



PFAS

Capability Statement



Perfluoroalkyl and polyfluoroalkyl substances (PFAS) were produced in huge quantities for many years. These were marketed in countless applications, thanks to their chemical versatility. They have been in the spotlight more recently in Europe, primarily due to their persistence and harmful effects on our environment.

Tailor-made solutions

PFAS are often referred to as the “forever chemicals” and some of them are on the candidate list of substances of very high concern (SVHC) in the REACH database. Due to their toxicity along with their environmental persistence, they present not only a considerable threat to numerous natural environments but also a huge challenge for site owners, authorities and policymakers. The last of these issues mainly arises because so many PFAS – several thousands – appeared on the market and were released into the environment. That number is unmanageably large and some of the properties of the individual substances can differ considerably.

This is also the reason why e.g. sampling procedures, analytical methods and parameters and eventually the relevant legislation are complex and still under permanent development. Particularly if you are facing a PFAS-related issue at your site, it is crucial to have an expert and experienced partner at your side who always has an overview of this complex situation and who can develop tailor-made solutions.

TAUW's experts keep track of the legislation both at the European level and in your country. PFAS-related legislation and guidelines can occur in a variety of legislative fields, e.g. chemicals, waste, water and soil. Our environmental specialists and engineers are experienced in planning and carrying out site assessments at sites contaminated with PFAS and in designing remediation projects to meet compliance levels for the soil, air emissions, surface/waste water and groundwater.

Strict compliance with the levels of PFAS allowed in soil and groundwater causes issues in remediation, safety, transporting soil to treatment facilities and obtaining permits for new projects. TAUW has experience working with PFAS projects, ranging from standard soil surveys to customized projects for your specific needs.



TAUW's expertise

TAUW offers a wide variety of services for PFAS in several fields. We have already collaborated with a diverse group of clients who each have their own individual interests. Industrial companies, water authorities, governmental bodies, waste treatment companies and developers (due diligence) have paired up with TAUW to get answers to their specific PFAS questions and challenges.

Small-scale to large-scale contaminations

- Carrying out soil surveys for very large areas with a diffuse impact from PFAS caused by atmospheric deposition
- Investigation of contamination caused by firefighting foam incidents or firefighting practice locations
- Design of remediation from start to finish: soil survey, source identification, designing remediation plans (soil, groundwater and wastewater) with experts guiding your path with the authorities.



Sustainable cost-effective solutions

- Design cost-effective remediation solutions, such as washing of soil containing PFAS
- Expertise in safety and sustainability aspects of PFAS projects
- Design and conduct lab and field pilot tests
- Design and implement effective and sustainable remediation solutions
- Develop and customize solutions with partners
- Bring expertise in safe and sustainable management of PFAS projects.

Project development

- Expertise to help develop new projects at sites with known or potential PFAS contamination, from start to finish
- Customized advice involving innovative projects and pilot studies
- Collaboration with international knowledge institutes and universities

Expert advice on current PFAS legislation

- PFAS legislation is subject to continuous changes. TAUW follows the development of PFAS legislation closely on national and international level, and can always update the client with the most current status



Our services

PFAS sampling and analysis

TAUW performs soil surveys to get a clear picture of the degree of PFAS contamination at a specific site. This could be done within the scope of removal of soil from a site, determination of background values, remediation or to quantify the presence of PFAS in the soil and groundwater.

TAUW offers the following services:



Soil management plan

When different types of soil with different PFAS concentrations need to be excavated and managed, TAUW can help you create an action plan. This gives an overview of the soil types present, the degree of contamination and how that soil can be reused, cleaned or disposed of under the current legislation.



PFAS remediation (design and guidance)

As a specialist in soil remediation, TAUW offers a complete soil remediation service. The scope, method and urgency of remediation are determined and a customized remediation plan will be produced for the client's specific project. TAUW experts have a thorough understanding of the best available remediation techniques, risk assessment and the behaviour of PFAS in the subsurface.



Conceptual site models and risk assessment

Based on historical research and / or field measurements, TAUW evaluates PFAS contamination situations considering its specific behaviour in the environment, potential contaminant pathways and sensitive land use in the surrounding areas. Based on this, TAUW can work with clients and authorities towards a risk-based and cost-effective investigation and remediation strategy.





Soil Washing

The presence of PFAS in soil or groundwater can seriously impact the planning of civil works. TAUW uses an innovative soil washing technique to provide sustainable and cost effective soil treatment, which has been developed in collaboration between TAUW and DEME. The PFAS are then removed from the washing water, minimizing residual contamination and allowing the soil to be reused.



PFAS and vegetation

At TAUW, our expertise in PFAS extends beyond traditional soil and groundwater assessments. We conduct comprehensive inventories of PFAS presence in vegetation—including trees, shrubs, and grasses—at contaminated sites, such as former airfields. We provide strategic guidance on addressing PFAS contamination in vegetation, focusing on risk assessment and the implications for effective management and maintenance practices. Additionally, we are engaged in pilot studies exploring the potential of phytoremediation as a viable solution for PFAS-affected sites.



Water technology

Our knowledge of the best available techniques for removing PFAS from water or wastewater lets TAUW give advice about which techniques to use for which purposes. In addition, our expert knowledge of PFAS in wastewater lets us apply for the correct specific discharge permits.



PFAS in emissions

US EPA has found that air emissions of PFAS from industrial sources are a relevant pathway for the release of PFAS into the environment, as evidenced by deposition and accumulation in stormwater. Legally binding limit values for PFAS air emissions do not yet apply in Europe. If indicated, however, our experts may already carry out air emission measurements in the ng/Nm³ level for you with our specialized partner laboratories, giving you more safety for your operations.





PFAS waste management

We have in-depth knowledge of the European and national waste legislation, as the very changeable Dutch SVHC policy (including PFAS) for waste management companies



Safety & PFAS

TAUW provides support from safety experts for all PFAS-related projects. TAUW's experts helped define the SRC-ARBO values (occupational health and safety) that are now used nationwide. In addition, TAUW is experienced in performing risk assessments for PFAS contaminated sites, listing the human, ecological and migration risks.

Why choose **TAUW**?

TAUW is a European consultancy firm with a strong position in environmental advice and in making sustainability feasible.

We have a large team of dedicated experts who help develop a vital living environment by offering sustainable solutions. PFAS is one of the main strategic thrusts within TAUW.

The international in-house group of PFAS experts follows new information about PFAS, such as academic studies and legislative developments. In this community, we combine strong expertise with valuable partnerships.



Project references

TAUW has experience working with PFAS projects, ranging from standard soil surveys to customized projects for your specific wishes. Some project references are highlighted below:

- 1. Soil excavation management plan:** For a client with several containers on their site with sand/soil containing various PFAS concentrations, TAUW performed a major survey, inspecting every batch. The project concerned the whole range from inspection to transport off site for soil washing. TAUW has done numerous projects in which the scale of the contamination was identified first. Afterwards the contamination was excavated and transported to a soil washing facility.
- 2. Consulting for nationwide practical PFAS issues:** TAUW gives input to a national team (consisting of consultants, government, contractors etc.) that consults on nationwide PFAS issues, such as legislation, reuse of soil containing PFAS and PFAS source inventories.
- 3. Historical study & field study at a WWTP:** Elevated PFAS concentrations were found in a preliminary study. TAUW performed a detailed follow-up in which it was found that it had been caused by a firefighting foam incident.
- 4. Development of municipal PFAS soil quality maps:** In the Netherlands, TAUW has compiled a soil quality map based on the PFAS concentrations in the soil. These maps reflect the local background values and can help underpin policy for soil excavation guidelines. In addition, TAUW has carried out sampling at 200 locations throughout the Netherlands to determine the national background values.
- 5. Groundwater remediation and plume remediation for a PFAS source area:** This project included a soil/groundwater investigation, geohydrological modelling and the design of containment and a remediation system (pump & treat), including consultancy about wastewater management.
- 6. PFAS emission research in water and air:** For an industrial client, TAUW did an investigation into how PFAS emissions diffused, focusing on GenX. Samples were taken and analysed and mass balances were made. This resulted in a clear overview of how GenX diffused, allowing measures to be taken to prevent the emissions of GenX.
- 7. Considerations for PFAS removal technologies:**
In this project, TAUW was asked as a BAT (best available techniques) expert to evaluate PFAS removal technologies for water and air.
- 8. Risk Assessment at a former fire station:** TAUW performed a risk assessment to determine potential human and ecological risks associated with the site, evaluating both current and future land use scenarios, including residential use with gardens and play areas. The municipality provided a preliminary redevelopment design for the risk assessment, and together, we established principles for various future uses. The collaboration was highly successful and met the municipality's expectations.
- 9. Soil survey and remediation at airfield:** TAUW was engaged by a regional airport to conduct soil investigations in preparation for reconstruction activities, uncovering significant historical PFAS contamination linked to past firefighting exercises. The investigations revealed elevated PFAS levels in both soil and groundwater, leading to the development of a remediation plan and action plan for the newly identified contamination near the former fire training site.

Contact

If you have any questions about PFAS and how they can affect your business, don't hesitate to contact us. Or if you are wondering which of our services can be applicable to your current site, or would like a quote for one of our services listed above. We will work with you to find a suitable solution to your question or problem.



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