

**Fairchild AFB
Restoration Advisory Board
Meeting**

1 p.m., Nov. 15, 2018
Student Union, Bldg. 17, Room 102
3410 W Fort George Wright Dr.
Spokane, WA

RAB Meeting Agenda

1:00 – 1:05	Welcome..... Col. Heathman, RAB Installation Co-Chair
1:05 – 1:15	RAB Business..... Liz Drake, RAB Facilitator <ul style="list-style-type: none">▪ Ground Rules for Meeting▪ Approval of April 2018 Meeting Minutes
1:15 – 1:30	Updating Community Involvement Plan Dave Harris, AGEISS
1:30 – 1:45	Update on Sites Managed Under the Performance Based ContractJohn Olson, Bay West and Sean Bayer, URS
1:45 – 1:55	Break
1:55 – 2:15	PFOS/PFOA Investigation Update..... Marc Connally, Fairchild AFB
2:15 – 2:45	Progress report on Residential Water Treatment Systems and Airway Heights Municipal Water Treatment System..... Beth Flynn, AMEC
2:45 – 2:55	Public Comment Opportunity Liz Drake, RAB Facilitator <ul style="list-style-type: none">▪ Process for Addressing Questions and Comments
2:55 – 3:00	Discuss Date and Agenda Items for Next Meeting Adjourn

Acronym Definitions

The following acronyms are commonly used in cleanup program reports and documents.

AFB: Air Force Base	PE: Professional Engineer
AFCEC: Air Force Civil Engineer Center	PFAS: Perfluorinated Alkylated Substances
AFFF: Aqueous Film Forming Foam	PFC: Perfluorinated Compound
ARARs: Applicable or Relevant and Appropriate Requirements	PFOA: Perfluorooctanoic Acid
ATSDR: Agency for Toxic Substances and Disease Registry	PFOS: Perfluorooctanesulfonic Acid
BTEXN: Benzene, Toluene, Ethylbenzene, Xylenes, and Naphthalene	PG: Professional Geologist
BRA: Baseline Risk Assessment	PMP: Performance Monitoring Plan
CE: Civil Engineering	PP: Proposed Plan
CERCLA: Comprehensive Environmental Response, Compensation and Liability Act	PPB: Parts per billion
CRP: Community Relations Plan	PPM: Parts per million
CUL: Cleanup level	PSI: Pounds per square inch
DCE: Dichloroethene	QA/QC: Quality Assurance/Quality Control
DOD: Department of Defense	RAB: Restoration Advisory Board
EA: Environmental Assessment	RCRA: Resource Conservation and Recovery Act
EE/CA: Engineering Evaluation/Cost Analysis	RA: Remedial Action
EC: Emerging Contaminant	RA-O: Remedial Action Operations
EPA: Environmental Protection Agency	RC: Response Complete
ESD: Explanation of Significant Differences	RD: Remedial Design
FAFB: Fairchild Air Force Base	RFP: Request for Proposal
FS: Feasibility Study	RI: Remedial Investigation
FY: Fiscal Year	RIP: Remedy in Place
FYR: Five-Year Review	ROD: Record of Decision
GAC: Granular Activated Carbon	RPM: Remedial Project Manager
GETS: Groundwater Extraction System	RSL: Regional Screening Level
GIS: Geographic Information System	SC: Site Closeout
HA: Health Advisory	SI: Site Inspection
IRA: Interim Remedial Action	SVE: Soil Vapor Extraction
IRP: Installation Restoration Program	SVOC: Semi-volatile Organic Compound
IST: Installation Support Team	TCE: Trichloroethene
IWTP: Industrial Wastewater Treatment Plant	TCRA: Time-Critical Removal Action
LNAPL: Light Non-aqueous Phase Liquid	TPH: Total Petroleum Hydrocarbons
LTM: Long-term monitoring	UFP-QAPP: Uniform Federal Policy for Quality Assurance Project Plan
LUC: Land Use Control	VC: Vinyl Chloride
MCL: Maximum Contaminant Level	VCP: Voluntary Cleanup Program
MRS: Munitions Response Site	VI: Vapor Intrusion
MNA: Monitored Natural Attenuation	VOC: Volatile Organic Compound
MPO: Minimum Performance Objectives	WDOE: Washington Department of Ecology
MRL: Minimal Risk Level	WDOH: Washington Department of Health
NPL: National Priorities List	µg/L: Micrograms per liter (parts per billion)
O&M: Operations and Maintenance	
OU: Operable Unit	
OES: Optimized Exit Strategy	
PA: Preliminary Assessment	
PBR: Performance-Based Remediation	
PCB: Polychlorinated Biphenyls	
PCE: Perchloroethylene (tetrachloroethene)	

**Fairchild Air Force Base
Restoration Advisory Board (RAB) Meeting Minutes
Spokane Falls Community College
Student Union Building 17 Room 102
15 November 2018 1:00 PM**

LIST OF ATTENDEES

RAB Members Present

- Col. Scot Heathman (Air Force Co-Chair)
- Craig Schwyn (Community Co-Chair)
- Kim Prestbo (USEPA)
- Jason Cook (WDOE)
- Dr. Hugh Lefcort (Community Representative, Gonzaga University)
- Michael LaScuola (Community Representative, Spokane County Health District)

By Invitation

- John Olson (Bay West LLC)
- Taylor Pierce (Bay West LLC)
- Jacob Bradley (Bay West LLC)
- Sean Bayer (AECOM)
- Liz Drake (AECOM)
- Beth Flynn (Wood PLC)
- Christy Duitman (Wood PLC)

Fairchild AFB and Support Staff

- Marc Connally (AFCEC/CZOM)
- Mark Loucks (AFCEC/CZOM)
- Scott King (92 ARW/PA)
- Maj Tiffany Helene (92 MDG)
- David Harris (AGEISS - Hill AFB)
- Kristin Nester (92 CES)
- Col Michael Johnson (92 MSG)
- Nate Ellison (Hurricane Industries LLC)
- Leo Behan (92 ARW/JA)
- TSgt Chase Stephenson (92 MDG)

Community Members

- Ken Merrill (Kalispel Tribe)
- Zach Welcker (Kalispel Tribe)
- Toby Broemmeling (West Plains Chamber of Commerce)

CALL TO ORDER

Ms. Liz Drake (AECOM) thanked everyone for coming to the RAB for Fairchild Air Force Base (AFB), provided an introduction, and began the meeting by providing meeting ground rules.

All RAB members present introduced themselves.

Mr. Marc Connally posed the question: Would we like more involvement? Mr. Connally has reached out to the City of Airway Heights to ask whether they would consider participating as a member of the RAB.

MINUTES OF PREVIOUS MEETING

The April 2018 RAB Meeting Minutes were approved.

COMMUNITY RELATIONS PLAN UPDATE

By Mr. Dave Harris (AGEISS)

Mr. Harris provided an update on the Community Relations Plan. There were no questions asked. Based on the presentation, the following questions were asked:

- **QUESTION** (Col. Scot Heathman): Did anyone give specifics on a communication channel that would be more effective?
 - Mr. Harris replied: Social media and the “Inlander” paper for broad distribution. The gap is to communicate the information.
- **QUESTION** (Craig Schwyn): What is different from the old plan to the new plan?
 - Mr. Harris replied: The new plan reaches out to the larger off-base community.
- **QUESTION** (Kim Prestbo): Have you reached out to the Spokane Tribe?
 - Mr. Harris replied: Not yet but would be interested to in the future.
 - A community member suggested reaching out to the Kalispel Tribe as well.
 - Mr. Harris replied: We need to get contact information.
 - A member of the Kalispel Tribe offered to provide contact information.

FY18 PERFORMANCE-BASED REMEDIATION OVERVIEW

By Mr. Sean Bayer (AECOM)

Mr. Bayer is a site lead for the performance-based remediation (PBR) contract at Fairchild AFB. Mr. Bayer provided a summary of the PBR contract. Topics covered will be sites SS039, SD037, LF002, WP003, and public comment opportunities in 2018/2019. There were no questions asked.

ORPHAN TCE PLUMES SS039

By Mr. Sean Bayer (AECOM)

Mr. Bayer is the site lead for AECOM. Mr. Bayer provided an overview of site SS039. Based on the presentation, the following question was asked:

- **QUESTION** (Dr. Hugh Lefcort): What was injected at the site?
 - Mr. Bayer replied: An oxidant for Hot Spots #1 through #4 and a bio-amendment for Hot Spot #5. The type depended on the contaminants present in different areas of the plume.

SD037 BUILDINGS 2447/2451

By Mr. Sean Bayer (AECOM)

Mr. Bayer provided an overview of vapor intrusion work at site SD037. Based on the presentation, the following question was asked:

- **QUESTION** (Michael LaScuola): When are samples going to be collected?
 - Mr. Bayer replied: The preliminary step is underway and will indicate the need for additional sampling.
 - Michael LaScuola replied: Typically, samples are collected during the winter season.
 - Mr. Bayer replied: The plan is to complete necessary follow-up sampling in January/February during the heating season.

CRAIG ROAD LANDFILL LF002

By Mr. John Olson (Bay West LLC [Bay West])

Mr. Olson is the Bay West technical lead for several of the sites at Fairchild AFB. He provided an overview of site LF002. There were no questions asked.

INDUSTRIAL WASTEWATER LAGOON SYSTEM WP003

By Mr. John Olson (Bay West)

Mr. Olson provided an overview of site WP003. Based on the presentation, the following questions were asked:

- **QUESTION** (Dr. Hugh Lefcort): Is the site currently open surface water? Has anyone looked at the organisms in the lagoons? If not, would recommend.
 - Mr. Olson replied: We do not believe so – the drums are the source of contamination being investigated.
 - Kim Prestbo replied: Are surface water and sediment data available from the Remedial Investigation (RI)?
 - Mr. Olson replied: Yes.
 - Craig Schwyn replied: The source of contamination to the lagoons is no longer a source for the site.

PUBLIC COMMENT OPPORTUNITIES IN 2018/2019

By Mr. John Olson (Bay West)

Mr. Olson provided an overview of the documents that will be available for public comment opportunities in 2018. There were no questions asked.

PFOA/PFOS SITE INSPECTION UPDATE

By Mr. Marc Connally (AFCEC/CZOM)

Mr. Connally provided an overview of perfluorooctanoic acid (PFOA)/perfluorooctanesulfonic acid (PFOS) investigation and response. Based on the presentation, the following questions were asked:

- **QUESTION** (Jason Cook): Are samples being collected quarterly for wells that have detections or that are above the Health Advisory (HA)?
 - Mr. Connally replied: Wells that have had a detection continue to be sampled quarterly. For wells that were above the HA, a treatment system is installed and sampling is continued to ensure treatment effectiveness.
- **QUESTION** (Jason Cook): What is the detection limit?
 - Mr. Connally replied: Seven or eight parts per trillion (ppt). This can be revisited in the next presentation.
- **QUESTION** (Dr. Hugh Lefcort): Do you have your own lab?
 - Mr. Connally replied: We subcontract to Amec (Wood PLC).
- **COMMENT** (Col. Scot Heathman): Outreach has been an extensive effort, we have had quite a bit of outreach and involvement. In May 2017, the Fairchild AFB Public Affairs website became available.
 - Kim Prestbo and Jason Cook replied: Is the site up for the public?
 - Col. Scot Heathman replied: Yes.
- **QUESTION** (Dr. Hugh Lefcort): Is Airway Heights on Spokane water permanently?
 - Mr. Connally replied: The seasonal treatment system began operation a few months ago to be used to supplement water obtained from the City of Spokane during high demand periods only. It is not intended for year-round use. At this time, we do not know how long the seasonal treatment system will need to be operated.
- **QUESTION** (Jason Cook): What was the range of concentrations detected?
 - Mr. Connally replied: Up to 5,700 ppt.
- **QUESTION** (Craig Schwyn): Do you see soil as a continued source?
 - Mr. Connally replied: The purpose of the Site Inspection is to identify where contamination is. The next step is to further delineate and determine the effects. There is some contamination in the shallow groundwater, within 10 feet of the surface, which potentially impacts groundwater. Immediate human health is the first priority.
- **QUESTION** (Michael LaScuola): If someone calls me to ask if their well can be tested, can I refer them to you?
 - Mr. Connally replied: Yes, as long as their well is inside the sampling area.
- **QUESTION** (Kim Prestbo): What is the long-term plan for operation and maintenance (O&M)?
 - Mr. Connally replied: We started with five-year access agreements for quarterly sampling. Another agreement will likely be needed.
- **QUESTION** (Dr. Hugh Lefcort): Are the activated carbon filters for home use? What about irrigation and livestock?

- Mr. Connally replied: The HA is for human use for now and does not cover livestock at this time. The Air Force is only able to respond within the scope of the EPA Lifetime HA.
- Dr. Hugh Lefcort replied: Aren't livestock part of the food chain?
- Mr. Connally replied: Yes, but they are not currently included in the EPA's HA.
- **QUESTION** (Jason Cook): Do you stagger sampling to semi-annual if there are no detections in a well that previously had a detection?
 - Mark Loucks replied: We will conduct clean-up according to regulators and cannot spend taxpayer money without a legal driver. It will take several years of data. At this time, quarterly sampling is appropriate.
 - Mr. Connally replied: Every quarter we can anticipate one or two instances where the HA may be exceeded. We then provide bottled water and a treatment system. We have three completed quarters of sample collection, analysis, and QC so far.
- **QUESTION** (Dr. Hugh Lefcort): Have there been any attempts to dig wells deeper or find a new water supply source?
 - Mr. Connally replied: We have not established a correlation with depth. For example, some shallow wells have detections, but other nearby wells do not, while the same goes for deeper wells. The RI will likely have a better explanation.
- **QUESTION** (Kim Prestbo): Are residential wells used for stratigraphy?
 - Mr. Connally replied: Resource protection wells at Craig Road Landfill and information from the county are used for stratigraphy, but information is limited.
 - Mark Loucks replied: Data we know we need will be gathered during the RI.
- **QUESTION** (Toby Broemmeling): There were 86 residences that were above the HA – when will the treatment systems be complete?
 - Mr. Connally replied: This will be discussed in the next presentation.
- **QUESTION** (Zach Welcker): The Tribe is concerned about the lack of groundwater mapping; the area has stopped expanding but more studies need to be done as discussed. Is it possible the area of investigation will be further expanded?
 - Mr. Connally replied: As we grow our understanding it is possible the sampling area will be expanded. We will reach out to well owners if the current sampling area is expanded.

PROGRESS REPORT ON RESIDENTIAL WATER TREATMENT SYSTEMS AND AIRWAY HEIGHTS MUNICIPAL WATER TREATMENT SYSTEM

By Ms. Beth Flynn (Wood PLC)

Ms. Flynn provided an overview of the residential water and Airway Heights municipal water treatment systems. Based on the presentation, the following questions were asked:

- **QUESTION** (Dr. Hugh Lefcort): If a treatment system is an older system that has not been changed out, are you worried about the ultra violet (UV) light breaking down?
 - Ms. Flynn replied: Samples are collected to prevent breakthrough to the UV filter.
- **QUESTION** (Michael LaScuola): Are you conducting coliform tests?
 - Ms. Flynn replied: No.

- **QUESTION** (Jason Cook): Are you testing at the tap prior to treatment? Have there been detections?
 - Ms. Flynn replied: Yes, sampling is conducted at the influent, after tank 1, after tank 2, and at the faucet. Results have been non-detect after the influent sample for the most part.
- **QUESTION** (Kim Prestbo): Do you completely drain the municipal treatment system in the winter?
 - Ms. Flynn replied: Yes, as there is the potential for freezing.
- **QUESTION** (Michael LaScuola): What is the point of UV in the systems?
 - Christy Duitman replied: UV is added as a safeguard - if property owners are away and water use becomes inactive, bacterial growth may occur and the UV is used as disinfection when the system returns to use.
 - Michael LaScuola replied: You can't tell if the system is not working if you don't do testing. Usually, treatment relies on chlorination, not UV.
- **QUESTION** (Dr. Hugh Lefcort): How is the spent carbon disposed?
 - Christy Duitman replied: The carbon is landfilled once it is profiled.
 - Dr. Hugh Lefcort replied: How do you determine where it will go?
 - Christy Duitman replied: The carbon is sampled and profiled.
 - Dr. Hugh Lefcort replied: Incineration would work.
 - Mark Loucks replied: We are currently incinerating all our waste.

PUBLIC COMMENT OPPORTUNITY


Ms. Liz Drake (AECOM) opened the floor to the public for comment and discussion. The following questions were asked:

- **QUESTION** (Ken Merrill): Is sampling done for other contaminants from the base?
 - Mr. Connally replied: The effort by this contract is to sample only for PFOA/PFOS within the current sampling area.
 - Mark Loucks replied: We do not believe other contaminants have moved out, but if they have, they will be monitored.
- **QUESTION** (Ken Merrill): If there was TCE, would the treatment systems treat those contaminants as well?
 - Mark Loucks replied: The treatment systems will effectively treat TCE.
- **QUESTION** (Ken Merrill): What was the performance criteria for the design of the treatment system for Well #9 (Airway Heights)?
 - Christy Duitman replied: 1,200 gallons per minute and non-detect for the treated water.
 - Kim Prestbo replied: What was the detection level?
 - Christy Duitman replied: Seven or eight ppt.
 - Mark Loucks replied: Non-detect or below the reporting limit.
- **QUESTION** (Ken Merrill): What is the difference between the reporting limit and the detection limit? Which is being used?
 - Christy Duitman replied: The level that the laboratory equipment can reliably detect a concentration.
 - Ms. Flynn replied: The data are qualified if there is a detection below the method detection level.
- **QUESTION** (Ken Merrill): Is there a way to get information on these levels?

- o Ms. Flynn replied: The values are available in the quality assurance project plan and are provided per lab.
- o Mark Loucks replied: The data belong to the City of Airway Heights. It would be up to them to release the data.

ADJOURNMENT

The next RAB is planned for April 2019. Craig Schwyn said to invite anyone onto the board that would be interested. Col. Scot Heathman said he was impressed with the information gained and has heard about how others appreciate the transparency and are thankful for the engagement. Thank you to Marc Connally who has been a key player for Fairchild AFB and the community.





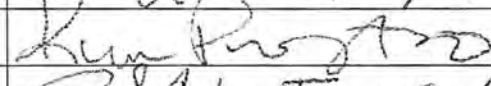

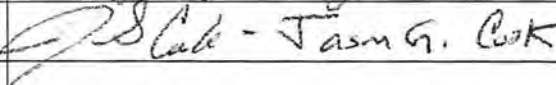

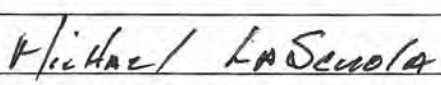

Col Scot Heathman, RAB Installation Co-Chair

Mr. Craig Schwyn, RAB Community Co-Chair

Marc B. Connally, Fairchild AFB Remedial Project Manager

RAB Member Sign-In Sheet

Fairchild AFB
Restoration Advisory Board Meeting
15 November 2018
Spokane Falls Community College

Init.	Name & Affiliation	Updated Contact Information
	Col. Scot Heathman, Air Force Co-chair	
	Craig Schwyn, Community Co-chair	
	Kim Prestbo, U.S. EPA, Region 9	
	Jason Cook Hun Seak Park, Washington Dept. of Ecology	
	Charles Gruenfelder, Washington Dept. of Ecology	
	Larry Wilcox, Community Representative	
	Albert Tripp, Mayor, Airway Heights City	
	Shirley Maiké, Mayor, Medical Lake City	
	Dr. Hugh Lefcort, Community Representative	
	Doug Greenlund, City of Spokane	
	Michael LaScuola, Spokane County Health District	
	John Welge, Community Representative	

Col Mike Johnson usaf

AFFIDAVIT OF PUBLICATION

STATE OF WASHINGTON County of Spokane} ss

PUBLIC MEETING

**Fairchild Air Force Base
Restoration Advisory Board**
Will meet on November 15, 2018,
at 1:00 p.m.
Spokane Falls
Community College
Student Union Building
(Building 17) Room 102

The Restoration Advisory Board (RAB) ensures that all community members, on and off base, have a voice and can actively participate in a timely and thorough manner in the review of Environmental Restoration Program documents. The Fairchild AFB Restoration Program seeks out, investigates, and cleans up past waste disposal and spill sites. Board members include private citizens, members of community groups, educational institutions, and representatives from Spokane City/County, Washington State Department of Ecology, and the Environmental Protection Agency.

Topics for this Fairchild AFB RAB meeting include:

- Community Relations Update
- Performance Based Contract Overview & Site Updates
- PFOS/PFOA Investigation Update
- Status of Residential and Airway Heights Water Treatment Systems
- Public Comment Opportunity

Additional information on the Fairchild AFB Restoration Program is available at the Information Repository located at Spokane Falls Community College Library. Information is also available by calling or writing:

Capt Tanya Downsworth
Public Affairs (USAF)
92nd ARW/PA
Fairchild AFB WA 99011-9404
(509) 247-5705

SR34711

Name:	<u>AECOM</u>	Client ID:	<u>9050133</u>
PO No.:	<u>SR34711</u>	No. Lines:	<u>61</u>
Total Cost:	<u>\$289.76</u>	Order No.	<u>2001169</u>

I, Jean Robinson

do solemnly swear that I am the Principal Clerk of ***The Spokesman-Review***, a newspaper established and regularly published, once each day in the English language, in and of general circulation in the City of Spokane County, Washington; and in the City of Coeur d'Alene, Kootenai County, Idaho; that said newspaper has been so established and regularly published and has had said general circulation continuously for more than six (6) months prior to the 23rd day of July, 1941; that said newspaper is printed in an office maintained at its place of publication in the City of Spokane, Washington; that said newspaper was approved and designated as a legal newspaper by order of the Superior Court of the State of Washington for Spokane County on the 23rd day of July, 1941, and that said order has not been revoked and is in full force and effect; that the notice attached hereto and which is a part of the proof of publication, was published in said newspaper one time(s), the publication having been made once each time on the following dates:

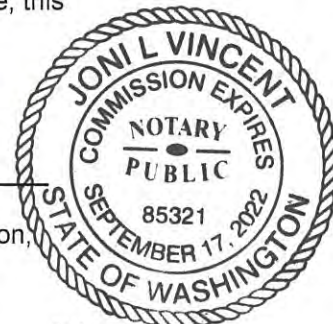
November 11, 2018

That said notice was published in the regular and entire issue of every number of the paper during the period of time of publication, and that the notice was published in the newspaper proper and not in a supplement.

Jean Robinson

Subscribed and sworn to before me at the City of Spokane, this
13th day of November, 2018.

Joni L Vincent
Notary Public in and for the State of Washington,
residing at Spokane County, Washington



Notary Stamp

Paper Affidavits.xls

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Community Relations Plan Update Fairchild AFB RAB November 2018



David Harris
Community Relations Support Contractor
Supporting Hill, Fairchild and Mountain Home AFBs

15 November 2018



Overview

- **Community Relations Requirements in CERCLA**
- **Purpose of Community Relations Plan (CRP)**
- **Elements of CRP**
- **Community Interviews**
- **Where to from here**

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CERCLA Community Relations requirements

- **CERCLA requires the public be informed**
 - Fact sheets
 - Media releases
- **Public has input into decisions**
 - Technical Review Committee (RAB)
 - Public comment periods
 - Public meetings
- **Community Relations Plan**

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Community Relations Plan

- **Sets direction for community outreach and accomplishing CERCLA goals**
- **Ensures required community relations actions are accomplished**
- **Helps organizations know how to respond to different situations**
- **Profiles the community**
 - Demographics
 - Understand how people get information

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Elements of the CRP

- **Community Profile**
 - Site description/history
 - Demographic data (census data)
- **Chronology of community involvement**
- **Community interviews**
- **Community Concerns**
- **Community Outreach Plan**
 - Developed from all of the above elements of the plan
 - Specific actions designed to address community concerns, tailored to how people want to get information



Community Interviews

- **Community interviews conducted in September 2018**
- **Interviewed most of the RAB members and others who would have a good pulse on community**
- **Most were willing to speak with me**
- **All provided valuable information**



Highlights of Community Interviews

- Almost everyone indicated the need for Fairchild to tell its story more effectively
 - Those directly affected get information, but little beyond that
 - The larger community is interested in Fairchild
 - Information vacuum filled with speculation
- Fairchild AFB is held in high regard in the community
- PFOS/PFOA issue has damaged credibility

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Where to from here

- CRP will be written over the winter months
- Hope to have a draft for the Spring 2019 RAB
- Will work with AFCEC/Fairchild staff to develop actions to address community concerns
 - Particular focus paid to providing information to general public
 - Communicate more frequently with those affected by contamination
 - Regular updates on PFOS/PFOA issue

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8



Questions



9



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FY18 Performance-Based Remediation Overview

Bay West and URS

15 November 2018



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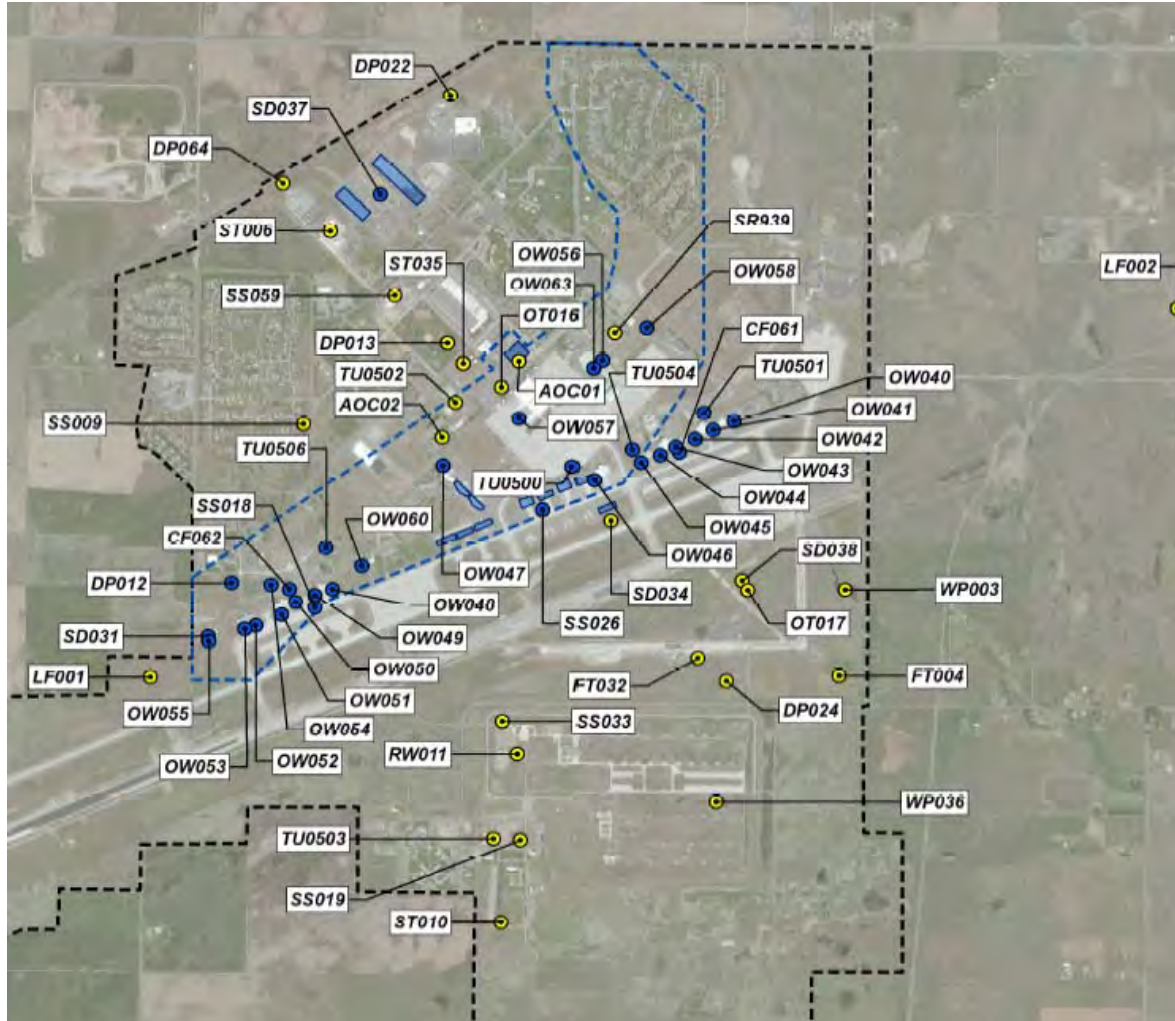
Overview

- **Site Overview**
- **2018 Major Sites**
 - SS039, SD037, LF002, and WP003
- **Public Comment Opportunities in 2018/2019**



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Site Overview



59 historical environmental sites. One historical Military Munitions Response Site at Fairchild Air Force Base. Environmental actions include:

- Work Plans
- Remedial Action-Operations (RA-O)
- Treatment Operations
- Remedial Design
- Investigation Reports
- Monitoring/Remedial Performance Reports
- Treatment Reports



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Orphan TCE Plumes (SS039) 2018 Overview and Planned 2019 Actions

Mr. Sean Bayer

URS Site Lead

15 November 2018

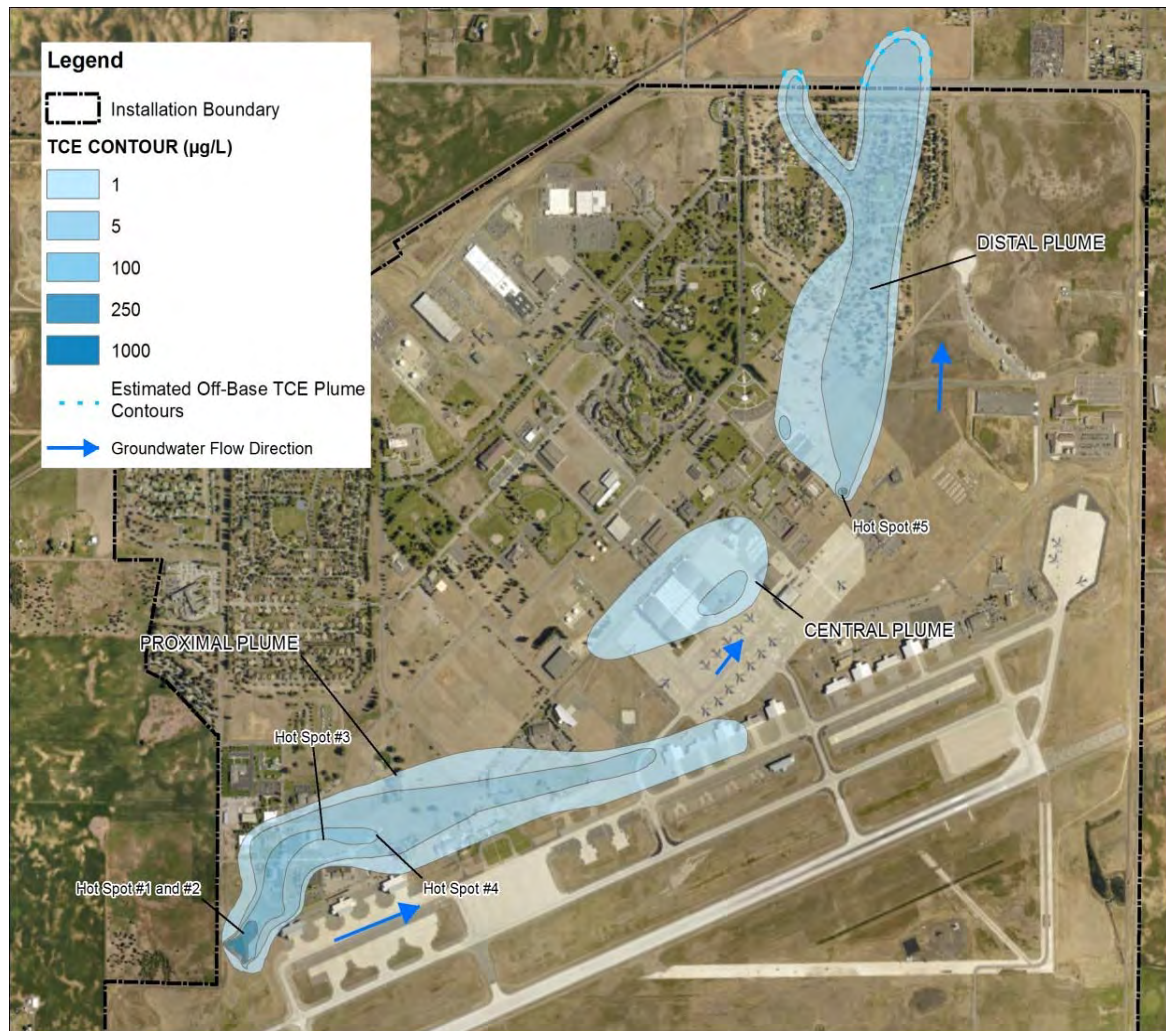
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SS039 2018 Overview

- Hot Spot Injection Event - 2018
- Quarterly Performance Monitoring - 2019
- 2017 Annual Groundwater Monitoring Report
- No change to trichloroethylene (TCE) plume interpretation





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SS039 2018 Overview

- Off-Base Data Gaps
UFP-QAPP - 2018
 - Off-Base Investigation – 2019 (pending access agreements)
- Off-base ground-water monitoring
 - TCE concentrations
 - All 5 off-base wells were non-detect in November 2017





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SD037 Buildings 2447/2451 2018 Overview and Planned 2019 Actions

Mr. Sean Bayer

URS Site Lead

15 November 2018

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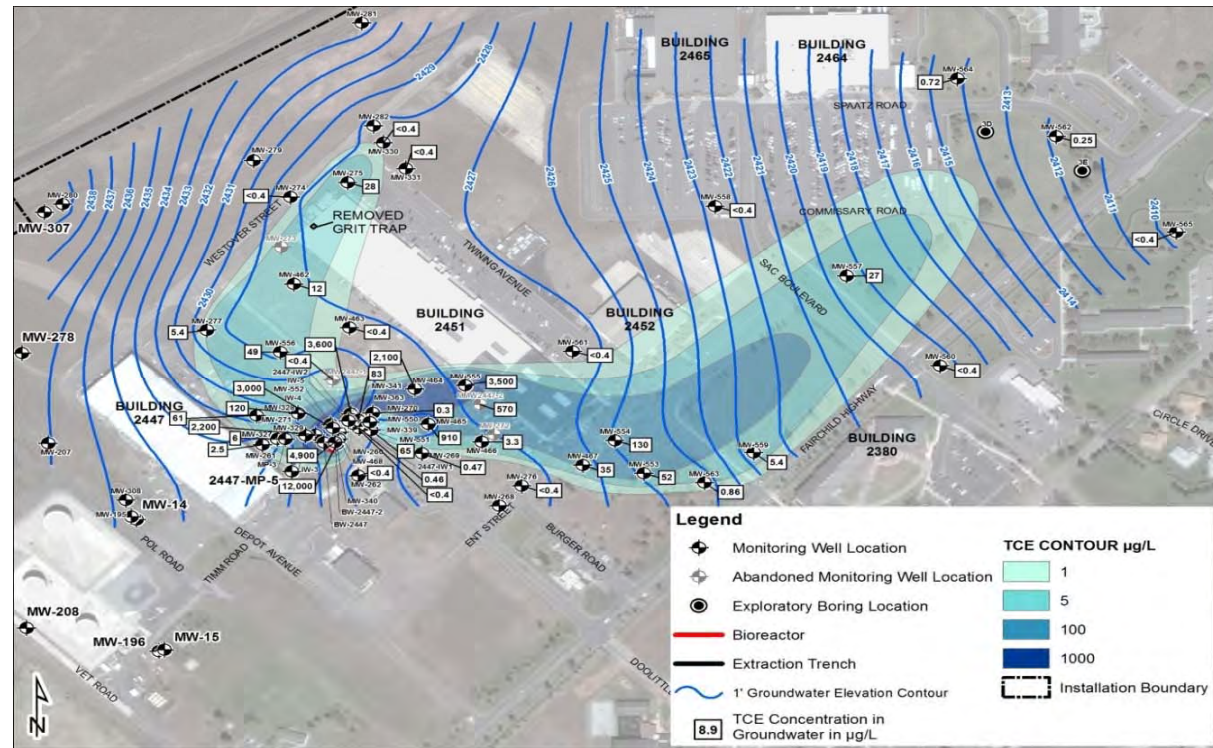


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SD037 2018 Overview

SD037 – Buildings 2447 and 2451 TCE Plume

- Data Gap Investigation , Injection Completion Report, and Pilot Study Monitoring Report – 2018
- Buildings 2447 and 2451 Vapor Intrusion (VI) UFP-QAPP – 2018
- VI Fieldwork – Winter 2018
- VI Report - 2019
- Feasibility Study Addendum - 2019





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***Craig Road Landfill (LF002)
2018 Remedial Action-Operations
Overview
and Planned 2019 Actions***

**Mr. John Olson, PG
Bay West Site Lead
15 November 2018**

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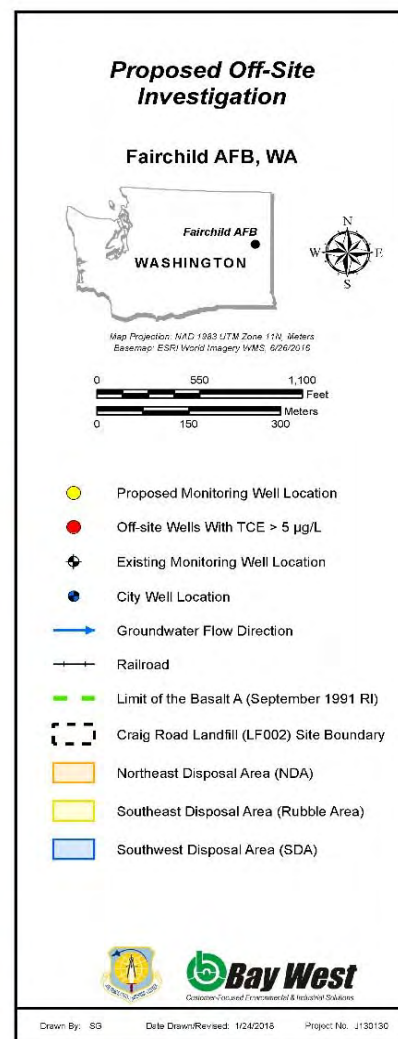
LF002 2018 Overview

2018 Actions

- Quarterly RA-O Monitoring & Quarterly data summaries; annual evaluation
- Operation and Maintenance (O&M) of the Groundwater Extraction Treatment System/Soil Vapor Extraction Systems (GETS/SVE)
- Uniform Federal Policy for Quality Assurance Project Plan (UFP-QAPP) Addendum I (Final March 2018)
- Remedial Design/Remedial Action Work Plan (Final January 2018)
- Proposed Plan Amendment (in review)
- UFP-QAPP Addendum II-Off Site Investigation (in review)
- GETS/SVE O&M Plan Addendum (in review)

Planned 2019 Actions

- Finalize 2018 documents
- Continue RA-O and Reporting
- Prepare Record of Decision Amendment
- Obtain Off-Base Access and Perform Off-Base Investigation





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***Industrial Wastewater Lagoon
System (WP003)
2018 RA-O Overview
and Planned 2019 Actions***

**Mr. John Olson, PG
Bay West Site Lead
15 November 2018**

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WP003 Overview

2018 Actions

- Semiannual RA-O Monitoring; 1st and 3rd Quarterly data summary reports; annual evaluation.
- Two additional off-site wells were installed in September 2018 to replace a damaged well and provide additional natural attenuation monitoring.
- Pre-Design Investigation Report (Final September 2018)
- Operable Unit 2 (OU2) Explanation Of Significant Differences (ESD) (signature process)
- Annual 2017 RA-O Report (in review)
- UFP-QAPP Addendum- Data collection in support of a Feasibility Study (in review)

Planned 2019 Actions

- Finalize documents
- Continue RA-O Monitoring/Reporting
- Complete additional on-site data collection
- Prepare a Feasibility Study Addendum



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Public Comment Opportunities in 2018/2019

**Mr. John Olson, PG
Bay West Site Lead
15 November 2018**

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Public Comment Opportunities 2018/2019

■ **OU2 ESD:** Public Notice Estimated Timing: November/December 2018

- Explain changes in Land Use Controls (LUCs) for LF001, WP003, and FT004
- Update cleanup levels (CULs) for FT004
- Transfer two petroleum-related sites (SS018 and SS026) to the Washington Department of Ecology (WDOE) Voluntary Cleanup Program (VCP)

■ **OU3 ESD:** Public Notice Estimated Timing: December 2018/January 2019

- Explain changes in LUCs for DP012 and DP013
- Update CULs for SD031 and transfer TCE groundwater contamination to SS039
- Transfer five petroleum-related sites (ST006, SS009, ST010, OT017, and FT032) to the WDOE VCP

■ **OU1 Proposed Plan Amendment:** Public Notice Estimated Timing: April 2019

- Clarify and add LUCs for LF002 – Craig Road Landfill
- Amend CULs to include Chromium and Vinyl Chloride



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Public Comment Opportunities 2018/2019 (continued)

■ OU4 No Further Action Proposed Plan

- Supports No Further Action at Sites SS019, SD034, and SD038. These sites would close under the U.S. Environmental Protection Agency Comprehensive Environmental Response, Compensation, and Liability Act through the U.S. Air Force (USAF) Environmental Restoration Program.
- The USAF believes all actions necessary to protect human health and the environment, including removal of source areas and affected media, have been completed at these three OU4 sites and is proposing No Further Action.
- *Public Comment Period (30 days): 12 November 2018 - 11 December 2018*
- Available for public review:

ADMINISTRATIVE RECORD

Spokane Falls Community College Library

W. 3410 Fort George Wright Drive Spokane, WA 99204-5288

For Hours go to: <http://library.spokanefalls.edu/Hours.aspx>



Acronyms and Abbreviations

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µg/L	micrograms per liter
CUL	cleanup level
ESD	explanation of significant differences
GETS	Groundwater Extraction and Treatment System
LUC	land use control
O&M	operations and maintenance
OU	operable unit
PG	Professional Geologist
RA-O	remedial action-operations
SVE	soil vapor extraction
TCE	trichloroethylene
UFP-QAPP	Uniform Federal Policy for Quality Assurance Project Plan
USAF	United States Air Force
VCP	Voluntary Cleanup Program
VI	vapor intrusion
WDOE	Washington Department of Ecology

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**PFOA/PFOS Site
Inspection Update**

Fairchild Air Force Base

November 15, 2018



Overview

- PFOS/PFOA Background
- Air Force Response
- Timeline of Events
- Preliminary Assessment and Site Inspection
- Time Critical Removal Actions
- On-Going Study/Evaluation Efforts

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Background

- **PFOS and PFOA are in a class of synthetic fluorinated organic chemicals used in consumer and industrial products, including Aqueous Film Forming Foam**
 - Nonstick cookware
 - Some food packaging
 - Aqueous Film Forming Foam (AFFF)
- **Air Force began using AFFF in 1970**
- **In June 2009, DoD established policy and assigned responsibilities for the identification, assessment, and risk management of emerging contaminants (DoDI 4715.18) such as PFOS/PFOA**

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Background

- **PFOS and PFOA qualify as emerging contaminants based on the following criteria:**
 - They have reasonably possible pathways to enter the environment
 - They present a potential unacceptable human health or environmental risk
 - Regulatory standards are evolving

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Air Force Response

The Air Force is aware of PFOS and PFOA contamination from AFFF releases on active duty and closed installations and is working with state and federal regulators to identify affected sites and take responsive action to protect human health and the environment.

The Air Force developed a three-step method of PFC release identification and confirmation, delineation, and mitigation to address possible PFC releases.

1. Identify
2. Respond
3. Prevent

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Air Force Response

Identify - Respond - Prevent

- Base records were reviewed to identify potential release areas
- On-base sampling conducted to determine if a release occurred
- Off-base sampling conducted to evaluate potential drinking water source impact
- When drinking water sample results indicate contaminant levels exceed the health advisory, AF provides alternate water source
- AF continues to monitor locations of detections in order to track changes and provide an alert if additional action is needed
- The Air Force is taking steps to prevent future AFFF releases.
 - Legacy AFFF has been replaced with environmentally sound options
 - AFFF use is limited to emergency responses with immediate containment

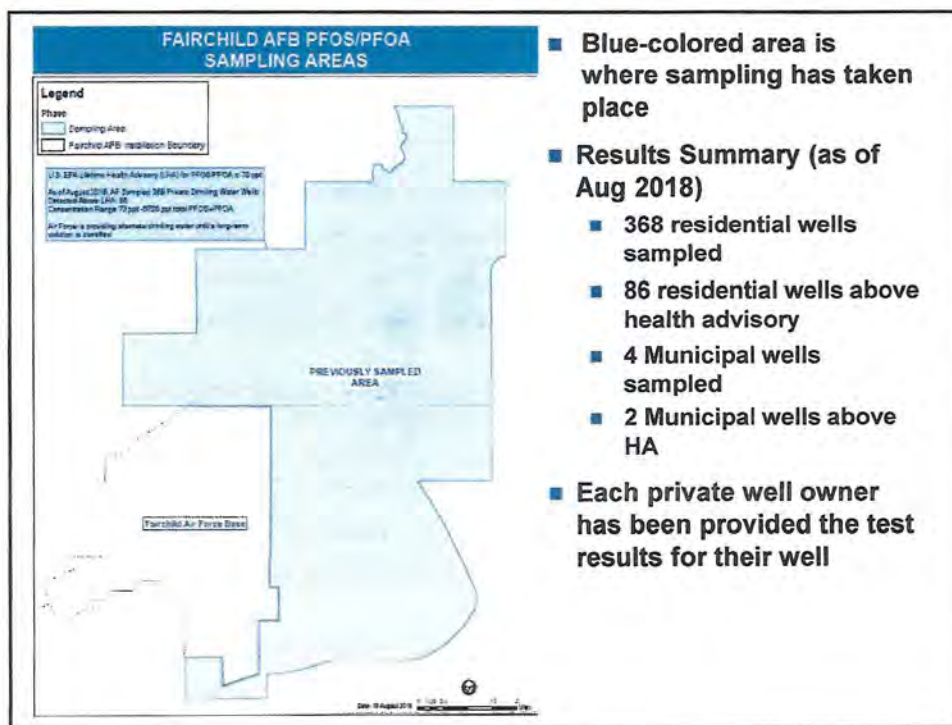
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Timeline of Events

- **2015 – Preliminary Assessment identified AFFF release areas on Fairchild AFB**
- **Feb/Mar 2017 - Site Inspection of 5 on-base suspect AFFF release locations**
- **April 2017 – Initiated off-base sampling - residences and municipal wells (Airway Heights, Medical Lake)**
- **May 2017 thru April 2018 - Off-base sampling area stepped out in phases based upon analytical results and 3 Ps (probability, proximity, pathway)**
- **Aug 2018 – Current sampling area boundary established; no plans to expand until/unless additional info and 3 Ps support it**
- **Outreach**
 - **Town Hall – 23 May 2017 at Medical Lake High School**
 - **Open House - 19 April 2018 at Spokane Falls Comm College**

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Preliminary Assessment Site Inspection (PA/SI)

- Preliminary Assessment (PA) consisted of records search and interviews
- Five areas were investigated based on results of PA
- Site Inspection (SI) looked at each of these five locations in detail
 - Soil and groundwater were sampled
- SI in the former fire training area identified significant Health Advisory exceedance
- PA report available at Administrative Record; SI report expected to be available by Jan 2019

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Residential Wells TCRA

- Time-Critical Removal Action (TCRA) initiated to mitigate exposures to water containing PFOS/PFOA above EPA health advisory of 70 parts per trillion in private residential wells
- Bottle water provided by Air Force until a treatment system could be installed
- System applied to well to treat water using granular activated carbon (GAC)
- Wells below the health advisory will be monitored regularly. If levels rise above HA, bottled water provided immediately with a treatment system to follow
- Installation of these systems is ongoing
- TCRA is available in Administrative Record

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Airway Heights Municipal Well TCRA

- Time-Critical Removal Action (TCRA) initiated to treat PFOS/PFOA in Airway Heights municipal well 9
- When contamination was discovered, Air Force and City of Airway Heights worked to provide city residents with bottled water
- Air Force, Airway Heights worked with the City of Spokane to provide Airway Heights with water from their distribution system
- Air Force has designed and installed a temporary treatment system on well 9 that supplement water supplied by the City of Spokane during high-demand summer and fall months
- System is designed to operate for three summer/fall seasons, during which time a longer-term solution will be identified and implemented
- TCRA is available in in Administrative Record

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Drinking Water Protection Study

- Objective is to improve AF ability to understand and address current and future potential impacts from PFOS/PFOA
- Includes comprehensive data analysis of existing information leading to identification of data gaps
- Detailed stratigraphy will be used to develop regional geologic setting
- Geologic cross sections to be developed as well as a groundwater surface map
- Conceptual site model to be completed in Spring 2019

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Action Memorandum for a Non-Time Critical Removal Action

- This effort will evaluate new alternate drinking water source(s) for the City of Airway Heights
- A hydrogeological study will be performed to demonstrate appropriateness of alternate source(s) considered for current use and future growth
- An Engineering Evaluation/Cost Analysis evaluates treatment alternatives as well as potential new source(s) that can be considered for implementation
- Public meeting will be held to present findings of the EE/CA and to obtain stakeholder input
- Action Memo will memorialize the final decision

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More Information

For more information on PFOS, PFAS and PFBS, visit:

Air Force Civil Engineer Center
www.afcec.af.mil/

Environmental Protection Agency
www.epa.gov/

Agency for Toxic Substances and Disease Registry
www.atsdr.cdc.gov/

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Questions?

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Air Force Civil Engineer Center

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Progress report on Residential Water Treatment Systems and Airway Heights Municipal Water Treatment System



**Fairchild AFB RAB
November 2018**

15 November 2018



Agenda

- Overview
- Residential Treatment Systems
- Airway Heights Treatment System
- Questions



Overview

- AF sampling between April 2017 and July 2018 identified:
 - 86 private residential wells above the EPA Health Advisory (HA)
 - 2 Airway Heights municipal system wells above the HA
- Granulated Activated Carbon (GAC) treatment systems planned for impacted wells:
 - October 2017 Action Memorandum: Residential Wells
 - Purpose: provide a longer term supply of clean drinking water to affected residents
 - March 2018 Action Memorandum: Airway Heights Well #9
 - Purpose: to allow Airway Heights to meet peak summer-time demand

3



Residential System Design Process

Standard Conceptual Design



Initial Homeowner Meetings/Property Information



Prepare Property-Specific Design

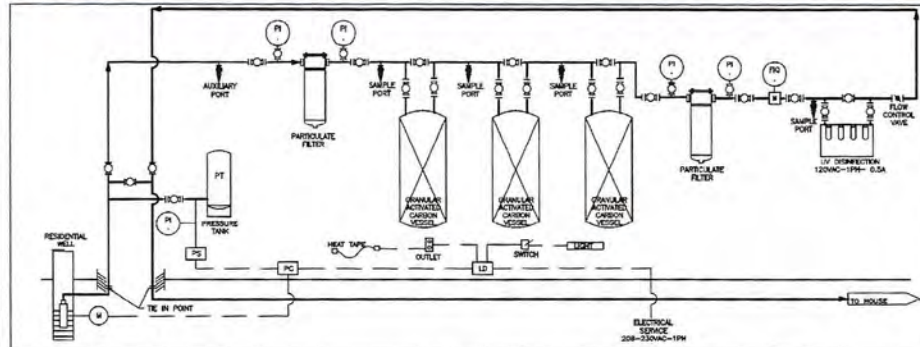


Homeowner Design Review Meetings

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Standard Conceptual Design



- 3 GAC tanks with particulate filters and ultraviolet disinfection
 - Up to 10 gallons per minute at 50 – 60 psi
 - Design supports typical shower, two sinks, toilet flush/fill at same time

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Typical Property – Specific Design



- Locate to provide treated water for drinking/household use
- Locate in basement, garage, existing or new shed, etc
- Property-specific plumbing, electrical, support equipment needed for system to work

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Residential System Construction and Commissioning Process

- After homeowner approves design, construction sub-contract awarded
- Typical installation takes approximately 6-8 weeks
 - Site prep, trenching, shed assembly
 - Plumbing and electrical
 - GAC tank installation and system/home flushing
 - System sampling and analysis
- Schedule was organized into 6 installation groups with 2 construction contract teams

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Residential System Construction and Commissioning Process

- When sample analysis results confirm system working as designed:
 - Owner notified, provided commissioning letter with sample results
 - System scheduled for quarterly operation and maintenance checks/confirmation sampling
- Troubleshooting – example issues:
 - Pressure/flow not meeting design target
 - GAC tank performance not meeting design target
 - Sample results indicate home plumbing needs additional flushing

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Residential System Installation Status (5 November 2018)

Homes in need of treatment system	81
Owner agreements/access in place	77
Homes in design phase	1
Homes with installation in progress	2
Homes with installation complete	68
Homes with commissioning/testing underway	16
Homes with commissioning issues	15
Homes with systems in place and operating	37

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Municipal System Airway Heights Well #9

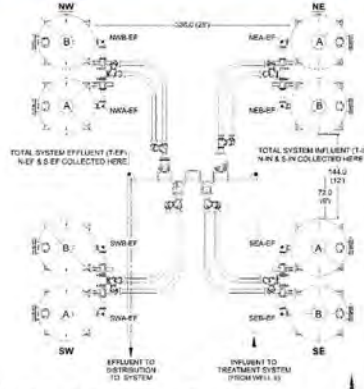
- Airway Heights officials identified summer peak water demand above capacity of interties with Spokane water system
- AF time critical action to design and install a temporary, seasonal treatment system at well #9 to cover summer peak demand
- Aggressive schedule required team of AF, City, EPA, Washington Department of Health (WDOH), and supporting contractors to expedite/accelerate standard timelines

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Municipal System Design

- Large scale Granular Activated Carbon (GAC) filtration system selected as treatment technology
- System segregated into four subsystems to allow for partial operation and redundancy
- System designed for 1,200 gallons per minute with pressure telemetry added to City's control system
- Design approved by Washington Department of Health (WDOH) and City of Airway Heights



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Municipal System Installation



- Underground portion and aboveground main line installed in June 2018
- Aboveground sub-systems and GAC vessels installed in July to August 2018
- System commissioned in accordance with WDOH requirements in early September 2018
- System passed analytical testing for PFOS/PFOA removal to non-detect levels by mid-September 2018

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Municipal System Status

- System operation started in September 2018
- Operation halted to trouble-shoot high micro-bubble aeration making water appear cloudy
- Aeration investigation in progress to evaluate pumping conditions and local aquifer conditions
- System drained and sealed for Winter weather in October 2018 with anticipated restart Spring 2019

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Questions

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