

UK Tag Stakeholder response

Submitted by ECI, June 8th 2012

1. Is the report clear in explaining how we have developed the proposed environmental standards and conditions?

ECI response

For this review, ECI has focused on the “ Introduction” and the “Copper-specific sections”. The report is, in general, very clear .

We do have a few suggestions for further clarification/refinements (details see section 2 and 3)

1. Copper Freshwater environmental standard: It would be useful to further clarify:
 - o How to define the Cu standard if “bio-available Cu concentrations” cannot be implemented due to (1) lack of data (e.g. no DOC data) and/or (2) if the water characteristics are outside of BLM boundaries.
 - o How to address compliance in cases of elevated geochemical background levels
2. Copper Marine environmental standard: We have some remaining concerns related to the derivation of the copper marine standard as function of DOC

2. The report defines the environmental standards and conditions required for the Water Framework Directive. The purpose of the stakeholder review is to seek views on how the environmental standards have been developed by the UK. With this in mind, do you think that the approach we have taken, as identified in the report and supporting technical documents:

a) Identifies the environmental standards and conditions required to achieve the environmental objectives of the Water Framework Directive

ECI response

- The available high quality environmental effects data as well as critical bio-availability corrections are incorporated into the copper freshwater and marine standards. This approach will significantly increase the ecological relevance of the copper compliance checking under the Water Framework Directive.
- To obtain reliable copper standards, some important further refinement, based on scientific information are proposed in sections 2b and 3.

b) Uses the best information currently available?

ECI response

1. Copper Freshwater environmental standard:

The “bio-available Cu standard of 1µg Cu/L” is based on BLM derived dissolved Cu- PNECs for an extremely sensitive UK surface water (i.e, maximizing the copper bio-availabilty).

Please consider the additional information on background levels and copper deficiency of relevance to a copper standard:

- (a) the “bio-available copper standard of 1 µg/L” is around the European and UK medium ambient dissolved background level of respectively 0.9 and µg 1.23 Cu/L
(http://weppi.gtk.fi/publ/foregsatlas/map_compare.html).
- (b) the “bio-available copper standard of 1 µg/L” is well below the European and UK 90th percentile ambient dissolved background levels of respectively of 3.3 and 2.8 µg Cu/L
(http://weppi.gtk.fi/publ/foregsatlas/map_compare.html).
- (c) The lowest NOEC value from the high quality data base used is 2 µg dissolved Cu/L
- (d) Copper Deficiency has been observed for several organisms. For *Daphnia magna* and *Xenopus* larvae, deficiency was observed at concentrations below 1 µg Cu/L
(<http://echa.europa.eu/web/guest/information-on-chemicals/transitional-measures/voluntary-risk-assessment-reports>)
- (e) We suggest an assessment of the representativeness of the “sensitive water”. An assessment of the spatial distributions of copper PNECs with GIS resulted in a UK area based 5th and 10th percentile PNECs of respectively 4.5 and 5.5 µg dissolved Cu/L. (see Merrington et al., 2009. Derivation and use of generic environmental quality standards for copper and zinc for freshwaters in Great Britain)

To avoid inappropriate non-compliances around copper background levels, we propose to consider this information for the final freshwater copper standard (see section 3)

2. Copper Marine environmental standard:

- (a) A linear relation was used for the normalization of the EQS to DOC in this report. A power model was used in the copper Risk assessment report (endorsed by TCNES and SCHER
(<http://echa.europa.eu/web/guest/information-on-chemicals/transitional-measures/voluntary-risk-assessment-reports>). Information on copper speciation in marine waters as well as the comparison between the predictive power of the linear vs power model, suggest that the power model is the better predictor
- (b)The long term EC50 – DOC relationship is more robust then the long-term EC10- DOC relationship. The observed constant Acute to Chronic Ratio (ACR) across the range of DOCs suggests that the more reliable long-term EC50 data are a more robust basis for predicting the relationship between long term toxicity and DOC concentrations. This approach would be consistent with the approach agreed under copper RA report
(<http://echa.europa.eu/web/guest/information-on-chemicals/transitional-measures/voluntary-risk-assessment-reports>).

We suggest this information is considered for the derivation of the final marine copper standard (see section 3)

3. **Are there any other issues in relation to UKTAG's approach to developing UK environmental standards and conditions that you wish to comment on?**

ECI response

1. Copper Freshwater environmental standard: Considering the additional information outlined in response to Q2b, we suggest to add :

If the “bio-available Cu ” cannot be determined due to (1) lack of data (e.g. no DOC data) and/or (2) if the water characteristics are outside of BLM boundaries, a generic EQS of 4.5-5.5 µg dissolved Cu/L is to be applied.

This generic EQS value is protective to most UK surface waters (at 90 -95th percentile) and is above the UK ambient background levels (90th percentile of 3 µg dissolved Cu/L).

In case of non-compliance, the relative influence of geochemical vs anthropogenic contributions should be considered.

2. Copper Marine environmental standard: The marine EQS for copper should be revised using a normalization based on the power function describing the long term EC50-DOC relationship.

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