Metadata for Data Sources within PFAS Analytic Tools

12/2023

General Disclaimer:

It is important to note that much of the data included are not required to be reported nationally, and users should not make conclusions regarding the relative level of PFAS occurrence between different cities, counties, states, territories, Tribal lands, or other jurisdictions. Areas that are more widely testing and reporting occurrences of PFAS will generally have more data than areas collecting or reporting to a lesser extent (or in some cases, not at all). Users should also be aware that many datasets include entries where sampling has occurred, yet no PFAS have been found – which allows for a better understanding of where sampling has taken place.

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Currency of Data Presented in PFAS Analytic Tools

Each dataset included in PFAS Analytic Tools is refreshed on different cycles and includes records from various years, as described in this document below. To view the date range of data records in PFAS Analytic Tools, the date data were extracted, and the next anticipated extract date for each dataset component in PFAS Analytic Tools, users can visit the datasets metadata table webpage:

https://awsedap.epa.gov/public/extensions/PFAS_Metadata/PFAS_Metadata.html

The metadata table is refreshed weekly and provides a link to download the dataset for each tab in PFAS Analytic Tools in addition to the information above.

Drinking Water Testing (Unregulated Contaminant Monitoring Rule Data)

As part of its responsibilities under the Safe Drinking Water Act (SDWA), EPA implements Section 1445(a)(2), Monitoring Program for Unregulated Contaminants. SDWA requires that once every five years, EPA issue a list of no more than 30 unregulated contaminants to be monitored by certain public water systems (PWSs). EPA uses the Unregulated Contaminant Monitoring Rule (UCMR) to gather information on contaminants that are suspected to be present in drinking water and do not have health-based regulatory standards under SDWA. The monitoring provides EPA and other interested parties with nationally representative data on the occurrence of contaminants in public drinking water, the number of people potentially being exposed, and an estimate of the levels of that exposure. UCMR 3, published in 2012, sampled for six PFAS between 2013 and 2015. UCMR 3 required monitoring for all Community Water Systems (CWSs) and Non-Transient Non-Community Water Systems (NTNCWSs) serving more than 10,000 people and a nationally representative sample of CWSs and NTNCWSs serving 10,000 or fewer people. UCMR 5, published in 2021, includes sampling for 29 PFAS (including the six PFAS required in UCMR 3 and 23 additional PFAS) between January 2023 and December 2025. UCMR 5 requires monitoring for all CWSs and NTNCWSs serving more than 10,000 people, as well as all CWSs and NTNCWSs serving 3,300 or more people (subject to the availability or appropriations and sufficient laboratory capacity). Additionally, a nationally representative sample of CWSs and NTNCWSs serving fewer than 3,300 people are required to monitor. Occurrence data for UCMR 5 will be updated quarterly in the National Contaminant Occurrence Database (NCOD) until completion of data reporting in 2026. A UCMR 5 Data Summary with results to date and available health effects information for contaminants is available on the UCMR Occurrence Data webpage. PFAS Analytic Tools include the UCMR 3 occurrence data for six PFAS and the UCMR 5 occurrence data to date for 29 PFAS:

Occurrence data from UCMR 3 and UCMR 5	**Occurrence data from UCMR 5**			
• PFBS	• 11Cl-PF3OUdS	• HFPO-DA	• PFDoA	• PFPeA
• PFNA	• 4:2 FTS	• NEtFOSAA	• PFEESA	• PFPeS
• PFOA	• 6:2 FTS	• NFDHA	• PFHpS	• PFTA
• PFOS	• 8:2 FTS	• NMeFOSAA	• PFHxA	• PFTrDA
• PFHpA	• 9Cl-PF3ONS	• PFBA	• PFMBA	• PFUnA
• PFHxS	• ADONA	• PFDA	• PFMPA	

For the *Drinking Water (UCMR)* tab in PFAS Analytic Tools, UCMR 3 and UCMR 5 data are read into Qlik data visualization software, creating a QlikView datafile (QVD), which is used by PFAS Analytic Tools and other EPA Qlik data visualization products. The data can also be downloaded as text files from the UCMR occurrence data website:

- UCMR 3 occurrence data: "UCMR3_537.txt" within the ZIP folder "ucmr-3-occurrence-data.zip" (available at: https://www.epa.gov/dwucmr/occurrence-data-unregulated-contaminant-monitoring-rule#3).

- UCMR 5 occurrence data: "UCMR5_All.txt" within the ZIP folder "ucmr5-occurrence-data.zip" (available at: https://www.epa.gov/dwucmr/occurrence-data-unregulated-contaminant-monitoring-rule#5).

- UCMR 5 data on PFAS treatment and potential PFAS sources: "UCMR5_AddtlDataElem.txt" (available within the UCMR 5 ZIP folder above).

Data are restricted to those monitoring records related to PFAS (the six PFAS included in UCMR 3 and the 29 PFAS included in UCMR 5, respectively).

For PWSs that have reported under UCMR 5, ZIP Codes served were extracted from "UCMR5_ZipCodes.txt" (available from the UCMR 5 ZIP folder). For PWSs that reported only under UCMR 3 (and not under UCMR 5), ZIP Codes served were extracted from the "UCMR3_ZipCodes.txt" file (available from the UCMR 3 ZIP folder).

PWS population served data were also linked from the Safe Drinking Water Information System (by PWS ID) to the UCMR monitoring data. Population served data were downloaded from the SDWA data files in ECHO (specifically, "*SDWA_PUB_WATER_SYSTEMS.csv"* found at https://echo.epa.gov/tools/data-downloads#dwdownloads). The most recent population served value for each PWS (and the year that was selected) were retained.

Disclaimers:

Data in the PFAS Analytic Tools are not real-time. After reporting, many water providers take action to reduce PFAS presence in finished drinking water. The data therefore do not show current drinking water exposures, but rather highlight areas where people might want to look further for the latest information, starting with their local drinking water provider. Additionally, ZIP Codes Served information in this file does not necessarily correlate to exposure to PFAS, as these ZIP Codes are not the definitive service areas (i.e., a public water system [PWS] may only serve a small portion of a ZIP Code it has listed as serving). Data may be added, removed, or updated over the course of the reporting cycle following further review by analytical laboratories, PWSs, states, and EPA. For answers to common questions regarding accessing and understanding the UCMR 5 data, as well as information on PFAS and lithium in drinking water, please review the UCMR 5 website.

Data Dictionary for Drinking Water Testing (UCMR)

PFAS Analytic Tools Field Name	UCMR Field Name	Definition
PWS ID	PWSID	Public Water System Identification Code. The code used to identify each PWS. The code begins with the standard 2-character postal state abbreviation or Region code; the remaining seven numbers are unique to each PWS in the state.
PWS Name	PWSName	Name of the PWS.

PFAS Analytic Tools Field Name	UCMR Field Name	Definition
Size	Size	Size category of the PWS for UCMR, based on retail population as indicated by the Safe Drinking Water Information System (Federal) (SDWIS/FED) as February 1, 2021 if the PWS has reported under UCMR 5, or as of December 31, 2010 for UCMR 3: S (≤ 10,000), L (> 10,000).
Facility ID	FacilityID	Identification code for each applicable facility associated with water treatment or delivery at the PWS.
Facility Name	FacilityName	Name of the facility at the PWS.
Facility Water Type	FacilityWaterType	Source of water at the facility: SW (surface water), GW (ground water), GU (ground water under the direct influence of surface water), MX (any combination of SW, GW, and GU).
Sample Point ID	SamplePointID	Identification code for each sample point location at the PWS.
Sample Point Name	SamplePointName	Name of the sample point at the PWS.
Sample Point Type	SamplePointType	Sampling point type code: EP (entry point to the distribution system).
Collection Date	CollectionDate	Date of sample collection (month, day, year).
Sample ID	SampleID	Identification code for each sample.
Contaminant	Contaminant	The contaminant being analyzed.
Minimum Reporting Level (ng/l)	MRL	Minimum reporting level defined by UCMR 3 or UCMR 5 in ng/L for the contaminant. Data from UCMR are in µg/L and are converted to ng/L by multiplying by 1,000 for presentation in PFAS Analytic Tools.
Result At or Above UCMR MRL	Derived from MRL and AnalyticalResultValue	Analytical result is at or above the UCMR minimum reporting level for the specified contaminant for UCMR 3 or UCMR 5.
Result Above HA	Derived from applicable HAL and AnalyticalResultValue	For contaminants with an EPA Health Advisory (HA) as of December 2022, a flag if the analytical result is above the HA.
Method ID	MethodID	Identification code of the analytical method.
Analytical Result Value (ng/l)	AnalyticalResultValue	Numeric value of the analytical result in ng/L for the contaminants, null values represent less than MRL. Data from UCMR are in µg/L and are converted to ng/L by multiplying by 1,000 for presentation in PFAS Analytic Tools.
Sample Event Code	SampleEventCode	Identification code for each sample event. Includes sample event one (SE1), sample event two (SE2), sample event three (SE3), and sample event four (SE4).

PFAS Analytic Tools Field Name	UCMR Field Name	Definition
Monitoring Requirement	MonitoringRequirement	AM (assessment monitoring, list 1).
EPA Region	Region	EPA Region.
State Territory or Tribe	State	State abbreviation. Fifty state abbreviations plus 11 territories are listed along with an "Other" category for any locations not among those listed.
ZIP Codes Served	Derived from ZIPCode	Most recent list of all U.S. Postal Service ZIP Codes for all areas served by a PWS (reported by the PWS). If the PWS has reported under UCMR 5, the ZIP Codes are those reported for UCMR 5; otherwise, the list will contain the ZIP Codes reported under UCMR 3 for the PWS.
Population Served	N/A	Population served by the PWS, from SDWIS.
Population Served Year	N/A	Year associated with population served value. If the PWS has reported for UCMR 5, the population served data were accessed in SDWIS in Q2 of 2023; otherwise the population served data are from a prior year.
Most Recent Sample	N/A	Y/N if this is the most recent sample.
Potential PFAS Sources	Derived from PotentialPFASSourcesDetail	List of potential current and/or historical sources of PFAS that may have impacted the drinking water sources at the water system (reported by the PWS). This field was added for UCMR 5 and is only available for PWSs that have reported for UCMR 5 and answered this question.
PFAS Treatment	Derived from PFASTreatment	List of types of PFAS treatment implemented if the PWS modified treatment at the entry point (reported by the PWS). This field was added for UCMR 5 and is only available for PWSs that have reported for UCMR 5 and answered this question. **PAC** = Application of powder activated carbon, **GAC** = Granular activated carbon adsorption (not part of filters in CON, SFN, INF, DFL, or SSF), **IEX** = Ionic exchange, **NRO** = Nanofiltration and reverse osmosis, **OZN** = Ozone, **BAC** = Biologically active carbon, **MFL** = Membrane filtration, **UVL** = Ultraviolet light, **OTH** = Other, **NMT** = Not modified after testing
UCMR Cycle	N/A	The UCMR cycle (UCMR 3 or UCMR 5) for which the sample was collected.

Selected States' Drinking Water Sampling

EPA mandates monitoring and reporting of raw and finished drinking water for contaminants that have published maximum contaminant levels (MCLs). MCLs have not been promulgated for any PFAS. A number of states and individual public water systems have been testing source water and finished water for different sets of PFAS, but these records are not submitted to EPA. While the information is not submitted to EPA, SDWIS State was modified to allow states to store PFAS monitoring results in the states' instances of SDWIS State.

For a select number of states, the information is retrieved via automated web services on a semi-annual basis. For another set of states, PFAS testing information was retrieved from static files published by individual states (retrieved August 19, 2022). This initial effort was restricted to states reporting similar occurrence information. For inclusion in PFAS Analytic Tools, EPA standardized data field names from each state file to create a single dataset. It is important to note that some states have more data fields populated than others in their PFAS monitoring data (e.g., Sample Location ID). Depending on the state, sampling results may be reported above a method detection limit but below a method reporting limit while others may only be reporting above a method reporting limit. In some cases, this is indicated in the Comments field. MRLs and MDLs may be different among states or even within state sampling initiatives and can be influenced by multiple factors.

States publishing PFAS occurrence data via Drinking Water Watch include:

- Alaska
- California
- Idaho
- Illinois
- Louisiana
- Massachusetts
- New Jersey
- Ohio
- Rhode Island
- Vermont
- Virginia
- West Virginia

States publishing PFAS occurrence data via static files include:

- Alabama
- Arizona
- Colorado
- Indiana
- Iowa
- Kentucky
- Maine
- Maryland
- Michigan
- New Hampshire
- North Carolina
- Oregon
- Pennsylvania
- South Carolina
- Utah
- Wisconsin

Additionally, outside of UCMR testing, EPA is conducting a limited, voluntary program to better understand PFAS in tribal public drinking water systems. That data, available from EPA's Tribal PFAS Monitoring Results, is also retrieved via automated web scraping on a semi-annual basis and included in the dataset for PFAS Analytic Tools.

Sampling results from the following PFAS analytes are currently available:

- PERFLUOROBUTANESULFONIC ACID (PFBS)
- PERFLUOROHEPTANOIC ACID (PFHPA)
- PERFLUOROHEXANE SULFONIC ACID (PFHXS)
- PERFLUORONONANOIC ACID (PFNA)
- PERFLUOROCTANE SULFONIC ACID (PFOS)
- PERFLUOROCTANOIC ACID (PFOA)
- PERFLUORODECANOIC ACID (PFDA)
- PERFLUORODODECANOIC ACID (PFDOA)
- PERFLUOROHEXANOIC ACID (PFHXA)
- PERFLUOROTETRADECANOIC ACID (PFTA)
- PERFLUOROTRIDECANOIC ACID (PFTRDA)
- PERFLUOROUNDECANOIC ACID (PFUNA)
- 11CL-PF3OUDS
- 9CL-PF3ONS
- ADONA
- HFPO-DA
- NETFOSAA
- NMEFOSAA
- PERFLUOROBUTANOIC ACID (PFBA)
- PERFLUOROOCTANE SULFONIC ACID 6:2 FTS
- PERFLUOROHEXANE SULFONIC ACID 4:2 FTS
- PERFLUORODECANE SULFONIC ACID 8:2 FTS
- PERFLUORO PFMPA
- PERFLUOROPENTANOIC ACID (PFPEA)
- PERFLUORO PFMBA
- PERFLUORO PFEESA
- NONAFLUORO NFDHA
- PERFLUOROPENTANESULFONIC ACID (PFPES)
- PERFLUOROHEPTANESULFONIC ACID (PFHPS)
- TOTAL PFOA AND PFOS

Disclaimers:

This data file includes aggregations from multiple state sampling initiatives. These initiatives vary in sampling/targeting methods (e.g., non-targeted analysis vs. targeted analysis), scope (e.g., percentage and type of public water system), detection limits, sample location, reporting limits, quantification methods, what data elements are reported, and even what data are reported (e.g., some states choosing only to report detections while other states report all test results). Because of these significant differences in how states and Tribes are collecting data, the information in this file should not be compared across state boundaries. EPA intends to continue adding data from more states that make it available (you may notify EPA at PFASData@epa.gov if you are aware of published state data that could be included in future versions).

Data Dictionary for State Drinking Water Sampling

PFAS Analytic Tools Field Name (Standardized Name from State DW Sources)	Definition
PWSID	Public Water System Identification Code, 9-character identification code (Begins with the standard 2-character postal State abbreviation or Region code, and the remaining seven numbers are unique to each PWS in the state).
PWS Name	Name of the PWS.
State	State abbreviation. Fifty state abbreviations plus 11 territories are listed along with an "Other" category for any locations not among those listed.
Region	EPA Region.
County	The principal county served by the PWS.
Tribal Name	For records from EPA's Tribal PFAS Monitoring Result, the name of the Indian Tribe, reservation, or Alaska Remote Village being served by the PWS.
Population Served	Population (count) served by the PWS.
Size	Size category of the PWS based on reported population served: Very Small = 0 to 500 Small = 501 to 3,300 Medium = 3,301 to 10,000 Large = 10,001 to 100,000 Very large = 100,001+
Cities Served	Cities served by the PWS.
ZIP Codes Served	ZIP Codes served by the PWS.
Sample ID	Identification code for each sample, as defined by the submitting organization.
Sample Point ID	Identification code for each sample point location in the PWS.
Code	The contaminant code from SDWIS.
Contaminant	The contaminant for the sample.
Method ID	Method ID/identification code of the analytical method.
Detected	Indicator if the concentration is at or above the detection limit.
Concentration	Concentration value for the contaminant.
Units	Concentration units of measure.
Concentration (ng/L)	Concentration value converted to ng/L depending on the unit of measure.
Reporting Level	Detection/reporting level for the specified contaminant.
Health Advisory Level (ng/L)	The EPA Health Advisory Level (HAL) as of December 2022 for the contaminant.
Sample Date	Date of sample collection.
Compliance Period Begin Date	If applicable, the begin date when a PWS was in violation of a primary drinking water regulation.
Compliance Period End Date	If applicable, the end date of a monitoring period in which a PWS was in violation of a primary drinking water regulation.
Sample Type	Type of water sampled (finished water, purchased water, treated, untreated).
MRL/MDL	Indicates that the concentration result was below the Regulatory Minimum Reporting Level (MRL) or below the Laboratory Reporting Level (MDL).
Reporting	Whether the data retrievals for PFAS Analytic Tools are automated or manual.
Comment	Additional comments.
Most Recent Sample	Y/N if this is the most recent sample.

PFAS Production Data

Under the Toxic Substances Control Act (TSCA), the Chemical Data Reporting (CDR), previously the Inventory Update Rule (IUR), requires manufacturers and importers to give EPA information every four years on the chemicals they produce domestically or import into the United States. Reporting is required if certain production thresholds are met: 25,000 pounds in the specified year(s) for most chemicals, 2,500 pounds for some chemicals. Companies report data to EPA electronically using e-CDR web (a web-based reporting tool).

To prepare the records in the *Production* tab of PFAS Analytic Tools, EPA compiled non-confidential business information (CBI) CDR records for the past six reporting cycles (1998–2020), restricted to PFAS chemicals only. For purposes of PFAS Analytic Tools, PFAS are defined as those on EPA's Center for Computational Toxicology and Exposures (CCTE) defined structure PFAS chemicals list, the undefined structure PFAS chemicals list, or on a list of PFAS whose name is shielded as CBI, but the accession numbers and shielded names were published by EPA in response to a FOIA request. These CDR data include other manufacturing information at the site and facility identification information. Note that specific offices within EPA, such as EPA's Office of Pollution Prevention and Toxics (OPPT), define PFAS differently. As such, a chemical identified as a PFAS by EPA's OECA for PFAS Analytic Tools may not necessarily be considered to be a PFAS by another EPA office or program.

The sources for published CDR data are:

- The 2020 CDR (https://www.epa.gov/chemical-data-reporting/access-cdr-data#2020).
- The 2016 CDR (https://www.epa.gov/chemical-data-reporting/2016-chemical-data-reporting-results).
- The 2012 CDR (https://www.epa.gov/chemical-data-reporting/chemical-data-reporting-previously-collected-data).
- The 2006 IUR (https://www.epa.gov/chemical-data-reporting/chemical-data-reporting-previously-collected-data).
- The 2002 IUR[1] (https://www.epa.gov/chemical-data-reporting/non-confidential-2002-iur-companychemical-records).
- The 1998 IUR (https://www.epa.gov/chemical-data-reporting/1998-non-confidential-iur-companychemical-records).
- Lists of defined structure PFAS chemicals and undefined structure PFAS chemicals established by CCTE (https://comptox.epa.gov/dashboard/chemical_lists/PFASSTRUCT and https://comptox.epa.gov/dashboard/chemical_lists/PFASDEV1), January 31, 2023.

[1] Public access to 1998 and 2002 IUR data was not functioning as of February 3, 2020. Files are available from EPA upon request.

- List of PFAS chemicals and substances whose names are withheld as CBI that were released as part of a FOIA (https://foiaonline.gov/foiaonline/action/public/submissionDetails?trackingNumber=EPA-HQ-2020-003347&type=request).
- From the Facility Registry Service (FRS), identifiers for CDR reporting sites and locational information for each site (https://www.epa.gov/frs).
- From ECHO, a link summarizing each site's enforcement and compliance history (https://echo.epa.gov/).

CDR records from the 1998, 2002, 2006, 2012, 2016, and 2020 reporting cycles were linked to their Facility Registry Services (FRS) identifier. This was done to ensure that manufacturing or importing sites described differently in CDR records from different reporting years were linked to avoid double counting of facilities and corporate parents. FRS also provides latitude and longitude information from EPA's Locational Reference Table. EPA used FRS identifiers to generate a customized URL that directed users to each site's environmental compliance history via EPA's ECHO tool (https://echo.epa.gov).

This non-CBI CDR data set was restricted to records with Chemical Abstracts Service (CAS) numbers or Accession numbers that could be matched to an authoritative list of PFAS chemicals, defined by CCTE and a FOIA request (see above).

Disclaimers:

This data includes production and importation data for chemicals identified in EPA's CompTox Chemicals Dashboard list of PFAS without explicit structures and list of PFAS structures in DSSTox. Note that some regulations have specific chemical structure requirements that define PFAS differently than the lists in EPA's CompTox Chemicals Dashboard. Reporting information on manufactured or imported chemical substance amounts should not be compared between facilities, as some companies claim Chemical Data Reporting Rule data fields for PFAS information as Confidential Business Information.

EPA has published certain aggregate PFAS trend data in the CDR National Review. Note that the timeframe, chemicals evaluated, and data inclusion rules are not the same as used in the PFAS Analytic Tools.

Data Dictionary for PFAS Production

PFAS Analytic Tools Field Name	Source Data Field Name						Definition
	1998 IUR	2002 IUR	2006 IUR	2012 CDR	2016 CDR	2020 CDR	
Facility Name	SITENAME	SITENAME	SITE__NAME	SITE_NAME	SITE_NAME	SITE NAME	Site name.
Reporting Year	1998	2002	2006	2012	2016	2020	Referenced year of CDR/IUR reporting.
Identifier	Derived from site location	Derived from site location	Derived from site location	Derived from site location	Derived from site location	Derived from site location	A 12-character code used to uniquely identify a facility site within EPA's Facility Registry Service.
ECHO Facility Report	N/A (from FRS)	N/A (from FRS)	N/A (from FRS)	N/A (from FRS)	N/A (from FRS)	N/A (from FRS)	Hyperlink to the ECHO detailed facility report.
Chemical ID Number			CAS	CHEMICAL_ID_ NUMBER	CHEMICAL_ID_ NUMBER	CHEMICAL ID	CAS number or Accession number.
Chemical Name	CHEMNAME	CHEMNAME	CHEM_NAME1	CHEMICAL_NA ME	CHEMICAL_NA ME	CHEMICAL NAME	Chemical name.
Physical Forms			CHEM_PHYSI	PHYSICAL_FOR MS	PHYSICAL_FOR MS	PHYSICAL FORMS(S)	Indicator: physical form(s) of chemical (not known or reasonably ascertainable; dry powder; pellets or large crystals; water- or solvent-wet solid; other solid; gas or vapor; liquid).
Activity	MFGIMP	MFGIMP	Derived from MFR_DATA and IMPRT_DATA	ACTIVITY	ACTIVITY	ACTIVITY	Indicates whether the chemical was domestically manufactured and/or imported.
Chemical Recycled				CHEMICAL_REC YCLED	CHEMICAL_REC YCLED	RECYCLED	Identifier: is chemical being recycled, remanufactured, reprocessed, or reused?
Domestic Manufacture Amount (lb)				DOM_MFG_LB	DOM_MFG_LB	2019 DOMESTIC PV	Domestically manufactured volumes for principal reporting year.
Imported Amount (lb)				IMPORTED_LB	IMPORTED_LB	2019 IMPORT PV	Imported volumes for principal reporting year.

PFAS Analytic Tools Field Name	Source Data Field Name						Definition
	1998 IUR	2002 IUR	2006 IUR	2012 CDR	2016 CDR	2020 CDR	
Imported Never at Site				IMPORTED_NEVER_AT_SITE	IMPORTED_NEVER_AT_SITE	IMPORTED CHEM NEVER AT SITE	Identifier: is the imported chemical never physically at the site?
Maximum Concentration			MAX_CONC	MAX_CONCENTRATION	MAX_CONCENTRATION	MAXIMUM CONCENTRATION	Range: maximum concentration by weight (not known or reasonably ascertainable; less than 1% by weight; at least 1% but less than 30% by weight; at least 30% but less than 60% by weight; at least 60% but less than 90% by weight; at least 90% by weight).
CDR Parent Company	COMPNAME	COMPNAME	COMPANY	PARENT_COMPANY_NAME	PARENT_COMPANY_NAME	DOMESTIC PARENT COMPANY NAME	Standardized domestic parent company name. Based on the submitted domestic parent company name, a single parent company name was selected to facilitate retrieval of records given variations in spelling and punctuation.
Past Production Volume 2010 (lb)				PAST_PROD_VOLUME			Past production volume, 2010 (lb.).
Past Production Volume 2012 (lb)					PPV_2012		Past production volume, 2012 (lb.).
Past Production Volume 2013 (lb)					PPV_2013		Past production volume, 2013 (lb.).
Past Production Volume 2014 (lb)					PPV_2014		Past production volume, 2014 (lb.).
Past Production Volume 2016 (lb)						2016 PV	Past production volume, 2016 (lb.).
Past Production Volume 2017 (lb)						2017 PV	Past production volume, 2017 (lb.).

PFAS Analytic Tools Field Name	Source Data Field Name						Definition
	1998 IUR	2002 IUR	2006 IUR	2012 CDR	2016 CDR	2020 CDR	
Past Production Volume 2018 (lb)						2018 PV	Past production volume, 2018 (lb.).
Amount Exported (lb)				VOLUME_EXPORTED	VOLUME_EXPORTED	2019 V EXPORTED	Total production volume (domestically manufactured + imported) exported offsite.
Amount Used on Site (lb)				VOLUME_USED	VOLUME_USED	2019 V USED ON-SITE	Total production volume (domestically manufactured + imported) used onsite.
Number of Workers Potentially Exposed				NUM_WORKERS	NUM_WORKERS	WORKERS	Range: number of workers reasonably likely to be exposed (nine options available).
State Territory or Tribe	STATE	STATE	SITE_STATE	SITE_STATE	SITE_STATE	SITE STATE	State where the site is located. Fifty state abbreviations plus 11 territories are listed along with an "Other" category for any locations not among those listed.
EPA Region	N/A	N/A	N/A	N/A	N/A	N/A	EPA Region where the site is located; derived from site state.
Address	ADDR1	ADDR1		SITE_ADDRESS	SITE_ADDRESS	SITE ADDRESS LINE1	Address where the site is located.
City	CITY	CITY	SITE_CITY	SITE_CITY	SITE_CITY	SITE CITY	City where the site is located.
ZIP Code	ZIP1	ZIP1	SITE_ZIP	SITE_ZIP	SITE_ZIP	SITE POSTAL CODE	ZIP Code where the site is located.
Latitude	N/A (from FRS)	N/A (from FRS)	N/A (from FRS)	N/A (from FRS)	N/A (from FRS)	N/A (from FRS)	Latitude of site from EPA's Locational Reference Table.
Longitude	N/A (from FRS)	N/A (from FRS)	N/A (from FRS)	N/A (from FRS)	N/A (from FRS)	N/A (from FRS)	Longitude of site from EPA's Locational Reference Table.
EJSCREEN Report	N/A	N/A	N/A	N/A	N/A	N/A	Hyperlink to the EJSCREEN report for the location (based on latitude/longitude).

Environmental Media Sampling Data

The Water Quality Portal (WQP) is a data portal developed by and managed by EPA, the U.S. Geological Survey (USGS), and the National Water Quality Monitoring Council for accessing sampling information on characteristics of water quality (including concentration of pollutants, such as PFAS chemicals) from various sources. Sample, site, and project information are submitted to and aggregated in the WQP for several media and various chemicals. The data in the WQP include information contributed voluntarily by a wide range of academic and government programs, organizations, and individuals. Consequently, the WQP is expected to include biases related to geographies, time periods, chemicals, and media. WQP data and documentation can be found at https://www.waterqualitydata.us/.

The data accessible through the WQP are generated by more than 400 federal, state, tribal, and other partners and organizations that submitted sampling and project information to EPA's STOrage and RETrieval (STORET) Data Warehouse, the USGS National Water Information System (NWIS) Database (https://waterdata.usgs.gov/nwis), the USGS BioData Retrieval system (https://apps.usgs.gov/biodata/), and the USDA Agricultural Research Service's Sustaining The Earth's Watersheds—Agricultural Research Database System (STEWARDS) (https://data.nal.usda.gov/dataset/stewards-data-delivery-application-usdaars-conservation-effects-assessment-project).

WQP data are retrieved using web services for the *Environmental Media* tab of PFAS Analytic Tools. The retrieval is limited to sampling records in the U.S. that the WQP has categorized into the PFAS "Characteristic Group." The downloadable table includes the reportable measure result value (ResultMeasureValue) converted to common units (nanograms per liter) for any value in concentration format as follows.

Reported Units	Multiply by	Stored Units
µg/L	1,000	ng/L
ng/g	1,000	ng/kg
µg/kg	1,000	ng/kg
mg/l	1,000,000	ng/L

Disclaimers:

EPA did not carry out the sampling or testing of a majority of the data in the Water Quality Portal PFAS dataset. EPA can only speak to the accuracy and completeness of the data from projects like the National Aquatic Resource Surveys for which EPA is the data owner/organization. Data may exist within the file on Quality Assurance Project Plans (QAPPs) and the approving agency of the QAPP, if a QAPP is entered.

Data Dictionary for Environmental Media Sampling Data

PFAS Analytic Tools Field Name	WQP Field Name	Definition
Organization	OrganizationFormalName	The legal designator (i.e. formal name) of the organization submitting the sample.
State Territory or Tribe	Derived from StateCode	StateCode is a code designator used to identify a principal administrative subdivision of the United States, Canada, or Mexico. In PFAS Analytic Tools, fifty state abbreviations plus 11 territories are listed along with an "Other" category for any locations not among those listed.
Environmental Media Name	ActivityMediaName	Name or code indicating the environmental medium where the sample was taken.
Activity Identifier	ActivityIdentifier	A designator that uniquely identifies an activity within an organization.
Activity Type Code	ActivityTypeCode	The text describing the type of activity.
Year	Derived from ActivityStartDate	The year derived from ActivityStartDate, the calendar date on which the field activity is started.
AnalysisStartDate	AnalysisStartDate	The calendar date on which the analysis began.
Project Identifier	ProjectIdentifier	A designator used to uniquely identify a data collection project within a context of an organization.
Project Name	ProjectName	The name assigned by the Organization (project leader or principal investigator) to the project.
Monitoring Location Identifier	MonitoringLocation Identifier	A designator used to describe the unique name, number, or code assigned to identify the monitoring location.
Location Name	MonitoringLocationName	The designator specified by the sampling organization for the site at which sampling or other activities are conducted.
Result Detection	ResultDetectionCondition Text	The textual descriptor of a result.
PFAS Chemical Name	CharacteristicName	The object, property, or substance which is evaluated or enumerated by either a direct field measurement, a direct field observation, or by laboratory analysis of material collected in the field.
Result Measure Value (ppt)	Derived from ResultMeasureValue	The value reported in ResultMeasureValue converted into the concentration of chemical in substrate (parts per trillion).
Result Measure Value	ResultMeasureValue	The reportable measure of the result for the chemical, microbiological or other characteristic being analyzed. Measure value is given in the units stored in ResultMeasure/MeasureUnitCode.
Result Unit of Measure	ResultMeasure/ MeasureUnitCode	The code that represents the unit for measuring the item.
Detection/Quantitation Limit Type	DetectionQuantitationLi mitTypeName	Text describing the type of detection or quantitation level used in the analysis of a characteristic.

PFAS Analytic Tools Field Name	WQP Field Name	Definition
Detection/Quantitation Measure Value	DetectionQuantitation LimitMeasure/Measure Value	Constituent concentration that, when processed through the complete method, produces a signal that is statistically different from a blank. Measure value is given in the units stored in DetectionQuantitationLimitMeasure/MeasureUnitCode .
Detection/Quantitation Unit of Measure	DetectionQuantitation LimitMeasure/Measure UnitCode	The code that represents the unit for measuring the item.
Laboratory Accreditation Indicator	LaboratoryAccreditation Indicator	Indicates whether the laboratory is accredited.
Fish Species	Derived from ActivityCommentText	General comments concerning the activity, including common name of species associated with sample.
Activity Comment	ActivityCommentText	General comments concerning the activity.
Result Comment	ResultCommentText	Free text with general comments concerning the result.
Provider	ProviderName	The source system that provided data to the Water Quality Portal (NWIS, STORET, STEWARDS, etc).
EPA Region	Derived from StateCode	EPA Region where sampling occurred (derived from state).
Project File URL	ProjectFileUrl	A link to follow to access the files associated with the project
QAPP Approval Agency Name	QAPPApprovalAgencyName	An outside approval authority identifier for the QAPP (e.g. EPA or State Organization).
QAPP Approved	QAPPApprovedIndicator	Indicates whether a Quality Assurance Project Plan (QAPP) has been approved for the submitted project.
Analytical Method	ResultAnalyticalMethod	The title that appears on the method from the method publisher.
HUC	HUCEightDigitCode	The 8 digit federal code used to identify the hydrologic unit of the monitoring location to the cataloging unit level of precision.
Latitude	ActivityLocation/ LatitudeMeasure	The measure of the angular distance on a meridian north or south of the equator of the actual monitoring site, if it is different from that described in the formal station description.
Longitude	ActivityLocation/ LongitudeMeasure	The measure of the angular distance on a meridian east or west of the prime meridian of the actual monitoring site, if it is different from that described for in the formal station description.
EJSCREEN Report	N/A	Hyperlink to the EJSCREEN report for the location (based on latitude/longitude).
Count	N/A	Flag indicating the number of matching records.

NPDES Discharge Monitoring Report Data

Any point-source wastewater discharger to waters of the United States must have a NPDES permit. Each permit defines a set of parameters for which monitoring is required, the frequency of monitoring, limits on the amount or concentration of pollutants that may be discharged, and other provisions to ensure that the discharge does not degrade water quality or impair human health. Permit holders submit DMRs containing information on wastewater flow and concentrations of pollutants specified in their permit, typically on a monthly basis. DMR data are stored in EPA's Integrated Compliance Information System for the National Pollutant Discharge Elimination System (ICIS-NPDES). For individual NPDES permits with monitoring requirements or limits, EPA's Water Pollutant Loading Tool (https://echo.epa.gov/trends/loading-tool/water-pollution-search/) derives annual pollutant loadings from permit and DMR data in ICIS-NPDES.

Annual pollutant loadings and other information associated with permits that are monitoring for "Per- and Polyfluoroalkyl Substances (PFAS)" pollutant group for the years 2007 and forward are retrieved weekly using the web services supported by the DMR Loading Tool (specifically, the Discharge Monitoring Report Custom Search Annual Loadings Service, https://echo.epa.gov/tools/web-services/loading-tool#/Custom%20Search/get_dmr_rest_services_get_custom_data_annual). The DMR Loading Tool lists the substances included in the PFAS pollutant group in the Addendum to the Technical Users Background Document (https://echo.epa.gov/trends/loading-tool/resources/technical-support-document#pfas).

Disclaimers:

Less than half of states have required PFAS monitoring for at least one of their permittees and fewer states have established PFAS effluent limits for permittees. In April 2022, EPA issued a memo recommending more comprehensive monitoring information on potential sources of PFAS in Clean Water Act programs EPA oversees; EPA plans to issue a subsequent memo that provides guidance to state permitting authorities. New rulemakings have been initiated that may increase the number of facilities monitoring for PFAS in the future (Read More: Preliminary Effluent Guidelines Program Plan). For states that may have required monitoring, there may exist some reporting and data transfer issues on a state-by-state basis. More details on those issues and additional caveat information can be found in ECHO's Known Data Problems and the Loading Tool Documentation.

Data Dictionary for DMR Loadings Tool

PFAS Analytic Tools Field Name	DMR Loadings Tool Field Name	Definition
Facility	Facility Name	The primary name used to identify a facility in ICIS-NPDES.
Year	Year	The calendar year for the annual pollutant loadings. Search considerations: The Loading Tool extracts year from the monitoring period dates associated with DMR measurements in ICIS-NPDES. Dates are included for all DMR measurements

PFAS Analytic Tools Field Name	DMR Loadings Tool Field Name	Definition
NPDES Permit Number	NPDES Permit Number	A nine-character code used to uniquely identify a permitted NPDES facility. The NPDES permit program regulates the direct discharge of pollutants into U.S. waters.
ECHO Facility Report	Derived from FRS ID	Hyperlink to the ECHO Detailed Facility Report.
FRS ID	FRS ID	A 12-character code used to uniquely identify a facility site within EPA's Facility Registry Service.
Outfall Number	Outfall Number	The 3-digit code representing the permitted outfall or pipe of interest in ICIS-NPDES.
Parameter Description	Parameter Description	The description of the parameter code.
Parameter Code	Parameter Code	The unique code identifying the parameter being limited and/or monitored.
CAS Number	CAS Number	A number assigned by the American Chemical Society that uniquely identifies a chemical. Search considerations: CAS numbers are not available for bulk parameters (e.g., biochemical oxygen demand). Therefore, this search field cannot be used to find loadings for bulk parameters. These data are from ICIS-NPDES.
Pollutant Load (kg/yr)	Pollutant Load (kg/yr)	Annual amount of pollutant discharged.
Load Over Limit (Option 1) (kg/yr)	Load Over Limit (Option 1) (kg/yr)	The load over limit for the monitoring period for each pollutant. Load over limit is calculated for each monitoring period (e.g., month, quarter). The difference between the average load and permitted load for each monitoring period are then summed to generate an annual load over limit (kg/year).
Has Effluent Limit	has_effluent_limit	Flag identifying that the NPDES the permitted feature had a permit limit for the listed parameter within the given year (for part of or the whole year).
Wastewater Flow (MGal/yr)	Wastewater Flow (MGal/yr)	The total wastewater volume discharged per monitoring period.
Average Daily Load (kg/day)	Average Daily Load (kg/day)	The average mass pollutant discharge per day for a monitoring period.

PFAS Analytic Tools Field Name	DMR Loadings Tool Field Name	Definition
Average Concentration (mg/L)	Average Concentration (mg/L)	The average of the average monitoring period concentrations in a reporting year. For example, if a facility reports monthly average discharge concentrations, the annual average facility concentration is the arithmetic average of the reported monthly average concentrations. For each HUC-12 (12-digit Hydrologic Unit Code), this table presents the average of the annual average facility concentrations. Note the Loading Tool does not display this column if you select pathogen indicators, temperature, or wastewater flow for your search. Pollutant measurements can be stored in ICIS-NPDES as mass quantities or concentrations. If the measurement of interest is a mass quantity, then the Loading Tool will back-calculate the average concentration using the mass quantity and wastewater flow. However, if the Loading Tool cannot identify a wastewater flow for this calculation, then it will display zero for the average concentration.
Average Daily Flow (MGD)	Average Daily Flow (MGD)	The average of the average monitoring period flows (in units of millions of gallons per day) for a reporting year. For example, if a facility reports monthly wastewater flows, the facility average flow is the arithmetic average of the reported monthly wastewater flows. This result will be zero if a wastewater flow was not reported by the facility, or if the Loading Tool was unable to match the pollutant loading to a wastewater flow in the Loading Tool database.
Estimation Factor	Estimation Factor	Weighting factor used when the estimation function is applied to account for periods of missing data for a reporting year. This is calculated by dividing 12 by the sum of the number of months with DMR data and the number of months with no discharge.
State Territory or Tribe	State	State associated with data record. Fifty state abbreviations plus 11 territories are listed along with an “Other” category for any locations not among those listed.
EPA Region	N/A	EPA Region where the permit is located. (Derived from State)
Latitude	Facility Latitude	The horizontal position coordinate (latitude) and the vertical position coordinate (longitude) for the facility location in units of decimal degrees. Search considerations: Latitude and longitude coordinates are not required to be entered into FRS or ICIS-NPDES. Searching on coordinates will only return results for facilities that have latitude and longitude data in FRS or ICIS-NPDES.
Longitude	Facility Longitude	The horizontal position coordinate (latitude) and the vertical position coordinate (longitude) for the facility location in units of decimal degrees. Search considerations: Latitude and longitude coordinates are not required to be entered into FRS or ICIS-NPDES. Searching on coordinates will only return results for facilities that have latitude and longitude data in FRS or ICIS-NPDES.
EJSCREEN Report	N/A	Hyperlink to the EJSCREEN report for the location (based on latitude/longitude).

PFAS Analytic Tools Field Name	DMR Loadings Tool Field Name	Definition
CWNS ID(s)	CWNS ID(s)	A unique identifier for a facility. Most facilities identified are publicly owned treatment works. Every four years, EPA and states survey the capital needs for municipal wastewater treatment facilities to meet the goals in the Clean Water Act. Search considerations: The Loading Tool pulls CWNS IDs from the CWNS 28 database. Searching on this field will produce results if 1) the CWNS ID is in the CWNS 28 database and 2) the CWNS 28 database links the CWNS ID to a NPDES ID. These data are from CWNS.
City	City	City where the facility is located.
Permit Type	Permit Type	Type of NPDES permit (e.g., individual, general, stormwater).
Current Permit Status	Permit Status Code	ICIS-NPDES designates a permit as Effective (EFF), Administratively Continued (ADC), Expired (EXP), Not Needed (NON), Pending (PND), Retired (RET), or Terminated (TRM). In PFAS Analytic Tools, the permit status is active if the permit is designated as: Effective (EFF), Administratively Continued (ADC), or Expired (EXP). The permit status is inactive if the permit is: Pending (PND), Retired (RET), Not Needed (NON), or Terminated (TER).
Reach Code	Reach Code	Unique identifier of surface water features (streams, lakes, etc.) from the National Hydrology Database Plus.
SIC	SIC Code	Four-digit code that describes the primary activity of the facility. The first two digits of the code define a major business sector; the third and fourth digits denote a facility's specialty within the major sector. See the U.S. Department of Labor website for more information. SIC codes are not required to be reported in ICIS-NPDES and can be blank for some facilities.
ZIP Code	ZIP Code	ZIP code for location of DMR facility.
HUC12	HUC 12 Code	Hydrologic Unit Code (HUC) code assigned by USGS, used to classify watersheds in the United States and the Caribbean. The Loading Tool obtains this data element using a Watershed Assessment Tracking and Environmental Results (WATERS) web service (OWRAD/PCS_WMERC), which obtains the HUC-12 code from the Natural Resources Conservation Service's Watershed Boundary Dataset. The Watershed Boundary Dataset does not include HUC-12s for all NPDES permits in ICIS-NPDES. As a result, the HUC-12 can be blank for some facilities in the Loading Tool database.

PFAS Analytic Tools Field Name	DMR Loadings Tool Field Name	Definition
Facility Type	Facility Type Indicator	Facility ownership classification derived from codes in ICIS-NPDES. Facilities can be classified as publicly owned treatment works (POTW), non-POTW, federal, or state. Facility Type is a system-generated classification in ICIS-NPDES, based on the NPDES permit component and facility type of ownership: • Facility Type = POTW if the permit has a POTW component and facility type of ownership is county government, city government, GOCO (government-owned/contractor-operated), municipal or water district, mixed ownership (e.g., public/private), school district, state government, or tribal government. • Facility type = federal if the facility type of ownership is a federal facility (U.S. government). • Facility type = non-POTW in all other cases.
Actual Average Facility Flow (MGD)	Actual Average Facility Flow (MGD)	Actual average facility flow (MGD).
Average Wastewater pH	Average Wastewater pH	Average wastewater pH.
Average Wastewater Temp (deg F)	Average Wastewater Temp (deg F)	Average wastewater temperature (in degrees F).
Count	N/A	Flag indicating the number of matching records.

Superfund Sites with PFAS Detections

EPA's Office of Land and Emergency Management and EPA Regional Offices maintain data describing what is known about site investigations, contamination, and remedial actions under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) where PFAS is present in the environment. EPA programs and Regional Offices update the data quarterly.

Disclaimers:

Detections of PFAS at National Priorities List sites do not mean that people are at risk from PFAS, are being exposed to PFAS, or that the release/site is the source of the PFAS.

For Federal Facilities data, the other Federal agencies (OFA) are the lead agency for their data and provided them to EPA.

Data Dictionary for Superfund Sites with PFAS Detections

PFAS Analytic Tools Field Name	Superfund Sites with PFAS Detections Field Name	Definition
Site Name	Site Name	Name used by the submitting organization to identify the site.
Identifier	Data System Record Identifier	Identifier within the data system that is associated with the site.
City	City	City hosting the largest portion of the site.
State Territory or Tribe	State	State where the site is located. Fifty state abbreviations plus 11 territories are listed along with an “Other” category for any locations not among those listed.
EPA Region	EPA Region	EPA Region where the site is located.
Link	Hyperlink	URL leading to a public site-specific page maintained by the organization submitting record.
Latitude	Latitude	Program-defined location point to display the site on a map.
Longitude	Longitude	Program-defined location point to display the site on a map.
EJSCREEN Report	N/A	Hyperlink to the EJSCREEN report for the location (based on latitude/longitude).
Data System	Name of Data System	Identifies the EPA or other data system where records that identify or characterize the site can be found.
Site Type	Federal Facility Flag	Indication of whether the site is a federal facility.
NPL Site	NPL Site	Indication of whether the site is on the NPL.

PFAS Analytic Tools Field Name	Superfund Sites with PFAS Detections Field Name	Definition
NPL Status	NPL Status	For sites on the NPL, indication of status. Values may include: A: Site is part of an NPL Site D: Deleted from the NPL F: Currently on the NPL N: Not on the NPL O: Not valid site or incident P: Proposed for placement on the NPL R: Removed from Proposal to the NPL W: Withdrawn from the NPL
Address	Street Address	Address of the site.
County	County	County where the facility is located.
ZIP Code	ZIP Code	ZIP code for the site.
Superfund Alternative Approach	SAA	Indicates whether the site has a Superfund alternative approach (SAA) agreement in place.

Federal Agency Locations with Known or Suspected PFAS Detections

Information on known and suspected detections of PFAS at locations owned or operated by a federal government agency were compiled from published sources and input from the Department of Defense (DoD) and other federal agencies. This information has been gathered from various sources:

- DoD periodically publishes an inventory of sites where DoD is performing assessments of PFAS use, potential release, and site contamination on the DoD PFAS website. The most recent list published is current as of June 2023. Each site on the list indicates a DoD or National Guard location where PFAS may have been used or released and where further investigations are being conducted or are planned. The public list includes the site name, state where the site is located, DoD component associated with the site (e.g., Army or Navy), property type (e.g., Active or National Guard), progress/cleanup status as of the list date, and the estimated end date of the Preliminary Assessment/Site Investigation and/or the Remedial Investigation, if applicable. DoD further provided location information (latitude and longitude) for each site for inclusion in the Federal Sites dataset.

- In response to Section 335 of the National Defense Authorization Act (NDAA) for FY2021, DoD also publishes an annual report listing notifications to agricultural operations located within one mile of military installations or National Guard facilities where PFAS has been detected in the groundwater from a known or suspected PFAS release at the DoD site. The FY2021, FY2022, and FY2023 reports of agricultural notifications (covering notifications sent March 1, 2021 through March 31, 2023) are included in PFAS Analytic Tools.

- The U.S. Department of Energy (DOE) published an Initial Assessment of PFAS at DOE Sites in October of 2022.

- Several other federal agencies—the National Aeronautics and Space Administration (NASA), the U.S. Department of Transportation (DOT, and U.S. Department of Homeland Security)—are associated with other locations that have known detections or suspected releases of PFOA and/or PFOS and are working with the Agency for Toxic Substances and Disease Registry (ATSDR) and local, state, and federal agencies to investigate and prioritize remedial actions where necessary.

To prepare the records in the *Federal* Sites tab of PFAS Analytic Tools, a single data set was assembled from the public file released by DoD and from the published PFAS-contaminated sites from NASA, DOT, ATSDR, and DOE. The number of agricultural notifications and the PFAS test results from the Section 335 NDAA DoD report were then linked to the DoD sites. For DoD sites that are included in more than one Section 335 NDAA agricultural notifications report, the range and maximum listed for each PFAS in PFAS Analytic Tools is the largest extent of all ranges and maximum for that site in the DoD reports (i.e., the lowest minimum listed to the highest maximum listed among all reports for the site). DoD reviewed the data set for accuracy and provided values for missing data fields where appropriate.

Disclaimers:

The sites on this list do not necessarily reflect the source(s) of PFAS contamination and detections do not indicate level of risk or human exposure at the site. The dataset on agricultural notifications only includes Department of Defense sites (data are not available for other Federal agency sites). EPA is aware that the list included here is not comprehensive of all Federal agencies but is working to continue developing the dataset.

Data Dictionary for Federal Locations with Known or Suspected PFAS Detections

PFAS Analytic Tools Field Name	Federal Sites Field Name	Definition
Site Name	Site Name	Name of the facility.
Federal Agency	Federal Agency	Federal department or agency associated with the site.
State Territory or Tribe	State	State where the site is located. Fifty state abbreviations plus 11 territories are listed along with an "Other" category for any locations not among those listed.
EPA Region	EPA Region	EPA Region where the site is located.
PFAS Presence	PFAS Presence	Indicates if PFAS contamination is known (testing has occurred) or suspected (activities associated with AFFF use occurred at location).
Link	Website	URL leading to a public site-specific page maintained by the organization submitting the record.
Property Type	Property Type	Property type (e.g., Active, Inactive, BRAC, National Guard).
Federal Facility ID	FFID	Federal facility ID.
Organization Reporting PFAS Presence	Organization Reporting PFAS Presence	Organization reporting PFAS presence (e.g., "DoD," "NPL," "ATSDR"). If "ATSDR" is listed, more information about the site is provided on ATSDR's webpage on PFAS (https://www.atsdr.cdc.gov/pfas/atsdr_sites_involvement.html).
DoD Reported Cleanup Status	Cleanup Status as of June 30, 2023	The cleanup status reported by DoD at the site as of the most recent report date: Preliminary Assessment/Site Inspection (PA/SI) Underway PA/SI and Remedial Investigation (RI) Underway PA/SI Completed - RI Planned PA/SI Completed - RI Underway PA/SI Completed - No Further Action PA/SI Completed - Additional Work will be Combined with Work Being Conducted by Another Federal Agency PA/SI Completed - Additional Work will be Combined with Work Being Conducted at Another Installation
Estimated PA/SI End Date	Estimated PA/SI End Date	The estimated date of completion of the Preliminary Assessment/Site Inspection (PA/SI) for sites where PA/SI is underway.

PFAS Analytic Tools Field Name	Federal Sites Field Name	Definition
Estimated RI/FS End Date	Estimated RI/FS End Date	The estimated date of completion of the Remedial Investigation/Feasibility Study (RI/FS) for sites where RI/FS is underway.
Note	Note	Details on the source of the record.
Latitude	Latitude	Latitude assigned to the location.
Longitude	Longitude	Longitude assigned to the location.
EJSCREEN Report	N/A	Hyperlink to the EJSCREEN report for the location (based on latitude/longitude).
Notifications to Agricultural Operations March 2021	Notifications to Agricultural Operations March 2021	Number of notifications sent to agricultural operations pursuant to Section 335 of the NDAA for FY2021.
Notifications to Agricultural Operations April 1, 2021 to March 31, 2022	Number of Notifications Sent between April 1, 2021 and March 31, 2022	Number of notifications sent to agricultural operations between April 1, 2021 and March 21, 2022 pursuant to Section 335 of the NDAA for FY2021.
Notifications to Agricultural Operations April 1, 2022 to March 31, 2023	Number of New Notifications Sent between April 1, 2021 and March 31, 2022 and Number of Updated Testing Notifications Sent between April 1, 2021 and March 31, 2022	Total number of notifications sent to agricultural operations between April 1, 2021 and March 21, 2022 pursuant to Section 335 of the NDAA for FY2021. In the FY23 report, the number of notifications is presented separately for notifications sent to identified agricultural operations consistent with section 335 of the NDAA for FY 2021 and for updated information sent to previously notified agricultural operations in accordance with section 335(c). In PFAS Analytic Tools, these two values are summed to present total notifications sent during the time period.
PFOA Range Detected (ppt) in groundwater	PFOA Range Detected (ppt)	The level of PFOA detected in groundwater on base. For sites that are included in more than one agricultural notifications report, the range listed in PFAS Analytic Tools is the largest extent of all ranges for the site in the DoD reports (i.e., the lowest minimum listed to the highest maximum listed among all reports for the site).
PFOA Maximum Detected (ppt) in groundwater	N/A	The maximum level of PFOA detected in groundwater on base (i.e., the maximum value in the PFOA Range detected), in ppt. For sites that are included in more than one agricultural notifications report, the maximum listed in PFAS Analytic Tools is the maximum value listed among all reports for the site.

PFAS Analytic Tools Field Name	Federal Sites Field Name	Definition
PFOS Range Detected (ppt) in groundwater	PFOS Range Detected (ppt)	The level of PFOS detected in groundwater on base. For sites that are included in more than one agricultural notifications report, the range listed in PFAS Analytic Tools is the largest extent of all ranges for the site in the DoD reports (i.e., the lowest minimum listed to the highest maximum listed among all reports for the site).
PFOS Maximum Detected (ppt) in groundwater	N/A	The maximum level of PFOS detected in groundwater on base (i.e., the maximum value in the PFOS Range detected), in ppt. For sites that are included in more than one agricultural notifications report, the maximum listed in PFAS Analytic Tools is the maximum value listed among all reports for the site.
PFBS Range Detected (ppb) in groundwater	PFBS Range Detected (ppb)	The level of PFBS detected in groundwater on base. For sites that are included in more than one agricultural notifications report, the range listed in PFAS Analytic Tools is the largest extent of all ranges for the site in the DoD reports (i.e., the lowest minimum listed to the highest maximum listed among all reports for the site).
PFBS Maximum Detected (ppt) in groundwater	N/A	The maximum level of PFBS detected in groundwater on base (i.e., the maximum value in the PFBS Range detected), converted to ppt. For sites that are included in more than one agricultural notifications report, the maximum listed in PFAS Analytic Tools is the maximum value listed among all reports for the site.

Facilities in Industries that May be Handling PFAS

Information about facilities with federal regulatory requirements (e.g., permits or reporting requirements) operating in industry sectors where literature reviews indicate that PFAS may be handled and/or released were compiled from data available in Enforcement Compliance History Online (ECHO) and from the Federal Aviation Administration's Airport Data and Information Portal. The majority of records in PFAS Analytic Tools are identified based on the North American Industry Classification System (NAICS) Codes and Standard Industrial Classification (SIC) Codes associated with CWA, RCRA, and CAA records (from ECHO). Additional facilities are identified using two additional methods – facility name searches for Fire Training Sites (using ECHO) and a specified list of airports from 14 CFR Part 139 Airport identification from the Federal Aviation Administration's Airport Data and Information Portal. These methods and information sources are explained in detail below:

A. Industry Codes for CWA, RCRA, and CAA Regulated Facilities

ECHO provides integrated compliance and enforcement information for over one million regulated facilities nationwide. ECHO integrates records from national data systems developed to support federal regulatory programs established by, for example, the Clean Water Act, Clean Air Act, and Resource Conservation and Recovery Act. ECHO record retrieval capabilities include user-specified selection of facility identification data fields, such as industry category, facility name, active/inactive status, and location searches.

Facility-level records from each of these data systems are linked within ECHO by the Facility Registry Service (FRS), which retains a single name and address from the names and addresses of linked records and also links to facility location information (i.e., latitude and longitude) from the Locational Reference Table (LRT) maintained by EPA.

For this data layer, facility records retrieved from ECHO are restricted to potential PFAS-handling industry sectors based on literature reviews and field investigations by several EPA offices. The list of industry sectors potentially handling or releasing PFAS can be found in the table at the end of this section. Note that inclusion of a facility in the data layer does not imply that PFAS chemicals are actually being manufactured, processed, used, or released by the facility. Also, facilities in other sectors may use or release PFAS that were not identified using the methods described above.

Facility records retrieved from ECHO include SIC and NAICS codes recorded from each program data system record associated with that facility. For example, a facility may have CAA permit for which the NAICS code is 325199 (All Other Basic Organic Chemical Manufacturing) and a CWA permit for which the SIC code is 2911 (Petroleum Refining), both of which are on the list of potential PFAS-handling sectors. The *Industry Sectors* tab includes a record for the facility for each potential PFAS-handling sector with which it is associated (e.g., there would be two records for the facility in the example above).

ECHO data are retrieved weekly using ECHO's web services.

B. Fire Training Sites

Records for fire training sites (where fire-fighting foam may have been used in training exercises) are retrieved from ECHO using a keyword search on the permitted facility's name. These keywords were tested to maximize accuracy in selecting facilities that may use fire-fighting foam in training exercises; however, due to the lack of a required reporting field in the data systems for designating fire training sites, this methodology may not identify all fire training sites, and may potentially misidentify some sites.

C. 14 CFR Part 139 Airports

Since July 1, 2006, all certificated Part 139 airports are required to have fire-fighting foam onsite that meets military specifications (MIL-F-24385) (14 CFR 139.317), which to date have been fluorinated. This subset of data was compiled from historic and current records from the FAA Airport Data and Information Portal (current as of 10/13/2022).

To prepare the records in the *Industry Sectors* tab, a single data set was assembled from the ECHO data retrieved using ECHO's web services, the fire fighting training sites, and the list of 13 CFR Part 139 airports.

Disclaimers:

Inclusion of a facility in the Industry Sectors dataset does not indicate that PFAS are being manufactured, processed, used, or released by the facility. If referring to this file, it is important to note that listed facilities potentially handle PFAS based on their industrial profile. EPA has not confirmed whether each individual facility on the list actually handles PFAS. Keyword searches in ECHO for Fire Training sites may misidentify some facilities and should not be considered to be an exhaustive list of fire training facilities in the United States.

Data Dictionary for Variables Presented from ECHO Data

PFAS Analytic Tools Field Name	ECHO Field Name	Definition
Facility	FAC NAME	Company or permit holder name as maintained by FRS.
Region	FacEPARegion	The EPA Region where the facility is located. EPA has 10 regional offices that execute programs within several states and territories.
State	FAC STATE	State, as maintained by FRS. Fifty state abbreviations plus 11 territories are listed along with an "Other" category for any locations not among those listed.
City	FAC CITY	City where facility is located, as maintained by FRS.

PFAS Analytic Tools Field Name	ECHO Field Name	Definition
Status	FAC ACTIVE FLAG	For Part 139 Airports: Whether the airport is listed on the latest Part 139 Airport Certification Status List (ACSL) included in PFAS Analytic Tools or if it is not on the latest list but was on a previous copy of the ACSL that was included in PFAS Analytic Tools. (values = Active if on the latest list, Inactive if on a previous copy of the list.) Note that this definition differs from the "Inactive Status" field on the ACSL. For other records: Operating status of the facility, indicating if any of the associated ICIS-Air, ICIS-NPDES, or RCRA permits/operations have an active status (values = Active, Inactive, or Unknown).
Industry	Industry	Industry Sector assigned based on NAICS and or SIC codes of facility permits and identifiers. Assigned per PFAS Handling Industry Sector list.
ECHO Facility Report	REGISTRY ID	Hyperlink to ECHO Detailed Facility Report.
FAC_PERCENT_MINORITY	FAC_PERCENT_MINORITY	The percentage of the population within a 3-mile radius that is minority. The field is calculated by subtracting the number of persons who are white (and not of Hispanic origin) from the total persons. This number is then divided by the total persons and multiplied by one hundred to determine the percentage.
FAC_DERIVED_TRIBES	FAC_DERIVED_TRIBES	The tribes or tribal territories located within 25 miles of the facility's location. EPA compares the facility location in its Facility Registry Service to the U.S. Census Bureau tribal boundary layer data for tribes in the lower 48 states and Bureau of Land Management Alaska State Office data for tribes in Alaska. The tribal boundary locations identified are suitable only for general spatial reference and do not necessarily reflect EPA's position on any Indian country locations or boundaries, or the land status of any specific location.
FAC_POP_DEN	FAC_POP_DEN	The number of persons per square mile in the profiled area. The ratio of total persons (displayed in the Total Persons field) to total land area (displayed in the Land Area field).
EJSCREEN_FLAG_US	EJSCREEN_FLAG_US	Indicates facilities located in Census block groups in the 80th or higher national percentile of one of the primary environmental justice (EJ) indexes of EJSCREEN, EPA's screening tool for EJ concerns. EPA screens areas in this way to identify geographic areas that may warrant further consideration or analysis. Note that use of this field does not designate an area as an "EJ community" or "EJ facility."
EJSCREEN Report	N/A	Hyperlink to the EJSCREEN report for the location (based on latitude/longitude).
EPA Programs	EPA PROGRAM	Major federal environmental programs to which the facility is subject (CAA, CWA, RCRA).
Federal Facility	FAC FEDERAL FLAG	Flag indicating that facility is owned or operated by the US government, as indicated by FRS
Federal Agency	FAC FEDERAL AGENCY NAME	Indicates the name of the federal agency, as classified in FRS.

PFAS Analytic Tools Field Name	ECHO Field Name	Definition
Latitude	FAC LAT	The latitude of the facility in decimal degrees expressed using the NAD83 horizontal datum. The coordinate comes from the FRS EPA Locational Reference Tables (LRT) file which represents the most accurate value for the facility based on the available spatial metadata.
Longitude	FAC LONG	The longitude of the facility in decimal degrees expressed using the NAD83 horizontal datum. The coordinate comes from the FRS EPA Locational Reference Tables (LRT) file which represents the most accurate value for the facility based on the available spatial metadata.
FAC COUNTY	FAC COUNTY	County, as maintained by FRS.
FAC FIPS CODE	FAC FIPS CODE	The 2-digit State FIPS code concatenated with the 3 digit County FIPS code.
FAC INDIAN CNTRY FLG	FAC INDIAN CNTRY FLG	Displays “Y” if a facility is flagged as being located in Indian Country, based on information from the EPA's Facility Registry Service (FRS). Displays “N” if a facility is not located in Indian County.
FAC COLLECTION METHOD	FAC COLLECTION METHOD	A description of the method used to determine the latitude and longitude coordinates for the provided facility coordinate.
FAC DERIVED HUC	FAC DERIVED HUC	Spatially derived 8-digit Hydrologic Unit Code (HUC) based on the facility's geographic coordinates in FRS.
FAC DERIVED WBD	FAC DERIVED WBD	The name of the hydrologic unit in which the facility is located within, derived spatially based on the facility's geographic coordinates in FRS. A water body is a geographically defined portion of navigable waters, waters of the contiguous zone, and ocean waters under the jurisdiction of the United States, including segments of rivers, streams, lakes, wetlands, coastal waters and ocean waters.
FAC DERIVED CD113	FAC DERIVED CD113	The 113th Congressional District derived from the facility coordinate.
FAC DERIVED CB2010	FAC DERIVED CB2010	The 2010 Census Block derived from the facility coordinate.
FAC MAJOR FLAG	FAC MAJOR FLAG	Determines if the facility is a designated as a major.
FAC_ACTIVE_FLAG	FAC_ACTIVE_FLAG	A Y/N flag indicating if any of the associated ICIS-Air, ICIS-NPDES, RCRA or SDWA permits are in an active status.
FAC INSPECTION COUNT	FAC INSPECTION COUNT	The number of inspections/compliance evaluations, under the corresponding statute, occurring at the facility within the last five years. The last five years include data from the twenty most recently completed quarters, plus data from the current quarter up until the refresh date. This count only includes inspection types that are counted as inspections in official counts.
FAC DATE LAST INSPECTION	FAC DATE LAST INSPECTION	The date on which the most recent inspection of the facility took place. For the CAA, the date on which a Full Compliance Evaluation (FCE) was completed. This date may or may not correspond to an actual site visit. A series of partial on- or off-site inspections may have been conducted during the fiscal year as part of this an FCE.

PFAS Analytic Tools Field Name	ECHO Field Name	Definition
FAC DAYS LAST INSPECTION	FAC DAYS LAST INSPECTION	Indicates the number of days since the most recent inspection of the facility. Inspections listed within the last five years are included.
FAC INFORMAL COUNT	FAC INFORMAL COUNT	Indicates the total number of informal enforcement actions/notices of violations (NOVs) taken against the facility within the last five years.
FAC DATE LAST INFORMAL ACTION	FAC DATE LAST INFORMAL ACTION	The date of the most recent informal action or NOV taken recorded in ICIS-Air, ICIS-NPDES, RCRAInfo or SDWIS.
FAC FORMAL ACTION COUNT	FAC FORMAL ACTION COUNT	The count of all the formal enforcement actions that addressed the facility from the following systems: ICIS-Air, ICIS-NPDES, SDWIS and RCRAInfo.
FAC DATE LAST FORMAL ACTION	FAC DATE LAST FORMAL ACTION	Indicates the effective date of the most recent listed enforcement action. Enforcement actions listed within the last five years are included.
FAC TOTAL PENALTIES	FAC TOTAL PENALTIES	The total dollar amount of either assessed (or final) penalties taken against the facility within the last five years. This count only includes penalties that have been entered in the national program databases: ICIS-Air, ICIS-NPDES, and RCRAInfo. Federal CAA and RCRA penalties that have been entered into ICIS Federal Enforcement and Compliance are not included to avoid duplicative counting. This total does not include proposed penalties in RCRAInfo or the cost of Supplemental Environmental Projects (SEPs).
FAC PENALTY COUNT	FAC PENALTY COUNT	The total number of penalties assessed (or final) taken against the facility within the last five years. This count only includes penalties that have been entered in the national program databases: ICIS-Air, ICIS-NPDES, and RCRAInfo. Federal CAA and RCRA penalties that have been entered into ICIS Federal Enforcement and Compliance are not included to avoid duplicative counting. This total does not include proposed penalties in RCRAInfo or the cost of Supplemental Environmental Projects (SEPs).
FAC DATE LAST PENALTY	FAC DATE LAST PENALTY	Indicates the date on which the most recent assessed (or final) penalty was taken against the facility within the last five years. This measure only includes penalties that have been entered in the program databases: ICIS-Air, ICIS-NPDES, and RCRAInfo. Federal CAA and RCRA penalties that have been entered into ICIS are not included. This count does not include proposed penalties in RCRAInfo or the cost of Supplemental Environmental Projects (SEPs).

PFAS Analytic Tools Field Name	ECHO Field Name	Definition
FAC LAST PENALTY AMT	FAC LAST PENALTY AMT	Indicates the dollar amount of the most recent assessed (or final) penalty taken against the facility within the last five years. This measure only includes penalties that have been entered in the program databases: ICIS-Air, ICIS-NPDES, and RCRAInfo. Federal CAA and RCRA penalties that have been entered into ICIS are not included to avoid duplicative counting. This count does not include proposed penalties in RCRAInfo or the cost of Supplemental Environmental Projects (SEPs).
FAC QTRS WITH NC	FAC QTRS WITH NC	Count of the number of quarters, out of the last twelve quarters, in which the permit or site is considered either with violations, in noncompliance (NC) status, or in significant noncompliance (SNC), serious violator, or high priority violation (HPV) status. A quarter is any of the following 3-month calendar periods: January-March, April-June, July-September, or October-December.
FAC PROGRAMS WITH SNC	FAC PROGRAMS WITH SNC	A count of the number of programs (CAA, CWA, SDWA, RCRA) related to the facility that have a serious violation.
FAC COMPLIANCE STATUS	FAC COMPLIANCE STATUS	An indication of the facility's known overall compliance status. Status codes include: - Significant Violation [significant noncompliance (SNC), Significant Noncomplier, high priority violation (HPV), or Serious Violator, depending on statute] - Violation Identified (in violation of an environmental regulation) - No Violation Identified (no violations recorded in the national systems of record) - Unknown
FAC SNC FLG	FAC SNC FLG	Indicates whether or not that the facility is designated as a High Priority Violator under the Clean Air Act, designated in Significant Noncompliance under the Clean Water Act or Resource Conservation and Recovery Act, or designated as a Serious Violator under the Safe Drinking Water Act in the national systems of record.
AIR FLAG	AIR FLAG	Facility contains CAA permit information.
NPDES FLAG	NPDES FLAG	Facility contains CWA NPDES permit information.
SDWIS FLAG	SDWIS FLAG	Facility contains SDWA PWS information.
RCRA FLAG	RCRA FLAG	Facility contains RCRA permit information.
TRI FLAG	TRI FLAG	Facility contains TRI data.
GHG FLAG	GHG FLAG	Facility contains GHG emissions data.
AIR IDS	AIR IDS	A unique ID assigned for each record/permit/site/facility within ICIS-Air. These identifiers are for used tracking purposes in the individual data systems.

PFAS Analytic Tools Field Name	ECHO Field Name	Definition
CAA PERMIT TYPES	CAA PERMIT TYPES	The program office defines each CAA Source ID and the associated permits as being Federally Reportable or Non-Federally Reportable. Under the CAA, federally reportable sources include majors, synthetic minors, NESHAP Part 61 minors, minors with an unresolved High Priority Violation (HPV), with recent enforcement actions, or included on a Compliance Monitoring Strategy plan. The Clean Air Act requires that delegated agencies and EPA track all federally reportable sources in the Integrated Compliance Information System for Air (ICIS-Air).
CAA NAICS	CAA NAICS	NAICS Codes reported under the CAA permit associated with the facility.
CAA SICS	CAA SICS	SIC Codes reported under the CAA permit associated with the facility
NPDES IDS	NPDES IDS	A unique ID assigned for each record/permit/site/facility within ICIS-NPDES. These identifiers are for used tracking purposes in the individual data systems.
CWA PERMIT TYPES	CWA PERMIT TYPES	Each CWA Source ID or National Pollutant Discharge Elimination System (NPDES) permit is defined by the program office as a Major or non-major discharger. Unlike major permits, most non-major permits do not have federal monitoring requirements. This field also indicates the permit type.
CWA NAICS	CWA NAICS	NAICS Codes reported under the CWA NPDES permit associated with the facility.
CWA SICS	CWA SICS	SIC Codes reported under the CWA NPDES permit associated with the facility.
RCRA IDS	RCRA IDS	A unique ID assigned for each record/permit/site/facility within RCRAInfo. These identifiers are for used tracking purposes in the individual data systems.
RCRA PERMIT TYPES	RCRA PERMIT TYPES	Indicates the type of hazardous waste activity at the facility, including Treatment, Storage and Disposal Facility (TSDFs), Large Quantity Generator (LQG), Small Quantity Generators (SQG), Conditionally-Exempt Small Quantity Generator (CESQG), and Transporters. Operating TSDFs are noted as such (other TSDFs are inactive but haven't completed all regulatory requirements for closure).
RCRA NAICS	RCRA NAICS	NAICS Codes reported under the RCRA permit associated with the facility.
SDWA IDS	SDWA IDS	A unique ID assigned for each public water system within SDWIS.
SDWA SYSTEM TYPES	SDWA SYSTEM TYPES	Indicates the type of owner, water source, and system for each unique ID for systems and facilities regulated under the Safe Drinking Water Act, which are tracked in the Safe Drinking Water Information System (SDWIS) database.

PFAS Analytic Tools Field Name	ECHO Field Name	Definition
SDWA COMPLIANCE STATUS	SDWA COMPLIANCE STATUS	An indication of the facility's compliance status under the Safe Drinking Water Act (Serious Violator, Violation Identified, No Violation Identified, or Inactive).
SDWA SNC FLAG	SDWA SNC FLAG	A Y/N flag that indicates that the Water System is a Serious Violator.
TRI IDS	TRI IDS	A unique ID assigned for each facility in EPA's Toxics Release Inventory.
TRI RELEASES TRANSFERS	TRI RELEASES TRANSFERS	Total pounds per year released for Air Emissions, Surface Water Discharges, Underground Injections, Releases to Land and Off-Site Transfers.
TRI ON SITE RELEASES	TRI ON SITE RELEASES	Total pounds per year released for Air Emissions, Surface Water Discharges, Underground Injections and Releases to Land.
TRI OFF SITE TRANSFERS	TRI OFF SITE TRANSFERS	Total pounds per year transferred off-site.
TRI REPORTER	TRI REPORTER	Indicates if a facility has reported releases to TRI in the most recent reporting year.
FAC IMP WATER FLG	FAC IMP WATER FLG	A single digit value indicating that the facility is discharging into a water that has been identified as impaired (category 4 or category 5) in the Watershed Assessment, Tracking & Environmental ResultS (WATERS) database (https://www.epa.gov/waterdata/waters-watershed-assessment-tracking-environmental-results-system). Valid values are: 4 = Impaired - Total maximum daily load (TMDL) not needed. Available information indicates that at least one designated use is not being supported, but a TMDL is not needed. 5 = Impaired - TMDL needed. Available information indicates that at least one designated use is not being supported and a TMDL is needed (also known as the 303(d) listed waters).

Potential PFAS-Handling Industry Sectors

Industry Name	2017 NAICS Code	NAICS Description	SIC Code	SIC Description
Oil and Gas	211120	Crude Petroleum Extraction	1311	Crude Petroleum and Natural Gas
Oil and Gas	211130	Natural Gas Extraction	2819	Industrial Inorganic Chemicals, NEC (recovering sulfur from natural gas)
Mining and Refining	212221	Gold Ore Mining	1041	Gold Ores
Mining and Refining	212230	Copper, Nickel, Lead, and Zinc Mining	1020	Copper Ores
Mining and Refining	212291	Uranium-Radium-Vanadium Ore Mining	1094	Uranium-Radium-Vanadium Ores
Waste Management	221320	Sewage Treatment Facilities		
Textiles and Leather	313110	Fiber, Yarn, and Thread Mills	2299	Textile goods, NEC
Textiles and Leather	313210	Broadwoven Fabric Mills	2221	Broadwoven Fabric Mills, Manmade Fiber and Silk
Textiles and Leather	313220	Narrow Fabric Mills and Schiffli Machine Embroidery		
Textiles and Leather	313230	Nonwoven Fabric Mills	2297	Non-woven Fabrics
Textiles and Leather	313240	Knit Fabric Mills		
Textiles and Leather	313310	Textile and Fabric Finishing Mills	2262	Finishers of Broadwoven Fabrics of Manmade Fiber and Silk
Textiles and Leather	313320	Fabric Coating Mills	2295	Coated Fabrics, Not Rubberized
Textiles and Leather	314110	Carpet and Rug Mills	2273	Carpets and Rugs
Textiles and Leather	314910	Textile Bag and Canvas Mills	2394	Canvas and Related Products
Textiles and Leather	314999	All Other Miscellaneous Textile Product Mills	2392	House furnishings, Except Curtains and Draperies
Textiles and Leather	314999	All Other Miscellaneous Textile Product Mills	2385	Waterproof Outerwear
Textiles and Leather	316110	Leather & Hide Tanning & Finishing	3111	Leather Tanning and Finishing
Textiles and Leather	316998	All Other Leather Good & Allied Product Mfg		Other Leather Goods and Allied Product Manufacturing
Paper Mills and Products	322121	Paper (except Newsprint) Mills	2621	Paper Mills (except newsprint mills)
Paper Mills and Products	322130	Paperboard Mills		
Paper Mills and Products	322219	Other Paperboard Container Manufacturing	2656	Sanitary Food Containers, Except Folding

Industry Name	2017 NAICS Code	NAICS Description	SIC Code	SIC Description
Paper Mills and Products	322220	Paper Bag and Coated and Treated Paper Manufacturing	2673	Plastics, Foil, and Coated Paper Bags
Paper Mills and Products	322220	Paper Bag and Coated and Treated Paper Manufacturing	2672	Coated and Laminated Paper, NEC
Paper Mills and Products	322220	Paper Bag and Coated and Treated Paper Manufacturing	2671	Packaging Paper and Plastics Film, Coated and Laminated
Printing	323111	Commercial Printing (except Screen and Books)	2752	Commercial Printing, Lithographic
Printing	323120	Support Activities for Printing	2796	Platemaking and Related Services
Petroleum	324110	Petroleum Refineries	2911	Petroleum Refining
Petroleum	324191	Petroleum Lubricating Oil and Grease Manufacturing	2992	Lubricating Oils and Greases
Petroleum	325110	Petrochemical Manufacturing	2869	Industrial Organic Chemicals, NEC (aliphatics)
Industrial Gas	325120	Industrial Gas Manufacturing	2813	Industrial Gases
Paints and Coatings	325130	Synthetic Dye and Pigment Manufacturing	2819	Industrial Inorganic Chemicals, NEC (recovering sulfur from natural gas)
Chemical Mfg	325180	Other Basic Inorganic Chemical Manufacturing	2819	Industrial Inorganic Chemicals, NEC
Chemical Mfg	325193	Ethyl Alcohol Manufacturing	2869	Industrial Organic Chemicals, NEC
Chemical Mfg	325199	All Other Basic Organic Chemical Manufacturing	2899	Chemicals and Chemical Preparations, NEC
Chemical Mfg	325199	All Other Basic Organic Chemical Manufacturing	2869	Industrial Organic Chemicals, NEC
Plastics and Resins	325211	Resin and Synthetic Rubber Manufacturing	2821	Plastics Materials, Synthetic and Resins, and Nonvulcanizable Elastomers
Plastics and Resins	325211	Plastics Material and Resin Manufacturing	2821	Plastics Materials, Synthetic and Resins, and Nonvulcanizable Elastomers
Plastics and Resins	325212	Synthetic Rubber Manufacturing	2822	Synthetic Rubber
Plastics and Resins	325220	Artificial and Synthetic Fibers and Filaments Manufacturing	2824	Manmade Organic Fibers, Except Cellulosic
Chemical Mfg	325320	Pesticide and Other Agricultural Chemical Manufacturing		
Paints and Coatings	325510	Paint and Coating Manufacturing	2851	Paints, Varnishes, Lacquers, Enamels, and Allied Products
Paints and Coatings	325510	Paint and Coating Manufacturing	2899	Chemical Preparations, NEC (table salt)

Industry Name	2017 NAICS Code	NAICS Description	SIC Code	SIC Description
Cleaning Product Mfg	325611	Soap and Other Detergent Manufacturing	2841	Soaps and Other Detergents, Except Specialty Cleaners
Paints and Coatings	325611	Soap and Other Detergent Manufacturing	2844	Perfumes, Cosmetics, and other Toilet Preparations
Cleaning Product Mfg	325612	Polish and Other Sanitation Good Manufacturing	2842	Specialty Cleaning, Polishing, and Sanitation Preparations
Chemical Mfg	325613	Surface Active Agent Manufacturing	2843	Surface Active Agents, Finishing Agents, Sulfonated Oils, and Assistants
Chemical Mfg	325910	Printing Ink Manufacturing		
Chemical Mfg	325992	Photographic Film, Paper, Plate, Chemical, and Copy Toner Manufacturing		
Chemical Mfg	325998	All Other Miscellaneous Chemical Product and Preparation Manufacturing	2899	Chemicals and Chemical Preparations, NEC
Plastics and Resins	326112	Plastics Packaging Film and Sheet (including Laminated) Manufacturing		
Plastics and Resins	326113	Unlaminated Plastics Film and Sheet (except Packaging) Manufacturing	3081	Unsupported Plastics Film and Sheet
Plastics and Resins	326121	Unlaminated Plastics Profile Shape Manufacturing	3089	Plastics Products, NEC
Plastics and Resins	326121	Unlaminated Plastics Profile Shape Manufacturing	3082	Unsupported Plastics Profile Shapes
Plastics and Resins	326130	Laminated Plastics Plate, Sheet (except Packaging), and Shape Manufacturing	3083	Laminated Plastics Plate, Sheet, and Profile Shapes
Consumer Products	326211	Tire Manufacturing (except Retreading)	3011	Tires and Inner Tubes
Glass Products	327215	Glass Product Manufacturing Made of Purchased Glass	3231	Glass Products Made of Purchased Glass
Cement Mfg	327310	Cement Manufacturing		Cement manufacturing
Mining and Refining	331313	Alumina Refining and Primary Aluminum Production		Alumina refining and primary aluminum production
Metal Coating	332812	Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers	3479	Coating, Engraving, and Allied Services, NEC (except jewelry, silverware, and flatware engraving and etching)

Industry Name	2017 NAICS Code	NAICS Description	SIC Code	SIC Description
Metal Coating	332813	Electroplating, Plating, Polishing, Anodizing, and Coloring	3471	Electroplating, Plating, Polishing, Anodizing, and Coloring
Metal Machinery Mfg	332999	All Other Miscellaneous Fabricated Metal Product Manufacturing	3497	Metal Foil and Leaf
Metal Machinery Mfg	333249	Other Industrial Machinery Manufacturing	3841	Surgical and Medical Instruments and Apparatus
Metal Machinery Mfg	333249	Surgical and Medical Instruments and Apparatus		Other industrial machinery manufacturing
Metal Machinery Mfg	333316	Photographic and Photocopying Equipment Manufacturing	3861	Photographic Equipment and Supplies
Metal Machinery Mfg	333318	Other Commercial and Service Industry Machinery Manufacturing	3589	Service Industry Machinery, NEC
Electronics Industry	334220	Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing	3663	Radio and Television Broadcasting and Communications Equipment
Electronics Industry	334310	Audio and Video Equipment Manufacturing	3651	Household Audio and Video Equipment
Electronics Industry	334412	Bare Printed Circuit Board Manufacturing	3672	Printed Circuit Boards
Electronics Industry	334413	Semiconductor and Related Device Manufacturing	3674	Semiconductors and Related Devices
Electronics Industry	334418	Printed Circuit Assembly (Electronic Assembly) Manufacturing	3577	Computer Peripheral Equipment, NEC (plotter controllers)
Electronics Industry	334419	Other Electronic Component Manufacturing	3679	Electronic Components, NEC (other electronic components)
Electronics Industry	335931	Current-Carrying Wiring Device Manufacturing	3643	Current-carrying Wiring Devices
Electronics Industry	335999	All Other Miscellaneous Electrical Equipment and Component Manufacturing	3629	Electrical Industrial Apparatus, NEC
Metal Machinery Mfg	339112	Surgical and Medical Instrument Manufacturing		
Chemical Mfg	424690	Other Chemical and Allied Products Merchant Wholesalers	5169	Chemicals and Allied Products, NEC
Petroleum	424710	Petroleum Bulk Stations and Terminals		
Consumer Products	442291	Window Treatment Stores	5719	Miscellaneous Home Furnishings Stores
Airports	488119	Other Airport Operations (commercial and civil aviation)	4581	Airports, Flying Fields, and Services
Furniture and Carpet	561740	Carpet and Upholstery Cleaning Services	7217	Carpet and Upholstery Cleaning

Industry Name	2017 NAICS Code	NAICS Description	SIC Code	SIC Description
Waste Management	562112	Hazardous Waste Collection		
Waste Management	562211	Hazardous Waste Treatment and Disposal	4953	Refuse Systems
Waste Management	562212	Solid Waste Landfills	4953	Refuse Systems
Waste Management	562213	Solid Waste Combustors and Incinerators	4953	Refuse Systems
Waste Management	562219	Other Nonhazardous Waste Treatment and Disposal	4953	Refuse Systems
Furniture and Carpet	811420	Reupholstery and Furniture Repair	7641	Reupholstery and Furniture Repair
Fire Protection	922160	Fire Protection		
National Defense	928110	National Security	9711	National Security
Waste Management		RCRA Subtitle C Treatment, Storage, and Disposal Facilities (RCRA Part B permit holders; not defined by NAICS code)		
Fire Training Facilities		Based on keyword searches within facility name; not defined by NAICS code		
Airports (Part 139)		Based on list of operating airports published by FAA; not defined by NAICS code		

Facilities Sending and Receiving RCRA Waste Manifests Containing PFAS

E-Manifest records reflect the shipment details with cradle-to-grave tracking of wastes mandated by the Resource Conservation and Recovery Act (RCRA), including federal and state waste codes as well as descriptive information in various text fields that describe the constituents of the waste shipments. Currently, two Vermont state waste codes (VT21 & VT22) specify PFAS-containing wastes. The *Transfers* tab in PFAS Analytic Tools includes e-Manifest records containing at least one of these two state waste codes or records containing at least one of these common PFAS keywords:

- PFAS
- PFOA
- PFOS
- PERFL
- AFFF
- GENX
- GEN-X

These keywords were searched for in the following text fields:

- Manifest handling instructions (MANIFEST_HANDLING_INSTR)
- Non-hazardous waste description (NON_HAZ_WASTE_DESCRIPTION)
- DOT printed information (DOT_PRINTED_INFORMATION)
- Waste line handling instructions (WASTE_LINE_HANDLING_INSTR)
- Waste residue comments (WASTE_RESIDUE_COMMENTS)

Data for e-Manifests are accessed with RCRA Metabase, an online repository for RCRA e-Manifest and Biennial Report (BR) data. Records for e-Manifests shipped since mid-2018 were filtered and searched for the PFAS state wastes codes or a PFAS keyword. Additional information, such as facility latitude and longitude, primary facility NAICS codes, sending and receiving facility IDs, and waste management information were also accessed via Metabase. For any Metabase records missing latitude and longitude, latitude and longitude values are retrieved from EPA's Locational Reference Table.

Information about e-Manifests can be found on EPA's website at https://www.epa.gov/e-manifest. Access to the RCRA Metabase repository requires users to register.

Disclaimers:

Amounts concentrations of PFAS being transferred cannot be determined from the manifest information. Keyword searches may misidentify some manifest records that do not contain PFAS. This dataset should also not be considered to be exhaustive of all PFAS waste transfers.

Data Dictionary for RCRA Transfers

PFAS Analytic Tools Field Name	RCRA e-Manifest Field Name	Definition
DATE_RECEIVED	Date Received	The date that the waste was received by the designated facility.
MANAGEMENT_METHOD_DESCRIPTION	Management Method Description	A description of the management method that best describes the way in which the waste is to be managed when received by the facility. [see nationally-defined values]
GENERATOR_ID	Generator EPA ID	The U.S. EPA's twelve-digit identification number for the generator of the waste or the information provided if the generator site does not have an EPA identification number.
GENERATOR_NAME	Generator Name	The legal name of the generator.
GEN_LATITUDE	Generator Latitude Measure	Latitude of the site location expressed in GPS (Global Positioning System) format. The user should provide the decimal degrees value representing the degrees, minutes, and seconds. [Value must be between 0 and 90] Note: Valid latitude example: 69.288268
GEN_LONGITUDE	Generator Longitude Measure	Longitude of the site location expressed in GPS (Global Positioning System) format. The user should provide the decimal degrees value representing the degrees, minutes, and seconds. [Value must be between -60 and -180] Note: Valid longitude example: -147.650167
EJSCREEN Report (Generator)	EJSCREEN Report (Generator)	URL which links to the EJSCREEN Report produced by EPA
GENERATOR_LOCATION_STATE	Generator Location State	State code of the location address. [see nationally-defined values]. Fifty state abbreviations plus 11 territories are listed along with an "Other" category for any locations not among those listed.
GENERATOR_LOCATION_CITY	Generator Location City	Name of the city or town in which the generator is physically located.
DES_FACILITY_ID	Designated Facility EPA ID	The U.S. EPA's twelve-digit identification number of the designated facility.
DES_FACILITY_NAME	Designated Facility Name	The legal name of the designated facility.
DES_LATITUDE	Designated Facility Location Latitude Measure	Latitude of the site location expressed in GPS (Global Positioning System) format. The user should provide the decimal degrees value representing the degrees, minutes, and seconds. [Value must be between 0 and 90] Note: Valid latitude example: 69.288268
DES_LONGITUDE	Designated Facility Location Longitude Measure	Longitude of the site location expressed in GPS (Global Positioning System) format. The user should provide the decimal degrees value representing the degrees, minutes, and seconds. [Value must be between -60 and -180] Note: Valid longitude example: -147.650167
EJSCREEN Report (Destination)	EJSCREEN Report (Destination)	URL which links to the EJSCREEN Report produced by EPA
DES_FAC_LOCATION_CITY	Designated Facility Location City	Name of the city or town in which the designated facility is physically located.
DES_FAC_LOCATION_STATE	Designated Facility Location State	State code of the location address. [see nationally-defined values]. Fifty state abbreviations plus 11 territories are listed along with an "Other" category for any locations not among those listed.

PFAS Analytic Tools Field Name	RCRA e-Manifest Field Name	Definition
MANIFEST_ID	Manifest ID	Unique identifier to the associated manifest information (i.e., foreign key to MANIFEST_ID in MMANIFEST).
WASTE_LINE_ID	Waste Line ID	Unique identifier to the associated waste line information (i.e., foreign key to ID in MWASTE_LINE).
WASTE_LINE_NUMBER	Waste Line Number	Indicates the line number of this waste on the manifest.
COI_ONLY	COI Only	Indicates if the waste is a chemical of interest (COI). [Y - Yes; N - No]
DOT_HAZARDOUS	U.S. DOT Hazardous Material Indicator	Indicates that the waste information provided on this waste line is a DOT federally-regulated hazardous material.
DOT_ID_NUMBER_DESCRIPTION	U.S. DOT ID Number	The Department of Transportation identification number.
DOT_PRINTED_INFORMATION	U.S. DOT Description	The Department of Transportation description including the proper shipping name, hazard class or division, and packing group.
NON_HAZ_WASTE_DESCRIPTION	Non-Hazardous Waste Description	The description of the non-hazardous waste being manifested.
WASTE_LINE_HANDLING_INSTR	Waste Line Special Handling Instructions	Special handling or shipment-specific information pertaining to this particular waste that is necessary for the proper management or tracking of the materials under the generator's or other handler's business processes, such as waste profile number, container code, bar code, or response guide numbers. This may also contain additional descriptive information about the waste including chemical names, constituent percentages, or physical state.
WASTE_RESIDUE_COMMENTS	Waste Residue Comments	Additional comments describing the residues associated with this waste.
MANIFEST_HANDLING_INSTR	Manifest Special Handling Instructions	Special handling or shipment-specific information pertaining to the manifest that is necessary for the proper management or tracking of the materials under the generator's or other handler's business processes, such as waste profile numbers, container codes, bar codes, or response guide numbers. This may also contain additional descriptive information about the wastes including chemical names, constituent percentages, or physical state.
STATE_WASTE_CODES	State Waste Code	State waste codes reported for this waste.
QUANTITY_KG	Waste Quantity, in Kilograms	The total quantity of waste, in kilograms. Note: A value of 8.34 lbs/gal (the density of water) is used for volumetric wastes where no density was provided.
DATE_SHIPPED	Shipped Date	The date that the waste was picked up from the generator by the first transporter.
DATE_CERTIFIED	Date Certified	The date that the waste was signed and certified by the designated facility and placed on an invoice for billing purposes.
DES_Primary_NAICS	Designated Facility Primary NAICS Code	The primary industrial activity of the designated facility as defined by the North American Industry Classification System
GEN_Primary_NAICS	Generator Primary NAICS Code	The primary industrial activity of the generator as defined by the North American Industry Classification System

Spills

The National Response Center (NRC), operated by the U.S. Coast Guard, is the designated federal point of contact for reporting all oil, chemical, and other discharges into the environment, anywhere in the United States and its territories. The primary purposes of spill notification is to coordinate the federal government's response and to collect available information on the size and nature of the release, the facility or vessel involved, and the party or parties responsible for the release. The NRC maintains the national database of all reported releases and spills.

Spill information from 1990 to present is retrieved weekly via web services from the NRC (https://nrc.uscg.mil/) and is restricted to records associated with PFAS and PFAS-containing materials. The data from the NRC website contain initial incident data that has not been validated or investigated by a federal/state response agency.

Data processing involves joining the incident and material tables from the NRC data to generate records describing both location, responsible party, and materials and environmental media. The incidents are restricted to those associated with PFAS and PFAS-containing materials by filtering to include only records with a “Material Involved” or “Incident Description” related to Aqueous Film Forming Foam (AFFF). The keywords used to filter the data included "AFFF,” "Fire Fighting Foam," "Aqueous Film Forming Foam," "Fire Suppressant Foam, “PFAS,” “PERFL,” “PFOA,” “PFOS,” and “Genx." For records with latitude/longitude values, the latitude/longitude is converted to WGS 1984 Decimal Degree Coordinates. If no latitude/longitude is available, these are assigned by geolocation of the physical address of the spill using the EPA’s instance of ArcGIS Streetmap Premium geocoding service and the following fields: Street Address; City; State; ZIP Code.

Disclaimers:

The information from the National Response Center website contains initial incident data that has not been validated or investigated by a federal/state response agency. Keyword searches may misidentify some incident reports that do not contain PFAS. This dataset should also not be considered to be exhaustive of all PFAS spills/release incidents.

Data Dictionary for PFAS Spills

PFAS Analytic Tools Field Name	NRC Field Name	Definition
SEQNOS	SEQNOS	NRC Report Number (a unique identifier assigned to each report).
Year	N/A	The year incident occurred, was discovered or planned.
Amount of Material	AMOUNT_OF_MATERIAL	Amount of material released.
Unit	UNIT_OF_MEASURE	Unit of measure for the amount released.
Material Involved	NAME_OF_MATERIAL	Name of the material released.
Incident Description	DESCRIPTION_OF_INCIDENT	Detailed explanation of the incident.
Address	LOCATION_ADDRESS	Complete address of the incident location.
City	LOCATION_NEAREST_CITY	City or Town nearest to the incident location.

PFAS Analytic Tools Field Name	NRC Field Name	Definition
State	LOCATION_STATE	State where incident occurred. Fifty state abbreviations plus 11 territories are listed along with an "Other" category for any locations not among those listed.
ZIP	LOCATION_ZIP	Postal Zip code where incident occurred.
Responsible Company	Responsible Company	Name of Suspected Responsible party.
Responsible Org Type	Responsible Org Type	Organization Type of the Suspected Responsible party.
Cause	INCIDENT_CAUSE	Cause of the incident.
DTG	INCIDENT_DTG	Date Time Group - Discovered, Occurred or Planned.
Date	INCIDENT_DATE_TIME	Date and time incident occurred, was discovered or planned.
County	LOCATION_COUNTY	County where incident occurred.
Water Reached?	IF_REACHED_WATER	Indicates if the material reached a body of water.
Amount in Water	AMOUNT_IN_WATER	Amount of material that reached water.
Unit Reached Water	UNIT_OF_MEASURE_REACH_WATER	Unit of measure for "Amount in Water."
Latitude	N/A	Latitude converted to WGS 1984 Decimal Degree Coordinates (from NRC fields: LAT_DEG, LAT_MIN, LAT_SEC, LAT_QUAD), or assigned by geolocation of address if unavailable from NRC.
Longitude	N/A	Longitude converted to WGS 1984 Decimal Degree Coordinates (from NRC fields: LONG_DEG, LONG_MIN, LONG_SEC, LONG_QUAD), or assigned by geolocation of address if unavailable from NRC.
Spatial Derivation	N/A	How the latitude and longitude coordinates were determined for the incident (Lat/Long if derived from the NRC data; or Geocoded if unavailable)
Geocode Address Type	N/A	If the spatial derivation is geocoded, the type of address that was used to geocode the incident location.
Geocoded Address	N/A	If the spatial derivation is geocoded, the address the geocoded address of the incident.
Geocoded City	N/A	If the spatial derivation is geocoded, the address the geocoded city of the incident.
Geocoded County	N/A	If the spatial derivation is geocoded, the address the geocoded county of the incident.
Geocoded State	N/A	If the spatial derivation is geocoded, the address the geocoded state of the incident.
Geocoded ZIP	N/A	If the spatial derivation is geocoded, the address the geocoded ZIP Code of the incident.
INC_TYPE	TYPE_OF_INCIDENT	Specific type of incident being reported.
LOCATION	INCIDENT_LOCATION	Descriptive explanation for the location of the incident.
DISTANCE_FROM_CITY	DISTANCE_FROM_CITY	Distance to the nearest City or Town from the incident location.
DIRECTION_FROM_CITY	DIRECTION_FROM_CITY	Compass direction from "Location Nearest City" to the incident.
DISTANCE_UNITS	DISTANCE_UNITS	Unit of measure for "Distance from City."

Toxics Release Inventory (TRI) Reporting

The Toxics Release Inventory (TRI) tracks the management of certain chemicals that may be harmful to human health or the environment by more than 21,000 facilities throughout the United States and its territories. TRI reporting is required by section 313 of the Emergency Planning and Community Right-to-Know Act (EPCRA, or Title III of the Superfund Amendments and Reauthorization Act of 1986), and section 6607 of the Pollution Prevention Act of 1990. Reporting is required to provide information to the public on environmental releases and waste management activities of EPCRA section 313 (i.e., TRI-reportable) chemicals in their communities and to provide EPA with data and information to assist the Agency in determining the need for future regulations.

TRI reporting forms are due by July 1 of each year and cover activities within the previous calendar year. U.S. facilities in covered industry sectors, as well as federal facilities must report annually the quantities of each TRI-reportable chemical they released on site to air, water, or land; recycled; burned for energy recovery; treated; or transferred off site for such purposes. Facilities are only required to report if they are in a TRI-covered industry sector, have ten or more full-time employee equivalents, and manufactured, processed, or otherwise used more than a certain threshold amount of a TRI-listed toxic chemical within a calendar year. (See Reporting for TRI facilities for more information.) The information submitted by facilities is compiled in the Toxics Release Inventory database and made available to the public through multiple online tools, many of which make the data easy to access, analyze, and understand.

Most TRI information is reported on the detailed TRI Form R by facilities subject to the TRI reporting requirements. However, facilities that manufacture, process, or otherwise use up to 1,000,000 pounds of a TRI chemical (except for a chemical classified as a “chemical of special concern”) within a calendar year and that do not exceed 500 pounds in total reportable quantities for the chemical have the option to use the TRI Form A Certification Statement instead of the TRI Form R. The Form A Certification Statement is unlike the Form R in that it does not require disclosure of as much information as the Form R, such as detailed waste management activity quantities. Information provided on the TRI Form R includes facility identification information and chemical-specific information on: on-site chemical activities and uses at the facility, environmental releases of TRI chemicals to air, water, and land due to production and non-production related events and operations; information about transfers of TRI chemicals contained in wastes sent to off-site locations for further waste management, including publicly owned treatment works (POTW) facilities; types and quantities of waste management activities, including recycling, treatment, and energy recovery; and pollution prevention activities.

As of August 2023, the TRI chemical list contains 787 individually listed chemicals and 33 chemical categories. This includes the per- and polyfluoroalkyl substances (PFAS) added by the National Defense Authorization Act (NDAA) for Fiscal Year 2020. Section 7321 of the NDAA immediately added certain PFAS to the list of chemicals covered by the TRI Program and also provided a framework for additional PFAS to be added to the TRI on an annual basis. The NDAA established TRI manufacturing, processing, and otherwise use reporting chemical activity thresholds of 100 pounds for each of the individually listed TRI PFAS. TRI reporting of these recently added PFAS per the NDAA occurred for the first time for calendar year 2020. For Reporting Year 2021, there were 176 individually listed PFAS reportable to TRI.

Four PFAS were added for Reporting Year 2022 (180 individually listed PFAS reportable), and nine PFAS were added for Reporting Year 2023 (reporting forms for these chemicals will not be due until 2024).

EPA receives data reported annually by facilities subject to TRI reporting requirements. The TRI data gathered and presented in this tool are restricted to the PFAS added to the TRI chemical list per the National Defense Authorization Act (NDAA) and to other TRI-listed organic chemicals that contain fluorine atoms and are also found on EPA's CompTox Chemicals Dashboard lists of PFAS structures in DSSTox and PFAS chemicals without explicit structures.[2] EPA undertakes minor processing to read TRI data into Qlik data visualization software, creating a QlikView datafile (QVD), which is used by PFAS Analytic Tools and other EPA Qlik data visualization products. Processing includes matching TRI-reported off-site facility information, such as facility name and address, with facility identification and locational data in EPA's Facility Registry Service (FRS) to standardize off-site facility information and obtain latitude and longitude data for the off-site location. This matching process or the FRS-stored facility data records may change over time, leading to updated off-site locational information.

With the exception of restricting the gathered TRI data to NDAA TRI PFAS and to other TRI-listed chemicals found in the two referenced CompTox Chemicals Dashboard lists, no additional data processing was undertaken for the TRI data included in the *Toxic Releases* tab of PFAS Analytic Tools. Additional TRI PFAS added per the NDAA and TRI-listed chemicals found on the two CompTox Chemicals Dashboard lists will be reflected in future iterations of PFAS Analytic Tools.

Disclaimers:

This data file includes releases and waste management data for chemicals identified in EPA's CompTox Chemicals Dashboard list of PFAS without explicit structures and list of PFAS structures in DSSTox. Note that what specific chemicals are considered to be PFAS for a given regulatory program may differ from what is listed in EPA's CompTox Chemicals Dashboard. It is strongly recommended to consult the TRI program website to review TRI reporting requirements for PFAS.

Data Dictionary for TRI Reporting Data

TRI On-site Releases		
PFAS Analytic Tools Field Name	**Source Data Field Name**	**Definition**
Facility Name	Facility Name	The name of the TRI reporting facility.
Reporting Year	Reporting Year	The calendar year in which the reporting activities occurred.
TRIFID	FacilityID	TRI facility identification number (TRIFID) assigned to the reporting facility.
FRS ID	FRS ID	EPA's Facility Registry Service (FRS) identification number for the TRI facility.
Street	Street	The street address of the TRI reporting facility.

[2] The CompTox Chemicals Dashboard is established and maintained by EPA ORD's Center for Computational Toxicology and Exposure (CCTE). There are a number of chemicals contained in these two CompTox Chemicals Dashboard lists that are not considered by EPA's Office of Pollution Prevention and Toxics (OPPT) to be PFAS.

TRI On-site Releases		
PFAS Analytic Tools Field Name	**Source Data Field Name**	**Definition**
City	City	Name of the city in which the Tri reporting facility is located.
County	County	Name of the county and state in which the TRI reporting facility is located.
State	State	Two-character state abbreviation for the TRI reporting facility. Fifty state abbreviations plus 11 territories are listed along with an "Other" category for any locations not among those listed.
ZIP Code	ZIP Code	Zone Improvement Plan (ZIP) code of the TRI reporting facility.
Primary NAICS Code	Primary NAICS Code	Primary six-digit North American Industry Classification System (NAICS) code with text description of code.
TRI Industry Sector	Industry	Three- or four-digit NAICS code identifying the TRI industry. TRI industry sector codes are used to categorize and analyze TRI data.
Latitude	Latitude	The geographic latitude estimation for the reporting facility according to EPA's Facility Registry System. Latitude value is in decimal degrees.
Longitude	Longitude	The geographic longitude estimation for the reporting facility according to EPA's Facility Registry System. Longitude value is in decimal degrees.
Parent Company	Parent Company	Name of the corporation or other business entity that owns or controls the reporting facility.
Federal Facility	Federal Facility	Identifies if facility is US government owned. Values are "yes" or "no."
Tribe	Tribe	The name of the Tribe if the reporting facility is located on or near Tribal lands.
BIA Code	BIA Code	Bureau of Indian Affairs (BIA) code indicating the Tribal land a facility is located on or near.
FormType	FormType	Type of TRI reporting form submitted. R = Form R A = Form A Certification Statement
DCN	DCN	Document Control Number. Unique identification number assigned to each TRI submission by EPA.
Chemical Name	Chemical Name	Name of the TRI chemical or chemical category reported.
CAS Number	CAS Number	Chemical Abstracts Service (CAS) identification number for a chemical substance, or group number for a TRI chemical category.
SRS_ID	SRS_ID	EPA's Substance Registry System internal tracking number assigned to a substance.
Media Type	Media Type	Environmental media associated with on-site releases ("air", "water", "land") at the reporting facility.
Detailed Media Type	Detailed Media Type	Descriptor for the specific type of on-site environmental release, followed in parentheses by its sectional location on the TRI Form R. For example, "Fugitive Air (5.1)" refers to on-site fugitive or non-point air emissions as found in Part II, Section 5.1 of the TRI Form R.
Releases (lb)	ReleasesLB	Quantity (in pounds) of chemical reported as on-site releases in Section 5 of the TRI Form R.

TRI Off-site Transfers		
PFAS Analytic Tools Field Name	**Source Data Field Name**	**Definition**
Offsite Facility Name	ReceivingName	Name of the facility receiving the offsite transfer. For locations which were matched to FRS IDs, this is based on the FRS record. Otherwise, it includes the name as reported on the TRI Form R.
Reporting Year	Reporting Year	The calendar year in which the reporting activities occurred.
OffsiteFRSID	OffsiteFRSID	EPA's FRS identification number for the facility receiving the offsite transfer. Not all off-site locations are successfully matched to FRS records.
OffsiteFRSStreet	OffsiteFRSStreet	The street address for the facility receiving the offsite transfer. From EPA's FRS Locational Reference Table based on FRS ID. Not all off-site locations are successfully matched to FRS records.
OffsiteFRSCity	OffsiteFRSCity	The city where the facility receiving the offsite transfer is located. From EPA's FRS Locational Reference Table based on FRS ID. Not all off-site locations are successfully matched to FRS records.
Offsite State or Country	ReceivingLocation	State or country where the facility receiving the offsite transfer is located. For locations which were matched to FRS IDs, this is based on the FRS record. Otherwise, it includes the location as reported on the TRI Form R.
OffsiteFRSZIP	OffsiteFRSZIP	The ZIP code for the facility receiving the offsite transfer. From EPA's FRS Locational Reference Table based on FRS ID. Not all off-site locations are successfully matched to FRS records.
OffsiteFRSLatitude	OffsiteFRSLatitude	The latitude for the facility receiving the offsite transfer. From EPA's FRS Locational Reference Table based on FRS ID. Not all off-site locations are successfully matched to FRS records.
OffsiteFRSLongitude	OffsiteFRSLongitude	The longitude for the facility receiving the offsite transfer. From EPA's FRS Locational Reference Table based on FRS ID. Not all off-site locations are successfully matched to FRS records.
FormType	FormType	Type of TRI reporting form submitted. R = Form R A = Form A Certification Statement
DCN	DCN	Document Control Number. Unique identification number assigned to each TRI submission by EPA.
Chemical Name	Chemical Name	Name of the TRI chemical or chemical category reported.
CAS Number	CAS Number	Chemical Abstracts Service (CAS) identification number for a chemical substance, or group number for a TRI chemical category.
SRS_ID	SRS_ID	EPA's Substance Registry System internal tracking number assigned to a substance.
Offsite Transfer Identifier	N/A	Unique identifier for each transfer event. The identifier value is generated by concatenating the DCN and OffsiteFRSID. For records with no OffsiteFRSID, the record is included in the data table but is not presented on the map.
Reported (lb)	ReportedLB	Quantity (in pounds) of chemical reported as off-site transfers in Section 6 of the TRI Form R. Range codes may be used for transfers of less than 1,000 pounds.

TRI Off-site Transfers		
PFAS Analytic Tools Field Name	**Source Data Field Name**	**Definition**
Releases (lb)	ReleasesLB	Quantity (in pounds) of chemical reported transferred off-site for further waste management (reported in Section 6 of the TRI Form R) and ultimately disposed of or otherwise released. This excludes any off-site transfer quantities for further waste treatment, recycling, and energy recovery activities, and accounts for TRI business rules related to discharges to POTWs.
Waste Transfer Type	Waste Transfer Type	General description of the type of offsite waste management activity as reported in Section 6 of the TRI Form R by the reporting facility: disposal (and release), recycling, POTW treatment, Treatment (other), and Treatment (thermal). The waste transfer type of "treatment (thermal)" includes off-site transfer quantities for the purpose of energy recovery.
Detailed Waste Transfer Type	Detailed Waste Transfer Type	Detailed description of the off-site waste management activity as reported in Section 6 of the TRI Form R by the reporting facility. For example, "RCRA Subtitle C Landfills (M65)" refers to the reported transfer code M65 of a TRI chemical in wastes sent off-site for the purpose of disposal into a RCRA Subtitle C Landfill.
TRIFID	FacilityID	TRI facility identification number (TRIFID) assigned to the TRI reporting facility.
Facility Name	Facility Name	The name of the TRI reporting facility.
City	City	Name of the city in which the TRI reporting facility is located.
State	State	Two-character state abbreviation for the TRI reporting facility. Fifty state abbreviations plus 11 territories are listed along with an "Other" category for any locations not among those listed.
Parent Company	Parent Company	Name of the corporation or other business entity that owns or controls the TRI reporting facility.
Latitude	Latitude	The geographic latitude estimation for the reporting facility according to EPA's Facility Registry System. Latitude value is in decimal degrees.
Longitude	Longitude	The geographic longitude estimation for the reporting facility according to EPA's Facility Registry System. Longitude value is in decimal degrees.
Primary NAICS Code	Primary NAICS Code	Primary six-digit North American Industry Classification System (NAICS) code with text description of code.
TRI Industry Sector	Industry	Three- or four-digit number identifying the TRI industry code. TRI industry sector codes are used to categorize and analyze TRI data.

TRI Total Waste Management		
PFAS Analytic Tools Field Name	**Source Data Field Name**	**Definition**
Facility Name	Facility Name	The name of the TRI reporting facility.
Reporting Year	Reporting Year	The calendar year in which the reporting activities occurred.
TRIFID	FacilityID	TRI facility identification number (TRIFID) assigned to the reporting facility.
FRS ID	FRS ID	EPA's Facility Registry Service (FRS) identification number for the TRI facility.

TRI Total Waste Management		
PFAS Analytic Tools Field Name	**Source Data Field Name**	**Definition**
Street	Street	The street address of the TRI reporting facility.
City	City	Name of the city in which the Tri reporting facility is located.
County	County	Name of the county and state in which the TRI reporting facility is located.
State	State	Two-character state abbreviation for the TRI reporting facility.
ZIP Code	ZIP Code	Zone Improvement Plan (ZIP) code of the TRI reporting facility.
Primary NAICS Code	Primary NAICS Code	Primary six-digit North American Industry Classification System (NAICS) code with text description of code.
TRI Industry Sector	Industry	Three- or four-digit NAICS code identifying the TRI industry. TRI industry sector codes are used to categorize and analyze TRI data.
Latitude	Latitude	The geographic latitude estimation for the reporting facility according to EPA's Facility Registry System. Latitude value is in decimal degrees.
Longitude	Longitude	The geographic longitude estimation for the reporting facility according to EPA's Facility Registry System. Longitude value is in decimal degrees.
Parent Company	Parent Company	Name of the corporation or other business entity that owns or controls the reporting facility.
Federal Facility	Federal Facility	Identifies if facility is US government owned. Values are "yes" or "no."
Tribe	Tribe	The name of the Tribe if the reporting facility is located on or near Tribal lands.
BIA Code	BIA Code	Bureau of Indian Affairs (BIA) code indicating the Tribal land a facility is located on or near.
FormType	FormType	Type of TRI reporting form submitted. R = Form R A = Form A Certification Statement
DCN	DCN	Document Control Number. Unique identification number assigned to each TRI submission by EPA.
Chemical Name	Chemical Name	Name of the TRI chemical or chemical category reported.
CAS Number	CAS Number	Chemical Abstracts Service (CAS) identification number for a chemical substance, or group number for a TRI chemical category.
SRS_ID	SRS_ID	EPA's Substance Registry System internal tracking number assigned to a substance.
Waste Management Type	Waste Management Type	General description of the waste management activity as reported in Section 8 of the TRI Form R by the reporting facility. Values include: disposed of or otherwise released, energy recovery, recycled, treated, or non-production-related waste.
Detailed Waste Management	Detailed Waste Management	Detailed description of waste management activities as reported in Section 8 of the TRI Form R by the reporting facility. For example, "Total On-Site Disposal to UI Wells Class I or Landfills (8.1A)" refers to the reported quantity of a TRI chemical disposed on-site to a Class I Underground Injection Well, RCRA Subtitle C landfill, or other landfill.
Waste Managed (lb)	WasteManagedLB	Quantity (in pounds) of chemical by type of waste management reported in Section 8 of the TRI Form R.

Greenhouse Gas Reporting Program

EPA's Greenhouse Gas Reporting Program (GHGRP) collects Greenhouse Gas (GHG) data from large emitting facilities (25,000 metric tons of carbon dioxide equivalent (CO2e) per year), and suppliers of fossil fuels and industrial gases that result in GHG emissions when used. PFAS Analytic Tools includes Greenhouse Gas (GHG) emissions data for facilities that emit chemicals identified in EPA's CompTox Chemicals Dashboard list of PFAS without explicit structures and list of PFAS structures in DSSTox. By definition, PFAS are also fluorinated greenhouse gases (F-GHGs) which, in general, are the most potent and longest lasting greenhouse gases. EPA has developed a number of tools and documents to assist in understanding and complying with the Greenhouse Gas Reporting Program (GHGRP).

The PFAS Analytic Tools present publicly available PFAS emissions data reported to the GHGRP for the time period between 2010 and the most recent reporting year. The retrievals are currently restricted to the following GHGRP Subparts (industrial operations), which may emit PFAS:

Subpart	Subpart Category	Envirofacts Table(s)
F	Aluminum Production	• F_SUBPART_LEVEL_INFORMATION
O	HCFC-22 Production and HFC-23 Destruction	• Subpart L and Subpart O Frequently Requested Data (xlsx)
I	Electronics Manufacture	Facilities that manufacture Microelectro-Mechanical Systems (MEMS), Photovoltaic Cells (PV), or Liquid Crystal Displays (LCD): • 2011-2013: I_PV_MEMS_LCD_INFO • 2014+: MV_EF_I_ANN_FGHG_PVMEMSLCD Facilities that manufacture Semiconductors: • 2011-2013: I_SEMICONDUCTOR_INFO • 2014+: MV_EF_I_ANN_FGHG_SEMICONDUCTOR Fluorinated heat transfer fluid (F-HTF) emissions: • 2011-2013: I_FHTF_INFO • 2014+: MV_EF_I_FAB_FLU_HEAT_TRANFLUID
L	Fluorinated GHG Production	Emissions from the destruction of previously produced fluorinated GHGs: • EF_L_DESTRUCTIONFGHG Emissions of fluorinated GHGs from production and transformation processes: • EF_L_PRODUCTION_TRANS Venting of fluorinated GHGs from containers: • EF_L_VENTINGFGHG
T	Magnesium Production	• T_SUBPART_LEVEL_INFORMATION
DD	Use of Electric Transmission and Distribution Equipment	• DD_SUBPART_LEVEL_INFORMATION
SS	Manufacture of Electric Transmission and Distribution Equipment	• SS_GHG_INFORMATION • SS_SUBPART_LEVEL_INFORMATION

Depending on which Subpart the data are reported under, the GHG records include information on gas name, CAS Number, and chemical formula. The records are matched to the CompTox PFAS lists (https://comptox.epa.gov/dashboard/chemical_lists/PFASSTRUCT and https://comptox.epa.gov/dashboard/chemical_lists/PFASDEV1) based on CAS Number where available; by exact matching gas name; or by review of the name and/or chemical formula.

The reporting form for some Subparts allows the reporting facility to select "Other" as the greenhouse gas emitted and then provide additional gas information identifying the gas (other name, chemical formula, and/or CAS Number). If the Subpart allows this and the entry of a gas name is "Other" or if the gas name is missing, and secondary information identifying the gas (other name, chemical formula, and/or CAS Number) is specified, that information is used to match to the CompTox PFAS lists. Only PFAS records are presented in PFAS Analytic tools.

All GHGRP Subparts were reviewed for possible PFAS reporting, and only those with publicly available emissions data that contain PFAS reporting are included in PFAS Analytic Tools. Subparts with PFAS reporting may change over time. The retrieval and data processing steps described above will be applied and new records will be incorporated into the PFAS Analytic Tools as appropriate.

Subpart	Subpart category	Has Emissions Data	PFAS Reported	Data included in PFAS Analytic Tools
C	General Stationary Fuel Combustion Sources	Yes	No	
D	Electricity Generation	Yes	No	
E	Adipic Acid Production	Yes	No	
F	Aluminum Production	Yes	Yes	Yes
G	Ammonia Manufacturing	Yes	No	
H	Cement Production	Yes	No	
I	Electronics Manufacture	Yes	Yes	Yes
K	Ferroalloy Production	Yes	No	
L	Fluorinated Gas Production	Yes	Yes	Yes
N	Glass Production	Yes	No	
O	HCFC–22 Production and HFC–23 Destruction	Yes	Yes	Yes
P	Hydrogen Production	Yes	No	
Q	Iron and Steel Production	Yes	No	
R	Lead Production	Yes	No	
S	Lime Manufacturing	Yes	No	
T	Magnesium Production	Yes	Yes	Yes
U	Miscellaneous Uses of Carbonate	Yes	No	
V	Nitric Acid Production	Yes	No	
W	Petroleum and Natural Gas Systems	Yes	No	
X	Petrochemical Production	Yes	No	
Y	Petroleum Refineries	Yes	No	
Z	Phosphoric Acid Production	Yes	No	

Subpart	Subpart category	Has Emissions Data	PFAS Reported	Data included in PFAS Analytic Tools
AA	Pulp and Paper Manufacturing	Yes	No	
BB	Silicon Carbide Production	Yes	No	
CC	Soda Ash Manufacturing	Yes	No	
DD	Use of Electric Transmission and Distribution Equipment	Yes	Yes	Yes
EE	Titanium Dioxide Production	Yes	No	
FF	Underground Coal Mines	Yes	No	
GG	Zinc Production	Yes	No	
HH	Municipal Solid Waste Landfills	Yes	No	
II	Industrial Wastewater Treatment	Yes	No	
LL	Suppliers of Coal-based Liquid Fuels	No	Yes	
MM	Suppliers of Petroleum Products	No	Yes	
NN	Suppliers of Natural Gas and Natural Gas Liquids	No	Yes	
OO	Suppliers of Industrial Greenhouse Gases	Yes (Not publicly available)	Possible	
PP	Suppliers of Carbon Dioxide	No	Yes	
QQ	Imports and Exports of Equipment Pre-charged with Fluorinated GHGs or Containing Fluorinated GHGs in Closed-cell Foams	Yes (Not publicly available)	Possible	
RR	Geologic Sequestration of Carbon Dioxide	Yes	No	
SS	Manufacture of Electric Transmission and Distribution Equipment	Yes	Yes	Yes
TT	Industrial Waste Landfills	Yes	No	
UU	Injection of Carbon Dioxide	Yes	No	

Disclaimers:

This data includes greenhouse gas (GHG) emissions data for facilities that emit 25,000 metric tons of carbon dioxide equivalent (CO2e) per year and emit chemicals identified as PFAS based on EPA's CompTox Chemicals Dashboard lists of PFAS with defined and undefined structures.

Note that some regulatory programs have specific chemical structure requirements that define PFAS differently than the lists in EPA's CompTox Chemicals Dashboard.

EPA has developed a number of tools and documents to assist in understanding and complying with the Greenhouse Gas Reporting Program (GHGRP).

Data Dictionary for Greenhouse Gas Reporting Program

PFAS Analytic Tools Field Name	Subpart	GHGRP Field name	Definition
Facility	All	FACILITY_NAME	Name of reporting facility.
Year	All	REPORTING_YEAR	The reporting year for which the emissions are reported.
GHG Facility ID	All	FACILITY_ID	A facility's Greenhouse Gas Reporting Program (GHGRP ID) identification number.
ECHO Facility Report	All	N/A	Hyperlink to the ECHO detailed facility report.
FRS ID	All	FRS_ID	FRS System ID (Facility Registry System). (From the PUB_DIM_FACILITY facility information table in Envirofacts, linked to the Subpart tables by Facility ID.)
GHG Subpart	All	N/A	The GHGRP Subpart for which this record is reported.
Chemical Name	-	-	The name of the greenhouse gas reported. If the Subpart allows and the entry of a gas name is "Other" or the gas name is missing, and there is a second field available where the other gas name is specified, the field will be the entry for the Other gas name.
	DD	GHG_NAME	The name of a greenhouse gas, specified from a set list: [Sulfur Hexafluoride (SF6), Perfluoromethane (PFC-14), Perfluoroethane (PFC-116), Perfluoropropane (PFC-218), Perfluorocyclopropane, Perfluorobutane (PFC-3-1-10), Perfluorocyclobutane, Perfluoropentane (PFC-4-1-12), Perfluorohexane (PFC-5-1-14), or PFC-9-1-18]
	F	GHG_NAME; OTHER_GREENHOUSE_ GAS_NAME	GHG_NAME: The name of the Greenhouse Gas. OTHER_GREENHOUSE_GAS_NAME: The other name of the Greenhouse Gas.
	L (all)	FGHG_NAME	Name of the fluorinated greenhouse gas.
	SS (Subpart Level Information)	GHG_NAME; OTHER_GHG_NAME	GHG_NAME: Identifies the name of the gas. OTHER_GHG_NAME: Specifies the other name of the GHG.
	SS (GHG Information)	GAS_NAME	Identifies the name of the gas.
	T	GHG_NAME; OTHER_GREENHOUSE_ GAS_NAME	GHG_NAME: The name of the greenhouse gas emitted, selected from the list: [Sulfur Hexafluoride, Carbon Dioxide, HFC-134a, Fluorinated Ketone FK 5-1-12]. OTHER_GREENHOUSE_GAS_NAME: The name of any other GHG emitted not included in the specified list.
	I (Semiconductor and MEMS-PV-LCD, 2014+)	GAS_NAME	The name of the gas for which emissions are being calculated.

PFAS Analytic Tools Field Name	Subpart	GHGRP Field name	Definition
	I (Semiconductor and MEMS-PV-LCD, 2011-2013)	FGHG_NAME; OTHER_FGHG_NAME	FGHG_NAME: The name of the fluorinated greenhouse gas (F-GHG). OTHER_FGHG_NAME: The name of an "other" fluorinated greenhouse gas (F-GHG). "Other" F-GHG are those F-GHG reported by facilities that are not included in the pre-populated list of F-GHGs in the subpart I reporting forms. Facilities must provide identifying characteristics for these "other" F-GHG including the name, chemical formula, and CAS number.
	I (F-HTF, 2014+)	FLUORINATED_HEAT_ TRAN_FLD_NAME	The name of the fluorinated heat transfer fluid (F-HTF) for which emissions are reported from the fab.
	I (F-HTF, 2011-2013)	FHTF_NAME; OTHER_FHTF_NAME	FHTF_NAME: Name of the fluorinated heat transfer fluid (F-HTF). OTHER_FHTF_NAME: The name of an "other" fluorinated heat transfer fluid (F-HTF). "Other" F-HTF are those F-HTF reported by facilities that are not included in the pre-populated list of commonly used F-HTFs in the subpart I reporting forms. Facilities must provide identifying characteristics for these "other" F-HTF including the name, chemical formula, and CAS number.
	O	N/A	The Excel file with Subpart O emissions includes emissions for HFC-23. The chemical name will be HFC-23 for all records.
Chemical Formula	-	-	The chemical formula description for the reported greenhouse gas. If the Subpart allows the entry of a gas name of "Other," or the gas name is missing, and there is a second field available where the other gas chemical formula is specified, the field will be the Other chemical formula.
	F	GHGAS_LINEAR_CHEMICAL _FORMULA	Linear chemical formula.
	L (all)	CHEMICAL_FORMULA	Chemical formula description.
	I (all, 2011-2013)	OTHER_FGHG_FORMULA	The chemical formula of an "other" fluorinated greenhouse gas (F-GHG). "Other" F-GHG are those F-GHG reported by facilities that are not included in the pre-populated list of F-GHGs in the subpart I reporting forms. Facilities must provide identifying characteristics for these "other" F-GHG including the name, chemical formula, and CAS number.
CAS Number	-	-	The Chemical Abstracts Service (CAS) registry number for the reported gas. If the Subpart allows the entry of a gas name of "Other," or the gas name is missing, and there is a second field available where the other gas CAS Number is specified, the field will be the Other CAS Number.
	F	GHGAS_CAS_REGISTRY_ NUMBER	The Chemical Abstract Service (CAS) registry number.
	L (all)	CAS_NUMBER	Chemical Abstract Registry Number (CAS No.).
	I (Semiconductor and MEMS-PV-LCD, 2014+)	CAS_NUMBER	The Chemical Abstract Service (CAS) registry number of the fluorinated green house gas (F-GHG) for which emissions are reported.

PFAS Analytic Tools Field Name	Subpart	GHGRP Field name	Definition
	I (Semiconductor and MEMS-PV-LCD, 2011-2013)	FGHG_CAS_NUMBER; OTHER_FGHG_CAS_ NUMBER	FGHG_CAS_NUMBER: Chemical Abstract Service (CAS) registry number of the fluorinated greenhouse gas (F-GHG). OTHER_FGHG_CAS_NUMBER: Chemical Abstract Service (CAS) registry number of an "other" fluorinated greenhouse gas (F-GHG). "Other" F-GHG are those F-GHG reported by facilities that are not included in the pre-populated list of F-GHGs in the subpart I reporting forms. Facilities must provide identifying characteristics for these "other" F-GHG including the name, chemical formula, and CAS number.
	I (F-HTF, 2014+)	CAS_NUMBER	The Chemical Abstract Service (CAS) registry number of the fluorinated heat transfer fluid (F-HTF) for which emissions are reported from the fab.
	I (F-HTF, 2011-2013)	FHTF_CAS_NUMBER; OTHER_FHTF_CAS_ NUMBER	FHTF_CAS_NUMBER: Chemical Abstract Service (CAS) registry number of the fluorinated heat transfer fluid (F-HTF). OTHER_FHTF_CAS_NUMBER: Chemical Abstract Service (CAS) registry number of an "other" fluorinated heat transfer fluid (F-HTF). "Other" F-HTF are those F-HTF reported by facilities that are not included in the pre-populated list of commonly used F-HTFs in the subpart I reporting forms. Facilities must provide identifying characteristics for these "other" F-HTF including the name, chemical formula, and CAS number.
Amount (metric tons)	-	-	The total annual reported emissions for this gas at the facility, in metric tons.
	DD	GHG_QUANTITY	The quantity of facility-wide emissions that were reported for use of electrical equipment reported under Subpart DD for the specified greenhouse gas (metric tons)
	F	GHG_QUANTITY	The quantity of facility-wide emissions that were reported for aluminum production sources under Subpart F for the specified greenhouse gas (metric tons)
	L (Destruction)	FGHG_EMISSIONS	Destruction process emissions (metric tons)
	L (Production & Transformation)	FGHG_EMISSIONS	Emissions of the fluorinated GHG from all production and transformation processes at the facility (metric tons)
	L (Venting)	FGHG_EMISSIONS	Fluorinated F-GHGs vented from containers returned from the field (metric tons)
	SS (Subpart Level Information)	GHG_QUANTITY	Total annual emissions from this source category. This is a calculated value
	SS (GHG Information)	GHG_EMISSIONS_ UNROUNDED	Total facility-wide emissions that were reported for electrical equipment production sources under Subpart SS for the specified greenhouse gas (pounds). Total GHG Emissions = (Total Manufacturing Emissions) + (Total Installation Emissions)
	T	GHG_QUANTITY	The quantity of facility-wide emissions that were reported for magnesium production sources under Subpart T for the specified greenhouse gas (metric tons)

PFAS Analytic Tools Field Name	Subpart	GHGRP Field name	Definition
	I (Semiconductor and MEMS-PV-LCD, 2014+)	ANN_FGHG_EMISSIONS_ BY_PROCTYPE	The total annual emissions (in metric tons) of the individual F-GHG by process type from the fab
	I (Semiconductor and MEMS-PV-LCD, 2011-2013)	ANNUAL_FGHG_ EMISSIONS	Annual fluorinated greenhouse gas (F-GHG) emissions for the indicated process type in metric tons per year.
	I (F-HTF, 2014+)	TOTALANNFLUHEATTRANF LUIDEMIS	Total annual emissions for each fluorinated heat transfer fluid (F-HTF) in metric tons from the fab
	I (F-HTF, 2011-2013)	ANNUAL_FHTF_EMISSIONS	Total annual emissions for each fluorinated heat transfer fluid (F-HTF) in metric tons per year.
	O	N/A	The amount for HFC-23 is calculated as the amount reported for the facility in the Excel download column "Total Reported Emissions Under Subpart O (metric tons CO2e)" on the "HCFC-22 Prod. HFC-23 Dest." Tab, divided by 14,800.
State Territory or Tribe	All	STATE	A two-letter code assigned by the U.S. Postal Service to identify the state in which the facility is located. State abbreviation identifying state in which the facility is located. Fifty state abbreviations plus 11 territories are listed along with an "Other" category for any locations not among those listed. (From the PUB_DIM_FACILITY facility information table in Envirofacts, linked to the Subpart tables by Facility ID.)
EPA Region	All	N/A	EPA Region where the facility is located; derived from facility state.
Latitude	All	LATITUDE	A comma delimited WGS84 'latitude' coordinate pair with decimal degrees to four places or better. (From the PUB_DIM_FACILITY facility information table in Envirofacts, linked to the Subpart tables by Facility ID.)
Longitude	All	LONGITUDE	A comma delimited WGS84 'longitude' coordinate pair with decimal degrees to four places or better. (From the PUB_DIM_FACILITY facility information table in Envirofacts, linked to the Subpart tables by Facility ID.)
EJSCREEN Report	All	N/A	Hyperlink to the EJSCREEN report for the location (based on latitude/longitude).