

Fairchild Air Force Base Restoration Advisory Board Meeting

Meeting Minutes

June 25, 2025, 1500-1700 Pacific Standard Time

Welcome and Introductions

14:55. Five-minute call to meeting by Vanessa Urbach.

14:59. Call to start in 5 minutes because a few Board members were running late.

15:04. Vanessa: We are going to get started; first Col. LaMore will start with introductions.

Col. LaMore: Good afternoon. For those of you that don't know me I am Col. LaMore. I am happy to be here. Welcome to all the Board members and community members. I am excited to be here; I have learned a lot, and I hope others will learn a lot as well from the presentations.

John Welge: Restoration Advisory Board (RAB) co-chair. Welcome everyone and thank you for being here. I am excited to see the science that will be shared today.

All other RAB members introduced themselves.

Vanessa Urbach: We are going to get started with the Pledge of Allegiance, if everyone could please stand and face the flag.

Vanessa Urbach: Led the Pledge of Allegiance.

Vanessa Urbach: We are going to go through our mission statement: The purpose of the RAB is to promote community awareness and obtain constructive community review and comment on environmental restoration actions on the overall cleanup actions at Fairchild Air Force Base (AFB). Vanessa went over housekeeping for bathrooms and emergency exits.

Vanessa Urbach: We are going to go through RAB business and the agenda.

RAB Business

Vanessa Urbach: We have our agenda review that we are on right now. We have a Standard Operating Procedure (SOP) discussion coming up. We will go through the code of conduct, RAB member expectations, new member information, and finalizing meeting minutes. Then we will go into Agency updates, per- and polyfluoroalkyl substances (PFAS) updated Well Inventory, and then finally public comments. Public comments are for what is being talked about right now in this meeting. Once public comments are over, we will adjourn. If you have different questions, Mark [Henry] and Megan [Riccobono] will be available after we adjourn. Again, the public comments are for things being discussed during this meeting. If you have other questions you can ask Megan and Mark after we adjourn.

As you can see [Slide 6], the public code of conduct. Commenters shall be courteous and respectful at all times. Interruptions will not be tolerated during the RAB presentations or while others are speaking. Profanity or any use of inappropriate language during the presentation or public comment period is prohibited. Instigating any type of mass outbursts by the public will not be tolerated. Me, the RAB facilitator, may limit the length of comments to manage meeting and presentation times. The public comment period will be limited to 10 minutes. The RAB facilitator will moderate the meeting to ensure the meeting stays on schedule and focused on the topics at hand. All members of the public are asked to remain seated in the area designated for the public during the RAB presentations. Racist, sexist, or homophobic comments will not be tolerated.

Now continuing to expectations [Slide 7]. RAB member expectations are that each RAB member will attend all regular meetings. If the member is unable to attend, it is the member's responsibility to ensure the alternate attends the meeting in his or her place. Participate actively and appropriately at meetings and other activities; behavioral norms can be found on the back of the members' name tents. Read all RAB minutes. Be available to communicate with local community residents and interest groups with specific base cleanup issues. This may include attendance at information fairs, responding to direct contacts, and taking the initiative to establish contact with community residents. Identify all actual and potential and perceived conflicts of interest, as defined in Section IV G, before any discussion that may affect conflicting interest and recusal from participating in such discussion.

Going though now we also have new members [leaving]. Mo Noder is stepping down. Did we receive that confirmation, can anybody speak to that?

Jerry Goertz: The last time I talked to Mo was today. He is selling his house and moving out of state so I assume he will be stepping down off the Board.

Vanessa Urbach: We also have two other members that will be removed from the RAB. Steve Smith and Chris Carver have been removed from the Board because they were unable to attend three meetings in a row. We do have certificates of appreciation to show our appreciation for them and the time they spent on the Board.

Megan Riccobono: What we will do is send the certificates to the three members leaving the Board. We will mail them the certificates that look like this [shows certificate]. These will be sent out tomorrow morning.

Vanessa Urbach: The next thing on our agenda is finalizing RAB meeting minutes from December 4th, 2024. Was everybody able to review the minutes? Is everybody good with the minutes and do we have a motion to approve?

Jon Welge: Motion to approve the meeting minutes by Jon Welge and seconded by general RAB members.

Vanessa: We will move on then to our RAB discussion with Lee Kaplan.

RAB SOP Discussion – Vote by Email Amendment

Lee Kaplan: My name is Lee Kaplan; I am an Air Force contractor with Cherokee Federal. I am taking over for Jack Mapes who has left working with the Air Force, and I will be talking over his role today and going forward.

We will be going over the first amendment for the [RAB] SOP - it is going to be for voting by email. This will allow the RAB to vote on business outside of in-person RAB meetings. The way this amendment will work is that the RAB coordinator, that is now me, will send out an email that will have a “vote by email” subject line. Voting members will be able to respond to that email with a YES, NO, or ABSTAIN. The RAB coordinator will tally those votes and notify the RAB of the votes once they are collected or by the suspense date. The official text is on Slide 10. I will give everyone time to read over that.

Slide 10 Text: For official RAB business conducted outside of an official RAB meeting it is acceptable to vote on general RAB business via email. The vote by email process is described as follows. The AFCEC RAB coordinator will generate an email with “RAB Vote by Email” and suspense date included in the subject line. All RAB members are included on the cc line along with the Fairchild AFB restoration team. A question/matter will be posed within the email that will be voted on, this could include finalizing meeting minutes, future RAB dates, new members, etc. All voting members would be instructed to vote by checking the box next to their name within the included table. Each voting member will have an opportunity to reply with a YES, NO, or ABSTAIN. Replies can be made out to the entire RAB or just the community

co-chair and RAB coordinator (92CES.AFCECC.RAB@usaf.mil). Once all votes have been collected the RAB coordinator will notify the RAB of the results. A vote is approved/denied when a majority of voting members vote yes/no at the conclusion of the suspense date. If a majority of voting members abstain, the question/matter will be discussed at a physical RAB meeting. If a majority is not met by the suspense date, the question/matter will be discussed at a physical RAB meeting.

Vanessa Urbach: Did everybody speed read that? All in favor let's raise our hand for an eye (YES)?

Jon Welge: Well first of all let's have some discussion.

Kasey Wilberding: Just because we had a little miscommunication with the email chain, I would like to make sure that everyone is accounted for so that no one is left off when there is a vote called for. I would ask that the list of people be verified somehow. That's all. But [I have] no opposition to including the amendment.

John Hancock: Can you explain the voting members of the RAB?

Mark Loucks: Voting members are all members of the RAB that are not part of the Air Force, Environmental Protection Agency (EPA), or State Regulators in Washington. These are the community members, the residential members and our co-chair Jon [Welge].

Vanessa Urbach: Any further discussion?

Col LaMore: What is the policy in the event of a tie?

Vanessa Urbach: Let's see what happens. Can we get a vote?

Kasey Wilberding: How many people need to respond for the vote to pass [via email]?

All Members: Just a quorum. It is a majority of the voting members.

Vanessa Urbach: The suspense is killing me how many people vote to pass this amendment?

Eight Members voted to pass the amendment

Megan Riccobono: We are sorry that you were left off the email, Kasey.

Doug Greenlund: To Kasey's question. What does the SOP state that what a quorum is for voting in-person? And voting via email?

Megan Riccobono: Within the RAB a quorum is a majority of voting members on the email list.

Doug Greenlund: I am assuming the SOP has the number for what a quorum is?

Megan Riccobono: Yes, I believe it does. Jon we looked at that, correct?

Jon Welge: Those are great questions, and we understand that these kinds of discussion points are valid. But I want to point out that our SOP is a living document. So, if we have issues with the document [SOP] we can change those. This amendment allows us to change the document without holding these in-person meetings. I will look into the question and make sure we have that information in the SOP.

Vanessa Urbach: Are we good to move on to Agency updates? Alright we will start with the EPA.

Agency Updates

Jaclyn Satira: At the EPA for Fairchild, we are looking forward to the remedial investigation (RI) [for PFAS] we are expected to get next month. In addition to the PFAS work there are also other sites that the Air Force is working to clean up. There is a lot of discussion about what the future of some of those sites look like, and we may need to do some amendments to Records of Decision (RODs) for current sites. What we are looking forward to most is the RI [for PFAS].

Brianna Brinkman: Thanks. For the Washington Department of Ecology (WDOE) one of the things that is happening later this summer is we are going to have permanent rule-making to make the state action levels equivalent to the EPA maximum contaminant levels or MCLs. Right now, we are on an emergency rule-making that allows us to temporarily use them, but that rule will become permanent by the end of the summer.

Jon Welge: Do you know what those action levels are?

Brianna Brinkman: They are the same as EPA MCLs, so 4, 4, 10, 10.

Hank Bynaker: I have no Agency updates.

John Hancock: Since the coalition began two years ago we have been pushing for free PFAS tests for people who want one and free filters for anyone who needs one. It is really good news that the legislature appropriated 7.5 million dollars to get started on whole-house filters for people at the highest contamination level. And the extension of a free under-sink filter system likewise for qualifying homes. That is a terrific partnership between Department of Health and the WDOE using test results from the EPA. The coordination of these three agencies is a terrific, new, and imaginative work that goes beyond the rule book, and it goes beyond the minimum standard. It is more than the minimum standard and that is why we

like it so much and that is why it seems like the establishment of these new ways of helping us is terrific. Let's all keep going forward together and thanks to everyone who has had a role in that.

Kasey Wilberding: At the health district we work with John [Hancock] in our solid waste program at our permitted facilities that have household hazardous waste drop-offs, so they will be collected at the household hazardous waste facilities. We have four of those [facilities] in the county; two operated by the county, one operated by the city, and one that is independent. All the folks that operate those [facilities] are aware that they can receive them [the filters] and are working with their hazardous waste filters. We are aware that they [the filters] are not designed as such [hazardous waste] but this is the path that we have recommended to the people that need to dispose of the filters. And until we get more guidance this is what we are working with.

Doug Greenlund: The City of Spokane is looking at PFAS in all parts of the water district and at every water facility. Everybody has got a handle on what kind of testing and what requirements will come with quarterly testing. We are looking at the Safe Drinking Water Act and seeing what other actions might come from the law. Right now, we are on track for the original plan of having everything ready for quarterly testing in 2029. We will see what changes between now and then and adapt.

Vanessa Urbach: We have a presentation from Professor Pritchard from Eastern Washington University.

Chad Pritchard: West Plains PFAS Fate and Transport Study:

Chad Pritchard: Thank you very much and there are slides, I think. Sorry, I was sampling today and so I am not dressed for this. I got a phone call from a person, so I went to go sample [their well].

This is a PFAS fate and transport study that we are doing with the funds from the WDOE, and that money came through the City of Medical Lake. We got a 450,000-dollar grant, well actually the City of Medical Lake got it, to do a fate and transport study. The City of Medical Lake kept \$25,000 for administrative costs and we got \$425,000. We actually just got the last \$25,000. I was expecting to be sitting at home this summer and writing reports but now I am out in the field sampling. We used that \$25,000 for an additional 60 samples. And within that hour of announcing the additional 60 samples we had about 120 responses and within 24 hours we had over 200 responses. We only have spots for 60 people so there is definitely a need for doing the free testing that John [Hancock] was talking about.

What we were trying to do is build a 3D model of the groundwater in West Plains and we did that. The actual groundwater modeling in the West Plains was a little slower and more complicated than we originally thought. Over one whole year we sampled 35 locations and looked at the seasonal variation of water levels and PFAS concentrations in those locations. Last summer we did about 100-120 samples of residential wells as a one-time summer sampling. It is really good if you are trying to build a groundwater model to know where the PFAS is in the West Plains. I saw some great graphs and maps that we will see later. Those numbers are huge! We are on our last week of going out and sampling the last wells this week for that added 60 wells.

I will show you today some results from Rutgers University where we got positive factor analysis from positive matrix factorization. They are trying to fingerprint where the PFAS is; there are a lot of different types of PFAS and we can try to figure out where it is coming from. The report was not due in June; we are looking to get it done in December.

It is not just the West Plains or Fairchild and Spokane International Airport (SIA). There is also Cheney Water Well 5 that is having PFAS problems and is not related to Fairchild whatsoever. There are also serious issues with PFAS in their groundwater. We also looked at flooding because with looking at the groundwater modeling, you can see how the water moves and that is important for construction.

Why PFAS? We are looking at 3D models of where the water is going in general. There are a lot of different sources but in the West Plains PFAS and AFFF [or aqueous film-forming foam] that is also called firefighting foam seems to be one of the main sources for PFAS. It [PFAS] is not good for your liver, it is bad for your liver. High levels are bad for your teeth and all sorts of things like that - cancer, high cholesterol, and others. My PFAS in my blood is quite high, I did have that measured. They [PFAS] are all regulated toxins and it [PFAS] is a toxin so [that is why we did the study].

Where are we doing this study? It is in the West Plains you can see there [Slide 17] Airway Heights in the middle Fairchild AFB is lower and then Spokane International Airport off to the east there then the City of Spokane on the other side of the boundary. We kind of use hydrogeologic divides – rivers – to set the bounds of the study. But now there is some evidence that we are seeing it [PFAS] on the other side of the Spokane River. So maybe the rivers are not the best bounds but they are what we have to work with - that is what bounds our area. First, we have Marshall Creek in the SE corner then that goes up to Latah Creek and the Spokane River, and Deep Creek. Then our southern boundary is the step outs and the old rock. Then off to the left [slide 17] is that 3D groundwater model. We collected all these hydrogeologic units and created a 3D model, with the goal that we can drop water wherever

we want to drop water and figure out where it goes in the groundwater between the different aquifers. This is at a large scale, definitely not at a property level scale by any means.

[Slide 18] We have our general aquifers and it sounds like you will get a pretty good dose of this today. What we have are basement rocks and we have done quite a bit of radio-carbon dating and also uranium-lead age dating on the rocks themselves so we know that they go from about 1.45 billion to 49 million years old. These rocks are granite, so they don't just sit at the surface they go all the way down to the mantle, kilometers down. This is the bathtub, that is the metaphor that I like to use, this is the tub that holds all the water. Then we have two different basalt aquifers - the lower and the upper aquifer. Sandwiched between those we have a confining layer that is the Latah Formation. Has anyone ever gone to Vantage Washington before? The Ginkgo trees are growing in those sediments that we have right here [confining layer] in the Latah. You have your older rocks as the bathtub and the dip of the basalt forces the water to the north toward the Spokane River. And where those rocks cliff out we have springs [slide 18] where the groundwater comes and meets the surface. We have sampled a number of springs as well and are using that for tracking PFAS.

There are ages of groundwater [slide 19]; we did a lot of radio-carbon dating of groundwater and I thought this was pretty interesting in the whole scheme of things. Where it says published data - that is data from AECOM and work they have done for Fairchild AFB and for Spokane County Conservation District using ecology funds. You look at how old the carbon in the water is and that can give you a sense of how old the water is. We see that we have our younger basalt unit and we have younger water, generally speaking in the older basalt you have older groundwater in general. We are just 10 years after the AECOM sampling and the ages are significantly younger. This could indicate that monitoring wells have older water because they are not used constantly. But the younger water age could indicate that we are mining out the aquifer of its water and not recharging the aquifer with just rainwater.

Here [Slide 20] we took the different concentrations and did a heatmap to show how the PFAS concentrations are spread across the sample area. We can see on this map this kind of in this paleochannel that was an old river valley that used to come over by four lakes and go northeast to the Spokane River. But when the Missoula Floods came about 16,000 years ago, at 60 miles per hour and 300 feet deep they deposited sand and gravel that filled in the river valley so you cannot see it at the surface. But what we see is that the contaminated surface water finds its way in groundwater to these paleo channels and it discharges quite quickly to the Spokane River around the 9-mile area. And that is why I was a little late today because I got a call from a resident out there that they wanted me to sample their well today. So, I went out and did that before I came here.

This [Slide 21] is another map that shows the sampling of surface water. On the left here you can see the SIA and the graph on the left goes up to about 100 parts per trillion (ppt) at the SIA and that is in the groundwater. Groundwater moves very slowly, and then that groundwater goes out to the springs. The springs discharge at Mystic Falls and Garden Springs and we sampled those quite a bit. Those springs and outflows are up to 70 ppt and are similar to PFAS that would be expected from AFFF or firefighting foams when we look at their chemical composition. You can see where the springs get to Latah Creek - the creek then picks up some of that PFAS and flows towards the Spokane River. Then at the Spokane River we generally cannot detect any PFAS.

This final map and graphs [Slide 22] shows Deep Creek I thought that can be pretty interesting as well. There are a couple different sections of Deep Creek where the basalt aquifers discharge into the creek but in other places it loses water back into those aquifers. The creek itself can be pretty high in some places and then dry in other places. The creek is really high in PFBS and in Deep Creek it [PFAS concentrations] can be high in and some places and really low in other places.

Another really interesting thing is foam! There was a great paper that just came out in 2024. Firefighting foam (AFFF) is made as a surfactant and it makes water into stable bubbles - that is what it is made for. When you have a surface water with wind, or in this case a waterfall, you can whip that material up. That foam is natural and it would happen no matter what, but since PFAS is in the water, it will sometimes partition into the bubbles at great levels. You can see the light pink [Slide 23] is about 10 ppt on the graph and shows the concentration in water and the red shows the PFAS in the foam and the foam is 10,000 to 20,000 ppt. You can see the difference in levels of PFAS concentrations in the water and the foam. We are getting signs made up to not play with the foam.

We sampled rain at Rambo Road with National Oceanic and Atmospheric Administration (NOAA). We sampled rain periodically. We oddly enough found detectable levels of PFBA in the rain. We found some detectable levels of PFAS in the rain several times and then we found many times there were no detectable levels in the rain. The reportable detectable level of PFAS in rain is 2 ppt [Slide 24]. We also took one sample of snow and found detectable levels of PFAS in snow as well. This is consistent with sampling that has happened across the country in Florida, Colorado, and Alaska. We find it [PFAS] in the hydrogeologic cycle.

One of the last slides [Slide 25]. This is the fingerprinting that we did. Actually, I did not do it. Lisa Rodenburg and Kelly Francisco from Rutgers University did it. Lisa's analogy is if you had a soda machine and put a bunch of different types of sodas into one cup this would be trying to find out which sodas were put in your cup. She took it all together and looked at it and she

found that PFAS and PFHxS were found consistently around Fairchild and Spokane Airport. And we also found some short chain PFAS sources from maybe, we think, roads - because people reuse motor oil and to reuse the oil they put it on the roads. We found that the wells near roads had higher concentrations of short chain PFAS compounds. But those compounds are very short chains of carbon and so those go through your body fairly quickly.

Chad Pritchard: Thank you. We will have a report coming out sometime soon. There are a bunch of students that are sampling and there were some other things that have happened. There is a bunch of stuff going on in West Plains.

Vanessa Urbach: If you all have any questions, Professor Pritchard's information is there on his presentation. We are going to move onto the Air Force update.

Megan Riccobono: I will give a brief update on a couple things before Jonathan Reeve gives the RI update. A couple updates on documents that are coming to the RAB for review. The RI will be available for your review in August [2025]. We tested using a Department of Defense (DoD) Safe link to get that document to you. We had a discussion with Jon Welge so that the RAB can review documents that do not have a public comment period. But as you know, the RI does not have a public comment period, and you are reviewing it. We also have a Community Involvement Plan (CIP) which was sent to you not that long ago. This CIP is now on a contract where it will be updated every three years. We are also going to do the annual reports that you [RAB members] will be able to review as well. Last but not least is the fancy handout. This is the new path forward for the Air Force regarding people that are between 3x the MCL and 69 ppt. In the past we discussed that you would have to wait until a contract was in place to get a home system or a municipal hookup. We will still not be providing bottled water unless we get a waiver from the Office of the Secretary of Defense (OSD).

What we are doing is anybody who is between 3x the MCL and 69 ppt in the next couple of weeks will be contacted by phone call and letter. We will install an under-sink filter in their home for anybody between those ranges; there are about 70 people on that list.

In the next 6-8 weeks we will be doing our new sampling; anyone who has not been sampled since 2018 will be sampled. Those people who are sampled will be added to lists to see if they need a full-house system installation. We will also be completing an official cost analysis to see who can feasibly be hooked up to municipal water supply and who cannot. We will also look into expanding the sampling area in the contract coming out in the next 6-8 weeks. Any questions before we move to the RI?

John Hancock: The CIP that we got that said final. We did not have any input into the community. How can you have a community involvement plan without involving the community?

Megan Riccobono: We based the CIP off of the survey that was conducted during several RAB meetings past. We do realize that we need public comment; the CIP is not technically a public comment document, and we realize that has to change. So that is why we put it into the next contract so every three years it will be updated and will be available for public comments.

John Hancock: There is a whole lot of content in there that I don't want to wait three years to comment on.

Megan Riccobono: I understand, and we will take that into consideration. Right now, the path forward is to go ahead and review that [CIP] every three years with comments from the RAB.

John Hancock: In MCL can you explain what the word maximum means?

Mark Loucks: Maximum contaminant level, I will look to Jaclyn to make sure I am doing okay here, means that above that amount it would degrade the water. Above that amount would be considered not safe and create health effects when you ingest water above that level. Below there would not be any health effects.

John Hancock: Can you explain why 3x the MCL is acceptable within the community?

Mark Loucks: It comes down to a means of priority. There is not enough money to put in systems at every house that is above the MCL. This [PFAS problem] is across the country in every part of the United States, so what we have to do is prioritize what we can do now. That is where the 3x comes from. Those with the highest concentrations are going to get systems first. That was a decision that was made at the upper levels of the Air Force and across the DoD. We do not have enough budget to install systems in all the homes. And everything after 3x – it's not that we will not install systems in their homes. We will have those systems installed but they are three years out, not one to two years.

John Hancock: May I use the word triage to summarize what you said?

Mark Loucks: That is exactly correct.

Megan Riccobono: We call it the big contract. That would be the one that would install systems below 3x MCLs. That is probably one to two years out - we are already working on it. But in the meantime, to make sure we get [help to] the people that are most impacted, we will install under-the-counter systems first.

John Hancock: What you are saying to me is really valuable as a spokesman in the community from this group. The more summary information I hear like this, the more confident I can be in representing the Air Force effectively to the neighbors and to the community.

Megan Riccobono: One of our ideas, I thought this would be beneficial to you. With Lee now being here and helping me out more, I think maybe we could have more community meetings together. I think that would be beneficial to the group.

Jaelyn Satira: I was just going to add that the EPA is supportive of what the Air Force is doing because those MCLs don't actually go into effect, as Doug was saying, for a couple more years, so the Air Force is actually taking action sooner than is required.

Jerry Goertz: Thank you. This is a three-part question for Mark Henry, Mark Loucks, and Megan Riccobono. First part of the question - since the first of the year, how many people did the Air Force test to the MCL standard?

Megan Riccobono: I am going to give you a rough estimate - about 80 homes have been sampled quarterly. Semiannual we have about 15-20 sampled.

Jerry Goertz: The second part to that question is how many wells since the first of the year tested above the MCL standards?

Megan Riccobono: We have not added anybody new to the sampling list. Like new homes that have not been sampled before. What we did was take all the pre-existing data from the people that we sample currently. We updated their sample results to show that they are now above the MCL.

Jerry Goertz: The last question is - how many filtration systems have been installed since the 1st of January 2025?

Megan Riccobono: Zero systems have been installed. The first of July the new contract starts. The new contractor is supposed to be installing 10 systems right away.

Jerry Goertz: Thank you.

John Hancock: How do you keep track of people moving away and moving in?

Megan Riccobono: People who have filtration systems are different from people who do not have filtration systems. We have agreements with them that ask that they work with us so we can make changes to their agreements. For people that are sampled in the community, if we contact them to sample and they say they have moved, we go to the home and knock and introduce ourselves and explain that we have been sampling at the property. We contact the

homeowner once we are notified of their moving right away, but we do not track homeowners.

Jon Welge: When do you expect the Engineering Evaluation/Cost Analysis (EECA) to be complete?

Megan Riccobono: We expect the EECA to be complete in the next 1-2 years. After the 6-8 week contracting period is complete from today's date.

Jon Welge: I just wanted to bring that up because this is an important consideration for people that live around the outskirts of the city.

John Hancock: Can I recommend homeowner involvement in the decision with the homeowners about the municipal water hookups, so that we are not making a decision and telling people. So that they are involved in the decision.

Megan Riccobono: We don't know the date yet, but we are going to have a discussion. We are going to have a listening session in April 2026. We don't have funding right now for people to travel, but once we have funding for travel for experts, we are going to have a listening session for the community. At that time, we could maybe do a pre-meeting for people.

John Hancock: What I am saying is that homeowner involvement should be part of the process, not public comment about what you have decided.

Megan Riccobono: Thank you, that is great feedback. Mark Loucks and I will try to make that happen. I agree with that, thank you.

Mark Loucks: As we work with people again [to install systems] we have to talk individually with each one of these homeowners any time we have an action. The homeowner is the first person we talk to when we install systems. We have to have an agreement with them to either put in a system or hook them up to municipal water, so the homeowner has a say what happens with their residence.

Megan Riccobono: We have changed and improved a lot since we started putting in Granular Activated Carbon filtration systems in 2020 to now in 2025. I have tweaked and edited and it is not perfect by any means, and this is based on systems we install now, but I imagine hookups would go the same way. We have a 10-page background study where we go through the home. We look at water at every faucet, kitchen sink, yard sprinkler, and hydrant. We get flow rate, and we look at everything and anything. We are now designing our system to match the home as close as we can to supply the same gallons per minute that the system currently has, but within 1 to 2 gallons per minute. It is trial by fire; we tried it one

way and it did not work now we are trying it this way. I am happy to do a modification to a contract to accommodate something that I did not think of.

John Hancock: A copy of that 10-page document would be a great start.

Megan Riccobono: I can get you that document if it has no personal information in it.

John Hancock: All these operating details for this filter system that you are describing would be great for us to know so that we can defend your methods because we know the details.

Megan Riccobono: I wonder if I could get you one that is completed with all the personal information removed so that you can see how it is filled out.

John Hancock. Thank you.

Vanessa Urbach: We are going to move on to Jonathan Reeve and his presentation.

PFAS Remedial Investigation Update

Jonathan Reeve: Hi, my name is Johnathan Reeve. I work for EA Engineering. We are a contractor to the Air Force.

We conducted the Phase One PFAS RI. An RI is a remedial investigation that is a full-scale investigation of a contaminant or a set of contaminants at a particular site. Phase One is a different term. This project was scoped in 2019 and initiated in 2020. The regulatory landscape was changing [when we scoped the project] and so this Phase One assessment does not include a risk assessment. This Phase One allows for additional investigation phases if this investigation comes up with data gaps. The scope for this investigation was to investigate five known source areas of PFAS with the Preliminary Assessment/Site Investigation (PA/SI) process that was developed in 2018 and 2019. The scope also included investigation of the on- and off-base groundwater; that was the initial scope. The scope was later expanded to investigate the area known as “No Name Ditch” and the flowage easement.

These red outlines are the five source areas that were known before the RI started and were the focus of the investigation [Slide 30]. I will go over what they were called on the next few slides.

[Slide 31]: You can use your little mini-map and see that this is the eastern edge of the base. This is the former fire training area FT004. This little blue line is the beginning of “No Name Ditch”. There was an oil/water separator that was removed from this site. This is an area where a lot of AFFF was used. I would like to talk a little bit about PFAS here to explain what we were doing. PFAS is, of course, a family of chemicals - the main chemicals that were

investigated. But in this investigation we were looking at one type of PFAS, one analyte that is called perfluorooctyl sulfonate or PFOS. This chemical had the highest concentrations and the lowest screening level; combine those two facts and it means that PFOS has the greatest exceedances [to regulatory MCLs], and it works well as an indicator chemical. Every other chemical we look at is a better case scenario than PFOS. PFOS is the worst-case scenario. All the results you are going to see here today, and for those of you who will receive the report, the figures will show results for PFOS.

It is a little hard to see but these are depth profiles - these are soil borings. We were looking at soil at the surface and then below the surface level; there are a lot of bright colors here. Everything that is green [on the figure] is below the screening level, which is basically equal to the EPA MCL. Then each of these increases in color is an order of magnitude increase in the level of exceedance. Yellow is 1x, orange is 10x and so on. Delineation has not been completed here. There is a horizontal and vertical exceedance at the maximum limit of what we sampled.

[Slide 32]: This is called the calibration area - it is right next to the previous area. It is an area that is right next to the current fire training area. That fire training area is up here [points to top of the slide]. They did some nozzle calibration and there was probably some overspray. This is a similar site that has exceedances, and it is not fully delineated horizontally or vertically. There are high levels [of PFOS] in the groundwater we sampled directly beneath these borings, and some leachability analysis we did was also high.

[Slide 33]: This is the KC-135 crash. This is in the west central portion of the base. The mechanism of use was direct firefighting efforts during the crash. We do have vertical delineation of this - we did get below the maximum extent of PFOS contamination, but we did not horizontally delineate the contamination.

[Slide 34]: This is the B-52 crash site. At this site we also have vertical delineation of the PFAS but not horizontal delineation, and there is PFAS beneath the surface in the groundwater at this site.

The last site [Slide 35] is the last of the five areas we were charged with investigating. This is Fire Station One, I believe. It is currently an active fire station. There was known use of AFFF calibration directly outside of the garage doors of the fire station. There is a fence that gave a preferential water path to the foam testing area that is shown there where pavement drainage is called out on the figure. Those two bright red dots are where PFOS and AFFF flowed, and there is probably overspray here as well. There is no vertical or horizontal delineation of PFOS in the soil at this site, and there are high levels of PFOS in the groundwater beneath this site.

[Slide 36]: That was a very quick summary of the five source areas. We also looked at on- and off-base groundwater; this occurred over a few phases. Starting in 2021 we sampled 100 pre-existing wells prior to any new well installations. We did those samples of those 100 wells, most of them being on Fairchild AFB. This map [Slide 36] shows those wells that we sampled first.

This figure [Slide 37] shows the 52 wells we installed as part of this RI; those well installations happened between 2022 and January 2025. We started on base and worked our way outward, and we finished this January, and now is a good time to loop back to one of Chad's slides where it shows the conceptual cross section. Those basically three geologic units that were the focus of this investigation – those [points at] are the unconsolidated deposits which fill the paleochannels and are the loose surface gravels and sands. The Grande Rhonde basalt, which is the lower aquifer, and the Wanapum which is the upper basalt aquifer. Those wells are color coded as to which aquifer they are in, and you may be able to see the color coded as to which well was in which unit. This figure [slide 37] also shows the bedrock contours; Chad's map had some of those and we have refined the contours with some data we gathered during our 52 soil borings. We have two big paleochannels sort of connected to the base. We have the east deep creek paleochannel [left side of slide] and the Airway Heights paleochannel [middle right of slide, purple lines] - those were two areas of our investigation.

Here is our cross section [Slide 38]. It is very much like Chad's just a little different, [it is] pointed in a different direction and shows a paleochannel. This one [cross section] we ran right down the middle of the East Deep Creek Paleochannel - it shows some of the wells we installed. The important part of this slide is the concept it shows. This yellow is the unconsolidated deposit (also called alluvium). This upper gray section is Basalt A (also called the Wanapum Basalt). These little lenses [points at slide] - that is the Latah Formation. Notice it is discontinuous in this graph. Where the Latah exists, it is a pretty good aquitard – meaning water does not move through it very well. But it is not present everywhere so when there are breaks there is pretty good transmission of water between the Wanapum and the lower Grand Rhonde basalt.

[Slide 38]: These little yellow arrows are conceptual movement of PFOS through these zones. And what is important to see is that it goes down and over and down and over [points left to right and down with arrows]. And as this paleochannel deepens as we get further away from Fairchild AFB it also creates a bridge across the Latah Formation, allowing for enhanced flow of groundwater and any contaminants across the Latah and into these deeper and deeper zones as the paleochannel deepens.

We are getting into the groundwater results [Slide 39]. We are just looking at PFOS. This is a detailed close-up view of the base. Here you can see the hotspots. This is just in the unconsolidated sediments or the uppermost level. We see high levels of contamination of PFOS directly below the fire training area and SS-08 and then this sort of joint area and the two source areas of the calibration area and FT004 [points to bottom middle of slide] that is a concentrated area of contamination. And then you can see where the contamination continues along “No Name Ditch” and out to the flowage easement. Also in this area there is an extension that sort of points up toward the paleochannel [top left of slide 39]. And there is actually another little hotspot that was noted when we were sampling that was not part of the original five sites.

I would like to take a second and talk about that. “No Name Ditch” - it is not an original source area of the investigation, but it does transport water from the base out along its course and terminates at the flowage easement. It is a losing stream along its entire course, so it loses water to the ground. And as it moves PFOS away from the base, it loses water into the surrounding ground area. Then during high flows it [“No Name Ditch”] reaches the flowage easement where it intentionally infiltrates to groundwater, so that is acting as a secondary release area. AFFF was never sprayed there but it [“No Name Ditch”] is moving it [PFAS] off base.

[Slide 40]: The same unconsolidated deposits but zoomed out to the full extent. In brief, here what you are seeing are some contaminant pathways in that unconsolidated sediment. We do not have the full extent of PFOS contamination delineated to less than the project screening level, which is the same as the EPA MCL of 4 ppt, but we do have a good idea now of where the major concentration and transport pathways of PFOS are. As you can note there is a high area around “No Name Ditch” and the flowage easement and some increased area around Airway Height and along this East Deep Creek paleochannel. An interesting thing to note is that the high zone ends around the base boundary and then picks up again in the east deep creek paleochannel. I will try to loop back to that as we talk about the deeper strata.

Here is the PFOS in the Wanapum basalt [Slide 41] - you are looking at the next hydrologic unit down. This unit has more diffuse contamination, but you don't see the hotspots much. You still see some elevated contamination near those hotspots which is due to downward migration of PFAS into the Wanapum basalt. It may be a little hard to see but there are increases again sort of in Airway Heights and extending well out to the north - that speaks to the preferential transport within the Wanapum basalt. The groundwater movement is faster in the Wanapum than in the upper unit.

Jonathan Reeve: Here we are in the Grand Rhonde which is the lowest unit [Slide 42]. We are not seeing much [contamination] close to the base, but we are seeing higher levels further away from the base. At Deno Road we have higher concentrations there farther away from base than we do closer to the base, so can we go back to the cross-section slide [Slide 38] now that we have reviewed this it may make more sense. As we get into these deeper strata, that is why you are seeing some of the elevated concentrations farther away from base. It is due to this continual downward migration and due to the paleochannels acting as a bridge to the Latah Formation and act as a conduit for movement of groundwater and with it PFOS. Of course, the source areas or hotspots remain the highest concentrations of PFOS in groundwater. Thank you.

Megan Riccobono: Basically, the next part of this RI is to finalize the RI. Hopefully we will be seeing that in August [2025]. Once the RI is finalized, we are going to have a four-hour open house with the results of the RI. My goal is to have an open house one to two months after the RI is finalized. The open house will be in the same location and the same format as before. The next phase will be to further delineate the extent of the plume. We have not come close [to delineating the plume]. This is phase one of many. Once the work is funded, we will get to work. During the process of scoping, we will work with the regulators to figure out where we need to look. Future work will include several things - a risk assessment, a surface water connectivity evaluation, and a regional background study. The regional background study will also include a rain disposition study. Are there any questions?

John Hancock: There are no living things in this report. How soon do we get to that and who is doing it?

Mark Loucks: The risk assessment will be completed after the RI is complete; that is where we will look at ecological risk and risk to human health and the environment and the RI needs to be completed before we do a risk assessment.

John Hancock: How soon is that?

Mark Loucks: We are probably years away from that. If I was to put a guess to that probably five to six years.

John Hancock: How does this RAB influence the risk assessment? What is there a role of the RAB in planning the risk assessment?

Mark Loucks: Again, it is we work with the regulators. We do take your input when we have these investigations - we look for your input and we will take that input. The Air Force may not agree with your input, but it is important for us that the RAB does provide input on each of these stages. One of the things that we [the Air Force] would really recommend at this risk

assessment stage. That is a really technical stage and that is where a Technical Assistance for Public Participation (TAPP) or something else really useful. But it would be good to bring in an expert not related to the Air Force that could help non-technical folks understand what the risk assessment has in it. Because that is where we will determine is there a risk to human health, is there a risk to ecological health?

John Hancock: We know the answer to that. It is yes. When does that discussion of public health get into the process of this geoengineering?

Jaclyn Satira [EPA]: There are two paths that are happening. What Mark is describing, the risk assessment, that is what determines remedial action objectives and our cleanup levels. Typically, they will be equal to the MCLs, the American groundwater standards, but they can be lower, and they can be different based on many factors. Through the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) [the law], this step within the RI is to determine risks to the environment and risks to ecology. There is a formal process to go through that step, and it is kind of complicated like Mark Loucks was saying. But I think when we get to that the EPA may give support to the public to understand that.

John Hancock: How do all these other public health findings that are further down the road than us get into what we are doing here? Do we do this from scratch here or do we bring in all the other findings from Air Force bases across the country?

Jaclyn Satira: It [the risk assessment] will be a combination of the two. It takes into consideration the toxicity values and toxicity data that is based on research that is ongoing, so it is constantly updated especially with PFAS. Things like fish consumption and animal consumption in this region. But what they will do is a site-specific study that will be a risk assessment for all the ways that PFAS can be transmitted to a person - via showering (dermal), ingestion (drinking water), inhalation (which is less of a concern), or through eating (ingestion); it will be a combination of the two.

Mark Loucks: The Air Force is seeing that there needs to be some integration across the Board. The way we are going to set it up is that myself and two other individuals will have responsibility for integrating things that are happening throughout the Air Force. There is a group that is responsible for all the technical studies with new mechanisms to clean up PFAS. There are a myriad of studies going on right now. We would work with those folks to see what has worked at other bases and are the conditions there comparable to our conditions here. Also, we have the Department of Health, particularly in the state of Washington. They are really taking data and trying to normalize that data to come up with sampling methodology. We are continuing to work with them to refine our data. As other studies come about we will continue to wrap all the data we have together so that we can

have the best approach possible. As we go down this road we are going to get better, but PFAS is fairly new and there are a lot of technologies being developed and tested. There are also a lot of things we don't know. Some of these newer technologies have not been assessed yet. The Health Department and ATSDR (or the Agency for Toxic Substances and Disease Registry) are the folks that are doing those big toxicity studies and coming up with the ecological effects of PFAS. We will take what they give us and put it into this format that the risk assessment is based upon. The EPA has this laid out and we will follow their track. The information comes from all different sources.

Mark Loucks: That is why some of the roles, like mine, are going to change. I did want to introduce Shimi. Shimi is going to be "me" once I transition out of my current role and into this new role focused on integration. Shimi will manage Mark and Megan.

Vanessa Urbach: We will have two more questions and then we will move onto Mark Henry's presentation so that we have time for public comments.

Chad Pritchard: First off, awesome, Jonathan - this is a great study. There was some discussion on putting something at "No Name Ditch". Are we do something about "No Name Ditch" and the contamination running off base? Some kind of membrane or separation technology?

Megan Riccobono: We are already filtering or going to filter at "No Name Ditch". I call it the sock, but it is not a sock. We are going to install a filtration system along the gate. We are installing a filtration system so where the water exits the base it will be treated.

Mark Louks: Any time we think we need to take early action we don't have to wait for the entire process to be carried out. We can do that as part of what is called early action. We are doing the EECA; this will help start the remediation process earlier than normally would.

Chuck Gruenfelder: We are doing a mind meld because those were my questions exactly. Make sure that you are including early actions so that the public knows what those are and when they are happening.

Two other related questions. It has been my experience, which is not extensive, that we start on the risk assessment early and we don't wait until all the data is in. Until we start asking those questions so that we can understand. That pertains to both human health and an ecological risk assessment. What I think would be helpful - I posit perhaps that there is a process called the Screening Level Ecological Risk assessment or SLERA process. I don't know where in the process SLERA could be used. But we can use a screening level assessment, and we are going to come back and use a formal process it may help to already have done that SLERA process. But it would benefit that later risk assessment process.

Megan Riccobono: We work with regulators to figure out where that process needs to go. But I will be looking up that process because I have not heard of it before. Thank you.

Jerry Goertz: We went from 70 ppt to 4 ppt. That is quite significant. Then the EPA said there is no safe level in of PFOA or PFOS in drinking water, so why are we still talking about the MCL of 4 ppt at all?

Jaclyn Satira: PFAS is a carcinogen, which means it causes cancer. The goal for any carcinogen is 0 ppt. But we cannot test down to 0 ppt. The MCL takes into account the human health risk assessment and what can be practically measured. The MCL takes into account human health and what is technologically feasible and that is how we get to 4 ppt and why we are still talking about that number.

Vanessa Urbach: Mark Henry will go over the well inventory update.

Well Inventory Update

Mark Henry: I am talking about a monitoring well inventory. At Fairchild, the last time this was done in a base-wide context was in 2015. The monitoring well network now includes 668 different monitoring points throughout the base. Those yellow dots up there that are all connected are individual wells [Slide 46]. A lot of wells where some were used a long time ago and some have not been used in years. A part of this process was to eliminate wells that are beyond repair or eliminate wells that were in areas of high traffic so that they do not act as a pathway for spills. The primary goal of this project was to optimize the network and not to cut off any wells that EA wanted to use during the PFAS RI. Back in November, Bay West, as our contractor, went through our entire network and went to every well. There were a few out of those 668 wells that they could not locate. Another thing they did was measure water levels within 597 different wells within a 14-day period to get a synoptic water level.

They also identified wells to make safe and make sure they were not an issue. Fifty-four wells were decommissioned in accordance with state regulations for the wells. They were pulled out and filled with bentonite or grout and cement. There were a handful of wells, eight in total, that needed major repairs. These were wells where bollards had gotten knocked over and were unsafe, or wells sticking up above roads and impeding snowplows. Ninety-five wells that had missing bolts or missing gaskets, so minor well repairs are in the process of getting fixed as a housekeeping item.

Jonathan and I were looking at the data and were thinking they looked out of place. We did 51 wells where we re-surveyed. This is a little bit hard to see but this is the alluvial aquifer, and you can see in your handout the groundwater flow. The flow is to the east northeast across the base [Slide 47].

This is the Basalt A aquifer or the Wanapum basalt aquifer right below the unconsolidated sediment [Slide 48]. Again, you have the same flow direction [east northeast], and again, you have the water levels that were measured both on base and off base.

Chuck Gruenfelder: Based on your knowledge of the wells. Beyond the 600+ do we know if there are any wells that are connecting the Grand Ronde and the Wampum basalts? And I realize that it may be beyond your authority to do anything about. But what do we know about the possibility of some of these older or deeper wells that were not constructed properly?

Mark Henry: It is definitely the case that for water wells there could be potential for transmission between the two aquifers. Where people drilled for water and they did not know the difference between the Wanapum and Grande Ronde Formations. For monitoring wells, we are not allowed to connect aquifers as part of the law. Things are sealed off between aquifers. We should not see that issue with the monitoring wells. There could be a concern for the extraction wells at LF002 a mile east of the base. We have extraction wells that are 150 feet deep that were installed in the early 90's. They were not looking at if they were in the Basalt A [Wanapum] or Basalt B [Grand Ronde] aquifer, so there is a possibility of interconnected aquifers for those wells.

Chad Pritchard: Was there a potential for mounding in the groundwater? In the alluvial I see some plateaus here.

Mark Henry: Yes, there is potential for mounding. It also probably depends on the seasonal variation. What we have found in the winter is that some of the sewer lines may not be super tight as well, so we may get infiltration in that way as well.

Chad Pritchard: Are you planning on doing another season as well to see how it changes? Because that is a lot of work that is impressive!

Mark Henry: Yeah, this was a one-time thing. But there are components of this that will occur every year.

Jon Welge: Does Craig Road Landfill affect the groundwater currently?

Mark Henry: No, we are currently not running the pump and treat. Right now, we are not extracting any groundwater from beneath Craig Road Landfill. But even if we did, we are extracting in the basalt and then infiltrating back into the alluvium.

Vanessa Urbach: We are going to open for public comment period. Just as a reminder this is just for things that were discussed during these presentations. Also, if you need to leave and have run out of time you can fill out a comment card. After the public comment period in the two circles of chairs you can go and talk to Mark Henry and Megan Riccobono.

Public Comments

John Hancock: On the subject of how this sort of information gets disseminated to my neighbors, I would like to offer a metaphor. There is a tool. This is a tool [holds up flyswatter] we know about this. That is a tool [holds up a metal spatula] we know about that. They look alike but we use them for two different things. So, if we imagine that the presentation like this which are wonderfully technical and professional are presented using this tool [flyswatter], but not explained or contextualized or simplified so that other types of people can understand this kind of information. Then I think the model that CERCLA requires of community participation doesn't work very well. We can't use this tool [fly swatter] to accomplish this kind of work [holds up spatula]. We have got to find within the RAB and within this work a way to take complicated information and explain it to the community. That is the role that I am here to help solve so that my neighbors understand what you are all talking about. So that there is an effective conduit between what you say and what my neighbors want to hear.

Megan Riccobono: I agree with you. One of my biggest challenges is to break down technical speech and jargon that we use within the Air Force and then make sure everyone understands. My goal is to work on that as best as we [Air Force] can with you. Lee Kaplan has really stepped up to fill Jack's role and he is very motivated, and we are lucky to have him. He has met with Jon Welge and I and Jon Welge alone several times. We can start doing that to see how we can blend this together more. To make sure that the data and the information we have is being submitted to you in a way that you get to your members and communities.

John Hancock: I would like to offer an example. This is a recent publication by the coalition [West Pains Water Coalition] - it is a survey. This is a survey of 117 people on the West Plains. We asked 30 questions about their lived experience with PFAS on the West Plains. It was important to us because we are not researchers, we are not PhDs, we are just neighbors. We needed a report that could be understood. We have copies of this report - Monica will hand those out. If anyone is curious to know about the neighbors with PFAS in the whole West Plains. It is a model we are proud of, and it simplifies a really complex question.

Megan Riccobono: I hear what you are saying, and I will definitely take this into consideration. I always listen and I try to incorporate everything you say. It doesn't always happen the way I want it to and it does not always happen. But I do hear you.

Vanessa Urbach: As a reminder, all Air Force slides will be posted to the Air Force Administrative Record (AR). If you have questions about that, Lee can help you.

John Hancock: Can I make a suggestion about that? If you go to the Fairchild PFAS site, it looks like a site for the neighbors. It is simplified and it's got certain documents there. If there is a link on that site to the document that is hidden from us in the AR, then you are on the path to make that information accessible. Rather than just doing the minimum requirement and posting it to the AR, which is accessible. The AR is not a customer-friendly website.

Megan Riccobono: I know the AR is a pain to use. It is not easy for anyone to use. I don't think there is another website that the DoD is using besides the AR. I will try other options besides the DoD SAFE website I can try and post links. Please send me your feedback and I will try to get the website changed.

John Hancock: Lets' figure out how to do this.

Megan Riccobono: We can try other options to see if we can work things out. DoD SAFE is usually okay. But it can also be tricky to use as well. The problem is that the files are so large I cannot email them. As for our website, unfortunately the Air Force is very limited in how we can have it function. However, any feedback you have on that please send me. I can ask PA [Public Affairs] and see what they can do.

John Hancock: What about our website?

Megan Riccobono: We have to be completely separate, unfortunately.

Vanessa Urbach: Shall we move to discussion at the chair circle?

Megan Riccobono: We have to adjourn the meeting first.

Motion to adjourn Jon Welge. Chuck Gruenenfelder seconded.

Meeting adjourned.