

# Safer water pack

Water safety guide and self assessment  
for private water supply operators



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# Welcome to the 'Safer Water Pack'

## Is this pack for me?

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This pack can be used by anyone operating a Private Water Supply within Wiltshire.

A private water supply is a supply of drinking water which is not provided by a water company such as Wessex Water and Thames Water.

This pack has been developed by Wiltshire Council to be practical and easy to use.

We expect the pack will take at least two hours to complete depending on the size and complexity of your private water supply.

## Why should I complete this pack?

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The Private Water Supplies Regulations 2016 (as amended) require Councils to inspect, risk assess and sample all private water supplies with the exception of those that supply one residential property only. In accordance with the Regulations the Council will recharge you for this work.

As the operator of a private water supply you have a duty to ensure that the water you supply is safe to drink. This pack will help you to:

- Protect the health of the people who consume the water from your supply;
- Improve your water supply;
- Avoid water quality failures which can lead to costly investigations and remedial works; and
- Develop and document your own water safety plans and procedures.

The pack will also create a single location for you to store all relevant information and records.

By satisfactorily completing all sections of this pack you will also receive a discount from the cost of inspection and risk assessment of your water supply. It will also reduce the time and inconvenience it will take to carry out the inspection and risk assessment.

To obtain the discount you must fully complete each section of the pack that is relevant to your supply. It is essential that you provide all the basic information referred to in Section 1 including a full and accurate list of each water supply outlets supplied with water.

## Who should take charge of this pack?

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The person who is responsible for the day to day running of the private water supply is the best person to complete this pack and maintain it thereafter.

The person who completes and maintains the pack should have a thorough first hand knowledge of the private water supply and distribution network.

## How does this pack work?

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The pack contains a number of sections for you to work through. Throughout the pack we have provided relevant examples of known water quality incidents that have led to serious illness. These examples help illustrate why it is important to protect your water supply.

At the back there are a number of sections for you to store your records including:

- Records of the checks or inspections you carry out yourself;
- Details of any maintenance or repairs carried out;
- Details of anything that goes wrong and corrective action taken; and
- Results of any water quality sampling.

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**What do I do next?**

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Work through the pack one section at a time and ensure you complete each section that applies to your water supply.

Depending on your answers you may need to gather more information or undertake remedial works to your supply. Where this is the case it is important that you take the necessary action within a reasonable time scale and amend the pack once the action has been taken. It is very important that all persons responsible for the management or control of the water supply are aware of the contents of this pack and act in accordance with its contents.

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**Where do I get more information?**

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You can talk to the Wiltshire Council Public Protection Officer who deals with your area and private water supply. You can contact your Public Protection Officer by calling Wiltshire Council on 0300 456 0100.

The following website also contains a lot of useful information about private water supplies and their safety: [www.privatewatersupplies.gov.uk/](http://www.privatewatersupplies.gov.uk/)

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**What doesn't this pack do?**

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This pack isn't intended to replace the inspection and risk assessment the Council is required to carry out. However, it will make the process much easier for you and the Council. Our inspection and risk assessment will cover a wider range of points than are covered in this pack.

Completion of this pack does not guarantee that your water supply is safe and does not guarantee that other works or improvements will not be required in the future.

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**Am I legally required to complete this pack?**

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No. You are not required to complete this pack. If you choose not to complete this pack you will not be eligible to receive the discount from the cost of inspection and risk assessment of your water supply.

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## Glossary of technical terms

<b>Aesthetic</b>	Factors associated with the senses of taste, smell, and sight.
<b>Aquifer</b>	An underground formation or group of formations in rocks and soils containing water.
<b>Backflow</b>	A reverse flow in water pipes. A difference in water pressures pulls water from sources other than the intended water source. For example waste water or flood water. Also called back siphonage.
<b>Bacteria</b>	Microscopic living organisms; some bacteria can be harmful if ingested.
<b>Borehole</b>	A hole drilled into the ground, usually with a relatively small diameter, for the abstraction of water.
<b>Casing</b>	A solid-wall tube installed within a borehole. Also known as “well casing”.
<b>Catchment</b>	The area from which water drains to a specific point (e.g. to a reservoir, lake, borehole)
<b>Chlorine</b>	A chemical widely used for the disinfection of public water supplies. It is sometimes used for the disinfection of larger private water supplies. Disinfection of private water supplies usually involves the use of sodium hypochlorite. Chlorine gas can be used but leaks can be very dangerous
<b>Contaminant</b>	Any undesirable physical, chemical, or microbiological substance in water.
<b>Cross-connection</b>	Any actual or potential connection between a drinking (potable) water supply and a source of contamination.
<b>Cut-off ditch</b>	A ditch, trench or channel across a field or hill to intercept and divert surface run-off from the slope above to a safe point.
<b>Cyst</b>	A form of environmentally stable and resistant microorganism.
<b>Dead leg</b>	A piece of pipe which is stopped off at one end but is connected to the supply at the other end. This can result in stagnant water in the pipe work.
<b>Disinfection</b>	The removal, destruction or inactivation of pathogenic organisms in water.
<b>Distribution system</b>	A network of pipes, storage vessels and alike through which water is conveyed to water outlets.
<b>Effluent</b>	Wastewater, treated or untreated, that flows out of a treatment plant, sewer, or industrial outfall. Generally refers to wastes discharged into surface waters.
<b>Filter</b>	A unit for carrying out the process of filtration which consists of a combination of filter medium and a suitable holder for constraining and supporting the medium in the path of the water
<b>Filtration</b>	The passage of water containing particles through a filter to effect a separation of particles from the water.
<b>Groundwater</b>	Water obtained from aquifers or other underground sources.
<b>Grout</b>	A cement-based liquid that dries to form a seal.
<b>Headworks</b>	The surface completion of a borehole or well.
<b>Indicator organisms</b>	An organism which indicates the presence of contamination and hence the possible presence of pathogens.

## Glossary of technical terms

<b>Oocyst</b>	A form of environmentally stable and resistant microorganism.
<b>Outlet</b>	A property, whether residential or not, tap or other point to which water is supplied.
<b>Pointing</b>	Cement or mortar used to fill the joints of brickwork or block work to improve its weatherproofing.
<b>Point of use</b>	A term referring to treatment of water for drinking at the point-of use or immediately prior to the point of delivery.
<b>Residual chlorine</b>	The small amount of chlorine or chloramines present in drinking water to maintain its quality as it passes through the distribution network.
<b>Reservoir</b>	A human-made lake or vessel where water is collected and stored in quantity for use. An enclosed vessel may also be called a tank.
<b>Reverse osmosis</b>	A pressure-driven membrane process using a membrane with pore size below 0.002 $\mu\text{m}$ to remove dissolved salts and organic compounds.
<b>Runoff</b>	Flowing surface water resulting from rainfall, leaks or overflowing tanks.
<b>Septic tank</b>	A tank used to receive and treat sanitary waste; can be a significant threat to water quality due to leaks and runoff.
<b>Soakaway</b>	System for allowing water or effluent to soak into the ground. Commonly used in conjunction with septic tanks.
<b>Source</b>	The point of abstraction of water (e.g. Well, borehole, spring) or the origin where a hazardous substance may enter the natural system.
<b>Spore</b>	A reproductive cell or group of cells from mould or fungi.
<b>Spring</b> the aquifer.	Groundwater appearing at the surface at the junction of an impermeable layer and
<b>Surface water</b>	Water standing on, or flowing over, the ground surface (for example, in rivers, lakes, streams, ditches, ponds)
<b>Trihalomethanes</b>	A chemical formed during disinfection of water by a reaction between chlorine and naturally occurring organic substances.
<b>Turbidity</b>	A measure of the cloudiness of water.
<b>Ultra-violet (UV) Treatment</b>	A disinfection process using a special light source to irradiate the water, contained in a suitable chamber, with UV radiation in order to inactivate micro-organisms.
<b>Watercourse</b>	Includes all waters, rivers, streams, ditches through which water flows.
<b>Water table</b>	The upper level of the saturated zone. This level varies greatly in different parts of the country and also varies seasonally depending on the amount of rain and snowmelt.
<b>Well</b>	A dug or drilled shaft, usually not less than 1 meter in diameter, used to access water within an aquifer.

# Safer water pack customer feedback form

We are always trying to improve our service. Please help us by completing this brief feedback form after you have completed the Safer Water Pack.

Please leave the completed feedback form in the Safer Water Pack. The completed form will be collected when a Wiltshire Council Officer next visits your water supply.

Approximately how long did it take you to complete the pack?..... hours

	Very useful	Fairly use-ful	Not very useful	Not useful at all
Was the pack useful?				
Was the pack easy to understand?				
Was the pack easy to use?				

**Do you have any other comments or suggestions?**

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**Print name:** ..... **Date:** .....

# Section 1: Supply details

Name of private water supply: .....	Supply Reference: .....
--	----------------------------

**Private Water Supply Owner**

Name .....

Address .....

.....

.....

Postcode .....

Telephone: .....

Email: .....

**Person responsible for the day to day management of the water supply**  
*(If different from the "owner.")*

Name .....

Address .....

.....

.....

Postcode .....

Telephone: .....

Email: .....

## Water Source

Please complete the following table to identify the water source being used.

The following website will help you find grid references: [www.gridreferencefinder.com](http://www.gridreferencefinder.com)

Water source type <i>(tick as appropriate)</i>	Depth <i>(Metres)</i>	Location	Grid reference
Borehole <input type="checkbox"/>			
Well <input type="checkbox"/>			
Spring <input type="checkbox"/>	N/A		
Reservoir <input type="checkbox"/>			
Other <input type="checkbox"/> <i>Please specify</i> .....			



**Is there a permanent or temporary connection to the mains water supply?**

Yes  No

If "Yes" please describe where this connection is located and its purpose below

.....  
 .....  
 .....

Which utility company provides this mains water supply?

.....

Please confirm that you have notified your utility company of the existence of your private water supply?

Yes  No

**Water treatment**

Is any part of the water supply, including any individual properties or water outlets, subject to any water treatment or disinfection (including ultra violet "UV" light treatment)?

Yes  No

If "Yes" please provide details of which outlets have water treatment systems and what water treatment systems are installed:

.....  
 .....  
 .....  
 .....

**Water treatment**

Is the whole of the water supply subject to any water treatment or disinfection (including ultra violet "UV" light treatment) before being distributed?

Yes  No

If "Yes" please indicate which by ticking the relevant box or boxes below:

- |   |  |
|---|--|
| <input type="checkbox"/> Chlorination                 | <input type="checkbox"/> Ozone                 |
| <input type="checkbox"/> Chloramination               | <input type="checkbox"/> UV with pre-filter    |
| <input type="checkbox"/> Filtration                   | <input type="checkbox"/> UV without pre-filter |
| <input type="checkbox"/> Flocculation                 | <input type="checkbox"/> Water softener        |
| <input type="checkbox"/> Nitrate Removal              | <input type="checkbox"/> Reverse Osmosis       |
| <input type="checkbox"/> Other (please specify below) |  |

.....  
 .....

**Water outlets**

How many people are served by the water supply?

.....

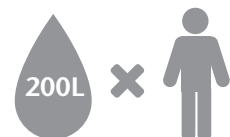
exactly / approximately (delete as appropriate)

How many properties (both domestic and non domestic) are supplied by the water supply?

.....  
 .....

**How do I estimate daily water usage?**

For supplies that serve residential properties only the daily water usage can be estimated by assuming 200 litres of water is used per person per day



**Is the private water supply metered?**

Yes  No

If "Yes" the average daily usage of water is:

..... litres

If "No" the estimated daily usage of water is:

..... litres

**Does the water supply fill any animal drinking troughs?**

Yes  No

If "Yes" how many? .....

**Please indicate which type(s) of properties are supplied by the water supply by ticking any that apply:**

- |  |  |
|--|--|
| <input type="checkbox"/> Cafe / Restaurant / Public House  | <input type="checkbox"/> Public building, <i>Please specify</i><br>.....                   |
| <input type="checkbox"/> Caravan / Camp Site   | <input type="checkbox"/> Banquet/function building   |
| <input type="checkbox"/> Church or community hall  | <input type="checkbox"/> Residential care home   |
| <input type="checkbox"/> Farm <i>Please delete as appropriate:</i><br>arable / livestock / mixed / poultry | <input type="checkbox"/> Residential Property  |
| <input type="checkbox"/> Holiday Let(s)  | <input type="checkbox"/> Shooting lodge  |
| <input type="checkbox"/> Hotel / B&B   | <input type="checkbox"/> Shop(s)   |
| <input type="checkbox"/> Industrial Unit(s)  | <input type="checkbox"/> Other <i>(Please specify)</i><br>.....<br>.....<br>.....<br>..... |
| <input type="checkbox"/> Livery Stable   |  |
| <input type="checkbox"/> Temporary events e.g. festival sites.   |  |
| <input type="checkbox"/> Nursery / School  |  |
| <input type="checkbox"/> Office accommodation  |  |
| <input type="checkbox"/> Other food business   |  |

**Water Source**

Please provide details of the properties supplied by completing the following table.

If a full list of these details is already available in another format please attach a copy here.

	Postal address of water outlet	Name of occupiers	Contact telephone number
1	Postcode: *Tenure		
2	Postcode: *Tenure		
3	Postcode: *Tenure		
4	Postcode: *Tenure		
5	Postcode: *Tenure		
6	Postcode: *Tenure		
7	Postcode: *Tenure		

**Water Source**

Please provide details of the properties supplied by completing the following table.

If a full list of these details is already available in another format please attach a copy here.

	<b>Postal address of water outlet</b>	<b>Name of occupiers</b>	<b>Contact telephone number</b>
<b>8</b>	Postcode: *Tenure		
<b>9</b>	Postcode: *Tenure		
<b>10</b>	Postcode: *Tenure		
<b>11</b>	Postcode: *Tenure		
<b>12</b>	Postcode: *Tenure		

\*Tenure = Owner Occupied, Assured Shorthold tenancy (AST) Tied farm tenant

If there are more than 12 water outlets use a continuation page.

**Supply Plan**

Please provide a diagram of the water supply and water distribution network on the next page. It need not be to scale and does not need to include plumbing arrangements within individual properties. The diagram should illustrate how water flows from the source to the water outlets. It should include any or all of the following: water source(s), pump house, collection chambers, storage tanks/reservoirs, animal watering troughs, stop taps and each of properties supplied with water. Figures 1 and 2 are examples of water supply plans which may help you draw your own.

Figure 1:

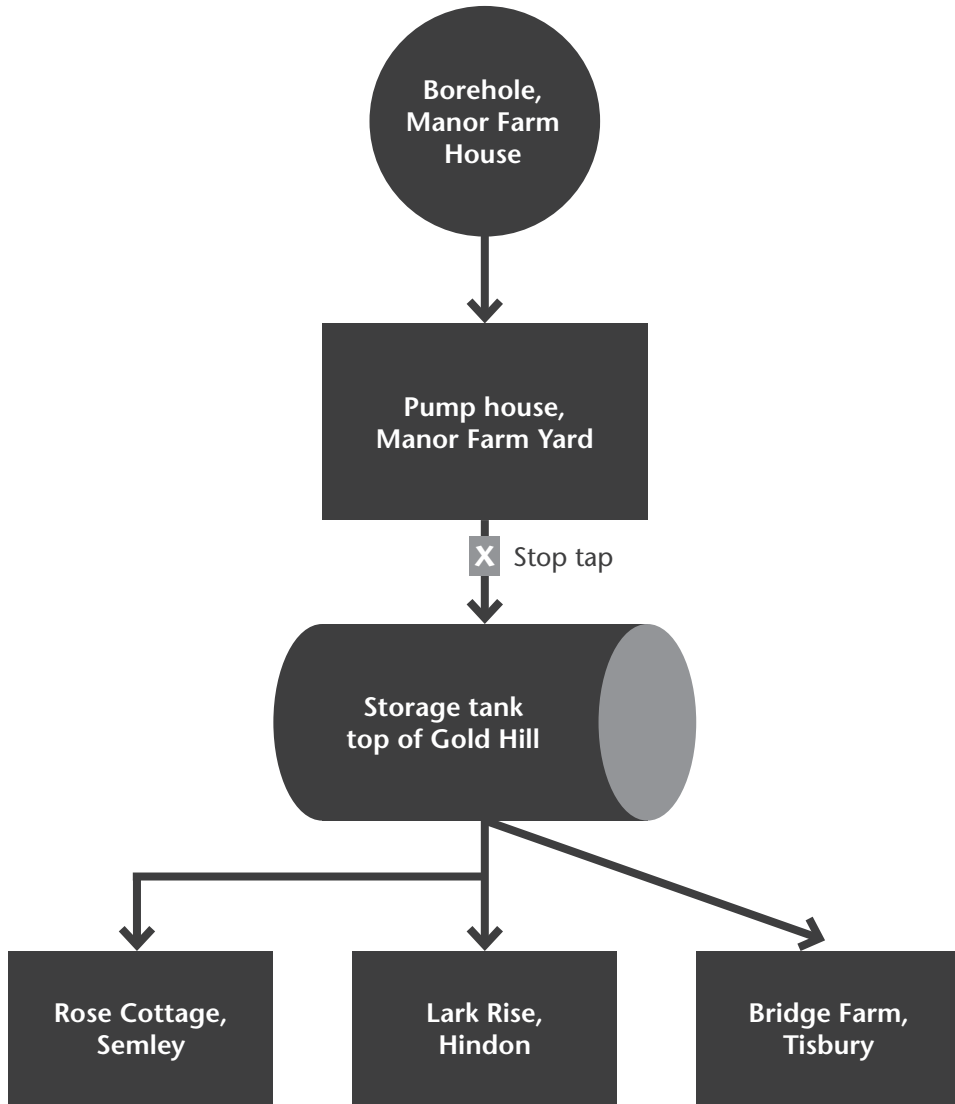
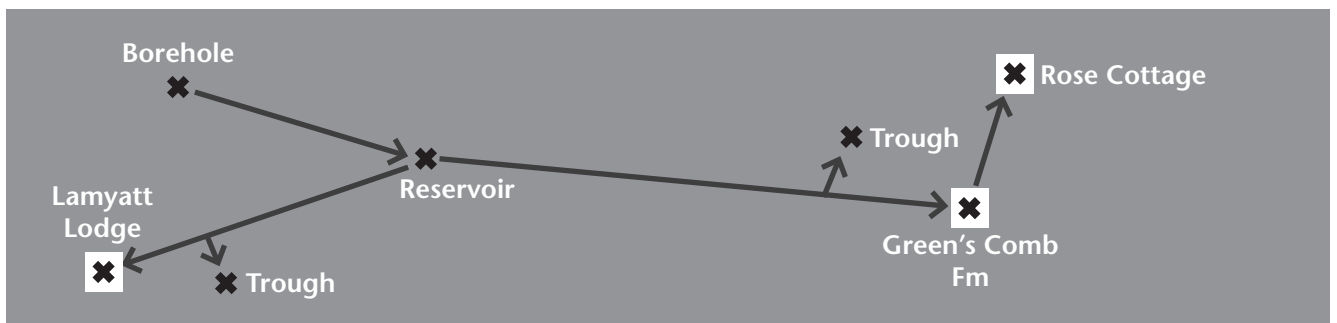


Figure 2:



If you are drawing a plan of your water supply please do so in this box below.  
If you are providing a plan or map of the supply in another format please insert it here.

It is easy to spread harmful bacteria without realising. Using basic hygiene practices will help you ensure your water supply remains safe when carrying out maintenance, repair or the cleaning of your water supply system.

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### “What should I do before starting work?”

Before you carry out any maintenance, repair or cleaning of your water supply or distribution system you should always:

- Wash your hands thoroughly with soap and warm water.
- Clean any tools which will come into contact with the water supply or distribution system with soap and warm water and then disinfect them with a disinfectant suitable for contact with drinking water. For example hypochlorite.
- Wear clean clothes
- Wear clean footwear
- Ensure any cuts or grazes are covered with a waterproof plaster or dressing.

You should try to keep your hands as clean as possible during the works. You should always wash your hands after going to the toilet or eating.

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### “What if the works needed are away from hand washing facilities?”

You should take with you a supply of clean water (e.g. a large bottle) and soap. This will allow you to wash your hands wherever the works are taking place.

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### “What if I need to climb into or stand in part of the water supply system?”

If you have to climb into or stand in a part of the water supply system you should ensure that:

- Your footwear has been thoroughly cleaned and disinfected and remains so up to the point you climb into or stand in the part of the water supply concerned.
- There is nothing on the soles of the footwear, such as a piece of glass or sharp stone, which could damage or puncture the water supply system.

Whenever you inspect or carry out any works to your private water supply you should carry out your own health and safety risk assessment and take the appropriate precautions to reduce risks to health or safety.

Your risk assessment should consider:

- Your health and safety;
  - Your employees health and safety; and
  - The health and safety of those you supply with water.
- 

Where you use contractors both you and the contractors have responsibilities under health and safety law. Before contractors start work you should ensure everyone understands the part they need to play in ensuring health and safety.

We recommend that water engineers should hold a National Water Hygiene Card.

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In Section 14 we have provided copies of two short leaflets from the Health and Safety Executive which provide guidance on carrying out your own health and safety risk assessments and your responsibilities toward contractors.

More information is available on the Health and Safety Executives website:

[www.hse.gov.uk](http://www.hse.gov.uk)

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When we come to take a sample from your water supply we will usually take two water samples. One of these samples will be analysed for microbiological contamination and one will be analysed for chemical contamination.

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### Microbiological contamination

Some of the harmful micro-organisms that can be found in private water supplies are shown below.

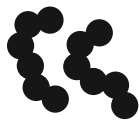
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#### Campylobacter

**Source:** These bacteria are found in the faeces of animals, birds and infected humans. Campylobacter is the most common cause of food poisoning in the UK.

**Effect:** Abdominal pain, vomiting, diarrhoea and tiredness



#### Blue green algae

**Source:** These algae grow abundantly in surface waters

**Effect:** These algae produce toxins which can cause gastroenteritis, fever and skin irritation. Long term exposure can cause liver damage, nerve problems and tumours.



#### Cryptosporidium

**Source:** This protozoan are found in human and animal faeces and are one of the most common causes of waterborne disease. Oocysts can survive in water for several months and can also survive chlorination.

**Effect:** Diarrhoea, nausea, vomiting, fever, and dehydration. Symptoms that can last for several weeks and can be much more severe for people with weakened immune systems.



#### E. coli 0157

**Source:** These bacteria are found in the faeces of warm blooded animals which are infected with E. coli 0157. Even small numbers of organisms can cause illness.

**Effect:** Vomiting, fever, severe bloody diarrhoea, and abdominal cramps. In some cases it can cause kidney failure, bleeding, anaemia and death. Children are particularly vulnerable to infection.



#### Giardia

**Source:** These protozoan parasites are found in water contaminated with the faeces of infected humans or animals. These organisms can survive for long periods in the environment and are tolerant to chlorine disinfection.

**Effect:** Stomach cramps, nausea and mild to explosive diarrhoea.

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### Hepatitis A Virus

Source: Water contaminated with human sewage

Effect: Nausea, vomiting and sometimes liver disease. 10%-15% of patients suffer a relapse within six weeks of acute illness.



### Norovirus

Source: Water contaminated with human sewage

Effect: Violent diarrhoea and vomiting usually 2-3 days after infection

It is not practical to analyse water samples for every microorganism. Samples are therefore analysed for “indicator organisms.” The presence of these indicator organisms demonstrates that the water supply has become contaminated and provides an indication that other, potentially harmful, organisms may be present in the water.

We test water samples for the following indicator organisms

### **E. coli, Enterococci**

These bacteria indicate that there has been faecal contamination of the water supply and indicate that other harmful micro-organisms may also be present. Enterococci can survive for longer in the environment than E. coli.

If a sample contains these bacteria we will ask every one consuming the water to boil it before drinking and for certain other uses while we investigate further.

### **Coliforms**

Presence of this group of bacteria indicates that contamination from the environment, for example from soil, runoff or organic matter has taken place. Coliforms could indicate that other harmful micro-organisms may also be present.

If a sample contains a significant number of coliforms we will investigate the cause and may ask every one consuming the water to boil it before drinking and for certain other uses.

### **Colony Counts at 22°C and 37°C**

Colony counts do not indicate health risk and indicate the presence of non harmful bacteria. Significant changes in colony counts indicates a change in water quality and could therefore indicate a problem with the water supply system.

### Chemical Contaminants

We test chemical samples for a range of non biological parameters. The parameters may have a direct affect on health, cause aesthetic problems or be indicators of a problem with the supply. If your water contains levels of these substances above the prescribed limit investigation will be required and water treatment may need to be installed.

The level of chemicals in water is expressed in micrograms per litre ( $\mu\text{g/l}$ ) or milligrams per litre ( $\text{mg/l}$ .)

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### Chemical indicators and Aesthetic Parameters

#### Ammonium

Increased levels of ammonium can mean the water has recently been contaminated. The contamination could have been from soakaways, sewers or farms. High levels can affect the efficiency of any chlorine treatment on your supply. The limit for ammonium is  $0.50\text{mg/l}$ .

#### Colour

Water may become coloured because of the ground that it has filtered through, or from contamination. The colour of your water can make it unpleasant to drink and can affect the efficiency of treatment systems. The limit for colour is  $20\text{ mg/l Pt-Co}$ .

#### pH

This is used to measure whether your water is slightly acidic (soft water) or alkaline (hard water.) Most water in Wiltshire is hard water. Soft water can affect your pipe work and dissolve lead in pipes whereas hard water can cause problems by furring up of appliances. The pH of your water should be between 6.5 (more acidic) and 9.5 (more alkaline)

#### Iron

High levels of iron in your water supply may be due to the ground that the water has filtered through or because of metal water pipes in the system. On its own iron is not a health risk. However it can make water cloudy, orange and unpleasant to drink. Its presence can affect the efficiency of treatment. The limit for iron is  $200\ \mu\text{g/l}$ .

#### Odour

Odour may come from a range of sources including decaying vegetation, algae, moulds, chlorine or chlorine bi-products. The odour of the water should be acceptable to people drinking the water, and there should be no abnormal change.

#### Conductivity

This tells us the level of certain substances dissolved in your water. Such as salts. The result of this test helps us build a picture of your water. The limit for conductivity is  $2500\mu\text{S/cm}$ .

#### Turbidity

Water may become more turbid because of the ground that it has filtered through, or from contamination. High turbidity can make the water unpleasant to drink and can affect the efficiency of treatment systems. The limit for turbidity is 4 Nephelometric Turbidity Units (NTU)

### Chemical Hazards

Whether or not we test for these parameters will depend on a number of factors such as type of supply, geology or type of treatment.

#### Aluminium

Aluminium can be found in some surface waters and is sometimes used in water treatment. Very high levels of aluminium can be toxic to humans. The limit for aluminium is 200 µg/l.

#### Lead

If we find out that the area that you live in has lead in the ground water or you have lead pipes anywhere on your supply we will test your water supply for lead. Lead is toxic to the human nervous system. The limit set for lead 10 µg/l .

#### Pesticides

A wide range of pesticides may be sprayed on the agricultural land near your supply. If we think that there is the potential for these chemicals getting into your water supply we will test for it. The limit for total pesticides is 0.50 µg/l. There are different limits for specific pesticides.

#### Poly Aromatic Hydrocarbons (PAH)

These can come from coal-tar lined drinking water pipes. Some PAH are toxic and potentially carcinogenic. The limit set for PAH is 0.10 µg/l.

#### Manganese

Manganese can be found in high levels in ground or surface water. It is not a health concern but may affect taste and appearance. The limit for manganese is 50 µg/l.

#### Fluoride

Very high levels of fluoride in drinking water can have adverse effects on teeth and bones. The limit for fluoride is 1.5mg/l. Customers with high levels of fluoride in their water should consider whether to use non-fluoride tooth paste.

#### Nitrate and Nitrite

High levels of these substances can be caused by animal waste and fertilisers from farmland reaching ground water. High levels of nitrate could be harmful to bottle fed infants up to 6 months of age. The limit for nitrate is 50mg/l for Nitrite it is 0.5mg/l nitrite.

#### Total Petroleum Hydrocarbons (TPH)

Spillages or leaks from vehicles, heating or vehicle fuel storage tanks can lead to water becoming contaminated. You would usually be able to smell or taste contamination of TPH even at very low levels. We will test for this if we think that your supply may have been contaminated. There is no set health limit for TPH in drinking water. However if we find any in your water supply we will investigate where it has come from.

#### Trihalomethanes (THM)

If your supply is chlorinated we will test it for THM on at least one occasion. They are chlorine by-products and can be formed if the untreated water has lots of organic matter in it before it is chlorinated. THM have been linked to long term illnesses including cancer. The limit is 100µg/l.

### Radioactive Hazards

Whether or not we test for these parameters will depend on a number of factors such as geology, and identification of high/ moderate/ low risk areas. Most of Wiltshire has been identified as moderate to low risk for radon.\*

### Radioactive Substances

Radon is a noble gas that emanates from decaying uranium rocks in the earth. It is considered a health hazard due to its radioactivity. Radon is soluble in water and if in aquifer where radon produced can be taken up in the water.

Maximum concentration for radon is 100 Bq/l.

### Tritium

This is a radioactive isotope of hydrogen that is rare in the natural environment. It is used as a radio luminescent light sources for watches and instruments, and in nuclear weapons. Broken self-lighting signage in landfill could possibly contaminate water supplies (though this has not been proven).

Maximum concentration level of tritium is 100 Bq/l. Unlikely to be an issue in Wiltshire.

- *Understanding the implications of EC's proposal relation to Radon in drinking water in the UK. Final report 2015*

## Section 4: Management and control

It is very important that all those people with responsibility for the management, control or supervision of the water supply and distribution system have been properly trained. Formal training is not required but is encouraged.

### Each person with responsibility for the supply should:

- Understand basic hygiene principles and practices and understand why they are important;
- Understand the need to ensure the water supply is not subject to microbiological or chemical contamination;
- Understand the entire water supply and distribution system and how it works;
- Understand how to safely operate each piece of equipment associated with the water supply. Including pumps, reservoirs / storage tanks, treatment systems, valves and stop taps;
- Understand what to do if something goes wrong; and
- Have read and understood the contents of this document (once completed)

**Do you believe you are sufficiently trained to safely manage and control the water supply and distribution system?**

Yes  No

**If "No" what action will you now take to improve your own training?**

.....  
.....

**Target date:** .....

**Is there anyone else who is responsible for the management and control of the water supply?**

*(Including anyone responsible for its management and control in your absence.)*

Yes  No

If "Yes" please provide their details below

Name .....

Telephone Number .....

Name .....

Telephone Number .....

**Are you satisfied that the people identified in the preceding box are sufficiently well trained and experienced to safely manage and control the water supply?**

Yes  No  Not Applicable

If "No" what action will you take to ensure all the people identified above are sufficiently trained and experienced to safely manage and control the water supply?

.....

.....

.....

Target date: .....

**Do you have copies of the manufacturer's instructions for the operation of the water supply and water treatment equipment? Including (where applicable) water pumps, pressure vessels, control systems, treatment systems, and water filtration systems.**

Yes  No

If "Yes" please attach copies of these to this pack by inserting them in Section 13 of this pack.

If "No" It is important that copies of manufacturer's instructions are kept for any water supply or treatment equipment installed. You should contact your water engineer and obtain copies. They should be inserted in Section 13 of this pack.

The Drinking Water Inspectorate recommends that your water supply should be inspected and checked at least weekly. Without these checks serious damage to the water supply system or sources of contamination will go undetected and could pose a serious risk to human health. A written record of these checks should be kept.

In Section 12 of this pack we have provided a simple form and place for keeping a record of your own inspections and a place for you to store them.

**Briefly described your procedures for inspecting and checking your water supply:**

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Maintenance or repair of a water supply system would ordinarily be carried out by a qualified and suitably experienced water engineer. In some circumstances you may be able to carry out some of your own maintenance or repairs.

**Whoever maintains or repairs the water supply system should be competent and experienced enough to ensure that:**

- The works are carried out to a good standard
- The works do not cause any risk of contamination to the water supply; and
- All materials and equipment installed are appropriate for drinking water systems. All materials and equipment installed on private water supplies must comply with Regulation 5(1) of The Private Water Supplies (England) Regulations 2016 and Regulation 31 of the Water Supply (Water Quality) Regulations 2000.

**If you use a contractor to carry out works to your water supply you should choose someone reputable. You should ask yourself:**

- Are they registered with an appropriate professional body?
- Are they able to provide satisfactory references from other private water supply providers?
- Are they able to demonstrate that their water engineers are properly trained and qualified?

We recommend that water engineers hold a National Water Hygiene Card.

### Who will carry out the maintenance and repair of your private water supply system?

Yourself  Water Engineer

If "Water Engineer" please provide their details below

Name: ..... Telephone number: .....

Email address: ..... Website: .....

### Written records of all maintenance, repairs or other incidents associated with the water supply should be kept. These records are very important to:

- Demonstrate that you are managing and maintaining a safe water supply
- Demonstrate that regular maintenance has taken place
- Help us understand what changes to your water supply have happened since our previous inspection
- Help us understand what may account for changes in water quality
- Help your water engineers should they need to carry out works to your water supply

In Section 12 of this pack we have provided a simple form and place for keeping a record of all maintenance, repairs or other incidents associated with the water supply.

Tick here  to confirm that you will keep a written record of all maintenance, repairs or incidents associated with the water supply.

All water storage tanks and reservoirs should be periodically cleaned.

The Drinking Water Inspectorate recommends that loft tanks, sometimes known as “header tanks”, and tanks or reservoirs that are used to store surface waters are cleaned annually.

The frequency of cleaning for other water storage tanks / reservoirs should be determined based on water quality history and any known risk factors or deficiencies affecting the supply.

The cleaning of large water storage tanks / reservoirs in a safe and hygienic can be complicated, requires planning and preparation and can require specialist equipment. We recommend that you engage a competent water engineer to clean and disinfect any large water storage tanks / reservoirs or take professional advice before carrying out the work yourself.

Whenever a tank or reservoir is cleaned a written record should be made.

## Section 6: Disinfection of your water supply system

## 6

During maintenance or repair works the water supply equipment or distribution system may become contaminated or unclean. Where you know or suspect this has happened it is vital that you clean the items concerned, disinfect the water supply system and thoroughly flush the system through.

The disinfection of a water supply system requires detailed knowledge of the volume of water contained within the system and will involve the use of potentially hazardous chemicals.

If you have any doubts about carrying out this work yourself you should contact a water treatment engineer for advice.

### **If you disinfect the water system yourself you should always:**

- Use a disinfectant that is suitable for drinking water use. Many hypochlorite disinfectants are suitable for use in drinking water systems.
- Read, understand and following the manufacturer’s instructions.
- Read the chemical safety data sheet for the chemical disinfectant used. This is sometimes called a COSHH certificate.
- Ensure the required “contact time” is achieved. The required contact time should be determined by reference to the instructions provided by the manufacturer of the disinfectant.
- Ensure that the whole water supply system is de-chlorinated and flushed through to waste after disinfection.

It is important that you have plans and procedures in place to help you manage an emergency. Emergency incidents include any situation where the water supply has or is likely to:

- Fail;
- Be stopped;
- Become insufficient; or
- Become unsafe.

By having an emergency plan in place you will reduce the time it will take to respond to and manage the emergency and you may reduce your costs. If you are able to show the Council that you are able to adequately manage the emergency you may reduce the likelihood that the Council will intervene using its enforcement powers.

In this section we ask you to describe some of the actions you would take in response to a number of different emergencies. The information you provide should demonstrate how you will proactively manage the emergency. Answers which solely rely on the intervention of a third party water engineer will not be sufficient.

The information we have requested is very basic and should form the basis of your own emergency plans. Your response to any emergency will be dependent on the particular circumstances involved and where appropriate you should take advice from Public Protection Services, Wiltshire Council and your own water engineer.

### Contacting your water outlets in the event of an emergency

In the event of any emergency it is essential that you are able to contact all water outlets to provide them with critical information and advice.

**Do you have emergency contact details for the occupants of all the properties supplied with water?**

Yes  No

If "No" you should ensure you gather appropriate emergency contact details for all the properties supplied with water. In Section 15 you will find

**a template letter which you could use to write to your water outlets to gather their emergency contact details.**

**Please insert the date by which you will have obtained contact details for all properties supplied with water:**

.....  
 .....  
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### Failure or Insufficiency of the Water Supply

In the event that the water supply was, or was likely to be, interrupted or insufficient for a period longer than 24 hours:

**1. Are there any vulnerable people (E.g. an elderly person or someone who is undergoing kidney dialysis) and who may not be able to cope without water? If so, what immediate arrangements would you make for them?**

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 .....  
 .....



Failure or Insufficiency of the Water Supply - continued

2. When, and how, would you contact all the water outlets to make them aware of the situation?

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3. How would you ensure that all the water outlets were provided with an alternative supply of safe drinking water within 24 hours of the problem starting?

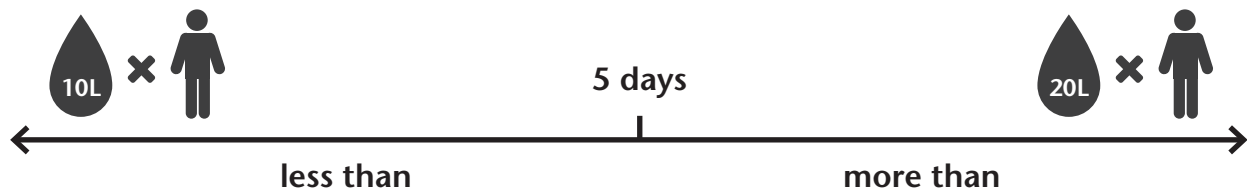
.....  
 .....  
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Recommended minimum potable water requirements in emergencies



10 litres per person per day for emergencies lasting up to five days

20 Litres per person per day for emergencies lasting longer than five days.



Failure or Insufficiency of the Water Supply - continued

4. If your answer to question 3 relies on the services of a contractor or third party  
 What is their name and address?

.....  
 .....  
 .....

Have you confirmed that they are able to supply an alternative supply of safe drinking water within 24 hours of being contacted and are able maintain that alternative supply until the problem has been resolved?

Yes  No

**Failure or Insufficiency of the Water Supply - continued**

5. What action would you take to re-instate the private water supply as soon as possible?

We appreciate that a detailed answer, being dependant on the particular circumstances causing the emergency, is not possible. Bullet points or a general statement of intent will be satisfactory. E.g. "Immediately arrange for a water engineer to visit and inspect the supply and implement their recommendations as soon as possible."

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**There is reason to believe the water supply may have been contaminated or become unsafe**

If you had reason to believe the water may have become contaminated or unsafe (E.g. the water supply had been vandalised or accidentally damaged):

1. What immediate action would you take to temporarily stop the water supply to all the water outlets?

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.....

There is reason to believe the water supply may have been contaminated or become unsafe - continued

2. You should immediately inform all the water outlets of the situation and inform them that they should not consume the water.

How would you contact the water outlets immediately to provide this advice?

.....  
.....  
.....  
.....

3. What action would you take to investigate the incident and how would you establish whether the water supply had been contaminated?

.....  
.....  
.....  
.....

4. If you established that the supply had become, or was likely to have been contaminated, what action would you take to make the water supply safe?

We appreciate that a detailed answer, being dependant on the particular circumstances, is not possible. Bullet points or a general statement of intent will be satisfactory. E.g. "Immediately take advice from a suitable water engineer and implement their recommendations as soon as possible."

.....  
.....  
.....  
.....

5. You should contact Public Protection Services, Wiltshire Council, on the next working day to inform them of the incident and take advice. Our telephone number is 0300 456 0100.

6. Where a water supply is likely to be unavailable for a period of longer than 24 hours you should implement your procedure outlined under "Failure or Insufficiency of the Water Supply"

**A complaint that the water supply had caused illness**

If someone from a water outlet contacted you to report that they had been ill and they believed the illness had been caused by the water supply:

1. You should record the following information:

- Their name, address and contact telephone number;
- Their symptoms (e.g. vomiting, diarrhoea, nausea, cramps)
- The date and approximate time their symptoms started
- The date and approximate time their symptoms stopped
- Have they travelled anywhere abroad recently?
- Have other members of their family been ill?
- Their reason for believing the illness had been caused by the water supply;
- Have they visited their GP?

2. You should immediately inspect the water supply system and area around it to determine if there has been any visible damage to the water supply network or change in the local environment which could have caused contamination of the water supply.

What checks and inspections of the water supply would you immediately undertake?

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3. If you receive similar complaints from more than one address or your own inspection leads you to believe that the water supply had become contaminated you should implement your procedure outlined under section "There Is Reason to Believe the Water Supply May Have Been Contaminated or Become Unsafe."

**A Sample Taken Fails to Comply with the Required Water Quality Standards**

Where the Public Protection Services take a water sample and find that it fails to meet the required water quality standards they will contact you and provide you with the appropriate advice and course of action.

Where a water sample is taken by a water engineer or a third party laboratory and it fails to meet the required standards you should immediately contact Public Protection Services, Wiltshire Council, on 0300 456 0100. They will provide you with the appropriate advice and course of action.

### A food business is supplied with water

Where a water supply supplies water to a food business it is important that there are detailed and specific arrangements in place to manage emergency incidents related to the water supply. A “food business” is any undertaking who – whether for profit or not – carries out any activity related to the production, processing, distribution or sale of food. Examples of food businesses include:

- Restaurants / Cafés / Takeaways
- Food Manufacturers / Processors
- Hotels / B&B's / Residential Homes
- Retail Shops selling food

Is there any food businesses connected to your private water supply?

Yes  No

Where an emergency incident related to a private water supply occurs any food businesses supplied with water may have to close until an alternative safe and sufficient supply of water has been put in place or satisfactory remedial works have been undertaken to the private water supply.

If your water supply is connected to a food business you should contact the food business operator to discuss and agree how each party would act in response to an emergency incident. The agreed actions should be recorded in writing and a copy of the agreement attached to this document here.

In any circumstances where the water supply to a food business has, or is likely to be, affected in any of the ways described in this section you should

1. Immediately notify the food business operator; and
2. Immediately notify Wiltshire Councils Public Protection Service (Food and Safety Team) by calling 0300 456 0100.

Boreholes, wells and springs are the most common sources of water for private water supplies. Streams and rivers are sometimes used but this is rare. Each water source is briefly described below and illustrated in Figure 3.

**Boreholes:** These water supplies usually abstract water from aquifers deep underground. They are usually reliable water sources and less susceptible to contamination than other types of water supply.

**Wells:** These water supplies usually access water from a shallower depth than boreholes. They are more at risk from contamination than boreholes.

**Springs:** The quantity of spring water is often variable and is dependent on the characteristics of the individual water source, characteristics of the area and

activities taking place nearby. Some “spring” sources are in fact artificial land drains and should be regarded as surface waters.

**Rivers / streams / surface water:** This type of water source is very susceptible to contamination due to activities and land use up stream and around the abstraction point. The quality of water from surface waters is likely to vary significantly depending on the time of year and weather conditions. Extensive water treatment systems are very often needed to make the water of a potable quality and they must be designed to cater for the poorest quality water.

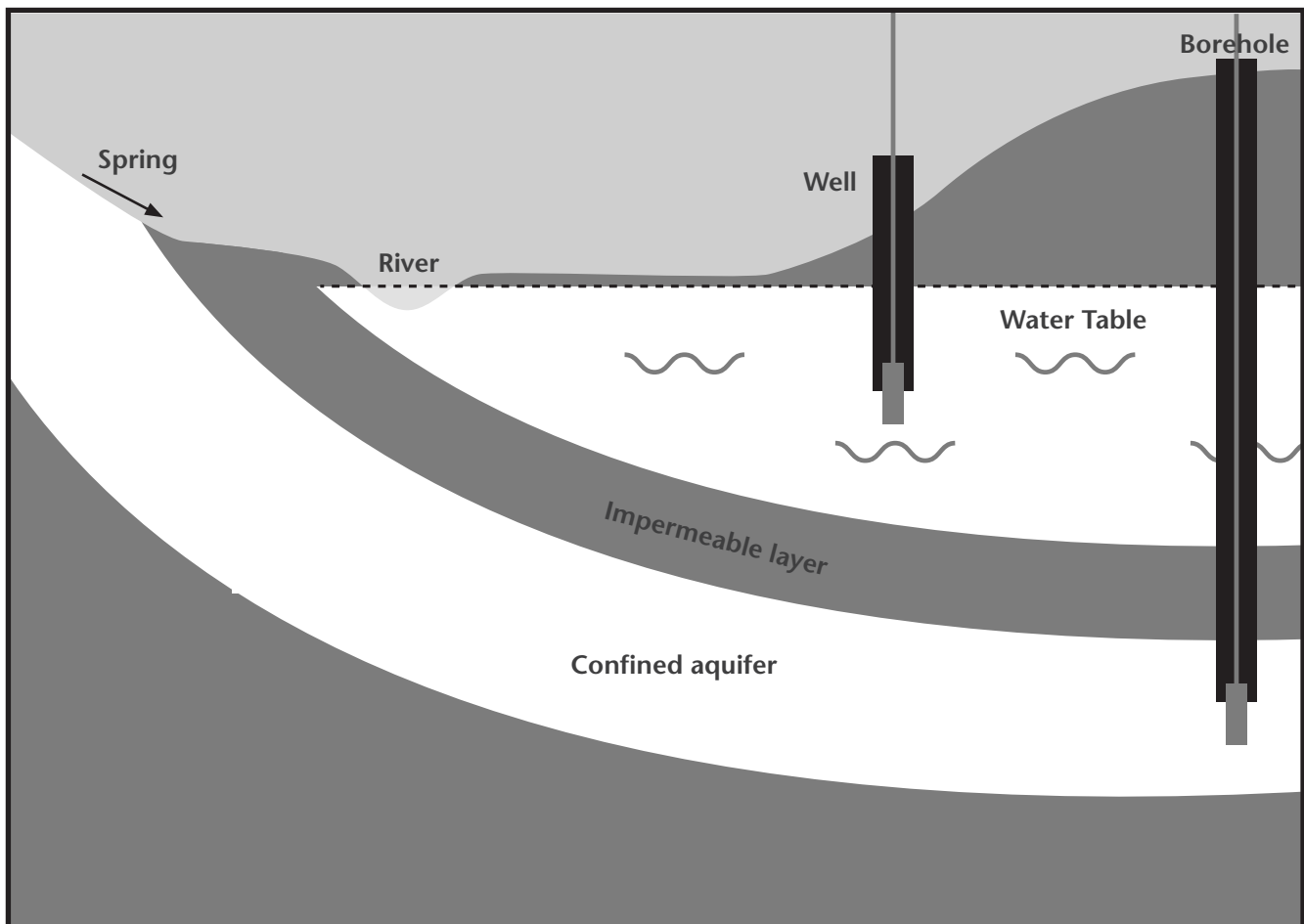


Figure 3: Diagram illustrating the different types of water source

This section relates to all water sources whether they are boreholes, wells, springs or surface water supplies.

The area around a water source should be carefully managed to reduce the risk of contamination of the water supply. Certain activities, materials or land use in the immediate and wider area can affect water quality.

A situation where a private water supply owner does not own or control the land around a water source can be a problem. For example where a neighbouring farm sprays pesticide or spreads slurry on land next to the water source could have a serious affect on water quality.

### Walkerton, Canada

In May 2002 the water supply to a town called Walkerton in Canada was contaminated with E. Coli and Campylobacter bacteria.

After a period of heavy rain surface water runoff was washed into a water supply well. The run off was from agricultural land adjacent to the well and contained animal faeces.

The incident led to 2,300 people becoming ill. 65 hospitalisations and 7 people died as a result.

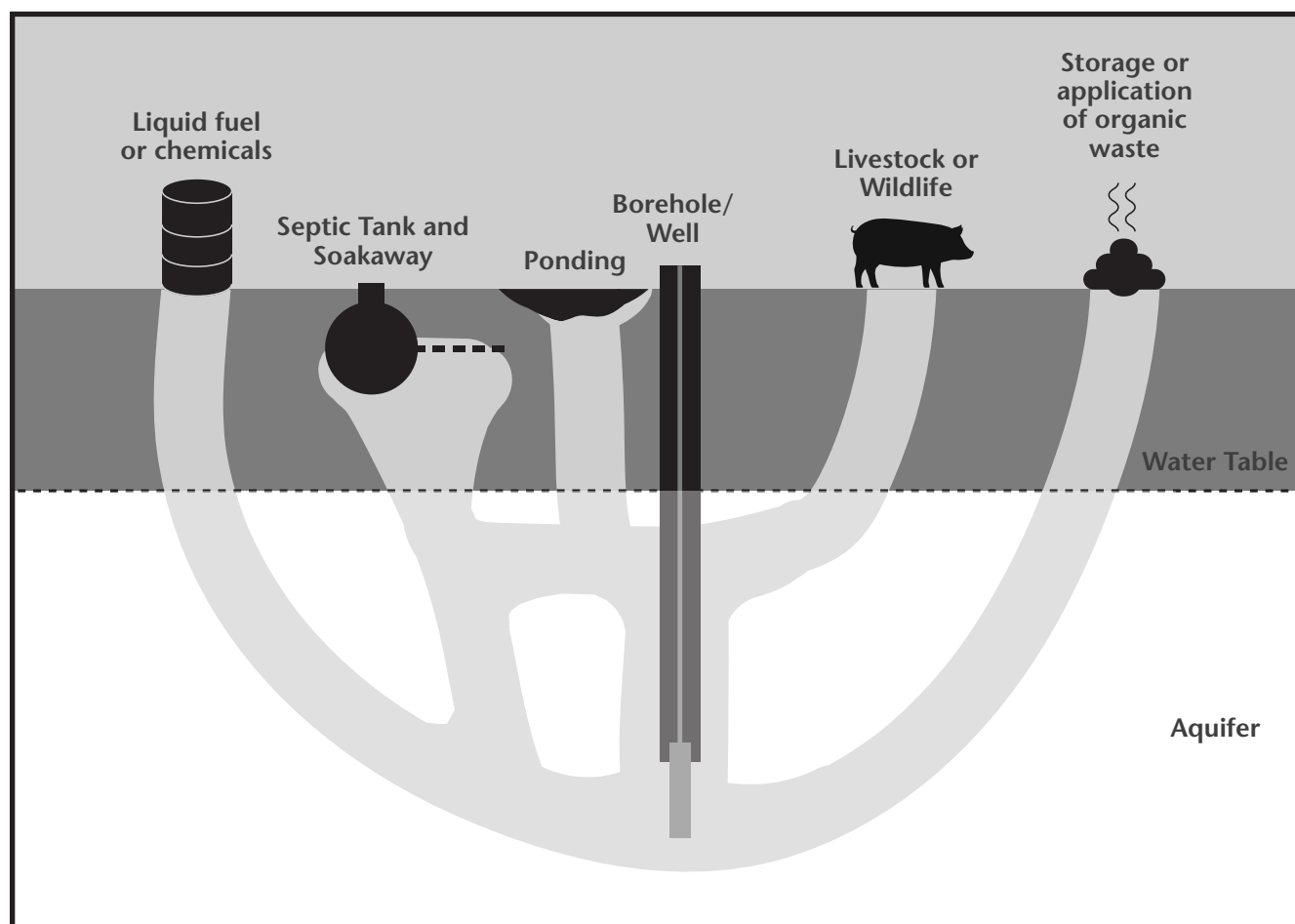


Figure 4: Diagram illustrating how materials, equipment or activities near a water source may contaminate a water supply

**Source Protection Area**

Do you have control over the land within 500 metres of your water source?      Yes     No

If "No" who owns the land outside your control? .....

Safety Point	Why	Actions needed
Oil/Fuel/Chemical storage tanks within 250m of the water source could pose a risk to the water supply.	Run off from leaks or spillages could contaminate the water supply.	<p><b>Please tick if you have any of the following storage tanks within 250m of the water source</b></p> <p>Oil <input type="checkbox"/>    Fuel <input type="checkbox"/>    Chemical <input type="checkbox"/></p> <p><b>If "Yes" do they meet the good practice guidelines?</b> Yes <input type="checkbox"/>    No <input type="checkbox"/></p> <p><b>If "No" what improvements will be made to reduce the risk to the water supply?</b></p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p><b>Target Date:</b> .....</p>

**Good Practice Guidelines**



Tanks should be banded where appropriate and in good repair. People re-filling tanks should be aware of the private water supply and any spillages managed appropriately



Safety Point	Why	Actions needed
<p>The following structures within 50 metres of the source could pose a risk to the supply.</p> <ul style="list-style-type: none"> <li>• Septic tank</li> <li>• Sewerage pipe work</li> <li>• Slurry storage</li> <li>• Silage storage</li> <li>• Pesticide storage</li> <li>• Latrines</li> </ul>	<p>These structures could introduce dangerous bacteria or chemicals into the water supply.</p>	<p><b>Are any of the listed structures within 50m of the source?</b></p> <p><b>Please indicate which structure:</b></p> <p>Septic tank <input type="checkbox"/> Slurry storage <input type="checkbox"/>                      Sewerage pipe work <input type="checkbox"/> Silage storage <input type="checkbox"/>                      Pesticide storage <input type="checkbox"/> Latrines <input type="checkbox"/></p> <p><b>If "Yes" do they meet the good practice guidelines? (see below), If "No" what improvements will be made to reduce the risk to the water supply?</b></p> <p>.....                      .....                      .....</p> <p><b>Target Date?</b> .....</p>
<p>If the following activities take place within 50 metres of the source there is a risk of contaminating the supply.</p> <ul style="list-style-type: none"> <li>• Slurry spreading</li> <li>• Animal enclosures</li> <li>• Pesticide spreading</li> <li>• Fertiliser spreading</li> </ul>	<p>These activities could introduce dangerous bacteria or chemicals into the water supply.</p>	<p><b>Do any of these activities happen within 50m of the source?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>Please indicate which activity.</b></p> <p>Slurry spreading <input type="checkbox"/> Animal enclosures <input type="checkbox"/>                      Pesticide spreading <input type="checkbox"/> Fertiliser spreading <input type="checkbox"/></p> <p><b>If "Yes" can these activities excluded from the 50m zone?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p>If "No" we may need to carry out extra sampling to ensure that the supply is not being contaminated.</p>
<p>Land drains, channels or surface water that could be directed into the water source pose a risk of contaminating the supply. There should be suitable barriers to prevent this e.g., diversion ditches embankments or walls.</p>	<p>Land drains, channels or surface water directed toward the water source could introduce dangerous bacteria or chemicals into the water supply.</p>	<p><b>Are there any land drains or channels directed into the water source?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>If "Yes" what improvements will be made to reduce the risk to the water supply?</b>                      E.g. Drainage diversion ditches.</p> <p>.....                      .....                      .....</p> <p><b>Target Date?</b> .....</p>

Safety Point	Why	Actions needed
<p>Disused or intermittently used wells or boreholes that are not properly capped could allow contamination into the water source.</p>	<p>Disused wells or boreholes provide a direct route for contaminants at or near the surface to contaminate the water source.</p>	<p><b>Are there any disused wells or boreholes nearby?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>If "Yes" have they been capped with an impermeable and vermin proof seal?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>If "No" immediate arrangements should be made to have the redundant well/borehole sealed off. What improvements will be made?</b></p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p><b>Target Date?</b> .....</p>
<p>Livestock or vehicles in the immediate area around the source pose a risk of contamination. If livestock or vehicles can access this area a secure stock proof fence should be constructed to exclude livestock and vehicles from the vicinity of the headworks.</p>	<p>To prevent livestock or vehicles from damaging the source and potentially contaminating the water supply.</p>	<p><b>Is there a risk of livestock or vehicles accessing the area around the source?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>If yes do you have a stock proof fence around the source?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>If "No" what improvements will be made to reduce the risk to the water supply?</b></p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p><b>Target Date?</b> .....</p>



Safety Point	Why	Actions needed
<p>There should be no evidence of standing water/ ponding within 50 metres of the source.</p>	<p>Standing water indicates that the soil around the source is likely to be saturated and may increase the risk of contamination.</p>	<p><b>Is there evidence or history of pooling water e.g. marshy ground?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>If "Yes" what improvements will be made to reduce the risk to the water supply? (consider appropriate land drainage or diversion ditch around source)?</b></p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p><b>Target Date?</b> .....</p>

**Please use the following information to guide you to the next applicable page:**

**Borehole** – go to section 8.2 on Page 36

**Borehole at the bottom of a well** – go to section 8.3 on Page 38

**Well** – go to section 8.3 on Page 38

**Spring** – go to section 8.4 on Page 41

Many drinking water supplies are derived from boreholes. Shallow boreholes may be more at risk from contamination than deep boreholes. If built and sited correctly boreholes can provide good quality water.

Sometimes a borehole might be drilled through in the bottom of a well to access deeper water. Where this is the case it's likely that the water source will be treated as a well as the risks of contamination remain the same. If you are unsure whether your supply is a well or a borehole, please contact Public Protection Services.

Figure 5 below illustrates a number of the features which would be seen in a good quality, well protected, borehole supply. Please note that although the diagram illustrates a borehole with headworks below ground it is recommended that borehole headworks are kept above ground level to reduce the likelihood of contamination.

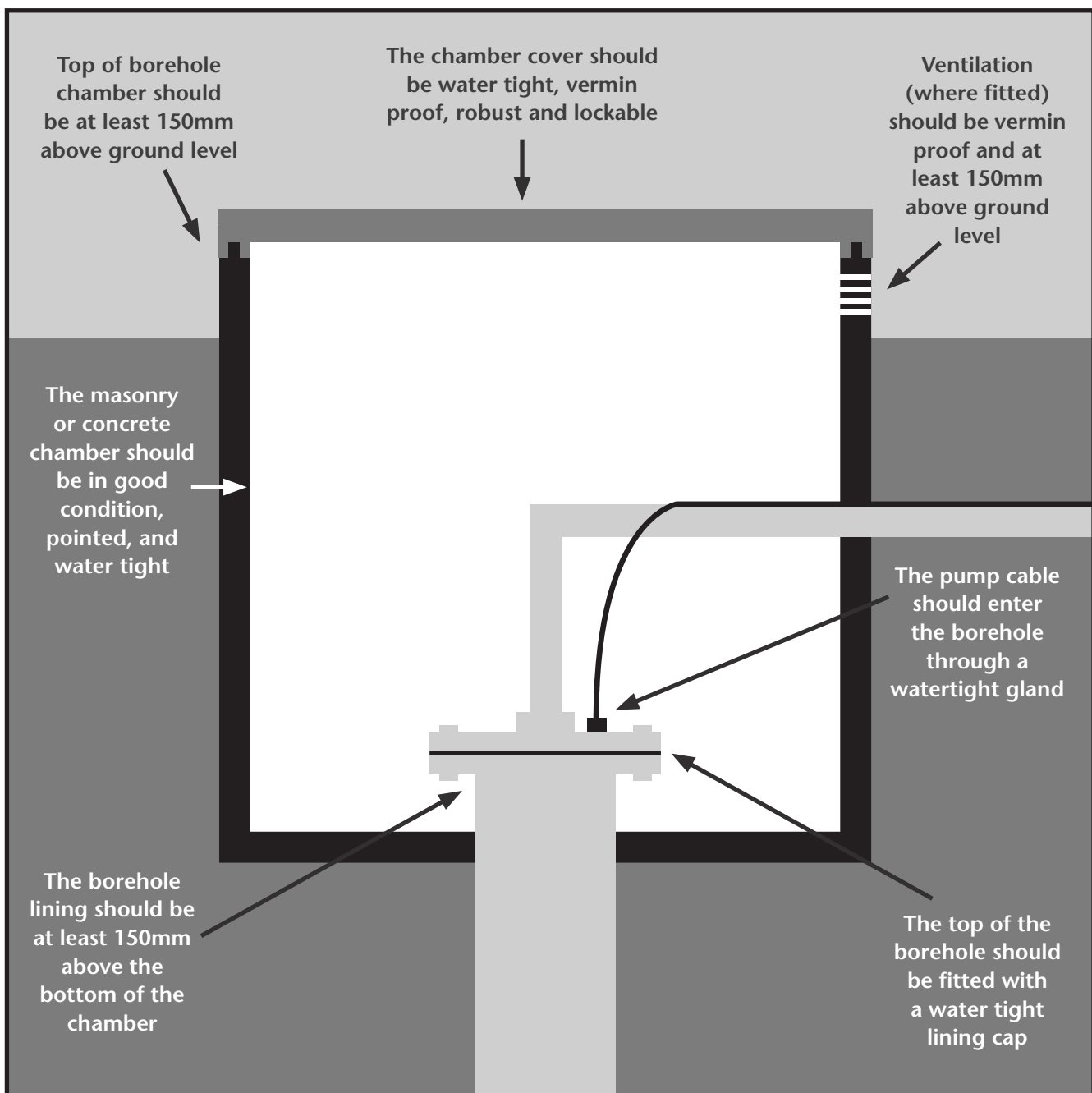
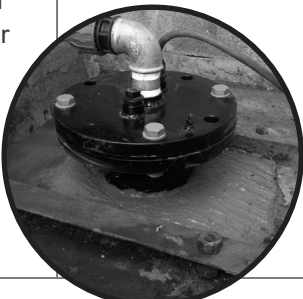


Figure 5: Diagram illustrating a number of features which would be seen in a good quality, well protected, borehole supply

Safety Point	Why	Actions needed
<p>The borehole chamber cover should be:</p> <ul style="list-style-type: none"> <li>• Lockable</li> <li>• Vermin proof</li> <li>• Watertight</li> <li>• Allow easy access.</li> <li>• Made of a suitable non degradable material e.g. reinforced precast concrete slab</li> </ul>	<p>Prevent people, vermin and surface water from contaminating the water supply.</p>	<p><b>Does your chamber meet these requirements?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>If “No” what improvements will be made to reduce the risk to the water supply?</b></p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p><b>Target Date?</b> .....</p>
<p>The chamber walls should be:</p> <ul style="list-style-type: none"> <li>• Fully grouted (lined) and watertight.</li> <li>• Of substantial construction, impermeable and in good repair.</li> <li>• Points of cable/wiring should have water tight seals.</li> <li>• Concrete base of the chamber should be suitably robust.</li> <li>• Ventilation (if present ) should be vermin proof.</li> </ul>	<p>Protect the integrity of the source from contamination by surface water or spillages.</p>	<p><b>Does your chamber meet these requirements?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>If “No” what improvements will be made to reduce the risk to the water supply?</b></p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p><b>Target Date?</b> .....</p>
<p>Borehole lining (also known as casing) should:</p> <ul style="list-style-type: none"> <li>• Extend at least 150mm above the chamber floor .</li> <li>• Have a watertight cap. Holes for the water delivery pipe and pump cable should be sealed with an appropriate gland or sealant approved for use with drinking water supplies.</li> <li>• Where ventilation is fitted to the watertight lining cap it should be vermin proof.</li> </ul>	<p>Prevent surface water, vermin or wildlife from contaminating the borehole.</p> <p>Protect the integrity of the source.</p>	<p><b>Does your borehole meet the requirements?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>If “No” what improvements will be made to reduce the risk to the water supply?</b></p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p><b>Target Date?</b> .....</p>



Compared to boreholes, wells are larger in diameter, usually over one meter and are dug by hand or mechanical excavator. Shallow wells are more at risk of contamination than deep wells and boreholes.

Figure 6 below illustrates a number of features in a good quality, well protected, well.

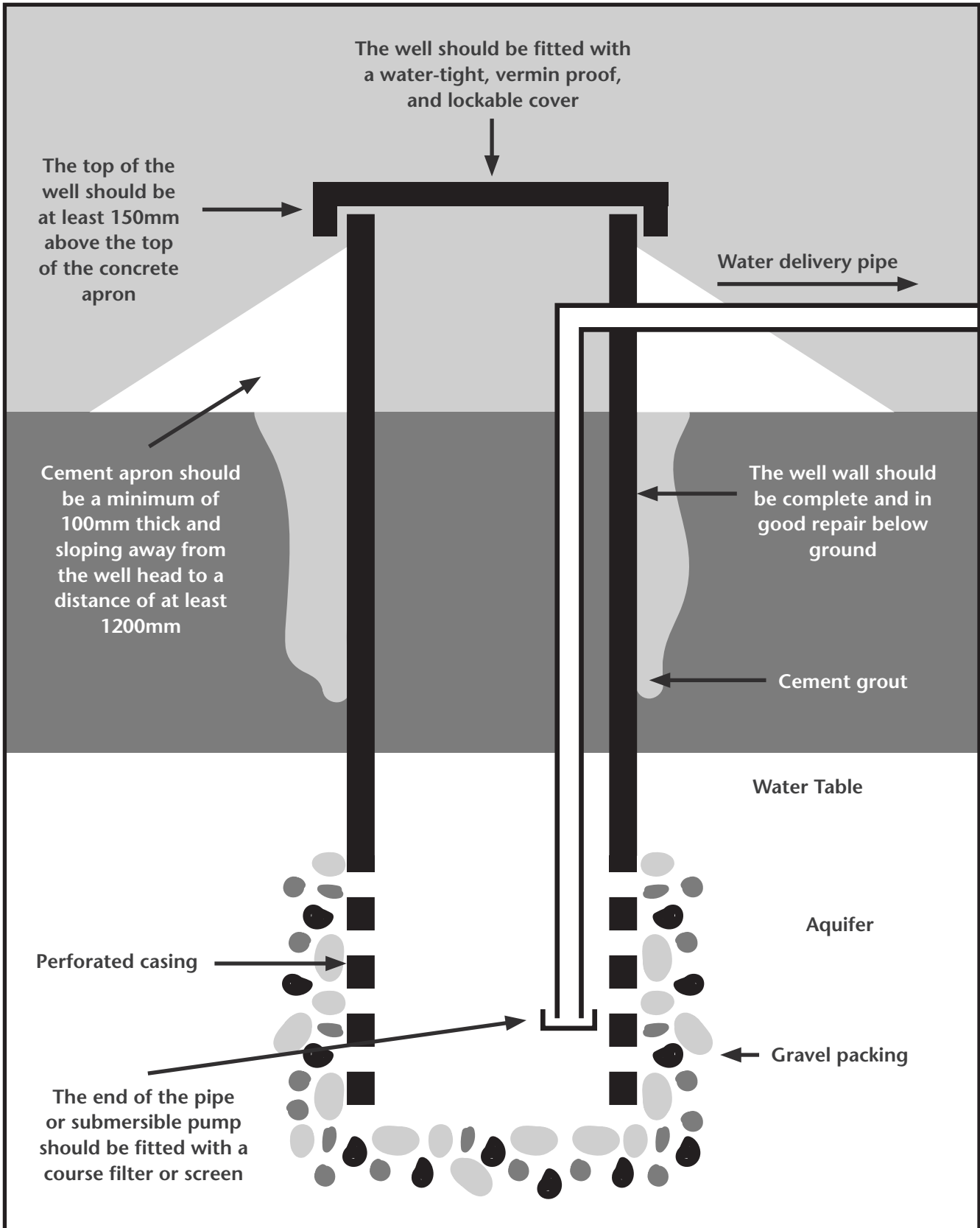


Figure 6: Diagram illustrating a number of features of a good quality, protected, well.

Safety Point	Why	Actions needed
<p>The chamber cover should be:</p> <ul style="list-style-type: none"> <li>• Lockable</li> <li>• Vermin proof</li> <li>• Watertight</li> <li>• Allow easy access</li> <li>• Made of a suitable non degradable material e.g. reinforced pre-cast concrete</li> </ul>	<p>Prevent people, animals and surface water from contaminating your water supply.</p> <p>Prevent soil and animal faeces from splashing into the well and contaminating your water.</p>	<p><b>Does your well have this type of cover?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>If “No” what improvements will be made to reduce the risk to the water supply?</b></p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p><b>Target Date?</b> .....</p>
<p>Wells should have a sloping concrete apron a minimum of 100mm thick sloping away from the top of the well head to a distance of 1200mm.</p>	<p>Runoff will be directed away from the well head to prevent contaminated surface water short cutting through the topsoil into the well and water source.</p>	<p><b>Does your well have an appropriate concrete apron?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>If “No” what improvements will be made to reduce the risk to the water supply?</b></p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p><b>Target Date?</b> .....</p>
<p>Top of the well should be at least 150mm above the top of the ground level.</p>	<p>This will prevent contaminated surface flows and flooding from entering the well.</p>	<p><b>Is the top of the well at least 150mm above the ground level?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>If “No” what improvements will be made to reduce the risk to the water supply?</b></p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p><b>Target Date?</b> .....</p>

Safety Point	Why	Actions needed
<p>The walls of the well should be complete and in good repair.</p>	<p>This will help prevent potentially contaminated surface water from shortcutting through the topsoil into the well and prevent the material that the well is constructed of from contaminating the water.</p>	<p><b>Is the well in a good state of repair?</b>                      Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>If "No" what improvements will be made to reduce the risk to the water supply?</b></p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p><b>Target Date?</b> .....</p>



Springs are formed where the water table meets the land surface. Some 'spring' sources used for small water supplies are in fact artificial land drains and it may be impossible, without historical information of the source, to confirm whether the source is a spring or land drain.

The quality of water from springs and land drains can vary and is likely to be influenced by the activities and land use in the area around the water source. Particular attention should be paid to ensuring that activities which could cause contamination of the water supply are avoided in the area of the water source.

Figure 7 below illustrates a number of the features we would expect to see in a good quality, well protected, spring supply.

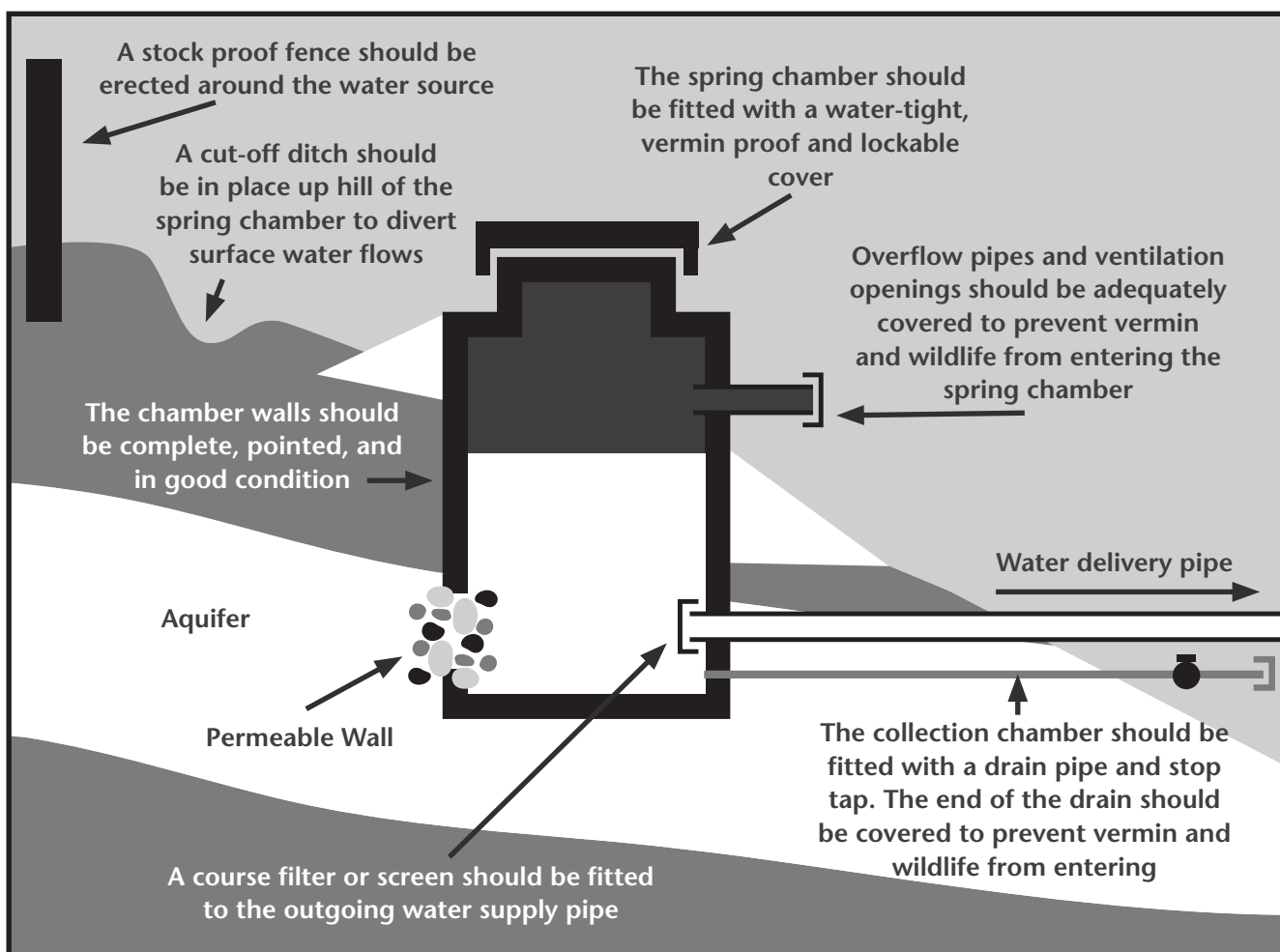


Figure 7: Diagram illustrating a number of features of a good quality, well protected, spring supply

Safety Point	Why	Actions needed
<p>The spring collection chamber cover and/or door should be:</p> <ul style="list-style-type: none"> <li>• Lockable</li> <li>• Vermin proof</li> <li>• Watertight</li> <li>• Allow easy access</li> <li>• Made of a suitable non degradable material e.g. reinforced precast concrete slab.</li> </ul>	<p>Prevent people, animals and surface water from introducing potentially dangerous bacteria or other substances to your water supply.</p>	<p><b>Does your spring collection chamber and/or door have this type of cover?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>If “No” what improvements will be made to reduce the risk to the water supply?</b></p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p><b>Target Date?</b> .....</p>
<p>The chamber should extend at least 150mm above the level of the floor and have an apron sloping away from the cover.</p>	<p>Surface water and spillages will be directed away from the cover and prevent contaminated surface water entering the chamber.</p>	<p><b>Does your chamber have an adequate rise and concrete apron?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>If “No” what improvements will be made to reduce the risk to the water supply?</b></p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p><b>Target Date?</b> .....</p>
<p>Walls of the chamber must be complete and in good repair.</p>	<p>Prevent potentially contaminated surface water from shortcutting through the topsoil into the collection chamber and prevent the material that the chamber is constructed of from contaminating the water.</p>	<p><b>Is your chamber in a good state of repair?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>If “No” what improvements will be made to reduce the risk to the water supply?</b></p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p><b>Target Date?</b> .....</p>

Safety Point	Why	Actions needed
<p>A noticeable change in the appearance of the water (colour, cloudiness/ turbidity) can indicate variations in water quality.</p>	<p>Changes in levels and flows of water can result in deterioration of quality due to the suspension of sediment in the water. This will be most prevalent during periods of heavy rainfall, when flooding and rapid runoff of surface water into the source can occur.</p>	<p><b>Do you sometimes notice a change in colour or cloudiness of your water?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>If "No" what improvements will be made to reduce the risk to the water supply?</b></p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p><b>Target Date?</b> .....</p>

Section 9: Water storage

Water is commonly stored in reservoirs, storage tanks and cisterns. These may be above or below ground. A very common type of water storage are header tanks in roof spaces or lofts.

Some water supplies may not have any intermediate storage facilities depending on the design of the water supply system.

Water tanks can contain either treated or untreated water and should be adequately protected to avoid contamination.

**Gideon, Missouri**

In Gideon, Missouri, a large outbreak of salmonellosis was caused because of a poorly protected water storage tank.

An inadequate roof vent and access hatch to a 100,000 gallon storage tank had allowed birds to enter the tank and contaminate the water supply with bird droppings. Around 650 people suffered acute gastroenteritis, 15 people were hospitalised, and seven people died as a result of the contamination.

Figure 8 on the following page illustrates a number of features we would expect to see in a good quality, well protected, water storage reservoir.

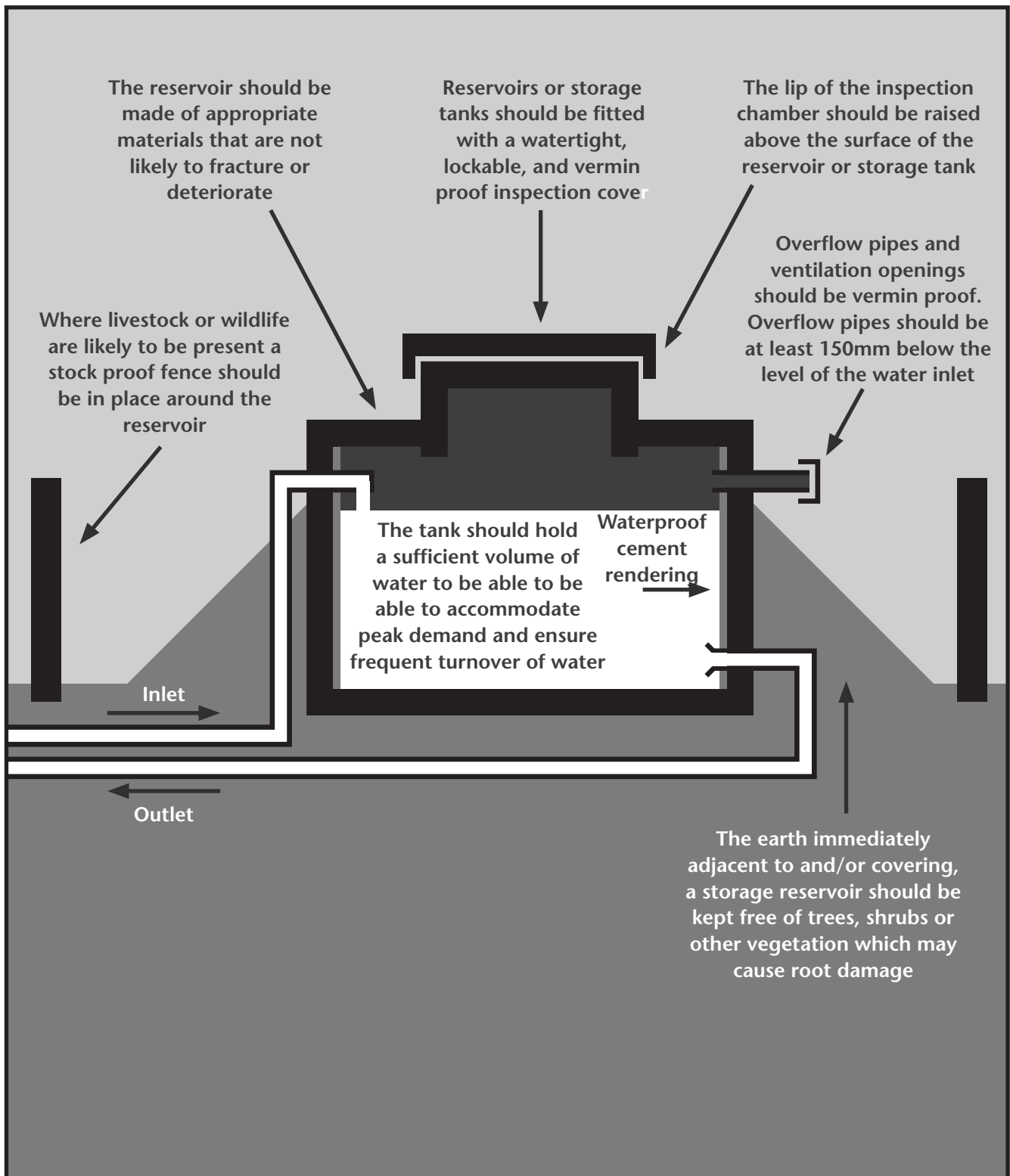


Figure 8: Diagram illustrating a number of features in a good quality, well protected, water storage tank or reservoir


Safety Point	Why	Actions needed
<p>Storage tanks, reservoirs, and inspection chambers should be adequately protected by appropriate and robust fencing to prevent access by livestock and wildlife.</p> <p>It is recommended that fencing should be 4 meters away.</p>	<p>To reduce the potential for faecal contamination of the supply.</p>	<p><b>Is there suitable fencing around your storage container?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>If "No" what improvements will be made to reduce the risk to the water supply?</b></p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p><b>Target Date?</b> .....</p>
<p>Where the lip of storage tanks, reservoirs or inspection chambers are near ground level a suitable barrier such as a 450mm depth cut off ditch should be present to prevent the ingress of surface flows into the reservoir.</p>	<p>To reduce the potential for contamination by surface flows into your supply.</p>	<p><b>Is there suitable fencing around your storage container?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>If "No" what improvements will be made to reduce the risk to the water supply?</b></p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p><b>Target Date?</b> .....</p>
<p>The end of the overflow pipes to the reservoir and tanks should be fitted with an appropriate vermin proof cover e.g., a wire mesh sleeve.</p>	<p>To prevent the ingress of vermin into the supply.</p>	<p><b>Are the overflow pipes adequately protected?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>If "No" what improvements will be made to reduce the risk to the water supply?</b></p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p><b>Target Date?</b> .....</p>



Safety Point	Why	Actions needed
<p>The volume of the tank should be sufficient to hold enough water for peak demand and frequent turnover</p>	<p>Water not being turned over frequently will deteriorate. Water levels should rise and fall during the day.</p>	<p><b>Does the level in your reservoir fluctuate on a regular basis?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p>
<p>The tank should be constructed from materials which are not liable to fracture or deterioration.</p>	<p>Fracture or deterioration of the tank could result in the loss of or contamination of the whole supply.</p>	<p><b>What is your tank(s) made of?</b></p> <p>.....</p> <p><b>Is it in good repair and without visual defects?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>If "No" what improvements will be made to reduce the risk to the water supply?</b></p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p><b>Target Date?</b> .....</p>
<p>The tank / reservoir should be fitted with a watertight lockable and vermin proof cover (example below).</p>	<p>To prevent ingress of surface water/ spills and animals, and to protect against malicious vandalism.</p>	<p><b>Does you tank have an appropriate cover as detailed?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>If "No" what improvements will be made to reduce the risk to the water supply?</b></p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p><b>Target Date?</b> .....</p>



Safety Point	Why	Actions needed
<p>Above ground tanks should not be liable to freezing and adequately protected to minimise heat gain.</p>	<p>Freezing or heating of stored water may affect the quality of the water and could cause microbiological growth.</p>	<p><b>Are you tanks susceptible to temperature variations?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>If "Yes" what improvements will be made to reduce the risk to the water supply?</b></p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p><b>Target Date?</b> .....</p>
<p>Reservoirs that are:</p> <ul style="list-style-type: none"> <li>• Covered in earth and vegetation; or</li> <li>• Have overhanging trees or vegetation are particularly susceptible to damage or deterioration.</li> </ul>	<p>Roots from plants and trees growing on a reservoir can undermine its structure and lead to contamination of the water supply.</p>	<p><b>Is there vegetation growing on the reservoir whose roots may damage its structure or vegetation overhanging the reservoir?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>If "Yes" what improvements will be made to reduce the risk to the water supply?</b></p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p><b>Target Date?</b> .....</p>
<p>Reservoir and header tanks should be inspected regularly and periodically cleaned to preserve their structural integrity.</p> <p>If a chemical cleaner is used the tank should be thoroughly rinsed.</p>	<p>Sediment and sludge build up in the tank can cause microbiological growth. It is recommended that tanks are cleaned annually by an approved water engineer or trained operator to avoid contamination, and a chlorine flush applied to disinfect the system.</p>	<p><b>When was your tank last cleaned?</b></p> <p>.....</p> <p><b>What action will you take with respect to the maintenance of your storage tank / reservoir?</b></p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p><b>Target Date:</b> .....</p>

Safety Point	Why	Actions needed
<p>Cold Water header tanks should be insulated and not be liable to freezing or overheating.</p>	<p>Freezing or heating of stored water may affect the quality of the water and could cause microbiological growth.</p>	<p><b>Are header tanks protected from freezing / overheating?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>If "No" what improvements will be made to reduce the risk to the water supply?</b></p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p><b>Target Date?</b> .....</p>
<p>Cold Water header tanks need to be properly constructed with a vermin proof lid</p> 	<p>To avoid contamination by anything that may be present in the loft space.</p>	<p><b>Do you have any cold water header tanks in any properties on your supply?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>If "Yes" where?</b></p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p><b>Target Date?</b> .....</p>



The “distribution network” is the series of pipes and systems that link each part of the water supply to each other and delivers the water to the water outlets. The source of your water supply may be adequately protected but defects in the distribution network, the materials the network is constructed of and the lack of appropriate back flow protection can all lead to the contamination of the water supply.

Safety Point	Why	Actions needed
<p>The pipes of your supply network should be made of durable material.</p> <p>Pipes made of materials such as asbestos, concrete or clay are liable to deterioration or fracture.</p>	<p>If for example heavy farm machinery is driven over the top of the pipeline and the pipe fractures, potentially harmful bacteria or other substances may enter the pipes or the whole supply could be lost.</p>	<p><b>What material or materials is your distribution network made of?</b></p> <p>.....</p> <p><b>Do you have any reason to believe the pipes are in poor condition?</b> (E.g. a history of leaks and/or burst pipes)</p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>If “Yes” what improvements will be made to reduce the risk to the water supply</b></p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p><b>Target Date?</b> .....</p>
<p>Lead pipes can be found in supply networks that were laid before the 1970s.</p>	<p>Lead water pipes can contaminate water and affect the health of those people consuming the water.</p>	<p><b>Is it likely that there are lead pipes anywhere on your supply?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>If “Yes” what improvements will be made to reduce the risk to the water supply?</b></p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p><b>Target Date?</b> .....</p>

Safety Point	Why	Actions needed
Some iron water pipes before the 1970s were lined with coal tar.	Coal tar lined pipes can release poly aromatic hydrocarbons.	<p><b>Do you have iron pipes that may be coal tar lined?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>If "yes" has anyone using your water supply complained of a taste or odour of oil/petrol/diesel?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p>
Plastic pipes laid in shallow trenches or over ground are at risk or being damaged by animals, vehicles, machinery or extremes of hot and cold.	Damaged pipes can allow bacteria or other harmful substances into the supply.	<p><b>Are your water pipes laid at an appropriate depth?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>If "no" what improvements will be made to reduce the risk to the water supply?</b></p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p><b>Target Date?</b> .....</p>

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**Water pipes should be laid between 750mm and 1350mm below ground**

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Safety Point	Why	Actions needed
Dead legs or sections of pipe work that are not used frequently can hold stagnant water. Dead legs should be isolated from the water supply and low turnover zones should be flushed through frequently.	Stagnant water in pipe work can allow micro-organisms to grow.	<p><b>Does your supply have dead legs or low turnover zones?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>If "Yes" what improvements will be made to reduce the risk to the water supply?</b></p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p><b>Target Date?</b> .....</p>

Safety Point	Why	Actions needed
<p>Animal watering troughs, water storage tanks and permanently connected hosepipes must have appropriate backflow protection.</p> <p>Where the water concerned is likely to be severely contaminated, such as in animal watering troughs, there should be a 2 ½ to 3 inch air gap between the water inlet and the highest possible water level.</p> <p>Non- return or double check valves may be appropriate in some circumstances.</p>	<p>Back flow can happen when water pressure in the system is low.</p> <p>Water contaminated with bacteria or other harmful substances can be drawn back into the supply network.</p>	<p><b>Does your supply have appropriate back flow protection throughout?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>If "Yes" please describe the backflow prevention system(s) in place</b></p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p><b>If "No" what improvements will be made to reduce the risk to the water supply?</b></p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p><b>Target Date?</b> .....</p>

Mains water is subject to a range of treatments to make the water safe and pleasant to drink. Some private water supplies also have treatment systems. These treatment systems may treat the whole water supply or may treat water at the point of use in individual properties.

It is recommended that a multi barrier approach is taken in protecting private water supplies. This means the measures set out in Chapter 3 to Chapter 11 are taken to protect, manage and maintain the source, storage tanks and distribution network; and where necessary appropriate treatment is installed.

The most common forms of treatment for private water supplies are:

- Filtration
- Ultraviolet irradiation (UV treatment)
- Chlorination
- Ion –exchange
- Reverse osmosis

Your water supply may already have treatment in place or you may consider installing treatment after reading this pack. In some circumstances the Council may require treatment to be installed following a sample failure and investigation or following risk assessment of your supply.

In the following sections the common types of treatment are explained in more detail and there is a section for you to complete if your supply has that type of treatment.

Where the safety of a water supply relies on treatment systems the maintenance and monitoring of those systems is of critical importance.

If you do not have any water treatment systems you do not need to complete this section.

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### Yorkshire, 1998

In July 1998 a private water supply on a farm in Yorkshire caused a serious outbreak of gastrointestinal illness.

The outbreak is thought to have been caused by inadequate maintenance of the ultraviolet treatment system. The UV bulb should have been replaced 10 months before the outbreak occurred but hadn't been. The water supply was found to be severely contaminated with campylobacter.

20 people became ill after drinking from the contaminated water supply.

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### Filters: Particulate and Absorption Filters

Particulate filters may be made of pleated paper, woven cartridges, resin bonded cartridges or ceramic candles. Particulate filters are often used in private water supply systems. They are often installed prior to UV or reverse osmosis systems to improve the quality of the water before it is treated. They can reduce the level of turbidity, micro-organisms, iron, aluminium or manganese. Some filters contain silver to reduce bacterial growth.

Absorption filters may contain substances such as granular activated carbon (GAC) or powdered activated carbon (PAC.) These filters can remove some suspended solids, chlorine, colour taste, odour and pesticides.

Safety Point	Why	Actions needed
<p>Filters must be changed as often as necessary. The frequency will depend on the volume and quality of water being treated.</p> <p>Manufacturer's instructions should specify the intervals at which filters should be replaced.</p>	<p>Filters can become blocked with the material they are filtering from the water and can therefore become less effective.</p> <p>A clogged up filter may allow bacteria to grow.</p>	<p><b>How often do you change your filter?</b></p> <p>.....</p> <p><b>Is this frequency based on guidance from the installer or manufacturer?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>If "no" what improvements will be made to reduce the risk to the water supply?</b></p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p><b>Target Date?</b> .....</p>
<p>Frequent checks should be made to make sure filter is working as designed.</p> <p>Records should be kept of these checks, filter changes and any services.</p>	<p>Blocked or broken filters may reduce flow rate or may allow contaminants to pass through the water supply system.</p>	<p><b>Do you keep a record of checks, filter changes and services made on your filters?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>If "No" what improvements will be made to reduce the risk to the water supply?</b></p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p><b>Target Date?</b> .....</p>



The first sign that your filter may be blocked is a reduction in flow rate.

Bacteria like growing on activated carbon. Even if the filter or activated carbon is impregnated with silver bacteria can sometimes multiply. Some filters may not be suitable for water supplies known to be carrying a high bacterial load.

More information is available in Section 7 of the Private Water Supply Technical Guide available at: [www.dwi.gov.uk/private-water-supply/installations/treatment-guide.html](http://www.dwi.gov.uk/private-water-supply/installations/treatment-guide.html)

**Ultraviolet (UV) Treatment**

This is the most common method of disinfection for small private water supplies. UV can be used to treat the whole supply or it may be appropriate to install at point of use. A pre-filter is nearly always needed remove colour or turbidity which can make the UV less effective.

The water passes through the metal tube and is exposed to Ultraviolet light which renders most harmful micro-organisms harmless. It is chemical free so does not alter the taste of the water. There are no known health risks associated with this type of treatment.

UV is relatively low maintenance but must be installed by a competent person. The installer should provide

you with documentation to show the system that has been installed, will achieve the stated level of disinfection under normal operating conditions when considering the raw water quality and flow rate. This might be called a validation certificate. The system must be large enough to cope with the peak water flow rate. It should be remembered that a UV treatment system imparts no residual disinfection to the treated water. It is therefore advisable to install these systems as close as possible to the drinking water tap.

The photograph below illustrates what a typical UV system looks like. A particulate filter is seen on the left and a typical UV lamp chamber in the centre.



Safety Point	Why	Actions needed
An appropriate pre-filter should also be installed.	Colour or turbidity in the water can make the UV treatment ineffective.	<p><b>Does your UV system have an appropriate pre-filter?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>If "No" what improvements will be made to reduce the risk to the water supply?</b></p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p><b>Target Date?</b> .....</p>

Safety Point	Why	Actions needed
<p>Treatment systems should be installed by a competent installation company. A validation certificate should be supplied after installation.</p>	<p>The UV system must be of an adequate size to treat the water at peak demand.</p>	<p><b>Was your UV system installed by a competent installation company?</b> Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>Was a validation certificate supplied?</b> Yes <input type="checkbox"/> No <input type="checkbox"/></p>
<p>The treatment system should be maintained in line with manufacturer's instructions.</p>	<p>The system must be serviced, cleaned and bulbs replaced in line with recommendations to ensure it is working effectively.</p>	<p><b>Do you have a copy of the manufacturer's instructions for your treatment system?</b> Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>If "No" can you obtain a copy of the manufacturer's instructions?</b> Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>Copies of instructions can be kept in Section 13 of this pack.</b></p>
<p>Frequent checks should be made to ensure the UV is switched on and working as designed. Records should be kept of these checks.</p>	<p>Bulbs can fail and systems can be turned off accidentally resulting in untreated water being supplied.</p>	<p><b>Do you check your UV system regularly and keep a record of these checks?</b> Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>Records of these checks can be kept in Section 12 of this pack.</b></p>
<p>If water can pass through the system when the UV lamp is not working untreated water may be supplied and consumed.</p>	<p>Untreated water may contain harmful micro-organisms.</p>	<p><b>Can water be supplied if the UV lamp is not operational?</b> Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>If "Yes" what improvements will be made to reduce the risk to the water supply?</b> ..... ..... ..... ..... .....</p> <p><b>Target Date:</b> .....</p>

## Chlorination

Some larger private water supply owners may decide chlorination is an effective way of maintaining a safe water supply. The most common method of chlorinating private water supplies is by marginal chlorination. This is when water is dosed with a chlorine solution so that a residual level of 'free chlorine' is left in the water. 'Free chlorine' is the chlorine that is left available in the water to kill micro-organisms. A significant benefit of chlorine treatment is that it provides residual disinfection in the treated water.

It is important to note that not all harmful micro-organisms are killed by chlorine. For example *Cryptosporidium* and *Giardia* oocysts can survive. It is therefore important to ensure the water is not contaminated at source or in the distribution network.

The addition of chlorine to a water supply can change the taste and odour of the water. Where chlorine is added to water containing organic matter it may form Trihalomethans (THM.)

The photograph below shows a typical domestic chlorine treatment plant.



Don't use swimming pool chlorine for treating drinking water. It is much stronger than that chlorine intended for treating drinking water.

You must ensure that the correct concentration of chlorine is used and that the correct contact time is achieved.





Safety Point	Why	Actions needed
<p>Where chlorination is used there should be between 0.2 and 0.5mg/l of 'free chlorine' at the tap. This level should be checked on a frequent basis and records of the results kept.</p>	<p>This level of "free chlorine" will help ensure that the water supply will remain protected after treatment.</p>	<p><b>Do you check the level and keep records of residual 'free chlorine' in your water?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>If "No" what improvements will be made to reduce the risk to the water supply?</b></p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p><b>Target Date?</b> .....</p>
<p>There should be a system, such as an alarm, in place to notify you if there is a problem with the dosing system.</p>	<p>Untreated water may contain harmful micro-organisms.</p>	<p><b>Is there a system in place to notify you if the chlorine system is not working as designed?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>If "No" what improvements will be made to reduce the risk to the water supply?</b></p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p><b>Target Date?</b> .....</p>
<p>If water can pass through the system when the chlorine dosing system is not operational, untreated water may be supplied.</p>	<p>Untreated water may contain harmful micro-organisms.</p>	<p><b>Can water be supplied if the chlorine dosing system is not operational?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>If "Yes" what improvements will be made to reduce the risk to the water supply?</b></p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p><b>Target Date?</b> .....</p>

**Ion Exchange**

Ion exchange units may be at point of use or used to treat the whole supply. They are frequently used to remove nitrates, magnesium and calcium.

The photograph below illustrates a typical ion exchange system. The system passes the water through a nitrate specific resin and the nitrate is exchanged for chloride. When the capacity of the resin to exchange ions is exhausted it is backwashed with a solution of sodium chloride to recharge. This solution is made up from a vessel containing salt or a salt solution. You must ensure this vessel is maintained and topped up in accordance with the manufacturer’s instructions.



Safety Point	Why	Actions needed
<p>The system should be maintained in line with manufacturer’s instructions. A log book and service records should be kept detailing the operation of the unit.</p>	<p>The system must be monitored and serviced in line with recommendations to ensure that it is treating the water effectively.</p>	<p><b>Do you have a copy of the manufacturer’s instructions for your treatment system?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>If “No” can you obtain a copy of the manufacturer’s instructions?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>Copies of instructions can be kept in Section 13 of this pack</b></p>
<p>If water can pass through when the ion exchange system is not operational, untreated water may be supplied</p>	<p>Untreated water may have an excessive concentration of a substance or substances which may be harmful to health.</p>	<p><b>Can water be supplied if the ion exchange system is not operational?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>If “Yes” what measures can be taken to prevent untreated water being consumed?</b></p> <p>.....</p> <p>.....</p> <p>.....</p>

Safety Point	Why	Actions needed
If your system has a salt vessel the level of salt must be maintained in accordance with the manufacturer's instructions.	If the salt level is too low the resin will not be recharged and nitrate will not be effectively removed.	<p><b>Do you have an appropriate stock of salt?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>Do you frequently check the salt level and take action if it is low?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p>

**Reverse Osmosis**

Reverse osmosis units can remove a range of substances from water including some micro-organisms, sodium, calcium, nitrate, fluoride, and pesticides. Water is passed through a semi permeable membrane which blocks the passage of certain substances. Because these systems normally operate relatively slowly and at low pressure water is usually collected in a storage tank after treatment. Water treated by reverse osmosis will be very soft and will lack dissolved minerals. It will not contain sufficient fluoride to protect against dental cavities. Softened water can have poor taste and can affect some water fittings and pipes. Some units may have a re-hardening system. Reverse osmosis treatment systems are normally expensive and only considered where there is no alternative treatment to make water safe to drink.



A typical reverse osmosis system is shown in the photograph below.

Safety Point	Why	Actions needed
The system should be maintained in line with manufacturer's instructions. A log book and service records should be kept detailing the operation of the unit.	The system must be monitored and serviced in line with recommendations to ensure that it is treating the water effectively.	<p><b>Do you have a copy of the manufacturer's instructions for your treatment system?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>If "No" can you obtain a copy of the manufacturer's instructions?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>Copies of instructions can be kept in Section 13 of this pack.</b></p>

Safety Point	Why	Actions needed
Water should not be able to pass through the treatment system if it is not operational.	Untreated water may have an excessive concentration of a substance or substances which may be harmful to health.	<p><b>Can water be supplied if the reverse osmosis system is not operational</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>If "Yes" what measures can be taken to prevent untreated water being consumed?</b></p> <p>.....</p> <p>.....</p> <p>.....</p>
Depending on the hardness of the water produced by the treatment system you may need to re-harden the water.	Water that is low in minerals can be corrosive to pipes and water fittings and is not recommended to be consumed in large amounts.	<p><b>Was the final hardness of the water considered when the unit was installed?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>If "No" what improvements could be made?</b></p> <p>.....</p> <p>.....</p> <p>.....</p>

In the section we have provided a place for you to keep relevant records relating to your private water supply. Relevant records include:

- Records of your own inspections of the water supply
- Copies of water quality analysis certificates
- Records of maintenance and repairs
- Records of problems and the corrective action taken

In a number of places we have provided a simple pro forma to help you quickly and simply keep these records.

The basic records you are asked to keep in this section will help any other party understand the actions you have taken to monitor and maintain a safe water supply. Some of these records are often requested during the sale or purchase of a property associated with a private water supply.

The lack of these records may delay or prevent a successful sale or purchase of a property.

## Section 12.1: Record of inspections

12

Please keep records of your own inspections of your water supply in this section.

The pro forma provided will help you keep a record of your own regular inspections of your water supply. These inspections should be carried out to ensure any damage to the water supply or potential source of contamination is identified and resolved.

The Drinking Water Inspectorate recommends that these checks should be carried out at least weekly.

Date of Inspection	Time of Inspection	Name	Describe the parts of the PWS inspected	Describe any problems requiring action

Date of Inspection	Time of Inspection	Name	Describe the parts of the PWS inspected	Describe any problems requiring action

Date of Inspection	Time of Inspection	Name	Describe the parts of the PWS inspected	Describe any problems requiring action

Date of Inspection	Time of Inspection	Name	Describe the parts of the PWS inspected	Describe any problems requiring action



Date of Inspection	Time of Inspection	Name	Describe the parts of the PWS inspected	Describe any problems requiring action

Please keep copies of water quality analysis certificates in this section.

This will help you keep track of your water quality and see how water quality may be changing over time. Copies of water quality analysis certificates are often requested by solicitors during the sale or purchase of a property.

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## Section 12.3: Record of maintenance and repairs

12

Please keep written records of all maintenance and repairs in this section. Maintenance includes any cleaning or disinfection.

The pro forma provided will help you quickly and simply keep these records.

These records are very important as they demonstrate that you are actively managing and maintaining a safe water supply. They will also help the Council understand what changes to your water supply have happened since it was last inspected.

Date	Name of the person or company carrying out the maintenance or repair	Location of the maintenance or repair	Describe the maintenance or repair undertaken

Date	Name of the person or company carrying out the maintenance or repair	Location of the maintenance or repair	Describe the maintenance or repair undertaken

Date	Name of the person or company carrying out the maintenance or repair	Location of the maintenance or repair	Describe the maintenance or repair undertaken

Date	Name of the person or company carrying out the maintenance or repair	Location of the maintenance or repair	Describe the maintenance or repair undertaken

Date	Name of the person or company carrying out the maintenance or repair	Location of the maintenance or repair	Describe the maintenance or repair undertaken



## Section 12.4: Record of problems and corrective action taken

12

Please keep written of any problems and the corrective action taken in this section.

The pro forma provided will help you simply and quickly record the relevant information. These records are very important as they demonstrate that you are actively managing and maintaining a safe water supply and they will help the Council understand any changes to your water supply since it was last inspected.

Date	Name	Details of the problem	Describe the corrective action taken

**Section 12.4: Record of problems and corrective action taken**  
- *Continued*

Date	Name	Details of the problem	Describe the corrective action taken

**Section 12.4: Record of problems and corrective action taken**  
*- Continued*

Date	Name	Details of the problem	Describe the corrective action taken

**Section 12.4: Record of problems and corrective action taken**  
- *Continued*

Date	Name	Details of the problem	Describe the corrective action taken

**Section 12.4: Record of problems and corrective action taken**  
*- Continued*

Date	Name	Details of the problem	Describe the corrective action taken

**Section 12.4: Record of problems and corrective action taken**  
- *Continued*

Date	Name	Details of the problem	Describe the corrective action taken

## Section 13: Manufacturers instructions

13

Please insert copies of the manufacturer's instructions for the equipment associated with your private water supply in this section.

Dear Sir/Madam,

Re: Private water supply

I write to you as your property or business is supplied with water from a private water supply for which I have responsibility.

Should a problem with the water supply occur, such as a water quality failure or a situation where the water supply will be unavailable, it is important that I am able to contact you immediately to let you know and provide you with any necessary advice.

I would be grateful if you could please confirm your contact details by completing the following section and return this letter to me at:

Name(s) of occupier(s):

Business name (if applicable):

Postal address:

Postcode:

Emergency daytime contact telephone number:

Emergency evening contact telephone number:

Email address:

Yours faithfully,



End of pack

