



Addressing Perfluorooctanoic Sulfonate (PFOS) and PerfluorooctaneAcid (PFOA)

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Drinking Water on Our Installations

- **Completed UCMR3 testing and reporting in December 2015**
 - 63 DoD drinking water systems required testing – 1.3% of sites tested
 - Only Wright Patterson AFB's system detected levels above LHA –one sample had 235ppt
 - 1.6% of DoD's systems tested above LHA
- **As a concerned consumer, in June 2016 ASD(EI&E) directed the Military Departments to test for PFOS/PFOA where DoD supplies drinking water**
 - Completed sampling and testing of all 524 DoD drinking water systems for PFOS/PFOA
- **DoD has identified 24 drinking water systems where DoD is the water supplier, which tested above the LHA**
 - DoD is following the EPA advisory recommended actions to include taking wells off line and providing alternative drinking water
 - These actions break the exposure pathway
- **Where DoD is not the drinking water supplier, installations are encouraged to ask if their drinking water suppliers have tested the drinking water and are the results below the EPA LHAs**
 - Identified 12 systems where DoD is not the supplier that tested above the LHA level



Drinking Water off DoD Installations

- **Where DoD suspects a release may have migrated off-base, we are:**
 - Reaching out to the municipal water providers to understand what actions the water purveyor is taking to reduce PFOS/PFOA level below the EPA LHA
 - Sampling private drinking water wells if there was a suspected or known release that migrated off-base
- **What we're doing:**
 - First priority for DoD was to work with the Communities and private individuals to break the exposure pathway
 - DoD moved quickly and aggressively address and cut off human exposure via drinking water
 - Currently going through the complete CERCLA process



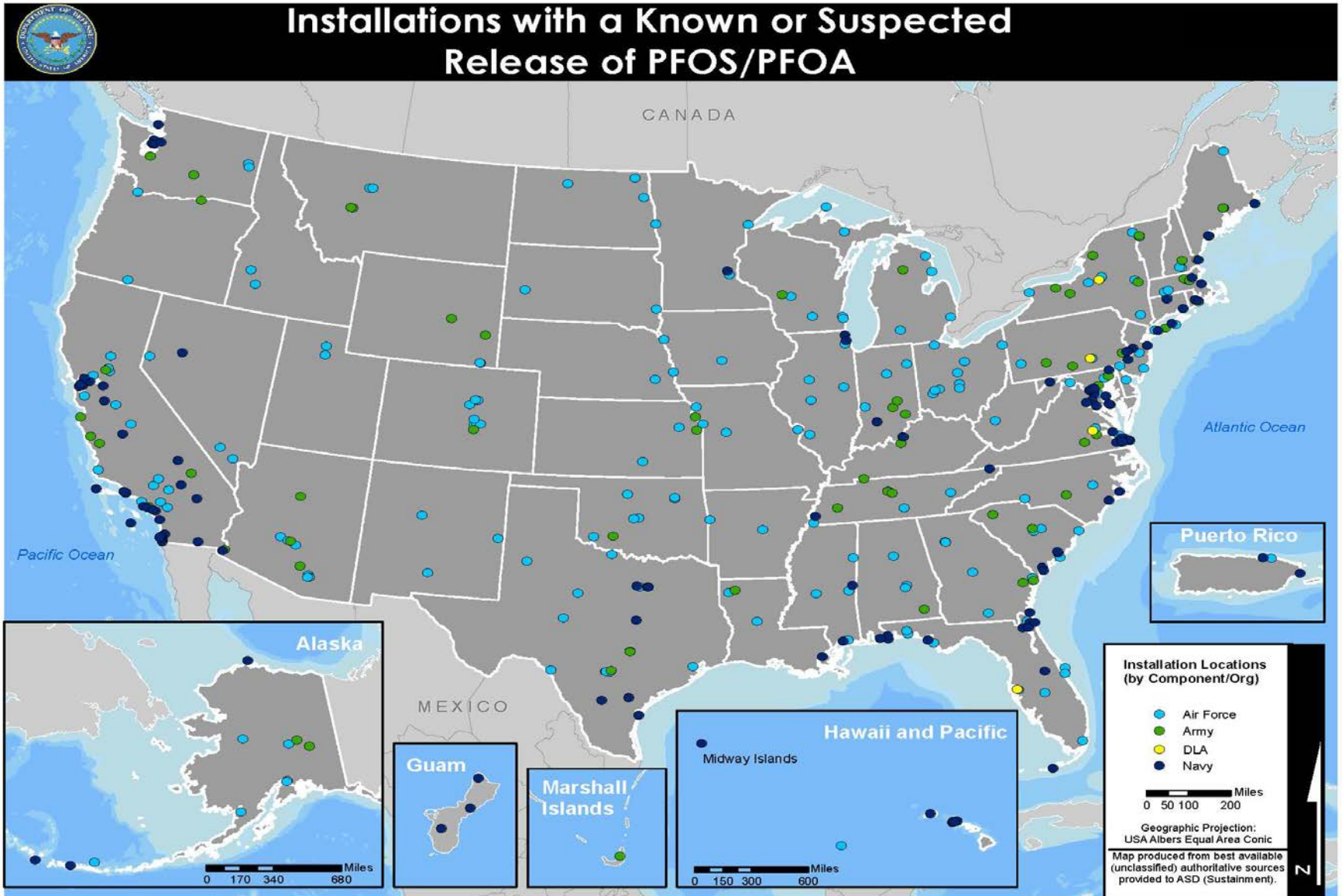
Cleanup on Our Installations

- **DoD follows a comprehensive approach to identify installations where DoD stored and/or used products that contain PFOS/PFOA—notably including Aqueous Film Forming Foam (AFFF) and suspect a release is impacting drinking water**
 - As of July 31, 2018, DoD identified 401 active and BRAC installations in the United States with at least one area where there is a known or suspected release of PFOS/PFOA
- **DoD is following the CERCLA process to address these suspected releases†**
 - First step identifies the source(s) of a known or suspected release
 - Then identify if there is an exposure through drinking water
 - If there is exposure, DoD priority is to cut off drinking water exposure
 - Once exposure pathway is broken, the site is prioritized and will follow the CERCLA process to fully investigate the release and determine the appropriate cleanup actions based on risk
- **The DoD Components are conducting additional investigations, which include sampling groundwater.**

† Reference: Defense Environmental Restoration Program, 10 U.S.C. Section 2701



DoD Locations with a Known or Suspected Release of PFOS/PFOA





AFFF Replacement

- **ASD(EI&E) issued a policy in January 2016 requiring the Military Departments to:**
 - Issue Service-specific risk management procedures to prevent uncontrolled land-based AFFF releases during maintenance, testing, and training activities, except for shipboard use where practical
 - Remove and properly dispose of PFOS-based AFFF from the local supplies
- **Each of the Military Departments is taking actions to remove the AFFF containing PFOS from the supply system**
 - AF funded removal of PFOS-based AFFF from all land vehicles in FY2016
- **DLA is developing a new stock numbers for PFOS-free foam**
- **Strategic Environmental Research and Development Program/Environmental Security Technology Certification Program (SERDP/ESTCP) initiated fluorine-free AFFF programs starting in FY2016**
 - Nine Research and Development projects initiated in FY2016 and FY2017 aimed at alternative foams
 - Four Demonstration projects will be initiated in FY2019 to investigate fluorine-free AFFF systems and their ability to meet the stringent requirements of Military Specification MIL-F-24385F



Communications & Transparency

- **Each of the Military Departments have PFAS web sites:**
 - Army: <https://www.denix.osd.mil/army-pfas/home/>
 - Navy: <http://www.secnav.navy.mil/eie/pages/pfc-pfas.aspx>
 - Air Force: <https://www.afcec.af.mil/WhatWeDo/Environment/Perfluorinated-Compounds/>
- **Installations also engage with the community through:**
 - Restoration Advisory Boards
 - Public meetings
 - Distribution of fact sheets
- **DoD is participating on the Interstate Technology Regulatory Council (ITRC) project to review and summarize the currently available information on PFAS.**
 - ITRC technical team is comprised of members representing Federal and State regulators, federal agencies, industry and community stakeholders
 - The ITRC documents provide a unified summary of the state of the science to aid in the selection of appropriate response to environmental releases of PFAS
 - <https://www.itrcweb.org/Guidance>
- **Information on Strategic Environmental Research and Development Program/Environmental Security Technology Certification Program (SERDP/ESTCP)funded project may be viewed at:**
 - <https://www.serdp-estcp.org/Featured-Initiatives/Per-and-Polyfluoroalkyl-Substances-PFASs>



PFOS/PFOA Challenges

- **Responding to state laws and standards**
- **Cleanup standard -- Lifetime Health Advisory (LHA) vs Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) risk assessment**
- **Risk Communication**
- **Quickly changing scientific landscape**
 - Hard to even finalize reports/toxicological values before new information comes out
- **Uncertainty in the Toxicity Value Process for Additional PFAS**

**DoD remains committed to protecting
human health and the environment**



Conclusion

- **DoD's priority is to address PFOS/PFOA to protect personnel living and working on our installations and the surrounding communities that we have impacted**
- **Military Departments have made great strides to ensure safe drinking water for our installations**
- **We are addressing DoD's cleanup responsibility**
- **Initiated removal of AFFF with PFOS from the supply chain**

Addressing PFOS/PFAO is a National issue that needs a National Solution



Questions?



Backup/References



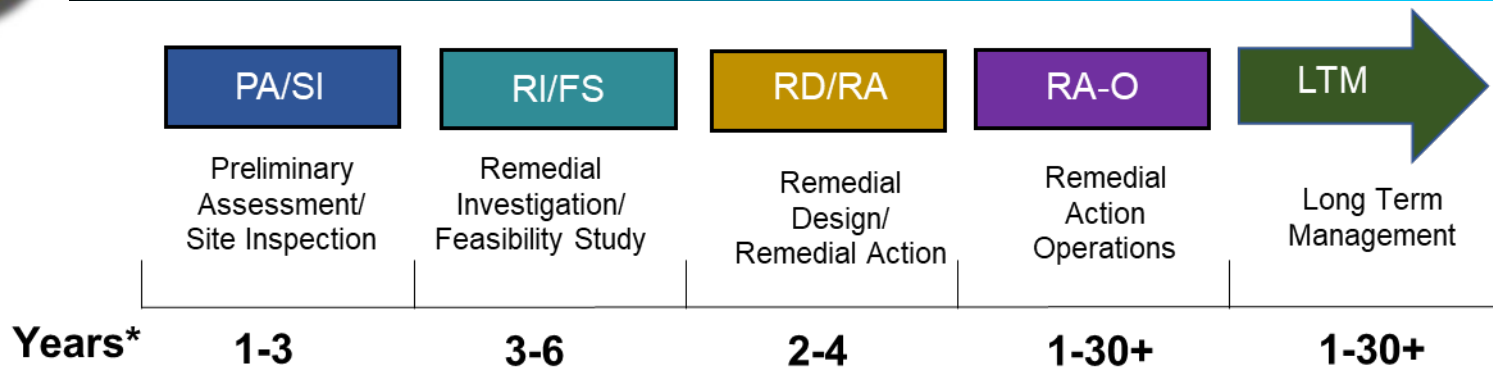
Applicable Policies

- **DoD Instruction 4715.06, Environmental Compliance in the United States,” May 4, 2015**
- **DoD Instruction 4715. 07, “Defense Environmental Restoration Program,” May 21, 2013**
- **DoD Instruction 4715.18, “Emerging Contaminants (ECs),” June 11, 2009**
- **DoD Manual 4715.20, “Defense Environmental Restoration Program (DERP) Management,” March 9, 2012**
- **ASD(EI&E) Memorandum, “Testing DoD Drinking Water for Perfluorooctane Sulfonate (PFOS) and Perfluorooctanoic Acid (PFOA),” June 10, 2016**
- **Emerging Contaminant Governance Council Meeting Results January 28, 2016**

These are consistent with CERCLA, NCP, DERP Statute (10 U.S.C. 2701), and SDWA



CERCLA Process



- **DoD Follows the CERCLA Process**

- Preliminary Assessment/Site Inspection – Identify releases
 - Use EPA’s Regional Screening Levels to determine whether to continue to a Remedial Investigation
- Remedial Investigation/Feasibility Study – Investigate and characterize the release and evaluate remedy alternatives
 - Perform Risk Assessment to determine if there is an unacceptable risk to human health or the environment
 - Evaluate ARARs – Once it is determined that remedial action is necessary, DoD will analyze state cleanup standards under the CERCLA ARARs process.
 - Develop Proposed Plan and Decision Document
- Remedial Action/Remedial Operation
 - Implement and operate remedy
- Long Term Management
 - Monitoring and Five Year Reviews

- **DoD prioritizes sites by risk level, but other factors may be considered**

*Estimated average timeframe to address installation restoration sites



PFAS R&D

- **Conducted fate, transport, effects, and remediation research and demonstrations**
- **SERDP/ESTCP held PFAS workshop in May 2017 to provide strategic guidance for research and demonstration efforts (<https://www.serdp-estcp.org/News-and-Events/Blog/Advances-in-Perfluoroalkyl-Chemicals-PFCs-Characterization-and-Remediation>)**
 - **A follow on workshop will be held July 30 – August 1, 2019. A summary of the results of this workshop will be published in October 2019.**
- **Currently funding approximately 90 active projects with an investment of ~\$60M**
- **All funded projects will be highlighted at the SERDP & ESTCP Symposium, December 3 - 5, 2019**
- **For additional information about specific projects, view the interactive project list at <http://map.serdp-estcp.org/Featured-Initiatives/Per-and-Polyfluoroalkyl-Substances-PFASs/>**