

**EXPLANATORY MEMORANDUM TO**  
**THE PRIVATE WATER SUPPLIES (WALES) REGULATIONS 2010**  
**2010 No. [XXXX]**

1. This explanatory memorandum has been prepared by the Department of Environment, Sustainability and Housing and is laid before the National Assembly for Wales in conjunction with the above subordinate legislation and in accordance with Standing Order 24.1.

**Minister's Declaration**

In my view, this Explanatory Memorandum gives a fair and reasonable view of the expected impact of the Private Water Supplies (Wales) Regulations 2010 and I am satisfied that the benefits outweigh any costs.

*Jane Davidson*

Minister for Environment, Sustainability and Housing

13 January 2010

2. **Description**

These Regulations replace the Private Water Supplies Regulations 1991, and are required to meet the provisions of the European Council Directive 98/83/EC ("Drinking Water Directive") on the quality of water intended for human consumption provided by private drinking water supplies. These new Regulations will provide improved health protection for consumers of private water supplies and consumers of food produced or prepared using private water supplies.

3. **Matters of special interest to the Subordinate Legislation Committee**

None

4. **Legislative Background**

These Regulations implement the Drinking Water Directive relating to the quality of water intended for human consumption in respect of private supplies.

The existing Regulations (the Private Water Supplies Regulations 1991) transposed Council Directive 80/778/EEC. However these Regulations are insufficient to transpose, implement and enforce the current Drinking Water Directive in respect of private water supplies intended for human consumption.

The Welsh Assembly Government has already transposed the Drinking Water Directive into national law for public water supplies (the Water Supply (Water Quality) Regulations 2001 and the Water Supply (Water Quality) Regulations (Amendment) Regulations 2007) in Wales. These Regulations will contribute to the transposition of the Drinking Water Directive for private drinking water supplies in Wales.

## **5. Purpose and intended effect of the legislation**

The objective of the Drinking Water Directive is to protect human health from the adverse effects of contamination of water intended for human consumption by ensuring that it is wholesome and clean. To achieve this, the Drinking Water Directive sets new and revised standards for drinking water quality and specifies new monitoring (sampling and analysis) requirements.

These Regulations will achieve the objectives of the Drinking Water Directive through monitoring of private drinking water supplies against the revised standards and other requirements for wholesomeness. Local authorities, who will be implementing these Regulations, will also investigate the cause of unwholesome supplies and ensure remedial action is taken to restore the quality of the water to protect human health and to make the supply wholesome again.

The World Health Organisation has recommended that the most effective means of consistently ensuring the safety of a drinking water supply is through the use of a comprehensive risk assessment. Consequently, although not required by the Drinking Water Directive, these regulations have included requirements for risk assessment of private drinking water supplies as a means to overcome the deficiencies of infrequent monitoring programmes.

Implementation of the Drinking Water Directive by administrative or non-regulatory means, such as guidance or a code of practice, would not transpose the Drinking Water Directive into national law and would not achieve the controls and measures needed to monitor and enforce the Drinking Water Directive's standards and other wholesomeness requirements.

There are more than 11,900 private water supplies in Wales, providing in excess of 30,000 people with water for their day to day domestic needs. However, there are also a large number of transient and occasional consumers of water derived from private supplies through food products and drinks made with water from private supplies such as holiday homes, bed and breakfast accommodation and campsites. These people are at greater risk of illness from contaminated private supplies because they have no acquired immunity which may develop within people who consume the supply on a daily basis.

There have been several reports of illness in the UK attributable to the poor quality of some private drinking water supplies, particularly some of the smaller supplies which are often untreated or not adequately treated to remove contamination. These Regulations ensure that all private supplies meet the same drinking water quality standards as public supplies and therefore provide consumers of private supplies, including food produced or prepared using private supplies, with a similar degree of health protection as consumers of public supplies.

## **6. Consultation**

There was a full public consultation between March and June 2009. 137 responses were received from many individuals and a wide range of sectors including agriculture, business, local authorities, and the third sector. There was support for the broad themes of the Drinking Water Directive. There were however some concerns which have been addressed in the revised regulations.

Firstly, significant concerns were raised as part of the consultation over the costs of these regulations to owners of private water supplies, principally in rural areas. This was particularly the case for our preferred policy option – to include a duty to monitor (annually) and risk assess (every five years) small shared supplies. These supplies are currently generally exempt under the Drinking Water Directive. We now propose a compromise policy option which removes the duty on local authorities to monitor shared small supplies annually and instead require local authorities to monitor only when they undertake a risk assessment of the risks to the water supply once every five years. This will reduce costs and pressure on local authority resources while maintaining benefits for health protection.

The second change is the removal of provisions relating to powers of entry and powers of authorised persons. The draft Regulations contained standard powers of entry, powers of authorised persons, obstruction and penalty provisions not included in the 1991 Regulations. A number of consultation responses expressed concern over these regulations. In answer, to these comments, a review of legislation was undertaken. This confirmed that existing powers under Schedule 6 of the Water Industry Act 1991 are adequate.

## **7. Implementation**

9.1 The Welsh Assembly Government is working with the Drinking Water Inspectorate (DWI) to issue comprehensive guidance for local authorities, owners and users of such private water supplies. A preceding “living draft” document will explain the regulatory requirements in detail and will include advice on carrying out risk assessments, monitoring and investigations, will provide information for owners and occupiers on how they can protect and maintain their supplies, and will provide options for remedial actions that are available if supplies fail to meet standards. The “living draft” guidance will be available on both the DWI and Welsh Assembly Government web sites and feedback will be encouraged and incorporated to take account of experiences during the implementation of the Regulations.

## 8. Regulatory Impact Assessment

### PRIVATE WATER SUPPLIES (WALES) REGULATIONS 2010

#### Description

1. The Private Water Supplies (Wales) Regulations 2010 will protect the health of consumers of private water supplies and consumers of food and drink prepared from private water supplies.

#### Legislative Background

2. The quality of water intended for human consumption is the subject of EU Directive 98/83/EC (the Directive). The current regulations (the Private Water Supplies Regulations 1991) transposed, council Directive 80/778/EEC but do not adequately implement and enforce the requirements of the current Directive with respect to private water supplies. These new regulations will contribute to transposition of the current Directive..

#### Purpose

3. The Directive was made following a fundamental review of the previous Directive (80/778/EEC) relating to the quality of water intended for human consumption (usually identified, for convenience as “drinking water”). The review took into account the current and developing understanding of medical, scientific and technological issues relating to the quality of drinking water. The Directive set new or revised standards and identified other quality measures for drinking water that were generally in line with the second edition of the World Health Organization’s (WHO) guidelines for drinking water quality, published in 1993<sup>1</sup>.

4. The WHO guideline values represent the concentration of a parameter that does not result in any significant risk to the health of a consumer, usually over a lifetime of consumption. Where scientific research demonstrated that it was necessary, some new parameters were added to the Directive, but the overall total of parameters was reduced from 62 to 48 to include only those considered essential at the level of the European Union to ensure a continued high level of health protection.

5. With respect to private water supplies, Directive 80/778/EEC was transposed and implemented through the Private Water Supplies Regulations 1991 (SI 1991/2790). However, these regulations are insufficient to transpose, implement and enforce the new Directive in respect of private water supplies and therefore new regulations are required.

6. The objective of the Directive is to protect human health from the adverse effects of contamination of water supplies by ensuring that they are wholesome and clean. The Directive defines a wholesome supply as meeting the regulatory standards and not containing anything that would constitute a risk to human health. ***There have been many reports of illness in the UK attributable to the poor quality of some private water supplies<sup>2</sup>, particularly some of the smaller supplies which are often untreated or not adequately treated to remove contamination.*** It is also likely that many cases of such illness are either not reported or are wrongly attributed to some other cause. This is

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<sup>1</sup> Guidelines for drinking-water quality, Second Edition, Volume 1, Recommendations, World Health Organisation, Geneva, 1993.

<sup>2</sup> Communicable Disease Reports, Surveillance of Waterborne Disease and Water Quality (six monthly), Health Protection Agency, <http://www.hpa.org.uk>.

because many private water supplies are used by transient populations, such as holidaymakers, and the symptoms and the causes of illness may not be readily apparent, often until after a consumer has returned home or moved elsewhere.

7. The WHO has continued to review its guidelines for drinking water quality and in 2004 issued a 3<sup>rd</sup> edition<sup>3</sup> which attaches greater emphasis to proactive measures, rather than monitoring for large numbers of parameters in drinking water supplies. These measures include identifying potential hazards and the risk of those hazards occurring, and measures to prevent or control those risks. WHO describes this process of risk assessment as a 'water safety plan'.

8. A water safety plan considers the risks to a source of a drinking water supply, the treatment facilities, the distribution infrastructure including pipes, reservoirs or tanks, and the internal pipe work within premises, and measures to prevent or control contamination from "catchment to tap". One of the key elements of a water safety plan is the identification of the hazards and the risks associated with those hazards. This element is described as a "**risk assessment**" and it is included in the regulations because it can assist Wales to comply with its obligations under the Directive.

9. The regulations do not define private water supplies. However, from the Water Industry Act 1991 **private water supplies** can be interpreted as:

- (a) all water supplies **not** supplied by a statutory water undertaker appointed under Chapter 1A of Part II of the Water Industry Act 1991;
- (b) all water supplies **not** supplied by a licensed water undertaker licensed under Chapter 1A of Part II of the Water Industry Act 1991; and
- (c) water supplies that **are** supplied by (a) and (b) above through "private distribution systems"

This definition includes private supplies to "**single private dwellings**" where a dwelling is the only property supplied by a private supply and the dwelling is not a public premises and is not used for commercial activities.

10. Local authorities will be responsible for implementing and enforcing the regulations. The regulations include the provisions required to transpose the Directive in Wales. The regulations include drinking water quality standards, monitoring to check compliance with the standards and other wholesomeness criteria, investigation and remedial action when there is a failure to comply with a standard, and enforcement powers. Although risk assessments are not required by the Directive, the regulations (option 3(c)) require local authorities to carry out a risk assessment of each private supply (discretionary for supplies to single private dwellings) in order to assist them to make decisions under the regulations and to reduce the monitoring and other costs.

11. Local authorities will be able to recover most of their costs, normally from owners and occupiers of premises supplied by private supplies, and in some cases from those who exercise powers in relation to the management or control of the supply. Consumers of public water supplies meet these monitoring costs when they pay their water bills. Therefore it is reasonable for consumers of private supplies to meet monitoring and related costs to ensure that their supplies are safe. It would not be reasonable for these costs to be borne by all council tax payers

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<sup>3</sup> Guidelines for Drinking-water Quality, Third Edition, Volume 1, Recommendations, World Health Organisation, Geneva, 2004

12. The Directive allows certain small supplies to be exempt from its provisions (see paragraph 19 below). Small supplies are those of less than 10 m<sup>3</sup>/day (serving less than 50 persons) that are not part of a commercial or public activity (such as bed and breakfast). ***The regulations would apply requirements to these small supplies (except supplies to single private dwellings) because people in Wales consuming water and food prepared from water from these small supplies are entitled to the same level of health protection as people served by larger private supplies and public supplies.***<sup>4</sup>

## Options

13. The following options have been considered;

Option 1 – Do nothing - current 1991 regulations do not adequately transpose the Directive

Option 2(a) - full transposition without risk assessment and excluding small private supplies.

Option 2(b) - full transposition without risk assessment and including small private supplies.

Option 3(a) - full transposition with risk assessment and excluding small private supplies.

Option 3(b) - full transposition with risk assessment and including small supplies - with annual monitoring

Option 3(c) - full transposition with risk assessment and including small supplies monitored once every 5 years – preferred option

A detailed analysis of each option is contained in the Appendix (Page 6). All figures which form the basis of this analysis are available at Box 1 (Page 9). **In summary Option 3(c) is the favoured option because the use of risk assessments reduces monitoring costs and it fully protects health of consumers using small private supplies.**

## Risk Assessment

14. Failure to implement these Regulations will be seen by the Commission as non-transposition of the Directive. The Commission has commenced infraction proceedings and a failure to implement these Regulations will lead to further action by the Commission with penalties being of a financial nature.

## Consultation

15. Within government, Welsh Assembly Government has liaised and collaborated with Defra, Drinking Water Inspectorate (DWI) and the devolved administrations in the UK and other government departments in the preparation of the regulations. The purpose of this was to achieve a broadly consistent approach to policy and to the content of the regulations. Technical guidance that will be needed to assist local authorities to comply with their duties and powers under the regulations has been developed. This guidance entitled “Private Water Supplies Technical Manual” is available online<sup>5</sup> and will be up-dated to reflect these regulations.

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<sup>4</sup> Strategic Policy Position Statement on Water, Welsh Assembly Government, 2009

<sup>5</sup> See Professionals Homepage and the Technical Manual at - [http://www.privatewatersupplies.gov.uk/private\\_water/21.html](http://www.privatewatersupplies.gov.uk/private_water/21.html)

16. The Assembly Government issued a public consultation document in March 2009<sup>6</sup>. In preparing its consultation document, WAG took note of the public consultations in Scotland from November 2001 to February 2002, and from March 2005 to May 2005 and in England in August 2008 as the problems with private supplies are similar throughout the UK, has been able to take the outcomes into account in preparing its own proposed regulations and consultation paper. It also took note of comments and suggestions made by various stakeholders, including local authorities, at national and regional conferences, workshops and seminars and other informal consultations on the proposed regulations. Over 130 responses were received to the consultation in Wales and more than 80 delegates attended an additional consultation workshop was held in August.

17. This Impact Assessment (IA) accompanies the new Regulations for private supplies. The purpose of the IA is to assess the likely impact in Wales of the new and different regulatory arrangements on owners and consumers of private supplies, public and commercial activities that are affected by private supplies and on local authorities. The consultation IA was published as part of the consultation on these Regulations in March 2009. Comments received as a result of the public consultation process have informed the preparation of this final IA.

### ***Other potential options***

18. Implementation by administrative or non-regulatory means, such as guidance or a Code of Practice, would not transpose the Directive into law and would not achieve the controls and the measures needed to monitor and enforce the Directive's standards and other wholesomeness requirements. Also, such an approach would be insufficient to dissuade the European Commission from continuing with infraction proceedings.

### **Exemption from the Directive**

19. The Directive allows Member States discretion to exempt from their regulations small domestic supplies that provide an average daily volume of less than 10 cubic metres (< 10m<sup>3</sup>/day), or serve fewer than 50 persons<sup>7</sup>, provided the water is **not** supplied as part of a **commercial or public activity**. Hence, an individual supply of < 10m<sup>3</sup>/day, serving one or more dwellings and used solely to meet the daily domestic needs of the occupants could be exempt from the regulations. But it is a regulatory requirement that a supply to any dwellings, including a supply to a single private dwelling, using < 10m<sup>3</sup>/day could not be exempt if there was any element of commercial (or public) use, such as bed and breakfast. Options 2 and 3 above cover whether to exclude (options 2(a) and 3(a)), or to include (options 2(b), 3(b) and 3(c)), these small private supplies. Therefore it is not possible to exempt small or medium enterprises' (SME's) who use private supplies as part of a commercial or public activity from the Regulations.

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[http://www.privatewatersupplies.gov.uk/private\\_water/22.html](http://www.privatewatersupplies.gov.uk/private_water/22.html)

<sup>6</sup> Consultation on The Private Water Supplies (Wales) Regulations 2009 at – INSERT WEB REF

<sup>7</sup> When assessing volume for monitoring, the normal presumption is that one person may "consume" about 200 litres per day (0.2m<sup>3</sup>/day). Hence, 5 persons may consume 1,000 litres (1 m<sup>3</sup>/day), and so on, up to the discretionary threshold for domestic use only, set at 10 m<sup>3</sup>/day (10,000 litres) or 50 persons.

## Appendix: Detailed consideration of options

### Option 1 - do nothing

20. The current regulations, the Private Water Supplies Regulations 1991, were intended to transpose the 1980 European Directive and do not adequately transpose, implement or enforce the 1998 Directive, primarily because -

- the 1998 Directive includes some new and some tighter standards for drinking water quality parameters, there are some new parameters and a number of parameters have been dropped;
- sampling and analysis (“monitoring”) requirements have changed significantly, including new “check” and “audit” monitoring to assess compliance with the standards; and
- local authorities have no power or duty to enforce the standards in the current regulations, and have only a discretionary power (section 80, Water Industry Act 1991), to require owners and occupiers to take remedial action to deal with failing private supplies.

21. If nothing is done it is possible that many people receiving private supplies will have inferior drinking water quality compared to people receiving public water supplies and will consequently be at much greater risk of contracting water borne infections. For example in 1998/99<sup>8</sup>, 31.5% of samples from private water supplies in England and Wales failed the microbiological standards and 23% failed the chemical parameter standards in the 1991 regulations and in 1999/2000<sup>9</sup> the corresponding figures were 33% and 25%. Most of these failures are associated with small supplies. Failure of the microbiological standards, which are essentially the same in the new regulations, represents a significant risk of contracting waterborne disease. Comparable data for public water supplies in 1999<sup>10</sup> reported only 0.22% of samples failed the same microbiological and chemical standards.

22. The European Commission issued a Reasoned Opinion letter in November 2009 relating to the transposition of the Directive in the UK. In respect of private supplies, Scotland introduced new regulations in 2006 and England and N Ireland will have similar regulations in place by 20 January 2010.

**For the reasons given above, it is not feasible to do nothing and option 1 is not a viable option. All the following options would ensure compliance with the requirements of the Directive.**

### Options 2(a) and 2(b) Full transposition without risk assessment

#### 2(a) *excluding small supplies*

23. **Option 2(a) is the minimum that would comply fully with the requirements of the Directive.** It would involve meeting fully the Directive’s monitoring requirements relating to all supplies that were not allowed to be exempt. When there was a failure to comply with a standard, the local authority would be required to investigate and to require the necessary remedial action through informal negotiation, an “authorised

<sup>8</sup> CIEH Annual Environmental Health Report 1998/99

<sup>9</sup> CIEH Annual Environmental Health Report 1999/2000

<sup>10</sup> Drinking Water Inspectorate, Drinking Water 1999



departure” or an “improvement notice”; and where necessary it would be required to take enforcement action in default of compliance. **However, this option does not improve the quality of small supplies or protect the health of consumers using small supplies (see paragraph 12 above).**

### **2(b) *including* small supplies**

24. Option 2(b) is the same as option 2(a), except that it would include the “small” supplies (< 10m<sup>3</sup>/day, or serving fewer than 50 persons that are not used for commercial or public activity). Therefore this option goes further than required by the Directive because it does not apply the discretionary threshold below which smaller supplies may be exempt. Option 2(b) would ensure that **users of small private supplies enjoy the same degree of health protection** as consumers of larger private supplies or those of any average daily volume that provide water for use in a commercial or public activity.

The World Health Organisation recommends the use of the risk assessment approach to target resources and this approach has been adopted in the rest of the UK. Options 2 (a) and (b), by not using risk assessments may reduce the effectiveness of monitoring. .

### **Options 3(a), 3(b) and 3(c) Full transposition with risk assessment**

#### **3(a) *excluding* small supplies**

25. Option 3(a) would comply fully with the requirements of the Directive but because it includes risk assessments and the Directive does not, this option would go further than is required by the Directive. Carrying out risk assessments and taking the findings into account will assist local authorities in reducing the overall amount of monitoring. This is because the Directive allows parameters to be excluded from “audit” monitoring when it can be demonstrated that they are unlikely to be present at concentrations that would contravene the standards. Risk assessments would provide that demonstration. Furthermore, a risk assessment is a proactive procedure that should assist local authorities to identify where failures are likely to occur and to investigate failures and reach decisions on appropriate and proportionate remedial action under the regulations. **However, this option would not deliver the objective of improved the quality of small supplies or protection of the health of consumers using small supplies.**

#### **3(b) *including* small supplies with annual monitoring**

26. Option 3(b) is the same as option 3(a), except that it would include the smaller supplies that are not used for commercial or public activity. Therefore this option goes further than option 3(a) or as required by the Directive and would ensure **that users of small supplies in Wales enjoy the same degree of health protection** as consumers of larger supplies or those of any average daily volume that provide water for use in a commercial or public activity. The risk assessments would allow local authorities to reduce the overall level of monitoring and concentrate monitoring on the important parameters which would assist them to identify where failures are likely to occur and to investigate failures and reach decisions on appropriate and proportionate remedial action under the regulations. **Option 3b would deliver the level of health protection that users of small supplies in Wales deserve and it is the option that has been used in the draft regulations. It is also the most cost effective option over a 15 year period because of the additional health benefits it will provide (see also paragraph 58).**

#### **3(c) *including* small supplies with 5 yearly monitoring**

This is a variation on option 3(b). The costs are reduced by requiring monitoring to be carried out every five years at the same time as the risk assessment instead of monitoring annually. **This option provides the best way of implementing the Directive , including Risk Assessments and balancing costs and is the option on which the Regulations are based.**

### **General duty to enforce improvement notices**

27. Local authorities have no enforcement **powers** under the current 1991 regulations. They have a **discretionary power** to serve notices under section 80 of the Water Industry Act 1991 to require improvements to private supplies. However, local authorities have been reluctant to use these powers, possibly partly because of the complex procedures required, and this explains why many private supplies still fail the microbiological and chemical standards in the 1991 regulations (see paragraph 21 above).

28. Under the regulations local authorities have a general duty to enforce the requirements the regulations and a specific duty to serve a section 18 notice to ensure a private water supply is no longer a potential risk to human health. For supplies to single dwellings, enforcement is discretionary.

### ***Cost and benefits***

#### ***Sectors and groups affected***

29. Local authorities will implement the regulations by carrying out the monitoring and requiring action to achieve compliance with the standards. They will have the power to recover from the owners or occupiers of premises supplied by private supplies, the costs of carrying out risk assessments, monitoring (sampling and analysis) and investigations of failures. They will not be able to recover the costs of enforcement that is the preparation, serving and enforcement of notices.

30. The regulations will primarily affect owners and occupiers of premises supplied by private supplies, including supplies used in commercial or public activities, and in some circumstances those with powers of management or control over private supplies as they will be responsible for meeting the required standards. Most private supplies are in rural areas and they may supply individual properties, and premises that are situated close together or are dispersed. The sectors affected will include private estates, campuses, small groups of dwellings that are served by the same private supply, farms and food production undertakings, and any catering businesses, including establishments or dwellings where bed and breakfast facilities are provided, other recreational and holiday premises such as caravan and camp-sites, hotels or guest houses.

#### ***Numbers of private water supplies***

31. There are no precise numbers for private supplies in Wales. But annual returns from the majority of local authorities to the Assembly Government provide a good basis for a quantitative and qualitative assessment of benefits and costs of each option to be carried out. These returns indicate that there are about 11,900 private supplies in Wales. Some 9,490 are supplies to single private dwellings. These numbers are derived from the 2007 returns to the Assembly Government on the numbers of all private supplies, as identified by their classification under the current 1991 Regulations. Further details of the numbers and category of supplies are shown in Box 1, along with a summary of the assumptions made.

32. Some of the 9,490 supplies to single private dwellings and some of the 1,170 small supplies (under the classifications used in the 1991 regulations) will be supplies that are used for commercial or public activities (mainly bed and breakfast and associated activities). The classifications under the 1991 regulations did not distinguish between solely domestic supplies and supplies used for commercial or public activities. Therefore there is no good information on how many are used for commercial or public activities. The number is likely to be small and it is assumed that in Wales there will be some 100 additional such small supplies, split equally between single dwellings and small supplies (less than 10 m<sup>3</sup>/day) which are required to meet the Directive and under the regulations are treated as large supplies. Therefore for this final IA, it is assumed that there are 1,330 large supplies (including 100 small supplies and supplies to single private dwellings that are used for commercial or public activities) and 1,130 small supplies.

Box 1

<b>Background data and assumptions</b>						
<b>Category 1 supplies - domestic</b>						
Single dwelling private supplies	9,490	Note: m <sup>3</sup> /d – cubic metres per day				
Multiple dwelling supplies <5m <sup>3</sup> /d	1,170	Class F				
Domestic supplies >5 and <20 m <sup>3</sup> /d	20	Class E				
Total domestic supplies	10,680	Class D See assumption 1				
<b>Category 2 Supplies - commercial and changing populations</b>						
Class	1	2	3	4	5	Total
Volume band - m <sup>3</sup> /d	(>1000)	(101-1000)	(21-100)	(2-20)	(<2)	
Dairy	0	0	0	8	332	340
Washing Farm Products	0	0	0	0	0	0
Food & drink	0	2	8	11	23	44
Residential	0	3	12	38	56	109
Other	0	0	2	10	92	104
Not otherwise listed	1	2	11	145	467	626
Total	1	7	33	212	970	1,223
<b>Assumptions:</b>						
1. Assumption that Class D, which covers 5-20m <sup>3</sup> /d, is split 50/50 above and below 10m <sup>3</sup> /d						
2. Assume 50 each of the domestic single and multiple dwellings <5m <sup>3</sup> /d have a commercial use such as B&B so these will have to comply with the directive requirements as "large supplies". This reduces the number of single dwellings to 9,440 and multiple dwellings to 1,130. It increases the number of "large" supplies to 1,333 (See Paragraph 32)						
3. Assume that Class 4, which covers 2-20m <sup>3</sup> /d, is split 50/50 above and below 10m <sup>3</sup> /d						
<b>For the purposes of the new proposals this gives the following figures:</b>						
Largest supplies 100-1000m <sup>3</sup> /d	8					
Medium Large 10-100m <sup>3</sup> /d	149	33 Class 3, 106 Class 4, 10 Class D (50%)				
Small less than 10m <sup>3</sup> /d	1,076	970 Class 5, 106 Class 4 (50%)				
Plus 100 domestic assumed large	100	See assumption 2				
Total	1,333					
Single Domestic	9,440	See assumption 2				
Multiple domestic <10m <sup>3</sup> /d	1,130	See assumption 1 & 2				
Total	10,570					
Note: For the purposes of the impact assessment, some figures have been rounded up or down.						

## Benefits

### *General approach*

33. Estimates of the benefits of the options have been informed by the partial Regulatory Impact Assessment (RIA) (March 2005<sup>11</sup>) and by the final RIA published with the Scottish Regulations<sup>12</sup>. These RIAs were informed by, and developed from, a report of a study carried out on behalf of the Scottish Executive by EnviroCentre, Glasgow<sup>13</sup>. The methodology used and the assumptions made in that study for estimating the benefits are assumed to be relevant to, and apply in, Wales. The proportion of failing supplies for microbiological parameters used in the Scottish study was between 24 and 58% depending on the size of the supply. It is known that small supplies fail more often than large supplies and therefore in Wales the failure rate for small supplies is likely to be similar to upper value in Scotland and the failure rate for the large supplies is likely to be similar to the lower value in Scotland. In view of the similar failure rates, there is no reason to suppose that the illness rates, duration of illness and costs of illness are likely to be significantly different in Wales than Scotland. Therefore it is judged reasonable for the benefits identified in Scotland to be scaled for Wales in proportion to the best available evidence on the relative numbers of large and small supplies in Wales.

34. The Scottish Study used contraction and reporting rates for illness based on data provided by the Scottish Centre for Infection and Environmental Health (SCIEH) on outbreaks of illness resulting from microbiological quality of private water supplies between 1988 and 2000) from existing failing samples from private supplies. These assumptions used include -

- the proportion of failing supplies (initially, 24% – 58%, depending on size of supply),
- the probability of a supply failing on any one day (20%),
- illness (diarrhoea) rates (1%),
- reporting of illness rates (10%),
- duration of illness (2 days), and
- costs of illness (economic loss factor, cost of treatment, loss of income and morbidity factor):
  - economic loss factor (1.3 or 30% of daily wage reflecting the overall economic loss per work day lost)
  - cost of treatment (£150 per reported case taking account of travel, doctor's time and treatment)
  - loss of income (opportunity cost to employer - average daily wage £87.36 from Scottish New Earnings Survey)
  - morbidity factor (decrease in quality of life when affected by illness - £50 per illness)

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<sup>11</sup> The Draft Private Water Supplies (Scotland Regulations 2005 and Proposals for a Private Water Supplies Grant Scheme – A Consultation issued in March 2005.

<sup>12</sup> Final Regulatory Impact Assessment, The Private Water Supplies (Scotland) Regulations 2006, issued in April 2006.

<sup>13</sup> Economic Assessment in Support of the Partial Regulatory Impact Assessment for Possible Regulations for Private Water Supplies and Public Buildings in Scotland, the Scottish Executive Central Research Unit 2004.

35. The health benefits have been estimated from the Scottish Study assuming 1,330 large supplies (including small supplies used commercially) in Wales (compared to 2,000 in Scotland) and 1,130 small supplies in Wales (excluding supplies to single private dwellings) compared to 19,000 in Scotland (including supplies to single private dwellings). It was decided to exclude supplies to single private dwellings when assessing health benefits in Wales because application of the regulations to such supplies is largely discretionary. The health benefits estimated in the Scottish study have been increased by 10% to allow for inflation using the Consumer Prices Index (CPI) since 2003 when the costs for the Scottish study were obtained.

### **Option 1 - do nothing**

36. No benefits.

### **Option 2(a) – without risk assessment excluding small supplies**

37. The main benefit of option 2(a), the minimum required to implement the Directive, compared to option 1 will be to ensure that an estimated 1,330 private supplies (large supplies and all supplies used for commercial or public activities irrespective of size) will be wholesome, clean and safe for human consumption. Although there is no specific information about the quality of these supplies, it is estimated that between 25 and 35% of them do not comply – 459 in total (see paragraph 48 for details) and this figure has been used for the calculation of the costs. This estimate is considered reasonable in view of the overall failure rate for all private supplies (see paragraph 25). ***But this option will not ensure that 1,130 small supplies are wholesome and safe for human consumption.***

### **Option 2(b) – without risk assessment including small supplies**

38. The benefit for option 2(b) compared to option 1 will be to ensure the 1,330 large supplies and the 1,130 small supplies will all be wholesome, clean and safe for human consumption. This will result in reduced numbers of adverse health impacts, including transmission of waterborne pathogens, among the populations who depend on, or who make occasional use of, large and small private supplies. It is estimated that this will result in improvements to 459 “large” supplies and 452 small supplies (based on the estimated 40% failure rate). **This will ensure that all private supplies (except supplies to single private dwellings) are wholesome and safe for human consumption.**

### **Options 2(a) and 2(b)**

39. Options 2(a) and 2(b) do not involve risk assessments. Consequently, failures of supplies to comply with the standards will normally only be detectable by routine monitoring under the regulations. While the health benefits for options 2(a) and 2(b) may be of the same value as those for options 3(a) and 3(b), they are liable to be delivered to a slower and longer profile than for options 3(a) and 3(b). This is because the risk assessments will lead to earlier detection of failing supplies and therefore earlier implementation of remedial action. It is not known how much later these benefits will be delivered as there is insufficient experience of operating risk assessments in this field and there is no methodology for dealing with the slower profile, therefore this has not been taken into account in the calculation of the health benefits

40. **This gives an estimated health benefit of £10.76m for option 2(a) over option 1** (for 1,330 large supplies in Wales based on £14.25m at 2003 prices for 1,935 supplies in Scotland, then inflated by 10%) **and an estimated health benefit of £13.88m for option 2(b) over option 1** (an additional £2.84m over option 2(a), inflated by 10% to £3.12m, for an additional 1130 small supplies in Wales based on £47.21m at 2003 prices for 18,735 small supplies in Scotland), **all benefits discounted over 15 years at 3.5%**<sup>14</sup>.

**Option 3(a) - with risk assessment and excluding small supplies**

**Option 3(b) - with risk assessment and including small supplies with annual monitoring**

**Option 3(c) - with risk assessment and including small supplies with 5 yearly monitoring**

41. The benefits and the estimated value of the benefits of options 3(a) are identical to those for option 2(a) and for 3(b) and 3(c) they are identical to those for option 2(b). However, options 3(a), 3(b) and 3(c) include risk assessments and failures of supplies to comply with standards may be detected by risk assessments earlier than by monitoring without risk assessment. The findings of risk assessments are also liable to make it easier and quicker for local authorities to investigate failures than for options 2(a) and 2(b). This is likely to mean that options 2 and 3 may deliver the same health benefits, but the benefits under options 3(a), 3(b) and 3(c) will probably be delivered to a faster and shorter profile than for options 2(a) and 2(b). It is not known how much earlier these benefits will be delivered as there is no experience of operating risk assessments in this field and there is no methodology for dealing with the quicker profile, therefore this has not been taken into account in the calculation of the health benefits

42. **Thus the estimated health benefit is £10.76m for option 3(a) over option 1** (for 1,330 large supplies in Wales based on £14.25m at 2003 prices for 1,935 supplies in Scotland, inflated by 10%) **with an estimated health benefit of £13.88m) for option 3(b) and 3(c) over option 1** (an additional £2.84m over option 3(a), inflated by 10% to £3.12m, for an additional 1,130 small supplies in Wales based on £47.21m at 2003 prices for 18,735 small supplies in Scotland), **all benefits discounted over 15 years at 3.5%**<sup>15</sup>.

**Options 2(a), 2(b), 3(a), 3(b) and 3(c)**

43. The above paragraphs estimate the quantifiable health benefits from options 2(a), 2(b), 3(a), 3(b) and 3(c) over option 1. These are avoiding loss of income, loss of economic activity, medical treatment costs and morbidity through avoidance of illness associated with consumption of contaminated water from private supplies. But there are a number of other benefits that are not quantifiable but are recorded here qualitatively. A summary of these is given in Tables 1 to 4

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<sup>14</sup> See Section 58

<sup>15</sup> See Section 58

**Table 1 – additional qualitative benefits of option 2(a) compared to option 1**

<b>Factor</b>	<b>Benefit</b>
All 1,330 “large” supplies will comply with the standards in time	No adverse health effects from an estimated 266 of these supplies.
	Economic competitiveness of commercial activities using these supplies.
	Reduced burden on local health services and industry.
	Increased confidence of consumers using these supplies
	Likely slight increase in appeal of properties supplied by these supplies (increasingly private supplies and their quality is an issue with property sales)
	Opportunities for companies supplying treatment and other equipment to improve these supplies.
	No restriction on development because of unsatisfactory private supplies (local authorities can refuse planning permission because there is no wholesome water supply).
Improved environmental quality	Improved management at the source of a private supply will also create conditions for improvements in the quality of the surrounding environment such as avoiding pollution of water bodies.
EU legal action	Infraction proceedings will be avoided

**Table 2 – additional qualitative benefits of option 2(b) compared to option 1**

<b>Factor</b>	<b>Benefit</b>
All 1,330 “large” supplies and 1,130 small supplies will comply with the standards in time	No adverse health effects from an estimated 266 of the “large” supplies and an estimated 565 of the small supplies
	Economic competitiveness of commercial activities using these supplies.
	Reduced burden on local health services and industry.
	Increased confidence of consumers using these supplies
	Likely slight increase in appeal of properties supplied by these supplies (increasingly private supplies and their quality is an issue with property sales)
	Opportunities for companies supplying treatment and other equipment to improve these supplies.
	No restriction on development because of unsatisfactory private supplies (local authorities can refuse planning permission because there is no wholesome water supply).
Improved environmental quality	Improved management at the source of a private supply will also create conditions for improvements in the quality of the surrounding environment such as avoiding pollution of water bodies.
Social justice	Consumers of small supplies will have good quality drinking water and the same degree of health protection as consumers of “large” supplies.
EU legal action	Infraction proceedings will be avoided

**Table 3 - additional qualitative benefits of option 3(a) compared to option 1**

<b>Factor</b>	<b>Benefit</b>
All 1,330 “large” supplies will comply with the standards in time	No adverse health effects from an estimated 266 of these supplies.
	Economic competitiveness of commercial activities using these supplies.
	Reduced burden on local health services and industry.
	Increased confidence of consumers using these supplies
	Likely slight increase in appeal of properties supplied by these supplies (increasingly private supplies and their quality is an issue with property sales)
	Opportunities for companies supplying treatment and other equipment to improve these supplies.
	No restriction on development because of unsatisfactory private supplies (local authorities can refuse planning permission because there is no wholesome water supply).
Timing of improvements	Use of risk assessments will mean improvements completed to shorter timescale than option 2(a)
Improved environmental quality	Improved management at the source of a private supply will also create conditions for improvements in the quality of the surrounding environment such as avoiding pollution water bodies.
EU legal action	Infraction proceedings will be avoided

**Table 4 – additional qualitative benefits of option 3(b) compared to option 1**

<b>Factor</b>	<b>Benefit</b>
All 1,330 “large” supplies and 1,130 small supplies will comply with the standards in time	No adverse health effects from an estimated 266 of the “large” supplies and an estimated 565 of the small Supplies
	Economic competitiveness of commercial activities using these supplies.
	Reduced burden on local health services and industry.
	Increased confidence of consumers using these supplies
	Likely slight increase in appeal of properties supplied by these supplies (increasingly private supplies and their quality is an issue with property sales)
	Opportunities for companies supplying treatment and other equipment to improve these supplies.
	No restriction on development because of unsatisfactory private supplies (local authorities can refuse planning permission because there is no wholesome water supply).
Timing of improvements	Use of risk assessments will mean improvements completed to shorter timescale than option 2(b)
Improved environmental quality	Improved management at the source of a private supply will also create conditions for improvements in the quality of the surrounding environment such as avoiding pollution of water bodies.
Social justice	Consumers of small supplies will have good quality drinking water and the same degree of health protection as consumers of “large” supplies.
EU legal action	Infraction proceedings will be avoided

## **Costs**

44. Local authorities are responsible for discharging the functions and duties under the regulations and will have a discretionary power to recover their costs up to prescribed maxima for certain specified individual functions. Local authorities could recover costs from the owners or occupiers of premises supplied by a private supply or other persons with a



responsibility for the supply (who exercise powers of management or control) for carrying out risk assessments, monitoring (sampling and analysis) carrying out investigations into failures and granting an authorisation to continue supply whilst remedial action is taken. A local authority may not recover costs of repeat sampling intended solely to clarify a result of an analysis of a previous sample or for serving improvement notices and restriction notices.

45. Under the Regulations, the local authority may make a charge where an owner or occupier asks the authority to monitor or to carry out a risk assessment on a supply to a single private dwelling that is not used for commercial or public activity. If the authority chooses to carry out a risk assessment or to monitor such a supply without a request from the owner or the occupier, the authority cannot recover its costs under the Regulations. It is not known to what extent users of supplies to single private dwellings will make such requests to local authorities but the number of requests is likely to be low (most likely when the ownership or occupancy of the dwelling changes). Supplies to single private dwellings have not been included in the calculation of the benefits and therefore have not been included in the costs because there is no obligation under the Regulations for the local authority to monitor them or enforce the standards in them.

46. In the following sections the total costs for options 2(a), 2(b), 3(a), 3(b) and 3(c) are calculated and compared with the costs for option 1 and the extra cost over option 1 given (in some cases the extra cost is negative; that is cost of the option is actually less than option 1). The costs are broken down into who pays based on the reasonable assumption that local authorities will want to recover all the costs that they are allowed to recover under the regulations.

47. Following the consultation and additional advice from the Drinking Water Inspectorate, some of the maximum prescribed charges in the regulations have been modified, particularly the maximum charge for carrying out a risk assessment of £500. Local authorities are allowed to recover the actual costs and most risk assessments will cost considerably less than the maximum charge and this has been taken into account in the costs used. Following the consultation further information has been obtained by the Drinking Water Inspectorate from suppliers of treatment equipment on the likely cost of supplying and installing typical treatment processes.

48. The following assumptions have been made on costs:

- **Cost of risk assessment**

***Largest supplies:*** average - £150

***Medium large supplies:*** average - £125

***Small large supplies:*** average - £100

***Small supplies:*** average - £100

- **Cost of sampling visit**

***All large and small supplies - £100***

- **Cost of analysis**

**Check monitoring** (all large supplies) - £100

**Audit monitoring**

***All large supplies without risk assessment - £500***

***Large supplies with risk assessment*** (assumes reduces number of parameters to be monitored)-

**Largest supplies:** average - £200

**Medium large supplies:** average - £150

**Small large supplies:** average - £100

**Small supplies:** £25

- **Cost of remedial action**

**Largest supplies:** average - £10,000

**Medium large supplies:** average - £2,000

**Small large supplies:** average - £1,000

**Small supplies:** average - £1,000

- **Cost of investigation of failures**

**All large supplies:** £100

**Small supplies** (annual monitoring): £100

**Small supplies** (risk assessment/monitoring every 5 years: £0 (RA will cover investigation)

- **Cost of notices**

**All large and small supplies:** £50

- **Cost of authorising departures**

**All large and small supplies:** £100

- **Administration (for owners)**

**All large supplies:** average £40

**Small supplies:** average £20

- **Overall failure rates**

**Largest supplies:** 25%

**Medium large supplies:** 30%

**Small large supplies:** 35%

**Small supplies:** 40%

### Option 1 (do nothing)

49. Local authorities have the power to recover costs associated with the monitoring (sampling and analysis) that they are required to carry out under the current 1991 regulations. These can be recovered from the owners or users of the private supplies. The maximum costs that local authorities may charge were fixed in 1991 and have not been revised since. The costs for sampling and analysis for option 1 have been based on the maximum charges in the 1991 regulations. They have not been inflated because although costs have risen considerably since 1991, laboratory analysis efficiency has improved substantially and it is assumed that these two factors cancel out. The maximum charges in the 1991 regulations for sampling include the costs of taking the sample, analysing it and the associated administration for local authorities. The only other cost is administration for

owners and it is assumed that this is the same as set out in section 48. It is assumed that there would be no further improvements to private water supplies under the 1991 regulations.

50. The costs for option 1 are estimated at **£1.08m/a** as shown in table 6.

**Table 6: costs for option 1 (do nothing)**

Type of supply and number	Category/class 1991 regulations	Volume of supply m <sup>3</sup> /d	Type of analysis, no of supplies, average frequency/a and cost (£)	Cost (£k/a) to owners
Largest 8	1(A), 2(1) 1(B), 2(2)	> 1,000 101 – 1,000	Part I – 8 x 9 x 20	1.4
			Part II – 8 x 4 x 40	1.3
			Part III – 8 x 4 x 270	8.6
			Part IV – 8 x 1 x 350	2.8
			Part V – 8 x 18 x 20	2.9
				<b>17</b>
Medium large 149	1(C), 2(3) Part 1(D), 2(4)	21 – 100 11 - 20	Basic – 149 x 1.5 x 40	9.0
			Addn – 149 x 1.5 x 300	67.0
			Colif – 149 x 3 x 20	9.0
				<b>85.0</b>
Small large 1,176	Part 2(4) 2(5) Mainly 1(F)	5 to 10 < 5	Basic – 1,176 x 1 x 40	47.0
			Addn – 1,176 x 1 x 300	353.0
				<b>400.0</b>
Admin	All	All	1,333 x 40	<b>53.3</b>
<b>All large supplies</b>				<b>555.3</b>
Small supplies	Part 1(D)	5 to 10	Basic – 1,130 x 1 x 40	45.2
			Addn – 1,130 x 1 x 300	339.0
	1(E)	< 5	Basic – 9,440 x 0.2 x 40	75.5
				<b>459.7</b>
Admin	All	All	1,130 x 1 x 20	22.6
			9,440x 0.2 x20	37.8
<b>All small supplies</b>				<b>520.1</b>
<b>ALL SUPPLIES</b>				<b>1,075.4</b>

**Options 2(a) and 2(b)** (without risk assessments – see tables 5 & 6 for summary of cost)

51. The main costs for owners and occupiers of premises supplied by private supplies associated with the regulations will be –

- the maximum charge that local authorities may make for a sampling visit;
- the maximum charge that local authorities may make for carrying out, or arranging to carry out, the analysis (note the full monitoring requirements have to be carried out under these two options);
- the new charge that local authorities may make for carrying out investigations into a failure to determine the cause and the appropriate remedial action and for informally negotiating with the owners or occupiers to get the remedial action taken

- the new charge that local authorities may make for processing applications from the owners or occupiers for an authorisation to continue supply whilst remedial action is being taken;
- the cost of carrying out any required remedial action, including any and charge that the local authorities may make for carrying out the remedial action themselves; and
- the administrative costs of dealing with local authorities and others (for example water treatment equipment suppliers).

52. The main costs for local authorities that they cannot recover from owners or occupiers will be:

- the cost of preparing and serving notices when restriction of supply is required or when the owners are unwilling to take remedial action following informal negotiation.

**Options 3(a), 3(b) and 3(c)** (with risk assessments – see tables 7-9 for summary of costs)

53. The main costs for owners and occupiers of premises supplied by private supplies associated with the regulations will be –

- the maximum charge that local authorities may make for a sampling visit;
- the reasonable charge that local authorities may make for carrying out risk assessments (in most cases well below the maximum – see section 48);
- the maximum charge that local authorities may make for carrying out, or arranging to carry out, the analysis (Note that the findings of a risk assessment may allow a reduction in the number of parameters for audit monitoring and therefore reduce the costs for both these options);
- the new charge that local authorities may make for carrying out investigations into a failure to determine the cause and the appropriate remedial action and for informally negotiating with the owners or occupiers to get the remedial action taken;
- the new charge that local authorities may make for processing applications from the owners or occupiers for authorisations to continue supply whilst remedial action is being taken;
- the cost of carrying out any required remedial action, including any and charge that the local authorities may make for carrying out the remedial action themselves; and
- the administrative costs of dealing with local authorities and others (for example water treatment equipment suppliers).

54. The main costs for local authorities that they cannot recover from owners will be:

- the cost of preparing and serving notices when restriction of supply is required or when the owners or occupiers are unwilling to take remedial action following informal negotiation; and
- training of staff to undertake risk assessments.

55. Note that annual maintenance costs for any additional (over option 1) source protection/collection, treatment and distribution have not been included for options 2(a), 2(b), 3(a), 3(b) and 3(c). Most of the costs of new or additional treatment are the one off capital costs of the equipment and these have been included for each of these options. The additional annual operating and maintenance costs of new or additional treatment are difficult to estimate but are likely to be small compared to the annual costs of monitoring.

56. Tables 5, 6, 7, 8 and 9 respectively summarise the estimated costs of options 2(a), 2(b), 3(a), 3(b) and 3(c) that would be incurred by owners and local authorities over the estimated costs of option 1, based on the assumptions in section<sup>16</sup> 48.

57. In these tables “largest supplies” are  $>100$  and  $\leq 1000$  m<sup>3</sup>/d; “medium large supplies” are  $>10$  and  $\leq 100$  m<sup>3</sup>/d; and “small large supplies” are  $\leq 10$  m<sup>3</sup>/d used for commercial or public activity; and “owners” means owners, occupiers or other responsible persons; and serving a notice costs a local authority £50; and owners administration costs for large supplies and small supplies are £40 and £20 on average respectively each year.

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<sup>16</sup> See section 48

**Table 5 (Option 2(a)): costs excluding small private supplies – without risk assessments**

Item	Unit cost	Calculation	Cost <sup>17</sup>
Sampling visit	£100	8 x 4 for largest supplies + 149x 2 for medium large supplies 1,176 x 1 for small large supplies = 1,485 visits	<b>£151k/a</b> for owners
Check analysis	£100	8 x 4 for largest supplies + 149 x 2 for medium large supplies 1,176 x 1 for small large supplies = 1,506 analyses	<b>£151k/a</b> for owners
Audit analysis	£500	8 x 2 for largest supplies + 149 x 2 for medium large supplies 1,176 x 1 for small large supplies = 1,490 analyses	<b>£745k/a</b> for owners
Investigation	£100 for visit plus limited analysis	Large 25% of 8 = 2 fail Medium 30% of 149= 45 fail Small 35% of 1,176 = 412 fail 459 total failing supplies requiring investigations	<b>£46k one-off</b> for owners
Notices	£50 each	Assume 75% of the failures fail for microbial parameters = 344 Assume 50% of these (172) are solved by informal negotiation Total notices = 172	<b>£9k one-off</b> for local authorities
Authorise departures	£100	Assume 25% fail for chemical parameters = 115 failing supplies Assume 50% solved by informal negotiation = 58 Authorisations = 58	<b>£6k one-off</b> for owners
Remedial action	£10,000 (ave) £2,000 (ave) £1,000 (ave)	Large – 2 fail Medium – 45 fail Small – 412 fail	£20k £90k £412k <b>£522 one-off</b> for owners
Administration	£40	1,330 large supplies	<b>£53k/a</b> for owners
<b>Total for owners</b>			<b>£1,100k/a</b> <b>£574k one-off</b>
<b>Total for LAs</b>			<b>£9k one-off</b>
<b>TOTAL COST</b>			<b>£1,100k/a</b> <b>£583k one-off</b>
Option 1			£1,075k/a
<b>Extra cost of option 2(a) over option 1</b>		<b>Annual costs</b>	<b>£25k/a</b>
		<b>One-off costs</b>	<b>£583k</b>
		<b>Present value of these costs discounted over 15 years at 3.5%</b>	<b>£752k</b>

<sup>17</sup> Costs in this column are total costs to owners and local authorities, not for individuals

**Table 6 (Option 2(b)): costs including small supplies – without risk assessments**

<b>Item</b>	<b>Unit cost</b>	<b>Calculation</b>	<b>Cost <sup>18</sup></b>
Sampling visit	£100	1,130 x 1 for small supplies = 1,130 visits	<b>£113k/a</b> for owners
Small supplies analysis	£25	1,130 analyses (assumes no additional analyses required)	<b>£28k/a</b> for owners
Investigation	£100 for visit plus limited analysis	Assume 20% fail in year 1, 10% fail in year 2 etc – approximates to 40% failing in total = 452 failing supplies	<b>£45k one-off</b> for owners
Notice	£50 each	Assume 75% of the failures fail for microbial parameters = 339 failing supplies Assume 50% of these are solved by informal negotiation and other 50% require improvement notices = 170 notices.	<b>£9k one-off</b> for local authorities
Authorise departures	£100	Assume 25% fail for chemical parameters (113) Assume 50% of these are solved by informal negotiation (56) The remainder require authorisation = 57 authorisations	<b>£6k one-off</b> for owners
Remedial action	£1000 average	For 452 failing supplies	<b>£452k one-off</b> for owners
Administration	£20	For 1,130 supplies	<b>£23k/a</b> for owners
<b>Total for small supplies for owners</b>			<b>£164k/a</b> <b>£528k one-off</b>
<b>Total for small supplies for LAs</b>			<b>£9k one-off</b>
<b>Total for small supplies</b>			<b>£164k/a</b> <b>£537k one-off</b>
<b>Total for large supplies</b>			<b>£1,100k/a</b> <b>£583k one-off</b>
<b>Total for all supplies</b>			<b>£1,264k/a</b> <b>£1,120k one-off</b>
Option 1			£1,075k/a
<b>Extra cost of option 2(b) over option 1</b>		<b>Annual costs</b>	<b>£189k/a</b>
		<b>One-off costs</b>	<b>£1,120k</b>
		<b>Present value of these costs discounted over 15 years at 3.5%</b>	<b>£2,400k</b>

<sup>18</sup> Costs in this column are total costs to owners and local authorities, not for individuals

**Table 7 (Option 3(a)): costs excluding small private supplies – with risk assessments**

Item	Unit cost	Calculation	Cost <sup>19</sup>
Risk assessments	£150 (ave) £125 (ave) £100 (ave)	Large – 8 every 5 years Medium – 149 every 5 years Small – 1,176 every 5 years	£0.24k/a for owners £3.73k/a for owners £23.50k/a for owners <b>Total £27.5k/a</b>
Sampling visits	£100	8 x 4 for largest supplies + 149 x 2 for medium large supplies 1,176 x 1 for small large supplies = 1,506 visits	<b>£151k/a</b> for owners
Check analysis	£100	8 x 4 for largest supplies + 149 x 2 for medium large supplies 1,176 x 1 for small large supplies = 1,506 analyses	<b>£151k/a</b> for owners
Audit analysis	£200 (ave) £150 (ave) £100 (ave)	Large - 8 x 2 = 16 analyses Medium - 149 x 2 = 298 analyses Small - 1,176 x 1 = 1,175 analyses assume that risk assessment reduces substantially number of parameters monitored to reduce from maximum cost of £500	£3.2k/a for owners £44.7k/a for owners £117.6k/a for owners <b>Total £165.5k/a</b>
Investigations	£100 for visit, limited analysis plus informal negotiation	Large 25% of 8 = 2 fail Medium 30% of 149 = 45 fail Small 35% of 1,176 = 412 fail 459 total requiring investigations	<b>£46k one-off</b> for owners
Notices	£50 each	Assume 75% of the failures fail for microbial parameters = 344. Assume 50% of these are solved by informal negotiation and other 50% require notices = 172 notices.	<b>£9k one-off</b> for local authorities
Authorise departures	£100	Assume other 25% fail for chemical parameters = 115 failing supplies Assume 50% solved by informal negotiation = 58 authorisations required for 58	<b>£6k one-off</b> for owners
Remedial action	£10,000 (ave) £2,000 (ave) £1,000 (ave)	Large – 2 fail Medium – 45 fail Small – 412 fail	£20k £90k £412k <b>£522k one-off</b> for owners
Administration	£40	1,330 large supplies	<b>£53k/a</b> for owners
<b>Total for owners</b>			<b>£548k/a</b> <b>£574k one-off</b>
<b>Total for LAs</b>			<b>£9k one-off</b>
<b>TOTAL COST</b>			<b>£548k/a</b> <b>£583k one-off</b>
Option 1			£1,075k/a
<b>Extra cost of option 2(a) over option 1</b>		<b>Annual costs</b>	<b>-£527k/a</b> this is negative because the option costs less than option 1
		<b>One-off costs</b>	<b>£583k</b>
		<b>Present value of these costs discounted over 15 years at 3.5%</b>	<b>-£2,983k</b>

<sup>19</sup> Costs in this column are total costs to owners and local authorities, not for individuals



**Table 8 (Option 3(b)): costs including small supplies – with risk assessments**

Item	Unit cost	Calculation	Cost <sup>20</sup>
Risk assessments	£100	1,130 risk assessments every 5 years	£23k/a for owners
Sampling visit	£100	1,130 x 1 for small supplies = 1,130 visits	£113k/a for owners
Small supplies analysis	£25	1,130 analyses (assumes risk assessment does not reduce requirements and no additional analyses required)	£28k/a for owners
Investigation	£100 for visit plus limited analysis and informal negotiation	Assume 20% fail in year 1, 10% fail in year 2 etc – approximates to 40% failing in total = 452 failing supplies	£45k one-off for owners
Notices	£50 each	Assume 75% of the failures fail for microbial parameters = 339 failing supplies. Assume 50% of these are solved by informal negotiation and other 50% require notices = 170 notices.	£9k one-off for local authorities
Authorise departures	£100	Assume other 25% fail for chemical parameters = 113 Assume 50% of these are solved by informal negotiation and other 50% require notices = 57 notices	£6k one-off for owners
Remedial action	£1000 average	For 452 failing supplies	£452k one-off for owners
Administration	£20	For 1,130 supplies	£23k/a for owners
<b>Total for small supplies for owners</b>			<b>£187k/a £503k one-off</b>
<b>Total for small supplies for LAs</b>			<b>£9k one-off</b>
<b>Total for small supplies</b>			<b>£187k/a £512k one-off</b>
<b>Total for large supplies</b>			<b>£548k/a £583k one-off</b>
<b>Total for all supplies</b>			<b>£735k/a £1,095k one-off</b>
Option 1			£1,075k/a
<b>Extra cost of option 3(b) over option 1</b>		<b>Annual costs</b>	<b>-£340k/a</b> this is negative because the option costs less than option 1
		<b>One-off costs</b>	<b>£1,095k</b>
		<b>Present value of these costs discounted over 15 years at 3.5%</b>	<b>-£1,206k</b>

<sup>20</sup> Costs in this column are total costs to owners and local authorities, not for individuals

**Table 9 (Option 3(c)): costs including small supplies – with risk assessments (and monitoring every 5 years for small supplies)**

Item	Unit cost	Calculation	Cost <sup>21</sup>
Risk assessments	£100	1,130 risk assessments every 5 years	£23k/a for owners
Sampling visit	£100	1,130 x 1 for small supplies = 1,130 visits in 5 years	£23k/a for owners
Small supplies analysis	£25	1,130 analyses in 5 years (assumes risk assessment does not reduce requirements no additional analyses required)	£28k/a for owners
Investigation	£100 for visit plus limited analysis and informal negotiation	Assume risk assessment at same time as monitoring eliminates need for investigation	£0k one-off for owners
Notices	£50 each	Assume 40% of 1,130 supplies fail (452). Assume 75% of the failures fail for microbial parameters = 339 failing supplies. Assume 50% of these are solved by informal negotiation and other 50% require notices = 170 notices.	£9k one-off for local authorities
Authorise departures	£100	Assume other 25% fail for chemical parameters = 113 Assume 50% of these are solved by informal negotiation and other 50% require notices = 57 notices	£6k one-off for owners
Remedial action	£1000 average	For 452 failing supplies	£452k one-off for owners
Administration	£20	For 1,130 supplies	£23k/a for owners
<b>Total for small supplies for owners</b>			<b>£97k/a £458k one-off</b>
<b>Total for small supplies for LAs</b>			<b>£9k one-off</b>
<b>Total for small supplies</b>			<b>£97k/a £467k one-off</b>
<b>Total for large supplies</b>			<b>£548k/a £583k one-off</b>
<b>Total for all supplies</b>			<b>£645k/a £1,050k one-off</b>
Option 1			£1.074k/a
<b>Extra cost of option 3(b) over option 1</b>		<b>Annual costs</b>	<b>-£429k/a</b> this is negative because the option costs less than option 1
		<b>One-off costs</b>	<b>£1,050k</b>
		<b>Present value of these costs discounted over 15 years at 3.5%</b>	<b>-£1,853k</b>

<sup>21</sup> Costs in this column are total costs to owners and local authorities, not for individuals

## **Comparison of Summary Costs and Benefits**

58. A comparison of the estimated additional costs (over option 1) and estimated value of benefits for options 2(a), 2(b), 3(a),3(b) and 3(c) are presented in Table 9 below. The present value of costs are discounted over 15 years at 3.5%. The benefits have not been discounted because they were derived from the Scottish RIA published in 2006 in which benefits had already been discounted over 15 years. For the purpose of this impact assessment these benefits were inflated to 2008 prices. Note that these are the quantifiable costs and benefits and there are also some costs and benefits that it was not possible to quantify.

**Table 10: estimated additional costs and benefits over option 1**

<b>Option</b>	<b>Costs</b>	<b>Health Benefits £m</b>	<b>NPV £m</b>
2(a) – excluding small supplies – No risk assessment	0.75	10.8	10.05
2(b) – including small supplies – No risk assessment	2.40	13.9	11.5
3(a) – excluding small supplies – with risk assessment	-2.98	10.8	13.78
3(b) – including small supplies – with risk assessment, annual sampling	-1.21	13.9	15.11
3(b) – including small supplies – with risk assessment, sampling 1 in 5 years	-1.85	13.9	15.75

59. All the options considered indicate a saving in costs in comparison with the do nothing option over 15 years and all provide positive health benefits. Option 3(c) is preferred because it provides the best NPV over the 15 years, and it delivers the policy objective of the same level of health protection for people on small supplies as for people served by larger private supplies and public supplies.

### **Public Sector Threshold Test**

60. Local authorities can recover the majority of their costs from the owners or occupiers of premises supplied by private water supplies or persons who have responsibility for private supplies. The only costs that local authorities are unable to recover are the costs associated with enforcement of the regulations (the issue of improvement and restriction notices). These costs are very small being less than 1% of the costs that they can recover. Thus, a Public Service Threshold Test is not required.

### **Competition Assessment**

61. It may be expected that the impact of the regulations may put businesses that rely on private supplies at a disadvantage to businesses that use public supplies because of the costs to businesses associated with monitoring, and where necessary improvements to, private water supplies under the regulations. However, businesses that rely on public water supplies have to pay for the costs of meeting the public supply regulations through their water bills and this includes the cost of monitoring the public supplies and the costs of improvements. It is concluded that there will be no significant effect on competition, especially as most businesses relying on private supplies are small, are in rural areas and serve local areas where competition is unlikely to be a major concern. Once a private

supply to a business meets the standards in the regulations this could be used as a marketing point, particularly for the accommodation, food and drinks industries.

### ***Small Firms Impact Test***

62. The regulations will affect all businesses that rely on private supplies. Most of these are likely to be small businesses. The regulations are likely to have a similar effect on small and large businesses. Small businesses are likely to use less water than large businesses and the cost of monitoring (sampling and analysis) and remedial action is likely to be approximately proportional to water used. Other costs (risk assessments, authorisations and remedial action) are likely to have a slightly greater proportional impact on small businesses. It is concluded that the regulations are likely to have a small disproportional impact on small businesses compared to large businesses. However, many of these small businesses are likely to be involved in food production or provision of accommodation services (hotels, guest house and bed/breakfast establishments) in local areas. The improvements to the quality of their private water supplies and the increased public confidence brought about by the regulations are likely to result in some increase in their business to offset the small increase in costs of complying with the regulations. These small businesses could use a safe private supply and compliance with the regulations to promote their businesses.

### ***Legal aid***

63. Local authorities will be responsible for implementing and enforcing the requirements of the regulations in terms of monitoring and other requirements. Those responsible for a private supply will need to implement any remedial action required to meet the revised drinking water quality standards. It will be an offence for an owner or user of a private supply to fail to comply with an “improvement notice” or a “restriction notice” issued by a local authority. If convicted for an offence under the regulations, a person would be liable to a fine.

64. Restriction notices are designed to protect the health of users of private supplies whilst remedial action is taken and therefore it is unlikely that they will be ignored. Where improvements to private supplies are needed, local authorities will try to get these made through informal negotiation with the owners. It is assumed that informal negotiation will be successful in at least 50% of cases. The other 50% of cases will require improvement notices. It is anticipated that in most cases the owners will comply with improvement notices. Therefore very few prosecutions are likely for offences under the regulations and it is concluded that legal aid is not a significant issue.

### ***Sustainable development***

65. The paragraphs below demonstrate that the regulations will have no significant impact on greenhouse gas emission or other environmental concerns. By bringing private water supplies up to the same standards with the same degree of health protection to users, the regulations ensure a strong, healthy and just society and help support a sustainable economy, particularly in rural areas. The importance of high quality drinking water is recognised in our Environment Strategy for Wales. The regulations, which are based on sound science, will assist in maintaining high quality drinking water for the people of Wales.

### ***Carbon assessment***

66. The industries and commercial and public activities that use private supplies are not one of the key sources of greenhouse gas emissions and there will be no significant

increase in emissions associated with the regulations. There may be a very slight increase in transport associated with the monitoring provisions and a very slight increase in energy consumption associated with operation of new or additional treatment equipment to improve private water supplies to meet the regulations and to protect the health of users. Therefore it is concluded that there will be no significant impact on carbon and no need to assess beyond this step 1.

### ***Other environmental issues***

67. None of the policy options will:

- lead to a significant change in the emission of greenhouse gases (see above paragraph);
- be vulnerable to the predicted effects of climate change;
- lead to a change in the financial costs or the environmental and health impacts of waste management;
- impact significantly on air quality;
- involve any material change to the appearance of the landscape or townscape;
- change the degree of water pollution, levels of water abstraction or exposure to flood risk;
- enhance or disturb habitat or wildlife; or
- affect noise pollution

Therefore none of the policy options for the regulations will have any effect on other environmental issues.

### ***Race, disability and gender equality***

68. None of the policy options for the regulations will have any effect on race, disability or gender equality.

### ***Human rights***

69. The regulations raise no issues with respect to the Human Rights Act 1998. By including small private supplies in the regulations (options 2(b), 3(b) and 3(c), it could be argued that this benefits the human rights of the users of small supplies by giving them greater health protection than options 2(a) and 3(a) which exclude small supplies.

### ***Rural proofing***

70. The majority of private supplies are in rural areas serving rural communities and rural businesses. The greatest impact will be on small communities and businesses.

71. For a private supply to a single private dwelling, the regulations will have no effect and no costs unless the owner or occupants request a risk assessment or monitoring of their private supply by the local authority. If the owner requests these the local authority can charge up to £500 for a risk assessment (although an average is likely to be £100<sup>22</sup>) and £25 for monitoring. As a consequence the local authority may advise the owner to install treatment at the owner's cost to meet the standards and safeguard the health of the occupants.

72. The owner of a small private supply to a rural community of two or more houses, but serving less than 50 persons, that is used solely for domestic purposes and not part of a commercial or public activity (such as bed and breakfast) will be charged as a minimum for one monitoring occasion (sampling and analysis) in 5 years at a cost of £125 (£21 per

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<sup>22</sup> See section 48

year) and for a risk assessment every 5 years at an average cost of £100 (£20 per year), making a total cost of £41 per year. In addition there would be the one-off cost of any treatment that is necessary to comply with the standards and safeguard the health of the occupants and the cost of maintaining any treatment equipment. The greater the number of houses served by the private supply the lower the cost for each house. Generally these costs are broadly comparable to the cost each householder pays for a public water supply from a water undertaker. These small supplies could be excluded from the regulations under options 2(a) and 3(a) using the discretionary exemption from the Directive but the occupants would not have their health safeguarded if the supply was unsatisfactory. Options 2(b), 3(b) and 3(c) include these small supplies and therefore safeguard the health of occupants and these options, particularly option 3(c) that includes risk assessment, are recommended in this IA.

73. The owner of a private supply to a single property that is used for commercial purposes (such as a farm or bed and breakfast) has to meet the standards in the Directive as there is no exemption permitted. The frequency of monitoring is not specified in the Directive and is left to the Member State to decide. A minimum of one check and audit monitoring (sampling and analysis) is required each year. The use of risk assessment should enable the number of parameters in audit monitoring to be reduced and therefore the cost of audit monitoring reduced by 60% or more<sup>23</sup>. The cost of risk assessment (average £100/5 years), one sampling occasion (£100/year), one check monitoring occasion (£100/year) and one limited audit monitoring occasion (£100/year) makes a total estimated cost of £320 per year. In addition there would be the one-off cost of any treatment that is necessary to comply with the standards and safeguard the health of the occupants/visitors and the quality of the products and the cost of maintaining any treatment equipment. These costs are probably slightly higher than for a comparable property using a public supply from a water undertaker.

74. There will be proportionately less effect on larger businesses in rural areas served by private supplies.

## **9. Monitoring & review**

12.1 There are no plans to review the policy unless amendments are made to the Drinking Water Directive. However the fees charged by local authority to enable it to meet the expenses that it incurs when fulfilling functions and discharging duties under the Regulations will be reviewed every two years.

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<sup>23</sup> See section 48