

West Virginia WQS – Human Health Criteria Study

The following presents a brief outline of the overall scope of work started by the WVMA in evaluating the national recommended human health water quality criteria prepared by the United States Environmental Protection Agency in 2015 (the US EPA HH Criteria).

- DEP originally proposed to adopt the US EPA HH Criteria with no revisions. Based on public comments, DEP revised the criteria to adjust the fish consumption rate based on a West Virginia study. Despite receiving comments on revisions to other factors used in the calculations, DEP proposed no changes to the federal recommendations other than fish consumption rate.
- The US EPA HH Criteria are calculated based on eight primary factors, depending on whether the chemical is carcinogenic or noncarcinogenic. The scope of work focuses on evaluating each of the eight factors selected for calculating the US EPA HH Criteria. Two other factors – average body weight and water consumption rate -- are consistent among the chemicals and are not within the proposed scope of work.
- West Virginia uses different cancer slope factors and reference doses in its risk calculations in the Voluntary Remediation Program as compared to those used in the US EPA HH Criteria. These differences should be evaluated to ensure internal consistency between West Virginia regulatory programs.
- The calculated criteria are heavily dependent on the six factors related to fish consumption. These factors address consumption of different trophic levels (zooplankton, foraging fish, predatory fish) and bioaccumulation of chemicals at each of these trophic levels.
- The EPA database for bioaccumulation factors in fish requires detailed review:
 - The data used by EPA contains many species not present in West Virginia.
 - The data is based largely on whole body bioaccumulation, instead of fish filet. Some chemicals bioaccumulate in the internal organs, which are not normally consumed.
 - The calculated bioaccumulation factors have been adjusted upward for certain chemicals, with no clear explanation in the EPA database.
 - The US EPA database evaluation is ongoing, and therefore the full scope of work is under development.
- Likewise, the fish consumption allocation between the trophic levels requires evaluation.
- The fish consumed by West Virginians (e.g., shrimp, tilapia) are not entirely from West Virginia streams. This is not considered in the US EPA HH Criteria and requires evaluation.
- Researcher: Jennie Henthorn, Henthorn Environmental (www.henthornenv.com)