



**BAY AREA
BIOSOLIDS
COALITION**

April 9, 2026

Mr. Jeffrey Bell, Environmental Health Supervisor
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Biosolids Stakeholder Group
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Subject: Bay Area Biosolids Coalition (BABC) Comments on the *Study of the Fate of Per- and Polyfluoroalkyl Substances (PFAS) in Biosolids After Land Application* (Project #: SOLAN-023-0001).

Dear Jeffrey Bell,

Thank you for the opportunity for the Bay Area Biosolids Coalition (BABC) to attend the Biosolids Stakeholder Group meeting on February 26, 2026 and to submit comments on the *Study of the Fate of Per- and Polyfluoroalkyl Substances (PFAS) in Biosolids After Land Application*. The BABC is a committee of the Bay Area Clean Water Agencies (BACWA) and includes public utilities and industry partners across the San Francisco Bay Area that collaborate to advance reliable, sustainable, and cost-effective solutions for biosolids management.

The BABC promotes the environmental and agricultural benefits of biosolids while supporting the development of diverse long-term disposal and reuse options for the region. We commend your efforts to advance the understanding of PFAS and its behavior in agricultural systems and appreciate the opportunity to contribute to this important discussion. The following comments are offered to improve the clarity, accuracy, and contextual framing of the report.

Clarification and Consistency in Report References

The referenced report titled “*Study of Per-and Polyfluoroalkyl Substances in Bay Area POTWs*” was conducted by the San Francisco Estuary Institute (SFEI). Throughout the document, this study is alternatively referred to as the SFPUC report and the BACWA report. For clarity and accuracy, we recommend that this study be referred to uniformly as the SFEI report.

Study Scope and Limitations Related to Background PFAS Concentrations

The scope of this study did not include an extensive sampling campaign to comprehensively establish background PFAS concentrations at locations unaffected by biosolids application. As a

result, interpretation of “background” conditions relies on a limited number of samples that may be influenced by site-specific factors.

Recent investigations by state environmental agencies in New York, Maine, Vermont, and Minnesota have used more robust sampling approaches to characterize background PFAS concentrations in soils without biosolids application. These studies provide useful context for understanding the range of PFAS concentrations that may be present under background conditions. When considered alongside this broader body of work, the results presented in this report suggest that while biosolids application has contributed to increased PFAS concentrations within the study fields, measured concentrations remain relatively close to background levels reported in other regions.

Additionally, some of the highest PFAS concentrations observed in the study were reported at sampling locations SS-02, SS-03, and SS-04, which were identified as areas where biosolids were not applied. However, the study designates SS-01 as the sole representative background location. While the report acknowledges spatial heterogeneity, reliance on a single background location affects comparisons between biosolids-amended and background soils and may overstate the magnitude of observed differences.

For example, Table 5-2 indicates that the highest PFOS concentration was measured at SS-04, outside the application area. Similarly, PFOA concentrations at SS-02, SS-03, and SS-04 (1.3, 1.2, and 1.7 ng/g, respectively) are notably higher than the concentration measured at SS-01 (0.27 J). Inclusion of these non-application locations in the background dataset would suggest that true background concentrations may be higher than those presented. Explicitly acknowledging the uncertainty associated with background site selection and its implications would strengthen the report and provide a more balanced interpretation of the findings.

Importance of Source Control as a PFAS Management Strategy

PFAS detected in wastewater, biosolids, and the broader environment are the result of decades of historical and ongoing manufacturing and widespread use, rather than actions taken by wastewater utilities. As such, the most effective long-term strategy for reducing PFAS in biosolids, the environment, and human exposure is robust and sustained source control.

While treatment-level management strategies play an important role, meaningful and lasting reductions in PFAS depend on upstream actions that prevent these compounds from entering publicly owned treatment works (POTWs). Continued emphasis on source control – including elimination of PFAS in non-essential uses, removal from consumer and industrial products, and implementation of regulatory and manufacturing controls – is critical.

Wastewater utilities are actively pursuing source control measures and working collaboratively with regulators, manufacturers, and other stakeholders. However, utilities cannot address this challenge alone. Maintaining a strong focus on upstream solutions is essential to achieving meaningful reduction in PFAS to wastewater systems, biosolids, and the environment. We

encourage this report to more clearly emphasize the central role of source control and place the study findings within this broader context.

Benefits of Biosolids and Environmental Context

The use of biosolids as a soil amendment provides well-documented environmental and agricultural benefits, including:

- Increasing soil organic carbon and supporting carbon sequestration,
- Supplying renewable sources of nutrients (e.g., nitrogen and phosphorus), which would otherwise require energy-intensive production of synthetic fertilizers, and
- Supporting soil microbial communities that are fundamental to soil health and plant productivity.

At the same time, the BABC recognizes the importance of addressing PFAS concerns associated with biosolids and is actively engaged in advancing scientific understanding and identifying practical solutions. The BABC has supported targeted research efforts focused on PFAS fate, transport, and exposure pathways, including providing funding for Dr. Ian Pepper's National Collaborative PFAS Project at 23 sites across 17 states, whose Phase 1 findings indicated no significant PFAS migration to groundwater¹. The BABC has supported university-led research initiatives such as a study conducted by Dr. Tom Young of UC Davis evaluating PFAS uptake in oats grown in Bay Area agricultural fields where biosolids were applied as fertilizer. That study found no measurable PFAS uptake in oats grown on biosolids-amended soils, providing important insight into potential exposure pathways².

In addition, BACWA and Bay Area Agencies are continuing collaborative research with SFEI, including a Phase II effort focused on sampling Bay Area wastewater treatment plants to better understand sources of PFAS to treatment systems and identify opportunities for future source reduction.

Taken together, these efforts reflect a proactive, science-based approach to addressing PFAS challenges while preserving the substantial environmental and agricultural benefits of biosolids reuse. When evaluated holistically, biosolids continue to represent a beneficial and sustainable soil management practice. Based on available evidence, land application of biosolids – when managed in accordance with existing regulations and best practices – provides significant benefits and does not present a demonstrated risk that outweighs those benefits.

¹ Pepper IL, et al. National collaborative study on the incidence and mobility of PFAS following land application of biosolids. *Science of The Total Environment*. 2026 January 15; Volume 1012, Article 181197. <https://doi.org/10.1016/j.scitotenv.2025.181197>. Additional information about the National Collaborative PFAS Project is available at <https://west.arizona.edu/research/national-collaborative-pfas-project>

² Black GP, Wong L, Young TM. Uptake of per- and polyfluorinated alkyl substances by dry farmed oats following the agricultural application of biosolids and compost. *Environ Sci Process Impacts*. 2025 Mar 19;27(3):661-669. <https://doi.org/10.1039/d4em00502c>

Thank you for the opportunity to provide these comments. We appreciate the effort invested in this study and hope our input is helpful in refining the report and its interpretation. We appreciate your consideration and look forward to opportunities for continued engagement.

Respectfully Submitted,

A handwritten signature in black ink that reads "Lorien Fono". The signature is written in a cursive, flowing style with a long horizontal stroke at the end.

Lorien Fono, Ph.D., P.E.

Executive Director

Bay Area Clean Water Agencies

(On behalf of the Bay Area Biosolids Coalition)

