NASA Update on Per- and Polyfluoroalkyl Substances

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NASA TAKING ACTION ON PFAS

- **NASA stopped non-emergency use of AFFF**
- **Town Of Chincoteague Drinking Water System:**
  - In April 2017, TOC stopped using the wells in which PFAS had been detected
  - NASA provided supplemental water to TOC from 2017 to April 2021
  - Since April 2017, more than 450 samples collected from seven production wells and finished water
  - PFOS and PFOA below detection limits in drinking water since September 2019
  - NASA installed a water treatment system to remove PFAS; operation began in April 2021
- **WFF Drinking Water System:**
  - Since April 2017, more than 450 samples collected from five production wells and finished water
  - Drinking water has shown concentrations of PFOA and PFOS less than 1 ppt and detections of four other PFAS compounds at less than 5 ppt
  - Two production wells were removed from service; installed and connected a new well
- **Installation/sampling of perimeter wells and observation wells:**
  - 17 perimeter wells; 6 observation wells; more than 400 samples collected
  - No off-site exposure via groundwater
- **Quarterly sampling of surface water in Little Mosquito Creek, Jenneys Gut, and on-site streams (more than 90 samples at 13 locations)**
- **Number of compounds analyzed for has increased as new methods are developed/approved; for drinking water, currently analyzing 29 compounds to lowest available detection limits**

NASA continues to work closely with ATSDR, EPA, the Town of Chincoteague, VDEQ, and VDH and will continue to track regulatory changes and update the public and local, state, and federal agencies on sampling results and actions being taken.

Installation of PFAS perimeter monitoring well via roto-sonic drilling

Low-flow sampling of PFAS monitoring well

PFAS Water Treatment System

- Town of Chincoteague stopped flow from four production wells in 2017 upon discovery of PFAS in the well water.
- NASA provided supplemental water while a treatment system was designed/installed.
- NASA installed a granular activated carbon (GAC) treatment system, a proven technology, for removal of PFAS from the well water to lowest detectable levels.
- The GAC system can treat up to 600,000 gallon per day of water from three TOC shallow wells and one deeper well.
- GAC system began operation in April 2021 and has treated more than 80 million gallons of water.
- NASA samples bi-weekly (over 200 samples).
- The treatment system has effectively removed PFAS from the water provided to the Town of Chincoteague's drinking water system.

Inspecting and Sampling the Treatment System

ON-GOING PFAS SITE INVESTIGATIONS

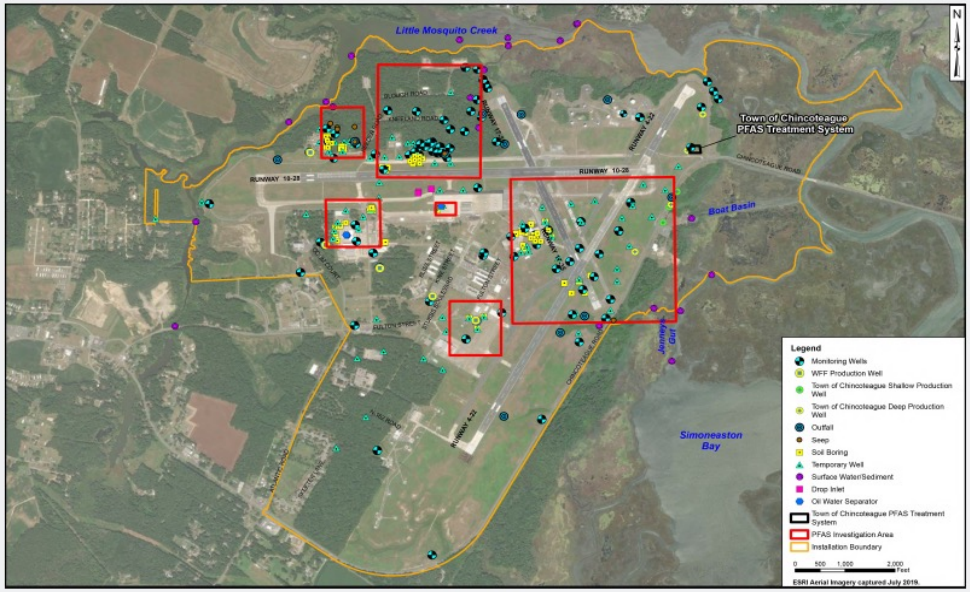
- NASA took immediate action to investigate the Main Base and Wallops Island to determine sources and nature and extent of PFAS
- NASA is evaluating results using latest EPA guidance
- Investigative samples collected :
  - Over 200 soil samples
  - Over 200 groundwater samples
  - Over 75 surface water samples
    - Includes Little Mosquito Creek, Main Base Boat Basin, Jenneys Gut, on-site streams, storm water outfalls, and inlets, seeps, oil/water separator
  - Over 30 sediment samples
  - Over 30 waste water and 6 biosolids samples
- PFAS sources present in several areas on both Main Base and Wallops Island, including fire stations, former fire training area, and Lear Jet Crash area
- PFAS detected in surface water samples on-site, in Little Mosquito Creek and Jenneys Gut
- NASA is studying treatment options to control on-site sources and/or eliminate off-site movement of PFAS. On-site sources include wastewater, groundwater, and surface water discharges
- All data is being shared with environmental and health agencies and summarized in reports for public release

Soil and groundwater sample collection

Sampling in Little Mosquito Creek

NASA is currently working with ATSDR, EPA, VDEQ, and VDH to develop a plan for additional investigation and treatment options for PFAS on and around the Facility

PFAS Sample Locations



Main Base

Wallops Island

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