



Recast of the EU Drinking water Directive

This paper supports Water UK's proposed amendments to the recast Drinking Water Directive.

Water UK are supportive of the objective and ambition of the EU Commission in recasting the Drinking Water Directive¹ to focus more on health protection. However, the proposal as published in February extends the scope widely and includes further objectives on water suppliers and on member states that will have impacts wider than water utility areas of responsibility. This will add burden and cost to the process of provision of water for human consumption that will not necessarily deliver significant health benefits.

The proposed Directive, if transposed unchanged, could have significant implications to water companies. For example:

- the inclusion of stricter standard for lead, whilst being a positive move to improve public health, will likely require full lead pipe replacement and policy changes to use of lead in solder, brasses and fittings;
- the inclusion of additional parameters such as coliphages and endocrine disrupting chemicals will have impacts on analytical capability and resources resulting in capital investment and operating costs;
- there is a move towards an increased frequency in compliance sampling with most parameters likely to require daily monitoring that will have impacts on resources, analytics and reporting; and this does not align with a risk-based approach;
- removal of indicator parameters and requirement for increased consumer information for sample failures which will have resource and customer confidence implications.

The EU Commission has produced an Impact Assessment (IA) to support the proposal. We have worked with Atkins to appraise the IA and have identified that the costs that will likely be incurred in the transposition of the proposed changes have not been fully factored in and will result in significant impact that will increase the cost of water to consumers.

In collaboration with EurEau² and in discussion with a range of stakeholders during the spring of 2018 Water UK have developed a series of documents to support the discussions in the development of the Directive. These position papers (on lead, turbidity, materials in contact with drinking water and on sampling and analysis) are available as separate documents.

These culminate in a series of suggested amendments to the text proposed by the EU Commission that we consider meet the need to update the Directive, take account of the

¹ http://ec.europa.eu/environment/water/water-drink/review_en.html

² <http://www.eureau.org/>

advise and information provided by the WHO but will avoid unnecessary burden and cost. We would also like to explore the merit of adopting a “Watch list” approach to new substances as defined under Article 8. This would allow the development of a more robust evidence base on new and emerging substances (such as microplastics, endocrine disrupting chemicals and perfluorinated compounds) to support future policy decisions as well as allowing time to develop analytical methodology and capability.

Our activity on the scope and content of the Drinking Water Directive will continue over the summer as both the EU Parliament and EU Council continue their deliberations into the early autumn and the onset of the trilogue discussions.

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Water UK's views on the recast DWD's approach to sampling and analysis

This paper supports Water UK's proposed amendments to the recast Drinking Water Directive.

Proposal for recast DWD: Water UK considers that the approach being proposed by the Commission in redefining parameters in the recast DWD will significantly impact the extent to which member states will need to carry out additional sampling and analysis. We consider that the Commission should reintroduce the concept of indicator parameters under Article 5 / Annex 1 and redefine minimum sampling frequencies in Annex II to produce a more balanced risk-based approach.

We would also like to explore the merit of adopting a "Watch list" approach to new substances as defined under Article 8. This would allow the development of a more robust evidence base on new and emerging substances to support future policy decisions as well as allowing time to develop analytical methodology and capability.

What is the current approach to sampling and analysis? Water suppliers in the UK carry out sampling and analysis to both confirm compliance with the regulatory standards transposed from the Drinking Water Directive into UK regulations and to demonstrate the operational integrity of treatment and distribution processes. Water suppliers use both physical samples collected from customer taps and key monitoring points and some online monitoring where feasible. Analysis takes place at dedicated laboratories where routine samples are batch processed. Water suppliers also have the ability to access specialist commercial, academic or third party laboratories for any additional or novel analysis. Methodologies are agreed and published to provide consistency and comparability.

What are they proposed changes and why will they make a difference? The proposed changes in the Directive will impact in two areas. Firstly, the proposals will see an overall increase in the number of samples needed for existing parameters with many requiring daily sampling. Secondly, the introduction of 18 new parameters will require new methodologies and procedures to be developed.

The Directive does provide an option to cease monitoring for a specific parameter if it can be demonstrated as not to be a risk in a particular area. To do so will need at least 3 years supporting data.

What would the cost implications be? Water UK have carried out a survey of our members as to the impacts.

- Sampling: the transition from the existing DWD to the proposed approach in the recast DWD would result in a significant step change in sample numbers of up to 100%. However, the UK regulations already have a more stringent sampling

requirement and the increase from this to the new DWD would be in the region of 50%.

Assuming an average sampling cost (including staff time, access to property, transport) of £225 this will result in an annual increase in cost of around £20m.

- Analysis: for those parameters that companies already carry out analysis for it is not thought the increase in numbers of samples that could result from the proposed changes would result in any significant capital investment needs. Some water suppliers may need to increase laboratory staff and capacity or refine processes to manage larger sample numbers.

For some of the newly added parameters (eg somatic coliphages, PFAS, endocrine disrupting chemicals, legionella, HAAs and uranium) it will be necessary to develop the limited existing capacity.

The costs of doing so will vary depending on existing capability but for example one large water supply has reported that to increase capacity to address the organics requirements would result in the need to invest in four new mass spectrometers (at around £800k) with operation expenditure of around £100k per annum and that this would take around 6-9 months to procure and a further 6-9 months to develop and validate methods.

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Water UK's views on the recast DWD's approach to lead in drinking water

This paper supports Water UK's proposed amendments to the recast Drinking Water Directive.

Proposal for DWD: In principle the DWD should base the standards its sets for each parameter on WHO guidance. However, should the Commission retain its proposed new standard for lead of 5µg/l then we consider that positive health impacts could be achieved but note the cost of doing so and the need for a true multi-stakeholder approach.

Additionally, should the proposed new standard also be established it should be aligned with a longer transition period of at least 15 years to phase cost increases for customers, allow for planning, management of resource constraints and management of disruption in urban areas.

Background: The Commission proposes to change the lead standard in drinking water from 10ug/l to 5ug/l transitioned over 10 years. This is a decision to establish a standard stricter than proposed to Commission by WHO but does reflect a direction of travel from other parts of the world (e.g. US and Canada).

Why it matters: There are clear risks of consuming lead with high blood lead levels causing cognitive and physical development issues. Water UK and its members support an overall ambition to move to a lead-free drinking water service.

Where does lead come from: Lead in drinking water arises where water comes into contact with pipes and fittings made from or containing lead. Although some small water mains were made of lead most of its use was for the service pipe connecting the main in the street to the property. The use of lead a pipe material ceased in the early 1970s but a large legacy of pipes remains in the ground both under the ownership of water supplier (communication pipe) and property owner (supply pipe).

Lead is also present in some brass fixtures and fittings and in some solders. Whilst plumbers working on drinking water systems are required to use lead-free solders it is the case that not all do so and there are very few checks and audits in place to reinforce this. Water UK recommends that all plumbing work is carried out by a fully trained WaterSafe³ approved plumber.

What water companies do to meet the current standards: Water companies take a twin track approach to minimising exposure to lead via drinking water. Water conditioning, by way of phosphate dosing and pH control, has been in place in all water companies for 15

³ <https://www.watersafe.org.uk/>

years or more to reduce the solubility of lead from pipes and fittings. In addition, companies have taken action to carry out targeted and proactive replacement of communications pipes and encouraged householders to replace their supply pipes. This approach has been successful in largely complying with the current 10ug/l standard (2016 - 69 failures from 12059 samples⁴)

What it could cost: There are approximately 9.5 million (UKWIR 2013⁵) lead pipes serving homes in the UK. This includes both those owned by the water supplier (communication pipe) and those owned by the property owner (supply pipes). In some cases communication pipes will have been replaced but in other cases both will remain. A conservative estimate is the cost of replacement of a full length of lead pipe to the first tap is in the region £1500. In many cases this may be an underestimate particularly where there are complex or shared arrangements. For example, in parts of London where there is a legacy of lead pipe in shared service configurations and there are specific challenges associated with road access, the costs would be in the region of £3000-4000 per property.

Ove the past 5 years some water suppliers in the UK have supported the development of an approach to using relining technology to reduce the need to the remove lead pipes by inserting an inert internal coating. This innovative approach⁶ may reduce costs and customer impact. However, best estimate of the total cost of relining or replacement of lead service pipes could be expected to be in the order of £15 billion.

Once all lead in a zone is replaced it will be possible to cease conditioning water with phosphate. This would save in the region of £10-12 million per year and also reduce the burden of environmental phosphate loading by around 7-8% (UKWIR 2012⁷).

Whilst lead pipe replacement or relining is likely to enable the UK to achieve a revised DWD standard it will not result in totally lead-free water until the issues of lead in fittings and the inappropriate use of lead solder is also addressed.

What else needs to be done: Water companies in the UK support the ambition of moving towards a drinking water supply that is truly lead free. However, to achieve this requires the full involvement of a range of stakeholders (government, economic and drinking water regulators, consumer groups and public health advisers) to address the actions within water company control and those where others need to act.

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⁴ Data for 2016 for England and Wales (www.dwi.gov.uk/about/annual-report/2016/Drinking_water_2016_Public%20water_supplies_England.pdf)

⁵ UKWIR 14/DW/4/15

⁶ <https://www.dropbox.com/s/v01v19msf6f5k8e/WIS%204-02-03%20Issue%202.pdf?dl=0>

⁷ UKWIR 12/WW/20/5



Water UK's views on the recast DWD's approach to materials in contact with drinking water

This paper supports Water UK's proposed amendments to the recast Drinking Water Directive.

Proposal for recast DWD: Water UK considers that the specific aspects proposed Article 10 for dealing with the materials and products in contact with water (Art 10, 1(c.) and Art. 10 2(b)) should be redrafted into a separate Article that ensures there are adequate measures in place to protect public health of consumers. Water UK proposes that the recast DWD be amended to include the text shown in Appendix 1 below.

Issue: Article 10 as proposed by the Commission seeks to address the final stages of drinking water provision and put in place measures to mitigate the risk of contamination of drinking water from pipes, fixtures and fittings within premises by reference to the Construction Products Regulations (CPR). This is a welcome development and will potentially drive improvements to public health.

We consider the Commission's ambition to address the long-standing issues of the impacts of materials in contact with water in the Directive also as a positive step but question whether the approach outlined is fully developed. The Construction Products Regulation (CPR) as it currently stands does not fully address the issues of protecting water quality and the process of approval of standards can be difficult and slow.

There are however a number of areas where the current drafting of the Article is unclear. For example:

- Domestic distribution risk assessments (DDRA) are important aspects of the drinking water safety plan approach and may be better dealt with under the measures outlined in Articles 7 and 8 of the recast Directive;
- However, if the requirements for DDRA are kept within Art. 10 then we propose that:
 - The proposed Article 10 refers to priority premises which are not domestic systems thereby avoiding any confusion.

- The mechanism for the control of risk within domestic systems and priority premises should be proportionate, risk-based and a matter for subsidiarity;
- Responsibility for domestic properties and priority premises should lie with a range of bodies and organisations and each will need to take appropriate responsibility – rather than all resting with the water supplier;
- Legionella risk assessment should be risk based and dependant on temperature.
- Focus seems to shift from ensuring materials do not have detrimental impact on water quality to the conditioning of water to reduce the impacts of materials which is not sustainable;

Scope: The regulatory approach should cover all materials and products in direct contact with water intended for human consumption from point of abstraction to point of use (e.g. to include direct consumption and appliances connected such as taps or water using appliances (taps, fridges, coffee machines, ice making machines and other appliances where material upstream of appropriate backflow protection could adversely affect quality of water for example dishwashers and washing machines);

The proposal that has been put forward by the Commission of solely using the CPR route does not fully cover the scope as highlighted above. The proposal reflects the source to tap approach of drinking water safety plans but the solution as proposed through the use of CPR does not capture materials and products for example during abstraction or treatment or at post tap.

Any proposed solutions (e.g. delegated act or other mechanism) should:

- maintain consumer protection by establishing a suitable transition period (5-10 years) to allow both the establishment of an appropriate process and agreement of positive lists and a further period to allow implementation to national requirements from European requirements;
- Provide for CE marking of materials in contact with water for human consumption;
- establish an EU body that will take responsibility for toxicity assessments for positive lists, setting and agreeing hygiene requirements, pass/fail criteria; consider if and how unknown assessments are carried out and guidance and interpretation of standards and certification criteria - for example whether further product testing may be required. This could mirror the approach taken in food regulation through the JRC;
- be properly resourced and protect end-users and also not penalise manufacturers;
- mandate CEN to produce harmonised standards that address the points above;
- include classes that Member States can determine appropriate requirements for specific uses or practices (e.g. to reflect differences in residual chlorine levels).

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Water UK Position Paper

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Appendix 1: Proposed amendment to EurEau proposed amendment

Water UK proposes the following text to be added to the recast Drinking Water Directive as an additional Article replacing the provisions deleted from the existing Article 10:

Article 10a “Materials and products in contact with Drinking Water”

1. Without prejudice to Annex I.3 of Regulation 305/2011, Member States shall take all measures necessary to ensure that materials used for the construction or maintenance of installations that are used for the abstraction, treatment or distribution of water intended for human consumption and come into contact with water intended for human consumption do not:
 - Directly or indirectly compromise the protection of human health provided for in this Directive,
 - Adversely affect the odour or taste of the water,
 - Leach substances into the drinking water at quantities larger than those determined in paragraph 2 of this article,
 - Enhance microbial growth.
2. Without prejudice to Annex I.3 of Regulation 305/2011 the Commission shall be empowered to adopt, by < 6 years after the end-date for transposition of this Directive>, delegated acts determining the minimum hygienic requirements to be respected by materials in contact with drinking water to protect human health in line with paragraph 1. These requirements shall comprise parameters and minimum parametric values covering at least the release of hazardous substances, enhancement of microbial growth and formation of odour and taste.

Rationale: By deleting the current DWD art.10, the new proposal of the European Commission is limited only to the materials and products in contact with drinking water in the domestic distribution systems, leaving legal uncertainty for the materials and products making up the public supply network. This represents a threat to the consumers’ health and to the water operators’ capacity to invest in products that are safe and fit for use. The mere adoption of CEN standards (hEN) would not be sufficient for the achievement of the high level of harmonisation which is needed for European consumers and businesses. Standards only define the test method, without determining whether a product in contact with drinking water is fit for use as standards cannot establish mandatory thresholds.

That is why EurEau calls on the EU institutions to protect consumers’ health and develop EU-wide hygienic requirements (thresholds for toxicity and microbial growth) for materials proving fitness for use when in contact with drinking water within the Drinking Water Directive as the leading legal framework, while maintaining the interlink with the Construction Product Regulation (CPR).



Water UK's views on the recast DWD's approach to turbidity

This paper supports Water UK's proposed amendments to the recast Drinking Water Directive.

Proposal for DWD: Water UK considers that the Commission should reinstate the indicator parameter approach and review the proposed sampling frequencies to reflect the operational nature of these samples. Associated standards and sampling locations should also be revised to reflect this.

What is turbidity and why do we measure it? Turbidity is a measure of the cloudiness or clarity of water. It is used to indicate water quality, coagulation and filtration effectiveness. It is a requirement of good disinfection practice to reduce turbidity to less than 1NTU prior to disinfection and to ensure turbidity levels are less than 4 NTU at consumers' taps may to minimise impact on consumer acceptability.

WHO advice is that there is no health-based guide value established for turbidity. It recognised turbidity as an important operational water quality parameter to indicate changes in raw water and coagulation efficiency. WHO also stated that turbidity can interfere with disinfection and indicated that a large well-run treatment works should be able to achieve <0.2 NTU under normal circumstances, whereas smaller water supplies with limited or no treatment may not be able to achieve such low levels.

What is the UK's current approach? The Water Supply (Water Quality) Regulations 2016 (and equivalents in Scotland and NI) set out the monitoring frequency and analytical methodology requirements for turbidity. The Regulations also set out a requirement for sufficient preliminary treatment to be achieved prior to disinfection and that water presented for disinfection has turbidity less than 1NTU, and turbidity at customer's taps should be less than 4 NTU.

What are they proposed changes and why will they make a difference? The Commission proposes a change to the status of turbidity as a measure by deleting the existing indicator parameter provisions from the Directive. Specifically, the following changes for turbidity are proposed:

- Part C of Annex I of Directive 98/83/EC concerns Indicator Parameters. These have been deleted from Annex I (except for a few moved to Part A, such as turbidity), and moved to Annex IV, on information to consumers. The rationale is that indicator parameters do not provide health-related information but rather information of interest to consumers (such as taste, colour, anions, cations, etc.).
- Part A – Annex I establishes a parametric value of <1NTU measured at customer taps;

- Part A - Annex II sets an addition of a new reference to operational monitoring for turbidity and a parametric value for turbidity of 0.3 NTU (95%) and not > 0.5 NTU for 15 consecutive minutes.

What would the cost implications be? The changes are likely to have significant implications for Water Suppliers. By including turbidity as a compliance measure water supplier will be faced with increased costs associated with increased monitoring and analysis.

Additionally, our assessment shows that water suppliers would see an 800% increase in failures at customers taps for turbidity if the standard changed to 1NTU from its current requirement for 4 NTU without any detriment to the actual quality of the water risking an impact on consumer confidence unnecessarily.

Additional investment will be required to flush the network to remove tiny amounts of particles that are invisible to customers to meet the proposed 1 NTU at consumers taps including enhanced treatment, increased trunk mains cleaning programmes and a larger pipe replacement programme.

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