

INFOSHEET #2

WATER WELLS

How to address concerns identified in Environmental Farm Plan Worksheet #2



Based on
Environmental Farm
Plan Workbook,
4th ed. 2013

This infosheet outlines options to address concerns identified in your Environmental Farm Plan (EFP) as they relate to existing private rural water wells. It describes management options for private well owners to consider in order to maintain safe drinking water and to protect the water supply. It also provides links to technical and regulatory information.

All options are classed as **Actions** or **Compensating Factors**.

- **Actions** address the areas of concern identified, and will change the EFP rating to (3) or Best (4).
- **Compensating Factors** are alternatives that will adequately address the concern, but will not change the rating in the EFP worksheet.

In most cases, you'll need more information before choosing and implementing options. Sources for more information are noted at the end of this infosheet. For help with technical terms, see the full glossary in your EFP Workbook.

This document is consistent with, but does not reflect, the full detail of the Wells Regulation. For assistance with the Regulation, seek advice from the Ontario Ministry of the Environment and Climate Change (MOECC) through the Wells Helpdesk. Call 1-888-396-9355 or email wellshelpdesk@ontario.ca.

LOCATION OF WELL

2-1. Location of an existing well in relation to potential sources of contamination

BACKGROUND	WHAT CAN YOU DO?
<p>Groundwater often moves underground in the same general direction as surface water.</p> <p>If a source of contaminants, such as a manure pile, impairs the quality of the groundwater upslope from your well, the contamination may:</p> <ul style="list-style-type: none"> • show up in the water from your well • make the water unsafe for human consumption. <p>If contaminated surface water due to flooding or runoff is allowed to flow or pond near the well, there is a potential for the contamination to migrate down near the well and impair the quality of the water well and the groundwater resource.</p> <p>Ask yourself:</p> <ul style="list-style-type: none"> • is your well downslope from or within a source of contaminants such as an animal feedlot or manure pile? • will surface water runoff or flood water flow towards or pond near the well? • are there any structures that could prevent proper maintenance, repairs, or if necessary, abandonment (plugging and sealing) of the well? 	<p>OPTION 1 – ACTION</p> <p>Move upslope contaminant sources to a location downslope of the well:</p> <ul style="list-style-type: none"> • if you are considering improvements to fixed-point contaminant sources such as storages of manure, pesticides or fuels, bear in mind the location of your well. <p>OPTION 2 – ACTION</p> <p>Construct a new well upslope of all potential sources of contamination in an area:</p> <ul style="list-style-type: none"> • where flooding or surface water runoff will not impact the well • at least 15 metres (49 ft) away from any property boundary, as you do not have control over what happens on property not owned by you • outside of a known or suspected floodplain • compliant with the Wells Regulation siting requirements. <p>Also ensure that:</p> <ul style="list-style-type: none"> • the person constructing the new well is a properly licensed well technician who also holds a valid well contractor licence or works for a licensed well contractor • the old well is properly abandoned (plugged and sealed) according to the Wells Regulation. <p><i>Note:</i> You should consider a new well only if the existing well is being replaced due to age, condition, or unacceptable water quantity or quality.</p> <p>OPTION 3 – COMPENSATING FACTOR</p> <p>Direct surface drainage from potential sources of contamination away from your well:</p> <ul style="list-style-type: none"> • depending on local topography, surface water can be redirected by means of land reshaping, grassed waterways, etc. • existing surface drainage should prevent ponding in the vicinity of the well – regrade if necessary by building up and sloping the ground surface away from the well casing. <p>OPTION 4 – COMPENSATING FACTOR</p> <p>For potential sources of contaminants that have storage or containment, monitor at least annually:</p> <ul style="list-style-type: none"> • check for leaks, cracks, seepage, overflowing, or flooding • ensure that properly trained and, if necessary, licensed persons repair any damage.



Regrade soil around the well to prevent surface water from ponding near the casing.

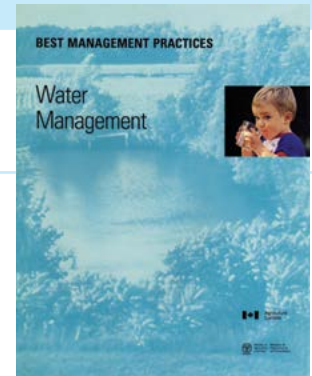
For links to more information, please see next page.

2-2. Distance from well to potential sources of contamination

BACKGROUND	WHAT CAN YOU DO?
<p>An important factor in maintaining good groundwater quality is the horizontal distance between your well and the potential contaminant source.</p> <p>There is always the potential for sources of contaminants (e.g. manure pile or septic system) to impair the quality of water in your well – especially if contaminants can move through the soil or bedrock quickly, or if a source of contaminant is located upslope of the well location.</p> <p>Maintaining as much separation distance as possible between the well and a source of contaminant and keeping the well upslope of the source of contaminant are excellent best management practices that help to protect the quality of water in the well and the groundwater resource.</p> <div data-bbox="113 813 684 1000" style="border: 1px solid blue; padding: 5px; margin-top: 10px;"> <p>See also these OMAFRA factsheets:</p> <ul style="list-style-type: none"> • <i>Private Rural Water Supplies</i>, Order no. 06-117 • <i>Protecting the Quality of Groundwater Supplies</i>, Order no. 06-115 • <i>Understanding Groundwater</i>, Order no. 06-011 </div> <div data-bbox="113 1045 684 1393" style="border: 1px solid blue; padding: 5px; margin-top: 10px;"> <p>See the Wells section of the Ministry of the Environment and Climate Change website:</p> <ul style="list-style-type: none"> • www.ene.gov.on.ca/environment/en/subject/wells/index.htm or type “Wells” and “Ontario” in your search engine <p>Review the fact sheets, technical bulletins, and <i>Water Supply Wells: Requirements and Best Management Practices</i> manual. See:</p> <ul style="list-style-type: none"> • www.ontario.ca/environment-and-energy/water-supply-wells-requirements-and-best-practices </div>	<div data-bbox="764 261 1514 954" style="background-color: #e0f0ff; padding: 5px;"> <p>OPTION 1 – ACTION</p> <p>Construct a new well at a distance that achieves at least a (3) EFP distance rating:</p> <ul style="list-style-type: none"> • outside of a known or suspected floodplain • upslope of any potential source of contamination • accessible for repairs and testing • at least 15 metres (49 ft) away from any nearby property boundary, because you do not have control over what happens on property not owned by you • located in an area where flooding or surface water runoff will not impact the well • compliant with the Wells Regulation siting requirements. <p>Also ensure that:</p> <ul style="list-style-type: none"> • the person constructing the new well is a properly licensed well technician who also holds a valid well contractor licence or works for a licensed well contractor • the old well is properly abandoned (plugged and sealed) according to the Wells Regulation. <p><i>Note:</i> You should consider a new well only if the existing well is being replaced due to age, condition, or unacceptable water quantity or quality.</p> </div> <div data-bbox="764 954 1514 1149" style="background-color: #e0f0ff; padding: 5px;"> <p>OPTION 2 – ACTION</p> <p>Relocate any identified potential sources of contaminants that are too close to an appropriate site that achieves an EFP distance rating of at least a (3):</p> <ul style="list-style-type: none"> • check pertinent regulations and EFP worksheets for setback distances for a particular potential contaminant source structure. </div> <div data-bbox="764 1149 2043 1393" style="background-color: #e0f0ff; padding: 5px;"> <p>OPTION 3 – COMPENSATING FACTOR</p> <p>Identify the potential sources of contaminants that are too close, i.e. EFP distance rating of (1) or (2), and implement the actions as described in the infosheets directly addressing those particular contaminants, such as storages for pesticides, fuels or fertilizers.</p> </div>




Minimum separation distances between your well and potential contaminant sources are specified in Regulation 903 of the *Ontario Water Resources Act*.



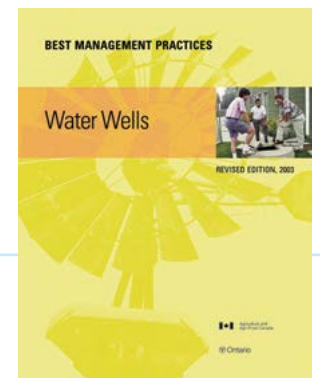
Water Management illustrates how water cycles above and below ground through a typical farm setting. It shows where water quality can be put at risk, and offers practical measures to protect it.

CONDITION OF WELL

2-3. Condition of casing

BACKGROUND	WHAT CAN YOU DO?
<p>There are very few parts to the structure of a well. The parts include:</p> <ul style="list-style-type: none"> • a casing • possibly a well screen • possibly an annular seal around the casing • a well cap or cover • a vent • pumping equipment. <p>A casing is a pipe, tubing or other material installed in a well to support its sides. Without a casing, soil would collapse into the well.</p> <p>In the construction of many newer wells, an annular seal, made up of a cement or bentonite (manufactured swelling clay), is placed around the casing. The annular seal fills the void between the casing and the soil or bedrock formation, providing an impermeable barrier.</p> <p>The seal and casing help to prevent contaminants from moving down the outside of the well and potentially impair the quality of the water in the well and aquifer.</p> <p>All parts of a well’s structure are designed as part of a multiple-barrier approach to help protect:</p> <ul style="list-style-type: none"> • the quality of the water in the well • the groundwater resource used by others for human consumption purposes. <p>Proper well maintenance helps to protect the aquifer and the water supply. It requires ongoing observation of the state of the well, the pump and other equipment associated with the well and surrounding area. The owner of the land is responsible for the maintenance of every well located on their property.</p>	<p>OPTION 1 – ACTION</p> <p>Repair any problems and replace any faulty or inadequate materials. Consider the following:</p> <ul style="list-style-type: none"> • a good time to inspect the well is shortly after snow melt or a heavy rain storm • visual inspection of the outside of the well is much easier than the inside – if you’re unsure of how to properly inspect a well or do not have the ability to inspect the well safely, hire a properly licensed well technician, professional engineer or geoscientist to conduct the inspection • records should be kept of any repairs or changes made to a well. <p>OPTION 2 – ACTION</p> <p>Replace the old well with a new one if it cannot be repaired properly or it is not economically reasonable to repair it – or use an alternative water source.</p> <p>Properly abandon (plug and seal) the old well in accordance with the Wells Regulation.</p> <p>The Wells Regulation requires that the well owner must immediately abandon (plug and seal) a well in accordance with the Wells Regulation if:</p> <ul style="list-style-type: none"> • it is not being used or maintained for future use as a well, or • it permits any movement of natural gas, contaminants or other materials between subsurface formations (e.g. aquifers), or between a subsurface formation and the ground surface, and the movement may impair the quality of any waters – unless measures are taken that prevent the movement at all times. <div data-bbox="835 1162 1541 1300" style="border: 1px solid blue; padding: 5px; margin-top: 20px;"> <p>Do not enter any confined space (e.g. well pits, pump houses) unless you are properly trained and equipped. Confined spaces present asphyxiation hazards, and some wells produce naturally occurring gases that are poisonous and/or explosive.</p> </div> <div data-bbox="1577 561 1982 1008" style="border: 1px solid orange; padding: 10px; margin-top: 20px;">  <p>Visually inspect the well casing as part of your annual well maintenance program. Cracks should be sealed promptly.</p> </div>

For much more information about well casings, general maintenance, and well abandonment procedures, see this BMP publication. Well inspections are described on pages 66–70.



2-4. Condition of well cap

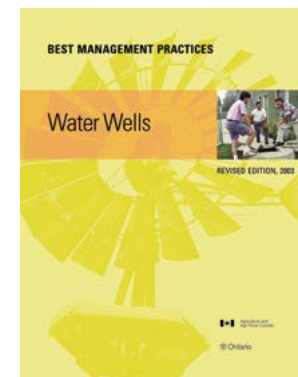
BACKGROUND	WHAT CAN YOU DO?
<p>A well cap or cover is placed on top of the well's casing to prevent surface water or other foreign materials such as vermin from entering the well.</p> <p>A visual inspection of the well cap should be part of your annual well maintenance program.</p> <p>The Wells Regulation prescribes that the well owner must maintain the well at all times after the completion of the well's structural stage (i.e. once it is capable of being used for the purpose for which it was constructed) in a way that prevents the entry of surface water and other foreign materials into the well.</p> <p>For large-diameter wells (i.e. bored and dug), safety can be an issue. People can walk or climb onto the well cap, so it must be strong enough to support them. To protect children, the cap should be secured or heavy enough that the cap cannot be removed by them.</p> <p>If there is a potential for vandalism, preventative measures such as fences or barriers should be placed around the well, or a locking mechanism installed on the cap.</p>	<p>OPTION 1 – ACTION</p> <p>Visually inspect the well cap as part of your annual well maintenance program.</p> <p>Repair any problems and replace any faulty or inadequate materials.</p> <p><i>For bored/dug wells:</i></p> <p>Ensure the well cap is strong enough to stand on, keep out water and debris, have no cracks, and be childproof (e.g. concrete lid).</p> <p><i>For drilled wells:</i></p> <p>Ensure the well cap, which should be commercially manufactured, is tightly secured without defects (e.g. cracks), provides a sanitary seal, and is vermin-proof.</p> <p>OPTION 2 – ACTION</p> <p>Properly abandon (plug and seal) the existing well and replace with a new well:</p> <ul style="list-style-type: none">• if the well cannot be repaired properly or if it is not economically reasonable to repair the existing well, consider properly abandoning the well in accordance with the Wells Regulation and, if necessary, construct a new well or use an alternative water source• take every opportunity to site and construct the replacement well with multi-barrier protection.



A visual inspection of the well cap should be part of your annual well maintenance program.


The Ontario Ministry of the Environment and Climate Change has a series of technical bulletins on well construction, maintenance and abandonment. See:

- www.ontario.ca/environment-and-energy/wells-your-property-technical-bulletins



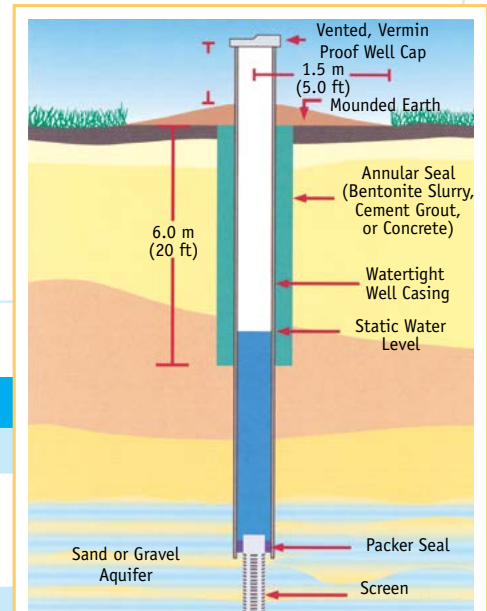
For more information, see pages 37-39, 42, 48-52, 54-63 and 66-67.

2-5. Condition of well venting

BACKGROUND	WHAT CAN YOU DO?
<p>An air vent means an outlet at the top of the casing that allows for the equalization of air pressure between the inside of the casing and the atmosphere. It is also for the safe release of gases from a well where they occur.</p> <p>A visual inspection of the well vent should be part of your annual well maintenance program.</p> <p>The air vent needs to be shielded and screened to prevent surface water or other foreign materials such as vermin from entering the well.</p> <p><i>Note:</i> Upgrading or repairing venting where there is a flowing well or where natural or hazardous gas is present should be done by an experienced and properly licensed well technician and in accordance with the Wells Regulation.</p>  <p>Bored/dug wells with concrete lids are considered vented.</p>	<p>OPTION 1 – ACTION</p> <p>Install appropriate vent and screening.</p> <p><i>For bored/dug wells:</i></p> <p>If your bored or dug well has a concrete lid, it is considered vented:</p> <ul style="list-style-type: none"> • screening is generally not required here • the lid should fit tightly enough to keep out debris, insects, and small animals. <p><i>For drilled wells:</i></p> <p>If your drilled well has a sanitary cap with electrical wiring going through the cap, it is considered vented unless it is sealed with caulking.</p> <p>Otherwise, ensure that your well has a proper vent and is screened as follows:</p> <ul style="list-style-type: none"> • a small opening in the well cap, OR • a small pipe extending a minimum of 40 cm (16 in.) above ground level upward from the well cap, with the end turned down to prevent water entry • the opening is screened. <p>Drilled wells with caps below ground surface do not meet current standards. The water well casing should be extended to at least 40 cm (16 in.) above ground surface and venting with screen should be installed.</p>

2-6. Condition of surface material around the well casing

BACKGROUND	WHAT CAN YOU DO?
<p>Water well sealing materials seal the space between the drilled borehole or excavation wall and the well casing. Their purpose is to prevent surface water or shallow groundwater from seeping directly into the well, and to prevent contaminated water from entering any aquifers along the casing.</p> <p>If the well seal fails to prevent this seepage, then your well and other wells can become contaminated.</p> <p>In almost all cases, settling or cracking of water well sealing materials results from the use of improper materials or the improper placement of these materials. Settling or a space at or near the casing may indicate unsatisfactory sealing of the casing.</p>	<p>OPTION 1 – ACTION</p> <p>Consult a properly licensed well technician who also holds a valid well contractor licence, or works for the holder of a licensed well contractor, for advice.</p> <p>OPTION 2 – ACTION</p> <p>Mound soil around the well above normal ground level, and slope it away from the well. Inspect annually. If unusual settlement occurs, follow Option 1.</p>



Water well sealing materials such as bentonite, cement grout or concrete fill and seal the space between the drill borehole or excavation wall and the well casing.

2-7. Casing depth

BACKGROUND

The deeper the source of your well's water, the greater the opportunity for soil to filter and clean the water before it's used.

Drilled wells have a watertight casing, usually made of steel. The casing can extend to the bottom of the well, or in some cases only partway down (i.e. into bedrock).

The depth to which the watertight casing extends is an indicator of the minimum distance that water has to travel through the soil before it can enter the well and then be used. There are exceptions though (e.g., artesian flowing wells).

Bored and dug wells use large-diameter concrete or steel casing, which are harder to make watertight. And although the water must enter the well from the bottom, it can sometimes enter through the sides if the casing joints are not sealed properly.

WHAT CAN YOU DO?

OPTION 1 – ACTION

Extend the casing of drilled wells to a depth greater than 30 metres (100 ft).

Consult a properly licensed well technician who also holds a valid well contractor licence, or works for the holder of a licensed well contractor, for advice.

Note: While most drilled wells are easily installed to depths greater than 30 metres, this may be inappropriate and should not be done in some areas, e.g.:

- due to naturally occurring poorer water quality (sulphur, salt, iron etc.)
- where it is unlikely to find water at those depths.

OPTION 2 – COMPENSATING FACTOR

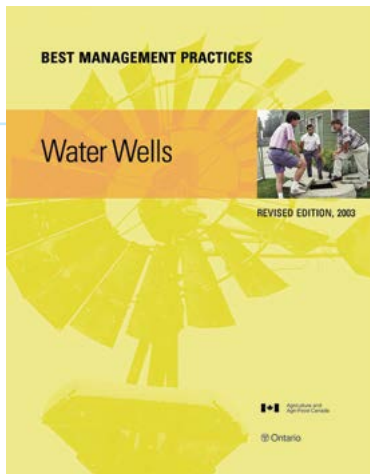
Ensure that the casing depth meets the minimum requirement for the type of well and soil profile:

- drilled wells should have a minimum of 6 metres (20 ft) of sealed casing
- bored/dug wells should have a minimum of 3 metres (10 ft) of sealed casing.

Monitor water quality regularly. Maintain the well and surrounding area.



The deeper the water source for the well, the more opportunity there is for soil/bedrock to naturally filter and clean the water before it's used.



For more information about well casings, see pages 37-39 (drilled wells), 52-54 (large-diameter wells), and 67-68 (to measure casing depth).

Wells less than 3 metres (10 ft) deep should not be used because of the short distance and the short time for water to be purified.



Like water, healthy soils are a precious resource. Good soil management prevents runoff and protects water quality. These and other BMP publications offer many practical and complementary solutions to keep soil in its place and productive for years to come.

2–8. Casing height above ground level

BACKGROUND

Your well can be a direct pathway from the ground surface to the groundwater aquifer. If contaminated surface water enters the well through the top, water quality in the well and aquifer is in jeopardy and all users of the aquifer are put at risk.

The well casing must extend high enough above ground to prevent surface water entering the well in the event of flooding or ponding around the well.

The Wells Regulation specifies minimum casing height for new wells.



Consult a licensed water well contractor for advice and assistance with the extension of the water well casing.

WHAT CAN YOU DO?

OPTION 1 – ACTION

For bored/dug, sandpoint or drilled wells:

Extend the casing to 40 cm (16 in.) or higher above the surrounding ground surface:

- consult a properly licensed well technician who also holds a valid well contractor licence or works for the holder of a licensed well contractor for advice on what to do.

OPTION 2 – ACTION

For drilled wells in well pits:

Extend the casing to a minimum of 40 cm (16 in.) above the surrounding ground surface, install a pitless adaptor, and properly fill in pit:

- where a well pit is in use, make sure it is inspected, and it must be properly maintained just like a well
- consult a properly licensed well technician who also holds a valid well contractor licence, or works for the holder of a licensed well contractor, for advice.

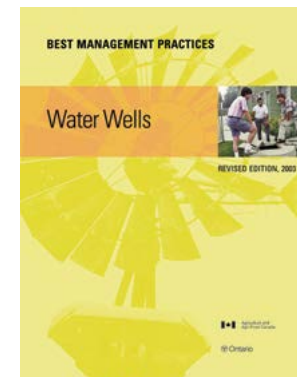
OPTION 3 – COMPENSATING FACTOR

For drilled wells in well pits:

Extend the casing to a minimum of 40 cm (16 in.) above the floor of the pit, and ensure that the well vent pipe extends 40 cm (16 in.) above the surrounding ground surface:

- ensure that the drilled well cap is watertight (sanitary seal) and the well pit is sealed or continuously drained
- keep water from entering the drilled well from the well pit – the risk of contaminating the supply is high
- consult a properly licensed well technician who also holds a valid well contractor licence, or works for the holder of a licensed well contractor, for advice.

A well pit is an enclosed structure, located at and below the ground surface that houses the top of the well and any associated pumping equipment.



See pages 44–47 for more information about extending a drilled well casing.

2-9. Age of well

BACKGROUND

Your well's age is an indicator of the technology used in its construction, and the integrity of the casing and cap. The well casing may be sufficiently deteriorated to allow water to seep into the well near the surface.

Some dug wells were built a century ago, when walls were built from stones and bricks. Old wells constructed in this manner are very susceptible to contamination from surface sources of pollution because the joints between the stones or bricks were rarely sealed.

Caution should be exercised when inspecting or working on old wells because they may be deteriorated and prone to collapse.



Consider factors besides the well's age before deciding if replacement is required. Important factors include impaired water quality, irreparable damage to casing, and poor location.

WHAT CAN YOU DO?

OPTION 1 – ACTION

Replace the old well with a new well:

- if the well cannot be repaired properly or if it is not economically feasible to repair the existing well, consider properly abandoning the well in accordance with the Wells Regulation and, if necessary, construct a new well or use an alternative water source
- take every opportunity to site and construct the replacement well with multi-barrier protection.

OPTION 2 – COMPENSATING FACTOR

Upgrade the well to present-day standards:

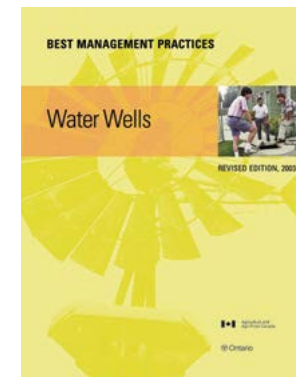
- repair the existing casing (e.g. grout joints) or install a new casing (e.g. install a new casing inside the existing bored/dug well casing), and have it properly sealed and protected.

OPTION 3 – COMPENSATING FACTOR

Carefully inspect the condition of the water well, especially for deterioration of the casing.

- ensure the water well is in good condition
- consult a properly licensed well technician who also holds a valid well contractor licence, or works for the holder of a licensed well contractor, for advice
- test water quality at least three times per year.

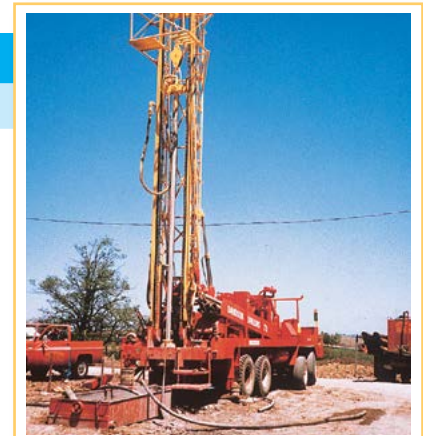
When considering well upgrades or replacement, consult a properly licensed well technician who also holds a valid well contractor licence or works for the holder of a licensed well contractor.



To properly abandon (plug and seal) an unused drilled well, see pages 48–51. To properly abandon (plug and seal) an unused large-diameter (dug) well, see pages 60–61. For a well maintenance checklist, see page 66.

2-10. Type of well

BACKGROUND	WHAT CAN YOU DO?
<p>In general, all types of wells, provided that they are constructed to accepted standards, can provide a safe and reliable supply of water. The depth, quantity, and quality of groundwater in your area often dictate what type of well you may have.</p> <p>Drilled wells usually provide more protection from surface sources of contamination than bored/dug wells, and generally provide a more dependable quantity and quality of water.</p> <p>Bored/dug wells obtain water from shallower groundwater sources, which are more easily affected by surface activities and rainfall. The larger bore hole and casing are more difficult to seal and maintain.</p> <p>Any deep hole drilled or dug into the ground provides a potential path for contaminants to reach groundwater, and must be managed accordingly.</p> <p>All new wells must be constructed in accordance with the Wells Regulation.</p>	<p>OPTION 1 – ACTION</p> <p>When replacing a bored/dug or sandpoint water well, consider a drilled well where feasible:</p> <ul style="list-style-type: none"> • well type indicates the level of management required to maintain water quality • regardless of well type, remember to monitor and maintain your well • bored/dug wells do not need to be replaced if they are in good condition, properly managed, and provide good quality and safe drinking water. <p>Consult a properly licensed well technician who also holds a valid well contractor licence, or works for the holder of a licensed well contractor, for advice.</p> <p>OPTION 2 – COMPENSATING FACTOR</p> <p>Properly manage, maintain, and protect the water well (regardless of type) as outlined in this infosheet.</p> <p>Test water quality at least three times per year.</p>



When replacing a bored/dug or sandpoint water well, consider a drilled well where feasible.

MANAGEMENT OF WATER SUPPLY

2-11. Backflow prevention

BACKGROUND	WHAT CAN YOU DO?
<p>The well and plumbing system are designed to bring clean water to the surface. If you don't take precautions, liquids can also be conducted in the opposite direction.</p> <p>Water from the tap or hose is used to fill large and small containers that may have potential contaminants in them, such as sprays, soaps, fertilizers, etc. These can back into the plumbing system or well, endangering human health. Costs for cleanup can be very high.</p> <p>The foot valve associated with pumps in wells does not provide adequate protection against backflow of possible contaminants into the well. Although the foot valve can prevent material from getting into the well if it is functioning properly, contaminants can still be siphoned into the water lines throughout the farm.</p>	<p>OPTION 1 – ACTION</p> <p>Install anti-backflow devices on all outside faucets, or faucets that are used to fill containers with a hose, and maintain a 15 cm (6-in.) air gap between liquid level and hose end:</p> <ul style="list-style-type: none"> • if more than one well is in use, operate them as separate systems, or separate them by manually controlled valves. <p>Types of anti-backflow devices</p> <p>Vacuum breakers are inexpensive anti-backflow devices that simply screw onto the tap and prevent liquids from siphoning back into the water system – but material can still be siphoned onto the ground surface.</p> <p>In-line check (one-way) valves are better protectors to prevent liquids from siphoning back into the water system. They can be installed inline between the pressure tank and the tap, but usually are installed just before the outside tap.</p>



This drilled well metal casing has a frost-free hydrant faucet with an anti-backflow device.

2–12. Unused or abandoned wells

BACKGROUND	WHAT CAN YOU DO?
<p>Unused and improperly abandoned wells are pathways for contaminants to move into groundwater.</p> <p>The Wells Regulation requires that the well owner immediately abandon a well in accordance with the Wells Regulation if it is not being used or maintained for future use as a well, produces mineralized water, or produces water that is not potable, unless the well owner seeks the advice of, and follows the directions of, the local medical officer of health.</p> <p>However, the well owner does not need to abandon (plug and seal) the well if the well water is mineralized or not potable if the well is used or intended for use as a source of water for agriculture (such as watering livestock or irrigating crops), and the well is not used as a source of water for human consumption.</p> <p>The Wells Regulation requires that the well owner immediately abandon (plug and seal) a well in accordance with the Wells Regulation if it contains natural gas or other gas, or permits any movement of natural gas, contaminants or other materials into or between aquifer(s), unless measures are taken that prevent the movement at all times.</p> <p>In some circumstances, written consent not to abandon a well may be issued by the Director under the <i>Ontario Water Resources Act</i>.</p>	<p>OPTION 1 – ACTION</p> <p>If an unused water well is to remain in place, it must be maintained and managed:</p> <ul style="list-style-type: none"> • all unused water wells are considered active and should be included in your overall plan and meet the requirements of an active water well. <p>OPTION 2 – ACTION</p> <p>Properly abandon (plug and seal) the well.</p> <p>Unless exempted by the Wells Regulation, the well owner must do the following:</p> <ul style="list-style-type: none"> • retain the services of a licensed well contractor, and • ensure the contract with the well contractor contains a provision that the well technician who will do the abandonment work is licensed to construct the same type of well as the one to be abandoned. <p>The well owner is exempt from the above requirements if the person who works on the abandonment of the well is:</p> <ul style="list-style-type: none"> • the owner of the land or is a member of the owner’s household, or • working without remuneration (not being paid) for another person on land owned by the other person or on land owned by a member of the other person’s household, or • a person who holds a Class 1 well technician licence (drilling).



Unused and improperly abandoned wells are pathways for contaminants to move into groundwater.

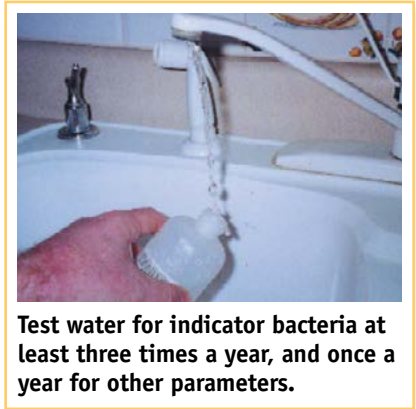
Retaining the services of a licensed well contractor is highly recommended.

For more information about abandoning a well, see this technical bulletin (pdf) from the Ontario Ministry of the Environment and Climate Change:

- www.ontario.ca/environment-and-energy/wells-regulation-well-abandonment-when-plug-and-seal-well-technical-bulletin

See also this OMAFRA factsheet:

- *Locating Existing Water, Gas or Oil Wells*, Order no. 10-041



Test water for indicator bacteria at least three times a year, and once a year for other parameters.

2–13. Water quality testing

BACKGROUND	WHAT CAN YOU DO?
<p>Groundwater quality in Ontario is generally quite good. However, as part of a multiple-barrier strategy to protect a drinking water supply, it is important to know the well's water quality and to monitor its changes.</p> <p>Routine water quality testing is an important aspect of well maintenance for a well owner. A well owner should submit a water sample at least three times each year for bacteria testing, or more frequently if a problem is suspected (e.g. in spring and fall, and after a major rain event). The water test report will indicate any water quality problems and what you should do (e.g. boil water). Contact your Public Health Unit for further assistance.</p> <p>Repeated detection of bacteria in the well water samples means that there is a chronic source of bacteria affecting the well water. In these cases, measures should be taken to identify the source and then prevent it from accessing the well. This may include hiring a licensed well technician working for a licensed well contractor.</p> <p>If problems with well water quality are reported by neighbours or there are changes in taste or visual quality of the water, test the well water for the appropriate bacterial and chemical parameters.</p>	<p>OPTION 1 – ACTION</p> <p>Sample and test well water at least three times a year for indicator bacteria, and once a year for other parameters such as nitrate:</p> <ul style="list-style-type: none"> • follow the instructions on the sample bottle • submit it to your local Public Health Unit for analysis – results will be mailed to you • contact your local Public Health Unit if you need help to interpret test results. <p>For chemical testing, contact the Ministry of the Environment and Climate Change (MOECC) Wells Help Desk (1-888-396-9355) for more information, or to get a list of accredited licensed laboratories.</p> <p>Details about chemical testing are provided in Chapter 11 of the <i>Water Supply Wells: Requirements and Best Management Practices</i> manual (Dec. 2009) published by the MOECC. See:</p> <ul style="list-style-type: none"> • www.ontario.ca/environment-and-energy/water-supply-wells-requirements-and-best-practices <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>When a well produces well water that is not potable (i.e. does not meet one or more of the Ontario Drinking Water Quality Standards), the well owner may seek the advice of and take measures directed by the local Public Health Unit as an alternative to immediately abandoning the well.</p> </div>

FOR MORE INFORMATION

Ontario Ministry of Agriculture, Food and Rural Affairs

Many sources of supplementary information are available. Most can be found online at ontario.ca/omafra or ordered through ServiceOntario.

Inquiries to Ontario Ministry of Agriculture, Food and Rural Affairs

Agricultural Information Contact Centre
Ph: 1-877-424-1300 | Email: ag.info.omafra@ontario.ca
Web: www.ontario.ca/omafra

Ontario Ministry of the Environment and Climate Change

www.ontario.ca/drinkingwater

Green Facts: Managing Your Water Well in Times of Shortage
Technical Support Document for the Ontario Drinking Water Quality Standards, Objectives and Guidelines, June 2003 (rev. 2006)

See technical bulletins about wells on your property:

www.ontario.ca/environment-and-energy/wells-your-property

Water Supply Wells: Requirements and Best Management Practices, December 2009

Well Aware: A Well Owner's Video

Order through ServiceOntario

Online at ServiceOntario Publications – www.ontario.ca/publications

By phone through the ServiceOntario Contact Centre
Monday–Friday, 8:30 am–5:00 pm
416-326-5300
416-325-3408 TTY
1-800-668-9938 Toll-free across Ontario
1-800-268-7095 TTY Toll-free across Ontario

ACKNOWLEDGEMENTS

At the request of the Ontario Farm Environmental Coalition, consisting of Farm & Food Care Ontario, Ontario Federation of Agriculture, and the Christian Farmers' Federation of Ontario, the following people contributed to the revision of this infosheet:

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