

A large, light gray graphic of a water cycle is centered on the page. It features a large teardrop shape at the top, a circular arrow in the middle, and a larger teardrop shape at the bottom, all connected by lines representing the water cycle process.

Taking Care of Your Drinking Water and Wastewater

A Guide for Members of Municipal Councils

Taking Care of Your Drinking Water and Wastewater: A Guide for Members of Municipal Councils
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Taking Care of Your Drinking Water and Wastewater:

A Guide for Members of Municipal Councils

What You Need to Know About Your Drinking Water and Wastewater Responsibilities

Albertans expect that their water is of high quality and safe to drink. As a member of municipal council, there is an important role for you to play in ensuring that your community's expectations are met – in fact, there is a legal duty requiring you to do so.

Here are Three Things to Remember as a Municipal Councillor:

It's Your Duty. Alberta Environment & Sustainable Resource Development's *Environmental Protection and Enhancement Act (EPEA or the Act)* and its regulations include a legal duty for persons responsible for the waterworks and wastewater systems to ensure water is safe from contaminants and that operations are in compliance with the Act. These duties can extend municipal councillors when the municipality owns or operates a waterworks system, or contracts for or grants a franchise for the supply of potable water by a waterworks system. There could be legal consequences for negligence, including possible fines, enforcement orders, and civil remedies (Read more on page 46 of this guide.)

Be Informed. Ask questions. Get answers. You don't have to be an expert in drinking water or wastewater operations, but you do need to be informed. Your decisions can have an impact on public health or the health of our environment. Seek advice from those with expertise and act prudently on that advice. (Check your knowledge on page 17.)

Be Vigilant. Complacency can pose a great risk to drinking water systems and wastewater management system(s). It is critical that you never take water safety for granted or assume all is well with the drinking water and wastewater systems under your care and direction. The health of the population using the drinking water from your community and the environment to which your community discharges its treated wastewater depends on your diligent and prudent oversight of your community's water and wastewater systems.



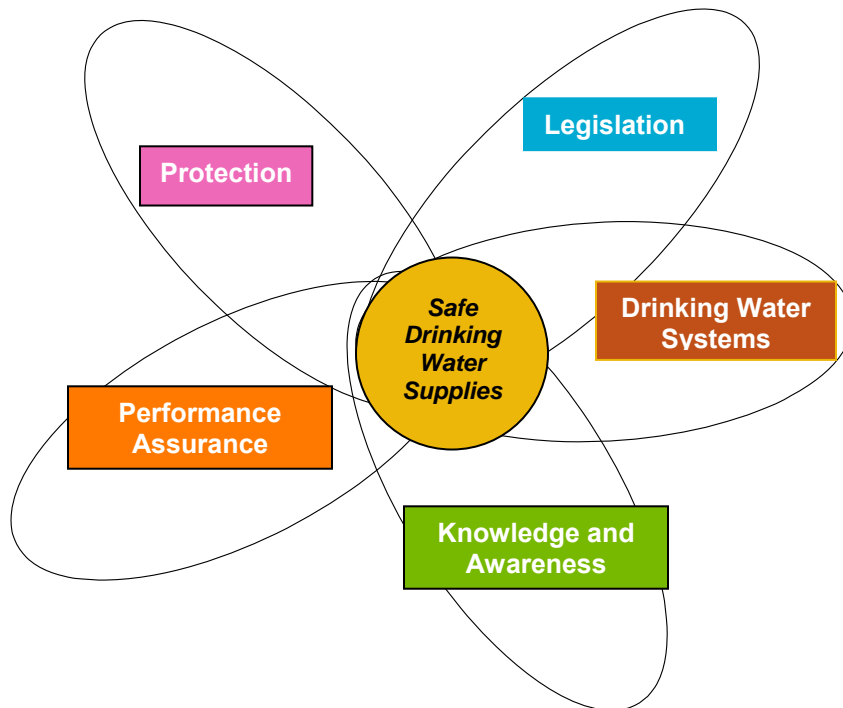
Understanding Your Responsibilities for Overseeing Drinking Water and Wastewater

Protecting Alberta’s Drinking Water

AEP uses a multi-barrier approach to ensure that safe drinking water is provided to Albertans. This method is referred to as a ‘Source to Tap, Multi-Barrier Approach’ or STMBA. The term ‘source to tap’ refers to the continuum water passes through – from a water body to the consumer’s drinking water tap.

Barriers may be physical or administrative in nature. A physical barrier is a material object that impedes or separates, such as a filter. Physical barriers are quantitative in nature and allow for an assessment of tangible and measurable results. An administrative barrier is more conceptual and more difficult to quantify. For example, the cumulative effect that development (such as residential, commercial, industrial, forestry and agricultural activities) has on a watershed can dramatically impact water quality. Source protection planning to address cumulative effects is an example of an administrative barrier. It identifies risks and hazards impacting raw water supplies and allows for more informed decision-making with regard to activities and development in addition to lowering the risk of potential adverse impacts.

AEP’s and Water’s STMBA consists of legislation, drinking water systems, knowledge and awareness, performance assurance, and protection.



A Legislative and Regulatory Framework for Protecting Water

Legislative and regulatory measures are key components of Alberta's source-to-tap multi barrier approach. This guide focuses on the *Environmental Protection and Enhancement Act* (EPEA) and its regulations, which provide a legislative framework for all approved municipal waterworks and wastewater systems in Alberta. EPEA provides a set of province-wide standards and rules to ensure that Alberta's receiving environment are protected and Albertans have access to safe, high quality, reliable drinking water.

The *Environmental Protection and Enhancement Act* – An Overview

EPEA recognises that Albertans are entitled to safe water – both in the environment and from their taps. The Act provides for the protection of human health by controlling and regulating waterworks systems' design, operation and performance. It also assures environmental protection by mandating effluent discharge quality and testing requirements through regulations on municipal wastewater programs.

In a municipal context, a waterworks system includes all the drinking water treatment, distribution, and storage infrastructure up to customer property lines. The wastewater system includes the collection system starting from customer property, pumping station, storage and treatment system to the point of discharge into the environment.

EPEA and its associated regulations specify the requirements for the design, construction, operation and maintenance of waterworks systems, and wastewater systems, as well as testing services, certification of system operators, and water quality analysis. It also sets quality standards and mechanisms for compliance and enforcement.

The Big Picture

There are over 700 public waterworks facilities registered in Alberta. These systems provide water to approximately 80 per cent of the homes in Alberta – that's more than 2.75 million people.

The persons responsible for these waterworks facilities are required to submit monthly and annual reports to Alberta Environment and Sustainable Resource Development. These reports summarize the results of the drinking water testing conducted during the month in laboratories licensed to perform these tests. Of the 569 facilities that submitted reports in recent testing, 99 per cent of these tests met the province's rigorous, health-based drinking water quality standards.

There are approximately 591 public wastewater systems in Alberta ranging from 395 wastewater stabilization ponds, 103 mechanical facilities and 93 wastewater collection and other systems serving over 3.2 million Albertans. The operation of these systems is regulated by EPEA and Regulations through approval or codes of practice. System owners and operators are required to regularly monitor the effluent quality and submit reports to AEP. The monitoring and reporting frequency will depend on the type of treatment system and their potential for operational variation. The owners and operators are also required to immediately inform AEP of any violation of their approval or Code of Practice. For example, Alberta Environment and Sustainable Resource Development must be immediately informed if the treated effluent quality exceeds the allowable limit or if there an unauthorised release of effluent from the systems.

Key Sections of the *Environmental Protection and Enhancement Act (EPEA)* and its Regulations for Municipal Councillors

Drinking Water Legislation

Part 7 of the EPEA relates to potable water in the province. These responsibilities are expanded upon in the *Potable Water Regulation* (A. Reg. 277/2003 as amended) and the *Standards and Guidelines for Municipal Waterworks, Wastewater, and Storm Drainage Systems 2006* (<http://AEP.alberta.ca/water/programs-and-services/drinking-water/legislation/standards-and-guidelines.aspx>) It is important for you to understand the scope of the day-to-day responsibilities of the persons responsible for your waterworks system.

Persons responsible for the waterworks system are responsible for ensuring that their drinking water systems:

- Provide water that meets all prescribed drinking water quality standards;
- Operate in accordance with the Act and its regulations and are kept in a fit state of repair;
- Are appropriately staffed and supervised by qualified persons;
- Comply with all sampling, testing and monitoring requirements; and
- Meet all reporting requirements.

Examples of Actions Required of Persons Responsible for Waterworks Systems Include:

- Obtaining samples with the frequency appropriate to the type of system and its users as described in the *Guidelines for Canadian Drinking Water* or the governing EPEA approval or Registration;
- Using an approved laboratory for drinking water analysis;
- Reporting adverse test results that contravene the approval or the Code of Practice verbally and in writing to Environmental and Sustainable Development
- Ensuring that operators are, or are under the direction of, a person with valid certification;
- Ensuring that the waterworks system is constantly staffed with the number of certified operators set out in the governing EPEA approval or Code of Practice;
- Preparing the annual and monthly reports as per the *Standards and Guidelines for Municipal Waterworks, Wastewater, and Storm Drainage Systems*;
- Using the Facility Risk Assessment Guidelines to conduct a risk assessment from source-to-tap to ascertain the integrity, reliability, and sustainability of the waterworks system to provide safe drinking water;
- Ensuring that the system is operating and performing in accordance with the *Standards and Guidelines for Municipal Waterworks, Wastewater, and Storm Drainage Systems*;
- and
- Obtaining an EPEA authorization for a public waterworks system, which includes a contingency and emergency response plan.

Wastewater Legislation

The regulation governing the ownership and operation of wastewater systems is the *Wastewater and Storm Drainage Regulation* (A. Reg. 119/1993, as amended). It is complemented by the corresponding Codes of Practice and the *Standards and Guidelines for Municipal Waterworks, Wastewater, and Storm Drainage Systems*. These documents collectively describe the overall and day-to-day legal responsibilities for the persons responsible for the wastewater system.

Persons responsible for the wastewater system are responsible for:

- Ensuring that the substances used and released are not in concentrations that would impair the integrity of the system;
- Operating the system in accordance with the regulation and ensuring the system is kept in a fit state of repair;
- Appropriately staffing facilities with appropriately qualified persons;
- Complying with all sampling, testing and monitoring requirements; and
- Meeting all reporting requirements including immediately reporting any violation of the requirements outlined in their approval or Code of Practice for their facility.

Examples of Actions Required of Persons Responsible for Wastewater Systems Include:

- Obtaining an EPEA approval or registration for a wastewater collection system, wastewater treatment plant and/or wastewater lagoon, which includes a contingency and emergency response plan;
- Ensuring that the day-to-day operations of the wastewater facility are supervised by one or more persons holding proper certification;
- Discharging effluent in accordance with the requirement of their governing approval or Code of Practice and in a manner that ensures that no water quality impacts occur;
- Disposing of biosolids/sludge in an environmentally acceptable manner as described in the EPEA authorization or obtain a letter of authorization for land application of biosolids which will outline the requirements;
- Ensuring that the system is operating and performing in accordance with the governing EPEA approval or registration for their facility including taking measures to control odour created by the wastewater treatment facility;
- Collecting and preserving samples in accordance with the EPEA approval or registration for the facility;
- Having samples analysed and preserved by an approved laboratory;
- Reporting any discharges, overflows, or spills of raw wastewater or wastewater that does not meet effluent quality to AEP by telephone; and
- Compile and submit an annual or monthly report as required for AEP.

Who is a “person responsible” under the EPEA and its regulations?

A “person responsible” includes the owner, operator, or approval or registration holder of a waterworks or wastewater system. The term also includes the local authority that contracts to obtain potable water from the waterworks system, the local authority that grants a franchise for the supply of water by the waterworks system, and the local authority that contracts to discharge wastewater to the wastewater system or grants a franchise for the treatment and disposal of wastewater from the wastewater system.

The “owner” is often the municipality as a corporate entity. Members of municipal councils and municipal officials who provide oversight to this entity also provide oversight or exercise decision making authority in respect to the waterworks and wastewater systems it owns. These councillors and officials are responsible for having policies, management tools and processes in place so that the municipality can meet all of its legislative and regulatory requirements under EPEA and other tools.

The “operator” of a public waterworks system or wastewater system is the person or entity that is given responsibility by the owner for the day-to-day operations of the drinking water system, and wastewater system and the systems management, maintenance or alteration. A municipality may take on this role through its own staff or it may choose to contract it out to a third party.

Your Duty and Liability

The legal duty has been written into the drinking water and wastewater legislation. These duties extend a legal responsibility to people responsible for the municipal waterworks and wastewater systems. Part 7 of EPEA and the Potable Water Regulation imposes a legal duty upon all persons responsible for a waterworks system to ensure that the drinking water supplied by the system is safe to drinking. Section 3 of the *Wastewater and Storm Drainage Regulation* creates a more general duty for all persons responsible for the public wastewater system – to comply with the provisions of the regulation. In both situations, a failure to fulfill this duty may result in financial penalties for the municipality and its councillors.

Meeting Your Legal Duty

Meeting this legal duty is the responsibility of:

- The owner of the waterworks or wastewater system;
- The operator of the waterworks or wastewater system;
- The system’s approval or registration holder;
- A local authority that contracts to obtain water from the waterworks system;
- A local authority that grants a franchise to supply water from the system;
- A local authority that contracts to discharge wastewater to the wastewater system;
- A local authority that grants a franchise for the treatment and disposal of wastewater from the wastewater system; and
- Any person who acts as the principle or agent for one of the above persons.

It is important that members of municipal council, municipal officials, and council committee members who have influence, decision making authority, influence or control over the waterworks or wastewater system understand that, in addition to the municipality's liability, they can be held personally liable, even if the system is operated by a corporate entity other than the municipality. Refer to Appendix A for the liability based on specific provision in the legislation and liability based on the Criminal Code for specific notes that where the individual knew or ought to reasonably have known of the circumstances surrounding the failure to satisfy the legal duty, and had the power to influence or control to prevent this failure, then they personally may be found guilty of the offence.

Since Alberta municipalities manage and govern their public waterworks and wastewater systems in a variety of ways, the people who are subject to the legal duty within their corporation will also vary across the province and would depend on specific facts related to individual situations.

Complete wording of Sections 220 and 229, *Environmental Protection and Enhancement Act 2000*

220. No action for damages may be commenced against

- (a) a person who is an employee or agent of or is under contract to the Government,
- (b) a person who is designated as an inspector, investigator or analyst under section 25(3)(b), (c) or (d),
- (c) a person who is an employee of the Government, a Government agency, a local authority or the Government of Canada or any agency of that Government, where there has been a delegation under section 17,
- (d) a person who is an employee or agent of, or is under contract to, the Government, a Government agency or a local authority, where there has been a transfer of administration under section 18,
- (e) a member of the Environmental Appeals Board, or
- (f) a member, employee or agent of, or a person under contract to, a delegated authority referred to in section 37(d),

for anything done or not done by that person in good faith while carrying out that person's duties or exercising that person's powers under the Act including, without limitation, any failure to do something when that person has discretionary authority to do something but does not do it.

229. No person shall be convicted of an offence under section 61, 67, 76, 79, 88, 108(2), 109(2), 110(1) or (2), 111, 112, 137, 148, 149, 155, 157, 163, 169, 170, 173, 176, 188, 191, 192, 209, 227(b), (c), (e), (g) or (i) or 251 if that person establishes on a balance of probabilities that the person took all reasonable steps to prevent its commission.

Complete wording of Section 11, *Wastewater and Storm Drainage Regulation (A. Reg. 119/1993)*

11. No person shall be convicted of an offence under this Regulation if that person establishes on a balance of probabilities that he took all reasonable steps to prevent its commission.

Note: For a copy of the *Environmental Protection and Enhancement Act, 2000* and its related regulations, go to Alberta Queen's Printer website at www.qp.alberta.ca

Maintaining an Appropriate Level of Care

Standard of care is a well-known concept in Canadian legislation and common law. The term refers to the level of care and attention that one person owes to another when they are in a legal relationship. The behaviour required to satisfy the standard of care will vary depending on the circumstances of the relationship, the nature of the activity, and the level of supervision one has over the activity.

There is no clearly defined standard of care within the legislation governing the distribution, treatment, and storage of potable water and collection, treatment, and disposal of wastewater. However, we can deduce an appropriate level of care based on two defences from liability found

in sections 220 and 229 of the *Act* and section 11 of the *Wastewater and Storm Drainage Regulation*.

You are not expected to be an expert in the areas of potable waterworks and wastewater systems. Section 220 implies that one must act, or not act, in good faith while carrying out that person's duties to be safe from liability. This provision could, for example, allow a person to rely on a report created by an engineer, lawyer, accountant or other professional person when making a decision without suffering legal liability.

Additionally, section 229 and section 11 state that conviction can be avoided where a person shows that they took all reasonable steps to prevent the offence from occurring. We can assume from this provision that all persons responsible for the waterworks and/or wastewater systems are expected to act reasonably within their powers and to take all steps necessary to ensure they fulfill their duty.

Enforcing the Legal Duty

As a municipal councillor, you need to be aware that not meeting your legal duty can result in serious consequences both for the municipality and you as an individual. Section 233(1) of the EPEA provides for individual liability of public officials for an offence committed under the Act.

Pursuant to section 228(2) of the Act a person who fails to meet their duty to ensure safe drinking water may be liable for a penalty of up to \$50 000. In the case of a corporation, including a municipality the maximum penalty is \$500 000. Additionally, section 234 allows for the court to impose a variety of other penalties based on the nature of the offence and the circumstances surrounding its commission. These penalties include:

- Prohibiting the offender from doing anything that could result in recidivism;
- Publishing, at the offender's cost, the facts related to the offence;
- Requiring the offender to pay a discretionary amount of money to the court;
- Directing the offender to pay the Minister for the costs associated with remedial or preventative action carried out by the Province;
- Ordering the offender to perform community service, or
- Requiring compliance with any other condition at the discretion of the court

Section 10 of the *Wastewater and Storm Drainage Regulation* creates a similar offence for any person who contravenes various sections of the Regulation. Here, an offence carries with it a fine of no more than \$50,000 for individuals and no more than \$500,000 for corporations.

If the municipality and its councillors are found guilty of an offence under the EPEA and its regulations, they may also be held liable for damages in civil court if such action is taken by those individuals who suffered as a result of municipal actions or decisions.

North Battleford: Council Decisions with Serious Consequences

In Spring 2001, nearly 6000 residents of this Saskatchewan city of 13 000 fell victim to an outbreak of cryptosporidiosis, an illness caused by a parasite in human and animal waste, which entered the local drinking water supply. Symptoms included diarrhea, abdominal cramps, fever, nausea, and headaches.

In an article on the subsequent Commission of Inquiry, the Canadian Environmental Law Association noted:

...what became clear was that the people of North Battleford were let down. Their municipality, carrying a bulging contingency fund, refused to spend money on upgrading their decrepit water treatment plant. Their provincial government, although aware the plant was in poor condition, hadn't inspected it in the ten years prior to the outbreak... plant employees, who had been working without a supervisor for over four months, were unable to heed the warning signs of a potential drinking water problem.

The City of North Battleford subsequently faced class action lawsuits totalling millions of dollars. The first settlement was an out of court agreement awarding \$3.2 million to some 700 claimants.

Wastewater Spill Leads to Charges and Fines for the City of Toronto

In the winter of 2006, a wastewater treatment facility operated by the City of Toronto bypassed partially treated sewage due to heavy rainfall in the area – an action permitted by their Certificate of Approval. Once the rain had subsided, staff operating the facility were instructed to close the bypass gate. However, due to a malfunctioning gate valve and flow measuring device, the gate did not close and the malady was not discovered for three and a half days – allowing only partially treated sewage to be discharged into lake Ontario. Luckily, there were no adverse effects to human health.

The City was fined \$150,000 plus additional surcharges for the offence. The incident and fine could have been prevented had the facility conducted regular physical and operational inspections for the hardware in the facility.

Actions You Can Take to Be Better Informed

The following are some suggested action you can take to be better informed about your drinking water and wastewater oversight responsibilities. Look for more of these suggested action boxes in section 3 of this guide. A summary list of all actions found in the guide has been compiled for your convenience on page 44.

Become familiar with your municipal waterworks and wastewater system. Ask for a presentation to be given to council and/or arrange a tour of your water facilities. Specifically review and understand the approval or registration for your waterworks and wastewater systems to know the operating, monitoring and reporting requirements for your facilities;

Become further acquainted with drinking water and wastewater legislation and regulations, available on the Government of Alberta Queen's Printer website at www.qp.alberta.ca. Search or browse current laws to find what you are looking for. To search, enter the title, or any part of the title, of the law you wish to find (for example, "Environmental Protection and Enhancement Act", "Water Act", or "Wastewater and Storm Drainage Regulation"). If you don't know any part of the title of the law, enter a word or phrase that you think might be in the text of the law; and

Learn about water safety and its link to public health. Speak to the waterworks and wastewater system operators, regulators and public health staff to learn more.

AUMA Water Initiatives

Water is a finite resource essential to all dimensions of municipal sustainability. AUMA has been engaging members in developing and implementing municipal water policies, plans and resources over the past several years in recognition that many municipalities have capacity issues and are struggling to maintain water and wastewater collection, distribution and treatment systems in light of environmental and climate change concerns, rising standards, a shortage of skilled water operators, revenue shortfalls and concerns over regionalization. Our initiatives cover a broad range of issues such as conservation, stormwater, wetlands, watershed management and the viability of water and wastewater systems. Learn more at water.auma.ca

Some Questions and Answers on the EPEA Legal Duty to Ensure Water Safety

If operations are contracted out, am I still responsible to fulfill the legal duty?

As an owner or local authority for the waterworks and/or wastewater system you remain responsible for satisfying the legal duty even though you have contracted out operations to an operating authority. However, your degree of responsibility may be diminished depending on the circumstances and the relationship between you and the operators.

If something goes wrong, will I be held responsible?

The duty of care related to drinking water and wastewater is designed to ensure that decision-makers are doing their due diligence to protect public health. The circumstances and your actions – what you do or don't do, what questions you ask, what steps are taken to address the risks or problems with your waterworks and wastewater system – will all be important in determining whether you fulfilled your legal duty and if you should be held responsible.

What can happen to someone who breaches the statutory duty of care?

The duty of care is all about ensuring responsible actions are taken to protect human health and the environment. Given the seriousness of this duty to your community, those whose actions fall below the appropriate level of care fail to protect the public, and cause harm to human health or the environment could face significant penalties including fines and other discretionary court orders. Additionally, if found guilty of an offence under EPEA, you may be party to a civil action brought on by those injured by your actions. This action could result in the payment of significant compensatory and punitive damages.

Who determines if the duty of care has been breached?

When an incident occurs that may constitute a breach of the statutory duty of care, AEP or the Alberta Utilities Commission will initiate a response that may include an investigation and gathering of evidence to determine if charges should be laid. In a case where charges are laid, it is up to the courts to determine if an offence has been committed and if penalties, court orders, or fines will be imposed. This procedure is followed in any potentially serious breach of AEP statutes.



Check Your Knowledge

Ask yourself these questions to check your current level of knowledge about your waterworks and wastewater systems and oversight responsibilities.

Have I had a tour of our drinking water and wastewater facilities?

Am I familiar with our municipal waterworks and wastewater systems including:

1. the water source?
2. where the treated wastewater is discharge to and downstream water users?
3. the physical condition of major infrastructure?
4. the condition of the monitoring equipment and how well they are maintained.
5. the background and experience of senior staff?, and
6. the elements of the approvals that have been granted for ownership and operation of the facilities?

Am I acquainted with the legislation and regulations?

Do I know basic information about water safety and the operation of water facilities?

Do I understand the different roles and responsibilities of those who have decision-making authority – municipal councillors, senior management, and other municipal officers?

Am I assured that competent senior management has been hired? Do they conduct regular performance appraisals waterworks and wastewater of staff?

What were the results of our last inspection? Are there areas for improvement?

Am I aware of the risks currently facing our water sources, water facilities and infrastructure? What are the plans to address these risks?

Am I aware of the risks of discharging treated wastewater to the receiving environment and potential impact if the system does not operate in accordance with the approval or registration? What are the plans to address these risks

If there is an emergency with the waterworks or wastewater system, what procedures are followed? How will I be notified? How will the public be notified?

Am I aware of the municipal role in source protection planning?

How and when do I ask for annual/monthly reports on the drinking water and wastewater system from senior management?

What should I look for in the annual/monthly report? What questions must it answer?

What should I do if a report identifies declining water quality?

Do I know if appropriate steps are being taken to resolve any issues? Do I know when outside expertise is needed?

Are our water systems periodically audited? When? How often? What should I do when I receive audit results for consideration?

Do I know if our waterworks and wastewater systems are financially sustainable for the future? Are there financial plans in place?

If you can't answer any of these questions, review them with municipal staff.



What Should I Be Asking?

When decisions come before your council relating to drinking water or wastewater, you want to understand the impacts on your community and public health. While every situation will be different, the following are some preliminary questions you might want to ask:

What are the risks to public health or the health of the environment as the case may be?

Are there any areas of risk that council needs to address?

What checks and balances are in place to ensure the continued safety of our water and the protection of the environment where the treated effluent is discharged to?

Are we meeting our legislative and regulatory requirements?

What is the public health impact or impact on the environment and the long-term cost of deferring this decision?

Will this decision affect our water sources or impact down stream water users?

How will this decision impact our community's demand for water or surge of wastewater?

How are we managing our water infrastructure? Is our infrastructure sustainable for future generations?

Are there any emerging issues related to our drinking water or wastewater that council should be aware of?

What is the emergency management plan for a negative water or wastewater event? What is the role of council in such emergencies?

Is there a Drinking Water Safety Plan in place? Is it current?

Has water and wastewater operations staff taken required training and upgrading?

***Be informed. Ask questions. Get answers.
It's your duty.***

Overview of Water and Wastewater Management Topics

Organizational and Governance Models

Many different management and operating models are available for municipal consideration. Currently, most waterworks and wastewater systems in Alberta are owned by municipalities. These municipal facilities include water treatment plants, water distribution systems, and wastewater collection and treatment systems that serve cities, towns, hamlets, villages, special areas, and Métis settlements.

These systems are often operated by municipal departments or subsidiaries with oversight provided directly by municipal councillors. On the other hand, some municipalities choose to hire external contractors to operate their waterworks and/or wastewater systems. In such instances, these contracts must be approved by the Alberta Utilities Commission, who will then exercise general supervision over the operation and ownership of the waterworks system.

Conversely, waterworks and wastewater systems may be owned and operated privately. These are known as privately owned facilities and can include surface and groundwater treatment plants, water distribution systems, wastewater treatment plants, and wastewater collection systems serving the following types of developments:

- Industrial facilities;
- Provincial parks;
- Institutional/government facilities;
- Recreation developments;
- Homeowner/condo associations;
- Subdivisions; and
- Water co-ops

Lastly, water treatment and wastewater treatment facilities may be owned and operated by a regional commission. These ad hoc creations are established as corporations under the *Municipal Government Act*. The commission provides services across municipal boundaries, and are governed by boards representing their municipal members. Typically, these commissions treat the water and wastewater, which is then distributed or collected by the municipalities. These distribution/collection systems may be owned or operated by the municipality or as a public facility.

Waterworks and Wastewater System Approvals and Registrations:

Tools That Can Help You

In Alberta, all public waterworks and wastewater systems must be approved by AEP. The approval and registration process requires owners and operators to incorporate the concepts of quality management into system operation and management.

Under the EPEA, the *Approvals and Registration Procedure Regulation* outlines the steps to be followed to acquire an approval or registration for a waterworks or wastewater facility. This regulation, along with the *Standards and Guidelines for Municipal Waterworks, Wastewater and Storm Drainage Systems*, provide the explicit performance and design standards required for approval under the Act. For drinking water and wastewater systems to receive approval, the owner must have in place:

- An accepted operational plan (see next section for more details);
- A *Water Act* license to divert water;
- An emergency response plan (see next section for more details);
- A map/plan for the area where development is to take place;
- A list of operating staff responsible for the day-to-day operation of the system with the appropriate certification;
- All necessary technical data; and
- A list of accredited laboratories to be used for the water analysis and the frequency of analysis (for renewed approvals only)

Registrations are used in lieu of an approval for activities that are uniform across Alberta. The province-wide conditions for these activities are stipulated in various codes of practice, for example the *Code of Practice for Waterworks Systems Using High Quality Ground Water*, the *Code of Practice for a Waterworks System Consisting Solely of a Water Distribution System*, and the *Code of Practice for Wastewater Systems Using a Wastewater Lagoon*.

Be Better Informed

More information regarding the approval process and all necessary forms are available on AEP's website at <http://AEP.alberta.ca/lands-forests/land-industrial/forms-applications/alberta-environments-approval-process.aspx>

The Operational Plan and You – Setting an Overall Policy

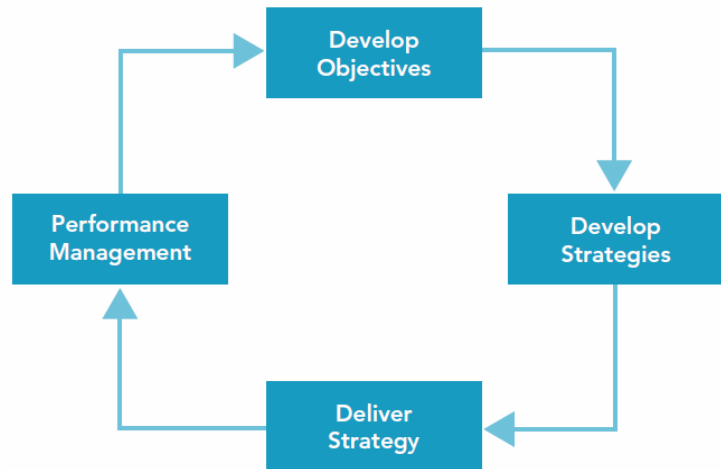
The operational plan sets out a framework for routine operation procedures and monitoring and analysis procedures relevant to the waterworks and wastewater systems. This is the backbone of the management system and should be known by both the owners and operators of the system.

The operational plan includes:

- Basic key information about the waterworks and wastewater system owned by your municipality;
- A description of the organizational structures (roles, responsibility, authority, certification);
- Operating instructions for the facility;
- Performance requirements;
- General maintenance schedule and instructions; and
- A procedure for sampling, testing, and monitoring the safety of the facilities drinking water and wastewater.

Results-Based System

A results-based framework should be used as a standard for operational plans and other approval requirements concerning waterworks and wastewater systems. Running the framework involves developing the objectives, developing strategies to achieve the objectives, carrying out the strategies, assessing performance and adjusting actions where actual or projected results are not what are desired. This methodology will align the waterworks and wastewater systems with the province's commitment to cumulative effects management and will assist owners and operators to develop sound operational procedures and controls.



Developing the objectives typically involves specifying policies and procedures that form the basis of the operational plans, while **developing strategies** involves planning for how the policies and procedures are to be implemented. **Carrying out the strategies** is the day-to-day operation of the facilities, including any emergency procedures. Finally, **assessing performance and adjusting actions** are reflected in the audits and reviews conducted by AEP and the facility owners and operators.

Actions You Can Take To Be Better Informed:

- Ask your operating authority to speak to municipal council about your operational plan and emergency response plan;
- Consider and act on any advice (including deficiencies and action items) identified during the review process and annual report;
- Review the policies and commitments developed concerning the operational plan and emergency response plan; and
- Ask your operating authority to show how it is meeting these policy commitments.

Managing the Risks to Drinking Water and Wastewater

Under the *Standards and Guidelines for Municipal Waterworks, Wastewater, and Storm Drainage Systems*, municipalities, system owners, and operators must undertake a risk assessment of their facility once every five years. This risk assessment is to be performed by an independent third party approved by the Regional Director for AEP. These assessments are important in ensuring that vulnerabilities in the system are identified and assuring the public that actions are being taken to reduce any potential risks to the quality and safety of their water. By performing a risk assessment, your operating authority will assess:

Existing or potential hazardous events facing your water and wastewater systems, for example rail car derailment, algal blooms, water main breaks, problems with wastewater collection system or the pumping stations, etc;

The impacts on water if a hazardous event occurs, for example chemical contamination of source water/treated water, biological contamination of source water/treated water, possible biological/chemical contamination due to loss of supply/low pressure, etc.;

The necessary measures or response measures for each hazardous event (these measures may already be in place through such barriers as source protection or treatment processes), and

Ranking each event according to its likelihood of occurring and the consequences or severity of the results

In some cases, the operating authority may identify measures to address hazardous events which will call for improvements that require long-term planning. These types of decisions will often involve council approval. As a councillor, you should take time to understand the underlying risks associated with these decisions, their potential likelihood and impacts to public health and safety and the health of the environment.

More on Hazardous Events and Hazards to Drinking Water and Wastewater

Hazardous events can originate from natural events, technological events, or human activities. Natural events include floods, ice storms, drought, and spring run-off. Technological events could include equipment failure or power outage. Human activities that could lead to water quality risks include vandalism, terrorism, chemical spills, and construction accidents.

The four types of hazards that may affect water are biological, chemical, physical, and radiological:

Biological Hazards:

Include bacterial, viral, and parasitic organisms like E. coli, Giardia, and Cryptosporidium;
Are considered the most significant risk to human health because effects are acute and can cause illness within hours;
Are commonly associated with fecal wastes from humans or animals, or they may occur naturally in the environment; and
Not adequate removal of biological organisms from the wastewater can adversely impact the receiving environment.

Physical Hazards

Include sediments that can carry microbiological hazards and interfere with the disinfection process, biofilms, and pipe material;
Can result from contamination and/or poor procedures at different points in the delivery of water to the consumer; and
Not adequate removal of suspended solids from the wastewater can adversely impact the receiving environment.

Chemical Hazards

Include toxic spills, heavy metals, dissolved gases (radon, pesticides, nitrates, sodium, and lead);
Can come from source water or occur in the treatment and distribution system; and
Wastewater treatment plants are more part biological process and can easily be upset by presents of adverse chemicals in the wastewater.

Radiological Hazards

Are naturally occurring chemicals such as radon or uranium, which occur most frequently in groundwater; and
May arise from man-made or natural sources.

In other cases, the operating authority may identify risks that are outside of their control. For these, it may be appropriate to consult your emergency response plans.

Drinking Water Safety Plan

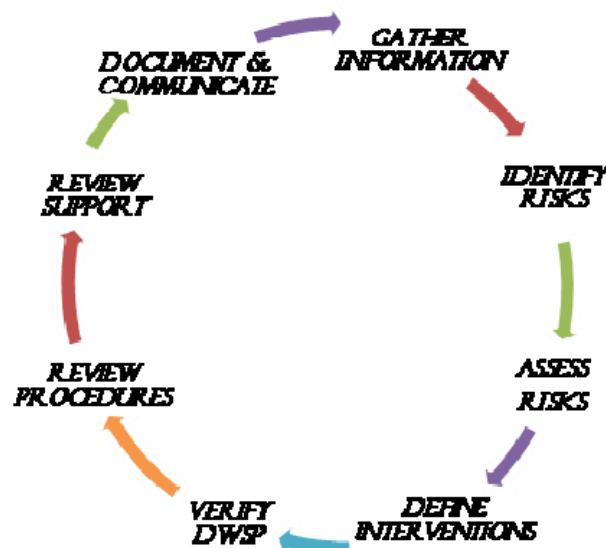
What is a Drinking Water Safety Plan? A Drinking Water Safety Plan (DWSP) represents a system-wide approach to ensuring that the quality of water delivered to consumers is of good and consistent quality. To do this it is necessary to consider the source of the water, how it is treated, and the storage and distribution of the treated water. A DWSP is based on a comprehensive assessment of risk factors that could adversely affect the quality of the water delivered to consumers, and sets out how risk factors are to be monitored and managed.

The compilation of an effective Drinking Water Safety Plan is dependent on four principal processes:

- Collecting and collating the best information that you can about your water supply system;
- Analysing and understanding the risks that are present and that in certain circumstances will threaten the safety of your customers;
- Assessing correctly what you need to do in order to reduce these risks to an acceptable level; and
- Determining how you will obtain the necessary resources to do this, how you will prioritise and audit the tasks that you have identified, and how you will deliver the actions within the required timescale.

There are three other important considerations:

- A DWSP cannot work in isolation so you must communicate and discuss your findings with the main stakeholders and other relevant parties;
- For the DWSP to work the actions that you have identified as necessary to mitigate the risks must be implemented; and
- Finally, the DWSP is a 'living document' and should not just sit on the shelf as if to say 'job done', it should be reviewed regularly and updated when necessary.



The Drinking Water Safety Plan Cycle

Where Do I Get More Information?

AEP has set up a web-page <http://environment.alberta.ca/apps/regulateddwq/DWSP.aspx> which contains all the necessary documentation including guidance. It also contains web-links to other sources of useful information about DWSPs. There is also an email address (aenv.dwsp@gov.ab.ca) where you can send any additional questions.

Emergency Response Planning

Emergency response plans outline the system owner's responsibilities during emergency situations. They are required to be filed with the operational plan during the approval process with, AEP, Alberta Public Safety Services, the local authority, and the municipality. As a municipal councillor, it is your responsibility to understand council's role in emergency situations.

Definitions – A drinking water or wastewater emergency is a situation or service interruption that may result in the loss of the ability to maintain a safe supply of water or adequate wastewater services to the community.

Emergency preparedness means identifying what could happen in your system to cause an emergency and having processes and procedures in place to prepare for and respond to those emergencies. An emergency plan includes the procedure to be followed in the event of major problems with the waterworks or wastewater systems such as:

- Laboratory results exceeding the prescribed limits;
- Chemical overfeed/underfeed;
- Raw water shortage;
- Raw water quality problems;
- Problems with the wastewater collection system;
- Facility failures;
- Natural disasters/criminal acts; and
- Distribution/collection system breaks or repairs.

A plan should also include a list of contacts at AEP, Alberta Health, Regional Health Authorities, Fire Department, Disaster Coordinator, and other necessary agencies.

In accordance with the *Standards and Guidelines for Municipal Waterworks, Wastewater, and Storm Drainage Systems* (Section 2.7.2), these emergency plans should be reviewed and updated annually to ensure that contact information remains the same, resource availability is available, and the site specific vulnerabilities remain consistent.

These plans should be tested on a regular basis to ensure their appropriateness and deliverability. The tests should be documented and include lessons learned and plan recommendations.

In the drinking water and wastewater context, emergencies can happen as the result of a variety of natural and human-caused events such as severe weather, major power outages, spills, pandemics, and deliberate acts of vandalism or terrorism. Potential emergencies can be identified during the creation of the emergency plan and updated based on the results of a risk assessment, AEP inspections, voluntary environmental audits, and records of past emergencies.

Actions You Can Take To Be Better Informed

Ask your operating authority to review the emergency plan with council and to explain what responsibilities have been assigned to the owner.

Know who will be the spokesperson during an emergency

Ensure critical staff have taken necessary training on emergency procedures and have participated in testing

Learn about provincial communication and action protocol for failed bacterial results on AEP's website at <http://environment.gov.ab.ca/info/library/7827.pdf>

Become familiar with the province's action protocol for chemical exceedances in drinking water on AEP's website at

<http://environment.gov.ab.ca/info/library/8189.pdf>

Learn about the Alberta Emergency Management Agency and the Alberta Emergency Plan. Information can be found at: <http://www.aema.alberta.ca/alberta-emergency-plan.cfm>

Alberta Emergency Management Agency has developed the *Alberta Emergency Plan*. This plan expands past the water and/or wastewater emergency situations. Responsibilities of the local authority or authorities are outlined in section 3.3.2. of the Alberta Emergency Plan

Part of the emergency plan should clearly document the roles and responsibilities of the owner and operating authority during each emergency and how communication between all involved is to be established. Planning beforehand how those in charge will talk to each other and the media can avoid complications during an emergency.

Emergency preparedness also means training and testing. The best emergency response procedures are ineffective if personnel are not properly trained on what to do and the procedures properly tested. All personnel working within the drinking water system and wastewater system need to know what to do in an emergency, especially those assigned special response roles. Common forms of testing and training include orientation and education sessions, table-top exercises, walk-through drills, functional drills, or full-scale exercises.

Public Health Intervention: Boil Water Advisory and No-Drinking Water Advisory – How Are They Different?

When a drinking water standard has been exceeded or a problem has arisen with the drinking water system, Alberta Health Services in collaboration with AEP and the system owner/operator will decide to take some form of corrective action. These situations do not in themselves indicate that the drinking water is unsafe, but rather that an incident has occurred and action must be taken to protect the public. In some cases, these corrective actions may include boil water advisories (BWA) or no-drinking water advisories (NDWA).

An executive officer with Alberta Health Services is responsible for issuing BWAs and NDWAs where they deem it appropriate in the interest of safe-guarding the public's health.

A BWA is issued when a condition exists with the drinking water supply that may result in a health risk, and where the condition may be corrected by boiling the water. An example is the presence of bacteria in the water supply such as *E. coli*. BWAs are intended as temporary measures to allow for remedial work within the waterworks system, and are not intended to be used as an on-going method of treatment.

A NDWA is issued when a condition exists with the drinking water supply that cannot be corrected by boiling the water. This is often the case where toxic chemicals are present in the

water supply or there is a total infrastructure failure, which is often the result of a natural disaster. In these situations, Alberta Health Services will take actions to ensure that a safe and adequate supply of water is available for essential services such as emergency centres and hospitals.

In both cases the executive officer for Alberta Health Services will direct the system owner to inform users of the order/advisory, through means such as door-to-door notification, public posting of notices, and local media outlets, to boil water or to use an alternate water supply until further notice. An order/advisory will be lifted only after the executive officer is satisfied that corrective actions were taken and the situation has been remedied.

Wastewater Spills, Unauthorized Discharges, and Overflows

When a wastewater system experiences unauthorized discharges, (either effluent quality does not meet the requirement or the discharge period is not in accordance with approval or registration) accidental spills, or overflows from a treatment facility or collection system the owner and operator of the system are required to take certain measures to ensure that notification is made and remedial action takes place.

As per sections 110 to 112 of the EPEA, the person who caused or permitted the release of an unauthorized substance into the environment is required to contact AEP immediately by telephone and provide a written report that includes:

- Location and time of the release;
- A description of the location and the surrounding area;
- A description of the circumstances leading to the release;
- The type and quantity of the substance released; and
- Details of any actions taken or proposed to be taken to rectify the situation

Once AEP has been notified, the province may take action to safeguard public health. These actions may include closing beaches and waterfronts, issuing water advisories, informing downstream water users, and requiring additional testing at nearby drinking water treatment facilities.

In addition to notification, the persons responsible for the wastewater spill, discharge, or overflow is required to take measures to:

- Repair, remedy and confine the effects of the substance;
- Remediate, manage, or remove the substance so as to prevent further adverse effects;
- and; and
- Restore the environment to a condition that satisfies AEP

Infrastructure Planning

Having sound drinking water and wastewater infrastructure is necessary to meet the demand for safe, high quality water. The machinery, equipment, and structures used to produce and provide drinking water and treat wastewater must be in place, maintained and improved when necessary pursuant to section 532(1) of the *Municipal Government Act*.

As part of the operations plan, the operating authority is required to:

- Develop a general maintenance schedule for the facility within its design capacity;
- Outline maintenance instructions for facility equipment; and
- Establish a schedule and procedure for the cleaning and flushing of the water distribution system – including water storage reservoirs and wastewater collection systems

It is expected that you, as a municipal councillor, know and understand these maintenance schedules and procedures and other conditions of approval. Decisions made by you or your fellow councillors that do not comply with the operations plan could negatively impact the quality of your municipal waterworks and wastewater systems and leave you and the municipality open to liability.

Actions You Can Take To Be Better Informed

- Find out what maintenance, rehabilitation, and renewal plans are in place for your drinking water system and wastewater systems.
- Ask your operating authority to present the findings of any infrastructure reviews they undertake.

Maintenance activities can be either planned or unplanned:

- Planned maintenance activities include scheduled or proactive activities needed to maintain or improve infrastructure elements. For example: equipment maintenance, main replacements, etc. They are done to reduce the risk of an unplanned failure; and
- Unplanned maintenance includes reactive activities, for example: actions to deal with main breaks, pump failures, etc. They can draw heavily on resources and adversely affect water quality.

By establishing planned programs for maintenance, rehabilitation, and renewal, the operating authority can save time and costs and increase public confidence in the waterworks and wastewater systems.

Scope of Assets

It was estimated, in a 2004 report, that Alberta required \$590 million in water infrastructure repairs and upgrades for a 10 year plan, and \$884 million for a plan that extended 25 years. Water efficiency measures were cited as a means of extending the capacity of existing infrastructure and deferring upgrading costs.

Definitions:

Infrastructure – the set of interconnected structural elements that provide the framework for supporting the operation of the waterworks or wastewater system, including buildings, workspaces, process equipment, hardware and software, and supporting services such as transport and communications.

Rehabilitation – the process of repairing or refurbishing an infrastructure element.

Renewal – the process of replacing an infrastructure element with new elements.

Sustainable Financial Planning for Waterworks and Wastewater Systems

Achieving financial sustainability in Alberta's municipal water and wastewater is a long-term goal. Financial sustainability is needed to ensure that Albertans continue to enjoy clean and safe drinking water, water and wastewater, reliable services, and environmental vibrancy.

To help municipalities reach financial sustainability, AEP has developed a Full Cost Accounting (FCA) initiative to promote fiscal planning by those who own and operate municipal waterworks systems.

Based on the principles of Environment Canada's *National Action Plan to Encourage Municipal Water Use Efficiency*, FCA was developed as a method of accounting to capture all costs related to providing drinking water services: operating and maintenance expenses, depreciation of assets, and returns for the replacement of capital assets. As waterworks systems age, investments are required to renew and expand existing infrastructure. If these costs are not built into municipal infrastructure budgets, the upgrading and maintenance necessary for the effective operation of the waterworks system could easily be deferred and/or ignored. This FCA is transferrable to wastewater systems.

By utilizing the FCA tools, you ensure that your waterworks system receives sufficient funds for the operation of the facility, maintenance of the infrastructure, treatment and distribution of safe potable water, and continued financial integrity of the system.

There are two recognised methods involved in the performance of Full Cost Accounting: the **utility approach** and the **cash needs approach**. Though each method ultimately leads to financial sustainability, the utility approach is the method recommended by AEP.

The following are some key principles of the utility approach to FCA:

Responsible reporting of all operating costs, capital asset depreciation, interest expenses, and any returns/dividends that the system is required to provide;

Life-cycle planning as an approach to managing drinking water and wastewater assets;

Owners of the waterworks and wastewater systems are provided with an understanding of the costs of the facility's various activities; and

More transparency is created as the information gathered is used to inform consumers on the costs associated with treating and distributing water and collecting and treating wastewater.

Actions You Can Take To Be Better Informed

To learn more about AEP's Full Cost Accounting initiative and how you can register your municipality, visit the official website at <http://AEP.alberta.ca/water/programs-and-services/drinking-water/knowledge/full-cost-accounting-for-municipal-drinking-water-facilities.aspx>

While full cost accounting reports are expected to be filed annually, the owner and operator of a waterworks or wastewater system is encouraged to develop financial plans that are designed to forecast costs for the entire life of the infrastructure/water assets. These plans are, however, living documents that, as best practice, are updated frequently based on the information contained in the FCA reports.

As a municipal councillor, you have an important role to play in ensuring that appropriate resources are made available for financial planning and/or full cost accounting. Municipal councils have the ultimate responsibility for approving financial plans for their municipal wastewater and waterworks systems.

A sustainable system is one that can adequately cover current operating costs, maintain that repair its existing asset base, replace assets when appropriate, fund future growth and enhancements to services, and account for inflation and changes in technology.

System Audits: Creating Efficiencies and Accounting for Water Loss

An important tool in understanding the condition of your drinking water system infrastructure/assets is a voluntary environmental audit. In their *Compliance Assurance* policy, Alberta Environment and Sustainable Resource Development has highlighted the importance of auditing in the promotion of sustainable, efficient, and compliant systems that operate beyond the regulated standards.

A voluntary environmental audit represents a systematic, documented, proactive and objective evaluation of your facility with the intention of:

- Determining environmental risks associated with the operation and related practices;
- Assessing compliance with the regulatory requirements; and
- Assessing the facility's performance and effectiveness against an environmental management system or standard of practice.

One component of an audit of a waterworks or wastewater system will involve estimating where all the water entering the system ends up. This process will reveal how much water is being lost to leaks for water mains and service connections. Leaks are a concern as they can:

- Signal deteriorating water main conditions and be a precursor to more breakages;
- Be a source of bacterial contamination;
- Result in additional costs for pumping and treating water that is not ultimately delivered to customers; and
- Damage other infrastructure such as roads and sewers.

The Big Picture

According to the Environment Canada, 7.2 per cent of water produced at municipal water treatment facilities in Alberta is lost, mainly due to leaks in the distribution system infrastructure. While this figure is down from the 9 per cent reported in 2004, it still represents a startling and yet, rectifiable statistic.

(Sources: Environment Canada, 2010, 2010 Municipal Water Use Report: 2006 Statistics; Environment Canada, 2004, 2004 Municipal Water Use Report: 2001 Statistics)

An owner of a waterworks or wastewater system is required to submit a summary report monthly and annually to the Regional Director and AEP. Annual summary reports must be produced by

February 28 of each year to cover the preceding calendar year and must be retained by the municipality for the life of the waterworks or wastewater system.

A monthly summary report must include at a minimum:

- The names and phone numbers of all operators of the facility and manufacturers of the treatment chemicals used during the month;
- The results of all the monitoring parameters required by the approval or code of practice;
- The locations of all the sampling done over the course of the month; and
- The results of all other required measurements conducted over the month.

The annual summary report must contain the following information:

- A summary of the monthly reports;

- The results of any other compliance monitoring not included in the monthly report; and

- A description of any problems the facility experienced and the corrective actions taken to rectify these problems.

Every public waterworks and wastewater facility is inspected by AEP. The frequency of these inspections is dependant on the nature of the facility's water supply or effluent destination. At a minimum, those facilities which use surface water as their source are inspected annually, whereas those that use a high quality groundwater source are inspected every two years. Similarly wastewater systems that discharge continuously into the receiving environment such as mechanical wastewater treatment facilities are inspected more frequently than wastewater stabilization ponds that discharge seasonally.

For waterworks systems, regardless of source, an inspection will include a review of the system's source, treatment, and distribution components, as well as water quality monitoring procedures and practices to evaluate the system's management and operations. Inspectors will identify areas of non-compliance or improvement, and any actions that can or must be taken to correct them.

For wastewater systems an inspection will include a review of the collection system including types of wastewater discharged to the system, treatment process, and wastewater quality monitoring procedures and practices to evaluate the system's management and operations. Inspectors will identify areas of non-compliance or improvement, and any actions that can or must be taken to correct them.

Following the inspection, a variety of steps may be taken. If AEP highlights any area of non-compliance that may adversely impact human health, an authority from Alberta Health Services is notified immediately. Other departments may be referred to depending on the nature of the identified issue. For example, if the inspector identifies an opportunity for a facility to optimize its performance an AEP Drinking Water Operation Specialist may be asked to offer their assistance. If AEP highlights any area of non-compliance with the wastewater system that may adversely impact human health or the health of the environment, the department will instruct the municipality to take corrective action and other departments may also be referred to depending on the nature of the identified issue such as Environment Canada in the case of potential impact on fish bearing stream.

Waterworks and Wastewater Systems Operators: What do they do? What certification requirements must they meet?

Under the EPEA each municipal waterworks and wastewater system is required to have certified operators supervising and/or carrying out the day-to-day operations for the facility. The approval, registration, or code of practice for each facility specifies the certified operator requirements for each system.

How the Pieces Fit Together

To learn more about the Water & Wastewater Operator Certification Program, read the Water and Wastewater Operators' Certification Guidelines available on the visit the Water and Wastewater Operator Certification website at: <http://AEP.alberta.ca/water/programs-and-services/drinking-water/protection/water-and-wastewater-operator-certification.aspx>

Facility Classification

The operational complexity of your waterworks or wastewater facility will determine what certification requirements your operators must have to operate the system. EPEA requires that the operation of a waterworks or wastewater facility be supervised by *at least* one person holding a certification matching the facility's classification number. The more complex a facility, the more certified operators will be required. For example, if your municipal waterworks system is classified as a Class II Water Treatment Plant, you are required to have a designated operator certified at Level II, Water Treatment. Any additional certification requirements will be found in the approval, registration, or code of practice.

AEP reviews and classifies all waterworks and wastewater facilities on a scale from I to IV. The classification for Water Distribution and Wastewater Collection systems is based on the size of the population served by the facility, whereas the Water Treatment and Wastewater Treatment classifications are based on the degree of difficulty required to operate the facility.

The following is a summary of the facility classifications designated by AEP:

| Facility | Based Upon | CLASS I | CLASS II | CLASS III | CLASS IV |
|-----------------------------|----------------------|--|-------------|---------------|----------------|
| Water Distribution (WD) | Population | 1500 or fewer | 1501-15,000 | 15,000-50,000 | 50,001 or more |
| Water Treatment (WT) | Degree of difficulty | <i>Based on the degree of difficulty</i> | | | |
| Wastewater Collection (WWC) | Population | 1500 or fewer | 1501-15,000 | 15,000-50,000 | 50,001 or more |
| Wastewater Treatment (WWT) | Degree of difficulty | <i>Based on the degree of difficulty</i> | | | |

Certification Requirements and Responsibilities

“Water and wastewater systems are vital to our communities and our quality of life. These systems are operated and maintained by professional certified operators who are dedicated to ensuring safe drinking water and environmental stewardship. I encourage municipal officials to learn more about their local systems and engage with the operators who maintain them. Together, you can safeguard these vital services for generations to come.” – **Dan Rites, Executive Director, Alberta Water & Wastewater Operators Association**

Certified facility operators play a vital role in providing safe water for your community.

The responsibilities of an operator may include, but are not limited to:

- Checking, adjusting, and operating equipment such as pumps, meters, analysers, and electrical systems, and having replacement parts on-site from critical repairs;
- Determining chemical dosages and keeping chemical feed equipment appropriately filled with chemicals, adjusted, and operating properly;
- Ordering and maintaining a stock of parts, chemicals, and supplies;
- Maintaining an operating records and submitting operating reports to the system’s operating authority/owner and the province;
- Collecting and submitting water samples as required by regulation (this usually involves taking samples from a number of key locations and transporting them to a licensed laboratory); and
- Explaining and recommending to the operating authority/owner any major repairs, replacements, or improvements that should be made to the plant.

To qualify to write the certification exams applicants must meet the minimum education, training, and experience requirements associated with each certification level. Once the requirements have been met and the exam passed, the applicant will receive their three-year certificate from AEP. To renew a certificate, an operator must obtain a minimum of 12 months operating experience during the certificate’s validity, and obtain a minimum of 3.6 (0.6 for Small Systems) continuing education credits (CEU) during the three-year certification period. Continuing education helps operators steadily improve their knowledge and skills throughout their careers.

Operators obtaining employment in Alberta, coming from other Canadian jurisdictions, that hold *valid full* certificates are on written application, issued Alberta Certification at a comparable level, without further examination. All the Canadian provinces are members of the Agreement on

Internal Trade (AIT). More information on the AIT can be found at: http://www.ait-aci.ca/index_en.htm

The following is a summary of the education and experience requirements for each operator level:

| OPERATOR LEVEL | REQUIREMENTS | WT | WD | WWT | WWC |
|----------------|--------------------|---------------------------------------|-----|---------------------------------------|-----|
| Small Systems | Training (CEUs) | 0.6 CEUs approved applicable training | | 0.6 CEUs approved applicable training | |
| | Experience | 6 months | | 6 months | |
| Level I | Education (years) | 12 | 12 | 12 | 12 |
| | Experience (years) | 1 | 1 | 1 | 1 |
| | Training (CEUs) | 1.2 | 1.2 | 1.2 | 1.2 |
| Level II | Education (years) | 12 | 12 | 12 | 12 |
| | Experience (years) | 3 | 3 | 3 | 3 |
| Level III | Education (years) | 14 | 14 | 14 | 14 |
| | Experience (years) | 4* | 4* | 4* | 4 * |
| Level IV | Education (years) | 16 | 16 | 16 | 16 |
| | Experience (years) | 5* | 4* | 4* | 4* |

* 2 years of the Experience must be in "direct responsible charge" of the facility or system

Actions You Can Take To Be Better Informed

As the facility's owner, you are responsible for being aware of the certified operator requirements for your facility and to ensure that the requirements are met. To meet this legal responsibility the following actions are recommended:

- Inform yourself with the contents of the facility's approval, registration, or code of practice
- Confirm that all minimum certified operators are on hand when required
- Develop or become aware of your facility's contingency plan to ensure that operator requirements are met in the case of planned absences, unplanned absences, or changes of staff. Ensure you have a certified operator succession plan in place.
- Ensure there are sufficient resources for the appropriate training and continuing education requirements to be allocated to the municipal staff involved the operation of the waterworks and wastewater facility.

Communicating With Your Operating Authority

Communication is an integral component for the successful ownership and operation of a waterworks and wastewater system. Taking action to develop communication strategies between municipal council and facility operators ensures vigilance in maintaining safe, high quality water within the municipality and protects the municipality from liability.

It is important for municipal councillors, to develop a procedure for communicating with the operators of your municipally owned waterworks or wastewater system. The procedure for communicating with the operators may be as simple as indicating the status of the various monthly and annual reports and the implementation and effectiveness of the operations plan during scheduled meetings, such as council meetings.

Communication procedures may also extend to involvement with the public. This level of communication can be done by posting information on a publicly accessible website or through billing inserts.

Actions You Can Take To Be Better Informed

Discuss with your operating authority how and when communication will occur;
and
Find out what information can be made available to the public and the best way to distribute

Water Conservation

Many Albertans believe this province has an abundant supply of freshwater. However, water scarcity is already a reality in southern Alberta. As our demand for water grows, we must take measures to protect and conserve the quality and quantity of this resource. Not only will these measures help to sustain the resource and our environment, but ensuring that water is used efficiently will help cut costs for the municipality and its residents.

Creating and implementing water conservation measures helps to reduce water and energy consumption, lower long-term infrastructure costs, and reduce the costs associated with distributing, treating and storing water. It is estimated that every additional litre of water required by a municipality costs roughly four dollars for expanded water and wastewater infrastructure. Many municipalities in Alberta are realising significant savings from water conservation measures.

The cost of energy associated with pumping, distributing and treating water and wastewater is a significant expense for most Alberta municipalities. Saving water saves energy and reduces greenhouse gas emissions. Better water management has the potential to be one of the most cost-effective energy reduction strategies for Alberta's municipalities.

Water Conservation Facts

Albertans currently use about 283 litres of water per capita per day. This is nearly twice as much as other countries with similar standards of living such as Germany, the United Kingdom, and the Netherlands;

Pumping and distributing water to homes and businesses, and treating water and wastewater makes up one-third to one-half of a municipal government's total electrical use – more than double that of other municipal costs such as street lighting;

Canadian surveys have consistently shown that as the percentage of metered homes in a community increases, water use per capita decreases. In municipalities that used volume-based water charges (i.e. metres), the average daily consumption is 263 litres per person, while municipalities that charge a flat or assessed rate, the corresponding figure is 76 per cent higher or 464 litres per person; and

Currently 84.8 per cent of residential clients in Alberta are metered.

(Source: Environment Canada, 2010, 210 Municipal Water Use Report: 2006 Statistics)

Conservation in Action

Water conservation does not require large scale projects to be effective. All Albertans have the capacity and interest to protect Alberta's water supply. A number of municipalities are taking action on conservation such as providing public information on their websites and incenting conservation through rebate programs. For example, towns like Peace River are creating water conservation incentives to encourage residents to conserve water. The town has established rebates for low-flush and dual-flush toilets as well as subsidized rain barrels, which, if used by all residents could conserve about 67 million litres of water per year. Another example is the City of Calgary. As of September 2011, the city implemented a rebate of \$50 for toilet replacement. To be eligible the new toilet must have a WaterSense™ label.



Learn More About Water

Sources and Destinations of Water

Alberta's drinking water comes from either surface water or groundwater. It is important to know the source of your community's water as it will determine:

- The kind of treatment and disinfection your drinking water system must have;
- The equipment needed to access and distribute your water;
- The types of risks your drinking water may face; and
- The planning for your water supplies in the future.

Once wastewater has been treated, it is discharged back into the environment, into either surface water or into the underground field systems. In Alberta, 99.9 percent of all wastewater effluents are destined for surface water repositories.

Surface Water

Surface water for public use is taken from rivers, lakes, or reservoirs, which are replenished by rain and snow. In Canada, 88.5 per cent of municipal drinking water comes from surface water sources. Surface water is more susceptible than ground water to contamination for the following reasons:

- Rivers** may flow through farmland, industrial areas, sewage discharge zones, and other districts that may cause harmful contamination and/or affect taste, odour, clarity, and colour. River water quality will vary throughout the year; and
- Lakes and reservoirs** usually have better water quality than rivers as suspended contaminants will "settle-out" in lakes. However, lakes and reservoirs are subject to plant and algae growth, which can give lake water an unpleasant odour or taste. Human activities such as power boats, feed lots, etc., are also a threat. In addition, lakes are often fed by rivers that can carry contaminants.

Groundwater

Groundwater is defined as 'water that occurs beneath the surface of the Earth and can be found in most parts of Alberta. In fact, it is estimated that Alberta has more groundwater than surface water, though only 0.01 per cent of this ground water is believed to be recoverable. As such, only approximately three per cent of water licensed in Alberta is from groundwater sources.

Groundwater gathers in aquifers – the layers of sand, gravel, and rock through which water seeps from the surface. Sand and gravel aquifers are usually the most suitable for municipal water systems because there water is more plentiful. Among rock aquifers, sandstone, due to its porosity, can be a good source of groundwater. Alternately, limestone is not porous and may not be a suitable groundwater source unless there are cracks and cavities through which water can move.

In the southern half of Alberta, the Paskapoo aquifer is the most used aquifer system. Of the 200,000 water wells drilled within it, approximately 70,000 are presently active, making this one of the most important aquifers in Western Canada.

Groundwater Under Direct Influence – GWUDI

In addition to groundwater and surface water, there is a third source of water known as GWUDI – groundwater under direct influence of surface water. This is groundwater found below the surface that is in contact with surface water.

An aquifer supplied by GWUDI is viewed in the same category as surface water and has the same treatment and disinfection requirements.

Getting Groundwater to the Surface

Groundwater is sourced through traditional (gravity) well and artesian wells.

A traditional well is created by sinking a hole or a shaft into the ground to reach the water in an aquifer. This water is not under pressure and must be pumped to the surface for use; and

An artesian well taps an aquifer where the water is under pressure and rising from being confined between two containing layers.

A spring forms when groundwater flows naturally from rock or soil onto the surface.

Source Protection in Alberta

Protecting our drinking water sources is one of the key components to Alberta's multi barrier approach – the source-to-tap approach to providing safe, clean drinking water. The source protection process in Alberta helps municipalities and others identify potential threats to sources of drinking water. This allows for better decisions to be made about managing such threats and plans can be developed to protect these vulnerable sources into the future.

Since both surface and groundwater may be drinking water sources, source protection relates to all water resources. As such, these protection requirements are found in a variety of acts and regulations administered by the various levels of government, including:

The *Environmental Protection and Enhancement Act*,
The *Water Act*; and
The *Public Health Act*

Source protection in Alberta is achieved through watershed planning and may have an impact on a municipality's land use planning rules. For example, regulations may require setbacks from water bodies for various activities or structures that will need to be incorporated into your municipal plans. To learn more about source protection visit <http://AEP.alberta.ca/water/programs-and-services/drinking-water/protection/source-water-protection.aspx>

Water Treatment Processes

Treatment processes reduce or eliminate the potential for the presence of pathogens, or organisms that can cause illness, in drinking water and wastewater effluent. These processes are used to ensure that your water meets provincial standards.

Different water sources necessitate different levels and methods of treatment to ensure safe, clean water is provided to consumers. In Alberta, all regulated waterworks systems must have a disinfection process in place and all water must be disinfected before it is supplied to the public. The most widely used disinfectant is chlorine, which is a low-cost powerful disinfectant that continues disinfecting as water passes through the distribution system.

Additionally all waterworks systems using surface water or groundwater under direct influence must also provide a filtration process ahead of the disinfection.

Some municipalities also use certain treatment processes to address aesthetic problems with their drinking water – such as taste and odour – but which do not pose a risk to public health. These issues are instead viewed by consumers as objectionable. As well, some municipalities add to the treatment process to address issues that are local in nature, like cyanobacterial bloom control.

Here is a list of the treatment process steps taken in a conventional water treatment plant used to treat surface water:

| | |
|--------------------------|---|
| Intake and Screen | Intake structures are used to draw water from lakes, reservoirs or rivers. Screens are used to remove large debris from raw water, such as logs or fish, or other unwanted matter (e.g. algae). Screens can also be designed for coarse or fine matter. |
| Coagulation | Coagulation is a chemical process that causes smaller particles to bind together and form larger particles. The process is used to improve the removal of particles through sedimentation and filtration in the drinking water treatment process. |
| Flocculation | Flocculation is the gathering together of fine particles in water by gentle mixing after the addition of coagulant chemicals to form larger particles that can be removed through sedimentation and filtration. |
| Clarification | Clarification is used to remove suspended solids prior to filtration. In Alberta, the most common method of clarification is sedimentation – allowing suspended material to settle using gravity – but facilities may use the flotation method as well. |
| Filtration | Filtration is the final particulate removal step in the process. The purpose of filtration is to remove any remaining particles in the water by passing the water through a granular or membrane filter that retains all or most of the solids on or within itself. |
| Disinfection | Usually the addition of chlorine to raw or filtered water is to remove or inactivate human pathogens, such as bacteria, protozoa, and viruses, or for the purpose of maintaining a consistent level of chlorine in the distribution system. |

Find Out About Your Waterworks System Treatment Process

To find out what specific treatment processes are used by the facility in your municipality, consult the system approval or registration or meet with your operating authority.

Wastewater Treatment

The wastewater treatment process involves the separation of solid, organic, and chemical waste from wastewater so that it can be safely re-introduced into the environment. In Alberta a variety of treatment options are available – wastewater stabilization ponds or lagoon systems, or mechanical wastewater treatment plants which employ number of process including primary, secondary and tertiary. Not all Albertans are served with the same type of treatment which varies with the population (volume of flow) the systems will have to serve and where the effluent is discharged to and its potential impact on the receiving environment.

Secondary treatment is the most widely used treatment category in Canada, representing 42.4 percent of all sanitary wastewater collection systems. Within the secondary treatment category, smaller municipalities are more likely to use wastewater lagoons for their treatment needs, while communities with populations greater than 50,000 are more likely to utilize a mechanical treatment facility.

In Alberta, more than 3.2 million people are served by approved wastewater systems that are designed to produce treated effluent equivalent to secondary treatment or better. There are 395 wastewater stabilization ponds serving more than 308,661 people and, 103 mechanical facilities serving more 3,226,432 people in Alberta. In fact, according to the *Standards and Guidelines for Municipal Waterworks, Wastewater, and Storm Drainage Systems*, the best practice for municipalities with populations less than 20,000 is secondary mechanical treatment, while municipalities with populations greater than 20,000 should consider tertiary mechanical treatment facilities as a best practice.

Here is a list of the treatment process steps taken in a conventional tertiary mechanical wastewater treatment plant:

| | |
|-----------------------------------|--|
| Pre-treatment | Solid matter and grit are screened and removed from the wastewater as it passes through aerated tanks. Large rakes separate the larger solids from the influent stream. |
| Primary Treatment | In deep clarifier tanks, the heavy sludge and particulate matter is given time to settle to the bottom, while the scum rises to the top. The sludge and scum are removed and sent for separate treatment, while the wastewater effluent is sent to the next treatment phase. |
| Enhanced Primary Treatment | Some treatment facilities have enhanced primary treatment clarifiers that are used during periods of heavy wastewater flow. The use of these clarifiers allows the facilities to take in and treat more wastewater rather than bypassing treatment and directing overflow into the receiving waters. |

| | |
|----------------------------|---|
| Secondary Treatment | Through physical and biological treatment process up to 90 percent of the organic matter in wastewater is removed to produced effluent quality that is equivalent or better than 25 mg/L Carbonaceous Biochemical Oxygen Demand (CBOD) and 25 mg/L Total Suspended Solid (TSS). |
| Tertiary Treatment | This is an enhancement of the secondary treatment by adding a process to further remove nutrients from treated effluent to obtain a very high quality of effluent and may include effluent disinfection. |
| Disinfection | Before the effluent is sent to the receiving waters, the clear wastewater effluent is disinfected using UV radiation, chlorine, ozone, or bromine chloride. |

Water Distribution and Wastewater Collection

The water distribution system is the collection of pipes, valves, fire hydrants, storage tanks, reservoirs, and pumping stations that carry water to customers.

Water Mains/Piping

Water mains are normally buried in the public street right-of-way. A trunk main is a larger size main used to move large quantities of drinking water and wastewater. The smaller diameter pipe, which connects the trunk main to an individual building, is called a water service main. These smaller pipes contain a buried valve to allow for service shut-off. Water service piping inside the property line is considered plumbing and is outside municipal jurisdiction.

The pipes of the distribution system must be large enough to meet municipal and industrial needs and provide adequate and ample flow for fire protection.

Types of Pipes

The most common types of material used for pipes include:

Cast-iron – Cast-iron pipes have a long history of use. While sturdy, they are also known to be prone to corrosion and breaks;

Ductile-iron – Ductile-iron pipes are becoming widely used, and are considered a newer version of cast-iron piping. These are more flexible and less likely to corrode than their cast-iron counterpart;

Asbestos-cement – Asbestos-cement pipes are not often used, but are appealing due to their low-cost and light weight; and

Plastic – Polyvinyl chloride (PVC) or polyethylene pipes are widely used today and typically have a longer life than their counterparts.

Valves are installed at intervals in the piping system so that segments of the system can be shut off for maintenance or repair.

Hydrants

Hydrants are distributed in residential, commercial, and industrial areas, and are primarily used by fire departments in fighting fires. Fire hydrants and system valves should be operated and tested at regular intervals.

Water Storage Facilities

Drinking water storage facilities exist in most municipalities to provide a reserve supply for times of emergency or heavy use (e.g. fire fighting) and can include:

- Elevated tanks (providing water pressure to a system);
- Standpipes (also supply pressure from a high point of land);
- Hydro-pneumatic systems (use air pressure to create water pressure in small systems);
- and
- Surface or in-ground reservoirs (where water can be stored and pumped out for use).

Pumping Stations

Pumping stations are facilities that include equipment designed to help move fluid from one place to another. These are required whenever gravity cannot be used to supply water to the distribution system under the pressure required to meet all of the service demands.

Water Meters

Water meters are used throughout the waterworks and wastewater system to record several amounts, including:

- The amount of water treated and delivered to the water system;
- The amount of water used by the consumer;
- The amount of wastewater entering the system through storm sewers or sanitary mains;
- and
- The amount of wastewater treated and returned to the environment.

Water Distribution Atlas

Your municipality may maintain a water distribution system atlas. These provide detailed mapping of the distribution system and information on infrastructure and maintenance records. Detailed mapping helps your municipality plan for future repairs and is essential for quick response to problems such as water main breaks.

Wastewater Collection

Wastewater Collection systems, usually gravity collection minimum size of 200 millimetres and minimum grade of 0.40 millimetres/100 metre with manholes to provide access to the mains for cleaning purpose (see section 4.1 of S & G).

Summary of Actions You Can Take

Become further acquainted with drinking water and wastewater legislation and regulations, available on the Government of Alberta Queen's Printer website at <http://www.qp.alberta.ca/> Search or browse current law to find what you are looking for. To search, enter the title, or any part of the title, of the law you wish to find (for example, "Environmental Protection and Enhancement Act", "Water Act", or "Wastewater and Storm Drainage Regulation"). If you don't know any part of the title of the law, enter a word or phrase that you think might be in the text of the law;

Learn about water safety and its link to public health and health of the environment. Speak to the waterworks and wastewater system and public health staff to learn more;

Become familiar with your municipal waterworks and wastewater system. Ask for a presentation to be given to council and/or arrange a tour of your water and wastewater facilities;

Inform yourself with the contents of the facility's approval, registration, or code of practice;

Confirm that all minimum certified operators are on hand when required;

Develop or become aware of your facility's contingency plan to ensure that operator requirements are met in the case of planned absences, unplanned absences, or changes of staff. Ensure you have a certified operator succession plan in place;

Ensure there are sufficient resources for the appropriate training and continuing education requirements to be allocated to the municipal staff involved in the operation of the waterworks and wastewater facility;

Discuss how and when communication will occur with your operating authority;

Find out what information can be made available to the public and how it should be made available; and

For more information on what your municipality can do to improve its water conservation efforts read the *Alberta Urban Municipalities Association's Water Conservation, Efficiency and Productivity Plan* on their website at: <http://water.auma.ca/>

***Be informed. Ask Questions. Get Answers
It's your Duty!***

Appendix A – Liability Based On Specific Provisions In The Legislation

The environmental legislation specifically widens the net of persons who are responsible. Under the heading “Liability of public officials” Section 233(1) Environmental Protection & Enhancement Act provides:

Where a person who is acting under the direction of:

- c) a member of a council of a local authority commits an offence under this Act, the...member of council...is also guilty of the offence...if the member of council knew or ought reasonably to have known of the circumstances that constituted the offence and had the influence or control to prevent its commission...

There is an almost identical provision in Section 146 of the Water Act. In both cases the person has a defence if he or she “establishes on a balance of probabilities that the person took all reasonable steps to prevent the commission of the offence.”

Liability Based on the Criminal Code

By virtue of section 3 of the Provincial Offences Procedure Act, the provisions of the Criminal Code apply to all provincial legislation unless expressly indicated otherwise.

Section 21 of the Criminal Code extends criminal responsibility beyond the person who committed the offence to persons who contributed to the offence as follows:

- (1) Every one is a party to an offence who
 - (a) actually commits it;
 - (b) does or omits to do anything for the purpose of aiding any person to commit it; or
 - (c) abets any person in committing it.
- (2) Where a person counsels another person to be a party to an offence and that other person is afterwards a party to that offence, the person who counselled is a party to the that offence, notwithstanding the offence was committed in a way different from that which was counselled.

The Criminal Code was amended in 1985 to specifically allow for convictions of the party even in situations where the principal could not be convicted. (Section 23.1)

The question of amounts to abetting in the regulatory context was considered by the Ontario Provincial Court in *R v. Continental Cablevision Inc.* (1974) 19 C.C.C. (2d) 540 in which the decision of the Manitoba Court of Appeal in *R. v. Kulbacki* [1966] 1 C.C.C. 167 was quoted with approbation:

...the failure of the accused to make any effort to stop or prevent the commission of the offence, when he was in a position to do so and when he had the authority to do so, was equivalent to encouragement on his part.

The notion that a person could be held responsible in the absence of a duty to act is not unique. In *R v. Sault Ste. Marie* (1978) 40 C.C.C. (2d) 353, the City argued that it had no “duty” to act and therefore should not be held liable for the actions of its contractor. The Supreme Court of Canada disagreed stating at page 376 that... “[t]he law is replete with instances where a person has no duty to act but where he is subject to certain duties if he does act.”

Liability Based on the Common Law

Environmental offences fall in the category of strict liability offences. Without going into a lot of detail, a conviction will follow upon proof that the prohibited act occurred; there is no requirement to prove the mental element called *mens rea*. However, the accused may avoid conviction if he or she establishes on a balance of probabilities that all reasonable steps were taken to prevent the offence.

Accordingly, the misfeasance of an employee or agent is visited upon the employer unless the employer can prove he or she exercised proper supervision. In his definitive text *Regulatory Offences in Canada, Liability & Defences* John Swaigen wrote:

...the employer or principal is punished not for the errors of its employees or agents, but for its own negligence in failing to set up an appropriate system to prevent such errors.

The Supreme Court of Canada in *Sault Ste Marie* explained the concept in this way:

[A] superior company may not avoid its duty of due diligence by simply contracting out, but can escape a finding of guilt if it is able to establish as a fact that it put in place a proper system for supervising its servants and its contractors.

There are number of examples in the case law where the employer has been held responsible for the actions of the employee because of a failure to properly supervise that employee. (*Suncor Millennium*, *Philip Environmental*, *Tiger Calcium*). While the accused in these cases was a corporation, the same principles would apply to an individual employer.

Misconceptions

While the decision to prosecute is made on the basis of the evidence, not the identity of the accused, unhappily there are some lingering misconceptions:

For example, some officials believe that because a municipality is in effect another branch of government, the municipality and any individuals working for the municipality are immune. That is surprising considering that the leading case in environmental law was the prosecution of the City of Sault Ste Marie based on the actions of its independent contractor.

In Alberta we have certainly prosecuted municipalities; the City of Edmonton twice, the City of Calgary and the County of Lac Ste Anne as well as such as the Mountain View Regional Water Commission and the University of Calgary. We have also prosecuted other Alberta government departments but when these files proceed, they are handled by the federal Department of Justice. Again, while the examples provided deal with the corporate accused, the law would apply also to an individual.

Another misconception is that the prosecution of a government official or another level of government for that matter would not meet the public interest test. While it is counterintuitive to give money from one group of taxpayers to another, the solution lies in the sentencing process. If there is a conviction, rather than imposing a financial penalty, we ask the Court to impose a creative sentencing order to that will benefit the Environment, the taxpayers in that municipality and the citizens of Alberta generally.

There is a third factor at work: the myth that council deliberations *in camera* are privileged. An example is: An operator knows that repairs need to be undertaken and new equipment purchased but any expenditure more than petty cash has to be approved by Town Council. When the operator makes his pitch, council retires to private chambers to discuss the matter and upon their return, the request is denied without explanation.

It is important to understand that council deliberations are not privileged. Practically speaking, the only privileged communication is between husband and wife and a lawyer and his/her client. Filing the information in a lawyer's office does not protect it. Lawyer's offices can also be the target of a search warrant.

How Can We Dispel These Myths?

The first step is to clearly differentiate between the advice given in the civil arena from that which applies in the criminal arena. In contract law, the parties can specify who is responsible for what. In the criminal context, one cannot contract out of a statutory requirement.

Secondly, by providing examples from the case law, the public officials can better understand their potential exposure. (Regina v. The Town of Beaverlodge, Regina v. West)

Conclusion

A public official may be held accountable for his or her failure to properly supervise employees and agents or by a contribution to the offence through aiding, abetting or counselling.

Appendix B – Websites for Organizations or Programs Associated With the Delivery of Safe Supplies of Drinking Water and Protection of the Environment

| | |
|---|---|
| AEP | http://environment.alberta.ca |
| Alberta's Drinking Water Program | http://environment.alberta.ca/apps/regulateddwq/more.aspx |
| Alberta's Water & Wastewater Operator Certification Program | http://AEP.alberta.ca/water/programs-and-services/drinking-water/protection/water-and-wastewater-operator-certification.aspx |
| Alberta Health and Wellness | http://www.health.alberta.ca/ |
| Alberta Health Services | http://www.albertahealthservices.ca/ |
| Alberta Transportation | http://www.transportation.alberta.ca/ |
| | Alberta Municipal Water/Wastewater Partnership http://www.transportation.alberta.ca/2719.htm |
| | Alberta Municipal Infrastructure Program http://www.transportation.alberta.ca/534.htm |
| Alberta Water and Wastewater Operators Association (AWWOA) | https://awwoa.ab.ca/ |
| Environmental Public Health Manual for Safe Drinking Water | For reprints of the 2007 version contact: Debra Mooney Health Protection Branch Alberta Health and Wellness 10025 Jasper Ave 23rd Floor, TELUS Plaza North Edmonton, Alberta Debra.Mooney@gov.ab.ca |
| Guidelines for Canadian Drinking Water Quality | http://www.hc-sc.gc.ca/ewh-semt/water-eau/drink-potab/guide/index-eng.php |
| Health Canada | http://www.hc-sc.gc.ca/index-eng.php |
| National Sanitation Foundation | http://www.nsf.org/ |
| Provincial Laboratory of Public Health (Microbiology) | http://www.provlab.ab.ca/ |
| Source to Tap (National Guidance Document) | http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/tap-source-robinet/index-eng.php |
| Water Quality Testing for Private Systems | http://www1.agric.gov.ab.ca/\$department/deptdocs.nsf/all/wqe11082 |

Appendix C – Summary Fact Sheet (for Printing)

This summary guide is intended to help members of council understand the regulatory requirements on drinking water and wastewater systems, and to provide information about their statutory responsibilities.

Taking Care of Your Drinking Water and Wastewater

Understand the Legislation

Alberta's *Environmental Protection and Enhancement Act (EPEA)* and its regulations provide a legislative framework for all approved public waterworks and wastewater systems, which sets out province-wide standards and rules to ensure that receiving environments are protected and Albertans have access to safe, high quality, reliable drinking water.

This act and its regulations includes a legal duty for persons responsible for the waterworks and wastewater systems to ensure water is safe from contaminants and that operations are in compliance with the act.

These duties can extend to the municipality and municipal councillors. There could be legal consequences for negligence, including possible fines, enforcement orders, and civil remedies.

Drinking Water Legislation

Alberta Environment and Parks uses a source to tap, multi-barrier approach to ensure that safe drinking water is provided to Albertans.

Part 7 of the EPEA relates to potable water in the province. Within that part, section 149 describes the legal responsibilities of persons responsible for waterworks systems. These responsibilities are expanded upon in the *Potable Water Regulation (A. Reg. 277/2003)* and the *Standards and Guidelines for Municipal Waterworks, Wastewater, and Storm Drainage Systems*. It is important for you to understand the scope of the day-to-day responsibilities of the persons responsible for your waterworks system.

Persons responsible for the waterworks system are responsible for ensuring that their drinking water systems:

- Provide water that meets all prescribed drinking water quality standards;
- Operate in accordance with the act and its regulations and are kept in a fit state of repair;
- Are appropriately staffed and supervised by qualified persons;

Legal Disclaimer

This document should not be viewed as legal or other expert advice. It is a for information purposes only.

- Comply with all sampling, testing and monitoring requirements; and
- Meet all reporting requirements.

Wastewater Legislation

The statute governing the ownership and operation of wastewater systems is the *Wastewater and Storm Drainage Regulation* (A. Reg. 119/1993). It is complemented by the corresponding Codes of Practice and the Standards and Guidelines for *Municipal Waterworks, Wastewater, and Storm Drainage Systems*.

These documents collectively describe the overall and day-to-day legal responsibilities for the persons responsible for the wastewater system.

Persons responsible for the wastewater system are responsible for:

- Ensuring that the substances used and released are not in concentrations that would impair the integrity of the system;
- Operating the system in accordance with the regulation and ensuring the system is kept in a fit state of repair;

Important

Members of municipal council, municipal officials and council committee members who have influence, decision-making authority or control over a water/wastewater system understand that, in addition to the municipality's liability, can be held personally liable, even if the system is operated by a corporate entity other than the municipality.

- Appropriately staffing facilities with appropriately qualified persons;
- Complying with all sampling, testing and monitoring requirements; and
- Meeting all reporting requirements including immediately reporting any violation of the requirements outlined in their approval or Code of Practice for their facility.

Your Duty and Liability

The legal duty has been written into the drinking water and wastewater legislation. These duties extend a legal responsibility to people responsible for the municipal waterworks and wastewater systems.

Section 149 of the *EPEA* establishes a legal duty upon all persons responsible for the waterworks system. It requires that they ensure the drinking water supplied by the system does not contain a harmful concentration of substances.

Section 3 of the *Wastewater and Storm Drainage Regulation* creates a more general duty for all persons responsible for the public wastewater system – to comply with the provisions of the regulation.

In both situations, a failure to fulfill this duty may result in financial penalties for the municipality and its councilors.

Meeting this legal duty is the responsibility of:

- The owner of the waterworks or wastewater system;
- The operator of the waterworks or wastewater system;
- The system's approval or registration holder;

- A local authority that contracts to obtain water from the waterworks system;
- A local authority that grants a franchise to supply water from the system;
- A local authority that contracts to discharge wastewater to the wastewater system;
- A local authority that grants a franchise for the treatment and disposal of wastewater from the wastewater system; and
- Any person who acts as the principle or agent for one of the above persons.

Section 233(1) of *EPEA* specifically notes that where the individual knew or ought to reasonably have known of the circumstances surrounding the failure to satisfy the legal duty, and had the power to influence or control to prevent this failure, then they personally may be found guilty of the offence.

Maintaining an Appropriate Level of Care

Standard of care refers to the level of care and attention that one person owes to another when they are in a legal relationship. The behaviour required to satisfy the standard of care will vary depending on the circumstances of the relationship, the nature of the activity, and the level of supervision one has over the activity.

There is no clearly defined standard of care within the legislation governing the distribution, treatment, and storage of

potable water and collection, treatment, and disposal of wastewater. However, we can deduce an appropriate level of care based on two defences from liability found in sections 220 and 229 of *EPEA* and section 11 of the *Wastewater and Storm Drainage Regulation*.

You are not expected to be an expert in the areas of potable waterworks and wastewater systems.

Section 220 – one must act, or not act, in good faith while carrying out that person’s duties to be safe from liability.

Example

Provision could allow a person to rely on a report created by an engineer, lawyer, accountant or other professional person when making a decision without suffering legal liability.

Section 229 and section 11 – states that conviction can be avoided where a person shows that they took all reasonable steps to prevent the offence from occurring.

Example

Provision assumes all persons responsible for the water/wastewater systems are expected to act reasonably within their powers and to take all steps necessary to ensure they fulfill their duty.

Enforcing the Legal Duty

As a municipal councilor, you need to be aware that not meeting your legal duty can result in serious consequences both for the municipality and you as an individual.

Section 233(1) of the *EPEA* provides for individual liability of public officials for an offence committed under the Act. Pursuant to section 228(2) a person who fails to meet their duty to ensure safe drinking water may be liable for a penalty of up to \$50 000.

In the case of a corporation, including a municipality the maximum penalty is \$500 000. Additionally, section 234 allows for the court to impose a variety of other penalties based on the nature of the offence and the circumstances surrounding its commission. These penalties include:

- Prohibiting the offender from doing anything that could result in recidivism;
- Publishing, at the offender's cost, the facts related to the offence;
- Requiring the offender to pay a discretionary amount of money to the court;

Important

Members of municipal council, municipal officials and council committee members who have influence, decision-making authority or control over a water/wastewater system understand that, in addition to the municipality's liability, can be held personally liable, even if the system is operated by a corporate entity other than the municipality.

- Directing the offender to pay the Minister for the costs associated with remedial or preventative action carried out by the Province;
- Ordering the offender to perform community service, or
- Requiring compliance with any other condition at the discretion of the court

Section 10 of the *Wastewater and Storm Drainage Regulation* creates a similar offence for any person who contravenes various sections of the Regulation. Here, an offence carries with it a fine of no more than \$50,000 for individuals and no more than \$500,000 for corporations.

If the municipality and its councilors are found guilty of an offence under the *EPEA* and its regulations, they may also be held liable for damages in civil court if such action is taken by those individuals who suffered as a result of municipal actions or decisions.

Actions You Can Take — To Be Better Informed

General

- Ask your utility manager to give a presentation and/or arrange a tour of the water/wastewater systems. Review to understand the authorizations for these systems and the corresponding operating, monitoring and reporting requirements.
- Become further acquainted with drinking water and wastewater legislation and regulations, available on the Government of Alberta Queen's Printer website at www.qp.alberta.ca

- Learn about water safety and its link to public health. Speak to the waterworks and wastewater system operators, regulators and public health staff to learn more.
- Consider taking the Standard of Care training with the Walkerton Clean Water Centre. Get course details and session offerings at www.wcwc.ca or by phoning toll free 1-866-515-0550

Operational Plans and Reporting

- Ask your operating authority to speak to your municipal council about your operational plan.
- Consider and act on any advice (including identified deficiencies and action items) identified during the annual management review process.
- Review your annual inspection results and ask questions if there is any indication of declining quality.
- Find out what maintenance, rehabilitation and renewal plans are in place for your systems.
- Ask your operating authority to present the findings of its annual infrastructure review.
- Review the Drinking Water Safety Plan for your waterworks system and find out what actions are needed to address any identified risks.
- Determine when and how your operating authority will communicate to you as an owner.
- Find out what information is made available to the public and how.

Emergency Planning for Drinking Water

- Ask your operating authority to review the drinking water emergency plan with council and to explain what responsibilities have been assigned to the owner.
- Know who will be the spokesperson during a drinking water emergency.
- Ensure critical staff have taken necessary training on emergency procedures and have participated in testing.

Water/wastewater System Operators

- Ensure there are sufficient resources for appropriate levels of training for municipal staff involved in operating a water/wastewater system.
- Familiarize yourself with the water and wastewater operator certification requirements.
- Confirm that an operator in charge has been designated and that procedures are in place to ensure all required staff and contractors are certified.
- Check to see if water/wastewater operator succession planning is being done and that measures are taken to address any current or anticipated challenges to recruiting skilled employees.
- Ensure your municipality or operating authority has contingency plans in place for situations where your certified operators may not be available (e.g. labour disputes, illnesses, vacancies, etc.) and, if activated, confirm that these contingency plans are working.



Check Your Knowledge

- Have I had a tour of our drinking water and wastewater facilities?
- Am I familiar with our municipal waterworks and wastewater systems including:
 - water source
 - where treated wastewater is discharged
 - physical condition of major infrastructure
 - condition of monitoring equipment and how well they are maintained
 - background and experience of senior staff, and
 - elements of the approvals that have been granted for ownership and operation of the facilities
- Am I acquainted with the legislation and regulations?
- Do I know basic information about water safety and the operation of water facilities?
- Do I understand the different roles and responsibilities of those who have decision making authority – municipal councillors, senior management, and other municipal officers?
- Am I aware of the risks currently facing our water sources, water facilities and infrastructure? What are the plans to address these risks?
- Am I aware of the risks of discharging treated wastewater to the receiving environment and potential impact if the system does not operate in accordance with the approval or registration? What are the plans to address these risks
- If there is an emergency with the waterworks or wastewater system, what procedures are followed? How will I be notified? How will the public be notified?
- Am I aware of the municipal role in source protection planning?
- How and when do I ask for annual/monthly reports on the drinking water and wastewater system from senior management?
- What should I look for in the annual/monthly report? What questions must it answer?
- What should I do if a report identifies declining water quality?
- Do I know if appropriate steps are being taken to resolve any issues? Do I know when outside expertise is needed?
- Are our water systems periodically audited? When? How often? What should I do when I receive audit results for consideration?
- Am I assured that competent senior management has been hired? Do they conduct regular performance appraisals waterworks and wastewater of staff?
- What were the results of our last inspection? Are there areas for improvement?
- Do I know if our waterworks and wastewater systems are financially sustainable for the future? Are there financial plans in place?

If you can't answer any of these questions, review them with municipal staff.