

## Defra

# Consultation on Continuous Water Quality Monitoring and Event Duration Monitoring

## Background to CIWEM

CIWEM is the leading independent Chartered professional body for water and environmental professionals, promoting excellence within the sector. Established in 1895 and with over 10,000 members globally, the Institution provides independent commentary on a wide range of issues related to water and environmental management, environmental resilience and sustainable development. CIWEM welcomes the opportunity to respond to Defra on its consultation on Continuous Water Quality Monitoring and Event Duration Monitoring.

In drafting this response, we received input from our Wastewater and Biosolids specialist panel and Urban Drainage Group.

## Consultation questions

### 2. Responding to this consultation

#### **1) Are you responding as a charity, consumer or interest organisation, sewerage undertaker, academic, or other (please state)?**

CIWEM is answering as a charity representing its members. We are an independent charity, championing professional standards, impartiality and the use of scientific evidence in the management of the environment.

### 3. Part 1 - Event Duration Monitoring

#### **1) Are you content to allow for equipment failure, so long as sewerage undertakers are required to take all reasonable steps to address any failures as soon as possible?**

Yes, providing redundancy on all monitors would be prohibitive. However, there should be a reasonable limit on the amount of data that can be lost due to equipment failure, such as the 14 days limit from the point of failure that exists on the MCERTS scheme for self-monitoring of flow. There should also be a total amount of days per year to ensure that there is enough data to assess potential environmental harm.

#### **2) Are you content near-real-time event duration monitor reporting will apply everywhere it is technically feasible?**

Yes. The water quality is monitored on an hourly basis so a delay of one hour is reasonable. It should be technically feasible everywhere except when telemetry is not possible due to a lack

of communication solution. In that case, there should be a higher standard of data recording at a local level and collection of this data on a regular basis where communication problems exist (this could be monthly which would probably coincide with maintenance visits).

#### **4. Part 2 - Continuous Water Quality Monitoring**

##### **1) Should the objectives include any additional aims? Yes or No. If Yes, what additional objectives should be included?**

Yes, it should include other pollution sources such as agriculture and land drains from roads as well as wastewater from sewerage undertakers. It should also aim to establish a baseline pollution level, as well as being used as an alert system for the detection of major pollution events. Different data might need to be collected in specific environments such as microbiological parameters near bathing sites and shell-fisheries.

##### **2) Are UPM FIS the appropriate standards against which to benchmark the programme for storm overflow impacts? If not, why?**

No, UPM FIS are not the most appropriate because they only consider the impact of storm overflow but do not take into consideration global river health. Standards should include nitrogen and phosphorus concentrations to monitor nutrient pollution. A better method would be to combine monitoring being done under Section 82 together with the River modelling (SIMCAT) and produce a Digital Twin of the riverine system. This is an example of what is being looked at in Spain with the PERTE programme and is feasibly possible, cheaper and would bring about better outcomes.

##### **3) Are UPM FIS the appropriate standards against which to benchmark the programme for sewage treatment work final effluent discharge impacts? If not, why?**

No. As stated in the previous question, the FIS standard does not cover all the aspects of event pollution and impact. Wastewater treatment works use flow monitors under the MCERTS programme which can measure both the flow and quality of what is being discharged from wastewater treatment works. If the actual load of the effluent was monitored much more stringently than it currently is, this data could inform a live Simcat modelling that would look at impact based on wastewater performance. Additional benefits would be the possibility to do dynamic permitting and to work in a similar fashion to OPRA-PBC which was previously proposed by the Environment Agency. This would see a better environmental outcome in terms of both river health and net-zero.

##### **4) Should Defra explore in future (when technically feasible) if and how nitrates can be monitored in freshwater sites? Yes or No. If Yes, why?**

Nitrate monitoring is currently feasible but expensive. Monitoring could be put in place if there was a specific regulatory reason associated with gathering this data. It would be prohibitive if on the regulatory side, the data was met with simple total nitrogen consents

like the existing ammonia and phosphorus consents. Phosphorus, as the eutrophication limiting chemical, could be monitored first, before nitrates monitoring is considered.

**5) Would you support, where technically feasible, the inclusion of nitrate monitoring at wastewater treatment works for freshwater sites in catchments caught by nutrient neutrality rules – for example, in the Tees, The Broads or Stodmarsh? If so, why?**

Yes, monitoring should be included if there is regulation to set limits and standards for nitrate levels rather than simple consents and discharge permits.

**6) Is the 24hr lag sufficient for all watercourses? Yes or No. If No, should the lag be longer or shorter and why?**

n/a

**7) Is using the maximum point of harm arising from ammonia the right approach, rather than dissolved oxygen? Yes or No. If No, why not?**

n/a

**8) Is the rule of “not more than 500m downstream from the point of cross-sectional mixing” appropriate? Why?**

n/a

**9) Would the 500m rule be better expressed as a ratio based on the width of the watercourse? Why?**

The monitoring should be expressed as the best representative point. This is covered under BS EN 12255-12 for Wastewater Treatment Plant Monitoring standard, in draft form at the moment but passing through the standards process. The most representative point would be the most homogenous sample.

**10) Should there be any other site-specific considerations? If so, which?**

There will be site-specific considerations including the place of installation with regards to land ownership, availability of power and surface availability.

**11) Would this rule be better if expressed as below? If yes why, or why not? “Where there are two or more assets with overlapping mixing zones within 250m of one another in a single length of watercourse, these can be considered a cluster and monitored by one pair of monitors.”**

n/a

**12) Do you agree with the proposed cap of 10 on clustering? If not, why not, and what should the cap be?**

n/a

**13) Is it reasonable to require sewerage undertakers to attribute the source of a breach of standards to a particular asset? Why?**

It could be the role of a customer-facing independent reviewer to assess this rather than the sewerage undertakers. This reviewer would need access to event monitoring data as well as performance and maintenance data. The assessment should include an option to designate a source that is not a particular asset, if the breach was caused by something outside of the control the sewerage undertakers.

**14) Should there be any additional exemptions? How would they benefit the programme?**

No. Exemptions could lead to a reduction in the number of sample points that would hinder the whole monitoring programme.

**15) What data should be included and what is the best way to display this data to ensure it usefully informs the public/meet your needs?**

A strategy needs to be developed so that data shared with the public is understood correctly. This could be a traffic light system for bathing areas, similar to communication around air pollution. Regarding environmental harm and river health, live data does not reflect the long-term effect. This is an opportunity for the media and the public to engage with these complex issues. The communication strategy around monitoring data should therefore be developed not only by the industry but in collaboration with the regulators and key stakeholders such as water quality organisations.

**16) What other contextual information is required to ensure that everyone will be able to understand the data?**

Information about local sewerage networks and potential outages could help understand the local context while guides explaining the governance, regulations and sanctions surrounding these events might help inform the public opinion and media on what these events mean and what exists to prevent them.