What else should I know?

Facility certification levels and you – In addition to entry-level training there is a mix of job experience and ongoing training required. This is usually up to a Certified Operator level equivalent to the facility designation of the specific plant(s) in which you are employed. Local facility supervisors can tell you about the accreditation level of their facility and the typical progression pathways by which their operations' personnel progress (i.e., Small Systems, Levels I–IV).

Compensation – Compensation varies by employer type, sector, level of certification and specific duties. The most common employers include towns/cities and regional commissions. A variety of industries also employ Certified Operators (e.g., energy sector, resorts, etc.). Smaller centres often employ Certified Operators within the Public Works team. Total compensation is situation specific. It is typically discussed as a combination of monetary and non-monetary benefits (e.g., work close to home, flexible time, etc.). Check with employers in your area about local compensation policies and non-monetary rewards.

Work environment – Skilled water professionals work in a variety of indoor and outdoor settings. They are applied thinkers and problem-solvers who are attentive to what's going on around them. They learn the intricacies of their facilities or networks and are vigilant for changes that could result in serious problems. They take their commitment to public health and the environment seriously.

Professional support – Each province/territory has active professional associations engaged in the training, continuing education and certification processes of WWO personnel. These organizations provide essential supports, leadership and networking opportunities which serve to promote lifelong learning, up-to-date access to leading technologies and vibrant professional communities.

Continuing education/recertification requirements – As with most modern professions and skilled occupations, those working in Certified Operator roles are required to complete regular continuing education. There is also periodic re-certification requirements based on continuing education and ongoing work experience. More information about ongoing professional obligations can be accessed by browsing the respective provincial/territorial association web listed below.

Inter-provincial mobility – Canadian provinces with the exception of Quebec are signatories to a Canadian Water and Wastewater Reciprocity Agreement. This means those seeking to become Certified Operators can rest assured their certification also offers inter-provincial mobility.

With recent changes in Canada's *Agreement on Internal Trade* (AIT), provincial/territorial certifying authorities are adopting a *Best Practice Standard* (BPS) for Certification. This presently means if you become certified in a province or territory meeting the BPS standard you can move inter-provincially in straight-forward manner. Always check with your provincial water and wastewater operator association to ensure you are working with the most current information.

Want more information?

For more information about specific certification requirements in your province or territory, please see:

- Western Canada Water – Careers section
  www.wcwwa.ca
- Alberta Water & Wastewater Operators Association
  www.awwoa.ab.ca
- Saskatchewan Water and Wastewater Association
  www.swwa.ca
- Manitoba Water and Wastewater Association
  www.mwwa.net
- Northern Territories Water and Waste Association
  www.ntwwa.com
- Circuit Rider Trainer Professional Association (First Nations) www.crtpa.com

Or, for more information please contact

The Water and Wastewater Career Attraction Project is a joint initiative of western Canada's water and wastewater professional oganizations.

Exploring Careers in Water and Wastewater Operations

Choice, Challenge, Contribution, Community – It's Possible!

It's possible to go to work each day for an organization where you earn a competitive salary, good benefits and can make a difference in the world.

It's possible to find a place in your community where you're valued, rewarded for your contributions and can sustain a healthy work-life balance.

It's possible to find a place where people love their jobs, learn new things daily and career growth is expected and supported.

Where is this possible? Among the many workplaces throughout Canada where you'll find water and wastewater professionals!

Every year governments contribute many millions of dollars in developing, maintaining and renewing Canada's water infrastructure. But, the best treatment facilities and distribution and collection networks are only as good as the many thousands of people behind the scenes who operate, maintain and renew water infrastructure on a daily basis.

Water careers offer the possibility of long-term stable options for those who believe in the importance of, and want to make an impact on, the health and environment of their communities and country. These careers offer choice, challenge and flexibility.

Water professionals work in a variety of settings and in all sizes of communities. Most earn and maintain specialized education, certification, accreditation or professional designations. All work together to ensure important public policy goals of safe, secure drinking water; healthy aquatic ecosystems; and quality, sustainable water supplies to meet the social and economic needs of communities.

Water Supply and Treatment

Before you ever turn on the tap to run safe, clean drinking water many things have happened in maintaining sources of water called watersheds and at special facilities called water treatment plants. These plants draw untreated water from sources such as rivers, large holding areas called reservoirs or underground wells. Water treatment plants operate on common filtering principles, applied chemistry, and increasingly with state-of-the-art decontamination processes (e.g., ultraviolet light disinfection).

No two plants are identical. Facilities vary in design, complexity, and specific operation depending on the source of their water and the populations and geography of the areas they serve. At its most basic, water treatment is about physical and chemical processes.

Some larger centres operate shifts on a 24/7 basis, while smaller and regional centres have a regular working day shift with after-hours monitoring. Many facilities now use SMS text messaging to push off-site alert messages to the cellular/smart phones of on-call staff when something at a plant needs to be checked after hours.

Water treatment operators develop a good working knowledge of water sources, water quality characteristics, water treatment processes, and the potential for microbial contamination. They develop skills for monitoring physical and chemical processes within their facilities, including filtration, disinfection, demineralization and contaminant removal techniques. Mechanical aspects of the work include knowing about a variety of pumping, metering, instrumentation and other equipment.

They also develop mechanical, diagnostic and problem-solving skills, including use of record keeping computer applications and supervisory control and data acquisition systems (SCADA). SCADA is a general term for special information systems which bring data from monitoring devices throughout a facility to a central desktop computer system. Operators develop basic laboratory skills, including the ability to analyze on-site lab results so that plant operations may be adjusted for different source water changes.

Water Distribution

Most of us take the drinking water that arrives at our taps for granted, but it takes special skills and 'know how' to ensure that it arrives safely. Distribution system operators configure and operate the systems that move safe, clean water from a treatment plant to the many places water is consumed within our communities.

Operators run various types of water storage facilities and ensure that potable water does not become contaminated due to pressure changes and back flow. They monitor and detect leaks, attend to pipes that have corrosion build-up, and organize repairs. They are involved in many facets of assessing sources of supply and water quality. They test water throughout the system to ensure that it has retained its treated quality during transport to end-users. Distribution system operators also test hydrants, water meters, and backflow prevention devices at residences, institutions and other places of business.

Distribution system operators develop an excellent working knowledge of water movement (i.e., hydraulics) and applied math. They know how to calculate additive dosages, feed and flow rates, and horsepower requirements of pumping equipment. They also develop mechanical skills to troubleshoot and perform routine preventative maintenance on pumps or pipes as required.

Wastewater Collection

Ever wonder what happens when water leaves your house? It travels through vast networks of collection systems to special facilities where it's treated and returned to the environment. To enable this, collection operators maintain and repair collection systems using heavy- and other special-purpose equipment. They enter the work under close supervision and perform varied maintenance and construction tasks in a municipality's wastewater collection system.

Collection operators also work directly in communities maintaining pumping 'lift' stations, clearing and repairing underground facilities and monitoring, evaluating and adjusting collection systems. This includes conducting leak detection tests, updating a municipality's water/sewer atlas and cleaning and maintaining storm drains.

Collection operators use a variety of techniques to inspect systems including dye, pressure, smoke and high-tech closed circuit television (CCTV) systems. They typically are involved in rehabilitating and repairing man holes, sewer lines, lift stations and pipes. They learn special knowledge and skills in a variety of areas, including how to monitor, evaluate and adjust for flow, gravity, filter-related problems, gases, odor control and other issues. These roles also involve significant specialized safe work practices including confined space entry, excavation, shoring, trenching and coordinating emergency responses.

People working in wastewater collection develop a knowledge of construction management, emergency plans, regulatory monitoring and reporting requirements, risk management practices and safety procedures. They maintain wastewater records and routine reports.

Wastewater Treatment

Wastewater treatment isn't as gross as it sounds! It's more than 99% water and less than one-percent solids. And, it's a very interesting biological organic process. Treatment operators typically work as part of teams in operating specialized plants that use a combination of mechanical, biological and physical processes.

Major tasks include monitoring plants or lagoons, which operate with large pumps, bar screens, specialized tanks and other equipment (e.g., ultraviolet light disinfection systems). Common tasks involve reading and recording various meter, gauge and thermostat information and adjusting processes to regulate flow. Wastewater treatment has several process stages, commonly known as primary, secondary and tertiary stages of treatment. Operators also make visual inspections of wastewater plant or lagoon operations at the areas where these various stages occur by walking around during 'rounds' to ensure issues are located and corrected.

They inspect, clean and maintain large pumps and motors and other equipment and are constantly vigilant for potential problems that arise. They perform chemical tests on wastewater and maintain facilities with regular and preventive maintenance as required. They learn and apply practices, procedures, regulations and laws.

People working in wastewater treatment develop a knowledge of the materials, tools and methods used to maintain facilities, especially large pumps and the knowledge of processes in their specific plants. They learn the operation of SCADA systems and the various aspects of the particular wastewater treatment process used by their facility.

Process Control and Laboratory

In addition to Certified Operators, many facilities maintain on-site laboratories with professional and technical staff whose full-time jobs involve lab work for the many facets of regulation and quality assurance. Laboratory technicians perform physical, chemical, biochemical, and bacteriological tests on liquids, gases and solids.

They operate and maintain laboratory equipment and maintain the supplies they need to do their work. They maintain quality control and compliance reporting information, including the scheduling of analytic work to support effective ongoing operations.

Do these things appeal to you?

- ☐ Earning while I learn
- ☐ Working with new technologies
- ☐ Recognized industry credentials
- ☐ Supported professional growth
- ☐ Stable, reliable employment
- ☐ A place to take pride in my work
- ☐ Committed to my own and others' safety
- ☐ Knowing I make a difference
- ☐ Real advancement potential
- ☐ Mobility if needed

If so, you may want to do further exploration by contacting one of the organizations listed in the *Want More Information?* section.

What gets me into the industry?

Some employers recruit people with secondary school completion (i.e., Grade 12, GED or equivalent). Other employers, typically larger municipalities or utility corporations, expect post-secondary education as pre-requisite to entry-level employment. This will usually but not always be in an industry-related field.

In all cases for those entering skilled water occupations in Certified Operator roles, there is mandatory entry-level training. This ensures new hires are 'certification preparation ready.' WWO certification is administered by provincial/territorial governments who generally partner with operator associations to support certification training and mandatory continuing education.

Additionally, there is a wide range of employment opportunities with the many specialized suppliers of goods and services that support water and wastewater operations. In larger centres, a range of skilled tradespersons are also directly employed including power engineers, electricians, boilermakers, pipefitters, heavy equipment technicians and welders.