Per- and polyfluoroalkyl substances (PFAS) Update

US Department of Energy (DOE)

AGENDA

- DOE Actions
  - Policy Memo
  - Roadmap
  - Initial Assessment
- Next Steps
- PFAS Resources

DOE PFAS Mission Statement

Protect human health and the environment by assessing and addressing PFAS at DOE sites while deploying the Department's scientific expertise to solve PFAS challenges

DOE is committed to:

- Coordinate with other agencies and working groups
- Staying informed on activities, updates and challenges related to PFAS contamination and regulation
- Continue investigations at DOE sites

DOE Actions

Summer 2019
DOE PFAS Work Group established

September 2019
Operating Experience Level 3 Document *PFAS Awareness*, published

March 2020
Operating Experience Summary, *Emerging Contaminants in Groundwater at Brookhaven National Laboratory*, published

December 2021
DOE Guidance on Reporting PFAS-Containing Aqueous Film-Forming Foam (AFFF) Releases or Spills to the Environment issued

November 2021
PFAS Coordinating Committee (PCC) established

September 2021
Deputy Secretary David Turk signed a memorandum, effective immediately, addressing PFAS at DOE

Ongoing
DOE Research

December 2021
DOE PFAS-containing AFFF releases or spills database reporting requirement in effect

August 2022
DOE PFAS Website went live and PFAS Roadmap released

Coming Soon
Initial Assessment Report

DOE Actions: Deputy Secretary Memorandum

The Deputy Secretary PFAS Policy Memorandum was issued September 16, 2021. The memo established the Department's initial framework for addressing PFAS.

- **Discontinuation of AFFF** except in emergencies
  - Any discharge to be contained/collected to the maximum extent
  - Fire personnel will be equipped with personal protective equipment
- **Storage and disposal:**
  - Sites may store AFFF on site as required for safety systems and lifesaving emergencies.
  - Disposal of PFAS is suspended pending further guidance
- **Report** any PFAS release or spill to DOE HQ
- Establish a **PFAS Coordinating Committee (PCC)** to guide implementation of the memo's requirements

DOE Actions: PFAS Coordinating Committee (PCC)

- **Serve** as a management-level counterpart to the existing DOE PFAS Working Group
- **Provide** guidance and interpretation on aspects of the Policy, and support a collaborative, consistent enterprise approach to the Policy's implementation
- **Explore** opportunities for DOE laboratories to work with interagency and external partners
- **Clarify** the additional resources needed to support research, testing, characterization, and possible remediation activities

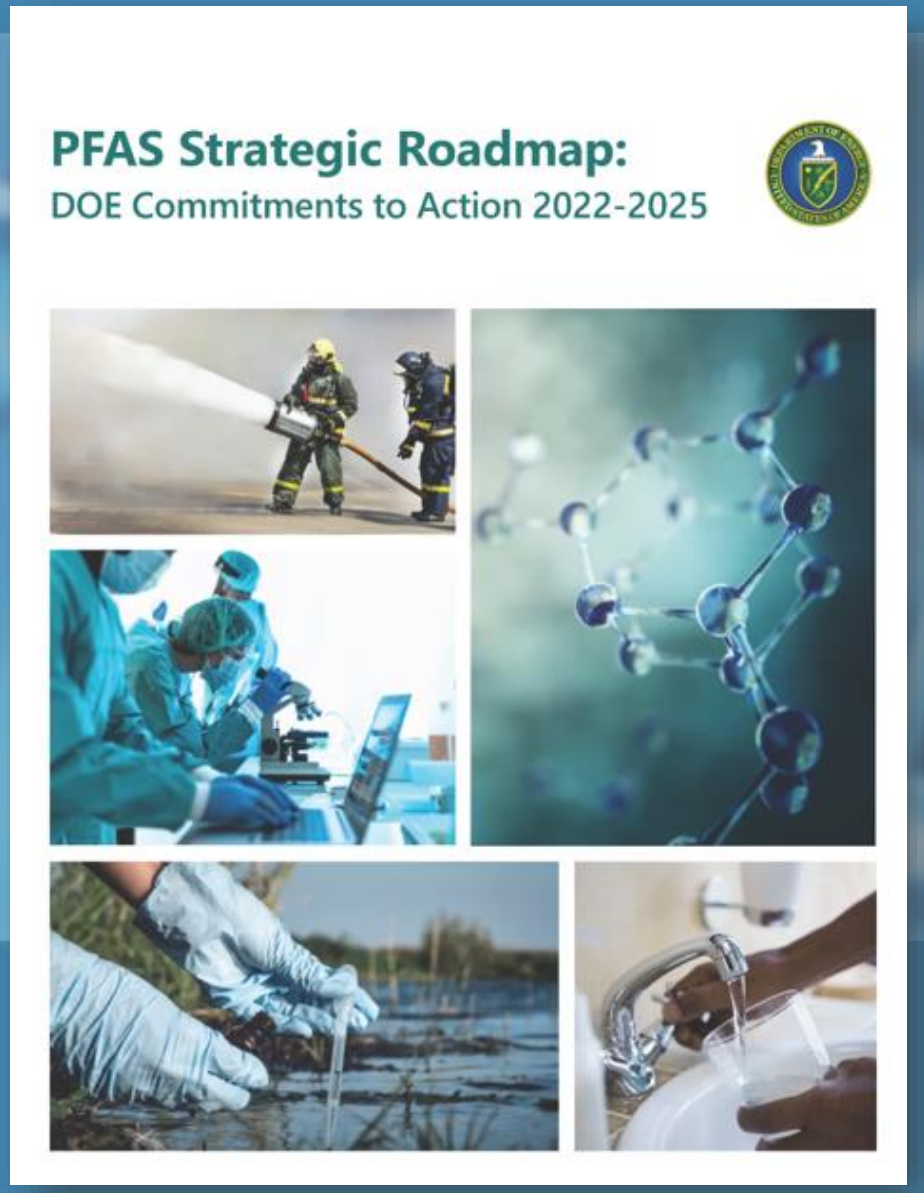
PCC Task Teams

- *Operations Task Team*
- *Historic Use Task Team*
- *National Lab Task Team*
- *Communications Task Team*
- *Environmental Sampling Task Team*

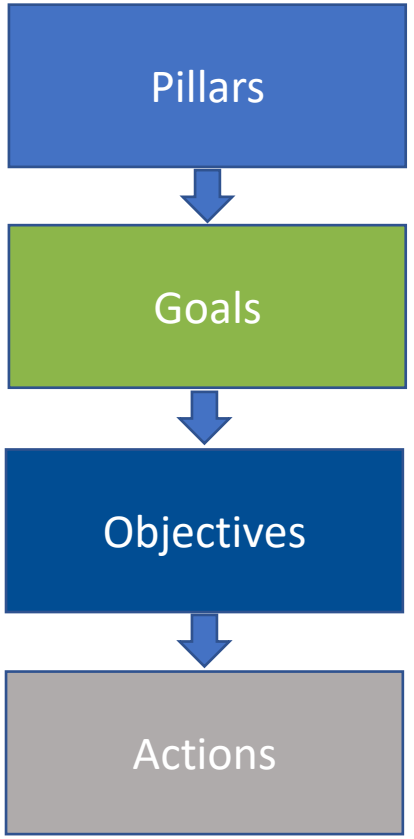
DOE Actions: DOE PFAS Roadmap

The ***PFAS Strategic Roadmap: DOE Commitments to Action 2022-2025*** was published in August 2022.

SCAN ME



DOE Actions: DOE PFAS Roadmap



	Description	Completion Date
Action 1.1	Publish DOE PFAS **Initial Assessment Report**.	4th Q FY 2022
Action 1.2	Publish DOE **guidance on historical and current use** searches.	1st Q FY 2023
Action 1.3	**Test for PFAS at all DOE-owned water systems**, where DOE supplies drinking water to a site, using the most recent U.S. EPA test methods (e.g., 537.1).	1st Q FY 2023 (Initial Testing)
Action 1.4	Complete **initial assessment of classified records** for information regarding PFAS use during the early Cold War.	4th Q FY 2022
Action 1.5	Identify **relevant records** to identify likely PFAS use in **historical and current DOE production and research activities**.	2nd Q FY 2023 (Initial Effort)
Action 1.6	Publish **environmental sampling guidance** to support determining the nature and extent of PFAS releases at DOE sites.	2nd Q FY 2023
Action 1.7	Perform Site field assessments, as appropriate, and provide an **annual site-specific status update** to the PCC.	Ongoing (Initial reports completed January 2022)
Action 1.8	Publish DOE PFAS **Updated Status Report**.	1st Q FY 2025

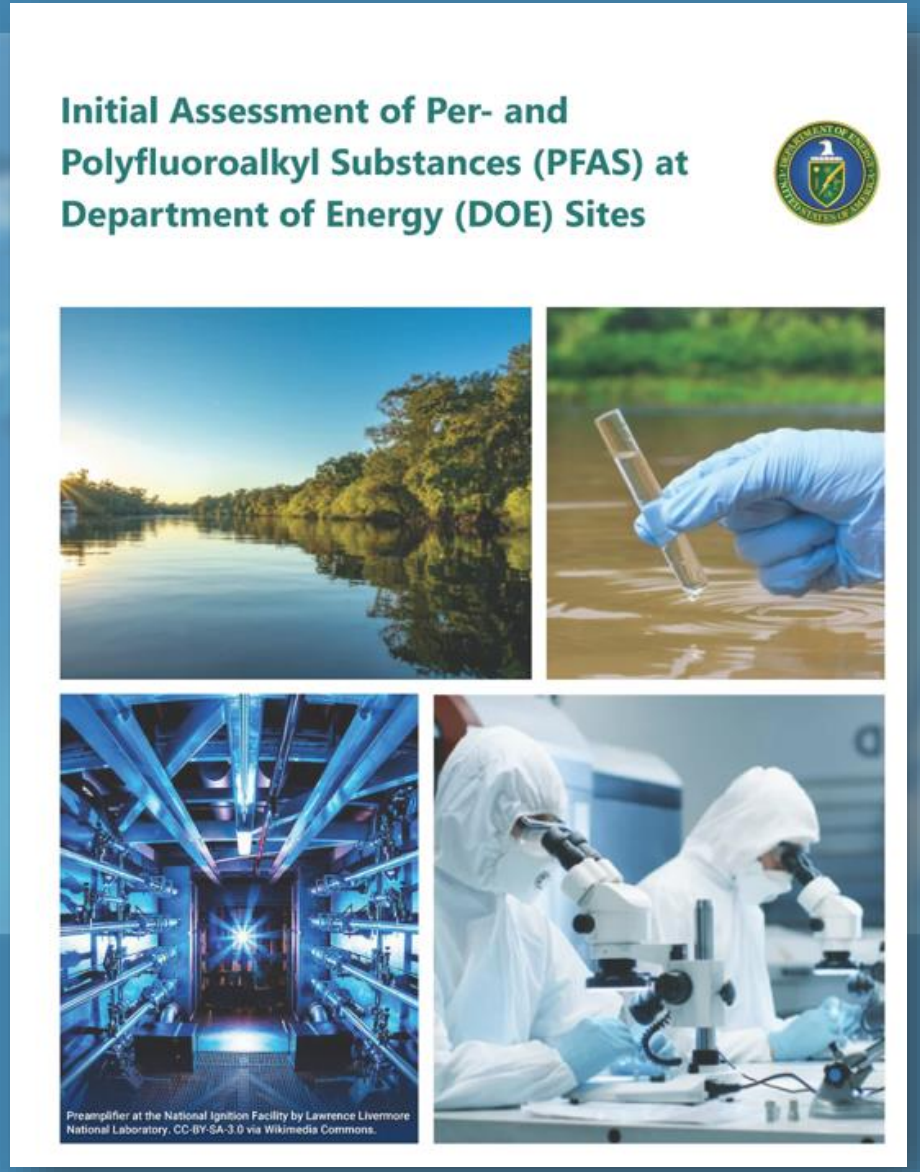
	Description	Completion Date
Action 2.1	Provide **alternative drinking water supply** to DOE sites where PFAS is detected in on-site drinking water at concentrations exceeding federal or state regulatory limits.	Immediate
Action 2.2	Establish requirements to **restrict** any non-emergency use of PFAS-containing **AFFF, suspend disposal actions** unless approved by the head of the program element, **require PPE** for operations with known PFAS exposure, and **report** PFAS spills and releases.	Sept 2021
Action 2.3	Properly manage and dispose of PFAS-contaminated materials and wastes. Develop **disposal guidance**.	2nd Q FY 2023
Action 2.4	Compile, maintain, and share a set of **applicable resources to assist** DOE sites with identifying and minimizing PFAS risks.	4th Q FY 2022
Action 2.5	Develop/update **procurement guidance** to restrict the purchase of PFAS-containing products.	2nd Q FY 2022 (GreenBuy Guide)
Action 2.6	Issue Departmental Guidance on **identifying PFAS** and other emerging contaminants as a significant aspect **within site EMSs** as appropriate, perhaps in the framework of the policy/directives changes identified by the PCC.	4th Q FY 2022 (Begin Coordination w/ DOE Directives Review Board)

	Description	Completion Date
Action 3.1	Publish a **PFAS Research Plan** that identifies research gaps and establishes DOE research priorities to ensure a coordinated effort across DOE laboratories and other federal research partners.	1st Q FY 2023 (Initial research plan published) 1st Q FY 2025 (next update)
Action 3.2	**Engage** with interagency partners and external organizations to inform the Department's PFAS research activities and strategy.	Ongoing
Action 3.3	**Advance** technologies and applied research at DOE National Laboratories and affiliate research programs.	Ongoing

	Description	Completion Date
Action 4.1	Release a **publicly available platform** to serve as a central hub and resource center.	3rd Q FY 2022
Action 4.2	Develop **informational materials** conveying DOE-wide and site-specific information, including updates on PFAS developments.	Ongoing
Action 4.3	Identify **opportunities** at the enterprise and site level **to discuss PFAS issues** with Tribal, state and local governments, and interagency and external stakeholders.	Ongoing
Action 4.4	Establish **open communication channels** to receive stakeholder-provided information and answer public inquiries, to support transparency in Departmental PFAS posture, policy and actions.	3rd Q FY 2022

DOE Actions: PFAS Initial Assessment

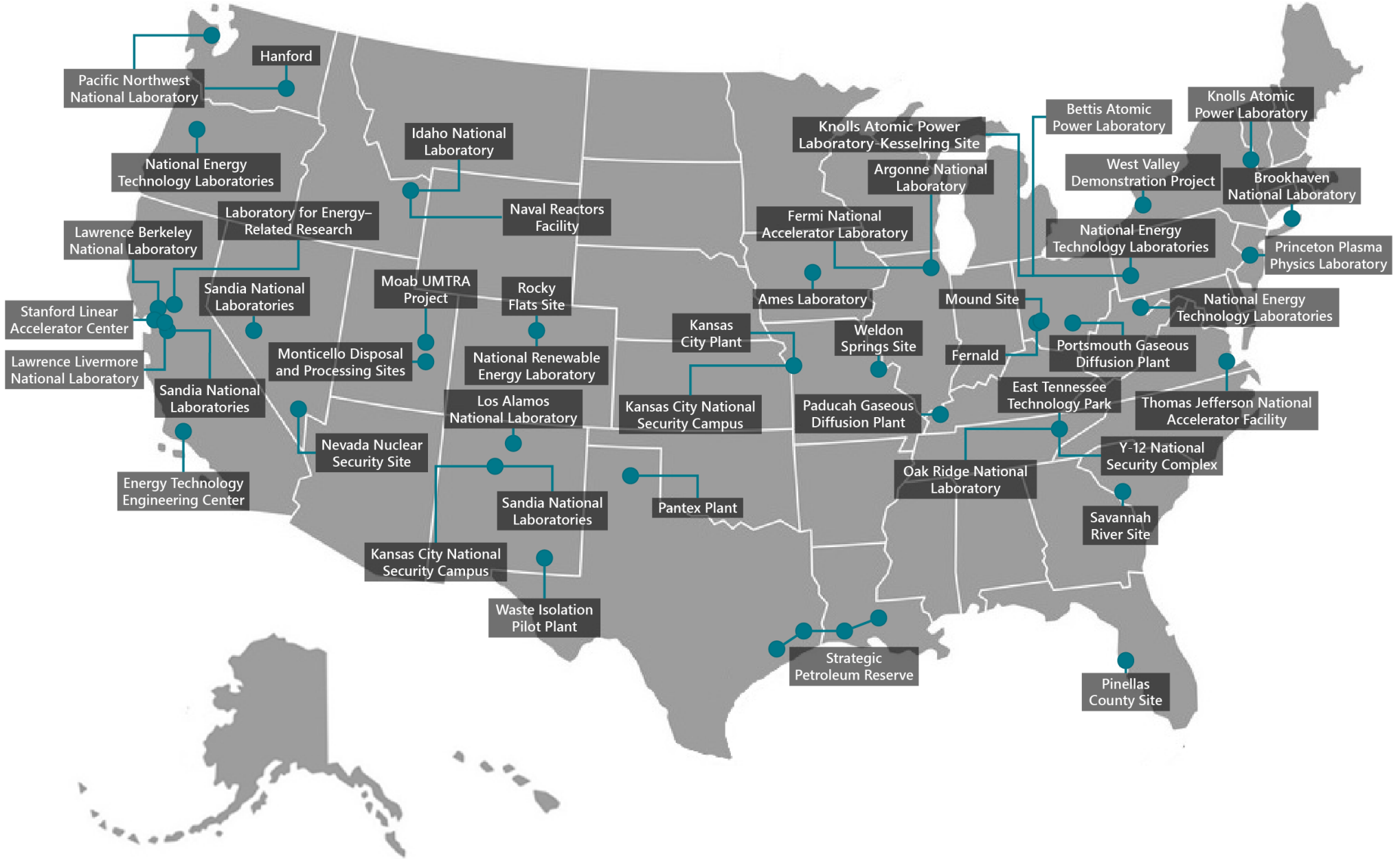
DOE plans to release ***Initial Assessment of Per- and Polyfluoroalkyl Substances (PFAS) at Department of Energy (DOE) Sites*** in the near future.



DOE Actions: PFAS Initial Assessment

- DOE program offices (EM, NE, NNSA, LM, SC, FECM, EE) conducted a survey of PFAS inventories, usage and existing historical information
- **Survey Objective-** To provide an initial understanding of PFAS use and presence at DOE sites, including:
  - Historical usage
  - Potential sources and inventories
  - Drinking water supply and sampling status
  - Regulator or other stakeholder inquiries and requests
  - Detections in environment
  - Routine monitoring programs
  - Potential or known off-site migration

Participating Sites in the DOE PFAS Initial Assessment



DOE Actions: PFAS Initial Assessment

Drinking Water

- Most DOE sites surveyed are supplied by offsite public water systems
- PFOA/PFOS were only detected in two on site drinking water systems (Idaho and Brookhaven).
- DOE will soon have PFAS data on drinking water from the few sites that need to sample their onsite sources

Historical and Current Uses

- Historically, several DOE facilities stored, used and disposed of PFAS-containing products
- Identifying historical and current PFAS inventories continues as DOE better understands its past and present inventories.

DOE Actions: PFAS Initial Assessment

Occurrence in the Environment

- A limited number of sites have sampled for PFAS
- Most sites that have sampled for PFAS have detected PFAS
- Groundwater is the primary media sampled for PFAS
- Four sites have active PFAS monitoring programs

Regulatory and Stakeholder Engagement

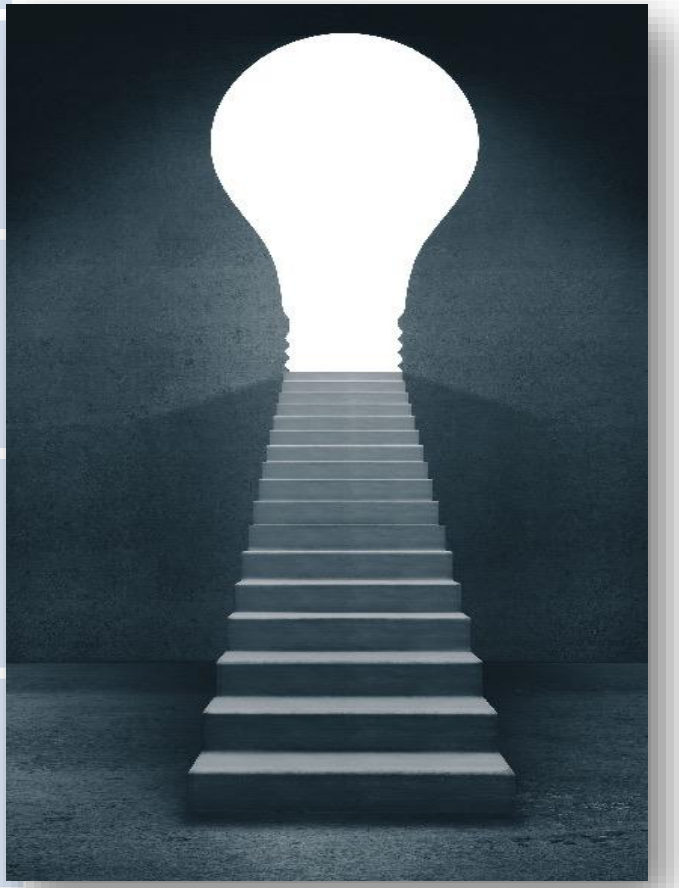
- Engagement has resulted in additional records searches, discrete environmental sampling events, and establishment of environmental monitoring programs.

DOE Actions: Ongoing Research

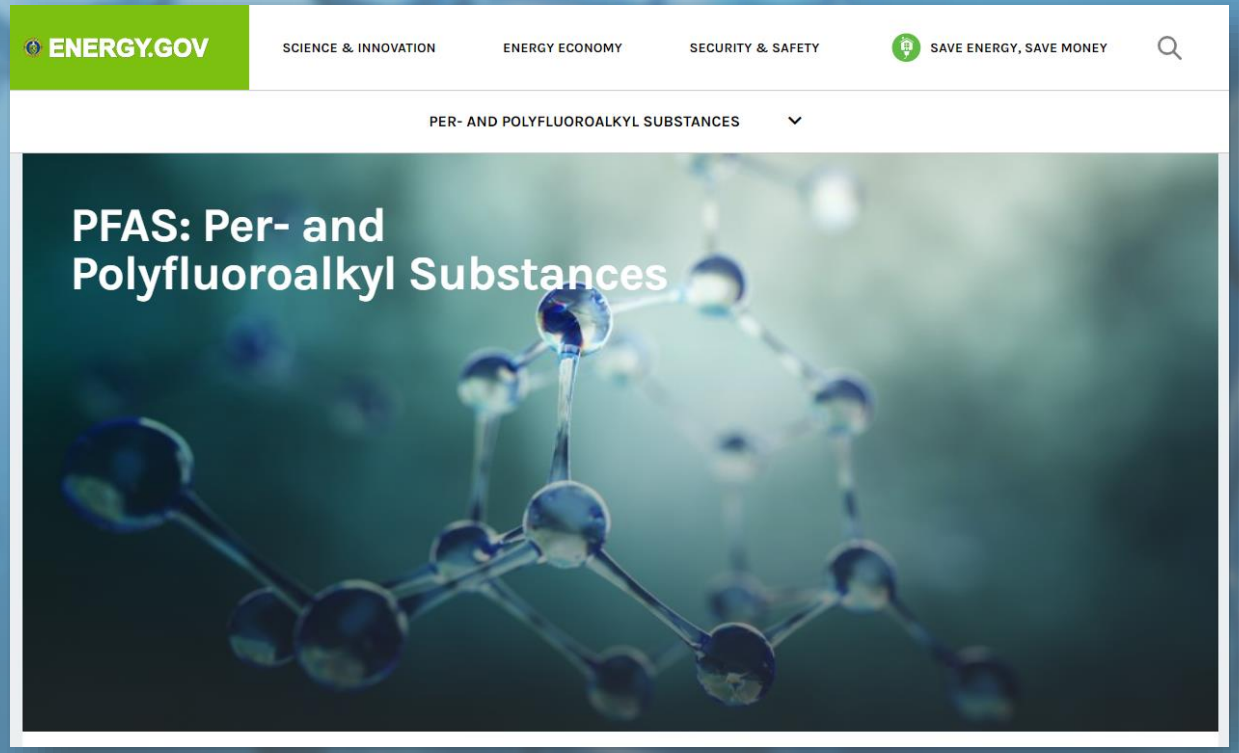
- **Examples of Detection Research**
  - **Argonne National Laboratory** (ANL) in Illinois is developing a field-effect transistor platform for rapid electronic detection of PFAS in water, including the use of AI/machine learning for the design of molecular probes toward selective detection and separation of PFAS.
  - **Pacific Northwest National Laboratory** (PNNL) in Washington created a PFAS capture probe that is tailored for highly selective analyte recognition and detection which can also be used for quantification.
- **Examples of Destruction Research**
  - **Brookhaven National Laboratory** in New York is developing a plasma-based technique to destroy PFAS and related components in water.
  - **Fermi National Accelerator Laboratory** in Illinois conducting research on the degradation of PFAS in water via high power, energy-efficient electron beam accelerator.

Next Steps

Issue DOE Initial PFAS Assessment	
Understand	Gather and analyze PFAS data to fill knowledge gaps and inform site-specific risk management
Manage and Protect	Take steps to protect DOE workers, the public and the environment
Advance Solutions	Expand the body of knowledge and develop technological solutions to address PFAS issues
Communicate and Collaborate	Inform and engage stakeholders



PFAS Resources



DOE PFAS Website

DOE PFAS Mailbox:

Contact us with questions or feedback at

PFASInfo@hq.doe.gov