

Groundwater Management

Water is one of Alberta's most important natural resources. It is one of the building blocks for balanced economic development in the province.

Both surface water and groundwater are found in relative abundance in many areas of Alberta. By careful use and protection of these resources, we can count on a secure supply of water for future generations. Two primary pieces of legislation provide a framework for water management and protection.

The ownership of all surface and groundwater is vested in the province. The *Water Act* provides a system for licensing both surface water and groundwater diversions and use. Approvals are required for drilling and constructing water wells by drilling contractors and for the exploration of groundwater.

The *Environmental Protection and Enhancement Act* provides control and prevention of the release of substances that will cause an adverse effect on water resources. It also requires proper reclamation or remediation of contaminated groundwater sites and environmental impact assessments to determine the effects that any major development will have on our water resources.

In designing legislation and policies, surface water and groundwater are taken to be two forms of the same resource.

Groundwater supplies in Alberta are currently managed through:

- Inventory
- Allocation and licensing
- Protection and conservation.

Inventory

Alberta Environment maintains a comprehensive inventory of groundwater resources at the Groundwater Information Centre. The primary purpose of the centre is to collect, store and disseminate water well information and hydrogeological reports. Their data includes the following information.

Contact the Groundwater Information Centre by telephoning (780) 427-2770.

Hydrogeological Information	Other Information
Water well drillers' reports	Well owner's name
Geophysical logs	Legal land location
Lithology	Driller
Water well chemistry	Drilling dates
Pumping test data	Well construction details
Groundwater exploration and evaluation reports	Intended use of water
Observation well monitoring data	Anticipated water requirement

All this information is available to the public. It is useful to collect information about water sources and wells in your area before you begin new well construction.

Alberta Environment also maintains a provincial observation well network of over 340 wells ranging in depth from 5-400 m (16-1312 ft.). Data on water quality and water level fluctuations are gathered continuously from these wells.

A series of regional groundwater reports is being produced for counties and municipal districts in Alberta. These reports provide an overview of groundwater resources and characteristics. Shallow and deep aquifers are identified along with potential yield and water quality. These reports can be viewed at county offices (where available) on the PFRA website (www.agr.ca/pfra/water/groundw.htm) or purchased on CD ROM from the Alberta Geological Survey. See Module 11 "Contacts for More Information."

* The map on page 86 is shaded to show the counties in Alberta that currently have groundwater assessments done.

Allocation and Licensing

The right to divert and use surface water and groundwater may be obtained through a licence issued to the user. The terms and conditions of the licence are intended to protect the source of water supply, the rights of the licensee and the rights of other water users.

Under the *Water Act*, the priority on the licence (the date) determines priority of use. A user who was licensed first has prior right to the water source before those licensed at a later date. These rights are valid as long as the specified use continues. It can be cancelled for:

- Not exercising the right to use the water (non-use)
- Non-performance of a condition of a licence.

During emergency situations, the government has the power to suspend a water licence and redesignate the water for other uses.

Licensing is not required when water is used for household purposes. The legislation clearly defines “**household purposes**” as the use of a maximum of 1,250 m³ of water per year per household (750 gallons per day (gpd)), for the purposes of human consumption, sanitation, fire prevention and watering animals, gardens, lawns and trees. A “household” is further defined as one or more individuals living in a single, private and detached dwelling place.

Legislation further provides that water for household purposes has priority over all other water uses, and has no priority in relation to other household users. This means that during times of shortage, household users are entitled to their statutory right before other users of water and all household users have equal priority.

In the *Water Act*, a new category of rights is defined as the “**traditional agricultural user**” that applies to water historically used for watering livestock and pesticide application to crops. Users were given opportunity, up until December 31, 2001, to register up to 6,250 m³ of water per year (3,767 gpd). The registration protects the user's right to use water by assigning the registration a priority number “grandfathered” back to the date when the water was first put to use. Registration was voluntary; however, if the user decided not to register, they could continue to use the water, but such use would not be protected.

Registration does not guarantee that a producing aquifer will always be capable of supplying the amount of water that you are using. In addition, water required in excess of the registered amount, or for any other agricultural purpose, does require formal licensing.

The Water Act identifies three kinds of users:

- *Household user*
- *Traditional agriculture user*
- *Licensee.*

Formal licensing is required for water use from wells that supply:

- *More than two households*
- *Larger agriculture operations*
- *Municipal users*
- *Industrial users*
- *Other major water users.*

Obtaining a Licence

For licensable projects, you will need to make application under the *Water Act* for a licence to use groundwater. You will be required to provide information about your project, such as:

- Location of your well(s), whether existing or newly drilled
- Anticipated depth interval that water will be used from
- Total quantity of water needed
- Time frame for water use (year round or seasonal).

This information will be reviewed to determine whether or not you will be required to give public notice of your project. If the project is large, public notice will be necessary. This gives local water users an opportunity to voice any concerns.

If there are no concerns and you have provided enough information to prove that your project can operate without causing any negative impact on any local users or the aquifer, a licence may be issued.

However if there was opposition to your public notice, or if it is felt that additional information is needed to support your application, you will be issued an approval with specific conditions that must be met. A survey of existing water users is generally required, as is a pumping test to determine water availability and the potential impact your project will have on existing water users.

A **licence** may be issued after all the required information is received, all concerns are addressed and after a review of your file satisfies the department that your well is capable of providing adequate water for your project without causing:

- Unreasonable interference with other water users
- Adverse effect on the aquifer or the environment.

Your licence may include conditions requiring you to submit monitoring data including water level fluctuations, quantities of water used and water quality. It may also include investigating any complaints from nearby water users and monitoring of other water wells.

The licence will have an expiry date based on the nature of the project or the applicant's estimation of how long the project will be in existence.

The applicant should advise the drilling contractor that the well must be constructed in a manner that will allow it to be licensed.

For more information on applying for a licence to use and divert water, contact a regional office of Alberta Environment listed on page 89.

Protection and Conservation

Protecting groundwater resources against overuse, mining and pollution is an integral part of any water management strategy.

Both the *Water Act* and the *Environmental Protection and Enhancement Act* provide protection for our water resources. For example, all water well drilling contractors must obtain an approval that authorizes them to drill water wells in the province. The approval is issued only if the company has certified journeyman water well drillers available to operate each one of their drilling machines. The standards for the drilling, construction and reclamation of wells is outlined in the Water (Ministerial) Regulation of the *Water Act* and it applies to all water wells, whether they are installed for temporary water supply or for long-term use.

While regulations and legislation go a long way to protect our water sources, it is the users who have the greatest impact on the safety of the water supply. We can no longer take for granted an unending supply of good quality water. Water must be managed, protected and conserved for future use.

See Module 9 "Plugging Abandoned Wells" for details on how to properly plug a well.

