Pease Tradeport Water System Update

06/27/2018

Pease RAB Meeting

Demonstration Project – Smith & Harrison Wells

- Active since September 2016
- Current flow rate = 400 gpm
- GAC Replacement in Filter 1 during week of March 26th

Pease Tradeport Water System Activated Carbon Treatment Demonstration Project Sampling:

May 24, 2018 Results

Source Water: Harrison and Smith Wells

Well	PFOS	PFOA
Combined Influent	0.020	0.005

Filter #1 244 Million Gallons Filtered since September 2016

Filter #1 Effluent

PFOS	PFOA
ND	ND

Filter #2 13 Million Gallons Filtered since April 23, 2018

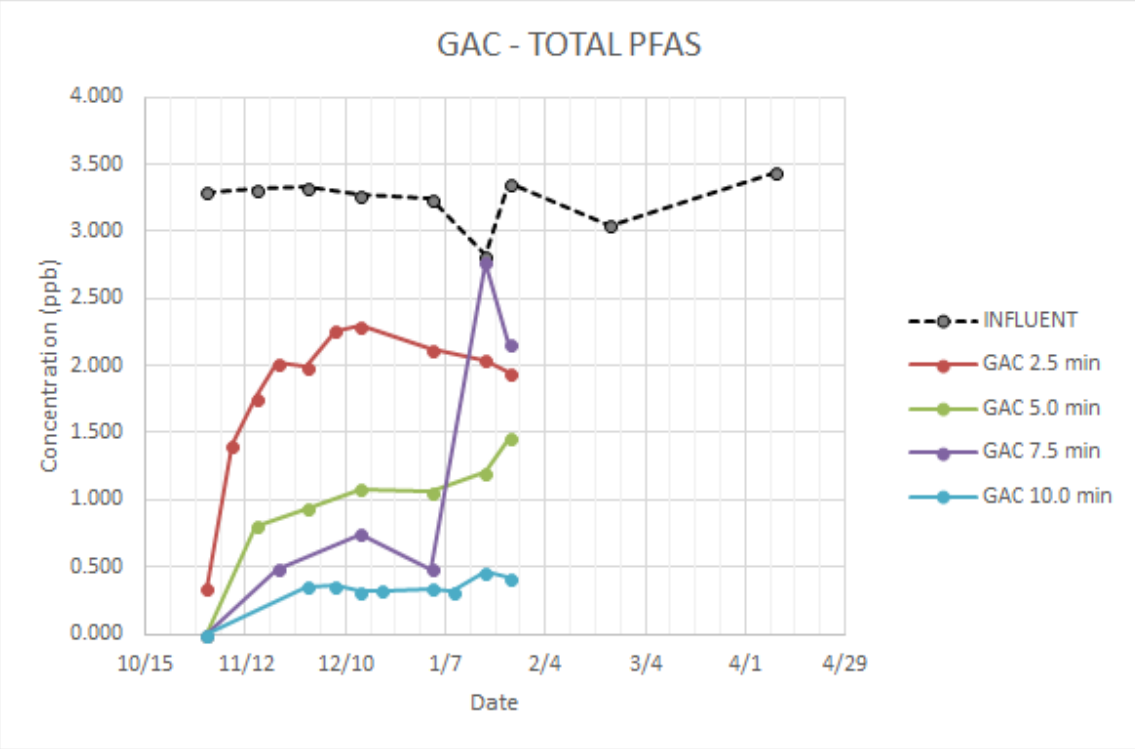
Water To Distribution System

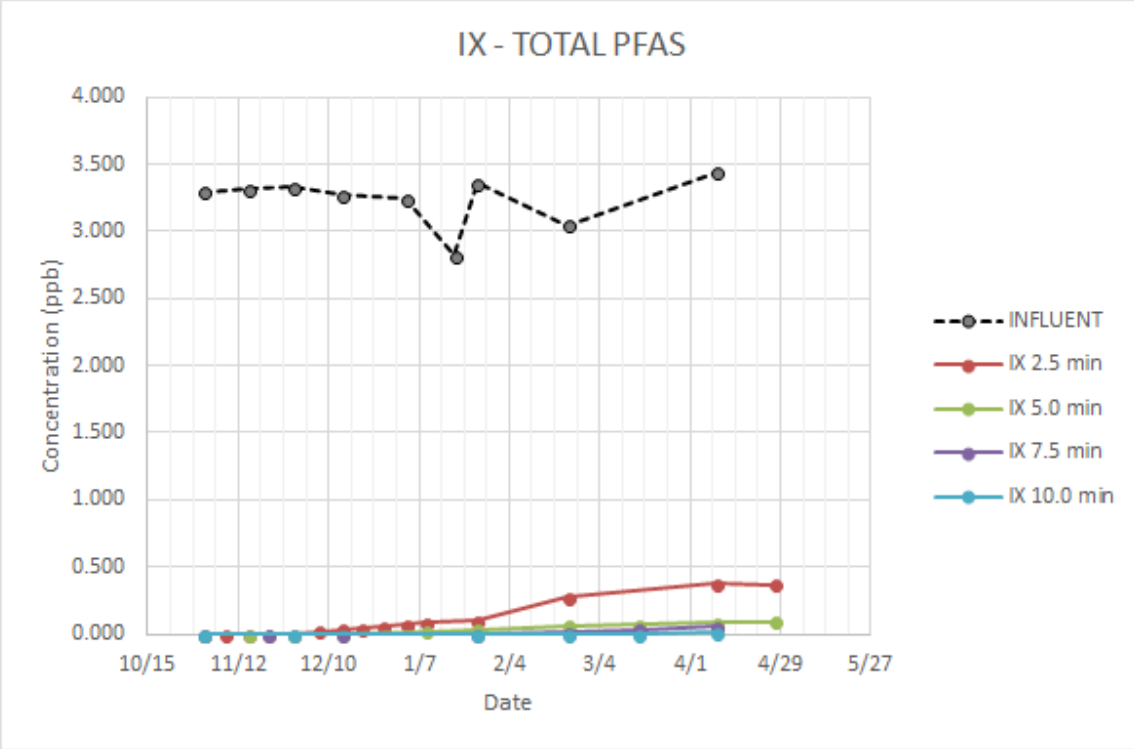
PFOS	PFOA
ND	ND

Notes: All samples in parts-per-billion (ppb)
ND = Non Detect
All samples collected by Weston & Sampson and analyzed by Maxxam Laboratory

Haven Well Pilot (Sorbix LC1 vs Calgon F-400)

Haven Well Treatment Pilot - total PFAS





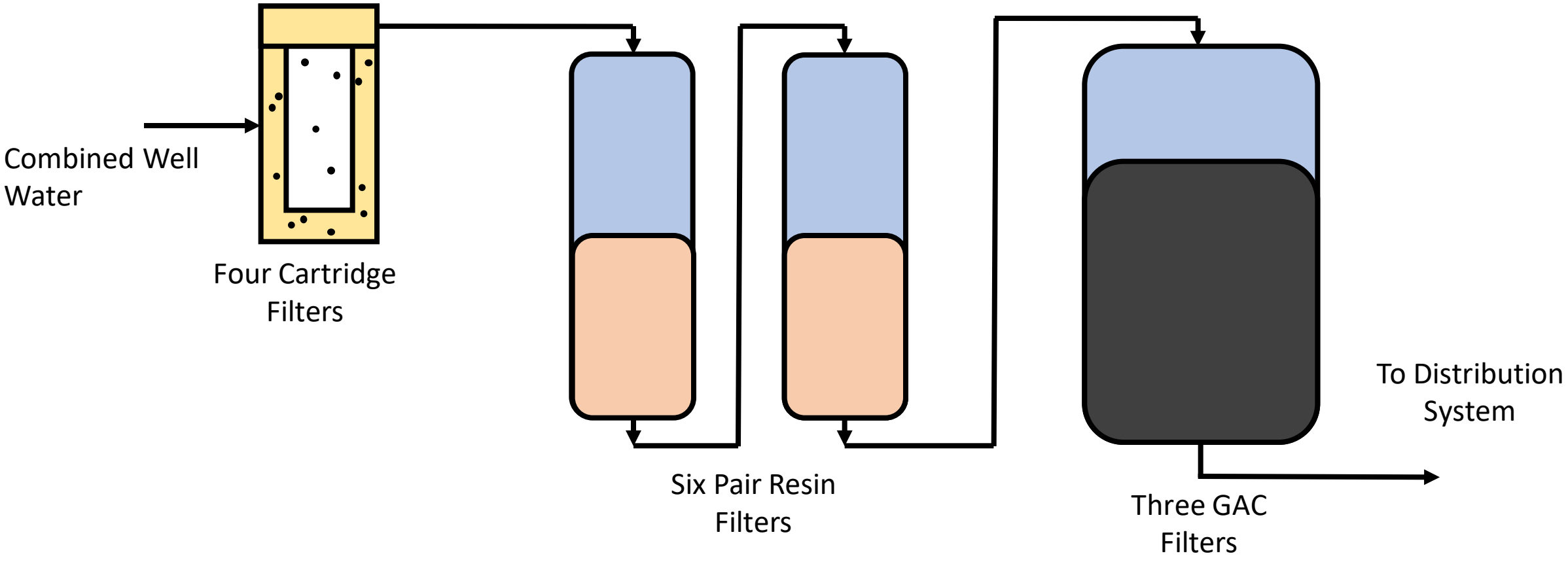
Review of Other Public Water Systems Treating PFAS – current status

- Publically available data (mostly from water system websites) evaluated suggests that regarding PFAS compounds, the effected water systems are focused primarily on PFOA and PFOS relative to analytical/sampling efforts and reporting in publicly available documents.
- None of the 20 systems reviewed had test results readily available for the 23 PFAS compounds routinely sampled for by the City of Portsmouth and the Air Force under investigation activities at Pease.
- Most systems focus only on the compounds with an EPA health advisory, PFOA and PFOS.
- Only a few of the systems reviewed readily present their data providing the number of compounds, levels of detection, and the frequency of analysis.
- Currently, the City of Portsmouth is posting all of their sample results for all PFAS compound sampling to the City's website.

Haven Pilot Conclusions

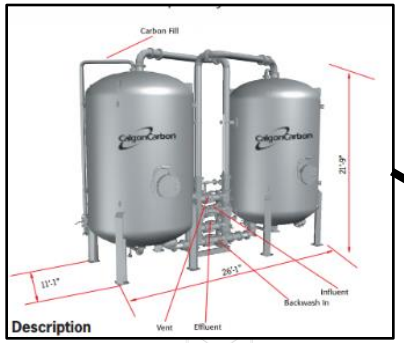
- Resin significantly outperforms GAC when raw water PFAS concentrations are high
- Resin removed short chain compounds better than GAC
- Less filter media changes necessary with resins than GAC
- Resins in combination with GAC will provide best long-term solution

Proposed Final Treatment Schematic

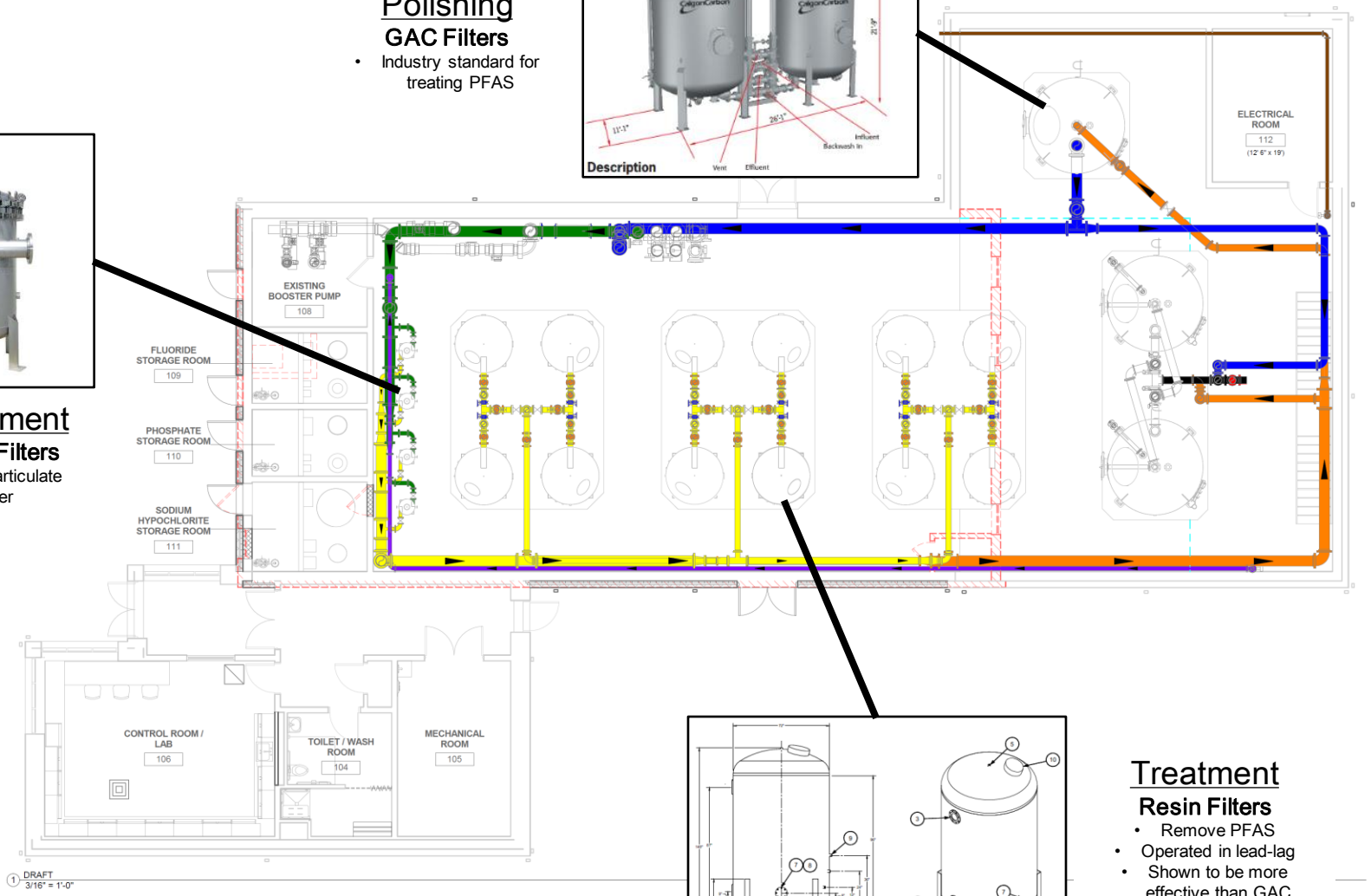


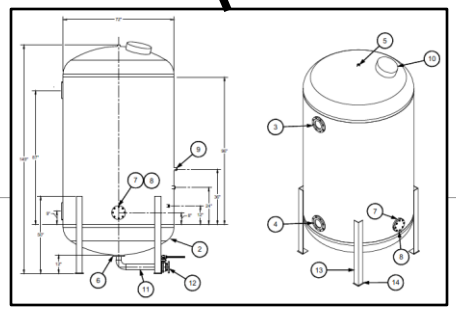
Process Equipment

Polishing
GAC Filters
- Industry standard for treating PFAS



Pretreatment
Cartridge Filters
- Remove particulate matter





Treatment
Resin Filters
- Remove PFAS
- Operated in lead-lag
- Shown to be more effective than GAC

Weston & Sampson

DRAFT

FOR CLARITY, THIS SHEET BEST VIEWED IN COLOR
PROJECT TRUE

SCALE: AS

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No. | Date | Dr By | Ch By | App By | Description | DATE
A | P | P | R | O | V | E | D | 04/03/18

REGISTERED PROFESSIONAL ENGINEER

60% DESIGN
NOT FOR CONSTRUCTION

CITY OF PORTSMOUTH, NEW HAMPSHIRE
DEPARTMENT OF PUBLIC WORKS
GRAFTON ROAD DRINKING WATER TREATMENT PLANT

DRAFT

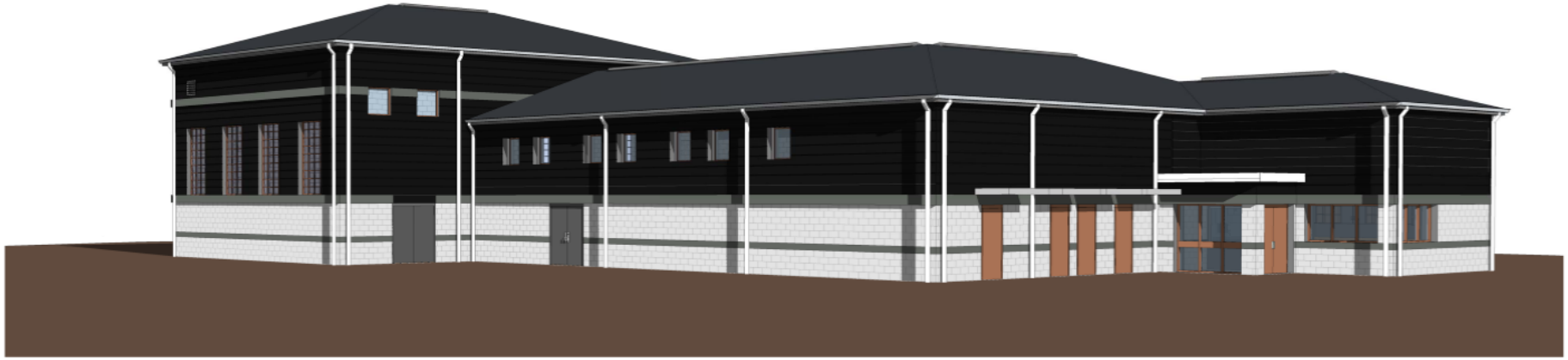
DRAWN BY	DSN BY	CHK BY	APP BY
Author	Designer	Checker	Approver

CONTRACT: | JOB NO. 2170719 | SCALE: 3/16" = 1'-0" | DATE:

M-1

SHEET OF

Proposed Building Layout



② OVERALL BLDG RENDERING

SCALE: AS NOTED

Design Considerations

- Design for maximum flow rate of 1,200 gallons-per-minute (1.7 Million gallons-per-day)
- Additional pressure needed due to flow through four sets of filters prior to distribution system
  - Will require additional pumping, valving, metering and controls
- System operational setpoints will be more complex than the current GAC configuration
- Comprehensive water quality monitoring necessary to assure system water quality is meeting goals of treatment – We will continue to discuss with Air Force and regulators prior to reactivation of Haven Well

Schedule

- 90% Plans and Specifications to AF – late July 2018
- Bidding – Fall/Winter 2018
- Award Contract – Early 2019

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PEASE TRADEPORT WATER SYSTEM

WATER QUALITY AND RESPONSE TO PFAS COMPOUNDS

For information about the Portsmouth Water System's PFAS sampling, click **here**.

The City of Portsmouth's Water Division has been actively working with the United States Air Force (Air Force), the United States Environmental Protection Agency (EPA), and the New Hampshire Department of Environmental Services (NHDES) in response to the detection of elevated levels of the unregulated contaminant perfluorooctane sulfonic acid (PFOS) from the Haven Well in 2014. This well was one of three wells that served the Pease International Tradeport water system. PFOS is one of a class of chemicals known as **Per- and polyfluoroalkyl substance** (often referred to as PFCs or PFAS). PFAS compounds are a diverse group of compounds resistant to heat, water, and oil. For decades, they have been used in hundreds of industrial applications and consumer products such as carpeting, apparels, upholstery, food paper wrappings, fire-fighting foams and metal plating. The contamination at the Haven Well has been attributed to the past use of **firefighting foam at the air base** and the air base's fire training center. Because the level of PFOS exceeded the "**provisional health advisory**" set by the EPA, the well was shut down and it has been off ever since. A number of actions have been taken by the project response technical team, which includes the City of Portsmouth, the **Air Force Civil Engineering Center**, the EPA, the **NHDES** and the **Pease Development Authority**. The following are key events and actions taken as part of the response: