



# U.S. EPA DRAFT SEWAGE SLUDGE RISK ASSESSMENT FOR PFOA AND PFOS

## Talking Points - Expert Review from Research Scientists

These select talking points were compiled from the six expert reviews of the Draft Sewage Sludge Risk Assessment for PFOA and PFOS presented by research scientists from the United States Department of Agriculture (USDA) W-5170 Multi-State Research Team specializing in risk assessment, modeling, reference dose and toxicity, bioavailability, and fate and transport to surface water, groundwater, and plant uptake.

- **Dr. Sally Brown, University of Washington**
- **Dr. Jay Gan, University of California-Riverside**
- **Dr. Ganga Hettiarachchi, Kansas State University**
- **Dr. Drew McAvoy, University of Cincinnati**
- **Dr. Ian Pepper, University of Arizona**
- **Dr. Tom Young, University of California-Davis**

The following talking points are organized by topic areas. Please feel free to utilize these talking points in developing comment letters, presentations, and correspondence with various audiences. Please reference the full Expert Review for additional content.

# Talking Points - Expert Review from Research Scientists

## **Exposure Scenarios**

- It is not possible to perform a true risk assessment without considering existing body burden and daily home exposures.
- The use of highly contaminated sites is not relevant for the majority of municipal biosolids.
- Releasing the draft risk assessment in the absence of weighing risks associated with alternative options presents an unclear picture of whether determined actions from this assessment will improve or degrade human health.
- Ignoring widespread background exposure to PFOA and PFOS negates how actions to restrict land application will reduce exposure risks to the majority of the population.
- The release of this draft risk assessment will likely be taken at face value and restrict all land application as a direct consequence.

## **Plant Uptake**

- Assuming 100% bioavailability for soil-to-plant transfer grossly overestimates the risk when considering livestock exposure from feed and subsequent human exposure through contaminated animal products.
- Bioconcentration factors (BCF) associated with unrealistic/high biosolids application causes problems due to soil pH, electrical conductivity, competition by other soluble ions and nutrient concentrations on the observed BCF.
- Blaine et al.<sup>1</sup> showed that the only field that produced measurable data for PFOA and PFOS was a pilot field with biosolids applied at four times the agronomic rate.
- BCF of PFOA and PFOS is plagued with issues. It is worthwhile to wait for comprehensive field-based plant uptake data from studies funded by EPA and others.
- The University of California-Davis<sup>2</sup> oats uptake study recently published demonstrates “that the likelihood of PFAS compounds studied here accumulating in similar crops grown under similar conditions is minimal.
- Biosolids are not applied to the types of crops that have significant (or any) uptake of PFOA and PFOS.

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<sup>1</sup> Blaine, A.C., Rich, C.D., Hundal, L.S., Lau, C., Mills, M.A., Harris, K.M., & Higgins, C.P. (2013). Uptake of perfluoroalkyl acids into edible crops via land applied biosolids: Field and greenhouse studies. *Environmental Science and Technology*, 47 (24), 14062–14069, <https://doi.org/10.1021/es403094q>

<sup>2</sup> Black, G.P., Wong, L., and Young, T.M. 2025. Uptake of per and polyfluorinated alkyl substances by dry farmed oats following the agricultural application of biosolids and compost. *J. Environ. Sci., Process and Impacts* doi:10.1039/d4em00502c

## **Groundwater Contamination**

- Finalizing this assessment before field research data is available seems premature. Utilizing these studies will reduce uncertainty, clearly evident, in this Draft Risk Assessment.
- More field data from different soil types is needed to accurately predict transport in the vadose and saturated zones.
- The draft risk assessment models do not factor in sorption at the air/water interface, which dramatically decreases amount of PFAS entering groundwater. The risks calculated are overestimated.
- There is no mention of soil screening levels (SSLs) that would be protective of groundwater (less than 4 ppt) relative to actual PFAS. Phase I of the National Collaborative PFAS project evaluating groundwater impacts following land application demonstrates mean median soil concentrations at land application sites across the U.S. are less than or close to SSLs.

## **Aquatic Species**

- Proximity to land application sites would demonstrate less concentration in fish tissue, especially given the required buffer zones outlined in Part 503.