Participants

Name	Organization/Resident	Name	Organization/Resident
Kay Grosinske	AFCEC	Rosa Jaiman	DHHS
Isamar Nieves-Cancel	AFCEC	Duane DuRay	MTQCO
Sabina Chowdhury	BAH	Nick Hautamaki	K.I. Sawyer Water Department
Alison Lambert	BAH	Amy Stephens	Marquette Co. Planning Division
Laura Simmons	Aerostar	Mark Petrie	RAB member
Matt Handyside	LCES	Wes Jourden	RAB Member
Jeff Maletzke	LCES	Linda Winfield	Resident
Gregory Garvey	GSI	Robert Winfield	Resident
Melissa Beauchemin	EA	Greg Hardy	Resident
Bill Harmon	EGLE	Dan Koehler	Resident
Kalan Briggs	EGLE	Joseph Perket	Resident
Matt Baltusis	EGLE	Anne Perket	Resident
John Bradley	EGLE	Rick Francisco	Resident
Trevor Quinlon	EGLE – Community Engagement	Bob Hanson	Resident
Ashley Hanas	DHHS		

Notes:
AFCEC – Air Force Civil Engineer Center
BAH – Booz Allen Hamilton
EGLE – Michigan Department of Environment, Great Lakes, and Energy
DHHS – Michigan Department of Human Health Services
MTQCO – Marquette County
MCHD – Marquette County Health Department
LCES – Los Alamos Technical Associates and CTI & Associates, Inc. Environmental Services
EA – EA Engineering and Science Technology
RAB – Restoration Advisory Board

Following are the minutes from the Former KI Sawyer AFB 2023 Restoration Advisory Board (RAB) meeting, held on 17 October 2023 at the KI Sawyer Heritage Museum . The meeting began at 1:00 PM Eastern Standard Time (EST). A poster session was also conducted from 1:00 to 1:30 PM. The presentation began at 1:30 PM. Presentation materials are provided as **Attachment 1**.

Discussion:

Kay Grosinske (KG) kicked off the meeting with introductions; Key project team members and RAB members briefly introduced themselves. KG then presented the agenda for the meeting, which included

- Introductions
- RAB Ground Rules
- State Role
- Base Realignment and Closure (BRAC) Environmental Construction Optimization Services (BECOS) Contract Status
- Discussion of per- and polyfluoroalkyl substances (PFAS)

- Questions/Discussion

EGLE Presentation – State Role

Bill Harmon (BH) presented the State Role, which provides an overall look at the role that EGLE plays at K.I. Sawyer and why they play an important role. BH stated that the lead agency for environmental work at K.I. Sawyer is the United States Department of Defense (DoD) and that EGLE is the lead regulatory agency that oversees all investigation and remedial work within contaminated sites. At K.I. Sawyer they are conducting work under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) regulatory framework.

BH indicated that as the lead regulator, EGLE evaluates CERCLA response actions, including removal and remedial actions. EGLE's role in these responses includes reviewing technical documents such as work plans and reports and provides input and recommendations related to the strategy of investigation and remedial actions. EGLE also participates in overseeing fieldwork for investigation and remedial actions. EGLE also evaluates the conceptual site model (CSM) for contaminated sites to verify accuracy, consistency, and predictiveness. This evaluation will consist of reviewing and assessing graphical and/or written descriptions of site contamination that typically include where the source(s) of contamination are located, the geology of a site, hydrogeologic characteristics, and potential receptors. EGLE will also evaluate data sets to verify data quality and defensibility as well as verify that data is collected in sufficient quantity to accurately represent site conditions, develop the appropriate statistical analysis, and to make future decisions.

BH closed by ensuring the public that they have a voice. EGLE staff are here to listen and respond to any and all concerns. EGLE, as the lead regulatory agency is committed to full transparency to build public trust and confidence. Ultimately through our partnership with the Air Force the goal is to protect human health and the environment.

LCES Presentation – BECOS Contract Status

Matt Handyside (MH) discussed the status of the Midwest Group BECOS contract. MH indicated that the current scope of services included environmental services at six Installation Restoration Program (IRP) sites, including ST004, LF008, LF010/011, SS017, FT007, and XE027.

MH described the past year's activities at the six IRP sites before providing a brief overview and the current status of each site as contained in the presentation materials in Attachment 1, and summarized as follows.

- **ST004 (Petroleum Oil and Lubricants (POL) Yard)** – is the location of several fuel spills. The chemicals of concern (COCs) include benzene, toluene, ethylbenzene, and xylenes (BTEX); trimethylbenzene (TMB), and naphthalene. The remedial actions that have been implemented at ST004 include a pump and treat system, bioventing, air sparging, installation of an interceptor trench, soil excavation, and land use controls (LUCs). MH indicated that the trench was installed to intercept free product and protect Silver Lead Creek. The interceptor trench and air sparge systems were successful in addressing free product. MH indicated that a Certificate of Completion Report has been submitted to EGLE for ST004. Approval of the Certificate of Completion Report will indicate that no additional remedial actions are necessary and that the site is not presenting

risks to offsite receptors. The site will have land use restrictions that will be monitoring through LUCs. Pending EGLE approval, the existing treatment systems will be decommissioned and existing site monitoring wells will be properly abandoned.

- **FT007 (Fire Training Area 2)** – MH stated that the site was historically used for fire-fighting training exercises from the early 1970s through 1990 and that petroleum compounds were used as combustion agents and the fires were extinguished using aqueous film forming foam (AFFF). MH noted that PFAS is not part of the BECOS contract and that Aerostar is investigating this site as part of the PFAS remedial investigation (RI). Benzene is the remaining COC at FT007 outside of PFAS. Monitored Natural Attenuation (MNA) supported Response Complete (RC); however, concentrations did not meet the goal for unrestricted site closure. Therefore, injections of a slow-release oxygen compound to treat benzene were completed this past year. LCES continues to conduct groundwater monitoring of three wells for benzene on a quarterly basis, as well as annual LUC inspections and reporting.
- **LF008 (Landfill 1)** – MH indicated that Landfill 1 (LF008) was used from the 1950's through the 1970's for disposal of construction debris. The COCs are primarily vinyl chloride and diethyl ether, and the remedy includes a vegetated soil cover, groundwater monitoring, and LUCs. MH discussed current COC concentration trends and indicated that concentrations are trending downward and that there is only one well with vinyl chloride concentrations slightly above Residential Cleanup Criteria. MH indicated that the current site objectives include annual landfill cover inspections (tree removal, mowing, signage repair, fence repair) and that precipitation is monitored during the growing season to make sure the site receives enough moisture to maintain the vegetative cover. MH noted that no watering was necessary this year. Site objectives also include annual groundwater monitoring, which will continue for eight more years due to the 30-year statutory monitoring requirements for landfills. A RC Report will be submitted in 2029.
- **LF010/011 (Landfills 3/4)** – MH indicated that LF010 was used for waste and fly ash diposal in the 1970s and that LF011 was used for general waste disposal (including wastewater treatment plant sludge) from 1975 to 1988. MH stated that site COCs include naturally occurring iron and manganese. Stable and low concentration of the COCs have led to discontinuation of annual groundwater monitoring per EGLE approval. MH indicated that the site objectives include annual landfill cover inspections (tree removal, mowing, signage repair, fence repair) and that precipitation is monitored during the growing season to make sure the site receives enough moisture to maintain the vegetative cover. MH noted that no watering was necessary this year.
- **SS017 (Avenue G Fuel Spill)** – MH indicated that the site contained fuel lines that pumped JP-4 from the Petroleum, Oils, and Lubricants (POL) Yard to the airfield in order to fuel planes and that there have been historical releases in this area. The site COCs include BTEX and TMB. MH explained that MNA supported RC for industrial criteria; however, concentrations did not meet the goal for unrestricted site closure (i.e. below drinking water standards) for groundwater. Therefore, similar to site FT007, injections of a slow-release oxygen compound were completed this past year. LCES continues to conduct groundwater monitoring of five wells for BTEX and TMB on a quarterly basis, as well as annual LUC inspections and reporting.

- **XE027 (Explosive Ordinance Disposal (EOD) Range)** – MH indicated that this site was used as an EOD Range to detonate old ordnance. Munitions and metal debris were removed to eight feet below ground surface in 1996. The current remedy includes a cap that was installed over the entire range, long-term management, and LUCs. This includes semi-annual fence inspections and reporting and annual inspection of the condition of the cap. MH noted that no watering was conducted this year.

MH indicated on-going 2023 activities occurring this week including semi-annual inspection at XE027 and quarterly groundwater sampling at FT007 and SS017. Upcoming activities in 2024 will include additional semi-annual inspection at XE027; landfill monitoring and maintenance at LF008, LF010/011, and XE027; annual groundwater sampling at LF008; LUC inspections at ST004, FT007, LF008, LF010/011, and XE027; and decommissioning of the treatment systems at ST004 pending approval of RC.

K.I. Sawyer Drinking Water PFAS Testing

Nick Hautamaki (NH), a representative of the Marquette County Water Department, presented an overview of the municipal water quality including PFAS monitoring. Key portions of the presentation include:

- All drinking water on the former KI Sawyer Air Force Base is sourced from four municipal wells (AF-4, AF-5, AF-9, and AF-10).
- Drinking water has been monitored for PFAS since 2018.
- One well, AF-5, has had consistent detectable levels of PFAS chemicals at concentrations significantly below current drinking water standards; 2023 results indicate three PFAS compounds. PFAS was not detected in the other three wells (AF-4, AF-9 and AF-10).
- The State of Michigan requires annual PFAS testing.

NH also shared the 2022 Water Quality Report for KI Sawyer (see Attachment 2). This is the most recent report; 2023 report pending.

DHHS Presentation – PFAS and Health

Ashly Hannas (AH), a representative of the Department of Human Health Services, presented an overview of PFAS and exposure pathways which include:

- Drinking water;
- Consumption of fish from waterways contaminated by PFAS (AH indicated that Michigan has Eat Safe Fish guidelines that provides dietary guidelines related to the quantities [servings] of fish that should be consumed);
- Incidental swallowing of contaminated soil or dust;
- Eating food packaged in materials containing PFAS; and,
- Using consumer products containing PFAS.

AH noted that PFAS absorption through skin is typically not a concern.

AH reviewed a slide illustrating trends in PFAS blood levels in the U.S. population that showed PFAS blood levels decreasing since 2000. AH then discussed the associated human health outcomes related to exposure to PFOS and/or PFOA, see Attachment 1.

AH discussed the Michigan Fish Consumption Advisory Program that was developed by DHHS to help the public make decisions related to consuming fish and provide them with information related to the health risks of consuming fish containing environmental contaminants. The program contains guidelines on specific water bodies and species of fish, statewide guidelines when contaminants are found in multiple waterways, purchased fish guidelines, and emergency guidelines when there is a public health concern. AH noted that the Eat Safe Fish guidelines are part of this program.

AH shared a slide indicating the recommended monthly serving size for Brook Trout in Silver Lead Creek, with is two servings per month. AH noted that PFOS concentrations cannot be reduced by trimming and cooking the fish.

PFAS Remedial Investigation

Laura Simmons (LS) begins the presentation with an overview of the agenda for the PFAS portion of the RAB meeting, which includes:

- CERCLA overview;
- PFAS response to date;
- RI process and objectives;
- Field activities to date;
- Data evaluation and reporting;
- Private drinking water well sampling;
- Upcoming field activities; and.
- Additional resources.

LS reviewed the CERCLA steps indicating that the preliminary assessment (PA)/site inspection (SI)/supplemental SI and expanded SI for PFAS at K.I. Sawyer had been conducted between 2015 and 2021. LS indicated that the current RI at K.I. Sawyer began in August 2021 and is currently on-going. The steps beyond the RI will include the development of a feasibility study, proposed plan, and record of decision. Following these technical documents, the next steps will include remedial design/remedial action as well as remedial action operations and long-term management.

LS summarized the PFAS response activities to date, which include:

- Investigation at Fire Training Areas (FT006 and FT007) conducted in 2015;
- PA completed in 2015;
- SI completed in 2017;
- SSI completed in 2018;
- ESI completed in 2021; and,
- RI fieldwork began in 2022.

LS then provided an update on the current RI status. LS indicated that RI scoping and the RI work plan have been completed and that field collection and the risk assessment work plan are on-going. The RI report will be started once field data collection and the risk assessment have been finalized.

LS discussed the PFAS RI objectives, which include:

- Define the nature and extent of PFAS in groundwater, soil, surface water, and sediment.
- Conduct human health and ecological risk assessments that will support the understanding of potential impacts to human health and ecological receptors.

Greg Garvey (GG) then presented slides related to the human health and ecological risk assessments. GG indicated that the risk assessments will follow USEPA guidelines to evaluate potential impacts to human health and ecological receptors. The human health risk assessment will evaluate current and future exposure scenarios (residents, commercial/industrial workers, trespasser/visitor, hunter, angler, and recreator). The ecological risk assessment will evaluate both terrestrial and aquatic habitats.

LS summarized the ongoing field activities to date including the collection of 391 groundwater samples from 77 vertical aquifer screening (VAS) sample locations, installation of 10 piezometers for water level measurements, and surface soil sampling from 141 locations (FT007, former Fire Station, and Drainage Pond [DP-02], Voodoo Avenue). Aerostar, on behalf of the Air Force, has also conducted work to assess the protection of municipal wells that has included confirming lithology and well construction and evaluating the location of sentinel wells.

LS provided an overview of site groundwater flow and complex lithology and how these factors may influence the distribution of PFAS impacts. The collection of additional data underscores how these data continue to refine the understanding of groundwater flow, site lithology and PFAS distribution. LS also briefed the group on PFAS detections within the Municipal Wellhead Protection Area. No immediate or imminent concerns have been identified. The Air Force is currently coordinating additional activities with the State, County, Airport, and KI Sawyer Water Department.

LS summarized the ongoing private drinking water well sampling to date including collection of samples from 29 private residences between 2017 and 2019, one sample from a private business in 2022, and samples from 48 private residences between May and September 2023. In 2017, one private residence had PFAS detected above DoD policy action levels, the residence currently has a treatment system for the removal of PFAS. All other drinking water wells tested to date are either non-detect or below DoD policy and State action levels.

LS briefed the group on upcoming field activities that will include additional VAS locations, installation and sampling of permanent monitoring wells, collection of subsurface soil samples, installation, and sampling of groundwater to surface water interface wells along Silver Lead Creek, and the collection of sediment and surface water samples from Silver Lead Creek. LS indicated that based on the results of field data, they will refine the CSM.

KG briefed the group related to the steps to finalizing the RI. KG indicated that the contract has been extended an additional three years (through August 2026). KF also noted that finishing the RI is dependent on defining all of the edges of the plume. KG reiterated that it is important for property owners to allow

the Air Force access to their property so that all of the data that is needed to define the edges of the plume can be collected.

KG also discussed PFAS is used in other industrial products not associated with AFFF and the AF is currently identifying additional non-AFFF source areas at the former KI Sawyer AFB.

LS finished the presentation by presenting additional resources that can be viewed for more information, see Attachment 1.

A question and answer session followed the presentation. Below is a summary of questioned asked, with responses.

Comment #1: There was confusion regarding the difference between private drinking water wells and groundwater monitoring wells.

Response #1: The presenters clarified that private drinking water wells provide drinking water to homes/residents, and those samples are collected from outdoor spigots and/or kitchen faucets; whereas groundwater water monitoring wells are typically 2-inch PVC pipes that are drilled into the ground specifically for sampling groundwater for environmental projects.

Comment #2: A resident pointed out that the well head protection area shown on the figure extends towards Martin Lake and continues to be concerned about AF-9/10 pumping well influence on the surface water level of Martin Lake.

Response #2: The current well head protection areas does extend towards Martin Lake. The document that establishes this area was emailed to resident on 30 October 23.

Comment #3: A resident asked if there is a type or brand of filter that is recommended.

Response #3: DHHS does not endorse brands of filters but provided specifications for filters such as NSF/ANSI 53 and NSF/ANSI 58 for reverse osmosis (RO) systems.

Comment #4: One resident stated that he was a property owner and that he would give the Air Force access to his property.

Response #4: The Team thanked him and followed up with him after the meeting.

Comment #5: One resident requested to see the outline of the TCE plume.

Response#5: The presenter responded by referencing a historic map of TCE impacts and explained the TCE plume has been remediated and that is why it is no longer shown on the current figures.

The meeting ended at 4:15 PM EST.

ATTACHMENT 1

RAB MEETING PRESENTATION

MICHIGAN DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY

State's Role

Former K.I. Sawyer Air Force Base

Bill Harmon, EGLE Project Manager
Remediation and Redevelopment Division
517 242-2143 | harmonw@michigan.gov

EGLE

Roles and Responsibilities

- DoD (Air Force): Lead Agency
  - responsible for investigating and cleaning up the site
- State (EGLE): Lead Regulator
  - Ensure the work complies with state rules and regulations

MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

State Responsibilities

- Review project documents
  - Work plans
  - Reports
- Regulatory and technical assistance
  - Ensure the work complies with state rules and regulations
- Observe field work- "trust but verify"
- Participate in public education activities

EGLE

Takeaways

- Mutual goal – protect human health and the environment
- Transparency
- Confidence
- You have a voice
  - We listen
  - We respond

EGLE

Contacts

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EGLE

Air Force Installation & Mission Support Center

Restoration Advisory Board

2023 Annual Meeting
Former K.I. Sawyer Air Force Base
18 October 2023

K.I. Sawyer AFB
Environmental Restoration Update
18 October 2023
Presented by
Air Force Civil Engineer Center (AFCEC)

Kay Grosinske (AFCEC)
Bill Harmon (EGLE)
Matt Baltusis (EGLE)
Matt Handyside (LCES)
Jeff Maletzke (LCES)
Ashley Hanas (DHHS)
Laura Simmons (Aerostar)
Sarah Schneider (Aerostar)
Greg Garvey (GSI)

Overview

- Introductions
- RAB Ground Rules
- State Role
- BECOS Contract Status
- Status of IRP Sites
- PFAS and Health
- Status of PFAS Remedial Investigation
- Questions/discussion

Introductions

Key Project Team Members/Contact Information

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DHHS

Ashley Hanas	333 S Grand Ave, Lansing, MI 48933	**Phone:** (517) 243-5541 **Email: Hanasa1@michigan.gov**

Introductions

Key Project Team Members/Contact Information

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Bay West / AECOM

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K.I. Sawyer RAB Ground Rules

- Remember, we all have the same goal
- Be present
- Listen actively; minimize electronic distractions
- One person speaks at a time; avoid interruptions
- Share information early — don't wait to speak up
- Use the time efficiently
- Communicate succinctly
- Respect one another's points of view

Air Force Installation & Mission Support Center

Non-PFAS Environmental Response Actions Former K.I. Sawyer Air Force Base

Kay M Grosinske
AFCEC

Matt Handyside
LCES

18 October 2023

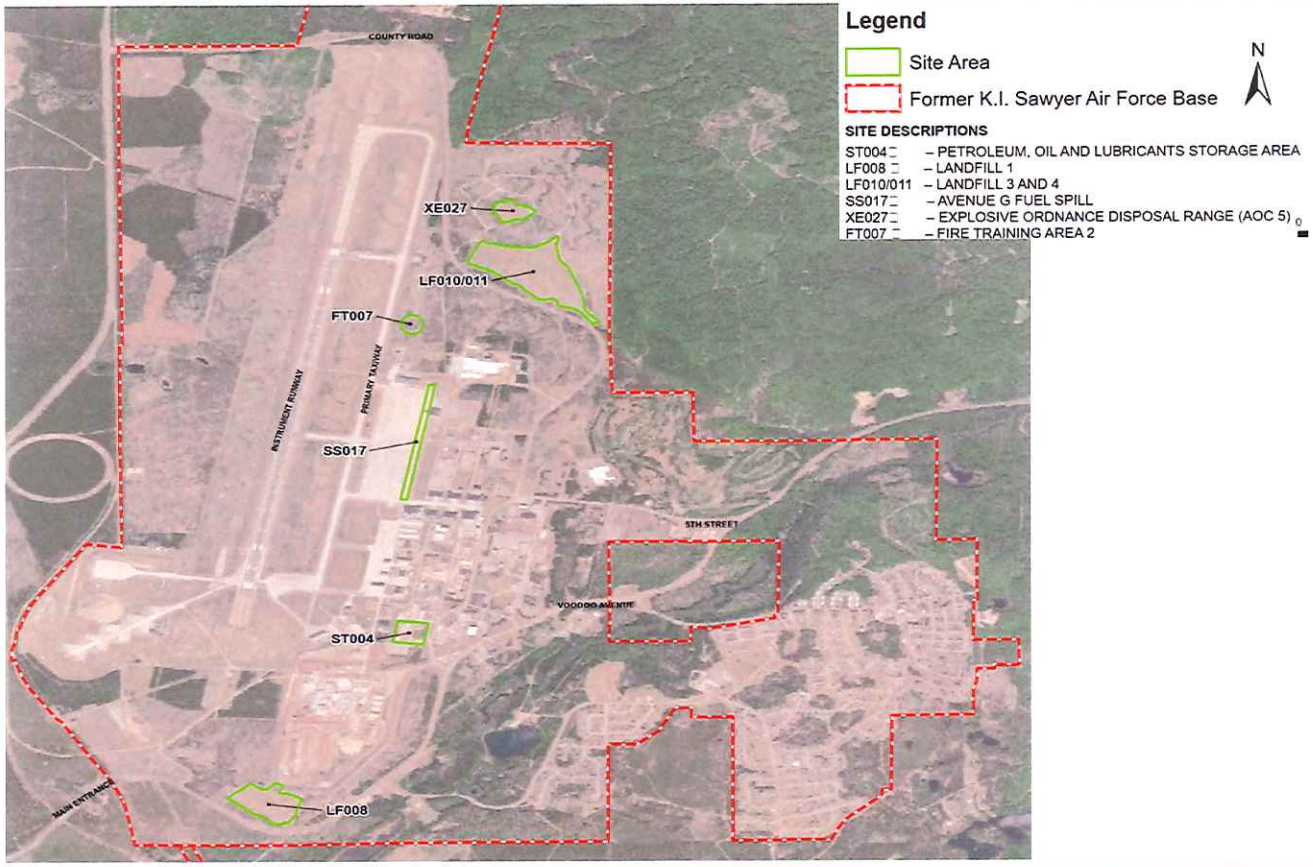
BECOS Contract Overview

Contract: Midwest Group Base Realignment and Closure (BRAC) Environmental Construction Optimization Services (BECOS)
Contract Number: FA8903-20-D-0004
Delivery Oder: FA8903-20-F-0015
Period of Performance: Sept. 28, 2020 – Sept. 28, 2030

Lead: Air Force Civil Engineering Center (AFCEC)
Prime Contractor: LATA-CTI Environmental Services, LLC (LCES)

- LCES' scope of work includes environmental services at 6 IRP Sites: ST004, LF008, LF010/011, SS017, FT007, and XE027

K.I. Sawyer Aerial Photograph



Overview

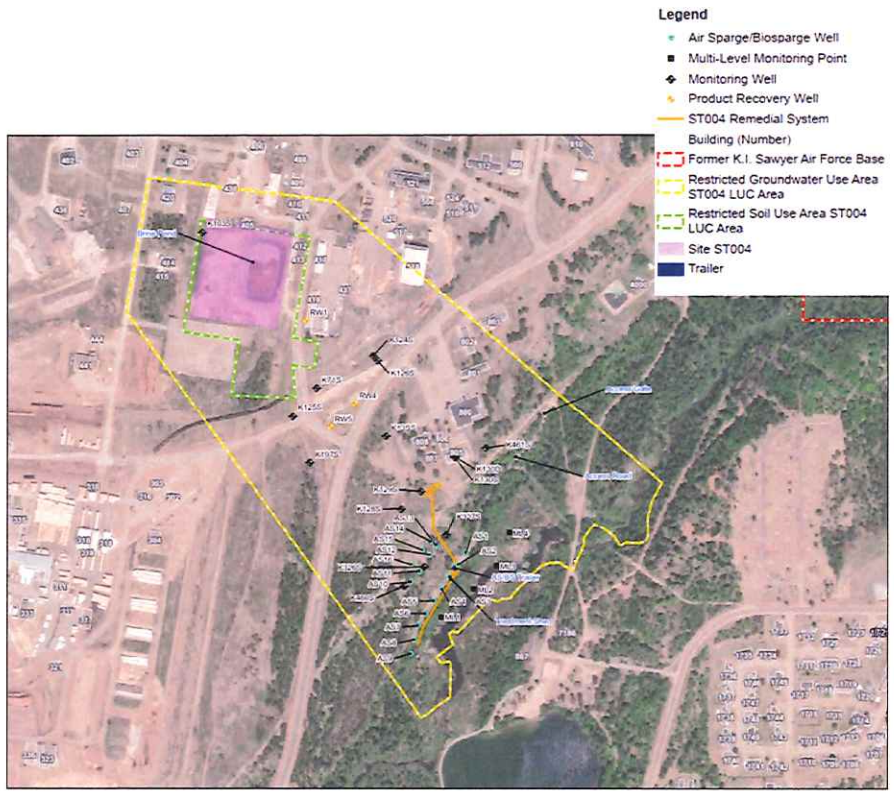
- Environmental investigation and restoration program since 1980s.
- 21 IRP Sites were included in the 2004 Basewide Remedial Action Plan
- Now only 6 Sites remain open, requiring monitoring and reporting
  - ST004 – Petroleum Oil and Lubricants (POL) Yard
  - FT007 – Fire Training Area 2
  - LF008 – Landfill 1
  - LF010/011 – Landfills 3/4
  - SS017 – Avenue G Fuel Spill
  - XE027 – Explosive Ordinance Disposal (EOD) Range

Past Year's Activities

- **Amendment injections FT007 and SS017**
- **Quarterly groundwater monitoring FT007 and SS017**
- **Long term management of landfill sites**
  - LF008 (Landfill 1)
  - LF010/011 (Landfill 3/4)
  - XE027 (EOD Range)
- **Annual groundwater monitoring LF008 and LF010/011 July 2023**
- **Land Use Control (LUC) Inspections (all sites) in July 2023**

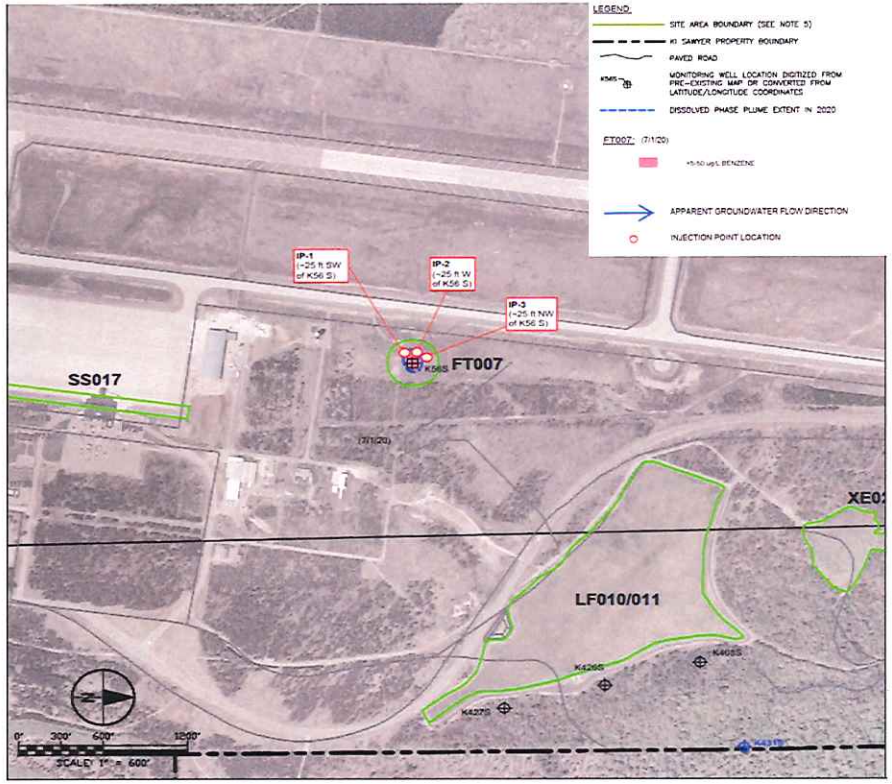
ST004 (POL Yard)

- ST004 was a bulk fuel storage area and was the location of several fuel spills - benzene, toluene, ethylbenzene, and xylenes (BTEX), trimethylbenzenes (TMBs), naphthalene, etc.
- Contaminant releases moved toward Silver Lead Creek (to the southeast)
- Remedy – Installation of interceptor trench to prevent discharge to creek, free product removal and groundwater treatment through air sparge/bio sparge
- Current Status:
  - Recently submitted Certification of Completion Report to EGLE
  - Annual Land Use Control (LUC) Inspections and Reporting
  - Decommission Air Sparge/Biosparge and interceptor trench systems

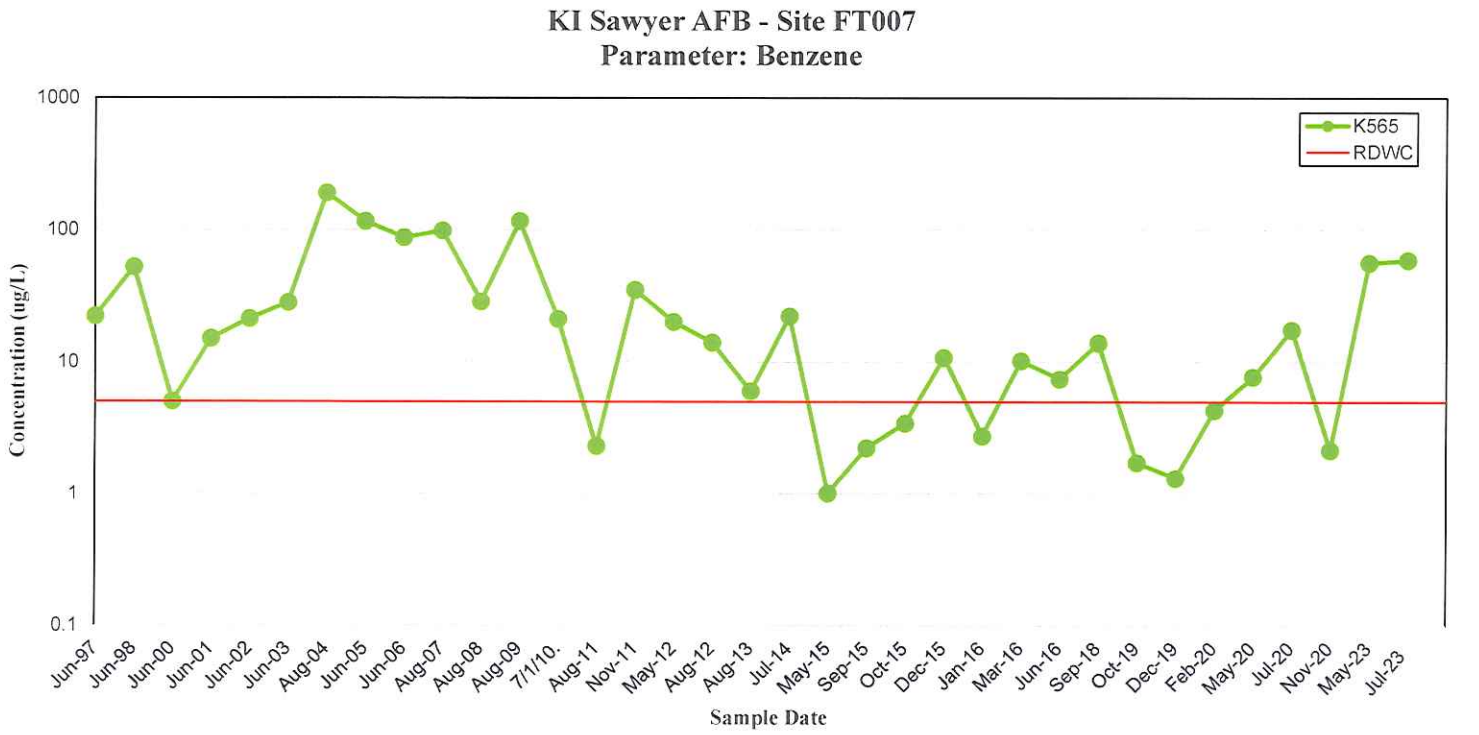


FT007 (Fire Training Area 2)

- FT007 was used for fire training exercises from 1972 until 1990.
- Monitored Natural Attenuation (MNA) supported Response Complete (RC)
- Current Status:
  - Goal – Site Closure (SC) for groundwater by amendment injection
  - Quarterly Groundwater Sampling of 3 wells for benzene
  - Annual LUC Inspections and Reporting



FT007 Trend Chart

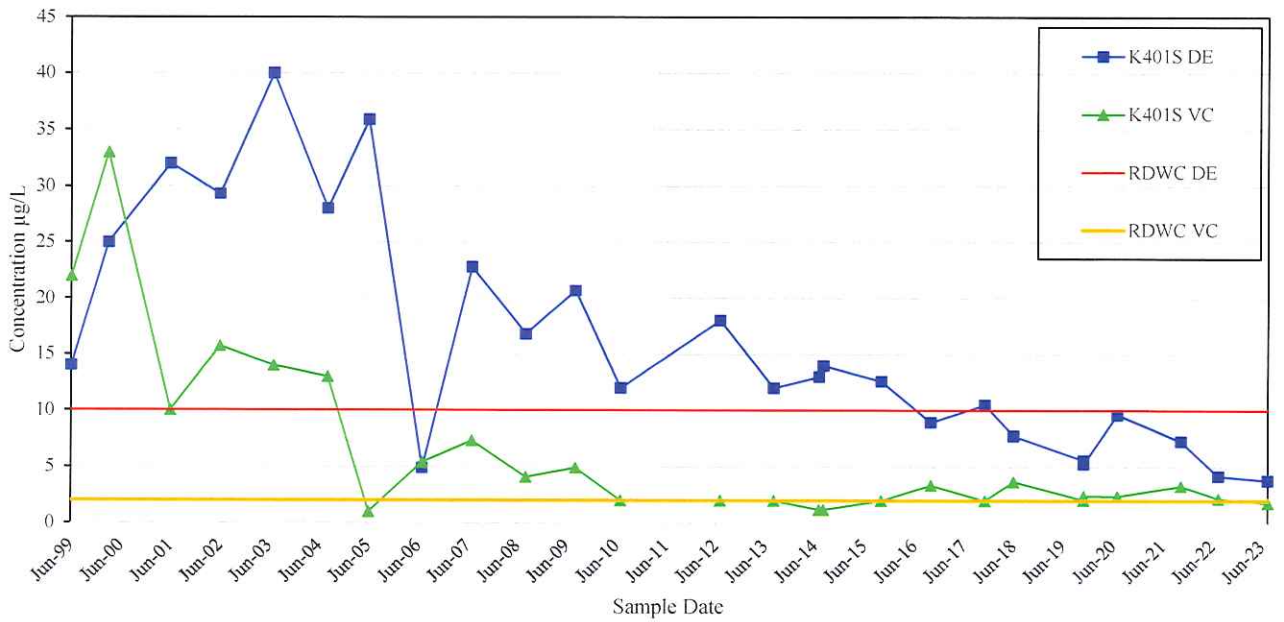


LF008 (Landfill 1)

- LF008 was a 21-acre landfill used for burning and disposing construction waste from 1955-57 and 1963-73.
- Remedy – Cap/Cover, Fencing
- Current Status:
  - Annual Groundwater Sampling (one remaining well with Vinyl Chloride concentrations slightly above Residential Cleanup Criteria)
  - Annual LUC Inspections and Reporting
    - Maintenance: Tree removal; mowing; repair signs, fence, erosion
    - Precipitation routinely monitored during growing season; no watering was necessary this year

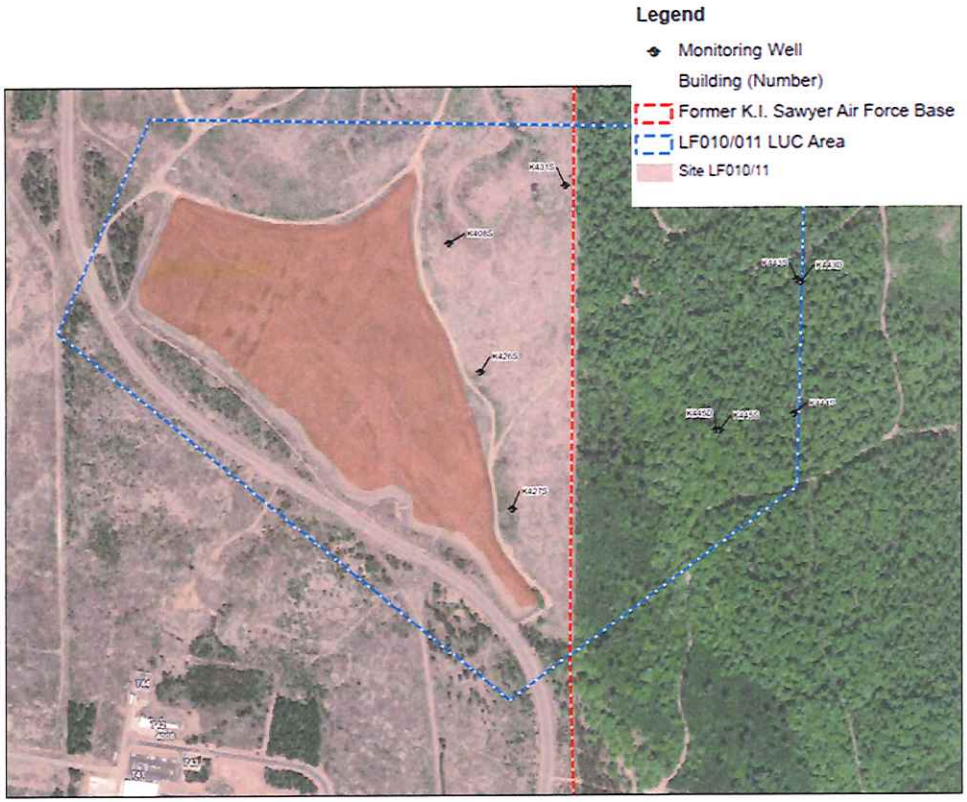
LF008 (Landfill 1) Trend Chart

Diethyl Ether (DE) and Vinyl Chloride (VC) Trends
Former K.I. Sawyer AFB - Site LF008

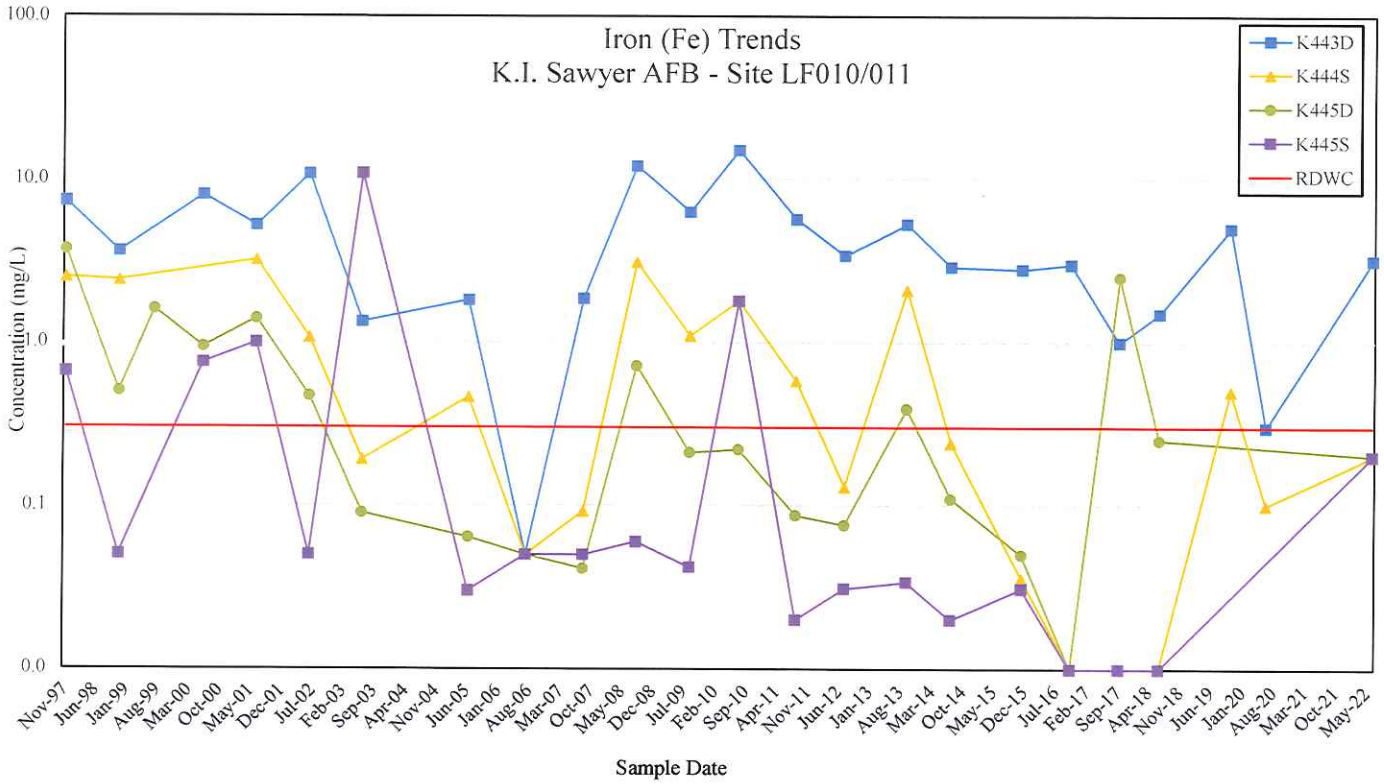


LF010/011 (Landfills 3/4)

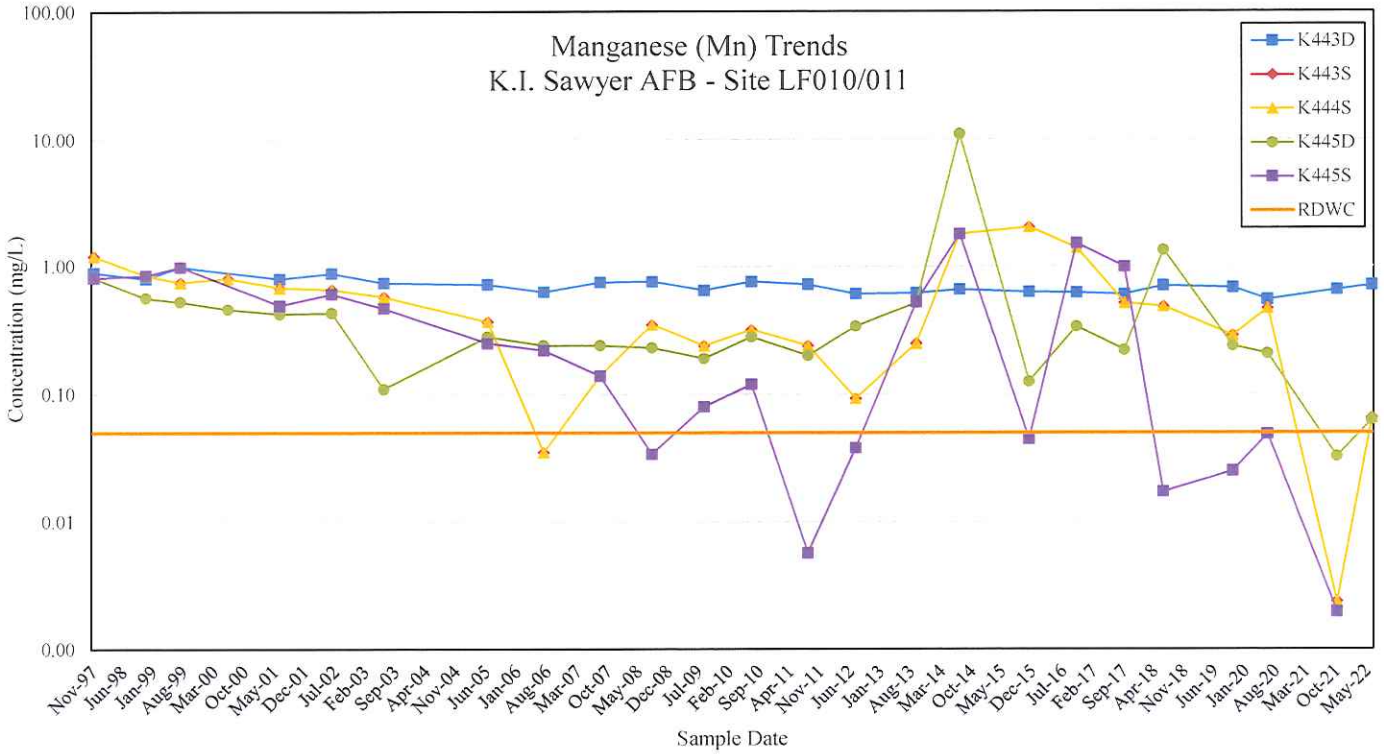
- LF010/011 is a 45-acre landfill.
  - LF010 - waste and fly ash disposal 1970-75.
  - LF011 - general waste disposal (including wastewater treatment plan sludge) 1975-88.
- Remedy – Cap/Cover, Fencing
- Current Status:
  - Naturally occurring Manganese and Iron in groundwater are stable at low concentrations.
  - Annual groundwater monitoring discontinued per EGLE approval
  - Annual LUC Inspections and Reporting
    - Maintenance: Tree removal; mowing; repair signs, fence, erosion
    - Precipitation routinely monitored during growing season; no watering was necessary this year



LF010/011 Fe^{+2} Trend Chart

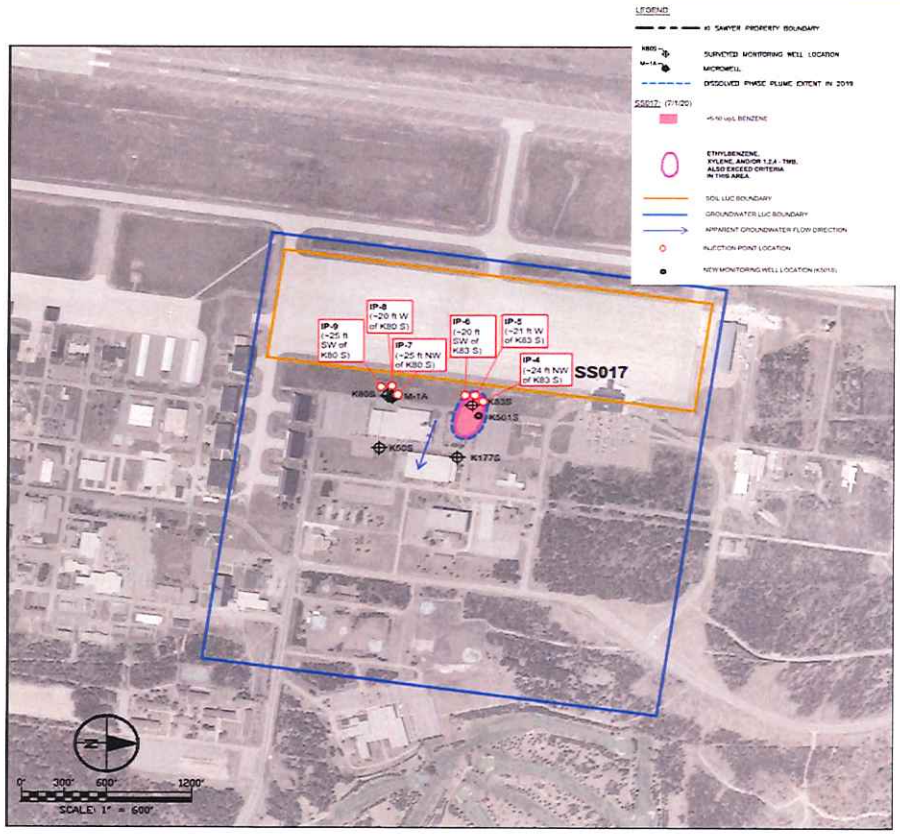


LF010/011 Mn Trend Chart

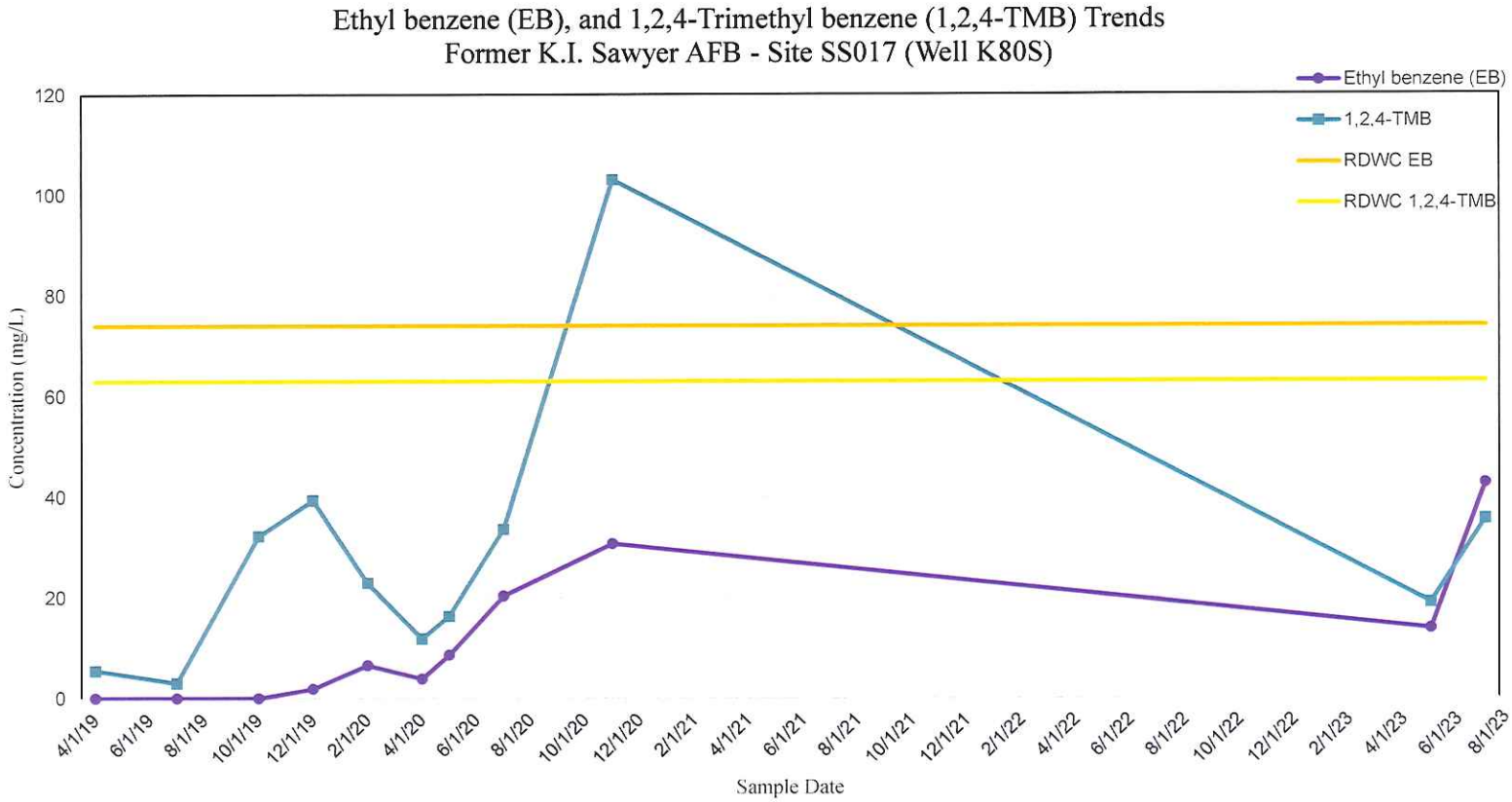


SS017 (Avenue G Fuel Spill)

- SS017 housed a JP-4 fuel hydrant system which included underground storage tanks (USTs) from the 1950s to the 1990s.
- Monitored Natural Attenuation (MNA) supported Response Complete (RC)
- Current Status:
  - Goal – Site Closure (SC) for groundwater by amendment injection
  - Quarterly Groundwater Sampling of 5 wells for BTEX and TMBs
  - Annual LUC Inspections and Reporting

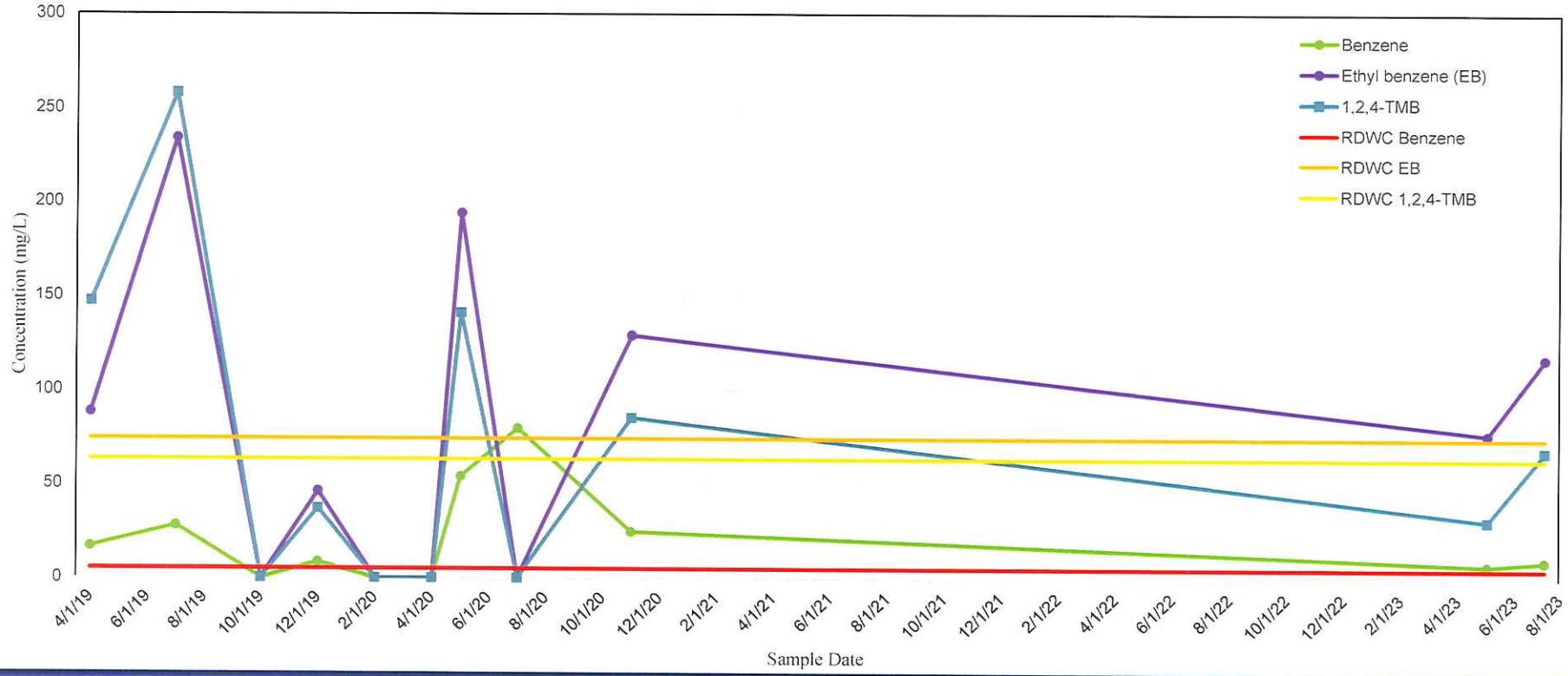


SS017 Trend Chart



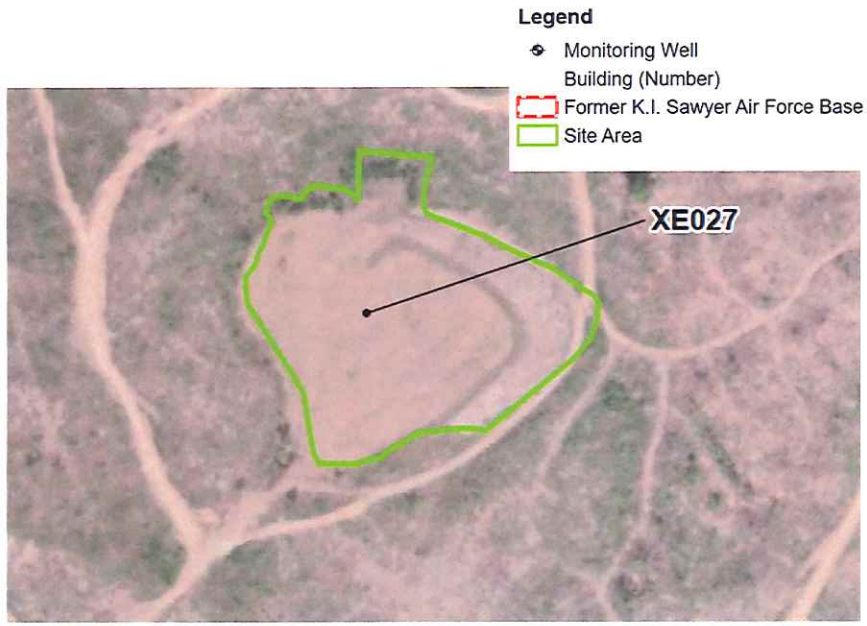
SS017 Trend Chart

Benzene, Ethyl benzene (EB), and 1,2,4-Trimethyl benzene (1,2,4-TMB) Trends
Former K.I. Sawyer AFB - Site SS017 (Well K83S)

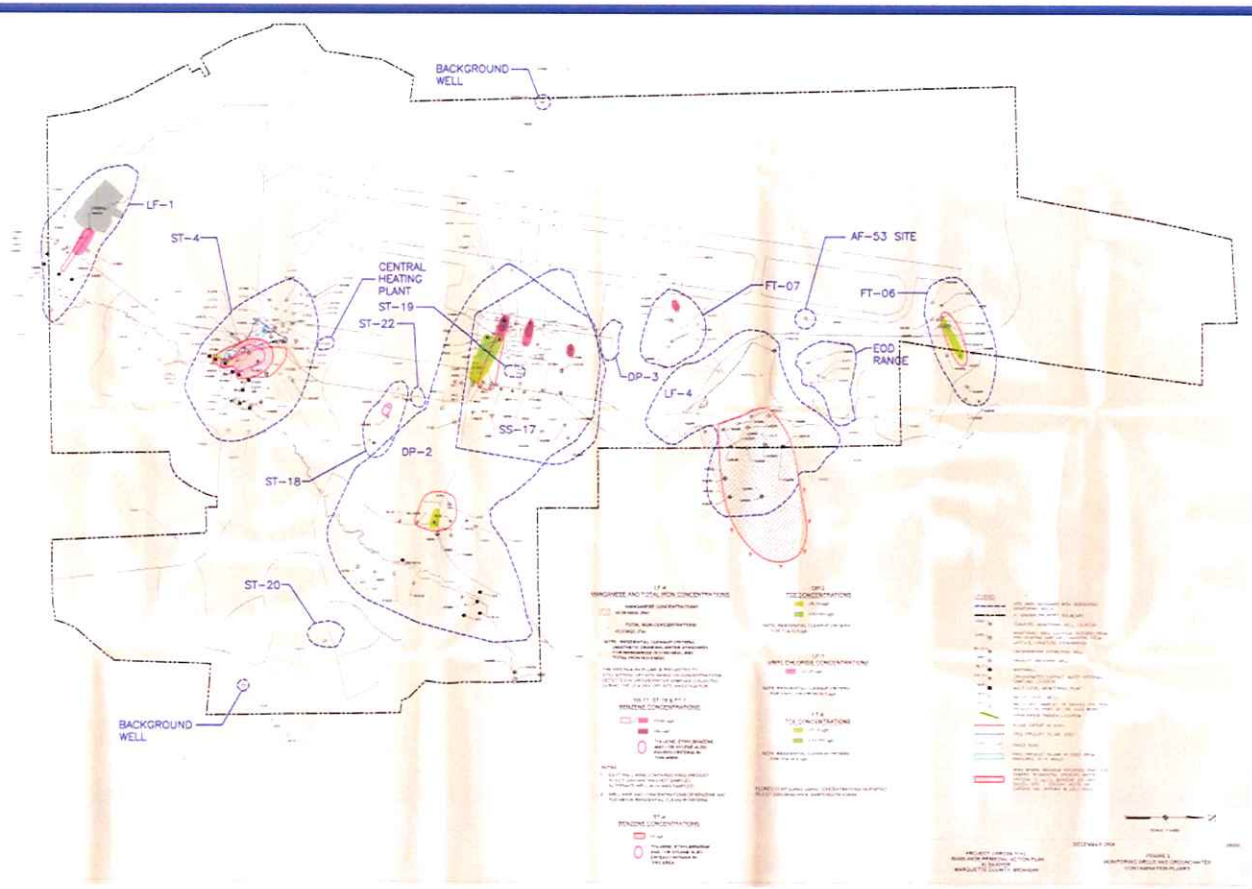


XE027 (EOD Range)

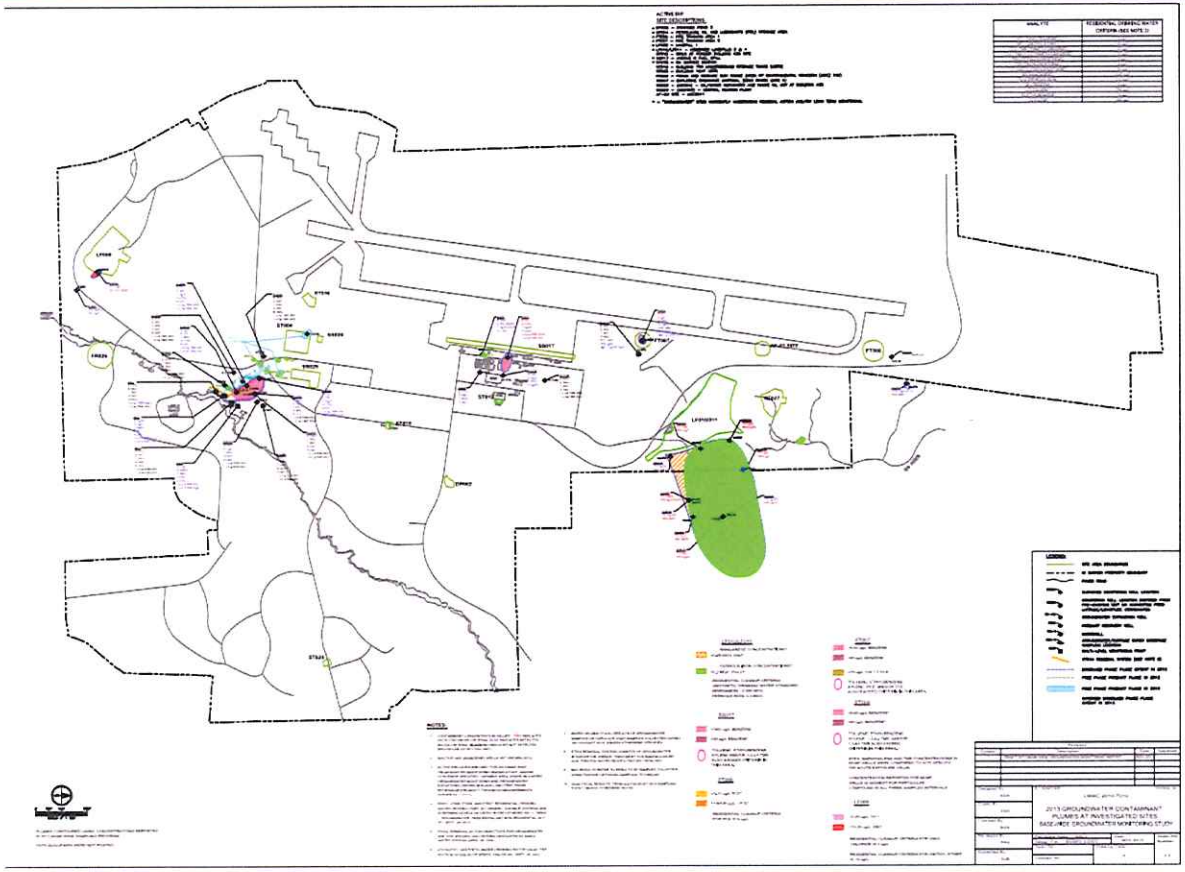
- XE027 was a 6-acre explosive ordinance disposal (EOD) range.
  - Munitions and metal debris removed to 8 ft below ground surface in 1996.
- Remedy – Cap/Cover, Fencing
- Current Status:
  - Semi-annual Fence Inspections and Reporting
  - Annual LUC Inspections and Reporting



Groundwater Plumes 2004



Current Groundwater Plumes



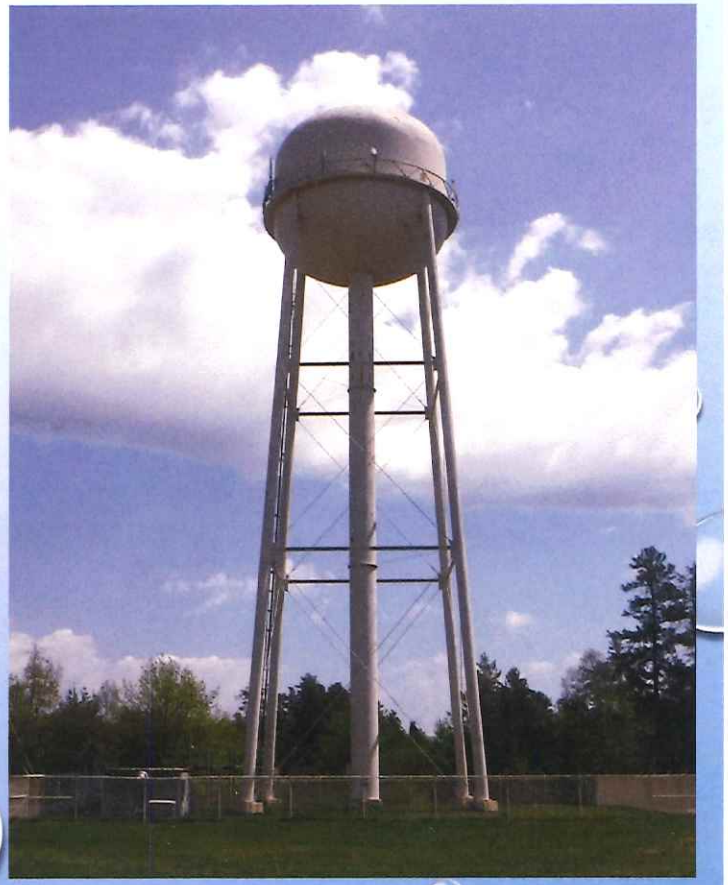
Upcoming Activities

Work Item	Site	Date
Semi-annual Inspections	XE027	October 2023 and April 2024
Quarterly groundwater sampling	FT007 SS017	October 2023 and February 2024
Continue landfill monitoring and maintenance	LF008, LF010/ LF011, XE027	June 2024
Annual groundwater sampling	LF008	June 2024
Conduct annual LUC Inspections	ST004, FT007, LF008, LF010/ LF011, SS017, XE027	June 2024
Decommissioning of air sparge/biosparge systems	ST004	Pending approval of RC

Questions?

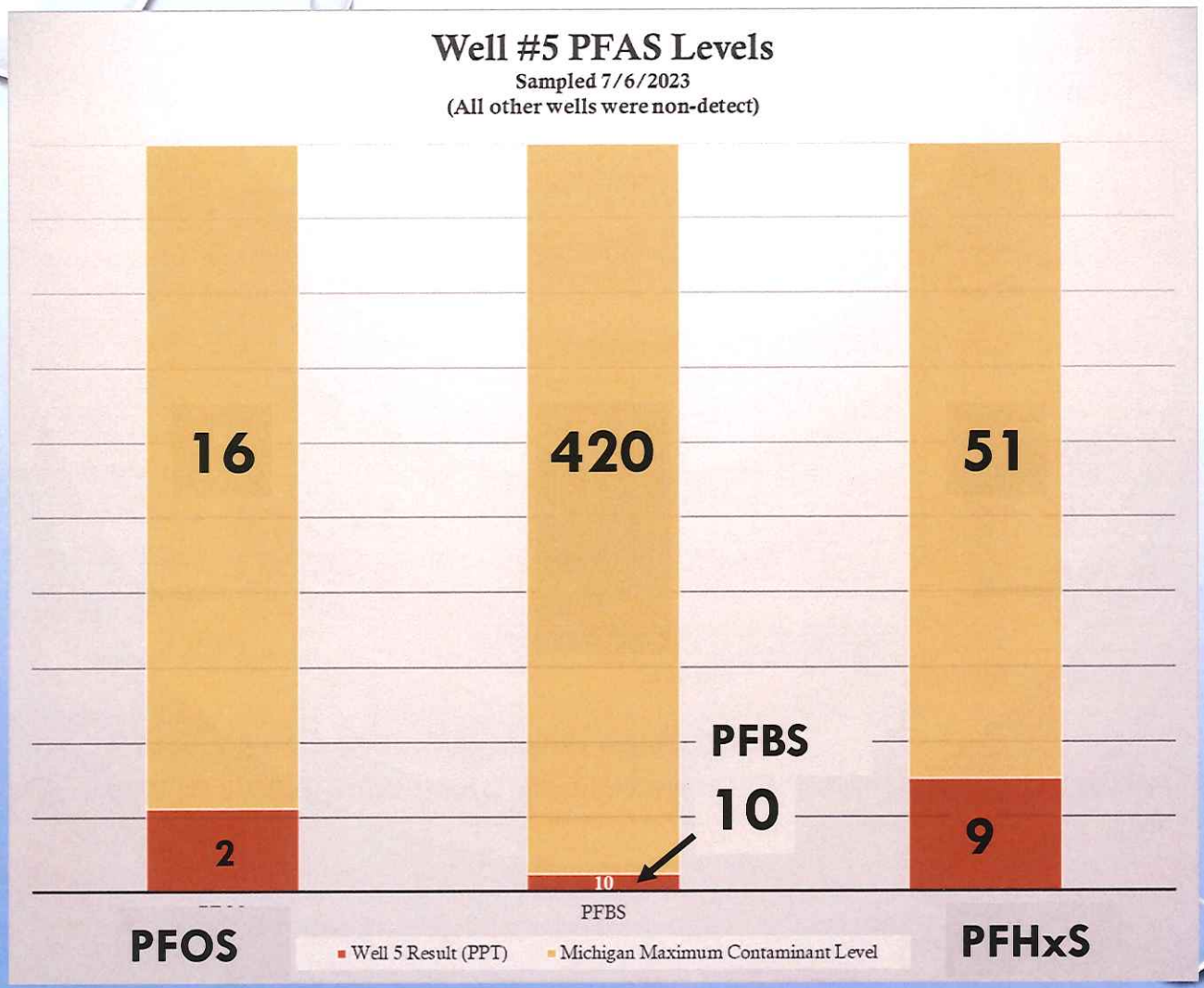
K.I. SAWYER WATER DEPARTMENT

2023 K.I. SAWYER DRINKING WATER PFAS TESTING RESULTS



PFAS TESTING IN DRINKING WATER

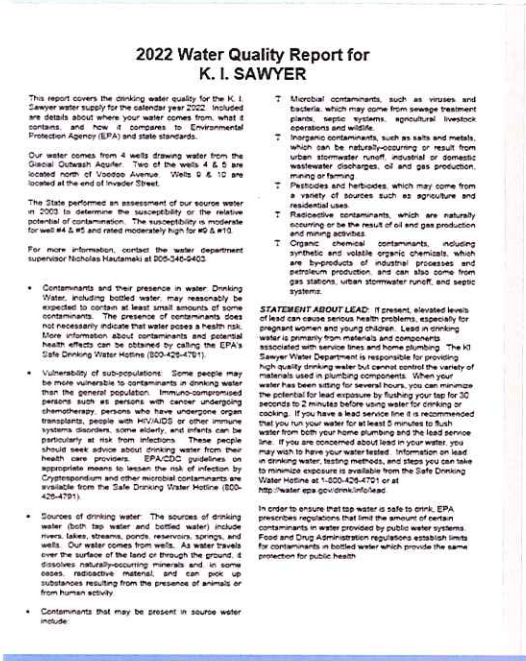
- ALL WATER ON THE FORMER KI SAWYER AIR FORCE BASE IS SOURCED FROM THE WATER DEPARTMENT'S MUNICIPAL WELLS (AF-4, AF-5, AF-9 AND AF-10)
- K.I. SAWYER DRINKING WATER HAS BEEN MONITORED FOR PFAS SINCE 2018
- OUT OF 4 MUNICIPAL WELLS SUPPLYING WATER TO THE K.I. SAWYER COMMUNITY, ONLY WELL #5 HAS HAD CONSISTENT DETECTABLE LEVELS OF PFAS CHEMICALS, SIGNIFICANTLY BELOW CURRENT DRINKING WATER STANDARDS
- THE STATE OF MICHIGAN REQUIRES PFAS TESTING AT K.I. SAWYER ONCE/YEAR



- DRINKING WATER IN MICHIGAN IS TESTED FOR 25 PFAS ANALYTES, ONLY 3 WERE DETECTED IN VERY LOW AMOUNTS.
- RESULTS ARE IN PARTS PER TRILLION
- FOR PFOS, 2 PARTS PER TRILLION IS THE EQUIVALENT OF 2 GRAINS OF SAND IN AN OLYMPIC SIZE SWIMMING POOL.

2022 CONSUMERS CONFIDENCE REPORT

Available at: https://www.co.marquette.mi.us/departments/sawyer_services/k_i_sawyer_water_waste-water_utility_-_administrative_office.php



2022 Water Quality Report for K. I. SAWYER

This report covers the drinking water quality for the K. I. Sawyer water supply for the calendar year 2022. Included are details about where your water comes from, what it contains, and how it compares to Environmental Protection Agency (EPA) and state standards.

Our water comes from 4 wells drawing water from the Glacial Outwash Aquifer. Two of the wells 4 & 5 are located north of Voodoo Avenue. Wells 9 & 10 are located at the end of Invader Street.

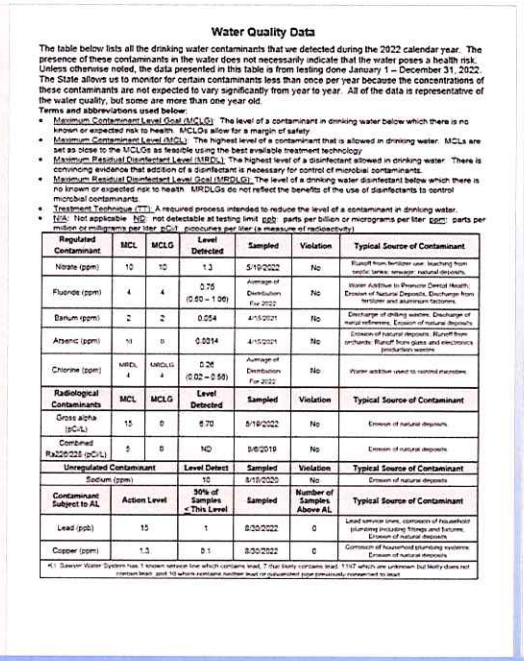
The State performed an assessment of our source water in 2003 to determine the susceptibility or the relative potential of contamination. The susceptibility is moderate for well #4 & #5 and rated moderately high for #9 & #10.

For more information, contact the water department supervisor Nicholas Hautamaki at 906-346-9403.

- Contaminants and their presence in water: Drinking Water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (800-426-4791).
- Vulnerability of sub-populations: Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune systems disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).
- Sources of drinking water: The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. Our water comes from wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.
- Contaminants that may be present in source water include:
  - Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.
  - Inorganic contaminants, such as salts and metals, which can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming.
  - Pesticides and herbicides, which may come from a variety of sources such as agriculture and residential uses.
  - Radioactive contaminants, which are naturally occurring or be the result of oil and gas production and mining activities.
  - Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.

STATEMENT ABOUT LEAD: If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. "The KI Sawyer Water Department is responsible for providing high quality drinking water but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you have a lead service line it is recommended that you run your water for at least 5 minutes to flush water from both your home plumbing and the lead service line. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline at 1-800-426-4791 or at http://water.epa.gov/drink/info/lead.

In order to ensure that tap water is safe to drink, EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration regulations establish limits for contaminants in bottled water which provide the same protection for public health.



Water Quality Data

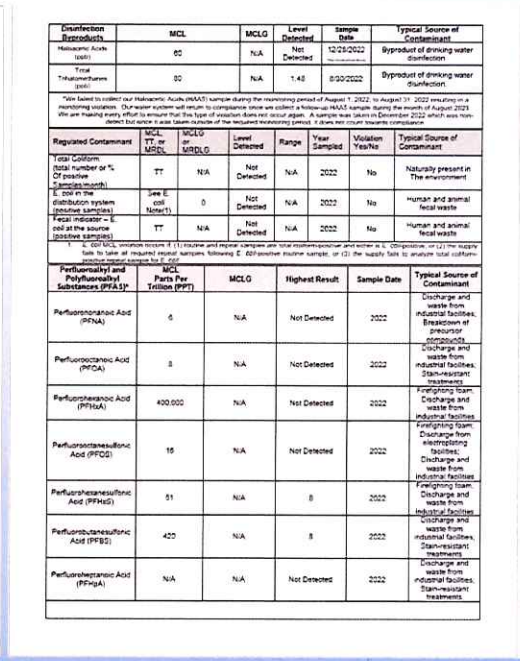
The table below lists all the drinking water contaminants that we detected during the 2022 calendar year. The presence of these contaminants in the water does not necessarily indicate that the water poses a health risk. Unless otherwise noted, the data presented in this table is from testing done January 1 – December 31, 2022. The State allows us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. All of the data is representative of the water quality, but some are more than one year old.

Terms and abbreviations used below:

- Maximum Contaminant Level Goal (MCLG): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.
- Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
- Maximum Residual Disinfectant Level (MRDL): The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
- Maximum Residual Disinfectant Level Goal (MRDLG): The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
- Treatment Technique (TT): A required process intended to reduce the level of a contaminant in drinking water.
- N/A: Not applicable. ND: not detectable at testing limit. ppb: parts per billion or micrograms per liter. ppm: parts per million or milligrams per liter. pCi/l: picocuries per liter (a measure of radioactivity)

Regulated Contaminant	MCL	MCLG	Level Detected	Sampled	Violation	Typical Source of Contaminant
Nitrate (ppm)	10	10	1.3	5/19/2022	No	Runoff from fertilizer use; leaching from septic tanks, sewage; natural deposits.
Fluoride (ppm)	4	4	0.75 (0.60 – 1.06)	Average of Distribution For 2022	No	Water Additive to Promote Dental Health; Erosion of Natural Deposits; Discharge from fertilizer and aluminum factories.
Barium (ppm)	2	2	0.054	4/15/2021	No	Discharge of drilling wastes; Discharge of metal refineries; Erosion of natural deposits.
Arsenic (ppm)	10	0	0.0014	4/15/2021	No	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes
Chlorine (ppm)	MRDL 4	MRDLG 4	0.26 (0.02 – 0.56)	Average of Distribution For 2022	No	Water additive used to control microbes.
Radiological Contaminants	**MCL**	**MCLG**	**Level Detected**	**Sampled**	**Violation**	**Typical Source of Contaminant**
Gross alpha (pCi/L)	15	0	6.70	8/19/2022	No	Erosion of natural deposits.
Combined Ra226/228 (pCi/L)	5	0	ND	8/6/2019	No	Erosion of natural deposits.
Unregulated Contaminant			**Level Detect**	**Sampled**	**Violation**	**Typical Source of Contaminant**
Sodium (ppm)			10	8/18/2020	No	Erosion of natural deposits
Contaminant Subject to AL	**Action Level**		**90% of Samples < This Level**	**Sampled**	**Number of Samples Above AL**	**Typical Source of Contaminant**
Lead (ppb)	15		1	8/30/2022	0	Lead service lines; corrosion of household plumbing including fittings and fixtures. Erosion of natural deposits
Copper (ppm)	1.3		0.1	8/30/2022	0	Corrosion of household plumbing systems. Erosion of natural deposits

K.I. Sawyer Water System has 1 known service line which contains lead, 7 that likely contains lead, 1167 which are unknown but likely does not contain lead, and 10 which contains neither lead or galvanized pipe previously connected to lead.



Disinfection Byproducts	MCL	MCLG	Level Detected	Sample Date	Typical Source of Contaminant
Haloacetic Acids (HAA5)	60	N/A	Not Detected	12/28/2022	Byproduct of drinking water disinfection
Total Trihalomethanes (TTHM)	80	N/A	1.48	8/30/2022	Byproduct of drinking water disinfection

*We failed to collect our Haloacetic Acids (HAA5) sample during the monitoring period of August 1, 2022, to August 31, 2022 resulting in a monitoring violation. Our water system will return to compliance once we collect a follow-up HAA5 sample during the month of August 2023. We are making every effort to ensure that this type of violation does not occur again. A sample was taken in December 2022 which was non-detect but since it was taken outside of the required monitoring period, it does not count towards compliance.

Regulated Contaminant	MCL, TT, or MRDL	MCLG or MRDLG	Level Detected	Range	Year Sampled	Violation Yes/No	Typical Source of Contaminant
Total Coliform (total number or % Of positive samples/month)	TT	N/A	Not Detected	N/A	2022	No	Naturally present in The environment
E. coli in the distribution system (positive samples)	See E. coli Note(1)	0	Not Detected	N/A	2022	No	Human and animal fecal waste
Fecal indicator – E. coli at the source (positive samples)	TT	N/A	Not Detected	N/A	2022	No	Human and animal fecal waste

1. E. coli MCL violation occurs if: (1) routine and repeat samples are total coliform-positive and either is E. coli-positive, or (2) the supply fails to take all required repeat samples following E. coli-positive routine sample, or (3) the supply fails to analyze total coliform-positive repeat sample for E. coli.

Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS)*	MCL Parts Per Trillion (PPT)	MCLG	Highest Result	Sample Date	Typical Source of Contaminant
Perfluorononanoic Acid (PFNA)	6	N/A	Not Detected	2022	Discharge and waste from industrial facilities; Breakdown of precursor compounds
Perfluorooctanoic Acid (PFOA)	8	N/A	Not Detected	2022	Discharge and waste from industrial facilities; Stain-resistant treatments
Perfluorohexanoic Acid (PFHxA)	400,000	N/A	Not Detected	2022	Firefighting foam; Discharge and waste from industrial facilities
Perfluorooctanesulfonic Acid (PFOS)	16	N/A	Not Detected	2022	Firefighting foam; Discharge from electroplating facilities; Discharge and waste from industrial facilities
Perfluorohexanesulfonic Acid (PFHxS)	51	N/A	8	2022	Firefighting foam; Discharge and waste from industrial facilities
Perfluorobutanesulfonic Acid (PFBS)	420	N/A	8	2022	Discharge and waste from industrial facilities; Stain-resistant treatments
Perfluoroheptanoic Acid (PFHpA)	N/A	N/A	Not Detected	2022	Discharge and waste from industrial facilities; Stain-resistant treatments
Hexafluoropropylene oxide-dimer Acid (GenX, HFPO-DA GenX)	370	N/A	Not Detected	2022	Discharge and waste from industrial facilities utilizing the Gen X chemical process

*PFAS chemical MCL's were adopted by the Michigan Department of Environment, Great Lakes, and Energy (EGLE) in 2020. These limitations are more stringent than the current EPA MCL's. For more information on PFAS chemicals, please visit: https://www.michigan.gov/pfasresponse

Individual copies of this consumer confidence report will not be mailed, to request a paper copy, or for more information, contact the K.I. Sawyer Water Department at 906-346-9403. Also, you can view this Consumers Confidence Report online at:
https://www.co.marquette.mi.us/departments/sawyer_services/k_i_sawyer_water_waste-water_utility_-_administrative_office.php
For more information about safe drinking water, visit the U.S. Environmental Protection Agency at www.epa.gov/safewater/

QUESTIONS?

IF YOU HAVE QUESTIONS ABOUT DRINKING WATER QUALITY AT K.I. SAYWER, PLEASE CALL:

NICK HAUTAMAKI, WATER/WASTEWATER DEPARTMENT SUPERVISOR
906-346-9403

PFAS and Health

Ashley Hanas, Toxicologist
Michigan Department of Health and Human Services

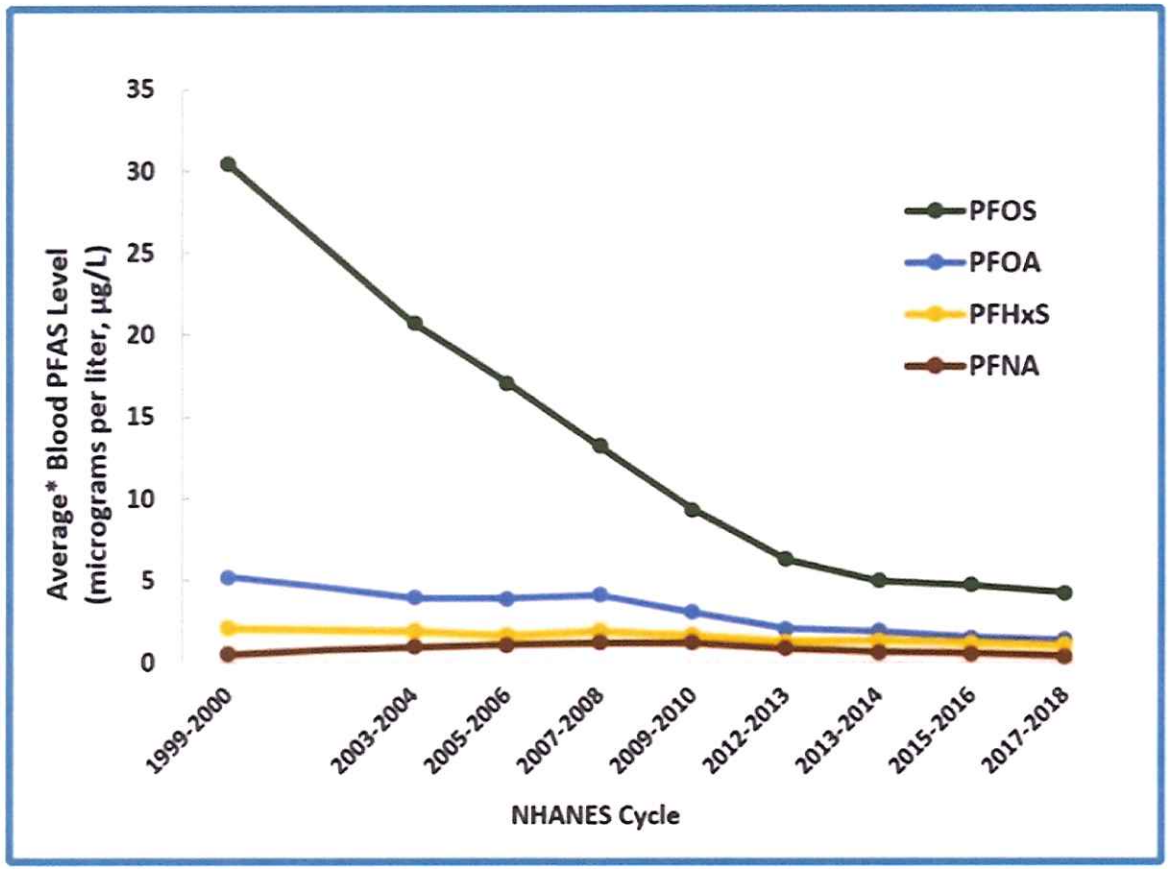
517-331-1049
hanasa1@michigan.gov

MDHHS
Michigan Department of Health & Human Services

Exposure to PFAS Chemicals

- Drinking contaminated water
- Eating fish caught from water contaminated by PFAS
  - "Eat Safe Fish" Guidelines
- Incidental swallowing of contaminated soil or dust
- Eating food packaged in materials containing PFAS
- Using some consumer products
- PFAS absorption through skin is typically not a concern

MDHHS
Michigan Department of Health & Human Services



Blood levels of the most common PFAS in people in the United States 2000-2018

MDHHS
Michigan Department of Health & Human Services

Associated Human Health Outcomes (PFOA and/or PFOS)

- High blood pressure or pre-eclampsia in pregnant women
- Thyroid disease
- Decreased immune system response to vaccines
- Reduced fertility
- Liver damage
- Higher cholesterol
  - especially total cholesterol and LDL cholesterol
- Small decreases in infant birth weight
- Developing certain types of cancer
  - kidney and testicular cancers (PFOA only)

MDHHS
Michigan Department of Health & Human Services

The Michigan Fish Consumption Advisory Program

www.mi.gov/EatSafeFish.com

MDHHS
Michigan Department of Health & Human Services

Eat Safe Fish Advisories

Body of Water	Type of fish tested	Driving Chemical	Size of fish	Recommended MI servings per month
Silver Lead Creek	Brook Trout	PCBs & PFOS	Any	2
Big Creek	Brown Trout	Mercury	Under 12”	8
			Over 12”	2
Sporley Lake	Splake	Mercury	Any	2
	Suckers	None	Any	16^{2x}
Engman Lake	Northern Pike	Mercury	Under 30”	1
			Over 30”	6 per year

Note: PFOS cannot be reduced by trimming and cooking

MDHHS
Michigan Department of Health & Human Services

Air Force Installation & Mission Support Center

PFAS Remedial Investigation Former K.I. Sawyer Air Force Base

Kay M Grosinske
Isamar Nieves-Cancel
AFCEC

Laura Simmons
Aerostar SES LLC

Gregory Garvey
GSI Environmental Inc.

18 October 2023

Agenda

- CERCLA Overview
- PFAS Response to Date
- RI Process and Objectives
- RI Field Activities
- RI Data Evaluation and Reporting
- Private Drinking Water Well Sampling
- Upcoming Field Activities
- Additional Resources

CERCLA Overview

CERCLA Nomenclature

PA/SI

Preliminary Assessment/ Site Inspection

2015 - 2021

RI/FS

Remedial Investigation/ Feasibility Study

August 2021 - present

PP

Proposed Plan

ROD

Record of Decision

RD/RA

Remedial Design / Remedial Action

RA-O

Remedial Action - Operations

LTM

Long Term Management

PFAS Response Activities to Date

- FTA Investigation completed 2015
- PA completed 2015
- SI completed 2017
  - SSI completed 2018
  - ESI completed 2021
- RI field work began 2022

Purple outlines indicate potential AFFF areas

Remedial Investigation Process

Complete
On-going
To be Started

PFAS RI Objectives

- Define nature and extent of PFAS in groundwater, soil, surface water and sediment
  - What chemicals are present, where they are, and where they may go
- Conduct Human Health and Ecological Risk Assessments
  - What is the impact to humans and the environment

Human Health and Ecological Risk Assessments

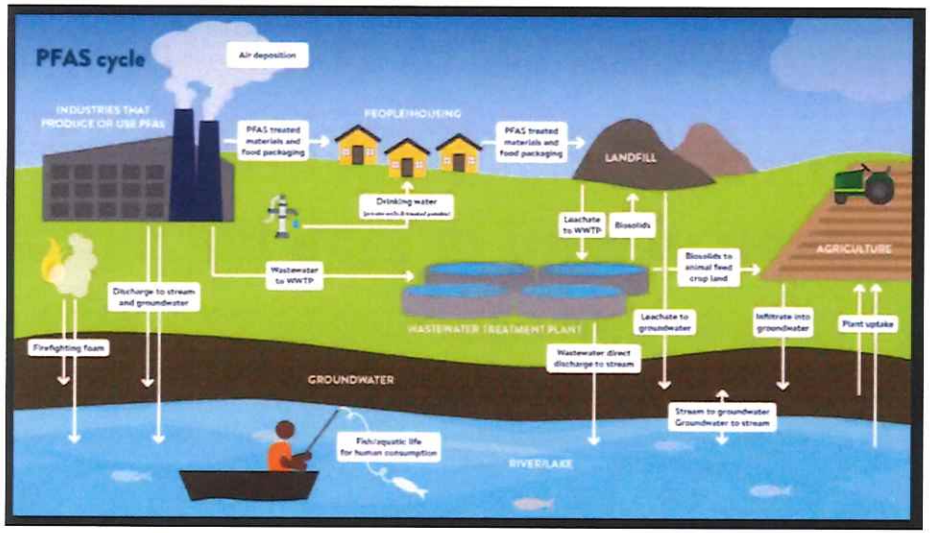
The risk assessments will follow USEPA guidance for evaluating potential impacts to human health and ecological receptors.

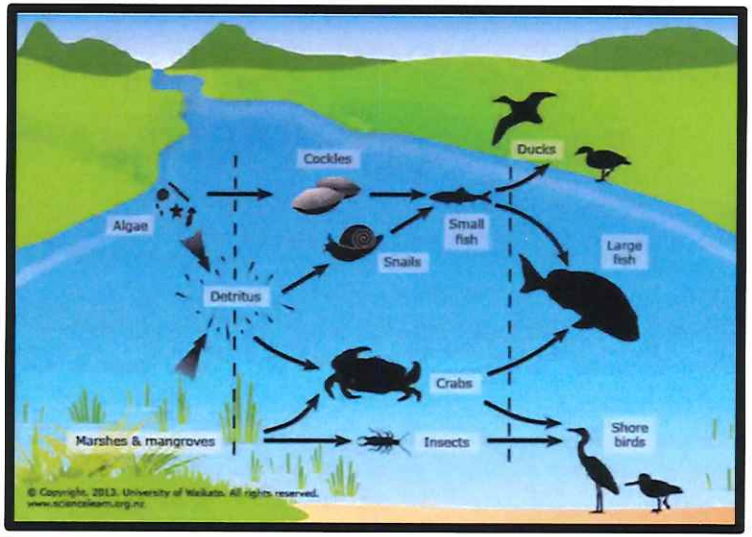
- **Evaluates both current and future exposure scenarios**
- **Study areas to be determined during the remedial investigation**
- **Exposure areas include both land and water habitats**
- **Environmental media include soil, sediment, surface and groundwater data**

Human Health and Ecological Risk Assessments

Human Health Receptors
• Residents (current and future) • Commercial/industrial workers • Construction workers • Trespasser/visitor • Recreator, angler, hunter

Ecological Receptors
• Plants and invertebrates • Fish • Reptiles and amphibians • Aquatic birds/mammals • Terrestrial birds/mammals

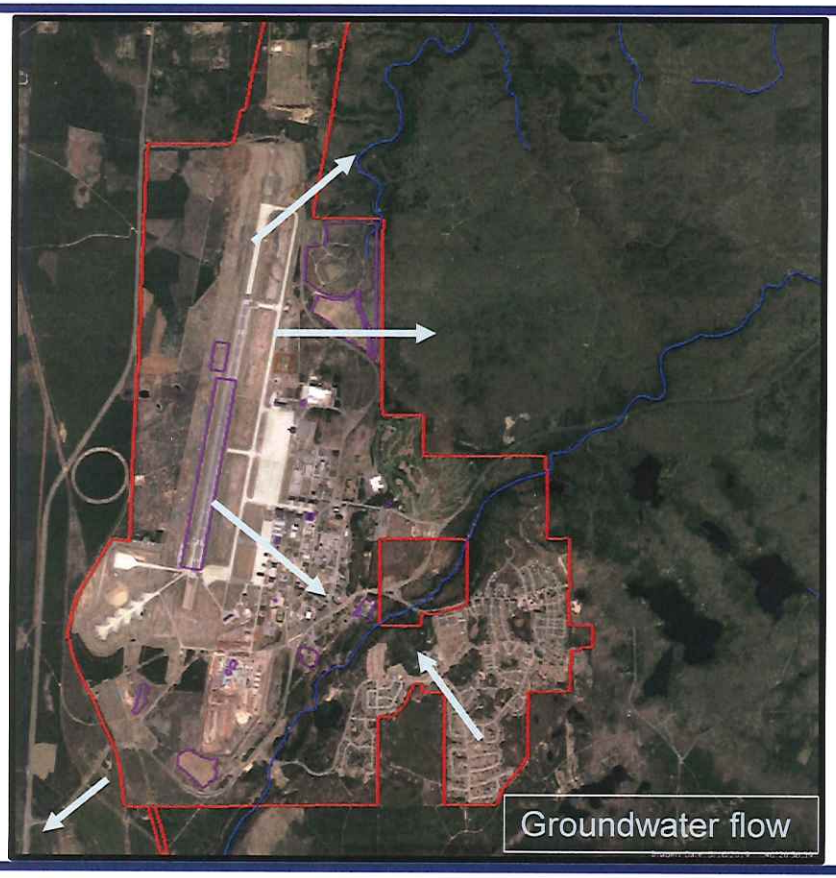




Ongoing Field Activities

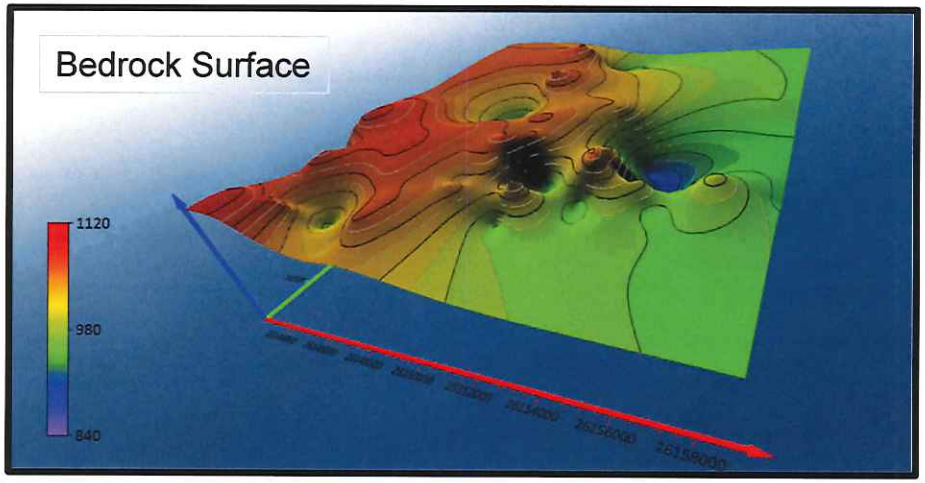
- Vertical Aquifer Sampling (VAS)
  - 77 locations
  - 391 groundwater samples
  - Subsurface layer descriptions (lithology)
- Piezometers
  - 10 water level monitoring points
- Investigating area around the municipal wells
  - Confirming lithology and well construction
  - Evaluating locations for monitoring wells
- Soil sampling
  - 141 surface soil samples
  - FT007, Former Fire Station, Drainage Pond 2 (DP-02), Voodoo Ave.

Groundwater Overview



Influencing factors:

- Multiple groundwater flow directions
- Multiple surface water features
- Complex lithology



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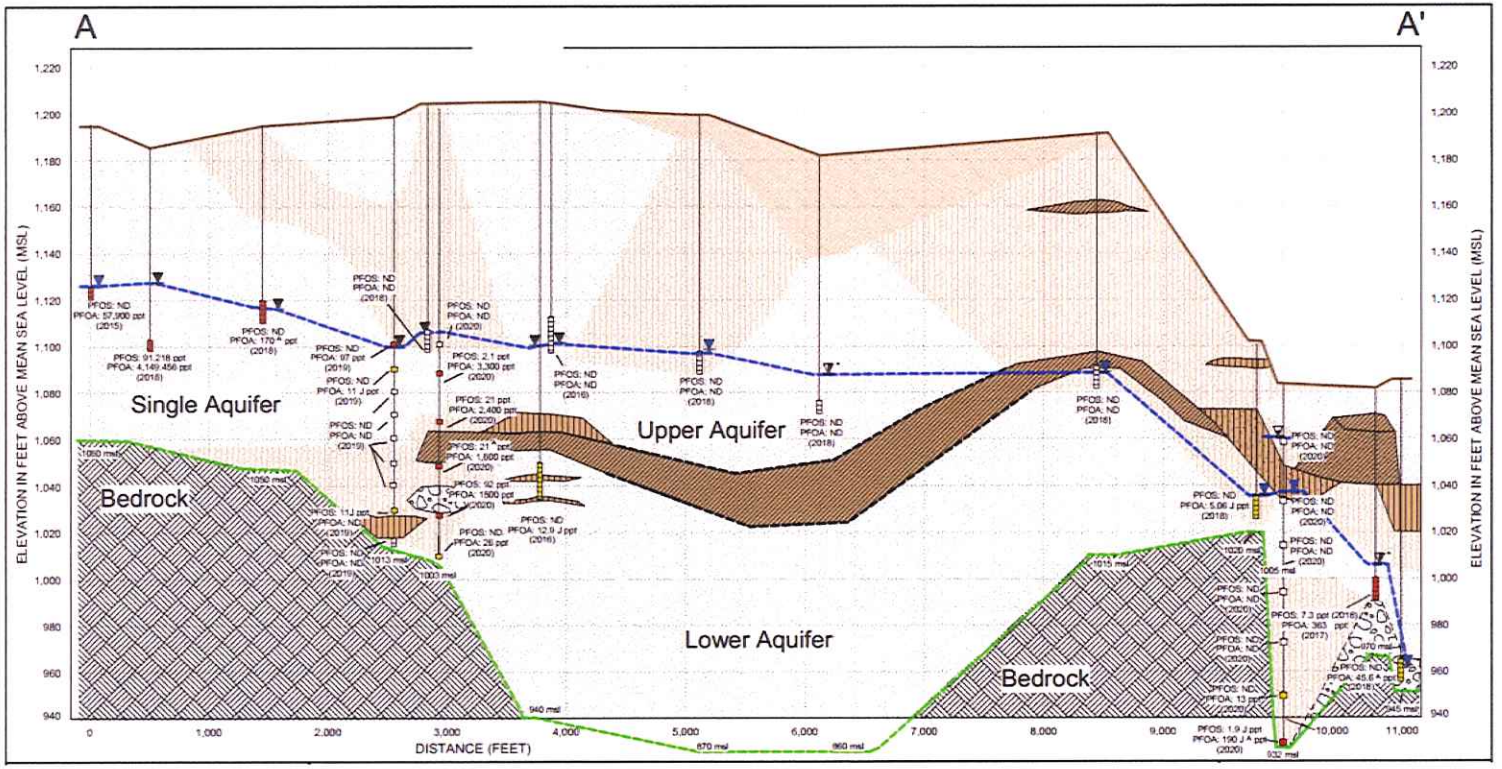
Example of Complexities



Symbol Key

- Monitoring Well
- Approximate Ground Level
- Approximate Water Table
- Top of Bedrock (USGS, 1987)
- Top of Bedrock (Confirmed)
- Water Level (June 2006/Nov. 2009)
- Water Level (May/June 2018)
- Water Level (August 2019)
- Water Level (October 2020)
- Water Level (Perched)
- Lean Clay (CL)
- Clay with Sand or Sandy Clay
- Silt (ML)
- Silt with Sand or Sandy Silt
- Sand
- Sand with Silt or Silty Sand
- Sand with Clay or Clayey Sand
- Bedrock (inferred)
- Gravel with Sand

[A] Result detected in the Field Duplicate

* Groundwater elevation from Private Wells were obtained from Michigan Wellogic - Water Well and Pump Records.

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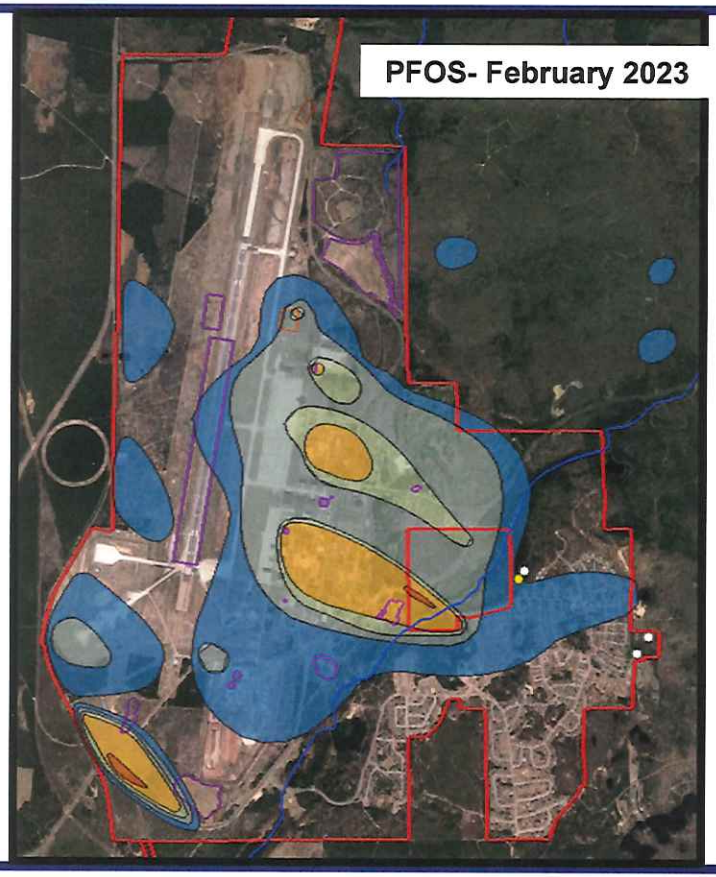
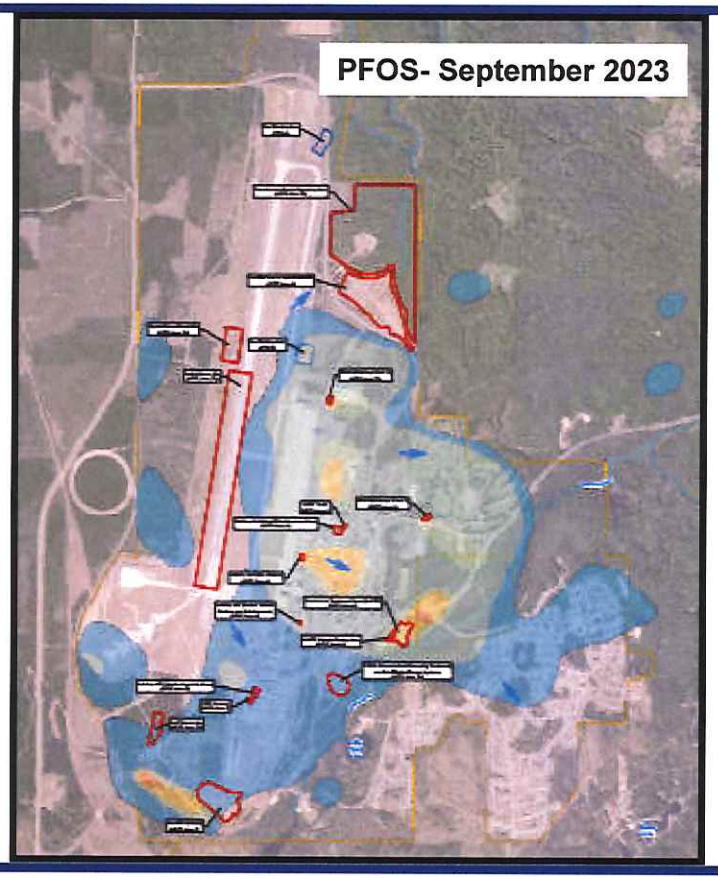
Distribution of PFAS Impacts (ongoing)



PFOS Concentration (ng/L)
- 4 - 100
- 100 - 500
- 500 - 1,000
- 1,000 - 5,000
- 5,000 - 10,000
- >10,000



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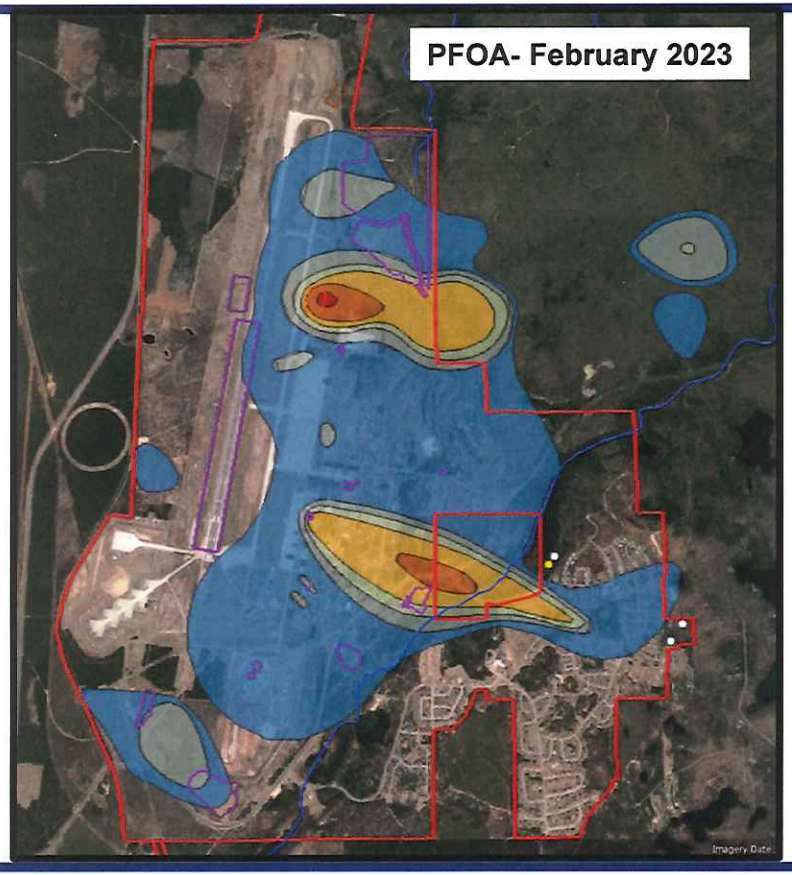
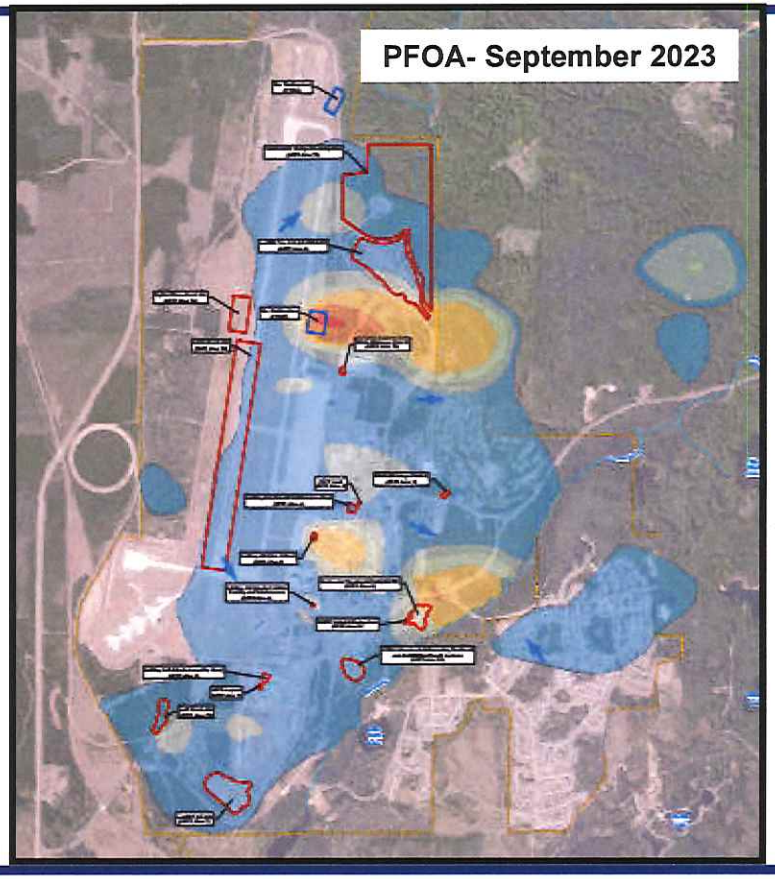
Distribution of PFAS Impacts (ongoing)



PFOA Concentration (ng/L)
- 6 - 100
- 100 - 500
- 500 - 1,000
- 1,000 - 5,000
- 5,000 - 10,000
- >10,000



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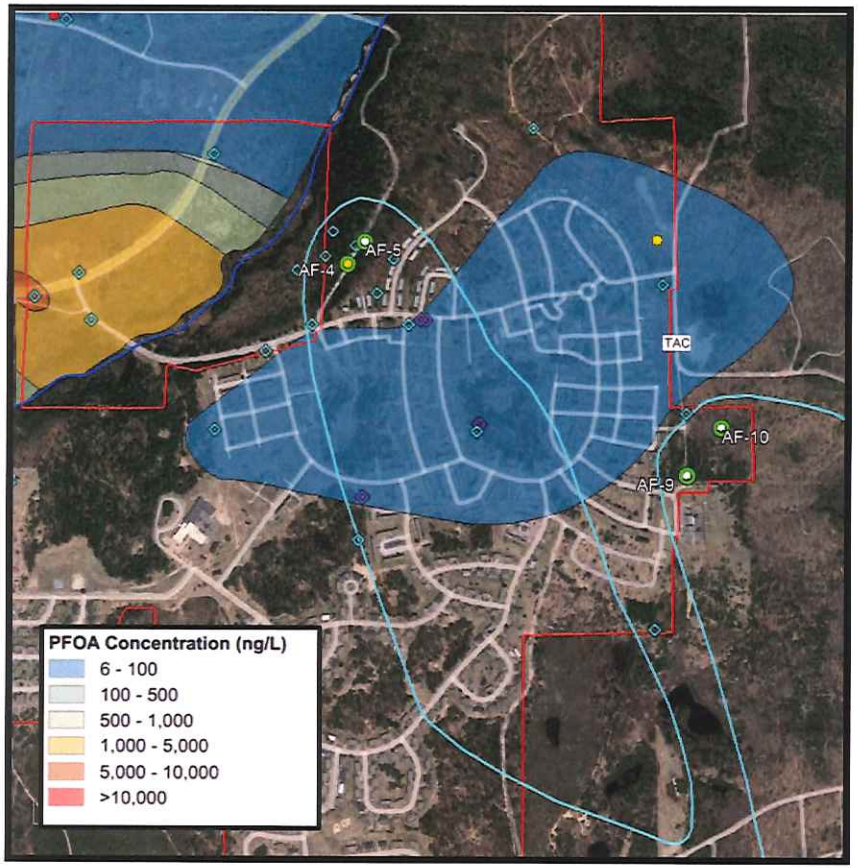
UNCLASSIFIED

Municipal Wells

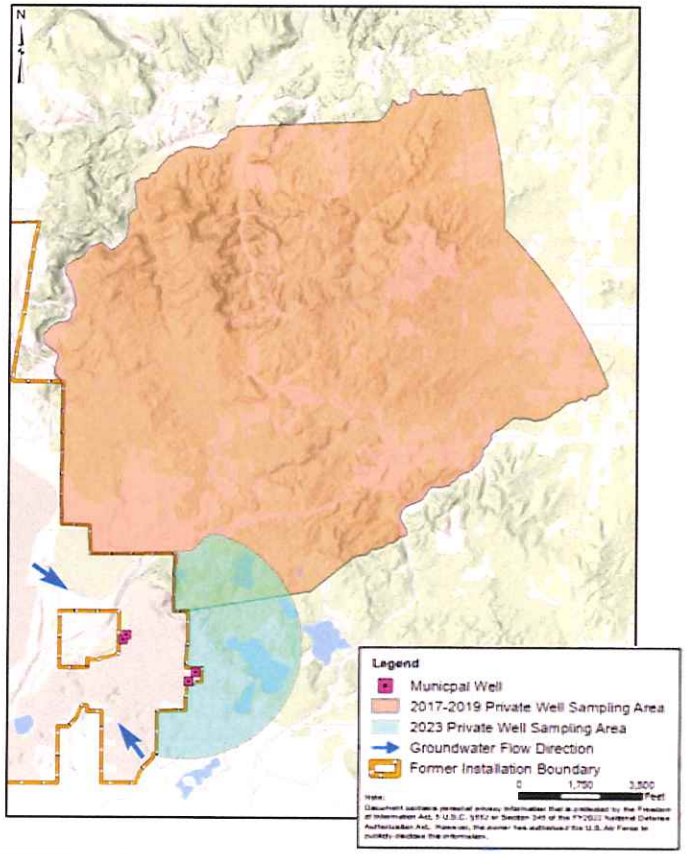


- PFAS were detected within the Municipal Wellhead Protection Area
- No immediate or imminent concerns
- Currently installing piezometers
- Build and test 3D model
- Evaluate additional measures
- Implement, as needed
- Coordinating activities with the State, County, Airport, KI Sawyer Water Dept.

Private Drinking Water Well Sampling

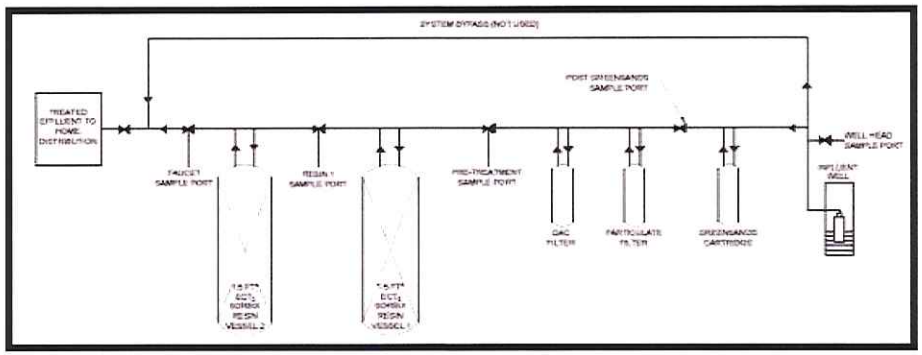
- Collected samples from 29 private residences 2017 - 2019
- Collected sample from private business in 2022
- Collected samples from 48 private residences May - September 2023

PFAS	DoD policy (levels in ppt)
PFOS	70
PFOA	70
PFOS + PFOA	70



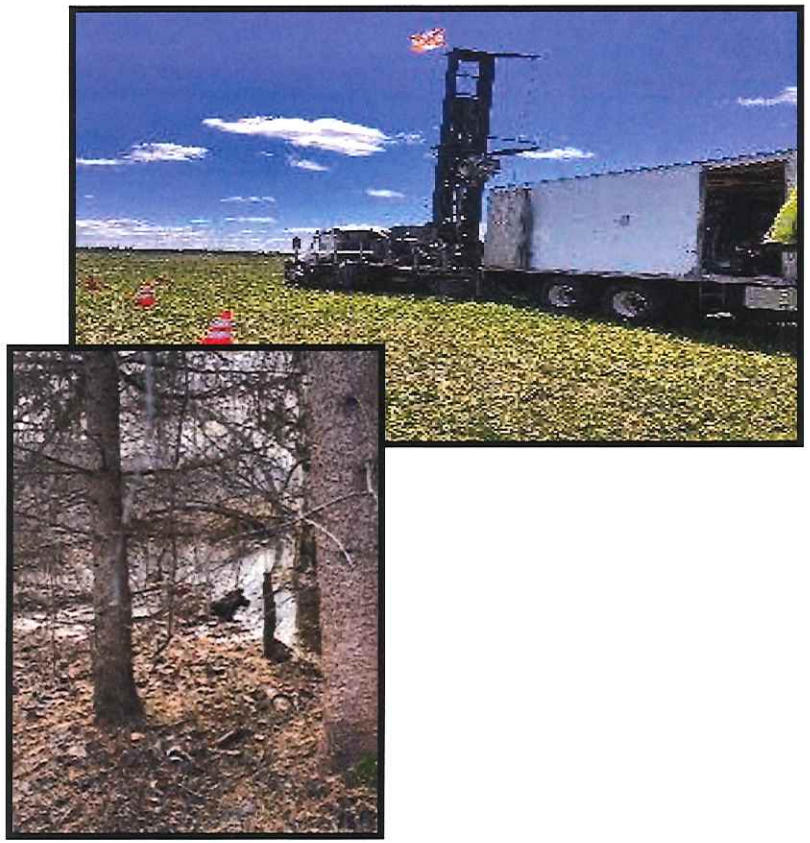
Residential Treatment System

- PFOA > DoD policy detected at one residence in 2017
  - Bottled water immediately provided to resident
  - Treatment system installed that removes PFAS
  - Annual sampling



Upcoming Field Activities

- Continue VAS step-out locations as needed
- Install and sample permanent monitoring wells
- Collect subsurface soil samples
- Install and sample groundwater - surface water interface wells along Silver Lead Creek
- Collect sediment and surface water samples



Property Access

The RI is planned to be completed by the summer of 2026.

- Evaluating the extent of PFAS is dependent upon defining all edges of the plumes
- Timely completion of the RI is dependent on applicable private property owners allowing the Air Force access to their property to install monitoring wells and sample water

Additional Resources

- Air Force maintains a public webpage for its response to PFAS: http://www.afcec.af.mil/WhatWeDo/Environment/Perfluorinated-Compounds/
- K.I. Sawyer BRAC page contains specific base information: https://www.afcec.af.mil/Home/BRAC/K-I-Sawyer/
- https://www.acq.osd.mil/eie/eer/ecc/pfas/tf/policies.html
- Michigan PFAS Action Response Team Website: https://www.michigan.gov/pfasresponse/
- https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables
- https://media.defense.gov/2020/Jul/10/2002451983/-1/-1/1/DOD_REMEDIATION_PLAN_FOR_CLEANUP_OF_WATER_IMPACTED_WITH_PFOS_OR_PFO.PDF

Contact Information

- Air Force:
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- EGLE: harmonw@Michigan.gov
- Media inquiries/support: Air Force Installation and Mission Support Center Public Affairs at (210) 925-0956 or afcec.pa@us.af.mil

Questions?

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ATTACHMENT 2

2022 WATER QUALITY REPORT FOR K.I. SAWYER

2022 Water Quality Report for K. I. SAWYER

This report covers the drinking water quality for the K. I. Sawyer water supply for the calendar year 2022. Included are details about where your water comes from, what it contains, and how it compares to Environmental Protection Agency (EPA) and state standards.

Our water comes from 4 wells drawing water from the Glacial Outwash Aquifer. Two of the wells 4 & 5 are located north of Voodoo Avenue. Wells 9 & 10 are located at the end of Invader Street.

The State performed an assessment of our source water in 2003 to determine the susceptibility or the relative potential of contamination. The susceptibility is moderate for well #4 & #5 and rated moderately high for #9 & #10.

For more information, contact the water department supervisor Nicholas Hautamaki at 906-346-9403.

- Contaminants and their presence in water: Drinking Water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (800-426-4791).

- Vulnerability of sub-populations: Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune systems disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

- Sources of drinking water: The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. Our water comes from wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

- Contaminants that may be present in source water include:

  T Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.

  T Inorganic contaminants, such as salts and metals, which can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming.

  T Pesticides and herbicides, which may come from a variety of sources such as agriculture and residential uses.

  T Radioactive contaminants, which are naturally occurring or be the result of oil and gas production and mining activities.

  T Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.

***STATEMENT ABOUT LEAD*:** If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The KI Sawyer Water Department is responsible for providing high quality drinking water but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you have a lead service line it is recommended that you run your water for at least 5 minutes to flush water from both your home plumbing and the lead service line. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline at 1-800-426-4791 or at http://water.epa.gov/drink/info/lead.

In order to ensure that tap water is safe to drink, EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration regulations establish limits for contaminants in bottled water which provide the same protection for public health.

Water Quality Data

The table below lists all the drinking water contaminants that we detected during the 2022 calendar year. The presence of these contaminants in the water does not necessarily indicate that the water poses a health risk. Unless otherwise noted, the data presented in this table is from testing done January 1 – December 31, 2022. The State allows us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. All of the data is representative of the water quality, but some are more than one year old.

Terms and abbreviations used below:

- Maximum Contaminant Level Goal (MCLG): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.
- Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
- Maximum Residual Disinfectant Level (MRDL): The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
- Maximum Residual Disinfectant Level Goal (MRDLG): The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
- Treatment Technique (TT): A required process intended to reduce the level of a contaminant in drinking water.
- N/A: Not applicable ND: not detectable at testing limit ppb: parts per billion or micrograms per liter ppm: parts per million or milligrams per liter pCi/l: picocuries per liter (a measure of radioactivity).

Regulated Contaminant	MCL	MCLG	Level Detected	Sampled	Violation	Typical Source of Contaminant
Nitrate (ppm)	10	10	1.3	5/19/2022	No	Runoff from fertilizer use; leaching from septic tanks; sewage; natural deposits.
Fluoride (ppm)	4	4	0.75 (0.50 – 1.06)	Average of Distribution For 2022	No	Water Additive to Promote Dental Health; Erosion of Natural Deposits, Discharge from fertilizer and aluminum factories.
Barium (ppm)	2	2	0.054	4/15/2021	No	Discharge of drilling wastes; Discharge of metal refineries; Erosion of natural deposits.
Arsenic (ppm)	10	0	0.0014	4/15/2021	No	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes.
Chlorine (ppm)	MRDL 4	MRDLG 4	0.26 (0.02 – 0.56)	Average of Distribution For 2022	No	Water additive used to control microbes.
Radiological Contaminants	**MCL**	**MCLG**	**Level Detected**	**Sampled**	**Violation**	**Typical Source of Contaminant**
Gross alpha (pCi/L)	15	0	6.70	5/19/2022	No	Erosion of natural deposits.
Combined Ra226/228 (pCi/L)	5	0	ND	8/6/2019	No	Erosion of natural deposits.
Unregulated Contaminant			**Level Detect**	**Sampled**	**Violation**	**Typical Source of Contaminant**
Sodium (ppm)			10	8/18/2020	No	Erosion of natural deposits
Contaminant Subject to AL	**Action Level**		**90% of Samples ≤ This Level**	**Sampled**	**Number of Samples Above AL**	**Typical Source of Contaminant**
Lead (ppb)	15		1	8/30/2022	0	Lead service lines, corrosion of household plumbing including fittings and fixtures; Erosion of natural deposits
Copper (ppm)	1.3		0.1	8/30/2022	0	Corrosion of household plumbing systems; Erosion of natural deposits

K.I. Sawyer Water System has 1 known service line which contains lead, 7 that likely contains lead, 1197 which are unknown but likely does not contain lead, and 10 which contains neither lead or galvanized pipe previously connected to lead.

Disinfection Byproducts	MCL	MCLG	Level Detected	Sample Date	Typical Source of Contaminant
Haloacetic Acids (ppb)	60	N/A	Not Detected	12/28/2022 *See Violation Note Below	Byproduct of drinking water disinfection.
Total Trihalomethanes (ppb)	80	N/A	1.48	8/30/2022	Byproduct of drinking water disinfection.

*We failed to collect our Haloacetic Acids (HAA5) sample during the monitoring period of August 1, 2022, to August 31, 2022 resulting in a monitoring violation. Our water system will return to compliance once we collect a follow-up HAA5 sample during the month of August 2023. We are making every effort to ensure that this type of violation does not occur again. A sample was taken in December 2022 which was non-detect but since it was taken outside of the required monitoring period, it does not count towards compliance.

Regulated Contaminant	MCL, TT, or MRDL	MCLG or MRDLG	Level Detected	Range	Year Sampled	Violation Yes/No	Typical Source of Contaminant
Total Coliform (total number or % Of positive Samples/month)	TT	N/A	Not Detected	N/A	2022	No	Naturally present in The environment
E. *coli* in the distribution system (positive samples)	See E. *coli* Note(1)	0	Not Detected	N/A	2022	No	Human and animal fecal waste
Fecal Indicator – E. *coli* at the source (positive samples)	TT	N/A	Not Detected	N/A	2022	No	Human and animal fecal waste

1. E. *coli* MCL violation occurs if: (1) routine and repeat samples are total coliform-positive and either is E. *coli*-positive, or (2) the supply fails to take all required repeat samples following E. *coli*-positive routine sample, or (3) the supply fails to analyze total coliform-positive repeat sample for E. *coli*.

Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS)*	MCL Parts Per Trillion (PPT)	MCLG	Highest Result	Sample Date	Typical Source of Contaminant
Perfluorononanoic Acid (PFNA)	6	N/A	Not Detected	2022	Discharge and waste from industrial facilities; Breakdown of precursor compounds
Perfluorooctanoic Acid (PFOA)	8	N/A	Not Detected	2022	Discharge and waste from industrial facilities; Stain-resistant treatments
Perfluorohexanoic Acid (PFHxA)	400,000	N/A	Not Detected	2022	Firefighting foam; Discharge and waste from industrial facilities
Perfluorooctanesulfonic Acid (PFOS)	16	N/A	Not Detected	2022	Firefighting foam; Discharge from electroplating facilities; Discharge and waste from industrial facilities
Perfluorohexanesulfonic Acid (PFHxS)	51	N/A	8	2022	Firefighting foam; Discharge and waste from industrial facilities
Perfluorobutanesulfonic Acid (PFBS)	420	N/A	8	2022	Discharge and waste from industrial facilities; Stain-resistant treatments
Perfluoroheptanoic Acid (PFHpA)	N/A	N/A	Not Detected	2022	Discharge and waste from industrial facilities; Stain-resistant treatments

Hexafluoropropylene oxide-dimer Acid (GenX (HFPO-DA GenX)	370	N/A	Not Detected	2022	Discharge and waste from industrial facilities utilizing the Gen X chemical process

*PFAS chemical MCL's were adopted by the Michigan Department of Environment, Great Lakes, and Energy (EGLE) in 2020. These limitations are more stringent than the current EPA MCL's. For more information on PFAS chemicals, please visit https://www.michigan.gov/pfasresponse

Individual copies of this consumer confidence report will not be mailed, to request a paper copy, or for more information, contact the K.I. Sawyer Water Department at 906-346-9403. Also, you can view this Consumers Confidence Report online at:
https://www.co.marquette.mi.us/departments/sawyer_services/k_i_sawyer_water_waste-water_utility_-_administrative_office.php
For more information about safe drinking water, visit the U.S. Environmental Protection Agency at www.epa.gov/safewater/.

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