

BRUNSWICK AREA CITIZENS FOR A SAFE ENVIRONMENT

P.O. Box 245 Brunswick, Maine 04011-0245
info@BACSEmaine.org

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From: Susan Schow, BACSE Member and Brunswick Naval Air Station Restoration Advisory Board Member

To: Interested Citizens of the Brunswick Naval Air Station Community

Re: Information Related to Persistence of PFAS and Potential Occupational Exposure Following August 2024 AFFF Release

I spoke with consultants at GSI Environmental and CDM Smith on March 5, 2024. CDM Smith in Bellevue WA did the design work for the Jordan Avenue Wellfield Treatment System for the Brunswick Topsham Water District. The consultant with CDM did the bench scale testing on the Brunswick design. He tested both ion exchange resin and granulated activated carbon technologies and CDM Smith provided both treatment designs to the Water District.

As part of these discussions I learned that companies that advertise technologies for the clean-up of PFAS residue in firefighting equipment were not a part of any long-term post treatment rebounding testing in any of their studies. He advised that if you wait at least six weeks after cleaning the stainless steel, the PFAS concentrations will rebound again as high or higher than the original levels. The PFAS is embedded in the imperfections of the stainless steel (in nooks and crannies). Some tests have showed “rebounding” of millions of parts per trillion approximately 6-weeks after cleaning.

I’ve reviewed a paper about this “rebounding effect” after removal of residual PFAS in fire suppression equipment (see link below).

See: <https://www.sciencedirect.com/science/article/abs/pii/S0304389424031303>

Equally concerning is that PFAS finds its way into pore spaces in concrete as well and shows a similar rebounding effect. GSI Environmental is working on two research projects on the release of PFAS from construction materials for the DoD’s Strategic Environmental Research and Development Program (SERDP). One focuses on PFAS spills on concrete and one on asphalt. He indicated that to reduce the release of PFAS from concrete they are testing a concrete sealant which has had some success but is still in the early stages.

Since we know that the concrete flooring of Hangar 4 was covered with aqueous film-forming foam (AFFF) after the spill, the occupants and the community need to be aware that it still has the potential to release PFAS from the crevices even though it was cleaned.

There has been little discussion regarding potential occupational exposure to AFFF foam at the former Base. The MEDEP Initial Press Release / Update (August 23, 2024) noted that, “The Department has received some inquiries in the last few days. regarding worker safety in and around Hangar 4 and TechPlace. Where foam was found has been restricted and is currently unoccupied.”

The MEDEP Press Release / Update 2 (August 26, 2024) then stated, “The impacted hangar has been cleaned and all discharged foam from the hangar has been removed. The impacted planes were cleaned and removed from the hangar. The planes will undergo another round of cleaning inside the hangar. At the conclusion of cleaning the planes, the hangar will be cleaned for a final time. Contracted crews will collect the rinse water. The affected TechPlace industrial spaces will also be steam cleaned by contracted response crews.”

No specifics were shared regarding the cleaning process but this typically involves soap and water mopping and double or triple water rinsing. Notwithstanding these efforts, PFAS “rebounding” is likely occurring on the concrete flooring in the Hangar. It is unclear what type of flooring was steam cleaned at TechPlace and what the rebounding would be in that facility.

Moreover, there is a concern that if liquids are released during future use of Hangar 4, PFAS could be released via the floor drains into the stormwater system and discharged to nearby ponds, creeks, and coves.

This also raises the question of ongoing occupational exposure especially related to inhalation and ingestion of dust particles being released from the hangar floor.

In a Memorandum dated January 16, 2025, from Stacy Knapp, Director, Division of Air Quality Assessment to Jeff Crawford, Director, Bureau of Air Quality regarding Brunswick PFAS ambient air sample results, they summarize efforts to respond to community concerns about the potential for ongoing air exposures following the AFFF spill. See:

<https://www.maine.gov/dep/ftp/projects/bnas/test-results/202501%20Brunswick%20sampling%20results%20memo.pdf>

ME DEP investigated potential ambient air for the PFAS compounds by collecting three 72-hour ambient air samples, along with two blank samples used for quality control checks. Using high-volume air samplers, over 390,000 liters of air were sampled by each instrument during the sampling period. Laboratory analysis results indicated low ambient air concentrations of many PFAS compounds found in AFFF. Nearly all PFAS compounds detected in the samples were found at concentrations well below provisional health-based air screening levels.

One compound, PFOA, was detected at concentrations above the provisional cancer screening level. They noted this screening level only indicates an increased risk from long-term exposure to PFOA in ambient air above the threshold and does not necessarily indicate increased risk from short-term exposure. Based on separate calculations, analysis of PFOA data suggests that exposure at the level found in ambient air at BNAS is not likely to result in any measurable increase in blood levels over expected current background blood levels in the U.S. population.

Given the PFOA concentrations found above the screening level, Maine CDC conducted an analysis of PFOA from a toxicity perspective (non-cancer impacts), comparing the ambient air concentrations found in Brunswick to estimated mean serum (blood) level of PFOA in adults. Based on this assessment, exposure to the PFOA concentrations detected in Brunswick is not believed likely to result in any measurable increase in in blood levels over expected current background blood levels in the U.S. population.

However, the two sampling locations were all **outdoor air**. One just outside on the grass at the northeast corner of TechPlace and one on the roof of the Brunswick-Topsham Land Trust building, adjacent to where soil samples with elevated levels of PFAS were discovered.

The memo indicated the ME DEP planned to conduct additional sampling including two additional samples on top of the Brunswick-Topsham Land Trust Building to assess whether PFAS concentrations are increasing, decreasing, or remaining constant over time and at different ambient temperatures.

For the next round of sampling, sample media were expected to arrive to Maine DEP in late January/early February, sampling was expected to take place in mid-February, and the results are expected back from the analytical lab in June. So we will not know the results of these samples until summer.

Since these air sampling efforts do not seem to address actual occupational exposure, i.e. day in and day out (chronic) exposure to air in a potentially contaminated building, some additional sampling inside Hanger 4 and TechPlace would seem to be prudent.

In summary, we should stay tuned to the SERDP research effort regarding PFAS “rebounding” from previously cleaned concrete surfaces and potential methods to mitigate this hazard going forward by applying a sealant. And consideration should be given to measuring potential occupational exposures to PFAS impacted air and dust in Hanger 4 and TechPlace.