Getting There – Certification Pathways

Whether you're thinking about a career as an Operator, or you already are a Water or Wastewater Operator, this "Grow – Career Info" part of the TR provides you with resources to move forward:

1. Getting Started	Find out why an Operator's profession can be a very good choice.
2. Seeing Others' Steps (Pools of Possibilities)	See the many ways people got their start, what they do in their various jobs, and what they did to get to the next step (certification, training)
3. Getting There (You are here!) ▲	*Discover what certification pathways will help you get where you want to go!*

Here are questions, examples, and additional resources to help you figure out your *own* certification pathway and to make plans. For EOCP's policies and details on Certification and CEUs, please go to EOCP's Program Guide to give you more background and the full descriptions of policies.

A. Choosing Disciplines *Translation* → *Area of Work*

What are you interested in *over the long term?*

1. Type of System

- ❒ Water (W) systems only
- ❒ Wastewater (WW) systems only
- ❒ Water *and* Wastewater systems

2. Kind of Work Based on System/Facility

- ❒ Medium to large systems - usually more specialized jobs, more opportunity for advancement, likely to require up to 4 levels of Operator certifications, *or*
- ❒ Small systems - usually Operators do some of everything, likely more independent, usually only 1-2 certifications required
- ❒ Systems may be in ❒ municipalities, ❒ private developments, and ❒ industrial locations

Background info:

Facilities (systems) range in size & complexity. Based on size & complexity they receive a *classification*.

Type/Kind	Level	Type/Kind	Level
Water Distribution	I-IV	Small W Systems	----
Water Treatment	I-IV	Small WW System	----
Wastewater Collection	I-II	Industrial Wastewater Treatment	I-IV
Wastewater Treatment	I-IV		

Tip: Not all Operators working at a Facility must have the same level of certification as the Facility's classification. But by working in certain Facilities you can gain experience for a higher level of certification

If you know what you prefer it helps you target what certification(s) you'll aim for eventually:

Water Distribution I II III IV	Wastewater Collection I II III IV	Small Water Systems ----
Water Treatment I II III IV	Wastewater Treatment I II III IV (*Municipal or Industrial*)	Small Wastewater Systems ----

Tip: *If you haven't begun work as an Operator, you may be able to be an Operator-in-Training.*

B. Parts of Certification

Operators' work involves public health and safety. To do this important job, Operators need to have the ***abilities, experience, skills, knowledge,*** **and** ***judgement*** required for a particular job.

Translation → *You need a combination of: 1. Education + Experience and 2. Passing an Examination.*

Certification is about doing the best to ensure Operators can bring all of these to the specific work.

Tip: The single most important requirement for certification is experience. You *must* get hands-on experience; if you are a little short on education you can make it up with extra experience.

To help understand different elements of certification, it's been broken into 2 parts. They overlap. But by breaking it down this helps you walk through each part to get an idea of what is required and the support resources available for the different parts.

1. Combination: Education + Experience → *(Abilities, Skills, & Experience)*

You need a certain amount of education/training and a certain amount of experience (time doing the related work) first. *Only then can you write an exam for a particular level.* This table helps you figure out what you need for your certification pathway.

Category*	Level I		Level II		Level III			Level IV		
	Educ.	Exp.	Educ.	Exp.	Educ.	Exp.	DRC*	Educ.	Exp.	DRC*
WD	12	1	12	3	12 + 2	4	2	12 + 4	4	2
WT	12	1	12	3	12 + 2	4	2	12 + 4	4	2
WWC	12	1	12	3	12 + 2	4	2	12 + 4	4	2
MWWT/ IWWT	12	1	12	3	12 + 2	4	2	12 + 4	4	2
OIT	12 years education				3 months experience or completion of an approved course.					
SWS	1.2 CEUs from an approved course				6 months experience (50 hours hands-on)					
SWWS	1.2 CEUs from an approved course				6 months experience (50 hours hands-on)					

****Abbreviations*** → WD (Water Distribution); WT (Water Treatment); WWC (Wastewater Collection); MWWT (Municipal Wastewater Treatment) & IWWT (Industrial Wastewater Treatment); OIT (Operator-In-Training); SWS (Small Water System); SWWS (Small Wastewater System)
DRC *(Direct Responsible Charge Experience)*.

❒ You can use the table above to begin to make a plan. Circle the certification(s) you are interested in. Start to work towards the experience and education you need. Following are resources to help you with your planning. See the EOCP Program Guide for full details and the policies.

Education/Experience: Resources for Getting There – *Information, Examples & Samples*

a. ***What***
What do you need to know for the certification(s) you are interested in?

b. ***How* - Sample:**
How could someone be most effective?

C. ***How* - Examples:**
How have others done it & what advice do they have?

a. *What* - do you need to know?
Resource: ABC's Need-To-Know

ABC stands for "Association of Boards of Certification". ABC does repeated surveys to identify the whole range of Operators' tasks and what is needed to do the tasks "competently" at different levels.

Based on their survey results ABC has created "ABC Need-to-Know Criteria" for *each* of the categories or disciplines you saw in the previous table. A similar Canadian set of documents has been worked on, but has not yet reached the level of acceptance of the *ABC Need-to-Know*.

You can use the ABC tables for each category/discipline to get an idea of the kinds of:

- ❒ Experiences you'll need to obtain to get to a certain level
- ❒ Education and training that could be relevant
  (Note: You should always check to see if a Course & the Instructor is recognized by EOCP for these purposes.)

Here are the links to the ABC site and to each of the criteria for each category/discipline.
Check the one(s) you want to look at based on what categories/disciplines you are interested in:

ABC's Homepage http://www.abccert.org/abc_certification_program/default.asp

- ❒ Water Distribution: http://www.abccert.org/pdf_docs/abc2005distntk.pdf
- ❒ Water Treatment http://www.abccert.org/testing_services/need_to_know_criteria.asp
- ❒ Wastewater Treatment http://www.abccert.org/pdf_docs/abc2008wwtntk.pdf
- ❒ Wastewater Collection: http://www.abccert.org/pdf_docs/abc2008collntk.pdf
- ❒ Small Water Systems: http://www.abccert.org/pdf_docs/abc2006vswsntk2.pdf

Tip: Once you have looked at the one(s) you're interested in you might want to print it/them so you can use that to mark up and plan your next steps.

Summary of ABC Need-to-Know Criteria Resources:

When you read any of these Need-to-Know documents look for 3 main elements:

- A list of "core competencies" – essential tasks & capabilities that have been identified
- A series of tables with the list of the core competencies and what level of knowledge & judgement is required for each task
- A list of capabilities required

Let's walk through an example from the *Distribution* "Need-to-Know Criteria" document. We'll see what each of these elements means. Let's start with the list of "core competencies". These are clustered into "job duties". Here is what the Distribution list looks like:

Distribution Core Competencies:

- System Design
- Comply with Drinking Water Regulations
- Monitor, Evaluate and Adjust Disinfection
- Water Quality Parameters and Sampling
- System Inspection
- Install Equipment *
- Operate Equipment
- Evaluate and Maintain Equipment
- Perform Security, Safety and Administrative Duties

Tables with Core Competencies:

Each one of these core competencies is fleshed out in a table. The tables provided give you several pieces of information. Note: An Operator is not expected to have exactly the same knowledge at different levels of certification. For example, at Class/Level I "Comprehension" for Hydrants means you need a basic understanding, like the names of parts. On the other hand, "Application" means a Level III Operator must be able to apply information and make calculations if needed. The Level IV Operator must be able to do "Analysis" like examining equipment and diagnosing issues. *(For more detail about what these words mean see any of the "Need-to-Know" documents. We'll also look at this again in the next part.)*

Let's pick the "Install Equipment" competency and see what this table tells us.

Levels I to IV

* Install Equipment	Class I	Class II	Class III	Class IV
Backflow prevention devices	Comprehension	Comprehension	Application	Application
Hydrants	Comprehension	Application	Application	Analysis
Meters	Application	Application	Application	Analysis
Piping and fitting	Application	Application	Application	Analysis
Rigging	Application	Application	Application	Application
Service connections	Application	Application	Application	Analysis
Shoring	Application	Application	Application	Analysis
Taps	Application	Application	Application	Analysis
Valves	Application	Application	Application	Analysis
Water mains	Application	Application	Application	Analysis

Kinds of equipment

(Courtesy of ABC)

In this table notice that:

The core competency, *Install Equipment* is broken down further. In this case there are different kinds of installation because there are different kinds of equipment.

List of Capabilities for the Tasks/Core Competencies:

Using our example of *Install Equipment*, see how the list of *capabilities* relates to the table:

- Ability to follow written procedures
- Knowledge of approved backflow prevention devices
- Knowledge of facility operation and maintenance
- Knowledge of function of tools
- Knowledge of pipe fittings and joining methods
- Knowledge of piping material, type and size
- Knowledge of regulations
- Knowledge of start-up and shut-down procedures

This gives you an idea of how to use this key ABC resource to help you plan your education/training and seek different experiences. *Next, we'll give you some examples of moving up the Levels.*

b. How - could someone be most effective?
Resource: Three Samples

To help see how it can work and see effective ways of getting through the levels here are examples.

Chris – From Labourer to Level II in Water Distribution and Wastewater Collection

FACTS. Chris has been working as a general labourer for a mid-sized community and has learned that the municipality wants to have Operators work on both the Water and Wastewater systems because they are not large and must have staff able to fill-in for both areas.

INFO FOR PLANNING. Some of Chris' experience thus far, such as helping at the treatment plant, will be considered related and there will be encouragement to take appropriate training. Here's where the related ABC's "Need-to-Know" Criteria comes in. Both Chris and the Employer can go to these documents and find out if a particular training course is in line with what is really important.

THE PLAN. The Employer should start Chris immediately working with more experienced workers, building up time directly in the field. It takes a minimum of 1/2 a year *direct* experience and another 1/2 year of *related* experience to be eligible to write a Level I exam. Chris and the Employer should be on the look-out for courses that will build on the On-The-Job training to provide much of the knowledge Chris will need to demonstrate on the certification exam(s).

Kelly - From Beginner to Level IV – Wastewater Treatment

FACTS. Kelly thought for a long time that Water and/or Wastewater would be a good career. Participation in a community college program and the co-op term that was part of it led to a real sense of achievement. Permanent employment would be great and advancing to the very top – Level IV, even if it meant moving farther away seemed like something to strive for.

INFO FOR PLANNING. Kelly has a head start with the college training program. What is now required in addition: Hands-on experience; Direct Responsible Charge (DRC) experience; and additional training in more advanced concepts. It will take the same year as mentioned for Chris in order to write Level I. But the co-op portion of the training program provided for that. Two more years experience and Kelly will be eligible to write Level II and another year of hands-on experience to be eligible to write Level III if Kelly can also gain 2 years of looking after the Plant (DRC) during the total time.

THE PLAN. Kelly will write the Level I exam as soon as eligible and each of the higher certificates as soon as possible thereafter. The Employer will have to provide the experience opportunities including the DRC. Kelly will need to take training in Advanced Wastewater Treatment and courses in Administration and Supervision to prepare for the more advanced examinations.

Jean – From School Teacher to Small Systems Operator

FACTS. Jean teaches science at a school in a town, but lives in a small community nearby. The 100 residents are served by a well and water distribution system. But no one is certified to operate the system. The other residents think Jean is the one to become certified. Jean agrees to give it a try.

INFO FOR PLANNING. Jean must take a short course to learn the basics. It'd help to have someone available to show Jean what needs to be done. It'll take a minimum of 6 calendar months & 50 hours of hands-on experience to make Jean eligible to write a Small Water System exam. There'll be an ongoing requirement of 12 hours training every 2 years to maintain that certificate.

(Small Systems Operator Continued)

THE PLAN. Jean must: Become familiar with the well and the system; read any material about the system that's available; talk to anyone who knows anything about the system, and look for additional reading material. Jean and the "owners" should: Identify what courses are available and how training will be paid for; plan attendance at a classroom type course, or find a correspondence course; and develop a work schedule that will provide at least 50 hours over the next 6 months.

c. How have others done it & what advice do they have? Resource: Examples – Profiles of Real Life Operators!

Now you know how to use the *Need-to-Know Criteria.* You are also armed with at least a few specific examples of how to go about moving through certifications in the most effective way.

There are many paths that can be taken, depending on the circumstances. Take a look at the Profiles of Operators that make up the Pool of Possibilities & People on our page, *Seeing Others' Steps*. One of these may be close to your circumstances.

Find out what other Operators have done and what they say about their education and experience.

Profile Examples:

Thinking about getting a diploma or degree? You may be interested in some of these Profiles: Sandy MacKenzie: http://www.trainingregistry.eocp.ca/career/pdf/Profiles-SMacKenzie.pdf

Cid McLean: http://www.trainingregistry.eocp.ca/career/pdf/Profiles-CMcLean.pdf

Greg Mealing: http://www.trainingregistry.eocp.ca/career/pdf/Profiles-GMealing.pdf

For Profiles of Operators with some advice about experience in different locations and/or taking advantage of a variety of educational experiences see:

Russ Megas: http://www.trainingregistry.eocp.ca/career/pdf/Profiles-RMegas.pdf

Shantelle Clarke:http://www.trainingregistry.eocp.ca/career/pdf/Profiles-SClarke.pdf

Don Gare: http://www.trainingregistry.eocp.ca/career/pdf/Profiles-DGare.pdf

Now that we have taken a look at resources for the educational/training + experience elements, let's look at part 2: Knowledge & judgement as tested through examinations.

2. Passing Examinations→ (*Testing Knowledge & Judgement*)

Operators' work involves public safety and health. So, just as there are standards for the kinds of equipment used, there are standards of knowledge for people working on them.

Examinations of some kind are a way that almost all professions use as a kind of standard. They help confirm that an Operator's education/training and experience is up to a certain level.

So, are there any resources to help you with this part? Definitely! We've already looked at the key one to help you plan the education/training and experience you need to look for and there's more.

a. *What*
What do you need to know for your certification exam(s)?

b. *How* - Samples:
ABC online resources

c. *How* - Examples:
How have others done it & what advice do they have?

a. *What* - do you need to know for your exam(s)?
Resource: ABC's Need-To-Know

In the previous part on *Education + Experience* we saw that there were *Need-to-Know Criteria* documents for virtually all the categories or disciplines EOCP has for certifications. You can find the links for each of them in that part.

We also took a quick look in that part at the 3 different components in the Need-to-Know Criteria documents: A list of "core competencies"; a series of tables with the list of the *core competencies* and what level of knowledge & judgement is required; and a list of capabilities required.

We won't repeat all of that here. However, the info in those documents also helps you better understand what knowledge is to be tested on an examination. One of the key things you can do to help yourself is to look closely at the level of knowledge expected for a specific Class/Level of certificate. Remember this example of a table? *(We have selected only the first 2 rows.)*

Levels I to IV

Install Equipment	Class I	Class II	Class III	Class IV
Backflow prevention devices	Comprehension	Comprehension	Application	Application
Hydrants	Comprehension	Application	Application	Analysis

See that for a Class/Level I they mainly look for *Comprehension* and in some cases *Application*.
But as you move to Class II and on, it's more *Application* and even *Analysis*. So what does it all mean?

To help people write exams, ABC supplies the following information in each *Need-to-Know* document:

- **Comprehension:** It is the most basic level of understanding and remembering. Items written at the comprehension level require examinees to recognize, remember, or identify important ideas.
- **Application:** Items written at the application level require examinees to interpret, calculate, predict, use or apply information and solve problems.
- **Analysis:** Items written at the analysis level require examinees to compare, contrast, diagnose, examine, analyze, and relate important concepts.

The level of knowledge is a hierarchy from basic comprehension to analysis. The level of knowledge tested is cumulative. Therefore, tasks identified as application may include questions written at both the application and comprehension levels. Tasks identified as analysis may include questions written at the comprehension, application and analysis levels. – ***Courtesy of ABC***

This is not the only resource to help you plan your studies.

b. How - Samples:
Resources: ABC Online Resources

The good news is that there are now specific resources to help you regarding the examinations.
ABC has a Testing Services page at http://www.abccert.org/testing_services/.

For "Examinees" (people taking tests), as well as the *Need-to-Know d*ocuments, ABC has provided a number of resources including:

- Formula/Conversion Tables
  - These include links for both American and Canadian measurements
- Study Guides
  - Materials mainly from American Water Works Association (AWWA) and Water Environment Federation (WEF)
- Examination References
  - Answers to all questions can be found in: Sacramento State manuals, AWWA, and WEF materials.
- Sample Exam Questions (Login simply requires your name)
  - Want some basic practice on writing exams? Go to:
    http://www.abccert.org/testing_services/sample_exam_questions.asp
    Note: There are also samples of Computer-based Testing at the *Testing Services* site.
    As well, you can contact EOCP staff at eocp@eocp.ca for hard copies of sample exams.

All of these resources can help you prepare for exams.

c. How have others done it & what advice do they have?
Resource: Examples – Profiles of Real Life Operators!

have advice or comment
fications.

One of these examples, or others' profiles on the webpage, may be close to your circumstances:

Brain Thorburn: http://www.trainingregistry.eocp.ca/career/pdf/Profiles-BThorburn.pdf
Clint Bostock: http://www.trainingregistry.eocp.ca/career/pdf/Profiles-CBostock.pdf
Mike Gosselin: http://www.trainingregistry.eocp.ca/career/pdf/Profiles-MGosselin.pdf

The resources covered should help you with your plans in *Getting There* or at least on the next step!

C. Additional Resources

We have added in a few additional resource links for questions that may come up as you go along:

Certification – Who Benefits? -- We all do! Check out this info at:

- o ABC's introductory page: http://www.abccert.org/abc_certification_program/default.asp
- o EOCP's Program Guide: http://www.eocp.ca/wp-content/uploads/2012/10/guide.pdf

- What happens after certification – did someone say "CEUs"?
  - o Continuing Education: http://www.eocp.ca/continuing-education/
  - o Continuing Education Requirements: http://www.eocp.ca/continuing-education/ceu-requirements/
  - o FAQs http://www.support.eocp.ca/

You can email the EOCP office with questions you have to help you on the road to getting there!