



Workshop: PFAS and other Emerging Contaminants of Concern

The Center for Emerging Contaminants of Concern organized and lead a two-day workshop (19–20 June 2019) at the U.S. Army Engineering Research and Development Center (ERDC) Headquarters in Vicksburg, Miss., to facilitate information sharing and collaboration between the U.S. Environmental Protection Agency (USEPA), the U. S. Army Corps of Engineers (USACE), and Industry relating to Per- and Polyfluoroalkyl Substances (PFAS), and other emerging contaminants of concern. USEPA representatives from the Office of Water, Office of Research and Development (ORD), and the Emergency Response Team, along with industry representatives from ExxonMobil, Georgia Pacific, BASF, Boeing, British Petroleum, DOW, and Shell, met with ERDC scientists and engineers to share information and discuss critical data needs necessary to understanding the behavior and effects of PFAS in the environment and inform more cost effective remedial strategies. An industry-funded, ERDC-led, multi-generational study on the effects of selected PFAS compounds in the zebra fish was presented for agency review and input. Researchers shared results of ongoing PFAS research and the latest advances with respect to the following:

- analysis in environmental media (water, soil/sediment, and tissue)
- fate and transport
- ecotoxicology
- risk management and remediation



Products

The workshop resulted in formation of a USEPA/USACE/Industry collaborative working group to identify, prioritize, and support critical research needs relating to PFAS and other emerging contaminants of concern.

A principal topic for discussion during the workshop focused on an industry-sponsored study to repeat/improve upon a previous multi-generational PFOS exposure study in zebrafish conducted by Keiter et al. (2012)*, which has received significant criticism over experimental design, statistical analysis, and results interpretation. To address identified shortfalls in the Keiter et al study, ERDC Research Scientists (Drs. Kurt Gust, Natalia Vinas and David Moore) have developed an improved study design that increases the number of exposure concentration (treatments), replication, and analytical confirmation sampling (including validation of 20% of the analytical samples at a PFAS-certified chemistry laboratory).

Summary

The round-table meeting commenced with a presentation of the proposed study design by Gust et al. as an open question and answer session for discussion of all facets of the procedures, statistics, intent, and execution. The expressed purpose of the round table meeting was to allow industry partners and USEPA the opportunity to review and provide comment on the proposed experimental scope in order to achieve the most robust and defensible study possible.

The round table meeting was very productive and yielded ideas/options for further enhancing the study design, including an EPA-recommended increase in exposure concentrations to provide improved benchmark-dose calculations through the first generation exposure. Additionally, there were recommendations from EPA and industry about the archiving of tissue samples to support the most impactful add-on test endpoints for future consideration.

Overall, the discussion generated input and ideas from EPA scientists/regulators, industry stakeholders, and DoD stakeholder representatives (the ERDC) in support of conducting the best science to objectively evaluate the biological effects of a very difficult class of emerging contaminants, PFAS.

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* Keiter et al. 2012. *Aquat. Toxicol.* 118–119: 116–129.