ontario	<p>(Operator in Charge) – OIC – An operator or professional engineer who is designated as an operator in charge of a subsystem. An OIC can be any operator except an operator in training.</p> <p>Overall Responsible Operator (ORO) – The owner or operating authority must designate an ORO to ensure that a knowledgeable, experienced staff person is available at all times to provide advice to all operators working in the subsystem and to respond to emergencies.</p>	Experience <u>performing</u> the functions of a certified operator described in detail (also called <i>hands-on experience</i>).
Prince Edward Island	The direct charge of the operations at a public drinking water supply facility, small public drinking water supply facility, water treatment facility, water distribution facility, wastewater treatment facility or wastewater collection facility.	Not applicable
Saskatchewan	Experience gained through accountability for the performance or supervision of daily, on-site	The time spent working at a water or wastewater treatment facility in satisfactory performance of

	<p>operational duties for a facility or operating shift. This can only occur when the facility owner designates a position held by an operation to be in DRC. The owner of a facility can designate a number of DRCs for that facility.</p>	<p>operating duties as approved by the certification board.</p>
--	---	---

G: Number of Water and Wastewater Operators by Province

Association of Boards of Certification Database: Number of Operators Certified by Province¹¹⁴			
Province	Year of Information	Number of Operators	Administrator of Certification Program
British Columbia	2001	1,597	British Columbia Environmental Operators Certification Program
Alberta	2001	1,856	Alberta Environment
Saskatchewan	2004	640	Saskatchewan Operator Certification Program
Manitoba	2004	398	Manitoba Conservation
Ontario	2001	10,500	Ontario Environmental Training Consortium
Quebec	No information available		
New Brunswick	2002		
Nova Scotia	2001	400	Government Agency
Prince Edward Island	1998		Voluntary
Newfoundland and Labrador	2003	162	Government Agency / Board
Atlantic	2001	580	Board
TOTAL		16,133	

¹¹⁴ These numbers indicate the number of operators certified by certification program administrators as reported on the Association of Boards of Certification (ABC) online database: <http://www.abccertonline.org>; ABC does “**not** guarantee the accuracy or completeness of information contained in the database.”

2001 Census - Canada's Workforce: Water and Waste Plant Operators by Province¹¹⁵			
	In Labour Force	Employed	Unemployed
Canada	6,200	5,960	235
Newfoundland & Labrador	35	35	0
Prince Edward Island	15	20	0
Nova Scotia	230	215	20
New Brunswick	110	105	10
Quebec	1,140	1,095	50
Ontario	2,410	2,325	90
Manitoba	365	350	15
Saskatchewan	370	365	0
Alberta	825	785	35
British Columbia	645	630	20
Yukon Territory	15	15	0
Northwest Territories	20	20	0
Nunavut	0	0	10
Water and Waste Plant Operators by Gender			
Female	560	540	25
Male	5,635	5,425	210

¹¹⁵ Statistics Canada, 2001 Census, see: <http://www12.statcan.ca/english/census01/home/Index.cfm>

H: The Walkerton and North Battleford Public Inquiries

In May 2000, approximately 2,300 people became ill and seven people died when the water distribution system in Walkerton, Ontario became contaminated. In April 2001, between 5,800 and 7,100 residents of North Battleford, Saskatchewan became ill when that city's water distribution system became contaminated. Provincial inquiries were held in each location.¹¹⁶ A 2003 comparison of the two accidents indicated that a complex combination of factors contributed to both accidents, including: budget reductions imposed by the provincial governments, inadequate oversight and enforcement by local governments and provincial regulatory agencies, physical factors (e.g. cattle manure and heavy rains in Walkerton, calf feces and a heavy spring rainfall in North Battleford), and inadequate operator training.¹¹⁷ Inquiries into both disasters looked at operator training and certification.

Saskatchewan

In Saskatchewan, certification for operators had been legislated in 2000, prior to the crises in Walkerton and North Battleford. However, the North Battleford Water Inquiry heightened public awareness of operator training and certification. Submissions to the Inquiry by the City of North Battleford and the Saskatchewan Government made recommendations about the implementation of mandatory certification.

The City of North Battleford Submission

One of the recommendations from the City of North Battleford submission to the North Battleford Water Inquiry included:

That the Province of Saskatchewan proceed with mandatory operator certification but that steps be taken to extend the time within which operators currently employed may take their exams and qualify under the program. Further, we suggest that steps be taken to amend the program to avoid a situation where virtually none of the operators of a water treatment or

¹¹⁶ Robert D Laing, *Report of the Commission of Inquiry into Matters Relating to the Safety of the Public Drinking Water in the City of North Battleford, Saskatchewan* (Saskatchewan: The Office of the Queen's Printers, 2002 [cited 28 February 2005]); available from www.northbattlefordwaterinquiry.ca, Dennis R. O'Connor, *Report of the Walkerton Inquiry. Part I. The Events of May 2000 and Related Issues* (Ontario Ministry of the Attorney General, 2002 [cited 28 February 2005]); available from <http://www.walkertoninquiry.com/>.

¹¹⁷ Dennis M. Woo and Kim J. Vicente, "Sociotechnical Systems, Risk Management, and Public Health: Comparing the North Battleford and Walkerton Outbreaks," *Reliability Engineering and System Safety* 80 (2003). See also "Walkerton Inquiry Report: Part 1-- Provincial Government Cutbacks the Main Factor in Tragedy, but Recommendations to Affect Water System Operators," (Canadian Union of Public Employees, 23 January 2002).

wastewater treatment plant need be certified so long as they have access to a certified operator.¹¹⁸

The Saskatchewan Government Submission

One of the recommendations in the submission made on behalf of the Province of Saskatchewan to the North Battleford Water Inquiry concerned the “adequacy of training, education and continuing education for water works, sewage works operators.”¹¹⁹ Specifically, the submission recommended that the Saskatchewan Institute of Applied Science and Technology (SIAST) curriculum be reviewed and that continuing education be required of water and sewage works operators.

The Inquiry Report

Among the 28 recommendations arising out of the North Battleford Inquiry, two pertained to operators:

24. That the government amend the operator certification regulations to provide that, after the first renewal, each operator must take a certain number of continuing education credits to qualify for the second renewal, and each renewal thereafter.
25. That the government ensure there are sufficient continuing education courses available to meet the needs of operator continuing education.¹²⁰

Ontario

In Ontario, legislation requiring operator certification had been enacted in 1993, and operators working without a certificate at that time were grandparented.¹²¹ The Walkerton Inquiry Report contained recommendations addressing operators—some specific to grandparented operators.¹²² Five of the 28 recommendations in *Part I*:

¹¹⁸ Stevenson Priel, Hood & Thornton, Barristers & Solicitors, *North Battleford Water Inquiry: Submission on Behalf of the City of North Battleford* (City of North Battleford, 2002 [cited 2004]). Available at: <<http://www.northbattlefordwaterinquiry.ca/pdf/finalsubmission-CNB.pdf>>

¹¹⁹ MacPherson, Leslie & Tyerman, Barristers and Solicitors, *The North Battleford Water Inquiry: Submission of the Province of Saskatchewan* (Regina: Saskatchewan Environment and Resource Management, Municipal Affairs and Housing, Saskatchewan Health, Saskwater Corporation, 2002).

¹²⁰ Commissioner the Honourable Justice Robert D. Laing. *Report of the Commissioner of Inquiry into Matters Relating to the Safety of the Public Drinking Water in the City of North Battleford, Saskatchewan* (28 March 2002 [cited 2004]). Available at: <<http://www.northbattlefordwaterinquiry.ca/final/pdfdocs.html>>

¹²¹ Grandparenting is when a new provision or rule does not apply to existing workers. In this case, new operators had to have the certificate, but workers already in the job did not.

¹²² Commissioner the Honourable Dennis R. O'Conner. *Part I: Report of the Walkerton Inquiry. Events of 2000 and Related Issues* (2002 [cited 2004]). Available at: <http://www.attorneygeneral.jus.gov.on.ca/english/about/pubs/walkerton/part1/WI_Chapter_15.pdf>

Report of the Walkerton Inquiry concerned the education, training and certification of operators:

20. The government should require all water system operators, including those who now hold certificates voluntarily obtained through the grandparenting process, to become certified through examination within two years, and to be periodically recertified.
21. The materials for water operator course examinations and continuing education courses should emphasize, in addition to the technical requirements necessary for performing the functions of each class of operator, the gravity of the public health risks associated with a failure to treat and/or monitor drinking water properly, the need to seek appropriate assistance when such risks are identified, and the rationale for and importance of regulatory measures designed to prevent or identify those public health risks.
22. The government should amend Ontario Regulation 435/93 to define “training” clearly, for the purposes of the 40 hours of annual mandatory training, with an emphasis on the subject matter described in Recommendation 21.
23. The government should proceed with the proposed requirement that operators undertake 36 hours of MOE-approved [Ministry of Environment] training every three years as a condition of certification or renewal. Such courses should include training in emerging issues in water treatment and pathogen risks, emergency and contingency planning, the gravity of the public health risks associated with a failure to treat and/or monitor drinking water properly, the need to seek appropriate assistance when such risks are identified, and the rationale for and importance of regulatory measures designed to prevent or identify those public health risks.
24. The MOE should inspect municipal water systems regularly for compliance with Ontario Regulation 435/93, enforce the regulation strictly, and follow up when non-compliance is found in order to ensure that operators meet certification and training standards.¹²³

In *Part II: Report of the Walkerton Inquiry*, six of the 93 recommendations concerned the education, training and certification of operators:

¹²³ *Part I: Report on the Walkerton Inquiry*

http://www.attorneygeneral.jus.gov.on.ca/english/about/pubs/walkerton/part1/WI_Chapter_1_5.pdf

59. The Ministry of the Environment should continue to require the mandatory certification of persons who perform operational work in water treatment and distribution facilities. Education, examination, and experience are essential components of ensuring competence.
60. The Ministry of the Environment should require water system operators who currently hold certificates obtained through the grandparenting process to become certified through examination within two years, and it should require operators to be recertified periodically.
61. The Ministry of the Environment should require all applicants for an operator's licence at the entry level to complete a training course that has a specific curriculum to ensure a basic minimum knowledge of principles in relevant subject areas.
62. The Ministry of the Environment should develop a comprehensive training curriculum for operators and should consolidate the current annual training requirement in Ontario Regulation 435/93 and the proposed requirement of ministry-approved training into a single, integrated program approved by the Ministry of the Environment.
63. The Ministry of the Environment should take measures to ensure that training courses are accessible to operators in small and remote communities and that the courses are tailored to meet the needs of the operators of these water systems.
64. The Ministry of the Environment should meet with stakeholders to evaluate existing training courses and to determine the long-term training requirements of the waterworks industry. The ministry should play an active role in ensuring the availability of an array of courses on the subjects required to train operators.¹²⁴

¹²⁴ Chapter 12, "The Certification and Training of Operators", *Part II: Report on the Walkerton Inquiry*
http://www.attorneygeneral.jus.gov.on.ca/english/about/pubs/walkerton/part2/Chapter_12.pdf

I: Resources

Legislation

British Columbia: “Drinking Water Protection Act: Drinking Water Protection Regulation”

http://www.qp.gov.bc.ca/statreg/reg/D/200_2003.htm

Manitoba: “The Environment Act: Water and Wastewater Facility Operator Certification Requirements”

<http://web2.gov.mb.ca/laws/regs/pdf/e125-077.03.pdf>

Nova Scotia: “Environment Act: Water and Wastewater Facility Regulations”

<http://www.gov.ns.ca/just/regulations/REGS/envwaste.htm>

Ontario: “Safe Drinking Water Act: Certification of Drinking-Water System Operators and Water Quality Analysts Regulation”

http://www.e-laws.gov.on.ca/DBLaws/Statutes/English/02s32_e.htm

“Water Resources Act: Licensing of Sewage Works Operators Regulation”

http://www.e-laws.gov.on.ca/DBLaws/Statutes/English/90o40_e.htm

Prince Edward Island: “Environmental Protection Act: Drinking Water and Wastewater Facility Operating Regulations”

<http://www.gov.pe.ca/royalgazette>

Saskatchewan: “The Environmental Management and Protection Act: The Water Regulations”

<http://www.qp.gov.sk.ca/documents/english/Regulations/Regulations/e10-21r1.pdf>

Provincial Certification Program Guides

British Columbia

Environmental Operator Certification Program Guide Environmental Operators Certification Program, 2000 [cited March 2005]. Available from <http://www.eocp.org/docs/guide.pdf>

Ontario

Certification Guide for Operators and Water Quality Analysts of Drinking Water Systems: Certification of Drinking-Water System Operators and Water Quality Analysts Regulation, O. Reg. 128/04 Queen's Printer for Ontario, August, 2004 [cited March 2005]. Available from <http://www.oetc.on.ca/pdf/guide.pdf>

Licensing Guide for Operators of Wastewater Facilities: Licensing of Sewage Works Operators, O. Reg. 129/04 Made under the Ontario Water Resources Act Queen's Printer for Ontario, 2004 [cited March 2005]. Available from http://www.oetc.on.ca/pdf/wastewater_guide_r1.pdf

Saskatchewan

Water and Wastewater Operator Certification Program Guide Saskatchewan Environment, 2004 [cited March 2005]. Available from <http://www.se.gov.sk.ca/environment/protection/water/epb144.pdf>

CUPE Literacy Reference Group Members

- EMILY BIRD, CUPE 1505, ALBERTA
- SARAH BJORKNAS, CUPE 23, BRITISH COLUMBIA
- DANNY CAVANAGH, CUPE 734, NOVA SCOTIA
- LEO CHEVERIE, CUPE 1870, PRINCE EDWARD ISLAND
- TOM CIANCONE, CUPE 4400, ONTARIO
- BERNARD GALLANT, CUPE 51, NEW BRUNSWICK
- GAIL LASIUK, CUPE 1975, SASKATCHEWAN
- DIANNE MARTIN, CUPE 1289, NEWFOUNDLAND AND LABRADOR
- MARIA MORIARTY, CUPE 1582, ONTARIO
- KATHY TODD, CUPE 500, MANITOBA
- BETTY JEAN SUTHERLAND, NATIONAL EXECUTIVE BOARD LIAISON
- SUSAN RUFFO, NATIONAL PRESIDENT'S OFFICE
- MONIQUE JOLY, UNION DEVELOPMENT STAFF
- SYLVIA SIOUFI, LITERACY COORDINATOR

Literacy

Connon-Unda, Jean. *Seeds for Change: A Curriculum Guide for Worker-Centred Literacy, Learning in Solidarity Series*. Ottawa: Canadian Labour Congress, 2001.

Learning for Our Lives: A Union Guide to Worker-Centred Literacy. Learning for Our Lives Series. Ottawa: Canadian Labour Congress, 2000.

Making It Clear: A Clear Language and Design Screen. Ottawa: Canadian Labour Congress, 2001.

Making It Clear: Clear Language for Union Communications. Learning in Solidarity Series. Ottawa: Canadian Labour Congress, 1999.

References

"Canadian Union of Public Employees, Local 287 Submission to the North Battleford Water Inquiry." 9 January 2002.

———. "Pilot Project: Water and Wastewater Workers Essential Skills Project." Saskatoon, SK: Canadian Union of Public Employees, Saskatchewan Division, 2002.

Certification Guide for Operators and Water Quality Analysts of Drinking Water Systems (1 August) Queen's Printer for Ontario, 2004 [cited 19 February 2005]. Available from <http://www.ene.gov.on.ca/envision/gp/4723e.pdf>.

"Certification Guide for Operators and Water Quality Analysts of Drinking Water Systems: Certification of Drinking-Water System Operators and Water Quality Analysts Regulation, O. Reg. 128/04." 44. Toronto: Queen's Printer for Ontario, 2004.

Connon-Unda, Jean. *Seeds for Change: A Curriculum Guide for Worker-Centred Literacy*. Ottawa, ON: Canadian Labour Congress, 2001.

Edwards, Heather. "Certification Regimes for Water and Wastewater Facility Operators: A Review of Provincial and First Nations Approaches." 24: Institute of Governance, 2001.

Environmental Operator Certification Program Guide. Vancouver, British Columbia: Environmental Operators Certification Program, 2000.

Feitzelmayer, Gus. "Appendix 1: Operator Certification in Saskatchewan." In *Certification Regimes for Water and Wastewater Facility Operators: A Review of Provincial and First Nation Approaches*, edited by Heather Edwards, 21-24: Institute on Governance, 2001.

Frankel, Naomi. "Final Report, The Water & Wastewater Essential Skills Project." Regina, 2004.

———. "Return to Learn: A Pilot Workplace Essential Skills Training Program." 55. Regina: The City of Regina and Canadian Union of Public Employees, Local 21, 2004.

Grandparented Operator Course Information Guide and Application Form [cited 28 February 2005]. Available from <http://www.oetc.on.ca/pdf/gpinfoguide.pdf>.

Laing, Robert D. *Report of the Commission of Inquiry into Matters Relating to the Safety of the Public Drinking Water in the City of North Battleford, Saskatchewan* Saskatchewan: The Office of the Queen's Printers, 2002 [cited 28 February 2005]. Available from www.northbattlefordwaterinquiry.ca.

Learning for Our Lives: A Union Guide to Worker-Centred Literacy. Ottawa: Canadian Labour Congress, 2000.

"Licensing Guide for Operators of Wastewater Facilities: Licensing of Sewage Works Operators, O. Reg. 129/04 Made under the Ontario Water Resources Act." Toronto: Queen's Printer for Ontario, 2004.

Miller, Phil, Blaine Parkman, Frank Morrissey, and Danny Cavanagh. *Public Water Works: A Workers' Roundtable on Privatization* [magazine]. Our Times: Canada's Independent Labour Magazine, 2003 [cited May / June 2004]. Available from http://www.ourtimes.ca/features/03_may_june.html.

National Occupational Standards for Canadian Water and Wastewater Operators The Canadian Council for Human Resources in the Environment Industry (now ECO), summer 2004. Available from http://www.eco.ca/pdf/wastewater_eng.pdf

O'Connor, Dennis R. *Report of the Walkerton Inquiry. Part I. The Events of May 2000 and Related Issues* Ontario Ministry of the Attorney General, 2002 [cited 28 February 2005]. Available from www.walkertoninquiry.com.

Royal Gazette 18 December 2004 [cited 18 February 2005]. Available from <http://www.gov.pe.ca/royalgazette>

- Saskatchewan Water and Wastewater Works Operator Certification, 2002*
Environmental Protection Branch: Saskatchewan Environment and Resource Management, 2002 [cited 19 February 2005]. Available from <http://www.se.gov.sk.ca/environment/protection/water/water.asp>
- "Submission to the Government of Ontario on Bill 175 Ontario Sustainable Water and Sewage Systems Act 2002 and Bill 195 Safe Drinking Water Act 2002." 9: CUPE Research, 2002.
- "Walkerton Inquiry Report: Part 1 -- Provincial Government Cutbacks the Main Factor in Tragedy, but Recommendations to Affect Water System Operators." Canadian Union of Public Employees, 23 January 2002.
- Water and Wastewater Facility Operator Certification Requirements 2003* [cited 19 February 2005]. Available from <http://web2.gov.mb.ca/laws/regs/pdf/e125-077.03.pdf>.
- Water and Wastewater Facility Regulations* [cited 19 February 2005]. Available from <http://www.gov.ns.ca/just/regulations/REGS/envwaste.htm>.
- Water Services in Ontario: For the Public, by the Public* [A Submission to Phase 2 of the Walkerton Inquiry]. The Canadian Environmental Law Association, The Canadian Union of Public Employees, The Ontario Public Service Employees Union, 22 June 2001 [cited 5 March 2005]. Available from <http://62.44.8.131/publications/cardfile.shtml?x=1052>.
- Woo, Dennis M., and Kim J. Vicente. "Sociotechnical Systems, Risk Management, and Public Health: Comparing the North Battleford and Walkerton Outbreaks." *Reliability Engineering and System Safety* 80 (2003): 253-69.

About the Researcher

Lynette Plett is an educational consultant with over 10 years of experience in workplace education. Lynette's experience includes conducting workplace needs assessments, developing customized workplace curriculum, and instructing in a variety of unionized and non-unionized workplaces. Lynette has developed professional development materials for workplace educators and taught two summer institutes on adult education in the workplace at the University of Winnipeg.

Currently, Lynette is a full-time student at the Ontario Institute for Studies in Education of the University of Toronto (OISE/UT). Lynette holds a Graduate Assistantship (GA) at OISE/UT and since 2002 has worked as a researcher on a joint project with the Canadian Labour Congress Literacy Project and OISE/UT, "Workplace Literacy: Labour Contributions to Principles and Practice". In this capacity, Lynette has been a regular guest at the CLC Literacy Working Group meetings.

As a Graduate Assistant at OISE/UT, Lynette is a member of CUPE Local 3907. She served as Secretary-Treasurer for the local for two years. She was also the Chair of CUPE Ontario Division's Ontario University Workers Coordinating Committee (OUWCC). As Chair of the OUWCC, Lynette was also an active member of CUPE Ontario Division's Executive Board.