



# INITIAL INVESTIGATION FIELD REPORT

Check this box if you have attached any documents to this form (using the paperclip icon on the left).

<b>ERTS #(s):</b>	717368
<b>Parcel #(s):</b>	S7425-00-02000-0
<b>County:</b>	Island
<b>FSID #:</b>	99999147
<b>CSID #:</b>	16779
<b>UST #:</b>	

## SITE INFORMATION

<u>Site Name (Name over door):</u> Mabana Area PFAS	<u>Site Address (including City, State and Zip):</u> 3169 Redwing Rd [well location, source location unknown] Camano, WA 98282	<u>Phone</u> <u>Email</u>
<u>Site Contact, Title, Business:</u>	<u>Site Contact Address (including City, State and Zip):</u>	<u>Phone</u> <u>Email</u>
<u>Site Owner, Title, Business:</u> source unknown	<u>Site Owner Address (including City, State and Zip):</u>	<u>Phone</u> <u>Email</u>
<u>Site Owner Contact, Title, Business:</u>	<u>Site Owner Contact Address (including City, State and Zip):</u>	<u>Phone</u> <u>Email</u>
<u>Previous Site Owner(s):</u>	<u>Additional Info (for any Site Information Item):</u> Interested Parties (should be included in any notification): Mabana Shores Association [Sandra Bodamer, PO Box 2243, Oak Harbor, WA 98277] Camano Island Fire & Rescue [Station 5 - Mabana]	
<u>Alternate Site Name(s):</u>		

<u>Latitude (Decimal Degrees):</u> 48.09545
<u>Longitude (Decimal Degrees):</u> -122.41382

## INSPECTION INFORMATION

Please check this box if there is relevant inspection information, such as data or photos, in an existing site report for this site.

Inspection Conducted? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Date/Time:	Entry Notice: Announced <input type="checkbox"/> Unannounced <input type="checkbox"/>
Photographs taken? Yes <input type="checkbox"/> No <input type="checkbox"/>	Note: Attach photographs or upload to PIMS	
Samples collected? Yes <input type="checkbox"/> No <input type="checkbox"/>	Note: Attach record with media, location, depth, etc.	

## RECOMMENDATION

<b>No Further Action</b> (Check appropriate box below):	<b>LIST on Confirmed and Suspected Contaminated Sites List:</b> <input checked="" type="checkbox"/>
Release or threatened release does not pose a threat <input type="checkbox"/>	
No release or threatened release <input type="checkbox"/>	
Refer to program/agency (Name: _____) <input type="checkbox"/>	
Independent Cleanup Action Completed (contamination removed) <input type="checkbox"/>	

### COMPLAINT (Brief Summary of ERTS Complaint):

The Whidbey Island Water System Association made a report to ERTS to alert Ecology to Group A water systems in Island County that had detected PFAS in samples collected related to the requirements of the Department of Health's PFAS SAL establishment.

### CURRENT SITE STATUS (Brief Summary of why Site is recommended for Listing or NFA):

Based on limited sampling, a release of PFAS is suspected to have occurred in the general area of the location above; the source, extent, and severity of this release is unknown at this time.  
Recommendation: add to Confirmed and Suspected Contaminated Sites List with a general name and approximate location. All of that information (name, location) should be updated in the site file as additional information confirming a source becomes available.

Investigator: <b>Kim Wooten</b>	Date Submitted: 3/15/2023
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**OBSERVATIONS****Please check this box if you included information on the Supplemental Page at end of report.**

**Description** (If site visit made, please be sure to include the following: site observations, site features and cover, chronology of events, sources/past practices likely responsible for contamination, presence of water supply wells and other potential exposure pathways, etc.):

The Mabana Shores Association water system was one included in the submitted list of systems with per- and poly-fluoroalkyl substances (PFAS) detections in samples collected from Group A water systems to meet the requirements for initial sampling related to State Action Levels (SALs) for PFAS in drinking water. The sample analyzed from this water system is noted as a post-treatment sample representing a mixing of water from 4 wells. The well depths range between 102 and 122 feet below ground surface. The sample was taken in March 2022.

The sample contained the following PFAS at concentrations between 3 and 74 ng/L: PFBS, PFBA, PFHxA, PFPeA, and PFPeS (see below for full names of all compounds referred to by abbreviation throughout the IIFR). The additional 20 PFAS compounds included in the analysis were not present above the laboratory reporting limit (2 ng/L for each compound).

The WA State Department of Health has established state action levels (SALs) for drinking water for 5 PFAS: PFBS, PFHxS, PFOS, PFOA, and PFNA. Ecology has established cleanup levels for these 5 PFAS plus PFBA and GenX. The concentrations of PFBS and PFBA in the water system sample were below the applicable cleanup levels.

Even though the individual chemicals are all below the SALs, the presence of a mixture of PFAS compounds does suggest a release of PFAS has occurred somewhere near the water system. Additional sampling is warranted to try to determine the source and extent of PFAS contamination.

There are a number of industries and historic property uses that suggest a potential PFAS source - things like landfills, textile manufacturing, and firefighting foam. This well is located in a rural, residential area, and current maps do not indicate many of these uses in the area to help target additional investigation. There is a fire station located on S Camano Dr, within one-quarter mile south of the well.

Documents reviewed:

Island County - ICGeoMap. <https://icgeomap.islandcountywa.gov/Html5Viewer/Index.html?viewer=ICGeoMap#>

WA State Department of Health water system information:

Source Water Assessment Program Map. <https://fortress.wa.gov/doh/swap/index.html>

Find Water System database. <https://fortress.wa.gov/doh/eh/portal/odw/si/Disclaimer.aspx?Page=/portal/odw/si/findwatersystem.aspx>

Find Water Quality database - results for sample ID 97401 from Mabana Shores Association (system ID 49600). <https://fortress.wa.gov/doh/eh/portal/odw/si/FindWaterQuality.aspx>

CONTAMINANT GROUP	CONTAMINANT	SOIL	GROUNDWATER	SURFACE WATER	AIR	SEDIMENT	DESCRIPTION
Non-Halogenated Organics	Phenolic Compounds						Compounds containing phenols (Examples: phenol; 4-methylphenol; 2-methylphenol)
	Non-Halogenated Solvents						Organic solvents, typically volatile or semi-volatile, not containing any halogens. To determine if a product has halogens, search HSDB ( <a href="http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB">http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB</a> ) and look at the Chemical/Physical Properties, and Molecular Formula. If there is not a Cl, I, Br, F in the formula, it's not halogenated. (Examples: acetone, benzene, toluene, xylenes, methyl ethyl ketone, ethyl acetate, methanol, ethanol, isopropanol, formic acid, acetic acid, stoddard solvent, Naptha). <i>Use this when TEX contaminants are present independently of gasoline.</i>
	Polynuclear Aromatic Hydrocarbons (PAH)						Hydrocarbons composed of two or more benzene rings.
	Tributyltin						The main active ingredients in biocides used to control a broad spectrum of organisms. Found in antifouling marine paint, antifungal action in textiles and industrial water systems. (Examples: Tributyltin; monobutyltin; dibutyltin)
	Methyl tertiary-butyl ether						MTBE is a volatile oxygen-containing organic compound that was formerly used as a gasoline additive to promote complete combustion and help reduce air pollution.
	Benzene						Benzene
	Other Non-Halogenated Organics						TEX
	Petroleum Diesel						Petroleum Diesel
	Petroleum Gasoline						Petroleum Gasoline
	Petroleum Other						Oil-range organics
Halogenated Organics (see notes at bottom)	PBDE						Polybrominated di-phenyl ether
	Other Halogenated Organics		S				Other organic compounds with halogens (chlorine, fluorine, bromine, iodine). search HSDB ( <a href="http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB">http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB</a> ) and look at the Chemical/Physical Properties, and Molecular Formula. If there is a Cl, I, Br, F in the formula, it is halogenated. (Examples: Hexachlorobutadiene; hexachlorobenzene; pentachlorophenol)
	Halogenated solvents						PCE, chloroform, EDB, EDC, MTBE
	Polychlorinated Biphenyls (PCB)						Any of a family of industrial compounds produced by chlorination of biphenyl, noted primarily as an environmental pollutant that accumulates in animal tissue with resultant pathogenic and teratogenic effects
	Dioxin/dibenzofuran compounds (see notes at bottom)						A family of more than 70 compounds of chlorinated dioxins or furans. (Examples: Dioxin; Furan; Dioxin TEQ; PCDD; PCDF; TCDD; TCDF; OCDD; OCDF). <i>Do not use for 'dibenzofuran', which is a non-chlorinated compound that is detected using the semivolatile organics analysis 8270</i>
Metals	Metals - Other						Cr, Se, Ag, Ba, Cd
	Lead						Lead
	Mercury						Mercury
	Arsenic						Arsenic
Pesticides	Non-halogenated pesticides						Pesticides without halogens (Examples: parathion, malathion, diazinon, phosmet, carbaryl (sevin), fenoxycarb, aldicarb)
	Halogenated pesticides						Pesticides with halogens (Examples: DDT; DDE; Chlordane; Heptachlor; alpha-beta and delta BHC; Aldrin; Endosulfan, dieldrin, endrin)

CONTAMINANT GROUP	CONTAMINANT	SOIL	GROUNDWATER	SURFACE WATER	AIR	SEDIMENT	DESCRIPTION
Other Contaminants	Radioactive Wastes						Wastes that emit more than background levels of radiation.
	Conventional Contaminants, Organic						Unspecified organic matter that imposes an oxygen demand during its decomposition (Example: Total Organic Carbon)
	Conventional Contaminants, Inorganic						Non-metallic inorganic substances or indicator parameters that may indicate the existence of contamination if present at unusual levels (Examples: Sulfides, ammonia)
	Asbestos						All forms of Asbestos. Asbestos fibers have been used in products such as building materials, friction products and heat-resistant materials.
	Other Deleterious Substances						Other contaminants or substances that cause subtle or unexpected harm to sediments (Examples: Wood debris; garbage (e.g., dumped in sediments))
	Benthic Failures						Failures of the benthic analysis standards from the Sediment Management Standards.
	Bioassay Failures						For sediments, a failure to meet bioassay criteria from the Sediment Management Standards. For soils, a failure to meet TEE bioassay criteria for plant, animal or soil biota toxicity.
Reactive Wastes	Unexploded Ordnance						Weapons that failed to detonate or discarded shells containing volatile material.
	Other Reactive Wastes						Other Reactive Wastes (Examples: phosphorous, lithium metal, sodium metal)
	Corrosive Wastes						Corrosive wastes are acidic or alkaline (basic) wastes that can readily corrode or dissolve materials they come into contact with. Wastes that are highly corrosive as defined by the Dangerous Waste Regulation (WAC 173-303-090(6)). (Examples: Hydrochloric acid; sulfuric acid; caustic soda)

(fill in contaminant matrix above with appropriate status choice from the key below the table)

Status choices for contaminants	
Contaminant Status	Definition
B— Below Cleanup Levels (Confirmed)	The contaminant was tested and found to be below cleanup levels. (Generally, we would not enter each and every contaminant that was tested; for example if an SVOC analysis was done we would not enter each SVOC with a status of "below". We would use this for contaminants that were believed likely to be present but were found to be below standards when tested)
S— Suspected	The contaminant is suspected to be present; based on some knowledge about the history of the site, knowledge of regional contaminants, or based on other contaminants known to be present
C— Confirmed Above Cleanup Levels	The contaminant is confirmed to be present above any cleanup level. For example—above MTCA method A, B, or C; above Sediment Quality Standards; or above a presumed site-specific cleanup level (such as human health criteria for a sediment contaminant).
RA— Remediated - Above	The contaminant was remediated, but remains on site above the cleanup standards (for example—capped area).
RB— Remediated - Below	The contaminant was remediated, and no area of the site contains this contaminant above cleanup standards (for example— complete removal of contaminated soils).

**Halogenated chemicals and solvents:** Any chemical compound with chloro, bromo, iodo or fluoro is halogenated; those with eight or fewer carbons are generally solvents (e.g. halogenated methane, ethane, propane, butane, pentane, hexane, heptane or octane ) and may also be used for or registered as pesticides or fumigants. Most are dangerous wastes, either listed or categorical. Organic compounds with more carbons are almost always halogenated pesticides or a contaminant or derivative. Referral to the HSDB is recommended if you are unfamiliar with a chemical name or compound, as it contains useful information about synonyms, uses, trade names, waste codes, and other regulatory information about most toxic or potentially toxic chemicals.

**Dibenzodioxins and dibenzofurans** are normalized to a combined equivalent toxicity based on 2,3,7,8-tetrachloro-p-dibenzodioxin as set out in WAC 173-340-708(8)(d) and in the Evaluating the Toxicity and Assessing the Carcinogenic Risk of Environmental Mixtures using Toxicity Equivalency Factors Focus Sheet (<https://fortress.wa.gov/ecy/clarc/FocusSheets/tef.pdf> ). Results may be reported as individual compounds and isomers (usually lab results), or as a toxic equivalency value (reports).

**FOR ECOLOGY II REVIEWER USE ONLY (For Listing Sites):**

How did the Site come to be known:  Site Discovery (received a report): \_\_\_\_\_ (Date Report Received)  
 ERTS Complaint  
 Other (please explain): \_\_\_\_\_

Does an Early Notice Letter need to be sent:  Yes  No  
If No, please explain why: No known PLP

NAICS Code (if known): \_\_\_\_\_  
Otherwise, briefly explain how property is/was used (i.e., gas station, dry cleaner, paint shop, vacant land, etc.):  
not otherwise classified

Site Unit(s) to be created (Unit Type):  Upland (includes VCP & LUST)  Sediment  
If multiple Units needed, please explain why: \_\_\_\_\_

Cleanup Process Type (for the Unit):  No Process  Independent Action  
 Voluntary Cleanup Program  Ecology-supervised or conducted  
 Federal-supervised or conducted

Site Status:  Awaiting Cleanup  Construction Complete – Performance Monitoring **Model Remedy Used?**   
 Cleanup Started  Cleanup Complete – Active O&M/Monitoring **If yes, was this a transformer spill?**   
 No Further Action Required

Site Manager (Default: \_\_\_\_\_): \_\_\_\_\_

Specific confirmed contaminants include:

\_\_\_\_\_ in Soil  
\_\_\_\_\_ in Groundwater  
\_\_\_\_\_ in Other (specify matrix: \_\_\_\_\_)

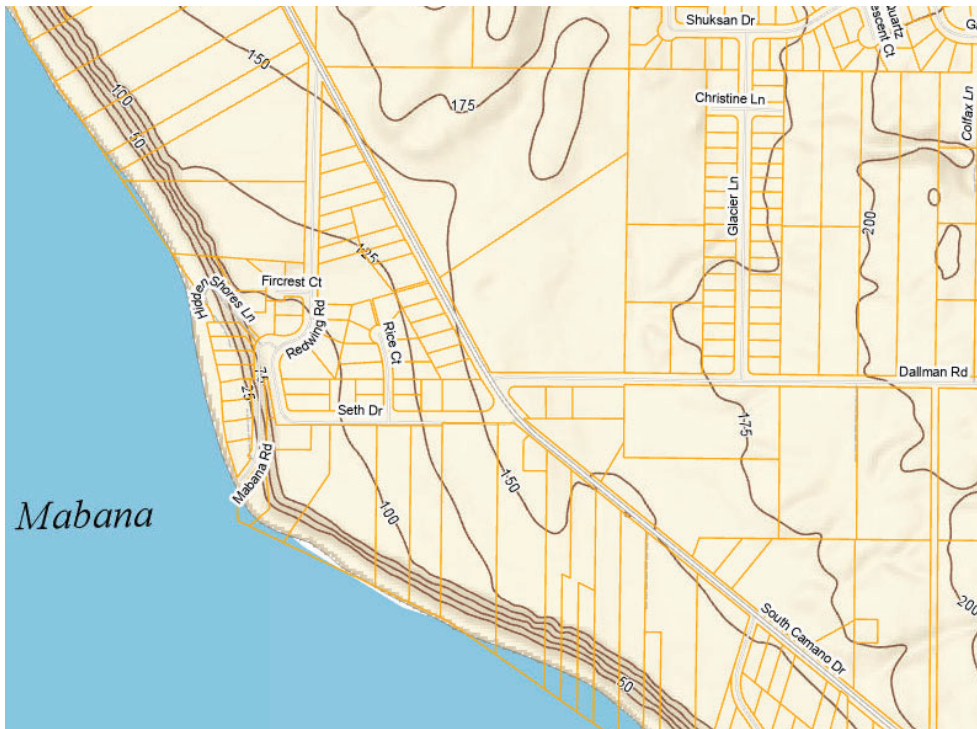
Facility/Site ID No. (if known):

99999147

Cleanup Site ID No. (if known):

16779

COUNTY ASSESSOR INFO: Please attach to this report a copy of the tax parcel/ownership information for each parcel associated with the site, as well as a parcel map illustrating the parcel boundary and location.



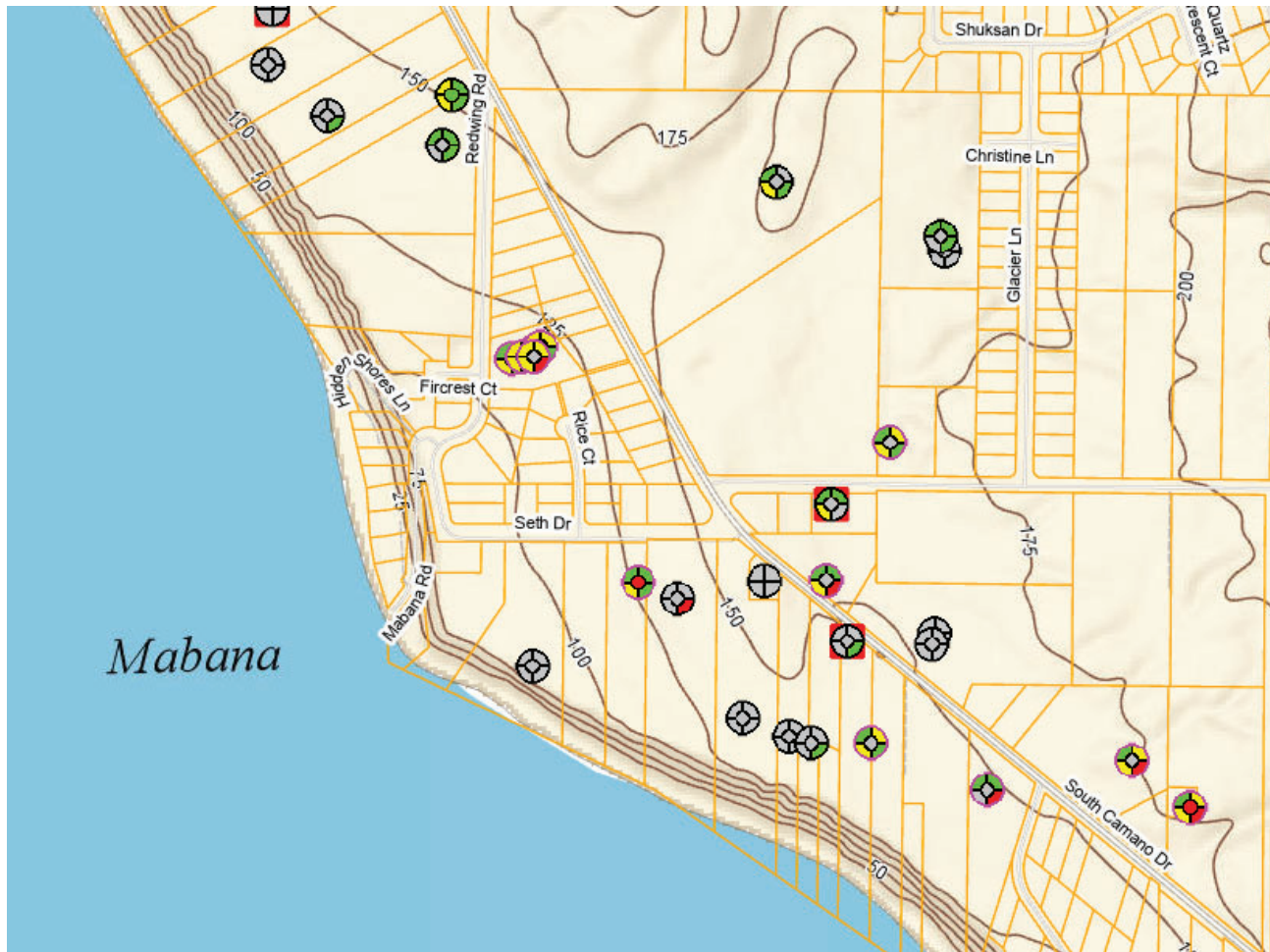
General area shown above (from ICGeoMap) - water system wells are located generally east of Fircrest Ct on Redwing Rd.



### Additional or Supplemental Information from Observations Page

Please use this box for any text that requires special formatting

Locations of Group A, Group B, and private drinking water wells in the general area. Information is from ICGeoMap, and was most recently updated in 2021. Gray circles indicate wells; patterns in the circles indicate level of location accuracy. Colored wedges in the circle indicate water sampling for various parameters.



PFAS sampling results from water systems in Island County reported under ERTS 717368. Sampling was completed between January and April 2022. Sampling was completed to meet requirements for DOH SAL testing - only one sample is required as part of the initial testing unless a compound is present above a SAL.

	MTCA Method B Groundwater Cleanup Level	Crosswoods Water Co	Deer Lake Estates	Harrington Lagoon		Hillcrest Village Water Co	Lyon Rd Community Association	Mabana Shores	Maple Hill Park	Mecca Community Association	Northgate Terrace Community Club	Penn Cove	Pine Terrace Water Association	Rolling Hills - Glenclair	Sierra Country Club	Whispering Pines Homeowners Coop
				intial	confirmation											
PFBS	345	<2	4.97	17.2	17.9	<2	4.63	63.4	<2	<2	3.14	<2	<2	<2	<2	4.24
PFHxS	65	2.25	2.5	52.8	63.9	<2	<2	<2	<2	<2	4.15	<2	<2	<2	2.25	31.4
PFOA	15	<2	2.53	63.7	79.9	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	4.95
PFOA	9	<2	2.54	2.35	3.45	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	4.35
PFNA	10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
PFBA	8000	<2	<2	5.55	6.89	<2	2.31	3.49	5.25	<2	<2	<2	50.6	<2	3.42	<2
HPFO-DA	24	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
PFHpA	--	<2	<2	5	6.99	<2	<2	<2	<2	<2	<2	3.03	11.1	6.19	<2	<2
PFHxA	--	<2	2.32	25.5	30.8	<2	5.2	58.2	2.33	4.08	<2	<2	85.6	<2	<2	2.6
PFHpS	--	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	2.67
PFPeA	--	<2	<2	8.25	16.9	2.25	4.63	5.44	6.07	2.43	<2	<2	174	<2	<2	<2
PFPeS	--	<2	<2	23.1	23.8	<2	<2	73.5	<2	<2	<2	<2	<2	<2	<2	2.78

concentrations in ng/L

table includes all PFAS with existing cleanup levels, and any others present above reporting limits (2 ng/L) in at least one sample

Groundwater Cleanup Levels are protective of use as drinking water

"-" indicates no cleanup level has been established for that compound; note that all PFAS are designated MTCA hazardous substances and cleanup levels may be developed for these in the future

## FULL NAMES OF PFAS COMPOUNDS

PFBA – perfluorobutanoic acid

PFBS – perfluorobutane sulfonic acid

PFPeA – perfluoropentanoic acid

PFPeS – perfluoropentane sulfonic acid

PFHxA – perfluorohexanoic acid

PFHxS – perfluorohexane sulfonic acid

PFHpA – perfluoroheptanoic acid

PFHpS – perfluoroheptane sulfonic acid

PFOA – perfluorooctanoic acid

PFOS – perfluorooctane sulfonic acid

PFNA – perfluorononanoic acid

HFPO-DA – hexafluoropropylene oxide-dimer acid (also known as GenX)