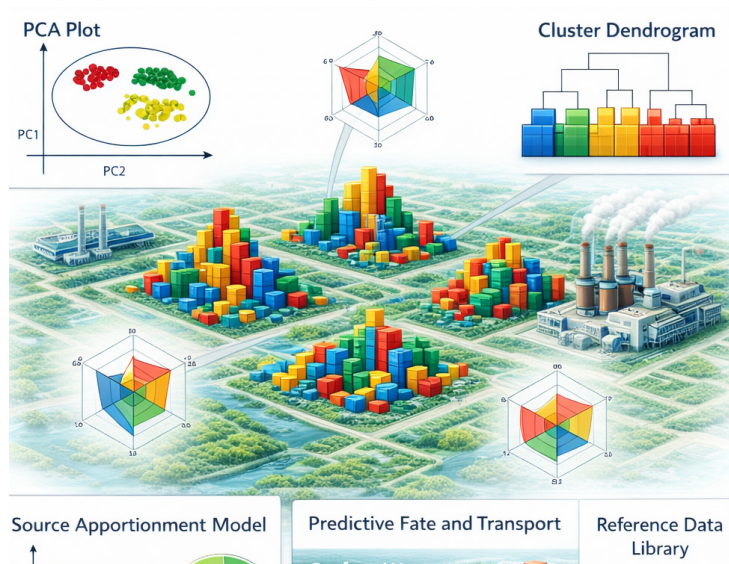


PFAS Forensics



AECOM brings more than 20 years of PFAS chemistry experience, early leadership in chemometric forensics, and a globally integrated team that continues to advance PFAS forensic insight through applied research and digital innovation.

Key AECOM attributes

- Over 2 decades of PFAS chemistry expertise
- One of the earliest pioneers of chemometrics for PFAS forensics
- Large, diverse global portfolio of PFAS experience translating to unprecedented knowledge and insight into forensic profiles
- Global network of multidisciplinary PFAS specialists seamlessly integrated into complex projects
- Continuous forensic innovation through digital platforms and in-house laboratory studies

More Information: AskEnvironment@aecom.com

Overview

Environmental forensics is a multidisciplinary practice that broadly investigates the causality behind sources, extent, fate, and transport of environmental contaminants. Emerging forensic applications of statistics and machine learning reveal hidden insights encoded within environmental chemistry data. Our robust, data-forward PFAS forensic philosophy leverages analytical results, public databases, and site history to sharpen investigations and transform complex questions into solvable challenges.

Our approach

Our PFAS forensic strategy is built on an iterative, adaptive framework that helps clients move from complex PFAS data to objective, implementable solutions. Rather than applying one-size-fits-all analyses, we co-develop each forensic investigation with the client, so the work remains aligned with available data, site conditions, project objectives, regulatory context, and the decisions that matter most. This approach allows the investigation to evolve as new evidence is uncovered, ensuring that each phase builds logically on the last and that effort is focused where it adds the greatest value.

Our process begins with the client's most important questions, but it does not stop there. An initial phase of chemometric pattern screening, PFAS profiling, and desktop source evaluations can amplify the value of existing data to establish an objective baseline for understanding the PFAS data. Those findings are then integrated with the conceptual site model, site history, regional context, and other lines of evidence to refine competing hypotheses, identify data gaps, and determine the most appropriate next steps. In this way, the forensic process becomes a structured roadmap for decision-making that is flexible enough to adapt to new findings while still providing a defensible and transparent basis for action.

Typical questions addressed in this framework include:

- Can we identify and differentiate PFAS sources on site and off site?
- What chemically differentiates one release area from another?
- How much did each source contribute to a commingled plume?
- Can we identify site-specific anthropogenic background PFAS contributions?
- Do the observed PFAS profiles align with the conceptual site model?
- What fate and transport mechanisms are we missing?
- What additional analyses or response actions will most effectively reduce uncertainty and drive solutions?



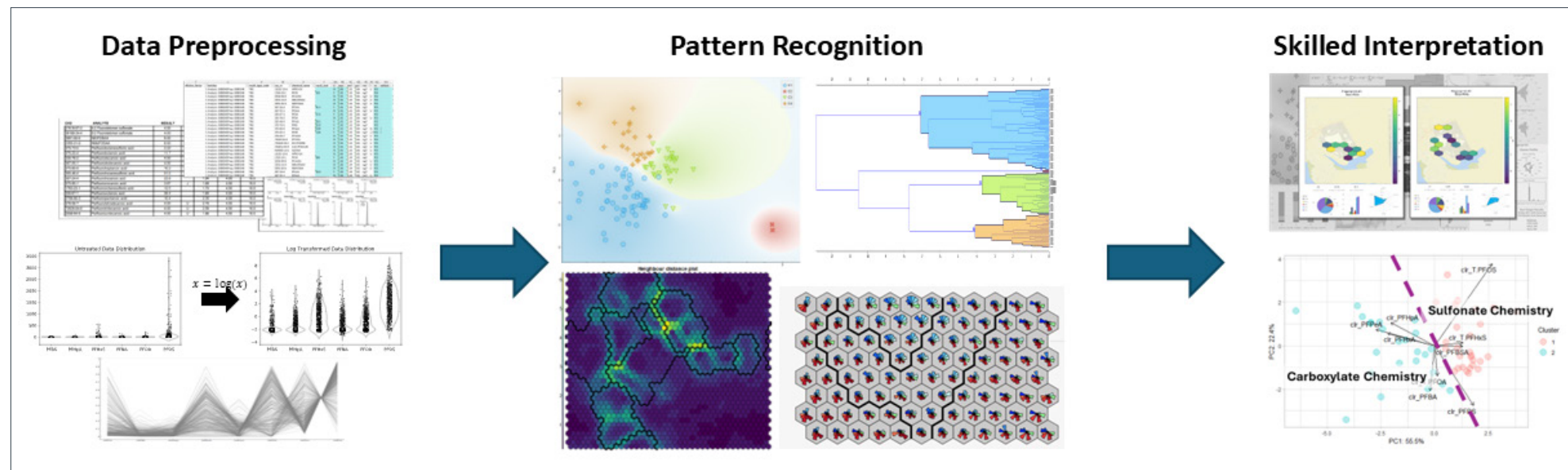
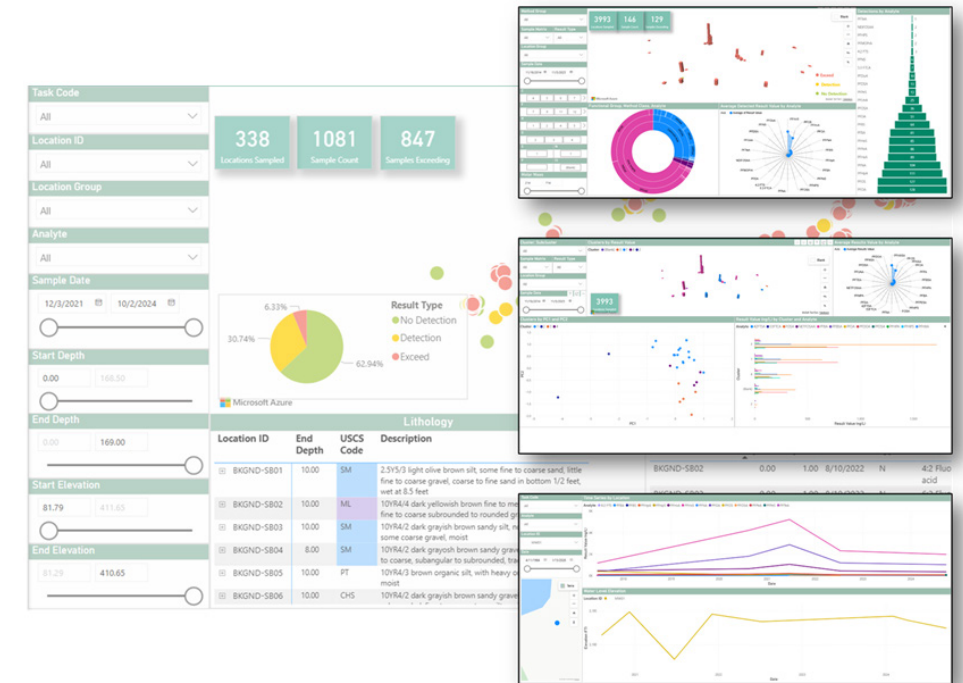
PFAS Forensics *continued*

Areas of expertise

- Forensic scoping and adaptive strategies.** We begin each PFAS forensic engagement by co-developing the investigation strategy with the client so the work is tailored to the specific site conditions, available data, regulatory context, and remediation questions that need to be answered. This is important because PFAS investigations often stall when data collection is not aligned with the actual decisions the client must make—such as distinguishing on-site from off-site sources, strengthening the conceptual site model, or determining whether anthropogenic background is present. By defining those questions first and adapting the investigation as new evidence emerges, we help clients focus resources on the most valuable lines of evidence and avoid unnecessary sampling or analysis.
- Chemometrics.** Chemometrics is one of our specialized capabilities, combining PFAS chemistry, multivariate statistics, and data science to turn complex analytical results into clear, defensible chemical profiles that are tailored to the specific questions of each project. We apply a phased, adaptive profiling approach, beginning with unsupervised analytical methods such as principal component analysis, clustering analyses, spatial pattern recognition, and receptor models to identify meaningful patterns and define the relationships that distinguish representative PFAS profiles. These exploratory findings are then

integrated with site-specific information and reference library data to objectively support confident, data-driven project decisions. The result is a transparent, scalable line of evidence that helps clients more effectively investigate PFAS impacts, prioritize next steps, and support remediation strategies with greater confidence.

- Diagnostic chemistry interpretation.** Built upon the chemometrics findings, our forensic chemists examine representative PFAS compositions, isomer patterns, precursor-daughter relationships, and other lines of evidence to differentiate release areas and distinguish on-site impacts from off site or background influences. Our PFAS profiling approach is intentionally broader than conventional fingerprinting, recognizing that environmental PFAS mixtures change during transport and cannot be interpreted objectively using individual chemical ratios alone. These lines of evidence can inform strategic collection of additional chemical analyses such as total oxidizable precursor assay, non-targeted analysis, and specialty indicator compounds.
- Forensic desktop source evaluations.** We perform Desktop Regional Source Evaluations to identify, screen, and rank potential PFAS sources across watersheds, catchments, and surrounding areas of interest using GIS, regulatory databases, environmental records, and publicly available information. Many clients are not only dealing with site releases, but also



with the possibility of upgradient, nearby, or regional contributors that can complicate source attribution and remediation. By systematically evaluating likely source types, release potential, and available PFAS data, our team helps clients place site data in the right context and build a more defensible conceptual site model.

- Anthropogenic background studies.** We design and implement anthropogenic background studies to distinguish PFAS attributable to site activities from PFAS that reflect broader human-derived ambient conditions. This is increasingly important because PFAS are synthetic and globally distributed, meaning detections may not always indicate a site-specific release, yet clients still need defensible ways to support remedial decisions, risk evaluation, and regulatory discussions. By combining forensic screening, multiple lines of evidence, and statistically robust background threshold derivation, we help clients evaluate their PFAS risks in the appropriate context.