



guardians of drinking water quality

Private Water Supply Risk Assessment

Explanatory Notes for Risk Assessment Lite Tool Version 2.0

Includes:

Section A – Guidance to completing the Risk assessment

Section B – Risk Mitigation

Section C – General Guidance whilst on site

Section D – Reporting to the DWI

Section E – Glossary

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Introduction

The Risk Assessment Lite tool was developed in response to requests from local authorities for a simplified version of the tool suitable for risk assessment of small and simple systems. It was written to cater for the most common types of private supplies and focuses on supplies that have filtration for pre-treatment and either ultraviolet lamps or chlorination as a disinfection stage. If the tool does not contain the appropriate hazard descriptions, the user may either use the blank rows in the appropriate section or, if this is not appropriate then they should use the full Risk Assessment Tool for regulation 8, 9 and 10 supplies <http://www.dwi.gov.uk/private-water-supply/local-auth/risk-assessment.html>.

This latest version of the Risk Assessment Lite tool has been updated following reports of compatibility issues with certain versions of Excel. The Inspectorate took the opportunity to give the tool a major rewrite, simplifying some functions and creating a more user friendly layout.

Some worksheets have disappeared, and some have been consolidated into others and to meet the requirements of the new Directive, a summary page has been created that can easily be forwarded to the SoS (or WAG). As always, we welcome feedback on the tool at dwi.enquiries@defra.gov.uk.

A. Guidance to completing the risk assessment

The risk assessment process comprises three stages;


- (1) Pre-site visit desktop assessment
- (2) Site based risk assessment
- (3) Post-visit desktop assessment

Please note that when using the risk assessment tool generally only cells that are white require information to be entered into them. The worksheets should be populated in the order that the tabs are laid out from left to right (e.g. supply details, unanswered questions, risk assessment etc.). This is because the tool automatically populates some sections with information from previous sections. The following guide will take the user through the completion of each of these tabs. Some of the guidance notes refer to red text, so it is advisable to print this document in colour.

1.0 Pre-visit desktop assessment

1.1 Supply Details.

Complete the first 2 rows of general information about the supply using a combination of free text and drop down option boxes: Cells can be resized as needed to accommodate the length of text required:

| Private Water Supply: Risk Assessment Lite Tool | | |  |
|---|--|--|---|
| | | | V 2.04 |
| Local Authority: | Supply Reference: | Supply Name & Address: | |
| Use drop down list to enter local authority name, if the name does not appear in the list the name can be typed in. | The supply reference is a unique identifier to the local authority and should be typed in using 'free text'. | Supply name address should be typed in using 'free text' | |
| Estimated daily volume of water supplied (m3 per day): | Normal number of consumers served (maximum): | Date of Risk Assessment: | |
| Enter estimated daily volume of water supplied as m3 per day. Where the volume is unknown the local authority should calculate the volume using the assumption that each consumer uses 200 litre per day. | enter normal number of consumers first (with maximum number recorded in brackets after) | Date of risk assessment should be typed in using 'free text' | |
| Regulation Supply Type: | use drop down box to select applicable regulation | Assessor: | use free text to enter assessors name |

The references entered under Local Authority, supply reference and supply name & address will transfer automatically to the authority/reference/address fields in the following risk assessment worksheets.

Next you will need to record details of relevant persons in relation to the supply. This can include land owners, management companies employed on behalf of the users of the supply, consumers, property owners or anyone else considered a relevant person under the Regulations. This is also a good opportunity to establish responsibility for any remediation work that might be needed in the future, who pays for what.

| 9 Addresses of connected sites | | | | | | | |
|--------------------------------|--|---|--------------------------------------|--------------------------------------|--------------------------------------|---|--------------------------------------|
| 10 | Name of person / organisation | Relevance | Telephone number | Address | Email | Purpose | Comments |
| 11 | Assessor to populate using free text | assessor to use drop down box to select relevance | Assessor to populate using free text | Assessor to populate using free text | Assessor to populate using free text | assessor to use drop down box to select purpose | Assessor to populate using free text |
| 12 | Additional rows can be added by highlighting the row, right mouse click and selecting insert | | | | | | |
| 13 | | | | | | | |
| 14 | | | | | | | |
| 15 | | | | | | | |

Under the **relevance** heading (column B) state in what capacity the persons are relevant (i.e. consumer, owner of well or borehole, owner of land on which the supply is located). This can be selected from a drop down box.

Under the **purpose** heading (column F), the intended use of the supply should be recorded e.g. a specific commercial activity (such as a brewing constituent), general domestic use, toilet flushing only etc. Where the use of the supply falls outside the scope of the PWS regulations, details do not have to be reported in the annual data return, but should be recorded on the risk assessment.

Should more lines of data be required, additional rows can be added by right clicking on the row number bar on the far left and choosing to 'insert'.

| 9 Addresses of connected sites | | | | | | | |
|--------------------------------|--|---|--------------------------------------|--------------------------------------|--------------------------------------|---|--------------------------------------|
| 10 | Name of person / organisation | Relevance | Telephone number | Address | Email | Purpose | Comments |
| 11 | Assessor to populate using free text | assessor to use drop down box to select relevance | Assessor to populate using free text | Assessor to populate using free text | Assessor to populate using free text | assessor to use drop down box to select purpose | Assessor to populate using free text |
| 12 | Additional rows can be added by highlighting the row, right mouse click and selecting insert | | | | | | |
| 13 | | | | | | | |
| 14 | | | | | | | |
| 15 | | | | | | | |

You now have the opportunity to enter details on the source location:

| Details of source | Location | Grid reference |
|---|---|----------------|
| | <- Insert source location/grid references here -> | |
| | | |
| | | |
| Details of any water treatment processes present: | | |
| | <- use the drop down boxes to select all appropriate treatment processes -> | |
| Other: please enter details Use this box to enter any treatment processes not captured above. | | |

Please note that if you need to enter additional rows for the source then you must do this by highlighting a single row and copying it down (rather than simply inserting a new row); this method will prevent the loss of any formatting.

The final section of this tab allows you to enter details and/or hyperlinks to relevant supporting information

| |
|---|
| Diagram of supply |
| Insert hyperlink or file location |
| Manuals, SOP's, Instructions for use |
| Insert hyperlink or file location |
| Details of departures authorised |
| Please enter details: |
| Summary of previous sample results |
| Please enter details: Summarise sample results here. Where there area large number of samples consider including only the details of the failing samples, or adding links to other reports |
| Summary of details of previous investigations and actions taken |
| Please enter details: |
| Details of previous/existing enforcement notices served |
| Please enter details: |
| Result of previous risk assessment (if applicable) |
| Please enter details: |
| Details of action taken (or to be taken) by relevant persons in respect of investigation |
| Please enter details: |
| Any additional relevant details or other information relating to the supply: |
| Please enter details: |
| |

In this section include a site schematic (a diagrammatic layout) or site plan (a more detailed map of the site and its supplies - often to scale) of the supply as a record, however rudimentary or old this might be. The schematic can be hand drawn, cut and pasted, or linked to another document here.


It is advisable to obtain a copy of this prior to the visit if it is available. This will provide some idea of the extent of the supply and what level of detail is available and what needs to be inspected. This may need updating following the site inspection as part of the action plan, but will give a good basis on which to start. For regulation 8 supplies it is also advisable to consult with the local water company prior to the site visit to share information about the assets and hazards associated with the public water supply from which the regulation 8 supply is derived. Potential water fittings contraventions should also be considered prior to the visit.

1.2 Risk Assessment.

Where a site comprises multiple drinking water source types (e.g. where there is both a borehole and a private distribution system providing drinking water), the hazards from both sources can be completed on the same spreadsheet. Where there are multiple water sources of the same type on a site (e.g. 2 boreholes), it is not necessarily practical to include

both sources on the same spreadsheet, it is recommended that the risk assessment for each borehole is completed on separate spreadsheets.

Hazard identification guidance is incorporated into this worksheet; a short paragraph provides assistance with its interpretation and the derivation of an accurate answer. In order to view the guidance select the risk and the guidance for that particular risk will appear in the box below.

| Private Water Supply: Risk Assessment Lite Tool | |  |
|--|---------------------------------------|---|
| Local Authority: Ashford Borough Council | Supply Reference: Chalk Hill Borehole | |
| Supply Name & Address: Chalk Hill, Kent | Today | |
| Hazard Guidance | Select Risk number: | <input style="border: 2px solid red;" type="text" value="A6"/> |
| <p>Is the supply sampled, excluding regulatory LA sampling, (i.e. operational)? Confirm what parameters the sample is analysed for and what are the results? Determine if this sampling has identified the presence of any particular hazards which should inform the risk assessment.</p> | | |

1.2.1 Hazard determination

Determine which of the sections C to Y of the risk assessment (as listed below, are relevant to the particular supply in the risk assessment tab. For example, is the source groundwater or surface water?

- C - SOURCE: Catchment of Surface Water Supply (including springs) D**
- SOURCE: Catchment of Ground Water Supply**
- J - SOURCE: Surface Water Intake (excluding springs)**
- K - SOURCE: Water Storage (prior to treatment)**
- L - TREATMENT PLANT: Plant Design (i.e. excluding point of use devices in dwellings or premises)**
- P - TREATMENT PLANT: Other Filters**
- R - TREATMENT PLANT: Disinfection: UV**
- S - TREATMENT PLANT: Disinfection: chlorination**
- T - TREATMENT PLANT: Other (answer for any treatment process)**
- U - TREATMENT: Monitoring. Use this section for all treatment systems V - DISTRIBUTION: Distribution Network**
- W - DISTRIBUTION: Storage of treated water in the distribution network (including private distribution systems)**
- X - Premises supplied (applicable to domestic dwelling or commercial premises)**
- Y - Point of use devices (i.e. individual property treatment systems such as UV systems, filter, membrane, Reverse osmosis (RO) under the sink)**

Use the following table to determine which questions in the risk assessment are relevant to the supply:

| Supply source | Risk assessment section – to be answered | | | | | | | | | | |
|-------------------------------|--|----------------|---|-----------------------------|--|-------------------------------------|-------------------------------------|---|----------------|----------------|---|
| Springs | A | B | C | K | If treatment, relevant sections, and L & U | Any relevant treatment ¹ | V | W | X | Y ³ | Z |
| Boreholes and wells | A | B | D | K | If treatment, relevant sections, and L & U | Any relevant treatment ¹ | X | V | W | Y ³ | Z |
| Temporary events ² | A | E ³ | U | V | If treatment, relevant sections, and L & U | W | X | Z | | | |
| Rainwater harvesting | A | I | K | Where any treatment L and U | If treatment, relevant sections, and L & U | V | W | X | Y ⁴ | Z | |
| Surface water | A | B | C | J | K & V | Where any treatment L & U | Any relevant treatment ¹ | W | X | Y ⁴ | Z |

Note¹ – Relevant treatment should be selected from sections M – T.

Note² – Applies to temporary events supplied by boreholes, wells or springs. If the temporary event is mains fed **do not assume it is a Regulation 8 supply**. It is more likely that it is not.

First check DWI Regulation 8 guidance: <http://dwi.defra.gov.uk/stakeholders/guidance-and-codes-of-practice/pws-pds.pdf>

Note³ – Although the DWI has made available an optional separate risk assessment tool for regulation 8 supplies (with separate explanatory notes), this tool can also be used for regulation 8 supplies, and would be more applicable where these supplies have treatment installed beyond the main feed to the system.

Note⁴ - Applicable where there are individual property treatment devices

Where treatment consists of units which comprise a pre UV filter (which may be of various design types, including disposable filters and permanent filters, which are subject to manufacturer’s maintenance instructions) as well as UV, **sections R and P should be applied.**

The risk assessor should select ‘N/A’ (not applicable) from the drop down list at the top of each irrelevant section. Note, that some sections cannot be set to ‘N/A’ to ensure they are properly considered in all cases.

| | | | |
|--|--|--|--|
| | | | |
|--|--|--|--|

| | | | | | |
|---|---|--|--|---|-----|
| X - Premises supplied (applicable to domestic dwelling or commercial premises) | | | | | |
| X1 | Is the drinking water supply to any customer premises (kitchen tap) supplied via a loft tank? Note; there is no need to inspect loft tanks, just ask for evidence. If no, move on to question X4. | | | 5 | TBC |

The questions will remain on the list and 'N/A' will appear against each of the individual

| | | | | | |
|--|--|-----|--|---|--|
| R - TREATMENT PLANT: Disinfection: UV | | | | | |
| | | N/A | | | |
| R1 | Is there adequate preliminary treatment in place? | N/A | | 5 | |
| R2 | Is there a validation certificate for the UV system? | N/A | | 4 | |
| R3 | Can water be supplied if the U.V. is not operational? | N/A | | 5 | |
| R4 | Is the UV operating within its validated range for the product type or lamp? | N/A | | 5 | |
| R5 | Is the equipment regularly maintained e.g. bulb replacement, cleaning? | N/A | | 5 | |
| R6 | | N/A | | | |

questions in that section.

Sections A, B & Z (see list below) are mandatory for all assessments.

| |
|---|
| A - General Overview B - SOURCE: All catchments Z - MANAGEMENT & CONTROL |
|---|

Some sections present in the main risk assessment tool are not present in the Lite version. Should your risk assessment require these sections then you should be completing the full version of the risk assessment tool.

Having eliminated sections of the risk assessment (now populated with “N/A”), the relevant areas on the risk assessment tool will now need to be completed once the information from site has been gathered.

The hazards associated with the supply should be determined by answering the questions in each relevant section of the risk assessment with either a “Yes,” “No,” “TBC,” or “N/A” answer, as applicable, using the drop down box.

| Risk No. | Hazard Description | Yes/No | Likelihood | Severity | Risk | Comments |
|--|--|--------|------------|----------|------|----------------------|
| L - TREATMENT PLANT: Plant Design (i.e. excluding point of use devices in dwellings or premises) | | | | | | |
| L2 | Is the treatment plant operating within the design capacity? | Yes | | 5 | TBC | Insert comments here |
| L3 | Is it possible to by-pass any stage of treatment? | | | 5 | TBC | |
| L4 | Where there is a blending facility, is there an appropriate blending strategy? | | | 4 | TBC | |
| L5 | Are there frequent flow variations through the treatment plant, which render the treatment process inadequate? | | | 4 | TBC | |
| L6 | Are there frequent demand variations, which could cause insufficiency? | | | 3 | TBC | |
| L7 | | N/A | | | | |
| L8 | | N/A | | | | |
| L9 | | N/A | | | | |

If mitigation measures that are already in place are to be taken into account at this stage, it is essential, for audit trail purposes, to record what measures are in place to mitigate the risk that the hazard would otherwise present; record such information in the “Comments” box. However it is recommended that all hazards are assessed as actual or potential risks and that existing mitigation is taken into account when compiling the Action Plan. Comments should include justification for the risk, the user can adjust text colour within this box to highlight certain points as required.

Some answers to the hazard questions may need to be confirmed on site, and/or require additional information from third parties, or from documentary evidence (e.g. maintenance receipts, log book entries). This might include, for example, consulting water quality data for the source water of a mains fed private distribution system from a water company website. As “TBC” is the default response in the “Yes/No” column leave this field and work through to the next question. Anything marked “TBC” must be returned to at a later date to complete.

Section A of the risk assessment tab pertains to a hazard associated with the absence of a site plan, which where applicable, compels the site owner/person in control to develop one to mitigate this risk. Where a site plan is **not** available, the requirement to develop one should form part of the action plan of the risk assessment. In addition, the local authority should seek to retain its own copy on completion, first ensuring that it is current, appropriate

and suitably detailed for the purposes of carrying out risk assessments (and investigating water quality events), as part of the risk assessment process to establish the target risk rating.

The list of hazards is not exhaustive, but should include the most commonly found ones. Any additional hazards, which have been identified during the risk assessment, and are not already within the scope of the existing questions, can be manually incorporated into the blank cells at the end of each section. The tool allows for up to 3 extra hazards per section. The questions must be worded so that a positive hazard yields a response of “Yes” so that hazard scores are correctly calculated and carried forward.

| J - SOURCE: Surface Water Intake (excluding springs) | | | | | |
|--|---|-----|--|---|-----|
| J1 | Does the water quality vary at the intake point due to streaming/stratification/algal blooms/increased turbidity? | | | 3 | TBC |
| J2 | Are there screens in place at the intake? | | | 3 | TBC |
| J3 | Where screens are present, is there a mechanism to remove debris? | | | 3 | TBC |
| J4 | Does sediment build up inside the chamber and pipework after the intake point? | | | 3 | TBC |
| J5 | Is there adequate protection of the intake point from livestock and wildlife? | | | 5 | TBC |
| J6 | Does the availability of the water at the intake vary? | | | 3 | TBC |
| J7 | | N/A | | | |
| J8 | | N/A | | | |
| J9 | | N/A | | | |

For each new hazard identified, a severity value should be entered manually using the following guidelines:

| Level | Descriptor | Descriptions |
|-------|---------------|--|
| 1 | Insignificant | Wholesome water, no public health impact |
| 2 | Minor | Short-term or localised, aesthetic or not health related. Treatment compromised. No regulatory failure. |
| 3 | Moderate | Long-term non-compliance, widespread aesthetic issues or not health related. Treatment compromised. Regulatory failure but no health risk |
| 4 | Major | Potential long term health effects (e.g. lead, THMs, nitrate). Treatment compromised. Regulatory failure. Disruption to consumers in the supply. |

| | | |
|---|--------------|---|
| 5 | Catastrophic | Presence of micro-organisms, parasites or substances that are an imminent danger to public health (e.g. E coli, cryptosporidium). Treatment compromised. Regulatory failure. Disruption to consumers in the supply. |
|---|--------------|---|

NB: The severity scores for hazard A0 are slightly different and should be entered using the following guidelines

| Level | Descriptor |
|-------|----------------------------------|
| 1 | Vast improvement |
| 2 | Improvement |
| 3 | No change to overall risk |
| 4 | Degradation of supply or control |
| 5 | Potential failure due to changes |

1.2.2 Risk likelihood

In order to derive a final risk rating, a likelihood level needs to be determined.

| B - SOURCE: All catchments | | | | | | |
|----------------------------|---|-----|---|---|-----|--|
| B1 | Are there latrines, septic tanks, animal enclosures or cess pits present within 50m of the source? | Yes | 3 | 4 | H | |
| B3 | Is there a risk of microbial contamination (from slurry spreading, and/or storage of slurry or dung)? | Yes | 3 | 5 | H | |
| B4 | Is there a risk of pesticides or chemical contamination (e.g. sheep dipping chemicals) | | | 4 | TBC | |

This is the degree to which the hazard is likely to result in risk (i.e. how likely it is that contamination will occur). NB. The likelihood level should be judged according to whether the hazard relates to either a feature, i.e. defects associated with tanks, or pipes, (holes, cracks etc.), or an event, i.e. an occurrence, e.g. sample failures or an oil spill.

For each hazard identified, a likelihood value should be selected using guidance in the table below.

| Likelihood | Descriptor (for likelihood of the contamination occurring) | Descriptions of features | Descriptions of events |
|------------|--|---------------------------------|---|
| 1 | Most unlikely | Rarely/never used feature. | Has not happened in the past and and/or is highly improbable that it will happen in the future [Rare] |
| 2 | Unlikely | Infrequently used feature | Has happened in the past and/or is possible and cannot be ruled out completely [Unlikely] |

| | | | |
|---|----------------|---|---|
| 3 | Foreseeable | Occasionally used feature | Has happened in the past, and/or is possible and under certain circumstances could happen again [Moderately likely] |
| 4 | Likely | Frequently used feature | Has happened in the past more than once, and/or is likely to happen again [Likely] |
| 5 | Almost certain | Permanent feature (i.e. a permanent hole in the tank) | Has occurred in the past, and/or is an ongoing problem, and is very likely to happen again |

When this is entered in the relevant field (using the drop down box), the tool will use a preset severity value to automatically calculate a risk, by multiplying the likelihood and severity values together. This calculation will determine whether the hazard presents a risk or not. High and very high risks will be highlighted as an “H” or “VH” in the risk rating column.

| | | | | | |
|----------------------------|---|-----|---|---|-----|
| B - SOURCE: All catchments | | | | | |
| B1 | Are there latrines, septic tanks, animal enclosures or cess pits present within 50m of the source? | Yes | 3 | 4 | H |
| B3 | Is there a risk of microbial contamination (from slurry spreading, and/or storage of slurry or dung)? | Yes | 3 | 5 | H |
| B4 | Is there a risk of pesticides or chemical contamination (e.g. sheep dipping chemicals) | | | 4 | TBC |

Please note that in Section Z, which pertains to confidence in management of the supply, there is no requirement to determine and enter likelihood levels for questions Z2 to Z27. However the answers to any relevant questions should help inform the answer to question Z1 subsequently. N.B. The likelihood and severity levels of Z1 have been predetermined to calculate the risk rating for this hazard.

1.2.3 Risk severity

Preset severity levels have been determined according to the descriptions shown in the following table:

| Level | Descriptor | Descriptions |
|-------|---------------|--|
| 1 | Insignificant | Wholesome water, no public health impact |
| 2 | Minor | Short-term or localised, aesthetic or not health related. Treatment compromised. No regulatory failure. |
| 3 | Moderate | Long-term non-compliance, widespread aesthetic issues or not health related. Treatment compromised. Regulatory failure but no health risk |
| 4 | Major | Potential long term health effects (e.g. lead, THMs, nitrate). Treatment compromised. Regulatory failure. Disruption to consumers in the supply. |

| | | |
|---|--------------|---|
| 5 | Catastrophic | Presence of micro-organisms, parasites or substances that are an imminent danger to public health (e.g. E coli, cryptosporidium). Treatment compromised. Regulatory failure. Disruption to consumers in the supply. |
|---|--------------|---|

1.2.4 Risk Rating calculation

The risk matrix calculates the product of the severity level and the likelihood level, the value of which, in turn, determines a risk rating thus:

| Calculated value range | Risk rating |
|------------------------|----------------|
| 1 - 5 | LOW (L) |
| 6 - 10 | MEDIUM (M) |
| 12 - 15 | HIGH (H) |
| 16 - 25 | VERY HIGH (VH) |

2.0 Site visit risk assessment

2.1 Unanswered questions

The 'unanswered questions' sheet can be printed and taken to site to be used as a guide or reminder for questions to ask following your desktop study. Any questions already answered as part of the desktop study will not appear here. However any comments already entered onto the risk assessment sheet, but where the answer to the question is still TBC, will appear here. You can use this function to write reminders & questions to ask when on site. This sheet does not have to be used. It has been provided for use as an additional tool to facilitate on-site assessments, should it be required.

During the site visit all relevant hazard questions must be determined. Whether the risk assessment tool is taken to the site in paper form to record temporary notes, completed on site electronically or relevant aspects copied to a separate uncontrolled document for site reference, is a matter of personal preference. What is important is that all relevant sections are completed and saved electronically by the end of the risk assessment process.

2.2 Risk register

Once the risk assessment process has been completed and the risk scoring has been identified the risk register tab can be used to identify risks of similar levels. Using the drop down box against "risk level" will collate all the risks that have been identified as either L, M, H or VH

| Private Water Supply: Risk Assessment Lite Tool | | | | |
|---|----------|--|------------|----------|
| Guidance: Select your risk level | | | | |
| Risk level: | H | Local Authority: My local Borough Council Supply Reference: your unique reference | | |
| High Risk | | Supply Name & Address: Sheepshed, Pumphouse Lane, Accrington | | |
| Risk | Risk No. | Hazard Description | Likelihood | Severity |
| H | B1 | Are there latrines, septic tanks, animal enclosures or cess pits present within 50m of the source? | 3 | 4 |
| | | | | |

Any questions for which answers need to be confirmed at a later date will also be collated in a “TBC” tab in the same way. These must be followed up and assessed in the same way as those already completed (i.e. “TBC” is only a temporary position)

| Private Water Supply: Risk Assessment Lite Tool | | | | |
|---|------------|--|------------|----------|
| Guidance: Select your risk level | | | | |
| Risk level: | TBC | Local Authority: My local Borough Council Supply Reference: your unique reference | | |
| To Be confirmed | | Supply Name & Address: Sheepshed, Pumphouse Lane, Accrington | | |
| Risk | Risk No. | Hazard Description | Likelihood | Severity |
| TBC | A3 | Are there any manufacturers' instructions for the equipment on the supply? | 5 | 5 |
| TBC | A4 | Is there an emergency plan for the provision of an alternative water supply? | 5 | 5 |
| TBC | A5 | Has the owner or operators had appropriate training for the supply? | 5 | 5 |

This output can be copied & pasted into other reports as required.

2.3 Risk assessment report

This sheet includes all the detail on the hazard & risk level, and includes the guidance. The risk will automatically populate with the data produced in the Risk Assessment.

| Private Water Supply: Risk Assessment Lite Report | | | |
|--|--------|---|----------|
| Local Authority: My local Borough Council | | Supply Reference: your unique reference | |
| Supply Name & Address: Sheepshed, Pumphouse Lane, Accrington | | now | |
| Ref | Hazard | Risk | Guidance |
| B - SOURCE: All catchments | | | |

| | | | |
|----|---|---|--|
| B1 | Are there latrines, septic tanks, animal enclosures or cess pits present within 50m of the source? | H | If unsewered human or animal sanitation is present within 50m of the source then there is considerable potential for raw human sewage to contaminate the source of the drinking water supply. If the supply is groundwater and in a high vulnerability area (as indicated in the EA aquifer vulnerability maps), the unsewered human or animal sanitation is highly likely to contaminate the source through underground connectivity. To find information on groundwater vulnerability type the post code into the EA web page 'What's in your backyard' and look at the aquifer vulnerability map in the ground water section. In high vulnerability areas this contamination risk will be present regardless of the condition of the collection chamber or head works. New sources should not be installed within 50m of unsewered human or animal waste in high vulnerability areas. |
| B3 | Is there a risk of microbial contamination (from slurry spreading, and/or storage of slurry or dung)? | H | The hazard arises from the active application of the materials in conjunction with the disruption of the soil itself, e.g. via ploughing or sub-soil injection. The likelihood value will be based on the probable duration and frequency at which such activities are undertaken. In some areas brownfield sites or derelict land will be remediated using sewage-derived sludge or slurry or similar materials. The rate of application will typically be higher and this should be borne in mind when assessing the risk. To find information on groundwater vulnerability type the post code into the EA web page 'What's in your backyard' and look at the aquifer vulnerability map in the ground water section. |

It is not intended that the information is sent directly from here, but it can be copied and pasted into other reports & programmes as required.

3.0 Post site visit and Action Plans

After the site visit, it may be found that further details need to be sought from other sources in order to answer some of the questions accurately, or to be certain that all hazards, or any additional hazards found, have been accurately risk assessed. For example, details from an equipment or dosing kit manufacturer, or pesticide usage and application details from a local farmer. In these situations use the “TBC” options where relevant, on the risk assessment form, until the information is available. Once all of the details necessary to complete the risk assessment have been determined, ensure that all relevant fields on the tool have been populated and complete the action plan as follows.

3.1 Controls & Actions

Once all of the relevant hazards have been identified and a risk rating has been derived, action plans should be developed.

The “control & actions” tab is a way of collating the hazards. Multiple hazards can often be traced back to a single root cause e.g. a badly designed borehole can be linked to animal ingress, surface water ingress & faecal contamination. A brief description of these hazards can be entered into the scope of hazards field:

| Private Water Supply Risk Assessment - Action Plan | | | |
|--|--|--|--|
| Local Authority: Adur District Council | | Supply Reference: your unique reference | |
| Supply Name & Address: name & address of supply | | Today | |
| Assessor: | | Revision | |

| | |
|--------------------------|---|
| Scope of Hazards: | Brief descriptions of the issues |
| Conclusion: | Once all actions have been completed what is the status of the Private Supply |

On this tab you will not be able to fill out the highest mitigated rating and final mitigated risk rating fields until the risk assessment is complete, but you must return to this to complete these fields once the risk assessment and all outstanding mitigating actions are complete.

| Overall supply risk classification | |
|------------------------------------|--|
| Highest mitigated rating: | |
| | |
| Final rating: | |
| | |

For each risk identified, which will require remediation work, enter the hazard question reference (section and question number, e.g. B1), into the box. The hazard description, severity, likelihood & risk rating will then be automatically populated.

| Action plan 1 | | | |
|---|--|-------------------------------|------------------------|
| B1 | Are there latrines, septic tanks, animal enclosures or cess pits present within 50m of the source? | | |
| Associated risks | Severity = 4 | Likelihood = 3 | Risk Rating = H |
| Current mitigation in place | Overtyping or select from dropdown list of standard mitigation measures | | |
| Additional mitigation Required | Description of the actions required to mitigate the risks | | |
| Verification of actions following completion | | | |
| Deadline for completion | | Action Owner | Enter name or initials |
| Status of Actions | | Mitigated risk ranking | |
| | | | |

Several action plans may be required for each supply assessed.

| | |
|----------------------|---------------------------|
| | |
| Risk No: | Hazard Description |
| Action plan 1 | |

| | | | |
|---|---|-------------------------------|---|
| B1 | Are there latrines, septic tanks, animal enclosures or cess pits present within 50m of the source? | | |
| Associated risks | Severity = 4 | Likelihood = 3 | Risk Rating = H |
| Current mitigation in place | Add existing mitigation, using the mitigation drop down lists (which can be edited if required) | | |
| Additional mitigation Required | Any additional mitigation which is not already in place but which is required to reduce the risk should be added using the mitigation drop down lists (which can be edited if required). | | |
| Verification of actions following completion | Verification required once action is complete can be selected from the drop down list or overtyped | | |
| Deadline for completion | Target date for completion of actions | Action Owner | The name of the person(s) responsible for the implementing the control measures |
| Status of Actions | Status of the actions is completed here and should be updated as the investigation continues. | Mitigated risk ranking | Once mitigation has been put in place the mitigated risk ranking can be entered. |
| | | | |

Once mitigation has been put in place the “mitigated risk ranking” can be entered. Use professional judgement, and adjust the rating according to the type and extent of mitigation already in place.

If the new rating is calculated as medium or low risk, no further action is required, although you might want to include actions that will bring a medium risk down to a low risk. If however the rating remains in the high or very high category, the required control measures to mitigate the risk to a medium or low category must be documented in the “additional mitigation required” section of the action plan. Mitigation can be selected from drop down lists and/or can be manually added.

Once all the action plans have been added the highest mitigated target risk rating should be recorded in the “Overall supply risk classification” section towards the top of this spreadsheet

| Overall supply risk classification | |
|---|--|
| Highest mitigated rating: | |
| | |
| Final rating: | |

| | |
|--|--|
| | |
|--|--|

Once all mitigating actions are in place/complete then the final rating can be entered.

Please note that where the local authority believes the highest mitigated target risk rating is not representative of the overall risk posed by the supply, the final rating can be manually changed. The local authority should record the justification for this in the comments box of the Controls and Actions worksheet.

B. Risk Mitigation

There are 4 main water quality hazard types associated with private water supplies: •

Microbiological contamination

- Chemical contamination
- Physical contamination •

Radiological
contamination.

Some suggested mitigation measures for these are shown below.

Nb. The *extent* of mitigation required for any hazard presented during a risk assessment will be a matter of judgement for the assessor, and will depend on the physical barriers or multiple barriers present.

All action plans must also consider the ongoing management of the supply, by way of referencing the Management & Control section of the risk assessment.

1.0 Source water risks

Where high or very high risks have been identified which relate to the source water, existing mitigation measures should be considered to prevent or limit the source of the pollution. These could include:

1.1 Microbiological contamination

- Improvements in upstream or nearby waste water treatment plants;
- Elimination or relocation of storm water overflows;
- Fencing off of the source of the supply;

- Restriction of manure spreading within the catchment
- Liaison with the EA regarding discharges from licensed facilities
- Limit or control recreational use of the source water
- Locate the intake for surface water sources at a point which is least exposed to possible contamination from up-stream activities, run-off, discharge points
- Design and construct the well head in a manner that will exclude surface water or spillages of contaminated material causing microbial or other contamination.
- For a spring source, barriers to prevent ingress of surface flows may reduce the risk of microbiological contamination including embankments, walls, diversion ditches.
- Construct storage lagoons or tanks for raw water.
- For rainwater harvesting systems key mitigation against microbiological risks include the removal/avoidance of roof-mounted aerials or overhanging trees, and installation of run-to-waste for the first flush of water
- Disinfection treatment

1.3 Chemical contamination

- Liaison with the EA regarding discharges from licensed facilities
- Limit or control recreational use of the source water
- Limit or control the use of pesticides and fertilisers within the catchment
- Construct storage lagoons or tanks for raw water to enable intakes to be shut-off if surface water is contaminated.
- Locate the intake for surface water sources at a point which is least exposed to possible contamination from up-stream activities, run-off, discharge points
- Stored fuel or oil in the catchment or on-site is adequately bunded, and tanks are subject to inspections.
- Treatment

1.4 Physical contamination

- For rainwater harvesting systems mitigation includes the installation of screens or leaf filters; protection of inlets and setting up a cleaning regime for the gutters. These will prevent/reduce ingress of organic matter into the system. Particulate filters will reduce particulate matter when it breaks through the other barriers. Where the system comprises an unwholesome supply for washing, toilet flushing etc. and a wholesome supply for cooking, washing and drinking the installations should follow BS 8515 including labelling pipework, taps, tanks etc, and colour-coding of pipes (black with green stripes).
- Construct storage lagoons or tanks for raw water.

- Cartridge filters, installed and maintained according to manufacturer's instructions
- Screens are installed on raw water storage tanks
- Fit appropriate covers on tanks etc. if relevant
- Clean storage tanks to reduce sludge or sediment build-up.
- Through use of valves, ball-valves, or level sensors ensure that water levels within tanks vary significantly to ensure water is turned over (prevention of stagnation).

Where the hazard is natural or persistent it may not be possible to address the risk within the short to medium term because a treatment solution may need to be engineered. However, existing treatment processes and those temporarily installed to help manage the situation should be optimised to ensure compliance. There will be cases where it may not be possible to ensure compliance due to the actual source and in such cases the replacement of the source may be necessary.

2.0 Treatment and treatment plant operation risks

Where all options have been explored to improve the quality of the source of the water to prevent/limit the hazard, additional actions to improve the treatment process should be detailed in the action plan. Whilst a mitigation drop down list has been provided in the action plan, this list is not exhaustive. Actions/control measures could include:

- Adjustment of chemical dosing regime;
- Adjustment of treatment practices and procedures (e.g. coagulation/clarification conditions, filter operation and backwashing frequency, disinfection);
- Replacement of filter media;
- Replace cartridge filters according to manufacturer's instructions;
- Addition of new treatment processes or modification of existing processes;
- Installation of continuous monitoring and alarms for chlorine and turbidity;
- Up-grade of the treatment plant;
- Improved maintenance of treatment plant;
- Additional training to be given to plant operatives; and
- Increased monitoring at water treatment plant.

Where there is a microbiological hazard resulting in a high or very high risk, the Local Authority should consider appropriate (pre-treatment and) disinfection as a priority. Disinfection treatment plants should be operated in accordance with the following guidance:

- Install appropriate treatment depending on risk (crypto, micro);
- Consider multi-barrier approach for risk of microbiological contamination;
- Protect or remove any existing treatment stage by-passes, to ensure they cannot be used in error or compromise treatment;
- Manage the flows through the works to stabilise the treatment and to ensure the works is operated within design capacity;
- Chlorine disinfection fail-safes are adequate (duty/standby arrangements or alarms, or autoshutdown on loss of dose);
- Ensure water is subjected to sufficient preliminary treatment to achieve <1NTU before disinfection;
- Treatment stages are maintained and cleaned on a regular basis (depending on process), as per manufacturer's specification;

Where ultraviolet disinfection is used, additionally:

- Ensure the availability and continuity of supply of spare parts for key water treatment equipment e.g. UV bulbs;
- Install a UVT monitor to ensure the UV is operating within its validated range at all times;
- Ensure the UV plant cannot be bypassed or shutdown without alarm; and
- Ensure the UV plant has an in-date validation certificate.

Where treatment processes are in place, the following control measures are recommended to ensure they are adequately operated and maintained:

- Ensure there is a back-up person responsible for maintenance who is adequately trained.
- Ensure availability and continuity of supply of treatment chemicals - check for inadequate storage of chemical stocks, risk of running out of key treatment chemicals.

3.0 Action to deal with hazards and risks in the distribution network

3.1 Microbiological hazards

- Replacement/refurbishment of corroded/leaking pipe work;
- Maintenance of service reservoirs;
- Ensure there is a procedure for mains installation and repair which is adequate to prevent contamination;
- Develop and implement a system to ensure the distribution system is maintained to avoid lack of ingress during low pressures;

- Ensure backflow protection is in place especially for animal watering systems, industrial users, etc;
- Ensure all material and chemicals conform to Regulation 5 and relevant BS;
- Treated water tanks are designed, installed and maintained to prevent ingress;
- Ensure any personnel who have close contact with the water supply directly have good awareness of hygiene practices (e.g. Need to wash hands, not to contaminate with tools used on farm, etc.); and
- Installation of chlorine booster stations in the network.

3.2 Chemical contamination

- Replacement of old pipe work (e.g. lead service mains);
- Adequate flushing of stagnant water from domestic distribution systems
- Ensure backflow protection is in place especially for animal watering systems, industrial users, etc;
- Ensure all material and chemicals conform to Regulation 5 and relevant BS;
- Treated water tanks are designed, installed and maintained to prevent ingress;
- Ensure any personnel who have close contact with the water supply directly have good awareness of hygiene practices (e.g. Need to wash hands, not to contaminate with tools used on farm, etc.);
- Stored fuel or oil on-site is adequately bunded and tanks are subject to inspection
- Replace pipework with barrier pipe in contaminated land or where there is a risk of oil or solvent spillage.

3.3 Physical contamination

- Modification to the operation of the distribution network (such as to avoid high flows and flow reversals);
- Flushing/scouring the mains;
- Replacement/refurbishment of corroded/leaking pipe work;
- maintenance of service reservoirs;
- Ensure backflow protection is in place especially for animal watering systems, industrial users, etc;
- Treated water tanks are designed, installed and maintained to prevent ingress;
- Implement a regular flushing regime for distribution network with low flows;
- Through use of valves, ball-valves, or level sensors ensure that water levels within tanks vary significantly to ensure water is turned over (prevention of stagnation); and

- Inlets and outlets to tanks should be sited at opposite ends to reduce the possibility of stagnant areas of water.

For a supply which originates from a public water supply in which a back-siphonage risk is identified liaise with local water company to determine if a water fittings inspection is required.

4.0 Action to deal with radiological hazards and risks

Where radiological contamination is identified as a hazard, the following control measures should be considered:

Radon removal treatment installed - must be before the water enters a building and aeration is the preferred treatment technique.

Uranium removal through point of use systems.

C. General Guidance whilst on site

- The site visit should be carried out in the presence of a “person in control” of the supply. This is someone who takes ownership for operating and managing the supply. This could be an owner, a nominated caretaker and/or site resident acting as the supply operator. There may be more than one person in control.
- The site schematic, where available should be consulted during the site visit, and its accuracy substantiated. The controller should be compelled to update this (or provide one, where one is absent) with additional detail, (such as inclusion of valves, meters, inspection chambers, tanks or hydrants) as part of an action plan, where necessary. Ideally, the date of any changes should be recorded and the revised plan filed and stored as part of the supply records by the controller and a copy retained by the local authority.
- To identify hazards and estimate the likelihood of the hazard manifesting, the hazard questions should be answered by means of a combination of observations, consultation of records/documentation and by asking enquiring questions of those in control of the supply. Do NOT complete the RA merely by asking the person in control the hazard questions. However, it is recognised that in some instances it may be necessary to rely entirely on the person in control to provide an answer, in the absence of any other evidence. In these situations supporting information should be gained from any available relevant documentation where possible.
- Local Authorities may find it useful or more convenient to take photographs of their findings during site visits, rather than taking copious notes. These can also provide useful records and reference material when later completing the RA back in the office, and optionally used in final reports. However, it is advisable not to store photographs within the tool itself as this could adversely affect the tool, and/or cause difficulties opening and closing the Excel spreadsheet due to the considerable space images take up, instead insert hyperlinks into the documentation of all supporting photos and evidence.
- It may be useful to have the guidance notes to hand for each hazard question whilst walking the site. You will only need those relevant to the sections that are applicable. These can be copied to another document beforehand as part of the visit preparation for site reference to avoid printing and taking out the entire guidance section.

- Where no records or documentation pertaining to the operation and repair and maintenance of the supply, request that the person(s) in control keep records, such as log book entries, receipts for contractor servicing etc as part of the action plan. The level of record keeping need only be proportionate to the size and extent of the supply.
- It is recognised that when risk assessing private water supplies, a great deal relies on judgements based on limited site information (for example, condition of assets that are hidden from view), particularly when it can only be gleaned verbally from a person in control, which can be difficult or impossible to verify by other means. In these instances a judgement of risk must take into account the reliability and validity of the information, based on the degree of confidence in the person in control. Factors that will influence a judgement of confidence include their:
 - (a) Track-record of compliance with the Private Water Supply Regulations,
 - (b) Track record, based on their willingness to cooperate, act on previous advice and comply with past requests
 - (c) attitude towards their responsibilities to supply and maintain a wholesome water supply and compliance with the Private Water Supply Regulations.
 - (d) General hygiene awareness and its application in relation to the supply and management of water supply systems.

Where little or no confidence is determined, the hazard and its severity and likelihood must be considered high.

- Where time and other constraints caused by the size and scale of a supply, or other impracticalities, a pragmatic and proportional approach to the risk assessment must be taken. For example, if there are numerous inspection chambers to assess, inspect a random and representative number that is proportional to the size of the supply and their position.
- When completing Section X, it is NOT a requirement to inspect loft tanks, *unless considered relevant and practical/safe* (health and safety considerations and rules must be applied). It is unlikely that water used for drinking purposes is stored within loft tanks, unless it supplies multiple floors or serves several buildings, although not exclusively so. Where loft tanks do apply, a pragmatic approach must be taken. Where relevant, the risk assessor should ask for evidence/information about the presence of a vermin proof cover and a cleaning regime. This could in the form of photographs, maintenance records, an

operator diary entry, etc. If no information is available, the requirement to provide such evidence should be included in the informal actions/notice.

- It is suggested that risk assessors read the guidance of each relevant question before a site visit.

D. Reporting to the DWI

Regulation 14 of the Private Water Supply (England) Regulations and regulation 16 of the Private Water Supply (Wales) Regulations require that supplies assessed as **high** or **very high** require a summary sheet to be returned to the DWI within 28 days of the assessment being carried out.

The “Private Water Supply Risk Assessment – Summary” tab must be used for these returns. This sheet is largely auto populated using the information from the “controls & actions” tab. The only field the risk assessor will need to manually populate is the status of supply. This field should include a brief description of the supply before any mitigating actions have been carried out.

| Private Water Supply Risk Assessment - Summary | | | | | |
|--|-----------------|---|---|------------------------------------|--|
| Select entire sheet; copy and paste into an email and return to DWI.Enquiries@defra.gsi.gov.uk | | | | | |
| Local Authority: Adur District Council | | | Supply Reference: your unique reference | | |
| Supply Name & Address: name & address of supply | | | Assessor: | | |
| Status of supply before mitigation actions are undertaken | | | | | |
| Risk rating: | | | | | |
| #VALUE! | RA Lite | Today | | | |
| Outstanding actions | | | | | |
| Description of risk root cause | Risk categories | Remedial actions required to improve the supply | Action Owner | Deadline for completion of actions | |
| Enter Description | B1, Associated | Any additional mitigation which is not already in place but which is required to reduce the risk should | The name of the | date for completion of a | |

Navigation: Risk Assessment Report | Controls & Actions | **Summary** | Lookup Admin

Once this sheet has been completed it should be emailed to the DWI at: DWI.Enquiries@defra.gov.uk. This can be done by right mouse clicking in the top left cell of the spreadsheet, selecting copy and then pasting this directly into an email.

| Private Water Supply Risk Assessment - Summary | | | | | |
|--|--|--|---|--|--|
| Select entire sheet; copy and paste into an email and return to DWI.Enquiries@defra.gsi.gov.uk | | | | | |
| Local Authority: Adur District Council | | | Supply Reference: your unique reference | | |
| Supply Name & Address: name & address of supply | | | Assessor: | | |
| Status of supply before mitigation actions | | | | | |

E. Abbreviations and Glossary

| Abbreviations: | |
|-----------------------|---|
| CIR | Chief Inspector's Report |
| DWI | The Drinking Water Inspectorate |
| GAC | Granular Activated Carbon |
| PAH | Polycyclic aromatic hydrocarbons |
| TCP | An unpleasant taste, described as TCP disinfectant like |
| PDS | Private distribution system |
| RO | Reverse osmosis |
| THM | Trihalomethanes |
| UV | Ultraviolet radiation |
| Glossary: | |
| µg/l | Microgram per litre (one millionth of a gram per litre). |
| Aesthetic | Associated with the senses of taste, smell and sight. |
| Aluminium | Occurs naturally in some source waters. It is removed from drinking water by conventional water treatment (coagulation and filtration). Aluminium sulphate and polyaluminium chloride may be used as water treatment chemicals at some water treatment works. A national standard of 200µg/l applies. |
| Ammonium | Salts are naturally present in trace amounts in most waters. Their presence might indicate contamination of sanitary significance and they interfere with the operation of the disinfection process. An indicator parameter with a guide value of 0.5mg/l. |
| Aquifer | Water-containing underground strata. |

| | |
|-----------------------------|--|
| Arsenic | Arsenic occurs naturally in only a few sources of groundwater. Specific water treatment is required to remove it. A European healthbased standard of 10µg/l applies. |
| Authorised departure | Authorisation for a private water supplier to temporarily supply water exceeding a drinking water standard, granted by the authorities only when there is no risk to human health. |
| Benzene | Benzene is present in petrol. It is not found in drinking water, but it can migrate through underground plastic water pipes if petrol is spilt in the vicinity. Some bottled waters and soft drinks which include sodium benzoate as an ingredient have been reported as containing benzene. A European health-based standard of 1µg/l applies. |
| Benzo(a)pyrene | This is one of several compounds known as polycyclic aromatic hydrocarbons (PAHs). Their source in drinking water is as a result of deterioration of coal tar, which many years ago was used to line water pipes. Due to extensive water mains refurbishment and renewal it is now rare to detect this substance in drinking water. A European health-based standard of 0.01µg/l applies. |
| Boron | Boron is found in surface water sources and comes from industrial discharges or from detergents in treated sewage effluents. The very low concentrations found in some drinking waters are not a concern to public health. A European health-based standard of 1mg/l applies. |
| Bromate | Bromate can be formed during disinfection of drinking water through a reaction between naturally occurring bromide and strong oxidants (usually ozone). It may be generated in the manufacture of sodium hypochlorite disinfectant. Exceptionally, groundwater beneath an industrial site can become contaminated with bromate. A European health-based standard of 10µg/l applies. |
| Catchment | When used in connection with water, the catchment is the area drained by a river or water body. |
| Chlorination | A chemical method for disinfecting water |

| | |
|---------------------------------------|--|
| Chlorine residual | This refers to the small amount of chlorine or chloramines present in drinking water to maintain its quality as it passes through the water company's network of pipes and household plumbing. |
| <i>Clostridium perfringens</i> | A spore-forming bacterium that is present in the gut of warm-blooded animals. The spores can survive disinfection. The presence of spores in drinking water indicates historic contamination that requires investigation. The standard is 0 per 100ml. |
| Coagulation | A process employed during drinking water treatment to assist with the removal of particulate matter. |
| Coliform bacteria | Coliforms are widely distributed in the environment often as a result of human or animal activity, but some grow on plant matter. Their presence in a water supply indicates a need to investigate the integrity of the water supply system. The standard is 0 per 100ml. |
| Colony counts | Colony counts are general techniques for detecting a wide range of bacteria, the types and numbers being dependent on the conditions of the test. These counts, if done regularly, can help to inform water management, but they have no direct health significance. The standard is 'no abnormal change'. |
| Colour | Colour occurs naturally in upland water sources. It is removed by conventional water treatment. A national standard of 20mg/l on the Platinum/Cobalt (Pt/Co) scale applies. |
| Conductivity | Conductivity is a non-specific measure of the amount of natural dissolved inorganic substances in source waters. An indicator parameter with a guide value of 2,500µS/cm. |

| | |
|--|--|
| Contact tank | This is a tank, normally situated on a treatment works site, which forms part of the disinfection process. A disinfectant chemical (normally chlorine) is dosed into the water as it flows into the tank. The period of time that the water takes to flow through the tank allows sufficient 'contact' time for the chemical to kill, or deactivate, any viruses or pathogenic organisms that may be present in the water. |
| Control Measures | Activities or processes within the supply used to eliminate or significantly reduce the occurrence of a water safety hazard. These measures are applied collectively to ensure that drinking water consistently meets health-based targets. |
| Copper | Copper in drinking water comes mostly from copper pipes and fittings in households. In general, water sources are not aggressive towards copper, but problems very occasionally occur on new housing estates. These 'blue water' events can be avoided by good plumbing practices. A European health based standard of 2mg/l applies |
| <i>Cryptosporidium</i> | <i>Cryptosporidium</i> is a parasite that causes severe gastroenteritis and can survive disinfection. |
| Dead leg | This refers to a piece of piping which is stopped off at one end, but is connected to the supply at the other end and can result in stagnant water in the pipework |
| Desalination | This is a process of removing salt from a saline source |
| Distribution systems | This refers to a water company's network of mains, pipes, pumping stations and service reservoirs through which treated water is conveyed to consumers. |
| Drinking water standards | The prescribed concentrations or values listed in regulations |
| EC Drinking Water Directive | Council Directive 98/83/EC December 1998 – setting out drinking water standards to be applied in member states. |
| Enforcement action | The means, as set out in the Water Act 1989 and consolidated into the Water Industry Act 1991, by which the Secretary of State requires a water company to comply with certain regulatory requirements. |
| Enterococci | see <i>Escherichia coli</i> . |
| Environment Agency | The Environment Agency is responsible for maintaining or improving the quality of fresh, marine, surface and underground water in England and Wales |
| <i>Escherichia coli</i> and Enterococci | These are bacteria present in the gut of warmblooded animals. They should not be present in drinking water and, if present, immediate action is required to identify and remove |

| | |
|----------------------------------|---|
| | any source of faecal contamination that is found The standard is 0 per 100ml |
| Filtration | This refers to the separation of suspended particulate matter from a fluid |
| Fluoride | Fluoride occurs naturally in many water sources, especially groundwater. It cannot be removed by conventional water treatment so high levels must be reduced by blending with another low fluoride water source. Some water companies are required by the local health authority to fluoridate water supplies as a protection against tooth decay. The drinking water standard ensures levels are safe in either circumstance. Fluoridation of water is a Department of Health policy. A European health-based standard of 1.5mg/l applies. |
| Granular activated carbon | GAC is an adsorbent filtration media used to remove trace organic compounds from water |
| Groundwater | Water from aquifers or other underground sources. |
| Hazard | Physical, chemical, microbial or radiological agents that has the potential to cause harm |
| Hydrogen Ion (pH) | The pH of a substance gives an indication of the degree of acidity of the water. A pH of 7 is neutral; values below 7 are acidic and values above 7 are alkaline. A low pH water may result in pipe corrosion. This is corrected by adding an alkali during water treatment. A specification of between 6.5 and 9.5 applies |
| Iron | Iron is present naturally in many water sources. It is removed by water treatment. Some iron compounds are used as water treatment chemicals. However, the commonest source of iron in drinking water is corrosion of iron water mains. A national standard of 200µg/l applies |
| Lead | Very occasionally lead occurs naturally in raw waters, but the usual reason for its presence in drinking water is plumbing in older properties. If the water supply has a tendency to dissolve lead then water companies treat the water to reduce consumer exposure. The permanent remedy is for householders to remove lead pipes and fittings. A European health-based standard of 25µg/l applies, but 10µg/l will apply from 25 December 2013 onwards. |
| Likelihood | The frequency a hazardous situation occurs |
| m³/d | Cubic metre per day |
| Manganese | Manganese is present naturally in many sources and is usually removed during treatment. A national standard of 50µg/l applies. |
| Membrane filtration | Filtration technology employing a membrane which physically traps contaminants larger than the specified pore size |
| mg/l | Milligram per litre (one thousandth of a gram per litre). |

| | |
|------------------------|---|
| Microbiological | A term associated with the study of microbes. |
| Mitigation | Action or activity used to eliminate or control action or activity used to eliminate or control a hazard (control measure). a hazard (control measure). |
| MI/d | Megalitre per day (one MI/d is equivalent to 1,000 m ³ /d, or to 220,000 gallons/d). |
| Nickel | Nickel occurs naturally in some groundwater and where necessary special treatment can be installed to remove it. Another source of nickel in drinking water is the coatings on modern taps and other plumbing fittings. A European health-based standard of 20µg/l applies. |
| Nitrate | Nitrate occurs naturally in all source waters although higher concentrations tend to occur where fertilisers are used on the land. Nitrate can be removed by ion exchange water treatment or through blending with other low nitrate sources. A European health-based standard of 50mg/l as NO ₃ applies. |
| Odour | An odour can arise as a consequence of natural processes in surface waters, particularly between late spring and early autumn. Water treatment with activated carbon or ozone will remove natural substances causing taste. The standard relates to the evaluations of a panel of people assessing samples in the laboratory. |
| Oocyst | An Oocyst is the resistant form in which <i>Cryptosporidium</i> occurs in the environment, and which is capable of causing infection. |
| Parameters | The substances, organisms and properties listed in the Schedules of the regulations. |
| Pathogen | An organism which can infect humans and cause disease. |
| Pesticides | Any fungicide, herbicide, insecticide or related product (excluding medicines) used for the control of pests or diseases. |

| | |
|--|--|
| Phosphate dosing | Treatment of water that results in a protective film building up on the inside of pipes minimising the likelihood of lead being present in drinking water supplied through lead pipes. |
| Polycyclic aromatic hydrocarbons (PAHs) | PAH is a group name for several substances present in petroleum-based products such as coal tar. (see Benzo(a)pyrene listed above for more information). A European health-based standard of 0.1µg/l for the sum of all the substances applies |
| Private supplies | Water supplied for human consumption or food production which is not provided by a water undertaker or licensed water supplier. |
| Private distribution system | Water supplied from a public water main distributed through a private network of tanks and pipes (onward distribution) – See guidance information note |
| Public supplies | Water supplied by a company licensed for that purpose (also commonly referred to as mains supply) |
| Regulations | The Private Water Supplies Regulations 2009 The Private Water Supplies (Wales) (Amendment) Regulations 2010 |
| Remedial action | Action taken to improve a situation. |
| Residual disinfectant | The small amount of chlorine or chloramines present in drinking water to maintain its quality as it passes through the water company's network of pipes and household plumbing. |
| Reverse osmosis | A membrane based technology that removes large molecules and ions through the application of selective membranes and pressure |
| Risk | The chance of a hazard causing harm (function of likelihood and severity) |
| Risk assessment | A review undertaken to identify actual or potential hazards to human health in a water treatment works and associated supply system. Prioritisation of risk is based on consideration of likelihood and consequence of the risk occurring. |
| Service reservoir | A water tower, tank or other reservoir used for the storage of treated water within the distribution system. |
| Severity | The level of harm predicted. |
| Schmutzdecke | The complex biologically active layer formed on the surface of a slow sand filter |

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| Source water | Water prior to receiving treatment for the purpose of drinking. |
| Springs | Groundwater appearing at the surface at the outcrop of the junction of a permeable stratum with an impermeable stratum. |
| Surface water | Untreated water from rivers, impounding reservoirs or other surface water source. |
| Taste | Tastes can arise as a consequence of natural processes in surface waters, particularly between late spring and early autumn. Water treatment with activated carbon or ozone will remove natural substances causing taste. The standard relates to the evaluations of a panel of people assessing samples in the laboratory. |
| Treated water | Water treated for use for domestic purposes as defined in the regulations. |
| Trihalomethanes | THMs are formed during disinfection of water by a reaction between chlorine and naturally occurring organic substances. Their production is minimised by good operational practice. A European health-based standard of 100µg/l applies. |
| Turbidity | Turbidity is a measure of the cloudiness of water. At treatment works, measurement is an important non-specific water quality control parameter because it can be monitored continuously on line and alarms set to alert operators to deterioration in raw water quality or the need to optimise water treatment. An indicator parameter with a guide value of 1NTU. When detected at the consumer's tap it can arise from disturbance of sediment within water mains. A national standard of 4NTU applies in this case. |
| Undertakings | Legally binding programmes of work agreed between a water company and the Chief Inspector of Drinking Water to address actual or potential water quality issues. |
| UV | Ultraviolet radiation used to disinfect water |
| Validation | Obtaining evidence to show that planned effective within the context of UV treatment this means that the applied dose will achieve the required level of disinfection if operated according to the manufacturer's instructions. |
| Verification | The use of methods, procedures, and tests in addition to routine monitoring data to control measures |

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| | (mitigation) will be determine whether existing control measures are effective and improvements are successful |
| WHO | World Health Organisation |
| Wholesome/ wholesomeness | This term relates to a legal concept of water quality which is defined by reference to standards and other requirements set out in the regulations |