EXPLANATORY MEMORANDUM TO

THE WATER SUPPLY (WATER QUALITY) REGULATIONS 2000 (AMENDMENT) REGULATIONS 2007

2007 No. 2734

1. This explanatory memorandum has been prepared by the Department for Environment, Food and Rural Affairs ("Defra") and is laid before Parliament by Command of Her Majesty.

2. **Description**

2.1 The Water Supply (Water Quality) Regulations 2000 (Amendment) Regulations 2007 ("the Amending Regulations") amend provisions in the Water Supply (Water Quality) Regulations 2000 (S.I. 2000/3184) ("the Principal Regulations"). The Principal Regulations transpose the requirements of Directive 98/83/EC on the quality of water intended for human consumption ("the Drinking Water Directive") in parts of England and Wales and make further provision in relation to drinking water quality.

2.2 The Amending Regulations make operational changes to the water treatment and risk assessment provisions in the Principal Regulations. The Amending Regulations also make various other changes, including changes to the reporting and publicity requirements imposed on water undertakers and licensed water suppliers.

3. **Matters of special interest to the Joint Committee on Statutory Instruments**

None.

4. **Legislative background**

4.1 The Principal Regulations set out EC and national standards for public drinking water supplies. They include requirements for statutory water undertakers and licensed water suppliers to ensure that water is wholesome and clean, to take and analyse samples to check for compliance, to investigate failures and to carry out remedial action where water is unwholesome, and certain reporting requirements. In addition to transposing the Drinking Water Directive in parts of England and Wales, the Principal Regulations also implement water treatment requirements of Directive 75/440/EEC on the quality required of surface water intended for the abstraction of drinking water ("Surface Water Abstraction Directive").

4.2 With effect from 22nd December 2007 the Surface Water Abstraction Directive will be repealed by the Directive 2000/60/EC establishing a framework for Community action in the field of water policy ("Water Framework Directive"). The Water Framework Directive includes new requirements to establish programmes to protect and monitor the quality of waters used for the abstraction of drinking water, known as drinking water protected areas.

4.3 Water undertakers are appointed, and licensed water suppliers are licensed, under the Water Industry Act 1991. Water policy is generally a devolved matter. The Water Supply (Water Quality) Regulations 2001 ("the Principal Welsh Regulations") apply to water undertakers whose area of appointment is wholly or mainly in Wales and to licensed water suppliers using the supply systems

of such water undertakers. The Principal Regulations apply to all other water undertakers and licensed water suppliers.

4.4 For largely administrative reasons and to correct some errors, the Principal Regulations were amended by a short amending instrument in 2001 (S.I. 2001/2885). There were further amendments consequential on reform of certain health bodies in 2002 (S.I. 2002/2469) and on the new regulatory arrangements for the water industry and the creation of licensed water suppliers in 2005 (S.I. 2005/2035).

5. Extent

The Amending Regulations extend to England and Wales.

6. European Convention on Human Rights

As this instrument is subject to negative resolution procedure and does not amend primary legislation, no statement is required.

7. Policy Background

7.1 The objective of the Drinking Water Directive is to protect human health from the adverse effects of any contamination of water intended for human consumption by ensuring that it is wholesome and clean.

7.2 The Principal Regulations and the Principal Welsh Regulations implement the Drinking Water Directive in full in relation to public water supplies in England and Wales. The key features of the Amending Regulations are as follows:

7.2.1 A new requirement is imposed on water undertakers and licensed water suppliers to monitor their raw water sources. This is to assist in the production of risk assessments of treatment works and supply systems and will supplement the Environment Agency's monitoring programme under the Water Framework Directive in relation to drinking water protected areas.

7.2.2 The existing requirements for risk assessments, monitoring and treatment for the pathogenic parasite cryptosporidium are replaced with more general provisions for treatment works and supply systems that address all risks to human health.

7.2.3 Some existing offences that related to solely to cryptosporidium are replaced with more general offences relating to the provision of adequate water treatment and disinfection.

7.2.4 The level of administrative burden on water undertakers and licensed water suppliers is reduced by replacing some of their obligations to publish information in hard copy format with obligations to make available information for public inspection on request and to publish information on the internet. Duplication is also reduced.

7.3 A public consultation on a draft of the Amending Regulations (and a similar instrument to amend the Principal Welsh Regulations) was carried out between 29 December 2006 and 31 March 2007 by Defra and Welsh Assembly Government together with the Drinking Water Inspectorate ("DWI"), the drinking water quality regulator for England and Wales. While the Amending Regulations affect the water industry they are of little wider public interest. Twenty two water

companies responded and there was a separate response from Water UK, the trade organisation for the water industry. There were seven responses from government or national bodies, five from organisations that supply the water industry, five from consultants working in the industry, and four from learned societies or similar. Three local authorities and three health authorities also responded.

7.4 The responses were generally supportive but raised certain concerns. Some respondents were concerned that the proposals were not adequately risk based and were, in many cases, overly prescriptive. Some respondents took the view that the Environment Agency should be responsible for monitoring raw water as the national "competent authority" under the Water Framework Directive and that the raw water monitoring requirements would be costly. There was some concern about creating new offences. On the whole, the water industry welcomed the proposed changes to the current cryptosporidium provisions in the Principal Regulations and the removal of the forensic evidence requirement, whilst retaining the risk assessment and risk management approach. Conversely, one organisation wanted the existing arrangements for cryptosporidium monitoring to be retained. A number of respondents raised the issue of transitional provisions and the need to integrate the process into the 2009 Periodic Review of price limits for water and sewerage services ("PR09").

7.5 Defra considers that the Amending Regulations are consistent with the principles of better regulation but nonetheless has taken steps to revise the proposals to make the Amending Regulations more risk based and less prescriptive. Defra remains of the view that it is important to have in place a robust regime to replace the Surface Water Abstraction Directive in order to maintain drinking water quality. The proposed Regulations help deliver such a regime. Defra has focused the raw water monitoring requirements on those parameters necessary for the proper preparation of risk assessments of treatment works and supply systems. Defra believes these changes address the cost concerns raised by the industry. The Environment Agency will carry out any additional monitoring necessary for environmental protection. Defra notes that water undertakers and licensed water suppliers are already legally obliged to disinfect and properly treat their supplies. Defra considers that making failure to do so a criminal offence is a proportionate and appropriate measure, particularly given that there will no longer be specific offences relating to cryptosporidium. The new risk assessments will not lower standards in relation to cryptosporidium but widen the scope of the assessments to cover all issues relevant to human health. The Amending Regulations contain suitable transitional provisions and DWI will work with the industry in the context of PR09 should this be necessary in relation to the Amending Regulations.

7.6 As the Amending Regulations supplement the Environment Agency's monitoring programme under the Water Framework Directive and amend the way in which the Drinking Water Directive is transposed, two Transposition Notes are attached.

7.7 The DWI will update its guidance on the Principal Regulations. Where the amendments relate to a less prescriptive and more risk based approach to monitoring the DWI will work with and will value the water industry's input to revising guidance in the light of experience. Defra is preparing a consolidated version of the Principal Regulations which will be available on the DWI's website.

8. **Impact**

8.1 The main impact of the amendments falls on the water industry.

8.2 A Regulatory Impact Assessment and two Transposition Notes are attached. Copies can be obtained from Defra, Water Supply and Regulation Division, Ergon House, Horseferry Road, London SW1P 2AL or from Defra's website at www.defra.gov.uk/environment/water/industry

9. Contact point

Peter Jiggins at Defra (telephone 020 7238 5897 and email peter.jiggins@defra.gsi.gov.uk) will act as contact point for any queries about the instrument.

Final Regulatory Impact Assessment

1 Title of proposal

The Water Supply (Water Quality) Regulations 2000 (Amendment) Regulations 2007

2 Purpose and Intended Effect

- Objectives

1. To ensure that the water treatment and risk assessment requirements of the amended Water Supply (Water Quality) Regulations 2000 (SI 2000/3184) (the 2000 Regulations) continue to provide an effective level of health protection for consumers of public water supplies when Article 7 of the Water Framework Directive (Directive 2000/60/EC) supersedes the EC Directive 75/440/EC on the quality required of surface water intended for the abstraction of drinking water (SWAD).

2. To consolidate, rationalise and clarify elements of the existing regulations to bring them up to date, improve the efficiency of government intervention and provide compensatory simplification for the additional regulation introduced in (1).

Devolution: this is a devolved matter that affects all parts of the UK. This RIA covers the water companies whose supply area is wholly or mainly in England and has been prepared by the Department for Environment, Food and Rural Affairs (Defra). The consultation of which the partial RIA was a part was published jointly with the Welsh Assembly Government in relation to the Water Supply (Water Quality) Regulations 2001 but the response to that part of the consultation is a matter for Welsh Assembly Government. This document is based on the original partial RIA but it forms part of a response that relates only to the 2000 Regulations. Separate legislation exists covering Scotland and Northern Ireland.

- Background

3. The 2000 Regulations define the standards to be met and other arrangements, such as water treatment, risk assessment, monitoring and reporting, involved in ensuring the safety of public drinking water supplies.

4. The 2000 Regulations implement the requirements of European Directive 98/83/EC on the quality of water intended for human consumption (the Drinking Water Directive) and the water treatment requirements of SWAD. They also lay down other national requirements as permitted by EC law.

5. SWAD is being repealed at the end of 2007, due to the implementation of the Water Framework Directive. The regulatory gap left by the repeal of SWAD in relation to drinking water treatment is the main reason for this proposal to amend the regulations. The opportunity afforded by the amendment will be used to make several other changes to the regulations to bring them up to date, provide robust protection of public health and increased regulatory efficiency.

6. A number of current regulatory provisions and policies will be positively affected by these proposals.

- The implementation of the Water Framework Directive and in particular the introduction of drinking water protected areas
- The implementation of the Drinking Water Directive, bearing in mind its potential future replacement with a new Directive based on updated WHO guidelines,
- Water Industry Act 1991 and the requirements in section 68 of that Act for no deterioration in the quality of drinking water, and
- Defra's Better Regulation Aims.

- Rationale for Government Intervention

7. Public drinking water supply is provided by water undertakers and by water supply licensees using the supply systems of water undertakers on the basis of a regulated de facto monopoly in relation to water distribution due to the vast economies of scale in water collection, treatment and distribution. A system of drinking water quality regulation is in place to protect the interests of water consumers and the wider public which would otherwise not be protected. Part of this quality regulation is the specification of treatment requirements for water informed by risk assessment and monitoring. Evidence from the Drinking Water Inspectorate (DWI) demonstrates the need for an ongoing regulatory requirement for basic water treatment processes which are essential to safeguarding human health and drinking water quality as documented in the annual report of the Chief Inspector of Drinking Water on incident assessments and technical audits. SWAD specified the treatment requirements and its repeal therefore leaves a significant gap in the quality regulation of the industry. In the absence of a replacement for SWAD (**do nothing**) there would no longer be effective incentives on water undertakers or water supply licensees to undertake the necessary treatment to protect human health.

3 Consultation

- Within Government and the regulated industry

8. The DWI has held informal discussions on the proposal with water company representatives on 28 June (England) and 6 July (Wales). The feedback from these discussions with representatives of water companies, local authorities, the Health Protection Agency and the Consumer Council for Water has been used to inform the development of the proposed amendments. Defra has also been liaising with the Welsh Assembly Government to achieve a consistent approach to raw water monitoring and drinking water quality regulation more generally. Defra and WAG have liaised and collaborated with the Environment Agency (EA) in preparation for implementation of the Water Framework Directive in relation to drinking water protected areas and monitoring requirements. Defra has also consulted Ofwat, in particular in relation to the partial RIA, and other Government Departments.

- Public Consultation

9. There has been no previous public consultation by Defra in England or Welsh Assembly Government in Wales on raw water monitoring or specifically on Article 7 of Water Framework Directive in relation to drinking water protected areas. Since 2000, there have been a number of public consultations in relation to the transposition and implementation of the Water Framework Directive more generally in England and Wales. The 2000 Regulations were consulted on in 2000. A public consultation exercise ran on the proposed Water Supply (Water Quality) Regulations 2000 (Amendment) Regulations 2007 ran from 29 December 2006 until 31 March 2007. This Final RIA forms part of the Government response to that consultation process.

4 Options

Option 1 - Do Nothing

10. No amendments are made to the 2000 Regulations other than minor revocation (Regulation 26).

- The water treatment arrangements in the existing domestic legislation for surface water (Regulation 26) are derived from and cross refer to SWAD which ceases to have effect in December 2007. This option assumes that no changes are made to the current regulations to secure or enhance the current raw water classification and assessment of appropriate treatment requirements. The Water Companies and DWI would be made aware of public health issues only when failures of standards occurred at consumers' taps.
- Existing Regulation 26 would be revoked to remove otherwise unworkable legislation.
- The existing risk assessment and forensic monitoring arrangements for the pathogen Cryptosporidium would remain in place.
- No advantage is taken of the scope for rationalisation and simplification of the regulations.

Option 2 - Revoke and remake the regulations

11. Entirely revoke and remake the 2000 Regulations. We considered whether the 2000 Regulations should be entirely revoked and remade as the proposals are the fourth amending instrument. The advantages would be that an official consolidated text would be produced and drafting consistency ensured.

12. This approach was discounted for the following reasons:

- For the 2000 Regulations, two of the amending instruments were very short. The third instrument made amendments consequential on the setting up of the new water supply licensing regime in 2005. Therefore, the existing text was not unduly complicated.
- Although the devolution arrangements can result in different law applying in England and Wales, as both the Secretary of State and the National Assembly for Wales both instruct the DWI to carry out their drinking water quality functions, a consistent regime across England and Wales is easier to administer. Currently the 2000 and 2001 Regulations are almost identical. If the Secretary of State decided to revoke and remake, consistency could only be ensured if the National Assembly for Wales decided to do likewise, and vice versa.
- The resource implications of revoking and remaking would be substantial within both Defra and Welsh Assembly Government. It is inevitable that different styles and approaches might be adopted by new drafters keen to improve on the existing text. Revoking and remaking the entire 2000 Regulations is not simply a question of cutting and pasting from existing law and, in total, across both England and Wales, would involve drafting around 200 pages of law. In addition, DWI's non-statutory guidance on the 2000 and 2001 Regulations would have to be re-written. The use of government resources in this exercise has to be balanced with competing priorities.
- Subject to the changes proposed in this consultation, the water industry and DWI are broadly comfortable with the existing 2000 Regulations which have delivered year on year improvements in drinking water quality compliance since their introduction. In 2005 only 0.05% of samples failed to meet relevant mandatory standards across England and Wales. This is the best record across the UK. Other than the changes proposed in this consultation, there would be little benefit in practice from revoking and remaking the entire 2000 Regulations as the current law is apparently well understood and compliance is high. Revoking and remaking would inevitably result in drafting changes which would require the water industry, including licensed water suppliers only active since the end of 2005, to retrain staff and update documents. Although there might be benefits of further increased compliance in due course, it seems likely that the industry costs of consultation and retraining would outweigh this.

- It is anticipated that the Drinking Water Directive may be amended in the medium term. This will require further amendments to UK law and that would be a better time to consider revoking and remaking the 2000 Regulations.
- It was decided that we could produce an informal consolidated version for the DWI website as soon as the amendments were made. It was decided that, where practicable, entire provisions in the 2000 Regulations would be revoked and remade in this instrument. The majority of the amendments are being made in five regulations and one schedule and the policy thinking behind all but one of these provisions is consistent (risk assessments based on data gathered from the entire network from catchment to consumers' taps leading to better treatment). This makes the instrument much easier to read as a stand alone document.

Option 3 – Make substantive amendments to the 2000 Regulations as set out in the consultation document for the major changes (Regulations 3, 4, 6, 8, 15, 16A, 25, 26, 26, 27, 28, 29, 31 and 33).

13. Substantive amendments are made to the 2000 Regulations according to the proposals set out in the Consultation Document for Regulations 3, 4, 6, 8, 15, 16A, 25, 26, 26, 27, 28, 29, 31 and 33:

- Companies would be required to broaden the scope of their *Cryptosporidium* risk assessments in the catchment supplying each water treatment works to consider all forms of potential danger to human health, setting out the supporting raw water monitoring required to confirm the risk status. This will be in part informed by information from the EA on substances discharged in the catchment.
- The schedule of categories of water for abstraction and treatment requirements in SWAD would be replaced with a more general obligation requiring companies to utilise the above information to determine the appropriate level of treatment at the works thereby safeguarding public health.
- Removal of the forensic *Cryptosporidium* monitoring requirements.

Option 3 a – as option 3 but with the Environment Agency incurring monitoring costs

14. The 2000 Regulations are amended as option 3 but without new Regulation 16A:

- Additional monitoring requirements of Article 7 of the Water Framework Directive are met by the EA through utilisation sampling at water company abstraction points. The EA will need to negotiate regular access to water company sites involving co-ordination with pumping regimes, health and safety considerations, additional sampling and laboratory facilities, etc. at a higher cost than to the water companies. It will also represent duplication in many respects of the current raw water monitoring undertaken for operational purposes by the water industry.

Option 4 – As option 3 but with additional rationalisation and simplification of the regulations (Regulations 23, 35 and 36)

15. Removal of unnecessary and duplicative reporting requirements

- Companies would no longer be required to maintain a public register at their offices (Regulation 35(1)) to be available for inspection by the public at all reasonable hours and free of charge, containing information maintained in accordance with Regulation 34 including the designation of water supply zones, particulars of any authorised departures, particulars of any actions taken or required to be taken by the water undertaker as a result

of enforcement action, authorised departures, undertaking or notice relating to a breach of an indicator parameter and the results of regulatory sampling.

- Companies would no longer be required (Regulation 36) to publish an annual report as prescribed in the regulations containing, inter alia: information on the number of water treatment works, service reservoirs and supply points; the number of water supply zones; the number and percentage of samples which contravened a prescribed concentration or value or specification for an indicator parameter; and details of any authorised departures. They would no longer be required to send a copy of the report to each local authority within their area of supply, instead the required information would be provided through DWI in its annual Chief Inspector's Report and from its website.
- Companies would no longer be required to advertise authorised departures and undertakings in all relevant newspapers in the area affected (Regulation 23). DWI has advised that for authorised departures at some water treatment works where the supply is distributed via large trunk mains or service reservoirs, the number of zones potentially affected can be substantial, some of which may only be supplied periodically from that works, and/or a small proportion of the demand is met from there. This is a cost-effective reduction in bureaucracy, which would also potentially allow more people to view the relevant information.
- Removal of administrative elements of the current regulations which have been overtaken by improved electronic data collection and reporting arrangements between the water companies and DWI, and use of company websites.

Option 5 - As option 4 but with a more risk based approach to raw water monitoring

16. As a result of the consultation process a fifth option has been developed. This gives the benefit of option 4, but providing a fairer balance between the raw water monitoring that water companies will be required to carry out (for drinking water and public health) and the monitoring that the EA will be required to do (for environmental protection). The key provisions of this option are:

- The benefits described above for option 4
- A requirement for water companies to monitor their raw water abstractions to support their duties in respect of risk assessment and water treatment. This monitoring will be much less onerous because it will be risk based from the outset with companies given the responsibility to determine the monitoring suites.
- The Secretary of State will retain the power to direct companies to conduct specified monitoring
- Until comprehensive risk assessments have been submitted, companies will have to continue with regulatory cryptosporidium monitoring
- Some other minor amendment to the proposals set out in the consultation

It is not possible to produce an accurate costing for this fifth option, because water companies must select the monitoring suite on a case by case basis, depending on the outcome of their assessment. The effect of option 5 is that monitoring requirements will fall between the extremes offered by options 3 and 3a and consequently the cost to the industry will fall in the corresponding range.

The costs set out below have been reviewed in light of the new option. The original estimates for raw water monitoring under option 3 possibly underestimated costs, for example, in relation to the development of monitoring and analysis to environmentally relevant levels and so were possibly not a comprehensive reflection of the original proposal. However, option 5 represents a significant reduction in monitoring burden upon the industry compared with option 3. Option 5 does require continued cryptosporidium monitoring but this will only be transitional. Overall Defra considers that the existing estimate for option 3 is a fair estimate of a much reduced burden under option 5. Therefore the costings in the partial RIA have been retained without amendment in this final RIA.

Table 1: Summary of Options

Regulation	Description	Consequence	Do Nothing	Revoke & remake regulations	Amend regulations	Amend regulations to give compensatory simplification	Amend regulations to give simplification and more risk based raw water monitoring
			1	2	3	4	5
1, 2, 9, 13, 19, 20 and 24; Sch 1, 2 and 3	Interpretation and definition relating to Water Framework Directive (WFD), sampling points and health authorities etc; correcting drafting and substantive errors and removing otiose provisions.	Minor		Yes	Yes		In part
4 and 6	Definition of wholesomeness extended to include water supplied in bottles/containers and subject to same monitoring	Minor		Yes	Yes		In part
3 and 8	Provide for control over use of unrepresentative supply points and clarify water supply zone definition	Minor		Yes	Yes		In part
15	Requiring authorizations of new sources prior to supply by water undertakers in the same way as water licensees	Minor		Yes	Yes		In part
New 16A and new Sch 5	Monitoring and risk assessment requirements to compliment introduction of Regulation 26A (treatment requirements). New schedule of substances/frequencies in line with WFD/WHO recommendations	Major		Yes	Yes		In part
23	Information to be published on website as opposed to newspaper	Minor		Yes		Yes	Yes
26	Revoke otherwise unworkable legislation	Minor	Yes	Yes	Yes		Yes
25 & 26	Replaces (soon to be repealed) SWAD treatment (technology) standards in Regulation 26 with a more general requirement for adequate treatment to protect public health facilitating innovation.	Major		Yes	Yes		Yes
27 and 28	Widens scope of risk assessment that needs to be undertaken - whole catchments focus/all risks (not just **Cryptosporidium)**	Major		Yes	Yes		Yes
29	Improve regulation of **Cryptosporidium** to facilitate use of wider range of treatment technologies and reduce the administrative reporting and management burdens	Minor		Yes	Yes		Yes
31	Recovery of costs for new substances/product approvals	Minor		Yes	Yes		Yes
33	Revocation of offences relating to cryptosporidium monitoring and replacement with more general offences in relation to a failure to protect human health and treat (disinfection and treatment Regulations 26A and 28)	Major		Yes	Yes		Yes
35	Removal of duplicative paper record keeping requirements	Minor		Yes		Yes	Yes
36	Removal of duplicative reporting requirements for annual reporting/local authorities	Minor		Yes		Yes	Yes

Other Potential Options

17. A non regulatory alternative has not been considered in this RIA given the importance of the regulations in terms of protecting public health and the requirements of EC law under the Drinking Water Directive. The amendment of the regulations, as opposed to replacement of the regulations, in combination with rationalisation and simplification is considered to be a significant step towards better regulation in this area.

5 Costs and Benefits

- **Sectors and groups affected**

18. The main sectors and groups affected by these proposals are:
  - Water and sewerage undertakers (drinking water business only)
  - Water only undertakers
  - Licensed water suppliers
  - Suppliers to the water industry (only in respect of Regulation 31)
  - Providers of outsourced sampling and analysis services
  - Water consumers

- **Analysis of costs and benefits**

Benefits

19. All the do something options discussed above have the same general benefits relative to the do nothing option. This relates to the effective continuation of essential public health protection following the repeal of the SWAD. It is impossible to predict the impact of removing these requirements without replacing them. It would be expected that much of the water industry would continue existing practices but without the continuation of regulation there would be no certainty that an adequate level of monitoring, risk assessment and treatment would be maintained. It would be more likely therefore that insufficient risk assessment and monitoring would take place, together with inadequate water treatment. This would result in a greater frequency of outbreaks of water related disease. Water related disease outbreaks involve a huge personal cost to those affected and society in general through sickness, time losses, the provision of alternative supplies, heath service costs and general loss of public confidence in drinking water quality.

20. Unpublished costs calculated for one *Cryptosporidium* outbreak amounted to £7.5m direct costs (personal communication Chief Inspector of Drinking Water). As an indication of the very significant public confidence impact of water treatment failures, the accidental addition of aluminium coagulant to the water supply to Camelford in Cornwall in 1988 has been the subject of three major Department of Health independent expert reviews yet public concern and adverse media reports continue unabated 18 years later.

21. The do something options also introduce better more up to date monitoring and risk assessment approaches. They also replace outdated technology based treatment standards with a more outcome based standard relating to the protection of public health. Benefits relating to the fostering of innovation by the industry are likely to arise from these improvements but these are difficult to predict.

Costs

22. Option 1 has almost no additional policy or administrative costs. The do something options all have the same general policy and administrative costs relative to the do nothing option. Options 3, 3a, 4 and 5 differ from Option 2 as they are based on amending the 2000 Regulations rather than entirely revoking and remaking them. Revoking and remaking the 2000 Regulations would be expected to incur considerable additional administrative costs. The additional administrative costs arise because of the greater time and effort that would be required to draft a complete set of replacement regulations as opposed to amending the existing ones. The majority of this cost would probably be on negotiating changes to parts of the 2000 Regulations which would not change under options 3, 3a , 4 and 5. Rewriting the 2000 regulations would "open up" debate about these elements which, while not necessarily perfect, work in practice. These elements of the regulations do not need to change, but it is likely that change would have to be considered if it was decided to replace the 2000 Regulations. Revoking and remaking would also incur additional policy costs due to the need industry needing to be involved in a much wider consultation and retraining exercise.

23. Options 3 and 3a differ from options 4 and 5 in terms of the inclusion or otherwise of the major simplifying proposals related to regulations 23, 35 and 36.

24. Option 3a differs from Option 3 in terms of who undertakes Water Framework Directive monitoring requirements in relation to drinking water protected areas. These can either be met by the monitoring being carried out by water companies as part of their raw water monitoring for public health protection, operational and investment planning purposes (options 2, 3 and 4) or by the EA separately and in addition to it (option 3a). This would represent significant additional cost and duplication of effort. Option 5 yields the benefit that any data gathered by water companies to support their proper functions of risk assessment and water treatment can also contribute the implementation of the WFD.

25. It should be noted that many of the amendments involve no or negligible change in costs:

- Amendments to Regulations 1, 2, 3, , 9, 13, 19, 20, 24 and to Schedules 1, 2 and 3 are minor clarifications of definitions or tidying up and therefore there are no additional costs associated with this.
- Regulation 8 enables the Secretary of State or National Assembly for Wales (in practice DWI) to authorise the use of supply points (treatment works and service reservoirs) for monitoring of conservative parameters (those which do not change during distribution). A review of the legislation has confirmed that the supply point authorisation process, in conjunction with risk assessment, can be applied to water in its original state (raw water), in conjunction with the widened risk assessment process. This mechanism would enable water companies to shift the balance of their "source to tap" monitoring for certain parameters so that measurements in raw water samples need not be duplicated in treated water samples. This risk based approach to monitoring

is consistent with WHO, Drinking Water Directive, and Water Framework Directive principles because it provides water quality information further upstream in the water supply process to support risk management and in terms of limiting raw water deterioration. We have not included an estimate of any potential cost savings from the authorisation of abstraction points as supply points in this document because the outcome of water company risk assessments in respect of each individual parameter is site specific and cannot be predicted in advance. However, the DWI has evaluated existing drinking water data and concluded that there may be at least 6 – 10 parameters which are not present in most water supplies and would therefore be suitable candidates for raw water supply point authorisations. DWI has indicated its intention to provide guidance to water companies on the new interpretation of the supply point authorisation process so that benefits in the form of improved information and removal of duplication of testing for particular parameters can be realised from the risk based approach to "source to tap" monitoring. These expected cost savings and benefits have not been included in the final estimates of cost benefit carried out for this regulatory impact assessment. The introduction of competition into the water industry (via changes made by the Water Act 2003) means that the number of inputs to a water supply zone is likely to increase in the future and therefore the technical considerations as to whether supply point samples are representative of all the water supplied in a given zone are increased in complexity, involving water quality information derived from more than one party (the water undertaker and the combined licensee). Any increase in administrative and compliance costs as a result of the phased introduction of a restriction on the general supply point authorisation should be offset by the benefits of raw water supply point authorisations.

- Amendments to Regulations 4 and 6 clarify the definition and requirement of companies to sample from bottled water supplies. This applies very infrequently when water cannot be supplied by means of pipe. Water undertakers usually carry out such testing for their own due diligence reasons already.
- Amendments to Regulation 15 formalises the 'acceptance' of new sources, the sampling requirements exist already. There would be a negligible additional cost to the DWI for issuing new notices. It is noted that companies introduce new sources infrequently and so compliance costs will be low.
- Regulation 31. This is a stand alone amendment which reintroduces provision for the Secretary of State and the National Assembly for Wales to charge applicants for approval of a substance or product which reflects the administrative expenses incurred by the Secretary of State or National Assembly for Wales in connection with the application. The provision for charges was contained in the 1989 Regulations but not carried forward in the 2000 Regulations because the overall cost of the Regulation 31 approvals scheme had not warranted cost recovery during the 1990's. It involves:
    - A small registration fee in the order of £200 for each application (of which there were 47 during 2005)
    - An additional fee in the order of £200 for applications requiring consideration at one expert committee meeting (CPP) – of which there were 25 in 2005.
    - An additional fee in the order of £400 for consideration at each subsequent CPP meeting – of which 4 would have incurred a total cost of £800 in 2005, and 2 would have incurred a total cost of £1200 in 2005.

These costs apply not to the water industry per se, but to suppliers to the water industry among others, they are not considered to be significant and therefore are not explored further in the cost benefit assessment.

26. As a result the main cost impacts of the proposals are the additional risk assessment and monitoring requirements related to the introduction of Regulation 16A and Schedule 5, and changes to Regulations 25, 26, 27, 28, 29 and 33 and the cost savings introduced through the simplification of the regulations related to Regulations 23, 35 and 36.

Costs of additional risk assessment and monitoring requirements

27. For the purposes of this RIA, costs have been calculated based on two assumptions:

i) Sampling costs
A nominal additional cost of £20 per sample has been assumed as a maximum to cover additional time on-site, bottles, proportion of on-costs etc.
For the existing monitoring, the maximum number of visits to a site is once per week (52) and therefore 52 x £20 (=£1040 per sample point) has been added to the total costs.
For proposed monitoring, sampling is recommended at ground water sites at a frequency of at least 4 times per year, therefore 4 x £20 has been added to the total costs (£80 per sampling point). Sampling is recommended at surface water sites at a frequency of up to 12 times per year (depending on population served), therefore 12 x £20 has been added to the total costs (=£240 per additional site).

ii) Analysis costs
Costs for analysis of a number of parameters have been obtained from two laboratories. One is a water company owned laboratory and therefore probably does not contain a margin; the other is an independent commercial laboratory which presumably includes a percentage profit margin within it. For the purposes of this exercise, an average of the two costs for each parameter has been used (Appendix 1, Table 4).

Estimation of current raw water monitoring costs

28. The first step is to assess the current average level of raw water monitoring, and therefore its cost, carried out by the water industry in England and Wales. Water UK and the EA are undertaking a survey of the water industry to establish current raw water monitoring by water companies, the results of which are not yet available. There is no statutory requirement to carry out this sampling and analysis, although it is widely accepted as best practice (1), (2). Information from the DWI who routinely inspect raw water data as part of technical audits and incident assessments indicates that most companies currently monitor a limited range of key indicator parameters in their raw water (Appendix 1,Table 1) in order to inform decisions about the level of treatment, seasonal affects, chemical dosing etc.

29. In her annual report ‘Drinking Water 2005, Part 2’ (3), the Chief Inspector of Drinking Water reports on current treatment processes in place in England and Wales (Table 2.2). For the purposes of estimating a baseline of current raw water monitoring costs it is assumed that best practice results in water companies

monitoring raw water at those works with treatment in place for a particular parameter, to make necessary treatment decisions (chemical dosing, etc.) and to demonstrate the efficacy of their process (Appendix 1, Table 2).

30. During the last Periodic Review of Water Prices which was completed in 2004 ("PR04"), companies identified a number of schemes requiring improvement programmes at water treatment works at which the raw water monitoring had indicated an increase in specific parameters which were therefore at risk of failing the Drinking Water Directive standard at some point in the relevant period, 2005-2010 (Appendix 1, Table 3).

31. To estimate current raw water monitoring costs, the existing and proposed sites with treatment for particular parameters have been calculated and multiplied by existing sampling frequencies and analytical costs.

32. **Current costs:**

- Ground Water: A total current cost of £756K per annum is obtained.
- Surface Water: A total current cost of £299K per annum is obtained.
- Total: the estimate for the total industry' spend on raw water monitoring (England and Wales) is £1,055K per annum.

The assumptions made in the calculations include:

- adherence by most companies to accepted water industry best practice requiring information about raw water quality in order to inform treatment decisions.
- adherence to the monitoring and classification of surface water required by the current SWAD
- average costs for sampling and analysis as outlined above
- the number of works at which monitoring takes place for specific parameters is a combination of those with treatment in place and those identified as at risk of failing.
- actual sampling frequencies obtained by the DWI from two companies are representative of the industry standard

33. Information from DWI technical audit inspections and incident assessments indicates that most companies carry out some form of catchment risk assessment to indicate which parameters may be present in the raw water, and subsequent appropriate raw water monitoring. If any of the above assumptions are incorrect, it could be argued that the figure for current costs is an overestimate. A range of costs is proposed for the purposes of the RIA to account for the possibility that not all of the above assumptions are correct. This proposes that as a maximum the calculations outlined above are up to 50% overestimated. Therefore the total costs to the industry currently incurred by raw water monitoring are £704K to £1,055K per annum.

Raw water monitoring requirements introduced by the proposed amendments

34. Under the consultation proposals Schedule 5 set out the monitoring requirements proposed. A number of parameters require monitoring at all sites, whereas others will be required at a varying frequency depending on the outcome of the risk assessment and the population served by that works (Table 5). For this exercise monitoring requirements for mixed waters are assumed to be the same as

for surface water. This is the more burdensome interpretation; therefore the resulting cost estimates will be a maximum.

35. Additional monitoring requirements for drinking water protected areas under the Water Framework Directive apply to those abstractions from water bodies serving more than $100m^3$ per day as an average. Information on abstraction licences for public water supplies from the EA show that for ground waters there are approximately 3 per ground water body as an average. The average number of abstraction points for public water supply in each river surface water body is 1.3, and the average number per lake surface water body is 1.0.

The Water Framework Directive drinking water protected areas monitoring frequencies are based on community served by the water body, but it is suggested that the requirements of the proposed new provisions will be applied at each abstraction point in a water body at frequencies depending on the population served by that water body. This ensures that robust data sets are obtained for water serving each water treatment works, including for seasonal variations, to inform treatment decisions and risk assessment. It also removes the need for water companies to liaise with each other and agree sampling programmes where more than one water company boundary draws on the same water body.

36. Costs of the revised raw water monitoring requirements were calculated incorporating the recommended frequencies in new Schedule 5 and applying the risk assumptions and sampling and analytical costs previously used.

- **Ground Water**

In addition to the risk based monitoring assessment, an additional suite of 5 parameters are required to be sampled and analysed once per year by the Water Framework Directive (Annex V, paragraph 2.4.2) at all ground water sites. Analytical costs for the 5 parameters were summed, and a £20 sampling cost added then multiplied up by the total number of works.

At sites for which the risk assessment identifies no significant risk for a parameter, it is proposed that a set of 4 samples taken regularly for most parameters over one year are analysed for that parameter to confirm that it is not present in a substantial quantity. It is then anticipated that monitoring frequencies will be reduced by the Secretary of State or National Assembly for Wales. An estimate has been made of this cost by multiplying the cost of the whole analytical suite of risk parameters (plus 4 x £20 for sampling) by the total number of ground water works. This cost has been spread over the 5 years of an Asset Management Period (AMP) (as an arbitrary time period over which risks tend to be evaluated) – this is the cycle in which the water industry plans investment requirements and seeks the associated funding through the limits set on customer bills by the economic regulator, Ofwat.

Together, a total cost of the proposed raw water monitoring requirements for ground water works is £270K per annum.

- **Surface Water**

Incorporated in the risk based monitoring assessment are a number of parameters which are required in Schedule 5 to be monitored at a higher frequency than for Water Framework Directive drinking water protected areas purposes in surface water (e.g. *E. coli*) for public health protection purposes (due to the potential variation in source quality and the subsequent impact on operation of treatment processes). For those parameters, the frequencies have been amended appropriately.

At sites for which the risk assessment identifies no significant risk for a parameter, it is proposed that a set of 4 samples taken regularly over one year are analysed for that parameter to confirm that it is not present in a substantial quantity. An estimate has been made of this cost by multiplying the cost of the whole analytical suite of risk parameters (plus 4 x £20 for sampling) by the total number of surface water works. This cost has been spread over the 5 years of an Asset Management Period (AMP) (as an arbitrary time period over which risks tend to be evaluated) – this is the cycle in which the water industry plans investment requirements and seeks the associated funding through the limits set on customer bills by the financial regulator, Ofwat.

Together, a total cost of the proposed raw water monitoring requirements for surface water works is £150K per annum.

- **Total cost**

This gives a total cost estimate of £421K per annum. Due to uncertainties about predicting the outcome of risk assessments of the catchments we have assumed this could be as much as 50% underestimated. A range is proposed for use in this comparison of £421K to £843K per annum.

37. The difference in costs between the estimated current cost of raw water monitoring and that required by the proposed amendments to the 2000 Regulations with regard to making statutory the requirement to carry out risk-based raw water monitoring is therefore in the range of :
minus £634K to plus £139K per annum

38. However, it is anticipated that companies will probably continue with their existing raw water monitoring which exceed the minimum proposed therefore the minimum cost impact will be £0. The costs detailed in this section were based on an option 3 scenario. The costs have been re-examined and are considered to represent a fair estimate to option 5 raw water monitoring costs.

Removal of *Cryptosporidium* monitoring requirements and revocation of associated offences

39. Under the existing provisions of the 2000 Regulations, when water undertakers identify a treatment works as being at significant risk from *Cryptosporidium*, they are required either to initiate daily regulatory monitoring (according to rigid guidelines set out in the regulations) or to implement an improvement programme involving either upgrading the existing treatment process or installation of a physical membrane which secures that the average number of *Cryptosporidium* oocysts per 10 litres of water is less than one. Except where a membrane was installed, the treated water at these sites has to be sampled continuously at a rate of at least 40 litres per hour through an approved collection device which was required to be removed for analysis each day. The 2000 Regulations also lay down various other forensic requirements and conditions relating to sampling and analysis. Failure of the water supplier to meet the requirements in Regulation 29 are offences under Regulation 33. It is proposed to revoke Regulation 29 and the associated offences in Regulation 33. This removes burdensome sampling and reporting arrangements and enables a wider range of treatment options including inactivation of oocysts as well as physical removal.

40. It must be emphasised that this proposal will not undermine the public health improvements that have been put in place since the *Cryptosporidium* provisions were

laid down in 1999 for protection against outbreaks of cryptosporidiosis. Under proposed Regulation 27 water undertakers will still have to carry out a risk assessment at each of their treatment works. *Cryptosporidium* will still be a major risk factor for assessment and where it is shown to represent a significant risk, under proposed Regulation 28 water undertakers will still be required to mitigate the risk through action in the catchment or improved treatment or both. Validation monitoring will still be required to demonstrate that the actions are effective whether this is by demonstrating that oocysts are removed from the water stream or that, for example, an effective UV or ozone dose has been applied continuously. Therefore this proposal is very much in accord with the risk based approach of the Better Regulation Executive and of WHO (4, 5).

- ## Benefits

i) Risk assessment

41. Regulation 26 will be added which refers to overall risk assessments, compiled through information from the EA and the water companies. We anticipate this will be cost-neutral because existing risk assessments for Cryptosporidium and PR04 were comprehensive collectively.

ii) New sites

42. It is not anticipated that there will be many new sites identified as at significant risk as a direct result of the amendments because an exercise to review Cryptosporidium risk assessments has just been completed for all surface waters and ground waters were last considered in respect of PR04.

iii) Sites removed

43. Some sites may be reduced in risk due to the installation of membranes. Historically the vast majority of these have been groundwater sites. 51 sites were reclassified between 1999 and 2005, i.e. 8.5 per annum. However these sites do not require regulatory monitoring either before or after membranes are installed, so they remain cost-neutral as far as the proposed amendment to the 2000 Regulations is concerned.

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iv) Existing sites

44. Most sites which could be abandoned, or converted into raw water monitoring sites have been identified during Asset Management Period 3 (AMP3 2000-2005). Capex costs for the installation of regulatory monitoring equipment (approximately £16,000 per site; Ofwat) will not be recovered as any with existing facilities have incurred this cost already. Cost savings relate to removal of the chain of custody burden, anomaly reporting and possible operational savings relating to reduction in sampling frequency.

- **Surface Water sites**

Current monitoring costs:

45. In most cases due to the volume throughput of surface water treatment works, it is not yet cost-effective to install membranes, therefore, as an alternative companies have put in place a programme of regulatory monitoring (involving daily sampling, chain of custody requirements, anomaly reporting etc).

There are 121 surface water sites at significant risk currently. A proportion of these will be due to direct abstraction arrangements or there being less than 7 days bankside storage. The use of this particular risk criterion in guidance is under review and in the future some of these sites may not be classified as being at significant risk. However for this exercise current figures have been used.

Ofwat estimate that companies spend £39,000 p.a. per site on operational costs of regulatory sampling if they use an in-house lab, £53,000 if they have to contract out to a lab for analysis.
121 x £39,000 = £4.7m
121 x £53,000 = £6.4m

Future monitoring costs:
46. There may be an opportunity to reduce the frequency of monitoring at sites according to the level of risk from *Cryptosporidium*. Sites at a high risk may need to continue with daily regulatory monitoring, in which case cost savings will result from the removal of aspects of the reporting burden. However at some sites, sampling and analysis may be reduced from daily to a minimum of once per week. Criteria for this adjustment will be clarified in guidance. Therefore the minimum costs incurred will be £674k - £916k per annum.

Total cost saving
47. A maximum saving of £4m - £5.4m per annum for surface water is estimated depending on level of risk at each site.

- **Ground Water Sites**

48. 51 groundwater sites are currently at significant risk. At 23 of these sites membrane filtration has already been identified, for which no regulatory monitoring will be required. The remaining 28 are in the process of being evaluated as regards the best solution. The existing provisions restrict the options available to companies to upgrading of the treatment works or installation of a physical barrier, or continuous regulatory monitoring.

a) Regulatory monitoring
Depending on risk at each site the regulatory monitoring may reduce from daily to a minimum of once per week (the criteria for this assessment will be set out in guidance).
For 28 sites, the cost of daily regulatory monitoring = £1.1m - £1.5m.
This would reduce by a maximum of £936k - £1.3m per annum.

b) Alternative treatment e.g. UV
The proposed amendments introduce an option which allows inactivation of the organism as an alternative to removal.
Submissions made to DWI and Ofwat during PR04 for installation of membrane filtration and ultraviolet treatment during the 5 year period from 2005 – 2010 have been examined. Companies proposed a range of costs (depending on the volume throughput of the works, and in some cases other drivers at the sites). For membrane installation this was between £0.45m and £0.7m per Mld. For installation of ultraviolet treatment this was between £0.06 and £0.1m per Mld.
Therefore the total cost saving attributable to the widening of treatment options compared to installation of membranes is £0.39m - £0.6m per Mld.
The majority of sites at significant risk of *Cryptosporidium* were addressed during AMP3. Additional water treatment works at significant risk requiring membrane filtration totalling an output of 137.9Mld were identified at PR04. Assuming a similar 'rate' of change of status of works during the next periodic review, then the total cost saving per annum can be estimated if UV is installed instead of membranes:

Cost of membrane installation per annum (137.9/5) = £12.4m - £19.3m
Cost of UV installation per annum (137.9/5) = £1.65m - £2.8m

Total estimated cost saving per annum = £10.75 - £16.5m

Table 2: Summary of savings associated with changes to the *Cryptosporidium* provisions

Proposed amendment	**Minimum savings (per annum)**	**Maximum savings (per annum)**
Reduction in frequency of monitoring (surface water sites)	£0m	£5.4m
Reduction in frequency of monitoring (ground water sites)	£0m	£1.3m
Use of alternative treatment solutions	£10.75m	£16.5m
Total	£10.75m	£23.2m

Cost savings from reductions in administrative burdens

i) Regulation 23
49. Amendments to the 2000 Regulations include a proposal to amend Regulation 23(1) - publicising of authorised departures. The most recent cost estimates were compiled in 2005 by the DWI. The average number of notices that are required currently for each programme of work are:
- average number of press notices (i.e. different publications covering the area affected) per undertaker = 1.34
- actual average cost of each press notice (2002 to 2004) = £1,529.16
- average number of authorised departures granted per year (2005) = 3(*)
- estimate of cost per year of publicising authorised departures for the Industry = £6,147.22

** figure based on only 18 months data as new obligation*

ii) Regulations 35 and 36
50. From costs compiled by the industry for 2005(7), the financial benefits to the industry of removing this burden can be estimated:

Table 3: Estimate of financial burden of administrative regulations

Regulation	**Cost per annum (£)**
35(1)	651.05
35(2)	0
35(3)	190.95
35(4)(a)	40,641.25
35(4)(b)	0
35(4)(c)	0
35(4)(d)(i)	0
35(4)(d)(ii)	0
35(4)(d)(iii)	0
36(1)	0
36(3)	0
Total savings	**41,483.25**

Overall Summary of costs and benefits

51. The following table summarises the main costs and benefits of the proposals.

Table 4: Summary of costs and benefits

Regulation	Options	1	2	3	4
	Benefits	None	Continued protection of public health following repeal of SWAD		
	Costs and savings				
1, 2, 3, 4, 6, 8, 9, 13, 15, 19, 20, 24 and 31; Sch 1, 2 and 3	Changes to definitions, clarifications, or consolidation of existing practices	None	None or negligible		
16A, 25, 26, 26, 27, 28, 29, 33; Sch 5	Main proposals for altering the risk assessment, monitoring and treatment requirements	None	Additional raw water monitoring: costs of £0 - £139K per annum. Amendments to *Cryptosporidium* regulations: savings of £10.75m - £23.2m per annum.		
23, 35 and 36	Reductions in administrative burdens	None	None		£48K
	Additional costs of Option 3a	None	None	Estimated at 43% higher (for EA to undertake) during PR04	None

The costs and benefits of option 5 will be broadly consistent with those outlined above for option 4.

6 Small Firms Impact Test

52. The amended 2000 Regulations will have an impact on costs for water undertakers and may generate reduced pressure on water prices charged to customers. It will similarly have an impact on the costs of licensed water suppliers which have their own treatment works (combined licensees) most of which are small businesses.

Small firms have been identified in each of the sectors affected – the water industry, suppliers to the industry and providers of analytical services. it is anticipated that the impact on a small firm in any of these categories will be negligible.

7 Competition Assessment

53. Application of the competition filter indicates that a simple competition assessment is appropriate as little or no effect on competition is likely as a result of the proposals.

54. There are currently 24 vertically integrated, incumbent water undertakers in England and Wales. Ten of these provide water and sewerage services, while the remaining 14 provide only water services. In areas where a water only company provides water, a water and sewerage company provides the sewerage service. All 24 companies are statutory undertakers, with duties and responsibilities set out in primary and secondary legislation. Undertakers must also comply with conditions set out in their Instruments of Appointment, including observing price limits set by Ofwat applying to charges for the majority of their customers.

55. Undertakers are appointed for a specific geographic area, and undertake (either directly or sometimes by contracting out) every aspect of the provision of water services, i.e. ownership and control of the operation of abstractions, reservoirs, pumping stations, treatment works and all elements of the public water distribution network.

56. These features of the water industry limit the scope for direct market competition. Ofwat's regulatory regime is incentive based and decisions on price setting are informed by a comparative competition framework which compares the performance of each company and sets prices on the basis of the best performing company. The effectiveness of the regulatory framework in providing companies with incentives to improve their efficiency and be innovative is generally accepted to be more limited than market competition where that is possible.

57. The Water Act 2003, which received Royal Assent on 20 November 2003 extended the opportunity for competition within the England and Wales water supply industry so that water customers with an annual consumption of at least 50 megalitres are eligible to switch supplier. To date five businesses have applied for a combined licence which will allow them to retail water to customers and introduce water into water undertakers' supply systems for this purpose.

58. Combined licensees will be directly affected by these proposed amendment regulations in a similar way to water undertakers. This is because consequential amendments to the 2000 Regulations as a result of the introduction of competition to the industry have already applied many of the relevant provisions in the 2000 Regulations to them. If anything, these proposals will benefit these new entrants and ensure a more level playing field by requiring water undertakers to consult DWI before using water from new sources. This reflects the existing standard licence condition already imposed on combined licensees. Retail licensees will have reduced burdens on them in relation to information and reporting requirements. To some degree this may assist market entry.

59. The size and scale of drinking water quality monitoring programmes is directly proportional to the volume of water supplied or population served therefore the burden is distributed equitably. Smaller water undertakers and combined licensees are not subject to a greater relative monitoring burden than larger water undertakers.

8 Enforcement, sanctions and monitoring

60. The enforcement process in the regulations is not fundamentally altered by these amendments. To date the process has been demonstrated to be very effective in respect of delivering benefits to consumers in terms of year on year improvements in drinking water quality as reported annually in the Chief Inspector's Annual Report. A recent House of Lords Select Committee Report on Water Management (6) cited the

Drinking Water Inspectorate as being a very successful element of the regulatory framework and cited strongly positive evidence provided by the Consumer Council for Water.

61. In light of experience and in line with Better Regulation aims of Defra and the Welsh Assembly Government, the amendments make some adjustment to the offences in the regulations. It is proposed to remove the specific offences relating to the carrying out of monitoring and treatment for cryptosporidium. DWI has not found it necessary to apply these sanctions to the scientific functions of water undertakers since they were introduced in 1999. A more general offence is introduced which bears directly on the fundamental public health protection requirement of adequately treating and disinfecting water before it is supplied. The offence of failing to comply with regulatory requirements to make necessary improvements in treatment processes is also extended to all risks to human health, in addition to *Cryptosporidium*. Evidence from incident investigations by DWI has demonstrated a clear current need for an effective sanction in respect of the core water supply operational function of water undertakers.

62. DWI will continue to work with water undertakers and combined licensees to seek to prevent any potential danger to human health arising from the public water supply. The wider risk assessment procedures would place the primary duty very much on water undertakers and combined licensees to consider compliance issues holistically. DWI's role would be very much as part of the checks and balances in what should become (if it is not already) embedded in company procedures. DWI will retain the power to take civil enforcement action under section 18 of the Water Industry Act 1991 for any breaches of duties contained in the Regulations which it uncovers.

63. However, an adequate criminal regime is also necessary because of the serious consequences for public health which would arise if there was a failure to disinfect or adequately to treat the public water supply. The threat of credible criminal sanctions provides further incentives for water undertakers and combined licensees to take the necessary steps to prevent an incident. Prosecutions are also important to make examples of those who engage in bad practice and to ensure that lessons are learnt for the future. The proposed criminal sanctions would not apply in the case of severe civil emergencies (such as terrorist strikes or major natural disasters) and also would not apply if the water undertaker or combined licensee had taken all reasonable steps and exercised all due diligence to avoid the incident. This strikes a fair balance between the public interest and the private concerns of water undertakers and combined licensees.

64. Together with the risk assessment process, the civil and criminal enforcement powers will ensure that an effective *ex ante* compliance programme is in place. It will also ensure that there are adequate means to deal with failures in risk assessment, disinfection and treatment after any incident.

References

(1) ‘Principles of Water Supply Hygiene and technical guidance notes’, June 1996; WaterUK
(2) ‘Operational Guidelines for the Protection of Drinking Water Supplies: Safeguards in the Operation and Management of Public Water Supplies in England and Wales’
(3) Drinking Water 2005, Chief Inspector of Drinking Water
(4) ‘Lifting the Burden’, Defra Initial Regulatory Simplification Plan, November 2005
(5) ‘Guidelines for Drinking Water Quality’, 3rd Edition, 2004; World Health Organisation.
(6) House of Lords Report on Water Management June 2006
(7) Report on administrative burden of existing regulations – not published

Appendix 1 Additional Raw Water Monitoring costs of the proposed amendments

Calculations

Table 1: Estimates of current raw water monitoring by water companies

Parameter	Source type	Frequency	Comment
E Coli	All	At least weekly	As required by SWAD, but required to demonstrate efficacy of treatment/disinfection
Coliform bacteria	All	At least weekly	As required by SWAD, but required to demonstrate efficacy of treatment/disinfection
Turbidity	All	At least weekly	To inform treatment requirements
Conductivity	All	At least weekly	
PH	All	At least weekly	
Colour	All	At least weekly	To inform treatment requirements
Ammonium	All	Fortnightly	
Nitrate	All	Monthly	On average – ground water usually at a higher frequency
Pesticide	All	Quarterly	

Table 2: Current treatment processes installed

Of a total of 1234 works in supply, the following percentages had treatment in place for the parameters listed:

Parameter	Ground water	Surface Water/Mixed Water
Pesticides	9.2	9.6
Nitrate	8	1.4
Solvents	1.8	0.2
Arsenic	2.8	0.2
Lead	0.3	0
Manganese	9.1	12.1
Iron	13.5	13
Colour	1.4	13.5
Taste and Odour	0.6	3.6
Trihalomethanes	1.3	9.2
Bromate	0	0.3

Table 3: Water Treatment Works identified as being at risk of exceeding the standard for a specific parameter during PR04

Parameter	% Groundwater works at risk	% Surface Water works at risk
Arsenic	0	0.97
Bromate	0.33	0
Lead	0.44	0.33
Nickel	0.22	0
Nitrate	7.9	0
Pesticides	1.1	2.9
Colour	0	1.6
Manganese	0.44	2.6

(Sites at significant risk from *Cryptosporidium* are considered elsewhere in this document.)

Table 4: Analytical costs

Parameter	Min cost (£)	Max cost (£)	Average
Arsenic	7.5	9	8.25
Bromate	15	15	15
Lead	3.75	9	6.4
Nickel	9	18.75	14
Nitrate	3	3.75	3.4
Pesticide	26.25	80	53
Colour	3	3	3
Manganese	3	3.75	3.4
PH	1.5	2.5	2
Conductivity	1.5	2.5	2
Ammonium	3	3.75	3.4

Table 5: Populations served by each type of water treatment works

	SW	MW	GW	Total
Pop <10, 000	57	17	392	466
Pop 10,000-30,000	59	12	337	408
Pop >30,000	165	29	153	347
Total	281	58	882	1221

(The total figure varies slightly from the total no. of WTW presented in the CIR (2005) due to works being taken in or out of service at times. This total is as of June 2006.)

[Minister's endorsement]

I have read the Regulatory Impact Assessment and I am satisfied that the benefits justify the costs.

Jeff Rooker
Minister for Sustainable Food and Farming, and Animal Health
Department for Environment, Food and Rural Affairs

13th September 2007

Department for Environment, Food and Rural Affairs

Transposition of the Drinking Water Directive (1998/83/EC)

The Water Supply (Water Quality) Regulations 2000 and the Water Supply (Water Quality) 2000 (Amendment) Regulations 2007

1. This Transposition Note has been prepared by the Department for Environment, Food and Rural Affairs ("Defra") to show how certain of the main elements of Council Directive 98/83/EC on the quality of water intended for human consumption ("the Drinking Water Directive") ("the Directive")[1] have been transposed in parts of England and Wales in relation to water supplies by water undertakers and licensed water suppliers.

2. This Note has been published to accompany the Water Supply (Water Quality) 2000 (Amendment) Regulations 2007 ("the Amending Regulations"), which were laid before Parliament in September 2007. The Amending Regulations amend the Water Supply (Water Quality) Regulations 2000 (S.I. 2000/3184) ("the Principal Regulations"). Consequential and incidental amendments have previously been made to the Principal Regulations by three further instruments.[2]

The Directive

3. The objective of the Directive is to protect human health from the adverse effects of any contamination of water intended for human consumption by ensuring that it is wholesome and clean. Water intended for human consumption includes water intended for drinking, cooking, food preparation or other domestic purposes, or in certain food-production businesses. Amongst other things, water is wholesome and clean if it is free from any micro-organisms and parasites and from any substances which, in numbers or concentrations, constitute a potential danger to human health. The Directive sets out minimum requirements in relation to certain parameters which must be met. Generally, those requirements must be met at the tap in consumers' premises which is normally used for human consumption.

4. The Directive requires Member States to regulate the supply of water intended for human consumption and to ensure that adequate information is available to consumers.

Means of transposition of certain of the main elements of the Directive

5. The following Table sets out how the main elements of the Directive have been transposed by the amendments to the Principal Regulations which have been made by the Amending Regulations.

[1] OJ No L330, 5.12.1998, p.32.
[2] S.I. 2001/2885, S.I. 2002/2469 and S.I. 2005/2035.

Element of the Directive	*Description of that element*	*Means of transposition*
General Obligations (Article 4.1)	Member States shall take the measures necessary to ensure that water intended for human consumption is wholesome and clean.	In addition to the existing provisions in the Principal Regulations, water undertakers and water supply licensees must monitor the quality of raw water abstracted (regulation 16A), prepare risk assessments in relation to their treatment works and distribution systems (regulations 27 and 28) and ensure that water supplied for human consumption is disinfected and in all other respects adequately treated (regulation 26). Breach of certain provisions in regulations 26 and 28 is a criminal offence (regulation 33).
Provision of information in relation to derogations from the requirements of the Directive granted by competent authorities (Article 9.6)	Any Member State which grants a derogation in accordance with the Directive must ensure that the population affected is promptly informed in an appropriate manner of the derogation and of the conditions governing it.	Water undertakers, water supply licensees and the Secretary of State must make information about derogations applied for, modified or revoked available to a number of public bodies, including local authorities, the Health Protection Agency, and where the water supply zone is wholly or partly in Wales, the National Public Health Service for Wales (regulations 20 and 24). In addition, water undertakers and water supply licensees must make information about derogations applied for available, free of charge, on their websites via a hyperlink maintained on

		their respective homepages for at least 14 days (regulation 23).
Provision of information in relation to the quality of water intended for human consumption (Article 13).	Member States must ensure that adequate, up to date information about the quality of water intended for human consumption is available for consumers.	A water undertaker or licensed water supplier must, on request, provide any person with a copy of its records in relation to water quality (regulation 35). A water undertaker or licensed water supplier must, as soon as possible after an event which, by reason of its effect or likely effect on the water supplied by a relevant supplier, gives rise or is likely to give rise to a significant risk to human health, notify certain public bodies (regulation 35).

Defra
September 2007

Department for Environment, Food and Rural Affairs

Transposition of the Water Framework Directive (2000/60/EC)

The Water Environment (Water Framework Directive) (England and Wales) Regulations 2003, the Water Environment (Water Framework Directive) (Northumbria River Basin District) Regulations 2003, the Water Environment (Water Framework Directive) (Solway Tweed River Basin District) Regulations 2004 and the Water Supply (Water Quality) 2000 (Amendment) Regulations 2007

1. This Transposition Note has been prepared by the Department for Environment, Food and Rural Affairs ("Defra") to show how the main elements of Directive 2000/60/EC of the European Parliament and of the Council of 23rd October 2000 establishing a framework for Community action in the field of water policy ("the Directive")[3] have been transposed.

2. This Note has been published to accompany the Water Framework Directive (Implementation) (England and Wales) Regulations 2003 (S.I. 2003/3242: "the Principal Regulations") and the Water Environment (Water Framework Directive) (Northumbria River Basin District) Regulations 2003 (S.I. 2003/3245: "the Northumbria Regulations"), which were laid before Parliament on 11th December 2003. This note was supplemented by a note published to accompany the Water Environment (Water Framework Directive) (Solway Tweed River Basin District) Regulations 2004 (S.I. 2004/99), ("the Solway Tweed Regulations"), laid before Parliament on 20th January 2004. The two notes have now been consolidated and amended to accompany the Water Supply (Water Quality) 2000 (Amendment) Regulations 2007 ("the Drinking Water Regulations"), which were laid before Parliament in September 2007.

The Directive

3. The Directive is the most substantial piece of water legislation ever produced by the EC. It requires the development and implementation of a new strategic framework for the management of the water environment, and establishes a common approach to protecting and setting environmental objectives for groundwaters and surface waters within the Community. The Directive also specifies the arrangements by which environmental objectives will be set.

4. At the heart of the Directive is the requirement to establish and implement a strategic planning and management process based on "river basin districts". That process must include a detailed analysis of the pressures on "water bodies" within each river basin district and an assessment of which bodies are at risk if failing to meet the Directive's environmental quality objectives.

5. This "characterisation" process will allow for the establishment both of environmental objectives within each river basin district and tailored programmes of measures that must be given effect in order to achieve those objectives. Where appropriate, monitoring and improvement measures will be targeted at those bodies that are at most risk of failing to meet their objectives.

[3] OJ No. L327, 22.12.2000, p. 1.

6. Implementation of the Directive is therefore a major, long-term task. Each successive stage of its implementation must take place according to detailed timetables which are set by the Directive itself, with a view to aiming to achieve key environmental objectives by 2015. It follows that each stage of the implementation task will inform the next.

7. The transposition effected by the Principal Regulations, the Northumbria Regulations and the Solway Tweed Regulations is the initial stage of the implementation of the Directive. They provide a strategic framework within which successive implementation steps will be taken. As this is progressively done, then further obligations will arise which will be given effect cumulatively. One provision in the Drinking Water Regulations supplements the Principal Regulations, the Northumbria Regulations and the Solway Tweed Regulations in relation to one aspect of monitoring in parts of England and Wales.

Responsibility for transposition

8. Responsibility for the protection and management of water resources is generally devolved. However, the Directive requires that the protection and management of water resources in river basin districts district are considered and given effect in a coordinated way for the district as a whole.

9. The Principal Regulations were therefore made by the Secretary of State and the National Assembly for Wales under their respective powers, and relate to river basin districts that are wholly in England, wholly in Wales, or partially in both England and Wales. Responsibility for river basin districts that are partly in England and partly in Wales falls to the Secretary of State and the Welsh Ministers[4] acting jointly.

10. The Northumbria river basin district lies partly in England and partly in Scotland, because certain tributaries of the Tyne extend into Scotland. The Northumbria Regulations have been made by the Secretary of State alone, after consultation with the Scottish Executive. The Northumbria Regulations generally apply the Principal Regulations to Northumbria, with some modifications to ensure that the appropriate cross-border consultation and coordination takes place.

11. The Solway Tweed Regulations were made by the Secretary of State in relation to the river basin district that straddles the border between England and Scotland on the west coast (the Solway Tweed river basin district). A significant part of the Solway Tweed river basin district is in Scotland and so the Solway Tweed Regulations make specific provision to ensure that the requirements of the Directive are given effect in relation to the whole of that district.

12. This is achieved in the Solway Tweed river basin district by modifying provisions which would otherwise have applied each side of the border to account for the special situation in the Solway Tweed river basin district. The Solway Tweed Regulations, which are made by the Secretary of State alone under section 2(2) of the European Communities Act 1972, therefore adapt certain provisions of the general measure made by the Scottish Parliament to

[4] The executive functions of the Assembly have been transferred to the Welsh Ministers by virtue of provisions in the Government of Wales Act 2006.

give effect to the Directive in Scotland – the Water Environment and Water Services (Scotland) Act 2003 (2003 asp 3) – along with certain provisions of the Principal Regulations. Where necessary, this is by means of free-standing provisions which place duties on relevant Scottish and English authorities acting jointly.

13. The Scottish Ministers are responsible for transposition of the Directive in relation to river basin districts that are wholly in Scotland, as is the Department of the Environment Northern Ireland in relation to river basin districts wholly or partly in Northern Ireland.

The legal context for transposition

14. The Directive requires a new strategic framework to be superimposed upon an existing body of water law which is already diverse and complex. That body of law is also very heavily influenced by earlier EC measures, and this will continue to be the case: the Directive does repeal some existing measures, but others will remain in force.

15. The Principal Regulations, the Northumbria Regulations and the Solway Tweed Regulations therefore superimpose that new strategic planning framework in their respective areas, along with new obligations to undertake each stage of the implementation process in turn. In doing so, they will require a host of existing functions to be exercised towards the new strategic goals that will be derived from the Directive itself.

16. The Directive also anticipates that some existing rules will need to be re-orientated, or perhaps supplemented, in order to deliver the Directive's environmental objectives. In many cases, it necessarily follows from the Directive that the nature of such changes cannot be identified in detail until earlier, preparatory implementation steps have been completed.

17. The Principal Regulations, the Northumbria Regulations and the Solway Tweed Regulations therefore cannot provide the whole legislative scheme for the management of all water resources up to and then beyond 2015. This too necessarily follows from the cumulative, long-term obligations set out in the Directive.

Means of transposition of the main elements of the Directive

18. The following Table is a consolidated version. It sets out how the main elements of the Directive have been transposed in relation to river basin districts that are wholly in England, partly in England and partly in Wales, or partly in England and partly in Scotland.

Element of the Directive	*Description of that element*	*Means of transposition*
Coordination of administrative arrangements within river basin districts (Article 3)	The requirements of Article 3 include: identification of river basin districts (which may include a number of river	River basin districts are identified in regulation 4(1) of the Principal Regulations and regulation 3 of both the Northumbria

	basins); ensuring appropriate administrative arrangements for each river basin district (including identification of a competent authority); and coordination throughout each district of the requirements of the Directive for the achievement of the environmental objectives under Article 4.	and Solway Tweed Regulations. It is unnecessary to designate the Environment Agency (in England and Wales) or the Scottish Environment Protection Agency ("SEPA") (in Scotland) as the "competent authority" in the Regulations: those Agencies are in fact competent authorities for the purposes of the Directive, in conjunction with (as necessary) the Secretary of State, the Welsh Ministers and the Scottish Ministers. Where necessary, authorities must work together in relation to cross-border areas. Regulation 3(2) of the Principal Regulations and regulation 4(1) of both the Northumbria and the Solway Tweed Regulations require the Secretary of State and the Welsh Ministers, in respect of England and Wales, and the Secretary of State, the Scottish Ministers and relevant Scottish authorities in respect of Scotland, to ensure the requisite degree of coordination throughout each district. It may be necessary to make further regulations or issue directions to achieve this, as part of the process of establishing programmes of measures to achieve the environmental objectives when they have been prepared under regulation 10 of the principal

		regulations or Schedule 1, paragraph 6 of the Solway Tweed Regulations (see discussion of Article 11 below).
Environmental objectives (Article 4)	Article 4 sets out the Directive's environmental objectives. Those objectives are to be further defined in accordance with technical details set out in Annex V, including extensive technical work and Community-wide collaboration (see the further explanation of Article 5, below). The objectives include— for surface waters: preventing deterioration of the status of bodies of surface water; protecting, enhancing and restoring bodies of surface water with the aim of achieving at least good ecological and chemical status by 22nd December 2015; protecting and enhancing heavily modified or artificial water bodies, with the aim of achieving good ecological potential and good chemical status by the same date; and implementing the measures necessary with the aim of progressively reducing pollution from "priority substances" and ceasing or phasing out emissions, discharges and losses of "priority hazardous substances"; for groundwater: implementing the measures necessary to limit the input of	The Environment Agency and, in relation to Solway Tweed, the Agency and SEPA acting jointly ("the Agencies"), are required to prepare proposals for environmental objectives for each river basin district (Principal Regulations, regulation 10; Solway Tweed Regulations, Schedule 1, paragraph 6). As with the river basin planning process (see further below), regulation 10 of the Principal regulations is applied with modifications in respect of the Northumbria river basin district (Northumbria Regulations, regulation 5). Those proposals are to be publicised and consulted upon, and the Agency or SEPA, as appropriate, must encourage those consulted to participate in the preparation process (see also explanation of Article 14 below). Proposals are subject to approval by the Secretary of State, the Welsh Ministers or the Scottish Ministers, as appropriate. Joint approval is required in relation to cross-border areas. The environmental objectives for each river basin district are the objectives required to comply with Article 4 of the Directive, and the

	pollutants and prevent the deterioration of bodies of groundwater; protecting, enhancing and restoring those bodies with the aim of achieving good quantitative and chemical status by 20th December 2015; and reversing any significant and sustained upward trend in certain pollutants in groundwater to progressively reduce pollution; for "protected areas" (defined in Article 6 and Annex IV – see further below): achieving compliance with any standards and objectives by 22nd December 2015, unless otherwise specified in other Community legislation. Article 4 also provides that core objectives may be modified in some cases, including: in relation to protected areas, that the most stringent should apply; that less stringent objectives may apply in some cases; that temporary deterioration may be allowed; and that other derogations may be permitted in some circumstances.	requirements of Article 7(2) and (3) of the Directive (see further explanation of Article 7 below) (each regulation 2(1)). The Agencies must therefore carry out the technical work required by Annex V in preparing their proposals for each river basin district. The environmental objectives are to be given effect by a programme of measures for each river basin district (see explanation of Article 11 below). Once the technical work under Annex V has been completed, further provision will be made by defining detailed requirements to ensure that the detailed environmental objectives are carried out in accordance with the Directive (Principal Regulations, regulations 3(1) and 10; Solway Tweed Regulations, regulation 4 and Schedule 1, paragraph 6).
Characteristics of river basin districts, review of the impact of human activity and economic analysis of water use (Article 5)	Article 5 requires the following to be carried out for each river basin district: an analysis of its characteristics; a review of the impact of human activity; and an economic analysis of water use. This work had to be done in accordance with the	The Environment Agency and, in relation to the Solway Tweed River Basin District, the Agencies, were required to carry out an analysis of river basins' characteristics and to review the impacts of human activity, in

	technical requirements of Annexes II and III to the Directive (Article 5(1)), by 22nd December 2004. It is also to be reviewed and, if necessary updated, by the same day in 2013 and at 6 year intervals thereafter.	accordance with the technical requirements of Annex II, by 22nd December 2004 (Principal Regulations, regulation 5(1); Solway Tweed Regulations, Schedule 1, paragraph 1). The Secretary of State in relation to England (and that part of the Northumbria district in Scotland), the National Assembly for Wales in relation to Wales, and (in relation to cross-border basins) the Secretary of State acting jointly with either the Assembly or the Scottish Ministers, were required to ensure that an economic analysis of water use was carried out by the same date (regulation 6(1); Schedule 1, paragraph 2(1)). All this work must be reviewed and updated as the Directive requires (regulations 5(2) and 6(2); Schedule 1, paragraphs 1(1) and 2(2)). To the extent that the Secretary of State or the Welsh Ministers requires information or assistance to assist in meeting their obligations, they may obtain it, or direct other bodies to help them (regulations 19 and 20; Schedule 1, paragraph 15 and 16). Similar provisions apply in relation to relevant Scottish authorities (Northumbria Regulations, regulation 6(4); Solway Tweed

		Regulations, Schedule 1, paragraph 16(1), (2); section 18 of the Water Environment and Water Services (Scotland) Act 2003).
Register of protected areas (Article 6)	A register had to be prepared by 22nd December 2004 of "protected areas", within which certain specific environmental objectives will apply (see explanation of Article 4 above). That register, which must be kept under review and up-to-date, must include bodies of water referred to in Article 7 (see below), and those listed in Annex IV to the Directive.	The Environment Agency and, in relation to the Solway Tweed River Basin District, the Agencies, had to prepare the register by 22nd December 2004, and must keep it under review and up to date (Principal Regulations, regulation 8(1); Solway Tweed Regulations, Schedule 1, paragraph 4(1)). The areas to be included in the register, including those in Annex IV, are set out in regulation 8(2) and, in relation to the Solway Tweed district, Schedule 1, paragraph 4(2).
Waters used for the abstraction of drinking water (Article 7)	This Article requires certain bodies of water from which water is taken for drinking to be identified and monitored. Monitoring must take place in accordance with Annex V to the Directive. Those bodies are then subject to further environmental objectives, to ensure: that they meet standards under other Directives; and protection with the aim of avoiding deterioration in their quality (Article 7, paragraphs 2 and 3).	The Environment Agency and, in relation to the Solway Tweed district, the Secretary of State and the Scottish Ministers acting jointly, must ensure that the bodies of water used, or intended to be used, for abstraction in the circumstances set out in the Directive are identified (Principal Regulations, regulation 7; Solway Tweed Regulations, Schedule 1, paragraph 3). The Agency and, in relation to the Solway Tweed district, the Agencies, must produce proposals to ensure that the environmental objectives are expressly

		tailored to each river basin district (regulations 10(1) and 2(1); Schedule 1, paragraphs 6(1) and regulation 4). The Agency and, in relation to the Solway Tweed district, the Agencies, must also ensure that the relevant monitoring is carried out (regulation 9; Schedule 1, paragraph 5. See the explanation of Article 8 below). This is partly supplemented by raw water monitoring which must be undertaken by water undertakers and combined licensees (regulation 16A of the Water Supply (Water Quality) Regulations 2000, as inserted by the Drinking Water Regulations).
Monitoring of surface water status, groundwater status and protected areas (Article 8)	Article 8 requires monitoring networks and programmes to be established and made operational by (generally) 22nd December 2006, in accordance with the technical requirements of Annex V to the Directive, and in order to establish a coherent and comprehensive overview of water status within each river basin district. Those programmes are to relate to surface waters, groundwaters and protected areas. Annex V also requires the relevant monitoring to be carried out for the purposes of Article 7 (waters used for the	The Environment Agency and, in relation to the Solway Tweed district, the Agencies, are required to establish programmes for monitoring water status in each river basin district and to take such other action as is necessary in order to meet the Directive's requirements (Principal Regulations, regulation 9(1) and (2); Solway Tweed Regulations, Schedule 1, paragraph 5(1) and (2)). Monitoring programmes had to be made operational by 22nd December 2006 (regulation 9(3); Schedule 1, paragraph 5(3)). The provisions of Annex V to the Directive that

	abstraction of drinking water).	impose monitoring obligations are listed in regulation 9(4) of the Principal Regulations and paragraph 5(4) of Schedule 1 to the Solway Tweed Regulations.
Recovery of costs for water services (Article 9)	This article requires account to be taken of the principle of recovery of the costs of water services, and that certain other specified measures be taken by 2010 to ensure both that adequate incentives are in place for water users to use water efficiently and that an adequate contribution is made by certain sectors to the costs of water services. Elements of the article need not be given effect, in accordance with established practices, if that would not compromise the Directive's other purposes and objectives (Article 9(4)).	The obligation to take account of the principle of recovery of costs of water services is embedded in the economic analysis required to be undertaken (Annex III and Principal Regulations, regulation 6; Solway Tweed Regulations, Schedule 1, paragraph 2). Account must be taken of that economic analysis in the programme of measures for each river basin district (regulation 10; Schedule 1, paragraph 6). Water sectors already meet the full costs of water services, under the Water Industry Act 1991 in England and Wales and related measures in Scotland, and those costs are effectively apportioned between different water sectors. Should any further provision be required, then appropriate measures must be taken in accordance with regulations 3(1) and 10 of the Principal Regulations and regulation 4 of, and paragraph 6 of Schedule 1 to, the Solway Tweed Regulations.
The combined approach for point and diffuse sources (Article 10)	This Article requires a list of specific Community measures to be given effect by 22nd December 2012 through a	Each of the measures listed is already required to be given legal effect under specific legal provisions made in each

	combination of emission controls, emission limits values and, in the case of diffuse impacts, best environmental practices.	case. These are based on an "environmental quality standard" approach, as Article 10 requires.
Programmes of measures (Article 11)	A "programme of measures" must be established by 22nd December 2009 in relation to each river basin district in order to achieve the Directive's environmental objectives. Each programme must include certain specified minimum (or "basic") measures and, if necessary "supplementary measures". A non-exhaustive list of supplementary measures is set out in Annex VI. The general requirements for "basic measures" are set out in Article 11(3). These include controls over water abstraction, prior regulation of point source discharges liable to cause pollution, measures to prevent or control the input of pollutants from diffuse sources; and measures to eliminate or progressively reduce certain pollution by certain priority substances.	The Environment Agency is required by regulation 10(1) of the Principal Regulations, and the Agencies are required by paragraph 6 of Schedule 1 to the Solway Tweed Regulations, to prepare proposals for programmes of measures for every river basin district. Those proposals are to be publicised and consulted upon, and the Agency must encourage those consulted to participate in the preparation process (see analysis of Article 14 below). The Agencies' proposals are subject to approval by the Secretary of State, the Welsh Ministers or the Scottish Ministers, as appropriate (acting jointly in relation to cross-border areas). The Secretary of State and the Scottish Ministers, as appropriate, and, in relation to the Solway Tweed district, the Secretary of State and the Scottish Ministers acting jointly, are required to ensure that, for each river basin district, a programme of measures is established by 22nd December 2009 and made operational by 22nd December 2012 (Principal Regulations, regulation 10(5); Solway Tweed Regulations, Schedule 1,

		paragraph 6(5)). That programme is the programme required to comply with Article 11(2) to (6) of the Directive (each regulation 2(1)). The Secretary of State, the Welsh Ministers and Agency are required generally to exercise their functions under the Regulations and designated other legislation so as to secure compliance with the Directive (Principal Regulations, regulation 3(1) and the Schedule). The same is true of the relevant Scottish authorities in relation to the Northumbria and Solway Tweed districts (Northumbria Regulations, regulation 4; Solway Tweed Regulations, regulation 2(1) and Schedule 2). Amongst other things, this will require the reorientation of existing regulatory controls and that they be supplemented, as appropriate, in light of characterisation, impact and economic analysis, the river basin district planning process and the preparation of environmental objectives for each river basin district. In relation to Scotland, the Water Environment (Controlled Activities) (Scotland) Regulations 2005 (S.S.I. 2005/348) (as amended) provide

		measures to implement the Directive. A number of consultations are taking in all parts of Great Britain place to supplement the measures available to implement the Directive.
River basin management plans (Article 13)	A "river basin management plan" must be produced by 22nd December 2009 for each river basin district (Article 11(1) and (6)), and must thereafter be reviewed and updated by the same day in 2015 and every 6 years (Article 11(7)). Such plans must include the matters set out in Annex VII, and may be supplemented by more detailed plans to deal with particular aspects of water management (Article 11(4) and (5)).	The Environment Agency is required to prepare a plan for each river basin district (other than for the Solway Tweed district where that obligation falls on the Agencies) and such plans must include the specified information (Principal Regulations, regulation 11(1) to (3); Solway Tweed Regulations, Schedule 1, paragraph 7(1)). This extends to all the information required by Article VII, and other relevant provisions of the Directive. These are brought together in regulation 11(3) of the Principal Regulations and paragraph 7(3) of Schedule 1 to the Solway Tweed Regulations. The Secretary of State, the Welsh Ministers and the Scottish Ministers, as appropriate, must ensure that plans are produced by 22nd December 2009 and reviewed and updated thereafter (regulation 11(4); Schedule 1, paragraph 7(4)). Directions may be given to ensure that this happens (regulations 11(1) and 20; Schedule 1, paragraph 16). Plans are subject to approval by the Secretary of State, the Welsh Ministers and the Scottish Ministers, as appropriate, acting jointly in the case of cross-border areas (regulations 13 and 14; Schedule 1, paragraphs 9 and 10), having first been

		publicised and consulted upon in prescribed ways (regulation 12; Schedule 1, paragraph 8. See also Article 14). Plans must be reviewed every six years after their adoption or review (regulation 15; Schedule 1, paragraph 11), an obligation which the Secretary of State, the Welsh Ministers or the Scottish Ministers, as appropriate, must ensure is discharged in accordance with the Directive's requirements (regulation 11(4); Schedule 1, paragraph 7(4)). Provision has also been made for the preparation by the Agency and SEPA of "supplementary plans" (regulation 16). The Secretary of State, the Welsh Ministers (in relation to Wales), the Agency and other public bodies (defined in regulation 2(1)), and appropriate authorities in Scotland, must have regard to plans in exercising any function so far as its affects a river basin district (regulation 17; Northumbria Regulations, regulation 6(3); Solway Tweed Regulations, Schedule 1, paragraph 13; section 16 of the Water Environment and Water Services (Scotland) Act 2003).
Public information and consultation (Article 14)	Article 14(1) requires all interested parties to be encouraged to be "actively involved" in the implementation of the Directive. It also sets out detailed requirements in relation to publication and consultation on river basin management plans (including draft and	The Environment Agency and, in relation to the Solway Tweed district, the Agencies, must meet each of the detailed publication and consultation obligations that apply in relation to plans (Principal Regulations, regulation 12; Solway Tweed Regulations, Schedule 1,

	updated plans) and their preparation. Access must also be given to background documents and information used in the preparation of those plans. Six months must be allowed to allow for such involvement and consultation at successive stages of plans' preparation.	paragraph 8). The Agency and SEPA must also take further steps to encourage involvement in plan preparation, and may be directed to do so (regulation 12(2); Schedule 1, paragraph 8(2)). Plans must also be made publicly available on their submission for approval to the Secretary of State, the Welsh Ministers or the Scottish Ministers, as appropriate, acting jointly in relation to cross-border areas (regulation 13(1); Schedule 1, paragraph 9(1)) and on approval itself (regulation 14(3); Schedule 1, paragraph 8(3)). The Agency must also take steps to publicise, consult upon and encourage involvement in the preparation of proposals for environmental objectives and programmes of measures. The Secretary of State, the Welsh Ministers or Scottish Ministers, as appropriate, may give additional directions in this respect (regulation 10(2); Schedule 1, paragraph 6(2)). Further information that the Agency or SEPA are required to make available is listed in regulation 18 of the Principal Regulations and paragraph 14 of Schedule 1 to the Solway Tweed Regulations. This includes the results of the

		characterisation and impact analysis undertaken under regulations 5 and 6 (in relation to the Solway Tweed district, Schedule 1, paragraphs 1 and 2), the registers of protected areas compiled under regulation 8 (or paragraph 4), environmental objectives and programmes of measures under regulation 10 (or paragraph 6), and any supplementary plans prepared under regulation 16 (or paragraph 12). The Secretary of State, the Welsh Ministers or the Scottish Ministers, as appropriate, must also make available the results of the economic analysis conducted under regulation 6 (or paragraph 2). These obligations are complemented by existing obligations to make accessible information relating to the environment (e.g., under the Environment Information Regulations 2004 (S.I. 2004/3391).

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