

Assessing PFAS in Toxics Release Inventory Reporting

The most recent annual Toxics Release Inventory Reporting (TRI) includes 175 newly listed per- and polyfluoroalkyl substances (PFAS); 172 beginning in the 2020 reporting year, and three additional PFAS starting in 2021. Facilities often focus initially on addressing aqueous film forming foam (AFFF) in on-site fire suppression systems, however the scope of the current TRI includes many additional PFAS, for which the sources and rate of occurrence are not yet fully-understood.

TRI reporting, which is required under the Federal Emergency Planning and Community Right to Know Act, continues to bring a variety of PFAS directly into focus. The TRI now includes 175 PFAS chemicals, since the passage of the National Defense Authorization Act (NDAA) of 2020 and the USEPA's rule-making in June 2020.

The TRI reporting threshold for "manufacturing, processing and otherwise used" of each of the listed PFAS is low (at 100 pounds per year) when compared to most TRI-listed chemicals. The NDAA set the de minimis concentration level in mixture-containing PFAS at the standard one percent by weight, except for perfluorooctanoic acid (PFOA), which is set at 0.1%.

The TRI lists chemicals individually and categories are not specifically called out for PFAS as with other TRI chemicals such as "lead compounds" or "dioxin and dioxin-like compounds." Instead, some of the PFAS listed in the TRI include chemical structures with a range of carbon atoms or fluorine groups, such as "Alcohols, C8-14, γ - ω -perfluoro." While some of the more familiar PFAS chemicals are included, like PFOA and perfluorooctane sulfonic acid (PFOS), many of the TRI-listed PFAS are more obscure.

Furthering Your Understanding TRI-listed PFAS

The process for TRI thresholding and PFAS reporting remains the same as for other TRI-listed chemicals, initiating questions about what this large group



Arcadis applies an in-depth understanding of the diverse characteristics of PFAS and adapts existing methodologies to assess potential PFAS releases.

The USEPA's active TSCA Inventory lists more than 600 PFAS in use.

of newly listed chemicals represents. There are more than 4,600 PFAS registered globally¹ and more than 600 PFAS in use based on the USEPA's active Toxic Substances Control Act (TSCA) Inventory². Many of the TRI-listed PFAS are among these chemicals, while some are part of the Voluntary Phase Out Agreements with primary manufacturers.

The NDAA specifically identified some of the newly listed chemicals and provided criteria for listing others that will add more PFAS to the TRI over time. The NDAA requires listing when:

- USEPA finalizes a toxicity value for a PFAS.
- A Significant New Use Rule (SNUR) is issued for a PFAS under the TSCA or a PFAS is added to a SNUR.
- A PFAS is added as an active chemical on the TSCA inventory.
- USEPA determines whether any PFAS can be listed based on criteria in EPCRA Section 313. This determination must be completed by December 19, 2021, and any additional listings must occur within 2 years.

Arcadis' PFAS experts have searched more than 35

1 OECD (Organisation for Economic Co-operation and Development), Toward a New Comprehensive Global Database of Per- and Polyfluoroalkyl Substances (PFASs): Summary Report On Updating the OECD 2007 List of Per- and Polyfluoroalkyl Substances (PFASs), OECD, Paris, 2018.

2 U.S. Environmental Protection Agency. 2020. US EPA's Per- and Polyfluoroalkyl Substances (PFAS) Action Plan: Program Update. https://www.epa.gov/sites/production/files/2020-01/documents/pfas_action_plan_feb2020.pdf

PFAS are an emerging science and Arcadis strives to address the unique needs of your organization. We offer a full suite of PFAS services led by experts in their respective fields to address your specific issues or concerns with confidence.

information sources, such as peer-reviewed publications and online technical databases including patents and TSCA SNURs, to better understand where TRI-listed PFAS might occur in industrial settings. Leveraging internal technical knowledge across several disciplines, the team has assessed the chemical structures of the PFAS associated with the uses we found. In several instances, we identified chemicals that are more likely to be associated with consumer use rather than manufacturing or processing.

This extensive search required nearly a year to complete and will continue as new data emerges. While we have determined industrial or federal facility uses for more than 120 TRI-listed PFAS, more than 50 have no identified uses. To our knowledge, this research represents the most extensive effort to date identifying uses and industry sectors associated with these chemicals.

While most facilities initially look for PFAS that may be present in AFFF used in on-site fire suppression systems, the TRI-listed PFAS can also be found in other products and operations at a facility. Arcadis has identified more than 30 broad industrial and use groups where these individually listed PFAS are or have been reported as used.

We have also quantified the number of individual PFAS in each industrial/use group. More than one group can apply to a facility or operation; therefore, we recommend considering how PFAS in several use groups could inform TRI thresholding efforts. Data on the mass of listed PFAS associated with each use/industrial group are not currently available.

Purchasing information, Safety Data Sheets (SDSs), chemical and air inventories, and existing analytical data are often the primary information sources for facilities performing TRI thresholding. Information on specific products that contain these listed chemicals can be challenging to obtain, but Arcadis engages with clients and their suppliers through non-disclosure agreements to obtain and evaluate more detailed chemical or proprietary information that may be available within the supply chain. Our skilled scientists and engineers work with facility operations to understand how and where PFAS could be emitted and to evaluate PFAS analytical data from facility water and groundwater that could lead to possible PFAS discharges or disposal.

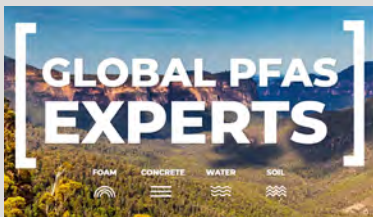


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Our TRI reporting team, in partnership with our expert PFAS experts, assesses the quantities of listed PFAS that must be manufactured, processed or otherwise used to meet the current reporting threshold and de minimis concentrations. Although additional testing beyond best available data sources at a facility is not required by TRI regulations, Arcadis provides documentation strategies to further support clients in completing threshold determinations that are necessary for TRI record-keeping.

Arcadis' research can be helpful to clients who not only seek knowledge of PFAS that may be subject to TRI reporting, but are also looking beyond the TRI to identify potential risks from PFAS use. Using data we've compiled in this area, Arcadis has helped clients develop a proactive approach to addressing potential liabilities from PFAS that could be present in products used or processed in their operations. We also possess the technical bench to support clients in addressing other PFAS-related needs such as effective foam changeout, reducing PFAS impacts to and from wastewater treatment plants, safe disposal of PFAS products, and remediation of PFAS contaminated soils and groundwater.

Proceeding with Confidence

Our goal is to advance our clients' understanding of PFAS and support them in complying with current and evolving regulations. Our clients can be assured of Arcadis' informed strategy, complemented by complete data integrity when evaluating PFAS for TRI reporting.

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