



Army National Guard

PFAS Site Inspection (SI)

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

Waiawa Unit Training and Equipment Site (UTES), Hawaii

24 February 2023





Who Is Involved in this Waiawa UTES Work?



- Hawaii Army National Guard (State - HIARNG)
- ARNG (Federal) - Installation and Environment Directorate, Cleanup & Restoration
- US Army Corps of Engineers
- AECOM Technical Services, Inc.

Study Results Reviewers:

- Hawaii Department of Health (HDOH)
- Honolulu Board of Water Supply (BWS)
- Hawaii Department of Land and Natural Resources (DLNR)





- Army National Guard (ARNG) Top Priority: Human Health
- In an abundance of caution, ARNG will proactively sample drinking water wells directly down gradient of the Waiawa UTES; bottled water if results exceed 70 ppt for PFOA + PFOS
- Work transparently and cooperatively with community, HDOH, BWS, HIARNG to communicate PFAS CERCLA results

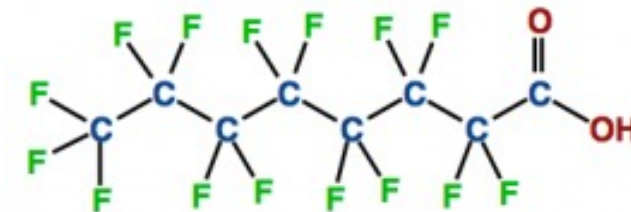




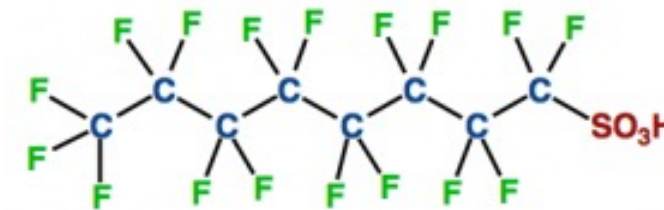
What is PFAS? (per & polyfluoroalkyl substances)



- 5000+ chemicals
- Human-made chemicals
 - heat-resistant
 - repel oil, stains, grease, and water
- Most studied
 - PFOA – Perfluorooctanoic Acid (1947 – 2002)
 - PFOS – Perfluorooctanesulfonic Acid (1949 – 2002)



PFOA - perfluorooctanoic acid



PFOS - perfluorooctanesulfonic acid





PFAS Sources



Apparel



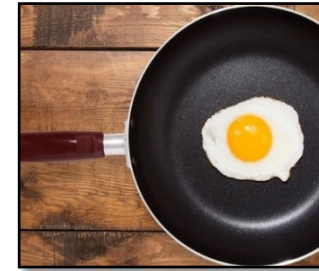
Cosmetics



**Food Storage/
Packaging**



**Chemicals and
Pharmaceuticals**



**Non-Stick
Cookware**



Oil & Gas



Electronics



**Healthcare and
Hospitals**



**Aqueous Film
Forming Foam**



Aerospace





Why Waiawa UTES?



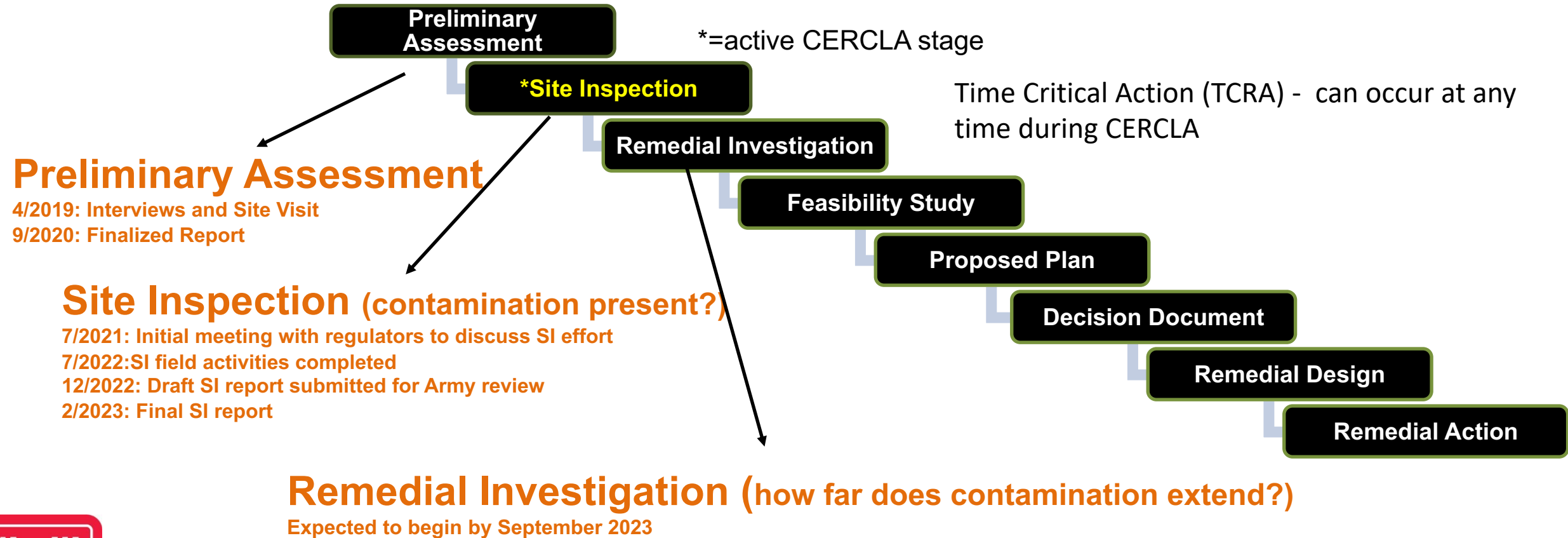
- Waiawa UTES part of ARNG's Nationwide effort to investigate PFAS
- NGB performed Waiawa UTES Preliminary Assessment in 2019/20
 - Current/Former "Fire training areas"
 - Learn about historic use of AFFF using interviews of personnel; site walk/visit
 - Preliminary Assessment report available to the public
- Most common military PFAS product = Aqueous Film Forming Foam (AFFF)
 - Not used anymore unless there is a fuel fire and necessary to save a life
 - AFFF disposed in 2020





ARNG's CERCLA Timeline at Waiawa UTES

CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act





Areas of Interest (AOI)



- **AOI 1:** Firetruck Pump Test Area
- **AOI 2:** Firetruck Parking Area, Vehicle Maintenance Area, and Storage Buildings





Site Inspection

- Sample groundwater and soil for presence or absence at each potential release area (absence = below screening levels)
 - Firetruck Pump Test Area - Area 1 (northern area)
 - Firetruck Parking Area, Vehicle Maintenance Area, and Storage Buildings - Area 2 (south)
- Gather groundwater flow data
- Research other nearby source areas outside of the UTES
- Check groundwater and soil concentrations within the installation boundary





Waiawa UTES - Time Critical Action (TCRA)



What is a TCRA for PFAS?

- Removes risk to human drinking water consumption
- Bottled Water as interim for drinking water wells over 70 parts per trillion (USEPA Lifetime Health Advisory)

What is the USEPA Lifetime Health Advisory for drinking water? The concentration, if ingested over a lifetime, may constitute a health risk:

- PFOA - perfluorooctanoic acid
 - PFOS - perfluorooctanesulfonic acid
- } 70 parts per trillion combined





Site Inspection (initial sampling)

1 part per trillion is approximately equivalent to one drop of water in 20 Olympic sized swimming pools
OR
1 drop of impurity in 500,000 barrels of water

DoD Screening Levels (Soil/Groundwater)

Analyte ^b	Residential (Soil) ($\mu\text{g}/\text{kg}$) ^a 0-2 feet bgs	Industrial/ Commercial Composite Worker (Soil) ($\mu\text{g}/\text{kg}$) ^a 2-15 feet bgs	Tap Water (Groundwater) (ng/L) ^a Parts per trillion (ppt)
PFOA	19	250	6
PFOS	13	160	4
PFBS	1,900	25,000	601
PFHxS	130	1,600	39
PFNA	19	250	6

What is a DoD screening level (SL)?:

- It's the concentration at or over which, more testing is required to find out how far contamination has reached
- In this case, Waiawa UTES will move to the next phase of CERCLA: Remedial Investigation





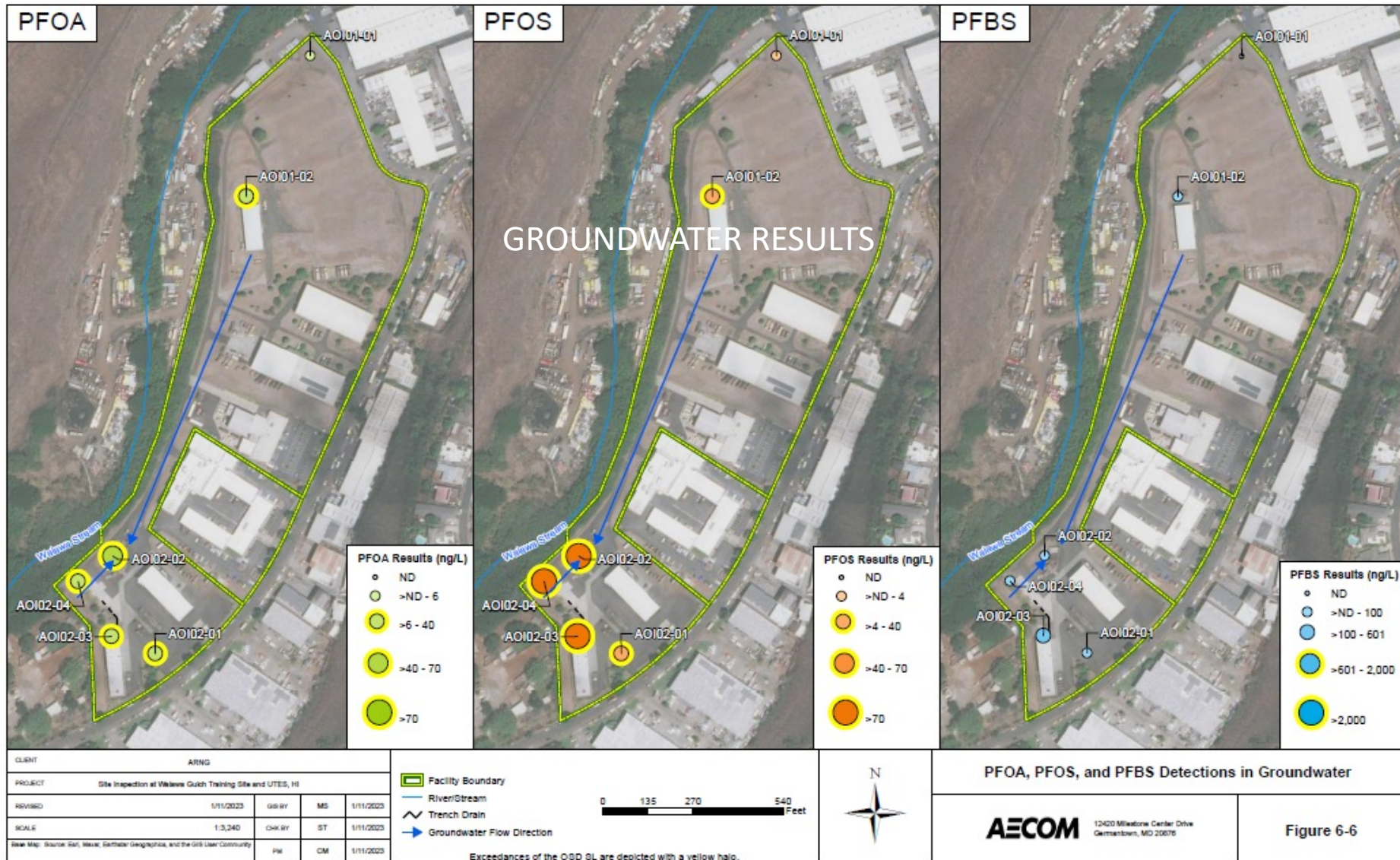
Waiawa UTES Site Inspection Findings to Date (visual representation to follow)

- Soil
 - All PFAS compounds were below DoD screening levels (sampling results vs screening levels)
 - PFOA (< 2.50 ppt vs 19 ppt)
 - PFOS (< 2.50 ppt vs 13 ppt)
 - PFHxS (< 2.50 ppt vs 130 ppt)
 - PFBS (< 2.50 ppt vs 1,900 ppt)
 - PFNA (< 2.50 ppt vs 19 ppt)
- Groundwater (visual representations to follow)
 - Above screening levels:
 - PFOA (57 ppt vs 6 ppt)
 - PFOS (271 ppt vs 4 ppt)
 - PFHxS (1,100 ppt vs 39 ppt)
 - Below screening levels:
 - PFBS (125 ppt vs 601 ppt)
 - PFNA (5.44 ppt vs 6 ppt)



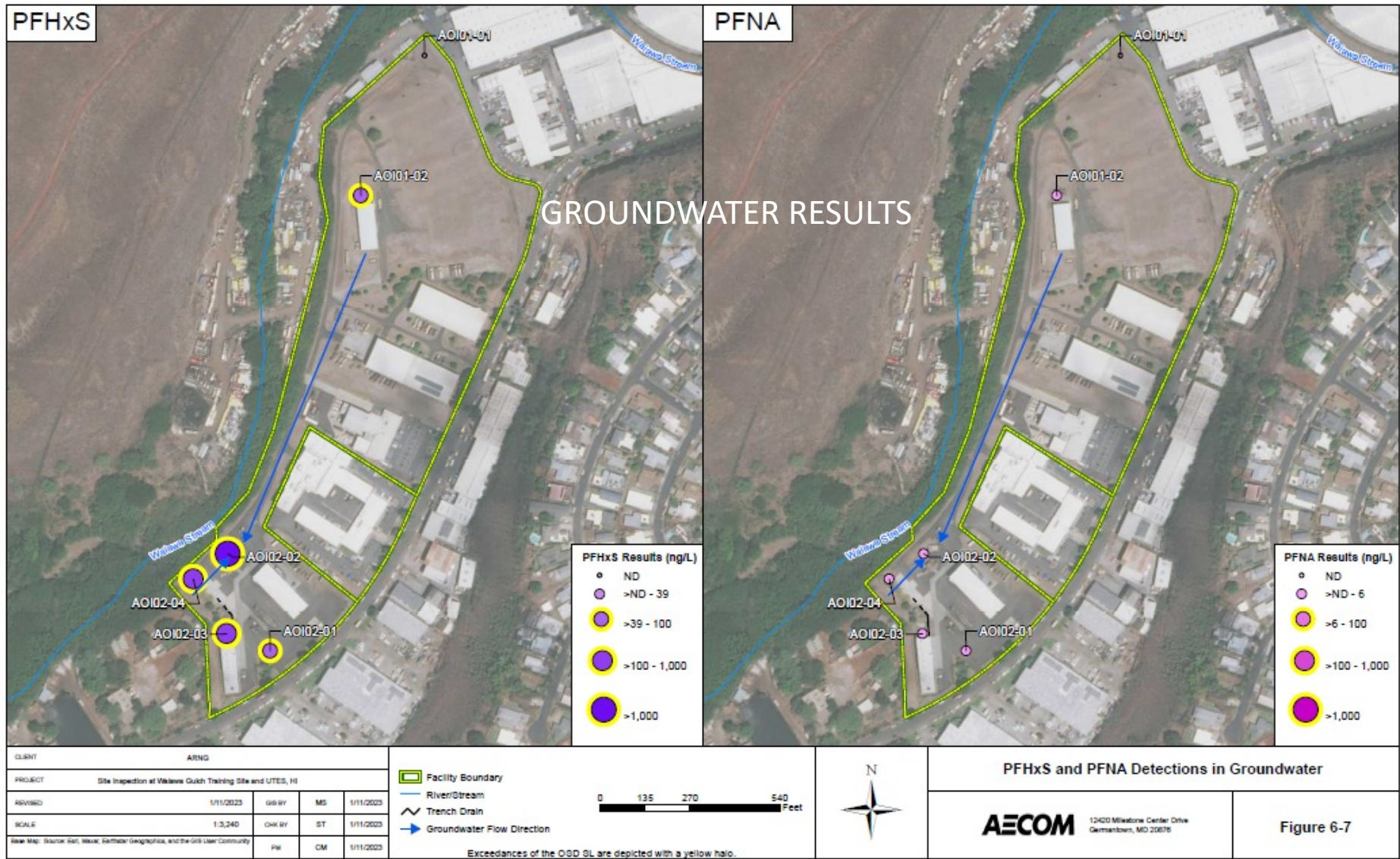


Waiawa UTES Site Inspection Findings to Date





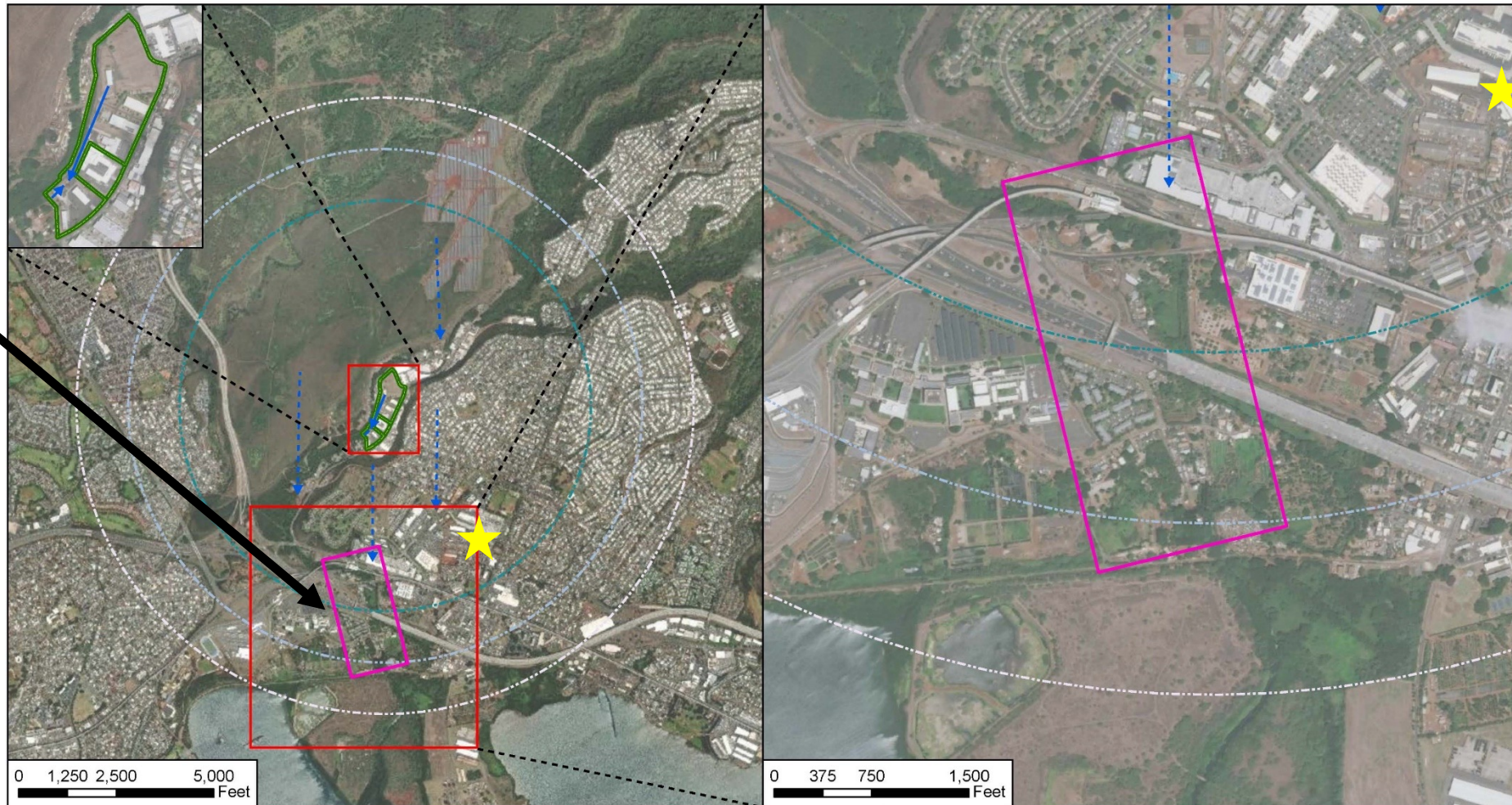
Waiawa UTES Site Inspection Findings to Date





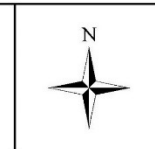
Drinking Water Sampling Area

ARNG will sample drinking water wells, and one municipal well, in the direction of groundwater flow closest to the installation



CLIENT	ARNG				
PROJECT	Waiawa Gulch Training Site & UTES, HI				
REVISED	2/3/2023	GIS BY	SK	2/3/2023	
SCALE	1:30,000	CHK BY	JW	2/3/2023	
Base Map:	Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community		PM	CM	2/3/2023

- Approximate Residential Sampling Area
- Facility Boundary
- 1 Mile Buffer
- 1.25 Mile Buffer
- 1.50 Mile Buffer
- Facility Groundwater Flow Direction (Observed during SI)
- Inferred Basal Aquifer Groundwater Flow Direction
- Municipal Well



Drinking Water Survey Area /w 1, 1.25, and 1.50 Mile Delineations from Waiawa Gulch Training Site & UTES

AECOM 12420 Milestone Center Drive
Germantown, MD 20876





Next Steps

****Current Public Meeting: 24 February 2023****

- Coming weeks Sample down-gradient drinking water wells
- Summer-Fall 2023 Begin Waiawa UTES Remedial Investigation

*results expected three months after samples taken





Questions/Comments?



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808-586-5815
- <https://dod.hawaii.gov/env/pfas-information/>

