Revisiting the Board's PFMOAA Recommendation

NC Secretaries' Science Advisory Board

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PFMOAA History with NC SSAB

During the August 1, October 3, and December 5, 2022, Secretaries' Science Advisory Board (Board) meetings, the Board discussed two PFMOAA peer-reviewed publications (Yao et al. 2020 and Woodlief et al. 2021) to determine if the existing data is of high enough quality and presents adequate results to derive a reference dose. The questions posed by the NC Department of Environmental Quality (NCDEQ) and the Board's summarized discussions are provided below. The DEQ conducted two literature reviews (summer 2022 and winter 2023) to retrieve any PFMOAA studies which might inform a reference dose; these searches yielded only the two papers brought to the Board for review.

The questions posed to the Board by NCDEQ during the June 6, 2022, meeting were:

1- Review the PFMOAA studies in detail.

- *assess the quality of the studies (low, moderate, high)*
- *based on sample sizes, dose regimes, endpoints measured*

2- Do the studies provide sufficient scientific information to determine a point of departure to derive a reference dose in June 2022?

PFMOAA History with NC SSAB

The Board's response *(abridged):*

The two studies were of high quality but had limitations that would preclude their use to derive a reference dose.

The Board recommends that NCDEQ pause derivation of a reference dose until the referenced manuscript in preparation is published and available for review. (Refers to *DeWitt et al. In Prep*)

In the interim, the Board encourages NCDEQ to periodically refresh their PFMOAA literature search for other relevant papers for inclusion in a toxicological synthesis with the expected new information.

The recordings of the three Board discussions of the topic are here:
NC DEQ and DHHS Secretaries' Science Advisory Board 08/01/2022 (at 1:28:00),
NC DEQ and DHHS Secretaries' Science Advisory Board 10/03/2022 (at 0:22:50),
NC DEQ and DHHS Secretaries' Science Advisory Board 12/05/2022 - (at 00:47:33)

PFMOAA Updated Literature Base

PFMOAA References:

1. Woodlief T, Vance S, Hu Q, DeWitt J. 2021. Immunotoxicity of per- and polyfluoroalkyl substances: Insights into short-chain PFAS exposure. *Toxics* 9(5):100.

2. Yao J, Pan Y, Sheng N, Su Z, Guo Y, Wang J, Dai J. 2020. Novel perfluoroalkyl ether carboxylic acids (PFECAs) and sulfonic acids (PFESAs): Occurrence and association with serum biochemical parameters in residents living near a fluorochemical plant in China. *Environmental Science & Technology* 54 (21): 13389-13398.

3. Justin M. Conley, Christy S. Lambright, Nicola Evans, Jacqueline Bangma, Jermaine Ford, Donna Hill, Elizabeth Medlock-Kakaley, and L. Earl Gray Jr. 2024. *Environmental Science & Technology* 58 (2), 1064-1075.

Previous Request to the Science Advisory Board

DEQ is asking the Board to review the literature base for PFMOAA toxicity and determine if an RfD can be derived with the available scientific information.

Charge Question:

With the studies from Woodlief et al, Yao et al, and Conley et al, is there enough scientific support to identify a Point Of Departure for deriving a Reference Dose for PFMOAA?

Updated Information Regarding PFMOAA's RfD

DEQ proposed PFMOAA to the EPA as a priority compound to review (circa 2022-2023).

In January 2025, DEQ received notification that the EPA ORD was in the process of formally reviewing PFMOAA with the goal of deriving a RfD.

As of Mid-March 2025, the internal review of the literature and draft toxicity assessment were complete, and the draft was to be sent to external review.

DEQ is going to recind the previous charge to the Board, and await EPA ORD's final toxicity assessment before asking the Board for a review and/or recommendation.