

A Guide to Private Water Supplies Risk Assessment



The Private Water Supplies Regulations 2009 require all Private Water Supplies (PWS), except those at single private dwellings, to be risk assessed by the local authority in addition to routine sampling. Extra sampling parameters may also be added temporarily following a risk assessment (RA) to ensure the samples provide as much information as possible.

A PWS officer from this authority will arrange to visit the site. They will assess the supply from source to tap and the management systems in place against best practice as outlined in this leaflet. A RA will identify hazards to the water supply (physical, chemical, microbiological) that may affect the quality of the water and the health of those consuming it together with actions to make sure the supply is safe.

If there is a significant risk the water would be a potential danger to human health a notice will be served on the duty holder to make the supply safe.

The Regulations permit Local Authorities to charge for RA, which recovers some of the costs of this statutory requirement. The charge depends on the classification of the supply.

This Guide, if implemented correctly, will help you control the risks of contamination to your water supply. It is recommended you check the physical equipment of the supply against the best practice given at the end of this guide.

The Guide also provides details below of the Management Systems and paperwork that will be checked. You may find it helpful to store this information in a suitable folder for easy reference.

Management Systems

1) Site Plan

The site plan does not have to be exactly to scale, but should include the following:

- Location and type of source (i.e. bore, well, well deepened by well).
- Location of pump (if not submersible), plus any treatment.
- Approximate location of drinking water pipes and if the kitchen tap is direct from source/treatment or if all water goes to roof tank first.
- Location and type of waste water storage with distance in metres from source.
- Approximate location of waste water pipes.
- Locations of any other potential sources of contamination within 100 metres of source e.g. oil tanks, muck heaps, slurry lagoon, chemical storage, vehicle parking (in case of oil or fuel leak) with distance in metres from source.
- Outside taps (indicate if they have a double check valve) and animal watering tanks (indicate if there is an air gap between inlet and water level).
- Water meter(s) if present.
- Mains water inlet if present.

NOTE: *If no site plan is available the RA score is automatically Very High Risk.* This is because without a documented site plan the information known by one person can be lost. The source and pipework are also more vulnerable to contamination or damage. Everybody responsible for a PWS or contractors on a site with a PWS should have access to a site plan.

An example of a site plan is in Appendix 1.

2) Treatment Diagram

The treatment diagram does not have to be exactly to scale, but should include the following:

- Treatment units and pipe work showing flow direction.
- Valves fitted on pipes and if they could bypass treatment.
- Backwash pipe route and the drainage location (usually if types of iron or nitrate reduction units are installed).
- Sampling point(s) if fitted.

An example of a treatment diagram is in Appendix 2.

3) Procedures

Documented procedures are very important as they avoid ambiguity and place less reliance on specific individuals, who may not always be available to operate the system. These documents must be reviewed at least annually and should include:

a) Procedure for Undertaking Checks

There is an expectation that PWS are correctly managed. Part of this management should be routine checks to ensure the physical structure of the supply has no problems.

The Procedure should include:

- A list of what should be checked routinely and frequency (i.e. chlorine dosing – daily, treatment room, bore chamber – weekly).
- Description of what problems are being checked for (i.e. bore chamber – check no water ingress into chamber; treatment room – check for leakages, rodent activity, treatment units all active).
- ‘Post problem checks’: Details of how it is ensured treatment and other equipment are re-established following any loss of power supply or disconnection.
- Example of the blank check sheet and instructions on how to fill in.
- Where extra paper copies and computer version of check sheet are located.

Examples of check sheets are in Appendix 3.

b) Emergency Plan

This should include:

- Actions to be taken should the private water supply be unavailable due to:
 - **pump or treatment failure** (caused by breakdown or power loss),
 - **contamination of the water, pipe burst or insufficiency** (source not able to keep up with demand).

The actions will vary depending on the problem and use of the water, but could include:

- Ordering alternative water supply from a specialist company, include contact details and volume and type of water to be ordered. A small supply may be able to manage with bottled water for a short time.
- Closing the business or moving all users to an alternative location with a wholesome water supply.
- Transferring to mains (Anglian Water) if available (if this is an option a procedure detailing how this should be done must be written and followed).

NOTE: Cross connections between a private supply and mains isolated by a check valve do not meet the regulations to mitigate the risk of back flow into the mains supply. Anglian Water Fittings Inspectors are advising all customers that the cross connecting pipework needs to be removed to create a physical break between the incoming mains supply and the private supply.

- Contact details for routine and emergency call out for all system, i.e. treatment engineers, pump engineers, plumber, pipe repair, waste emptying and insurance company.
- Details of how consumers, responsible people and NNDC will be informed of the problem including all contact details.
- Details of what should be reported and who to.

NOTE: at the RA it will be checked that the Emergency Plan Procedure information is available to all people who manage the supply when the main responsible people are not available.

An example of an emergency plan is in Appendix 4.

c) Procedure for Pipe Repair or Change

This procedure is only required if on site staff do this work. **If not please supply details of the company used for pipe repairs or alterations.**

The Pipe Repair Procedure should include:

- Who can carry out the work on site and evidence of their training.
- How the work will be carried out to minimise the risk of microbiological contamination.
- How the distribution system will be disinfected following the works.

NOTE: If any procedures or the emergency plan are not available this will increase the number of risks found.

4) Records

The following should be available:

- Completed '**check sheets**' as evidence of routine and 'post-problem' checks on the supply including the source, treatment and tanks. Recording what was checked, when it was checked and details of actions required as required in procedure.
- **Invoices** from treatment servicing as evidence of maintenance schedules.
- Copies of **sampling results**.
- Copies of **Manufacturers' Instructions** for key treatment such as Ultra Violet treatment or chlorine dosing systems.

Physical Equipment

Source

- Best practice for the top of the 'bore' or 'well' is for it to be protected from surface water ingress and tampering by a chamber with raised walls with a sealed lockable lid or within locked building.
- Chambers containing bore headworks should have a solid base and show no evidence of standing water.
- Bore headworks usually have a circular metal plate (flange) this must have no gaps around pipes and cables or unfilled holes, as this can allow contamination into the bore.



Catchment Area – ideally no potential sources of contamination should be closer than 50 metres to the source. Examples include oil tanks, septic tanks, chemical storage, muck heaps or waterlogged ground.

Treatment Units – should be protected from tampering, rodents and extremes of temperature in a locked, sealed and insulated/heated building. Ideally treatment units should be labelled and pipes marked with flow direction. Valves that could be opened to bypass treatment must be locked shut and labelled. Ask your Water Treatment Company to help when they next visit to service the equipment. They can also help draw the Treatment Diagram (see Section 2).

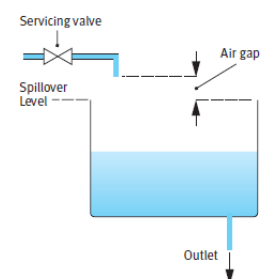


Backflow protection – drinking water can get contaminated if dirty water is drawn back into the pipework. The legislation that covers backflow protection is the Water Supply (Water Fittings) Regulations 1999. Some measures to prevent this include:

- **Outside Taps** should be fitted with an inbuilt double check valves (non-return valve) or have one fitted to the supply pipe. The check valve must be protected against freezing or it will fail so insulation is important.



- **Hosepipes** – never leave connected especially with the end in water tanks or puddles.
- **Animal drinking troughs** – make sure there is an air gap between the water inlet and surface of the water. A stop valve or servicing valve should ideally be fitted.



Drinking Taps

- Should not leak or drip.
- Should not be fitted with a short section of hosepipe (often found on drinking taps at caravan sites as they can harbour and increase bacteria levels). A brass adaptor (see outside tap photo) should be used instead as they can be more effectively disinfected.
- Should be regularly cleaned and disinfected. Bacteria can be present in taps due to cross-contamination from food or other items washed near to the taps. Effective disinfection can be achieved using correct dilution of a solution such as Milton's around the outside and inside of the end of the tap.

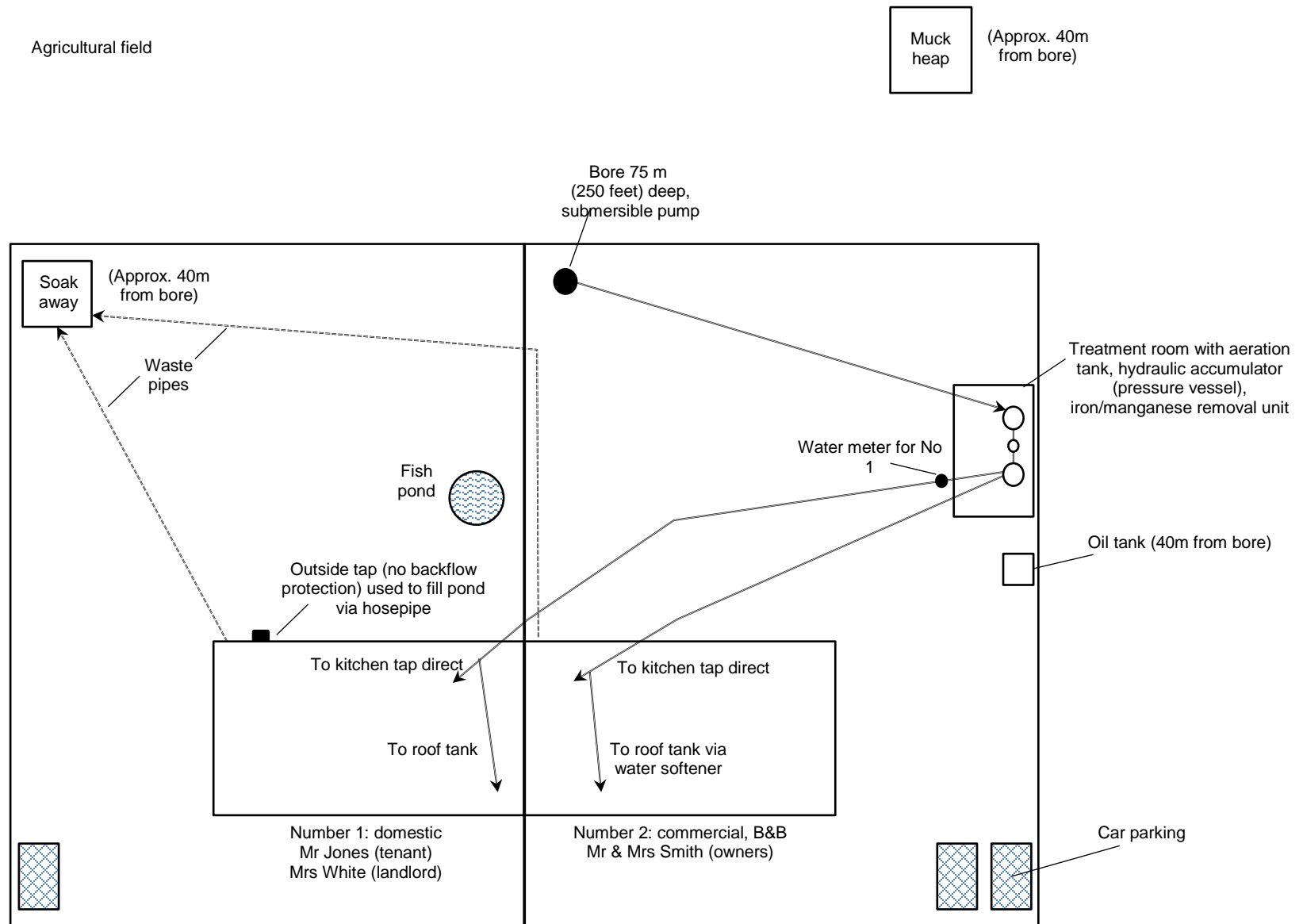
Distribution System

- The water supplied for drinking must **not** be softened.
- The main drinking water tap is usually the kitchen cold tap and this should ideally be fed directly. In some premises the kitchen tap is supplied via a loft tank. Some large supplies use treated water holding tanks, but the water usually has residual disinfection from addition of chlorine.
- Tanks for drinking water should be checked regularly and be fitted with:
 - a) an overflow pipe fitted with gauze to exclude insects;
 - b) a cover fitted to exclude light and insects; and
 - c) insulation to prevent freezing or warming.

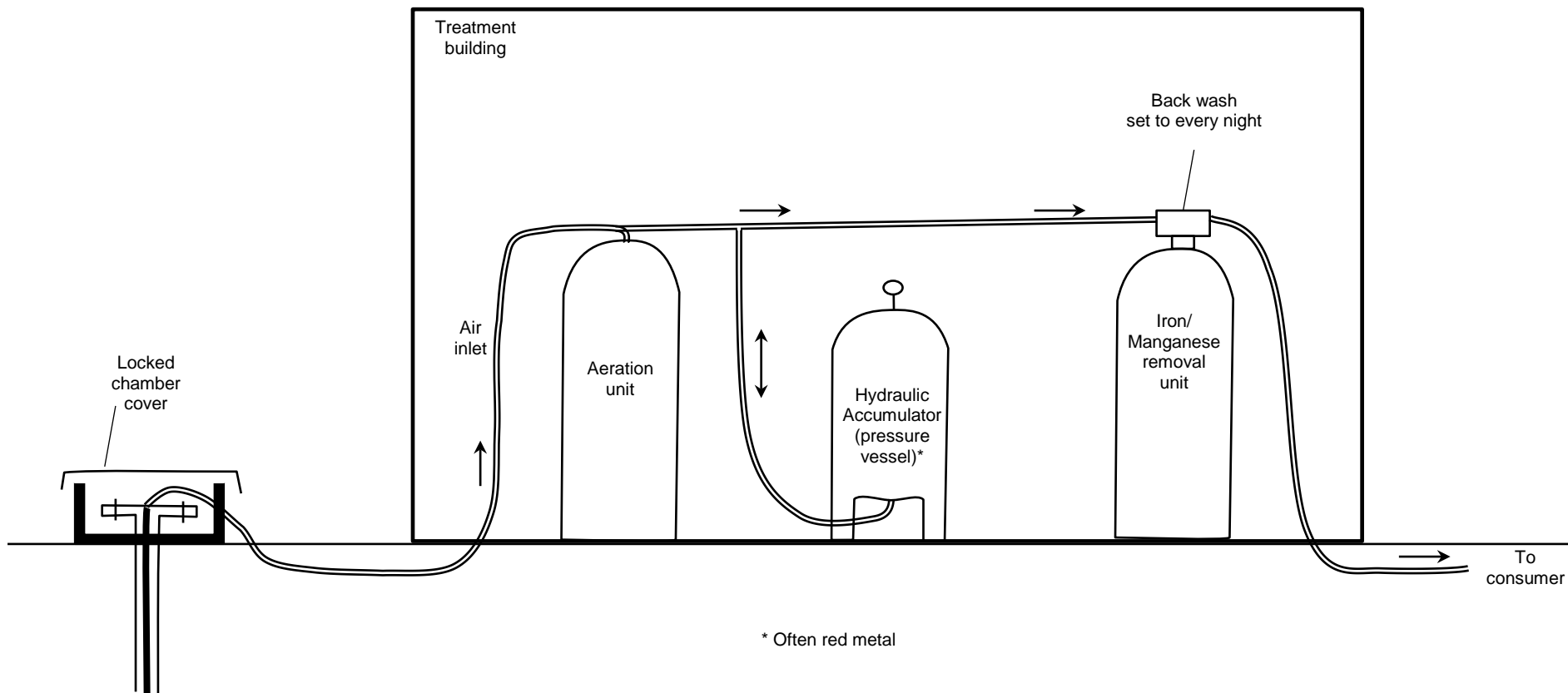
Sources of Additional Information

- Drinking Water Inspectorate – **Private Water Supply** page
<http://dwi.defra.gov.uk/private-water-supply/index.htm>
Risk Assessment information on **Owners/Managers** page
- NNDC Environmental Health Private Water Supplies Leaflet – link on Private Water Supplies page
<http://www.northnorfolk.org/environment/18873.asp>
- Water Regulations Advisory Scheme
<http://www.wras.co.uk>
Publications page has links to documents which include backflow protection and Water Fittings Regulations advice.
- Environment Agency
<https://www.gov.uk/government/organisations/environment-agency>
Domestic Oil Storage leaflet
Above ground oil storage tanks: Pollution Prevention Guidelines

Appendix 1 – Example Site Plan (not to scale)



Appendix 2 – Example Treatment Diagram (not to scale)



Appendix 3 – Example of Check Sheets

Monthly Check Sheet for 2015

Key: ✓ Satisfactory x Unsatisfactory NR Not Required

Created January 2015, Review 2016

Equipment	Safety Check	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Chamber	1 Cover is locked	✓											
	2 Signs of water entering chamber	✓											
	3 Leaks from pipework	x											
Tanks used to store water	4 Insulation in place	✓											
	5 Cover fits tightly	✓											
	6 Gauze covering overflow is in place	✓											
	7 No leaks or overflow	✓											
Pre-sediment filter	8a Visual check of filter	✓											
	8b Change filter cartridge following procedure to prevent microbiological contamination.	NR											

If Unsatisfactory – Record of problems found and action taken

Date	Safety check item requiring action / description of problem	Action to be taken	Date work to be done (by whom)	Date actual work done (by whom)
21/01/15	Item 3 – pipe from bore leaking into chamber	Phone plumber to mend leak in pipe. Remove water from chamber.	Phoned plumber (21/01/15) they will try and fit in visit later today.	22/01/15 plumber finished work required to fix problem.

Appendix 3 – Example of Check Sheets

Weekly Check Sheet for January 2015

Key: ✓ Satisfactory x Unsatisfactory NR Not Required

Created January 2015, Review 2016

Equipment	Safety Check	Week 1	Week 2	Week 3	Week 4
Treatment room (weekly plus immediately after power cut)	A Locked, secure; preventing water / vermin ingress	✓			
	B No leaks	✓			
	C Frost protection working (heater) and insulation in place	✓			
	D Backwash settings set to manufacturers	✓			
	E Check levels of salt in container (water softener or nitrate treatment)	✓			
	F UV unit / chlorine dosing alarm on	NR			
	G UV light is glowing (daily checks on light if no alarm)	x			
	H Chlorine / chlorine dioxide dosing readout satisfactory (daily checks if no alarm)	✓			
	I Pressure level of hydraulic accumulator (pressure vessel)	✓			
Outside taps used for drinking water (e.g. caravan site)	K Clean end of taps and adaptors	✓			
	J Check no leaks and correct adaptor fitted	✓			
Pipework	L Flushed unused sections of pipework.	NR			

If Unsatisfactory – Record of problems and action taken

Date	Safety check item requiring action / description of problem	Action to be taken	Date work to be done (by whom)	Date actual work done (by whom)
21/01/2015	Item G – UV light not glowing	UV installer to be called. Bottled water to be used until work carried out	Phoned UV installer 21/01/2015 Visit due 22/01/2015	22/01/2015 UV installer completed repair

Appendix 4 – Example of Emergency Plan

Event	Checks	Contact	Action
Loss of electrical power (stopping pump and therefore water supply)	Mains power loss On site power loss Can on site generator be started?	Electrical supply company (contact name & number)	Inform manager of problem Inform all consumers in houses Close food business Order in emergency water supply
Loss of water (non-power related)	<ul style="list-style-type: none"> Leaks in plant room Pressure (of hydraulic accumulator) in plant room see Treatment Plan 	Water treatment company (contact name & number) Plumber (contact name & number)	Inform duty holder / manager of problem Inform all consumers in houses Close food business Order in emergency water supply
Water quality e.g. E. coli	Ultra Violet bulb light on?	Water treatment company (contact name & number)	Stop all consumption of the water Inform manager Inform NNDC (if not already aware) Inform all relevant consumers Order in emergency water supply

Contact names & addresses	Contact Number	Action
Food Business Manager		Responsible for treatment room checks.
Responsible Person		Over all legal responsibility for the supply. Responsible for service repair and maintenance.
NNDC Environmental Health	01263 516008 commercial@north-norfolk.gov.uk	Advice / enforcement.
Residents of houses (owner occupied)		Responsible for cleaning taps, water storage tanks and backflow protection.
Holiday home users		