

Earlier this year, in response to serious environmental and human health concerns, the Pentagon published a [new military specification](#), part of the 2023 National Defense Authorization Act, that requires the Department of Defense to stop buying PFAS-containing firefighting foam by October 2023, and to eliminate its use entirely within a year after. It is yet to be determined what would be the substitute for Aqueous Films Forming Foam (AFFF).



For years, fire crews at DoD have trained AFFF, a PFOS-based foam. The foam was widely adopted and used in all aircraft hangars, airfields, and aircraft fueling stations, among other locations. The Federal Aviation Administration adopted the foam to fight fires at all commercial airports. Airports around the world also came to use the foam.



In December of 2022, The Environmental World Group (EWG) published a report of DoD water analysis data, revealing more than two dozen bases that have contaminated groundwater drastically above Environmental Protection Agency standards — just some of more than 700 bases known to have some level of contamination.

AFFF can leach into the soil around these sites and potentially [enter the water supply systems for nearby residential areas, both military and civilian](#). This requires [the analysis of both the soil and the water](#) (ground-, surface-, and wastewater) for PFAS contamination at or near these installations.

The DoD has established [Quality Service Manual \(QSM\) 5.3](#) to guide the laboratories that analyze samples from DoD facilities. Table B-15 in QSM 5.3 has specified a two-step sample preparation step utilizing [polymeric weak anion exchange](#) (WAX) followed by graphitized carbon black (GCB) for the analysis of all non-drinking water matrices. GCB is believed to remove additional matrix interferences (such as humic and cholic acids), which can cause spectral interference and/or suppress ionization. However, long chain PFAS analytes can be strongly adsorbed on GCB, requiring thorough elution of the sorbent prior to LC-MS/MS

analysis.

QSM 5.3 does not specify the GCB format to be applied. A final improvement came when the WAX and GGB were combined in a single tube ([Strata™ PFAS](#)) to offer equivalent analytical performance, but with additional improvements in lower cost and higher laboratory productivity. Data obtained through [a collaborative study between multiple commercial laboratories](#) demonstrated that [PFAS](#) accuracy and precision results obtained using the Strata PFAS single tube sample preparation procedure are equivalent to those obtained using the two-step WAX + Dispersive GCB (dGCB) procedure, thereby meeting DoD QSM 5.3 requirements.

[Learn more about the Comparison of PFAS Recoveries Between Cartridge Format WAX/GCB vs. Dispersive GCB for DoD Compliance \(TN-0145\) in the full technical note.](#)

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