



## DEPARTMENT OF THE AIR FORCE

20th FIGHTER WING (ACC)  
SHAW AIR FORCE BASE SOUTH CAROLINA

### MEMORANDUM FOR RESTORATION ADVISORY BOARD MEMBERS

FROM: 20 CES/CEIE

SUBJECT: Restoration Advisory Board (RAB) Meeting Minutes

1. Meeting information:

- a. Date: 23 May 2022
- b. Time: 1830-2030
- c. Location: Patriot Park Pavilion, 200 General Drive, Sumter, SC 29150
- d. Air Force Co-Chair: Mr. Raymond Magby, 20 MSG/DD
- e. RAB Members/Alternates and others in Attendance

City/County Officials

Mr. Jeff Derwort, Sumter City-Country Planning  
Mr. Bill Rozier, City Engineer (Not Present)  
Ms. Karen Hyatt, County Director of Public Works (Not Present)  
Ms. Helen Roodman, Sumter City-Country Planning (Not Present)

South Carolina Department of Health and Environmental Control (DHEC)

Mr. Mike Danielsen, SCDHEC Columbia Office  
Ms. Gabrielle Munn, SCDHEC Columbia Office  
Mr. Keith Lane, SCDHEC Region 4, Sumter Office (Not Present)

RAB Community Members

Mr. Daniel Burkett (RAB Community Co-Chair)  
Mr. Charles Firmbach  
Mr. John Hayes (Not Present)  
Mr. Heath Hoover (Not Present)  
Mr. Tony Horton (Not Present)  
Rev. Willie Lawson (Not Present)  
Mr. Steven Schmidt (Not Present)  
Ms. Amanda Skelton (Not Present)

Community Members

Ms. Amber Brown  
Mr. Jeff Christensen  
Mr. Jarod Harris

Ms. Dee Hoehn

Others, Air Force Affiliated

Capt Amanda Herman, 20 FW/PA

Ms. Lisa Allen, 20 FW/PA

Mr. Nick Muszynski, 20 CES/CEI

Mr. Wendell Williams, 20 CES/CEIE

Ms. Anna Butler, USACE Savannah

Mr. Juvenal Salomon, AFCEC/CZOE

Mr. Christopher Wargo, AFCEC/CZOE

Mr. Gary Fields, AFCEC/CZOE

Ms. Hillary Weber, Bay West

Ms. Emily Widstrand, Bay West

Mr. Mark Fisherkeller, Arcadis

**2. Welcome**

Ms. Leigh-Ann Fabianke, Galen Driscoll, served as the meeting facilitator and commenced the meeting. Ms. Fabianke introduced Mr. Raymond Magby, the Air Force RAB co-chair. Mr. Magby welcomed and thanked everyone for participating. He stated that community involvement is a critical element of the environmental clean-up process, and the RAB is an opportunity for the Air Force to share updated information about environmental restoration activities and to hear feedback from the community. Mr. Magby asked attendees to not leave the meeting with unanswered questions or ensure an action item is recorded to address their questions. Ms. Fabianke reviewed open action items from the April 2021 RAB meeting; updates are included at the end of this summary.

**3. Introductions**

Ms. Fabianke introduced Mr. Juv Salomon, the Shaw Remedial Project Manager. Attendees then introduced themselves.

**4. Stakeholder/RAB Member Updates**

There were no stakeholders/RAB members that wanted to provide updates.

**5. Air Force Update**

Mr. Juv Salomon shared the purpose of the RAB is to promote community awareness and obtain constructive community review on current and proposed environmental cleanup actions. The RAB mission is to provide open and interactive dialogue among stakeholders.

Mr. Salomon explained there will be one technical briefing during the meeting covering updates regarding the Shaw AFB Environmental Restoration Program (ERP), the ongoing clean-up of Shaw AFB and predominant chemicals observed off-base. The Shaw ERP is responsible for cleaning-up contamination from past operations on and surrounding the installation. Due to historical practices deemed appropriate at the time, contamination found its way into the groundwater. Some of this contaminated groundwater has moved off-base. There are enforceable clean-up standards set by the Environmental Protection Agency (EPA) for volatile organic compounds (VOCs), which the Air Force has been cleaning up

for many years, including Tetrachloroethene (PCE) and Trichloroethene (TCE) (chemicals used in dry cleaning operations and degreasing agents). They both have a maximum contaminant level (MCL) of 5 parts per billion (ppb), meaning when groundwater is tested, if the level of contamination is above 5 ppb, the Air Force must take action to lower the contamination levels below the MCL. PCE and TCE have been found in groundwater off-base, to the west of Shaw AFB.

Another group of chemicals the Air Force is actively addressing, called Per- and Polyfluoroalkyl Substances (PFAS), do not have an MCL or cleanup standard since they are known as emerging contaminants. EPA is working to establish an MCL, but to provide Americans, including the most sensitive populations, with a margin of protection from a lifetime of exposure to two specific PFAS chemicals, Perfluorooctane Sulfonate (PFOS)/Perfluorooctanoic Acid (PFOA) from drinking water, EPA established the health advisory level (LHA) of 70 ppt. PFOS/PFOA are synthetic fluorinated organic compounds used in many industrial and consumer products, including nonstick cookware, waterproof fabric, some food packaging, and the firefighting agent Aqueous Film Forming Foam (AFFF). To understand how small these levels are, one ppb equals: one second in 32 years, one inch in 16,000 miles, one cent in \$10,000,000, and one drop in a 13,000-gallon pool. One ppt equals: one second in 320 years, one inch in 16,000,000 miles, one cent in \$10,000,000,000 and one drop in 20 Olympic-sized pools.

There are roughly 100 parcels affected by the TCE/PCE or dieldrin pesticide plume off-base. The Air Force sends annual notices to affected parcels to inquire if they are currently using a private well, planning to install a private well on the property, if property ownership has changed, or if contact information has changed. Mr. Salomon expressed thanks to those property owners that have allowed access to their properties for groundwater sampling. The Air Force has expanded its pump/treat/inject treatment system to hydraulically control the TCE/PCE plume. A trap and treat barrier known as BOS100 was installed at the tip of the TCE/PCE plume's leading edge. The Air Force continues to monitor the plume to ensure it is not moving. Since 2009, layered checks ensure no off-base private properties are directly exposed to the TCE/PCE and dieldrin pesticide plumes.

Since the May 1983 start of the Shaw ERP, over \$174.2M has been spent and 103 of the 124 sites listed in the Resource Conservation and Recovery Act (RCRA) permit have closed. There is an Optimized Remediation Contract (ORC) in place to address contamination that falls under the state's authority and the RCRA permitting program. An ORC is like the previous performance-based remediation (PBR) contract but incorporates PBR lessons learned and includes input from the regulatory agency, DEHC, for setting cleanup goals prior to contract award. The ORC contractor Bay West and partner Arcadis are under contract to support the Air Force through 2026. The ORC includes 18 sites: 15 Installation Restoration Program (IRP) sites and three Defense Logistics Agency (DLA) sites. Contract goals include advanced site characterization at four sites, remedial action-operation (RA-O) at 11 sites and long-term management (LTM) at three sites. Advanced characterization will help the Air Force more fully understand the site, evaluate alternative objectives, and determine what actions to take to finalize a remedy. Design of the investigation is complete and planning documents have been submitted to DHEC, approval is pending. The High-

Resolution Site Characterization (HRSC) investigation is planned for completion in 2022. It is estimated that these sites will take more than 10 years to remediate.

Planned activities for the 11 sites in RA-O includes continued long-term monitoring and land use controls (LUCs) to ensure compliance with the DHEC agreed-upon activities to ensure protection of human health and the environment. The Air Force will continue to sample and report on these sites. Three sites will be investigated for alternative remediation activities to accelerate clean up. A vapor intrusion (VI) study will be conducted at on-base sites with a shallow groundwater plume under buildings to ensure vapor from the contamination is not entering the buildings and harming occupants.

Shaw utilizes a groundwater treatment plant (GWTP), which extracts TCE contaminated groundwater, treats it and then the clean water is released/injected back into the ground, to reduce the off-base plume. Since 1997, the GWTP has recovered over 4.3 billion gallons of groundwater and removed over 3,700 pounds of VOCs. A modification to the GWTP was completed in October 2020. This added an ion resin exchange system to also remove PFAS from the extracted groundwater to below the LHA. The system is currently running at half capacity and all treated water is reinjected into the aquifer. The Air Force is working with DHEC to gain concurrence to increase the extraction rate and allow 50% of water to be reinjected and 50% discharged to the surface.

The three sites in the LTM phase are landfills. Monitoring and LUCs continue under the ORC to ensure protection of human health and the environment. The only way to close a landfill site is to dig-it-up to remove all waste. This is not an option due to the immense cost, so assessments and maintenance of the landfill covers will continue. There are no plans to build facilities in the landfill areas. A fence surrounding one of the landfills was removed and replaced with markers due to its proximity to the flightline. Mowing of the sites and repair of any damaged signage at the landfills will continue.

Mr. Salomon provided RAB attendees with three documents: an Air Force PFAS factsheet, an Air Force PFAS snapshot that provides updated information regarding PFAS investigative activities and a 20th Fighter Wing/Shaw AFB ERP Update. AFFF, containing PFOS/PFOA, has been used by the Air Force, and other commercial entities, from the 1970s until the late-2010s. As mentioned earlier, there is no MCL for PFOS/PFOA, but in May 2016, EPA issued an LHA for PFOS/PFOA (combined) of 70 ppt. The Air Force is taking aggressive action to address potential impacts to drinking water that may be attributable to firefighting missions. The Air Force is using a three-step approach to assess the potential for PFOS/PFOA contamination of drinking water and will respond appropriately:

1. **Identify:** Determine potential AFFF releases, verify releases through sampling and determine if contaminant pathways to drinking water exist.
2. **Respond:** Continue to provide clear communication. If the contaminant is found above the LHA and there is a clear pathway to drinking water, the Air Force will provide an alternative drinking water supply (bottled water). If the contaminant is detected below the LHA, but above 35 ppt, a monitoring/sampling schedule will be established, and further action will be taken if contamination rises above the LHA.

3. **Prevent:** The Air Force has properly disposed of all legacy AFFF through incineration at authorized disposal facilities and transitioned to a more environmentally responsible AFFF formulation. Fire vehicles are being retrofitted with an ecologic system that prevents foam discharge during equipment testing.

To address off-base drinking water issues, since February 2020, 245 drinking water wells have been sampled and 1,120+ parcels have been surveyed within the focus areas to the east, south and west of Shaw AFB. Forty-eight wells exceeded the LHA Level of 70 ppt; all are in the current south focus area. In partnership with DHEC, wells in this area, including three mobile home parks directly south of Shaw were tested since they draw water from private wells. Three businesses and 243 residences were supplied with bottled water. On 12 January 2022, Shaw completed a 30-day public review of alternatives to phase out the short-term solution of bottled water. Three mobile home parks, 33 residences, and 3 businesses currently on bottled water south of Shaw will be offered connection to the local public water service provider High Hills during summer 2022. Locations that connect to public water service will still be able to use well water for non-drinking uses (lawn watering, car washing, etc.). Thirty wells continue to be sampled quarterly/semi-annually for trend analysis to ensure PFOS/PFOA stays below the LHA. Properties within the focus area that use well water for domestic uses such as drinking and cooking that have not had their water tested may still request to have their water sampled and analyzed. Starting in June 2021, three former fire training areas at Shaw with high PFAS concentrations are being investigated to focus the scope of point source removal (PSR) actions. PSR includes excavation of soil for washing and then returning the soil to its original location and designing/building a GWTP system to eliminate the PFAS source. Construction of the soil and groundwater treatment systems is anticipated to start summer 2022. Shaw was one of first bases in Air Force to begin the PFAS remedial investigation (RI) process. Phase 1 of the RI will delineate depth and extent of PFAS, using the DoD recommended groundwater screening values of PFOS and PFOA at 40 ppt (roughly half the LHA). Sampling step-outs (moving farther away from the source) will begin in Fall 2022. The Air Force is anticipating PFOS/PFOA regulatory standards will be established soon, so the RI can continue to the Phase 2 risk assessment, to assess human health and ecological risks. The Phase 2 process cannot start until EPA establishes primary drinking water standards for PFAS in order for the Air Force to calculate risk-based cleanup goals. So far, investigations have found that there are no impacts to the municipal water system around Shaw AFB.

Mr. Salomon noted that last week EPA released lower PFAS regional screening levels (RSLs). RSLs are screening levels for individual contaminants in air, tap water and soil that may warrant further investigation or site cleanup. If concentrations are above the screening level, further investigation is generally needed to determine if some action is required. These new numbers may affect the PFAS action areas around Shaw AFB. EPA's LHA remains the same for now. A community attendee asked how EPA can set an advisory level that is safe if the numbers keep getting lower. Mr. Salomon responded that PFAS is an emerging contaminant so the science is still developing, and more information is needed to calculate risk. Mr. Salomon suggested interested parties should continue following EPA's PFAS actions. There will be a public notice process during MCL development where the

public can provide input. Mr. Mike Danielsen, DHEC, added that no one knows enough information about PFAS and its impacts to set a good standard. Some states have developed their own PFAS levels, but South Carolina has not. There was a South Carolina senate bill regarding PFAS that did not move forward. Without a regulation, authority to invest taxpayer money to address PFAS is limited. Pilot studies are also underway to see what works best to remediate PFAS. Mr. Salomon shared that it is similar to when TCE/PCE contamination emerged, there was a learning curve and more scientific and risk information was needed before the Air Force could take action to address the chemical. Mr. Burkett asked about medical surveys being conducted. Mr. Salomon shared that the Agency for Toxic Substances and Disease Registry (ATSDR) is conducting exposure assessments in communities near military bases that have PFAS in their drinking water. Additional information can be found on ATSDR's website.

#### 6. **RAB Business Update**

Board member participation has waned over the years. If anyone is interested in becoming a RAB member or knows of anyone interested, please put them in contact with Mr. Salomon. Applications will be shared with current RAB members for approval. Shaw AFB is also updating its Community Involvement Plan (CIP), which captures public concerns and outlines how to keep the public informed and involved in the cleanup process. Everyone is encouraged to provide input on a survey which seeks preferred ways for base officials to communicate with the public. Mailers with survey instructions were sent to RAB members and the community surrounding Shaw AFB. Online survey link: [www.surveymonkey.com/r/PX3BJQ9](http://www.surveymonkey.com/r/PX3BJQ9).

#### 7. **Public Comment**

Mr. Jarod Harris expressed concerns about drinking water at his property and PFAS. He shared that more communication is needed between the Air Force and community and understanding the personal impacts of contamination within the community is important. Mr. Harris shared pictures of his property that has standing water with a foam that he thinks is PFAS-related. Water flows from a nearby drainage ditch, down a dirt road, and then onto his property; with flooding, more foam accumulates. His grandmother previously lived at the property, and he believes her ailments and death were related to drinking PFAS-contaminated water. Mr. Harris also referenced the PFAS-related movie *The Devil We Know* and the documentary *Blackwater*. His neighbors are receiving bottled water service, but he is not. Mr. Salomon stated that his well was sampled and PFOS/PFOA levels were below the LHA. An action item was recorded for Mr. Salomon to contact Mr. Harris to discuss his concerns. Mr. Harris read the following statement for the record: "Regarding the issue of 'PFAS' contamination at my property, located approximately 2.6 miles from Shaw Air Force Base. I would like to make mention of my unfortunate experience with this invasive chemical which has without a doubt found its way into not only my water well, but other wells in the surrounding area as well. The severity of this issue I feel has been being somewhat downplayed due to the EPA advisory level set at 70 parts per trillion. To clarify my reasons for such beliefs, I must bring your attention back to the initial case that was brought up in court against the manufacturers of these chemicals. In 2018 Attorney Bob Billot filed a lawsuit against corporate entities tied to DuPont, as well as 3M and other chemical companies. The suit sought to explore the health effects of these

alternative PFAS's. It's relevant to state for the record that a suit was brought before the courts which resulted in the companies being held liable for the release of the manmade chemicals that came to be the topic of discussion today. My major concern at the present is to seek some type of remediation in this matter. Furthermore, I aim to shed some light on the impact that this contamination has had on my very own family and property. Research has found that there are potential adverse health impacts associated with PFAS exposure, including liver damage, thyroid disease, decreased fertility, high cholesterol, obesity, hormone suppression, and cancer. It is a fact that these chemicals can easily migrate into the air, dust, food, soil, and water. I think that people should be aware of the amount of PFAS/PFOA that's in the environment. These chemicals are known to be very persistent in the environment as well as the body. They can also accumulate over time. As a result, these chemicals have been identified as contaminants of emerging concern by the Environmental Protection Agency. That brings me to my problem with my property and well water being contaminated. Due to the location of my property, I have been able to witness firsthand the effects of what this chemical can do to someone's life and property. Furthermore, my hope is grounded in me being able to reach out to the proper authority in this matter with the intent to bring some type of relief efforts forward. In conclusion, I have evidence that substantiates my claim brought up against Shaw Air Force Base and to whom ever this matter may concern. With that being said, I would like to bring your attention to the images in which you see before you... (images of the contamination at my property)."

## 8. Conclusion

Mr. Salomon shared that if anyone has additional questions, to please contact him at (803) 895-9991 or [juvenal.salomon.1@us.af.mil](mailto:juvenal.salomon.1@us.af.mil). Questions can also be directed to Shaw AFB Public Affairs: (803) 895-2019. The Air Force administrative record is the official record of cleanup action decision documents and can be found at: <https://ar.afcec-cloud.af.mil/>. The next RAB meeting is tentatively scheduled for 22 May 2023.

Mr. Magby thanked everyone for their interest in Shaw's environmental program and for joining the RAB meeting. The community is encouraged to stay involved by joining the RAB or providing input to the CIP survey.

#	Action Item	Who	Status
1.	<p><b>April 2021 RAB:</b> Dee Hoehn will follow-up with Air Force to invite them to visit her property again to discuss runoff into her pond. (she is at the property every Tuesday)</p> <p><b>Update:</b> Mr. Salomon talked with Ms. Hoehn and will also follow-up with her after the May 2022 RAB meeting.</p>	Dee Hoehn, Community Member	CLOSED
2.	<p><b>April 2021 RAB:</b> RAB recruitment information will be included in the next community newsletter.</p> <p><b>Update:</b> A newsletter has not been mailed, but the next iteration will include RAB recruitment information.</p>	Juv Salomon, Shaw AFB	Open

#	Action Item	Who	Status
3.	May 2022 RAB: The May 2022 RAB presentation slides will be emailed to meeting attendees on the sign-in sheet.	Leigh-Ann Fabianke, Galen Driscoll	CLOSED
4.	May 2022 RAB: Juv Salomon will connect with community attendee Jarod Harris to discuss his PFAS concerns at his property.	Juv Salomon, Shaw AFB	Open

**SALOMON.JUVENAL.Q.1153741324** Digitally signed by SALOMON.JUVENAL.Q.1153741324  
Date: 2022.07.28 08:24:44 -04'00'

JUVENAL Q. SALOMON, GS-13, DAF  
RAB Administrator

Approved as written

**MAGBY.RAYMOND.SCOTT.1109179627** Digitally signed by MAGBY.RAYMOND.SCOTT.1109179627  
Date: 2022.07.29 09:47:10 -04'00'

RAYMOND S. MAGBY, GS-14, DAF  
Deputy Director for Installation Support

Attachment:  
May 2022 RAB Presentation

cc:  
20 FW/CV/JA/PA/HO  
20 MSG/CC/DD  
20 MDG/SGPB  
20 CES/CC/CEI/CEIE  
AFCEC/CZOE  
AFCEC/CZR (Mr. Tony Williams)  
US Army Corps of Engineers (Ms. Anna Butler)  
SCDHEC (Mr. Mike Danielsen and Mr. Keith Lane)  
Sumter County Public Works Director (Ms. Karen Hyatt)  
Sumter City Engineer (Mr. Bill Rozier)  
Sumter City-County Planning (Mr. Jeff Derwort and Ms. Helen Roodman)  
RAB Community Members (Mr. Daniel Burkett, Mr. Charles Firmbach, Mr. John Hayes, Mr. Heath Hoover, Mr. Anthony Horton, Rev. Willie Lawson, Mr. Steven Schmidt, and Ms. Amanda Skelton)



# Air Force Civil Engineer Center



## Restoration Advisory Board *Welcome*

**Raymond S. Magby**  
**Deputy Director for Installation Support**  
**Shaw Air Force Base**  
**May 23, 2022**



# Agenda



- Purpose / mission
- Question cards
- Goals and milestones
- Recent and upcoming activities
  - Optimized Remediation Contract (ORC) update
  - Per- and Polyfluoroalkyl Substances (PFAS) response
- Intermission
- Q&A
- Closing remarks



# *RAB Purpose/Mission*



## **PURPOSE:**

- **Promote community awareness**
- **Obtain constructive community review and input on current and proposed environmental cleanup actions**

## **MISSION:**

- **Open and interactive dialogue:**
  - **Among the Air Force, South Carolina Department of Health and Environmental Control, and our neighbors**
  - **Concerning Shaw's Environmental Program**



# Question Cards



<input type="checkbox"/> Health	<input checked="" type="checkbox"/> Technical
<input type="checkbox"/> Legal	<input type="checkbox"/> Other
Question: What is ...?	

John Doe 123 Question St. Sumter, SC 29154 (803) 895-XXXX
--

***Please turn in question cards during intermission.  
Questions will be addressed after briefing.***



# Goals and Milestones



- **Predominant chemicals observed off base**
- **Comparisons of risk numbers**
- **Cleanup goal west of base**



# Predominant Chemicals Observed Off Base



## Enforceable cleanup standards:

### ■ Volatile organic compounds

- Tetrachloroethene (PCE) 5 ppb MCL (Maximum Contaminant Level)
- Trichloroethene (TCE) 5 ppb MCL

## Health advisories (no current cleanup standards):

### ■ Per- and Polyfluoroalkyl Substances (PFAS):

- Perfluorooctanoic acid (PFOA) 70 ppt
- Perfluorooctane sulfonate (PFOS) 70 ppt
- PFOA + PFOS 70 ppt (when both are found in drinking water)

*To provide Americans, including the most sensitive populations, with a margin of protection from a lifetime of exposure to PFOA and PFOS from drinking water, EPA established the health advisory levels at 70 parts per trillion.*

- EPA's 2016 PFOA & PFOS Drinking Water Health Advisories



# Comparisons of Risk Numbers



## ■ One part per billion (ppb) equals:

- 1 second in 32 years
- 1 inch in 16,000 miles
- 1 cent in \$10,000,000 (\$10M)
- 1 drop in a 13,000-gallon pool

## ■ One part per trillion (ppt) equals:

- 1 second in 320 centuries
- 1 inch in 16,000,000 miles
- 1 cent in \$10,000,000,000 (\$10B)
- 1 drop in 20 Olympic-sized pools

**1 part per trillion (ppt)**  
IS EQUIVALENT TO A  
SINGLE DROP OF  
WATER IN  
**20 olympic-sized  
swimming pools**

The diagram shows a large blue rectangular swimming pool with lane lines and a ladder. A pipette is shown dripping a single drop of yellow liquid into the pool. Below the main pool, there are 20 smaller, identical blue rectangular swimming pools arranged in a grid, representing the 20 Olympic-sized pools mentioned in the text.



# Cleanup Goal West of Base



**When the TCE/PCE (5 ppb) or dieldrin pesticide plume boundary impacts off base parcels:**

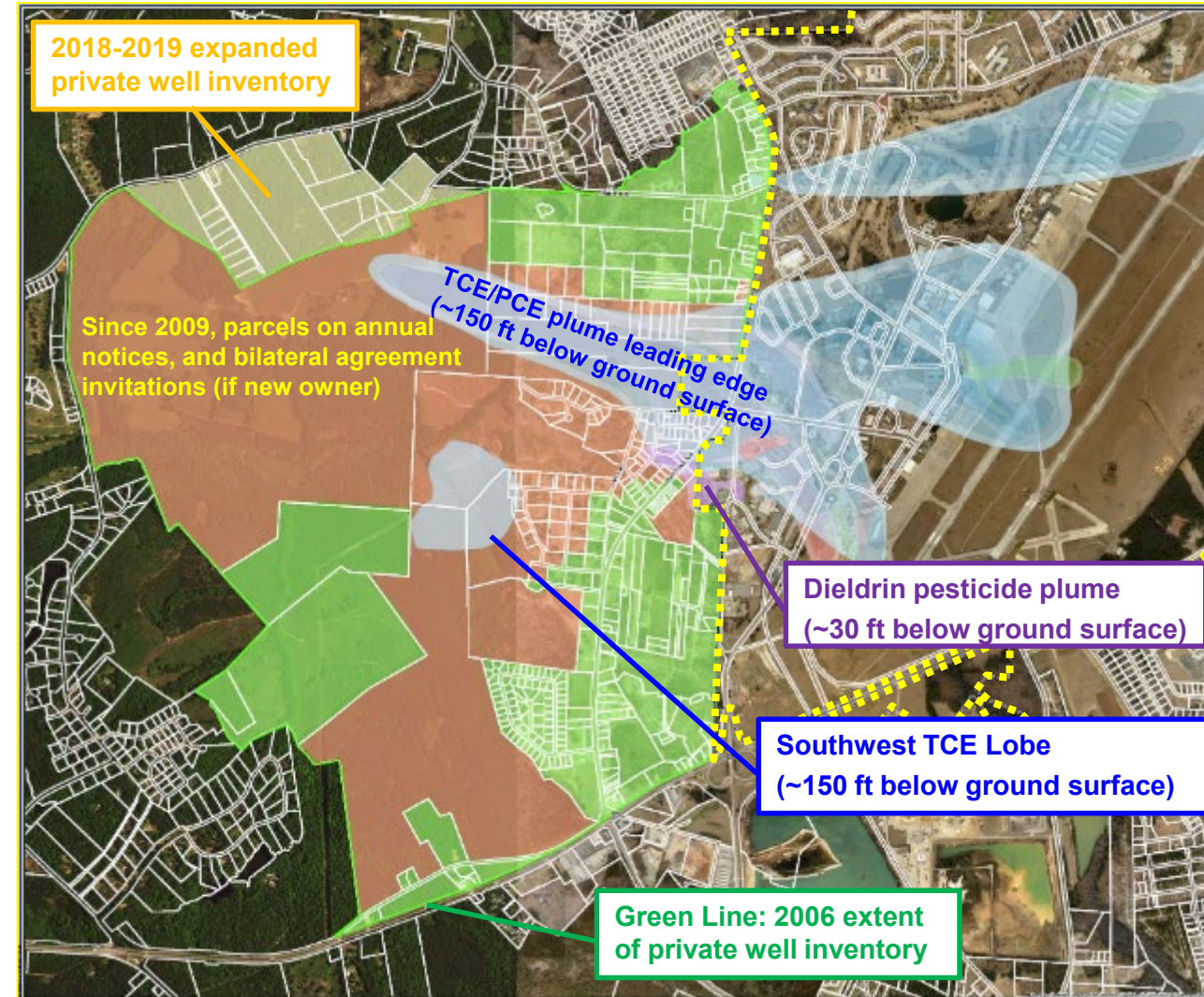
- **Send annual notices to affected parcels, to inquire if:**
  - Currently using a private well
  - Planning to install a private well on property (drilling requires a State permit)
  - Changed in property ownership
  - Changed in contact information

## Active Cleanup:

- **Expanded (2018) the pump/treat/inject treatment system to hydraulically control the TCE/PCE plume**
  - Pumping rate doubled, with increased number of extraction wells to 23 and re-injection wells to 38
- **Installed trap and treat barrier (BOS100<sup>®</sup>) at tip of TCE/PCE plume's leading edge**
- **Long-term monitoring of plumes**

**Goal has been set since 2009!**

***Layered checks ensure no off-base private property are directly exposed to the TCE/PCE (5 ppb) and dieldrin pesticide plumes.***







# *Recent and Upcoming Activities*



- **Optimized Remediation Contract (ORC) update**
- **Per- and polyfluoroalkyl substances (PFAS) Response**



- **What is an Optimized Remediation Contract (ORC)?**
  - In short, an ORC is like a Performance-Based Remediation (PBR) contract but incorporates PBR lessons learned
- **The most important shift is that PBR lessons learned help craft the ORC Performance Objectives (PO) vs. contractor**
  - Sought **inputs from regulatory agency(ies)** overseeing the cleanup and assistance in setting up cleanup goals **PRIOR to contract award**
- **ORC contractor Bay West and partner Arcadis are under contract to support the Air Force through 2026**



# ORC Site Overview (PCE/TCE/Fuels/Landfills)

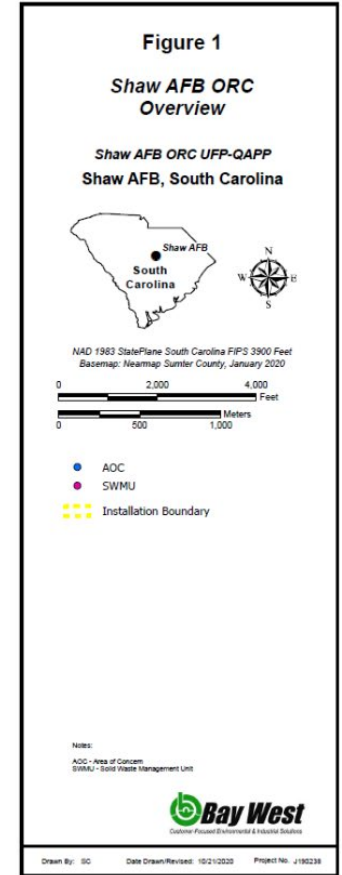


## Environmental Remediation and Site Restoration Activities at 18 Sites

- 15 Installation Restoration Program (IRP) sites and
- 3 Defense Logistics Agency (DLA) sites

### Goals:

- Advance Site Characterization (4 sites)
- Remedial Action – Operation (11 sites)
- Long Term Management (3 sites)



**Since May 1983 start of Shaw ERP, over \$174.2M have been spent. 103 sites closed out of 124 listed in RCRA permit.**



# Advanced Characterization Sites (Sites with 10+ years to cleanup)



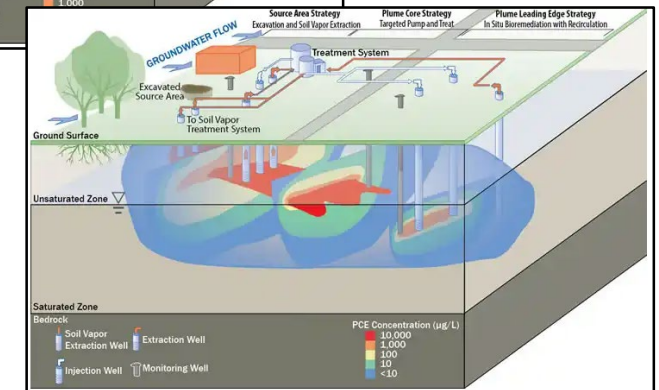
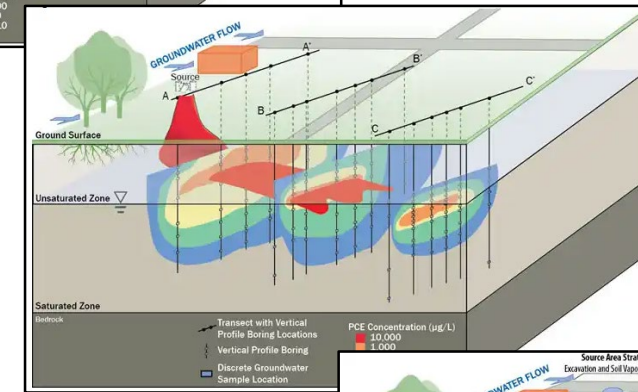
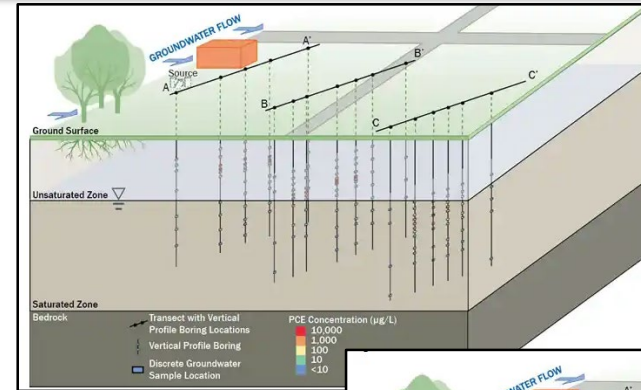
## 2022 Update and Planned Activities

### Update

Design of the investigation complete and planning documents have been submitted to SC DHEC, pending approval

### 2022 Planned Activities

- High resolution Site Characterization Investigation
- High Resolution Site Characterization Findings Report and revisions to model to support understanding of where contaminants are and how best to remediate them





# Remedial Action – Operation (Sites on active cleanup)



## 2022 Update and Planned Activities

### Update

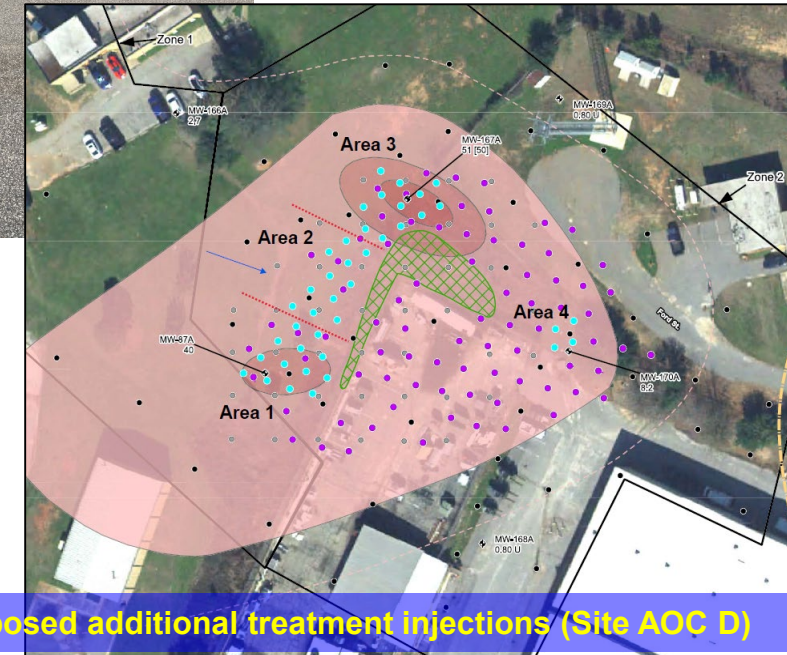
Long Term Monitoring and Land Use Control activities continue to ensure compliance with SC DHEC agreed upon activities to ensure the protection of health and environment

### 2022 Planned Activities

- Continued sampling and reporting
- 3 sites to be investigated for alternative remediation activities to accelerate clean-up
- Vapor Intrusion investigation on base



Site AOC D looking at the surface



Proposed additional treatment injections (Site AOC D)



# GWTP Remedial Action Operation



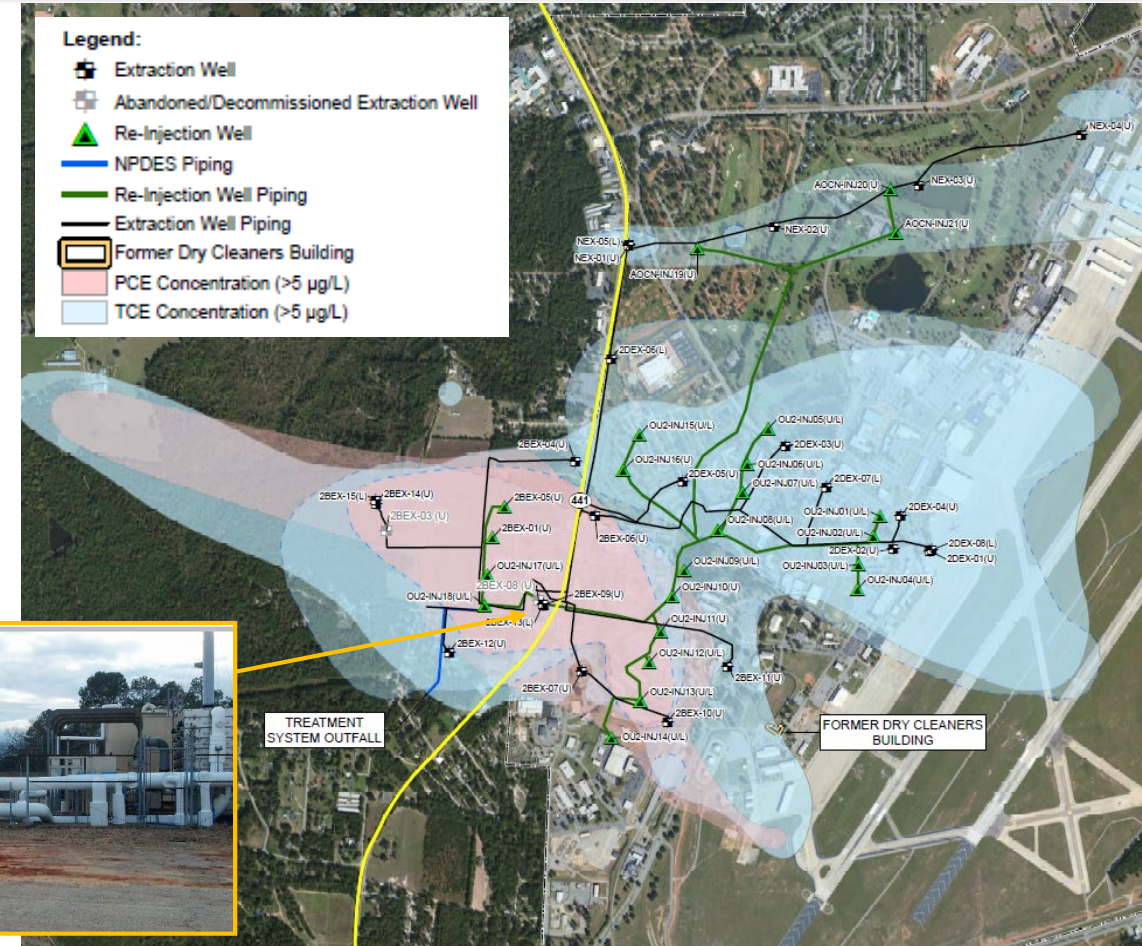
## 2022 Update and Planned Activities

### Update

- Installed new Ion Exchange Resin System and is operating as intended removing PFAS from the extracted groundwater
- Currently running at half capacity and all treated water is reinjected to the aquifer

### 2022 Planned Activities

- Gain SC DHEC concurrence to resume surface discharge and increase extraction rate to design capacity



Since 1997, the GWTP has recovered over 4.3 billion gallons of groundwater, and removed over 3,700 pounds of VOCs.

GWTP – Groundwater treatment plant

*Battle Ready... Built Right*



# Long Term Management (Landfills)



## 2022 Update and Planned Activities

### Update

Long Term Monitoring and Land Use Control activities continue to ensure compliance with SC DHEC agreed upon activities to ensure the protection of health and environment

Fencing improvement activities complete

### 2022 Planned Activities

- Continued assessment and maintenance of covers
- Signage repair activities
- Mowing





# *Recent and Upcoming Activities*



- Optimized Remediation Contract update
- **Per- and polyfluoroalkyl substances (PFAS) Response**





# PFAS Response



## Air Force Response (3-step approach) → **Handouts: PFAS Factsheet and SnapShot**

- **IDENTIFY** releases, investigate PFAS
- **RESPOND** to PFAS in drinking water
- **PREVENT** and **PROTECT**...AFFF replacement; retrofit fire response vehicles

## Shaw Response (3 short-term actions / 1 long-term action)

- [**Completed 2021**] Installed ionic exchange resin filter (IXR) for the groundwater treatment plant (GWTP)
- Off-Base drinking water short-term response transitioning to long-term response
- Point source removal (PSR at 3 former firefighting training areas (FTAs)
- Phase 1 remedial investigation (RI)



Installing the IXR at the GWTP



# PFAS Off-Base Drinking Water



**Handout: Spring 2022 Quarterly Factsheet**

**Current extent of south boundary focus area for private drinking water well surveys**

- Since Feb 2020, 245 DW wells sampled within the east, south, and west off base focus areas
- 48 wells exceeded the EPA LHA Level of 70 ppt; all are located in the **current south focus area**
- 243 residences/3 businesses on bottled water service
- 30 wells on quarterly/semi-annual sampling for trends analysis
- 1,120+ parcels surveyed; south/east/west of base
- 12 Jan 2022: **completed 30-day public review** of alternatives to phase out short-term use of bottled water for a long-term solution
- Awaiting Work Plan review/approval to start field work – connect those parcels to High Hills
- Contract Period of Performance currently August 2024



# PFAS Off-Base Drinking Water

Continued...



- **Spring/summer 2022 transition** to a long-term solution to limit exposure to PFAS
- **33 residences/3 MHPs/3 businesses** on bottled water service will be offered **connection to local public water service provider**
- Locations that connect to public water service will still be able to use well water for non-drinking uses (lawn watering, car washing, etc.)
- Other properties will continue to receive quarterly/semi-annual sampling for trends analysis

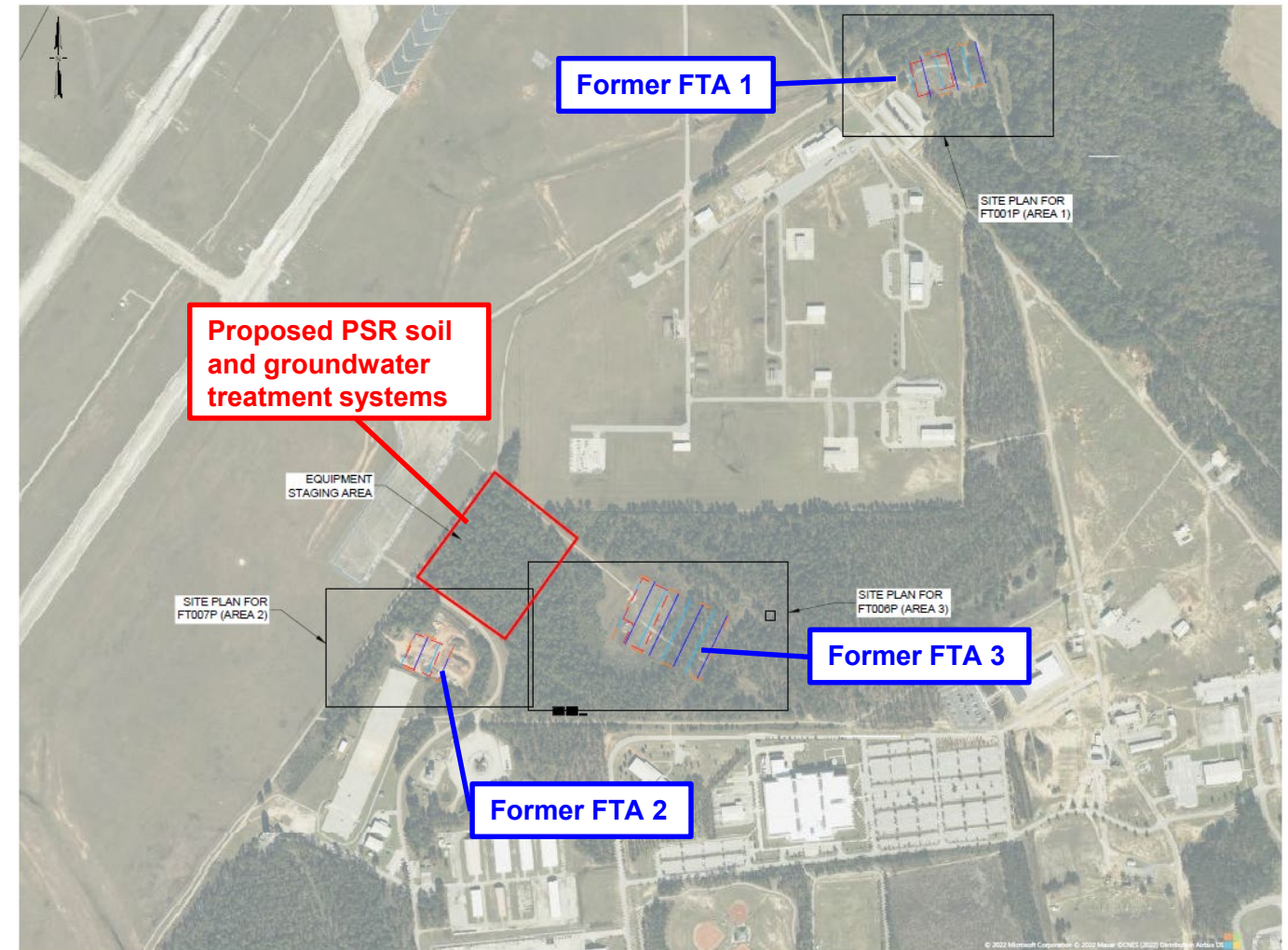
***Properties within the focus area that use well water for domestic uses (drinking, cooking etc.) that have not had their water tested may still request to have their water sampled and analyzed.***



# PFAS Point Source Removal (PSR) at 3 Former Fire Training Areas (FTAs)



- All three former FTAs have highest PFAS concentrations relative to other AFFF release areas on base
- Field investigation to focus the scope of PSR action started in June 2021
- Will excavate contaminated soil for washing then return to original location and design/build groundwater treatment system to **eliminate PFAS source**
- Construction of soil and groundwater treatment systems anticipated to **start Summer 2022**
- PSR contract period of performance currently September 2024

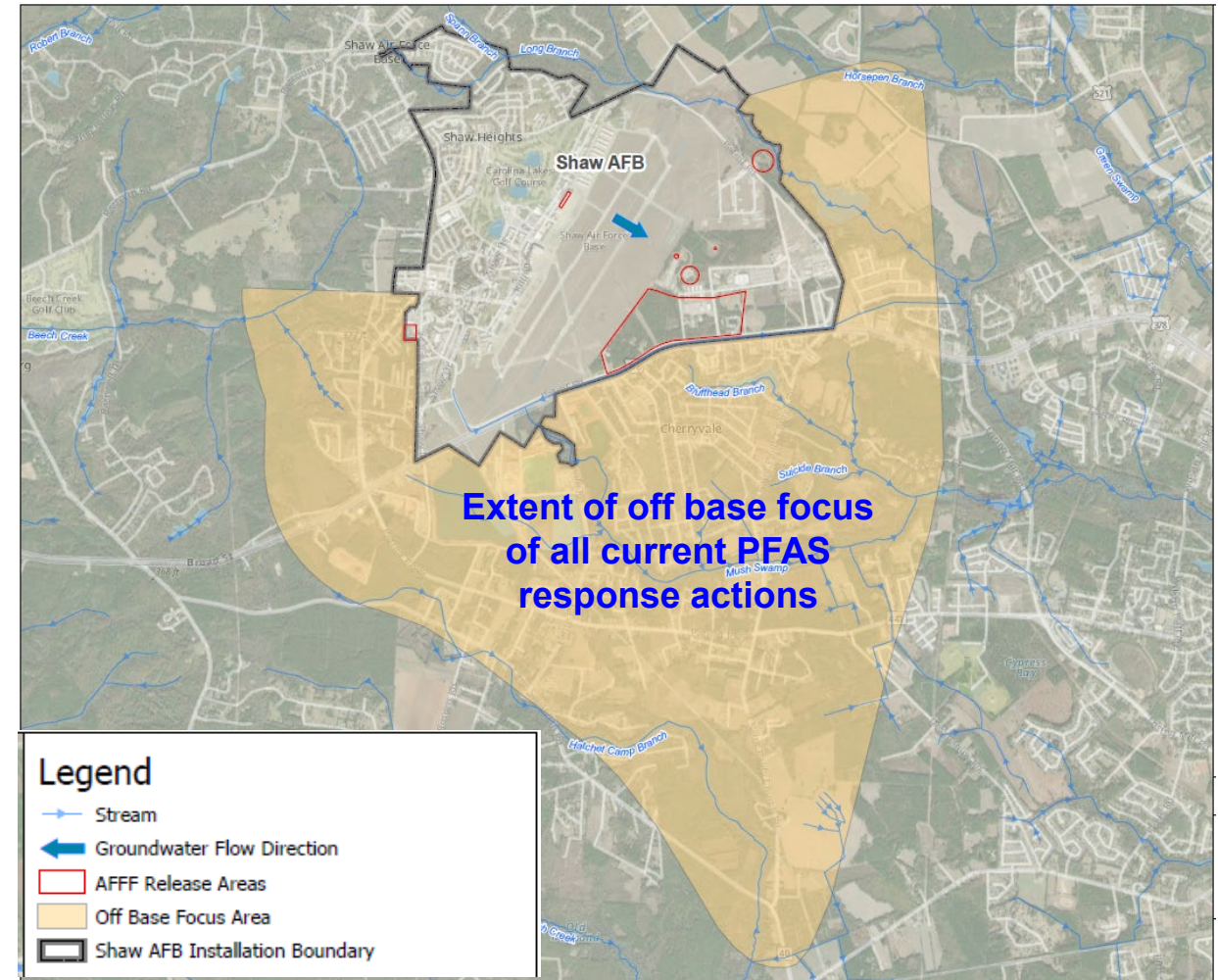




# PFAS Phase 1 Remedial Investigation (RI)



- Phase 1 RI will **delineate depth and extent of PFAS**
  - Currently using DoD recommended **groundwater screening values** to delineate (values may change with pending EPA regulatory guidance):
    - PFOA 40 ppt
    - PFOS 40 ppt
- Phase I RI field work **started July 2021**; drilling and sampling for **next step out to start Fall 2022**
- **Cannot proceed to Phase 2 RI** (risk assessment) until EPA establishes primary drinking water standards for PFAS to calculate risk-based cleanup goals
- Phase 1 RI Contract period of performance through September 2024





# *Intermission*



- **10 minutes**
  - **Please turn in question cards**



# ***Questions & Answers***



# Reminder



- **Community Involvement Plan (CIP) survey**
  - CIP outlines how to keep the public informed and involved in the cleanup process
  - Capture public concerns
  - Seek preferred ways for base officials to communicate with the public about its environmental cleanup efforts
  - Survey conducted every 3 years
- **Mailers with survey instructions sent out with RAB invites**
  - Online survey link: [www.surveymonkey.com/r/PX3BJQ9](http://www.surveymonkey.com/r/PX3BJQ9)
  - Or, **call (210) 758-3535 by May 24, 2022**, to schedule a phone interview





# Closing Remarks



- **Inputs from Board Members**
- **Action Items**
- **Questions? Contact Shaw AFB Public Affairs**
  - **(803) 895-2019**
- **Administrative Records**
  - **Official record of cleanup action decision documents**
  - **<https://ar.afcec-cloud.af.mil/>**
- **Next meeting**
  - **May 22, 2023 (Tentative)**

