

Copper/Wastewater Effluent: Administrative Challenge to Pennsylvania Department of Environmental Protection's Denial of Use of Water Effect Ratio



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Dowington Area Regional Authority ("DARA") filed a December 28th Notice of Appeal ("Appeal") before the Pennsylvania Environmental Hearing Board challenging a Pennsylvania Department of Environmental Protection ("DEP") direction to conduct a biotic ligand model ("BLM") based study for copper.

DARA states it had requested the opportunity to use a site-specific approach using Water Effect Ratio ("WER").

DARA describes itself as a joint sewer authority by and between the Borough of Downingtown and the Townships of East Caln, Uwchlan, West Whiteland and Caln. It owns and operates a water pollution control plant ("Plant") in Chester County, Pennsylvania.

DARA is stated to have participated in a group copper WER study.

A WER approach compares bioavailability and toxicity of a specific pollutant in receiving water and in laboratory test water. Toxicity tests are undertaken for at least two species. LC50 is measured for the pollutant using the local receiving water where the criterion is being implemented. Laboratory toxicity testing water is compared to the site water in terms of chemical hardness. The ratio between the site water and laboratory water LC50 is used to adjust the acute and chronic criterion to site specific values.

The WER study was submitted to DEP in 1998. It is stated to have confirmed that copper was present in the Plant's effluent. The Plant's effluent was stated to be in a non-toxic form and that it had additional copper binding capacity. As a result, DARA argues that DEP proposed to amend the DARA Plant's 2018 discharge permit by incorporating the results of a WER into the calculation of the water quality based effluent limit for copper.

A permit issued by DEP in 1998 is stated to have required an updated site-specific copper criteria study and associated actions. However, DEP is stated to have amended the relevant Pennsylvania rules in 2020 to include the following change:

(c) Scientific studies shall be performed in accordance with the procedures and guidance in the Water Quality Standards Handbook (EPA 1994), as amended and updated, including: "Guidance on the Determination and Use of Water-Effect Ratios for Metals" (February 1994); and the "Methodology for

Deriving Ambient Water Quality Criteria for the Protection of Human Health" (2000). Other guidance approved by the Department, which is based on other EPA-approved or scientifically defensible methodologies, may be used. The development of new or updated site-specific criteria for copper in freshwater systems shall be performed using the biotic ligand model (BLM). (emphasis added)

DARA argues this revision is more restrictive than the prior rule in regards to copper and only allows use of BLM for site-specific criteria adjustment for copper. Further, the rule is stated to allow WER to be used for other metals.

DARA argues in its appeal:

- Application of the BLM to site-specific copper criteria is significantly flawed, not scientific defensible, and results in excessively restrictive site-specific criteria for copper.
- DEP acted arbitrarily, abused its discretion and erred as a matter of law in applying the amended section 93.8(d) to DARA's current permit.

A copy of the appeal can be downloaded [here](#).