



CANADIAN WATER AND WASTEWATER
OPERATOR CERTIFICATION
BEST PRACTICES



Canadian Water and Wastewater Operator Certification Committee (CWWOCC) in cooperation
with the
Association of Boards of Certification

September 2014

Alberta, Environment and Sustainable Resource Development
British Columbia, Environmental Operators Certification Program
Manitoba, Conservation and Water Stewardship
New Brunswick, Department of Post-Secondary Education, Training and Labour
Newfoundland and Labrador, Department of Environment & Conservation
Northwest Territories, Department of Municipal and Community Affairs Nova Scotia,
Environment
Ontario, Ministry of the Environment and Climate Change
Prince Edward Island, Department Environment, Labour and Justice Québec
(observer), Commission des Partenaires du Marché du Travail Saskatchewan, Water
Security Agency
Yukon, Department of Health and Social Services

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GLOSSARY

Canadian Best Practices for Water and Wastewater Operator Certification

Introduction:

The Canadian Water and Wastewater Operator Certification Committee (CWWOCC) was established by the Canadian members of the Association of Boards of Certification (ABC) in 2009 to develop Canadian operator certification best practices. The Committee is continuing the work of the previous Canadian Certification Education and Training Committee.

These best practices were developed collectively by the provinces and territories which have active operator certification programs in place as of September 2009. They represent the best practice as identified by the provinces and territories through consensus, using the Association of Boards of Certification Program Standards, 2007 as a starting point. In some cases the practices are common practice by all or a majority of jurisdictions while other practices are currently being met by none. The purpose of the best practices is to provide greater program and administrative guidance to jurisdictions and to strive for greater harmonization of program requirements across Canada. In this way the best practices support reciprocity and the Agreement on Internal Trade.

In this document the words “should”, “shall” and “recommended” are used. The use of these words in this document only applies to the application of the best practice. For example, if the word “shall” is used it is used in the context that a policy is required in order to meet the best practice. It is recognized that a jurisdiction for a variety of reasons may or may not choose to meet a best practice based on local circumstances.

The Agreement on Internal Trade became effective August 1, 2009, subject to the passing of supporting provincial and territorial legislation. The Agreement requires each province and territory to issue the same type and level of drinking water and wastewater certificate which have been issued in other provinces and territories provided that the certificate is in good standing. Provinces and territories may require additional administrative or “non-material” requirements such as, but not limited to, the payment of fees, confirmation that the operator’s certificate is in good standing, training/testing on applicable provincial/territorial legislation or verification of employment as an operator in the province/territory. The Agreement supersedes the Agreement on Reciprocal Certification for Water and Wastewater Operators signed in 1998.

This document is to be used by each jurisdiction to review their programs and where possible to align procedures and rules to achieve the intent of the best practices in the most practical manner available which meets their individual circumstances. It is

recognized that where regulations or other legal instruments would require amendments to achieve a best practice that provinces and territories will consider these changes as the regulations come up for amendment.

The following provinces/territories participated in the development of these practices:

- Alberta, Environment and Sustainable Resource Development
- British Columbia, Environmental Operators Certification Program
- Manitoba, Conservation and Water Stewardship
- New Brunswick, Department of Post-Secondary Education, Training and Labour
- Newfoundland and Labrador, Department of Environment & Conservation
- Government of the Northwest Territories
- Nova Scotia, Environment
- Ontario, Ministry of the Environment and Climate Change
- Prince Edward Island, Department Environment, Labour and Justice
- Québec (observer), Commission des Partenaires du Marché du Travail
- Saskatchewan, Water Security Agency
- Yukon, Department of Health and Social Services

The Association of Boards of Certification provided logistical, facilitation and financial support for this initiative.

This document will be maintained by the Association of Boards of Certification.

This document will be reviewed at a minimum of every three years by the CWWOCC.

1.0 Certified Operator Requirement for Facilities/Systems

Justification for Position: The Walkerton Inquiry demonstrated that operational responsibility needs to rest with an individual with the required knowledge, training and experience to make the right decisions to protect public and environmental health. Having an individual certified to the level of the facility/system ensures that a minimum of experience and training have been achieved.

Section 2.2 of the Model Standards of Operator Certification (ABC) requires that direct supervision of each facility and/or system or major segment of the facility/system be placed under the responsible charge of an operator(s) holding a valid certification equal to or greater than the classification of the facility or system. Section 2.3 requires that all operating personnel who make process control and system integrity decisions to hold the appropriate type of certification.

Best Practice:

- 1.1 Each facility/system must employ at least one operator who is formally designated and documented as the overall operator in responsibility or the operator in overall charge (or equivalent designation) certified to at least the level of the facility/system. This operator shall be in a position of operational responsibility following the requirements specified by the certification authority. This operator must be able to act and respond to operational needs in the facility/system. If the designated operator is not able to act another operator certified at an equivalent level or higher shall be designated. If changes are made to the designation the operating authority must clearly document the change and communicate to the regulatory authority.
- 1.2 Certification programs shall require all operating personnel who make process control and system integrity decisions about water/wastewater quality or water quantity that affect public health or the environment to hold certification.

Revision History:

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September 8, 2014

2.0: Classification for Water and Wastewater Facilities/Systems

Justification for Position:

Association of Boards of Certification Facility Classification criteria.

Best Practice:

- 2.1 Facility/system classification is the process of assigning a value that reflects the size and/or complexity of operation of water treatment and wastewater treatment facilities; or water distribution and wastewater collection systems. Facilities and Systems shall be classified in one of four classes designated as Class I, II, III, or IV, with Class IV being the highest.
- 2.2 Classification of drinking water and wastewater treatment facilities shall be based on a point system in accordance with standards established by the Association of Boards of Certification (ABC), as shown:

Class I \leq 30 points; Class II = 31 - 55 points;
Class III = 56 - 75 points; and Class IV $>$ 75 points

Classification of water distribution and wastewater collection systems shall be based upon the above point system or the following population served:

Class I \leq 1,500 persons;
Class II = 1,501-15,000 persons;
Class III = 15,001 – 50,000 persons; and Class IV $>$ 50,000 persons

Classification of any facility or system may be changed at the discretion of the jurisdiction's certifying authority by reason of changes in any condition or circumstance upon which the original classification was predicated.

2.3 Classification templates should be reviewed periodically. Treatment facilities that utilize new or innovative technologies not currently defined in the ABC points system shall be reviewed on a case by case basis. Facilities using technologies not included in the ABC system must have a documented history of successful operation to be classified.

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3.0: Small Drinking Water and Wastewater Certification

Justification for Position:

Smaller drinking water and wastewater systems/facilities have unique operational requirements and risks and many have limited operational capacity. As a result knowledge and experience requirements in a small system/facility are different from those found in larger systems/facilities. To best serve operators of small systems/facilities a certification process tailored to their needs is recommended.

Best Practice:

3.1 Each jurisdiction's certifying authority is encouraged to offer a small water and a small wastewater operator certification for systems/facilities serving a maximum population of 500 or equivalent flow rate.

3.2 The following are the requirements for obtaining a small water/wastewater certificate:

- 1) Six hours of small system/facility training; and
- 2) Six months of operating experience.

Continuing education should be required for renewal at an amount determined by the jurisdiction's certifying authority.

Revision History:

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4.0: Education

Justification for Position:

Completion of Grade 12 or equivalent helps to ensure that an operator has the minimum acceptable reading, mathematical, science (chemistry/biology) knowledge and abilities to read, understand, calculate and interpret operational and safety instructions. Furthermore the completion of Grade 12 ensures that operators will be able to master the concepts contained in operational training courses.

Completion of Grade 12 is a requirement in many jurisdictions for entry into a trade.

The inclusion of equivalences ensures that persons who have not completed grade 12 have a method to demonstrate comparable education.

Best Practice:

4.1 The following table outlines the recommended minimum education model for the certification of water and wastewater operators:

Table 1 Education Model:

Level	Education	
	Secondary	Post-Secondary
Operator-in-Training	Grade 12, GED or Equivalent	N/A
I	Grade 12, GED or Equivalent	Entry Level Training (See Section 14.0)
II	Grade 12, GED or Equivalent	N/A
III	Grade 12, GED or Equivalent	2 years or 900 contact hours
IV	Grade 12, GED or Equivalent	4 years or 1800 contact hours
Small Facilities/Systems	6 hours of training	N/A

4.2 The following¹ are considered equivalent to Grade 12:

- a) GED, or
- b) Post-secondary assessment by person or institution considered qualified to assess education status, or
- c) Successful completion of relevant trades program (trade qualified), or
- d) Successful completion of post-secondary degree program from a recognized institution, or
- e) Successful completion of diploma program from a recognized institution.

Note: There shall be no substitution of operating experience for high school

¹ Must be from a recognized institution

requirement.

- 4.3 The following courses¹ are considered acceptable for post-secondary requirements:
- a) Successful completion of relevant trades program (if not used for Grade 12 equivalency), or
 - b) Successful completion of post- secondary degree program from a recognized institution, or
 - c) Successful completion of diploma program from a recognized institution, or
 - d) Partial completion of relevant trades, post- secondary degree, or diploma programs or completion of relevant short courses, or
 - e) Correspondence courses.
- 4.4 Course work shall be broadly related to drinking water and/or wastewater operator's duties. The programs accepted for post- secondary requirements are courses in the following areas:
- a) Degree programs accepted at face value including, but not limited to, Science, Engineering, Agriculture, Biology, Chemistry, Physics, Mathematics, Laboratory Studies, Hydrogeology, or
 - b) Diploma programs accepted at face value Including, but not limited to, Applied Science and Technology, Environmental Technician or Technologist, Laboratory Studies, or
 - c) Academic portion of Applicable Trades accepted at value assigned by jurisdiction's certifying authority – Including, but not limited to, Power Engineering, Instrumentation, Plumbing, Electrical, Millwright, Mechanics, or
 - d) Relevant short course work accepted at value assigned by jurisdiction's certifying authority, or
 - e) Completion of other 4 year University Degree Programs may be accepted at a maximum of 450 contact hours.

Other courses will be reviewed on an individual basis. The course content of these shall be directly related to the delivery of water and wastewater programs.

- 4.5 Allowable substitution – Experience for Education
- a) There shall be no substitution of experience for Grade 12,
 - b) Up to 50 percent of the post-secondary education requirements can be substituted by the Direct Responsible Charge (DRC) experience that is in addition to the DRC required for that level.

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5.0: Exam Policies

Justification for Position:

All Canadian provinces and territories with active certification programs use the ABC testing services. Each province/territory has signed a Testing Services Agreement with ABC for the use of their exams. As part of the Testing Services Agreement each jurisdiction has agreed to abide by ABC's Proctor and Examination Security Policy in addition to the Instructions for Administering ABC Examinations. These guidelines provide details on the requirements for administration and invigilation of exams. This best practice reflects ABC's requirements.

Best Practice:

General

- 5.1 Operator certification exams shall be administered in such a manner as to meet or exceed ABC's security and testing requirements, including:
 - Resources available to examinees during an exam (no electronic devices except standard calculators)
 - Examinee confirmation procedure, including government issued photo ID and sign in/out procedures
 - Invigilation requirements
- 5.2 Exams consisting of 100 questions shall be a maximum of 3 hours in duration.
- 5.3 Persons who conduct training or are utility personnel are not allowed to invigilate the exam. All invigilators, who are not employed directly by the certification authority, must sign conflict of interest / non-disclosure statements and complete training or instruction as determined appropriate by the certification authority.
- 5.4 One invigilator is needed for every 25 examinees. For groups larger than 25, an assistant must be used for each additional 25 examinees being tested.
- 5.5 Provinces/territories which use prescriptive examinations shall review and revise the examinations at a minimum of every five years.

Application Best Practices

- 5.6 It is recommended that applicants meet the full certification requirements as a prerequisite for writing an examination, unless they are applying for an operator in training certification. If a jurisdiction does not have this requirement, the jurisdiction must have a three year limitation on the exam results.

- 5.7 Once an examinee has written and failed an exam a minimum of four month waiting period is required before he/she may write the next exam. An applicant may attempt to write an exam three times (initial and two re-tries). If the applicant is unable to pass on the third attempt he/she must complete training to the satisfaction of the certification authority before being allowed to write a fourth or subsequent times.
- 5.8 Applicants who fail the exam are provided with the ABC summary sheet and are not entitled to review examinations in whole or in part.
- 5.9 Accommodation for special needs (e.g. dyslexia, colour blindness) may be considered based on the legal requirements of the province/territory. Verification of the special needs must be documented by a qualified professional. A written policy shall be maintained outlining exam accommodation policies.
- 5.10 Each certification authority shall post a list of recommended exam study materials.
- 5.11 Each jurisdiction's certification authority will notify all provinces and territories along with ABC as required under the Testing Services Agreement of any breach of exam security (e.g. copying of the examination).

Exam Marks

- 5.12 All examinees must receive a mark of 70% (no bump up provisions are allowed) to pass an exam. Comment sheets shall be provided to examinees to be used to identify potentially problematic questions. The certification authority, at its discretion, may use comments on the sheets to revise exam marks.

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6.0: Experience Policies

Justification for Position: ABC Model Standards of Operator Certification

The definition of operating experience emphasizes physical operation of the processes and operational decision making and is based on ABC's definition of operating experience.

Best Practice:

- 6.1 ABC experience requirements are the best practice for Level I - IV certificate requirements. Level 3 and 4 requirements shall include the ABC requirements for Direct Responsible Charge experience.

Table 2: Experience Requirements

	Operating Experience	Direct Responsible Charge (DRC) Experience
Level I	1 year (1,800 hours)	0 years
Level II	3 years (5,400 hours)	0 years
Level III	4 years (7,200 hours)	2 years in Class 2 or higher facility/system (3,600 hours)
Level IV	4 years (7,200 hours)	2 years in Class 3 or higher facility/system (3,600 hours)

- 6.2 Each jurisdiction shall maintain a definition of "operating experience" which allows for both hands-on operating experience and experience obtained while providing on-site charge of a facility/system.
- 6.3 No education substitutions are allowed to meet the experience requirement of a Level I operator. Substitutions for up to 50% of the experience requirement are allowed for Level II, III and IV.
- 6.4 Full operating credit shall be granted for each type of facility/system an operator is employed at in full capacity unless the operator is only working part time within the system.
- 6.5 Operating experience shall be verified by an operator-in-charge or owner representative and supported by a job description and list of operational job duties
- 6.6 Operating experience means hands-on operating of the facility/system or on-site operational responsibility for operational decisions.

- 6.7 Hands-on means the applicant has been actually operating a facility/system and that the knowledge possessed was, at least in part, gathered from daily operating experience of a facility/system and not merely from a text book study.
- 6.8 On-site charge means the applicant has operational responsibility for a facility/system, and although may not be making physical hands-on operational changes, is making routine operational decisions and providing detailed and specific operational instructions to other operators.

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7.0: Remote Process Control

Justification for Position:

Remote monitoring and process control are important tools, particularly for small and remote systems. The use of remote process control does not eliminate the need for suitably qualified personnel to attend facilities on a routine basis.

Best Practice:

Definitions:

Remote Monitoring: Remote monitoring is the ability to continuously receive real time data and operational conditions from a remote location via various methods of electronic data transfer. This includes alarm systems that only indicate adverse operational conditions, (i.e. dial-out alarms, low/high limit alarms).

Remote Process Control: Remote Process Control is the ability to continuously monitor operational parameters in real time and make operational or process adjustments from a remote location.

- 7.1 No certification is required and no experience will be credited for remote monitoring.
- 7.2 An operator certified to the facility classification is required to perform or supervise the operation or process adjustments made from a remote location (see Best Practice 1.0). Remote process control experience cannot not be used to meet the operator certification experience requirements unless it has been gained in combination with hands-on experience.
- 7.3 Where a facility is operated remotely, an operator certified to the level of the facility is required to attend and perform site visits on a routine basis.
- 7.4 Experience and Direct Responsible Charge experience are credited in the same manner as any operator making process or operational decisions and adjustments.

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8.0: Direct Responsible Charge

Justification for Position:

ABC's Model Standards of Operator Certification Section 3.0 defines DRC "where a shift operation is required, accountability for and performance of active, daily on-site operation of an operating shift or of a major segment of the system/facility. Where shift operation is not required, accountability for and performance of active, daily, on-site operation of the system/facility or of a major segment of the facility/system."

Best Practice:

- 8.1 Direct Responsible Charge - DRC experience means experience gained through accountability for and:
 - a) Performance of; or
 - b) Supervision of daily, on-site operational duties for a facility/system or operating shift, but can only occur when the operator has been authorized or identified by the owner as being in control of the facility/system or operating shift.
- 8.2 An operator will gain DRC when he/she has been authorized to perform, on a day-to-day basis, the following types of duties:
 - a) Review and establish operational parameters for the facility/system; or
 - b) Control the on-site operations of the facility/system including monitoring, evaluation, and adjustment of the facility/system or process; or
 - c) Provide on-site supervision of operators performing either a) or b) above.
- 8.3 DRC experience may only be gained after an operator obtains Level II Certification. There are no DRC experience requirements for Small Systems, Level I, or Level II.
- 8.4 For Level III certification two years DRC experience must be gained in a Class II or higher facility/system. A maximum of one year of DRC experience in a Class II (or higher) facility/system may be substituted for one year of the post-secondary formal education requirement for Level III certification.
- 8.5 For Level IV, at least one year of DRC experience must be gained after receiving a Level III certificate, and at least two years DRC experience must be gained in a Class III or IV facility/system. A maximum of two years of DRC experience gained in a Class III or IV facility/system after obtaining Level III certification may be substituted for two years of the post-secondary formal education requirement for Level IV certification.

8.6 DRC substitution for education cannot also be used to meet experience requirements.

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9.0: Substitutions for Experience

Justification for Position:

Substitutions provide an opportunity for candidates to apply skills obtained in other related job functions to the experience requirements. The need-to-know is used as the benchmark to determine if a related type of experience is relevant to the functions performed by an operator. A minimum amount of true operating experience is required for each certificate to ensure that the certified individual has been exposed to typical operating procedures and processes with the type of certificate he/she is applying for.

Best Practice:

- 9.1 No substitution of education for experience for the one year, hands-on experience in the field in which certification is applied for should be permitted at Level I in all fields.
- 9.2 All operating experience in a water/wastewater facility/system which is not in the category in the area of certification being sought may be considered as related experience and may substitute for up to half (max 50%) of the required work experience at the II, III and IV.
- 9.3 All operating experience in a Federal regulated water/wastewater facility/system, an industrial potable water facility/system, a biological industrial wastewater facility can be substituted for 100% of the experience requirement at the Level I, II, III and IV. Non-potable water and non- biological industrial experience may be credited to a maximum of 50% in their respective drinking water or wastewater treatment fields.
- 9.4 Related experience to a maximum of 50% of the total experience requirement, shall be credited after a minimum of 1 year operating experience at the following ratio:
 - a. Relevant Trades: Electrician, plumber, pipe-fitter, millwright, power/stationary engineer working in a water/wastewater facility or related facility – 1:2
 - b. Relevant Trades: Electrician, plumber, pipe-fitter, millwright, power/stationary engineer not working in a water/wastewater related facility – 1:3
 - c. Technical professions directly related to water/wastewater, such as engineers, engineering technicians, environmental technicians/technologist, laboratory technicians – 1:2
 - d. Semi-relevant Trades (for water distribution/wastewater collection):
Welder, pipe- layer - 1:3

- 9.5 Post-secondary education may be substituted for DRC experience up to a max. 50%.
- 9.6 If a year of post-secondary education is substituted for experience it can only be reused for education qualification after the missing year is made up.
- 9.7 A maximum of one year of Direct Responsible Charge (DRC) experience may be substituted for post-secondary education for Level III.
- 9.8 A maximum of two years of DRC experience may be substituted for post-secondary education for Level IV.
- 9.9 45 CEUs may be substituted for 1 year of post-secondary education.
- 9.10 The maximum substitution of education and related experience for operating shall not exceed 50% of the stated operating experience requirement.
- 9.11 The maximum substitution of education and related experience for DRC experience shall not exceed one year (50%).

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September 8, 2014

10.0: Operator in Training (OIT)

Justification for Position:

Operator-in-Training designation can assist new operators in developing a career path and preparing for higher levels of certification.

Best Practice:

- 10.1 The OIT designation is recommended for those provinces which require all operators to be certified. The OIT designation is a good administrative tool to ensure operators are on path to achieve necessary experience for certification.
- 10.2 OITs are required to work under the supervision of a certified operator. OITs cannot be designated as a DRC or Overall Responsible Operator.
- 10.3 In order to register as an OIT, a person must meet the minimum education requirements.
- 10.4 The OIT certification cannot be renewed or will expire after a maximum of 5 years. As only one year of experience is required to write a Level I exam, it is recommend that the time limit be a maximum of 3 to 4 years.

Revision History:

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11.0: Conditional Certificates

Justification for Position:

N/A

Best Practice:

- 11.1 Issuing conditional certificates is specific to each jurisdiction based on specific needs. It is recommended that conditional certificates are used only in special circumstances where there are no other reasonable alternatives and it is in the public interest.
- 11.2 A certificate is issued only to the operator(s) designated by the owner. A conditional certificate shall be restricted to the individual's place of employment. Conditional certificates shall be clearly marked as conditional and restricted.
- 11.3 Operators with conditional certificates are not eligible for reciprocity with other jurisdictions under the Agreement on Internal Trade.

Revision History:

Approved: October 18, 2011

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12.0: Renewal and Reactivation

Justification for Position:

The ISO 17024 General Requirements for Bodies Operating Certification of Persons states that “the certification body defines re-certification requirements according to the competency standard”.

Expiry dates on certificates allows for re-assessment of qualifications, particularly, continuing education requirements. In addition expiry dates can aid enforcement actions. ABC Model Standards states that the expiry date of a certificate is not to exceed three years

Reactivation policies ensure consistency and fairness.

Best Practice:

- 12.1 Operator certificates shall have an expiry date.
- 12.2 Operator certificates which expire without the operator renewing or fulfilling the requirements for renewal will be subject to different renewal/reactivation requirements depending on the following situations.

Operator has not fulfilled the requirements for renewal. In this situation a renewal application is received prior to expiry of the certificate, but the conditions for renewal have not been met. This would typically include either failure to complete the continuing education required by the jurisdiction or failure to maintain experience in the drinking water/wastewater industry. Provinces and territories may either provide a short-term temporary certificate (no longer than 6 months in duration) to allow the operator to complete the required continuing education or require the operator meet the full requirements prior to renewing *the certificate*. *No additional requirements (other than applicable additional fees)* would be required by the operator to renew.

Operator has failed to renew the certificate prior to expiry. In this situation a renewal application has not been received prior to the expiry of the certificate. Provinces and territories should provide a method for operators to reactivate a certificate which has lapsed for a period of time. The actual period is to be determined by the province or territory but should not exceed three 3 years. The operator shall meet all continuing education requirements for the certificate including any training which would have been required during the period the certificate had expired. Completion of examinations is not required to renew the certificate. It is recommended that the renewal date of the certificate be the date of renewal rather than backdating to the previous expiry date.

- 12.3 An operator whose certificate has expired for a period greater than 3 years but who has relevant operating experience during that time will be assessed on a case by case basis. The province or territory may require completion of an examination at the same level of certification as the operator held.
- 12.4 In order to maintain Certification an operator must remain active in each field in which they hold certification. Promotion to management/supervisor responsibility in their field of certification constitutes “active participation” in their field(s).

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13.0: Continuing Education

Justification for Position:

The need for continuing education directly related to the operation of water facilities was found by Justice O'Connor to be of critical importance. He concluded that had operators received more training "the likelihood that they would have continued their improper practices would have been reduced."

The ISO 17024 General Requirements for Bodies Operating Certification of Persons states that certification programs shall "confirm continuing competence of the certified person."

In order to ensure the continued competency of those serving on the front line in protecting the public health and the protection of the natural environment, operators must engage in continuing education and professional development. Continuing education will ensure that operators are made aware of new and emerging public health risks, regulatory requirements, technologies and operational approaches.

The hours of training identified in this best practice is equivalent to 1-2 days of training per year, an amount the public would expect of professionals protecting community public health and the environment. Given the broad knowledge level required by operators, as identified in ABC's Need- to-Know and Continuing Education Relevancy documents, 12 hours per year is a reasonable and prudent level to ensure continual learning in this field. This amount of training would be required to expose experienced operators to continual learning on new treatment or distribution/collection topics and to ensure on-going training on regulatory changes, emergency response and other public health issues directly related to the duties and responsibilities of an operator. This level of continuing education is consistent with other related professional certificates in related fields.

Best Practice:

Continuing Education Requirements:

- 13.1 In order to renew a Level I-IV certificate an operator should be required to complete a minimum of 1.2 continuing education units per year on subjects approved by the certification authority (hours may be averaged over the term of the certificate). Continuing education shall also be required to renew a small system certificate if offered through the province/territory, in an amount determined by that jurisdiction.
- 13.2 Jurisdictions should use ABC's relevancy/approved topics lists and make modifications as deemed appropriate by the jurisdiction's certifying authority.

- 13.3 It is recommended that a minimum of 50% of all training required by an operator be on core subject areas as determined by the province/territory to ensure core operational knowledge and skills are improved. Subject areas which would not be considered core include management, safety or computer skills not related to operations.
- 13.4 Safety training should be allowed as CEUs, but no more than 25% of training required by an operator should be on safety.
- 13.5 Training should only be accepted if the operator successfully completes or passes the course. Courses taken more than once (including safety training mandated by OHS legislation) shall only be approved once per renewal period.

Criteria for CEU Acceptance:

- 13.6 Courses accepted for CEUs shall meet the following criteria:
- 1) Attendance recorded by training provider;
 - 2) Formal certificate or completion letter by the training provider;
 - 3) Students complete some form of evaluation (test, practical demonstration, verbal confirmation);
 - 4) Content of course is linked to ABC's Need-to-Know Criteria and ABC's relevancy/approved topics lists;
 - 5) Learning objectives completed;
 - 6) Course evaluation forms used; and
 - 7) Instructor(s) meets certain criteria (experience or other).
- 13.7 Each jurisdiction may exempt water/wastewater industry conferences or workshops from some or all of the above criteria.
- 13.8 Both classroom and distance learning shall be accepted provided the course meets the necessary criteria. Evaluation of distance learning shall follow ABC's Guidance for the Evaluation and Accreditation of Continuing Education.

Determination of CEU Value:

- 13.9 One (1) CEU shall equal 10 contact hours of participation in organized continuing education/training experience under the responsible, qualified direction of an instructor (IACET). Breaks and non-supervised or organized activities that do not meet the CEU acceptance criteria would not be counted towards the CEU value. It is recommended that a maximum of 0.7 CEUs be issued for each full day of training.

Course Auditing:

- 13.10 It is recommended that provinces/territories implement a process for auditing approved courses. Auditing may include department/ministry staff attending training; submission of course evaluation forms to the certification authority or surveying course attendees or other methods as determined by the certification authority.

Acceptance of Training Completed Out of Province:

- 13.11 Courses approved by another province/territory following these best practices shall be accepted at the same CEU value (subject to the same restrictions which may apply for similar training in that province or territory).

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14.0: Entry Level Training/Courses

Justification for Position:

Mandatory training on defined subjects ensures that all operators have completed training on the fundamentals of water/wastewater. Mandatory training was a recommendation made by the Walkerton Inquiry (Recommendation #61), to ensure that it is not “possible for an individual to pass the certification exam with no knowledge of, or experience in, one or more specific subjects.”

The ISO 17024 General Requirements for Bodies Operating Certification of Persons (4.2.5) specifies the appropriate relationship between a jurisdictions’ certifying authority and trainers.

ABC Model Standards require completion of 90 hours of post-secondary education in field directly related to the type of certificate being sought.

Best Practice:

- 14.1 Each jurisdiction shall require Entry Level Training as a requirement for obtaining Level 1 certification. The jurisdiction may consider developing a specific training program or adopting existing training from Colleges, Institutes or other training providers.
- 14.2 Training should include topics on the following:
 1. Critical role played by an operator in safeguarding public health and the environment
 2. Importance of complying with regulatory requirements and the concept of due diligence
 3. Ethics and code of conduct of an operator
 4. Principles of water treatment/distribution and or wastewater treatment/collection
 - a. Source characteristics
 - b. Common processes/equipment
 - c. Operational practices
 - d. Monitoring
 5. How to respond to adverse test results
 6. Importance of complying with safety requirements
 7. Other topics deemed necessary by the jurisdiction
- 14.3 Each jurisdiction shall determine the appropriate course length.
- 14.4 The Entry Level Course should be developed independently of the certification exams. The purpose of the course is not to prepare an operator to writer

certification exams, but rather to provide an overview of essential concepts and principles which all operators should be knowledgeable on.

Revision History:

Approved: April 20, 2010

Revised: March 22, 2012

September 19, 2014

15.0: Appeals

Justification for Position:

The ISO 17024 General Requirements for Bodies Operating Certification of Persons (4.2.6) requires policies and procedures for the resolution of appeals.

Best Practice:

- 15.1 An appeal process should be documented and available to operators, trainers and facility owners.
- 15.2 Candidates who fail the examination and believe this was due to an error in electronic scoring may request to have their examination scored by hand at the discretion of the jurisdiction.

Revision History:

Approved: April 20, 2010

16.0: Agreement on Internal Trade

Justification for Position: Agreement on Internal Trade requirements.

Best Practice:

- 16.1 When a province/territory has a reciprocity request from an operator certified in another province/territory the following questions will be asked of the jurisdiction's certifying authority:
- 1) Does the operator currently hold a valid operator's certificate in good standing;
 - 2) Is there currently any disciplinary or enforcement action against the operator or any sanctions against the operator;
 - 3) Is the operator's certificate restricted or conditional; and
 - 4) Expiry date of the certificate.
- 16.2 It is best practice to require an operator to declare if they are knowingly under disciplinary action from another jurisdiction.
- 16.3 It is recommended that the certificate be renewed for the remaining period in the original certification to the maximum of the period allowed in the receiving province/territory.

Revision History:

Approved: October 18, 2011

Revised: December 16, 2011

17: Suspension or Revocation of Certification

Justification for Position:

N/A

Best Practice:

- 17.1 A Certifying authority shall cancel or suspend a certificate if one or more of the following circumstances exist:
- 1) The person to whom the certificate was issued has contravened the various environment acts or regulations within a certifying jurisdiction;
 - 2) Cheating in order to aid themselves or another person to pass a certification exam;
 - 3) It is found that the person has practiced fraud or deception;
 - 4) Reasonable care, judgment or the application of the operator's knowledge or ability was not used in the performance of operation duties;
 - 5) The individual is incompetent or unable to perform prescribed duties properly;
 - 6) For any other reason the individual is no longer qualified to operate a municipal or public facility; or
 - 7) Any breach of examination or professional codes of conduct.
- 17.2 The certifying authority shall require operators to sign examination and professional codes of conduct prior to writing an examination.
- 17.3 A certifying authority will maintain records of disciplined, suspended or revoked operators, and shall share this information with other certifying authorities upon request and in keeping with privacy legislation.

Revision History:

Approved: March 22, 2012

Revised: April 17, 2012

September 8, 2014

GLOSSARY

Direct Responsible Charge (DRC) - experience means experience gained through accountability for and:

- a) performance of, or
- b) supervision of

daily, on-site operational duties for a plant (facility/system) or operating shift, but can only occur when the Operator has been authorized or identified by the Owner as being in control of the facility or operating shift.

DRC experience is a function of the position within the employing organization. More than one person can gain DRC during an operating shift if each person meets the above requirements.

Facility – The term facility is used to describe a drinking water treatment or wastewater treatment facility.

Operator in Charge (OIC) typically makes the day to day operating decisions, and instructs other operators on the facility or system procedures.

Overall Responsible Operator (ORO) has overall operational responsibility for the system.

System – The term system is used to describe the underground network of pipes used in either a Water Distribution or Wastewater Collection system.