What is Source Water Protection?

Source water is untreated, raw water from surface or groundwater sources used for drinking water or other uses. Source Water Protection (SWP) is a risk management process. It is designed to maintain or improve conditions (quality and quantity) of water through proactive and collaborative identification, assessment, and management of risk. More information can be found on the US Environmental Protection Agency website and this video, developed by the Alberta Water Council.

Why should you develop a Source Water Protection Plan?

To safeguard human health, drinking water must be kept clean, safe, and reliable. Consequently, the source, the drinking water treatment plant, the distribution system, and upstream and downstream users must be understood and managed in a holistic manner.

Drinking water sources are susceptible to contamination by various point and non-point source pollutants. Point sources are sources of pollution with a single identifiable and confined location (e.g., a discharge pipe). Non-point pollution comes from several locations at once (e.g., stormwater runoff). Point- and non-point source pollutants can come from natural origins or from human activities. These pollutants can have impacts on human health. For example, microbial toxins and infectious pathogens in drinking water can cause gastrointestinal illness, fever, diarrhea, and dehydration, among other things. Extensive or repeated exposure to chemical contaminants can also cause adverse health impacts.

Variations in geography, climate, and the hydrological cycle can create areas and periods of fluctuating water levels that can influence drinking water quality and quantity as well. For example, drought can lead to lower water levels in aquifers and reduced streamflow in rivers. Floodwater and stormwater can increase water levels and contaminate wells with toxins, chemicals, animal carcasses, septic seepage, and municipal sewage.

Having access to safe and secure drinking water sources is important for the health and well-being of Albertans, as stated in the Government of Alberta's *Water for Life* strategy. Many factors, including a growing population, climate change, aging infrastructure, and increasing development have increased the need for a more integrated approach to protecting sources of drinking water in Alberta. Protecting these sources can minimize the costs of drinking water treatment, reduce public health risks, and strengthen natural ecosystems.[1] Contamination of drinking water sources due to poor management practices has led to human illness and death, disruption in public services, unbudgeted costs, and damage to the environment.

What are the benefits of Source Water Protection?

A key driver for undertaking SWP planning is safe water and protection of public health in a way that can minimize cost, including operational costs for water treatment or deferred capital costs for future upgrades to treatment infrastructure. Securing access to enough water from high-quality sources and protecting those sources is a priority for all water suppliers and communities. The main objective of SWP

[1] In addition to SWP planning, some jurisdictions require a Wellhead Protection Area, which is the area that contributes source water to a drinking water system. https://cleanwatercataraqui.ca/resources/living-in-the-cspa/what-is-a-wellhead-protection-area/

is to maintain and improve the quality of a given water source. Other benefits of SWP include the following:

- Improving public health, which results in economic benefits from reduced illnesses, mortalities, health care costs, and productivity losses
- Reducing uncertainties presented by the growing number of unregulated or unknown emerging contaminants that might not be removed by water treatment systems
- Reducing costs (e.g., water treatment costs; expenses from contamination remediation; monitoring; engineering and legal expenses; and indirect costs of real estate devaluation)
- Increasing the likelihood of complying with drinking water regulations
- Improving source water quality for other benefits
- Meeting public expectations and maintaining customer confidence
- Improving the health of the watershed or aquifer for current and future generations
- Improving communication and collaboration among stakeholders and neighbours
- Maintaining the cultural importance of water to Albertans, including Indigenous Peoples.

More information on what SWP is, the need for SWP in Alberta, and how it is carried out in our province can be found in this video.

Source Water Protection Planning Guidance

Protecting sources of drinking water in Alberta through SWP has emerged voluntarily in communities using a variety of approaches led primarily by drinking water providers, Indigenous peoples, and watershed organizations. Elements of SWP are supported by policies, legislation, and planning processes that are administered by various governments in Alberta.

The AWC has developed a *Guide to Source Water Protection Planning* (the Guide) to provide advice on how to protect drinking water sources through developing a SWP plan. It is intended for drinking water providers (i.e., public, private, and individual) and should be used together with the AWC's *Protecting Sources of Drinking Water in Alberta: Companion Document*. Additional groups that may find the guide useful include municipalities, drinking water providers (utilities), Indigenous communities, Watershed Planning and Advisory Councils (WPACs), Watershed Stewardship Groups (WSGs), and other interested groups.

Additional guidance and information can be found in the *SWP Operational Guide to the American Water Works Association's Standard G300* and the Government of Alberta's webpage for source water protection.

The steps to SWP planning outlined in the Guide are summarized in the following subsections but also can be viewed in this video.

SWP Planning Step 1: Develop a Vision

A vision statement is an aspirational description of what your SWP group would like to achieve in the short-term and the long-term. It acts as a guide when choosing current and future courses of action in a source water area while ensuring that SWP work stays true to its original intent.

The following tips can be helpful when creating a vision:

- Decide what you would like to achieve
- Create a schedule and assign resources to manage the visioning process
- Make a list of past achievements
- Write a first draft
- Gather input from others
- Review, redraft, and revise as needed
- Share your vision with others
- Define clear roles and responsibilities defined with related accountabilities
- Ensure that the vision is science-informed, accountable, adaptive, and scalable

Related Tools and Resources:

- Battle River Watershed Alliance, 2014. Terms of Reference for the Camrose Source Water Protection Initiative. Available online: https://camrosecounty.civicweb.net/document/59391/Camrose%20SWP%20Initiative%20Terms%20of%20Reference.pdf
- Clean Air Strategic Alliance, 2010. Consensus Decision-making Toolkit. Available online: https://www.casahome.org/uploads/source/PDF/CDM-toolkit-web.pdf
- Community Toolbox, 2018. Developing and Communicating a Vision. Available online: https://ctb.ku.edu/en/table-of-contents/leadership/leadership-functions/develop-andcommunicate-vision/main
- Government of Alberta, 2003. Enabling Partnerships: A Framework in Support of Water for Life: Alberta's Strategy for Sustainability. Available online: https://open.alberta.ca/publications/0778542424
- Government of Nova Scotia, 2009. Developing a Municipal Source Water Protection Plan: A Guide for Water Utilities and Municipalities: Step 1 Form a Source Water Protection Advisory Committee. Available online: https://novascotia.ca/nse/water/docs/WaterProtectionPlanStep1.pdf
- Lake Erie Region Source Protection Committee, 2009. Grand River Protection Area: Approved Terms of Reference. Available online: https://www.sourcewater.ca/en/source-protection-areas/resources/Documents/Grand/Grand_Reports_TermsOfReference.pdf
- Land Stewardship Centre, 2014. The Stewardship Toolbox. Available online: http://www.landstewardship.org/media/uploads/141222-LSC_Toolbox_web_final.pdf
- Water Research Foundation, 2012. Source Water Protection Vision and Roadmap. Available online: https://aquadoc.typepad.com/files/4176b_swp_vision_roadmap.pdf

Step 2: Characterize Your Source Water Area

Before developing goals and a SWP plan, it is important to characterize your source water area through information and data collection and analysis.

The first task is to delineate your source water area on a map. This will help you understand how local land features interact ecologically, hydrologically, and hydrogeologically with the drinking water source. Additionally, you can gauge how various types of land use (e.g., municipal, agricultural, irrigation, mining, and oil and gas) can guide your proposed SWP plan and which areas require more focus than others.

- For surface water, this involves determining the land area drained by water that flows into a surface water source, and where potential contaminants and other risks can be identified and mitigated.
- For groundwater, delineating a groundwater source requires the use of aquifer boundaries. The planning boundary may include a small area immediately surrounding a single water well or the entire aquifer system(s) that supplies water to a region. Delineating the area is usually done using mathematical or computer modelling based on site-specific hydrogeological data. Professional assistance from a qualified hydrogeologist or groundwater engineer is often needed to complete this work accurately.

The second task is to identify and assess risks to the source water. Drinking water risks, common practices, and risk-management approaches are detailed in Section 2.3 of the AWC's Protecting Sources of Drinking Water in Alberta: Companion Document. Briefly, three key steps can be undertaken for the risk assessment:

1. Inventory land-use activities — an inventory is a useful method of identifying land-use activities and their potential harmful impacts and risks to your drinking water source. Using GIS, land-use mapping is a valuable tool to obtain information about land-use activities in your source water area
2. Identify risks and potential sources of contamination — Preventing contaminants from entering a drinking water source is the first barrier in the multi-barrier approach. However, in some instances, mitigation or treatment options may need to be investigated.

This analysis will help you identify, categorize, and prioritize drinking water quality and quantity risks, and develop SWP goals.

Note that this is the most complicated and difficult step. The Source Water Protection Phase I: Risk Assessment Tools and Data project team is investigating developing a web tool that is intended to support this step by providing data and information to identify and assess risks to source water. Additional information regarding the project, including the scope, goal, and objectives, can be found on the SWP project page of the AWC website, as well as the project team's terms of reference.

Related Tools and Resources:

- Alberta Energy Regulator, 2011. Edmonton-Calgary Corridor Groundwater Atlas. Available online: https://ags.aer.ca/publications/INF_140.html
- Alberta Innovates & Alberta Environment and Parks, 2020. Drinking Water Infrastructure Risk and Vulnerability Assessment. Available online: https://albertainnovates.ca/app/uploads/2020/07/Drinking-Water-Risk-and-Vulnerability-Study-Provincial-Overview-Report.pdf
- Alberta Lake Management Society, 2018. Lake Watershed Management Plans. Available online: https://alms.ca/completed-lake-watershed-plans/
- Alberta WaterPortal Society, 2019. Promoting Source Water Protection Against Wildfire in Alberta. Available online: https://albertawater.com/alberta-water-blog/6999-promoting-source-water-protection-against-wildfires-in-alberta/
- Altalis, 2018. Altalis. Available online: https://beta.altalis.com/
- CGE Risk Management Solutions, 2018. The Bowtie Method. Available online: https://www.cgerisk.com/knowledgebase/The_bowtie_method

- Environmental Protection Agency, 2017. Conducting Source Water Assessments. Available online: https://www.epa.gov/sourcewaterprotection/conducting-source-water-assessments
- Government of Alberta, 2018. Alberta Environment's Drinking Water Program. Available online: http://environment.alberta.ca/apps/regulateddwq/More.aspx
- Government of Alberta, 2019. Environmental Site Assessment Repository. Available online: https://www.alberta.ca/environmental-site-assessment-repository.aspx
- Government of Alberta, 2018. Alberta Rivers App. Available online: https://itunes.apple.com/ca/app/alberta-rivers/id888325071?mt=8
- Government of Alberta, 2015. Alberta River Water Quality Index. Available online: http://aehttps://open.alberta.ca/opendata/river-water-quality-index-albertap.alberta.ca/water/reports-data/alberta-river-water-quality-index.aspx
- Government of Alberta, 2018. Alberta Water Well Information Database. Available online: http://groundwater.alberta.ca/WaterWells/d/
- Government of Alberta, 2018. GeoDiscover Alberta. Available online: https://geodiscover.alberta.ca/geoportal/#searchPanel
- Government of Alberta, 2015. Groundwater Observation Well Network. Available online: https://www.alberta.ca/groundwater-observation-well-network.aspx
- Government of Alberta, 2019. Flood Hazard Mapping Application. Available online: http://maps.srd.alberta.ca/FloodHazard/
- Government of Alberta, 2019. Soil Information Viewer. Available online: https://soil.agric.gov.ab.ca/agrasidviewer/
- Government of Nova Scotia, 2009. Developing a Municipal Source Water Protection Plan: A Guide for Water Utilities and Municipalities: Step 2 Delineate a Source Water Protection Area Boundary. Available online: https://novascotia.ca/nse/water/docs/WaterProtectionPlanStep2.pdf
- Government of Nova Scotia, 2009. Developing a Municipal Source Water Protection Plan: A Guide for Water Utilities and Municipalities: Step 3 Identify Contaminants and Assess Risk. Available online: https://novascotia.ca/nse/water/docs/WaterProtectionPlanStep3.pdf
- Government of Alberta, 2018. Rural Water Quality Information Tool. Available online: https://www.agric.gov.ab.ca/app84/rwqit
- Government of British Columbia, 2017. Guidance Document for Determining Groundwater at Risk of Containing Pathogens. Available online: https://www2.gov.bc.ca/assets/gov/environment/air-land-water/water/waterquality/how-drinking-water-is-protected-in-bc/garp_assessment_ oct_2017.pdf
- Water Security Agency and Saskatchewan Ministry of Environment, 2012. Groundwater Under the Direct Influence of Surface Water Assessment Guideline. Available online: http://www.saskh2o.ca/DWBinder/epb284.pdf
- US EPA Drinking Water Mapping Application to Protect Source Waters (DWMAPS) (https://www.epa.gov/sourcewaterprotection/drinking-water-mapping-application-protect-source-waters-dwmaps)
- https://albertainnovates.ca/wp-content/uploads/2020/07/Drinking-Water-Risk-and-Vulnerability-Study-Provincial-Overview-Report.pdf

Step 3: Set Goals

By setting goals you ensure that your source water area's unique challenges are addressed. After characterizing your source water area, assessing and ranking its risks, and reflecting on your vision, your goals can focus on SWP drivers and issues.

For the goals to be implemented successfully, internal and external groups should be involved in developing them since many of the goals will require their input and support. For example, the overarching goal of Camrose's SWP Plan is to support the protection and improvement of surface water quality in the Battle River and Driedmeat Lake, which are critical water sources for the City of Camrose and many county residents.

Related Tools and Resources:

- Community Toolbox, 2018. Creating Objectives. Available online: https://ctb.ku.edu/en/table-of-contents/structure/strategic-planning/create-objectives/main
- North Carolina Watershed Stewardship Network, 2018. Writing SMART, Short-term Outcome Objectives. Available online:
- http://ncwatershednetwork.org/wp-content/uploads/2016/05/Writing-SMART-short-term-outcomes-and-objectives.pdf
- University of California, 2017. SMART Goals: A How to Guide. Available online: https://www.ucop.edu/local-human-resources/_files/performance-appraisal/How%20to%20write%20SMART%20Goals%20v2.pdf

Step 4: Develop an Action Plan

After you have established a vision, characterized the source water area, and developed supporting goals, the next step is to develop an action plan to help your SWP committee turn its vision and goals into reality. This plan will serve as a roadmap to prevent or mitigate risks to your drinking water source while offering opportunities for ongoing public participation.

The action plan should be well-connected to your SWP goals and specific enough to cover details so that key groups and more importantly, the people who will implement it are engaged. For example, the goal of the City of Calgary's SWP plan to improve land-use planning is supported by specific actions to develop recreational strategies and drinking water protection zones in collaboration with key stakeholders within specific timelines.

Table 1 provides an example of Camrose's recommended SWP management actions.

Table 1: Camrose's Recommended Management Actions (Adapted from Camrose's SWP plan)

	Management Action	Responsibility	Timeline
High Risk	Oil and Gas Development It is recommended that Camrose County and the Alberta Energy Regulator develop a Watershed Development Plan to guide oil and gas development in the Driedmeat Lake watershed. A similar plan has been developed for the Battle Lake watershed.	– Camrose County – Alberta Energy Regulator	Medium-term
Moderate Risk	Development and Construction It is recommended that the City of Camrose and Camrose County require developers to develop erosion and sediment control plans for new and infill development.	– City of Camrose – Camrose County – Developers	Short-term
Low Risk	Recreation It is recommended that the City of Camrose continue to maintain and expand the use of bag dispensers and garbage bins along walking trails and encourage recreationists to keep trails and green spaces clean of waste.	– City of Camrose	Short-term

Related Tools and Resources:

- Community Toolbox, 2018. Developing an Action Plan. Available online: https://ctb.ku.edu/en/table-of-contents/structure/strategic-planning/develop-action-plans/main
- Community Toolbox, 2018. Involving People Most Affected by the Problem. Available online: https://ctb.ku.edu/en/table-of-contents/participation/encouraging-involvement/involve-thoseaffected/main
- International Association for Public Participation, 2006. Planning for Effective Public Participation.

Step 5: Implement the Action Plan

A clear approach for implementing your management actions is vital to successfully protecting sources of drinking water. These management actions must be implemented on time and with enough resources to realize your SWP goals and overarching vision. An implementation strategy ensures that unexpected challenges and opportunities are addressed throughout the plan's lifecycle and that progress can be measured periodically. Clearly defined and allocated funds and resources can lead to more effective implementation. Note that general guidance on how to engage with external groups is in the related tools and resources for this Step and step 6.

The following steps may help as you develop your implementation strategy:

- Determine how your SWP group will implement the action plan by prioritizing management actions from high to low risk, and short- and long-term objectives.
- Create an implementation schedule with associated timelines and budgets for each management action.
- Establish checkpoints to discuss the action plan's progress, challenges, and opportunities.
- Set up reporting methods for the implementation progress of the action plan (e.g., monthly meetings, email updates, and interim reports).
- Link implementation to evaluating and revising your SWP plan.

Related Tools and Resources:

- Battle River Watershed Alliance, 2014. Source Water Protection: Implementation Guidelines. Available online: http://www.battleriverwatershed.ca/wp-content/uploads/2018/08/BRWASource-Water-Protection-Implementation-Guidelines-Report.pdf

Step 6: Evaluate and Revise Periodically

For any SWP plan to succeed, it should be evaluated and revised periodically to ensure that the vision and goals remain relevant and are being accomplished. SWP is a long-term process, and any plan should be treated as a living document open to changes and flexible when necessary. Most plans place more emphasis on planning and less focus on evaluating performance and revising approaches. An evaluation and review process involves collecting and analyzing information about a SWP program's activities, characteristics, and outcomes, and adjusting to ensure that the plan is flexible to changes in its environmental, social, and economic landscape.

The following steps can help with evaluating and revising your SWP plan:

- Engage key groups and the public to evaluate its effectiveness.
    - General guidance on how to engage with external groups is in the related tools and resources for this Step and Step 5.
- Explain what your plan is trying to achieve and how it intends to make changes happen.
- Gather necessary qualitative and quantitative information for your evaluation.
- From the information gathered, consider whether the plan is getting better or worse, or not changing or static.
- Compare goals and other set targets to determine any progress made.
- Share findings with key groups and the public. Many groups create a "lessons learned" document.
- Review and incorporate changes.
- Determine if existing goals and management actions still reflect current needs and issues and where changes should be made to the SWP plan.
- Agree upon a time to review your plan; most plans are evaluated and reviewed every three to five years.

Related Tools and Resources:

- Community Toolbox, 2018. A Framework for Program Evaluation: A Gateway to Tools. Available online: https://ctb.ku.edu/en/table-of-contents/evaluate/evaluation/framework-forevaluation/main
- Free Management Library, 2019. Basic Guide to Program Evaluation. Available online: https://managementhelp.org/evaluation/program-evaluation-guide.htm
- Government of Nova Scotia, 2009. Developing a Municipal Source Water Protection Plan: A Guide for Water Utilities and Municipalities: Step 5 Develop a Monitoring Program to Evaluate the Effectiveness of a Source Water Protection Plan. Available online: https://novascotia.ca/nse/water/docs/WaterProtectionPlanStep5.pdf
- My Environmental Education Evaluation Resource Assistant, 2018. Evaluation: What is it and why do it? Available online: http://meera.snre.umich.edu/evaluation-what-it-and-whydo-it

FAQs

Q: What is the difference between a SWP plan and DSWP?

A: The table below outlines some similarities and differences between DWSPs and SWP plans.

Table 1: Similarities and Difference between DWSPs and SWP plans

Drinking Water Safety Plans	Source Water Protection Plans
■ mandatory	■ voluntary
■ developed by water providers often without input from other groups	■ developed by water providers in collaboration with other groups
■ water supply systems-wide approach	■ source water area approach
■ public health focus	■ public health and environmental focus
■ often focus mostly on treatment systems	■ sub-regional or watershed level
■ updated annually or as incidents occur	■ updated at least every five years
■ short-term focus (four to five years), but often lack a long-term vision and goals	■ long-term focus (five to twenty years) guided by a vision statement and site-specific goals

The following list includes potential areas for integration and collaboration between SWP plans and DWSPs:

- *SWP plans can be used to reduce drinking water risks identified in DWSPs.*
- *DWSPs can be directly integrated into SWP plans depending on the delineation of the source water area.*
- *SWP plans can build on drinking water risks and their assessment, as included in DWSPs.*
- *SWP plans can provide data and identify expertise for drinking water operators to apply in their operations.*
- *WPACs and drinking water operators can help guide the development, implementation, and evaluation of SWP plans and DWSPs through engagement activities, networking, and facilitating multi-stakeholder input, thereby applying a watershed "lens" to this work.*
- *Connections with municipal development plans and creating and enforcing bylaws can help with risk management actions related to SWP plans and DWSPs.*
- *Delineating source water areas has been done by the GoA to some extent, and some of this information can be made available through WPACs and municipalities.*

Q: How do SWP plans get implemented and who is responsible?

A: These are non-regulatory plans and require collaboration to ensure full implementation. The champion of the plan needs to engage relevant decision-makers to get them on board and ensure implementation.

Q: Who pays for a SWP plan?

A: Those who decide to do the plan will need to find funding. Often the resources and expertise needed to complete the plan can be found through in-kind support of the Government of Alberta, Watershed Planning and Advisory Councils, Water Treatment plants, and municipalities.

Other Resources and Tools

- Examples of SWP plans in Alberta[2]
    - City of Calgary, 2018. Source Water Protection Plan: Protecting our source watershed through proactive collaboration. Available online: http://www.calgary.ca/UEP/Water/Documents/Water-Documents/Source-Water-Protection-Plan.pdf
    - City of Camrose and Camrose County, 2016. Camrose Source Water Protection Plan. Available online: https://camrosecounty.civicweb.net/filepro/document/73748/Camrose%20Source%20Water%20Protection%20Plan%20FINAL%20DRAFT%20Sept%202016.pdf
    - EPCOR Utilities Inc., 2017. 2017 Source Water Protection Plan: Edmonton's Drinking Water System. Available online: https://www.epcor.com/products-services/water/Documents/source-water-protection-plan.pdf
    - First Nations Technical Services Advisory Group Inc., 2017. Wabasca Area Source Water Protection Plan. Available online: http://www.mdopportunity.ab.ca/sites/default/files/u808/20170404%20Wabasca%20Area%20SWPP.pdf
    - Town of Grande Cache, 205. Source Water Protection Plan: Victor Lake and Grande Cache Lake. Available online: https://grandecache.civicweb.net/document/3344
- AWC Source Water Protection Videos:
    - https://www.youtube.com/watch?v=KB6th7BA-zA
    - https://www.youtube.com/watch?v=eiBK9lyKEVM&t=2s
- Related legislation and policies
    - Government of Alberta, 2009. Alberta Land Stewardship Act. Available online: http://www.qp.alberta.ca/documents/Acts/A26P8.pdf
    - Government of Alberta, 2017. Agricultural Operation Practices Acts and Regulations. Available online: https://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/acts5986
    - Government of Alberta, 2017. Environmental Protection and Enhancement Act. Available online: http://www.qp.alberta.ca/documents/Acts/E12.pdf
    - Government of Alberta, 2014. Forests Act. Available online: http://www.qp.alberta.ca/documents/Acts/F22.pdf
    - Government of Alberta, 2018. Municipal Government Act. Available online: http://www.qp.alberta.ca/documents/Acts/m26.pdf
    - Government of Alberta, 2014. Our Water, Our Future: A Plan for Action. Available online: https://open.alberta.ca/publications/9781460118900
    - Government of Alberta, 2017. Public Health Act. Available online: http://www.qp.alberta.ca/documents/Acts/P37.pdf

[2] Other than Bigstone Cree Nation's plan (linked below), no other First Nation SWP plans are publicly available and can only be obtained through contacting their respective Consultation departments.

    - Government of Alberta 2021. Public Health Guidelines for Non-Municipal Drinking Water. Available online: https://open.alberta.ca/publications/public-health-guidelines-non-municipal-drinking-water
    - Government of Alberta, 2014. Public Lands Act. Available online: http://www.qp.alberta.ca/documents/Acts/P40.pdf
    - Government of Alberta, 2018. Regional Plans. Available online: https://landuse.alberta.ca/REGIONALPLANS/Pages/default.aspx
    - Government of Alberta, 2012. Taking Care of Your Drinking Water and Wastewater: A Guide for Member of Municipal Councils. Available online: http://www.westendregionalsewageservicescommission.ca/uploads/5/8/1/2/5812407/3_wastewater_guide.pdf
    - Government of Alberta, 2017. Water Act. Available online: http://www.qp.alberta.ca/documents/Acts/w03.pdf
    - Government of Alberta, 2003. Water for Life: Alberta's strategy for sustainability. Available online: https://open.alberta.ca/publications/0778530582
    - Government of Alberta, 2018. Working Well Program. Available online: https://www.alberta.ca/working-well.aspx
    - Government of Canada, 2018. Pulp and Paper Effluent Regulations. Available online: http://laws-lois.justice.gc.ca/eng/regulations/SOR-92-269/

- Related groups and organizations
    - Alberta Environment and Parks https://www.alberta.ca/environment-and-parks.aspx
    - Alberta Environmental Public Health Information Network: Domestic Well Water Quality in Alberta http://aephin.alberta.ca/water/water-map.htm
    - Alberta Federation of Rural Water Co-operatives Ltd. https://abwaterco-op.com/index.php
    - Alberta Health http://www.health.alberta.ca/
    - Alberta Lake Management Society https://alms.ca/
    - Alberta Low Impact Development Partnership https://alidp.org
    - Alberta Urban Municipalities Association https://auma.ca/
    - Alberta Water Council https://www.awchome.ca/
    - American Water Works Association https://www.awwa.org/
    - Cows and Fish https://cowsandfish.org
    - First Nations Technical Services Advisory Group Inc. http://www.tsag.net/
    - Land Stewardship Centre http://www.landstewardship.org/
    - Red Deer River Municipal Users Group http://rdrmug.ca/
    - Rural Municipalities of Alberta https://rmalberta.com/
    - Watershed Planning and Advisory Councils https://www.alberta.ca/watershed-planning-and-advisory-councils.aspx