

3182

RECEIVED
IRRC
APR 14 10 41 AM '14

Remarks of Paul Wiegand, NCASI, concerning Pennsylvania Department of Environmental Protection's proposal to update Water Quality Criteria for the Protection of Human Health

Good afternoon. My name is Paul Wiegand. I work for the National Council for Air and Stream Improvement, Inc., an organization that undertakes technical studies and research on behalf of forest products companies across the U.S. NCASI's members represent nearly 90% of pulp and paper and two-thirds of wood panels produced nationwide. Most forest products facilities operating in Pennsylvania are NCASI members. NCASI has been an active participant at the state and federal levels in technical and scientific aspects of water quality criteria development for decades and appreciates this opportunity to offer technical information that can improve the scientific foundation of water quality management decisions in Pennsylvania.

In June 2015 USEPA revised its recommendations for human health water quality criteria (HHWQC) for 94 substances. In doing so, USEPA changed most of the exposure-related assumptions used to derive the criteria, including the fish consumption rate, relative source contribution (RSC), bioaccumulation factors (BAFs), body weight, and drinking water consumption rate. Some of these changes do not reflect the best science, and since that time, all States that have thoughtfully considered USEPA's revised criteria recommendations have chosen to depart from them in favor of better science and more appropriate assumptions for their States.

NCASI and Arcadis have developed materials to help States contemplate the criteria derivation process and thoughtfully consider designing criteria that provide a reasoned and transparent balance between theoretical risk, risk realities, and the implementation costs associated with potentially excessive conservatism in EPA's criteria recommendations. Today I will highlight just a few of the areas where State-specific science choices may be preferred. The remarks I make today will be supported with considerable technical documentation to be provided during the comment period.

- **Health Protection Targets.** USEPA recommends a health protection target to protect the general population at between a one in million (1×10^{-6}) and one in one hundred thousand (1×10^{-5}) increased lifetime cancer risk and that highly exposed sub-populations not exceed a one in ten thousand (1×10^{-4}) increased lifetime cancer risk. We encourage States to be specific about their health protection targets for at least the mean of the general population and higher-end exposure segment(s). Doing so recognizes the reality of the link between risk and exposure and allows more transparency and greater appreciation of actual risk associated with calculated HHQWC relative to other risks.
- **Fish Consumption Rate.** USEPA's 2015 HHWQC are based on a fish consumption rate of 22.0 grams per day (g/day). USEPA's prior recommendations were based on a fish consumption rate of 17.5 g/day. The difference in consumption rate is based primarily on two changes, neither of which suggests people are eating more fish in 2015 than they were in 2000. The first change results from an improved statistical method developed by the Centers for Disease Control that more accurately estimates lifetime fish consumption rates obtained from relatively short-term (several day) consumption surveys. The more accurate estimates of the fish consumption rate are lower than USEPA's prior estimates. The second change

involves adding marine fish and a portion of salmon consumption to the fish consumption rate. The basis for this addition is tenuous, at best, particularly for states with little or no marine coastline. Importantly, the derivation of EPA's fish consumption rate value is not transparent. It cannot be validated because USEPA will not release the data used to derive the value.

- **Relative Source Contribution.** USEPA's recommended criteria for non-carcinogenic compounds include a relative source contribution (RSC) of 20 percent for nearly all substances. The value used for nearly all criteria before 2015 was 100 percent. The RSC acts to make HHWQC more restrictive to account for exposures from other sources such that total exposure does not exceed toxicity thresholds. For nearly all substances, the effect of EPA's new choice is to make HHWQC more restrictive by a factor of 5 times compared to pre-2015 HHWQC. While ensuring that toxicity thresholds are not exceeded is important, USEPA's approach may be extreme and unwarranted in light of the numerous other conservative assumptions used to derive the criteria and especially when substance-specific exposure data show little reasonable likelihood of other significant exposure pathways.
- **Bioaccumulation Factor.** USEPA's revised criteria are derived using substance-specific bioaccumulation factors (BAFs) whereas the pre-2015 criteria were based on bioconcentration factors (BCFs). While a transition from BCFs to BAFs is consistent with accepted scientific consensus, the methodology USEPA used is not applicable to the waters of many States because it relies too heavily on models based on accumulation of PCBs in the Great Lakes. PCBs are not representative of most of the substances for which criteria were revised, and USEPA has consistently stated that the Great Lakes are unique in their size, food web, temperature, historical pollutant loading and many other factors. Pennsylvania DEP should consider whether USEPA's BAFs are appropriate for Pennsylvania waters.
- **Drinking Water Ingestion.** USEPA's revised criteria used an updated drinking water ingestion rate of 2.4 L/person/day. Thus, USEPA assumes that people drink this amount of water every day from untreated surface waters, or that treated drinking water contains substances at the criteria concentrations 100% of the time over a lifetime. PA DEP might consider whether this assumption is rational and appropriate for purposes of ambient water criteria.

The 2015 revised criteria also include several "implicit assumptions;" that is, assumptions that affect the calculated criteria but are not parameterized in the criteria derivation equation used by USEPA. Examples include assuming that: all waters have a constant chemical concentration equal to the HHWQC; chemical concentrations are not reduced during cooking; people drink untreated surface water; and people consume fish and water with the maximum allowed contamination level continuously over their lifetime. Use of these implicit assumptions act to make the criteria more stringent and make exposure and risk communications less meaningful.

Combining the conservative explicit and implicit assumptions described above leads to a phenomenon referred to as "compounded conservatism;" wherein the level of protection afforded by HHWQC is far greater than stated health protection targets. Recognizing this phenomenon is important and it should be thoughtfully considered in light of the implementation costs and potential for misallocation of public and private resources that may result from applying excessive conservatism when deriving criteria.

- **Probabilistic Risk Assessment.** The 2015 National HHWQC use a decades-old risk assessment approach for which alternatives both exist and are preferred by the modern risk assessment community. The preferred approach, now adopted by at least one State in deriving HHWQC, uses probability models. Among the advantages of this approach is that it applies more of the available data and that it creates a rational and transparent link between the criteria and specific health protection targets. Put simply, probability models allow States to confirm that they have achieved their stated health protection goals.

The level of effort required to address many of the most critical of the above issues is not large. For example:

- long-term fish consumption rates for different regions of the country are available;
- Florida has reviewed exposure data for 26 compounds and developed RSCs and other researchers have published RSCs;
- BAFs are a critical input only for bioaccumulative compounds and information is available for several inputs to refine USEPA's procedure to make it more applicable to State waters, and, where BAF data are unreliable, BCFs still offer a reasonable and transparent alternative to BAFs; and
- Software tools are available that enable the use of probability models to derive HHWQC.

As noted earlier, NCASI will be submitting a considerable volume of technical work covering all of the points made today and others. We hope that PA DEP will thoughtfully consider this information and the flexibility provided to states under the CWA and, as other states have, make independent judgements about the best choices for protecting Pennsylvania's waters and those who rely on them.