

If the subject property has ever been a part or used for the following, there is a potential that significant PFAS contamination is present at the subject property. If your site meets any of the conditions below, then PFAS should be discussed in the Phase I Environmental Site Assessment (if a discussion of PFAS is approved by the client as a non-scope item).

On-Site Sources

GOVERNMENT & MILITARY INSTALLATIONS USE OF PFAS (High Risk)	
Government/military facilities that utilized AFFF for fire training	<input type="checkbox"/> No <input type="checkbox"/> Yes
Electroplating operations at federal facilities and government-owned, contractor-operated (GOCO) research and development plants	<input type="checkbox"/> No <input type="checkbox"/> Yes
Wastewater treatment plants (WWTP) at federal installations	<input type="checkbox"/> No <input type="checkbox"/> Yes
COMMERCIAL & INDUSTRIAL USES OF PFAS (High Risk)	
Electroplating Note: Electroplating (specifically hard chromium plating) is an industrial activity where PFAS-containing mist suppressants may have been used	<input type="checkbox"/> No <input type="checkbox"/> Yes
Landfill operations, waste disposal areas, and wastewater treatment plants	<input type="checkbox"/> No <input type="checkbox"/> Yes
Open burning / open detonation of munitions	<input type="checkbox"/> No <input type="checkbox"/> Yes
Agricultural uses (1970s-present) that included application of biosolids/WWTP sludge (that potentially contained PFAS) on bare soils	<input type="checkbox"/> No <input type="checkbox"/> Yes
Refineries and petrochemical industries that utilized AFFF fire training areas (1960s-present)	<input type="checkbox"/> No <input type="checkbox"/> Yes
Public- and private-sector airports (any AFFF utilized on-site for fire training) (1960s-present)	<input type="checkbox"/> No <input type="checkbox"/> Yes
PFAS manufacturer or any chemical industry with a special focus on processing aids in the polymerization of fluoropolymers	<input type="checkbox"/> No <input type="checkbox"/> Yes
Any large past fire events, or any known or suspected use of AFFF on site (1960s-present)	<input type="checkbox"/> No <input type="checkbox"/> Yes
Was the property a fire station (with a fire training area) or have any fire training areas (1960s-present)	<input type="checkbox"/> No <input type="checkbox"/> Yes
Large industrial facility with an AFFF firefighting system that requires yearly testing and discharge of AFFF during testing (1960s-present)	<input type="checkbox"/> No <input type="checkbox"/> Yes

COMMERCIAL & INDUSTRIAL USES OF PFAS	
High to Moderate Risk (if there are known exposure pathways)	
Section A	
Surface protection of textile, apparel, leather, carpets, and paper	<input type="checkbox"/> No <input type="checkbox"/> Yes
Electronics industry	<input type="checkbox"/> No <input type="checkbox"/> Yes
Plastics and rubber production	<input type="checkbox"/> No <input type="checkbox"/> Yes
Coatings, paints, and varnishes	<input type="checkbox"/> No <input type="checkbox"/> Yes
Munitions and explosives production	<input type="checkbox"/> No <input type="checkbox"/> Yes
Aircraft and heavy equipment manufacturing	<input type="checkbox"/> No <input type="checkbox"/> Yes
Carwash, Laundry, Dry cleaner	<input type="checkbox"/> No <input type="checkbox"/> Yes
Industry listed in the PFAS NAICS/SIC Code Reference Table below	<input type="checkbox"/> No <input type="checkbox"/> Yes
Section B: If "Yes" was checked for any of the items in Section A, were the following identified:	
Drains, sumps, pits, and/or subsurface conduits that potentially contained/discharged PFAS	<input type="checkbox"/> No <input type="checkbox"/> Yes
Large-scale operation	<input type="checkbox"/> No <input type="checkbox"/> Yes
Smokestacks or aerial dispersion that potentially contained/discharged PFAS	<input type="checkbox"/> No <input type="checkbox"/> Yes
Permitted (NPDES) and potentially unpermitted wastewater discharges that potentially contained/discharged PFAS (e.g. NPDES listing in the database for industrial waste water discharges) water discharges)	<input type="checkbox"/> No <input type="checkbox"/> Yes
Any large containers or drums containing of PFAS (raw or mixture) that may have potentially leaked or discharged to the subsurface	<input type="checkbox"/> No <input type="checkbox"/> Yes
Any known or suspected conditions that would result in a potential release of raw materials or wastes from the site operations	<input type="checkbox"/> No <input type="checkbox"/> Yes

Index Codes
<p>This table provides the first three digits of industries that may have used compounds containing PFAS in their manufacturing or production processes.</p> <p>To determine three digit code(s) associated with current/former on-site operations, review RCRA listing details in the regulatory database. Take the first three or four digits of the NAICS code(s) listed and look for them in the table below. For example: NAICS Code: <u>331</u>316 (Aluminum extruded product manufacturing) NAICS Code: <u>332</u>112 (Nonferrous forging) Search 331 and 332 in the table below.</p> <p>In this case, since both codes (331 & 332) are listed, it indicates the business may have used PFAS.</p>

Index Codes				
3&4-Digit	Industry		6-digit	Sector
313	Textiles			
314	Textile Product			
315	Apparel			
316	Leather			
321	Wood Products			
322	Paper			
323	Printing			
324	Petroleum			
325	Chemicals			
326	Plastics and Rubber			
327	Nonmetallic Mineral Product			
331	Primary Metals			
332	Fabricated Metals			
			332992	Small Arms Ammunition
			332993	Ammunition-except small arms
333	Machinery			
334	Computers/Electronic Products			
335	Electrical Equipment			
336	Transportation Equipment			
3&4-Digit	Industry		6-digit	Sector
337	Furniture			
339	Miscellaneous Manufacturing			
511	Publishing			
562	Hazardous Waste			
	Other		111998	All Other Miscellaneous Crop Farming
	Other		113310	Logging
	Other		211112	Natural Gas Liquid Extraction
	Other		212324	Kaolin and Ball Clay Mining
	Other		212325	Clay and Ceramic and Refractory Minerals Mining
	Other		212393	Other Chemical and Fertilizer Mineral Mining
	Other		212399	All Other Nonmetallic Mineral Mining

Index Codes				
	Other		221330	Steam and Air-Conditioning Supply
	Other		488390	Other Support Activities for Water Transportation
	Other		512220	Integrated Record Production/Distribution
	Other		541710	R&D in the Physical, Engineering, and Life Sciences
	Other		541712	R&D in the Physical, Engineering, and Life Sciences (except Biotechnology)
	Other		541713	Research and Development in Nanotechnology
	Other		541715	R&D in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology)
	Other		811490	Other Personal and Household Goods Repair and Maintenance
2121	Coal Mining		212111	Bituminous Coal and Lignite Surface Mining
2121	Coal Mining		212112	Bituminous Coal Underground Mining
2121	Coal Mining		212113	Anthracite Mining
2122	Metal Mining		212221	Gold Ore Mining
2122	Metal Mining		212222	Silver Ore Mining
2122	Metal Mining		212230	Copper, Nickel, Lead and Zinc Mining
2122	Metal Mining		212231	Lead Ore and Zinc Ore Mining
2122	Metal Mining		212234	Copper Ore and Nickel Ore Mining
2122	Metal Mining		212299	All Other Metal Ore Mining
2211	Electric Utilities		221111	Hydroelectric Power Generation
2211	Electric Utilities		221112	Fossil Fuel Electric Power Generation
2211	Electric Utilities		221113	Nuclear Electric Power Generation
2211	Electric Utilities		221114	Solar Electric Power Generation
2211	Electric Utilities		221115	Wind Electric Power Generation

Index Codes				
2211	Electric Utilities		221116	Geothermal Electric Power Generation
2211	Electric Utilities		221117	Biomass Electric Power Generation
2211	Electric Utilities		221118	Other Electric Power Generation
2211	Electric Utilities		221119	Other Electric Power Generation
2211	Electric Utilities		221122	Electric Power Distribution Transmission and Control
4246	Chemical Wholesalers		424690	Other Chemical and Allied Products Merchant Wholesalers
4247	Petroleum Bulk Terminals		424710	Petroleum Bulk Stations and Terminals

POTENTIAL PFAS CONTAMINATION CHECKLIST

If you identify any of the following off-site conditions, there is potential for PFAS contamination. If any of the following are identified, then PFAS may need to be discussed in the Phase I Environmental Site Assessment (if a discussion of PFAS is approved by the client as a non-scope item).

On-Site Sources

1 mile	
DOD, FUDS, or Military Base (that would have utilized AFFF) within 1 mile of subject property (SP)? *	<input type="checkbox"/> No <input type="checkbox"/> Yes
0.5 mile	
Airport (large enough to have a fire training area) within 0.5 mile of SP?	<input type="checkbox"/> No <input type="checkbox"/> Yes
1,000 feet	
Large petroleum refinery (that would use AFFF) within 1,000 feet of SP?	<input type="checkbox"/> No <input type="checkbox"/> Yes
Landfill or WWTP within 500 feet of SP?	<input type="checkbox"/> No <input type="checkbox"/> Yes

500 feet	
Elevated PFAS detected in well (groundwater or drinking water**) within 500 feet of SP?	<input type="checkbox"/> No <input type="checkbox"/> Yes
Chromium plating facility within 500 feet of SP that has identified or potential contamination (i.e., release or VCP listings in the database report)?	<input type="checkbox"/> No <input type="checkbox"/> Yes
Large-scale industrial facility with large-scale wastewater discharges within 500 feet of SP that has identified or potential contamination (i.e., release or VCP listings in the database report)?	<input type="checkbox"/> No <input type="checkbox"/> Yes
Landfill or WWTP within 500 feet of SP?	<input type="checkbox"/> No <input type="checkbox"/> Yes
Adjoining	
High risk industrial operations adjoining SP that includes wastewater discharges (NPDES listings) or significant aerial dispersion (air permit listings)?	<input type="checkbox"/> No <input type="checkbox"/> Yes

* Check the below link to determine if PFAS are under investigation:

[Installations Where DOD is Performing Assessment of PFAS Use/Potential Release](#)

If the site is listed, search online for any publicly available information (i.e., in states like CA, information will be on GeoTracker; in other states, information may not yet be available to the public.

**A drinking water sample may not be representative of groundwater conditions. If elevated drinking water is identified, you may need to confirm its source at the subject property (i.e., public drinking water supply or private drinking water well).

- If public drinking water is the source and it is verified to be from an off-site source, then it does not represent localized groundwater conditions.
- If a private drinking water well is the source, then it will represent groundwater conditions.

NEXT STEPS

AEI's team of geologists and engineers are experienced in the investigation and remediation of PFAS contaminated properties. Every site will have its unique challenges.

Please visit www.aeiconsultants.com or contact your AEI representative for assistance. 1.800.801.3224 | info@aeiconsultants.com

ADDITIONAL RESOURCES

Interactive Map of PFAS sites

www.ewg.org/interactive-maps/pfas_contamination/map/

Military Installations were the DOD is assessing PFAS

media.defense.gov/2021/Mar/23/2002606229/-1/-1/0/INSTALLATIONS-BEING-ASSESSED-FOR-PFAS-USE-OR-POTENTIAL-RELEASE-AS-OF-DEC-31-2020.PDF/INSTALLATIONS-BEING-ASSESSED-FOR-PFAS-USE-OR-POTENTIAL-RELEASE-AS-OF-DEC-31-2020.PDF

https://partner-mco-archive.s3.amazonaws.com/client_files/1524589484.pdf

AFF

www.michigan.gov/pfasresponse/investigations/firefighting-foam

SDWIS Federal Reports Search

ordspub.epa.gov/ords/sfdw/sfdw/r/sdwis_fed_reports_public/200

ITRC

pfas-1.itrcweb.org/

pfas-1.itrcweb.org/fact-sheets/

ADDITIONAL RESOURCES

Superfund/NPL

www.epw.senate.gov/public/index.cfm?p=Superfund-Sites-Identified-by-EPA-to-have-PFAS-Contamination

EPA

www.epa.gov/system/files/documents/2021-10/pfas-roadmap_final-508.pdf

www.epa.gov/chemical-research/status-epa-research-and-development-pfas

www.epa.gov/sites/default/files/2016-05/documents/pfoa_health_advisory_final_508.pdf

www.federalregister.gov/documents/2020/03/10/2020-04145/announcement-of-preliminary-regulatory-determinations-for-contaminants-on-the-fourth-drinking-water

www.federalregister.gov/documents/2021/03/03/2021-04184/announcement-of-final-regulatory-determinations-for-contaminants-on-the-fourth-drinking-water

www.epa.gov/dwucmr/fifth-unregulated-contaminant-monitoring-rule

ordspub.epa.gov/ords/guideme_ext/f?p=104%3A41

enviro.epa.gov/

www.epa.gov/enviro/tri-search

www.epa.gov/research-states/pfas-science-webinars-epa-region-1-and-state-tribal-partners

NAICS/SIC

www.census.gov/naics/?48967

www.osha.gov/data/sic-search

pubs.rsc.org/en/content/articlelanding/2020/em/d0em00291g

www.nj.gov/dep/srp/guidance/srra/pfas_handling_industry_sectors.pdf

www.pca.state.mn.us/sites/default/files/p-gen1-22b.pdf

State regulations

www.saferstates.com/toxic-chemicals/pfas/

Mass

www.mass.gov/doc/final-pfas-related-changes-to-the-mcp-2019-12-13/download

www.mass.gov/doc/pfas-mcl-revisions-to-310-cmr-2200-clean-version-9-16-2020/download