UNDERSTANDING PFAS
A COMMUNITY CONVERSATION

WELCOME!

Please come in & join the conversation!

Engage directly with subject matter experts about restoration progress, treatment technologies and community resources.

FAIRCHILD AIR FORCE BASE
ENVIRONMENTAL RESTORATION PROGRAM

Looking for more?

FAIRCHILD AIR FORCE BASE

FAME'S FAVORED FEW

Fairchild Air Force Base is comprised of the **92nd** and **141st Air Refueling Wings, 336th Training Group**, and other tenant organizations. As Air Mobility Command's Super Tanker Wing, Team Fairchild is tasked with being ready to protect homeland, deter aggression, fight and win whenever and wherever our nation calls.

AIRMEN

Team Fairchild encompasses 11,868 active-duty, Air National Guard, tenant unit members, dependents, and civilian employees.

MISSION

Deliver Rapid Global Mobility (RGM) at speed and scale, and integrating Joint Force lethality anywhere in the world under any conditions.

COMMITMENT

Our unrelenting determination to accomplish the RGM mission enables AMC to project and sustain combat power, and build warfighting advantage.

92nd AIR REFUELING WING

The 92nd ARW is responsible for providing aerial refueling, as well as rapid and reliable passenger and cargo airlift and aeromedical evacuations.

Fairchild's missions support U.S. and coalition conventional operations and U.S. Strategic Command strategic deterrence missions.

Fairchild directly supports Air Mobility Command's mission, providing global reach airpower and deploying expeditionary combat support forces in support how do you unhide a column in planner of worldwide contingency requirements.

The 92nd Air Refueling Wing is structured under four groups: Operations, Maintenance, Mission Support, and Medical as well as 12 staff agencies organized under the Director of Staff.

141st AIR REFUELING WING

The 141st Air Refueling Wing reports through the Washington Adjutant General to the Governor in order to respond to natural disasters and times of civil unrest.

In addition to the state mission to provide protection to life and property and to preserve peace, order and public safety for Washington State, the wing also has a federal mission.

The unit's federal mission is to train, equip and deploy forces to locations worldwide in support of the specific contingency operations.

The 141st trains to provide worldwide refueling to United States and allied aircraft, counter drug surveillance and interdiction, and combat support across the spectrum of conflict.

TENANT ORGANIZATIONS

336TH TRAINING GROUP

509TH WEAPONS SQUADRON

368TH RECRUITING SQUADRON

JOINT PERSONNEL RECOVERY AGENCY

DETACHMENT 13, 373RD TRAINING SQUADRON

OFFICE OF SPECIAL INVESTIGATIONS, DET. 322

ECONOMIC IMPACT

Fairchild Air Force Base significantly contributes to the regional economy and job creation in and around the area.

PAYROLL EXPENDITURES

PERSONNEL	POP	PAY
Active Duty	3,336	$256.8M
Air National Guard	951	$23.3M
Army Guard/Reserve	633	$5.8M
General Schedule	467	$36.5
FWS	81	$3.9M
DECA	43	$2.6M
NAF Civilians	259	$9.6M
Contract Civilians	16	$578K
AAFES Civilians	65	$1.3M
Other Civilian Vendors	47	$4.7M
Dependents	4,927	NA
TOTAL	**10.8K**	**$345.1M**

Total Annual Economic Impact
$915.1 Million / Year (FY24)

9,088 JOBS CREATED

Total Payroll(Military & Civilian):	$345.1M
Indirect Output from Payroll:	$363.8M
Contract Expenditures:	$106.5M
Value of Job Creation:	$99.8K

LOCAL EXPENDITURES

CATEGORY	VALUE
Military Construction	$56.4M
O&M Construction(FSRM)	$7.8M
NAF Construction	$1.1M
Utilities	$3.8M
Social Assistance	$12.1M
Truck Transportation	$134K
Other Services	$13.3M
Other Local Expenditures	$2.9M
TDY(Local Lodging Meals)	$09M
ANNUAL	**$98.4M**

WHAT IS PFAS?

Per- and Polyfluoroalkyl Substances, known as PFAS, are human-made chemicals built around carbon-fluorine bonds. The “F” in PFAS stands for fluorine — and those bonds are among the strongest in chemistry. While that strength makes PFAS effective water, oil and heat repellants, it also means they do not break down easily in the environment or in the human body. That’s why PFAS are often called “forever chemicals.”

Historically, FAA regulations required PFAS-containing aqueous film-forming foam be used for all aviation firefighting and the Air Force began using it in 1970. As PFAS exposure became linked to human health and environmental risks, regulations were changed and industry began developing less harmful options. In September 2023 the first fluorine-free foam became available for military use and today the Air Force uses water or F3 for fire emergency response and training.

Air Force Response to PFAS

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HOW PFAS GETS INTO THE ENVIRONMENT

PFAS-containing foam releases PFAS during firefighting training and response

Industrial processes release PFAS as a manufacturing byproduct

Landfill gas releases PFAS vapors

Wastewater treatment concentrates PFAS in biosolids that can end up in landfills

Runoff carries PFAS into waterways

RESIDENTIAL WELL MEETING STANDARDS

PFAS can travel through paleochannels into aquifers

Septic system drain fields carry PFAS into soil

PFAS LEVELS VARY BASED ON WELL AND PLUME LOCATIONS

RESIDENTIAL WELL EXCEEDING STANDARDS

PFAS PLUME

Groundwater Flow Direction

Groundwater Flow Direction

Aquifer

Not to scale

This diagram is a general example and not site-specific.

THE CERCLA CLEANUP PROCESS

The **Comprehensive Environmental Response, Compensation, and Liability Act** (CERCLA) is a federal law enacted to protect human health and the environment from hazardous substance releases.

INVESTIGATION PHASE

SITE DISCOVERY ✓ → **PRELIMINARY ASSESSMENT** ✓ → **SITE INSPECTION** ✓

REMEDIAL INVESTIGATION → **BASELINE RISK ASSESSMENT** → **FEASIBILITY STUDY**

PLANNING & DECISION PHASE

PROPOSED PLAN → *30-day Public Comment Period* → **RECORD OF DECISION**

PUBLIC NOTICE | *PUBLIC MEETING* | *PUBLIC COMMENT*

OPERATION & MAINTENANCE PHASE

REMEDIAL DESIGN → **REMEDIAL ACTION** → **REMEDIAL ACTION OPERATION** → **FIVE-YEAR REVIEWS**

INTERIM RESPONSE ACTIONS

An interim response action can be taken at **any point** in the CERCLA process when contamination poses immediate risks to human health or the environment that cannot wait for the full investigation and cleanup process.

Types of Interim Response Actions

TIME-CRITICAL REMOVAL ACTION (TCRA)

- Planning can be done within 6 months
- Requires a 30-day public comment period
- Action Memorandum is the decision document

NON-TIME-CRITICAL REMOVAL ACTION (NTCRA)

- Needs six months or more for planning
- Includes a detailed Engineering Evaluation/ Cost Analysis (EE/CA)
- Requires a 30-day public comment period
- Action Memorandum is the decision document

INTERIM REMEDIAL ACTION (IRA)

- Requires an interim Proposed Plan and regulator approved Interim Record of Decision before the remedial action can be started
- Requires a 30-day public comment period

Interim response actions are temporary measures taken to immediately address an unacceptable risk and must be documented in the final Record of Decision if they become part of the overall final remedy.

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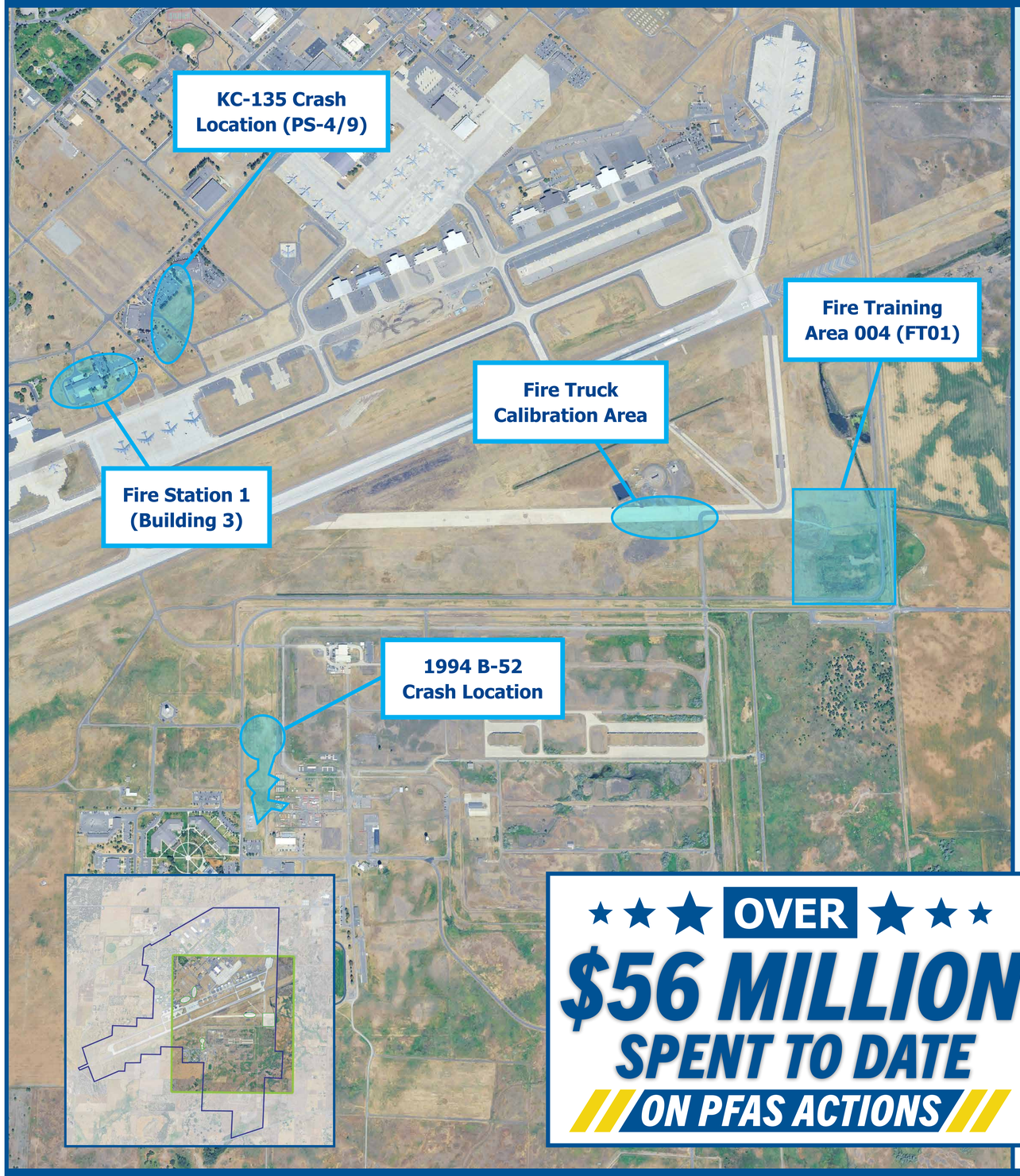
AFFF RELEASE AREAS AND PFAS ACTIONS



OVER $56 MILLION SPENT TO DATE ON PFAS ACTIONS

IMPORTANT PFAS DATES

The actions below reflect investigation and response focused on Aqueous Film Forming Foam release areas. As the investigation progresses, additional areas may be identified and investigated.

1970
- DAF began using AFFF for firefighting operations

1989
- EPA placed Fairchild AFB on the National Priorities List

2015
- Preliminary Assessment for PFAS completed and approved by regulators

2016
- DAF adopted EPA's 70 ppt health advisory for PFOS and PFOA as the action level guiding drinking water response

2017
- Off-base sampling identified PFAS in City of Airway Heights municipal wells and private residential wells near base
- DAF and City of Airway Heights entered into an Environmental Services Agreement to fund emergency drinking water supplies in May

2018
- DAF conducted an Interim Response Action to fund and install a temporary GAC treatment system for CAWH municipal Well 9 and began installing filtration systems in residences near base

2019
- Site Inspection completed
- DAF completed Well 9 Operations & Maintenance Manual and now runs the system for CAWH seasonally to meet high demand during the summer months

2021
- The Air Force selected well head treatment for Wells 1, 4, and 9 based on a review of engineering options and costs
- Phase I Remedial Investigation began
- DAF completed drinking water study and updated the conceptual site model

2024
- EPA Maximum Contaminant Levels for certain PFAS became effective for regulated public drinking water systems and provided five years to comply with these MCLs
- DAF committed to incorporate EPA MCLs into ongoing PFAS cleanups and prioritize actions to address private drinking water wells with the highest levels of PFAS from DAF activities
- Transition from AFFF to fluorine-free foam completed in fire trucks
- FT004 discharge study began

2025
- PFAS Phase I Remedial Investigation report finalized
- Removal and disposal of all remaining AFFF and rinsate is underway

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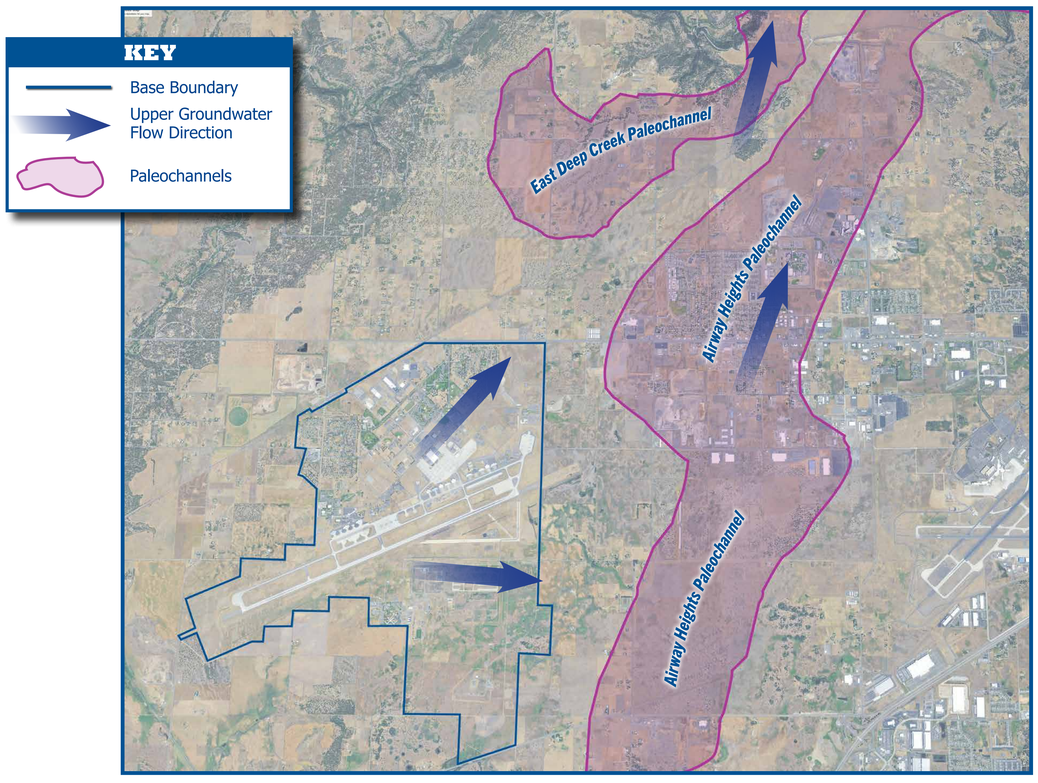
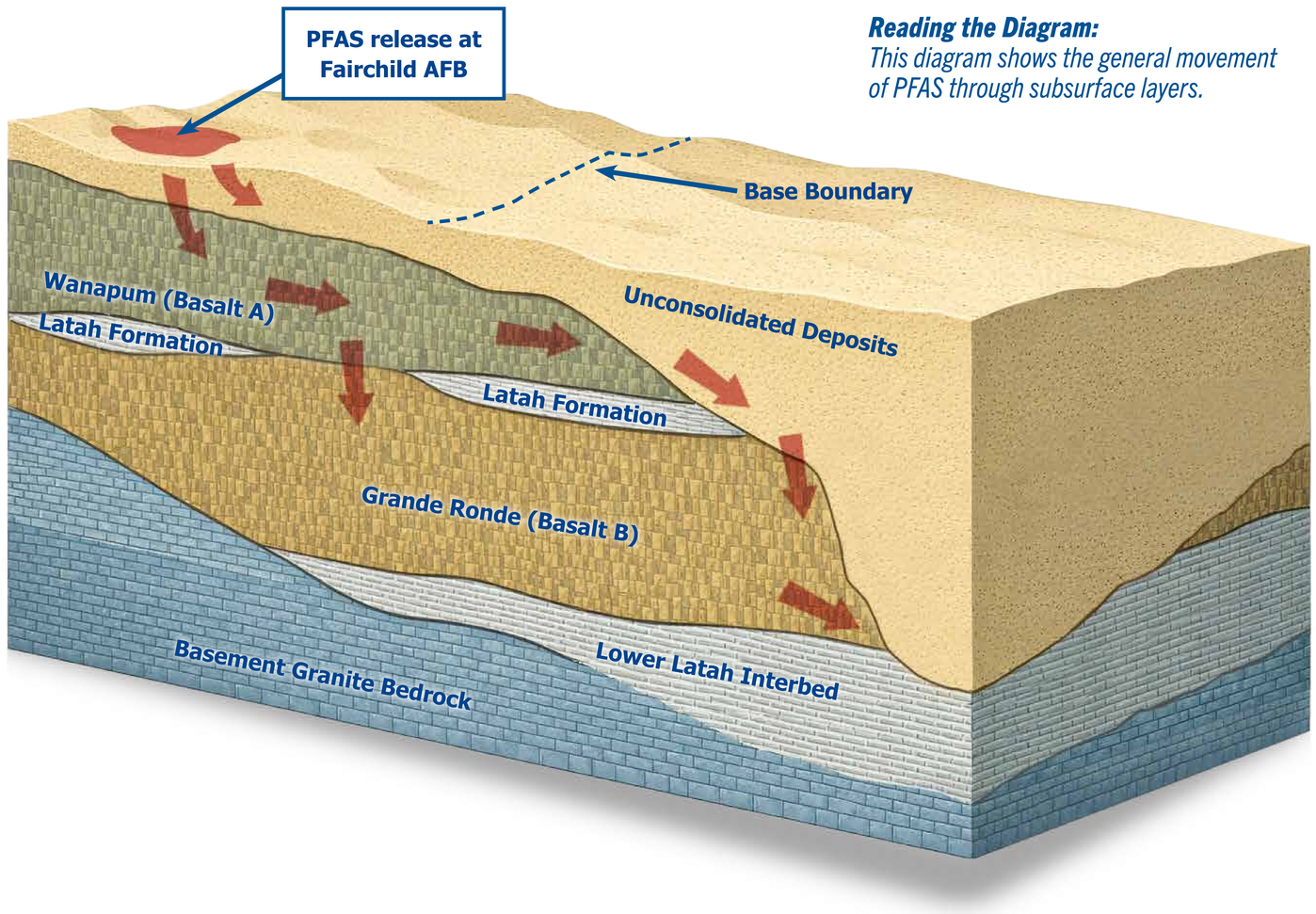
HOW PFAS TRAVELS OFF BASE

CARVED BY ANCIENT FLOODS

Two ancient, buried valleys called the East Deep Creek and Airway Heights paleochannels carry groundwater away from Fairchild AFB. These underground valleys were carved out of the basalt rock formations by floods from Lake Missoula thousands of years ago and then filled in over time with unconsolidated deposits of sand, gravel, and boulders.

The paleochannels direct groundwater steeply downward like a funnel as they extend north past the base. Rather than carrying water horizontally to the end of the channel, they force it deep into the solid rock below.





Reading the Diagram:
This diagram shows the general movement of PFAS through subsurface layers.

THE GEOLOGICAL "SHORT-CIRCUIT"

As the groundwater is funneled downward, it enters the upper rock layer known as the Wanapum Basalt. Below that is a clay layer called the Latah Formation that acts as a barrier, keeping water from moving even deeper. Some paleochannel sections cut through the Wanapum Basalt and the Latah Formation layers, creating a geological "short-circuit" that funnels groundwater directly into the deeper Grande Ronde Basalt, a vital source of drinking water and irrigation for the surrounding region.

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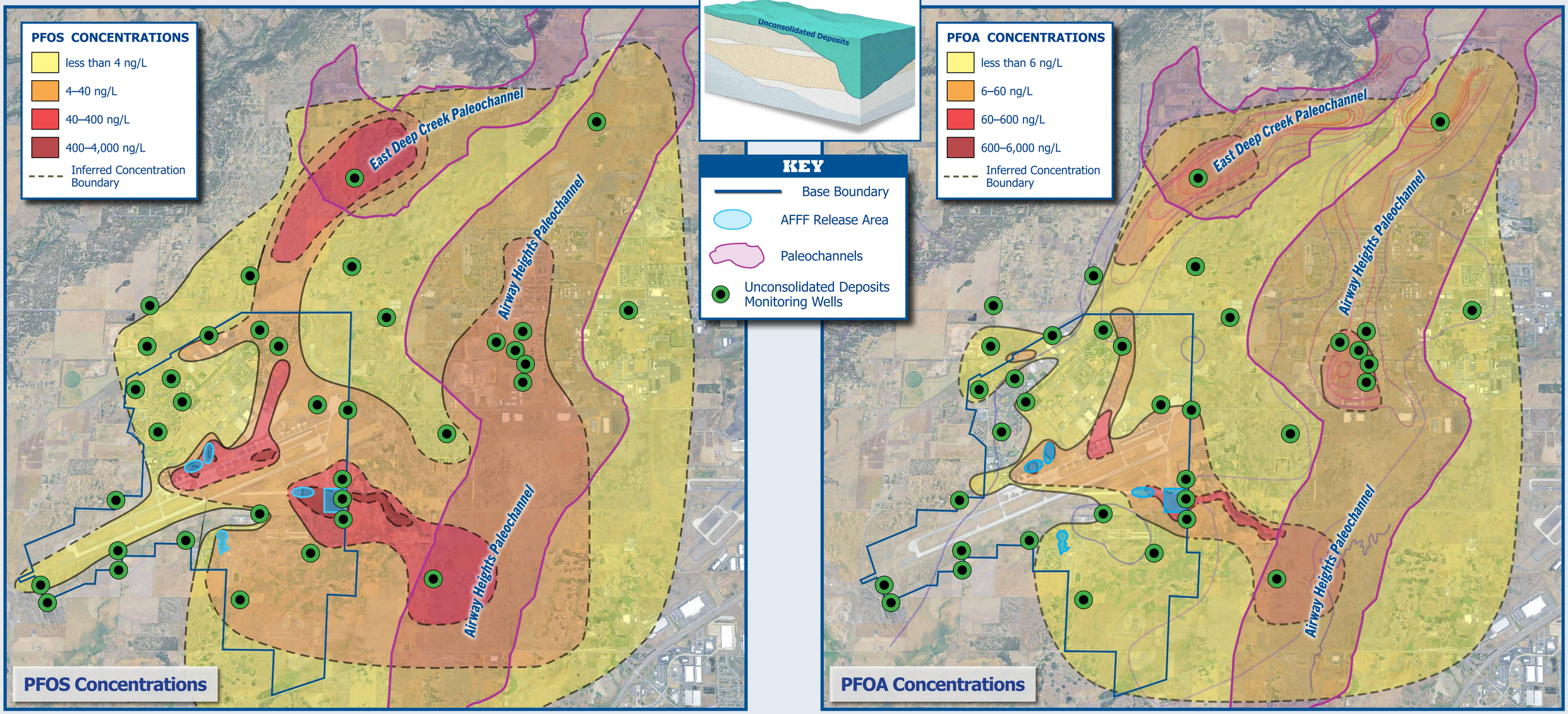
PFOS AND PFOA LEVELS IN UNCONSOLIDATED DEPOSITS

THE FIRST STOP

This map shows PFOS concentrations in the unconsolidated deposits, the shallow groundwater layer made up of loose sand, gravel, and boulders left behind by ancient floods. This layer is the first stop for PFAS seeping down from the surface where spills and releases have occurred and contains the highest PFAS levels found at the site. PFOS levels are highest near known AFFF release areas and decrease with distance, confirming these as the primary source of contamination.

CONFIRMING THE SOURCE

This map shows PFOA concentrations in the same shallow deposits. Comparing PFOA and PFOS levels helps investigators understand how these two chemicals spread underground. Although concentration levels differ between the two, both maps show similar footprints across the same area. This matching pattern confirms that historical AFFF source areas are major contributors to contamination throughout the unconsolidated deposits.



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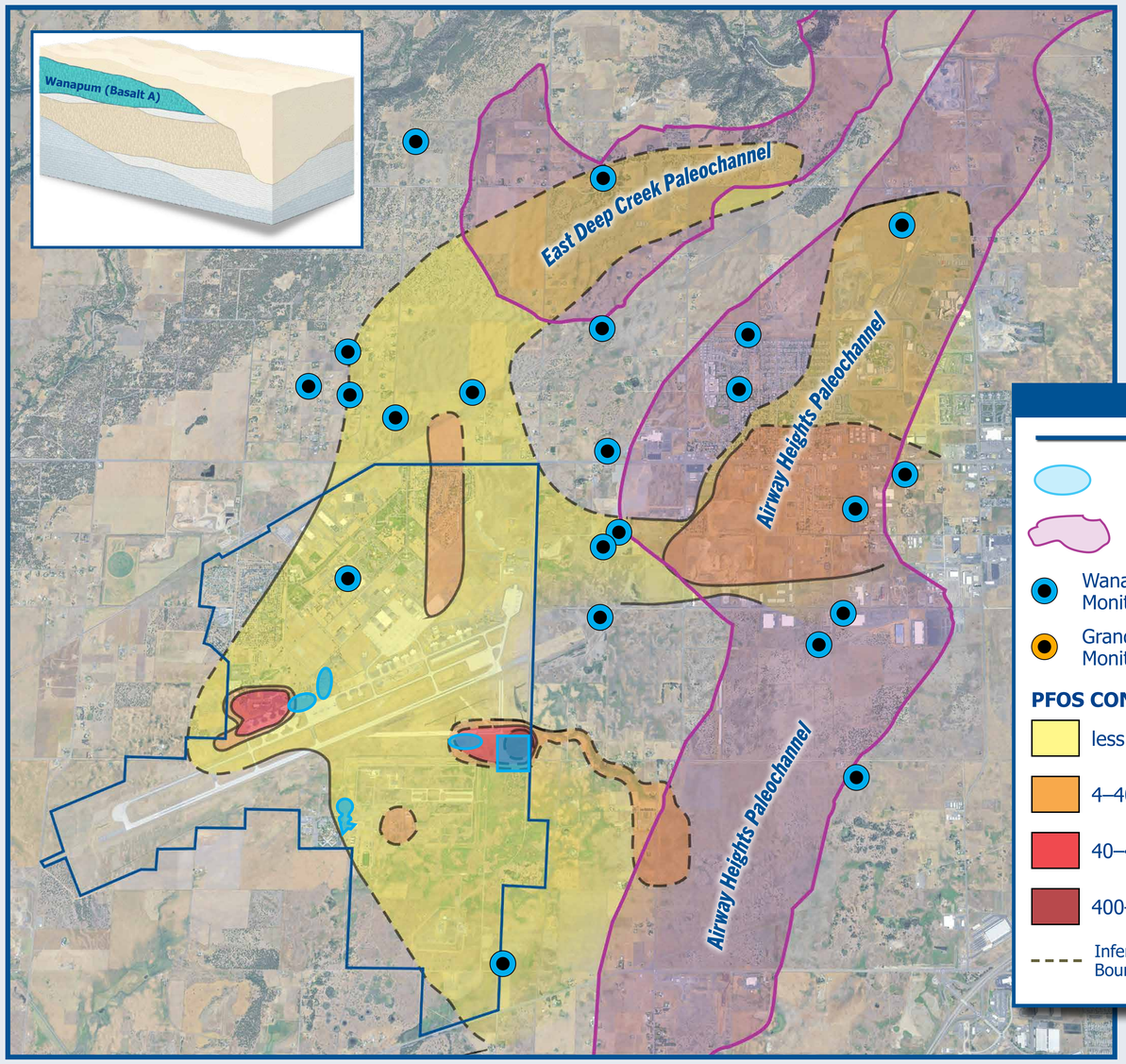
PFOS LEVELS IN BASALT LAYERS

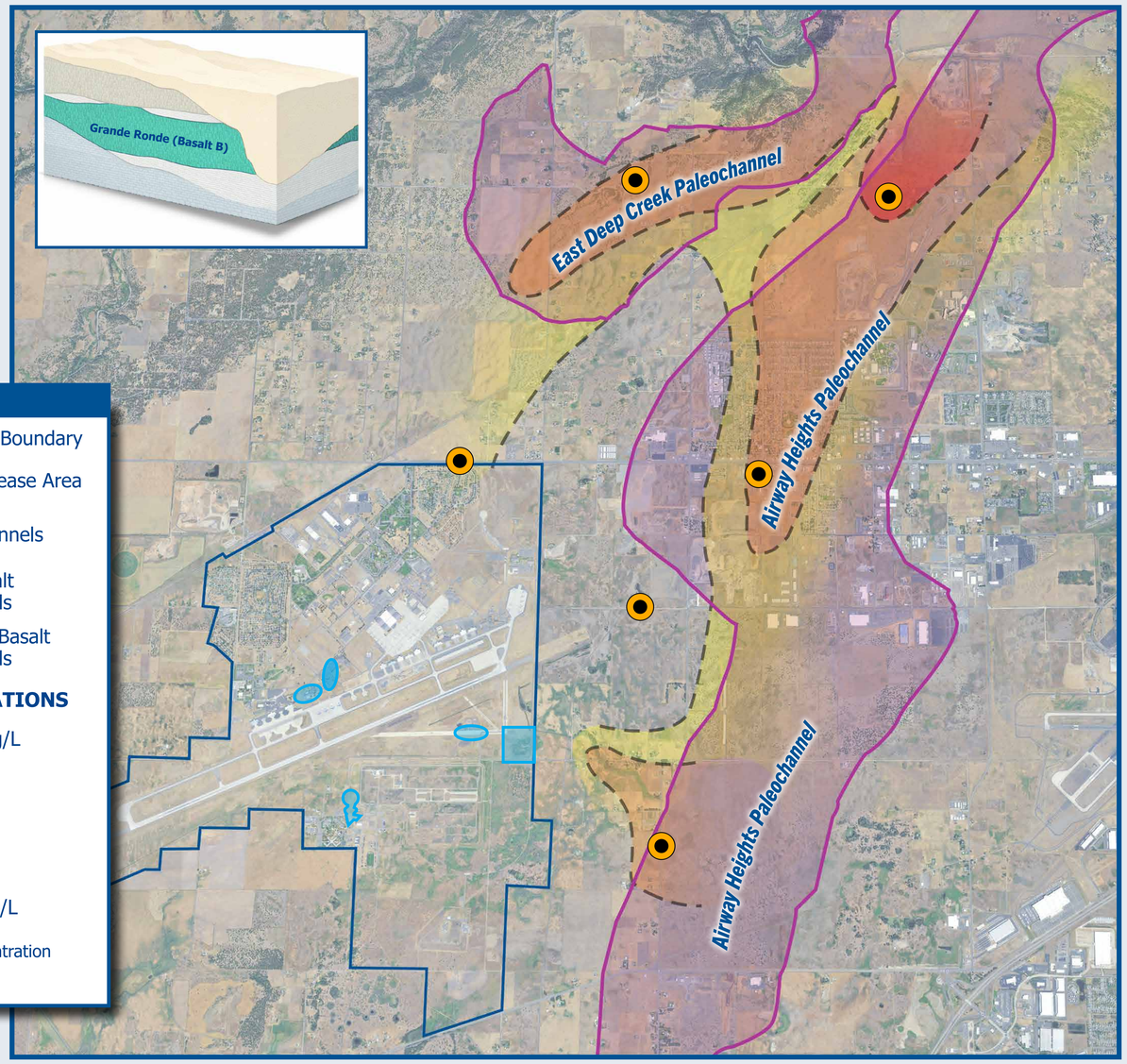
PFOS IN THE WANAPUM BASALT

The Wanapum Basalt is the first solid rock layer reached by groundwater seeping down from the surface. The paleochannels cut directly into this layer, creating the primary pathways that carry groundwater from the unconsolidated deposits into the basalt. Aquifer testing confirmed that groundwater moves easily through this layer and monitoring wells installed throughout the area helped map the PFOS concentrations shown here.

PFOS IN THE GRANDE RONDE BASALT

The Grande Ronde Basalt lies beneath the Wanapum, separated by the Latah Formation clay layer. In some areas, the paleochannels cut through both the rock and clay layers above allowing groundwater to flow directly into this deep rock layer. Because only a limited number of monitoring wells have been installed here so far, the full extent of contamination at this depth is not yet known and the concentration lines on this map are open. Further sampling is planned for future investigation phases.





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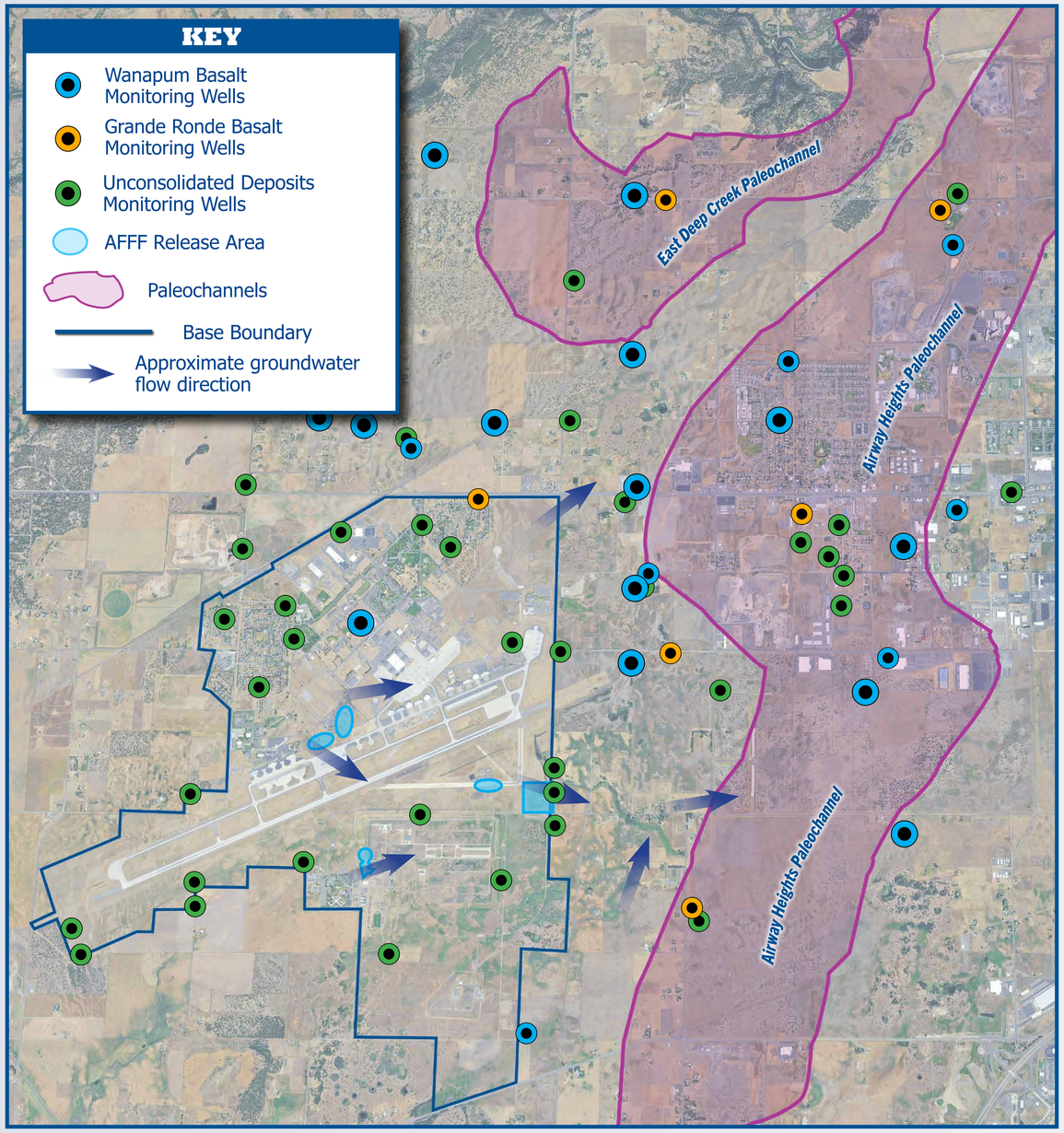
PHASE I PFAS REMEDIAL INVESTIGATION SUMMARY



PHASE I RI OBJECTIVES

- Determine the extent of PFAS contamination at and below the ground surface at the five main AFFF source areas.
- Evaluate if stormwater ditches are carrying contamination off the base
- Measure PFAS levels in the groundwater both on and off the base
- Map the underground rock layers and channels to understand how the groundwater flows
- Estimate how much PFAS seeps from soils into groundwater
- Identify how people, animals, and the environment might come into contact with PFAS

WORK COMPLETED (JUNE 2021 – MARCH 2025)

New soil sampling locations	128
Soil samples collected	617
Groundwater samples collected	307
Sediment samples collected	25
Surface water samples collected	22
New groundwater monitoring wells installed	52
Wells scanned to map underground rock layers	98
Continuous water level monitors installed	100

KEY FINDINGS

- PFAS was confirmed in soil and groundwater at all five AFFF source areas
- A previously unidentified source area was discovered near former Hangar 1012
- PFAS has migrated off base through two deep underground paleochannels into aquifers used for private drinking water wells and municipal supplies in surrounding communities
- The full extent of the PFAS plume is not yet fully identified

PROPOSED FUTURE ACTIONS

- Further map the PFAS plume to the north, south, and east of the base
- Complete human health and environmental risk assessments
- Investigate newly identified Hangar 1012 source area

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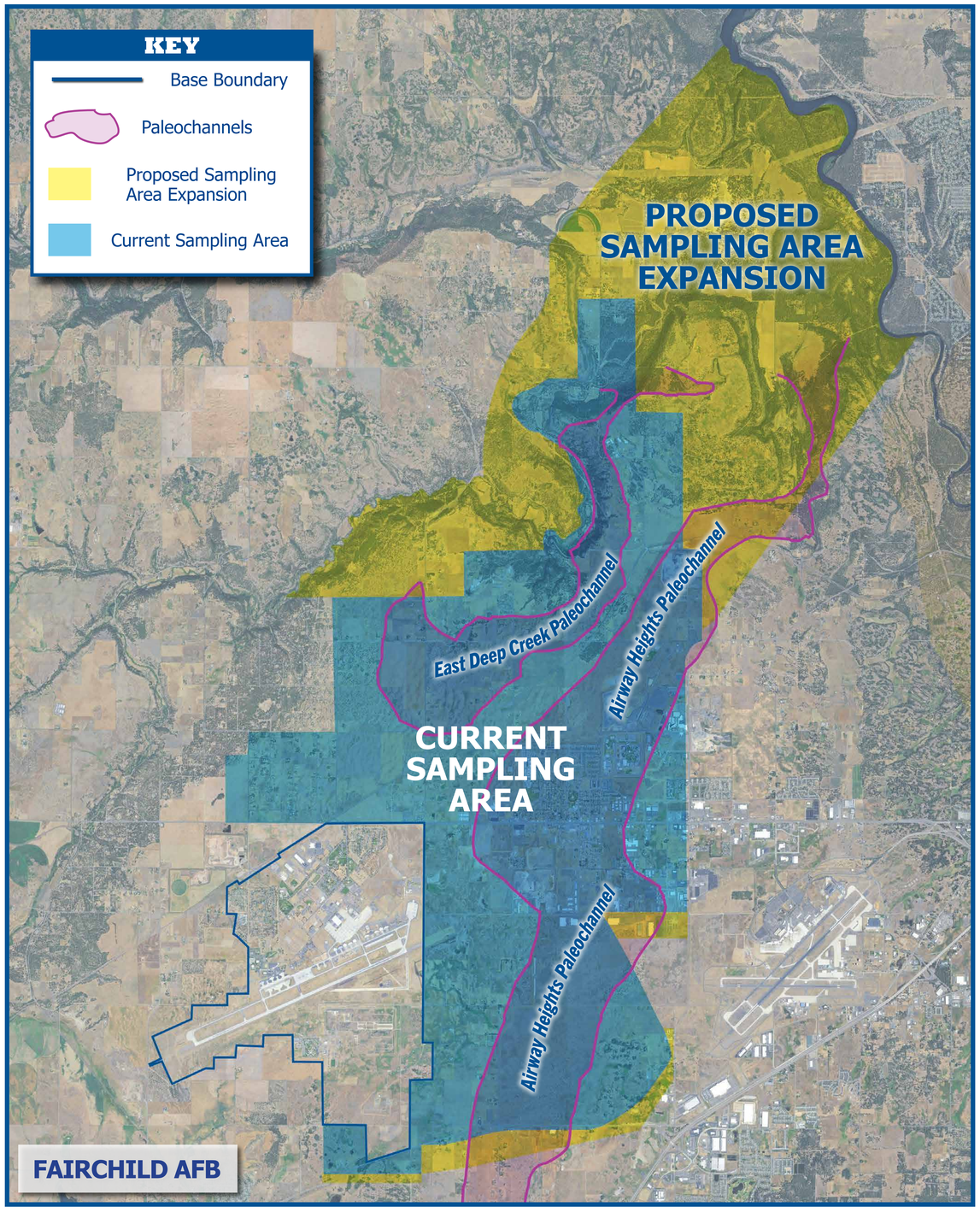
FUTURE OFF-BASE DRINKING WATER MONITORING



AIR FORCE PROPOSED RESPONSE TO PRIVATE DRINKING WATER WELLS

SAMPLING CONTRACTS		RESPONSE ACTION IMPLEMENTATION CONTRACTS
Base: Wells historically sampled and reported above MCL	• POUTS installed if 3 times above MCLs • Cost Benefit/Technical Analysis if above MCLs	**Base:** Wells historically sampled and reported 3 times above MCLs
Option 1: Wells historically sampled and reported below MCLs or non-detect	• Resample wells • POUTS installed if 3 times above MCLs • Cost Benefit/Technical Analysis if above MCLs	**Option 1:** Wells historically sampled and reported below MCLs or non-detect
Option 2: New off-base well sampling or step out sampling	• Identify and sample private drinking water wells • POUTS installed if 3 times above MCLs • Cost Benefit/Technical Analysis if above MCLs	**Option 2:** New off-base well sampling or step out sampling
		Option 3: Wells historically sampled and reported above MCLs

MCL: *Maximum Contaminant Level* ***POUTS:*** *Point-of-use treatment system*

TENTATIVE SCHEDULE AS OF MARCH 2026

- **Base Contract Award** – estimated by Aug 2026
  Install POUTS within 6 months of Base contract award
- **Option 1 Award** – estimated Summer 2027
- **Option 2 Award** – estimated Summer 2028

Schedule subject to change based on funding availability and contracting strategy

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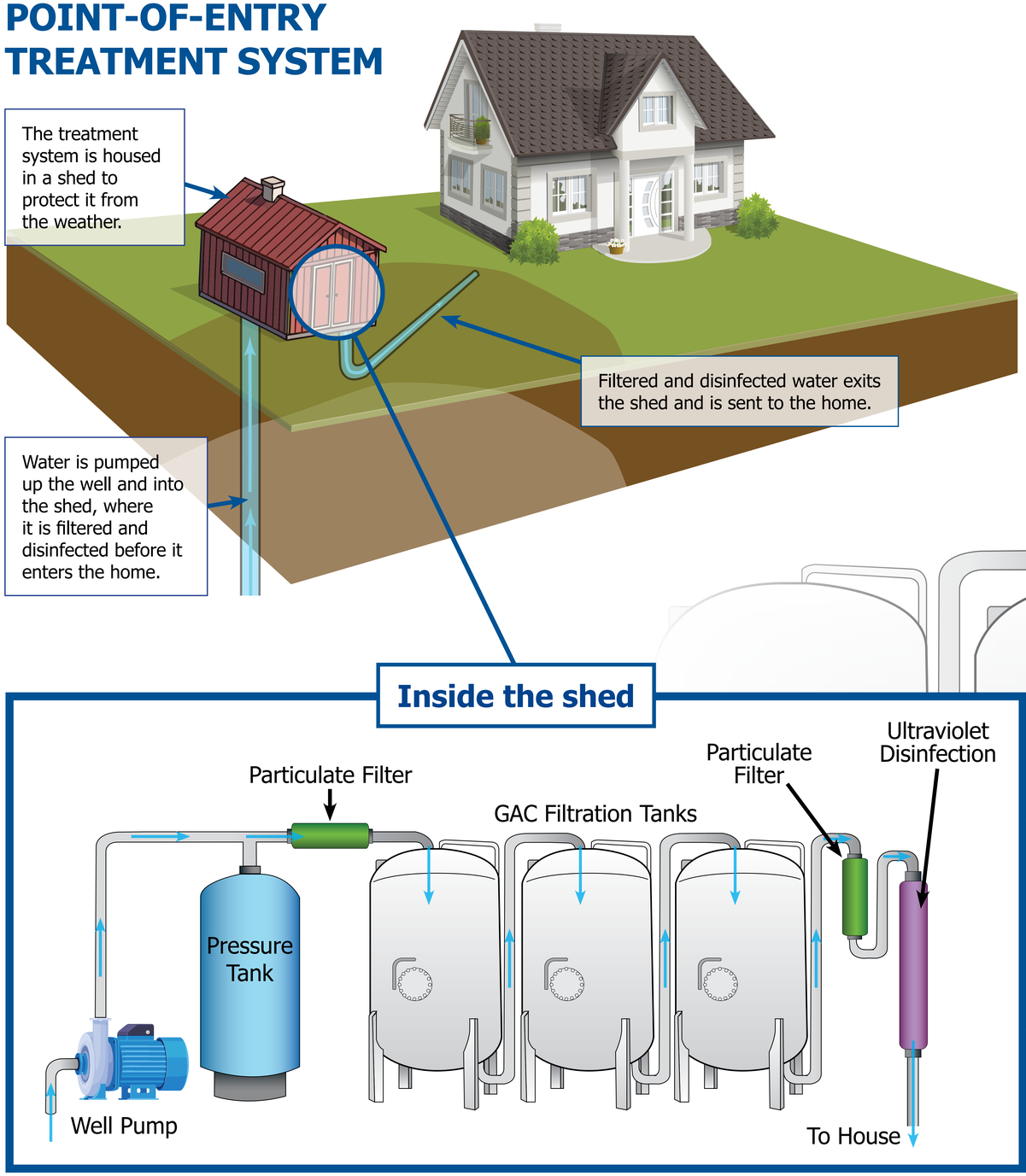
OFF-BASE DRINKING WATER TREATMENT SYSTEMS

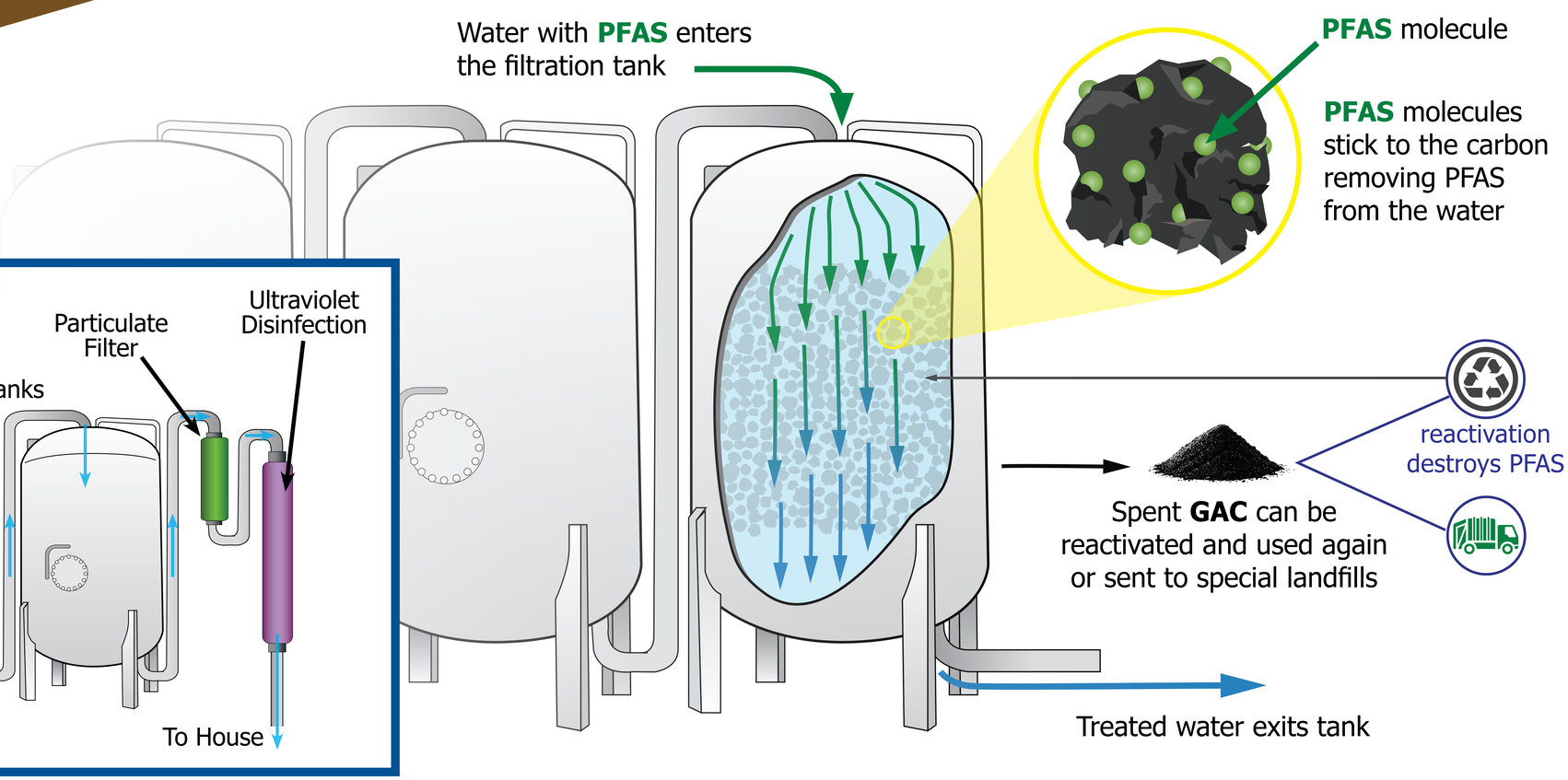
POINT-OF-ENTRY TREATMENT SYSTEM



WELL RESPONSE STATUS AS OF DEC. 29, 2025

- 420 drinking water wells sampled
- 92 point-of-entry treatment systems (POETS) installed
- 3 homes connected to city water
- 7 homes with POETS installation pending
- 3 homeowners declined POETS installation

HOW GRANULAR ACTIVATED CARBON (GAC) WORKS



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RESOURCES & INFORMATION

Fairchild Air Force Base and **regulators** work together to protect **human health** and the **environment**.

STAY INFORMED AND INVOLVED

Remedial Investigation Project Mgmt. Plan: AR# 2335
Remedial Investigation: AR# 2442, 2443, 2444
Drinking Water Protection Study: AR# 2440
FT004 PFAS Treatment Pilot Study: AR# 2449
2023 Relative Risk Site Evaluation: AR# 2374

https://ar.cce.af.mil

Air Force Response to PFAS

Webpage: www.afcec.af.mil/What-We-Do/Environment/Per-and-Polyfluoroalkl-Substances/

HEALTH & ENVIRONMENTAL CLEANUP CONTACTS

Washington State Department of Health (WSDH)
PFAS Webpage: doh.wa.gov/community-and-environment/contaminants/pfas

Environmental Protection Agency (EPA)
PFAS Webpage: www.epa.gov/pfas

Spokane Regional Health District (SRHD)
PFAS Webpage: srhd.org/health-topics/environmental-health/pfas-per-and-polyfluoroalkyl-substances

Fairchild Environmental Hub

Webpage: www.fairchild.af.mil/Information/Environmental-Hub/
Fairchild AFB Public Affairs contact: 92arw.pa@us.af.mil | 509-247-5735

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THANK YOU