

**Fairchild Air Force Base
Restoration Advisory Board (RAB) Meeting Minutes
Spokane Falls Community College
Falls Gateway Building 30, Room 111
23 January 2020 2:30 PM**

CALL TO ORDER

Opening comments by Col Jacobus Fairchild AFB Deputy Commander.

MINUTES OF PREVIOUS MEETING

The June 2019 RAB Meeting Minutes were approved.

2019/2020 PERFORMANCE-BASED REMEDIATION OVERVIEW

ORPHAN TCE PLUMES (SS039) OVERVIEW

By Mr. Sean Bayer (AECOM)

- Question from Hugh Lefcort: How deep are your monitoring wells?
 - Mr. Bayer replied: 75 to 85 feet. They are screened in the lower portion of weathered basalt just above the fractured basalt. Wells screened at 50 feet below ground surface in the alluvial are less contaminated than wells screened in the weathered basalt.
- Question from Chuck Gruenenfelder: Does the trichloroethene (TCE) Plume conform to the paleo channel?
 - Mr. Bayer replied: Yes, it appears the plume follows the paleo channel. We have accounted for the paleo channel in the placement of monitoring wells.
- Question from Chuck Gruenenfelder: How about topography?
 - Mr. Bayer replied: Yes, topography is why we chose the area.
- Question from Jon Welge: Is that why you chose the location?
 - Mr. Bayer replied: Yes. It appears a basalt channel caused a split in the interpretation of the TCE plume. TCE generally follows more competent basalt.

SD037 BUILDINGS 2447/2451 OVERVIEW

By Mr. Sean Bayer (AECOM)

- Question from Chuck Gruenenfelder: What Laboratory Method is used for the indoor air samples?
 - Mr. Bayer replied: TO-15.
- Question from Jon Welge: What depths are the soil gas collected from outside Building 2380 and 2453?
 - Mr. Bayer replied: Samples were collected from two locations, 5 and 10 feet below ground surface.
- Question from Jon Welge: When is the report due?
 - Mr. Bayer replied: In a couple of months, the field work is being completed now.

CRAIG ROAD LANDFILL (LF002) REMEDIAL ACTION-OPERATIONS OVERVIEW

By Mr. Josh Miller (Bay West LLC [Bay West])

- Question from Chuck Gruenenfelder: Any additional areas considered for higher concentration areas?
 - Mr. Miller replied: We are not sure, we are not seeing any rebound, but past remedial investigations may identify other tools or methods to be considered.
- Question from Chuck Gruenenfelder: World War I drones found to be a source? Any other tools or methods being looked at?
 - Mr. Miller replied: We have not done any other investigations.

INDUSTRIAL WASTEWATER LAGOON SYSTEM (WP003) REMEDIAL ACTION-OPERATIONS OVERVIEW

By Mr. Josh Miller (Bay West)

- Question from Hugh Lefcort: Were there other sources of arsenic besides the drums?
 - Mr. Miller replied: The drums and marshland were the sources of arsenic.
 - Mark Loucks added: It is common in wetland areas that you have leaf material and decomposition which create conditions favorable to precipitate natural occurring arsenic.
- Question from Hugh Lefcort: Are you planning to add oxygen with the bacteria for mitigation?
 - Mr. Miller replied: No, just Dehalococcoides sp. (DHC) because other remedial conditions are currently present, which will support the DHC and degradation of vinyl chloride.
- Question from Hugh Lefcort: Do you think it will change the levels of Arsenic?
 - Mr. Miller replied: No, it shouldn't.
- Question from Jon Welge: How are you going to be efficient in getting lower concentrations?
 - Mr. Miller replied: Plume is fairly shallow, a very thin channel, and small area relatively. Only a small little finger so lower concentration should be seen and we plan on doing pilot studies.
- Question from Jon Welge: How are you sure you are being effective with bacteria injection?
 - Mr. Miller replied: By how it affects contaminant reductions.

VOLUNTARY CLEANUP PROGRAM (VCP) SITE: WEST FLIGHTLINE PLUME (TU506) OVERVIEW

By Mr. Sean Bayer (AECOM)

- Question from Jason Cook: When is the excavation planned?
 - Mr. Bayer replied: Spring/Summer 2020.
- Question from Jon Welge: How did you discover TU506 contamination?
 - Mr. Bayer replied: We were under contract to complete remedial investigations on oil/water separator sites and underground tank sites. We started with information collected by others when the oil/water separators were removed in 1995.
- Question from Mr. Smith: What direction is the flow of contamination?
 - Mr. Bayer replied: Northeast.

VCP SITE: EAST FLIGHTLINE PLUME (TU500) OVERVIEW

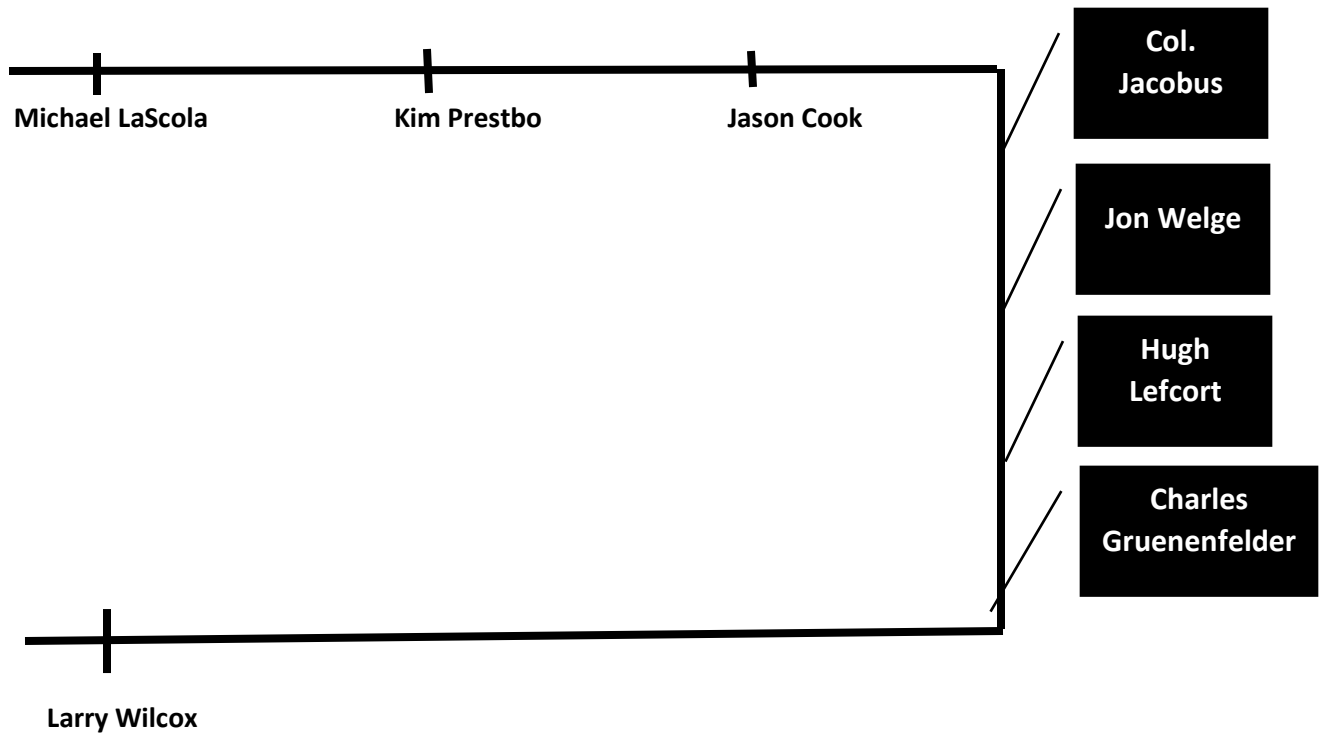
By Mr. Sean Bayer (AECOM)

- Question from Chuck Gruenenfelder: How was out flow from these sites channeled?
 - Mr. Bayer replied: Aligned with wastewater lines from the buildings.
- Question from Jon Welge: Is this site on top of SS039?
 - Mr. Bayer replied: Most of the oil/water separator sites are south of the hangars, Site SS039 is north of the hangars. There may be some comingling in a small area.

PFOA/PFOS SITE INSPECTION UPDATE

By Mr. Mark Loucks (AFCEC/CZOM)

- Question from Jon Welge: What is the detection level?
 - Mr. Loucks replied: 5 parts per trillion.
- Question from Chuck Gruenenfelder: Is there analysis on monitoring wells compared to drinking wells?
 - Mr. Loucks replied: No, we haven't done a trend analysis.
- Question from Hugh Lefcort: Why is City of Airway Heights' second well not operational?
 - Mr. Loucks replied: It is a backup well.
- Question from Mike LaScuola: Is the City Well required to be decommissioned?
 - Mr. Loucks replied: We have not approached it yet.
- Question from John Welge: Is there a consistent sampling program? How many gallons?
 - Mr. Loucks replied: Yes, guaranteed 10 gallons per minute, but it is variable.
- Question from Hugh Lefcort: Have you considered digging deeper wells?
 - Mr. Loucks replied: Yes, this is the next strategy. We have an EE/CA under contract to analyze several options.
- Question from Hugh Lefcort: As part of the hydro study are you going to address immediate health risks, mitigation of sources, and defining pathways?
 - Mr. Loucks replied: From the remedial investigation we will know, and the hydro study is going to verify and clarify pathways.
- Question from Larry Wilcox: Is aqueous film-forming foam (AFFF) the primary source or only source?
 - Mr. Loucks replied: As for the Air Force, AFFF is the main source for Fairchild AFB. There are other factors such as the Spokane Airport use of AFFF, also other commonly used goods such as scotch guard, Teflon and other products use the same compounds. Regulators are going to help determine who is responsible for what.
- Question from Larry Wilcox: Are there changes in treatment or changes in the water?
 - Mr. Loucks replied: Some were destroyed such as calcium and carbonates. We have biproducts off of it, but it is not hazardous. Nutrients can be taken out by the biproducts and could cause problems.
- Question from Chuck Gruenenfelder: Ultraviolet is used for other constituents, have you thought of it?
 - Mr. Loucks replied: Probably somebody somewhere thought if it. We haven't got there yet.
- Question from Chad Pritchard: Asked if he could be supported on a grant from the EPA.
 - Mr. Loucks gave contact info.
- Question from Chuck Gruenenfelder: What is the base schedule for updates to the public?
 - Mr. Loucks replied: We are not sure, but we are trying to improve public outreach.



PUBLIC MEETING

**Fairchild Air Force Base
Restoration Advisory Board**
Will meet Thursday, January 23,
2020, at 2:30 p.m.
Spokane Falls
Community College
Building 30, Room 111

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:

- PFOS/PFOA Investigation Update
- Status of Residential and Airway Heights Water Treatment Systems
- Performance Based Contract Overview & Site Updates
- 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:

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

SR36297

*Federal Tax ID No. 68-0617327

AFFIDAVIT OF PUBLICATION

**STATE OF WASHINGTON
County of Spokane} ss**

Name:	<u>AECOM</u>	Client ID:	<u>9024523</u>
P.O. No.	<u>SR36297</u>	No. Lines:	<u>58</u>
Total Cost:	<u>\$275.78</u>	Order No:	<u>2039341</u>

I, E. 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:

January 19, 2020

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.

E. Jean Robinson

Subscribed and sworn to before me at the City of Spokane, this
22nd _____ day of _____ January _____, 2020.

Joni L. Vincent



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

Notary Stamp

Affidavit of Publication



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2019/2020 Performance- Based Remediation Overview

Bay West and AECOM

23 January 2020



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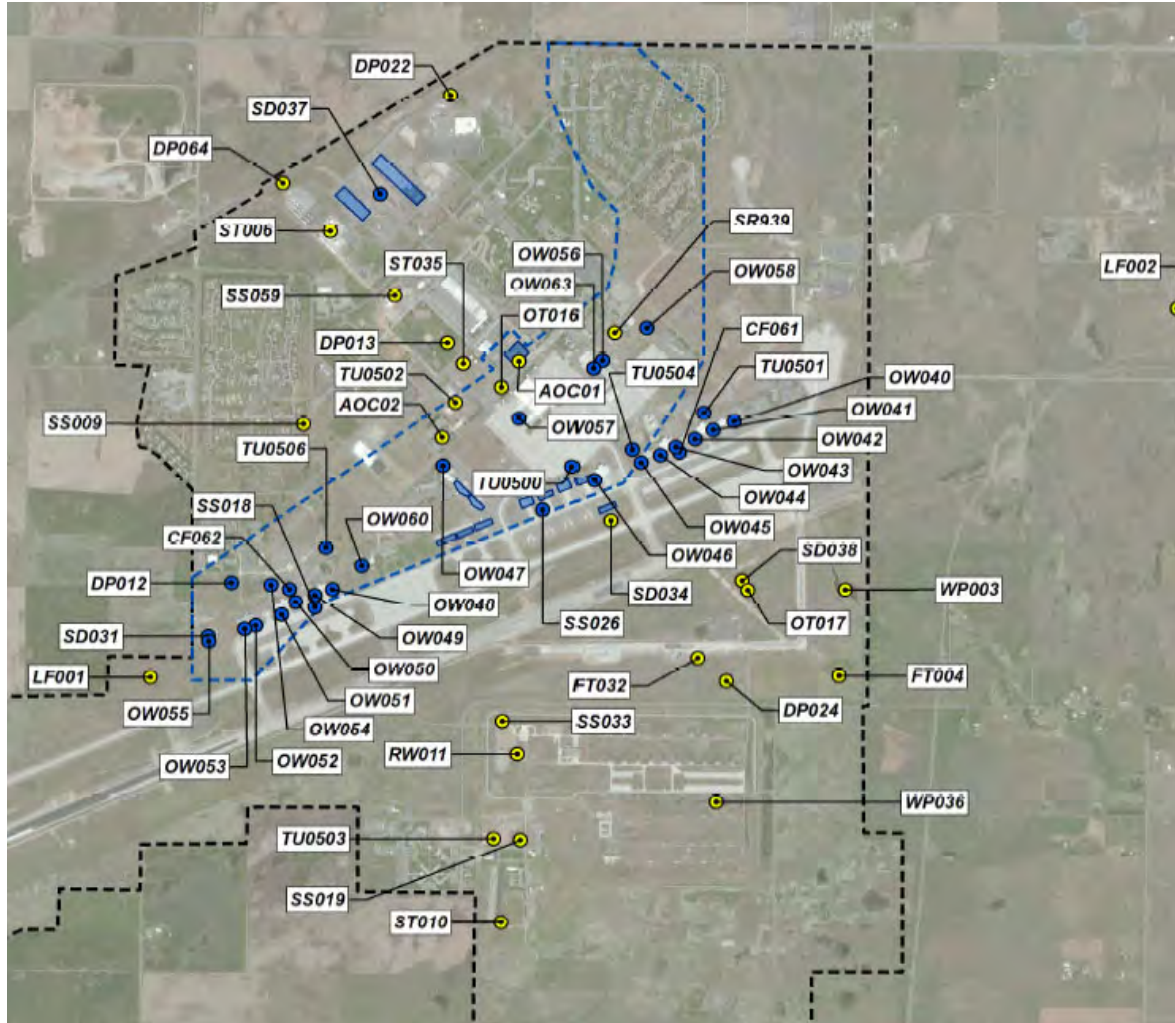
Overview

- **Site Overview**
- **2019/2020 Major Sites**
 - SS039, SD037, LF002, WP003, Voluntary Cleanup Program (VCP) Sites
- **Public Comment Opportunities in 2020**



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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) 2019 Overview and Planned 2020 Actions

**Mr. Sean Bayer
AECOM Site Lead
23 Jan 2020**

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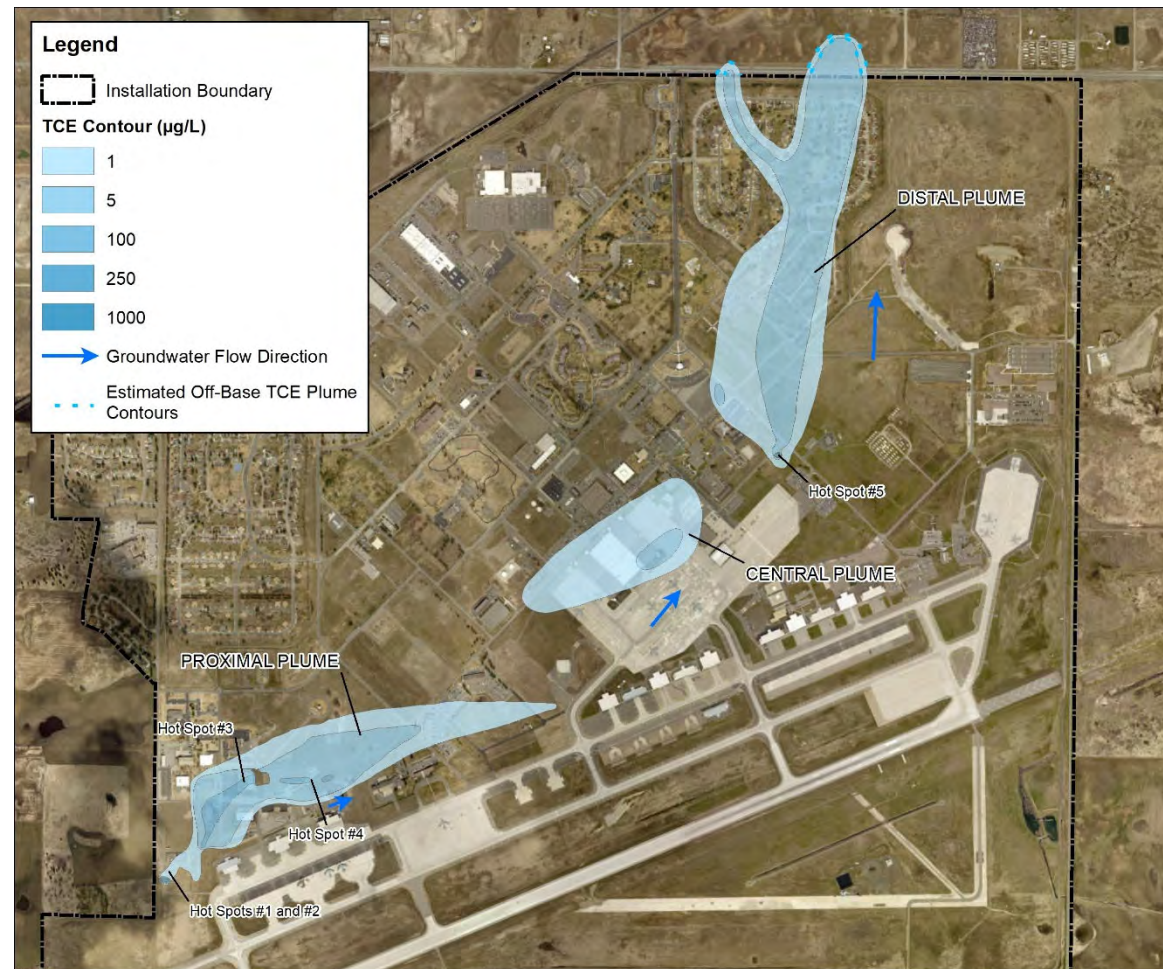
SS039 Overview

2019 Summary

- Quarterly Performance Monitoring
- Annual GW Monitoring

2020 Planned

- Achieve RIP
- Oxidant re-injection into select areas
- Semi-annual Performance Monitoring
- Annual GW Monitoring and Reporting





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SS039 Off-Base Overview

2019 Summary

- Off-Base ground-water monitoring
 - All five off-base wells were non-detect for TCE in November 2019 and have been non-detect since 2016

2020 Planned

- Off-Base Data Gap Investigation and Report





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SD037 Buildings 2447/2451 2019 Overview and Planned 2020 Actions

**Mr. Sean Bayer
AECOM Site Lead
23 Jan 2020**

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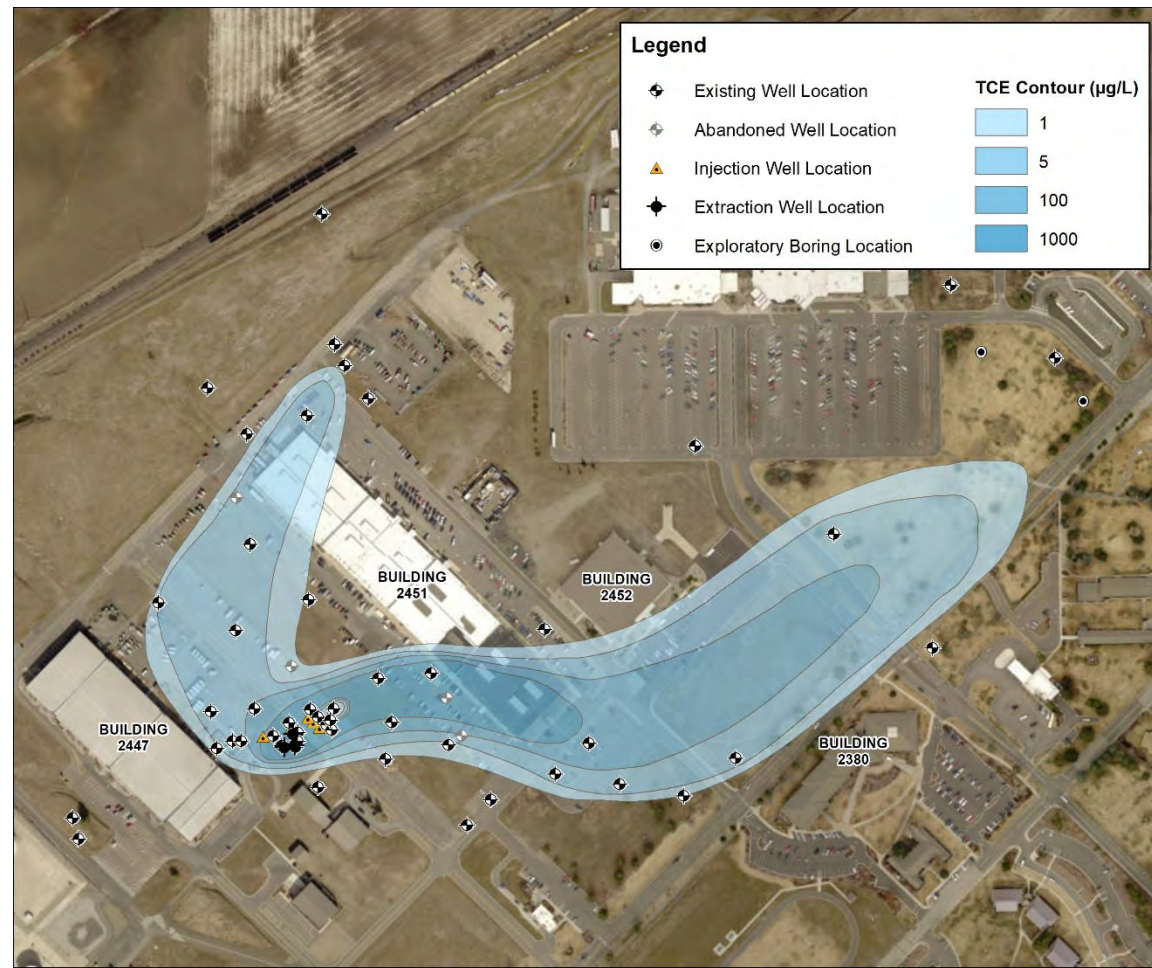


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SD037 2019 Overview

Vapor Intrusion Evaluation: Round 1

- Round 1 sampling for Buildings 2447 and 2451 with soil gas screening at Buildings 2452 and 2380
- Confirmation sampling of select locations
- Removal of indoor sources





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SD037 2020 Planned

Vapor Intrusion Evaluation: Round 2

Determine concentrations of COPCs in indoor air and sub-slab soil gas in Buildings 2447 (5 sample locations) and 2451 (5 sample locations). Locations were biased toward the side of the buildings closest to the TCE plume. In each building the following will be done:

- Use field GC to screen for potential indoor sources
- Collect sub-slab soil gas and high volume soil gas grab samples
- Collect 8-hour, time-integrated indoor air samples at breathing zone height, co-located with the sub-slab sample locations
- Collect an outdoor (ambient) air sample immediately upwind or at the building make-up air intake
- Collect indoor air samples at two locations under positive and negative pressure conditions

Pilot Study Work Plan



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Craig Road Landfill (LF002) 2019/2020 Remedial Action- Operations Overview

**Mr. Josh Miller, PG
Bay West Program Manager
23 January 2020**

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LF002 2019/2020 Overview

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2019 Actions to Date

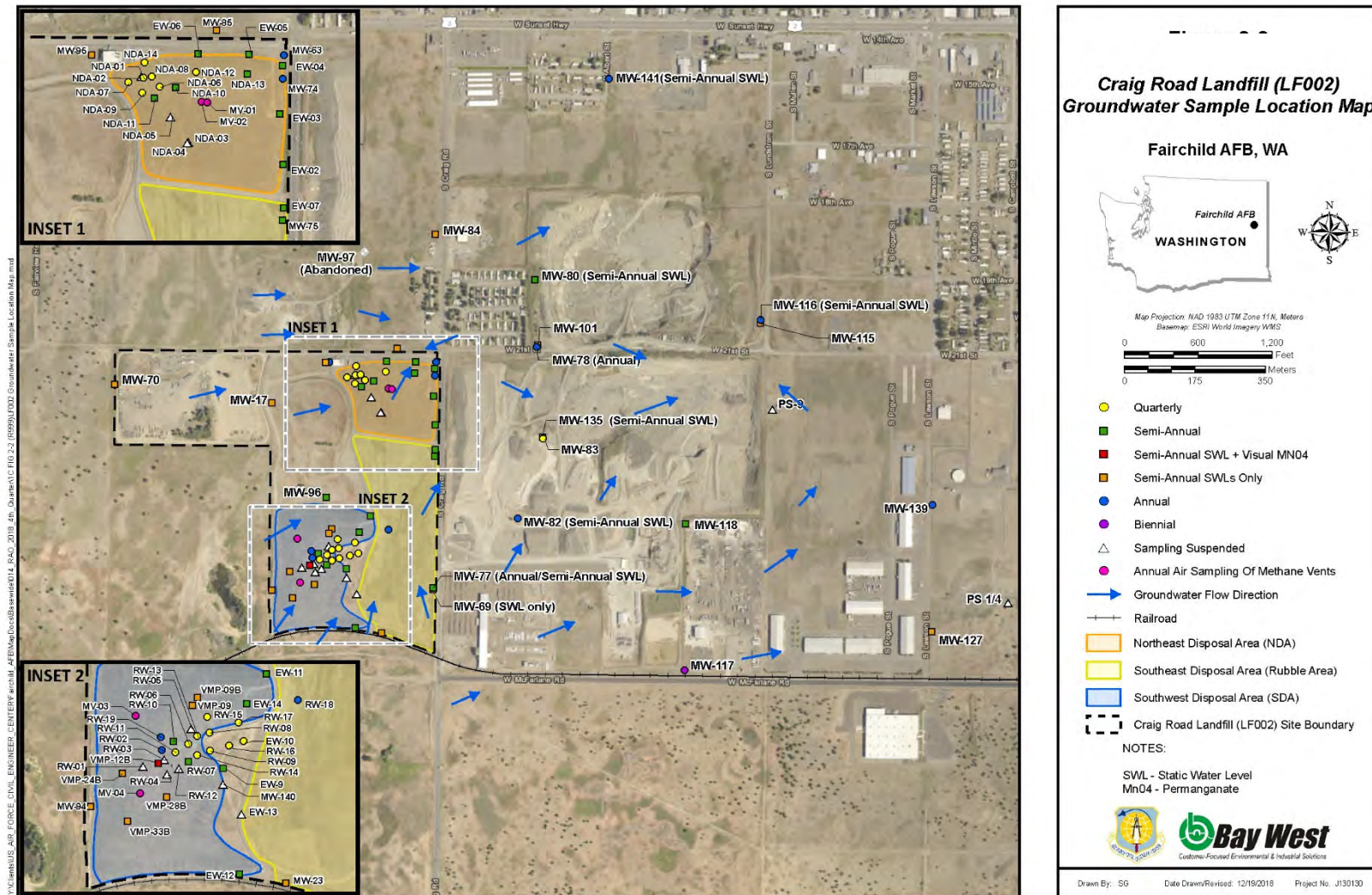
- **Ongoing:** Operation and Maintenance (O&M) of the Groundwater Extraction and Treatment System/Soil Vapor Extraction Systems (GETS/SVE) and RA-O Monitoring
- **Nov. 2019:** Completed Final UFP-QAPP Addendum II: Off-Site Investigation
- **Jan. 2020:** Completed Final 2018 Fourth Quarter and Annual RA-O Report
- **Jan. 2020:** Completed Final Proposed Plan for Record of Decision Amendment
- **In Review:** Draft Record of Decision Amendment

Upcoming 2020 Actions

- **In preparation:** 2019 Fourth Quarter and Annual RA-O Report
- **Ongoing:** GETS/SVE O&M and RA-O Monitoring
- **March 2020:** Public Comment Period on the Proposed Plan
- **Spring 2020:** Perform Off-Site Investigation
- **Fall/Winter 2020:** Finalize Record of Decision Amendment

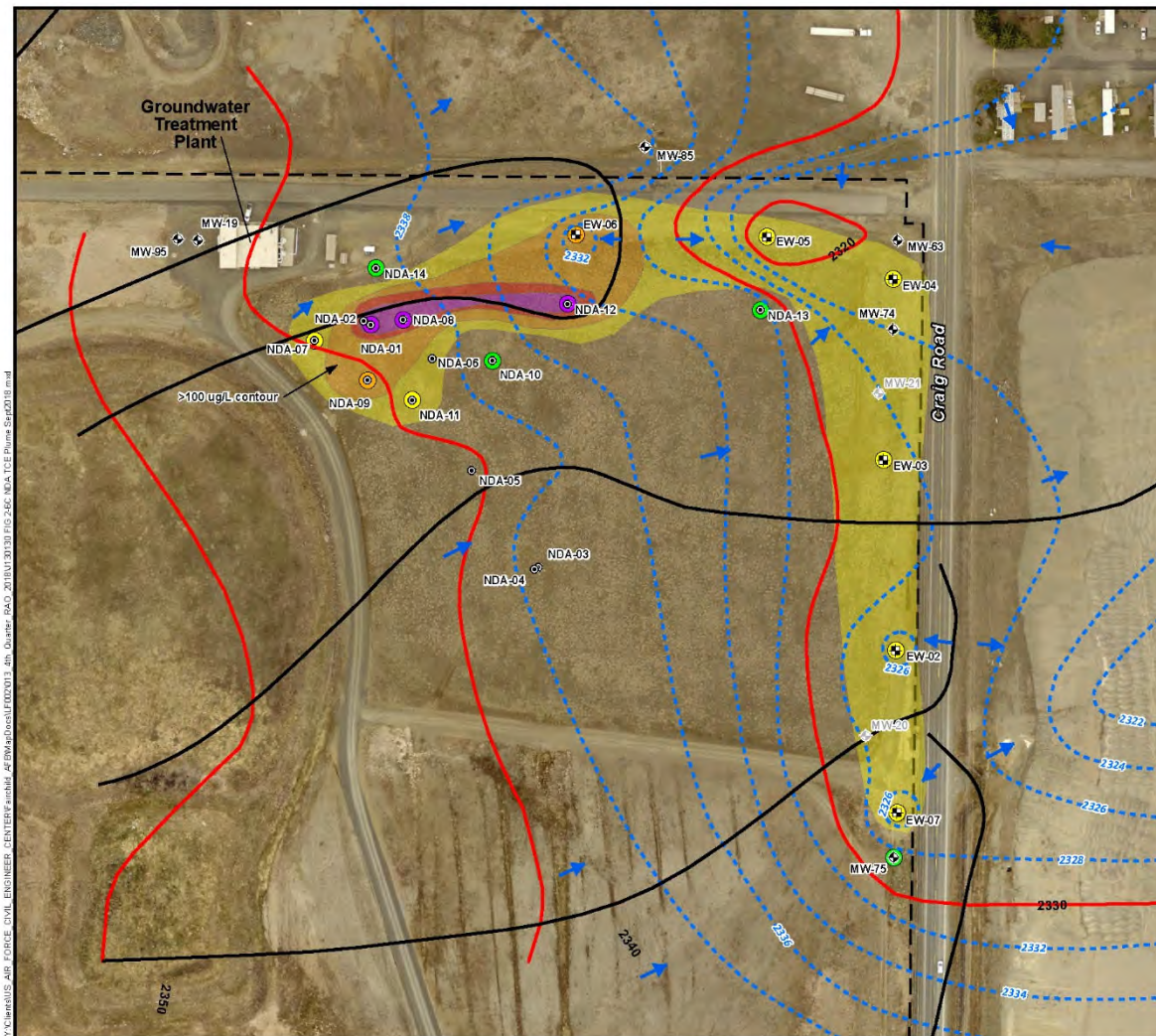


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NDA TCE Plume (September 2018)

Fairchild AFB, WA



Map Projection: NAD 1983 UTM Zone 11N, Meters

Basemap: ESRI World Imagery WGS, March 2018



- ✦ Extraction Well
- ✦ Decommissioned Wells
- ✦ Monitoring Well
- ✦ Remediation Well
- ➔ Groundwater Flow Direction
- 10-ft Groundwater Elevation Contour
- - - 2-ft Groundwater Elevation Contour
- Groundwater Capture Zone
- TCE Results**
- <5 µg/L
- 5 - 50 µg/L
- 50 - 100 µg/L
- 100 - 500 µg/L
- >500 µg/L
- TCE Concentrations**
- 5 - 50 µg/L
- 50 - 100 µg/L
- 100 - 500 µg/L
- >500 µg/L
- ▭ Craig Road Landfill (LF002) Site Boundary

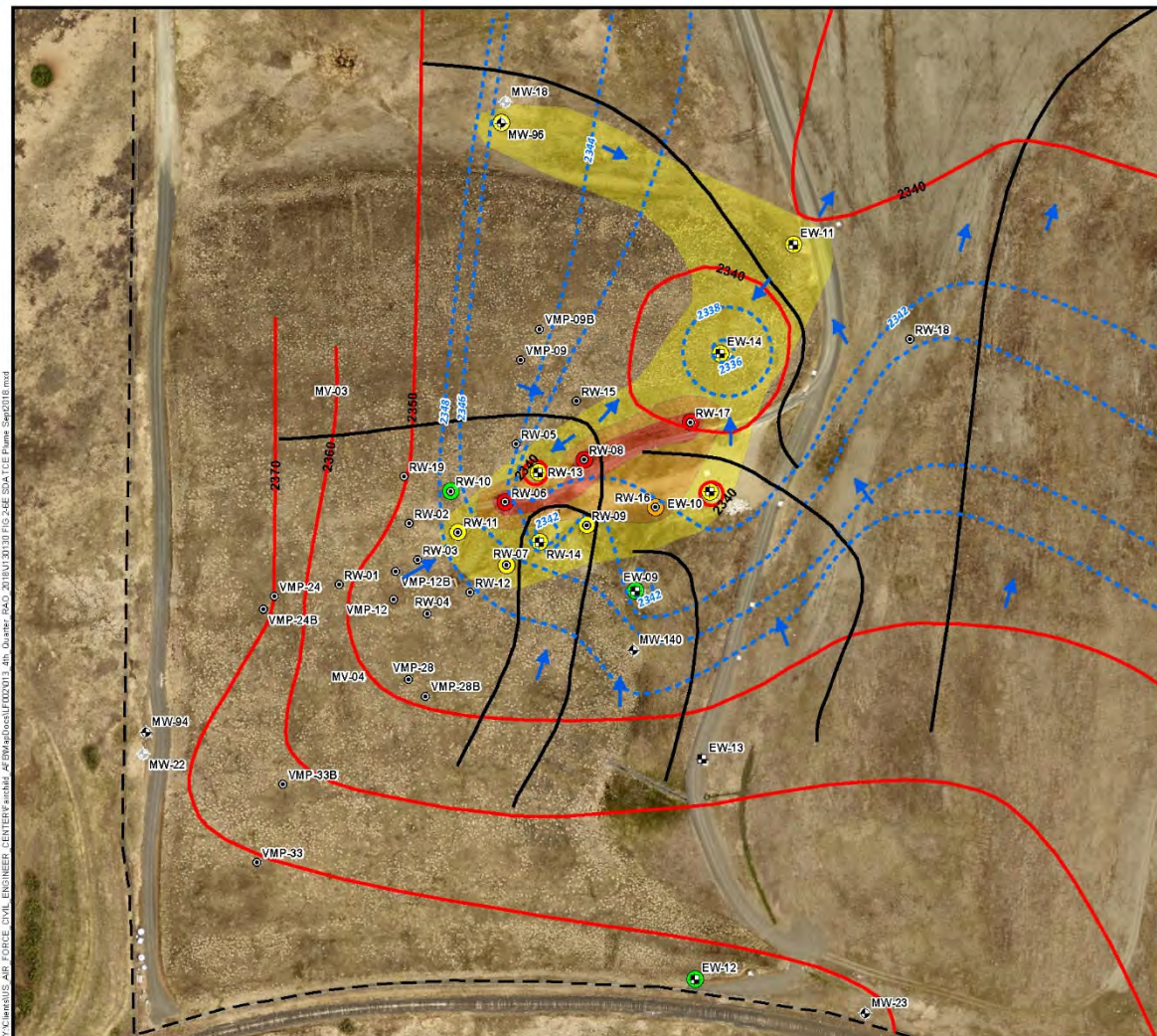
- Notes:
- 1) < = Less than; > = Greater than
 - 2) NS - Not sampled
 - 3) TCE = Trichloroethene
 - 4) µg/L = micrograms per liter



Drawn By: SC Date Drawn/Revised: 5/6/2019 Project No.: J130130



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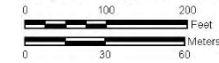


SDA TCE Plume (September 2018)

Fairchild AFB, WA



Map Projection: NAD 1983 UTM Zone 11N, Meters
Base Map: ESRI World Imagery WMS, March 2019



- Extraction Well
 - Decommissioned Wells
 - Monitoring Well
 - Remediation Well
 - Groundwater Flow Direction
 - 10-ft Groundwater Elevation Contour
 - 2-ft Groundwater Elevation Contour
 - Groundwater Capture Zone
 - Craig Road Landfill (LF002) Site Boundary
- TCE Results**
- <5 µg/L
 - 5 - 50 µg/L
 - 50 - 100 µg/L
 - 100 - 500 µg/L
 - >500 µg/L
- TCE Concentrations**
- 5 - 50 µg/L
 - 50 - 100 µg/L
 - 100 - 500 µg/L
 - >500 µg/L

Notes:

- 1) < = Less than; > = Greater than
- 2) NS - Not sampled
- 3) TCE = Trichloroethene
- 4) µg/L = micrograms per liter



Drawn By: SG Date Drawn/Revised: 5/6/2019 Project No.: J130130



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Industrial Wastewater Lagoon System (WP003) 2019/2020 RA-O Overview

**Mr. Josh Miller, PG
Bay West Program Manager
23 January 2020**

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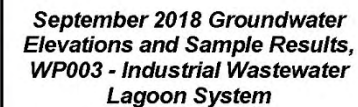
WP003 Overview

2019 Actions to Date

- **Ongoing:** RA-O Monitoring
- **June 2019:** Completed Final and Signed, Operable Unit 2 (OU2) Explanation of Significant Differences (includes WP003 to explain significant differences in Land Use Controls)
- **Aug. 2019:** Completed Final UFP-QAPP Addendum for source area delineation data collection (in support of a Feasibility Study Addendum)
- **Nov. 2019:** Completed data collection field effort for source area delineation
- **Jan. 2020:** Completed Final 2018 Fourth Quarter and Annual RA-O Report

Upcoming 2020 Actions

- **Ongoing:** RA-O Monitoring
- **In Preparation:** 2019 Fourth Quarter and Annual RA-O Report
- **Spring 2020:** Draft Feasibility Study Addendum
- **Fall/Winter:** Draft Proposed Plan for a Record of Decision Amendment



Fairchild AFB, WA



Map Projection: NAD 1983 UTM Zone 11N, Meters
Basemap: ESRI World Imagery WMS, 6/26/2016



-  Alluvial Aquifer Monitoring Well
-  Basalt A Monitoring Well
-  Extraction Well
-  Monitoring Well (Decommissioned)
-  Residential Well
-  Groundwater Elevation Contour Line - (ft amsl)
(March 2017)
-  Groundwater Flow Direction
-  Installation Boundary

No data
<PAL
>PAL
>Background

Analyte	PAL (ug/L)	Background (ug/L)
As	5	10
TCE	5	--
VC	0.2	--

Notes:
As = Dissolved arsenic
TCE = trichloroethylene
VC = vinyl chloride
Groundwater elevations are shown in blue
*Groundwater elevations not used to generate contours
**MW-245A and MW-245B installed in September 2018



Drawn By: SG Date Drawn/Revised: 5/6/2019 Project No. J130130



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Voluntary Cleanup Program (VCP) Sites

Bay West-AECOM Team

23 January 2020

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VCP Sites

Eight former oil/water separator sites along the flight line have achieved AF and Washington Department of Ecology (WDOE) approval of Site Closure/No Further Action through the WDOE Voluntary Cleanup Program

- OW044, OW047, OW053, OW054, OW055, OW056, OW057, and OW063

Other Petroleum Sites in the NFA Approval Process

- NFA Tech Memo in progress: ST010 (soil removal completed December 2019)
- NFA Approved: ST006 (groundwater), OT017, FT032, ST035, AOC02, SS059
- Signatures Pending: SS033, SS059

Petroleum Sites in the Remedial Investigation Stage

- SS009

Petroleum Sites in the Interim Measures/Remediation Planning Stage

- TU500, TU502, TU503, TU506



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West Flightline Plume (TU506) 2019 Overview and Planned 2020 Actions

**Mr. Sean Bayer
AECOM Site Lead
23 January 2020**

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TU506 2019 Overview

2019 Summary

- TU506 Interim Measure Work Plan

2020 Planned

- Hot Spot Excavation at OW049, OW050, and OW052
- Excavation Completion Report
- Quarterly Monitoring





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East Flightline Plume (TU500) 2019 Overview and Planned 2020 Actions

**Mr. Sean Bayer
AECOM Site Lead
23 Jan 2020**

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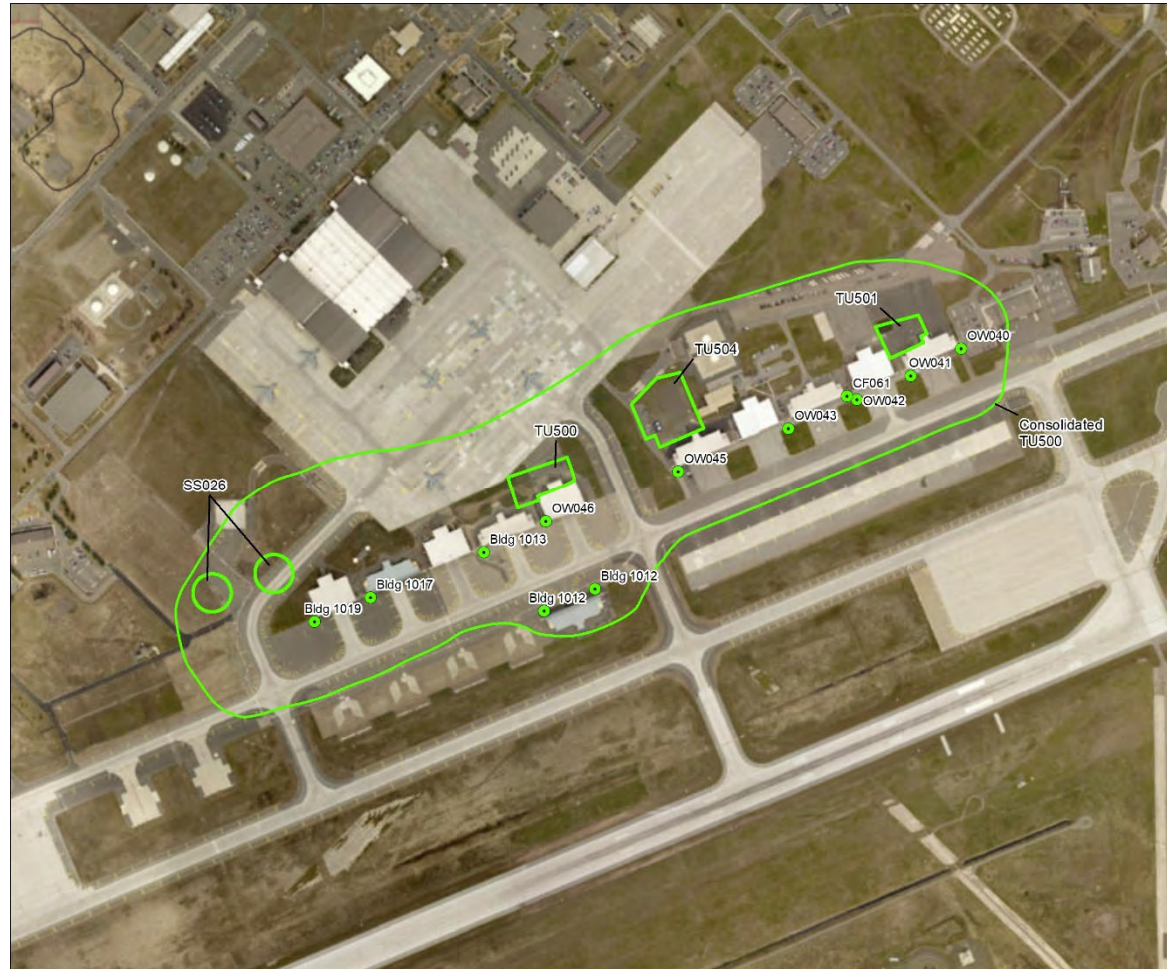
TU500 2019 Overview

2019 Summary

- TU500 Interim Measure Work Plan

2020 Planned

- Hot Spot Excavation at OW040, OW041, OW042, OW043, and OW046
- Excavation Completion Report
- Quarterly Monitoring





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Public Comment Opportunities in 2020

**Mr. Josh Miller, PG
Bay West Program Manager
23 January 2020**

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Public Comment Opportunities 2020

OU1 (LF002 Craig Road Landfill) Proposed Plan for a Record of Decision Amendment: Public Comment Period March 2 – 31, 2020

- Clarify and add LUCs
- Amend cleanup levels to include chromium and vinyl chloride
- Revise selected remedy (GETS and SVE) to include in situ chemical oxidation (ISCO) or in situ chemical reduction (ISCR)

OU6 (SR939, Machine Gun Range) Proposed Plan: Document in review, expected Public Comment Period mid-2020

- Remedial alternatives for lead in soil (No action, LUCs, Excavation)



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Public Comment Opportunities **2020**

OU2 (LF001, WP003, FT004, SS018, SS026) ESD and OU3 (ST006, SS009, ST010, DP012, DP013, OT017, SD031, FT032) ESD:

Documents are Final, public notice will be released with the OU4 ROD

- OU2: Explain significant differences in LUCs (LF001, WP003, FT004)
- OU2: Explain significant differences in cleanup levels (FT004)
- OU2: Transfer to WDOE VCP (SS018, SS026)
- OU3: Explain significant differences in LUCs (DP012, DP013)
- OU3: Explain significant differences in cleanup levels and transfer TCE in groundwater to SS039 (SD031)
- OU3: Transfer to WDOE VCP (ST006, SS009, ST010, OT017, FT032)

OU4 ROD: *In signature stage*

- Close out sites SS019, SD034, and SD038



Acronyms and Abbreviations

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µg/L	micrograms per liter
COPC	contaminant of potential concern
CUL	cleanup level
GETS	Groundwater Extraction and Treatment System
GW	groundwater
IW	injection well
O&M	operation and maintenance
OU	operable unit
PG	Professional Geologist
RA-O	remedial action-operations
RIP	remedy in place
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